

ANEXA 5

Utilajul, echipamentul tehnologic: Stație de clorinare containerizată cu un sistem de clorinare

Nr. crt.	Specificații tehnice impuse prin caietul de sarcini	Correspondența propunerii tehnice cu specificațiile tehnice impuse prin caietul de sarcini	Producător
1	<p>Parametri tehnici si functionali</p> <p>Container</p> <p>Statia de de dezinfectie a apei cu hipoclorit de sodiu va fi amplasata intr-un container, cu o singura incapere, cu dimensiunile din plansa, cu stilpi de sustinere profilati la rece din tabla zincata cu grosimea de 2 mm, pereti din panou sandwich poliuretan tip C 1 RAL 9002 (garantat 10 ani), acoperis cu rezistenta portanta de 250 kg/m², format din structura metalica zincata profilata la rece, grunduita reactiv si vopsita, tabla zincata dublu faltuita, grosime 0,5 mm, folie anticondens, vata minerala grosime 100 mm norma C1, tavan PVC RAL 9002.</p> <p>Accesul in container se va realiza printr-o usa laterala cu dimensiunile 900x2000 mm, PVC/metallica.</p> <p>Instalatii climatizare</p> <p>Containerul va fi incalzit utilizind un convector electric cu termostat cu puterea de 2000 W, cu montare pe perete. Pentru prevenirea aparitiei condensului si a supraincalzirii, va fi prevazut un ventilator axial, cu montare murala, cu functionare temporizata, cu debitul de 1300 m³/h, 230 Va.c., 60 W. Grila de admisie a aerului in zona tehnologica va fi montata in jumatatea inferioara a usii de acces sau pe peretele opus peretelui pe care se monteaza ventilatorul.</p>	<p>Parametri tehnici si functionali</p> <p>Container</p> <p>Statia de de dezinfectie a apei cu hipoclorit de sodiu va fi amplasata intr-un container, cu o singura incapere, cu dimensiunile din plansa, cu stilpi de sustinere profilati la rece din tabla zincata cu grosimea de 2 mm, pereti din panou sandwich poliuretan tip C 1 RAL 9002 (garantat 10 ani), acoperis cu rezistenta portanta de 250 kg/m², format din structura metalica zincata profilata la rece, grunduita reactiv si vopsita, tabla zincata dublu faltuita, grosime 0,5 mm, folie anticondens, vata minerala grosime 100 mm norma C1, tavan PVC RAL 9002.</p> <p>Accesul in container se va realiza printr-o usa laterala cu dimensiunile 900x2000 mm, PVC/metallica.</p> <p>Instalatii climatizare</p> <p>Containerul va fi incalzit utilizind un convector electric cu termostat cu puterea de 2000 W, cu montare pe perete. Pentru prevenirea aparitiei condensului si a supraincalzirii, va fi prevazut un ventilator axial, cu montare murala, cu functionare temporizata, cu debitul de 1300 m³/h, 230 Va.c., 60 W. Grila de admisie a aerului in zona tehnologica va fi montata in jumatatea inferioara a usii de acces sau pe peretele opus peretelui pe care se monteaza ventilatorul.</p>	<p>UT4FB CONTROL S.R.L. Romania</p>




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	<p>Instalații electrice Stafia de dezinfectie a apei cu hipoclorit de sodiu va fi prevazuta cu un singur tablou electric si de automatizare si control al procesului, cu dimensiunile 800 x 260 x 600 mm.. Tabloul electric va fi prevazut cu:</p> <ul style="list-style-type: none"> - inversor manual de sursa, pentru posibilitatea conectarii unui grup generator portabil (in sursa 1 se va conecta alimentarea din rețeaua electrica, iar in sursa 2 se va conecta o fisa industriala monofazata (230 V), montata aparent pe peretele exterior al tabloului electric); - echipamente pentru protectia si comanda dozatoarelor de hipoclorit; - echipamente de protectie pentru debitmetre; - sigurante automate diferentiale pentru circuitele de iluminat si incalzire; - priza 230 Vc.a. monofazata pentru serviciile interne; - modul de protectie la supratensiuni atmosferice si de comutatie; <p>Pentru iluminatul statiei de pompare se va utiliza o lampa cu LED, 30 W, 3500 lm, 4000 K, 230 Vc.a., IP65, IK08.</p> <p>Instalații tehnologice Se va instala o linie de masurare a debitului si de injectie a hipocloritului, care va fi prevazuta cu urmatoarele echipamente:</p> <ul style="list-style-type: none"> - robinet de izolare la intrare; - debitmetru (cu tronsoanele amonte si aval necesare); - sistem de analiza clor rezidual; - sistem de dozare hipoclorit; - robinet actionat electric la iesirea liniei controlat de senzori de nivel din cadrul rezervorului/castelului de apa potabila; 	<p>Parametri tehnici si functionali Container Stafia de dezinfectie a apei cu hipoclorit de sodiu va fi amplasata intr-un container, cu o singura incapere, cu dimensiunile din plansa, cu stilpi de sustinere profilati la rece din tabla zincata cu grosimea de 2 mm, pereti din panou sandwich poliuretan tip C 1 RAL 9002 (garantat 10 ani), acoperis cu rezistenta portanta de 250 kg/m², format din structura metalica zincata profilata la rece, grunduita reactiv si vopsita, tabla zincata dublu faltuita, grosime 0,5 mm, folie anticondens, vata minerala grosime 100 mm norma C1, tavan PVC RAL 9002. Accesul in container se va realiza printr-o usa laterala cu dimensiunile 900x2000 mm, PVC/metalica.</p> <p>Instalații climatizare Containerul va fi incalzit utilizind un convector electric cu termostat cu puterea de 2000 W, cu montare pe perete. Pentru prevenirea aparitiei condensului si a supraincalzirii, va fi prevazut un ventilator axial, cu montare murala, cu functionare temporizata, cu debitul de 1300 m³/h, 230 Va.c., 60 W. Grila de admisie a aerului in zona tehnologica va fi montata in jumatarea inferioara a usii de acces sau pe peretele opus peretelui pe care se monteaza ventilatorul.</p>	<p>UT4FB CONTROL S.R.L. Romania</p>



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	<p>- lavoar total echipat; - sifon de pardoseala. Linia de masura se va realiza utilizind conducte din otel inoxidabil. Caracteristici statii de de dezinfectie a apei cu hipoclorit de sodiu localitatea Sirma:</p> <ul style="list-style-type: none"> ▪ dimensiuni container: 3500 x 2400 x 2700; ▪ diametru intrare: Dn65 (PEHD De75); ▪ diametru iesire: Dn65 (PEHD De75); ▪ debitmetru: Dn50. <p>Caracteristici stații de dedezinfectie a apei cu hipoclorit desodiu localitateaTochileRaducani:</p> <ul style="list-style-type: none"> ▪ dimensiuni container: 3500 x 2400 x 2700; ▪ diametru intrare: Dn65 (PEHD De75); ▪ diametru ieșire: Dn65 (PEHD De75); ▪ debitmetru: Dn50. <p>Masurarea debitelor Caracteristici debitmetru:</p> <ul style="list-style-type: none"> - principiul de masurare: inductie electromagnetica; - conectarea la proces: flansa EN 1092-1; - grad de protectie: IP 67; - carcasa si flanse: otel carbon, acoperire anticoroziune cu vopsea epoxidica (min. 150 μm); - teava de masura: inox AISI 304/1.4301; - electrozi: hastelloy C; - transmiter, montaj compact, precizie de masurare ± 0,4 %, o iesire analogica 4÷20mA, o iesire digitala, o iesire pe releu, display retroiluminat cu text alfanumeric 3x20 caractere, IP67, alimentare 115-230 Vc.a., temperatura de operare -20÷50 °C. 	<p>- lavoar total echipat; - sifon de pardoseala. Linia de masura se va realiza utilizind conducte din otel inoxidabil. Caracteristici statii de de dezinfectie a apei cu hipoclorit de sodiu localitatea Sirma:</p> <ul style="list-style-type: none"> ▪ dimensiuni container: 3500 x 2400 x 2700; ▪ diametru intrare: Dn65 (PEHD De75); ▪ diametru iesire: Dn65 (PEHD De75); ▪ debitmetru: Dn50. <p>Caracteristici stații de dedezinfectie a apei cu hipoclorit desodiu localitateaTochileRaducani:</p> <ul style="list-style-type: none"> ▪ dimensiuni container: 3500 x 2400 x 2700; ▪ diametru intrare: Dn65 (PEHD De75); ▪ diametru ieșire: Dn65 (PEHD De75); ▪ debitmetru: Dn50. <p>Masurarea debitelor Caracteristici debitmetru:</p> <ul style="list-style-type: none"> - principiul de masurare: inductie electromagnetica; - conectarea la proces: flansa EN 1092-1; - grad de protectie: IP 67; - carcasa si flanse: otel carbon, acoperire anticoroziune cu vopsea epoxidica (min. 150 μm); - teava de masura: inox AISI 304/1.4301; - electrozi: hastelloy C; - transmiter, montaj compact, precizie de masurare ± 0,4 %, o iesire analogica 4÷20mA, o iesire digitala, o iesire pe releu, display retroiluminat cu text alfanumeric 3x20 caractere, IP67, alimentare 115-230 Vc.a., temperatura de operare -20÷50 °C. 	<p>UT4FB CONTROL S.R.L. Romania</p>



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	<p>Corectia concentratiei de clor in apa In statia de de dezinfectie a apei cu hipoclorit de sodiu se va face o corectie a concentratiei de clor din apa in functie de concentratia de clor din conducta de aspiratie si debitul vehiculat.</p> <p>Caracteristici sistem analiza clor rezidual:</p> <ul style="list-style-type: none"> - alimentare: 220 Vc.a.; - sistem preasamblat al unitatii de control si al celei de masura (instalare pe perete); - sistem de prelevare a probei de apa pentru analiza concentratiei de clor rezidual; - masurarea si controlul continuu a concentratiei clorului rezidual, cu posibilitatea de compensare a temperaturii; - gama de masura a clorului rezidual: 0÷2 mg/l; - senzor de temperatura a apei; - presiune maxima de lucru: 3 bar. <p>Sistem de dozare: se va instala un sistem de dozare pe conducta de refulare. Componenta sistem de dozare:</p> <ul style="list-style-type: none"> - pompa dozatoare digitala, cu functionare automata in functie de debitul apei pompate si de valoarea clorului rezidual masurata de instalatia de analiza; - dozatorul va avea intrari si iesiri digitale (pentru comanda si citire stare pompa dozatoare), precum si intrari si iesiri analogice, 4÷20mA (pentru prescrierea referintei, respectiv, citirea reactiei dozatorului de clor); - rezervor de stocare solutie de hipoclorit, 200 litri, material PE, prevazut cu robinet de golire; - agitator manual; - linie de aspiratie rigida, cu: sorb aspiratie, clapeta de sens si senzor de rezervor gol; 	<p>Corectia concentratiei de clor in apa In statia de de dezinfectie a apei cu hipoclorit de sodiu se va face o corectie a concentratiei de clor din apa in functie de concentratia de clor din conducta de aspiratie si debitul vehiculat.</p> <p>Caracteristici sistem analiza clor rezidual:</p> <ul style="list-style-type: none"> - alimentare: 220 Vc.a.; - sistem preasamblat al unitatii de control si al celei de masura (instalare pe perete); - sistem de prelevare a probei de apa pentru analiza concentratiei de clor rezidual; - masurarea si controlul continuu a concentratiei clorului rezidual, cu posibilitatea de compensare a temperaturii; - gama de masura a clorului rezidual: 0÷2 mg/l; - senzor de temperatura a apei; - presiune maxima de lucru: 3 bar. <p>Sistem de dozare: se va instala un sistem de dozare pe conducta de refulare. Componenta sistem de dozare:</p> <ul style="list-style-type: none"> - pompa dozatoare digitala, cu functionare automata in functie de debitul apei pompate si de valoarea clorului rezidual masurata de instalatia de analiza; - dozatorul va avea intrari si iesiri digitale (pentru comanda si citire stare pompa dozatoare), precum si intrari si iesiri analogice, 4÷20mA (pentru prescrierea referintei, respectiv, citirea reactiei dozatorului de clor); - rezervor de stocare solutie de hipoclorit, 200 litri, material PE, prevazut cu robinet de golire; - agitator manual; - linie de aspiratie rigida, cu: sorb aspiratie, clapeta de sens si senzor de rezervor gol; 	<p>UT4FB CONTROL S.R.L. Romania</p> 

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	<ul style="list-style-type: none"> - supapa multifunctionala, pentru: prevenirea sifonarii, mentinerea constanta a contrapresiunii si reducerea manuala a presiunii; - furtun dozare hipoclorit; - unitate de injectie hipoclorit, cu supapa pentru prevenirea cristalizarii si blocarii dozarii hipocloritului in apa care are un continut ridicat de carbonati. <p>Caracteristici pompa dozatoare:</p> <ul style="list-style-type: none"> - alimentare: 220 Vc.a.; - debite maxim si minim calculate in functie de particularitatea statiei de dezinfectie a apei cu hipoclorit de sodiu; - presiune de lucru: max. 16 bari; - meniu de lucru in limba romana; - afisaj LCD, cu iluminarea fundalului in culori specifice starii de functionare; - sistem de auto-dezaerare; - sistem de auto-adaptare; - senzor de monitorizare a presiunii; - afisare informatii de service; - relee de iesire semnal (programabile); - suport (placa) de montaj inclusa; - modul de interfatare comunicatie SCADA (Modbus-RTU TCP, Profinet). <p>Echipamente de automatizare</p> <p>Pentru monitorizarea/controlul parametrilor procesului tehnologic, precum si pentru comunicatia cu sistemul SCADA, in tabloul electric si de automatizare se va prevedea un PLC cu router GSM/GPRS integrat. Pe usa tabloului electric va fi amplasat un afisaj pentru urmarirea parametrilor procesului de catre operator, precum si pentru programarea valorilor de referinta.</p>	<ul style="list-style-type: none"> - supapa multifunctionala, pentru: prevenirea sifonarii, mentinerea constanta a contrapresiunii si reducerea manuala a presiunii; - furtun dozare hipoclorit; - unitate de injectie hipoclorit, cu supapa pentru prevenirea cristalizarii si blocarii dozarii hipocloritului in apa care are un continut ridicat de carbonati. <p>Caracteristici pompa dozatoare:</p> <ul style="list-style-type: none"> - alimentare: 220 Vc.a.; - debite maxim si minim calculate in functie de particularitatea statiei de dezinfectie a apei cu hipoclorit de sodiu; - presiune de lucru: max. 16 bari; - meniu de lucru in limba romana; - afisaj LCD, cu iluminarea fundalului in culori specifice starii de functionare; - sistem de auto-dezaerare; - sistem de auto-adaptare; - senzor de monitorizare a presiunii; - afisare informatii de service; - relee de iesire semnal (programabile); - suport (placa) de montaj inclusa; - modul de interfatare comunicatie SCADA (Modbus-RTU TCP, Profinet). <p>Echipamente de automatizare</p> <p>Pentru monitorizarea/controlul parametrilor procesului tehnologic, precum si pentru comunicatia cu sistemul SCADA, in tabloul electric si de automatizare se va prevedea un PLC cu router GSM/GPRS integrat. Pe usa tabloului electric va fi amplasat un afisaj pentru urmarirea parametrilor procesului de catre operator, precum si pentru programarea valorilor de referinta.</p>	<p>UT4FB CONTROL S.R.L. Romania</p>



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	<p>Caracteristicile PLC-ului:</p> <ul style="list-style-type: none"> - procesor: 64 MHz; - memorie program: 512 kByte; - memorie nevolatila retentiva: 48 kByte (NVRAM); - memorie de stocare: 512 kByte; - ceas de timp real; - alimentare: 24 Vc.c. (19,2÷30 Vc.c.); - consumul tipic de curent: 210 mA; - curent maxim consumat: 860 mA (360 mA – comunicare + 500 mA – alimentare <p>I/O analogice);</p> <ul style="list-style-type: none"> - cantitatea de date de proces suportata: max. 4096 Bit (INTERBUS); - numarul de dispozitive suportate: max. 128; - numarul de dispozitive locale care pot fi conectate: max. 63; - limbaje de programare conform IEC 61631-3 (LD, FBD, ST, IL); - optiuni comunicare: Ethernet (10/100 Mbit/s), RS485, RS422; - router GSM/GPRS integrat, port card SIM, conexiune antena SMA; - grad de protectie: IP20; - temperatura ambientala operare/transport-depozitare: -25 ÷ +55 °C / -25 ÷ +85 °C; - umeditate permisa operare/transport-depozitare: 10 ÷ 95 %; - presiunea aerului: 70 ÷ 106 kPa (max. 3000 m deasupra nivelului marii); - port pentru card SD (max. 2 GB); - webserver integrat; - 16 intrari digitale (conectare 2, 3, 4 conductoare, tip NPN/PNP EN 61131-2) si 4 iesiri digitale (conectare 2, 3, 4 conductoare, consum maxim pe canal 500 mA) integrate. 	<p>Caracteristicile PLC-ului:</p> <ul style="list-style-type: none"> - procesor: 64 MHz; - memorie program: 512 kByte; - memorie nevolatila retentiva: 48 kByte (NVRAM); - memorie de stocare: 512 kByte; - ceas de timp real; - alimentare: 24 Vc.c. (19,2÷30 Vc.c.); - consumul tipic de curent: 210 mA; - curent maxim consumat: 860 mA (360 mA – comunicare + 500 mA – alimentare <p>I/O analogice);</p> <ul style="list-style-type: none"> - cantitatea de date de proces suportata: max. 4096 Bit (INTERBUS); - numarul de dispozitive suportate: max. 128; - numarul de dispozitive locale care pot fi conectate: max. 63; - limbaje de programare conform IEC 61631-3 (LD, FBD, ST, IL); - optiuni comunicare: Ethernet (10/100 Mbit/s), RS485, RS422; - router GSM/GPRS integrat, port card SIM, conexiune antena SMA; - grad de protectie: IP20; - temperatura ambientala operare/transport-depozitare: -25 ÷ +55 °C / -25 ÷ +85 °C; - umeditate permisa operare/transport-depozitare: 10 ÷ 95 %; - presiunea aerului: 70 ÷ 106 kPa (max. 3000 m deasupra nivelului marii); - port pentru card SD (max. 2 GB); - webserver integrat; - 16 intrari digitale (conectare 2, 3, 4 conductoare, tip NPN/PNP EN 61131-2) si 4 iesiri digitale (conectare 2, 3, 4 conductoare, consum maxim pe canal 500 mA) integrate. 	<p>UT4FB CONTROL S.R.L. Romania</p>



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	<p>Modul cu 8 intrari digitale:</p> <ul style="list-style-type: none"> - alimentare: 19,2÷30 Vc.c.); - consum curent: max. 30 mA; - consum putere: max. 0,25 W; - LED-uri semnalizare stare intrari; - timp tipic de raspuns: 1 ms; - tensiune de intrare pentru semnal „0”: -3 ÷ +5 Vc.c.; - tensiune de intrare pentru semnal „1”: 11 ÷ 30 Vc.c. <p>Modul cu 8 iesiri digitale:</p> <ul style="list-style-type: none"> - sarcina inductiva nominala: 12 VA (1,2 H; 50 Ω); - sarcina rezistiva nominala: 12 W (48 Ω); - curentul maxim de iesire per canal: 500 mA; - tensiune de iesire: 24 Vc.c.; - protectie la suprasarcina si scurtcircuit; - tensiune de alimentare: 24 Vc.c. (19,2÷30 Vc.c.); - consum de curent: max. 45 mA; - consum de putere: max. 0,34 W; - LED-uri semnalizare stare iesiri. <p>Modul cu 4 intrari analogice in curent (0/4 ÷ 20 mA):</p> <ul style="list-style-type: none"> - timp de conversie analogic/digital: max. 6,5 μs; - rezolutie analogic/digital: 12 bit; - consum curent: 55 mA; <p>Panou operator:</p> <ul style="list-style-type: none"> - diagonala: minim 17,8 cm/7”; 	<p>Modul cu 8 intrari digitale:</p> <ul style="list-style-type: none"> - alimentare: 19,2÷30 Vc.c.); - consum curent: max. 30 mA; - consum putere: max. 0,25 W; - LED-uri semnalizare stare intrari; - timp tipic de raspuns: 1 ms; - tensiune de intrare pentru semnal „0”: -3 ÷ +5 Vc.c.; - tensiune de intrare pentru semnal „1”: 11 ÷ 30 Vc.c. <p>Modul cu 8 iesiri digitale:</p> <ul style="list-style-type: none"> - sarcina inductiva nominala: 12 VA (1,2 H; 50 Ω); - sarcina rezistiva nominala: 12 W (48 Ω); - curentul maxim de iesire per canal: 500 mA; - tensiune de iesire: 24 Vc.c.; - protectie la suprasarcina si scurtcircuit; - tensiune de alimentare: 24 Vc.c. (19,2÷30 Vc.c.); - consum de curent: max. 45 mA; - consum de putere: max. 0,34 W; - LED-uri semnalizare stare iesiri. <p>Modul cu 4 intrari analogice in curent (0/4 ÷ 20 mA):</p> <ul style="list-style-type: none"> - timp de conversie analogic/digital: max. 6,5 μs; - rezolutie analogic/digital: 12 bit; - consum curent: 55 mA; <p>Panou operator:</p> <ul style="list-style-type: none"> - diagonala: minim 17,8 cm/7”; 	<p>UT4FB CONTROL S.R.L. Romania</p>



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	<ul style="list-style-type: none"> - rezoluție: 800 x 480 pixeli (WVGA); - tehnologie touch: rezistiv; - iluminare fundal: LED; - MTBF: 20000 h; - număr culori: 262144 - procesor: 454 MHz; - sistem de operare: MS Windows® CE 6.0; - memorie RAM: 128 MB SDRAM; - interfață: 1 x Ethernet (10/100 Mbps, RJ45), 2 x RS-232/422/485, 1 x USB tip A, 1 x USB tip B, 1 x SD; - tensiune de alimentare: 24 Vc.c. ±15%; - curent consumat: 0,4 A; - grad de protecție: IP 66 (fata), IP 20 (spate); - temperatura ambientală operare/depozitare-transport: 0 ÷ 50 °C / -20 ÷ +85 °C; - umiditate permisă operare/transport-depozitare: 10 ÷ 95 %. <p>Sursa cu UPS integrat:</p> <ul style="list-style-type: none"> - tensiune de intrare: 85 ÷ 264 Vc.a. / 100 ÷ 350 Vc.a.; - consum curent: 1,8 A la 230 Vc.a. / 1,8 A la 120 Vc.a.; - factor de putere: aprox. 0,5 - curent limită de pornire în sarcină/I²t: < 1,3 A²s; - timp tipic de răspuns: 150 ms (230 Vc.a.) / 200 ms (120 Vc.a.); - circuit de protecție: varistor integrat pentru protecția la regim tranzitoriu; - siguranța intrare: 6,3 A, integrate; - tensiune nominală de ieșire: 24 Vc.c.; - curent nominal de ieșire: 5 A (-25 ÷ 55°C); - curent maxim de ieșire: 6 A; 	<ul style="list-style-type: none"> - rezoluție: 800 x 480 pixeli (WVGA); - tehnologie touch: rezistiv; - iluminare fundal: LED; - MTBF: 20000 h; - număr culori: 262144 - procesor: 454 MHz; - sistem de operare: MS Windows® CE 6.0; - memorie RAM: 128 MB SDRAM; - interfață: 1 x Ethernet (10/100 Mbps, RJ45), 2 x RS-232/422/485, 1 x USB tip A, 1 x USB tip B, 1 x SD; - tensiune de alimentare: 24 Vc.c. ±15%; - curent consumat: 0,4 A; - grad de protecție: IP 66 (fata), IP 20 (spate); - temperatura ambientală operare/depozitare-transport: 0 ÷ 50 °C / -20 ÷ +85 °C; - umiditate permisă operare/transport-depozitare: 10 ÷ 95 %. <p>Sursa cu UPS integrat:</p> <ul style="list-style-type: none"> - tensiune de intrare: 85 ÷ 264 Vc.a. / 100 ÷ 350 Vc.a.; - consum curent: 1,8 A la 230 Vc.a. / 1,8 A la 120 Vc.a.; - factor de putere: aprox. 0,5 - curent limită de pornire în sarcină/I²t: < 1,3 A²s; - timp tipic de răspuns: 150 ms (230 Vc.a.) / 200 ms (120 Vc.a.); - circuit de protecție: varistor integrat pentru protecția la regim tranzitoriu; - siguranța intrare: 6,3 A, integrate; - tensiune nominală de ieșire: 24 Vc.c.; - curent nominal de ieșire: 5 A (-25 ÷ 55°C); - curent maxim de ieșire: 6 A; 	



Nr. crt.	Specificații tehnice impuse prin caietul de sarcini	Corespondența propunerii tehnice cu specificațiile tehnice impuse prin caietul de sarcini	Producător
	<ul style="list-style-type: none"> - scadere curent de iesire cu temperatura: 2,5%/K pentru 55 ÷ 70 °C; - eficienta: > 88 % (230 Vc.a., alimentare din retea); > 86 % (120 Vc.a., alimentare din retea); > 86 % (alimentare din baterie); - component alternativ in curentul de iesire: < 10 mVPP; - conectare in paralel: da, 2 dispozitive; - baterii externe acceptate: 1,3 Ah / 3,4 Ah / 7,2 Ah / 12 Ah; - caracteristica de incarcare: curba caracteristica I/U; - curent de incarcare: 0,2 A ÷ 1,5 A (implicit 1,0 A); - compensarea temperaturii: 0 ÷ 200 mV/K (implicit 42 mV/K); - interval verificare baterie: 4 h ÷ 200 h (implicit 12 h); - montaj: sina DIN; - MTBF (IEC 61709, SN 29500): > 596000 h (40 °C); - compatibilitate electromagnetica: in conformitate cu directive EMC 2004/108/EC; - emisie zgomot: EN 55011 (EN 55022); - directiva joasa tensiune: 2006/95/EC; - clasa de protectie: I; - grad de protectie: IP20; - temperatura ambientala operare: -25 ÷ +70 °C; - umeditate permisa operare: 95 % (la 20 °C, fara condens). <p>Contor de energie</p> <ul style="list-style-type: none"> - temperatura ambientala operare: -10 ÷ +55 °C; - umeditate permisa operare: 80 % (pina la 31 °C); - grad de protectie: IP52 (fata), IP30 (spate); - afisaj: LCD, iluminat; - tensiune de alimentare: 110 ÷ 400 Vc.a. ± 10 %; - putere nominala consumata: 5 VA; 	<ul style="list-style-type: none"> - cadere curent de iesire cu temperatura: 2,5%/K pentru 55 ÷ 70 °C; - eficienta: > 88 % (230 Vc.a., alimentare din retea); > 86 % (120 Vc.a., alimentare din retea); > 86 % (alimentare din baterie); - component alternativ in curentul de iesire: < 10 mVPP; - conectare in paralel: da, 2 dispozitive; - baterii externe acceptate: 1,3 Ah / 3,4 Ah / 7,2 Ah / 12 Ah; - caracteristica de incarcare: curba caracteristica I/U; - curent de incarcare: 0,2 A ÷ 1,5 A (implicit 1,0 A); - compensarea temperaturii: 0 ÷ 200 mV/K (implicit 42 mV/K); - interval verificare baterie: 4 h ÷ 200 h (implicit 12 h); - montaj: sina DIN; - MTBF (IEC 61709, SN 29500): > 596000 h (40 °C); - compatibilitate electromagnetica: in conformitate cu directive EMC 2004/108/EC; - emisie zgomot: EN 55011 (EN 55022); - directiva joasa tensiune: 2006/95/EC; - clasa de protectie: I; - grad de protectie: IP20; - temperatura ambientala operare: -25 ÷ +70 °C; - umeditate permisa operare: 95 % (la 20 °C, fara condens). <p>Contor de energie</p> <ul style="list-style-type: none"> - temperatura ambientala operare: -10 ÷ +55 °C; - umeditate permisa operare: 80 % (pina la 31 °C); - grad de protectie: IP52 (fata), IP30 (spate); - afisaj: LCD, iluminat; - tensiune de alimentare: 110 ÷ 400 Vc.a. ± 10 %; - putere nominala consumata: 5 VA; 	



Nr. crt.	Specificații tehnice impuse prin caietul de sarcini	Corespondența propunerii tehnice cu specificațiile tehnice impuse prin caietul de sarcini	Producător
	<ul style="list-style-type: none"> - putere maxima consumata cu toate modulele de extensie: 10 VA; - conformitate: CE; - principiul de masurare: valoare R.M.S; - armonici: pina la armonica 51; - precizie: 0,2%; - domeniul de masura: 50 ÷ 500 Vc.a. (faza/faza), 28 ÷ 289 Vc.a. (faza/neutru); - frecventa: 50 ÷ 60 Hz; - masurarea se realizeaza cu transformatoare externe; - energie activa (IEC 62053-22): clasa 0,5 S; - putere reactiva (IEC 62053-23): clasa 2; - modul de comunicatie: RS 485. <p>Comunicare cu dispeceratul SCADA</p> <p>Tabloul electric si de automatizare va prelua datele din statia de pompare si va comunica prin GPRS (protocol Modbus TCP) cu dispeceratul SCADA.</p> <p>Date transmise in dispeceratul SCADA vor fi, fara a se limita la aceasta lista, urmatoarele:</p> <ul style="list-style-type: none"> - starea de functionare a analizorului de clor si a sistemului de dozare; - parametrii electrici ai statiei de dezinfectie a apei cu hipoclorit de sodiu; - debitul instantaneu si totalizatorul de pe linia de dezinfectie a apei cu hipoclorit de sodiu; - prezenta tensiunii de alimentare; - starea comunicatiei GPRS; - regim statie de dezinfectie a apei cu hipoclorit de sodiu; - cantitate de clor/puls programata; - concentratie de clor programata; - alarma nivel scazut hipoclorit in rezervor; 	<ul style="list-style-type: none"> - putere maxima consumata cu toate modulele de extensie: 10 VA; - conformitate: CE; - principiul de masurare: valoare R.M.S; - armonici: pina la armonica 51; - precizie: 0,2%; - domeniul de masura: 50 ÷ 500 Vc.a. (faza/faza), 28 ÷ 289 Vc.a. (faza/neutru); - frecventa: 50 ÷ 60 Hz; - masurarea se realizeaza cu transformatoare externe; - energie activa (IEC 62053-22): clasa 0,5 S; - putere reactiva (IEC 62053-23): clasa 2; - modul de comunicatie: RS 485. <p>Comunicare cu dispeceratul SCADA</p> <p>Tabloul electric si de automatizare va prelua datele din statia de pompare si va comunica prin GPRS (protocol Modbus TCP) cu dispeceratul SCADA.</p> <p>Date transmise in dispeceratul SCADA vor fi, fara a se limita la aceasta lista, urmatoarele:</p> <ul style="list-style-type: none"> - starea de functionare a analizorului de clor si a sistemului de dozare; - parametrii electrici ai statiei de dezinfectie a apei cu hipoclorit de sodiu; - debitul instantaneu si totalizatorul de pe linia de dezinfectie a apei cu hipoclorit de sodiu; - prezenta tensiunii de alimentare; - starea comunicatiei GPRS; - regim statie de dezinfectie a apei cu hipoclorit de sodiu; - cantitate de clor/puls programata; - concentratie de clor programata; - alarma nivel scazut hipoclorit in rezervor; 	



Nr. crt.	Specificații tehnice impuse prin caietul de sarcini	Corespondența propunerii tehnice cu specificațiile tehnice impuse prin caietul de sarcini	Producător
	<ul style="list-style-type: none"> - alarma sisteme de dezinfectie a apei cu hipoclorit de sodiu; - volum de clor dozat; - numar de porniri ale pompei dozatoare de clor; - orele de functionare ale pompei dozatoare de clor; - temperatura apei. 	<ul style="list-style-type: none"> - alarma sisteme de dezinfectie a apei cu hipoclorit de sodiu; - volum de clor dozat; - numar de porniri ale pompei dozatoare de clor; - orele de functionare ale pompei dozatoare de clor; - temperatura apei. 	
2	<p>Specificatii de performanta si conditii privind siguranta in exploatare.</p> <ul style="list-style-type: none"> - Respectarea conditiilor de temperatura: -20 60 C; - Amplasare: retea distributie apa potabila; - Lichid de lucru: apa potabila; <p>Montarea se va face conform instructiunilor de montare date de producator.</p>	<p>Specificatii de performanta si conditii privind siguranta in exploatare.</p> <ul style="list-style-type: none"> - Respectarea conditiilor de temperatura: -20 60 C; - Amplasare: retea distributie apa potabila; - Lichid de lucru: apa potabila; <p>Montarea se va face conform instructiunilor de montare date de producator.</p>	
3	<p>Conditii privind conformitatea cu standardele relevante</p> <ul style="list-style-type: none"> - Certificari obligatorii ale producatorului: ISO 9001 /ISO 14001 / - Certificari obligatorii: Aviz Tehnic si Evaluare tehnica emise de autoritatile din Republica Moldova; <p>Certificare obligatorie: Aviz Sanitar emis de autoritatile din Republica Moldova.</p>	<p>Conditii privind conformitatea cu standardele relevante</p> <ul style="list-style-type: none"> - Certificari obligatorii ale producatorului: ISO 9001 /ISO 14001 / - Certificari obligatorii: Aviz Tehnic si Evaluare tehnica emise de autoritatile din Republica Moldova; <p>Certificare obligatorie: Aviz Sanitar emis de autoritatile din Republica Moldova.</p>	
4	<p>Conditii de garantie si postgarantie</p> <p>24 luni garantie de la punerea in functiune.</p> <p>Se vor asigura piese de schimb si service specializat in garantie si post garantie.</p> <p>Piese de schimb in post garantie pe o perioada de 10 ani.</p>	<p>Conditii de garantie si postgarantie</p> <p>24 luni garantie de la punerea in functiune.</p> <p>Se vor asigura piese de schimb si service specializat in garantie si post garantie.</p> <p>Piese de schimb in post garantie pe o perioada de 10 ani.</p>	
5	<p>Alte conditii tehnice:</p> <p>Statia de dezinfectie a apei cu hipoclorit de sodiu va fi insotita de manual de exploatare, fise tehnice ale echipamentelor montate in proces si scheme electrice ale tabloului de automatizare.</p>	<p>Alte conditii tehnice:</p> <p>Statia de dezinfectie a apei cu hipoclorit de sodiu va fi insotita de manual de exploatare, fise tehnice ale echipamentelor montate in proces si scheme electrice ale tabloului de automatizare.</p>	



ANEXA 5

IMPUTERNICIRE PRODUCATOR

Data: 10.09.2020

Ref.: Aprovizionarea cu apă potabilă a localităților, Sîrma, Tochile-Răducani și Tomai din raionul Leova, R.Moldova. Etapa I (Sîrma – Tochile- Răducani)”

Catre: **AGENTIA DE DEZVOLTARE REGIONALA SUD**

Noi, UT4FB CONTROL SRL., inregistrati la Reg.Com. cu nr. J22/1085/2010, cod fiscal RO27267485, reprezentati legal prin Dl. Ursache Tudor Ioan, in calitate de Director General, avand facilitatile de productie in Str. Islaz nr. 41, Iasi, Romania, ca producatori de:

- Statii de clorinare containerizate cu unul sau mai multe sisteme de clorinare

imputernicim pe POLIMER GAZ CONDUCTE SRL avand sediul in str.Varnita nr. 18, MD-2032 Chisinau, R.Moldova, sa depuna o oferta completa al carei scop este furnizarea echipamentelor mentionate mai sus.

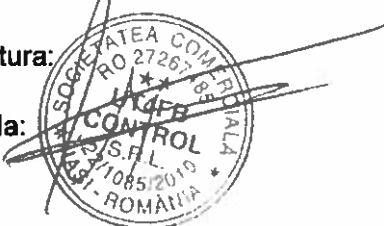
De asemenea suntem de acord ca POLIMER GAZ CONDUCTE SRL sa prezinte la prezenta licitatie documentatia tehnica, certificarile si avizarile sanitare, agrementarile si avizarile tehnice specifice si de asemenea sa puna in opera produsele mentionate mai sus.

Semnat de: Ursache Tudor Ioan

In calitate de: Director General

Semnatura:

Stampila:



UT4FB CONTROL

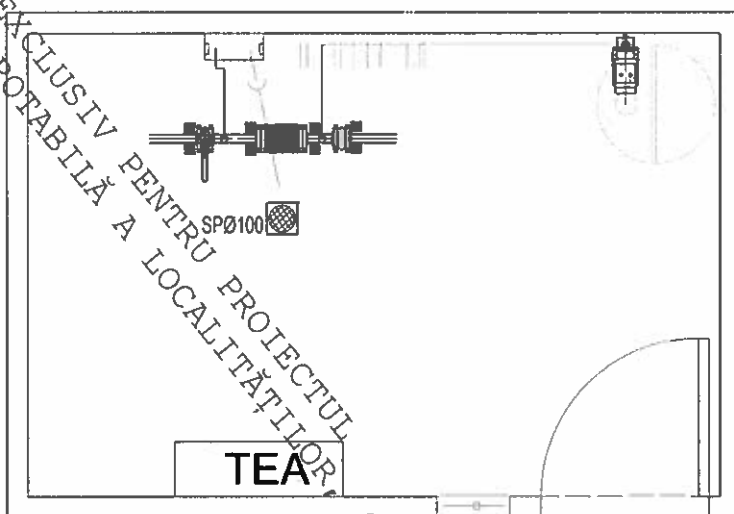
Unique technologies for broad control



J22/1085/2010
Cod fiscal RO 27267485
Banca Transilvania
RO03BTRL02401202P38456XX
Str. Lacului nr.14, Iasi 700704
office@ut4fb.ro / www.ut4fb.ro
Tel: 0374.624.200
Fax: 0371.605.204

Stație de clorinare containerizată cu 1 sistem de clorinare cu hipoclorit

Stația de clorinare este prevăzută cu o linie de măsurare a debitului și de injecție a hipocloritului.



Stația de clorinare este amplasată într-un container, cu o singură încăpere, cu stâlpi de susținere profilați la rece din tablă zincată cu grosimea de 2 mm, pereți din panou sandwich poliuretan tip C 1 RAL 9002 (garantat 10 ani), acoperiș cu rezistență portantă de 250 kg/m², format din structură metalică zincată profilată la rece, grunduită reactiv și vopsită, tablă zincată dublu fălțuită, grosime 0,5 mm, folie anticondens, vată minerală grosime 100 mm norma C1 ISOVER®, tavan PVC RAL 9002, prevăzută cu o ușă laterală cu dimensiunile 900x2000 mm, PVC/metalică.

Containerul este încălzit utilizând un convector electric termostatat cu puterea de 2000 W, cu montare murală și cu un ventilator axial, cu montare murală, cu funcționare temporizată, cu debitul de 1300 m³/h, 230 Va.c., 60 W.

Stația poate fi livrată în mai multe variante configurate în funcție de diametrul liniei de măsură și injecție. Diametre disponibile pentru conducte: DN40, DN50, DN65, DN80, DN100, DN125, DN150, DN200.

Linia de măsurare a debitului și de injecție este cu următoarele echipamente:

- robinet de izolare la intrare;



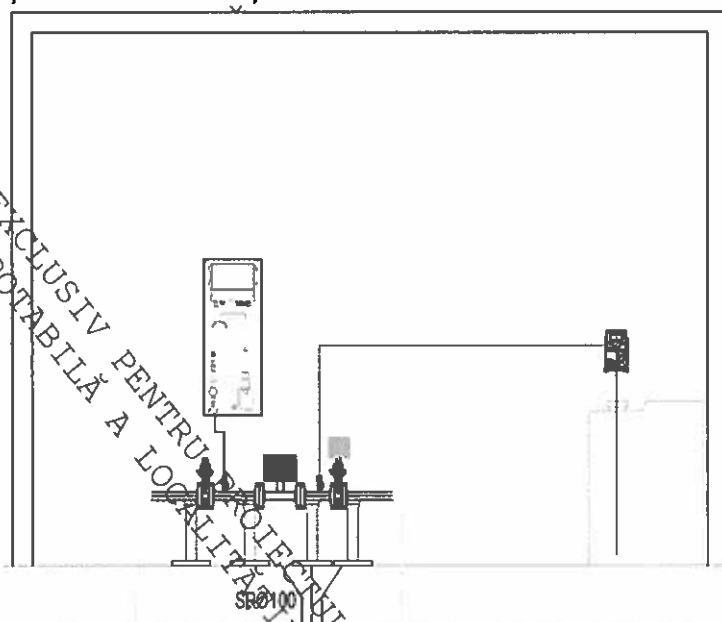
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- debitmetru electromagnetice;
- sistem de analiză clor rezidual;
- sistem de dozare hipoclorit;
- robinet acționat electric la ieșirea liniei.



Debitmetrul montat pe linie are următoarele caracteristici:

- conectarea la proces: flanșa EN 1092-1;
- grad de protecție: IP 67;
- carcasă și flanșe: oțel carbon, acoperire anticorozivă cu vopsea epoxidică (min. 150 μm);
- țevă de măsură: inox AISI 304/1.4301;
- electrozi: hastelloy C;
- transmiter, montaj compact, precizie de măsurare $\pm 0,4\%$, o ieșire analogică 4+20mA, o ieșire digitală, o ieșire pe releu, display retroiluminat cu text alfanumeric 3x20 caractere, IP67, alimentare 115-230 Vc.a., temperatura de operare $-20\pm 50\text{ }^{\circ}\text{C}$.

Sistem de analiză clor rezidual montat pe linie are următoarele caracteristici:

- alimentare: 220 Vc.a.;
- sistem preasamblat al unității de control și al celei de măsură;
- sistem de prelevare a probei de apă pentru analiza concentrației de clor rezidual;
- măsurarea și controlul continuu a concentrației clorului rezidual, cu posibilitatea de compensare a temperaturii;
- gama de măsură a clorului rezidual: 0+2 mg/l;
- senzor de temperatura a apei;
- presiune maxima de lucru: 3 bar.



SC

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Sistemul de dozare montat pe linie are următoarele caracteristici:

- pompă dozatoare digital (220VAC, 16bar, afișaj LCD, modul interfațare SCADA, intrări și ieșiri digitale, intrări și ieșiri analogice), cu funcționare automată în funcție de debitul apei pompate și de valoarea clorului rezidual măsurată de instalația de analiză;

- rezervor de stocare soluție de hipoclorit, 200 litri, material PE, prevăzut cu robinet de golire;
- agitator manual;
- linie de aspirație rigidă, cu: sorb aspirație, clapetă de sens și senzor de rezervor gol;
- supapă multifuncțională, pentru: prevenirea sifonării, menținerea constantă a contrapresiunii și reducerea manuală a presiunii;
- furtun dozare hipoclorit;
- unitate de injecție hipoclorit, cu supapă pentru prevenirea cristalizării și blocării dozării hipocloritului în apa care are un conținut ridicat de carbonați.

Stația de clorinare este prevăzută cu un tablou electric, de automatizare și control al procesului cu următoarele caracteristici principale:

- echipat cu inversor manual de sursă, pentru posibilitatea conectării unui grup generator portabil (în sursa 1 se va conecta alimentarea din rețeaua electrică, iar în sursa 2 se va conecta o fișă industrială monofazată (230 V), montată aparent pe peretele exterior al tabloului electric);
- dotat cu echipamente pentru protecția și comanda dozatoarelor de hipoclorit;
- dotat cu echipamente de protecție pentru debitmetre;
- dotat cu siguranțe automate diferențiale pentru circuitele de iluminat și încălzire;
- dotat cu priză 230 Vc.a. monofazată pentru serviciile interne;
- dotat cu modul de protecție la supratensiuni atmosferice și de comutație;

Pentru monitorizarea/controlul parametrilor procesului tehnologic, precum și pentru comunicația cu un sistem SCADA, în tabloul electric și de automatizare este prevăzut un PLC cu router GSM/GPRS integrat și sistem UPS cu acumulatori tampon. Pe ușa tabloului electric este amplasat un afișaj de 7" pentru urmărirea parametrilor procesului de către operator, precum și pentru programarea valorilor de referință.

Principalele date ce pot fi transmise către un dispecerat SCADA sunt următoarele:

- starea de funcționare a analizatoarelor de clor și a sistemelor de dozare;
- parametrii electrici ai stației de clorinare;
- debitele instantanee și totalizatoarele;
- prezența tensiunii de alimentare;
- starea comunicației GPRS;
- regim stație de clorinare;
- cantitate de clor/puls programată;
- concentrație de clor programată;



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- alarmă nivel scăzut hipoclorit în rezervor;
- alarmă sisteme clorinare;
- volum de clor dozat;
- număr de porniri ale pompelor dozatoare de clor;
- orele de funcționare ale pompelor dozatoare de clor;
- temperatura apei.

UTILIZAREA AUTORIZATA EXCLUSIV PENTRU PROIECTUL
"APROVIZIONAREA CU APĂ POTABILĂ A LOCALITĂȚILOR, SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA."



SL



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credibility 

QSCert Romania
Organism de Certificare Sisteme de Management

prin acest

CERTIFICAT

confirmă faptul că Sistemul de Management al Calității la

UT4FB CONTROL SRL

Str. Lacului, Nr. 14, Bl. 660, Sc. C, Et. 2, Ap.7, Carte Funciara Nr. 58896, Nr. Cadastral 2180/3/2/7,
Municipiul Iasi, Judetul Iasi

a fost stabilit și implementat în conformitate cu standardul

ISO 9001:2015

Instalarea masinilor si echipamentelor industriale. Lucrari de constructii ale proiectelor utilitare pentru fluide. Comert cu ridicata de componente si echipamente electronice si telecomunicatii. Activitati de realizare a soft-ului la comanda. Activitati de consultanta în tehnologia informatiei. Proiectare si executare de instalatii electrice exterioare/interioare pentru incinte/constructii civile si industriale, bransamente aeriene si subterane, la tensiunea nominala de 0,4kV.

Locații: Strada Islaz, Nr. 41, Municipiul Iasi, Judetul Iasi, România

Pe baza Raportului Nr. Q 3038/20, s-a dovedit că sistemul de management îndeplinește cerințele solicitate.

Număr certificat: O - 3038/20
Data expirării: 28.04.2021
Data emiterii: 29.04.2020



Ciprian Munteanu
administrator



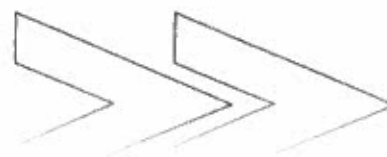
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Organism de Certificare Sisteme de Management



prin acest

CERTIFICAT

confirmă faptul că Sistemul de Management de Mediu la

UT4FB CONTROL SRL

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Instalarea masinilor si echipamentelor industriale. Lucrari de constructii ale proiectelor utilitare pentru fluide. Comert cu ridicata de componente si echipamente electronice si telecomunicatii. Activitati de realizare a soft-ului la comanda. Activitati de consultanta în tehnologia informatiei. Proiectare si executare de instalatii electrice exterioare/interioare pentru incinte/constructii civile si industriale, bransamente aeriene si subterane, la tensiunea nominala de 0,4kV.

Locații: Strada Islaz, Nr. 41, Municipiul Iasi, Judetul Iasi, România

Pe baza Raportului Nr. E 3038/20, s-a dovedit că sistemul de management îndeplinește cerințele solicitate.

Număr certificat:	E- 3038/20
Data expirării:	28.04.2021
Data emiterii:	29.04.2020



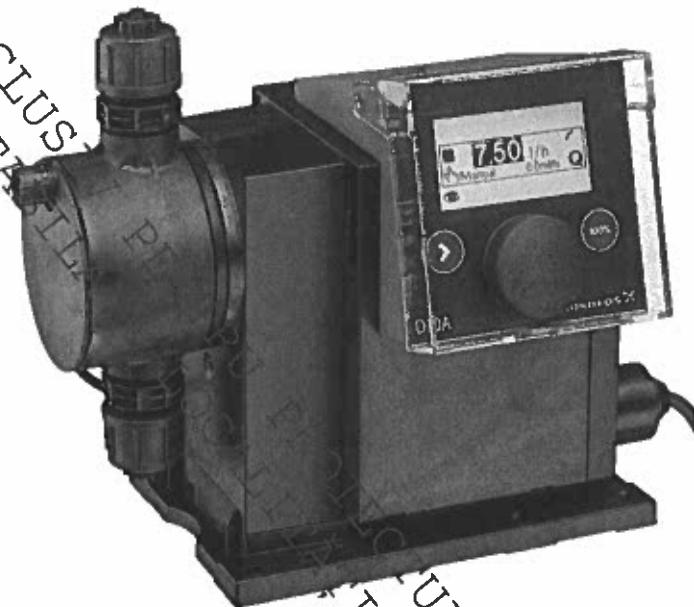
Ciprian Munteanu
administrator



SMART Digital S - DDA and DDC

DDA up to 30 l/h, DDC up to 15 l/h

Safety instructions and other important information



Installation and operating instructions
DDA

<http://net.grundfos.com/qri/95724708>



Installation and operating instructions
DDC

<http://net.grundfos.com/qri/95726994>

be
think
innovate

GRUNDFOS

English (GB) Safety instructions

Original safety instructions

These safety instructions give a quick overview of the safety precautions to be taken in connection with any work on this product.

Observe these safety instructions during handling, installation, operation, maintenance, service and repair of this product.

These safety instructions is a supplementary document, and all safety instructions will appear again in the relevant sections of the installation and operating instructions.

Keep these safety instructions at the installation site for future reference.

1. Safety instructions

1.1 Qualification and training of personnel

The personnel responsible for the installation, operation and service must be appropriately qualified for these tasks.

1.2 Safety instructions for the operator/user

Before any work to the pump, the pump must be in the "Stop" operating state or be disconnected from the power supply. The system must be pressureless!

Caution

1.3 Dosing chemicals

Warning

Before switching the supply voltage back on, the dosing lines must be connected in such a way that any chemicals in the dosing head cannot spray out and put people at risk.

The dosing medium is pressurised and can be harmful to health and the environment.

Warning

Observe the chemical manufacturer's safety data sheets and safety instructions when handling chemicals!

A deaeration hose, which is routed into a container, e.g. a drip tray, must be connected to the deaeration valve.

Caution

Ensure that parts in contact with the dosing media are resistant to the dosing medium under operating conditions, see data booklet!

Caution

1.4 Diaphragm breakage

If the diaphragm leaks or is broken, dosing liquid escapes from the drain opening on the dosing head.

Warning

Danger of explosion, if dosing liquid has entered the pump housing!

Operation with damaged diaphragm can lead to dosing liquid entering the pump housing.



In case of diaphragm breakage, immediately separate the pump from the power supply!

Make sure the pump cannot be put back into operation by accident!

Dismantle the dosing head without connecting the pump to the power supply and make sure no dosing liquid has entered the pump housing.

1.5 Applications

The pump is suitable for liquid, non-abrasive, non-flammable and non-combustible media strictly in accordance with the instructions in these installation and operating instructions.

The dosing medium must be in liquid aggregate state!

Caution

Observe the freezing and boiling points of the dosing medium!

1.6 Improper operating methods

Warning

The pump is NOT approved for operation in potentially explosive areas!

Frequent disengagement from the mains voltage, e.g. via a relay, can result in damage to the pump electronics and in the breakdown of the pump. The dosing accuracy is also reduced as a result of internal start procedures.

Do not control the pump via the mains voltage for dosing purposes!

Only use the "External stop" function to start and stop the pump!

Caution



Declaration of conformity

GB: EU declaration of conformity

We, Grundfos, declare under our sole responsibility that the products SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, to which the declaration below relates, are in conformity with the Council Directives listed below on the approximation of the laws of the EU member states.

CZ: Prohlášení o shodě EU

My firma Grundfos prohlašujeme na svou plnou odpovědnost, že výrobky SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, na které se toto prohlášení vztahuje, jsou v souladu s tímto uvedenými ustanoveními směrnice Rady pro sblížení právních předpisů členských států Evropského společenství.

DK: EU-overensstemmelseserklæring

Vi, Grundfos, erklærer under ansvar at produkterne SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE som erklæringen nedenfor omhandler, er i overensstemmelse med Rådets direktiver der er nævnt nedenfor, om indbyrdes tilnærmelse til EU-medlemsstatenes lovgivning.

ES: Declaración de conformidad de la UE

Grundfos declara, bajo su exclusiva responsabilidad, que los productos SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE a los que hace referencia la siguiente declaración cumplen lo establecido por las siguientes Directivas del Consejo sobre la aproximación de las legislaciones de los Estados miembros de la UE.

FR: Déclaration de conformité UE

Nous, Grundfos, déclarons sous notre seule responsabilité, que les produits SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, auxquels se réfère cette déclaration, sont conformes aux Directives du Conseil concernant le rapprochement des législations des États membres UE relatives aux normes énoncées ci-dessous.

HR: EU deklaracija sukladnosti

Mi, Grundfos, izjavljujemo s punom odgovornošću da su proizvodi SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, na koja se izjava odnosi u nastavku, u skladu s direktivama Vijeća dolje navedene o usklađivanju zakona država članica EU-a.

IT: Dichiarazione di conformità UE

Grundfos dichiara sotto la sua esclusiva responsabilità che i prodotti SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, ai quali si riferisce questa dichiarazione, sono conformi alle seguenti direttive del Consiglio riguardanti il riavvicinamento delle legislazioni degli Stati membri UE.

LV: ES atbilstības deklarācija

Sabiedrība Grundfos ar pilnu atbildību paziņo, ka produkti SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, uz kuriem attiecas tālāk redzamā deklarācija, atbilst tālāk norādītajām Padomes direktīvām par EK/ES dalībvalstu normatīvo aktu tuvināšanu.

PL: Deklaracja zgodności UE

My, Grundfos, oświadczamy z pełną odpowiedzialnością, że nasze produkty SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, których deklaracja niniejsza dotyczy, są zgodne z następującymi dyrektywami Rady w sprawie zbliżenia przepisów prawnych państw członkowskich.

RO: Declarația de conformitate UE

Noi Grundfos declarăm pe propria răspundere că produsele SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, la care se referă această declarație, sunt în conformitate cu Directivele de Consiliu specificate mai jos privind armonizarea legilor statelor membre UE.

RU: Декларация о соответствии нормам ЕС

Мы, компания Grundfos, со всей ответственностью заявляем, что изделия SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, к которым относится нижеприведенная декларация, соответствуют нижеприведенным Директивам Совета Евросоюза о тождественности законов стран-членов ЕС

BG: Декларация за съответствие на ЕО

Ние, фирма Grundfos, заявяваме с пълна отговорност, че продуктите SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, за които се отнася настоящата декларация, отговарят на следните директиви на Съвета за уеднаквяване на правните разпоредби на държавите-членки на ЕО.

DE: EU-Konformitätserklärung

Wir, Grundfos, erklären in alleiniger Verantwortung, dass die Produkte SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, auf die sich diese Erklärung beziehen, mit den folgenden Richtlinien des Rates zur Angleichung der Rechtsvorschriften der EU-Mitgliedsstaaten übereinstimmen

EE: EÜ vastavusdeklaratsioon

Meie, Grundfos, kinnitame ja kanname ainusikulist vastutust selle eest, et toode SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, mille kohta all olev deklaratsioon käib, on kooskõlas Nõukogu Direktiividega, mis on nimetatud all pool vastavalt vastuvõetud õigusaktidele ühtlustamise kohta EÜ liikmesriikides

FI: EU-vaatimustenmukaisuusvakuutus

Grundfos vakuuttaa omalla vastuullaan, että tuotteet SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, joita tämä vakuutus koskee, ovat EU:n jäsenvaltioiden lainsäädännön lähentämiseen tähtäviin Euroopan neuvoston direktiivien vaatimusten mukaisia seuraavasti.

GR: Δήλωση συμμόρφωσης ΕΕ

Εμείς, η Grundfos, δηλώνουμε με αποκλειστικά δική μας ευθύνη ότι τα προϊόντα SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, στα οποία αναφέρεται η παρακάτω δήλωση, συμμορφώνονται με τις παρακάτω Οδηγίες του Συμβουλίου περί προσέγγισης των νομοθεσιών των κρατών μελών της ΕΕ.

HU: EU megfelelőségi nyilatkozat

Mi, a Grundfos vállalát, teljes felelősséggel kijelentjük, hogy a(z) SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE termékek, amelyre az alábbi nyilatkozat vonatkozik, megfelelnek az Európai Unió tagállamainak jogi irányelveit összehangoló tanács alábbi előírásainak.

LT: ES atitikties deklaracija

Mes, Grundfos, su visa atsakomybe pareiškiame, kad produktai SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, kuriems skirta ši deklaracija, atitinka žemiau nurodytas Tarybos Direktyvas dėl ES šalių narių įstatymų suderinimo.

NL: EU-conformiteitsverklaring

Wij, Grundfos, verklaren geheel onder eigen verantwoordelijkheid dat de producten SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, waarop de onderstaande verklaring betrekking heeft, in overeenstemming zijn met de onderstaande Richtlijnen van de Raad inzake de onderlinge aanpassing van de wetgeving van de EU-lidstaten.

PT: Declaração de conformidade UE

A Grundfos declara sob sua única responsabilidade que os produtos SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, aos quais diz respeito a declaração abaixo, estão em conformidade com as Directivas do Conselho sobre a aproximação das legislações dos Estados Membros da UE.

RS: Deklaracija o usklađenosti EU

Mi, kompanija Grundfos, izjavljujemo sa punom vlastitom odgovornošću da je proizvod SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, na koji se odnosi deklaracija ispod, u skladu sa dole prikazanim direktivama Saveta za usklađivanje zakona država članica EU.

SE: EU-försäkran om överensstämmelse

Vi, Grundfos, försäkrar under ansvar att produkterna SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, som omfattas av nedanstående försäkran, är i överensstämmelse med de rättsdirektiv om inbördes närmande till EU-medlemsstaternas lagstiftning som listas nedan.

SI: Izjava o skladnosti EU

V Grundfosu s polno odgovornostjo izjavljamo, da je izdelek SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, na katerega se spodnja izjava nanaša, v skladu s spodnjimi direktivami Sveta o približevanju zakonodaje za izenačevanje pravnih predpisov držav članic EU.

SK: ES vyhlásenie o zhode

My, spoločnosť Grundfos, vyhlasujeme na svoju plnú zodpovednosť, že produkty SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE na ktoré sa vyhlásenie uvedené nižšie vzťahuje, sú v súlade s ustanoveniami nižšie uvedených smerníc Rady pre zblíženie právnych predpisov členských štátov EÚ.

TR: AB uygunluk bildirgesi

Grundfos olarak, aşağıdaki bildirim konusu olan SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE ürünlerinin, AB Üye ülkelerinin direktiflerinin yakınlaştırılmasıyla ilgili durumun aşağıdaki Konsey Direktifleriyle uyumlu olduğunu ve bununla ilgili olarak tam sorumluluğun bize ait olduğunu beyan ederiz.

UA: Декларація відповідності директивам EU

Ми, компанія Grundfos, під нашу одноосібну відповідальність заявляємо, що виробі SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, до яких відноситься нижченаведена декларація, відповідають директивам EU, переліченим нижче, щодо тотожності законів країн-членів ЄС.

CN: 欧盟符合性声明

我们，格兰富，在我们的全权责任下声明，产品 SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE，即该合格证所指之产品，欧盟使其成员国法律趋于一致的以下理事会指令。

JP: EU 適合宣言

Grundfos は、その責任の下に、SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE 製品が EU 加盟諸国の法規に準拠する、以下の評議会指令に適合していることを宣言します。

KO: EU 적합성 선언

Grundfos 는 아래의 선언과 관련된 SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE 제품이 EU 회원국 법률에 기 반하여 아래의 역사회 지침을 준수함을 단독 책임 하에 선언합니다.

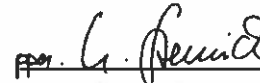
NO: EUs samsvarsærklæring

Vi, Grundfos, erklærer under vårt eneansvar at produktene SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE som denne erklæringen gjelder, er i samsvar med styrets direktiver om tilnærming av forordninger i EU-landene.

- Machinery Directive (2006/42/EC).
Standards used:
EN 809:2012,
DIN EN ISO 12100:2010.
- Low Voltage Directive (2014/35/EU).
Standard used:
EN 61010-1:2011-07.
- EMC Directive (2014/30/EU).
Standards used:
EN 61326-1:2013,
EN 61000-3-2 2015,
EN 61000-3-3 2014.
- RoHS Directives (2011/65/EU and 2015/863/EU).
Standard used: EN 50581:2012

This EU declaration of conformity is only valid when published as part of the Grundfos safety instructions (publication numbers 98449782 and 98449785).

Pfingztal, 1st March 2018



Ulrich Stemick
Technical Director
Grundfos Water Treatment GmbH
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Person authorised to compile technical file and empowered to sign the EU declaration of conformity

AUTORIZATA EXCLUSIV PENTRU PROIECTUL
 ANEXAREA CU APĂ POTABILĂ A LOCALITĂȚILOR, SÎRMA, TOCHILE-RĂDUC



10

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Addresses revised 14.03.2018



ROMANIA - RĂDUC

UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL
"APROVIZIONAREA CU APĂ POTABILĂ A LOCALITĂȚILOR, SÎRMA, TO

98449782 0618

ECM: 1237072

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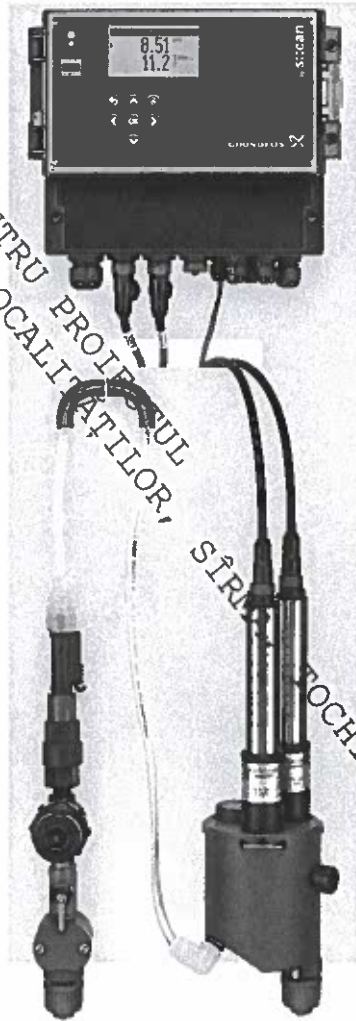
SL

UC

SC

DID

Installation and operating instructions



Other languages

<http://net.grundfos.com/qri/99037650>



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GRUNDFOS 

SC

Declaration of conformity


GB: EC declaration of conformity

We, s::can Messtechnik GmbH, hereby declare that the product listed below, to which this Declaration of Conformity relates, is in conformity with Directives, Standards and other Normative Documents as listed.

Type of product: Measurement & Process Control
Name of product: DID
Model number: D-320-GF1-230, D-320-GF3-230

- Low Voltage Directive (2014/35/EU)
Standard used: EN 61010-1:2010
- RoHS2 (2011/65/EU)
Standard used: EN 50581:2012
- EMC Directive (2014/30/EU).
Standard used: EN 61326-1:2013

Vienna, 20th March 2017



Andreas Weingartner
(Director s::can Messtechnik GmbH, Vienna)

Person authorised to compile technical file and empowered to sign the EC declaration of conformity.

UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL
"APROVIZIONAREA CU APĂ POTABILĂ A LOCALITĂȚILOR," SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA.



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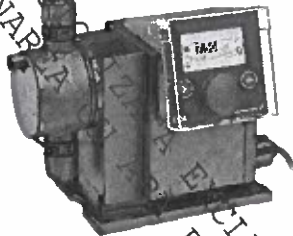
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Addresses revised 14.03.2018

Qty	Description
-----	-------------

DDA 7.5-16



Note! Product picture may differ from actual product

Product No.: 97722010
DDA 7.5-16 FCM-PPV/C 5-3102U2

The SMART Digital DDA is a compact positive displacement, diaphragm dosing pump with variable-speed drive (stepper motor) and intelligent control electronics with minimum energy consumption. The SMART Digital Dosing series operates at full stroke length to ensure optimum accuracy, priming and suction, even for high-viscosity or degassing liquids. The duration of each discharge stroke varies according to the capacity set, resulting in optimum smooth and continuous discharge flow.

The click-stop mounting plate allows installation in three different positions without using any additional accessories. The control cube can be turned easily into front, left or right position. The click wheel and the multi-coloured backlit graphical, plain-text LED display make commissioning and operation intuitive. The control elements are protected by a transparent cover.

The sensor-based FlowControl (FC) system detects malfunctions directly in the dosing head and displays them in plain text in the alarm menu, e.g. air bubbles, line burst, overpressure. The integrated flow measurement function (only FCM) measures the actual flow and makes additional monitoring and control equipment redundant (accuracy of $\pm 1,5\%$ of set value in case of trouble-free process). The measured flow is displayed and can be integrated in the process control, e.g. SCADA. Furthermore, the AutoFlowAdapt function (only FCM) automatically adjusts the pump speed according to the process conditions to maintain target flow even at e.g. varying backpressure or air bubbles foaming (degassing drive strategy).

The dosing head is composed of:

- Long lifetime and universal, chemically resistant full-PTFE diaphragm.
- Double ball valves for highest dosing accuracy.
- Deaeration valve for easy start-up.
- Pressure sensor.

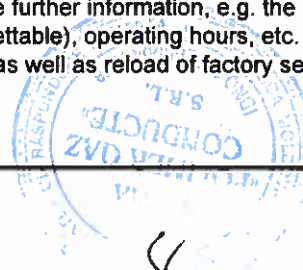
Operation modes:

- Manual dosing in ml/h, l/h or gph.
- Pulse control in ml/pulse (incl. memory function).
- Analog control 0/4-20 mA (scalable).
- Pulse-based batch function in ml, l or gal.
- Timer-based batch function (Dosing timer, cycle or week).
- Fieldbus control (Genibus prepared for ProfibusDP E-box).

Other features:

- Auto deaeration during pump standby to avoid breakdowns due to air-locking.
- Two SlowMode steps (anti-cavitation), 50 % (maximum flow: 3.75 l/h) and 25 % (maximum flow: 0.88 l/h), e.g. for high-viscosity or degassing liquids.
- Service information display to show when service and which wear-part order number is required.
- Two-step key lock function to protect the pump against unauthorised access.
- Additional display function to provide further information, e.g. the actual mA input signal.
- Counter for total dosed volume (resettable), operating hours, etc.
- Save and load customised settings as well as reload of factory settings.

Signal inputs/outputs:



Gen	Description
	<ul style="list-style-type: none"> - Input for pulse, analog 0/4-20mA, external stop. - Input for low-level and empty-tank signal. - Two potential-free output relays for max. 30 V AC/DC (configurable, e.g. alarm, stroke signal, pump dosing, timer etc.) - Output analog 0/4-20mA. - Fieldbus communication interface (GeniBus, also for additional Profibus DP E-box to retrofit).
	<p>Technical:</p> <p>Type key: DDA 7.5-16 FCM-PPV/C-F-31U2U2</p> <p>Max. Flow: 7.5 l/h</p> <p>Max. flow in slow mode 50%: 3.75 l/h</p> <p>Max. flow in slow mode 25%: 1.88 l/h</p> <p>Min flow: 2.5 ml/h</p> <p>Turn-down ratio: 1:3000</p> <p>Approvals on nameplate: CE, CSA-US, EAC, RCM</p> <p>Valve type: Standard</p> <p>Maximum viscosity at 100 %: 50 mPas</p> <p>Maximum viscosity in slow mode 50%: 1800 mPas</p> <p>Maximum viscosity in slow mode 25%: 2500 mPas</p> <p>Accuracy of repeatability: %</p> <p>Materials:</p> <p>Dosing head: PP (Polypropylene)</p> <p>Valve ball: Ceramic</p> <p>Gasket: FKM</p> <p>Installation:</p> <p>Range of ambient temperature: 0 .. 45 °C</p> <p>Maximum operating pressure: 16 bar</p> <p>Installation set: NO</p> <p>Installation type: No installation set</p> <p>Pump inlet: 4/6, 6/9, 6/12, 9/12 mm</p> <p>Pump outlet: 4/6, 6/9, 6/12, 9/12 mm</p> <p>Max. Suction lift during operation: 6 m</p> <p>Max. Suction lift during priming: 2 m</p> <p>Liquid:</p> <p>Pumped liquid: Water</p> <p>Liquid temperature range: -10 .. 45 °C</p> <p>Selected liquid temperature: 20 °C</p> <p>Density: 998.2 kg/m³</p> <p>Electrical data:</p> <p>Maximum power input - P1: 24 W</p> <p>Mains frequency: 50 / 60 Hz</p> <p>Rated voltage: 1 x 100-240 V</p> <p>Enclosure class (IEC 34-5): IP65 / NEMA 4X</p> <p>Length of cable: 1.5 m</p> <p>Type of cable plug: EU</p> <p>Inrush current: 25A at 230V for 2ms</p> <p>Controls:</p> <p>Control variant: FCM</p> <p>Level control: YES</p> <p>Analog input: 0/4-20 MA</p> <p>Pulse control: YES</p> <p>Ext. Stop input: YES</p> <p>Analog output: 0/4-20 MA</p> <p>Output relays: 2</p>



SC



Company name:
Created by:
Phone:

Date: 09/04/2020

Qty	Description
	Bus communication: YES
	Others:
	Net weight: 2 kg
	Gross weight: 3 kg
	Color: RED

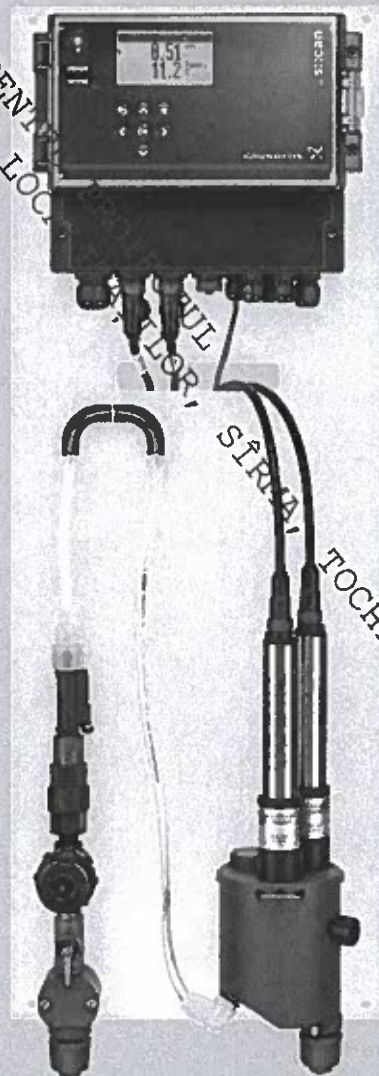
UTILITATEA AUTORIZATA EXCLUSIV PENTRU PROIECTUL
"APROVIZIONAREA CU APA POTABILĂ A LOCALITĂȚILOR, SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA"



SC

DID

Compact measuring systems, controllers, sensors and accessories
up to 3 parameters (Cl_2 , ClO_2 , H_2O_2 , PAA, pH, ORP, conductivity)



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1. Product introduction

General

Monitoring of typical water quality parameters as well as precise control of disinfectant addition or pH adjustment is essential for many water treatment processes. Bus interface as well as data logging functionalities and intuitive user interface are a must for M&C today.

The new Grundfos by sican DID systems are the perfect combination of sican's state-of-the-art digital sensor technology and Grundfos' experience in PID controlling of dosing and disinfection processes. DID systems are designed to match perfectly with Grundfos dosing pumps, gas dosing systems as well as systems for the generation and dosing of chlorine dioxide and hypochlorite.

Characteristics and main features

DID systems are available as pre-assembled systems with bypass flow cell or as kits for applications with tank-immersed sensors.

Variants with bypass flow cell are intended for monitoring and control of disinfectants, pH, ORP, conductivity and temperature. The water flow through the cell is kept at an appropriate level by a flow restrictor. Lack of water is detected by a flow switch and leads to an alarm. A shut-off ball valve and a sampling cock complete the hydraulic installation, which is compatible with Grundfos standard hoses.

System configurations for tank immersion are available with up to 2 sensors for pH, ORP and conductivity, and always include temperature measurement. These variants allow measurement of water parameters directly in the tank or basin without the need for a bypass line and flow cell. The control unit can either be fixed directly at a wall or back plate, or mounted on a DIN rail in a cabinet.

CU 382 control unit

- Intuitive plain-text operation
- Data logger functionality
- Up to 3 controller outputs, freely assignable
- Modbus included
- Modbus sensor interface
- Data interchange with USB stick
- Wide-range power supply

Sensors

- Modbus interface to CU 382 control unit
- Onboard storage of calibration data
- Temperature compensation included for all sensors
- Long service intervals
- Pre-calibrated (pH, ORP, conductivity sensor)
- 1-2 sensor variants per parameter for all applications and measuring ranges
- Diaphragm-covered amperometric sensor principle for disinfectant sensors
- Low pH dependency for free-chlorine sensors

Pre-assembled measuring system

- Automatic setting of the water flow and detection of missing water flow in systems with flow cell
- Sensor holder included in systems for tank installation
- 7.5 m of cable included in systems for tank installation (extension cables are available in lengths up to 20 m)
- Sensor guard included in systems for tank installation



2. Type key

Example: DID-3 BF3-FCL2/TCL2/pH

	Code	Description
CU 382 control unit variant	DID-1	CU 382-1 for 1 parameter + temperature, 100-250 VAC, 50-60 Hz
	DID-3	CU 382-3 for 3 parameters + temperature, 100-250 VAC, 50-60 Hz
Installation variant	BF1	Bypass flow cell, 1 sensor
	BF3	Bypass flow cell, 3 sensors
	TI1	Tank immersion, 1 sensor
	TI2	Tank immersion, 2 sensors
Parameters/sensors	FCL2	Free chlorine, 0-2 ppm
	FCL20	Free chlorine, 0-20 ppm
	TCL2	Total chlorine, 0-2 ppm
	TCL20	Total chlorine, 0-20 ppm
	CDI2	Chlorine dioxide, 0-2 ppm
	CDI20	Chlorine dioxide, 0-20 ppm
	HP2	Hydrogen peroxide, 0-200 ppm
	HP20	Hydrogen peroxide, 0-2000 ppm
	PA2	Peracetic acid, 0-200 ppm
	PA20	Peracetic acid, 0-2000 ppm
	pH	pH 2-12, up to 10 bar, 70 °C
	ORP	ORP, -2000 mV to +2000 mV, up to 10 bar, 70 °C
	CND	Conductivity, 1-500000 µS/cm (2-42 PSU), up to 20 bar, 70 °C

Remarks

- All sensors include temperature measurement
- Measurement of disinfectant parameters (FG, TCL, CDI, HP or PA) is only possible with BF1 or BF3 installation variant
- BF1 and BF3 installation variants include flow detection
- BF1 and BF3 installation variants include 1.0 m sensor cable(s)
- TI1 and TI2 installation variants are only possible for parameters pH, ORP or CND
- TI1 and TI2 installation variants include 7.5 m sensor cable(s)
- Mains cable is not included, please select from accessories list and order separately



3. Functions

Components

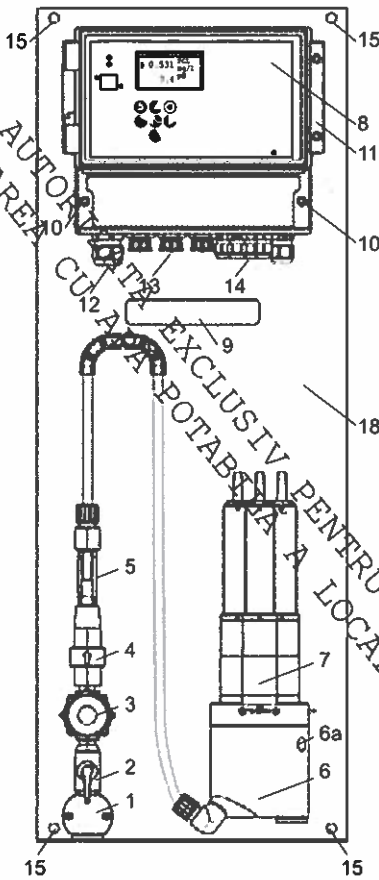


Fig. 1 Components of DID with flow cell

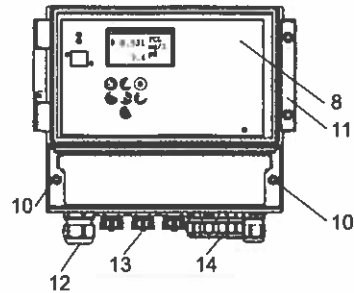


Fig. 2 Components of DID with immersed sensor

Pos.	Description
1	Water inlet, G 1/2" internal thread and connections for Grundfos hoses
2	Ball valve, 1/4" NPT
3	Inlet strainer, with screw cap for removal and cleaning of the sieve
4	Flow restrictor, mechanical
5	Flow detector, digital. Sends an alarm to the CU 382 control unit, if the water flow falls below the minimal flow rate (approx. 0.25 l/min).
6	Flow cell for 1 or 3 sensors. Includes an outlet with G 1/2" internal thread and connections for Grundfos hoses, and a sampling valve (6a).
7	Sensors
8	CU 382 control unit for 1 or 3 sensors
9	Opening in the back plate for the power supply cables and sensor cables
10	Screw joints to open the cable terminal compartment
11	Clip to open the housing cover
12	Cable gland for power supply
13	Connector for s::can sensors
14	Cable gland for signal outputs
15	Holes for wall-mounting
16	Sensor holder
17	Sensor guard
18	Back plate



Operating elements

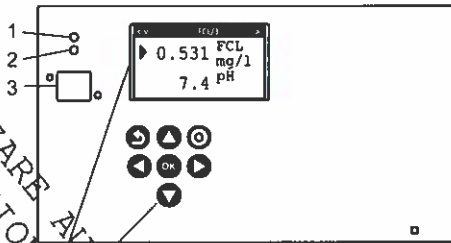


Fig. 3 Operating elements

Pos.	Description
1	Power LED, green
2	Communication LED, orange <ul style="list-style-type: none"> Flashes during communication with a sensor
3	USB slot <ul style="list-style-type: none"> For data export or firmware update
4	Display
Operating buttons	
	[Back] button <ul style="list-style-type: none"> Exits the current menu
	[Up] button <ul style="list-style-type: none"> Moves the marker to the line above <ul style="list-style-type: none"> The first character of the selected line is a triangle Increases values
	[Function] button <ul style="list-style-type: none"> Enters the setup menus Disables or deletes values
5	[Left] button <ul style="list-style-type: none"> Moves the marker to the left
	[Ok] button <ul style="list-style-type: none"> Enters the selected menu Confirms the selected line or value Acknowledges alarms
	[Right] button <ul style="list-style-type: none"> Moves the marker to the right
	[Down] button <ul style="list-style-type: none"> Moves the marker to the line below <ul style="list-style-type: none"> The first character of the selected line is a triangle Decreases values

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CU 382 control unit



Fig. 4 CU 382 control unit

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Overview of features

Features	CU 382-1	CU 382-3
1 connector for digital silicon sensor	•	
3 connectors for digital silicon sensors		•
3 PID controllers	•	•
2 digital relay outputs, adjustable as controller outputs and/or limit switch outputs	•	•
3 analog outputs, adjustable as controller outputs and/or measured value outputs	•	•
1 alarm relay output	•	•
1 cleaning valve output	•	•
2 digital inputs, adjustable as remote on/off input, water meter pulse input or setpoint switch input	•	•
1 analog input, adjustable as flow meter input or external setpoint input	•	•
Data logger functionality (measured values, logfile, configuration)	•	•
USB host interface	•	•
Multilingual user interface	•	•
Modbus (via RS485)	•	•
1 input for flow switch of flow cell	•	•



TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA.

Software menu

Status	Parameter	Controller	Alarm
<p>Status ></p> <p>Version V7.05B1</p> <p>Serial: 9999999</p> <p>Waiting: 1s</p> <p>YYYY/MM/DD h/min/sec</p>	<p>< V P1/3 pH ></p> <p>pH</p> <p>9.49</p> <p>Temp. 22.1</p> <p>C</p>	<p>< V C2/2 ></p> <p>15 %</p> <p>Type PID/Running</p> <p>pH >4/20 mA #2</p> <p>AV/SP: 6.86/7.00 (ext.)</p>	<p>< AP001 A1/1</p> <p>YYYY/MM/DD</p> <p>Follow below</p> <p>Lower alarm limit</p>

General setup

- ▶ Manage sensor
- Manage parameters
- Cleaning 1
- Measuring settings
- Date/Time
- Modbus slave
- Update software
- Select language
- Service

Parameter setup

- ▶ Calibrate expert
- Monitor
- Display settings
- Alarm settings
- Output
- Output settings
- pH compensation
- Parameter info
- Remove parameter
- ▶ Copy results
- Delete results
- Copy logfile
- Delete logs
- Update software

Controller setup

- ▶ Setpoint
- Settings PID/2-P/None
- Source
- Output DI/mA
- Output settings
- Alarm settings
- Reset state

Alarm setup

- ▶ Acknowledgment of alarms

USB Data transfer



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 „APROBAREA CALITĂȚILOR, SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA.”



4. Installation schemes

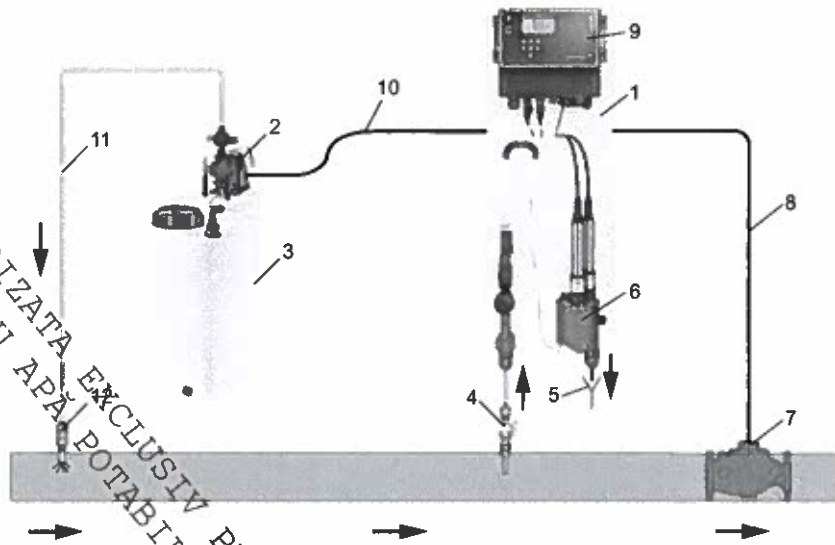


Fig. 5 Installation scheme of DID with bypass flow cell

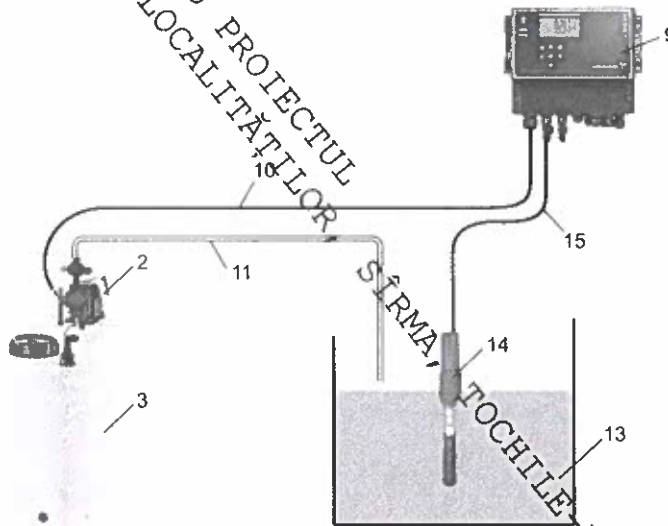


Fig. 6 Installation scheme of DID for tank immersion

Legend

1	DID with bypass flow cell
2	SMART Digital dosing pump
3	Dosing tank
4	Sample water extraction
5	Sample water outlet to the drain
6	Bypass flow cell for 1 or 3 sensors
7	Flowmeter
8	Signal cable from flowmeter to CU 382 control unit
9	CU 382 control unit
10	Control cable to SMART Digital dosing pump
11	Dosing line
12	Injection unit
13	Tank
14	Sensor holder
15	Signal cable from sensor to CU 382 control unit



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5. Technical data

CU 382-1 and CU 382-3 control unit

	CU 382-1	CU 382-3
Number of sensor connectors (Buccaneer 400 series)	1	3
Number of analog inputs (4-2000 mA)		1
Number of digital inputs		2
Number of analog outputs (4-20 mA)		3
Number of digital outputs NO relays		2
Number of digital outputs NO/NC relays (alarm relays)		1
Number of USB ports (host)		1
Number of RS485 ports (Modbus slave)		1
Number of M20 cable gland entries (mains)		1
Number of M16 cable gland entries		1
Number of M12 cable gland entries		4 ¹⁾
Memory (industrial grade SLC)	[MB]	512
Ambient temperature	[°C]	-20 to +45
Humidity (non condensing)	[%]	5 to 90
Voltage	[V]	100-240
Frequency	[Hz]	50-60
Power consumption	[W]	33
Max. inrush current	[A]	< 30
Enclosure class		IP65
Input resistance	[Ohm]	100
Galvanic isolation (to system ground/earth)	[kV]	1
Resolution	[bit]	12
Standard setup (for connection with mechanical relay/switch)		
• Max. input frequency	[Hz]	100
• Low input voltage	[V]	< 7
• High input voltage	[V]	> 8
• Input resistance	[Ohm]	> 1000
Optional setup (for connection with external voltage output)		
• Max. input frequency	[Hz]	100
• Low input	[Ohm]	< 100
• High input	[Ohm]	> 2000
• Galvanic isolation (to system ground/earth)	[kV]	1
Maximum load resistance	[Ohm]	500
Galvanic isolation (to system ground/earth)	[kV]	1
Resolution	[bit]	12
Maximum working voltage	[VAC]	250
Maximum switchable load	[A]	6
Maximum load	[VA]	600
Weight	[kg]	1.3
Approvals		CE, CSA, cTUVus, (RCM)

¹⁾ One of the cable glands is used for the flow switch (DID with bypass flow cell)

²⁾ Remark: a circuit breaker must be installed

³⁾ Remark: depending on the load, additional snubber circuits might be required



Sensors for disinfectants

		Chlori::lyser				Chlodi::lyser		Hyper::lyser		Peroxy::lyser	
		Free chlorine		Total chlorine		Chlorine dioxide		Hydrogen peroxide		Peracetic acid	
Measuring range	ppm [mg/l]	0-2	0-20	0-2	0-20	0-2	0-20	0-200	0-2000	0-200	0-2000
Accuracy	[%]	< 1 ¹⁾	< 1 ²⁾	< 1 ¹⁾	< 1 ²⁾	< 1 ¹⁾	< 1 ²⁾	< 2 ³⁾	< 0.5 ⁴⁾	< 2 ³⁾	< 0.5 ⁴⁾
Resolution	ppm [mg/l]	0.001	0.01	0.001	0.01	0.001	0.01	0.1	1	0.1	1
Measuring principle	-	Amperometric, 3 electrodes, membrane-covered				Amperometric, 2 electrodes, membrane-covered					
Temperature compensation	-	Yes		Yes		Yes		Yes		Yes	
pH compensation	-	Yes		Yes		-		-		-	
Response time (T90)	[minute]	2		2		1		8		5 at 10 °C 1.5 at 50 °C	
Run-in time (during startup, after power off)	[hour]	2		2		1		3		3	
Operating temperature (liquid temperature)	-	5-45		5-45		5-50		5-45		5-45	
Max. pressure (on outlet, without pressure peaks or fluctuation)	[bar]	0.5		0.5		1		1		1	
Recommended flow (DID with flow cell)	[l/h]	30		30		30		30		30-100	
Recommended flow speed (DID for tank immersion)	[m/s]	0.015 - 0.06		0.015 - 0.06		0.015 - 0.06		0.015 - 0.06		0.015 - 0.06	
pH operating range	[pH]	4-9		4-12		2-11		2-11		1-6	
Influence of pH on reading	-	Up to pH 7: no influence Up to pH 9: 10 % of electrode slope		Between pH 4 and 12: 5 % of electrode slope per pH unit		No influence		No influence		No influence	
Influence of ClO ₂ : Reading instead of parameter	[%]	75		75		-		n/A		100	
Influence of Cl ₂ : Reading instead of parameter	[%]	-		-		0		Must not be present		0	
Influence of O ₃ : Reading instead of parameter	[%]	80		130		2500		Must not be present		2500	
Influence of other substances	-	Combined chlorine can increase reading		-		-		PES or PAA must not be present. Sulfide and phenole poison or destroy the membrane system.		No influence of H ₂ O ₂	
Enclosure class	-	IP67		IP67		IP67		IP67		IP67	
Housing materials	-	PVC-U, PEEK SS 1.4571		PVC-U, PEEK SS 1.4571		PVC-U SS 1.4571		PVC-U SS 1.4571		PVC-U SS 1.4571	
Storage temperature of sensor	[°C]	0-45									
Storage temperature of electrolyte	[°C]	10-35									
Storage conditions	-	Dry, without electrolyte, with clean membrane cap									
Max. storage time of electrolyte	years	1-2 (check expiry date on package)									
Approvals	-	CE (EN 61326-1:2013)									

1) at 0.4 ppm and at 1.6 ppm

2) at 1.5 ppm

3) at 40 ppm and at 160 ppm

4) at 40 ppm and < 2 % at 1600 ppm



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Sensors for pH, ORP and conductivity

		pH::lyser pH	Redo::lyser ORP	Condu::lyser Conductivity	
General data	Measuring principle	-	Potentiometric, with combined non-porous reference electrode	4-electrode, direct contact	
	Measuring range of main parameter	-	pH 2-12	-2000 to +2000 mV	
	Measuring range of temperature	[°C]	0-70	0-70	
	Temperature compensation	-	Yes, with PT100 (class B)	no	
	Resolution of main parameter	-	pH 0.01	1 mV	
	Resolution of temperature	[°C]	0.1	0.1	
	Accuracy	-	± 0.1 pH	± 10 mV in standard solution	± 0.1 % of current reading in standard solution
	Response time (T90)	[s]	30	30	60
	Run-in time (during startup)	[hour]	-	< 1	-
	Ambient conditions	Operating temperature	[°C]	0-70	-
Operating pressure range		[bar]	0-10	-	
Recommended range flow speed (submersed installation)		[m/s]	-	0.01-3	-
Material and design	Enclosure class (sensors with plug)	-	IP67	-	
	Enclosure class (sensors with cable)	-	IP68	-	
	Housing materials	-	Stainless steel 1.4571, POM-C		
	Sensor materials	-	-	Stainless steel 1.4435, PEEK, EPDM	
Storage data	Storage temperature of sensor	[°C]	0-90	0-60	
	Storage time	-	Approx. one year with filled protective cap (check expiry date on package)		
Approvals	-	CE (EN 61326-1 2013)			

Hydraulic installation

BF1 and BF3 variants with bypass flow cell

Data	Units	BF1	BF3
Number of connectable S-CAN sensors		1	3
General data	Min. liquid temperature*	[°C]	0.1
	Max. liquid temperature*	[°C]	45
	Min. ambient temperature*	[°C]	0.1
	Max. ambient temperature*	[°C]	45
Hydraulic data	Min. flow rate	[l/h]	30
	Max. flow rate (integrated limitation)	[l/h]	60
	Max. pressure at inlet	[bar]	3
	Min. pressure at inlet	[bar]	0.5
	Max. pressure at outlet (non fluctuating)	[bar]	0.5
Connection data	Inlet/outlet: internal thread	["]	Rp1/2
	Inlet/outlet: threaded connection size	-	G 5/8
	Inlet/outlet: hose connections, metric (ID/OD)	[mm]	4/6, 5/8, 6/12 or 9/12
	Inlet/outlet: hose connections, inch (IDxOD)	["]	0.17"x 1/4, 1/4"x 8/8 or 3/8"x 1/2
	Sample water outlet: hose barb	[mm]	-

* Check data of sensor and CU 382 control unit, too. The lowest value defines the actual operating limits.



TI1 and TI2 variants for tank immersion

Data	Units	TI1	TI2
Number of connectable S-CAN sensors		1	2
General data	Min. liquid temperature*	[°C]	0.1
	Max. liquid temperature*	[°C]	45
	Min. ambient temperature*	[°C]	0.1
	Max. ambient temperature*	[°C]	45
	Max. flow speed*	[m/s]	See sensor data
Hydraulic data	Max. pressure*	[bar]	10
	Prepared for metric pipe dimension (OD)	[mm]	50
Connection data	Prepared for inch pipe dimension (OD)	["]	2

* Check data of sensor and CU 382 control unit, too. The lowest value defines the actual operating limits.

Weights

Description	Without packaging	With packaging	Product number
	[kg]	[kg]	
DID-1 BF1-FCL2	4.26	8.10	98915656
DID-1 BF1-CDI2	4.26	8.10	98915657
DID-1 BF1-PA2	4.26	8.10	98915658
DID-1 BF1-HP2	4.26	8.10	98915659
DID-3 BF3-FCL2/TCL2	4.72	8.77	98915660
DID-3 BF3-FCL2/PH	4.71	8.77	98915661
DID-3 BF3-FCL2/TCL2/PH	4.97	9.18	98915662
DID-3 BF3-FCL2/ORP	4.71	8.77	98915663
DID-3 BF3-FCL2/PH/ORP	4.96	9.17	98915664
DID-1 BF1-PH	4.25	8.09	98915665
DID-1 TI1-PH	2.08	5.88	98915666
DID-1 TI1-ORP	2.08	5.88	98915667
DID-3 TI2-ORP/PH	2.85	6.80	98915668
DID-3 BF3-ORP/PH	4.70	8.76	98915669
DID-1 BF1-CND	4.25	8.09	98915670
DID-1 TI1-CND	2.08	5.88	98915671



6. Dimensions

DID with flow cell BF1

DID with flow cell BF3

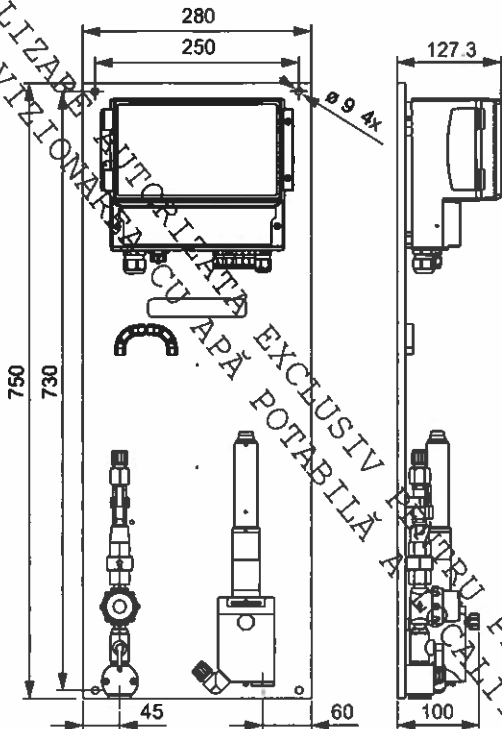


Fig. 7 Dimensions of DID with flow cell, GF1 installation variant, for 1 sensor (in mm)

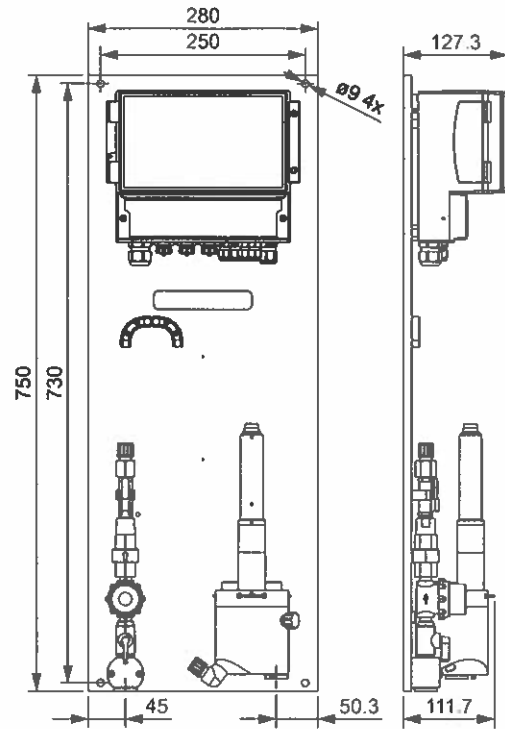


Fig. 8 Dimensions of DID with flow cell, BF3 installation variant, for up to 3 sensors (in mm)

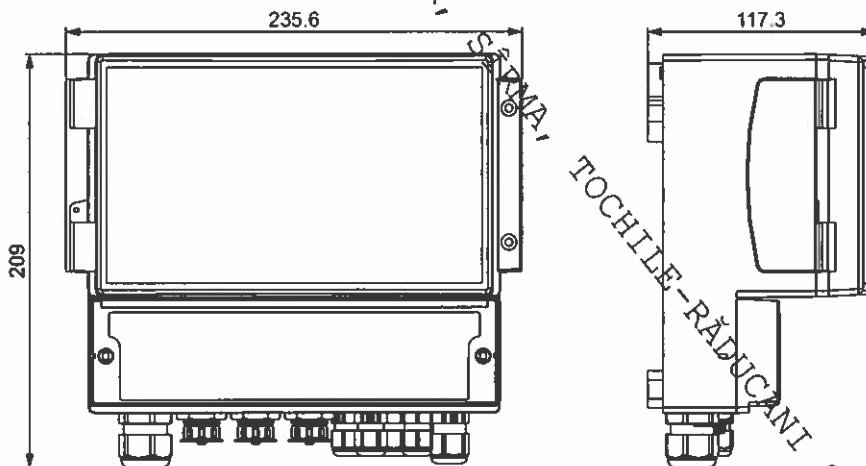


Fig. 9 Dimensions of CU 382 control unit, front and side view (in mm)



DID for wall mounting and sensor with holder

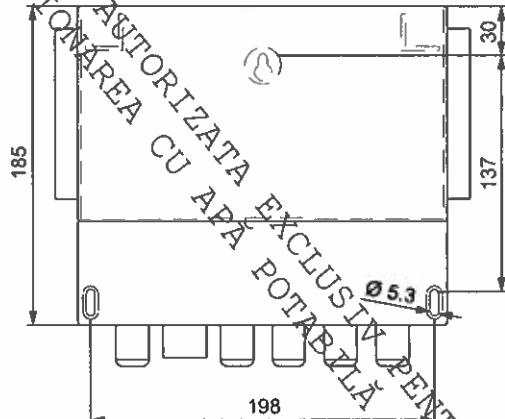


Fig. 10 Dimensions of CU 382 control unit for wall-mounting, back (in mm)

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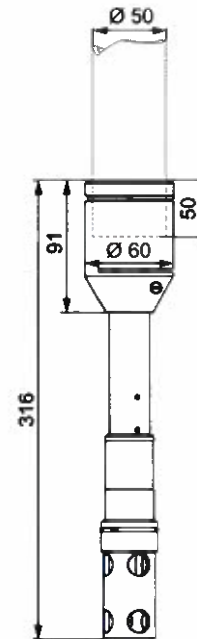


Fig. 11 Dimensions of sensor with holder (in mm), pipe with outside diameter 50 mm not included

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7. Product selection

Standard range DID pre-assembled system

DID with bypass flow cell, with flow switch

Purpose/applications	Parameter 1	Parameter 2	Parameter 3	Type key	Product number
Free chlorine dosing control ¹⁾	Free chlorine 0-2 ppm			DID-1 BF1-FCL2	98915656
ClO ₂ dosing control	Chlorine dioxide 0-2 ppm			DID-1 BF1-CDI2	98915657
PAA dosing control	Peracetic acid 0-200 ppm			DID-1 BF1-PA2	98915658
H ₂ O ₂ dosing control	Hydrogen peroxide 0-200 ppm			DID-1 BF1-HP2	98915659
Chloramine dosing control or chlorine dosing control with monitoring of total chlorine	Free chlorine 0-2 ppm	Total chlorine 0-2 ppm		DID-3 BF3-FCL2/TCL2	98915660
Free chlorine dosing control + pH control ²⁾	Free chlorine 0-2 ppm	pH 2-12		DID-3 BF3-FCL2/PH	98915661
Chloramine dosing control or chlorine dosing control with monitoring of total chlorine + pH control ²⁾	Free chlorine 0-2 ppm	Total chlorine 0-2 ppm	pH 2-12	DID-3 BF3-FCL2/TCL2/PH	98915662
Free chlorine dosing control with validation via ORP ¹⁾	Free chlorine 0-2 ppm	ORP -2000 to +2000 mV		DID-3 BF3-FCL2/ORP	98915663
Free chlorine dosing control with validation via ORP + pH control ²⁾	Free chlorine 0-2 ppm	pH 2-12	ORP -2000 to +2000 mV	DID-3 BF3-FCL2/PH/ORP	98915664
pH control (neutralisation, pH adjustment for further processes), dosing control of acids and bases	pH 2-12			DID-1 BF1-PH	98915665
Dosing control in oxidation/reduction processes (e.g. removal of chromic acid, nitrite or cyanide)	ORP -2000 to +2000 mV	pH 2-12		DID-3 BF3-ORP/PH	98915669
Chemical dosing control in CIP-processes, high-purity water, cooling towers	Conductivity 1-500000 µS/cm			DID-1 BF1-CND	98915670
Without sensors, allows customisation according to specific application requirements, up to 3 sensors are possible				DID-3 BF3	99083725

¹⁾ With internal pH compensation up to pH 8.5

²⁾ Provides additional pH compensation of chlorine measurement for highest accuracy

DID for tank immersion

Purpose/applications	Parameter 1	Parameter 2	Type key	Product number
pH control (neutralisation for further processes), dosing control of acids and bases	pH 2-12		DID-1 TI1-PH	98915666
Denitrification, monitoring of the disinfection effect when dosing oxidising agents, etc.	ORP -2000 to +2000 mV		DID-1 TI1-ORP	98915667
Dosing control in oxidation/reduction processes (e.g. removal of chromic acid, nitrite or cyanide)	ORP -2000 to +2000 mV	pH 2-12	DID-3 TI2-ORP/PH	98915668
Chemical dosing control in CIP-processes, high-purity water, cooling towers	Conductivity 1-500000 µS/cm		DID-1 TI1-CND	98915671



8. Accessories and maintenance kits

Accessories

Mains cables

Cable length: 2.0 m

Plug type	Product number
Europe	99074491
USA	99074492
Australia	99074493

Sensor cables

- Connection of sensor and control unit
- Extension to bridge long distances between sensor and control unit

Use	Cable length (m)	Product number
DID with flow cell: cable for connection of sensor and control unit	1	98915690
DID with flow cell and DID for tank immersion: extension cable for long distance connection of sensor and control unit	20	98915692

Sensors

Individual sensors for customised solutions or add-on to standard systems. All sensors include temperature measurement in addition to the main parameter.

DID with flow cell

- Sensors with plug

Parameter	Measuring range	Product number
Free chlorine (FCI)	0-2 ppm	98915674
	0-20 ppm	98915675
Total chlorine (TCI)	0-2 ppm	98915676
	0-20 ppm	98915677
Chlorine dioxide (CDI)	0-2 ppm	98915678
	0-20 ppm	98915679
Hydrogen peroxide (HP)	0-200 ppm	98915680
	0-2000 ppm	98915681
Peracetic acid (PA)	0-200 ppm	98915682
	0-2000 ppm	98915683
pH	pH 2-12	98915684
ORP	-2000 mV to +2000 mV	98915686
Conductivity (CND)	1-500000 µS/cm (2-42 PSU)	98915688

DID for tank immersion

- Sensors with 7.5 m of fixed cable

Parameter	Measuring range	Product number
pH	pH 2-12	98915685
ORP	-2000 mV to +2000 mV	98915687
Conductivity (CND)	1-500000 µS/cm (2-42 PSU)	98915689

CU 382 control unit

Individual control units for customised solutions or as a replacement.

Control unit type	Number of sensor connectors	Product number
CU 382-1	1	98915672
CU 382-3	3	98915673

Hydraulic installation components

Installation type	Components	Product number
DID with bypass flow cell	Inlet connection, shut-off valve, strainer, flow restrictor, flow switch, connecting hose	99074484
	Flow cell for 1 sensor, sampling cock and outlet, outlet connection	99074485
	Flow cell for 3 sensors, sampling cock and outlet, outlet connection	99074486
DID for tank immersion	Sensor holder	99074490
	Sensor guard	99074487
	Cleaning valve (for use with a compressed-air installation)	99074488
	Cleaning assembly with valve and compressor (if no compressed air is available on site)	99074489

Anti-siphoning pressure-loading valve

Mounted on the outlet connection of DID with bypass flow cell.

Prevents siphoning in case the outlet to the drain is far below the DID system.

Description	Product number
Pressure loading valve to prevent siphoning	96609179



SC

Sample water extraction devices

Sample water extraction devices are used to extract a part of the main water flow.

Sample water extraction devices consist of:

- An extraction pipe that is immersed into the water flow to be measured.
- The pipe can be cut to length to match installation conditions on site.
- With R 1/2" installation connection
- A ball valve to stop the water flow to the DID system



Fig. 12 Sample water extraction device

TM06 5648 5115

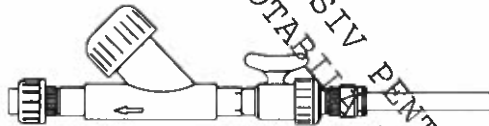


Fig. 13 Sample water extraction device

TM06 5649 5115

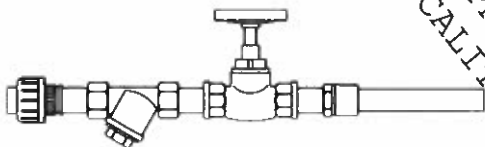


Fig. 14 Sample water extraction device

TM06 5650 5115

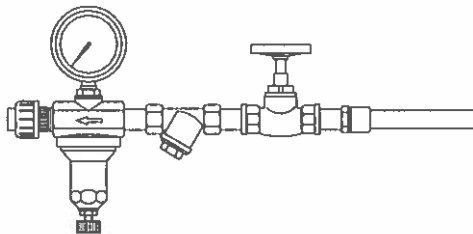


Fig. 15 Sample water extraction device

TM06 5651 5115

Description	Product number
Max. 3 bar, PVC (Fig. 12)	96729302
Max. 3 bar, PVC, with filter (Fig. 13)	96729301
Max. 3 bar, brass, with filter (Fig. 14)	96729300
Max. 10 bar, brass, with filter, pressure reducing valve and manometer (Fig. 15)	96698139

Sample water extraction pump

In case the installation on site does not allow free water flow to the DID system, a sample water extraction pump can be used to transport the water.

- Connection DN8
- Mains voltage and frequency 220 V, 50 Hz
- Power consumption approx. 40 W

Description	Product number
Sample water extraction pump, up to 35 l/h	95701524

External water filters

An additional external water filter might be necessary when more dirt is expected in the water to be measured.

Note: all DID systems with bypass flow cell have an integrated water filter.

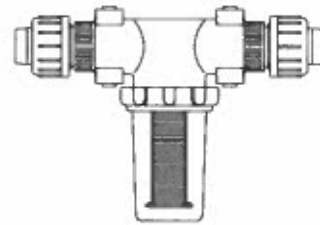


Fig. 16 External water filter without ball valve

TM06 5652 5115

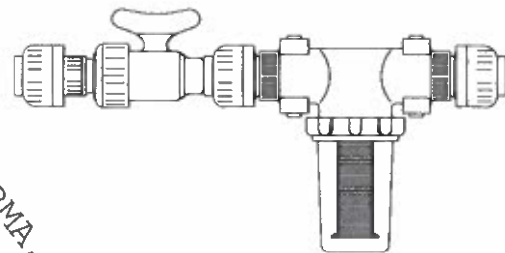


Fig. 17 External water filter with ball valve

TM06 5653 5115

Description	Product number
External water filter, with ball valve	96622995
External water filter, without ball valve	95709473



KCl solution for safe storage of pH and ORP sensors

The tips of ORP and pH sensors must be wetted with 3-molar potassium chloride (KCl) solution during storage.

Description	Product number
Bottle of KCl solution for safe storage of pH and ORP sensors, 250 ml	96688696

Buffer solution kit for pH sensor calibration

The buffer solution kit includes three buffer solutions with pH 4.01, pH 7 and pH 9.18.

Description	Product number
Buffer solution kit, 3 x 100 ml	96609165

Maintenance kits

Maintenance kits for disinfectant sensors

Maintenance kits for disinfectant sensors include a bottle of electrolyte and a membrane cap.

When used under normal conditions with ordinary water, a sensor can be operated for one year with a maintenance kit.

The electrolyte must be exchanged twice a year, the membrane cap once a year.

Maintenance kit for parameter	Product number
Free chlorine (FCI)	99074494
Total chlorine (TCI)	99074495
Chlorine dioxide (CDI)	99074496
Hydrogen peroxide (HP)	99074497
Peracetic acid (PA)	99074498

Maintenance kits for pH and ORP sensors

Maintenance kits for pH and ORP sensors include an electrode to replace the one included in the sensor.

Depending on the water quality, the electrode must be replaced after 1-3 years.

Maintenance kit for parameter	Product number
pH	99074499
ORP	99074500



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9. Grundfos Product Center

Online search and sizing tool to help you make the right choice.

<http://product-selection.grundfos.com>



SIZING enables you to size a pump based on entered data and selection choices.

REPLACEMENT enables you to find a replacement product. Search results will include information on

- the lowest purchase price
- the lowest energy consumption
- the lowest total life cycle cost.

The screenshot shows the Grundfos Product Center website. At the top, there is a navigation bar with 'HOME', 'FIND PRODUCT', 'COMPARE', 'YOUR PROJECTS', 'SAVED ITEMS', and 'HELP'. Below this is a search bar with a 'SEARCH' button. The main content area features four large buttons: 'SIZING' (with subtext 'Enter pump sizing'), 'CATALOGUE' (with subtext 'Products and services'), 'REPLACEMENT' (with subtext 'Replace an old pump with a new'), and 'LIQUIDS' (with subtext 'Find pump by liquid'). Below these is a 'QUICK SIZING' section with input fields for 'Flow (Q)' and 'Head (H)', and a 'Select what to size by' section with radio buttons for 'Size by application', 'Size by pump design', and 'Size by pump family'. A 'START SIZING' button is also visible.

CATALOGUE gives you access to the Grundfos product catalogue.

LIQUIDS enables you to find pumps designed for aggressive, flammable or other special liquids.

All the information you need in one place

Performance curves, technical specifications, pictures, dimensional drawings, motor curves, wiring diagrams, spare parts, service kits, 3D drawings, documents, system parts. The Product Center displays any recent and saved items - including complete projects - right on the main page.

Downloads

On the product pages, you can download installation and operating instructions, data booklets, service instructions, etc. in PDF format.

Subject to alterations.



be think innovate

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ECM: 1165028

GRUNDFOS A/S
DK-8850 Bjerringbro . Denmark
Telephone: +45 87 50 14 00
www.grundfos.com

GRUNDFOS 



Lloyd's Register
LRQA

CERTIFICAT DE APROBARE

Acest certificat atestă că Sistemul pentru Managementul Calității al:

GRUNDFOS POMPE ROMANIA S.R.L.

**Sos. Topografilor, Nr. 11-15, S-Park Business Center, Clădirea A2
Et. 2, Sector 1, București
România**

a fost aprobat de către Lloyd's Register Quality Assurance în conformitate cu următoarele standarde referitoare la Sistemul pentru Managementul Calității:

EN ISO 9001:2015
SR EN ISO 9001:2015

Sistemul pentru Managementul Calității este aplicabil următorului domeniu de activitate:

Activități incluzând și fiind asociate cu vânzarea de echipamente și sisteme de pompare și furnizarea de servicii de consultanță asociate vânzării de echipamente și sisteme de pompare.

Certificat de
aprobare nr.: BUC6017116

Aprobare inițială: 15 Noiembrie 2013

Certificat curent: 13 Octombrie 2016

Certificatul expiră la: 14 Noiembrie 2019

Emis de: Lloyd's Register (Romania) S.R.L. și în numele Lloyd's Register Quality Assurance Limited



001

Sos. Iancului Nr. 31, 021716, Sector 2, București

Pentru și în numele 1 Trinity Park, Bickenhill Lane, Birmingham, B37 7ES, United Kingdom

Certificarea este efectuată în conformitate cu procedurile LRQA de evaluare și certificare și este monitorizată de LRQA

Utilizarea mărcii de acreditare UKAS indică acreditarea referitoare la activitatea acoperită în Certificatul de Acreditare Numarul C01

Certificat de Aprobare

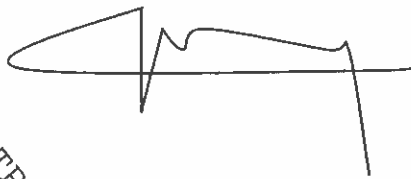
Acest certificat atestă că Sistemul de Management al:

GRUNDFOS POMPE ROMANIA SRL

Str. Tipograf nr. 11-15, S-Park Business Center, Cladirea A2, Et. 2, Sector 1, 013714 Bucuresti,
România

A fost aprobat de către Lloyd's Register Quality Assurance in conformitate cu următoarele standarde:

ISO 9001:2015



Giles Bessiere - Area Technical Manager

Emis de: Lloyd's Register (Romania) (Srl)

pentru și în numele Lloyd's Register Quality Assurance Limited

Acest certificat este valabil numai însoțit de anexele care au același număr de certificat și care prezintă lista
sediilor incluse în certificare.

Data emiterii: 29 August 2019
Data expirării: 14 Noiembrie 2022
Număr de certificat: 10214505

Aprobare inițială:
ISO 9001 – 15 Noiembrie 2013

Număr de aprobare: ISO 9001 – 00016774

Aprobarea este aplicabilă următorului domeniu:

Activități incluzând și fiind asociate cu vânzarea de echipamente și sisteme de pompare și furnizarea de
servicii de consultanță asociate vânzării de echipamente și sisteme de pompare.
Service pentru echipamente și sisteme de pompare



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Lloyd's
Register

Anexă la certificat

Număr de certificat: 10214505

Locație	Activități
Str. Tipografilor nr 11-15, S-Park Business Center, Cladirea A2, Et 2, Sector 1, 013714 Bucuresti, România	ISO 9001:2015 Activități incluzând și fiind asociate cu vânzarea de echipamente și sisteme de pompare și furnizarea de servicii de consultanță asociate vânzării de echipamente și sisteme de pompare.
Service Sos. de Centura 24-26, Tunari, Romania	ISO 9001:2015 Activități incluzând și fiind asociate cu service pentru echipamente și sisteme de pompare.

UTILIZARE AUTORIZATĂ EXCLUSIV PENTRU PROIECTUL
"APROVEZIONARE CU APĂ POTABILĂ A LOCALITĂȚILOR, SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA."



001

52



Lloyd's Register
LRQA

CERTIFICAT DE APROBARE

Acest certificat atestă că sistemul pentru managementul mediului al:

GRUNDFOS POMPE ROMANIA S.R.L.

Str. Topografilor, Nr. 11-15, S-Park Business Center, Clădirea A2
Et. 2, Sector 1, București
România

a fost aprobat de către Lloyd's Register Quality Assurance în conformitate cu următoarele standarde referitoare la sistemul pentru managementul mediului:

EN ISO 14001:2015
SR EN ISO 14001:2015

Sistemul pentru managementul mediului este aplicabil următorului domeniu de activitate:

Activități incluzând și fiind asociate cu vânzarea de echipamente și sisteme de pompare și furnizarea de servicii de consultanță asociate vânzării de echipamente și sisteme de pompare.

Certificat de
aprobare nr.: BUC6017117

Aprobare inițială: 18 Noiembrie 2013

Certificat curent: 13 Octombrie 2016

Certificatul expiră la: 17 Noiembrie 2019

Emis de: Lloyd's Register (Romania) S.R.L.
Pentru și în numele Lloyd's Register Quality Assurance Limited



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Șos. Iancului Nr. 31, 021716, Sector 2, București
Pentru și în numele 1 Trinity Park, Bickenhill Lane, Birmingham, B37 7ES, United Kingdom
Certificarea este efectuată în conformitate cu procedura LRQA de evaluare și certificare și este monitorizată de LRQA.
Utilizarea mărcii de acreditare UKAS indică acreditarea referitoare la activitățile acoperite de Certificatul de Acreditare Numarul 001

Certificat de Aprobare

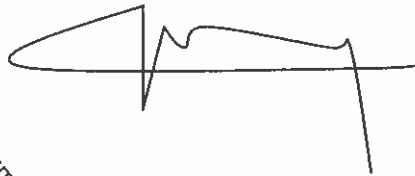
Acest certificat atestă că Sistemul de Management al:

GRUNDFOS POMPE ROMANIA SRL

Str. Tipograf nr. 11-15, S-Park Business Center, Cladirea A2, Et. 2, Sector 1, 013714 Bucuresti,
România

A fost aprobat de către Lloyd's Register Quality Assurance în conformitate cu următoarele standarde:

ISO 14001:2015



Gilles Bessiere - Area Technical Manager

Emis de Lloyd's Register (Romania) (Srl)

pentru și în numele Lloyd's Register Quality Assurance Limited

Acest certificat este valabil numai însoțit de anexele care au același număr de certificat și care prezintă lista
sediilor incluse în certificare.

Data emiterii: 29 August 2019
Data expirării: 17 Noiembrie 2022
Număr de certificat: 10214507

Aprobare inițială:
ISO 14001 – 18 Noiembrie 2013

Număr de aprobare: ISO 14001 - 000016773

Aprobarea este aplicabilă următorului domeniu:

Activități incluzând și fiind asociate cu vânzarea de echipamente și sisteme de pompare și furnizarea de
servicii de consultanță asociate vânzării de echipamente și sisteme de pompare. Service pentru echipamente
și sisteme de pompare.



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Anexă la certificat

Număr de certificat: 10214507

Locație	Activități
Str. Tipografilor nr. 11-15, S-Park Business Center, Clădirea A2, Et. 2, Sector 1, 013714 Bucuresti, România	ISO 14001:2015 Activități incluzând și fiind asociate cu vânzarea de echipamente și sisteme de pompare și furnizarea de servicii de consultanță asociate vânzării de echipamente și sisteme de pompare.
Service Sos. de Centura 24-26, Turnari, Romania	ISO 14001:2015 Activități incluzând și fiind asociate cu service pentru echipamente și sisteme de pompare.



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SC



Certificate DE13/81841218.08

The management system of

Grundfos Water Treatment GmbH

Reetzstrasse 85
76327 Pfinztal
Germany



has been assessed and certified as meeting the requirements of

ISO 9001:2008

For the following activities

**Manufacturing, distribution, maintenance and service of
equipment and systems of dosing technology
and analytical monitoring systems**

This certificate is valid from 15 February 2015 until 14 February 2018 and
remains valid subject to satisfactory surveillance audits.
Re certification audit due before 31 December 2017
Issue 4. Certified since 17 June 2011

Multiple certificates have been issued for this scope
The main certificate is numbered DE13/81841218

Authorised by

SGS United Kingdom Ltd Systems & Services Certification
Rossmore Business Park Ellesmere Port Cheshire CH65 3EN UK
t +44 (0)151 350-6666 f +44 (0)151 350-6600 www.sgs.com

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UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL
"APROVIZIONAREA CU APA POTABILĂ A JUDEȚULUI IALOMIȚA"
SIRMA, TOCHILE-RĂDUCANI ȘI TOMAIAIION LEIBAN



Certificate DE11/81829052.08

The management system of

Grundfos Water Treatment GmbH

Reetzstrasse 85
76327 Pfintztal
Germany



has been assessed and certified as meeting the requirements of

ISO 14001:2004

For the following activities

Manufacturing, distribution, maintenance and service of equipment and systems of dosing technology and analytical monitoring systems

This certificate is valid from 15 February 2015 until 14 February 2018 and remains valid subject to satisfactory surveillance audits.
Re certification audit due before 31 December 2017
Issue 4. Certified since 17 June 2011

Multiple certificates have been issued for this scope
The main certificate is numbered DE11/81829052

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UTILIZARE AUTORIZATA EXCLUSIV PENTRU
"APROVIZIONAREA CU APA POTABILA A CALITATII SUPERIORE"



Certificate DE12/81830455.08

The management system of

Grundfos Water Treatment GmbH

Reetzstrasse 85
76327 Pfinztal
Germany



has been assessed and certified as meeting the requirements of

OHSAS 18001:2007

For the following activities

Manufacturing, distribution, maintenance and service of equipment and systems of dosing technology and analytical monitoring systems

This certificate is valid from 15 February until 14 February 2018 and remains valid subject to satisfactory surveillance audits.
Re certification audit due before 31 December 2017
Issue 3. Certified since 17 June 2011

Multiple certificates have been issued for this scope
The main certificate is numbered DE12/81830455

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UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL DE
"APROVIZIONAREA CU APA POTABILA A CALITATII SI A SECURITATII S.M.S. S.A. TOCHILE-RADUCANI SI TOMAZIUNEA A CALITATII SI A SECURITATII S.M.S. S.A."

Certificate DE11/81829052.08



The management system of

Grundfos Water Treatment GmbH

Reetzstraße 85
Pfinztal, 76327, Germany

has been assessed and certified as meeting the requirements of

ISO 14001:2015

For the following activities

Manufacturing, distribution, maintenance and service of equipment and systems of dosing technology and analytical monitoring systems

This certificate is valid from 24 February 2018 until 14 February 2021 and remains valid subject to satisfactory surveillance audits.

Re certification audit due before 31 December 2020

Issue 7. Certified since 17 June 2011

Multiple certificates have been issued for this scope
The main certificate is numbered DE11/81829052.00



Authorised by



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UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROFESIUNII
"APROVIZIONAREA CU APA POTABILA LOCALITATILOR" SÎRMA,
TOHILE-RĂDUCANI ȘI TOMAȚIȘI



CERTIFICATION MARK

This certifies that

GRUNDFOS HOLDINGS A/S

has had the undermentioned product examined, tested and found, when correctly installed, to comply with the requirements of the United Kingdom Water Supply (Water Fittings) Regulations and Scottish Water Byelaws.

DPI V.2, DPI V.2 + T, RPI & RPI + T PRESSURE SENSORS

The certificate by itself is not evidence of a valid WRAS Approval. Confirmation of the current status of an approval must be obtained from the WRAS Directory (www.wras.co.uk/directory)

The product so mentioned will be valid until the end of:

September 2022

1709076

Certificate No.

Secretary

Chairman, Product Assessment Group



UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL
APROVIZIONAREA CU APA POTABILA A LOCALITATILOR SIRMIA
TOCHILE-RADUCANI SI TOMAI RAION LEOVA.



18th October 2017

Grundfos Holdings A/S
Jul Due Jensens Vej 7,
Bjerringbro,
8850 Denmark

Water Regulations Advisory Scheme Ltd.
Unit 13, Willow Road,
Pen y Fan Industrial Estate,
Crumlin,
Gwent,
NP11 4EG

Approval Number: 1709076

Dear Sir/Madam

1. Production samples of the products described in Approval Information ("Products") have been subjected to relevant mechanical and water quality tests contained in the "Regulators' Specifications" for the purposes of your application for WRAS Approval.
2. After considering the test reports and examining the Product/s, The Water Regulations Advisory Scheme Ltd. ("WRAS Ltd" / "WRAS") finds that their use, when correctly installed (see paragraph 3) complies with the requirements of The Water Supply (Water Fittings) Regulations 1999, The Water Supply (Water Fittings) (Scotland) Byelaws 2014, The Water Supply (Water Fittings) Regulations (Northern Ireland) 2009 and all other applicable WRAS requirements from time to time.

The non-metallic materials of construction in contact with the water, are suitable for contact with wholesome water intended for domestic purposes having met the requirements of BS 6920-1: 2000 and/or 2014 'Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water.

WRAS Approvals are granted subject to and in accordance with the Standard Terms and Conditions of WRAS Fittings Approval as amended from time to time ("**Standard Terms of Approval**"). You have confirmed your acceptance of the Standard Terms of Approval by submitting your application for WRAS Approval. A copy of the current Standard Terms of Approval are attached to this letter as Appendix B and are also available from the WRAS website: www.wras.co.uk.

Terms defined in the Standard Terms of Approval shall have the same meaning in this letter unless the context otherwise requires.

3. Installation Requirements & Notes (IRNs) are set out in Appendix A. WRAS Product Approvals may include one or more IRNs, which must be followed by the installer to ensure that the product is installed correctly to comply with The Regulations and Byelaws. Since the incorrect installation of products could result in contravention of the Regulations or Byelaws requirements, **the attention of your customers should be drawn to any IRNs.**
4. Please note that the use of the Products described in any particular area of supply is at the discretion of the Water Undertaker in that area.
5. Approval Holders may quote in their sales literature that **WRAS finds that the use of these products, when correctly installed, will not contravene the requirements of The Water Supply (Water Fittings) Regulations 1999, The Water Supply (Water Fittings) (Scotland) Byelaws 2014, The Water Supply (Water Fittings) Regulations (Northern Ireland) 2009.**
6. The "WRAS Approved Product" logos are certification marks registered under the Trade Marks Acts 1994 ("**Certification Marks**"). Approval Holders may use the Certification Marks in accordance with the Standard Terms of Approval.
7. Please verify the details of your Product as set out in the approval information and advise us of any discrepancies by no later than **18th November 2017**

Yours Faithfully

Jason Furnival
Secretary, Product Approval Group



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UTILITATEA AUTORIZATA PENTRU FURNICAREA SI DISTRIBUIREA GAZULUI SI CALORIEI CALDE IN LOCALITATILE SI COMUNA SI TOMAI RAION LEOVA.

APPROVAL INFORMATION

Validity dates: This approval is valid for fittings (as listed below in model) manufactured AND installed between September 2017 & September 2022

Section Number: **1530**

Section title: **MISCELLANEOUS FITTINGS**

Installation requirement notes: **R001**
(IRN's are set out in Appendix A)

Product description: Range of differential or relative pressure sensors with stainless steel bodies and EPDM 'O'-rings. The DPI V.2 model consists of a sensor and fitting for a capillary tube which is used for measuring the differential pressure between either sides of the sensor.
Maximum working pressure 40.0 Bar. Maximum operating temperature 100°C.

Size: DPI models: 1/2" BSP (M) and 3/8" BSP (M).
RPI models: 1/2" BSP (M).

Identification Marking: Grundfos name and logo, temperature rating, pressure differential rating, serial number and more product information on label on the body of the sensor.

Factor: Grundfos Holdings A/S

Model: DPI V.2, DPI V.2 RPI & RPI
+T.

UTILIZARE AUTORIZATA FACULTATIV PENTRU PROIECTUL LOCALITATILOR, SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA.



APPENDIX A

INSTALLATION REQUIREMENTS & NOTES

You are advised to draw customers' attention to the installation requirements and notes set out below which must be followed to ensure that the fittings described above are installed in accordance with the requirements of the Regulations and Byelaws:

IRN R001

See text of entry for Installation Requirements or Notes.

UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL
"APROVIZIONAREA CU APA POTABILĂ A LOCALITĂȚILOR, SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA."



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APPENDIX B - Standard Terms of Approval

STANDARD TERMS & CONDITIONS OF WRAS PRODUCT APPROVAL

The Water Regulations Advisory Scheme (WRAS) administers the WRAS Product Approval and Material Approval Scheme on behalf of the UK Water Supply Industry.

WRAS Approval of products is granted subject to the following standard conditions, which holders of approvals accept on signing the WRAS Approval application form (Form F2).

Introduction

1.1. The WRAS Approval Scheme and the WRAS Product and Materials Directory are owned and operated by the Water Regulations Advisory Scheme Ltd ("WRAS Ltd" or "WRAS").

1.2. WRAS Approvals are granted by the WRAS Product Assessment Group ("PAG"). Members of the PAG are suitably experienced representatives of the UK Water Supply Industry appointed by the WRAS Technical Committee.

1.3. In these Standard Terms of Approval, the following definitions shall apply:

"**Agent**" means any third party agent nominated by the Applicant for the purposes of the Application and whose details are set out in section 4 of the Application Form;

"**Applicant**" means any person, company or other organisation / entity that applies for WRAS Approval in respect of a Product;

"**Application**" means an application for WRAS Approval;

"**Application Form**" means the F2 application form to be used when applying for WRAS Approval and which can be found on the WRAS website www.wras.co.uk;

"**Approval**" / "**WRAS Approval**" means approval granted by WRAS on behalf of UK Water Suppliers once WRAS is satisfied that the Product complies with the requirements of the Water Supply (Water Fittings) Regulations 1999 and BS 6920 and any other applicable requirements from time to time;

"**Approval Holder**" means the holder of an existing WRAS Approval, which includes holders of both Primary Approvals and Secondary Approvals;

"**Approval Period**" has the meaning set out in clause 3.5;

"**Approved Product**" means any water fitting, plumbing product, material or component which is the subject of an existing WRAS Approval;

"**Approval Letter**" means the letter from WRAS to the Applicant confirming the grant of WRAS Approval in respect of a Product;

"**Approval Scheme Installation Requirements and Notes**" means any installation requirements and notes issued by WRAS as part of a WRAS Approval;

"**Certification Mark**" has the meaning set out in clause 20.1;

"**Committee**" means the WRAS Technical Committee;

"**Directory**" means the WRAS Product & Material Directory;

"**Event Outside Our Control**" means any act or event beyond WRAS's reasonable control, including without limitation strikes, lock-outs or other industrial action by third parties, civil commotion, riot, invasion, terrorist attack or threat of terrorist attack, war (whether declared or not) or threat or preparation for war, fire, explosion, storm, flood, earthquake, subsidence, epidemic or other natural disaster, or failure of public or private telecommunications networks [or impossibility of the use of railways, shipping, aircraft, motor transport or other means of public or private transport];

"**Factor**" a factor is generally an organisation that did not manufacture the Product, typically being a retailer, reseller or wholesaler;

"**Primary Approval**" means an Approval granted pursuant to the first Application for a Product and any subsequently renewals of that first Approval;

"**Product**" means any water fitting, plumbing product, material or component submitted to WRAS for WRAS Approval;

"**Sample**" samples of the Product to be sent to WRAS for evaluation as part of the Application;

"**Scheme**" means the Water Regulations Advisory Scheme;

"**Secondary Approval**" means an Approval granted pursuant to a second Application for a Product; a Secondary Approval relies on the existence of a Primary Approval and is typically used where the Product has been re-branded but maintains the same mechanical specifications as the Product submitted for Primary Approval and therefore does not require any further mechanical or materials testing;

"**Standard Terms of Approval**" these standard terms and conditions of WRAS Approval as amended from time to time in accordance with clause 24.2;

"**Test Facility**" means any WRAS suitably accredited test laboratory;

"**WRAS Guidance**" means the WRAS Product Approval Guidance available on the WRAS website www.wras.co.uk



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2. Obligations of the Applicant & Approval Holder

2.1. It is the responsibility of Applicants to ensure that they are familiar with and comply at all times with the requirements of the Scheme as detailed in both these Standard Terms of Approval and in the WRAS Guidance.

2.2. The Applicant recognises, accepts and complies with the roles and responsibilities of Applicants seeking WRAS Approval, as detailed in the "Overview of the roles & responsibilities of those parties involved in the process for gaining WRAS product approval" document which is available on the WRAS website www.wras.co.uk. For the avoidance of doubt, WRAS shall not be responsible for the acts or omissions of any test laboratory or any other third party involved in the WRAS Approval process.

2.3. The Applicant warrants the accuracy and completeness of all information contained in the Application and any other information now or subsequently provided to by the Applicant or its Agents to WRAS and/or the Test Facility in pursuance of the Application and confirms that none of this information is or may be construed as misleading in any way. WRAS accepts no liability for any losses or any other damage arising from incomplete or incorrect information provided by the Applicant.

2.4. The Applicant / Approval Holder undertakes to WRAS as follows:

2.4.1. to co-operate fully with WRAS and its employees and agents in relation to the Application process and any subsequent audit that WRAS may consider necessary and to provide WRAS with all such relevant information (including samples and evidence of the purchase of products and materials such as goods receipts) as may be required by WRAS from time to time;

2.4.2. to notify WRAS of any changes to contact details (including current email addresses), company details or business changes that relate to the Approved Product;

2.4.3. to notify WRAS immediately of any changes relating to the Application / Approved Product, its manufacture, intended use or method of installation which could affect the compliance of the Product or its Approval by WRAS;

2.4.4. to ensure that no changes or modifications to the Application / Approved Product, markings, assembly or range of products/fittings, including changes, substitutions or modification to the materials of construction, components or sub assemblies ("Modifications") are made without the Applicant / Approval Holder first notifying WRAS. Modifications include but shall not be limited to design changes, changes in materials and/or suppliers of materials, changes to the site of manufacture and changes to marking;

2.4.5. to provide WRAS with full details of any proposed Modifications and if required, supply Samples for testing and reassessment. Failure to comply with this condition will immediately invalidate a previously granted Approval. WRAS also reserves the right to withdraw an Approval with immediate effect where WRAS considers that the Modification may affect the validity of an existing Approval for any reason;

2.4.6. to ensure that all products bearing the Certification Mark conform exactly with the Sample in respect of which WRAS Approval has been granted ("Approved Sample") and so that each product/unit manufactured by or on behalf of the Approval Holder which is to be attributed with WRAS Approval is capable of satisfying all of the same tests and other criteria applied to the Approved Sample;

2.4.7. to adhere to these Standard Terms of Approval in relation to all Approved Products.

2.5. The Approval Holder accepts that the Approval granted may be subject to audit by WRAS Ltd, either as part of routine or investigative auditing activity and the Approval Holder shall co-operate fully with WRAS for this purpose. The Approval Holder shall reimburse WRAS for all reasonable costs incurred in connection with the audit.

2.6. It is the Approval Holder's responsibility to draw the attention of purchasers and installers to any installation requirements or notes that apply to their Approved Products, assemblies or range of products as a condition of Approval and to advise them that failure to install in accordance with these requirements will invalidate their approval and could result in contravention of the Water Supply (Water Fittings) Regulations 1999, The Water Supply (Water Fittings) (Scotland) Byelaws 2014 and Water Supply (Water Fittings) Regulation (Northern Ireland) 2009.



UTILIZAREA SI APROVIZIONAREA PRODUSORILOR DE GAZ SI ALE SURSILOR DE APANARE IN RAIONUL TOMAI

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3. WRAS Product Approvals

- 3.1.** These Standard Terms of Approval form the agreement between WRAS and the Applicant / Approval Holder in respect of Applications and Approvals.
- 3.2.** WRAS Approvals are only granted to those Products, assemblies or ranges of Products which satisfy the Regulators' Specification and requirements of the Water Supply (Water Fittings) Regulations 1999, The Water Supply (Water Fittings) (Scotland) Byelaws 2014 and Water Supply (Water Fittings) Regulation (Northern Ireland) 2009 and any other applicable requirements of WRAS from time to time. WRAS Approvals are granted at the sole discretion of the UK Water Suppliers acting through their representatives on the Committee and its sub-group, PAG. No liability is accepted by WRAS Ltd, the Committee or PAG to any party which may arise as a result of a refusal to grant an Approval or revocation of an existing Approval.
- 3.3.** WRAS Approval indicates that provided the Product is installed in accordance with the manufacturer's instructions and any Approval Scheme Installation Requirements and Notes, the UK Water Suppliers accept that it is of an appropriate quality and standard' in accordance with Regulation/Byelaw 4(1)(a) of the Water Supply (Water Fittings) Regulations 1999, The Water Supply (Water Fittings) (Scotland) Byelaws 2014 and Water Supply (Water Fittings) Regulation (Northern Ireland) 2009.
- 3.4.** WRAS Approval will only be granted to production Samples. A prototype or preproduction Sample may only be submitted for 'approval in principle', and retesting may be required when submitted as a production Sample.
- 3.5.** Unless terminated or extended in accordance with these Standard Terms of Approval, each WRAS Approvals is valid for the five year term stated in the Approval Letter ("Approval Period"). To extend a WRAS Approval beyond the initial five year term, the Approved Product must be re-assessed and where necessary re-tested before expiry of the current five year term. Approval Holders will be advised that the Product is due for re-assessment by email or letter but it remains the sole responsibility of the Approval Holder to maintain a current and valid WRAS Approval
- 3.6.** Only Products which have been tested appropriately, approved and listed by the Scheme are WRAS Approved Products®.
- 3.7.** Only those Products described and listed under the heading 'model' in the approval documentation and Directory entry, are approved by WRAS and covered by the scope of the Approval.
- 3.8.** The scope of an Approval does not extend to rebranded products unless otherwise agreed by WRAS.
- 3.9.** Approval Holders must ensure that individually Approved Products, components and materials incorporated or used in the construction of their approved product retain their Approval throughout the Approval period of their approved product. Where Modifications are required WRAS must be informed and the Modifications approved in accordance with clause 2.4.4 and 2.4.5 above).
- 3.10.** Where an Approved Product has its Approval renewed up to nine months before the current approval expires, the renewed Approval can run for five years from the date of expiry of the current one, provided that this does not conflict with the guidelines for processing Applications published in the WRAS Guidance documents.
- 3.11.** An Approval is only valid if the Approved Product is manufactured and installed during the Approval Period.

4. Applications

- 4.1.** All applications for WRAS Approval must be submitted using the appropriate official WRAS Application form (the 'F2' form is available from the WRAS website www.wras.co.uk/approval.asp).
- 4.2.** All Applications for WRAS Approval must be supported by schematic diagrams, or acceptable alternatives, which in addition to illustrating the arrangement of the Product clearly show the water supply connections, any discharge points, including overflows and waste discharges and the water pathway through the Product. Installation guides and manuals, where applicable, and photographs of the Product(s) and markings suitable for inclusion in the on-line Directory (preferably in a digital format) are also required.
- 4.3.** Applicants must complete a schedule of materials (see section 10 of the Application Form). All component parts of a product, including solder, thread sealant tape, lubricant and grease, which come into contact with water which is required to be wholesome must be listed. Applications must contain all the information required by WRAS before being presented to the PAG. (See WRAS Guidance documentation for further information).
- 4.4.** The Application Form must include details of any Agents appointed by the Applicant detailing the scope of the Agent's authority. The Applicant undertakes to ratify all acts and omissions of the Agent in connection with the Application / Approval and to indemnify WRAS for any losses incurred as a result of any breach of these Standard Terms of Approval and by the Applicant and/or its Agent(s).
- 4.5.** Application forms will be valid for up to 12 months from date of signature, after which time confirmation will be required that the information provided is up-to-date.

5. Fees

WRAS charges an administration fee ("WRAS Fee") for processing an Application. Details of the WRAS Fee are available from WRAS on request. Where applicants are using a Test Facility to project manage their application, WRAS will collect this fee from the Test Facility. In such cases, this fee is usually included in the charges made by the Test Facility to the Applicant, but it is the Applicant's responsibility to confirm this and to ensure that the WRAS Fee is discharged in full.

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6. Termination

- 6.1. Either party may close an Application at any time upon giving the other party written notice.
- 6.2. In the event that an Applicant withdraws an Application they shall pay to WRAS Ltd all sums due or committed up to the date of withdrawal.
- 6.3. WRAS will retain a copy of the F2 Application Form for the entire duration of the Approval Period (including any renewal period granted by WRAS) and for up to 5 years after expiry of the Approval Period.

7. Ownership of documents

- 7.1. All intellectual property owned by either party or any third independent party shall remain exclusively the property of the owner.
- 7.2. Subject to any confidential information or other intellectual property belonging to the Applicant, all Application forms are the property of WRAS Ltd.

8. Confidentiality

- 8.1. Without prior written consent, both WRAS and the Applicant undertake not to divulge to any third party any information which was designated as confidential by the owner at the time it was made available ("Confidential Information").
- 8.2. It is acknowledged and agreed that WRAS shall be entitled to retain information provided by an Applicant including any test results / analyses of the Confidential Information for up to seven years following expiry of any approvals granted and/or renewed by WRAS provided that the Confidential Information is kept confidential at all times in accordance with this letter.

9. Performance testing

- 9.1. WRAS will only accept applications which include test reports covering in full the Scheme's acceptance criteria. (See WRAS Guidance documentation for further information.)
- 9.2. Products must be tested in accordance with the requirements identified in the Test Code Sheet (TCS) matrix published on the WRAS website or as notified by WRAS Ltd.
- 9.3. Where a product is an assembly of components, all individual constituent components must satisfy the TCS requirements applicable to that component and unless already WRAS Approved will require testing.
- 9.4. In the case of non-standard products clarification of the testing required should be sought from WRAS in advance.
- 9.5. The scope of an Approval is restricted to these conditions applied during testing. Consequently should an Applicant wish to obtain Approval for use with a variety of pipe materials at a range of maximum working pressures and temperatures, testing must include these variables. (See WRAS Guidance Documents for further information.)
- 9.6. Mechanical testing of products must have been completed no more than two years before the report is presented to the PAG.

10. Samples

- 10.1. A Sample should have been manufactured no more than 12 months before the date of its receipt by the Test Facility (please refer to the WRAS Guidance for further information.)
- 10.2. In the case of product ranges, or products manufactured or assembled at more than one site representative Samples must be tested (please see WRAS Guidance documentation for further information).
- 10.3. Where alternative materials are used testing of these variants shall only be undertaken where they could have an impact upon the opacity, endurance or pressure testing appropriate to that product. (Please refer to the WRAS Guidance documentation for further information.)

11. Markings

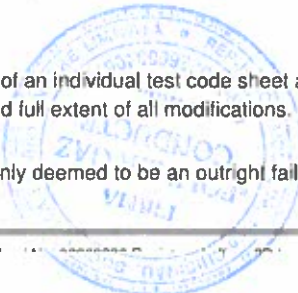
- 11.1. It is a condition of WRAS Product Approval that all products be adequately and consistently marked to facilitate identification. (See WRAS Guidance documentation for further information.)

12. Testing Failure

- 12.1. Should a Product undergoing mechanical performance testing fail to satisfy the requirements of an individual test code sheet then a record of the failure will be reported to WRAS by the Test Facility. Complete retesting of a new Sample will be required unless WRAS accepts that replacement of the failed component or product would not affect the performance of the other tests already carried out on the Sample which failed. (See WRAS Guidance documentation for further information.)
- 12.2. Should a replacement Sample subsequently fail the same test then it is deemed to be an outright failure and will be reported as such to the PAG. If the replacement fails a different test it is considered to be a first failure and treated as a failure during testing.

13. Modified replacement samples

- 13.1. If a Product fails to satisfy the requirements of an individual test code sheet and is then modified, the Applicant must provide a declaration detailing the nature and full extent of all modifications. In such cases the status of any earlier testing should be clarified with WRAS.
- 13.2. Where a modified Product is re-tested it is only deemed to be an outright failure if two failures are recorded for the same test.



14. Failure of samples representing a product range

14.1. Failure of one Sample from amongst a number of Samples representing a product range will be treated as a first failure of that particular model/size. An outright failure would only occur if the replacement example failed the same test. (Please refer to the WRAS Guidance documentation for further information).

15. Failure of early audits

15.1. The failure of a Product submitted for early audit will at the discretion of WRAS render the current Approval null and void and will result in the Approval being removed from the Directory.

16. Certificates

16.1. WRAS will issue a certificate within two weeks of a product gaining Approval. Normally only one certificate per Directory entry will be released however in certain circumstances (at the sole discretion of WRAS and subject to payment of an additional fee) two may be issued. (See WRAS Guidance documents for further information.)

16.2. WRAS Approval certification is acceptable evidence of compliance of the Product with the requirements of Regulation/Byelaw 4. WRAS will only issue amended certification on return of the original, unless WRAS accepts that there is a genuine reason why this cannot be done.

17. Directory entries

17.1. Duplicate Directory entries for products are not permitted.

17.2. All newly approved WRAS listings will be added to the on line WRAS Product & Material Directory within two weeks of them gaining Approval.

17.3. All expired Approvals will be deleted from the Directory within four weeks following their expiry dates.

18. Alterations and additions to an existing approval

18.1. All requests for alterations or addition to a current Approval should be made directly to WRAS. Any controversial applications for revision to an Approval will be determined by the PAG.

18.2. There are no restrictions on the number of revisions that can be made to an Approval during its lifetime provided that the conditions of the Scheme are complied with.

18.3. Additions to an existing Approval without the need for additional testing of the Product will only be permitted if the Scheme's sampling acceptance criteria are not breached. (See WRAS Guidance documentation for further information.)

19. Secondary Approvals

Approval Holders can apply for Secondary Approvals for their Factors. (See WRAS Guidance documentation for further information.) Any Secondary Approvals granted shall be governed by these Standard Terms of Approval and the Approval Holder shall ensure that all Factors adhere to these Standard Terms of Approval.



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20. WRAS Approved Product logo

20.1. The "WRAS Approved Product" and WRAS Approved Material" logos are certification marks registered under the Trade Marks Acts 1994 ("Certification Marks"). Approval Holders shall be entitled to use the Certification Marks upon the licence terms set out in this clause 20 ("Licence Terms").

20.2. Approval Holders acknowledge that WRAS is the owner of the Certification Marks and that they shall not do anything which may be taken to indicate that they have any right or interest in the Certification Marks other than as set out in these Standard Terms of Approval.

20.3. Prior to an Approval being granted Applicants shall not use the Certification Marks or the WRAS name or logo in any publication or suggest or imply any endorsement of a particular product or range of products by the Scheme either verbally, in writing or by any other means.

20.4. The Certification Marks indicate that the UK Water Industry have endorsed the product detailed in the WRAS Product and Materials Directory as described in clause 3.2.

20.5. Approval Holders may use the Certification Marks only in respect of those Approved Products listed in the Approval Letter and only for the duration of the Approval Period applicable to those Approved Products

20.6. Approval Holders are entitled to use the Certification Markson the packaging, promotional literature and point of sale advertising for Approved Products.

20.7. Where a Certification Mark is used, it must be replicated without adaptation or alteration, save that reproducing the logo in black and white as opposed to colour is permissible.

20.8. The Certification Marks may only be used in connection with a product range where each individual product and/or material and/or component within that product range has been granted individual WRAS Approval.**20.9** The Approval Holder shall inform its Factors and agents that any Modification or other alteration to the Approved Product may invalidate the Approval and shall inform WRAS of any Modification or other alteration as soon as this comes to the Approval Holder's attention.

20.9. The Approval Holder shall not sub-licence, assign, transfer or otherwise deal with the Certification Marks other than on these Licence Terms.

20.10. The Approval Holders shall adhere to the terms of all brand guidelines issued by WRAS from time to time. Failure to comply with all brand guidelines will immediately invalidate a previously granted Approval.

20.11. The Approval Holder at all times remains responsible for the correct use of the Certification Marks by its Factors.

UTILIZAREA AUTOPROIECTULUI "PROIECTUL SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA."
"APROVIZIONAREA CU PRODUSE DE CALITATE ÎN LOCALITĂȚILOR"



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21. Withdrawal of Approvals

21.1. WRAS reserves the right to withdraw an Approval in the following circumstances:

21.2. where there has been a breach by the Applicant / Approval Holder of any of its obligations in clause 2 above or any other provision of these Standard Terms of Approval;

21.3. where there has been a change in any relevant law, regulation or any other requirement which affects the issue of WRAS Approvals from time to time.

21.4. Where PAG considers that an existing Approval was granted incorrectly, or becomes invalid, or requires amendment, WRAS reserves the right to suspend, amend or cancel the Approval, to amend or remove details of it from the WRAS Product and Materials Directory and to require the return of the WRAS Approval certificate. At its sole discretion, WRAS may publish details of the withdrawal, amendment or suspension of an Approval.

22. Limitation of Liability

22.1. Nothing in these Standard Terms of Approval shall limit or exclude WRAS's liability for:

22.1.1. death or personal injury caused by its negligence, or the negligence of its employees, agents or contractors;

22.1.2. fraud or fraudulent misrepresentation; or

22.1.3. breach of the terms implied by section 2 of the Supply of Goods and Services Act 1982.

22.2. WRAS shall not be liable to the Applicant or Approval Holder, whether in contract, tort (including negligence), breach of statutory duty, or otherwise, for any loss of profits, loss of sales or business, loss of agreements or contracts, loss of or damage to goodwill or for any indirect or consequential loss arising under or in connection with any Application or Approval.

22.3. WRAS's total liability to the Applicant / Approval Holder in respect of all other losses arising under or in connection with any Application or Approval, whether in contract, tort (including negligence), breach of statutory duty, or otherwise, shall not exceed the sum of the WRAS Fee paid the relevant Applicant / Approval Holder to WRAS.

22.4. Except as set out in these Standard Terms of Approval, all warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded.

23. Disputes & Appeals

23.1. Applicants or Approval Holders who have a complaint about the refusal, suspension or withdrawal of an Approval or conditions attached to an Approval, or about other aspects of the WRAS Approval Scheme, should ask the WRAS Approvals Manager to investigate their complaint. The Approvals & Enquiries Manager will take action as he or she considers appropriate. Where this does not resolve the complaint, Applicants/Approval Holders should write to the Managing Director of WRAS with details of their complaint. If an Applicant/Approval Holder is dissatisfied with the way a complaint has been dealt with by the Managing Director, the Applicant/Approval Holder may request a review by the Technical Committee Chairman. The Chairman may appoint a panel with relevant experience to investigate the complaint and make a recommendation. The decision of the Chairman in determining such complaints shall, save in the case of manifest error or omission, be final and binding on the parties.

24. General

24.1. Any decision, requirement or notification under these Standard Terms of Approval shall be given by in writing (which shall include email) by or on behalf of the party giving it.

24.2. WRAS may revise these Standard Terms of Approval from time to time in order to reflect changes in relevant laws and other regulatory and Scheme requirements. Whenever WRAS revises these Standard Terms of Approval, WRAS will notify you in writing (which may include email where we have been provided with an email address) and the updated terms Standard Terms of Approval will be uploaded onto the WRAS website www.wras.co.uk.

24.3. WRAS will not be liable or responsible for any failure to perform, or delay in performance of any of its obligations to Applicants or Approval Holders that is caused by an Event Outside Our Control.

24.4. These Standard Terms of Approval and any disputes or claims arising out of or in connection with them or their subject matter (including non-contractual disputes or claims) shall be governed by, and construed in accordance with the laws of England and Wales and the parties irrevocably submit to the exclusive jurisdiction of the courts of England and Wales..



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acreditat pentru
CERTIFICARE



SR EN ISO/CEI 17021-1:2015
CERTIFICAT DE ACREDITARE
SM 004



C E R T I F I C A T

SRAC *certifică organizația/ certifies the organisation*

EATON ELECTRIC S.R.L.

Șos. București - Ploiești, nr. 44, Băneasa Business & Technology Park,
Clădirea B, etajul 3, Localitatea Ilfov, București

*pentru următoarele activități/
for the following fields of activities*

*Comercializare echipamente și componente electrice de joasă și medie tensiune.
Instalare, service, mentenanță, suport tehnic și reparații pentru echipamente electrice*

*Sale of low and medium voltage electrical equipment and components. Installation,
service, maintenance, technical support and repair for electrical equipment*

că are implementat și menține un
sistem de managementul calității
conform condițiilor din standardul

which has implemented and maintains a
quality management system
which fulfils the requirements of the standard

SR EN ISO 9001:2015 (ISO 9001:2015)



Valabilitatea certificatului este condiționată de
efectuarea supravegheților, anuale până la data de:



10-
2020

2020

nr. certificat/ certificate registration no. **2249**

data inițială a certificării/ initial certification date **22 octombrie 2004**

data recertificării/ reissuing date **07 octombrie 2019**

data ultimei actualizări/ last update -

valabil până la/ valid until **08 octombrie 2022** (cu condiția vizării anuale)

SRAC CERT SRL, Str. Vasile Pârvan Nr. 14, Sector 1, București www.srac.ro

Director General
Ing. Mihaela Cristea



SC



Net

THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

SRAC as an IQNet Partner hereby states that the organization:

EATON ELECTRIC S.R.L.

Șos. București - Ploiești, nr. 42 - 44, Băneasa Business & Technology Park,
Clădirea B, et. 3, Aripa B2, sector 1, București

for the following scope:

Sale of low and medium voltage electrical equipment and components. Installation,
service, maintenance, technical support and repairs for electrical equipment

has implemented and maintains a
Quality Management System

which fulfils the requirements of the following standard:

ISO 9001 : 2015

Issued on: 2019 - 10 - 07

First issued on: 2004 - 10 - 22

for the validity date, please refer to the original certificate* issued by SRAC

Registration Number: RO - 2249



Alex Stoichitoiu
President of IQNet

eng. Mihaela Cristea
SRAC General Manager



IQNet Partners:**

AENOR Spain AENOR Certification France APCER Portugal CCC Cyprus CISQ Italy
CQC China CQM China CQS Czech Republic Cro Cert Croatia DQS Holding GmbH Germany FCAV Brazil
FONDONORMA Venezuela ICONTEC Colombia Inspecta Certification Finland INTECO Costa Rica
IRAM Argentina JQA Japan KFQ Korea MIRTEC Greece MSZT Hungary Nemko AS Norway NSAI Ireland PCBC Poland
Quality Austria Austria RR Russia SIGE México SI Israel SIQ Slovenia SIRIM QAS International Malaysia
SQS Switzerland SRAC Romania TEST St Petersburg Russia TSE Turkey Vinçotte Belgium YUQS Serbia
IQNet is represented in the USA by: AENOR Certification, CISQ, DQS Holding GmbH and NSAI Inc.

* This attestation is directly linked to the IQNet Partner's original certificate and shall not be used as a stand-alone document

** The list of IQNet partners is valid at the time of issue of this certificate. Updated information is available under www.iqnet-certification.com

SC

acreditat pentru
CERTIFICARE



SR EN ISO/CEI 17021-1:2015
CERTIFICAT DE ACREDITARE
SM 004



C E R T I F I C A T

SRAC *certifică organizația/ certifies the organisation*

EATON ELECTRIC S.R.L.

Șos. București - Ploiești, Nr. 44, Băneasa Business & Technology Park,
Clădirea B, Etaj 3, Box B2, sector 1, București

*pentru următoarele activități/
for the following fields of activities*

*Comercializare echipamente și componente electrice de joasă și medie tensiune.
Instalare, service, mentenanță, suport tehnic și reparații pentru echipamente electrice*

*Sale of low and medium voltage electrical equipment and components. Installation,
service, maintenance, technical support and repairs for electrical equipment*

că are implementat și menține un
sistem de management de mediu
conform condițiilor din standardul

which has implemented and maintains a
environmental management system
which fulfils the requirements of the standard

SR EN ISO 14001:2015 (ISO 14001:2015)



Valabilitatea certificatului este condiționată de
efectuarea supravegheșilor anuale până la data de



10-
2020

2020

nr. certificat/ certificate registration no. 275

data inițială a certificării/ initial certification date 01 aprilie 2005

data recertificării/ reissuing date 07 octombrie 2019

data ultimei actualizări/ last update -

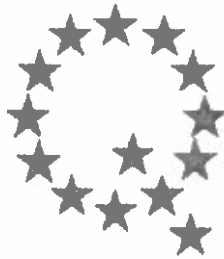
valabil până la/ valid until 08 octombrie 2022 (cu condiția vizării anuale)

SRAC CERT SRL, Str. Vasile Pârvan Nr. 14, Sector 1, București www.srac.ro

Director General
Ing. Mihaela Cristea



CC



Net

THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

SRAC as an IQNet Partner hereby states that the organization:

EATON ELECTRIC S.R.L.

Șos. București - Ploiești nr. 42 - 44, Băneasa Business & Technology Park,
Clădirea B, et. 3, Aripa B2, sector 1, București

for the following scope:

Sale of low and medium voltage electrical equipment and components. Installation,
service, maintenance, technical support and repairs for electrical equipment

has implemented and maintains a

Environmental Management System

which fulfils the requirements of the following standard:

ISO 14001 : 2015

Issued on: 2019 - 10 - 07

First issued on: 2005 - 04 - 01

for the validity date, please refer to the original certificate* issued by SRAC

Registration Number: RO - 279



Alex Stoichitoiu
President of IQNet

eng. Mihaela Cristea
SRAC General Manager



IQNet Partners**

- AENOR Spain AFNOR Certification France APCER Portugal CCC Cyprus CISQ Italy
 - CQC China CQM China CQS Czech Republic Cro Cert Croatia DQS Holding GmbH Germany FCAV Brazil
 - FONDONORMA Venezuela ICONTEC Colombia Inspecta Certification Finland INTECO Costa Rica
 - IRAM Argentina JQA Japan KFQ Korea MIRTEC Greece MSZT Hungary Nemko AS Norway NSAI Ireland PCBC Poland
 - Quality Austria Austria RR Russia SIGE México SII Israel SIQ Slovenia SIRIM QAS International Malaysia
 - SQS Switzerland SRAC Romania TEST St Petersburg Russia TSE Turkey Vinçotte Belgium YUQS Serbia
- IQNet is represented in the USA by: AFNOR Certification, CISQ, DQS Holding GmbH and NSAI Inc.

* This attestation is directly linked to the IQNet Partner's original certificate and shall not be used as a stand-alone document
 ** The list of IQNet partners is valid at the time of issue of this certificate. Updated information is available under www.iqnet-certification.com

SL



C E R T I F I C A T

SRAC **certifică organizația/ certifies the organisation**

EATON ELECTRIC S.R.L.

Șos. București - Ploiești, Nr. 44, Băneasa Business & Technology Park,
Clădirea B, etaj 3, Birou B2, sector 1, București

**pentru următoarele activități/
for the following fields of activities**

*Comercializare echipamente și componente electrice de joasă și medie tensiune.
Instalare, service, mentenanță, suport tehnic și reparații pentru echipamente electrice*

*Sale of low and medium voltage electrical equipment and components. Installation,
service, maintenance, technical support and repair for electrical equipment*

că are implementat și menține un
**sistem de management al sănătății
și securității ocupaționale**
conform condițiilor din referențialul

which has implemented and maintains an
**occupational health and safety
management system**
which fulfils the requirements of the reference standard

SR ISO 45001:2018 (ISO 45001:2018)



Valabilitatea certificatului este condiționată de
efectuarea subiectivelor anuale până la data de:



10-
2020

10-
2020

nr. certificat/ certificate registration no. **1299**

data inițială a certificării/ initial certification date **09 ianuarie 2009**

data recertificării/ reissuing date **07 octombrie 2019**

data ultimei actualizări/ last update -

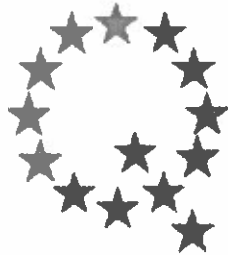
valabil până la/ valid until **08 octombrie 2022** (cu condiția vizării anuale)

SRAC CERT SRL, Str. Vasile Pârvan Nr. 14, Sector 1, București www.srac.ro

Director General
Ing. Mihaela Cristea



SC



IQNet

THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

SRAC as an IQNet Partner hereby states that the organization:

EATON ELECTRIC S.R.L.

Șos. București - Ploiești, nr. 42 - 44, Băneasa Business & Technology Park,
Clădirea B, et. 3, Aripa B2, sector 1, București

for the following scope:

Sale of low and medium voltage electrical equipment and components. Installation,
service, maintenance, technical support and repairs for electrical equipment

has implemented and maintains a

Occupational Management System

which fulfils the requirements of the following standard:

ISO 45001:2018

Issued on: 2019 - 10 - 08

First issued on: 2009 - 01 - 08

for the validity date, please refer to 'the original certificate' issued by SRAC

Registration Number: RO - 12009



Alex Stoichitoiu
President of IQNet

eng. Mihaela Cristea
SRAC General Manager



IQNet Partners:**

- AENOR Spain AFNOR Certification France APCER Portugal CCC Cyprus CISQ Italy
 - CQC China CQM China CQS Czech Republic Cro Cert Croatia DQS Holding GmbH Germany FCAV Brazil
 - FONDONORMA Venezuela ICONTEC Colombia Inspecta Certification Finland INTECO Costa Rica
 - IRAM Argentina JQA Japan KFQ Korea MIRTEC Greece MSZT Hungary Nemko AS Norway NSAI Ireland PCBC Poland
 - Quality Austria Austria RR Russia SIGE México SII Israel SIQ Slovenia SIRIM QAS International Malaysia
 - SQS Switzerland SRAC Romania TEST St Petersburg Russia TSF Turkey Vinçotte Belgium YUQS Serbia
- IQNet is represented in the USA by AFNOR Certification, CISQ, DQS Holding GmbH and NSAI Inc.

* This attestation is directly linked to the IQNet Partner's original certificate and shall not be used as a stand-alone document

** The list of IQNet partners is valid at the time of issue of this certificate. Updated information is available under www.iqnet-certification.com

SC

EU-Konformitätserklärung Nr. 2700458.CE.02

EU-Declaration of Conformity No. 2700458.CE.02

Hersteller / Manufacturer: PHOENIX CONTACT GmbH & Co. KG
 Anschrift / Address: Flachsmarktstraße 8, 32825 Blomberg, Germany

Produktbezeichnung / Product description: **IB IL AI 4/I-PAC**
(Artikelbezeichnung, / Article description, Artikel-Nr., / Article / Part no.) **2700458**

Der obige Hersteller erklärt in alleiniger Verantwortung, dass das/die hier bezeichnete(n) Produkt(e) mit den wesentlichen Anforderungen der nachfolgend genannten Richtlinie(n) und deren Änderungsrichtlinien übereinstimmt / The above manufacturer declares in sole responsibility, that the here specified product(s) is/are in line with the essential requirements of the following directive(s) and their delegated directive(s):

- 2011/65/EU **Beschränkung der Verwendung bestimmter gefährlicher Stoffe**
Restriction of the use of certain hazardous substances (RoHS)

- 2014/30/EU **EMV-Richtlinie (Elektromagnetische Verträglichkeit)**
Electromagnetic Compatibility Directive (EMC)

Für die Beurteilung der Übereinstimmung wurden folgende einschlägige Normen herangezogen:
 For evaluation of the conformity following relevant standards were consulted:

- EN 61000-6-2:2005+AC:2005 EN 61000-6-4:2007+A1:2011 * EN 61131-2:2007
- EN 50581:2012

Ergänzende Informationen (z. B. Anmerkungen, Einschränkungen, etc.) zur Konformitätsbewertung:
 Supplementary information (eg comments, restrictions, etc.) on conformity assessment:

Zertifikate einer benannten Stelle / Certificates by a notified body:

Anschrift / Address: _____

Referenz / Reference: _____

Anschrift / Address: _____

Referenz / Reference: _____

Diese Erklärung gilt auch für die im Anhang aufgelisteten Produkte. (wenn angekreuzt)
 This declaration also applies for the products listed in the annex. (if marked with a cross)

Diese Erklärung bescheinigt die Übereinstimmung mit den wesentlichen Anforderungen der genannten Richtlinie(n), enthält jedoch keine Zusicherung von Eigenschaften. Die Sicherheits- und Einbauhinweise der mitgelieferten Produktdokumentation sind zu beachten.
 This declaration certifies the conformity with the essential requirements of the indicated directive(s), it does not, however, covenant any characteristics. The instructions for safety and installation of the enclosed product documentation have to be observed.

Blomberg, 2018-11-03


 Klaus Brand
 Business Unit Control Systems
 Manager Development Analog I/O
Ansprechpartner / contact person¹


 Dr. Tobias Frank
 Business Unit Control Systems
 Vice President
Zeichnungsberechtigter / authorized signatory

Warnung: Dies ist ein Klasse A-Erzeugnis. In Wohngebieten kann es zu Störungen des Funkempfanges kommen. Der Betreiber soll entsprechende Schutzmaßnahmen treffen.
 Warning: This is a Class A product. In a domestic environment it may cause radio interference, in which case the user may be required to take adequate measures.

¹ Ansprechpartner ist auch für die technische Unterlagen verantwortlich. / Contact person is also responsible for the technical documentation.



SC



EU-Konformitätserklärung Nr. 1046666.CE.00 EU-Declaration of Conformity No. 1046666.CE.00

Hersteller / Manufacturer: **PHOENIX CONTACT Development and Manufacturing Inc.**
Anschritt / Address: **586 Fulling Mill Road, Middletown, PA 17057-2966, USA**

Produktbezeichnung / Product description: **BTP 2070W**
Artikelbezeichnung, / Article description,
Artikel-Nr. / Article no.) **1046666**

Der obige Hersteller erklärt in alleiniger Verantwortung, dass das/die hier bezeichnete(n) Produkt(e) mit den wesentlichen Anforderungen der nachfolgend genannten Richtlinie(n) übereinstimmt / The above manufacturer declares in sole responsibility, that the here specified product(s) is/are in line with the essential requirements of the following directive(s):

2011/65/EU	Beschränkung der Verwendung bestimmter gefährlicher Stoffe Restriction of the use of certain hazardous substances (RoHS)
2014/30/EU	EMV-Richtlinie (Elektromagnetische Verträglichkeit) Electromagnetic Compatibility Directive (EMC)

Für die Beurteilung der Übereinstimmung wurden folgende einschlägige Normen herangezogen:
For evaluation of the conformity following relevant standards were consulted:

EN 55011:2009+A1:2010	EN 61000-6-2:2005+AC:2005	EN 61000-6-4:2007+A1:2011 *
EN 61131-2:2007	EN 50581:2012	

Weitere Informationen (z. B. Dokumente, Prüfberichte, Einschränkungen, etc.) zur Konformitätsbewertung:
Additional information (for example documents, test reports, restrictions etc.) of the conformity assessment:

Zertifikate einer benannten Stelle / Certificates by a notified body:

Anschritt / Address: _____
Referenz / Reference: _____
Anschritt / Address: _____
Referenz / Reference: _____

Die letzten beiden Ziffern des Jahres in dem die CE-Kennzeichnung angebracht wurde:
The last two figures of the year in which the CE marking was applied: _____
(nur einzutragen, bei der Niederspannungsrichtlinie / only to be entered on the low voltage directive)

Diese Erklärung gilt auch für die im Anhang aufgelisteten Produkte. (wenn angekreuzt)
This declaration also applies for the products listed in the annex. (if marked with a cross)

Diese Erklärung bescheinigt die Übereinstimmung mit den wesentlichen Anforderungen der genannten Richtlinie(n), enthält jedoch keine Zusicherung von Eigenschaften. Die Sicherheits- und Einbauhinweise der mitgelieferten Produktdokumentation sind zu beachten.
This declaration certifies the conformity with the essential requirements of the indicated directive(s), it does not, however, covenant any characteristics. The instructions for safety and installation of the enclosed product documentation have to be observed.

Middletown, 2017-10-31


Michael Rothwell
Business Unit Control Systems
Vice President
Ansprechpartner / contact person


David Skelton
Development & Manufacturing
Vice President & General Manager
Zeichnungsberechtigter / Authorized signatory

Warnung: Dies ist ein Klasse A-Erzeugnis. In Wohngebieten kann es zu Störungen des Funkempfanges kommen. Der Betreiber soll entsprechende Schutzmaßnahmen treffen.
Warning: This is a Class A product. In a domestic environment it may cause radio interference, in which case the user may be required to take adequate measures.

FS A-07-0037 / -15
1046666.CE.00

Formblätterstichtag:
Date of form establishment:

2017-01-09

Formblättersteller:
Form establishment:

Corporate Quality & Processes

Blatt / Page 1 von / of 1



SC

Measuring instrument - EEM-MA400 - 2901364

Technical data

Ambient conditions

Ambient temperature (storage/transport)	-20 °C ... 85 °C (-4 °F ... 185 °F)
Max. permissible relative humidity (operation)	≤ 95 %
Max. salt spray content	≤ 2.5 %
Degree of protection	IP52 (Front)
	IP30 (Back side)

Input data

Measuring principle	True r.m.s. value measurement
Acquisition of harmonics	up to 51st harmonic
Measured value	AC sine (50/60 Hz)
Input name	Voltage measuring input V1, V2, V3
Input voltage range	50 V AC ... 500 V AC (Phase/Phase) 28 V AC ... 289 V AC (Phase/neutral conductor)
Precision	0.2 %
Input name	Current measurement I1, I2, I3
Input current range	via external transformers
Input current	9999 A (primary) 5 A (secondary)
Current measuring range	0 A ... 9999 A
Overload capacity	6 A (Permanent)
Response threshold from measuring range nominal value	5 mA
Precision	0.2 %
Current overload	10 x I _N for 1 s
Messbereich_Leistung	0 MW ... 41 MW 0 Mvar ... 11 Mvar 0 MVA ... 11 MVA
Precision	0.5 %
Active energy (IEC 62053-22)	Class 0.5 S
Reactive power (IEC 62053-23)	Class 2

Output data

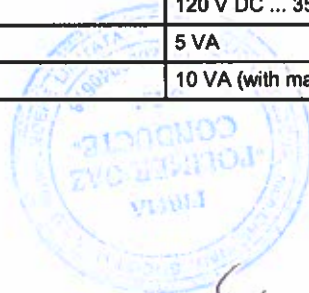
Output description	Via function module
--------------------	---------------------

Interfaces

Designation	via communication module
-------------	--------------------------

General

Display	LCD display, backlighting
Measuring rate	approximately
Supply voltage range	110 V AC ... 400 V AC ±10 % 120 V DC ... 350 V DC (# 20 %)
Nominal power consumption	5 VA
Power consumption	10 VA (with max. number of extension modules)



SC

Measuring instrument - EEM-MA400 - 2901364

Technical data

General

Mains type	3-phase (3 or 4-wire), 2-phase (2-wire), and single-phase (1-wire)
Color	black
Conformance	CE-compliant
Rated insulation voltage	300 V AC (EN 61010-1)
Test voltage	3.5 kV AC (50 Hz, 1 min.)
	2.2 kV AC (50 Hz, 1 min.)

UL data

Supply voltage	300 V AC
Nominal supply voltage range	110 V AC ... 240 V AC ±10 %
	120 V DC ... 250 V DC ±10 %
Power consumption	10 VA
Operating mode	Indoor use
Surge voltages	Transient overvoltage according to installation classes
Overvoltage category	I, II, III
Overvoltage category of the supply	Min. II
Altitude	≤ 2000 m
Ambient temperature (operation)	0 °C ... 40 °C
Max. permissible relative humidity (operation)	80 % (up to 31 °C)
	50 % (at 40 °C)

Standards and Regulations

Conformance	CE-compliant
UL, USA/Canada	UL 61010-1
	CSA-C22.2 No. 61010-1
	cULus

Environmental Product Compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

Classifications

eCl@ss

eCl@ss 4.0	27210900
eCl@ss 4.1	27210900
eCl@ss 5.0	27210900
eCl@ss 5.1	27210900
eCl@ss 6.0	27142300
eCl@ss 7.0	27142330
eCl@ss 8.0	27142330
eCl@ss 9.0	27142330



UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROTECTIA SI LOCALITATILOR. SA MAI TRECUTII-ADUCANI SI TOMAI RAION IEOVA.

Measuring instrument - EEM-MA400 - 2901364

Classifications

ETIM

ETIM 4.0	EC002301
ETIM 5.0	EC002301
ETIM 6.0	EC002301
ETIM 7.0	EC002301

UNSPSC

UNSPSC 6.01	30211916
UNSPSC 7.0901	39121535
UNSPSC 11	39121535
UNSPSC 12.01	39121535
UNSPSC 13.2	39121535

Accessories

Accessories

Assembly adapter

DIN rail adapter - EEM-MKT-DRA - 2902078



DIN rail adapter for EEM-MA600 and EEM-MA400 energy meters

Communication module

Communication module - EEM-RS485-MA400 - 2901365



RS-485 JBUS/MODBUS communication module for EEM-MA400

Function module

Special function module - EEM-IMP-MA400 - 2904314



Function module with a pulse or alarm output for the EEM-MA400



PROIECTARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL SIRMIA, TOCHILE-RADUCANI SI TOMAI RAION LEOVA

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UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL
"APROVIZIONAREA CU APĂ POTABILĂ A LOCALITĂȚILOR, SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA"



Zertifizierungsvertrag

Grundlage für die Zertifikatserteilung ist die Prüf- und Zertifizierungsordnung von TÜV SÜD Product Service.

Mit Erhalt des Zertifikates erkennt der Zertifikatsinhaber die jeweils gültige Fassung der Prüf- und Zertifizierungsordnung an (www.tuev-sued.com/ps_regulations) und wird somit Partner im Zertifizierungssystem von TÜV SÜD Product Service.

Prinzipielle Voraussetzung für die Gültigkeit des Zertifikates:

- Gültigkeit der zitierten normativen Prüfgrundlage(n) ist gegeben und zusätzlich bei Zertifikaten mit Berechtigung zur Verwendung eines Prüfzeichens bzw. bei Zertifikaten für QM-Systeme:
- Voraussetzungen für vorschriftsmäßige Fertigung werden eingehalten.
- Die Fertigungs- bzw. Betriebsstätten werden regelmäßig überwacht.

Certification contract

Certification is based on the TÜV SÜD Product Service Testing and Certification Regulations. On receipt of the certificate the certificate holder agrees to the current version of the Testing and Certification Regulations (www.tuv-sud.com/ps_regulations) and thus becomes partner in the TÜV SÜD Product Service Certification System.

Requirements for the validity of the certificate in principle:

- Validity of the quoted test standard(s) In addition, for certificates with the right to use a certification mark and for QM certificates:
- Conditions for an adequate manufacturing are maintained
- Regular surveillance of the facility is performed

认证合约

认证基于 TÜV SÜD 产品服务《测试及认证准则》。获得证书即表明证书持有者接受当前版本的《测试及认证准则》(见 www.tuv-sud.com/ps_regulations) 并成为 TÜV SÜD 产品服务认证系统内的合作伙伴。

维持证书有效性的原则要求：

- 认证所依据标准的有效性
- 此外，对于授权可使用认证标志的证书和质量管理体系证书：
- 保持充分的生产条件
 - 产场地通过定期的监督

認證契約

認證は TÜV SÜD Product Service の試験認証規約に基づく。認証書保持者は認証書を受領することにより最新の試験認証規約(www.tuv-sud.com/ps_regulations)に同意したものとする。その結果、TÜV SÜD Product Service 認証システムのパートナーとなる。

認證書の有効性に関する原則的な要求事項

- 引用している試験規格が有効である
- さらに認証マークの使用を許諾された認証書や品質マネジメント認証書は：
- 適切な製造の条件を維持している
 - 定期的な工場監査を実施している

Contrato de certificação

A certificação se baseia nos Regulamentos de Testes e Certificação do Grupo TÜV SÜD. Ao receber o certificado, o Fornecedor, titular do certificado concorda com a versão atual dos Regulamentos de Testes e Certificação do Grupo TÜV SÜD (www.tuv-sud.com/ps_regulations) e assim, torna-se parceiro no Sistema de Certificação de Produtos e Serviços TÜV SÜD.

Requisitos para a validade do certificado (em princípio):

- Validade da(s) norma(s) de ensaio(s) referenciada(s).
- Adicionalmente, para os certificados com o direito ao uso da marca de certificação e para certificados de SG:
- Condições de fabricação adequada estão mantidas.
 - Auditoria de monitoração realizada regularmente.

Certificate of Approval

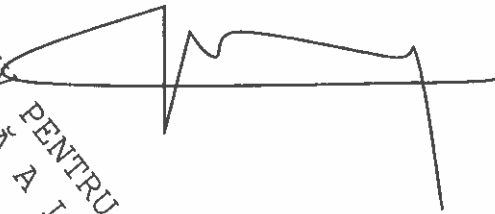
This is to certify that the Management System of:

ELDON Romania SRL

4 Brodette Ave., Parc Industrial Prejmer - Graells & Llonch,, 507165 Prejmer, Romania

has been approved by LRQA to the following standards:

ISO 9001:2015



Gilles Bessiere

Issued By: Lloyd's Register (Romania) (Srl) or and on behalf of: Lloyd's Register Quality Assurance Ltd

Current Issue Date: 7 November 2017
Expiry Date: 8 December 2020
Certificate Identity Number: 10036289

Original Approvals:
ISO 9001 – 9 December 2008

Approval Number(s): ISO 9001 – 0027386

The scope of this approval is applicable to:

Design, manufacture and distribution of enclosures and accessories for electrical, electronic, data and telecom applications.



001



Lloyd's Register

Certificate of Approval

This is to certify that the Management System of:

ELDON Romania SRL

4 Brodette Ave., Parc Industrial Prejmer - Graells & Lonch,, 507165 Prejmer, Romania

has been approved by LRQA to the following standards:

ISO 14001:2015

Gilles Bessiere

Issued By: Lloyd's Register (Romania) (Srl) or and on behalf of: Lloyd's Register Quality Assurance Ltd

Current Issue Date: 7 November 2017
Expiry Date: 22 November 2020
Certificate Identity Number: 10036291

Original Approvals:
ISO 14001 – 23 November 2011

Approval Number(s): ISO 14001 – 0027546

The scope of this approval is applicable to:

Activities including and associated with design, manufacture and distribution of enclosures and accessories for electrical, electronic, data and telecom applications



001

UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL "APROVIZIONAREA CU APA POTABILĂ A LOCALITĂȚILOR SÎRMEȘTI, TOCȘTEȘTI, RĂDUCANI ȘI TOMAI RAION LEOVA."

Certificate of Approval

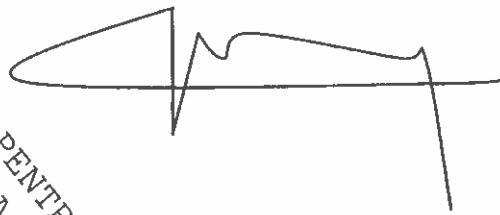
This is to certify that the Management System of:

ELDON Romania SRL

4 Buxes Ave., Parc Industrial Prejmer - Graells & Lonch,, 507165 Prejmer, Romania

has been approved by LRQA to the following standards:

ISO 45001:2018



Gilles Bessiere - Area Technical Manager

Issued by Lloyd's Register (Romania) (Srl)

for and on behalf of Lloyd's Register Quality Assurance Limited

Current issue date: 5 November 2018

Expiry date: 12 November 2020

Certificate identity number: 10164878

Original approval(s):

ISO 45001 – 13 November 2017

Approval number(s): ISO 45001 – 00017279

The scope of this approval is applicable to:

Activities including and associated with design, manufacture and distribution of enclosures and accessories for electrical, electronic, data and telecom applications.



001



Zertifizierungsvertrag

Grundlage für die Zertifikatserteilung ist die Prüf- und Zertifizierungsordnung von TÜV SÜD Product Service.

Mit Erhalt des Zertifikates erkennt der Zertifikatsinhaber die jeweils gültige Fassung der Prüf- und Zertifizierungsordnung an (www.tuev-sued.de/ps_regulations) und wird somit Partner im Zertifizierungssystem von TÜV SÜD Product Service.

Prinzipielle Voraussetzung für die Gültigkeit des Zertifikates:

- Gültigkeit der zitierten normativen Prüfgrundlage(n) ist gegeben und zusätzlich bei Zertifikaten mit Berechtigung zur Verwendung eines Prüfzeichens bzw. bei Zertifikaten für QM-Systeme:
- Voraussetzungen für vorschriftsmäßige Fertigung werden eingehalten.
- Die Fertigungs- bzw. Betriebsstätten werden regelmäßig überwacht.

Certification contract

Certification is based on the TÜV SÜD Product Service Testing and Certification Regulations. On receipt of the certificate the certificate holder agrees to the current version of the Testing and Certification Regulations (www.tuv-sud.com/ps_regulations) and thus becomes partner in the TÜV SÜD Product Service Certification System.

Requirements for the validity of the certificate in principle:

- Validity of the quoted test standard(s) In addition, for certificates with the right to use a certification mark and for QM certificates:
- Conditions for an adequate manufacturing are maintained
- Regular surveillance of the facility is performed

认证合约

认证基于 TÜV SÜD 产品服务《测试及认证准则》。获得证书即表明证书持有者接受当前版本的《测试及认证准则》(见 www.tuv-sud.com/ps_regulations) 并成为 TÜV SÜD 产品服务认证系统内的合作伙伴。

维持证书有效性的原则要求：

- 认证所依据标准的有效性
- 此外，对于授权使用认证标志的证书和质量管理体系证书：
- 保持充分的生产条件
 - 生产场地通过定期的监督

認證契約

認證是 TÜV SÜD Product Service の試験認証規約に基づく。認証書保持者は認証書を受領することにより最新の試験認証規約(www.tuv-sud.com/ps_regulations)に同意したものとす。その結果、TÜV SÜD Product Service 認証システムのパートナーとなる。

認證書の有効性に関する原則的な要求事項

- 引用している試験規格が有効である
- さらに認証マークの使用を許諾された認証書や品質マネジメント認証書は：
- 適切な製造の条件を維持している
 - 定期的な工場監査を実施している

Contrato de certificação

A certificação se baseia nos Regulamentos de Testes e Certificação do Grupo TÜV SÜD. Ao receber o certificado, o Fornecedor, titular do certificado concorda com a versão atual dos Regulamentos de Testes e Certificação do Grupo TÜV SÜD (www.tuv-sud.com/ps_regulations) e assim, torna-se parceiro no Sistema de Certificação de Produtos e Serviços TÜV SÜD.

Requisitos para a validade do certificado (em princípio):

- Validade da(s) norma(s) de ensaio(s) referenciada(s).
- Adicionalmente, para os certificados com o direito ao uso da marca de certificação e para certificados de SG:
- Condições de fabricação adequada estão mantidas.
 - Auditoria de monitoração realizada regularmente.

CERTIFICATE



This is to certify that

PHOENIX CONTACT Group

Flachsmarktstraße 8
32825 Blomberg
Germany

with the organizational units/sites as listed in the annex

has implemented and maintains an **Energy Management System**.

Scope:

Development, manufacturing and sale of electromechanical and electrical connecting elements, plug connectors, electronic interface systems, surge voltage protection, industrial communication and automation systems, software, cable assembly, tools, machines for special purposes, components, products, solutions and services for electrical engineering and automation, as well as services for functional safety, safety of machinery and operational reliability

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO 50001 : 2011

Certificate registration no.	239330 EMSt
Valid from	2016-09-23
Valid until	2019-09-22
Date of certification	2016-09-16



Deutsche
Akkreditierungsstelle
D-ZM 16074-01-00

DQS GmbH

Frank Graichen
Managing Director





**Annex to certificate
Registration No. 239330 EMSt**

PHOENIX CONTACT Group

Flachsmarktstraße 8
32825 Blomberg
Germany



Location

Scope

058140
PHOENIX CONTACT GmbH & Co. KG
Flachsmarktstraße 8
32825 Blomberg
Germany

Development, manufacturing and sale of electromechanical and electrical connecting elements, plug connectors, surge voltage protection, cable assembly, tools, machines for special purposes, components, products, solutions and services for electrical engineering and automation, sale of electronic interface systems, industrial communication and automation systems and software

061639
PHOENIX CONTACT ELECTRONICS GmbH
Dringenauer Straße 30
31812 Bad Pyrmont
Germany

Development, manufacturing and sale of electronic interface systems, industrial communication and automation systems, software, components and services for electrical engineering and automation, as well as services for functional safety, safety of machinery and operational reliability

003418
PHOENIX FEINBAU GmbH & Co. KG
Gustavstraße 3
58511 Lüdenscheid
Germany

Manufacturing and sale of electromechanical and electrical connecting elements, plug connectors, components for electrical engineering and automation, development, manufacturing and sale of tools

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TOCH
RĂDUCANI
ȘI TOMAI
RAION
LEOVA.



This annex (edition: 2016-09-16) is only valid in connection with the above-mentioned certificate

Confirmation on quality assurance according to nuclear standard KTA 1401

On behalf of the German nuclear power plant operators,
PreussenElektra GmbH as a partner of the VGB PowerTech e.V.
working group Assessment of Contractors confirms



Phoenix Contact Group

valid for the sites

Phoenix Contact GmbH & Co. KG
Flachmarktstraße 8, D-32825 Blomberg

Phoenix Contact Electronics GmbH
Dringenauer Straße 30, D-31812 Bad Pyrmont

Phoenix Contact Deutschland GmbH
Flachmarktstraße 8, D-32825 Blomberg

Phoenix Contact Power Supplies GmbH
Oberes Feld 1, D-33106 Paderborn

and the scope of supply and services

EnBW

Design, Manufacturing and Sale of Electrical and Electronic Connecting Elements, Power Supply and Surge Voltage Protection Modules, as well as Electronic Interface Systems



the qualification for system- and product related quality assurance.

The assessment was performed on 25 June 2019 by

Dr.-Ing. Götz Berenbrock Ingenieurbüro

based on the standard **KTA 1401** as well as on the assessment documents of the VGB PowerTech e.V. working group Assessment of Contractors in consideration of product related requirements.

Details of the assessment are given in the report DGBI 2019/011.

This confirmation is valid until **08 March 2022** provided that the conditions on which the assessment was based have not been changed.

RWE

Hanover, 27 June 2019

PreussenElektra GmbH



Vattenfall Europe
Nuclear Energy



UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL
"APROVIZIONAREA CU S.P.A. POARȚA LOCALITĂȚII
RUCHELE-RAĐONCI ST. TOMAI RAION LEOVA."



Certificate of Compliance

Certificate: 1422951

Master Contract: 183409

Project: 1422951

Date Issued: May 26, 2003

Issued to: Eldon B. V.
Tussendreef 64-66
9206 AD DRACHTEN
THE NETHERLANDS

The products listed below are eligible to bear the CSA Mark shown



Authorized by: G. Foulem

PRODUCTS

CLASS 3211 07 – INDUSTRIAL CONTROL EQUIPMENT – Miscellaneous Apparatus

Industrial Control Panel Enclosures, for general purpose and special purpose applications, for floor standing and wall mounting

Series	MCS.....;	Type 4, Type 12, Type 13
	MCD.....;	Type 12, Type 13
	MCI.....;	Type 4, Type 12, Type 13
	MKS.....;	Type 4, Type 12, Type 13
	MKD.....;	Type 12, Type 13
	MAS.....;	Type 4, Type 12, Type 13
	MAD.....;	Type 12
	MAP.....;	Type 4, Type 12, Type 13 (enclosure with steel closed door only)





Certificate: 1442951
Project: 1442951

Master Contract: 183409
Date: May 26, 2003

General Notes

1. These are metal enclosures intended for use with industrial control equipment where the acceptability of the combination has been determined by the Canadian Standards Association.
2. The type designations are completed by suffixes indicating dimensions. Accessories as indicated in the Certification Report may be provided or supplied with.
3. The Certification of this submitter's enclosures covers mechanical parts only (no electrical parts are involved).

APPLICABLE REQUIREMENTS

- | | |
|------------------------------------|---|
| CSA Standard C22.2 No. 0 - M91 | General Requirements |
| CSA Standard C22.2 No. 0.4 - M1982 | Bonding and Grounding of Electrical Equipment |
| CSA Standard C22.2 No. 14 - 95 | - Industrial Control Equipment |
| CSA Standard C22.2 No. 94 - M91 | - Special Purpose Enclosures. |
- Electrical Certification Notices Nos. 587 and 587A.



SC

UTILIZARE AUTORIZATĂ EXCLUSIV PENTRU PROIECTUL
"APROVIZIONAREA CU apă CALDĂ A LOCALITĂȚII DOBROȘIȚA"
SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LECTIA.



Supplement to Certificate of Compliance

Certificate: 1442951

Master Contract: 183409

The products listed, including the latest revision described below,
are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
1442951	May 26, 2003	CSA original certification of types MCS., MCD., MCI., MKS., MKD., MAS., MAD., MAP.





Declaration of Compliance

We: ELDON Group
Pº de la Finca 1, Ed 3
Madrid 28223

declare under our sole responsibility that the product ranges

MCS, MCD, MKS, MKD, EKS, EKD, Mild steel floorstanding enclosures
MCSS, MCDS, EKSS, EKDS, Stainless steel floorstanding enclosures
MAS, MAD, MAP, Mild steel wall mounted enclosures
ADR, AFS, ASR, Stainless steel wall mounted enclosures
STB, Mild steel terminal boxes
SSTB, Stainless Steel terminal boxes

to which this declaration relates, comply with the relevant requirements stated in the standard IEC 61439-1&2:2011 (Low-voltage switchgear and controlgear assemblies – Part 1: General rules) for empty enclosures:

Section 8.1 Strength of material and parts

Section 8.2 Degree of protection

The compliance has been verified through the empty enclosures certification following the standard IEC 62208:2011 (Empty enclosures for low-voltage switchgear and controlgear assemblies – General requirements), which has been issued by DEKRA in the following certificates:

KEMA Certificate 2171237.01

MAS, MAD, MAP, ASR, ADR, AFS, MCS, MCD, MKS, MKD, MCSS, MCDS

KEMA Certificate 2171237.02

EKS, EKD, EKSS, EKDS

KEMA Certificate 2171237.03

STB, SSTB

In addition, ELDON also declares that an enclosures assembly, built using ELDON enclosures and accessories, and following the mounting instructions available on Eldon's website, complies with IEC 61439-1&2:2011 (Low-voltage switchgear and controlgear assemblies).

Madrid, 20th February 2017

José Antonio Rodríguez Salvador,

Product Manager



CERTIFICATE OF COMPLIANCE

Certificate Number 20140707-E92044
Report Reference E92044-20080308
Issue Date 2014-JULY-07

Issued to: ELDON GROUP
Paseo De La Finca 1
Edif 13
28223 Pozuelo De Alarcon SPAIN

This is to certify that
representative samples of


INDUSTRIAL CONTROL PANELS
See Addendum Page

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

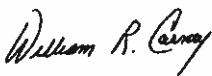
Standard(s) for Safety: UL 508A : standard for Industrial Control Panels
C22.2 No. 14-13 : standard for Industrial Control Equipment

Additional Information: See the UL Online Certifications Directory at
www.ul.com/database for additional information

Only those products bearing the UL Listing Mark for the US and Canada should be considered as
being covered by UL's Listing and Follow-Up Service meeting the appropriate requirements for US
and Canada.

The UL Listing Mark for the US and Canada generally includes: the UL in a circle symbol with "C" and
"US" identifiers:  the word "LISTED"; a control number (may be alphanumeric) assigned by UL;
and the product category name (product identifier) as indicated in the appropriate UL Directory.

Look for the UL Listing Mark on the product.



William R. Carney, Director, North American Certification Programs

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please
contact a local UL Customer Service Representative at www.ul.com/contactus



LEONA.

CERTIFICATE OF COMPLIANCE

Certificate Number 20140707-E92044
Report Reference E92044-20080308
Issue Date 2014-JULY-07

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

USL, ENL Type 4, 4X, 12 and 13 Industrial Control Panel Enclosures. Enclosures provided with observation window are rated only Type 12 and 13.

Type 4, 12 and 13 Industrial Control Panel Enclosures, Console Desk Versions, Types MPC and MPG

Type 4, 12 and 13 Industrial Control Panel Enclosures, wall mounted versions, Types MAP and MAS

Type 4, 12 and 13 Industrial Control Panel Enclosures, floor standing versions, Types MCI, MCS, MKS, EKS

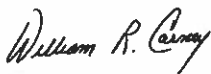
Type 4, 4X, 12 and 13 Industrial Control Panel Enclosures, floor standing versions, Types KSS

Type 4, 4X, 12 and 13 Industrial Control Panel Enclosures, wall mounted versions, Types AFS and ASR (single door versions only)

Type 4, 4X, 12 and 13 Industrial Control Panel Enclosures, Console Desk Versions, Types MPCS and MPGS (single door versions only)

Type 4, 4X, 12 and 13 Industrial Control Panel Enclosures, floor standing versions, Types EKSS, EKDS, MCSS.

Type 4, 4X, 12 and 13 Industrial Control Panel Enclosures, floor standing versions, Types EKOM, EKOM SW



William R. Carney, Director, North American Certification Programs

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at www.ul.com/contactus



LEOVA.

Declaratie de Conformitate

Nr. 553-0026

Noi, **EATON ELECTRIC SRL**

cu sediul in Bucuresti, sos. Bucuresti – Ploiesti nr. 42-44,
Baneasa Business & Technology Park, cladirea B2, et.3, sector 1, 013696

ca reprezentant unic in Romania al producatorilor din grupul Eaton,
in baza declaratiilor de conformitate emise de acestia,

declaram pe propria raspundere ca produsele (familia):

Contactor, Reversing starter combination

DILM.-...

(declaratia de conformitate se aplica pentru toate tipurile enumerate in catalogul nostru actual de produse)

sunt realizate in conformitate cu buna practica inginereasca in materie de siguranta in vigoare in Uniunea Europeana, nu pun in pericol viata, sanatatea, securitatea persoanelor si a animalelor domestice, nu produc un impact negativ asupra mediului, cu conditia instalarii si intretinerii in mod corespunzator, utilizarii in scopul pentru care au fost create, respectarii instructiunilor producatorului, standardelor specifice si a "bunelor practici ingineresti", si sunt conforme cu:

prevederile directivelor Uniunii Europene:

Low Voltage Directive 2014/35/EU

EMC Directive 2014/30/EU

si cu standardele Europene armonizate :

EN60947-4-1:2010, EN60947-5-1:2004+A1:2009

Bucuresti, Romania

25.04.2016

Razvan Sorescu

Quality, Environment,
Health & Safety
responsible

Gabriel Tache
Country Manager

Data de aplicare a marcatului CE:

Nr. document: 553-0026 / 25.04.2016



CERTIFICATE



This is to certify that the

PHOENIX CONTACT Group

for
PHOENIX CONTACT GmbH & Co. KG

Flachsmarktstraße 8
42826 Blomberg
Germany

with the organizational units/sites as listed in the annex

has implemented and maintains an **Energy Management System**.

Scope:

Development, manufacturing and sale of electromechanical and electrical connecting elements, plug connectors, electronic interface systems, surge voltage protection, industrial communication and automation systems, software, cable assembly, tools, machines for special purposes, components, products, solutions and services for electrical engineering and automation as well as services for functional safety, safety of machinery, and operational reliability

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO 50001 : 2018

Certificate registration no. 239330 EMSt18
Valid from 2019-09-27
Valid until 2022-09-26
Date of certification 2019-09-27



Deutsche
Akkreditierungsstelle
D-ZM-1607/01-00

DQS GmbH

Markus Bieher
Managing Director





**Annex to certificate
Registration No. 239330 EMSt18**

**PHOENIX CONTACT Group
PHOENIX CONTACT GmbH & Co. KG**

Flachsmarktstraße 8
32825 Blomberg
Germany

Location

068140
PHOENIX CONTACT GmbH & Co. KG
Flachsmarktstraße 8
32825 Blomberg
Germany

Scope

Development, manufacturing and sale of electromechanical and electrical connecting elements, plug connectors, surge voltage protection, cable assembly, tools, machines for special purposes, components, products, solutions and services for electrical engineering and automation, sale of electronic interface systems, industrial communication and automation systems and software

061639
PHOENIX CONTACT ELECTRONICS GmbH
Dringenauer Straße 30
31812 Bad Pyrmont
Germany

Development, manufacturing and sale of electronic interface systems, industrial communication and automation systems, software, components and services for electrical engineering and automation, as well as services for functional safety, safety of machinery, and operational reliability

003418
PHOENIX FEINBAU GmbH & Co. KG
Gustavstraße 3
58511 Lüdenscheid
Germany

Manufacturing and sale of electromechanical and electrical connecting elements, plug connectors, components for electrical engineering and automation, development, manufacturing and sale of tools



This annex (edition: 2019-09-27) is only valid in connection with the above-mentioned certificate.

EU-Konformitätserklärung Nr. 2901362.CE.01 EU-Declaration of Conformity No.

Hersteller / Manufacturer: **PHOENIX CONTACT GmbH & Co. KG**
 Anschrift / Address: **Flachsmarktstraße 8, 32825 Blomberg, Germany**

Produktbezeichnung / Product description: **EEM-MA200**
(Artikelbezeichnung / Article description, Artikel-Nr. / Article no.)
2901362

Der obige Hersteller erklärt in alleiniger Verantwortung, dass das/die hier bezeichnete(n) Produkt(e) mit den wesentlichen Anforderungen der nachfolgend genannten Richtlinie(n) übereinstimmt / The above manufacturer declares in sole responsibility that the here specified product(s) is/are in line with the essential requirements of the following directive(s):

- | | |
|-------------------|---|
| 2011/65/EU | Beschränkung der Verwendung bestimmter gefährlicher Stoffe
Restriction of the use of certain hazardous substances (RoHS) |
| 2014/30/EU | EMV-Richtlinie (Elektromagnetische Verträglichkeit)
Electromagnetic Compatibility Directive (EMC) |
| 2014/35/EU | Niederspannungs-Richtlinie
Low Voltage Directive (LVD) |

Für die Beurteilung der Übereinstimmung wurden folgende einschlägige Normen herangezogen:
 For evaluation of the conformity following relevant standards were consulted:
EN 61557-12:2008

Weitere Informationen (z. B. Dokumente, Prüfberichte, Einschränkungen, etc.) zur Konformitätsbewertung:
 Additional information (for example documents, test reports, restrictions etc.,) of the conformity assessment:

Zertifikate einer benannten Stelle / Certificates by a notified body

Anschrift / Address:

Referenz / Reference:

Anschrift / Address:

Referenz / Reference:

Die letzten beiden Ziffern des Jahres in dem die CE-Kennzeichnung angebracht wurde: 17
 The last two figures of the year in which the CE marking was applied:
(nur einzutragen, bei der Niederspannungsrichtlinie / only to be entered on the low voltage directive)

Diese Erklärung gilt auch für die im Anhang aufgelisteten Produkte. (wenn angekreuzt)
 This declaration also applies for the products listed in the annex. (if marked with a cross)

Diese Erklärung bescheinigt die Übereinstimmung mit den wesentlichen Anforderungen der genannten Richtlinie(n), enthält jedoch keine Zusicherung von Eigenschaften. Die Sicherheits- und Einbauhinweise der mitgelieferten Produktdokumentation sind zu beachten.
 This declaration certifies the conformity with the essential requirements of the indicated directive(s), it does not, however, covenant any characteristics. The instructions for safety and installation of the enclosed product documentation have to be observed.

Blomberg, 2017-07-27

i. A.

Martin Jankowski
 Business Unit Interface Components
 Development Analog Interface, Monitoring
Ansprechpartner / contact person

i. V.

Carsten Thörner
 Business Unit Interface Components
 Vice President
Zeichnungsberechtigter / authorized signatory

Warnung: Dies ist ein Klasse A-Erzeugnis. In Wohngebieten kann es zu Störungen des Funkempfanges kommen. Der Betreiber soll entsprechende Schutzmaßnahmen treffen.

Warning: This is a Class A product. In a domestic environment it may cause radio interference, in which case the user may be required to take adequate measures.



Anhang zur EU-Konformitätserklärung Nr. 2901362.CE.01
Annex on EU Declaration of Conformity No.
vom / dated 2017-07-27

Produktbezeichnung / Product description: **EEM-MA200**

(Artikelbezeichnung, / Article description,
 Artikel-Nr. / Article no.)

2901362

Die Konformität mit den wesentlichen Anforderungen der Richtlinie(n) wird auch für folgende Produkte bescheinigt
 The conformity with the essential requirements of the directive(s) is also certified by the declaration for following products.

Artikel-Nr. / Article no.	Artikelbezeichnung / Article description
2901363	EEM-MA250
2901364	EEM-MA400
2901365	EEM-RS485-MA400
2901366	EEM-MA600
2901367	EEM-RS485-MA600
2901370	EEM-MEMO-MA600
2901371	EEM-DIO-MA600
2901373	EEM-ETU-MA600
2901374	EEM-ETH-RS485-MA600
2901418	EEM-PB 12-MA600
2901475	EEM-2AO-MA600
2901949	EEM-TEMP-MA600
2902352	EEM-MA600-24DC
2904313	EEM-IMP-MA600
2904314	EEM-IMP-MA400

UTILIZAREA ÎN SCOPUL
 "APROVIEȚAREA EXCLUSIV ÎN SCOPUL
 PĂRĂ POTABILĂ A ÎNCĂLZIREI,
 SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA."



SC

Communication module - EEM-RS485-MA400 - 2901365

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid (<http://phoenixcontact.com/download>)

RS-485 JBUS/MODBUS communication module for EEM-MA400




Your advantages

- RS-485 (JBUS/MODBUS)

RoHS

Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 584265
GTIN	4046356584265
Weight per Piece (excluding packing)	123.700 g
Custom tariff number	85176200
Country of origin	Hungary
Note	Made to Order (not returnable)

Technical data

Note

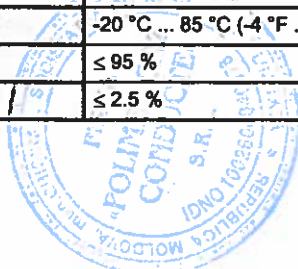
Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
-------------------------	---

Dimensions

Width	22.5 mm
Height	65 mm
Depth	48 mm

Ambient conditions

Ambient temperature (operation)	-10 °C ... 55 °C (14 °F to 131 °F)
Ambient temperature (storage/transport)	-20 °C ... 85 °C (-4 °F ... 185 °F)
Max. permissible relative humidity (operation)	≤ 95 %
Max. salt spray content	≤ 2.5 %



51

Communication module - EEM-RS485-MA400 - 2901365

Technical data

Interfaces

Designation	Modbus RTU/JBUS
Interface	RS-485
Connection method	COMBICON plug-in screw terminal block
Connection technology	2, 3-wire
Transmission length	≤ 1200 m
Termination resistor	120 Ω (switchable via DIP switches)
Operating mode	semiduplex
Serial transmission speed	2,4 ... 38.4 kbps

General

Supply voltage	9 V (Via EEM-MA600/EEM-MA400)
Color	black
Conformance	CE-compliant
Rated insulation voltage	300 V AC (EN 61010-1)
Test voltage	3.5 kV AC (50 Hz, 1 min.) 2.2 kV AC (50 Hz, 1 min.)

Standards and Regulations

Conformance	CE-compliant
UL, USA/Canada	UL 61010-1
	CSA-C22.2 No. 61010-1
	ULus

Environmental Product Compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

Classifications

eCl@ss

eCl@ss 4.0	27371100
eCl@ss 4.1	27371100
eCl@ss 5.0	27371800
eCl@ss 5.1	27371800
eCl@ss 6.0	27149200
eCl@ss 7.0	27149223
eCl@ss 8.0	27149223
eCl@ss 9.0	27142336

ETIM

ETIM 4.0	EC002295
ETIM 5.0	EC002295



Communication module - EEM-RS485-MA400 - 2901365

Classifications

ETIM

ETIM 6.0	EC002295
ETIM 7.0	EC002295

UNSPSC

UNSPSC 6.01	30211916
UNSPSC 7.0901	39121535
UNSPSC 11	39121535
UNSPSC 12.01	39121535
UNSPSC 13.2	32151602
UNSPSC 19.0	32151602

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<http://www.phoenixcontact.com>



Controller - ILC 151 GSM/GPRS - 2700977

Rețineți că datele furnizate aici sunt luate din catalogul online. Pentru informații și date complete, consultați documentația de utilizare. În cazul descărcărilor de pe internet se aplică Termenii și condițiile de utilizare generale. (<http://download.phoenixcontact.de>)



Inline Controller with Ethernet interface and GSM modem for coupling to other controllers and systems, with programming options according to IEC 61131-3, complete with plug and labeling field.

Descriere articol

The ILC 151 GSM/GPRS combines the options of class 100 controllers with wireless communication via mobile phone networks. A GSM/GPRS modem is integrated in the controller. This enables SMS messages to be sent and received and supports packet-oriented (IP) communication via GPRS.

The controller itself offers 16 digital inputs and 4 digital outputs for various control tasks. The 512 kB program memory and 512 kB data memory complete the functions of the controller, thereby providing plenty of space to accommodate larger applications as well.

The Inline controller (ILC) range covers a wide performance range. From entry-level versions to high-end controllers, users can choose the right controller for their application.

Caracteristici articol

- Numerous protocols supported such as: HTTP, FTP, SNMP, SMTP, SQL, MySQL, etc.
- Free engineering with PC Worx Express (IEC 61131-3)
- Complete INTERBUS master (4096 I/O points)
- Integrated web server for visualization with WebVisit
- FTP server
- Flash file system



Date comerciale

Unitate de ambalare	1 buc
GTIN	 4 046356 665537
Greutate pe bucată (fără ambalaj)	350.0 g
Cod tarif vamal	85371091
#ara de origine	Germany

Date tehnice

Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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Controller - ILC 151 GSM/GPRS - 2700977

Data tehnice

Dimensions

Width	85 mm
Height	119.8 mm
Depth	71.5 mm

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 55 °C
Ambient temperature (storage/transport)	-25 °C ... 85 °C
Permissible humidity (operation)	10 % ... 95 % (according to DIN EN 61131-2)
Permissible humidity (storage/transport)	10 % ... 95 % (according to DIN EN 61131-2)
Air pressure (operation)	70 kPa ... 106 kPa (up to 3000 m above mean sea level)
Air pressure (storage/transport)	70 kPa ... 106 kPa (up to 3000 m above mean sea level)
Shock	25g, Criterion 1, according to IEC 60068-2-27
Vibration (operation)	5g

Control system

Programming tool	PC WORX / PC WORX EXPRESS
Diagnostics tool	DIAG+
Configuration tool	Config+ Version 1.01 or later

Mechanical design

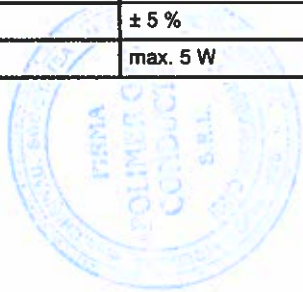
Weight	285 g
Diagnostics display	No
Controller redundancy	No

Data interfaces

Interface	INTERBUS local bus (master)
Connection method	Inline data jumper
Transmission speed	500 kBaud / 2 MBaud umschaltbar
Interface	Ethernet 10Base-T/100Base-TX
Connection method	RJ45 socket
Transmission speed	10/100 MBit/s
Interface	GSM / GPRS
Connection method	SIM card, SMA antenna connection

Power supply

Typical current consumption	210 mA
Max. current consumption	860 mA (360 mA communications power + 500 mA analog voltage supply)
Supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC
Residual ripple	± 5 %
Power dissipation	max. 5 W



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Controller - ILC 151 GSM/GPRS - 2700977

Date tehnice

Fieldbus function

Amount of process data	max. 4096 Bit (INTERBUS)
Number of supported devices	max. 128
Number of local bus devices that can be connected	max. 63 (observe current consumption)
Number of devices with parameter channel	max. 16
Number of supported branch terminals with remote bus branch	max. 3

Direct I/Os

Input name	Digital inputs
Number of inputs	16
Connection method	Inline potential distributor
Description of the input	EN 61131-2 type 1 NPN/PNP
Output name	Digital outputs
Number of outputs	4
Connection method	2, 3, 4-wire
Maximum output current per channel	500 mA
Without analog input	yes
Without analog output	yes
Without pulse direction output	yes
Without counter input	yes

IEC 61131 runtime system

Programming tool	PC WORX / PC WORX EXPRESS
Program memory	512 kByte (43 K instructions (IL))
Mass storage	512 kByte
Retentive mass storage	48 kByte (NVRAM)
Number of control tasks	8
Realtime clock	Yes

General data

Processor	Altera Nios II 64 MHz
Diagnostics display	No

Clasificări

eCl@ss

eCl@ss 4.0	27240490
eCl@ss 4.1	27240490
eCl@ss 5.0	27242208
eCl@ss 5.1	27242208
eCl@ss 6.0	27242208
eCl@ss 7.0	27242208
eCl@ss 8.0	27242207



Controller - ILC 151 GSM/GPRS - 2700977

Clasificări

ETIM

ETIM 3.0	EC001423
ETIM 4.0	EC000236
ETIM 5.0	EC000236

UNSPSC

UNSPSC 6.01	43172015
UNSPSC 7.0901	43201404
UNSPSC 11	43172018
UNSPSC 12.01	43201404
UNSPSC 13.2	43201404

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UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL
"PROIECTAREA CU APA POTABILĂ A LOCALITĂȚILOR, SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA"



Uninterruptible power supply - TRIO-UPS/1AC/24DC/5 - 2866611

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Uninterruptible power supply with integrated power supply unit, 5A, in combination with MINI-BAT/24/DC/1.3 AH, QUINT-BAT/24DC 3,4AH, 7,2AH or 12 AH

Product Description


The TRIO UPS module with integrated power supply is particularly space-saving: UPS module and power supply in one housing. Only one energy storage is required to complete the UPS system. Energy storage with lead AGM technology buffers failures lasting up to two hours with 5 A load current.

Your advantages

- Autonomous – in the event of AC mains failure the industrial PC continues operating without interruption
- Time saving – when the supply voltage is restored, the industrial PC starts automatically



Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 311809
GTIN	4046356311809
Weight per Piece (excluding packing)	1,147.000 g
Custom tariff number	85371091
Country of origin	China

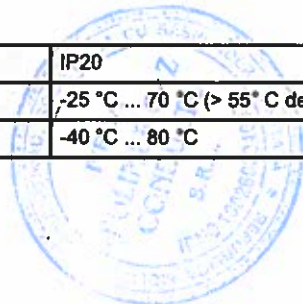
Technical data

Dimensions

Width	80 mm
Height	130 mm
Depth	118 mm

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 70 °C (> 55° C derating : 2.5%/K)
Ambient temperature (storage/transport)	-40 °C ... 80 °C



Uninterruptible power supply - TRIO-UPS/1AC/24DC/5 - 2866611

Technical data

Ambient conditions

Max. permissible relative humidity (operation)	95 % (at 25 °C, non-condensing)
Climatic class	3K3 (in acc. with EN 60721)
Degree of pollution	2

Input data

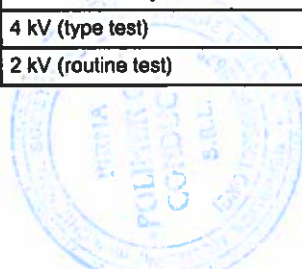
Nominal input voltage range	100 V AC ... 240 V AC
AC input voltage range	85 V AC ... 264 V AC (Derating < 90 V AC: 2.5%)
Input voltage range DC	100 V DC ... 350 V DC (UL508: 100 ... 250 V)
Buffer time	adjustable: 0.5 min; 1 min; 2 min; 3 min; 5 min; 10 min; 15 min; 20 min; PC-Mode
Current consumption	1.1 A (230 V AC, maximum) 1.8 A (120 V AC, maximum)
Inrush current limiting/I ² t	< 1.3 A ² s
Mains buffering time	see diagram
Typical response time	150 ms (230 V AC) 200 ms (120 V AC)
Power factor (cos phi)	approx. 0.5
Protective circuit	Transient surge protection Varistor
Input fuse, integrated	6.3 A (slow-blow, internal)

Output data

Nominal output voltage	24 V DC
Setting range of the output voltage (U _{set})	22.5 V DC ... 29.5 V DC (Network operation; in the buffer mode, dependent on the battery voltage of 27.9 V DC ... 19.2 V DC)
Nominal output current (I _N)	5 A (-25 °C ... 55 °C)
Derating	55 °C ... 70 °C (2.5%/K)
Output current limit	max. 6 A (Mains operation)
Control deviation	< 1 % (change in load, static 10 % ... 90 %)
Efficiency	> 88 % (230 V AC, network operation) > 86 % (120 V AC, network operation) > 86 % (Battery operation)
Residual ripple	< 10 mV _{PP}
Peak switching voltages nominal load	< 25 mV _{PP}
Connection in parallel	Yes, 2
Surge protection against internal surge voltages	< 35 V DC
Feedback voltage resistance	35 V DC

General

IQ technology	no
Net weight	1.1 kg
Memory medium	External, battery 1.3 Ah / 3.4 Ah / 7.2 Ah / 12 Ah
Insulation voltage input/output	4 kV (type test) 2 kV (routine test)



Uninterruptible power supply - TRIO-UPS/1AC/24DC/5 - 2866611

Technical data

General

Protection class	I
	> 596000 h (40 °C)
Mounting position	horizontal DIN rail NS 35, EN 60715
Assembly instructions	alignable: horizontally 0 mm, vertically 50 mm

Connection data, input

Connection method	Screw connection
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	2.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	2.5 mm ²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Screw thread	M3

Connection data, output

Connection method	Screw connection
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	2.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	2.5 mm ²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	8 mm
Screw thread	M3

Connection data for signaling

Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	2.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	2.5 mm ²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Screw thread	M3

Charging process

Charge characteristic curve	I/U characteristic curve
Battery presence check/time interval	60 s
Charge current	0.2 A ... 1.5 A (Default 1.0 A)
End-of-charge voltage	25 V DC ... 30 V DC (Default 27.6 V DC)
Temperature compensation	0 mV/K ... 200 mV/K (42 mV/K by default)
Quality check of battery	4 h ... 200 h (Default 12 h)
Deep discharge protection	18 V DC ... 21 V DC (Default 19.2 V DC)

Uninterruptible power supply - TRIO-UPS/1AC/24DC/5 - 2866611

Technical data

Charging process

Alarm signaling threshold	18 V DC ... 30 V DC (Default 20.4 V DC)
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Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 55011 (EN 55022)
Noise immunity	EN 61000-6-2:2005
Connection in acc. with standard	CUL
Standards/regulations	EN 61000-4-2
Contact discharge	6 kV
Standards/regulations	EN 61000-4-3
Frequency range	80 MHz ... 2 GHz
Test field strength	10 V/m
Standards/regulations	EN 61000-4-4
Comments	Criterion B
Standards/regulations	EN 61000-6-3
	EN 61000-4-6
Frequency range	10 kHz ... 80 MHz
Voltage	10 V
Standards/regulations	EN 61000-4-11
Low Voltage Directive	Conformance with Low Voltage Directive 2014/35/EC
Standard - Electrical safety	EN 60950-1/VDE 0805 (SELV)
Standard - Electronic equipment for use in electrical power installations and their assembly into electrical power installations	EN 50178/VDE 0160 (PELV)
Standard - Safety extra-low voltage	EN 60950-1 (SELV)
	EN 60204 (PELV)
Standard - Safe isolation	DIN VDE 0106-410
Standard - Protection against shock currents, basic requirements for protective separation in electrical equipment	EN 50178
Standard - Limitation of mains harmonic currents	EN 61000-3-2
Shipbuilding approval	DNV GL (EMC B)
UL approvals	UL/C-UL listed UL 508
	UL/C-UL Recognized UL 60950-1
Shock	18 ms, 30g, in each space direction (according to IEC 60068-2-27)
Vibration (operation)	< 15 Hz, amplitude ±2.5 mm (according to IEC 60068-2-8)
	15 Hz ... 150 Hz, 2.3g, 90 min.
Rail applications	EN 50121-4

Environmental Product Compliance

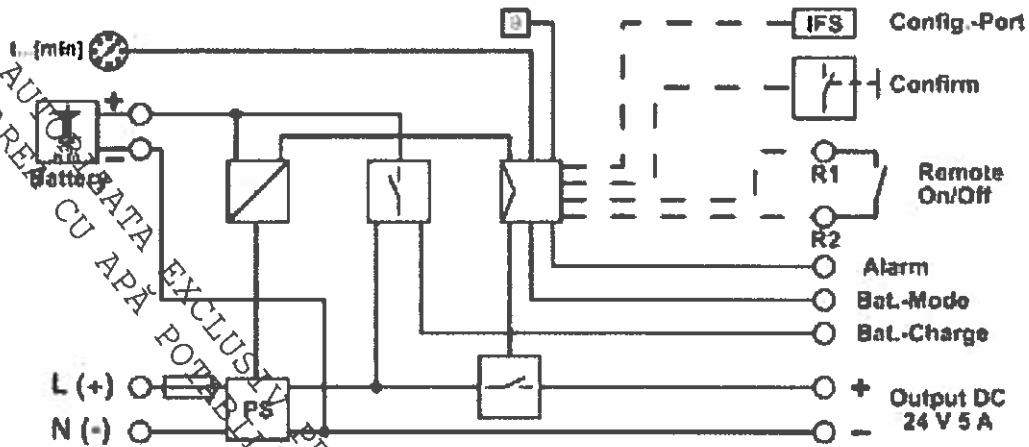
China RoHS	Environmentally Friendly Use Period = 25;
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

Drawings

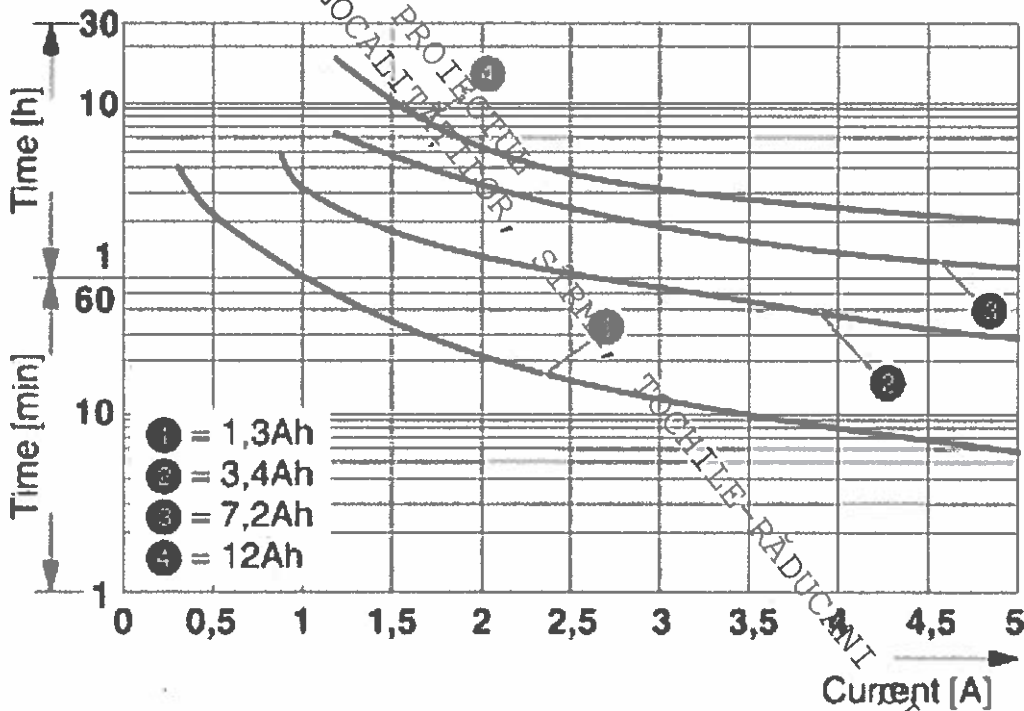


Uninterruptible power supply - TRIO-UPS/1AC/24DC/5 - 2866611

Block diagram



Diagram



Classifications

eCl@ss

eCl@ss 4.0	27040600
eCl@ss 4.1	27040600
eCl@ss 5.0	27040600
eCl@ss 5.1	27040600

Uninterruptible power supply - TRIO-UPS/1AC/24DC/5 - 2866611

Classifications

eCl@ss

eCl@ss 6.0	27040600
eCl@ss 7.6	27040603
eCl@ss 8.0	27040603
eCl@ss 9.0	27040705

ETIM

ETIM 2.0	EC000382
ETIM 3.0	EC000382
ETIM 4.0	EC000382
ETIM 5.0	EC000382
ETIM 6.0	EC000382
ETIM 7.0	EC000382

UNSPSC

UNSPSC 6.01	30211510
UNSPSC 7.0901	39121011
UNSPSC 11	39121011
UNSPSC 12.01	39121011
UNSPSC 13.2	39121011
UNSPSC 18.0	39121011
UNSPSC 19.0	39121011
UNSPSC 20.0	39121011
UNSPSC 21.0	39121011

Approvals

Approvals

Approvals

DNV GL / PRS / UL Listed / UL Recognized / cUL Recognized / cUL Listed / EAC / EAC / cULus Recognized / cULus Listed

Ex Approvals

Approval details

DNV GL		https://approvalfinder.dnvgl.com/	AA00000A2
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UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROTECTIA SI SIGURANTA A LOCALITATILOR SI ZONELOR RISCANTE, TOCHILE-RĂDUCANI SI TOMAZ RAION LEOVA

Uninterruptible power supply - TRIO-UPS/1AC/24DC/5 - 2866611

Approvals

PRs		http://www.prs.pl	TE/2104/880590/16
UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 123528
UL Recognized		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 211944
cUL Recognized		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 211944
cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 123528
EAC			EAC-Zulassung
EAC			RU*DE*08.B.01873/19
cULus Recognized			
cULus Listed			

Accessories

Accessories

Assembly adapter



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Uninterruptible power supply - TRIO-UPS/1AC/24DC/5 - 2866611

Accessories

Assembly adapters - QUINT-PS-ADAPTERS7/2 - 2938206

Assembly adapter for QUINT POWER 10A on S7-300 rail



Assembly adapters - UWA 402/52 - 2938235

Universal wall adapter for securely mounting the device in the event of strong vibrations. The device is screwed directly onto the mounting surface. The universal wall adapter is attached on the top/bottom.



Battery unit

Energy storage - MINI-BAT/24DC/1.3AH - 2866417



Energy storage device, lead AGM, VRLA technology, 24 V DC, 1.3 Ah.

Energy storage - QUINT-BAT/24DC/ 3.4AH - 2866349



Energy storage device, lead AGM, VRLA technology, 24 V DC, 3.4 Ah. Connection via pin cable lug, 14 mm.

Energy storage - QUINT-BAT/24DC/ 7.2AH - 2866352



Energy storage device, lead AGM, VRLA technology, 24 V DC, 7.2 Ah. Connection via pin cable lug, 14 mm.



CC

Uninterruptible power supply - TRIO-UPS/1AC/24DC/5 - 2866611

Accessories

Energy storage - QUINT-BAT/24DC/12AH - 2866365



Energy storage device, lead AGM, VRLA technology, 24 V DC, 12 Ah. Connection via pin cable lug, 14 mm.

Energy storage - UPS-BAT/VRLA/24DC/1.3AH - 2320296



Energy storage device, lead AGM, VRLA technology, 24 V DC, 1.3 Ah, tool-free battery replacement, automatic detection and communication with QUINT UPS-IQ

Energy storage - UPS-BAT/VRLA/24DC/3.4AH - 2320306



Energy storage device, lead AGM, VRLA technology, 24 V DC, 3.4 Ah, tool-free battery replacement, automatic detection, and communication with QUINT UPS-IQ

Energy storage - UPS-BAT/VRLA/24DC/7.2AH - 2320319



Energy storage device, lead AGM, VRLA technology, 24 V DC, 7.2 Ah, tool-free battery replacement, automatic detection, and communication with QUINT UPS-IQ

Energy storage - UPS-BAT/VRLA/24DC/12AH - 2320322



Energy storage device, lead AGM, VRLA technology, 24 V DC, 12 Ah, tool-free battery replacement, automatic detection, and communication with QUINT UPS-IQ

Data cable preassembled



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"SIRMA" TOCHILE-RADUCANI SI TOMAI RAION LEORU

Uninterruptible power supply - TRIO-UPS/1AC/24DC/5 - 2866611

Accessories

Data Cable - IFS-USB-DATACABLE - 2320500

Used for communicating between industrial PCs and Phoenix Contact devices with the 12-pos. IFS data port, such as QUINT UPS or TRIO UPS.



Fuse

Fuse - SI FORM C 15 A DIN 72581 - 0913676

Flat-type plug-in fuse, type C, color code: light blue, nominal current: 15 A



Fuse - SI FORM C 25 A DIN 72581 - 0913757

Flat-type plug-in fuse, type C, color code: white, nominal current: 25 A



Memory block

Memory block - IFS-CONFSTICK-L - 2901103

Multi-functional memory block with handle for the INTERFACE system; for easy storage and back up of the configuration.



Memory block - IFS-CONFSTICK - 2986122

Multi-functional memory block for the INTERFACE system for easy storage and backup of the configuration.



Mounting rail adapter



Uninterruptible power supply - TRIO-UPS/1AC/24DC/5 - 2866611

Accessories

DIN rail adapter - UTA 107 - 2853983

Universal DIN rail adapter, for screwing on switchgear



Programming adapter

Programming adapter - IFS-USB-PROG-ADAPTER - 2811271

Programming adapter with USB interface, for programming with software. The USB driver is included in the software solutions for the products to be programmed, such as measuring transducers or motor managers.



Touch panel - BTP 2070W - 1046666

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Touch panel with 17.8 cm/7" TFT-display (analog resistive (polyester)), 800 x 480 pixel(s) (WVGA), 262144 colors, Arm9™ i.MX28, 454 MHz, 2x COM (RS-232/422/485), 1x USB 2.0, Typ A, 1x USB 2.0, Typ B, 1 x Ethernet (10/100 Mbps), RJ45, Windows® CE 6.0 and user software: Visu+. (bus system: without)

Your advantages

- Visu+ RT integrated as standard in all BTP 2000 devices
- Connection to all relevant control systems, thanks to a large number of available drivers
- Developed for basic applications with attractive price-performance ratio
- 3 display sizes in 16:9 format

RoHS

Key Commercial Data

Packing unit	1 pc
GTIN	 4 055626 642963
GTIN	4055626642963

Technical data

Note

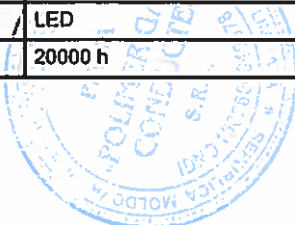
Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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Dimensions

Outer dimensions: width, height, depth	186 mm x 138 mm x 5 mm (Dimensions of the front plate)
Installation dimensions: width, height, depth	175 mm x 127 mm x 31 mm (Installation cutout)

Display

Display	17.8 cm/7" TFT
Screen resolution	800 x 480 Pixel(s) (WVGA)
Touch technology	analog resistive (polyester)
Brightness	300 cd/m ² , typical (adjustable)
Backlighting	LED
Display backlight MTBF	20000 h



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Touch panel - BTP 2070W - 1046666

Technical data

Display

Colors	262144 colors
Reading angle left	70 °
Reading angle right	70 °
Reading angle top	50 °
Reading angle bottom	70 °

Computer data

Processor	Arm9™ i.MX28, 454 MHz
Operating system	Windows® CE 6.0
User software	Visu+
RAM	128 MB DDR2 SDRAM
Mass storage	Flash, 512 MB
Network	1 x Ethernet (10/100 Mbps), RJ45
Interfaces	2x COM (RS-232/422/485)
	1x USB 2.0, Typ A
	1x USB 2.0, Typ B
Bus system	without
Slots	1x SD

General

Housing material	Plastic
Mounting type	Front installation
Weight	400 g

Ambient conditions

Degree of protection	IP66 (on the front), IP20 (on the back)
Ambient temperature (operation)	0 °C ... 50 °C
Ambient temperature (storage/transport)	-20 °C ... 85 °C
Permissible humidity (operation)	10 % ... 95 % (non-condensing)
Permissible humidity (storage/transport)	10 % ... 95 % (non-condensing)
Vibration (operation)	DIN EN 60068-2-6
Shock	DIN EN 60068-2-27

Device supply

Typical current consumption	0.4 A
Power supply unit	24 V DC ±15 %

Standards and Regulations

Shock	DIN EN 60068-2-27
Vibration (operation)	DIN EN 60068-2-6

Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
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Touch panel - BTP 2070W - 1046666

Approvals

Approvals

Approvals

EAC

Ex Approvals

UL Listed / cUL Listed / cULus Listed

Approval details

EAC		RU C-DE.A*08.B01708
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Accessories

Accessories

Data plug

D-SUB gender changer - VS-09-GC-ST/ST - 1652651



D-SUB contact insert, shell size 1, with nine signal contacts, type of contact pin, gender changer, fixing with 4-40 UNC thread

Operating stylus

Touch pen - TOUCH PEN - 2701379



Touch pen for analog-resistive HMI, silver coated. Delivery includes self-adhesive pen holder.

PCB plug



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Touch panel - BTP 2070W - 1046666

Accessories

Printed circuit board connector - MSTB 2,5/ 3-STF-5,08 - 1777992

PCB connector, nominal current: 12 A, rated voltage (III/2): 320 V, nominal cross section: 2.5 mm², number of positions: 3, pitch: 5.08 mm, connection method: Screw connection with tension sleeve, color: green, contact surface: Tin



Storage medium

USB memory stick - USB FLASH DRIVE - 2402809



USB memory stick, 8 GB

Disk drive - MICROSDHC-16GB - 1154696



Industrial grade 16 GB MicroSDHC 3DTLC

Disk drive - MICROSDHC-32GB - 1154699



Industrial grade 32 GB MicroSDHC 3DTLC

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EU-Konformitätserklärung Nr. 2700977.CE.04 EU-Declaration of Conformity No.

Hersteller / Manufacturer: **PHOENIX CONTACT GmbH & Co. KG**
 Anschrift / Address: **Flachsmarktstraße 8, 32825 Blomberg, Germany**

Produktbezeichnung / Product description: **ILC 151 GSM/GPRS**
(Artikelbezeichnung, / Article description, Artikel-Nr. / Article / Part no.)
2700977

Der obige Hersteller erklärt in alleiniger Verantwortung, dass das/die hier bezeichnete(n) Produkt(e) mit den wesentlichen Anforderungen der nachfolgend genannten Richtlinie(n) und deren Änderungsrichtlinien übereinstimmt / The above manufacturer declares in sole responsibility, that the here specified product(s) is/are in line with the essential requirements of the following directive(s) and their delegated directive(s):

2011/65/EU	Beschränkung der Verwendung bestimmter gefährlicher Stoffe Restriction of the use of certain hazardous substances (RoHS)
2014/30/EU	EMV-Richtlinie (Elektromagnetische Verträglichkeit) Electromagnetic Compatibility Directive (EMC)
2014/34/EU	Geräte in explosionsgefährdeten Bereichen Equipment for explosive atmospheres (ATEX)
2014/53/EU	Funkanlagen Radio equipment (RED)

Für die Beurteilung der Übereinstimmung wurden folgende einschlägige Normen herangezogen:
 For evaluation of the conformity following relevant standards were consulted:

EN 61131-2:2007	EN 61000-6-2:2005+AC:2005	EN 61000-6-4:2007+A1:2011 *
EN 60079-0:2012+A11:2013	EN 60079-15:2010	EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013
EN 62311:2008	EN 301 489-01 V2.1.1	EN 301 489-52 V1.1.0
EN 301 511 V12.5.1	EN 50581:2012	

Ergänzende Informationen (z. B. Anmerkungen, Einschränkungen, etc.) zur Konformitätsbewertung:
 Supplementary information (eg comments, restrictions, etc.) on conformity assessment:

Zertifikate einer benannten Stelle / Certificates by a notified body:

Anschrift / Address: _____

Referenz / Reference: _____

Anschrift / Address: _____

Referenz / Reference: _____

Diese Erklärung gilt auch für die im Anhang aufgelisteten Produkte. (wenn angekreuzt)
 This declaration also applies for the products listed in the annex. (if marked with a cross)

Diese Erklärung bescheinigt die Übereinstimmung mit den wesentlichen Anforderungen der genannten Richtlinie(n), enthält jedoch keine Zusicherung von Eigenschaften. Die Sicherheits- und Einbauhinweise der mitgelieferten Produktdokumentation sind zu beachten.
 This declaration certifies the conformity with the essential requirements of the indicated directive(s), it does not, however, covenant any characteristics. The instructions for safety and installation of the enclosed product documentation have to be observed.

Blomberg, 2019-09-17

A. Engel

 Andreas Engel
 Business Unit Automation Systems
 Manager Hardware SSC und PN Device
Ansprechpartner / contact person

T. Frank

 Dr. Tobias Frank
 Business Unit Automation Systems
 Vice President
Zeichnungsberechtigter / authorized signatory

Warnung: Dies ist ein Klasse A-Erzeugnis. In Wohngebieten kann es zu Störungen des Funkempfanges kommen. Der Betreiber soll entsprechende Schutzmaßnahmen treffen.
 Warning: This is a Class A product. In a domestic environment it may cause radio interference, in which case the user may be required to take adequate measures.

¹ Ansprechpartner ist auch für die technische Unterlagen verantwortlich. / Contact person is also responsible for the technical documentation.



C E R T I F I C A T E

awarded to

Phoenix Contact GmbH & Co.KG
Flachsmarktstr. 8
32825, Blomberg
Germany

DQS GmbH

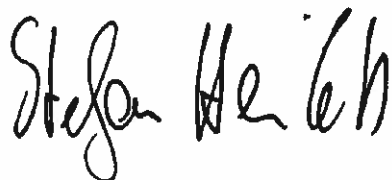
Confirms, as an IRIS CertificationTM approved certification body, that the Management System of the above organization has been assessed and found to be in accordance with the

IRIS CertificationTM rules:2017
and based on
ISO/TS 22163:2017

for the activities of Design and Development and Manufacturing
for the scopes of certification: 12 (Electrical wiring), 19 (Single railway components)
electromechanical and electrical connecting elements, plug connectors, surge voltage protection, cable assembly, tools and components for electrical engineering

Certificate valid from: 04/03/2018

Certificate valid until: 03/03/2021*



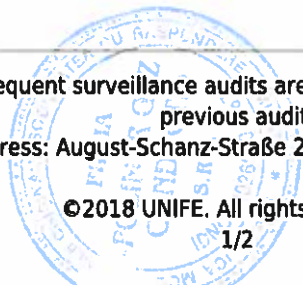
Current date: 06/03/2018
Certificate-Register-No: 239330

* Providing that the subsequent surveillance audits are successful before the validity date of the previous audit.

Certification body address: August-Schanz-Straße 21, 60433 Frankfurt am Main, Germany

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PROIECTAREA EXCLUSIVĂ
PENTRU PROIECTAREA
LOCALITĂȚII TORO
TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA.



SC



IRISTM

Certification

Enclosure 1 of Certificate No.: 239330

Phoenix Contact GmbH & Co.KG
Flachsmarktstr. 8
32825, Blomberg
Germany

The location is supported by the following remote locations:

Address	Scope/Process
Phoenix Contact GmbH & Co. KG Bahnhofstr. 9 32816 Schieder-Schwalenberg, Germany	Logistics, Professional Education

Current date: 06/03/2018
Certificate-Register-No: 239330

* Providing that the subsequent surveillance audits are successful before the validity date of the previous audit.

Certification body address: August-Schanz-Straße 21, 60433 Frankfurt am Main, Germany

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SC

CERTIFICATE



This is to certify that

PHOENIX CONTACT Group

Hachsmarktstraße 8
32825 Blomberg
Germany

with the organizational units/sites as listed in the annex

has implemented and maintains a **Quality-, Environmental-, Occupational Health and Safety Management System.**

Scope:

Development, manufacturing and sale of electromechanical and electrical connecting elements, plug connectors, electronic interface systems, surge voltage protection, industrial communication and automation systems, software, cable assembly, tools, machines for special purposes, components, products, solutions and services for electrical engineering and automation as well as services for functional safety, for safety of machinery and for operational reliability

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO 9001 : 2015
ISO 14001 : 2015
BS OHSAS 18001 : 2007

Certificate registration no. 239330 QM15 UM15 BSOH
Valid from 2017-12-10
Valid until 2020-12-09
Date of certification 2017-12-08

DQS GmbH

Stefan Heinloth

Stefan Heinloth
Managing Director



SC





**Annex to certificate
Registration No. 239330 QM15 UM15 BSOH**

PHOENIX CONTACT Group

Flachsmarktstraße 8
32825 Blomberg
Germany

Location

Scope

058140
PHOENIX CONTACT GmbH & Co. KG
Flachsmarktstraße 8
32825 Blomberg
Germany

Development, manufacturing and sale of electromechanical and electrical connecting elements, plug connectors, surge voltage protection, cable assembly, tools, machines for special purposes, components, products, solutions and services for electrical engineering and automation, sale of electronic interface systems, industrial communication and automation systems and software

ISO 9001:2015
ISO 14001:2015
BS OHSAS 18001:2007
certified

003418
PHOENIX FEINBAU GmbH & Co. KG
Gustavstraße 3
58511 Lüdenscheid
Germany

Manufacturing and sale of electromechanical and electrical connecting elements, plug connectors, components for electrical engineering and automation, development, manufacturing and sale of tools

ISO 9001:2015
ISO 14001:2015
BS OHSAS 18001:2007
certified

061639
PHOENIX CONTACT ELECTRONICS GmbH
Dringenuer Straße 30
31812 Bad Pyrmont
Germany

Development, manufacturing and sale of electronic interface systems, industrial communication and automation systems, software, components and services for electrical engineering and automation, as well as services for functional safety, safety of machinery, and operational reliability

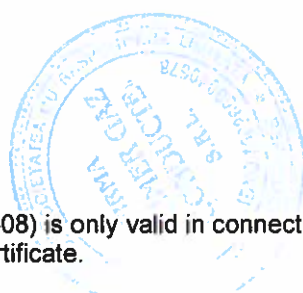
ISO 9001:2015
ISO 14001:2015
BS OHSAS 18001:2007
certified

325291
**PHOENIX CONTACT Connector
Technology GmbH**
Heisenbergstraße 1
71083 Herrenberg
Germany

Development, manufacturing and sale of electromechanical and electrical connecting elements, plug connectors, cable assembly, components for electrical engineering and automation

ISO 9001:2015
ISO 14001:2015
BS OHSAS 18001:2007
certified

This annex (edition: 2017-12-08) is only valid in connection with the above-mentioned certificate.



sc



Annex to certificate
Registration No. 239330 QM15 UM15 BSOH

PHOENIX CONTACT Group

Flachsmarktstraße 8
32825 Blomberg
Germany

Location

239355
PHOENIX CONTACT Wielkopolska
Sp. z o.o.
ul. Celna 5
64-300 Nowy Tomysl
Poland

ISO 9001:2015
ISO 14001:2015
BS OHSAS 18001:2007
certified

319197
PHOENIX CONTACT Inc
586 Fulling Mill Road
Middletown, PA 17057
USA

ISO 9001:2015
ISO 14001:2015
BS OHSAS 18001:2007
certified

322953
PHOENIX CONTACT Asia-Pacific (Nanjing)
Co., Ltd. / Nanjing Phoenix Contact Co.,
Ltd.
No.36, Phoenix Road, Nanjing Jiangning
Development Zone
211100, Nanjing, Jiangsu
P.R. China

ISO 9001:2015
ISO 14001:2015
BS OHSAS 18001:2007
Certified

493978
PHOENIX CONTACT Industria e Comercio
Ltda
Rua Francisco Corazza, 20 a 100
São Paulo 05038-130
Brazil

ISO 9001:2015
certified

Scope

Development, manufacturing and sale of electromechanical and electrical connecting elements, plug connectors, cable assembly, tools, components and services for electrical engineering and automation

Development, manufacturing and sale of electromechanical and electrical connecting elements, plug connectors, electronic interface systems, surge voltage protection, industrial communication and automation systems, software, cable assembly, components and services for electrical engineering and automation

Development, manufacture and sales of electromechanical and electrical connecting elements, plug connectors, electronic interface systems, surge voltage protection, industrial communication and automation systems, cable assembly, Assembly of electrical engineering and automation

Development, manufacturing and sale of electromechanical and electrical connecting elements, plug connectors, electronic interface systems, surge voltage protection, industrial communication and automation systems, software, cable assembly, components and services for electrical engineering and automation

This annex (edition: 2017-12-08) is only valid in connection with the above-mentioned certificate.

30

Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

This certificate is issued to:

PRODUCER SC ELDON SRL
Calle Bruxelles no.4
Graells & Llonch Prejmer Industrial Park
Prejmer County
507165 postal code
Brasov city
Romania

PRODUCT DESCRIPTION Floor standing enclosures

TYPE MKS (E) series, mild steel, single door
Degree of protection IP 66.

MKD (E) series, Mild steel, double doors
Degree of protection IP 55

MCS (E) series, mild steel, single door with side panels as accessory
Degree of protection IP 56 with front doors and side panels.

Certificate No. 19/30016

Issue Date 21 October 2019

Expiry Date 31 March 2024

Sheet 1 of 2

Lloyd's Register EMEA
P.O. Box 701, 3000 AS Rotterdam



G.J.Vromans
Type Approval Department
Lloyd's Register EMEA/Rotterdam Office

MCD (E) series, Mild steel , double doors, with side panels as accessory
Degree of protection IP 55 with front doors and side panels.

MCI series, Mild steel with door and side panels as accessory
Degree of protection IP 56 with door and side panels.

MCSS series, stainless steel with door and side panels as accessory

MCDS series, stainless steel with double door and side panels as
accessory

EKSS series, stainless steel with door and side panels as accessory

EKDS series, stainless steel with double door and side panels as
accessory

APPLICATION marine use

"This Certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid certificate."

The attached Design Appraisal Document No. ROT.TA. BBO1602085 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

All other details remain as the previous Certificate No. 05/30022 to which this extension should be attached.

Certificate No. 19/30016
Issue Date 21 October 2019
Expiry Date 31 March 2024
Sheet 2 of 2

Lloyd's Register EMEA
P.O. Box 701, 3000 AS Rotterdam



G.J. Vromans
Type Approval Department
Lloyd's Register EMEA/Rotterdam Office

EATON

DECLARATIE DE CONFORMITATE CE

Nr. 553-0010

Noi, **EATON ELECTRIC SRL**

cu sediul in Bucuresti, sos. Bucuresti – Ploiesti nr. 42-44,
Baneasa Business & Technology Park, cladirea B2, et.3, sector 1, 013696

ca reprezentant unic in Romania al producatorilor din grupul Eaton,
in baza declaratiilor de conformitate emise de acestia,

declaram pe propria raspundere ca produsele (familia):

Eaton - Circuit Breaker

LZM1-I,

(declaratia de conformitate se aplica pentru toate tipurile enumerate in catalogul nostru actual de produse)

sunt realizate in conformitate cu buna practica ingineriasca in materie de siguranta in vigoare in Uniunea Europeana, nu pun in pericol viata, sanatatea, securitatea persoanelor si a animalelor domestice, nu produc un impact negativ asupra mediului, cu conditia instalarii si intretinerii in mod corespunzator, utilizarii in scopul pentru care au fost create, respectarii instructiunilor producatorului, standardelor specifice si a "bunelor practici ingineresti", si sunt conforme cu:

prevederile directivelor Uniunii Europene:

Low Voltage Directive 2014/35/EU

RoHS Directive 2011/65/EU

si cu standardele Europene armonizate :

EN60947-2/06 + A1/09 + A2/13, EN60947-1/07 + A1/11

Bucuresti, Romania

25.04.2016

Razvan Sorescu

Quality, Environment
Health & Safety
responsible


Gabriel Tache
Country Manager

Data de aplicare a marcajului CE: 2004

Nr. document: 553-0010 / 25 04 2016



CE

DECLARATIE DE CONFORMITATE CE

Nr. 553-0011

Noi, **EATON ELECTRIC SRL**

cu sediul in Bucuresti, sos. Bucuresti - Ploiesti nr. 42-44,
Baneasa Business & Technology Park, cladirea B2, et.3, sector 1, 013696

ca reprezentant unic in Romania al producatorilor din grupul Eaton,
in baza declaratiilor de conformitate emise de acestia,

declaram pe propria raspundere ca produsele (familia):

Eaton - Circuit Breaker

LZM2-I,

(declaratia de conformitate se aplica pentru toate tipurile enumerate in catalogul nostru actual de produse)

sunt realizate in conformitate cu buna practica inginereasca in materie de siguranta in vigoare in Uniunea Europeana, nu pun in pericol viata, sanatatea, securitatea persoanelor si a animalelor domestice, nu produc un impact negativ asupra mediului, cu conditia instalarii si intretinerii in mod corespunzator, utilizarii in scopul pentru care au fost create, respectarii instructiunilor producatorului, standardelor specifice si a "bunelor practici ingineresti", si sunt conforme cu:

prevederile directivelor Uniunii Europene:

Low Voltage Directive 2014/35/EU

EMC Directive 2014/30/EU

RoHS Directive 2011/65/EU

si cu standardele Europene armonizate:

EN60947-2/06 + A1/09 + A2/13, EN60947-1/07 + A1/11

Bucuresti, Romania

25.04.2016

Razvan Sorescu

Quality, Environment,
Health & Safety
responsible

Gabriel Tache
Country Manager

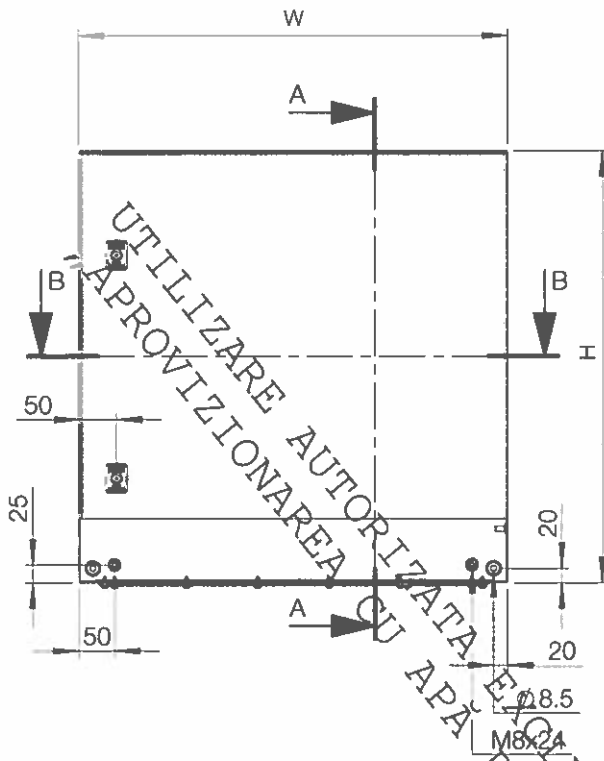
Data de aplicare a marcajului CE: 2004

Nr. document: 553-0011 / 25.04.2016

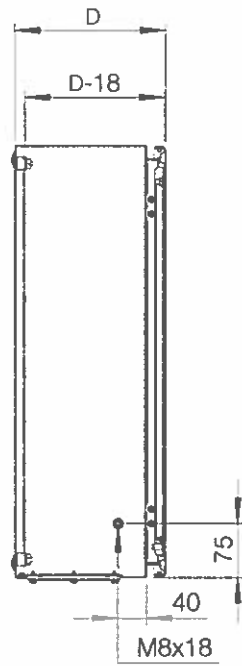


Sc.

Front view

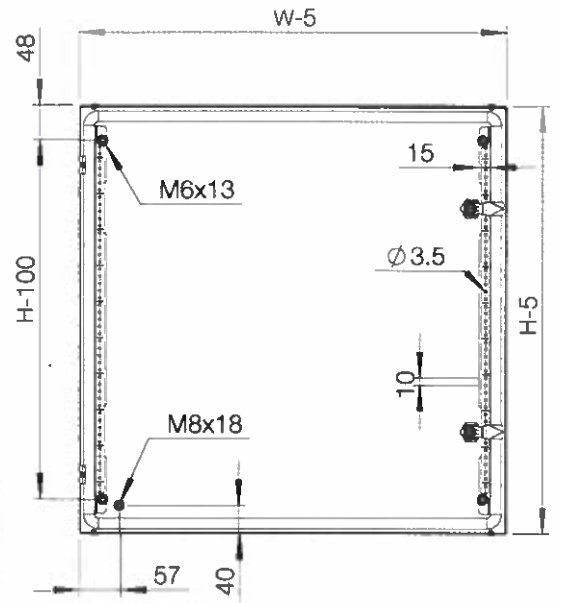


Sectional side view

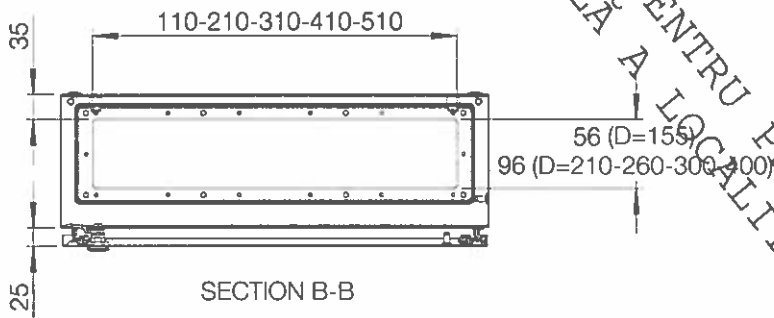


SECTION A-A

Inside door view

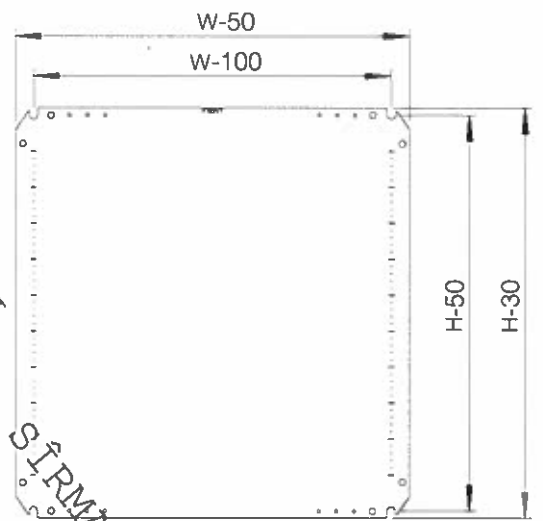


Sectional top view



SECTION B-B

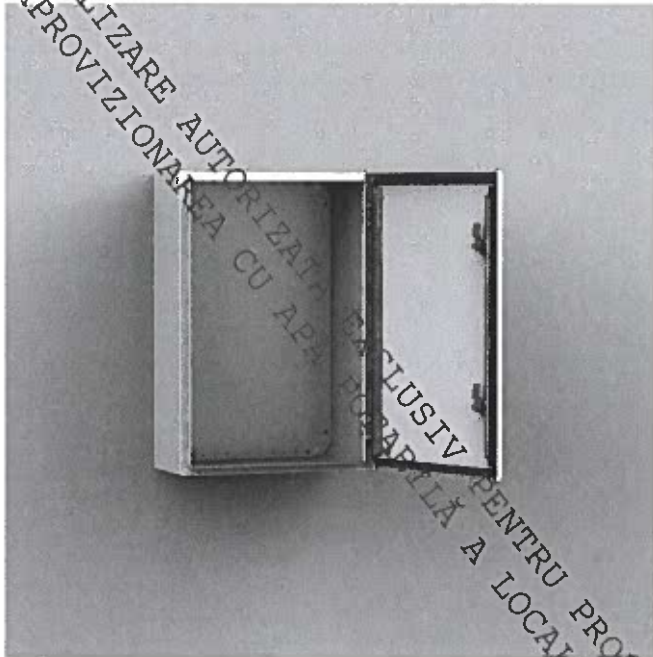
Mounting plate view



SÎRMA, TOCHILE-RĂDUCANI ȘI TC

MAS

COFRETE DIN OȚEL CU O SINGURĂ UȘĂ | COFRETE CU MONTAJ PE PERETE



IP 66 | TYPE 4, 12, 13 | IK 10



Gama de cofrete din oțel cu ușă simplă MAS, cu grad de protecție IP 66, conține produse de stoc disponibile în numeroase dimensiuni diferite. Această gamă de cofrete este bine adecvată pentru numeroase aplicații diferite. Riscul de defectare a componentelor și, cu acesta, perioadele inutile de nefuncționare sunt eliminate, deoarece apa și praful sunt împiedicate să intre în cofret.

Material: Corp: Oțel de 1,2 mm pentru cofrete cu o adâncime de 155 mm / 1,4 mm pentru cofrete cu o adâncime de 210 sau 260 mm / 1,5 mm pentru cofrete cu o adâncime de 300 sau 400 mm sau în cazul în care înălțimea sau lățimea este de 1000 mm sau mai mare. Presetupă cabluri: Oțel de 1,4 mm. Ușă: Oțel de 1, 2 mm / 1,5 mm pentru cofrete cu o înălțime sau lățime de 500 mm sau mai mare / 2 mm pentru cofrete cu o înălțime sau lățime de 800 mm sau mai mare. Contrapanou: Oțel galvanizat de 2 mm.

Corp: Pliat și sudat pe margini. Patru orificii cu diametrul de 8.5 mm pentru fixare pe perete, ștanțate în exterior cu diametrul de 20,4 mm x 2 mm, pentru a permite circulația aerului în partea posterioară a cofretului.

Ușă: Montare pe suprafață, cu o deschidere de 130°. Balamale detașabile fixate cu bolț; demontabil. Balamalele pot fi montate pentru a permite deschiderea pe stânga sau pe dreapta. Bolțuri sudate M6 interioare pentru montarea profilelor de ușă MMDP. Etanșeitatea este asigurată printr-o garnitură injectată (turnată) dintr-o bucată, extrudată din poliuretanic.

Încuietoare: Încuietoare particularizată, cu bac dublu, pentru deschiderea facilă a ușii. Butuc double-bit de 3 mm și mișcare la 90°. Cofretele cu înălțimea de peste 1000 mm sunt prevăzute cu încuietoare espagnolette în trei puncte. Alte tipuri de butuci sunt disponibile ca accesorii.

Contrapanou: Contrapanoul este prevăzut cu marcaje orizontale, dispuse vertical la intervale de 10 mm, pentru poziționarea facilă a echipamentelor pe orizontală. Pe partea superioară și inferioară sunt orificii pentru facilitarea fixării cablurilor. Fixat pe șuruburi M8 sudate prin presiune pe partea posterioară a cofretului. Toate părțile contrapanoului de la 800 mm în sus sunt ranforsate prin plierea marginilor. Prin utilizarea accesoriului AMG, poziția contrapanoului poate fi reglată pe adâncime.

Deschidere intrare cabluri: Situat în partea posterioară a cofretului, pentru a facilita montarea cablajului pe contrapanou.

Protecție: Conform IP 66 | TYPE 4, 12, 13 | IK 10. Pentru montarea în exterior se recomandă folosirea elementului de protecție impermeabil ARF și trebuie luată în considerare rezistența la coroziune.

Finisaj: Vopsea pudră structurată RAL 7035.

Livrare: Cofret cu ușă. Două profile de montare pentru ușă începând cu înălțimea minimă de 600 mm. Placă / plăci de intrare cabluri cu garnitură / garnituri, cheie din plastic double-bit de 3 mm și accesorii de montare. Cheie din metal pentru înălțime minimă de 1000 mm. Facilități de împănțare.



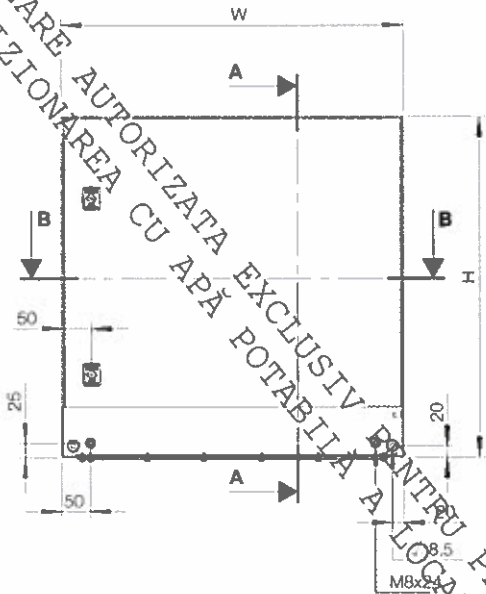
CC

MAS

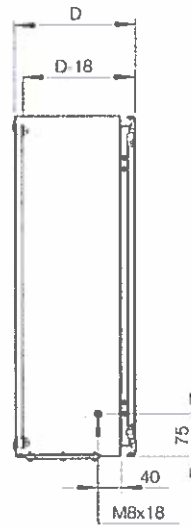
COFRETE DIN OȚEL CU O SINGURĂ UȘĂ | COFRETE CU MONTAJ PE PERETE

UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL DE LOCALITĂȚILOR, SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA.

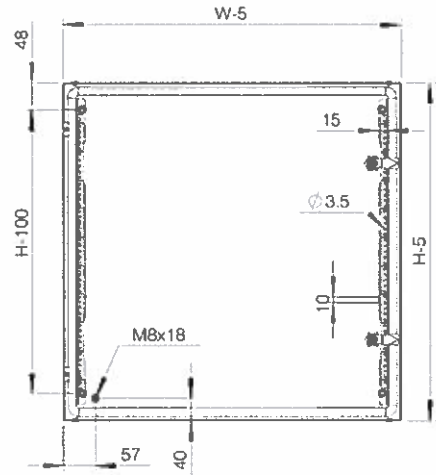
Front view



Sectional side view

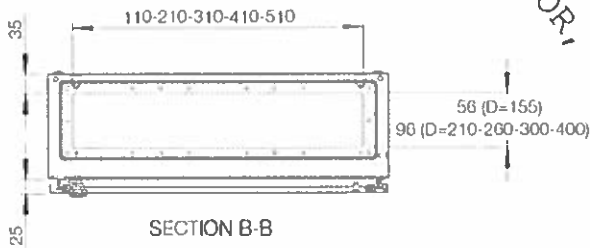


Inside door view



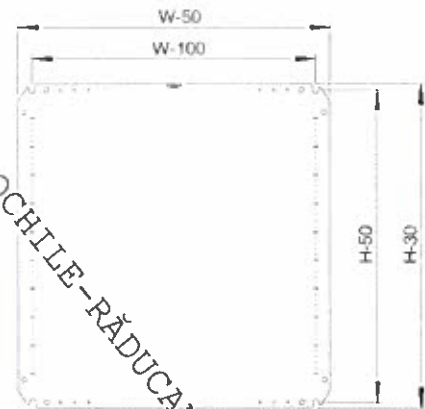
SECTION A-A

Sectional top view



SECTION B-B

Mounting plate



MAS

COFRETE DIN OȚEL CU O SINGURĂ UȘĂ | COFRETE CU MONTAJ PE PERETE

Contrapanou inclus

i	Dimensiuni dulap		Dimensiuni contrapanou		Adâncime utilă	Nr. articol
	L	A	i	l	a	
200	200	155	170	150	137	MAS0202015R5
250	200	155	220	150	137	MAS0252015R5
250	250	155	220	200	137	MAS0252515R5
300	250	155	270	200	137	MAS0302515R5
300	250	210	270	200	192	MAS0302521R5
300	300	155	270	250	137	MAS0303015R5
300	300	210	270	250	192	MAS0303021R5
350	250	155	320	200	137	MAS0352515R5
400	300	155	370	250	137	MAS0403015R5
400	300	210	370	250	192	MAS0403021R5
400	400	210	370	350	192	MAS0404021R5
400	500	210	370	450	192	MAS0405021R5
400	600	210	370	550	192	MAS0406021R5
500	300	210	470	250	192	MAS0503021R5
500	400	155	470	350	137	MAS0504015R5
500	400	210	470	350	192	MAS0504021R5
500	400	260	470	350	242	MAS0504026R5
500	400	300	470	350	282	MAS0504030R5
500	500	300	470	450	192	MAS0505021R5
500	500	350	470	450	282	MAS0505030R5
600	400	155	570	350	137	MAS0604015R5
600	400	210	570	350	192	MAS0604021R5
600	400	260	570	350	242	MAS0604026R5
600	400	300	570	350	282	MAS0604030R5
600	500	155	570	450	137	MAS0605015R5
600	500	210	570	450	192	MAS0605021R5
600	500	260	570	450	242	MAS0605026R5
600	500	300	570	450	282	MAS0605030R5
600	600	210	570	550	192	MAS0606021R5
600	600	300	570	550	282	MAS0606030R5
600	600	400	570	550	382	MAS0606040R5
600	800	300	570	750	282	MAS0608030R5
700	500	210	670	450	192	MAS0705021R5
700	500	260	670	450	242	MAS0705026R5
800	400	300	770	350	282	MAS0804030R5
800	600	210	770	550	192	MAS0806021R5
800	600	260	770	550	242	MAS0806026R5
800	600	300	770	550	282	MAS0806030R5
800	600	400	770	550	382	MAS0806040R5
800	800	210	770	750	192	MAS0808021R5
800	800	300	770	750	282	MAS0808030R5
800	800	400	770	750	382	MAS0808040R5
1000	600	260	970	550	242	MAS1006026R5
1000	600	300	970	550	282	MAS1006030R5
1000	800	260	970	750	242	MAS1008026R5
1000	800	300	970	750	282	MAS1008030R5
1000	800	400	970	750	382	MAS1008040R5
1200	600	300	1170	550	282	MAS1206030R5
1200	800	300	1170	750	282	MAS1208030R5
1200	800	400	1170	750	382	MAS1208040R5



SL

MAS

COFRETE DIN OȚEL CU O SINGURĂ UȘĂ | COFRETE CU MONTAJ PE PERETE

Contraanou inclus

Dimensiune	Tip	Deschideri	Nr. înculetori	Nr. articol
110 x 56	0S	1	1	MAS0202015R5
110 x 56	0S	1	1	MAS0252015R5
110 x 56	0S	1	1	MAS0252515R5
110 x 56	0S	1	1	MAS0302515R5
110 x 56	0S	1	1	MAS0302521R5
210 x 56	1S	1	1	MAS0303015R5
210 x 56	1	1	1	MAS0303021R5
110 x 56	0S	1	1	MAS0352515R5
210 x 56	1S	1	1	MAS0403015R5
210 x 96	1	1	1	MAS0403021R5
310 x 96	2	1	1	MAS0404021R5
410 x 96	3	1	1	MAS0405021R5
510 x 96	4	1	1	MAS0406021R5
210 x 96	1	1	1	MAS0503021R5
310 x 56	0S	1	1	MAS0504015R5
310 x 96	1	1	1	MAS0504021R5
310 x 96	2	1	1	MAS0504026R5
310 x 96	1	1	1	MAS0504030R5
410 x 96	1	1	1	MAS0505021R5
410 x 96	3	1	1	MAS0505030R5
310 x 56	2S	1	2	MAS0604015R5
310 x 96	2	1	2	MAS0604021R5
310 x 96	2	1	2	MAS0604026R5
310 x 96	2	1	2	MAS0604030R5
410 x 56	3S	1	2	MAS0605015R5
410 x 96	3	1	2	MAS0605021R5
410 x 96	3	1	2	MAS0605026R5
410 x 96	3	1	2	MAS0605030R5
510 x 96	4	1	2	MAS0606021R5
510 x 96	4	1	2	MAS0606030R5
510 x 96	4	1	2	MAS0606040R5
310 x 96	2	2	2	MAS0608030R5
410 x 96	3	1	2	MAS0705021R5
410 x 96	3	1	2	MAS0705026R5
310 x 96	2	1	2	MAS0804030R5
510 x 96	4	1	2	MAS0806021R5
510 x 96	4	1	2	MAS0806026R5
510 x 96	4	1	2	MAS0806030R5
510 x 96	4	1	2	MAS0806040R5
310 x 96	2	2	2	MAS0808021R5
310 x 96	2	2	2	MAS0808030R5
310 x 96	2	2	2	MAS0808040R5
510 x 96	4	1	1	MAS1006026R5
510 x 96	4	1	1	MAS1006030R5
310 x 96	2	2	1	MAS1008026R5
310 x 96	2	2	1	MAS1008030R5
310 x 96	2	2	1	MAS1008040R5
510 x 96	4	1	1	MAS1206030R5
310 x 96	2	2	1	MAS1208030R5
310 x 96	2	2	1	MAS1208040R5



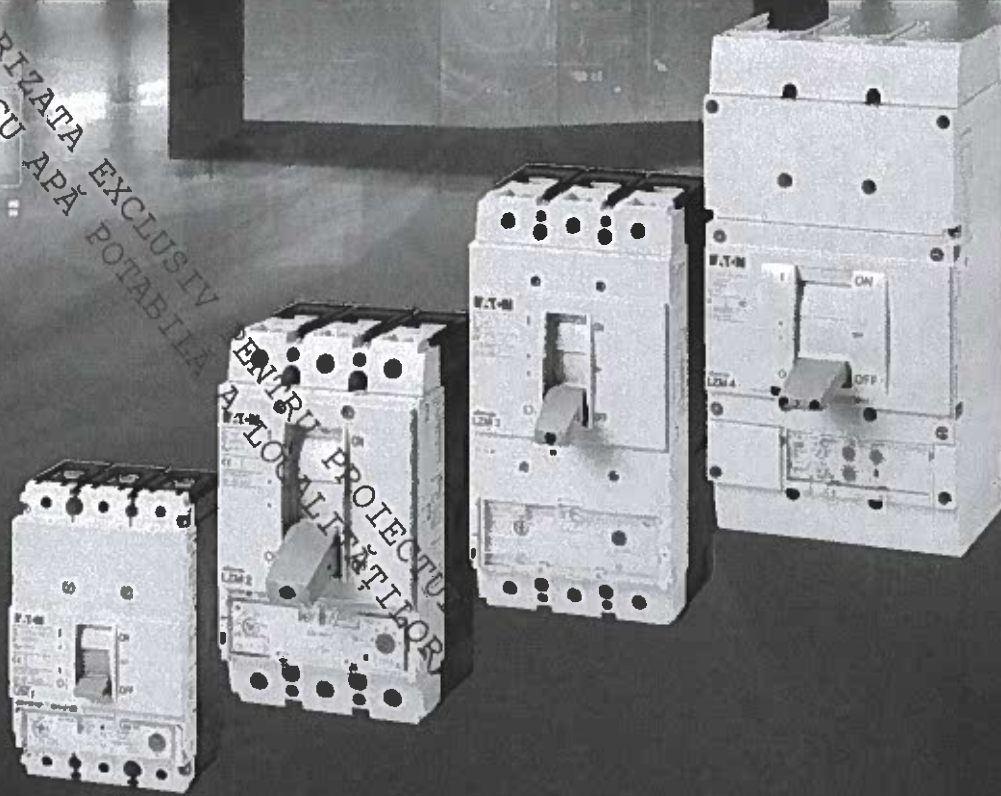
SC

Moeller® series

www.eaton.eu

LZM

xEnergy



Product catalogue LZM-I
Circuit breaker
Switch disconnecter
Switching and protection up to 1000A

EATON
Powering Business Worldwide

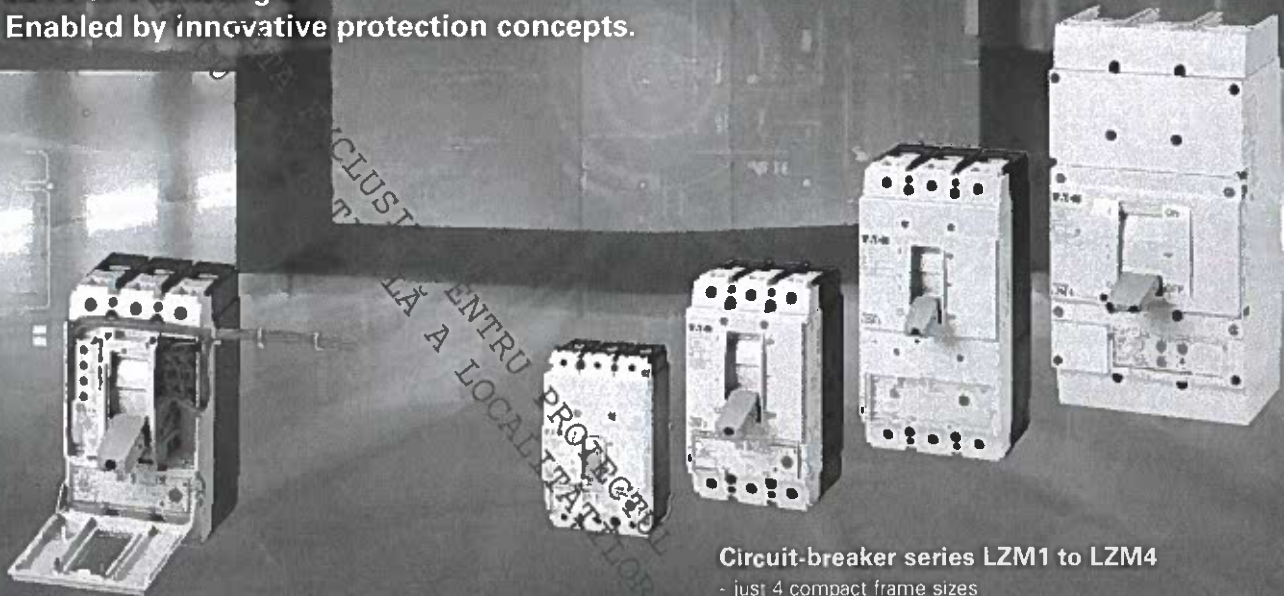


SC

RAION IEOVA.

Circuit breaker LZM series up to 1000A

Reliable, safe and simple products for energy distribution systems in high density residential, commercial and industrial buildings. Enabled by innovative protection concepts.



Standard/trip-indicating auxiliary contact from the Titan range

- reduced number of variants and stockholding requirement
- simple front installation at the same position
- simple clip-on feature saves mounting costs
- attractively priced identical parts from the control circuit device range

Page 26

Circuit-breaker series LZM1 to LZM4

- just 4 compact frame sizes
- available as 3 and 4-pole device up to 1000A
- equal dimension as NZM range
- flexible mounting using modular function groups
- suitable for 50°C according derating table
- switch suitable for world-wide use

Page 4



Remote operators

- common functional concept of all variants
- low closing delays 60 ms to 100 ms
- locking and sealing features provide security

Page 35

Door coupling rotary handles

- identical drilling template for all variants
- innovative automatic centring
- axis support for long-term reliable operation

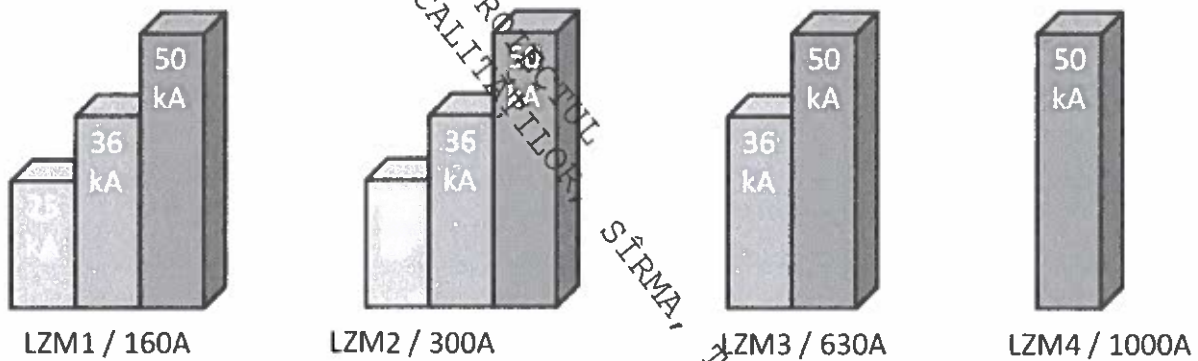
Page 30

Rated Current (A)



Only 4 frame sizes with nominal current up to 1000 A reduce time and effort to design and build up energy distribution boards.

Rated ultimate short-circuit breaking capacity (kA at 400/415V)



Continuous short-circuit breaking capacity from frame 1 up to frame 4 to ensure easy project planning for application oriented projects.

Complete offer to cover basic requirements and standard applications up to complex high end energy distribution boards.

Thermomagnetic and electronic trip unit

	Type code	Overload release	Short circuit release	
Thermo-magnetic	A	$0.8 \dots 1 \times I_n$	$6 \dots 10 \times I_n$	Standard application cable and system protection
Electronic	AE	$0.5 \dots 1 \times I_n$	$2 \dots 12 \times I_n$	Standard application cable and system protection

With each release type the LZM range provides adjustability for every nominal current to protect your application accordingly.



36

Type code for LZM-I MCCBs

	LZM	B	2	-4	-A	160	/100	-I
Low Voltage Moulded Case Circuit Breaker with over load release including inverse time delay dependent of previous load and instantaneous over-current release								
Rated ultimate short-circuit breaking capacity I_{cu} at 400/415/50/60/69kV								
B 25 kA								
C 36 kA								
N 50 kA								
Frame size								
1 up to 160A								
2 up to 300A								
3 up to 630A								
4 up to 1000A								
Number of poles								
3 pole								
-4 4 pole								
Releases and Tripping characteristics								
-A System and cable protection with thermal-magnetic releases								
-AE System and cable protection with electronic releases								
Rated current phase conductor (A) 20 ... 1000								
Rated current neutral conductor (A) /100 ... /630 63% of phase conductor (e.g. cables with reduced cross-section of neutral line)								
Region standard -I International Standard IEC 60947								

The description of the type code is a logic sequence of short circuit level, frame size, number of poles, trip unit and nominal current.

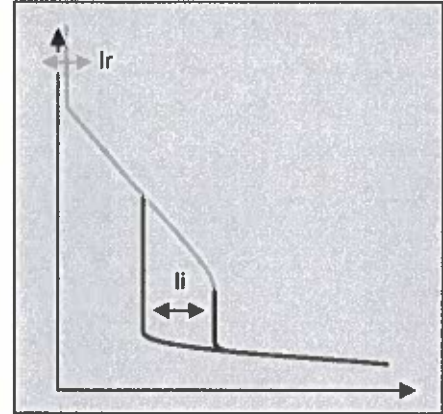
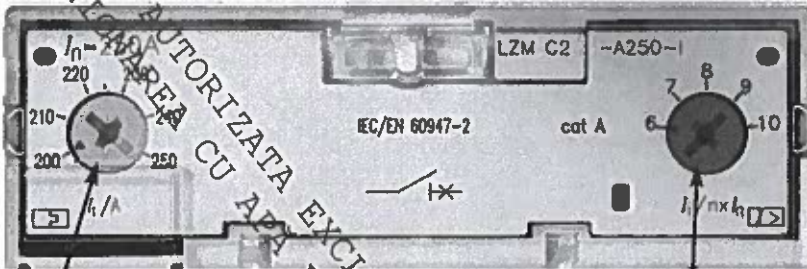


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UTILEZAREA AUTORIZATA EXCLUSIV PENTRU PROIECTUL "SIRMA" TOCHILE-RADUCANI SI TOMAI RAION LEOVA.
 "APROFIZAREA CU APA POTABILA A LOCALITATILOR"

Over-current releases

Thermomagnetic release A



1 Overload protection

$$I_r = 0,8 - 1 \times I_n$$

Neutral protection

The neutral pole is protected by the thermal device featuring an I_{rn} tripping threshold of 100% or 60% of the I_r threshold adjusted with respect to the phases.

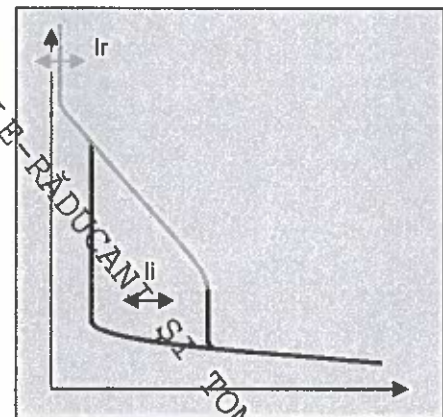
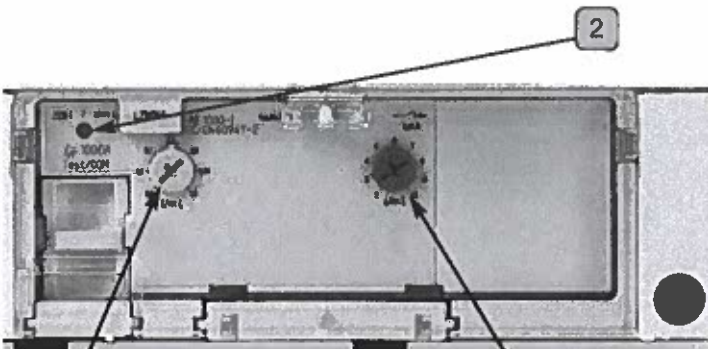
In this way, conductors, which may have a smaller section on the less charged neutral pole as in the phases, may be dimensioned effectively.

2 Short-circuit protection

Device with instantaneous tripping and adjustable I_i threshold

$$I_i = 6 - 10 \times I_n$$

Electronic release without delay AE



1 Overload protection

Device featuring microprocessor with inverse time tripping and adjustable threshold

$$I_r = 0,5 - 1 \times I_n$$

Neutral protection

The neutral pole is protected by the thermal device featuring an I_{rn} tripping threshold of 100% or 60% of the I_r threshold adjusted with respect to the phases.

The protection featuring advance threshold is intended for high I_n rated currents ($\geq 160A$). In these cases, the statutory provision allows the use of cables with a smaller section than in the phases.

2 Led for indication of overload

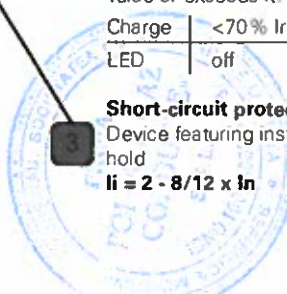
The LED starts to light when the charge value approaches the I_n value or exceeds it:

Charge	$< 70\% I_r$	$\geq 70\% I_r$	$\geq 100\% I_r$
LED	off	steady	on intermittent

Short-circuit protection

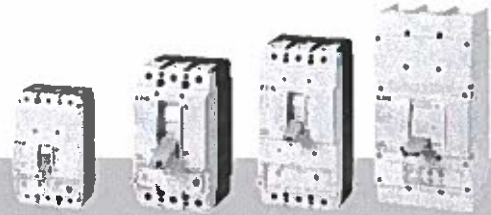
Device featuring instantaneous tripping and adjustable I_i threshold

$$I_i = 2 - 8/12 \times I_n$$



SL

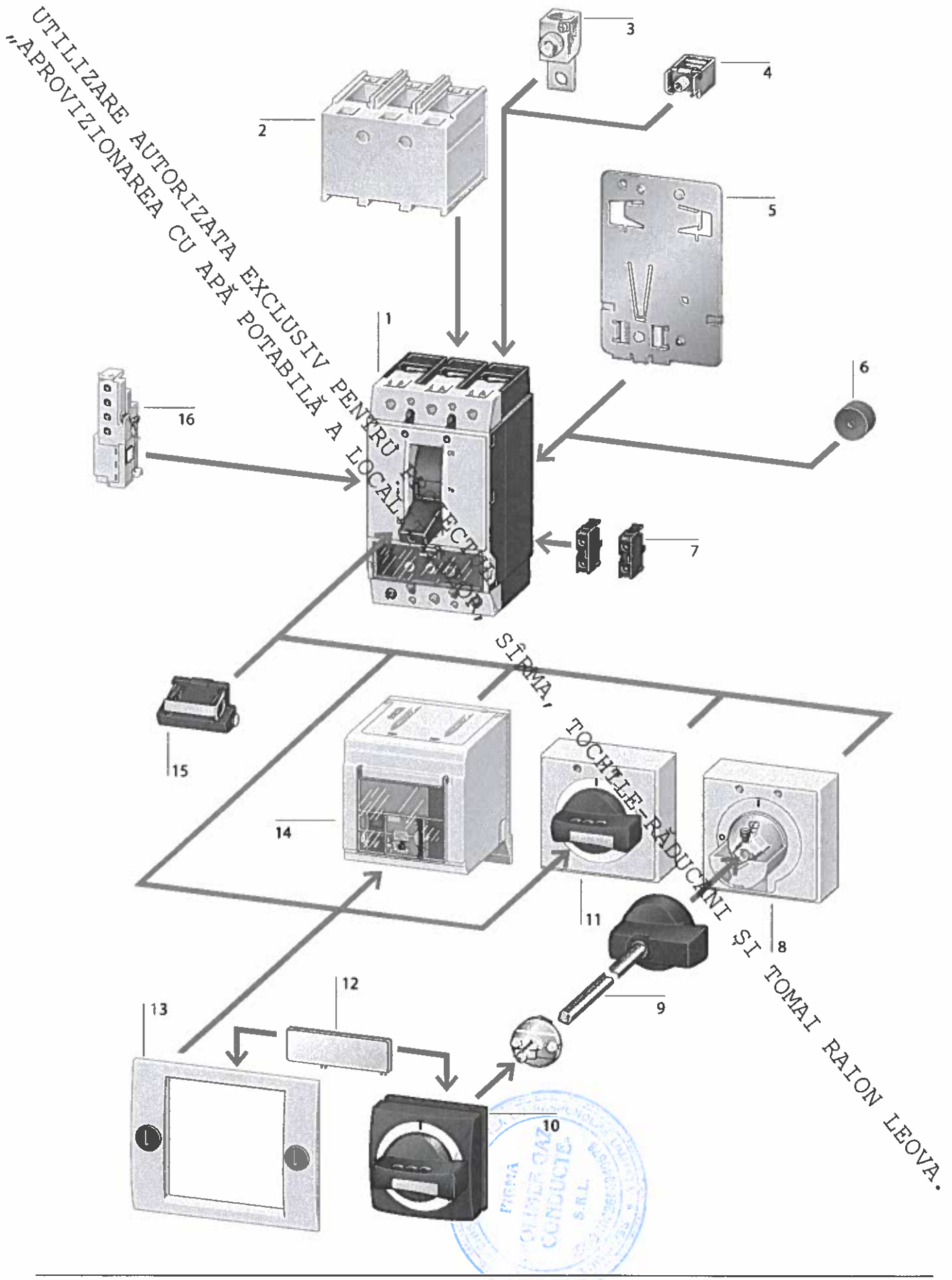
**Circuit-breakers, switch-disconnectors
from 15 to 1000 A**



	Page		Page		Page
System overview		Engineering		Technical data	
Circuit-breakers, switch-disconnectors	3	Selectivity: incoming circuit-breaker, outgoing circuit-breaker	38	Circuit-breakers	52
Technical overview		MCB, backup protection	42	Switch-disconnectors	54
Ordering	4	Direction of blow out, minimum clearances, tube cable lugs	43	Temperature influence	55
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Connection types	14	Size 1, 2, 3 let-through characteristics	50	Remote operator, capacitor unit	62
Auxiliary contact	26			Dimensions	
Undervoltage release	28			Size 1 basic units	63
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Door coupling rotary handles	30			Size 2 basic units	67
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Mechanical interlock	34			Size 3 accessories	74
Remote operators	35			Size 4 basic units	78
				Size 4 accessories	79

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 "APROVIZIONAREA CU AERĂ POTABILĂ A LOCALITĂŢILOR, SÎRMA, TOCHILE-RĂDUCANI ŞI TOMAI RAION LEOVA."





xEnergy

LZM

Basic units

Circuit-breaker	1
Rated uninterrupted current up to 1000 A	
Switching capacity 25, 36, 50kA at 415V	
Adjustable releases for overload and short-circuit	
Protection of systems, cables, motors, generators	
3 and 4 pole versions, IEC/EN60947	
→ page 6	
Switch-disconnector	1
Rated uninterrupted current up to 1000 A	
Remotely tripped switch-disconnector with undervoltage or shunt release	
3 and 4 pole versions, IEC/EN60947	
→ page 12	

Add-on functions

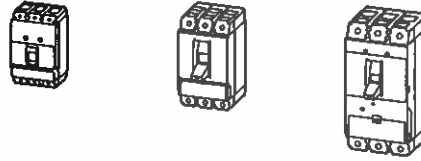
Standard auxiliary contact (HIN)	7
Switching with the main contacts. Used for indication and interlock functions.	
→ page 26	
Trip-indicating auxiliary contact (HIA)	7
General trip indication '+', when tripped by voltage release, overload release or short-circuit release	
→ page 26	
Voltage release	16
Undervoltage release	
Shunt release	
→ page 28	
Door coupling rotary handle	8+10
Lockable	
With door interlock	
→ page 30	
Extension shaft	9
Can be cut to required length.	
→ page 30	
Rotary handle	11
Lockable	
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Remote operator	14
For remote switching of circuit-breakers and switch-disconnectors	
→ page 35	
Toggle lever interlock device	15
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Mounting accessories

Tunnel terminals for Al and Cu cable	3
Standard with control circuit terminal	
LZM1 → page 14	
LZM2 → page 16	
LZM3 → page 18	
LZM4 → page 22	
Box terminals	4
Standard version of frame size 1 assembled within the circuit-breaker enclosure	
LZM1 → page 14	
LZM2 → page 16	
LZM3 → page 18	
Terminal cover	2
Protection against direct contact where cable lugs, busbars or tunnel terminals are used	
LZM1 → page 14	
LZM2 → page 16	
LZM3 → page 20	
LZM4 → page 24	
Clip plate	5
NZM1-XC35 for 35 mm top-hat rail	
NZM2-XC75 for 75 mm top-hat rail	
→ page 33	
Insulating surround	13
For use with toggle lever, rotary drive and remote operator protruding from the enclosure	
→ page 33	
External warning plate/designation label	12
→ page 32	
Spacer	6
→ page 33	

Circuit-breaker

With main switch characteristics to IEC/EN 60204 and isolating characteristics to IEC/EN60947



Rated uninterrupted current I_u = Rated current I_n
 Adjustable overload release I_1
 Adjustable short-circuit release I_2

Thermomagnetic releases System and cable protection

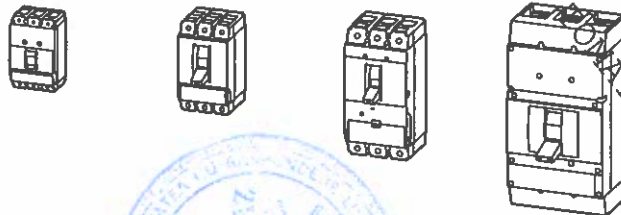
Ambient temperature at 100% I_u min./max. -25/+50°C	I_u A	I_u A	I_r A	I_1 A
	20			0.8 - 1 x I_n
	25			350
	32			8 - 10 x I_n
	40			6 - 10 x I_n
	50			
	63			
	80			
	100			
	125			
	160	160		LZM1 8 x I_n
		200		6 - 10 x I_n
		250		
		300	320	
			400	
			500	

Basic switching capacity		LZMB1-A...	LZMB2-A...		
400/415 V	kA	25	25		
440 V	kA	12.5	12.5		
Comfort switching capacity		LZMC1-A...	LZMC2-A...	LZMC3-A...	
400/415 V	kA	36	36	36	
440 V	kA	18	18	18	
Normal switching capacity		LZMN1-A...	LZMN2-A...	LZMN3-A...	
400/415 V	kA/cos φ	50	50	50	
440 V	kA	25	25	25	

Notes The stated switching capacity values are rated ultimate short-circuit breaking capacities (I_{cu})

Switch-disconnector

With main switch characteristics to IEC/EN 60204 and VDE 0113 isolating characteristics to IEC/EN 60947, VDE 0660 without overload and short-circuit release



Rated uninterrupted current I_u = rated current I_n	63 - 160	160 - 250	400 - 630	630 - 1600
Can be triggered with U/A voltage release	LN1-...	LN2-...	LN3-...	LN4-...
Rated short-circuit making capacity I_{cm}	kA 2.8	5.5	25	53
Rated short-time withstand current I_{cw} (1s)	kA 2	3.5	12	25

SC

6 Circuit-breaker, 3 pole

Ordering

LZM...1, LZM...2, LZM...3

xEnergy

Rated current =
rated uninterrupted
current

$$I_n = I_u$$

A

Setting range

Overload releases Short-circuit releases

I_t

I_t

A

A



Basic switching capacity
25 kA at 415 V 50/60 Hz

Part no.
Article no.

Price
see price
list

Comfort switching capacity
36 kA at 415 V 50/60 Hz

Part no.
Article no.

Price
see price
list

Protection of systems and cables

3 pole with thermo-magnetic release

Terminals standard, terminal screws as accessories

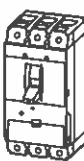


Terminal screws	Terminal screws as accessories	Terminal screws	Terminal screws as accessories	Part no. Article no.	Part no. Article no.
20	15...20	350		LZMB1-A20-I 111848	LZMC1-A20-I 111888
25	20...25	350		LZMB1-A25-I 111849	LZMC1-A25-I 111889
32	25...32	350		LZMB1-A32-I 111850	LZMC1-A32-I 111890
40	32...40	320...400		LZMB1-A40-I 111851	LZMC1-A40-I 111891
50	40...50	300...500		LZMB1-A50-I 111852	LZMC1-A50-I 111892
63	50...63	380...630		LZMB1-A63-I 111853	LZMC1-A63-I 111893
80	63...80	480...800		LZMB1-A80-I 111854	LZMC1-A80-I 111894
100	80...100	500...1000		LZMB1-A100-I 111855	LZMC1-A100-I 111895
125	100...125	750...1250		LZMB1-A125-I 111856	LZMC1-A125-I 111896
160	125...160	1200...1600		LZMB1-A160-I 111857	LZMC1-A160-I 111897

Terminal screws standard, terminals as accessories



160	125...160	960...1600		LZMB2-A160-I 111922	LZMC2-A160-I 111938
200	160...200	1200...2000		LZMB2-A200-I 111923	LZMC2-A200-I 111939
250	200...250	1500...2500		LZMB2-A250-I 111924	LZMC2-A250-I 111940
300	240...300	1500...2500		LZMB2-A300-I 111925	LZMC2-A300-I 111941



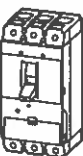
320	250...320	1920...3200			LZMC3-A320-I 111954
400	320...400	2400...4000			LZMC3-A400-I 111955
500	400...500	3000...5000			LZMC3-A500-I 111956

Notes

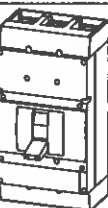
Notes for terminals → 15

3 pole with electronic release

Terminals screws standard, terminals as accessories



630	315...630	1260...5040			LZMC3-A630-I 111957
-----	-----------	-------------	--	--	------------------------



800	400...800	1600...9600			
1000	500...1000	2000...12000			

Notes

Notes for terminals → 19

51

xEnergy

Normal switching capacity
50 kA at 415 V 50/60 Hz

Part no.

Price

Std pack

Notes

Article no.

see price
list

LZMN1-A20-I

174414

1 off

IEC/EN 60947-2

Adjustable overload releases I_t • 0.8 – 1 x I_n (ex-works 0.8 x I_n)Adjustable short-circuit releases I_s • 6 – 10 x I_n (ex-works 6 x I_n)– LZM...A40 8 – 10 x I_n (ex-works 8 x I_n)Fixed short-circuit release I_f • 350 A at $I_n = 20 – 32$ A• 1280 A at $I_n = 160$ A (LZM1)

LZMN1-A25-I

174415

LZMN1-A32-I

174416

LZMN1-A40-I

174417

LZMN1-A50-I

174418

LZMN1-A63-I

174419

LZMN1-A80-I

174420

LZMN1-A100-I

174421

LZMN1-A125-I

174422

LZMN1-A160-I

174423

LZMN2-A160-I

174442

1 off

LZMN2-A200-I

174443

LZMN2-A250-I

174444

LZMN2-A300-I

174445

LZMN3-A320-I

111966

LZMN3-A400-I

111967

LZMN3-A500-I

111968

LZMN3-AE630-I

111969

1 off

IEC/EN 60947-2

Adjustable overload releases I_t • 0.5 – 1 x I_n (ex-works 0.8 x I_n)

R.m.s. value measurement and "thermal memory"

Adjustable short-circuit releases I_s • LZM...3-AE630-I 2 – 8 x I_n (ex-works 6 x I_n)• LZM...4-AE...I 2 – 12 x I_n (ex-works 6 x I_n)

LZMN4-AE800-I

111978

LZMN4-AE1000-I

111979

Circuit-breaker, thermo-magnetic release, 4 pole

Ordering

LZM...1, LZM...2, LZM...3

xEnergy

Rated current =
rated uninterrupted
current

Setting range
Overload
releases

Neutral
conductor

Short-circuit
releases

Basic switching capacity
25 kA at 415 V 50/60 Hz

Part no.
Article no.

Price
see price
list

Comfort switching capacity
36 kA at 415 V 50/60 Hz

Part no.
Article no.

Price
see price
list

$I_n = I_u$

A

I_r

A

I_r

A

I_s

A



Protection of systems and cables

4 pole

Terminals standard	Terminal screws as accessories	Neutral conductor	Short-circuit releases	Part no. Article no.	Part no. Article no.	
	15..20	15..20	350	LZMB1-4-A20-I 111868	LZMC1-4-A20-I 111908	
	20..25	20..25	350	LZMB1-4-A25-I 111869	LZMC1-4-A25-I 111909	
	25..32	25..32	350	LZMB1-4-A32-I 111870	LZMC1-4-A32-I 111910	
	32..40	32..40	320 400	LZMB1-4-A40-I 111871	LZMC1-4-A40-I 111911	
	40..50	40..50	300 500	LZMB1-4-A50-I 111872	LZMC1-4-A50-I 111912	
	50..63	50..63	380 630	LZMB1-4-A63-I 111873	LZMC1-4-A63-I 111913	
	63..80	63..80	480 800	LZMB1-4-A80-I 111874	LZMC1-4-A80-I 111914	
	80..100	80..100	600 1000	LZMB1-4-A100-I 111875	LZMC1-4-A100-I 111915	
	100..125	100..125	750 1250	LZMB1-4-A125-I 111876	LZMC1-4-A125-I 111916	
	125..160	125..160	960 1600	LZMB1-4-A160-I 111877	LZMC1-4-A160-I 111917	
	200	125..160	80..100	960 1600	LZMB2-4-A160-I 116431	LZMC2-4-A160-I 116435
		160..200	160..200	1200 2000	LZMB2-4-A160/100-I 111930	LZMC2-4-A160/100-I 111948
	250	160..200	100..125	1200 2000	LZMB2-4-A200-I 116432	LZMC2-4-A200-I 116436
		200..250	200..250	1500 2500	LZMB2-4-A200/125-I 111931	LZMC2-4-A200/125-I 111949
	300	200..250	200..250	1500 2500	LZMB2-4-A250-I 116433	LZMC2-4-A250-I 116437
		200..250	125..160	1500 2500	LZMB2-4-A250/160-I 111932	LZMC2-4-A250/160-I 111950
320	240 300	250..320	1500 2500	LZMB2-4-A300-I 116434	LZMC2-4-A300-I 116438	
	240 300	160..200	1500 2500	LZMB2-4-A300/200-I 111933	LZMC2-4-A300/200-I 111951	
400	250 320	320..400	1920 3200	LZMB3-4-A320-I 116439	LZMC3-4-A320-I 116443	
	250 320	200..250	1920 3200	LZMB3-4-A320/200-I 111960	LZMC3-4-A320/200-I 111961	
500	320 400	320..400	2400 4000	LZMB3-4-A400-I 116470	LZMC3-4-A400-I 116471	
	320 400	250..250	2400 4000	LZMB3-4-A400/250-I 111961	LZMC3-4-A400/250-I 111961	
500	400 500	400..500	3000 5000	LZMB3-4-A500-I 116471	LZMC3-4-A500-I 116471	
	400 500	250..320	3000 5000	LZMB3-4-A500/320-I 111962	LZMC3-4-A500/320-I 111962	

Notes

Notes for terminals → 15+19



SC

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CONDUCTOR S.R.L."

PROIECT RATON LEOVA.

xEnergy

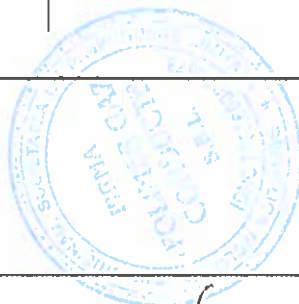
LZM...1, LZM...2, LZM...3

Normal switching capacity
50 kA at 415 V 50/60 Hz

Part no.	Price Article no. list	Std. pack see price	Notes
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UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL 'FOCAȘAȚILOR', SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA.
 "APROVIZIONAREA CU APĂ POTABILĂ A LOCAȘAȚILOR"

LZMN1-4-A20-I 174424	1 off	IEC/EN 60947-2
LZMN1-4-A25-I 174425		Adjustable overload releases I_t • 0.8 – 1 x I_n (ex-works 0.8 x I_n)
LZMN1-4-A32-I 174426		Setting on neutral pole implemented via the main pole setting I_t of the main pole
LZMN1-4-A40-I 174427		Adjustable short-circuit releases I_s • 6 – 10 x I_n (ex-works 6 x I_n) – LZM...A40-I: 8 – 10 x I_n (ex-works 8 x I_n)
LZMN1-4-A50-I 174428		Fixed short-circuit release I_s • 350 A at $I_n = 20 – 32$ A • 180 A at $I_n = 160$ A (8 x I_n)
LZMN1-4-A63-I 174429		LZM 2-4 A
LZMN1-4-A80-I 174430		With 100% overload and short-circuit protection in 4 th pole
LZMN1-4-A100-I 174431		LZM 2-4 A
LZMN1-4-A125-I 174432		• With 100% or 50% overload and short-circuit protection in 4 th pole
LZMN1-4-A160-I 174433		
LZMN2-4-A160-I 174435	1 off	
LZMN2-4-A160/100-I 174434		
LZMN2-4-A200-I 174437		
LZMN2-4-A200/125-I 174436		
LZMN2-4-A250-I 174439		
LZMN2-4-A250/160-I 174438		
LZMN2-4-A300-I 174441		
LZMN2-4-A300/200-I 174440		
LZMN3-4-A320-I 116473	1 off	
LZMN3-4-A320/200-I 111974		
LZMN3-4-A400-I 116474		
LZMN3-4-A400/250-I 111975		
LZMN3-4-A500-I 116475		
LZMN3-4-A500/320-I 111976		



Circuit-breaker, electronic releases, 4 pole

Ordering

LZM...2, LZM...3, LZM...4

xEnergy

Comfort switching capacity

36 kA at 415 V 50/60 Hz

Part no.

Article no.

Price
see price
list

Rated current =
rated uninterrupted
current

$I_n = I_u$

A

Setting range
Overload
releases

I_r

A



Neutral
conductor

I_r

A



Short-circuit
releases
Non-delayed

I_r

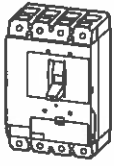
A



Protection of systems and cables

4 pole

Terminals screws standard terminals as accessories

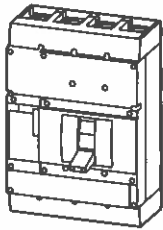


315..630 315..630 1760..5040

LZMC3-4-AE630-I
116472

315..630 200..400 1760..5040

LZMC3-4-AE630/400-I
111963



800 400..800 400..800 1600..9600

400..800 250..500 1600..9600

1000 500..1000 500..1000 2000..12000

500..1000 315..630 2000..12000

Notes

Notes for terminals → 19+22



SL

UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL LOCALITATILOR, SÎRMA, TOCHILE-RĂDUCANI ŞI TOMAI RAION LEOVA.
 APROVIZIONAREA CU APĂ POTABILĂ A LOCALITĂŢILOR

xEnergy

LZM...2, LZM...3, LZM...4

Normal switching capacity
50 kA at 415 V 50/60 Hz

Part no.
 Article no. **Price**
 see price
 list

Std. pack

Notes

LZMN3-4-AE630-I
 116476

LZMN3-4-AE630/400-I
 111977

LZMN4-4-AE800-I
 116477

LZMN4-4-AE800/500-I
 111986

LZMN4-4-AE1000-I
 116478

LZMN4-4-AE1000/630-I
 111987

1 off

IEC/EN 60947-2

Adjustable overload releases I_f
 • 0.5 - 1 x I_n (ex-works 0.8 x I_n)

Setting on neutral pole implemented via the main pole setting I_f of the main pole.

Rms value measurement and "thermal memory"

Adjustable short-circuit releases I_i

- LZM 3-4-AE630-I: 2 - 8 x I_n (ex-works 6 x I_n)
- LZM 4-4-AE...-I: 2 - 12 x I_n (ex-works 6 x I_n)

constant function (ex-works OFF)
 LZM3, LZM4 switched (ex-works OFF)

LZM3-AE630/400, LZM...4-AE...-I

With 60 % or 100 % overload and short-circuit protection in 4th pole

UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA.
 APROVIZIONAREA CU APĂ POTABILĂ A LOCALITĂȚILOR.



SC

Ordering

LN1..., LN2..., LN3..., LN4...

xEnergy

UTILIZARE AUTORA
"APROVIZIONARE"

EXCLUSIV PENTRU PROIECTUL
POTABILA A LOCALITATILOR
SIRNATOCHILE-RADUCANI SI TOMAI RAION LEOVA.

Rated current =
rated uninterrupted
current

$I_n = I_u$
A

Short-circuit
protection max.
fuse
gL-characteristic

A

3pole
Part no.
Article no.

Price
see price
list

4pole
Part no.
Article no.

Price
see price
list

Std.
pack

Switch-disconnectors

Can be tripped remotely with shunt- or undervoltage release

Terminals standard, terminal screws as accessories



63

125

LN1-63-I
111994

LN1-4-63-I
111998

1 off

100

125

LN1-100-I
111995

LN1-4-100-I
111999

125

125

LN1-125-I
111996

LN1-4-125-I
112000

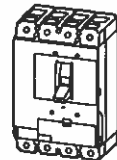
160

160

LN1-160-I
111997

LN1-4-160-I
112001

Terminals screws standard, terminals as accessories



63

750

LN2-160-I
112002

LN2-4-160-I
112005

1 off

200

250

LN2-200-I
112003

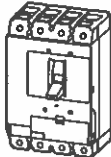
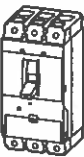
LN2-4-200-I
112006

250

250

LN2-250-I
112004

LN2-4-250-I
112007



400

630

LN3-400-I
112008

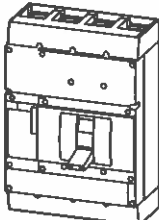
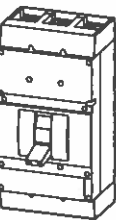
LN3-4-400-I
112010

630

630

LN3-630-I
112009

LN3-4-630-I
112011



800

1600

LN4-800-I
112012

LN4-4-800-I
112016

1000

1600

LN4-1000-I
112013

LN4-4-1000-I
112017

Notes

Main switch characteristics including positive drive to IEC/EN 60204 and VDE 0113
Isolating characteristics to IEC/EN 60947-3 and VDE 0660
Protection against accidental contact according to IEC 100
Notes for terminals → 16



SC

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UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL
"APROVIZIONAREA CU APĂ POTABILĂ A LOCALITĂȚILOR, SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA."



SC

Max. cable connection area

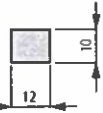
For use with

Terminal capacities
Type of conductor

mm²

AWG/kcmil

Box terminal
Standard equipment



LZM1(-4)
LN1(-4)

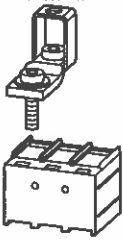
Three- and four-pole

Cu cable

1 x 10 – 70¹⁾
2 x 6 – 25

1 x 8 – 2/0
2 x 9 – 4

Screw connection



LZM1(-4)
LN1(-4)

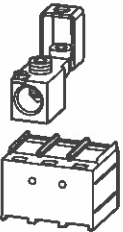
Three- and four-pole

Copper cable lugs
Aluminium cable lug

1 x 10 – 70
2 x 6 – 25
1 x 10 – 35
2 x 10 – 35

1 x 8 – 2/0
2 x 9 – 4
1 x 8 – 2
2 x 8 – 2

Tunnel terminal



LZM1(-4)
LN1(-4)

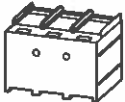
Three- and four-pole

Copper cable
Al cable

1 x 16 – 95
2 x 6 – 25

1 x 6 – 3/0
-

Cover



LZM1(-4)
LN1(-4)

3 pole
4 pole

Notes

¹⁾ Up to 95 mm² can be connected depending on the cable manufacturer

UTILIZAREA AUTORIZATA ENCLUSIV PENTRU PROIECTUL LOCALITATILOR, SÂRMA, TOCHILE-RĂDUCANI ŞI TOMAI RAION LEOVA.




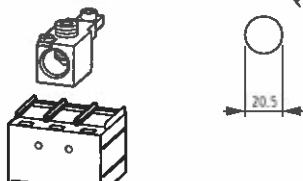
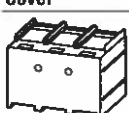

SL

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Terminal capacities	Part no. Article no. when ordered separately	Price see price list	Std. pack	Notes
Cu strip (number of segments x width x segment thickness) mm	Copper busbar width x thickness mm			
2 x 9 x 0.8 9 x 9 x 0.8	NZM1-XKC 260015		1 off	Standard connection with all switches LZM1 and LN1. Conversion kit for circuit-breaker with screw connection. Type contains parts for a 3 or 4-pole switch side. Fitted within the switch housing
	NZM1-4-XKC 267075		1 off	
min 12 x 5 max 15 x 5	NZM1-XKS 260019		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit-breakers Fitted outside the switch housing
min 12 x 5 max 15 x 5	NZM1-4-XKS 266725		1 off	Mounting of the cover NZM1(-4)-XKSA obligatory (supplied).
	NZM1-XKA 266730		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit-breakers
	NZM1-4-XKA 266731		1 off	A standard with control circuit terminal for 1 x 0.75 – 2.5 mm ² (18 – 14 AWG) or 2 x 0.75 – 1.5 mm ² (18 – 14 AWG) copper conductors. Fitted outside the switch housing. Use with flexible and highly flexible conductors ferrules. Maximum specified cross section can only be connected when stranded and without ferrules. Mounting of the cover NZM1(-4)-XKSA obligatory (supplied).
	NZM1-XKSA 260021		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit-breakers.
	NZM1-4-XKSA 266741		1 off	Protection against direct contact where cable lugs, busbars or tunnel terminals are used Contained in kit with tunnel terminals or screw connection terminals Degree of protection IP1X on the connection side when using insulated conductor material.



SC

	Max. cable connection area	For use with	Terminal capacities		Terminal capacities Cu strip (number of segments x width x segment thickness)		
			Type of conductor	Terminal capacities ¹⁾			
				mm ²	AWG/kcmil	mm	
Box terminal 		LZM2(-4) LN2(-4)	3pole	Copper conductors Cu cable	1 x 4 - 185 2 x 4 - 70	1 x 11 - 350 2 x 12 - 2/0	≥ 2 x 9 x 0.8
			4pole				
Tunnel terminal 		LZM2(-4) LN2(-4)	3pole	Copper cable all cable	1 x 16 ... 185 ¹⁾ 1 x 16 ... 185 ¹⁾	1 x 6 - 350 -	
			4pole				
Cover 	-	LZM2	3pole				
			LZM2(-4) LN2-4	4pole			
Copper cable lug When using cable lugs without NZM3(-4)-XKSA cover, they must be insulated 	95 mm ²	LZM2(-4) LN2(-4)	3 and 4 pole				
	120 mm ²						
	150 mm ²						
	185 mm ²						

Notes

¹⁾ Up to 240 mm² can be connected depending on the cable manufacturer




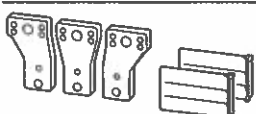
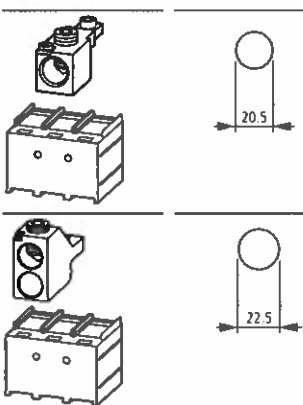
xEnergy

Copper busbar width x thickness	Part no. Article no. when ordered separately	Price see price list	Std pack	Notes
	NZM2-160-KKC 262240		1 off	Type suffix and type contain parts for a circuit-breaker side at top or bottom for 3 or 4 pole circuit-breakers. Conversion kit for circuit-breaker with screw connection Fitted within the switch housing. O = for fitting at the top U = for fitting at the bottom $U_e \geq 525$ V AC • Use cover NZM2(4)-XKSA Use ferrules with flexible and highly flexible conductors Max. cross section shown can only be connected when flexible and without ferrules
	NZM2-250-KKC 262240			
	NZM2-4-160-KKC 266755			
	NZM2-4-250-KKC 266756			
	NZM2-XKA 271457		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit-breakers A standard with control circuit terminal for 1 x 0.75 – 2.5 mm ² (18 – 14 AWG) or 2 x 0.75 – 1.5 mm ² (18 – 16 AWG) copper conductors Fitted outside the switch housing. Use with flexible and highly flexible conductors ferrules. Maximum specified cross-section can only be connected when stranded and without ferrules Mounting of the cover NZM2(4)-XKSA obligatory (supplied).
	NZM2-4-XKA 271458		1 off	
	NZM2-XKSA 260038		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit-breakers. Protection against direct contact where cable lugs, busbars or tunnel terminals are used. Degree of protection IPXX on the connection side when using insulated conductor material
	NZM2-4-XKSA 266770		1 off	
	KS95-NZM7 059775		3 off	Type contains a cable lug for 3-pole or 4-pole switches Special cable lug, narrow style
	KS120-NZM7 059776			
	KS150-NZM7 059777			
	NZM2-XKS185 260032			



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"UTILIZAREA SI/SA EXCLUSIV PENTRU PROIECTUL SI/SA
 "ARROVIZIONAR" CU APA POTABILA A LOCALITATII "SIRSA", TOCHILE-RADUCANI SI TOMAI RAION LEOVA."

Max cable connection area	Rated current ¹⁾	For use with	Terminal capacities			
			Type of conductor	Terminal capacities		
	I_n A			mm ²	AWG/kcmil	
Box terminal 	max. 500 630	LZM3(-4) LN3(-4)	3pole 4pole	Copper conductors Cu cable	1 x 35 – 240 2 x 16 – 120	1 x 2 – 350
Connection width extension 	30	LZM3(-4) LN3(-4)	3pole 4pole	Copper cable lugs	2 x 300	2 x 500 1 x 600
Tunnel terminal 	max. 350 max. 630	LZM3(-4) LN3(-4)	3pole 4pole 3pole 4pole	Copper conductors Cu cable conductors Al cable	1 x 16 – 185 ²⁾	1 x 6 – 350 1 x 0 – 500 2 x 0 – 500

Notes

- ¹⁾ The following applies for the rated current. The values have been determined conforming to IEC/EN 60947 (switchgear standard) and generally relate to the max. defined cross-sections and are intended for the purpose of orientation. The engineering standards which apply in each case must be observed.
- ²⁾ Up to 240mm² can be connected depending on the cable manufacturer.



SL

UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL LOCALITATILOR SIRMAY TOCHILEA RĂDUCANI ŞI TOMAI RAION LEOVA.

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Terminal capacities	Part no.	Price	Std. pack	Notes
Cu strip (number of segments x width x segment thickness)	Article no. when ordered separately	see price list		
Copper busbar width x thickness				
mm				
min. 6 x 46 x 0.8 max. 20 x 240 x 0.5 or max. 11 x 21 x 1	NZM3-XKC 260042		1 off	Type suffix and type contain parts for a circuit-breaker side at top or bottom for 3 or 4-pole circuit-breakers. Conversion kit for circuit-breaker with screw connection. Fitted within the switch housing O = for fitting at the top U = for fitting at the bottom $U_n \geq 525$ V AC: • Use NZM3(-4)-XKSA cover. Use with flexible and highly flexible conductors ferrules, note the max. terminal capacity when using ferrules.
	NZM3-4-XKC 266783			
(2 x) 10 x 50 x 1.0	NZM3-XKV70 100514		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4 pole circuit-breakers Central drill holes, e.g. for up to 2 cable lugs per phase. Can be fitted to circuit-breaker with screw termination. Phase isolator supplied. Distance between pole centres with NZM3(-4)-XKV70: 70 mm. Drill hole available for control cable.
(2 x) 10 x 50	NZM3-4-XKV70 100515		1 off	
	NZM3-XKA1 271459		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit-breakers. A standard with control circuit terminal for 1 x 0.75 – 2.5 mm ² (18 – 14 AWG) or 2 x 0.75 – 1.5 mm ² (18 – 16 AWG) copper conductors Fitted outside the switch housing Use with flexible and highly flexible conductors ferrules. Maximum specified cross-section can only be connected when stranded and without ferrules
	NZM3-4-XKA1 271460		1 off	
	NZM3-XKA2 271461		1 off	Mounting of the cover NZM3(-4)-XKSA obligatory (supplied). Please note a maximum diameter of 20.5 mm resp. 22.5 mm.
	NZM3-4-XKA2 271462		1 off	

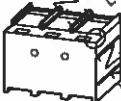
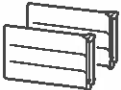



SC

Ordering

LZM3

xEnergy

	Max. cable connection area	For use with	Part no. Article no. when ordered separately	Price see price list
Cover 	-	LZM3(-4) LN3(-4)	3 pole	NZM3-XKSA 260045
	-		4 pole	NZM3-4-XKSA 266801
Phase isolator 		LZM3(-4) LN3(-4)	3 pole	NZM3-XKP 100512
			4 pole	NZM3-4-XKP 100513
Copper cable lug When using cable lugs without NZM3(-4)-XKSA cover they must be insulated 	185 mm ²	LZM3(-4), LN3(-4) ZM4(-4), LN4(-4)	3 and 4 pole	NZM3-XKS185 260040
	240 mm ²			NZM3-XKS240 260041
	300 mm ²			NZM3-XKS300 153186

UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL
 "APROFIZAREA CU APA POTABILĂ A LOCALITĂȚILOR SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA."



SL

Std pack Notes

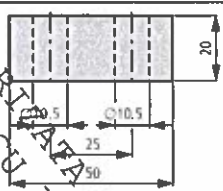
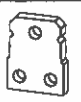


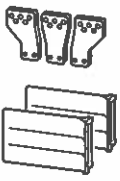
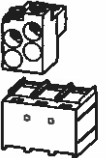
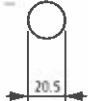
1 off Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit-breakers.
 1 off Insulation/protection against direct contact where cable lugs, busbars or tunnel terminals are used
 1 off Included in set with tunnel terminals.
 Degree of protection IP1X on the connection side when using insulated conductor material.

1 off Type contains parts for a terminal located at top or bottom for 3 or 4 pole circuit-breakers
 Included with the connection width extension.
 1 off Cannot be combined with the NZM3(-4)-XKA tunnel terminal, NZM3(-4)-XKR connection on rear.
 Insulation protection with connection of cable lugs, busbars or braid.

1 off Type contains a cable lug for 3-pole or 4-pole switches.
 Special cable lug, narrow style

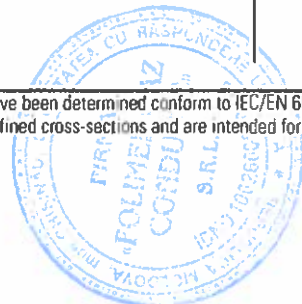
UTILIZAREA AUTORIZATA SI PERMISIV PENTRU PROIECTUL
 "APROVIZIONAREA CU ENERGIE ELECTRICA A LOCALITATILOR, SÎRMA, TOCHILE-RĂDUCANI ŞI TOMAI RAION LEOVA."



Max. cable connection area	Rated current ¹⁾	For use with	Terminal capacities		
			Type of conductor	Terminal capacities	AWG/kcmil
	I_n A			mm ²	
Screw connection Standard equipment 2-hole with slots, bolts and nuts 	max. 1600	LZM4(-4) LN4(-4)	Three- and four-pole	Cu cable lugs 1 x 120 - 185 4 x 50 - 185	1 x 250 - 350 4 x 0 - 350
Module plate  Single hole  Double hole  Double hole	max. 1250	LZM4 LN4	3 pole	Copper cable lugs 1 x 120 - 300 2 x 95 - 300	1 x 250 - 600 2 x 000 - 600
	max. 1400	LZM4 LN4	4 pole	Copper cable lugs 2 x 95 - 185 4 x 35 - 185 4 x 50	2 x 000 - 350 4 x 2 - 350
	max. 1250	LZM4 LN4	3 pole	Copper cable lugs 2 x 95 - 300	2 x 000 - 600
	max. 1400	LZM4 LN4	4 pole	Copper cable lugs 2 x 95 - 300	2 x 000 - 500
	max. 1250	LZM4 LN4	3 pole	Copper cable lugs 2 x 95 - 300	2 x 000 - 500
	max. 1400	LZM4 LN4	4 pole	Copper cable lugs 2 x 95 - 300	2 x 000 - 500
Connection width extension 	max. 1600	LZM4 LN4	3 pole	Cu cable lugs 4 x 300 6 x 95 - 240	4 x 600 6 x 000 ... 500
		LZM4-4 LN4-4	4 pole		
Tunnel terminal  	max. 1400	LZM4 LN4	3 pole	Copper conductors 1 x 50 - 240 4 x 50 - 240	1 x 0 - 500 4 x 0 - 500
		LZM4-4 LN4-4	4 pole	Cu cable Al conductors Al cable 1 x 50 - 240 4 x 50 - 240	1 x 0 - 500 4 x 0 - 500

Notes

¹⁾ The following applies for the rated current. The values have been determined conform to IEC/EN 60947 (switchgear standard) and generally relate to the max. defined cross-sections and are intended for the purpose of orientation.



SC

xEnergy

Terminal capacities	Part no.	Price	Std. pack	Notes
Cu strip (number of segments x width x segment thickness)	Article no. when ordered separately	see price list		
Copper busbar width x thickness				
mm				
(2 x) 10 x 50 x 10			off	Double hole fitting for M10 stud bolts with 25 mm clearance. Use special cable lug narrow version.
(2 x) 10 x 40 x 10 (2 x) 10 x 50 x 10	NZM4-XKM1 266814 NZM4-4-XKM1 266815 NZM4-XKM2 266820 NZM4-4-XKM2 266821 NZM4-XKM2S-1250 284471 NZM4-4-XKM2S-1250 284472 NZM4-XKM2S-1600 284473 NZM4-4-XKM2S-1600 284474		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit-breakers. For M10 screws. Can be enlarged for M12 screws Use special cable lug narrow version. Can be fitted to circuit-breaker with screw termination. Insulation through NZM4(-4)-XKSA cover necessary.
min 10 x 50 x 10	NZM4-XKV95 281591 NZM4-XKV110 281593 NZM4-4-XKV95 281592 NZM4-4-XKV120 281594		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit-breakers. Five way holes, e.g. for up to 9 cable lugs per phase. Can be fitted to circuit-breaker with screw termination. Phase isolator supplied. Distance between pole centres with NZM4(-4)-XKV95: 95 mm. Installation conditions for current transformer up to 130 mm width with 80 mm busbar width. Distance between pole centres with NZM4-XKV110: 107.5 mm. Installation conditions for current transformer up to 135 mm width with 80 mm busbar width. Distance between pole centres with NZM4-4-XKV120: 122 mm. Installation conditions for current transformer up to 164 mm width with 80 mm busbar width. 4 mm drilled holes for control circuit terminal available
	NZM4-XKA 266836 NZM4-4-XKA 266837		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4 pole circuit-breakers A standard with control circuit terminal for 1 x 0.75 ... 2.5 mm ² (18 ... 14 AWG) or 2 x 0.75 ... 1.5 mm ² (18 ... 16 AWG) copper conductors Can be fitted to circuit-breaker with screw termination. Use ferrules with flexible and highly flexible conductors. Max cross section shown can only be connected when flexible and without ferrules Use of the NZM4(-4)-XKSA cover obligatory (supplied)

CALITIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL SI EXECUTIILE SAU PENTRU PROIECTUL SI EXECUTIILE SAU PENTRU PROIECTUL SI EXECUTIILE SAU
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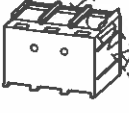
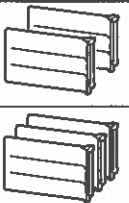



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Ordering

LZM4

xEnergy

	Max. cable connection area	For use with	Terminal capacities		
			Type of conductor	Terminal capacities	AWG/kcmil
		I_n		mm ²	
Cover					
		LZM4 LN4	3 pole		
		LZM4-4 LN4-4)	4 pole		
Phase isolators					
		LZM4 LN4	3 pole		
		LZM4-4 LN4-4)	4 pole		
Cable lug					
	185 mm ²	LZM3(-4) LZM4(-4) LN3(-4) LN4(-4)	3 and 4 pole		
	240 mm ²				
	300 mm ²				

UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA.
 „APROVIZIUNAREA CU APĂ POTABILĂ A LOCALITĂȚILOR, SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA.”



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xEnergy

Part no. Article no. when ordered separately	Price see price list	Std pack	Notes
NZM4-XKSA 266846 NZM4-4-XKSA 266847		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4 pole circuit breakers Protection against direct contact where cable lugs, busbars, flat cable terminals or tunnel terminals are used With module plates, flat braid terminals and tunnel terminals included in the kit When using insulated conductor material to degree of protection IP1X.
NZM4-XKP 281595 NZM4-4-XKP 281596		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit breakers. Included with the connection width extension Cannot be combined with the tunnel terminal NZM4(-4)-XKA, connection NZM4-XKR on rear Insulation protection where cable lugs, busbars, module plates or flat cable terminals are used
NZM3-XKS185 260040 NZM3-XKS240 260041 NZM3-XKS300 153186		3 off	Type contains a cable lug for 3-pole or 4-pole switches Special cable lug, narrow style.

UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL LOCALITĂȚILOR, SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA.



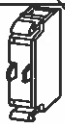















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Auxiliary contact

Ordering

LZM, M22-...

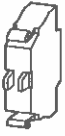
xEnergy


		For use with	Auxiliary contacts ⊕ = safety function, by positive opening to IEC/EN 60947-5-1		Contact sequence	Part no. Article no. when ordered separately	Price see price
			N/O = Normally open	N/C = Normally closed			
Auxiliary contacts							
Standard auxiliary contact (HIN) Switching with the main contacts Used for indicating and interlocking tasks							
		LZM1(-4), 2(-4), 3(-4), 4(-4) LN1(-4), 2(-4), 3(-4), 4(-4)	1 N/O			M22-K10 216376	
				1 N/C ⊕		M22-K01 216378	
	With 3 m connection cable instead of screw termination.	LZM1(-4), 2(-4), 3(-4), 4(-4) LN1(-4), 2(-4), 3(-4), 4(-4)	1 N/O	1 N/C ⊕			
			2 N/O				
			2 N/C ⊕				
							
Trip indicating auxiliary contact (HIA) General trip indication +, when tripped by voltage release, overload release or short-circuit release							
		LZM1(-4), 2(-4), 3(-4), 4(-4) LN1(-4), 2(-4), 3(-4), 4(-4)	1 N/O			M22-K10 216376	
				1 N/C		M22-K01 216378	
	With 3 m connection cable instead of screw termination.	LZM1(-4), 2(-4), 3(-4), 4(-4) LN1(-4), 2(-4), 3(-4), 4(-4)	1 N/O	1 N/C			
			2 N/O				
			2 N/C				
							



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Part no. Article no. when ordered separately	Price see price list	Std. pack	Notes	Notes
 <p>M22-CK10 216384</p> <p>M22-CK00 216386</p> <p>M22-CK11 107940</p> <p>M22-CK20 107898</p> <p>M22-CK02 107899</p>		20 off	For Std. pack M22-(C)K... Std. pack = 20 off	<p>The following can be clipped into the switches:</p> <ul style="list-style-type: none"> • LZM1 - one standard auxiliary contact • LZM2 - up to 2 standard auxiliary contacts M22-(C)K... • LZM3 and LZM4 - up to 3 standard auxiliary contacts M22-(C)K... <p>Any combinations of the auxiliary contact types is possible. Marking on switch: HIN</p>
		20 off		
		20 off		

 <p>M22-CK10 216384</p> <p>M22-CK01 216385</p> <p>M22-CK11 107940</p> <p>M22-CK20 107898</p> <p>M22-CK02 107899</p>		20 off	For Std. pack M22-(C)K... Std. pack = 20 off	<p>The following can be clipped into the switches:</p> <ul style="list-style-type: none"> • LZM1 - one trip-indicating auxiliary switch • LZM2 - one M22-(C)K... trip-indicating auxiliary switch • LZM3 - one M22-(C)K... trip-indicating auxiliary switch • LZM4 - up to two M22-(C)K... trip-indicating auxiliary switches <p>Any combinations of the auxiliary contact types is possible. Marking on switch: HIA</p> <p>If the trip-indicating auxiliary contact in the fault-current block is used, the N/C contacts operates as a N/O contact and the N/C contact operates as an N/O contact (circuit symbol)</p>

UTILIZARE AUTORIZATA EXCLUSIV PENTRU PROIECTUL LOCALITATILOR, SÎRMA, TOCHILE-RĂDUCANI ŞI TOMAI RAION LEOVA.

APROVIZIONAREA CU APĂ POTABILĂ A LOCALITĂŢILOR, SÎRMA, TOCHILE-RĂDUCANI ŞI TOMAI RAION LEOVA.

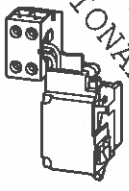

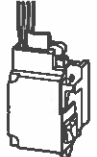

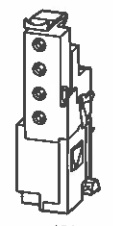

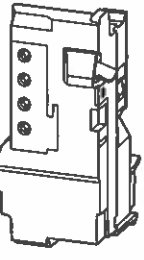



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Ordering

LZM1, LZM2/3, LZM4

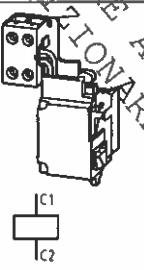
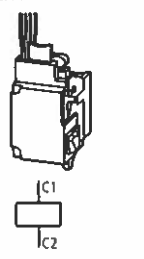
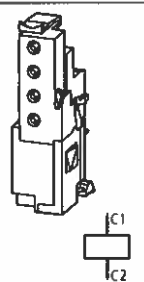
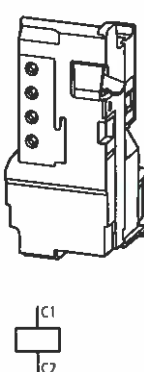
xEnergy

	For use with	Rated control voltage	Part no. Article no. when ordered separately	Price see price list	Std. pack	Notes
Undervoltage releases						
Without auxiliary contact						
Non delayed disconnection of LZM circuit-breakers or LN switch disconnectors when the control voltage sinks below 35 – 70% U_s .						
For use with Emergency-Stop devices in conjunction with Emergency-Stop button.						
 	With clamp terminal on the left-hand switch side	LZM1(-4)	24 V 50/60 Hz	NZM1-XU24AC 259434	1 off	When the undervoltage release is de-energized, accidental contact with the main contacts of the switch during attempts to switch on, is safely prevented. Undervoltage release cannot be installed simultaneously with NZM...XHIV...early-make auxiliary contact or NZM...XA...shunt release.
		LN1(-4)	208 V 240 V 50/60 Hz	NZM1-XU208-240AC 259442		
			380 V – 440 V 50/60 Hz	NZM1-XU380-440AC 259444		
			24 V DC	NZM1-XU24DC 259452		
 	With 3 m connection cable instead of screw termination	LZM1(-4)	24 V 50/60 Hz	NZM1-XUL24AC 259462	1 off	
		LN1(-4)	208 V 240 V 50/60 Hz	NZM1-XUL208-240AC 259471		
			380 V – 440 V 50/60 Hz	NZM1-XUL380-440AC 259473		
			24 V DC	NZM1-XUL24DC 259481		
 	LZM2(-4) LN2(-4) LZM3(-4) LN3(-4)		24 V 50/60 Hz	NZM2/3-XU24AC 259491	1 off	
			208 V 240 V 50/60 Hz	NZM2/3-XU208-240AC 259492		
			380 V – 440 V 50/60 Hz	NZM2/3-XU380-440AC 259501		
			24 V DC	NZM2/3-XU24DC 259509		
 	LZM4(-4) LN4(-4)		24 V 50/60 Hz	NZM4-XU24AC 266189	1 off	
			208 V 240 V 50/60 Hz	NZM4-XU208-240AC 266193		
			380 V – 440 V 50/60 Hz	NZM4-XU380-440AC 266194		
			24 V DC	NZM4-XU24DC 266204		



xEnergy

LZM1, LZM2/3, LZM4

For use with	Rated control voltage	Part no. Article no. when ordered separately	Price see price list	Std. pack	Notes
<p>Shunt releases Without auxiliary contact Switches are tripped by a voltage pulse or by the application of unidirectional voltage.</p>					
	LZM1(-4) LN1(-4)	24 V AC/DC	NZM1-XA24AC/DC 259708	1 off	When the undervoltage release is de-energized, accidental contact with the main contacts of the switch during attempts to switch on, is safely prevented. Shunt release cannot be installed simultaneously with NZM...XHV early-make auxiliary contact or NZM...XU undervoltage release
		208 V – 250 V AC/DC	NZM1-XA208-250AC/DC 259726		
		380 V – 440 V AC/DC	NZM1-XA380-440AC/DC 259728		
	LZM1(-4) LN1(-4)	24 V AC/DC	NZM1-XAL24AC/DC 259736	1 off	
		208 V – 250 V AC/DC	NZM1-XAL208-250AC/DC 259744		
		380 V – 440 V AC/DC	NZM1-XAL380-440AC/D 259746		
	LZM2(-4) LZM3(-4) LN2(-4) LN3(-4)	24 V AC/DC	NZM2/3-XA24AC/DC 259754	1 off	
		208 V – 250 V AC/DC	NZM2/3-XA208-250AC/DC 259763		
		380 V – 440 V AC/DC	NZM2/3-XA380-440AC/DC 259766		
	LZM4(-4) LN4(-4)	24 V AC/DC	NZM4-XA24AC/DC 266447	1 off	
		208 V – 250 V AC/DC	NZM4-XA208-250AC/DC 266451		
		380 V – 440 V AC/DC	NZM4-XA380-440AC/DC 266452		



SL

30 Door coupling rotary handles

Ordering

LZM1, LZM2, LZM3, LZM4

xEnergy











	For use with	Part no. Article no.	Price see price list	Std. pack	Notes
Door coupling rotary handle Complete including rotary drive and coupling parts An additional extension shaft is necessary with the NZM...-XT(V)D(V)(R)(-60) types Degree of protection IP66 Standard black/grey					
	Lockable on the 0 position on the handle using up to 3 padlocks. With door interlock	LZM1(-4), LN1(-4)	NZM1-XTVD 260166	1 off	Door interlock <ul style="list-style-type: none"> Not defeated in the locked OFF and ON positions Can be modified such that it can be defeated from the outside using a screwdriver, when it is in the unlocked ON position. Door can be opened in OFF NZM...-XTVD(V) External warning plate/designation label can be clipped on
		LZM2(-4), LN2(-4)	NZM2-XTVD 260168		
		LZM3(-4), LN3(-4)	NZM3-XTVD 260170		
		LZM4(-4), LN4(-4)	NZM4-XTVD 266614		
	Lockable on the handle on the switch using up to 3 padlocks. Lockable in 0 position on the handle.	LZM1(-4), LN1(-4)	NZM1-XTVDVR 260178	1 off	Door interlock <ul style="list-style-type: none"> Not defeated in the locked OFF position Can be modified such that it can be defeated from the outside using a screwdriver, when it is in the unlocked ON position. Door can be opened in OFF NZM...-XTVDVR External warning plate/designation label can be clipped on
		LZM2(-4), LN2(-4)	NZM2-XTVDVR 260180		
	With door interlock. Lockable in the 0 position	LZM3(-4), LN3(-4)	NZM3-XTVDVR 260182		
		LZM4(-4), LN4(-4)	NZM4-XTVDVR 266618		
Extension shaft 	Max mounting depth: 400 mm	LZM1(-4), LN1(-4)	NZM1/2-XV4 261232	1 off	Length 290 mm Length 225 mm Length 490 mm Length 425 mm Can be cut to required length
		LZM2(-4), LN2(-4)	NZM3/4-XV4 261233		
		LZM3(-4), LN3(-4)	NZM1/2-XV6 260191		
		LZM4(-4), LN4(-4)	NZM3/4-XV6 260193		
	Max mounting depth: 600 mm	LZM1(-4), LN1(-4)	NZM1/2-XV6 260191		
		LZM2(-4), LN2(-4)	NZM3/4-XV6 260193		
		LZM3(-4), LN3(-4)	NZM1/2-XV6 260191		
		LZM4(-4), LN4(-4)	NZM3/4-XV6 260193		

Notes

Circuit-breaker can also be installed in a lying position 90° left/right, with the handle still in the same position.



SC

	For use with	Part no. Article no.	Price see price list	Std. pack	Notes
Rotary handle on circuit-breaker					
Complete with rotary drive					
Standard, black/grey					
	Lockable on the 0 position on the handle using up to 3 padlocks	LZM1(-4), LN1(-4)	NZM1-XDV 260125	1 off	NZM1(2)(3)-X...: Can also be combined with insulating surround. MODAN handle position detection by wire release can be retrofitted.
		LZM2(-4), LN2(-4)	NZM2-XDV 260127		
		LZM3(-4), LN3(-4)	NZM3-XDV 260129		
		LZM4(-4), LN4(-4)	NZM4-XDV 266608		
	Lockable on the 0 position on the handle using up to 3 padlocks.	LZM1(-4), LN1(-4)	NZM1-XDVG 285247	1 off	Can also be combined with insulating surround
		LZM2(-4), LN2(-4)	NZM2-XDVG 285248		
Rotary handle on circuit breaker with door interlock					
Complete with rotary drive and insulating surround					
Standard, black/grey					
	Lockable on the 0 position on the handle using up to 3 padlocks, can also be modified for the I position. Also available with door interlock e.g. for MCC service distribution.	LZM1(-4), LN1(-4)	NZM1-XDTV 260131	1 off	Door interlock <ul style="list-style-type: none"> • In the ON position, can be defeated from the outside using a 1 mm pin • Not defeated in the locked OFF and ON positions • Door can be opened in OFF • Can only be switched ON when the door is closed
		LZM2(-4), LN2(-4)	NZM2-XDTV 260133		
Red-yellow for Emergency-Stop					
	Lockable on the 0 position on the handle using up to 3 padlocks. Also available with door interlock e.g. for MCC service distribution	LZM1(-4), LN1(-4)	NZM1-XDTV 260142	1 off	
		LZM2(-4), LN2(-4)	NZM2-XDTV 260144		



SC

For use with	Part no. Article no. when ordered separately	Price see price list	Std. pack	Notes
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External warning plate/designation label



German/English	LZM1(-4), LN1(-4) LZM2(-4), LN2(-4)	ZFS61/62-NZM7 272525	1 off	A bilingual external warning plate/ designation label in German/English is already included in the main switch assembly kit.
German	LZM3(-4), LN3(-4) LZM4(-4), LN4(-4)	ZFS61-NZM7 051089		
English		ZFS62-NZM7 065957		
French		ZFS63-NZM7 065958		
Blank (for engraving or printing)		ZFS60-NZM7 065896		
Further languages		ZFS*-NZM7 999978		

External warning plates are available in the following languages:

64 Bulgarian	73 Romanian
65 Danish	74 Russian
66 Finnish	75 Swedish
67 Dutch	76 Serbo-Croatian
68 Italian	77 Spanish
69 Greek	78 Czech
70 Norwegian	79 Turkish
71 Polish	80 Hungarian
72 Portuguese	81 Afrikaans

To obtain the order number, insert the language code number into the type reference required.
Ordering example
External warning plate in Finnish.
ZFS66-NZM7

Lightning symbol

Including terminal marking for main switch

Small 		LZM1(-4), LN1(-4) LZM2(-4), LN2(-4)	BPF-NZM7 217294	10 off	Included as standard in main switch assembly kit
Large 		LZM3(-4), LN3(-4) LZM4(-4), LN4(-4)	BPF-NZM10 231363	10 off	



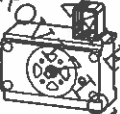
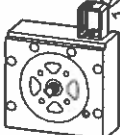
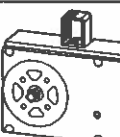
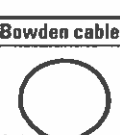

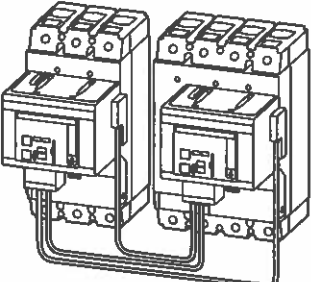
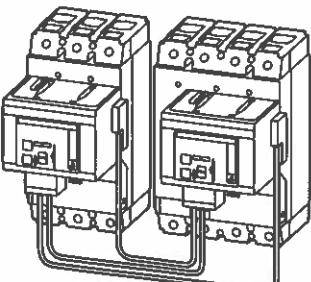
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xEnergy

NZM...-XDZ, NZM...-XBR, NZM...-X...

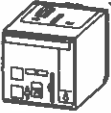

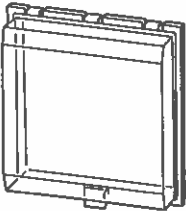
	For use with	Part no. Article no. when ordered separately	Price see price list	Std pack	Notes
Insulating surrounds For toggle lever, rotary handle with rotary drive and remote operator. Degree of protection IP40					
	LZM1(-4), LN1(-4)	NZM1-XBR 260195		1 off	For oblong cut-out on doors and enclosures with material thicknesses of 1.5 – 5 mm. External warning plate/designation label can be clipped on. NZM4-XBR cannot be combined with rotary handle with rotary drive.
	LZM2(-4), LN2(-4)	NZM2-XBR 260197			
	LZM3(-4), LN3(-4)	NZM3-XBR 284645			
	LZM4(-4), LN4(-4)	NZM4-XBR 284646			
Toggle lever locking device Off position lockable using up to 3 padlocks (max thickness 4 – 8 mm)					
	LZM1(-4), LN1(-4)	NZM1-XKAV 260199		1 off	Cannot be combined with insulating surround.
	LZM2(-4), LN2(-4)	NZM2/3-XKAV 260201		1 off	
	LZM3(-4), LN3(-4)				
Spacers Enables fast and low-priced adjustment of differing frame sizes without rotary handle to the same front depth					
	LZM1(-4), LN1(-4) LZM2(-4), LN2(-4)	NZM1/2-XAB 260203		1 set	Grid depth 17.5 mm, M4 thread Type contains 4 off spacer Maximum component capacity: LZM1: 4 units per fixing screw, LZM2: 2 units per fixing screw 2 (LZM1) or 4 (LZM2) fixing screws contained per circuit-breaker
	LZM3(-4), LN3(-4) LZM4(-4), LN4(-4)	NZM3-XAB 260211		1 set	Grid depth 17.5 mm, M5 thread One set contains 4 spacers LZM3, LZM4: 1 off per fixing screw 4 fixing screws per switch included
Clip plate Enables snap-fit of the circuit breaker to a DIN rail					
	LZM1(-4), LN1(-4)	NZM1-XC35 260213		1 off	For top-hat rail 35 mm
	LZM2, LN2	NZM2-XC75 260215		1 off	For top-hat rail 75 mm Not suitable for circuit-breakers with remote operator.

SC

	For use with	Part no. Article no. when ordered separately	Price see price list	Std. pack	Notes
Mechanical interlocking of (door coupling) rotary handles					
	LZM1(-4), LN1(-4)	NZM1-XMV 281581		1 off	Rotary handles on switches or door coupling rotary handles are additionally required. Cannot be combined with paralleling mechanisms, side wall operators and remote operator as well as NZM4-XBR insulating surrounds. In order to establish a mechanical interlock at least 2 interlock modules are required. Possible combinations and interlock variants → engineering. Order Bowden cable separately.
	LZM2(-4), LN2(-4)	NZM2-XMV 281582			
	LZM3(-4), LN3(-4)	NZM3-XMV 281583			
	LZM4(-4), LN4(-4)	NZM4-XMV 281584			
Bowden cables					
	LZM1(-4), LN1(-4) LZM2(-4), LN2(-4)	NZM-XBZ225 281585		1 off	
	LZM3(-4), LN3(-4) LZM4(-4), LN4(-4)	NZM-XBZ600 281586			
		NZM-XBZ1000 281587			
Mechanical interlock for remote operator					
For 2 switches of the same or next frame size with each other Mounting beside one another.					
	LZM2(-4), LN2(-4) +LZM2(-4), LN2(-4)	NZM2-XMVR 104545		1 off	Type contains parts for both switches. Remote operator also required. Maximum switching distance → engineering. Cannot be combined with rotary handles, door coupling rotary handles and early-make auxiliary contacts.
	LZM2(-4), LN2(-4) +LZM3(-4), LN3(-4)	NZM2/3-XMVR 104544			
	LZM3(-4), LN3(-4) +LZM3(-4), LN3(-4)	NZM3-XMVR 104545			
	LZM3(-4), LN3(-4) +LZM4(-4), LN4(-4)	NZM3/4-XMVR 104546			
	LZM4(-4), LN4(-4) +LZM4(-4), LN4(-4)	NZM4-XMVR 104547			
For 2 switches of the same or different type with opposed operation. Extra long Bowden cable for mounting one above the other or in adjacent enclosures					
	LZM2(-4), LN2(-4) +LZM2(-4), LN2(-4)	NZM2-XMVRL 104548		1 off	Type contains parts for both switches. Remote operator also required. Maximum switching distance → engineering. Cannot be combined with rotary handles, door coupling rotary handles and early-make auxiliary contacts.
	LZM2(-4), LN2(-4) +LZM3(-4), LN3(-4)	NZM2/3-XMVRL 104549			
	LZM3(-4), LN3(-4) +LZM3(-4), LN3(-4)	NZM3-XMVRL 104550			
	LZM3(-4), LN3(-4) +LZM4(-4), LN4(-4)	NZM3/4-XMVRL 104551			
	LZM4(-4), LN4(-4) +LZM4(-4), LN4(-4)	NZM4-XMVRL 104552			



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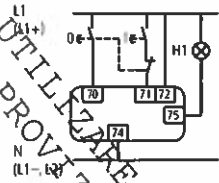
For use with	Rated control voltage	Part no. Article no. when ordered separately	Price see price list	Std. pack				
	U_s V							
<p>Remote operator For remote switching of circuit-breakers and switch-disconnectors. ON and OFF switching and resetting by means of two-wire or three-wire control. Local switching by hand possible. Lockable in the O position of the remote operator with up to 3 padlocks (hasp thickness 4 - 8 mm)</p>								
<p>Closing delay 110 - 170 ms, opening delay 110 - 170 ms</p>								
	LZM2(-4) LN2(-4)	208 - 240 V 50/60 Hz	NZM2-XRD208-240AC 115391	1 off	Sliding switch for „Auto” or „Manual” Max. number auxiliary contacts: - Standard auxiliary contacts 2 - Trip-indicating auxiliary contact 1 Cannot be combined with switch-disconnector LN... Cannot be combined with mechanical interlock			
		380 - 440 V 50/60 Hz	NZM2-XRD380-440AC 115392					
		24 - 30 V DC	NZM2-XRD24-30DC 115393					
<p>Closing delay 60 - 100 ms, opening delay 300 - 3000 ms Can be synchronized</p>								
	LZM2(-4) LN2(-4)	208 - 240 V 50/60 Hz	NZM2-XR208-240AC 259832	1 off	Cannot be combined with switch-disconnector LN... Dual auxiliary switch M22-CK11 (20/02) can not be combined with remote operator NZM3-XR...			
		380 - 440 V 50/60 Hz	NZM2-XR380-440AC 259834					
		24 - 30 V DC	NZM2-XR24-30DC 259836					
	LZM3(-4) LN(-4)	208 - 240 V 50/60 Hz	NZM3-XR208-240AC 259850					
		380 - 440 V 50/60 Hz	NZM3-XR380-440AC 259852					
		24 - 30 V DC	NZM3-XR24-30DC 259854					
	LZM4(-4) LN4(-4)	208 - 240 V 50/60 Hz	NZM4-XR208-240AC 266685					
		380 - 440 V 50/60 Hz	NZM4-XR380-440AC 266686					
		24 - 30 V DC	NZM4-XR24-30DC 266691					
	<p>Shroud for 4th pole Additional shroud for mounting the NZM2-XR and NZM3-XR on a 4-pole switch.</p>							
		LZM2(-4), LN2-4				NZM2-XAVPR 266677	1 off	
		LZM3-4, LN3-4				NZM3-XAVPR 266678	1 off	
<p>Protective cover for door cutout Transparent protective shroud to increase the degree of protection to IP54</p>								
			RTR-NZM10 034825	1 off				
<p>Notes Two- and three-wire control, circuit diagram Engineering, Page 36</p>								



SC

2/3-wire control remote operator

Three-wire control



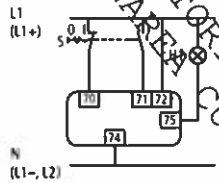
Terminal 70/71:

NZM-XR: Contact loading according to technical data

NZM2-XRD: Full current flows though the contact during make and break!

RMQ series contact elements can be used for the remote operators NZM2(3,4)-XR...

Two-wire control



Terminal 75:

NZM-XR: Operational readiness signal when the cover is closed, and not locked.

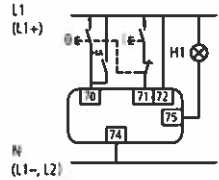
NZM2-XRD: Operational readiness signal when sliding switch set to Auto.

Sliding switch with three positions: Manual/Auto/Locked for reliable differentiation of operating positions.

AC-15: 400 V, 2 A

DC-13: 220 V, 0.2 A

Three-wire control with automatic reset to the 0 position after the switch has tripped



Switching cycle:

NZM2-XRD



NZM2-XR



NZM3-XR



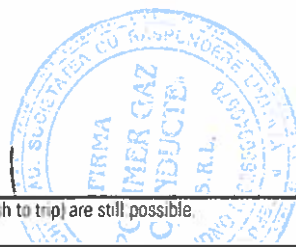
NZM4-XR



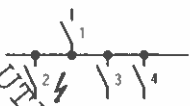
The time interval between OFF and ON is 3 seconds

On commands received during the time interval are ignored within the first 3 seconds after switch off.

Notes Electrical remote switching and manual tripping (push to trip) are still possible.



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Incoming circuit-breaker

Selectivity 415 V AC

between circuit-breakers enables separate shut-down of faulty system sections.

Selectivity (discrimination) exists between incoming breaker 1 and outgoing breaker 2 if, only outgoing breaker 2 trips at position 2 during a short-circuit. System sections 3 and 4 continue to operate.

Incoming circuit-breaker (S1)

LZM...1-A...

Incoming circuit-breaker (S1)

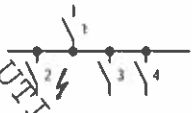
LZM...2-A...

Outgoing circuit-breaker (S2) FAZ-B(C)	I_n [A]	I_{cu} [kA]	Selectivity threshold I_s [kA] for selectivity between S2 and S1, overload and short-circuit release set to max. value										
			LZM...1-A...					LZM...2-A...					
			25(36)(50)	50	63	80	100	125	160	25(36)(50)	200	250	300
FAZ-B(C)	0.5	15	T	T	T	T	T	T	T	T	T	T	T
	15	15	T	T	T	T	T	T	T	T	T	T	T
	2	15	2	T	T	T	T	T	T	T	T	T	T
	4	15	1.2	2	3	3	10	T	T	T	T	T	T
	6	15	1.2	2	3	3	8	T	T	T	T	T	T
	10	15	1.2	2	2.5	3	5	10	10	T	T	T	T
	13	15	1.2	1.5	2	2	4	10	10	10	10	10	10
	16	15	1	1.5	2	2	4	10	10	10	10	10	10
	20	15	0.8	1.2	1.5	1.5	3	8	8	10	10	10	10
	25	15	0.8	1.2	1.5	1.5	3	7	7	10	10	10	10
	32	15	1.2	1	1.5	1.5	2	6	6	8	8	10	10
	40	15	1	1	1.5	1.5	2	5	5	7	7	10	10
	50	15	-	-	-	1.2	1.5	4	4	6	6	10	10
	63	15	-	-	-	-	1.5	3	3	6	6	10	10
	PKZM0...	0.16	100	T	T	T	T	T	T	T	T	T	T
0.25		100	T	T	T	T	T	T	T	T	T	T	T
0.4		100	T	T	T	T	T	T	T	T	T	T	T
0.63		100	T	T	T	T	T	T	T	T	T	T	T
1		100	T	T	T	T	T	T	T	T	T	T	T
1.6		100	T	T	T	T	T	T	T	T	T	T	T
2.5		100	T	T	T	T	T	T	T	T	T	T	T
4		100	T	T	T	T	T	T	T	T	T	T	T
6.3		100	4	5	5	5	T	T	T	T	T	T	T
10		100	3	4	5	6	25	T	T	T	T	T	T
12		50	3	4	5	6	25	T	T	T	T	T	T
16		50	1.5	1.5	2	3	5	7	T	T	T	T	T
20		50	0.8	1.5	1.5	2	5	T	T	T	T	T	T
25		50	-	1	1.5	1.5	2.5	4	T	T	T	T	T
32		50	-	-	1	1	2	3.5	T	T	T	T	T
PKE12/XTU(A)-	1.2	-	0.4	0.5	0.6	0.8	1	1.2	1.5	1.8	5	6	15
	4.0	-	0.4	0.5	0.6	0.8	1	1.2	1.5	1.8	5	6	15
	12.0	-	0.4	0.5	0.6	0.8	1	1.2	1.3	1.6	3.5	4	9
PKE32/XTU(A)-	4.0	-	-	0.5	0.6	0.8	1	1.2	1.3	1.8	5	6	15
	12	-	-	0.5	0.6	0.8	1	1.2	1.3	1.6	3.5	4	9
	32	-	-	0.5	0.6	0.8	1	1.2	1.3	1.6	2	2.5	3
PKE65/XTU(W)(A)-	32	-	-	-	-	1	1.2	1.3	1.6	2	2.5	3	
	65	-	-	-	-	1	1.2	1.3	1.6	2	2.5	3	
PKE32/XTUCP(A)-	36	-	-	0.5	0.6	0.8	1	1.2	1.3	1.6	2	2.5	3
PKE65/XTUCP(A)-	65	-	-	-	-	1	1.2	1.3	1.6	2	2.5	3	
PKZM4	16	100	0.5	0.8	0.8	0.8	2	5	5	5	5	5	5
	25	100	-	0.7	0.8	0.8	1.5	5	5	5	5	5	5
	32	50	-	-	0.8	0.8	1.5	4	4	4	4	4	4
	40	50	-	-	-	0.8	1.5	3	3	3	3	3	3
	50	50	-	-	-	-	1	2.5	2.5	2.5	2.5	2.5	2.5
	58	50	-	-	-	-	-	2.5	2.5	2.5	2.5	2.5	2.5
63	50	-	-	-	-	-	2	2	2	2	2	2	

Notes T: full selectivity



SL



Incoming circuit-breaker
Outgoing circuit-breaker

Selectivity 415 V AC

between circuit-breakers enables separate shut-down of faulty system sections
Selectivity (discrimination) exists between incoming breaker 1 and outgoing breaker 2 if, only outgoing breaker 2 trips at position 2 during a short-circuit
System sections 3 and 4 continue to be operational

Incoming circuit-breaker (S1)

LZM...1-A...

Incoming circuit-breaker (S1)

LZM...2-A...

	I_{cu} (kA)		Prospective short-circuit current (kA). Set the overload and short-circuit release of the incoming circuit-breaker to the max. value.												
	I_n (A)	$I_{cu}(415V)$ (kA)	25(36)(50)	20..40	50	63	80	100	125	160	25(36)(50)	160	200	250	300
Outgoing circuit-breaker (S2)	I_n (A)	$I_{cu}(415V)$ (kA)													
LZM...1-A...	20 40	25..50	-	-	-	0.5	0.7	0.8	1.5	1.5	1.5	2	3	3	
	50	25..50	-	-	-	-	0.6	0.8	1.5	1.5	1.5	2	3	3	
	63	25..50	-	-	-	-	-	0.8	1.5	1.5	1.5	2	3	3	
	80	25..50	-	-	-	-	-	-	1.5	1.5	1.5	2	3	3	
	100	25..50	-	-	-	-	-	-	-	1.5	1.5	2	3	3	
	125	25..50	-	-	-	-	-	-	-	-	-	2	3	3	
	160	25..50	-	-	-	-	-	-	-	-	-	-2	3	3	
LZM...2-A...	160	25..50	-	-	-	-	-	-	-	-	-	-	2	2	
	200	25..50	-	-	-	-	-	-	-	-	-	-	-	-	
	250	25..50	-	-	-	-	-	-	-	-	-	-	-	-	
	300	25..50	-	-	-	-	-	-	-	-	-	-	-	-	
LZM...3-AE	630	50..50	-	-	-	-	-	-	-	-	-	-	-	-	
LZM...4-AE	800	50..50	-	-	-	-	-	-	-	-	-	-	-	-	
	1000	50..50	-	-	-	-	-	-	-	-	-	-	-	-	

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"APROVIZIONAREA COMPANIEI INDUSTRIALE PENTRU PROIECTUL SÂRMA, TOCHILE-RĂDUCANI ŞI TOMAI RAJON LEOVA."

Notes T full selectivity



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 SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAJON LEOVA."

LZM...3-A...			LZM...3-AE...			LZM...4-AE...		
36(50)			36(50)			50		
320	400	500	630			800	1000	
Prospective short-circuit current (kA). Set the overload and short-circuit release of the incoming circuit-breaker to the max. value.								
4	6	20				T	T	
4	6	20				T	T	
4	6	7				T	T	
4	6	7				T	T	
4	6	7				T	T	
4	6	7				T	T	
4	6	7				T	T	
4	5	6				T	T	
-	5	6				T	T	
-	5	6				T	T	
-	5	6				T	T	
-	-	-				T	T	
-	-	-				T	T	
-	-	-				T	T	

Notes T full selectivity



SC

Protection of PVC insulated cables against thermal overload with short-circuits

According to VDE 0100 part 430 cables and conductors must be protected against short-circuit and overload. The overload protection is obtained by using LZM circuit-breakers with settable, current-dependent, delayed overload release.

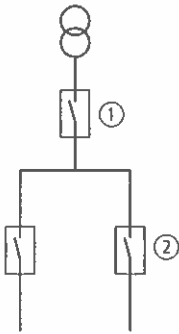
Short-circuit protection is provided by adjustable instantaneous releases, which open the main contacts in less than 25ms. The short-circuit total opening time restricts the temperature rise of the cable to a minimum.

The tables indicate the minimum conductor cross-section reliably protected by circuit-breakers during a short-circuit. (Operating voltage $U_N = 415V$)

	Min. protected cross-section mm ² copper
LZM ..1-(4)...20	6
LZM ..1-(4)...25 > 160	10
LZM ..2-(4)...20 > 300	10
LZM ..3-(4)...20 > 630	16
LZM ..4-(4)...630 > 1800	95

Back-up protection

between LZM(N)(S) incoming circuit-breaker and LZM(B)(C)(N) outgoing circuit-breaker



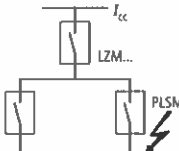
Outgoing circuit-breaker ②	Incoming circuit-breaker ①	Incoming circuit-breaker ①				
		LZM1	LZM2	LZM3		
		up to 160 A 25 kA	36 kA	up to 300 A 25 kA	36 kA	up to 630 A 50 kA
LZMB1 36 kA up to 160 A	I_n $I_{cu}(415V)$	25	36	25	36	50
LZMC1 50 kA up to 160 A	I_n $I_{cu}(415V)$	-	36	-	36	50
LZMB2 25 kA up to 300 A	I_n $I_{cu}(415V)$	25	36	25	36	50
LZMC2 36 kA up to 300 A	I_n $I_{cu}(415V)$	-	36	-	36	50
LZMC3 36 kA up to 630 A	I_n $I_{cu}(415V)$	-	-	-	-	50
LZMN3 50 kA up to 630 A	I_n $I_{cu}(415V)$	-	-	-	-	50

Where the prospective fault current at the point of installation of circuit-breakers is very high, it is conventional to use LZMN current-limiting circuit-breakers. An attractively priced alternative is to fit a LZMN current-limiting circuit-breaker upstream of LZMB(C) standard circuit-breakers, if the fault level is too high for LZMB(C) switches.

The table shows which current-limiting circuit-breaker LZMN in combination with LZMB(C) are to be used to provide protection at the network locations with high short circuit capacities.

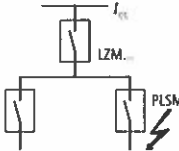
The selectivity limit is determined by the response current of the non-delayed short-circuit release in the upstream incoming circuit-breaker. In many applications this is sufficient.

between LZM...1-A... incoming circuit-breaker and FAZ-B(C)/PLSM-B(C)... outgoing circuit-breaker



Outgoing circuit-breaker	Outgoing circuit-breaker LZMB2-A...	LZMC(N)1-A...
FAZ-B(C)		
0,5-16	25kA	30kA
20-40	20kA	20kA
50, 63	15kA	15kA
PLSM-B(C) (/. .)		
0,5-16	25kA	30kA
20-40	20kA	20kA
50, 63	15kA	15kA

between LZM...2-A... incoming circuit-breaker and FAZ-B(C)/PLSM-B(C)... outgoing circuit-breaker



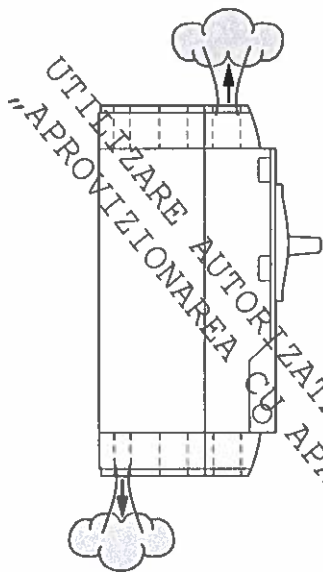
Outgoing circuit-breaker	Incoming circuit-breaker LZMB2-A...	LZMN2-A...
FAZ-B(C)		
0,5-10	25 kA	50 kA
13-32	25 kA	30 kA
40-63	20 kA	20 kA
PLSM-B(C) (/. .)		
0,5-10	25 kA	50 kA
13-32	25 kA	30 kA
40-63	20 kA	20 kA

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LZM1, LZM2, LZM3, LZM4

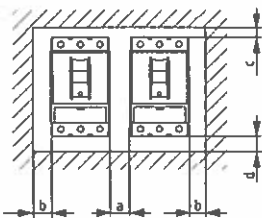
Direction of blow-out



	Top, front	Bottom, rear
LZM1	X	-
LZM2 ¹⁾	X	X
LZM3	X	X
LZM4	X	-

¹⁾ LZM2B(C) – A ... as LZM1

Minimum clearances



between two adjacently mounted switches
Minimum clearance a in mm

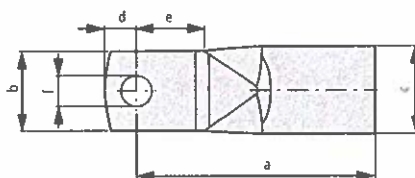
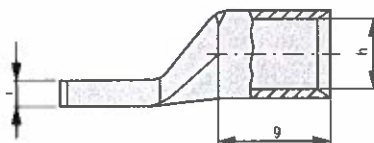
	LZM1	LZM2	LZM3	LZM4
LZM1	0	5	5	15
LZM2 ¹⁾	5	5	5	15
LZM3	5	5	5	15
LZM4	15	15	15	15

between switch and other parts
Minimum clearances in mm

	c		d
	≤ 440 V	≤ 440 V	≤ 440 V
LZM1	0	30	0
LZM2 ¹⁾	5	20	35
LZM3	5	30	60
LZM4	15	50	0

¹⁾ LZM2B(C) – A ... c = 20 mm, d = 0 mm

Dimensions



For pressing the cable lugs a press tool K22, HK60/22 or EK22 from the company Klauke is necessary with the following press inserts
R22/95 for 95 mm²
R22/120 for 120 mm²
R22/150 for 150 mm²
R22/185 for 185 mm²
R22/240 for 240 mm²

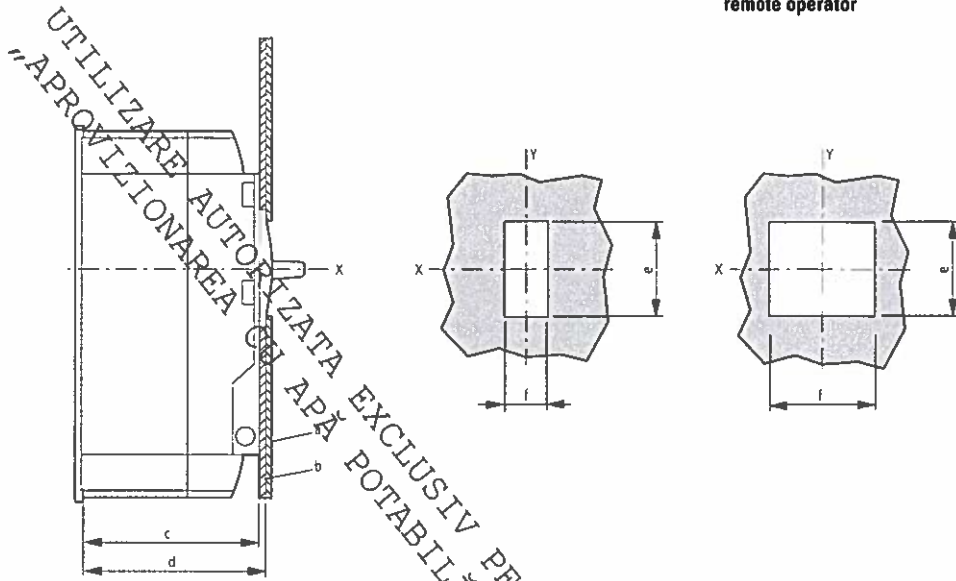
Cable lug	For use with	Rated cross section mm ²	Terminal bolt	Dimensions in mm								
				a	b	c	d	e	f	g	h	
KS95-NZM7	LZM2	95	M8	53 _{±2}	23 _{±0.5}	18 _{±0.2}	10 _{±1}	19	8.5	25	13.5	4.4
KS120-NZM7	LZM2	120	M8	56 _{±2}	23 _{±0.5}	19.5 _{±0.2}	10 _{±1}	19	8.5	26	15	4.4
KS150-NZM7	LZM2	150	M8	61 _{±2}	23 _{±0.5}	21 _{±0.2}	10 _{±1}	19	8.5	30	16.5	4.4
NZM2-XKS185	LZM2	185	M8	65 _{±1.5}	22 _{±1}	24 _{±0.3}	9 _{±1.5}	19 _{±1}	8.5 _{±0.2}	30 _{±2}	19 _{±0.5}	7
NZM3-XKS185	LZM3, LZM4	185	M10	65	24.5	24	11.5	18	10.5	30	19	7.0 _{±0.8}
NZM3-XKS240	LZM3, LZM4	240	M10	72	31	26	11.5	19	10.5	35	21	5.0 _{±0.8}

Sc

Front cut-out

Cut-out a
toggle lever

Cut-out b
rotary handle,
remote operator

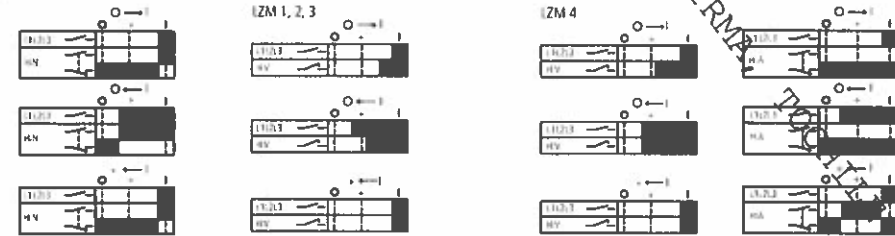


	Distance from mounting plate and door cutout		Cut-out a		Cut-out b	
	c mm	d mm	e mm	f mm	e mm	f mm
LZM1	68	73	40	23	46	91
LZM2	103	108	40	36	96	101
LZM3	120.5	125.5	79	36	96	136
LZM4	138	146	101	106	118	204

Standard auxiliary contact (HIN)

Early-make auxiliary contact (HIV)

Trip-indicating auxiliary contact (HIA)



- 0 → 1 Switching on
- 0 ← 1 Switching off
- + ← 1 Trip

- Contact closed
- Contact open

Notes

If early-make contacts are required in combination with shunt or undervoltage releases, please select the combination type in the "Release" section.

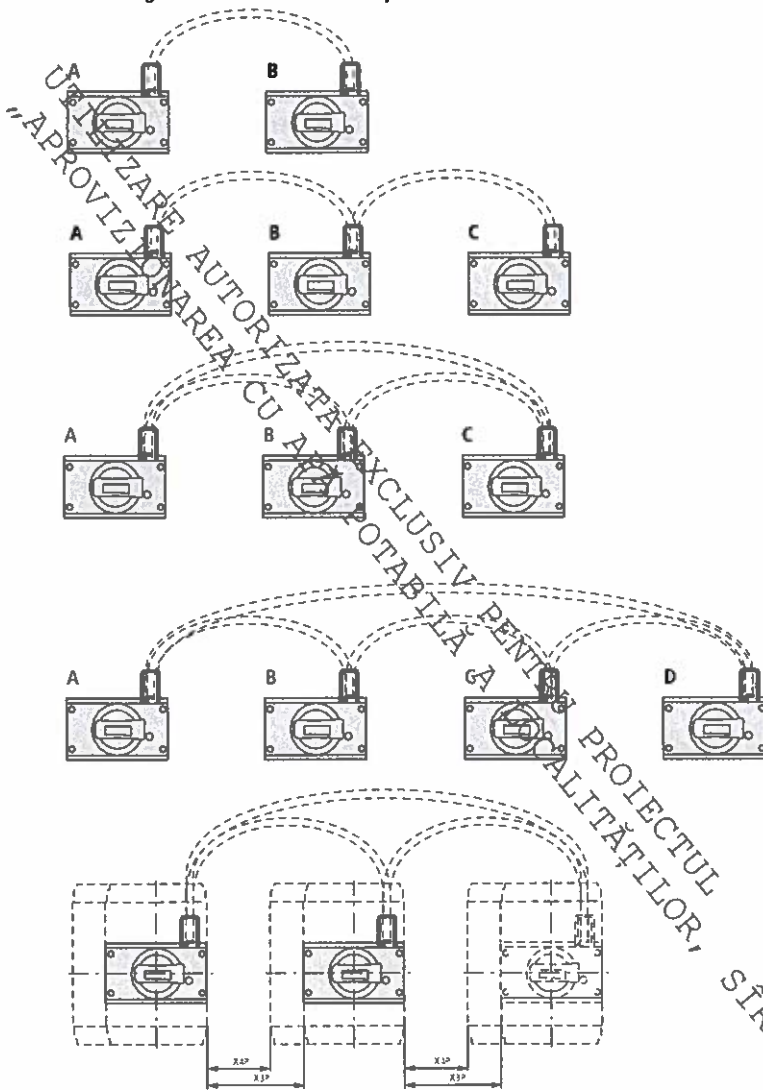


Handwritten mark: JL

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LZM, NZM...-XBZ...

Interlocking variants and combination options



A	B		
OFF	OFF		
ON/TRIP	ON/TRIP		
ON/TRIP	ON/TRIP		

A	B	C	
OFF	OFF	OFF	
ON/TRIP	ON/TRIP	ON/TRIP	
ON/TRIP	ON/TRIP	ON/TRIP	

A	B	C	
OFF	OFF	OFF	
ON/TRIP	ON/TRIP	ON/TRIP	
ON/TRIP	ON/TRIP	ON/TRIP	
ON/TRIP	ON/TRIP	ON/TRIP	

A	B	C	D
OFF	OFF	OFF	OFF
ON/TRIP	ON/TRIP	ON/TRIP	ON/TRIP
ON/TRIP	ON/TRIP	ON/TRIP	ON/TRIP

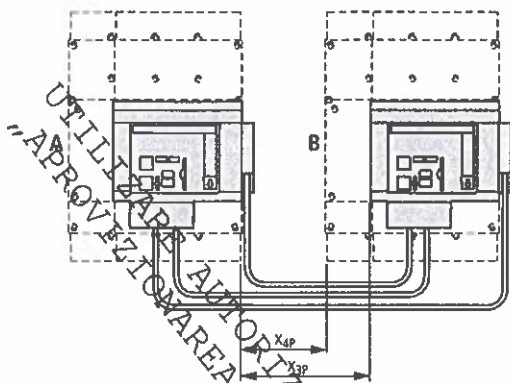
= Switch clearance 3 pole
 = Switch clearance 4 pole

NZM-XBZ225		right switch							
max. switch clearance		LZM1		LZM2		LZM3		LZM4	
		X _{3P}	X _{4P}	X _{3P}	X _{4P}	X _{3P}	X _{4P}	X _{3P}	X _{4P}
left switch		mm	mm	mm	mm	mm	mm	mm	mm
LZM1	3/4 pole	135	105	120	85	135	90	125	80
LZM2	3/4 pole	135	105	120	85	135	90	125	80
LZM3	3/4 pole	90	75	75	35	85	40	90	45
LZM4	3/4 pole	50	35	40	15	25	-	15	-

NZM-XBZ600		right switch							
max. switch clearance		LZM1		LZM2		LZM3		LZM4	
		X _{3P}	X _{4P}	X _{3P}	X _{4P}	X _{3P}	X _{4P}	X _{3P}	X _{4P}
left switch		mm	mm	mm	mm	mm	mm	mm	mm
LZM1	3/4 pole	510	480	495	460	510	465	475	405
LZM2	3/4 pole	510	480	495	460	510	465	475	405
LZM3	3/4 pole	460	430	450	410	460	415	460	390
LZM4	3/4 pole	400	370	380	340	400	375	390	320

NZM-XBZ1000		right switch							
max. switch clearance		LZM1		LZM2		LZM3		LZM4	
		X _{3P}	X _{4P}	X _{3P}	X _{4P}	X _{3P}	X _{4P}	X _{3P}	X _{4P}
left switch		mm	mm	mm	mm	mm	mm	mm	mm
LZM1	3/4 pole	910	880	895	860	910	865	865	795
LZM2	3/4 pole	910	880	895	860	910	865	865	795
LZM3	3/4 pole	820	790	850	810	860	815	860	790
LZM4	3/4 pole	750	720	730	700	800	775	790	720

SC

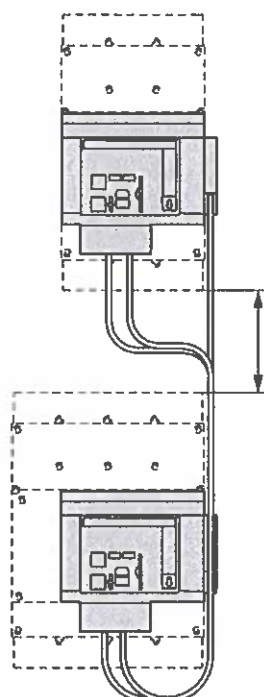


**XMVR mechanical interlock
(Mounting adjacent)**

NZM...-XMVR		right switch					
max. switch clearance		LZM2		LZM3		LZM4	
		X _{3p}	X _{4p}	X _{3p}	X _{4p}	X _{3p}	X _{4p}
left switch		mm	mm	mm	mm	mm	mm
LZM2	3/4 pole	130	95	95	50	-	-
LZM3	3/4 pole	-	-	135	90	155	85
LZM4	3/4 pole	-	-	-	-	120	50

X_{3p} = max. switch clearance 3 pole

X_{4p} = max. switch clearance 4 pole



**XMVRL mechanical interlock
Mounting in adjacent enclosures**

NZM...-XMVRL		right switch					
max. switch clearance		LZM2		LZM3		LZM4	
		X _{3p}	X _{4p}	X _{3p}	X _{4p}	X _{3p}	X _{4p}
left switch		mm	mm	mm	mm	mm	mm
LZM2	3/4 pole	350	315	420	385	-	-
LZM3	3/4 pole	-	-	400	365	460	390
LZM4	3/4 pole	-	-	-	-	420	350

**XMVRL mechanical interlock
(Mounting one above the other)**

NZM...-XMVRL		Switch top		
max. switch clearance		LZM2	LZM3	LZM4
		3/4 pole	3/4 pole	3/4 pole
Switch bottom		mm	mm	mm
LZM2	3/4 pole	220	225	-
LZM3	3/4 pole	-	220	230
LZM4	3/4 pole	-	-	230

Y = max. switch clearance



SL

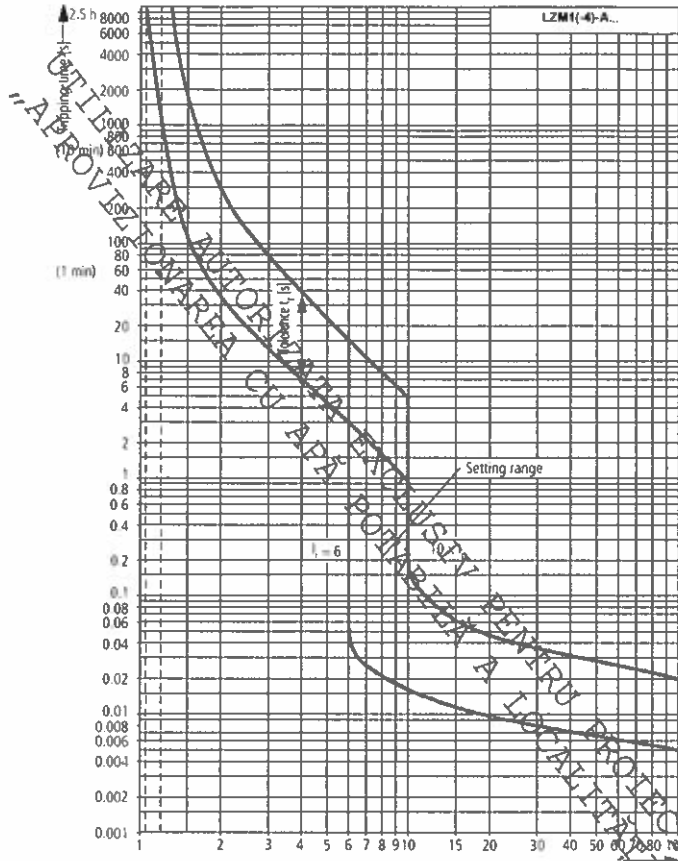
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"APROVIZIONAREA CU APA POTABILĂ A LOCALITĂȚILOR, SÎRMA, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA."

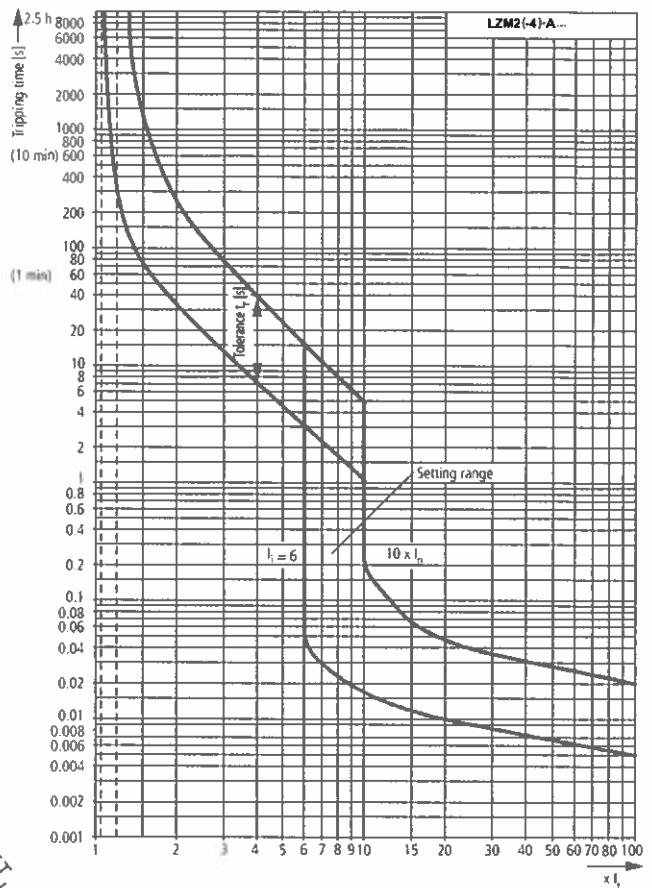


SC

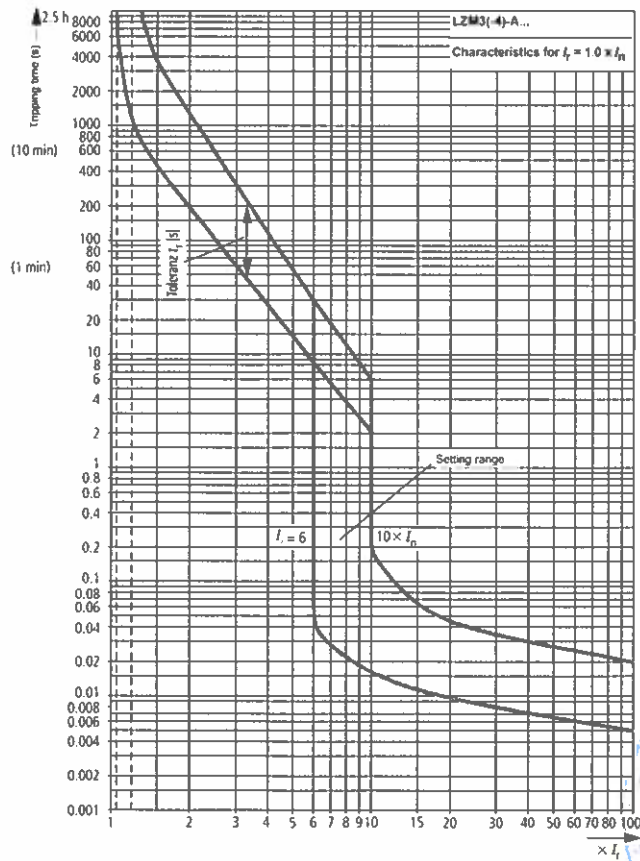
System and line protection with LZM1



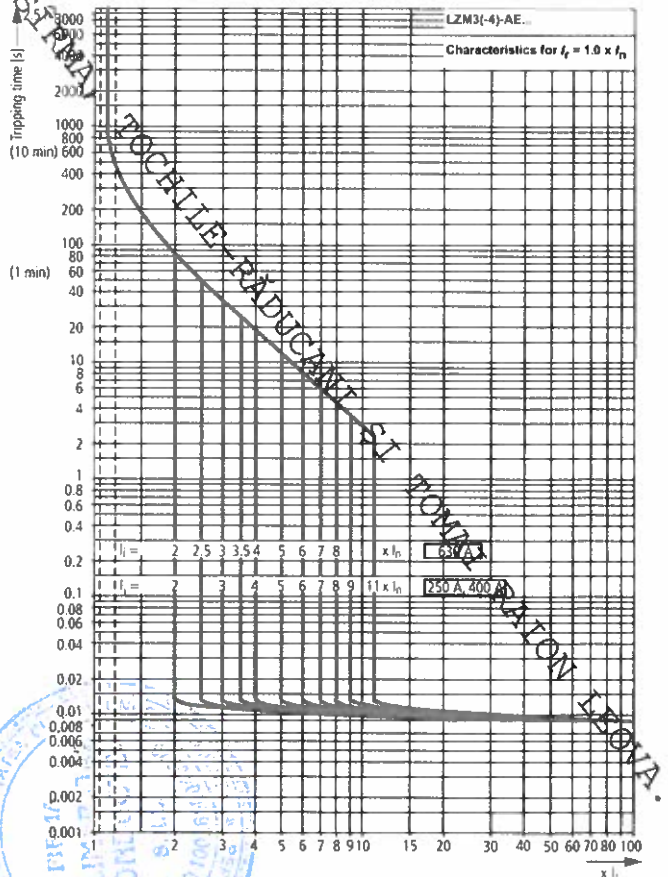
System and line protection with LZM2



System and line protection with LZM3...A...

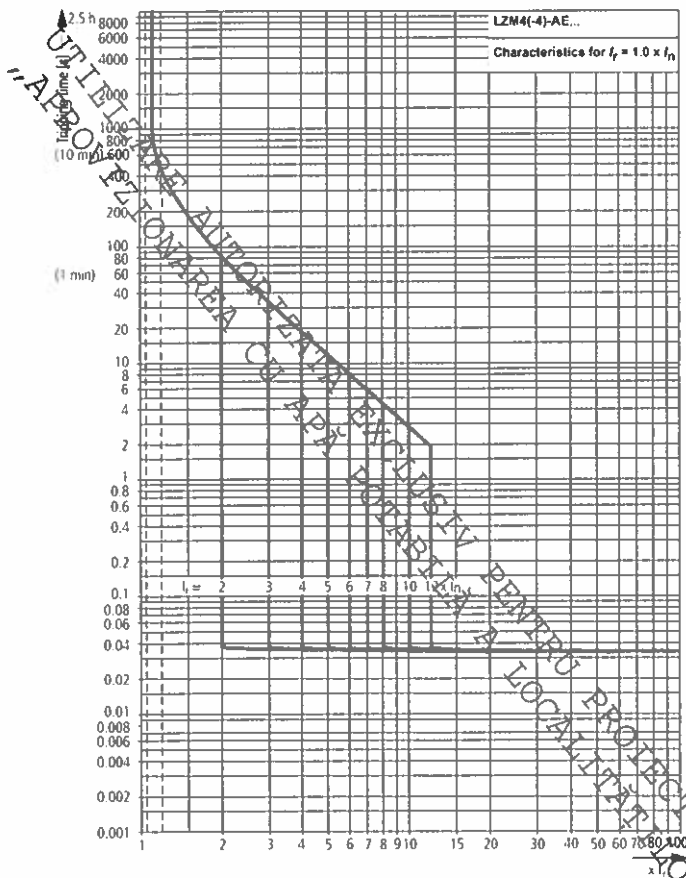


System and line protection with LZM3...-AE...



SC

System and line protection with LZM4

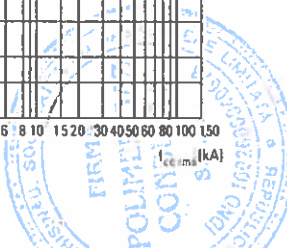
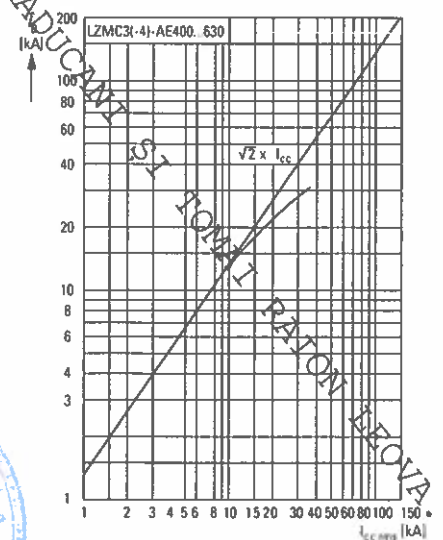
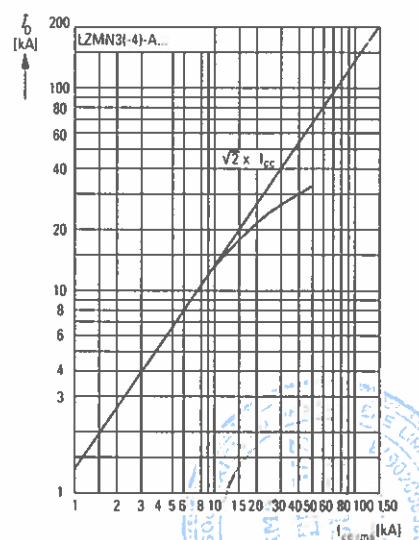
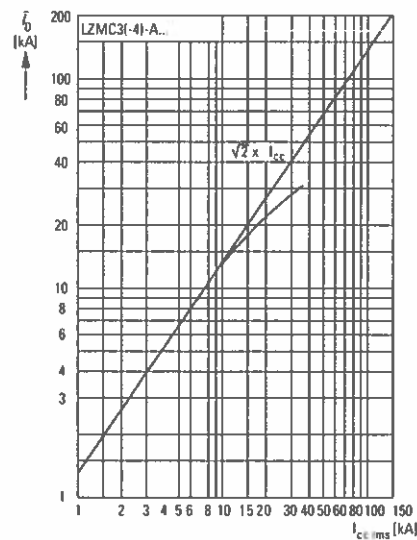
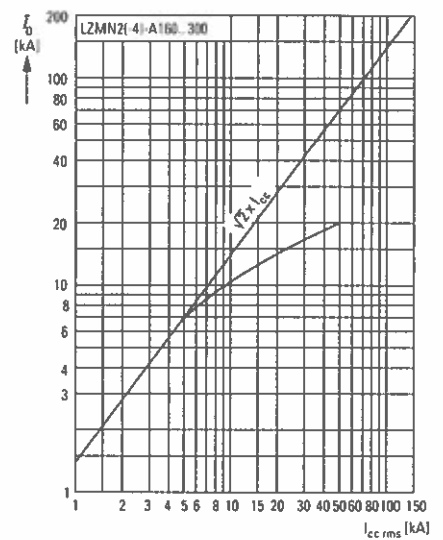
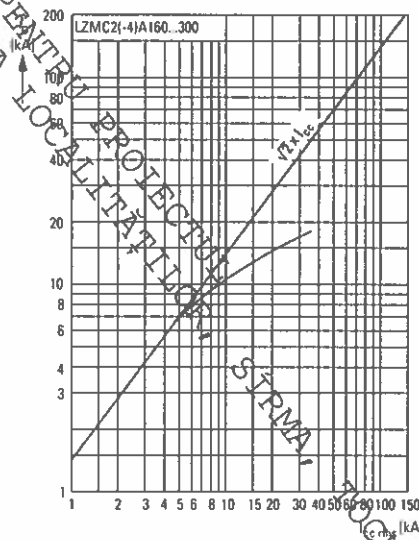
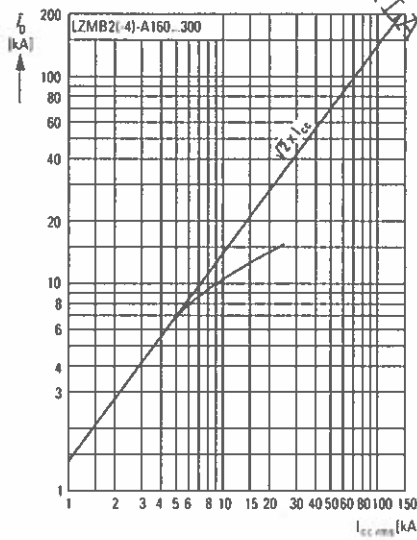
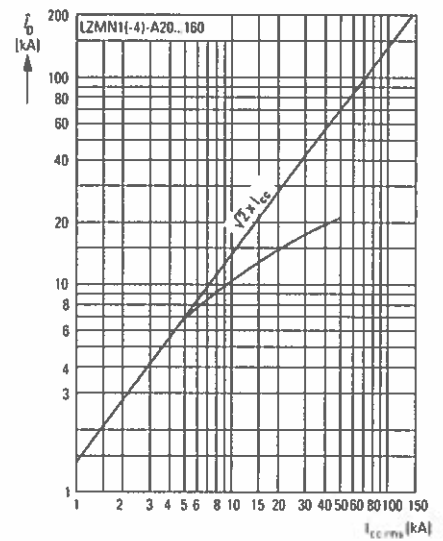
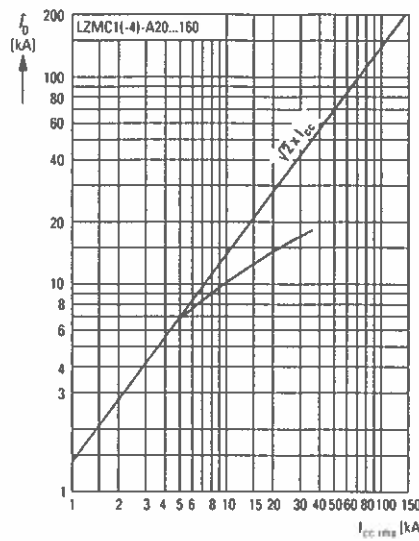
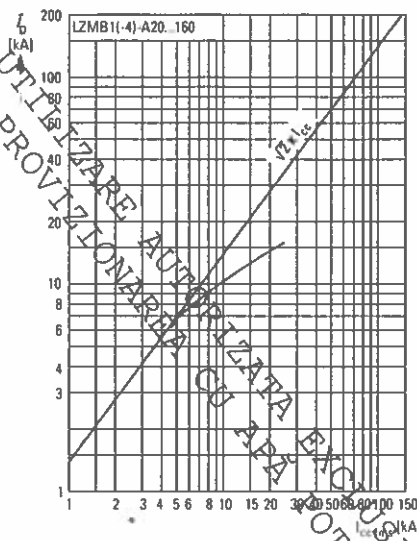


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 URILEI SI TOCHILE - RĂDUCANI ȘI TOMAI RAION LEOVA.



SC

Let-through current I_D

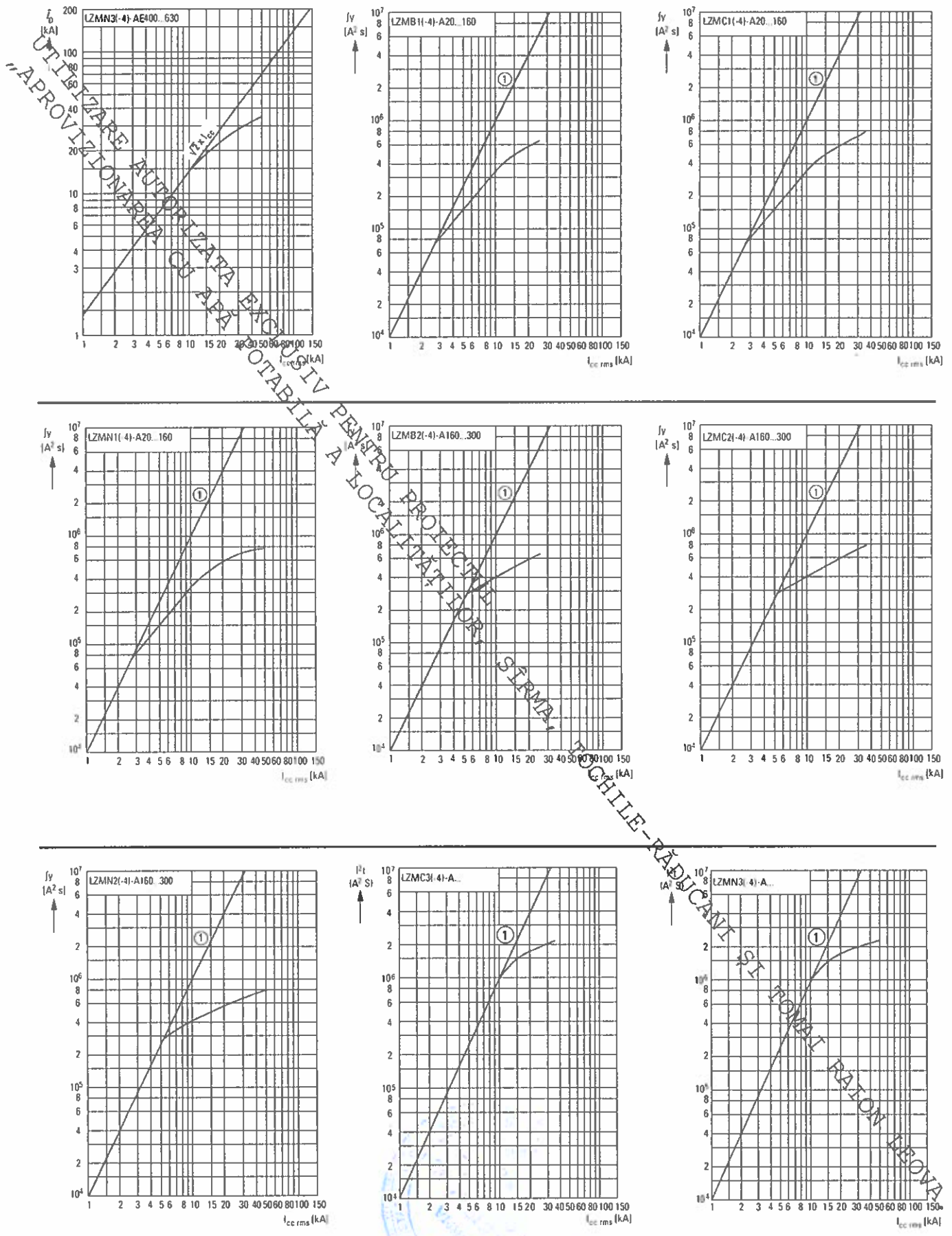


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xEnergy

LZM1, LZM2, LZM3

Let-through energy \bar{W}



SC

				Rated uninterrupted current max. 160 A		
				LZMB1	LZMC1	LZMN1
General						
Standards				IEC/EN 60947		
Protection against direct contact				Finger and back of hand proof to VDE 0106 Part 100		
Climatic proofing				Damp heat, constant, according to IEC 60068-2-78 Damp heat, cyclical to IEC 60068-2-30		
Ambient temperature						
Storage		°C		-25...+70		
Operation		°C		-25...+70		
Mechanical shock resistance (IEC/EN 60068-2-27)				20 (half-sinusoidal shock 20 ms)		
Safe isolation to VDE 0106 Part 101 and Part 101/A1						
Between auxiliary contacts and main contacts		V AC		500		
between the auxiliary contacts		V AC		300		
Mounting position				Vertical and 90° in all directions		
Direction of incoming supply				As required		
Degree of protection						
Device				In the operating controls area IP20 (basic degree of protection)		
Enclosures				With insulating surround: IP40, with door coupling rotary handle: IP66		
Terminals				Tunnel terminal: IP10 Phase isolator and strip terminal: IP00		
Circuit-breakers						
Rated impulse withstand voltage U_{imp}						
Main contacts		V		6000	6000	6000
Auxiliary contacts		V		6000	6000	6000
Rated operational voltage		V AC		440	440	440
Overvoltage category/pollution degree				III/3	III/3	III/3
Rated insulation voltage		U_i		690	690	690
Switching capacity						
Rated short-circuit making capacity						
240 V	I_{cm}	kA		63	121	187
400/415 V	I_{cm}	kA		76	105	105
440 V	I_{cm}	kA		63	63	74
Rated short-circuit breaking capacity I_{cn}						
I_{cu} to IEC/EN 60947 operating sequence O-t-CO	240 V 50/60 Hz	I_{cu}	kA	30	55	85
	400/415 V 50/60 Hz	I_{cu}	kA	25	36	50
	440 V 50/60 Hz	I_{cu}	kA	12,5	18	25
I_{cs} to IEC/EN 60947 operating sequence O-t-CO-t-CO	240 V 50/60 Hz	I_{cs}	kA	30	55	85
	400/415 V 50/60 Hz	I_{cs}	kA	25	36	50
	440 V 50/60 Hz	I_{cs}	kA	9	13	18
Maximum low-voltage h.b.c. fuse ¹⁾		A gG/gL		LZM.1...20...100: 200 LZM.1...125, 160: 315		
Utilization category to IEC/EN 60947-2				A		
Rated short-time withstand current						
t = 0.3 s	I_{cw}	kA		-	-	-
t = 1 s	I_{cw}	kA		-	-	-
Rated making and breaking capacity						
Rated operational current	AC-1 400/415 V 50/60 Hz	I_e	A	160	160	160
Lifespan, mechanical		Operations		10000	10000	10000
Maximum operating frequency		Ops/h		120	120	120
Lifespan, electrical						
	AC-1 400/415 V 50/60 Hz	Operations		5000	5000	5000
Current heat loss at I_u ²⁾		W		36.1	36.1	36.1
Total opening delay at short circuit		ms		< 10	< 10	< 10

Notes

- ¹⁾ Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit-breaker
²⁾ For current heat loss the specification refers to the maximum nominal current of the frame size

xEnergy

LZM...1, LZM...2, LZM...3, LZM...4

Rated uninterrupted current max. 300 A			Rated uninterrupted current max. 630 A		Rated uninterrupted current max. 1000 A
LZMB2	LZMC2	LZMN2	LZMC3	LZMN3	LZMN4
IEC EN 60947.					
Digger and back of hand proof to VDE 0106 Part 100					
Damp heat, constant, according to IEC 60068-2-78					
Damp heat, cyclical to IEC 60068-2-30					
-25...+70					
-25...+70					
20 (half-sinusoidal shock 20 ms)					
500					
300					
Vertical and 90° in all directions					
As required					
In the operating controls area: IP20 (basic degree of protection)					
With insulating surround: IP40, with door coupling rotary handle: IP66					
Tunnel terminal: IP10					
Phase isolator and strip terminal: IP00					
8000	8000	8000	8000	8000	8000
6000	6000	6000	6000	6000	6000
440	440	440	440	440	440
III/3	III/3	III/3	III/3	III/3	III/3
690	690	690	690	1000	1000
63	121	187	121	187	105
53	76	105	76	105	105
53	63	74	63	74	74
30	55	85	55	85	50
25	36	50	36	50	50
12.5	18	25	18	25	25
30	55	85	55	85	37
25	36	50	36	50	37
9	13	18	13	18	18
355	355	355	LZMN3-... 250, 400, 400 LZMN3-... 500, 630, 630		
A	A	A	A	A	B
-	-	1.9	3.3	3.3	19.2
-	-	1.9	3.3	3.3	19.2
300	300	300	630	630	1000
10000	10000	10000	7500	7500	5000
120	120	120	60	60	60
5000	5000	7500	2500	2500	1500
58.3	58.3	58.3	119	119	111
< 10	< 10	< 10	< 10	< 10	< 25

UTILE SA SE AUTORIZATA EXCLUSIV PENTRU PROIECTUL LOCALITATILOR SIRMA TOCHILE RADUCANI SI TOMAI RAION LEOVA.



SC

			LN1(-4) max. 160 A	LN2(-4) max. 250 A	LN3(-4) max. 630 A	LN4(-4) max. 1000 A
Switch-disconnectors						
Rated impulse withstand voltage						
Main contacts	U_{imp}	V	6000	8000	8000	8000
Auxiliary contacts	U_{imp}	V	6000	6000	6000	6000
Rated operational voltage						
	U_e	V AC	690	690	690	690
Rated uninterrupted current max.						
IEC/EN 60947-2 Annex L	I_u	A	160	250	630	1000
Overvoltage category/pollution degree						
			III/3	III/3	III/3	III/3
Rated insulation voltage						
	U_i	V AC	690	690	1000	1000
For use in IT electrical power networks						
		V	690	690	690	525
Switching capacity						
Rated short-circuit making capacity						
	I_{cm}	kA	2.8	5.5	25	53
Rated short-time withstand current						
$t = 0.3$ s	I_{sw}	kA	2	3.5	12	25
$t = 1$ s	I_{sw}	kA	2	3.5	12	25
Rated conditional short-circuit current						
With back-up fuse						
	A gG/gL		PN1(N1)63...125 125 PN1(N1)160: 160	PN2(N2)160...250 250	PN3(N3)400...630 630	N4-630...1000 2 x 500
400...415 V			100	100	100	100
With downstream fuse						
	A gG/gL		LN1-63...125: 125 LN1-160: 160	LN2-160...250 250	LN3-400...630 630	LN4-630...1000 2 x 500
400...415 V			100	100	100	100
Rated making and breaking capacity						
Rated operational current, AC-23B						
415 V	I_e	A	160	250	630	1000
Lifespan, mechanical						
	Operations		10000	10000	7500	5000
Maximum operating frequency						
	Ops./h		120	120	60	60
Lifespan, electrical to IEC/EN 60947-4-1 section B						
AC-1						
400/415 V	Operations		5000	5000	2500	1500
AC-23B						
400/415 V	Operations		200	200	200	100
Current heat loss at I_u ¹⁾						
	W		29.2	48	107	111

Notes

¹⁾ The current heat loss ratings refer to the maximum current rating of the frame size.



xEnergy

Device Type	Release Type	Response values of the overload release at temperatures deviating from the reference temperatures						
		Temperature compensation coefficient						
		20 °C	30 °C	40 °C	50 °C	60 °C	65 °C	70 °C
Thermomagnetic release (TM)								
System protection		Protection of systems (reference temperature 40 °C)						
LZM 1(4)-A15...80	TM	1.14	1.07	1	0.93	0.86	0.83	0.79
LZM 1(4)-A90...125	TM	1.14	1.07	1	0.93	0.86	0.83	0.79
LZM 1(4)-A160	TM	1.08	1.04	1	0.96	0.92	0.90	0.88
LZM 2(4)-A15...200	TM	1.04	1.02	1	0.98	0.96	0.95	0.94
LZM 2(4)-A250	TM	1.04	1.02	1	0.98	0.96	0.95	0.94
LZM 3(4)-A250...500	TM	1.12	1.06	1	0.94	0.88	0.85	0.82

Notes With temperatures which deviate from the reference temperature, a slight change of the overload protection properties occurs. In order to determine the release time using the tripping characteristics the temperature compensation coefficient in accordance with the table must be considered.
 Example: An LZM1-A100 is calibrated for a reference temperature of 40 °C.
 What happens when it is operated at an ambient temperature of 60 °C?
 At 60 °C, the temperature compensation coefficient of 0.86 results in a reduced operating current of $I_r = 100 \text{ A} \times 0.86 = 86 \text{ A}$.
 In other words at an ambient temperature of 60 °C the LZM1-A100 trips as if it were set to 86 A.

Device Type	Release Type	Reduction of the rated operational current (derating) under particular ambient conditions (according to IEC 947)						
		Derating coefficient						
		20 °C	30 °C	40 °C	50 °C	60 °C	65 °C	70 °C
Thermomagnetic release (TM)								
System protection		Protection of systems (reference temperature 40 °C)						
LZM 1(4)-A15...80	TM	1	1	1	1	1	1	1
LZM 1(4)-A90...125	TM	1	1	1	1	0.86	0.83	0.80
LZM 1(4)-A160	TM	1	1	1	0.95	0.90	0.85	0.80
LZM 2(4)-A15...200	TM	1	1	1	1	1	1	1
LZM 2(4)-A250	TM	1	1	1	1	0.90	0.85	0.80
LZM 3(4)-A250...500	TM	1	1	1	0.94	0.88	0.85	0.82

Electronic release (E)

Device Type	Release Type	20 °C	30 °C	40 °C	50 °C	60 °C	65 °C	70 °C
LZM 3(4)-AE630	E	1	1	1	1	0.90	0.85	0.80
LZM 4(4)-AE800...1000	E	1	1	1	1	1	1	1

Notes The derating coefficient must be considered in accordance with the following table in order to determine the maximum permissible current loading at different ambient temperatures.
 Example: An LZM2-A250 should be operated at an ambient temperature of 65 °C.
 How high is the permissible rated operational current I_b ?
 At 65 °C the derating coefficient is 0.85, this means $I_b = 250 \text{ A} \times 0.85 = 212.5 \text{ A}$.
 The LZM2-A250 may be operated at an ambient temperature of 65 °C with a maximum $I_b = 212.5 \text{ A}$.

Weight	kg
Circuit-breaker	
LZM 1...	1.046
LZM 1-4...	1.325
LZM 2...	2.345
LZM 2-4...	3.5
LZM 3...	6.34
LZM 3-4...	8.4
LZM 4...	21
LZM 4-4...	27



SC

Technical Data

LZM1, LZM2, LZM3, LZM4

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LZM up to 500 A with thermomagnetic release (3- and 4-pole)

I _n [A]	LZM1-A...		LZM2-A...		LZM3-A	
	P [W]	R [μOhm]	R [W]	P [μOhm]	R [W]	P [μOhm]
20	9.8	8180	5.1	4250	-	-
25	8.8	4680	8	4250	-	-
28	-	-	-	-	-	-
30	-	-	-	-	-	-
32	9.3	3030	9.6	3140	-	-
33	-	-	-	-	-	-
35	-	-	-	-	-	-
40	10.7	2220	14	2800	-	-
45	-	-	-	-	-	-
50	13.2	1760	17	2270	-	-
60	-	-	-	-	-	-
63	14.2	1190	20.2	1700	-	-
70	-	-	-	-	-	-
80	16.3	850	20.5	1070	-	-
90	-	-	-	-	-	-
100	21.9	630	25.7	855	-	-
110	-	-	-	-	-	-
125	26.7	570	27.8	589	-	-
150	-	-	-	-	-	-
160	36.1	460	38.4	427	-	-
175	-	-	-	-	-	-
200	-	-	48	332	-	-
225	-	-	-	-	-	-
250	-	-	58	310	68	384
300	-	-	83	310	79	256
400	-	-	-	-	72	151
500	-	-	-	-	93	124

Notes

The values stated in the table apply for 3- and 4-pole fixed mounted devices with an equal load distribution.
 On 4-pole devices the current in the N-conductor is equal to zero.
 The total resistive load is the measured value for a 3-pole or a 4-pole switch.
 The total heat dissipation is the value measured at I_n, 50/60Hz for a 3-pole or 4-pole switch.
 The heat dissipation can be calculated with the formula: P = 3 x R x I²

LZM up to 1000 A with electronic release (3- and 4-pole)

LZM3	LZM4
R	R
[μ Ohm]	[μ Ohm]
100	37

Notes

The values stated in the table apply for 3- and 4-pole devices with an equal load distribution.
 On 4-pole devices the current in the N-conductor is equal to zero.
 The total resistive load is the measured value for a 3-pole or a 4-pole switch (independent of I_n and the type of release).
 The heat dissipation can be calculated with the formula: P = 3 x R x I²



				LZM1 160 A	I_n'' A	LZM2 300 A	I_n''
Terminal capacities							
Standard equipment					Box terminal		Screw terminal
Accessories					Screw connection Tunnel terminal Connection on rear		Box terminal Tunnel terminal Connection on rear
Rated power of coil							
Box terminal	Solid		mm ²	1 x (10 – 16) 2 x (6 – 16)	160	1 x (4 – 16) 2 x (4 – 16)	300
		Stranded	mm ²	1 x (25 – 70) 2 x 25	160	1 x (25 – 185) 2 x (25 – 70)	300
Tunnel terminal	Solid		mm ²	1 x 16	160	1 x 16	300
		Stranded	mm ²	1 x (25 – 95)	160	1 x (25 – 185)	300
		mm ²	–	–	–	–	
		mm ²	–	–	–	–	
Bolt terminal and rear-side connection							
Direct on the switch	Solid		mm ²	1 x (10 – 16) 2 x (6 – 16)	160	1 x (4 – 16) 2 x (4 – 16)	300
		Stranded	mm ²	1 x (25 – 70) ²⁾ 2 x 25	160	1 x (25 – 185) 2 x (25 – 70)	300
Module plate	Single hole	min	mm ²	–	–	–	–
		max	mm ²	–	–	–	–
Module plate	Double hole	min	mm ²	–	–	–	–
		max	mm ²	–	–	–	–
Connection width extension				mm ²	–	–	–
Al conductors, Al cable							
Tunnel terminal	Solid		mm ²	1 x 16	160	1 x 16	250
		Stranded	mm ²	1 x (25 – 95)	160	1 x (25 – 185)2)	250
		mm ²	–	–	–	–	
		mm ²	–	–	–	–	
Bolt terminal and rear-side connection							
Direct on the switch	Solid		mm ²	1 x (10 – 16) 2 x (10 – 16)	160	1 x (10 – 16) 2 x (10 – 16)	250
		Stranded	mm ²	1 x (25 – 35) 2 x (25 – 35)	160	1 x (25 – 50) 2 x (25 – 50)	250
Module plate	Single hole	min	mm ²	–	–	–	–
		max	mm ²	–	–	–	–
Module plate	Double hole	min	mm ²	–	–	–	–
		max	mm ²	–	–	–	–
Connection width extension				mm ²	–	–	–
Cu strip (number of segments x width x segment thickness)							
Box terminal		min	mm	2 x 9 x 0.8	160	2 x 9 x 0.8	300
		max	mm	9 x 9 x 0.8	160	10 x 16 x 0.8	300
Flat conductor terminal		min	mm	–	–	–	–
		max	mm	–	–	–	–
Module plate	Single hole		mm	–	–	–	–
			mm	–	–	–	–
Bolt terminal and rear-side connection							
Flat copper strip, with holes		min	mm	–	–	2 x 16 x 0.8	300
		max	mm	–	–	10 x 16 x 0.8	300
Connection width extension				mm ²	–	–	–
Copper busbar (width x thickness)							
Bolt terminal and rear-side connection							
Screw connection					M6		M8
Direct on the switch		min	mm	12 x 5	160	16 x 5	300
		max	mm	16 x 5	160	20 x 5	300
Module plate	Single hole	min	mm	–	–	–	–
		max	mm	–	–	–	–
Module plate	Double hole	min	mm	–	–	–	–
		max	mm	–	–	–	–
Connection width extension				mm ²	–	–	–

Notes

¹⁾ The rated currents I_n have been determined conform to IEC/EN 60947 (switchgear standard) and generally relate to the max. defined cross-sections and are intended for the purpose of orientation. The engineering standards which apply in each case must be observed.

²⁾ depending on the cable manufacturer up to 240 mm² can be connected.

³⁾ depending on the cable manufacturer up to 95 mm² can be connected.

SC

				LZM3 630 A	I _n ¹⁾ A	LZM4 1000 A	I _n ¹⁾
Terminal capacities							
Standard equipment				Screw terminal		Screw terminal	
Accessories				Box terminal Tunnel terminal Connection on rear		Tunnel terminal Connection on rear Strip terminal	
Rated power of coil							
Box terminal	Solid		mm ²	2 x 16	500	–	–
			mm ²	1 x (1 x (35 – 240) 2 x (25 – 120))	500	–	–
Tunnel terminal	Solid	Single hole	mm ²	1 x (25 – 185)	350	–	–
			mm ²	1 x (50 – 240)	630	–	–
	Stranded	Double hole fitting	mm ²	2 x (50 – 240)	2 x 185	–	–
			mm ²	–	–	4 x (50 – 240)	1000
Bolt terminal and rear-side connection							
Direct on the switch	Solid		mm ²	1 x 16 2 x 16	630 2 x 185	–	–
			mm ²	1 x (25 – 240) 2 x (25 – 240)	630 2 x 185	1 x (120 ... 185) 4 x (50 ... 185)	1000
Module plate	Single hole	min.	mm ²	–	–	1 x (120 – 300)	1000
		max.	mm ²	–	–	2 x (95 – 300)	1000
Module plate	Double hole	min.	mm ²	–	–	2 x (95 – 185)	1000
		max.	mm ²	–	–	4 x (35 – 185)	1000
Connection width extension			mm ²	2 x 300	630 2 x 185	4 x 300 6 x (95 – 240)	1000 4 x 240
Al conductors, Al cable							
Tunnel terminal	Solid	Single hole	mm ²	1 x 16	350	–	–
			mm ²	1 x (25 – 185) ²⁾	350	–	–
	Stranded	Double hole fitting	mm ²	1 x (50 – 240)	630	–	–
			mm ²	2 x (50 – 240)	–	–	4 x (50 – 240)
Bolt terminal and rear-side connection							
Direct on the switch	Solid		mm ²	1 x 16 2 x (10 – 16)	400	–	–
			mm ²	1 x (25 – 120) 2 x (25 – 120)	400	–	–
Module plate	Single hole	min.	mm ²	–	–	1 x (185 – 240)	pleases inquire
		max.	mm ²	–	–	2 x (70 – 185)	pleases inquire
Module plate	Double hole	min.	mm ²	–	–	4 x 50	–
		max.	mm ²	–	–	2 x 240 6 x (70 – 240)	pleases inquire
Cu strip (number of segments x width x segment thickness)							
Box terminal		min.	mm	6 x 16 x 0.8	630	–	–
		max.	mm	10 x 24 x 1.0 + 5 x 24 x 1.0 (2 x) 8 x 24 x 1.0	630	–	–
Flat conductor terminal		min.	mm	–	–	6 x 16 x 0.8	1000
		max.	mm	–	–	(2 x) 10 x 32 x 1.0	1000
Module plate	Single hole	min.	mm	–	–	(2 x) 10 x 50 x 1.0	1000
		max.	mm	–	–	(2 x) 10 x 40 x 1.0	1000
Bolt terminal and rear-side connection							
Flat copper strip, with holes		min.	mm	6 x 16 x 0.8	630	(2 x) 10 x 50 x 1.0	1000
		max.	mm	10 x 32 x 1.0 + 5 x 32 x 1.0	630	(2 x) 10 x 50 x 1.0	1000
Connection width extension			mm ²	(2 x) 10 x 50 x 1.0	630	(2 x) 10 x 50 x 1.0	1000 2 x (10 x 50 x 1.0)
Copper busbar (width x thickness)							
Bolt terminal and rear-side connection							
Screw connection				M10		M10	
Direct on the switch		min.	mm	20 x 5	630	25 x 5	1000
		max.	mm	30 x 10 +30 x 5	630	2 x (50 x 10) 2 x (80 x 10)	1000
Module plate	Single hole	min.	mm	–	–	25 x 5	1000
		max.	mm	–	–	2 x (50 x 10)	2 x (40 x 10)
Module plate	Double hole	min.	mm	–	–	2 x (50 x 10)	1000
		max.	mm	–	–	60 x 10	1000
Connection width extension			mm	2 x (10 x 50)	10 x 40	2 x (80 x 10)	2 x (50 x 10)

Notes

¹⁾ The rated currents I_n have been determined conform to IEC/EN 60947 (switchgear standard) and generally relate to the max. defined cross-sections and are intended for the purpose of orientation. The engineering standards which apply in each case must be observed.

²⁾ depending on the cable manufacturer up to 240 mm² can be connected.

³⁾ depending on the cable manufacturer up to 95 mm² can be connected.

		at AC = 50/60 Hz		M22-K...	NZM-CK...
Auxiliary contacts					
Rated operational voltage					
AC	Ue	V AC	500	230	
DC	Ue	V DC	220	220	
Conventional thermal current					
	I _{th} = I _e	A	4	4	
Rated operational current					
AC-15	I _e	A	4	4	
	I _e	A	4	4	
	I _e	A	2	-	
	I _e	A	1	-	
DC-13	I _e	A	3	3	
	I _e	A	1.7	1	
	I _e	A	1.2	0.8	
	I _e	A	0.8	0.5	
	I _e	A	0.3	0.2	
Short-circuit protection					
max. fuse		A gG/gL	10	10	
Max. miniature circuit-breaker		A	PKZM0-10/FAZ-B6	FAZ-B6/B1	
Terminal capacities					
Solid or flexible conductor with ferrule		mm ²	1 x (0.75 - 2.5)	1 x (0.5 - 1.5)	
			2 x (0.75 - 2.5)	2 x (0.5 - 0.75)	
		AWG	1 x (18 - 14)	1 x (18 - 14)	
			2 x (18 - 14)	2 x (18 - 14)	

UTILIZAREA AUTORIZATA EXCLUSIV PENTRU PROIECTUL SIRMĂ, TOCHILE-RĂDUCANI ȘI TOMAI RAION LEOVA.
 "APROBAREA CU APĂ POTABILĂ A LOCALITĂȚILOR."



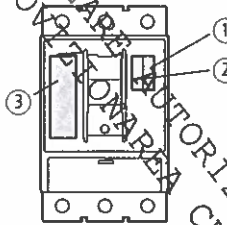
SC

Maximum equipment and position of the internal accessories

UTILIZAREA AUTORIZATA EXCLUSIV PENTRU PROIECTUL "APROFUNDAREA POTABILĂ A LOCALITĂȚILOR, SÎRMA, TOCILE-RĂDUCANI ȘI TOMAI RAION LEOVA."

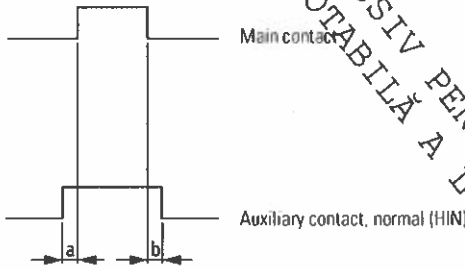
	③ -XHIV(2S) or -XA or -XU	② HIA	① HIN ¹⁾	Contacts per slot with HIA and HIN
LZM1, LN1	1	1	1	1 N/O
LZM2, LN2	1	1	2	1 N/C
LZM3, LN3	1	1	3	2 N/O
LZM4, LN4	1	2	3	2 N/C

N/O = normally open contact
N/C = normally closed contact



In combination with remote operator NZM-XR..., the right slot for standard auxiliary contacts HIN can be equipped only with single contacts.

Time differences ON-OFF



	Time difference a (ms)		Motor operators		Time difference b (ms)		Motor operators	
	Manual operation HIN K10	K01	HIN K10	K01	Manual operation HIN K10	K01	HIN K10	K01
LZM1	0	2.5	-	-	2.5	-	-	-
LZM2	3.5	6.5	2.5	4.5	4.5	3	4	
LZM3	4	8	2	4	3.5	8	3	6.5
LZM4	7	11	on request	on request	12	on request	on request	on request



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xEnergy

NZM...-XU, NZM...-XA...

			NZM1(2/3)-XU...	NZM4-XU...		
Undervoltage release						
Rated control voltage						
AC	U_s	V AC	24...440	24...440		
DC	U_s	V DC	24	24		
Operating range						
Drop-out voltage		$x U_s$	0.35 - 0.7	0.35 - 0.7		
Pick-up voltage		$x U_s$	0.85 - 1.1	0.85 - 1.1		
Power consumption						
AC						
Pick-up AC		VA	1.5	3.6		
Sealing AC		VA	1.5	3.6		
DC						
Pick-up DC		W	0.8	2.5		
Sealing DC		W	0.8	2.5		
Max. opening delay (response time until the main circuits open)		ms	19	23		
Minimum command time		ms	10 - 15	10 ... 15		
Terminal capacities						
Solid or flexible conductor with ferrule		mm ²	1 x (0.75 ... 2.5) 2 x (0.75 ... 2.5)	2 x (0.75 ... 2.5) 2 x (0.75 ... 2.5)		
		AWG	1 x (18 ... 14) 2 x (18 ... 14)	1 x (18 ... 14) 2 x (18 ... 14)		
Shunt release						
Rated control voltage						
AC	U_s	V AC	24...440	24...440		
DC	U_s	V DC	24	24		
Frequency range		Hz	0 - 400	0 - 400		
Operating range						
AC		$x U_s$	0.7...1.1	0.7...1.1		
DC		$x U_s$	0.7...1.1	0.7...1.1		
Power consumption						
Pick-up AC/DC		VA/W	2.5	2.5		
Sealing AC/DC		VA/W	2.5	2.5		
Max. opening delay (response time until the main circuits open)		ms	20	22		
Duty factor		ms	∞	∞		
Minimum command time		ms	10 ... 15	10 ... 15		
Terminal capacities						
Solid or flexible conductor with ferrule		mm ²	21 x (0.75 ... 2.5) 2 x (0.75 ... 2.5)	1 x (0.75 ... 2.5) 2 x (0.75 ... 2.5)		
		AWG	1 x (18 ... 14) 2 x (18 ... 14)	1 x (18 ... 14) 2 x (18 ... 14)		

"APRINTAREA AUTORIZATA EXCLUSIV PENTRU PROIECTUL LOCALITATILOR SIRMIA TOCHIE-RADUCANI SI TOMAI RAION LEOVA."



Technical data

NZM...-XR...

xEnergy

			NZM2-XR...	NZM3-XR...	NZM4-XR...	
Remote operator						
Rated control voltage						
AC	U_s	V AC	208...440	208...440	208...440	
DC	U_s	V DC	24	24	24	
Operating range						
AC	U_s		0.85...1.1	0.85...1.1	0.85...1.1	
DC	U_s		0.85...1.1	0.85...1.1	0.85...1.1	
Motor rating						
AC	208...240 V AC	VA	350	350	350	
	380...440 V AC	VA	350	350	350	
DC	24...30 V DC	W	250	250	250	
Rated power of coil						
AC	208...240 V AC	VA	270	270	270	
	380...440 V AC	VA	270	270	270	
DC	24...30 V DC	W	210	210	210	
Total make time						
		ms	60	80	100	
Total opening delay						
		ms	300	1000	3000	
Minimum signal duration						
with switch on		ms	30	30	30	
with switch off		ms	150	250	500	
Lifespan, mechanical						
		Operations	20000	15000	10000	
Maximum operating frequency						
		Ops/h	120	60	20	
Terminal capacities						
Solid or flexible conductor with ferrule		mm ²	0.75...2.5	0.75...2.5	0.75...2.5	
		AWG	18...14	18...14	18...14	



6

xEnergy

Circuit-breaker

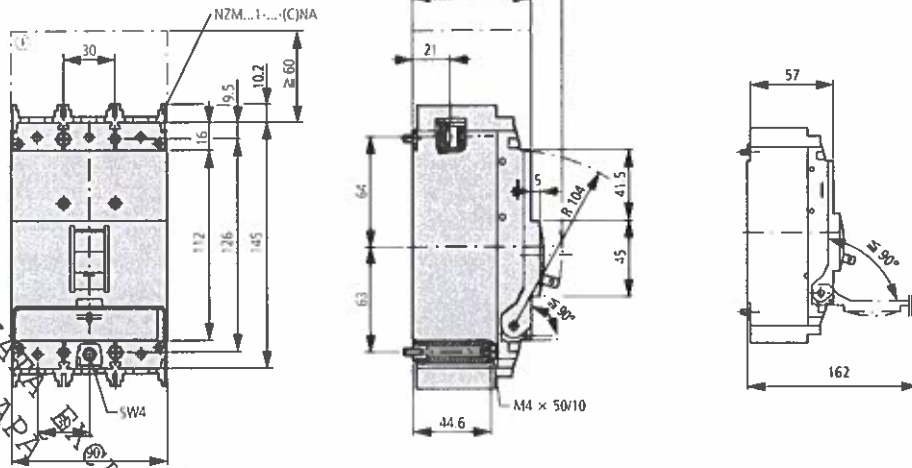
3 pole

LZMB1

LZMC1

LZMN1

LN1



① Blow out area, minimum clearance to other parts > 60 mm

Circuit-breaker

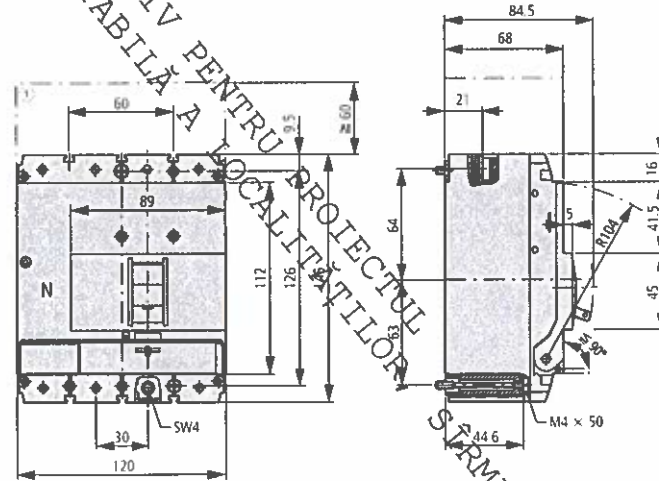
4 pole

LZMB1-4

LZMC1-4

LZMN1-4

LN1-4



① Blow out area, minimum clearance to other parts > 60 mm

Covers

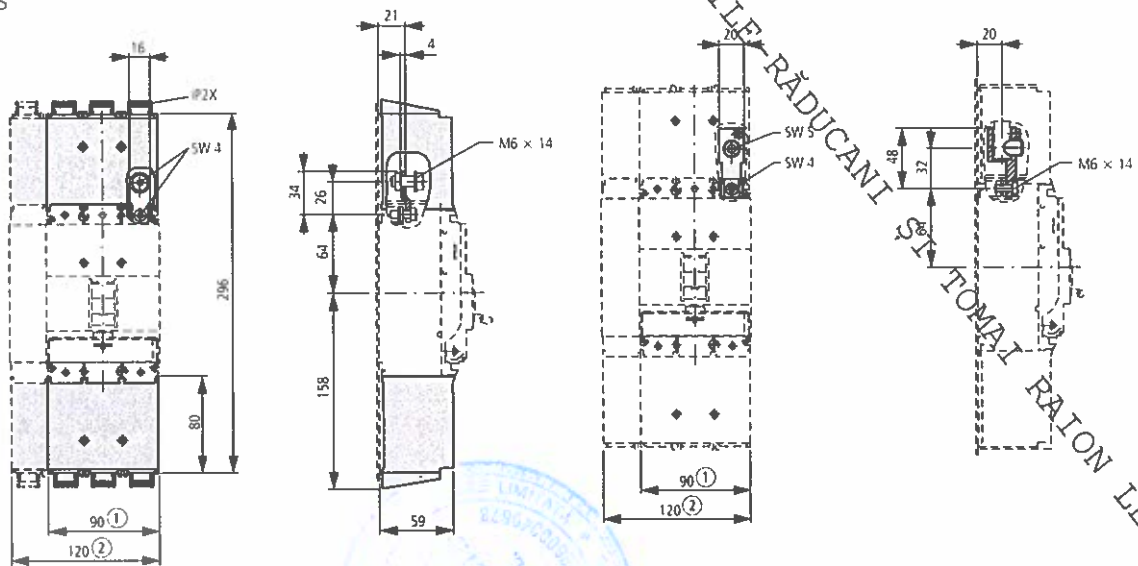
NZM1(-4)-XKSA

Screws connection

NZM1(-4)-XKS

Tunnel terminal

NZM1(-4)-XKA



① 3 pole
② 4 pole

① 3 pole
② 4 pole