

Table 22: Status Byte S1

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
EOV	EFR	EPR	CTS	BUF E	IL5	IL4	IL3
IL3	Input length (number of characters received that are available in the input data, bit 3)						
IL4	Input length (number of characters received that are available in the input data, bit 4)						
IL5	Input length (number of characters received that are available in the input data, bit 5)						
BUF E	Buffer empty (message: transmit inactive)						
CTS ¹⁾	This value is always 0.						
EPR	Error parity (message: error during the parity check)						
EFR	Error framing (message: data frame is defective)						
EOV	Error overrun (message: a character was lost during receipt)						

¹⁾ Only applies to flow control “RTS with lead/follow-on time”. Bit 4 state:

Bit 4 is 0: Receiving level “Space” (+3 V ... +15 V) at the CTS input

Bit 4 is 1: Receiving level “Mark” –3 V ... –15 V) at the CTS input

For evaluation of the bits of the status byte that signal errors, see chapter “Diagnostics”.

4.2 Data Exchange Mode

The data to be sent and received will be stored in up to 47 input and output bytes (D0 ... D46). Data flow is controlled with control and status bytes C0 and S0.

Table 23: Process Data in Data Exchange Mode

Process Image Length	Input Data		Output Data	
8 bytes	S0	Status byte 0	C0	Control byte 0
	D0	Data byte 0	D0	Data byte 0
	D1	Data byte 1	D1	Data byte 1
	D2	Data byte 2	D2	Data byte 2
	...		...	
	D6	Data byte 6	D6	Data byte 6
24 bytes	D7	Data byte 7	D7	Data byte 7
	...		...	
	D22	Data byte 22	D22	Data byte 22
48 bytes	D23	Data byte 23	D23	Data byte 23
	...		...	
	D46	Data byte 46	D46	Data byte 46

The structure of the control and status bytes is described in the tables below.

Table 24: Control Byte C0

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
RC	X	X	X	X	IR	X	X
IR	Initialization/reset (If the bit is set, the module is in the reset state. Communication is started only after resetting the bit).						
RC	Reserved for internal communication						
X	Not used						

Table 25: Status Byte S0

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
RC	X	X	X	RCVT	CHK	0	LGT
LGT	The length of the telegram last received does not match the PI size.						
CHK	Wrong checksum received.						
RCVT	No error-free transmission of the opposite side was received for ≥ 200 ms (timeout). After the timeout has elapsed, an attempt is made to reestablish communication between the I/O modules. If a valid telegram is received from the communication partner, the RCVT bit is reset.						
X	Not used						
0	This value is always 0.						
RC	Reserved for internal communication						

For evaluation of the bits of the status byte, see chapter “Diagnostics”.

5 Function Description

5.1 Operating Modes for Serial Transmission

In the operating modes for serial transmission, the I/O module allows communication with serial devices via RS-232, RS-485, RS-422 or DMX.

The I/O module operates in these modes as a link between one of these standardized interfaces to the one side and the application or controller to the other side.

Data transmission between the I/O module and serial devices is determined by the respective interface parameters, e.g. baud rate.

Data transmission between the application and I/O module is controlled by the control and status bytes.

5.1.1 Transmit Data

If data is transmitted via the I/O module to an RS-232, RS-485, RS-422 interface or in DMX mode, the application writes to the data bytes of the process image (output) per each part of the data. The application modifies the control bytes, so that they signal to the I/O module that new data has arrived. The I/O module receives the data sent to the output buffer and modifies the status bytes. Based on these modified status bytes, the application can again recognize that the data transfer was successful. Only when this feedback is present can the application transmit the next part of the data.

The data transmission rates between the application and I/O module and between the I/O module and serial interface are normally not identical.

If data transmission between the application and I/O module is faster than between the I/O module and serial interface, the output buffer in the I/O module fills up faster than it clears. If the application transmits continuously, the output buffer queue even rises when data is continuously transmitted on the serial interface. If the output buffer is full, the application has to wait for space to be available in the output buffer by transmitting to the serial interface.

If data transmission between application and I/O module is slower than between I/O module and serial interface, the output buffer in the I/O module fills up faster than it clears. Transmission of data on the serial interface is repeatedly interrupted even if the application continuously transmits.

5.1.1.1 Continuous Transmission

The I/O module can be set either to transmit data in the output buffer to the serial interface immediately or to start the transmission process only after released by the application. The latter is useful when data has to be transmitted on the serial interface according to time criteria, but data transmission between the application and I/O module is slower than between the I/O module and serial interface.

If continuous transmission is activated, the I/O module evaluates the bit SC in control byte 0. Only when SC takes the value 1 does the I/O module transmit the data contained in the output buffer to the serial interface. The application can set SC to 0 to prompt the I/O module to accumulate data in the output buffer.

5.1.2 Receive Data

If the I/O module receives data via an RS-232, RS-485 or RS-422 interface, the data is written to the input buffer of the I/O module. The I/O module transfers data to the application consecutively long as there is data in the input buffer. The I/O module writes the respective part of the data to the data bytes of the process image. The I/O module modifies the status bytes. Based on these modified status bytes, the application can recognize that new data has been received, which it can then evaluate. The application modifies the control bytes, so that they signal to the I/O module that the data transfer was successful. Only when this feedback is present can the I/O module transmit the next part of the data received.

5.1.2.1 Continuous Receipt

If there is data in the input buffer, the I/O module can be set either to begin transmitting data to the application immediately or to wait to receive additional data.

If the I/O module begins to transmit data to the application immediately, only part of a contiguous message may have been received by that point. Whether a message has been transmitted on the serial interface according to time criteria is then no longer evident for the application.

Example: A serial device transmits 20 bytes. After the I/O module has received 1 byte, it begins to transmit the data to the application. The I/O module transmits the remaining 19 bytes received in the meantime only after the application has confirmed receipt of the first byte.

If continuous receipt is activated, the I/O module begins transmitting data to the application only if no additional data has been received on the serial interface for a specific period of time. In the example above, the I/O module would only start transmitting data to the application when all 20 bytes have been received.

The time period after which the I/O module starts data transmission can be defined using the "Continuous Receive Timeout" parameter. Because the duration of the transfer of any amount of data depends on the baud rate setting, number of data and stop bits and the parity, an absolute time specification is not feasible. Therefore, the time required to transmit exactly one character to the serial interface in the current interface parameter setting is used as the unit of measurement.

5.1.3 RS-232 Operating Mode

The RS-232 operating mode in full-duplex is realized in a 2-wire or 4-wire point-to-point connection. Simultaneous transmission and receiving is possible.

In this mode, the I/O module supports flow control for the serial interface. The I/O module can be set, so that flow control occurs using one of the following methods:

- XON-/XOFF protocol
- RTS/CTS
- RTS/CTS, RTS with lead / follow-on time (firmware version 03 or higher)

5.1.3.1 Flow Control Using XON-/XOFF Protocol

If flow control is activated using XON-/XOFF protocol, the I/O module stops transmitting data to the serial interface when it receives the XOFF character (DC3==0x13) from the serial device. The I/O module continues transmitting data when it receives the XON character (DC1==0x11). When data is received, the I/O module monitors input buffer usage. It transmits the XOFF control character to the serial device when the number of characters in the input buffer exceeds 2304. If the number of characters in the input buffer is below 2176, it transmits XON.

5.1.3.2 Flow Control Using RTS/CTS

If flow control is activated using RTS/CTS, the I/O module stops transmitting data to the serial interface when CTS is set. The I/O module continues transmitting data when CTS is reset. When data is received, the I/O module monitors input buffer usage. It sets RTS when the number of characters in the input buffer exceeds 2304. If the number of characters in the input buffer is below 2176, the I/O module resets RTS.

5.1.3.3 Flow Control Using RTS/CTS, RTS with Lead/Follow-on Time

With firmware version 03 or higher, the I/O module allows RTS/CTS for communication with serial devices that only support a half-duplex connection. This is important, for example, for communication with some telecontrol modems.

If this type of flow control is activated, the I/O module sets RTS while it transmits data to the serial interface. This allows the serial device to switch between receive and transmit depending on RTS. Depending on the technology of the serial device, the switch can take some time. Therefore, the I/O module can be configured to set RTS already some time before transmission of the first character (RTS lead time) or RTS resets only some time after transmission of the last character (RTS follow-on time).

The RTS lead time and RTS follow-on time can be configured independent of each other within the valid range of 0 to 1000 ms.

If RTS is activated with lead time, the current state of the CTS input is represented by the CTS bit changing in status byte 1.

5.1.4 RS-485 Operating Mode

The RS-485 operating mode in half-duplex is realized in a 2-wire multi-endpoint (bus) connection. Simultaneous transmission and receiving is not possible with

2-wire connections. The I/O module switches to receive mode after transmitting the content of the input buffer to the serial interface completely.

The the “RS-485 switching time” parameter can be used to configure the time frame when the I/O module should switch after transmitting the last character can be configured.

Possible settings are:

- 100 µs (default setting)
- Duration of the transfer of two characters with the current configuration
- Duration of the transfer of four characters at the current configuration

5.1.5 RS-422 Operating Mode

The RS-422 operating mode in full-duplex is realized in a 4-wire point-to-point connection. Simultaneous transmission and receiving is thus possible.

In this mode, the I/O module supports flow control for the serial interface using the XON/XOFF protocol (see chapter “Flow Control Using XON-/XOFF Protocol”).

5.1.6 DMX Operating Mode

In DMX mode, the I/O module can both send (firmware version 03 or higher) and receive (firmware version 06 or higher) data packets.

5.1.6.1 Sending Data Packets in DMX Mode

DMX mode is available with firmware version 03 or higher.

In DMX mode, the I/O module can operate as a DMX sender. In this case, up to 32 DMX receivers can be connected. The I/O module can also operate as a DMX receiver with firmware version 06 or higher.

The transmission channel is based on RS-485 physics with a transmission rate of 250 kBaud, as well as 1 start and 2 stop bits. In this mode, no further settings are possible.

The I/O module can transmit up to 255 bytes of data in this mode.

The I/O module can even send up to 513 bytes of data with firmware version 06 or higher. In a DMX telegram, 1 channel occupies 1 byte.

Every transmission of a DMX telegram begins with the transmission of the DMX start byte. DMX channels 1 to 254 can be operated, and DMX channels 1 to 512 with firmware version 06 or higher.

The possible refresh rate of DMX data depends on:

- The number of channels being used
- The performance of the fieldbus coupler
- The number of I/O modules in the node

By limiting the maximum channel number to 5, 21 or 45 (at a set process image size of the I/O module of 8, 24 or 48 bytes), refresh rates of 1 ... 16 updates per second are possible.

5.1.6.2 Receiving Data Packets in DMX Mode

DMX packets can also be received in DMX mode with firmware version 06 or higher. In this mode, control commands can also be transmitted to a WAGO controller in systems in which DMX control is generated, for example, from a lighting control desk. Building lighting or other elements that have conventional controls can be implemented.

Note



Malfunction when process image size is set incorrectly!

In “DMX receive” mode, the process image size must be set to 24 bytes. Process image sizes of 8 bytes and 48 bytes are not permitted!

The I/O module can receive data from successive DMX channels from any address range of the entire DMX packet (DMX universe) and transmit to the associated fieldbus master. The size of the address range corresponds to the set process image size of the I/O module of 24 bytes and accordingly, allows receipt of 21 consecutive DMX channels.

The number of the first received channel (start of the address range) can be set. You need WAGO-I/O-CHECK Version 3.10.8 or higher to set the DMX start channel number.

Note



Additional Information

Further information on the structure of the process data in DMX mode and the dependency of the address range from the set process image is available in section “Commissioning” > ... > “Mode when Receiving DMX Data”.

Note



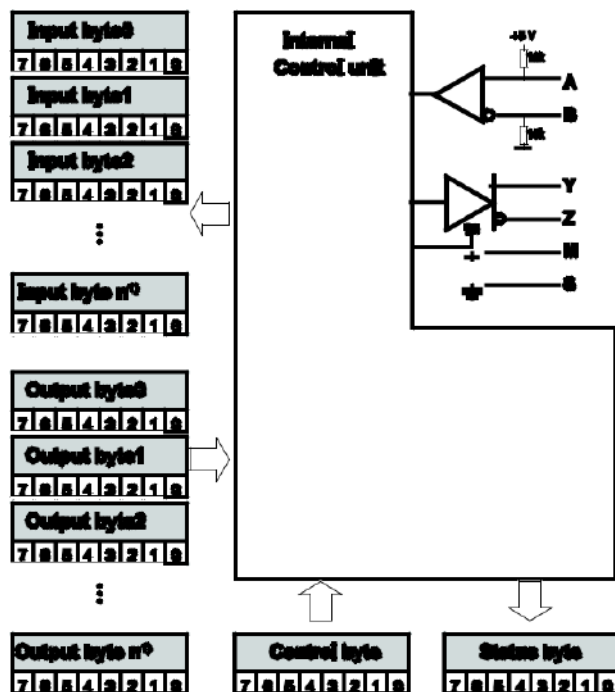
Note settings in “DMX receive” mode!

Further information on correct settings in “DMX receive” mode is available in section “Commissioning” > ... > ““DMX receive” Operating Parameters”!

5.2 Data Exchange Operating Mode

The Data Exchange operating mode is also available with firmware version 03 or higher.

In this mode, the I/O module allows cyclic data exchange with another 750-652 I/O module configured in the same operating mode. Process data between different fieldbus nodes can also be exchanged when integrated in different fieldbus systems.



* depending on process image width 7, 23, 47 bytes

Figure 7: Internal Structure

If 2 I/O modules are connected together in this mode, each I/O module transmits the data bytes of the process output image cyclically to the I/O module on the opposite side. Received data bytes of the process output image on the opposite side are again represented as data bytes in the process image of the local I/O module. The sequence of data bytes remains unchanged during transmission.

The cycle, in which process data is exchanged between I/O modules, is event driven. The I/O module only starts the next transmission after assessing the transmission of the opposite side as error-free. The I/O module then also begins a new transmission if no error-free transmission has been received from the opposite side for a period of at least 200 ms. This ensures that data exchange is automatically resumed in the event of simultaneous operation or temporary disturbance of the transmission.

The I/O module monitors the process data received from the opposite side for actuality. If no error-free transmission was received from the opposite side for a period of at least 200 ms, the I/O module sets all data bytes of the process image (input) to zero.

6 Mounting

6.1 Mounting Sequence

Fieldbus couplers/controllers and I/O modules of the WAGO-I/O-SYSTEM 750 are snapped directly on a carrier rail in accordance with the European standard EN 50022 (DIN 35).

The reliable positioning and connection is made using a tongue and groove system. Due to the automatic locking, the individual devices are securely seated on the rail after installation.

Starting with the fieldbus coupler/controller, the I/O modules are mounted adjacent to each other according to the project design. Errors in the design of the node in terms of the potential groups (connection via the power contacts) are recognized, as the I/O modules with power contacts (blade contacts) cannot be linked to I/O modules with fewer power contacts.

CAUTION

Risk of injury due to sharp-edged blade contacts!

The blade contacts are sharp-edged. Handle the I/O module carefully to prevent injury.

NOTICE

Insert I/O modules only from the proper direction!

All I/O modules feature grooves for power jumper contacts on the right side. For some I/O modules, the grooves are closed on the top. Therefore, I/O modules featuring a power jumper contact on the left side cannot be snapped from the top. This mechanical coding helps to avoid configuration errors, which may destroy the I/O modules. Therefore, insert I/O modules only from the right and from the top.



Note

Don't forget the bus end module!

Always plug a bus end module (750-600) onto the end of the fieldbus node! You must always use a bus end module at all fieldbus nodes with WAGO-I/O-SYSTEM 750 fieldbus couplers/controllers to guarantee proper data transfer.

6.2 Inserting and Removing Devices

NOTICE

Perform work on devices only if they are de-energized!

Working on energized devices can damage them. Therefore, turn off the power supply before working on the devices.

6.2.1 Inserting the I/O Module

1. Position the I/O module so that the tongue and groove joints to the fieldbus coupler/controller or to the previous or possibly subsequent I/O module are engaged.

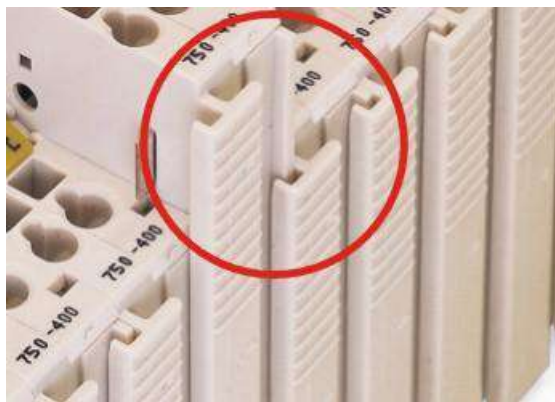


Figure 8: Insert I/O Module (Example)

2. Press the I/O module into the assembly until the I/O module snaps into the carrier rail.

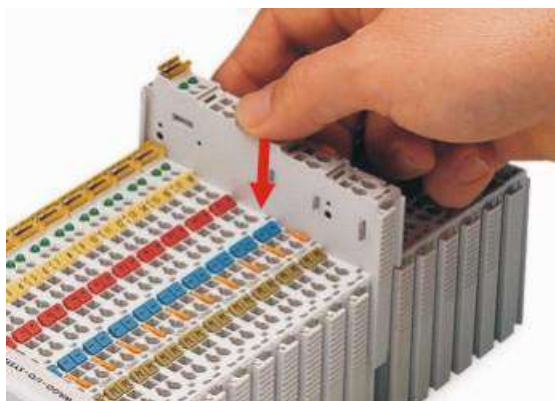


Figure 9: Snap the I/O Module into Place (Example)

With the I/O module snapped in place, the electrical connections for the data contacts and power jumper contacts (if any) to the fieldbus coupler/controller or to the previous or possibly subsequent I/O module are established.

6.2.2 Removing the I/O Module

1. Remove the I/O module from the assembly by pulling the release tab.

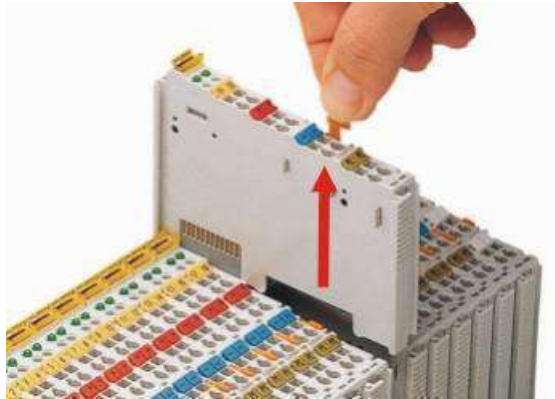


Figure 10: Removing the I/O Module (Example)

Electrical connections for data or power jumper contacts are disconnected when removing the I/O module.

7 Connect Devices

Note



Use shielded signal lines!

Only use shielded signal lines for analog signals and I/O modules which are equipped with shield clamps. Only then can you ensure that the accuracy and interference immunity specified for the respective I/O module can be achieved even in the presence of interference acting on the signal cable.

7.1 Connecting a Conductor to the CAGE CLAMP®

The WAGO CAGE CLAMP® connection is appropriate for solid, stranded and finely stranded conductors.

Note



Only connect one conductor to each CAGE CLAMP®!

Only one conductor may be connected to each CAGE CLAMP®.
Do not connect more than one conductor at one single connection!

If more than one conductor must be routed to one connection, these must be connected in an up-circuit wiring assembly, for example using WAGO feed-through terminals.

1. For opening the CAGE CLAMP® insert the actuating tool into the opening above the connection.
2. Insert the conductor into the corresponding connection opening.
3. For closing the CAGE CLAMP® simply remove the tool. The conductor is now clamped firmly in place.

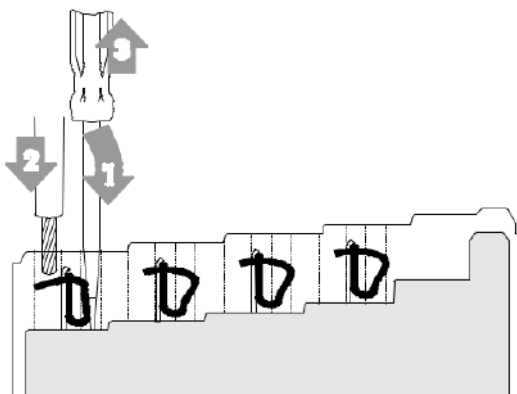


Figure 11: Connecting a Conductor to a CAGE CLAMP®

7.2 Connection Examples

7.2.1 RS-232 Operating Mode

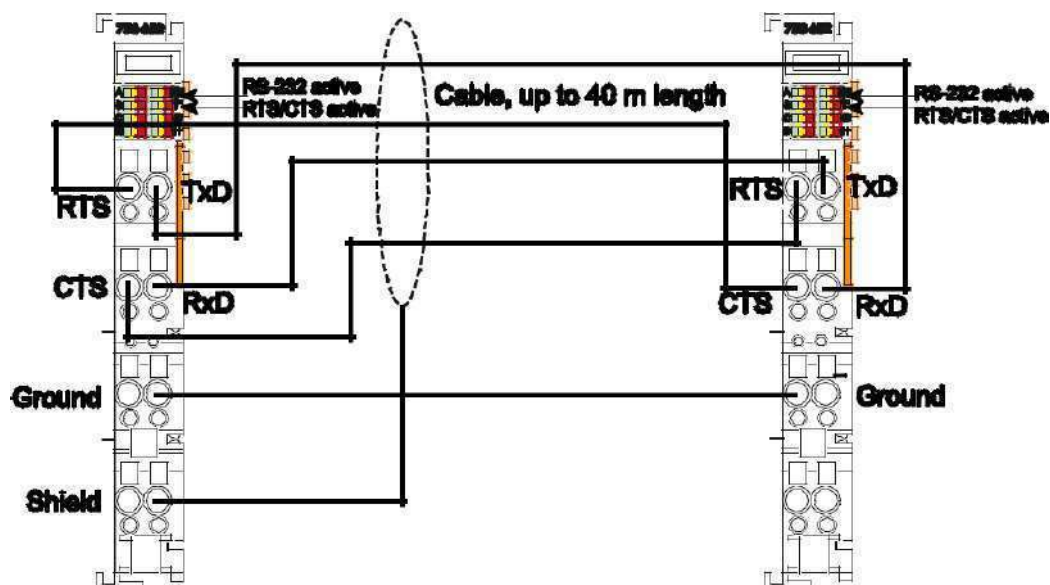


Figure 12: Point-to-point Connection Operating Mode RS-232 with RTS/CTS Data Flow Control

In the RS-232 operating mode (point-to-point connection), terminal resistors are not necessary.

The cable length can be up to 40 m due to the maximum allowable cable capacitance of 1500 pF.

By using the data flow control software (XON/XOFF), as well as complete renunciation of flow control, the RTS-to-CTS line is not necessary.

7.2.2 RS-422 Operating Mode

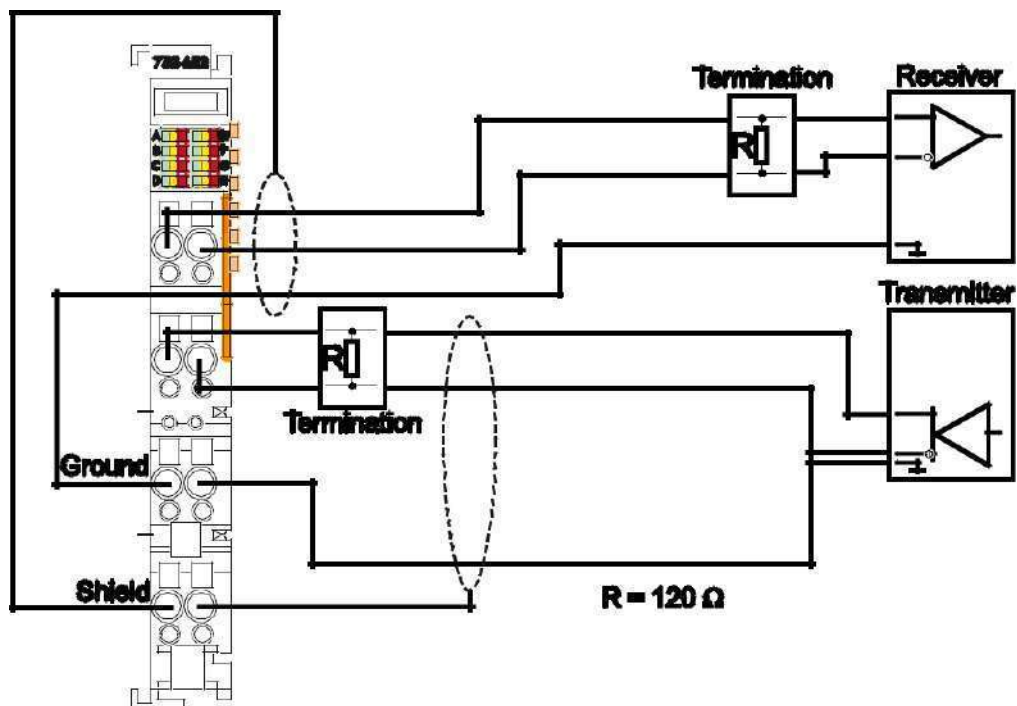


Figure 13: Bus Connection RS-422 Operating Mode

For the RS-422 operating mode (point-to-point connection), the bus ends (at least for longer line lengths and greater baud rates) should be terminated with a terminal resistor.

Generally a passive resistance is used by connecting the signal lines via one 100Ω ... 120Ω resistor apiece to both bus ends.

For communication between 2 or several 750-652 interface modules at low baud rates or with shorter line lengths, it is not necessary to use the terminal resistors.

If the 750-652 serial interface module works on a network with other communication partners, the wiring of a resistance-biasing network (known as a fail-safe network) to one line end can be necessary.

Note



Biasing network

Check the necessity of an external biasing network before start-up.

In modern devices with RS-485/RS-422 interface, this network is either already integrated or the devices have an improved RS-485/RS-422 receiver. The output of this receiver is in a defined state if the data line is short-circuited or not active.

7.2.3 RS-485 Operating Mode

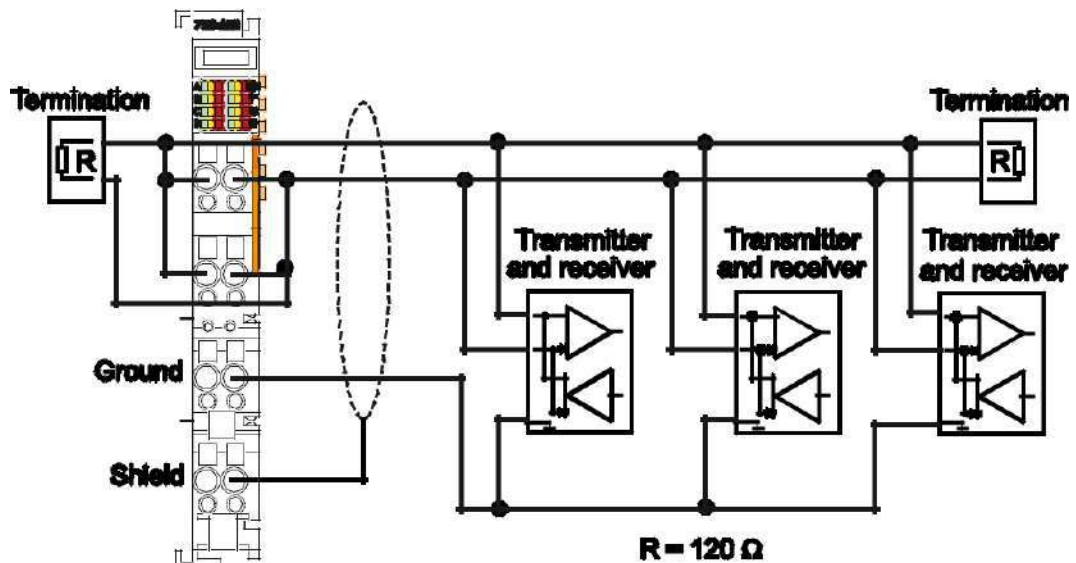


Figure 14: Bus Connection RS-485 Operating Mode, Half-Duplex

In the RS-485 operating mode (bus connection), a twisted-pair cable should be used at least for larger cable lengths or higher transmission rates. The ends of the cable should be terminated with a terminal resistor.

Generally, a passive resistance is used by connecting the signal lines via one $100\ \Omega$... $120\ \Omega$ resistor apiece to both bus ends.

For communication between 2 or more 750-652 interface modules at low baud rates or with shorter line lengths, it is not necessary to use the terminal resistors.

The receiver built into the I/O module has a defined output state if both inputs are not connected and the data line has a short circuit or no transmitter is active (idle line).

If the 750-652 serial interface module works on a network with other communication partners, the wiring of a resistance-biasing network (known as a fail-safe network) to one line end can be necessary.

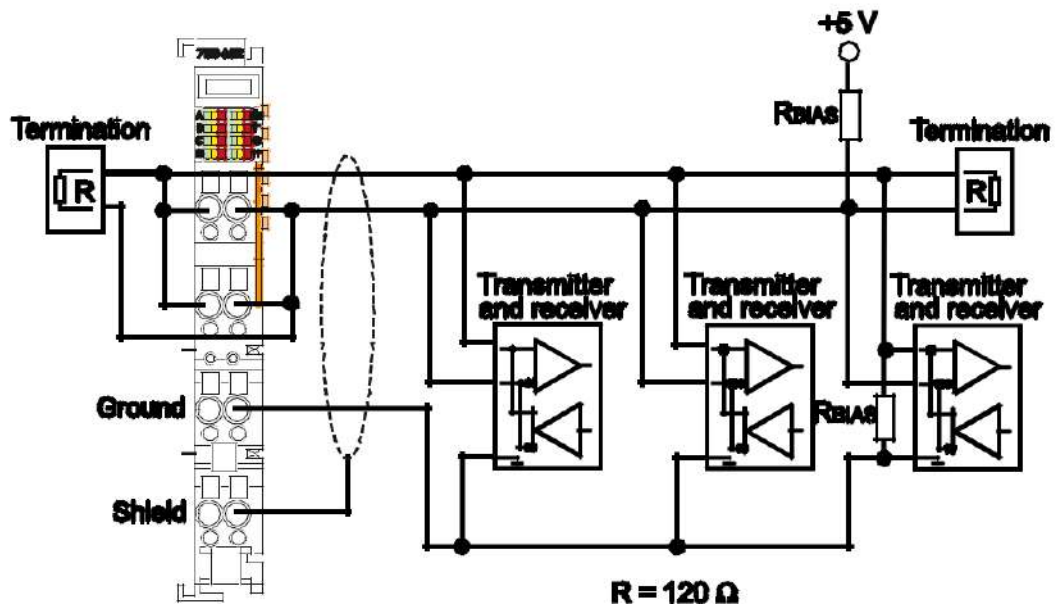


Figure 15: Bus Connection RS-485 Operating Mode with Biasing Network, Half-Duplex

With the use of the biasing resistors, it is guaranteed in this case that all receiver inputs A have the voltage difference of more than 200 mV to the inputs B if no transmitter is active. The oscillations of the receiver that can cause defective reception are thus prevented.

Note



Biasing network

Check the necessity of an external biasing network before start-up.

In modern devices with RS-485/RS-422 interface, this network is either already integrated or the devices have an improved RS-485/RS-422 receiver. The output of this receiver is in a defined state if the data line is short-circuited or not active.

7.2.4 DMX Operating Mode

In the DMX operating mode, the wiring is based on the RS-485 operating mode. Twisted pair cables must be used for this operating mode. The ends of the cable should be terminated with a terminal resistor (optimal value: 120 Ω).

7.2.5 Data Exchange Mode

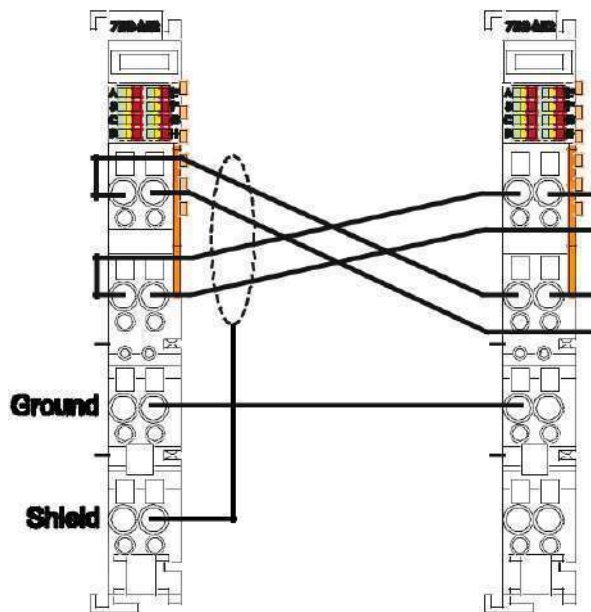


Figure 16: Point-to-point Connection Between 2 Nodes

In this mode, the contacts of the I/O modules to connect are connected to each other crosswise.

In the Data Exchange operating mode (point-to-point connection), a twisted-pair cable should be used at least for larger cable lengths. 2 wire pairs and 1 ground wire are required. The ends of the cable should be terminated with a terminal resistor.

Generally, a passive resistance is used by connecting the signal lines via one $100\ \Omega$... $120\ \Omega$ resistor apiece to the ends of the cable (A-B).

8 Commissioning

8.1 Configuration and Parameterization with WAGO-I/O-CHECK

The serial interface module is configured with the WAGO-I/O-CHECK software.

Table 26: WAGO-I/O-CHECK Minimum Requirements

Firmware Version	WAGO-I/O-CHECK
< 03	Version 3.3
03 or higher	Version 3.5.3
06 or higher	Version 3.10.8

The software's basic functionality is described separately in the WAGO-I/O-CHECK documentation.

NOTICE

Component damage due to incorrect voltage level!

Incorrectly selected voltage levels can destroy the device!

Note when switching between operating modes that RS-232 and RS-485 use different voltage levels.

Switch off connected devices before changing operating modes!

Make sure that devices you connect support the voltage level of the current operating mode!

8.1.1 RS-232/RS-485 Serial Interface (Configuration Dialog)

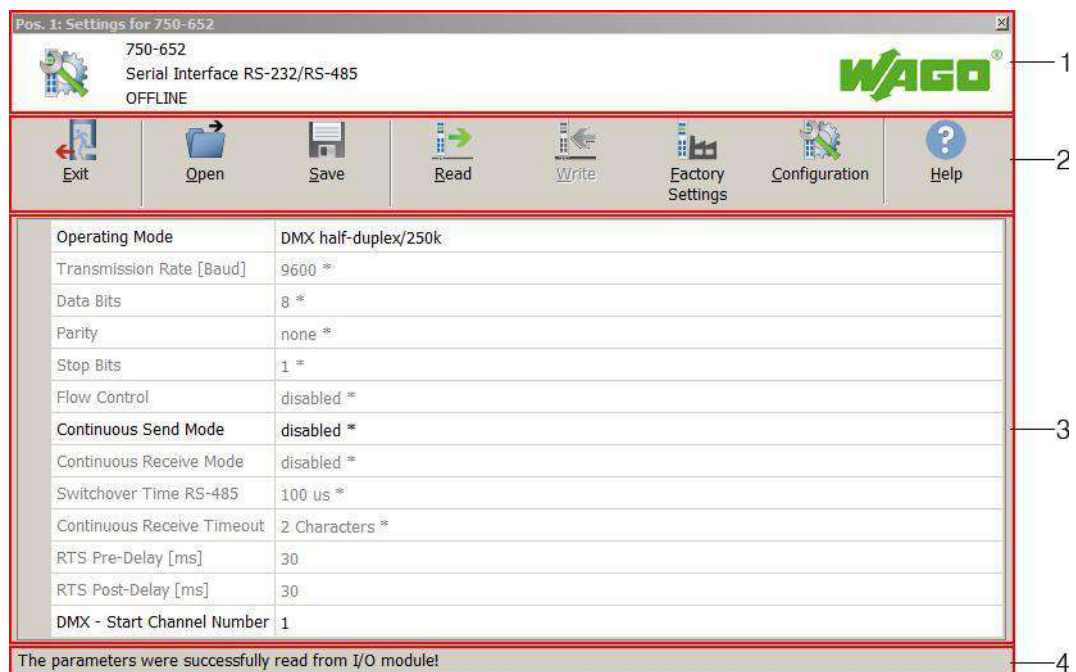


Figure 17: Configuration Dialog (Example 750-652)

The parameter dialog is divided into the following areas:

- Title bar with item and item number of the selected I/O module, info area with item number, designation, and version number and version date of the I/O module,
- toolbar (1),
- parameter range (2) and
- status bar (3).

Status reports are output in the status bar in the lower area of the configuration dialog.

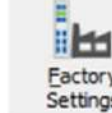
8.1.2 Toolbar on the Configuration Dialog

The toolbar contains the following buttons:



Figure 18: Toolbar

Table 27: Toolbar

Button	Function	Description
	Exit	Closes the active window. If you have changed settings, you will be asked to save these values in the I/O module.
	Open	Opens a file with saved parameters. WAGO-I/O-CHECK shows the Open File dialog.
	Save	Saves the current parameters in a file. WAGO-I/O-CHECK shows the Save File dialog.
	Read	Reads the current settings from the connected I/O module.
	Write	Writes the current parameters to the selected I/O module.
	Factory settings	Overwrites the locally-saved configuration and parameterization with factory settings.
	Configuration	Sets the process image size.
	Help	Opens the WAGO-I/O-CHECK online help.

8.1.3 Process Image Size

To make settings on the “PI Mapping” (process image mapping) page, the process image size of the master must be set first.

Use the **[Configuration]** button on the toolbar to open the dialog for entering the process image size.



Figure 19: Process Image Size



Note

Changes to the process image size!

Note that with changes to the process data length, the structure of the process image changes, and if necessary, changes to the configuration of the superior controller may be necessary.

The following selection box is displayed:

Table 28: Process Image Size

Selection box	Settings
Process image size	8 bytes, 24 bytes ^{*)} , 48 bytes

^{*)} Default setting

With the [**Apply**] button, you transfer the changed parameters to the non-volatile memory of the I/O module. A software reset is conducted so that the changes take effect. The dialog remains open.

With the [**Default**] button, you select the default setting for this I/O module. With the [**Apply**] button, you then transfer the parameters to the non-volatile memory of the I/O module.

With the [**Close**] button, you close the configuration dialog without transferring any changed parameters to the non-volatile memory of the I/O module.

8.1.4 Parameter Range

Operating Mode	DMX half-duplex/250k
Transmission Rate [Baud]	9600 ^{*)}
Data Bits	8 ^{*)}
Parity	none ^{*)}
Stop Bits	1 ^{*)}
Flow Control	disabled ^{*)}
Continuous Send Mode	disabled ^{*)}
Continuous Receive Mode	disabled ^{*)}
Switchover Time RS-485	100 µs ^{*)}
Continuous Receive Timeout	2 Characters ^{*)}
RTS Pre-Delay [ms]	30
RTS Post-Delay [ms]	30
DMX - Start Channel Number	1

Figure 20: Parameter Range

The following selection boxes are displayed in tabular form.

Table 29: Parameter Range

Selection box	Possible settings
Operating Mode	RS-232 / RS-485 half-duplex ^{*)} / RS-422 full-duplex / data exchange RS-422 ⁴⁾ / DMX half-duplex/250k ⁴⁾
Transmission Rate [Baud]	300 / 600 / 1200 / 2400 / 4800 / 9600 ^{*)} / 19200 / 38400 / 57600 / 115200

Table 29: Parameter Range

Selection box	Possible settings
Data Bits	8 ^{*)} / 7
Parity	none ^{*)} / odd / even
Stop Bits	1 ^{*)} / 2
Flow Control	disabled ^{*)} / XON/XOFF ¹⁾ / RTS/CTS ²⁾ / RTS, lead and follow-on time ^{2), 4)}
Continuous Send Mode	disabled ^{*)} / released
Continuous Receive Mode	disabled ^{*)} / released
Switchover Time RS-485 ³⁾	100 µs ^{*)} / 2 Characters / 4 Characters
Continuous Receive Timeout	2 Characters ^{*)} / 4 Characters
RTS Pre-Delay [ms] ²⁾	30 ^{*)} / [0 ... 1000]
RTS Post-Delay [ms] ²⁾	30 ^{*)} / [0 ... 1000]
DMX - Start Channel Number ^{5), 6)}	1 ^{*)} ... 492

^{*)} default setting

¹⁾ the setting is relevant for the operating modes RS-232 and RS-422 full-duplex

²⁾ the setting is relevant for the operating mode RS-232

³⁾ the setting is relevant for the operating mode RS-485 half-duplex

⁴⁾ from firmware version 03

⁵⁾ the setting is relevant for the operating mode DMX.

⁶⁾ from firmware version 06

The possible settings are described in more detail in the chapter "Function Description".

Note



Use of the CODESYS library "SerComm.lib"

Note that following settings for use of the I/O module with programmable fieldbus controllers and use of the CODESYS library "SerComm.lib" can be temporarily overwritten by the controller:

- Mode
- Baud rate
- Data bits, parity, number of stop bits
- Flow control
- Continuous send

The following values are not available if settings should be changed by the CODESYS library "SerComm.lib" (CODESYS 2.3):

- Mode: Data Exchange, DMX
- Baud rate: 600 baud
- Flow control: RTS with lead/follow-on time
- DMX start channel number

These values can be changed in *WAGO-I/O-CHECK*.

8.1.5 Setting the RS-232/RS-485 Serial Interface

1. Open the configuration dialog for the serial interface module by selecting **Settings** in the context menu of the I/O module (node view or navigation).



Note

Important note:

Before changing the parameters you should save the current values in a parameter file. This way, in case the parameters are wrong, you can always fall back on the original values. Use the **[Save]** and **[Open]** buttons in the parameter dialog.

The serial I/O module is configured and prepared for communication in the configuration area.

2. In order to display the default values for this I/O module (except for the size of the process image), press the **[Default]** button. The values indicated can then be changed further.
3. To change settings in the serial I/O module, adjust the values in the configuration area.

Changed settings are marked with a change symbol (pen symbol) in order to indicate that these values no longer match the values originally queried by the module.

4. To transfer the new values to the I/O module, click the **[Write]** button.

You can also put the I/O module into another operating mode. Here the changed configuration is saved and the inputs and outputs of the I/O module are switched immediately according to the operating mode.



Note

Note the warning for wiring!

In case of a change of operating mode, a warning appears that points out that it may be necessary to change the wiring.

8.2 Configuration and Parameterization via GSD File with PROFIBUS DP and PROFINET IO

Other parameterization methods are available depending on the fieldbus coupler/controller used. The desired operating mode can be set via PROFIBUS and PROFINET device description (GSD file) parameterization. The parameterization description can be found in the appendix under “Configuration and Parameterization via GSD File.”

8.3 Data Transfer

The following chapters describe data transfer in all operating modes for serial transmission and in the Data Exchange operating mode.

8.3.1 Example of Operating Modes for Serial Transmission

The control of the transmission and receipt operation is handled with the control and status byte. Requests are indicated by the change (toggle) of a bit. The successful processing is indicated by an assigned bit. It takes the value of the request bit.

Initialize I/O module:

- Setting of IR in control byte C0
- Initialization of the I/O module
- Blocking of the transmit and receive functions
- Deletion of the transmit and receive memory
- Loading of the configuration data in the serial I/O module

Transmit data:

- TR = TA: Writing of the characters to be transmitted in output bytes D0 to Dn
- Number of characters to be transmitted is specified in OL0 to OL5
- Inversion and output of TR
- Transfer to the output buffer takes place when TR = TA

Receive data:

- RR ≠ RA: in input byte 0 to n characters are available
- Number of characters received is specified in IL0 to IL5
- Reading out of the characters in IL0 to IL5
- Inversion and output of RA
- Reading out has taken place when RR = RA

The transmission and receipt of data between controller and I/O module can take place simultaneously. The initialization request is executed with priority and immediately ends the transmission and receipt of data.



Note

Reset initialization bit!

The initialization bit in control byte C0 must be reset. As long as the initialization bit is set, no data is exchanged. The initialization bit can be reset simultaneously with transmission of the initial data.



Note

Always read received data!

The input buffer of the I/O module is 80% full if the BUF_F bit is set in status byte 0. If the input buffer is full, the I/O module cannot receive any further data via the serial interface. Any data transmitted by an external device is lost.

8.3.2 Initialization

The I/O module is initialized.

The initialization bit is set in the control byte 0.

Table 30: Initialization Bit

Control byte 0	Control byte 1	Output byte 0	Output byte 1
'0000.0100'	'0000.0000'	XX	XX

The execution of the initialization is acknowledged by the I/O module with the setting of the bit IA.

Table 31: Initialization of the I/O Module

Status byte 0	Status byte 1	Input byte 0	Input byte 1	
'XXXX.X1XX'	'XXXX.1XXX'	XX	XX	The I/O module is initialized.

Control requests data exchange:

Table 32: Data Exchange

Control byte 0	Control byte 1	Output byte 0	Output byte 1
'0000.0000'	'0000.0000'	XX	XX

The IA bit is reset by the I/O module.

Table 33: I/O Module is Ready

Status byte 0	Status byte 1	Input byte 0	Input byte 1	
'0XXX.X0XX'	'0XXX.1XXX'	XX	XX	The I/O module is ready.

8.3.3 Transmission of the Character String "Hello World!"

The 11 characters, the reset initialization bit, and the length 11 are transmitted.

Table 34: Character String "Hello World"

Control byte 0	Control byte 1	Output byte 0	Output byte 1
'0011.0000'	'0000.0001'	"H" (0x48)	"a" (0x60)
Output byte 2	Output byte 3	Output byte 4	Output byte 5
"l" (0x6C)	"l" (0x6C)	"o" (0x6F)	0 x 20
Output byte 6	Output byte 7	Output byte 8	Output byte 9
"W" (0x87)	"e" (0x65)	"l" (0x6C)	"t" (0x74)
Output byte 10	Output byte 11	Output byte 12	Output byte 13
"!" 0 x 21	XX	XX	XX

The transmit request bit TR is inverted.

Table 35: Transmit Request Bit TR

Control byte 0	Control byte 1	Output byte 0	Output byte 1
'0011.0001'	'0000.0001'	"H" (0x48)	"a" (0x60)
Output byte 2	Output byte 3	Output byte 4	Output byte 5
"l" (0x6C)	"l" (0x6C)	"o" (0x6F)	0 x 20
Output byte 6	Output byte 7	Output byte 8	Output byte 9
"W" (0x87)	"e" (0x65)	"l" (0x6C)	"t" (0x74)
Output byte 10	Output byte 11	Output byte 12	Output byte 13
"!" 0 x 21	XX	XX	XX

The data was transmitted to the output buffer as soon as TA = TR. Then additional characters can be transmitted.

Table 36: Data Transfer

Status byte 0	Status byte 1	Input byte 0	Input byte 1	
'0XXX.XXX0'	'0XXX.1XXX'	XX	XX	The data transfer is still running.
'0XXX.XXX1'	'0XXX.1XXX'	XX	XX	When the data transfer has taken place, the data is transmitted via the serial interface.

8.3.4 Receiving the Character String "WAGO"

As soon as RA ≠ RR, characters are available in the input byte.

Table 37: Output Process Image

Control byte 0	Control byte 1	Output byte 0	Output byte 1
'0XXX.XX0X'	'0XXX.XXXX'	XX	XX

Table 38: Receive Data

Status byte 0	Status byte 1	Input byte 0	Input byte 1	
0-xxx X (00x)	'0XXX. 1XXX'	XX	XX	There are no receive data available.
'0XX1. 001X'	'0XXX. 1XXX'	"W"	"A"	The data is available in the input bytes.

After the 2 characters have been processed, RA is inverted.

Table 39: Receive 2 Characters

Control byte 0	Control byte 1	Output byte 0	Output byte 1
'0XXX XX1X'	'0XXX.XXXX'	XX	XX

The receipt of additional characters is indicated by different values for RA and RR.

Table 40: Receipt of Additional Characters

Status byte 0	Status byte 1	Input byte 0	Input byte 1	
'0XXX. X01X'	'0XXX. 1XXX'	XX	XX	There are no receive data available.
'0XX1. 000X'	'0XXX. 1XXX'	"G"	"O"	The data is available in the input bytes.

After the characters have been processed, RA is inverted.

Table 41: Output Process Image After Data Transfer

Control byte 0	Control byte 1	Output byte 0	Output byte 1
'0XXX XX0X'	'0XXX.XXXX'	XX	XX

8.3.5 Operation with Continuous Send

8.3.5.1 Transmission of a Block of One to 512 Bytes

The output buffer is filled up with data up to number n ($n \leq 512$ bytes)

To transmit the buffer content, the bit 3 (SC) of the control byte 0 is set by the controller. The I/O module begins with the data transmission and the bit 3 (BUF_E) of the status byte 1 is reset.

If all data is transmitted, the bit 3 (BUF_E) of the status byte 1 is set.

The controller takes bit 3 (SC) of the control byte 0 back from the controller. The end of the transmission from the I/O module is detected this way.

Table 42: Transmission of a Block of 1 to 512 Bytes

Control byte 0	Control byte 1	
'0110.1001'	'0XXX. X101'	Controller fills the output buffer with 46 bytes and set bit 3 (SC) of the control byte 0 for the start of the transmission.
Status byte 0	Status byte 1	
'0XXX.X0X1'	'0000. 1XXX'	I/O module confirms the acceptance of the data.
Control byte 0	Control byte 1	
'0110.1000'	'0XXX. X101'	Controller takes bit 0 (TR) of the control byte 0 back.
Status byte 0	Status byte 1	
'0XXX.X0X0'	'0XXX. 0XXX'	I/O module begins with the data transmission via the serial interface.
Status byte 0	Status byte 1	
'0XXX.X0X1'	'0000. 1XXX'	All data is transmitted via the serial interface.
Control byte 0	Control byte 1	
'0XXX.0XX0'	'0XXX. 1XXX'	Controller takes bit 3 (TR) of the control byte 0 back.

8.3.5.2 Transmission of a Block of More than 512 Bytes

The output buffer is filled up with data up to number 512 bytes.

To transmit the buffer content, the bit 3 (SC) of the control byte 0 is set by the controller. The I/O module begins with the data transmission and the bit 3 (BUF_E) of the status byte 1 is reset.

During transmission, the output buffer continues to be filled up by the controller.

Bit 3 (SC) of control byte 0 is set by the controller as long as data should be transmitted. The I/O module acknowledges data transmission by resetting bit 3 (BUF_E) in status byte 1.

Then bit 3 (SC) of control byte 0 is taken back by the controller. The end of the transmission from the I/O module is detected this way.

Note



NOTE

At higher baud rates, it cannot be ensured that more than 512 bytes of data are transmitted as a contiguous block!

Table 43: Transmission of a Block of More Than 512 Bytes *)

Control byte 0	Control byte 1	
'0110.1001'	'0XXX. X101'	Controller fills the output buffer with 46 bytes and set bit 3 (SC) of the control byte 0 for the start of the transmission. Bit 3 (SC) of the control byte 0 must always be set if the controller transmits more than 512 bytes of data to the I/O module.
Status byte 0	Status byte 1	
'0XXX.X0X1'	'0000. 1XXX'	I/O module confirms the acceptance of the data.
Control byte 0	Control byte 1	
'0110.1000'	'0XXX. X101'	Controller takes bit 0 (TR) of the control byte 0 back.
Status byte 0	Status byte 1	
'0XXX.X0X0'	'0XXX. 0XXX'	I/O module begins with the data transmission via the serial interface.
Control byte 0	Control byte 1	
'0110.1001'	'0XXX. X101'	Controller fills the output buffer with another 46 bytes of data.
Status byte 0	Status byte 1	
'0XXX.X0X1'	'0000. 0XXX'	I/O module confirms the acceptance of the data.
Status byte 0	Status byte 1	
'0XXX.X0X1'	'0000. 1XXX'	All data saved in the output buffer is transmitted via the serial interface.
Control byte 0	Control byte 1	
'0110.1001'	'0XXX. X101'	Controller fills the output buffer with another 46 bytes of data.
Status byte 0	Status byte 1	
'0XXX.X0X1'	'0000. 0XXX'	I/O module confirms the acceptance of the data.
Status byte 0	Status byte 1	
'0XXX.X0X0'	'0XXX. 0XXX'	I/O module continues the data transmission via the serial interface.
Status byte 0	Status byte 1	
'0XXX.X0X1'	'0000. 1XXX'	All data saved in the output buffer is transmitted via the serial interface.
Control byte 0	Control byte 1	
'0XXX.0XX0'	'0XXX. 1XXX'	Controller takes bit 3 (SC) of the control byte 0 back.

*) The table shows the transmission method from the time at which more than 500 bytes is in the output buffer.

Note



Illustration note

An X is used if the value is not relevant here.

An XX means that the entire value is not relevant.

8.3.6 DMX Application Example

8.3.6.1 Operation with Deactivated Continuous Send

In this mode, the I/O module only transmits the data for a limited number of DMX channels according to the set size of the process image (see table “Process data in the DMX operating mode without continuous send”). Higher refresh rates are then possible.

Table 44: Process Data in the DMX Operating Mode Without Transfer Optimization

Process image length	Input data		Output data	
8 bytes	S0	Status byte 0	C0	Control byte 0
	S1	Status byte 1	C1	Control byte 1
	D0	Data byte 0 ^{*)}	D0	Data byte 0 DMX start byte (always 0)
	D1	Data byte 1 ^{*)}	D1	Data byte 1 (DMX channel 1)
	D2	Data byte 2 ^{*)}	D2	Data byte 2 (DMX channel 2)
	...		...	
	D5	Data byte 5 ^{*)}	D5	Data byte 5 (DMX channel 5)
24 bytes	D6	Data byte 6 ^{*)}	D6	Data byte 6 (DMX channel 6)
	...		...	
	D21	Data byte 21 ^{*)}	D21	Data byte 21 (DMX channel 21)
48 bytes	D22	Data byte 22 ^{*)}	D22	Data byte 22 (DMX channel 22)
	...		...	
	D45	Data byte 45 ^{*)}	D45	Data byte 45 (DMX channel 45)

^{*)} Not in use. In this mode, no data is received.

The transmission method is described in the chapter “Transmission of the Character String 'Hello World!'”

8.3.6.2 Operation with Activated Continuous Send

In this mode, the output buffer filled with the DMX start byte (always 0) and then with data for DMX channel 1 to 254.

Sending from up to 512 DMX channels is possible with firmware version 06 or higher. The alternative start codes 23, 88 or 144 can also be used.

The transmission method is described in the chapter “Function Description > ... > “Continuous Transmission”.

Note



Observe settings!

To ensure continuous transmission, the “Continuous Send” setting must be activated!

Note



Malfunctions possible under high load conditions!

If there are a large number of I/O modules in the node or if transmitting via multiple DMX channels, the refresh rate can drop below 1 update per second.

This can also cause malfunctions in the connected DMX receivers!

In this case, reduce the number of I/O modules or the number of DMX channels.

8.3.6.3 Mode when Receiving DMX Data

With firmware version 06 or higher, the I/O module can receive data for a limited number of DMX channels according to the set size of the process image (see table “Process Data in DMX Mode when Receiving DMX Data” and “Number of Received DMX Channels”).

Note



Switching between Sending and Receiving Modes

You can switch between sending and receiving modes in the CODESYS 2.3 and *E!COCKPIT* programming tools by calling up the respective module.

Table 45: Process Data in DMX Mode when Receiving DMX Data

Process image size	Input data		Output data	
24 bytes	S0	Status byte 0	C0	Control byte 0
	S1	Status byte 1	C1	Control byte 1
	D0	Status/number of channels	D0	Data byte 0 ^{*)}
	D1	Data byte 1 (start DMX channel + 1)	D1	Data byte 1 ^{*)}
	...		...	
	D21	Data byte 21 (start DMX channel + 21)	D21	Data byte 21 ^{*)}

^{*)} No relevant for DMX receive.

Table 46: Number of DMX Channels Received

Process image size	Number of received DMX channels
24 bytes	21

The number of DMX channels actually received at the fieldbus master is transmitted via byte D0 of the input data (see table “DMX Diagnostics – Diagnostic Bits in Byte D0 of the Input Data”).

The bytes that cannot be assigned to any DMX channel receive the value 0 in the process data.

Table 47: DMX Diagnostics – Diagnostic Bits in Byte D0 of the Input Data

Bit number	Name	Value	Description
7	Packet ID	0 _{bin} ... 1 _{bin}	0 _{bin} : The start code of the received DMX packet is 0. 1 _{bin} : The start code of the received DMX packet is no 0 (alternative start code or faulty receipt).
6	Transmission failure when receiving	0 _{bin} ... 1 _{bin}	0 _{bin} : Receipt of a packet within 1.2 s 1 _{bin} : More than 1.2 s has passed since receipt of a valid packet.
0 ... 5	MaxChNum	0 _{dez} ... 21 _{dez}	Number of DMX channels actually received

8.3.6.3.1 “DMX Receive” Operating Parameters

Note



Functional limitations based on different operating conditions!

The “DMX receive” function has been tested under certain operating conditions. If the I/O module is operated in conditions other than those listed in this section, it can lead to functional limitations and data loss.

Additional information on using DMX functions is listed in the “DMX_01 Application Note”.

The application note is available for download at the www.wago.com

Note



Note the process image size setting!

In “DMX receive” mode, the correct process image size must be set.

To operate the I/O module in DMX Slave mode, the 24-byte process image size (default) must be used!

Incorrect operating parameters can lead to functional limitations and instable operation. Operating parameters are listed below that ensure stable operation.

- Sender:
Compatible with DMX specification E1.11-2008/USITT DMX512-A
- DMX transmission link:
100 m twisted-pair cable, Cat. 5, terminated with 120 Ω **terminating** resistors
- Receiver:
I/O module 750-652 firmware version 06 or higher
- Node configuration:
 - Position 00: 750-881 [Version: SW 01.05.15(07) / HW 07 / FWL 03]
 - Position 01: 750-652 [Version: SW 01.02.15(06) / HW 01]
Process image size: 48 Bytes
 - Position 02: 750-652 [Version: SW 01.02.15(06) / HW 01]
Process image size: 24 Bytes

8.3.6.3.2 “DMX Receive” Application Example

This subsection describes 2 application examples. The application examples always have a process image of 24 bytes.

Example 1

Setting:

A DMX channel with number 1 as the start channel and a process image size of 24 bytes is set.

Goal:

The I/O module should receive DMX channels 1 ... 21 of the DMX universe and transmit to the associated fieldbus master. The DMX universe sent by a DMX sender consists of 512 DMX channels (1 ... 512) and the DMX start code (DMX channel 0).

Effect:

The number of DMX channels actually received (21 DMX channels) are in byte D0 of the input process image (DMX channels 1 ... 21 were received). Data bytes D1 ... D21 receive the respective channel data.

Example 2

Setting:

A DMX channel with number 508 as the start channel and a process image size of 24 bytes is set.

Goal:

The I/O module should receive DMX channels 508 ... 512 of the DMX universe and transmit to the associated fieldbus master. The DMX universe sent by a DMX sender consists of 512 DMX channels (1 ... 512).

Effect:

The number of DMX channels actually received (5 DMX channels) are in byte D0 of the input process image (DMX channels 508 ... 512 were received). Data bytes D1 ... D5 receive the respective channel data. Data bytes D6 ... D21 are set to zero.

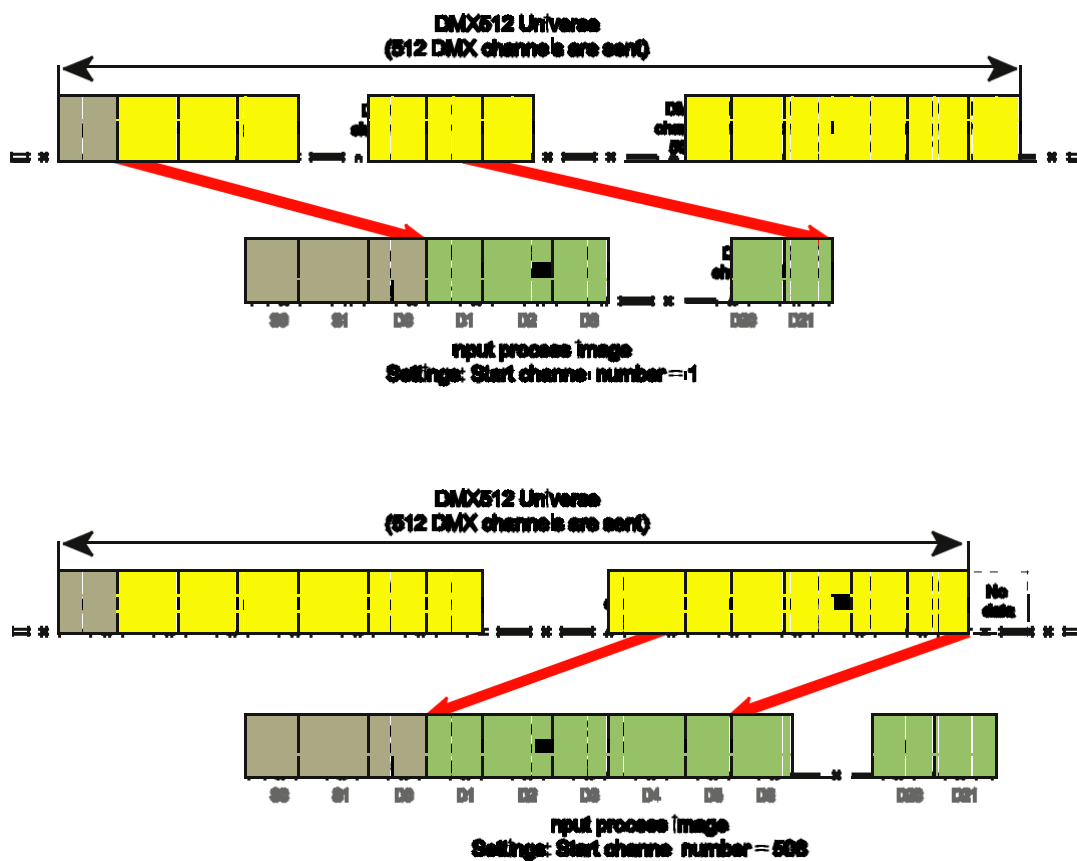


Figure 21: Example Assignment of DMX Channels to the Input Process Image

8.3.7 Data Exchange Operating Mode Application Example

In the “Data Exchange” operating mode, the I/O module monitors process data exchange with the partner module. If the connection is interrupted for 200 ms or more, it generates a diagnosis in the status byte. This monitoring only takes into account if there is a connection between the I/O modules. As the user, you may want to check if the application that accesses the fieldbus node of the opposite side as a PLC application or via fieldbus has received the information sent.

You can easily implement this monitoring by reserving 3 bits in the data part of the process image for transmission of status information. Use **bits 0, 1** and **2** of the first data byte, for example.

1. Use **bit 0** as the “ON” signal on both sides.
2. Describe **bit 0** in the process image (output) permanently with status 1.
3. Check if the “ON” signal is displayed correctly in the process image (input).

Note



No connection if the status is “0”

If the status is 0, there is no connection with the opposite side and all data bytes of the process image (input) of the I/O module are invalid.

4. Use **bit 1** as the “toggle” bit to send data to the opposite side.
5. Invert the sent “toggle” bit if you want to send new data.
6. If you have already sent data, you can only send new data if the opposite has acknowledged receipt. Use **bit 2** as the “acknowledge” bit on both sides to signal data receipt to the respective opposite side.
7. Always invert the sent “acknowledge” bit if the received “toggle” bit has changed.

9 Diagnostics

9.1 Serial Operating Modes RS-232, RS-422 and RS-485

Table 48: Diagnostics, Serial Operating Modes RS-232, RS-422 and RS-485

Diagnostics	Event	Solution
Input buffer full	The I/O module receives data via the serial interface faster than accepted by the application.	• Make sure that the application always accepts data immediately. • Reduce data traffic. • Use flow control. • Reduce baud rate.
Output buffer full	The I/O module receives data faster from the application than it sends via the serial interface.	• Check "Continuous Send". • Reduce data traffic. • Increase baud rate. • Make sure that the opposite side accepts data.
Parity error	Data transmission was interrupted.	• Check the configuration of the interface parameters. • Use a shielded cable. • Change wire routing. • Shorten cable. • Eliminate interference.
Overflow	Data loss has occurred.	• Reduce baud rate.

9.2 DMX Operating Mode

Table 49: Diagnostics, DMX Operating Mode

Diagnostics	Event	Solution
Transmission failure when receiving	More than 1.2 s has passed since receipt of a valid packet.	• Check wire routing. • Check cable type. • Check DMX sender operation.
Packet ID	The start code of the received DMX packet is not 0.	• Check wire routing. • Check cable type. • Check the start code of the DMX sender. • Increase the number of transmitting DMX channels (min. 27 channels).

9.3 Data Exchange Operating Mode

Table 50: Diagnostics, Data Exchange

Diagnostics	Event	Solution
Wrong length	The I/O modules have different process image sizes	• Configure the same process image size
Checksum error	Data transmission was interrupted. The last valid value is retained in the process image.	• Use a shielded cable • Change wire routing • Shorten cable • Eliminate interference
Timeout	The data transmission is interrupted or has been interrupted for a longer period of time (see checksum error). The process image (input) has been overwritten with the value 0.	• Check cable and clamping points for uniformity • Check the configuration of the I/O modules • for checksum error: See Diagnostics “Checksum error”

10 Use in Hazardous Environments

The **WAGO-I/O-SYSTEM 750** (electrical equipment) is designed for use in Zone 2 hazardous areas.

The following sections include both the general identification of components (devices) and the installation regulations to be observed. The individual subsections of the “Installation Regulations” section must be taken into account if the I/O module has the required approval or is subject to the range of application of the ATEX directive.

10.1 Marking Configuration Examples

10.1.1 Marking for Europe According to ATEX and IEC-Ex

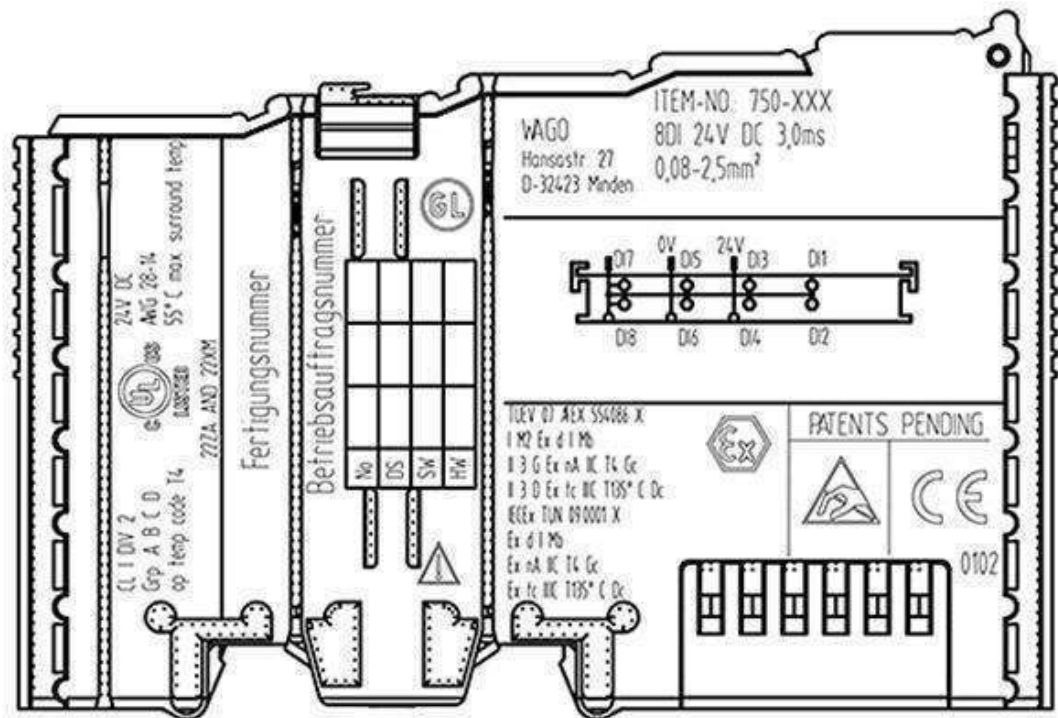


Figure 22: Side Marking Example for Approved I/O Modules According to ATEX and IECEx

TUEV 07 ATEX 554086 X
I M2 Ex d I Mb
II 3 G Ex nA IIC T4 Gc
II 3 D Ex tc IIC T135° C Dc
IECEx TUN 09.0001 X
Ex d I Mb
Ex nA IIC T4 Gc
Ex tc IIC T135° C Dc



Figure 23: Text Detail – Marking Example for Approved I/O Modules According to ATEX and IECEx.

Table 51: Description of Marking Example for Approved I/O Modules According to ATEX and IECEx

Marking	Description
TÜV 07 ATEX 554086 X IECEx TUN 09.0001 X	Approving authority and certificate numbers
Dust	
II	Equipment group: All except mining
3D	Category 3 (Zone 22)
Ex	Explosion protection mark
tc Dc	Type of protection and equipment protection level (EPL): protection by enclosure
IIC	Explosion group of dust
T 135°C	Max. surface temperature of the enclosure (without a dust layer)
Mining	
I	Equipment group: Mining
M2	Category: High level of protection
Ex	Explosion protection mark
d Mb	Type of protection and equipment protection level (EPL): Flameproof enclosure
I	Explosion group for electrical equipment for mines susceptible to firedamp
Gases	
II	Equipment group: All except mining
3G	Category 3 (Zone 2)
Ex	Explosion protection mark
nA Gc	Type of protection and equipment protection level (EPL): Non-sparking equipment
nC Gc	Type of protection and equipment protection level (EPL): Sparking apparatus with protected contacts. A device which is so constructed that the external atmosphere cannot gain access to the interior
IIC	Explosion group of gas and vapours
T4	Temperature class: Max. surface temperature 135°C

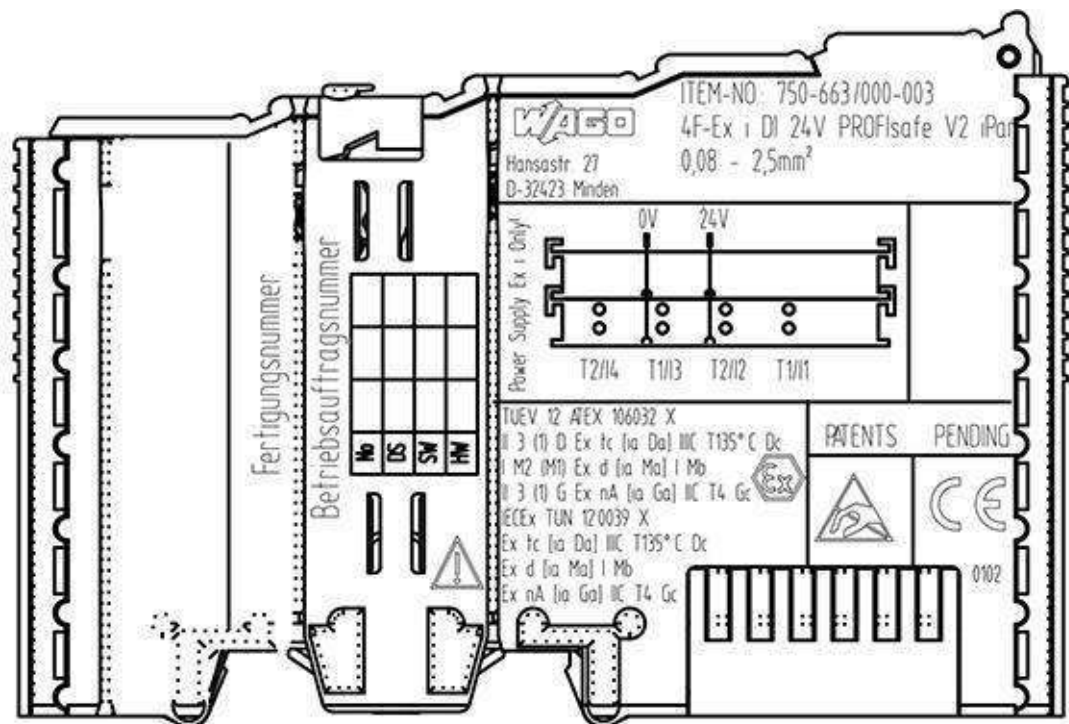


Figure 24: Side Marking Example for Approved Ex i I/O Modules According to ATEX and IECEx.

TUEV 12 ATEX 106032 X
 II 3 (1) D Ex tc [ia Da] IIC T135° C Dc
 I M2 (M1) Ex d [ia Ma] I Mb
 II 3 (1) G Ex nA [ia Ga] IIC T4 Gc 
 IECEx TUN 120039 X
 Ex tc [ia Da] IIC T135° C Dc
 Ex d [ia Ma] I Mb
 Ex nA [ia Ga] IIC T4 Gc

Figure 25: Text Detail – Marking Example for Approved Ex i I/O Modules According to ATEX and IECEx.

Table 52: Description of Marking Example for Approved Ex i I/O Modules According to ATEX and IECEx

Marking	Description
TÜV 07 ATEX 554086 X IECE _x TUN 09.0001X	Approving authority and certificate numbers
TÜV 12 ATEX 106032 X IECE _x TUN 12.0039 X	
Dust	
II	Equipment group: All except mining
3(1)D	Category 3 (Zone 22) equipment containing a safety device for a category 1 (Zone 20) equipment
3(2)D	Category 3 (Zone 22) equipment containing a safety device for a category 2 (Zone 21) equipment
Ex	Explosion protection mark
tc Dc	Type of protection and equipment protection level (EPL): protection by enclosure
[ia Da]	Type of protection and equipment protection level (EPL): associated apparatus with intrinsic safety circuits for use in Zone 20
[ib Db]	Type of protection and equipment protection level (EPL): associated apparatus with intrinsic safety circuits for use in Zone 21
IIIC	Explosion group of dust
T 135°C	Max. surface temperature of the enclosure (without a dust layer)
Mining	
I	Equipment Group: Mining
M2 (M1)	Category: High level of protection with electrical circuits which present a very high level of protection
Ex d Mb	Explosion protection mark with Type of protection and equipment protection level (EPL): Flameproof enclosure
[ia Ma]	Type of protection and equipment protection level (EPL): associated apparatus with intrinsic safety electrical circuits
I	Explosion group for electrical equipment for mines susceptible to firedamp

Table 52: Description of Marking Example for Approved Ex i I/O Modules According to ATEX and IECEx

Gases	
II	Equipment group: All except mining
3(1)G	Category 3 (Zone 2) equipment containing a safety device for a category 1 (Zone 0) equipment
3(2)G	Category 3 (Zone 2) equipment containing a safety device for a category 2 (Zone 1) equipment
Ex	Explosion protection mark
nA Gc	Type of protection and equipment protection level (EPL): Non-sparking equipment
[ia Ga]	Type of protection and equipment protection level (EPL): associated apparatus with intrinsic safety circuits for use in Zone 0
[ia Gb]	Type of protection and equipment protection level (EPL): associated apparatus with intrinsic safety circuits for use in Zone 1
IIC	Explosion group of gas and vapours
T4	Temperature class: Max. surface temperature 135°C

10.1.2 Marking for America According to NEC 500

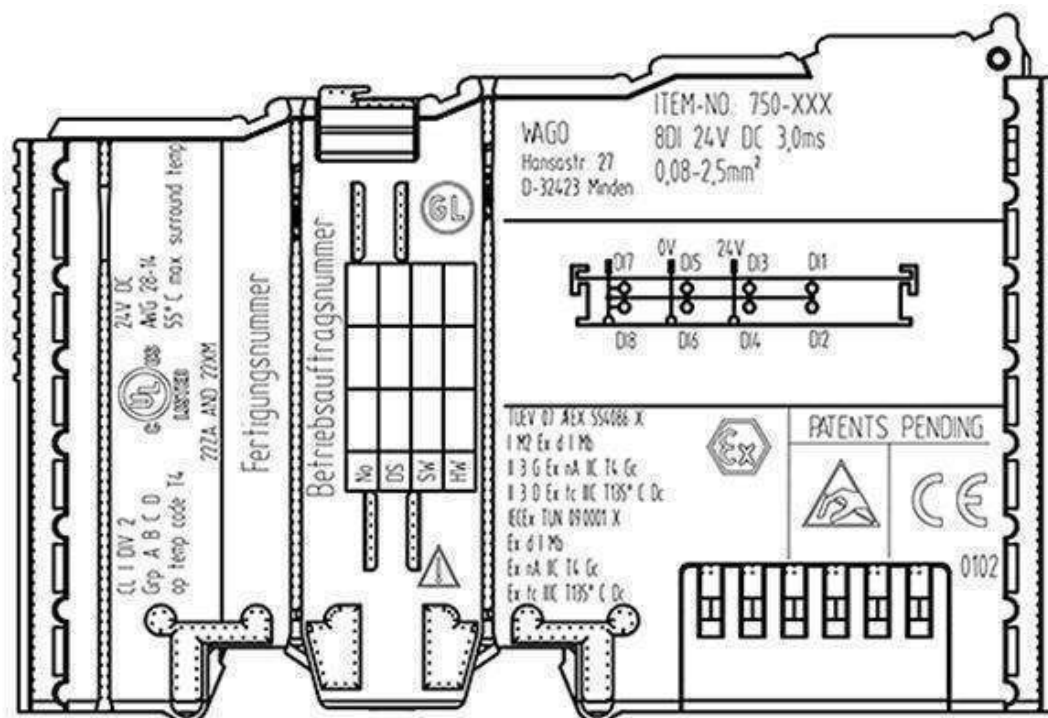


Figure 26: Side Marking Example for I/O Modules According to NEC 500

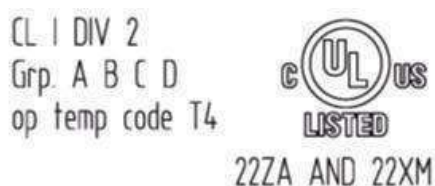


Figure 27: Text Detail – Marking Example for Approved I/O Modules According to NEC 500

Table 53: Description of Marking Example for Approved I/O Modules According to NEC 500

Marking	Description
CL I	Explosion protection group (condition of use category)
DIV 2	Area of application
Grp. ABCD	Explosion group (gas group)
Op temp code T4	Temperature class

10.2 Installation Regulations

For the installation and operation of electrical equipment in hazardous areas, the valid national and international rules and regulations which are applicable at the installation location must be carefully followed.

10.2.1 Special Conditions for Safe Use (ATEX Certificate TÜV 07 ATEX 554086 X)

1. For use as Gc- or Dc-apparatus (in zone 2 or 22) the Field bus Independent I/O Modules WAGO-I/O-SYSTEM 750-*** shall be erected in an enclosure that fulfils the requirements of the applicable standards (see the marking) EN 60079-0, EN 60079-11, EN 60079-15 and EN 60079-31. For use as group I electrical apparatus M2 the apparatus shall be erected in an enclosure that ensures a sufficient protection according to EN 60079-0 and EN 60079-1 and the degree of protection IP64.
The compliance of these requirements and the correct installation into an enclosure or a control cabinet of the devices shall be certified by an ExNB.
2. Measures have to be taken outside of the device that the rating voltage is not being exceeded of more than 40 % because of transient disturbances.
3. Dip-switches, binary-switches and potentiometers, connected to the module may only be actuated when explosive atmosphere can be excluded.
4. The connecting and disconnecting of the non-intrinsically safe circuits is only permitted during installation, for maintenance or for repair purposes. The temporal coincidence of explosion hazardous atmosphere and installation, maintenance resp. repair purposes shall be excluded.
This is although and in particular valid for the interfaces “Memory-Card”, “USB”, “Fieldbus connection”, “Configuration and programming interface”, “antenna socket”, “D-Sub”, “DVI-port” and the “Ethernet interface”. These interfaces are not energy limited or intrinsically safe circuits. An operating of those circuits is in the behalf of the operator.
5. For the types 750-606, 750-625/000-001, 750-487/003-000, 750-484 and 750-633 the following shall be considered: The Interface circuits shall be limited to overvoltage category I/II/III (non mains/mains circuits) as defined in EN 60664-1.
6. For replaceable fuses the following shall be considered: Do not remove or replace the fuse when the apparatus is energized.
7. The following warnings shall be placed nearby the unit:
WARNING – DO NOT REMOVE OR REPLACE FUSE WHEN ENERGIZED
WARNING – DO NOT SEPARATE WHEN ENERGIZED
WARNING – SEPARATE ONLY IN A NON-HAZARDOUS AREA

10.2.2 Special Conditions for Safe Use (ATEX Certificate TÜV 12 ATEX 106032 X)

1. For use as Gc- or Dc-apparatus (in zone 2 or 22) the Field bus Independent I/O Modules WAGO-I/O-SYSTEM 750-*** Ex i shall be erected in an enclosure that fulfils the requirements of the applicable standards (see the marking) EN 60079-0, EN 60079-11, EN 60079-15 and EN 60079-31. For use as group I electrical apparatus M2 the apparatus shall be erected in an enclosure that ensures a sufficient protection according to EN 60079-0 and EN 60079-1 and the degree of protection IP64.
The compliance of these requirements and the correct installation into an enclosure or a control cabinet of the devices shall be certified by an ExNB.
2. Measures have to be taken outside of the device that the rating voltage is not being exceeded of more than 40 % because of transient disturbances.
3. The connecting and disconnecting of the non-intrinsically safe circuits is only permitted during installation, for maintenance or for repair purposes. The temporal coincidence of explosion hazardous atmosphere and installation, maintenance resp. repair purposes shall be excluded.
4. For the type the following shall be considered: The Interface circuits shall be limited to overvoltage category I/II (non mains/mains circuits) as defined in EN 60664-1.

10.2.3 Special Conditions for Safe Use (IEC-Ex Certificate TUN 09.0001 X)

1. For use as Gc- or Dc-apparatus (in zone 2 or 22) the Field bus Independent I/O Modules WAGO-I/O-SYSTEM 750-*** shall be erected in an enclosure that fulfils the requirements of the applicable standards (see the marking) IEC 60079-0, IEC 60079-11, IEC 60079-15 and IEC 60079-31. For use as group I electrical apparatus M2 the apparatus shall be erected in an enclosure that ensures a sufficient protection according to IEC 60079-0 and IEC 60079-1 and the degree of protection IP64.
The compliance of these requirements and the correct installation into an enclosure or a control cabinet of the devices shall be certified by an ExCB.
2. Measures have to be taken outside of the device that the rating voltage is not being exceeded of more than 40 % because of transient disturbances.
3. DIP-switches, binary-switches and potentiometers, connected to the module may only be actuated when explosive atmosphere can be excluded.
4. The connecting and disconnecting of the non-intrinsically safe circuits is only permitted during installation, for maintenance or for repair purposes. The temporal coincidence of explosion hazardous atmosphere and installation, maintenance resp. repair purposes shall be excluded. This is although and in particular valid for the interfaces “Memory-Card”, “USB”, “Fieldbus connection”, “Configuration and programming interface”, “antenna socket”, “D-Sub”, “DVI-port” and the “Ethernet interface”. These interfaces are not energy limited or intrinsically safe circuits. An operating of those circuits is in the behalf of the operator.
5. For the types 750-606, 750-625/000-001, 750-487/003-000, 750-484 and 750-633 the following shall be considered: The Interface circuits shall be limited to overvoltage category I/II/III (non mains/mains circuits) as defined in IEC 60664-1.
6. For replaceable fuses the following shall be considered: Do not remove or replace the fuse when the apparatus is energized.
7. The following warnings shall be placed nearby the unit:
WARNING – DO NOT REMOVE OR REPLACE FUSE WHEN ENERGIZED
WARNING – DO NOT SEPARATE WHEN ENERGIZED
WARNING – SEPARATE ONLY IN A NON-HAZARDOUS AREA

10.2.4 Special Conditions for Safe Use (IEC-Ex Certificate IECEx TUN 12.0039 X)

1. For use as Gc- or Dc-apparatus (in zone 2 or 22) the Field bus independent I/O Modules WAGO-I/O-SYSTEM 750-*** Ex i shall be erected in an enclosure that fulfils the requirements of the applicable standards (see the marking) IEC 60079-0, IEC 60079-11, IEC 60079-15, IEC 60079-31.
For use as group I electrical apparatus M2 the apparatus shall be erected in an enclosure that ensures a sufficient protection according to IEC 60079-0 and IEC 60079-1 and the degree of protection IP64.
The compliance of these requirements and the correct installation into an enclosure or a control cabinet of the devices shall be certified by an ExCB.
2. Measures have to be taken outside of the device that the rating voltage is not being exceeded of more than 40 % because of transient disturbances.
3. The connecting and disconnecting of the non-intrinsically safe circuits is only permitted during installation, for maintenance or for repair purposes. The temporal coincidence of explosion hazardous atmosphere and installation, maintenance resp. repair purposes shall be excluded.
4. For the type the following shall be considered: The Interface circuits shall be limited to overvoltage category I/II (non mains/mains circuits) as defined in IEC 60664-1.

10.2.5 Special Conditions for Safe Use According to ANSI/ISA 12.12.01

- A. “This equipment is suitable for use in Class I, Division 2, Groups A, B, C, D or non-hazardous locations only.”
- B. “This equipment is to be fitted within tool-secured enclosures only.”
- C. “WARNING Explosion hazard - substitution of components may impair suitability for Class I, Div. 2.”
- D. “WARNING – Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous” has to be placed near each operator accessible connector and fuse holder.
- E. When a fuse is provided, the following information shall be provided: “A switch suitable for the location where the equipment is installed shall be provided to remove the power from the fuse.”
- F. For devices with EtherCAT/Ethernet connectors “Only for use in LAN, not for connection to telecommunication circuits.”
- G. “WARNING - Use Module 750-642 only with antenna module 758-910.”
- H. For Couplers/Controllers and Economy bus modules only: The instructions shall contain the following: “The configuration interface Service connector is for temporary connection only. Do not connect or disconnect unless the area is known to be non-hazardous. Connection or disconnection in an explosive atmosphere could result in an explosion.”
- I. Modules containing fuses only: “WARNING - Devices containing fuses must not be fitted into circuits subject to over loads, e.g. motor circuits.”
- J. Modules containing SD card reader sockets only: “WARNING - Do not connect or disconnect SD-Card while circuit is live unless the area is known to be free of ignitable concentrations of flammable gases or vapors.”



Information

Additional Information

Proof of certification is available on request.

Also take note of the information given on the operating and assembly instructions.

The manual, containing these special conditions for safe use, must be readily available to the user.

11 Appendix

11.1 Configuration and Parameterization via GSD File

11.1.1 Configuration of the RS-232/RS-485 Interface

11.1.1.1 PROFIBUS DP Fieldbus Coupler/Controller 750-333(/0xx-000), 750-833(/0xx-000), PROFINET IO Fieldbus Coupler (750-370)

When using the aforementioned PROFIBUS-DP and PROFINET-IO fieldbus devices, the process image size is configured by selecting the corresponding PI module type.

Table 54: Configuration PROFIBUS DP and PROFINET IO (750-370)

PI module type	Representatives of the module type	PI data type	Instances	
			Inp.	Outp.
75x-652 ser. interf. 8 bytes	75x-652	Unsigned8[2], OctetString [6]	1	1
75x-652 ser. interf. 24 bytes		Unsigned8[2], OctetString [22]		
75x-652 ser. interf. 48 bytes		Unsigned8[2], OctetString [46]		
PFC 75x-652 ser. Interf. *)		n/a	n/a	n/a

*) only available for 750-833(/0xx-000)

11.1.1.2 PROFINET IO Fieldbus Coupler 750-375(/025-000), 750-377(/025-000)

When using the aforementioned PROFIBUS-DP and PROFINET-IO fieldbus couplers, the process image size is configured by selecting the corresponding PI module/submodule type.

Table 55: Configuration PROFINET IO (750-375(/025-000), 750-377(/025-000))

PI module type	Representatives of the module type	PI submodule type	Process image length	PI data type	Instances	
					Inp.	Outp.
75x-652 serial interface	75x-652	{UINT8[2], UINT8[6]} I/O	8 bytes	Unsigned8[2], OctetString [6]	1	1
		{UINT8[2], UINT8[22]} I/O	24 bytes	Unsigned8[2], OctetString [22]		
		{UINT8[2], UINT8[46]} I/O	48 bytes	Unsigned8[2], OctetString [46]		

11.1.2 Configuration of the RS-232/RS-485 Serial Interface

With the exception of the RTS lead and follow-on time and the DMX start channel number, the GSD file can be used to provide the I/O module on the “PROFIBUS DP” and “PROFINET IO” fieldbus devices with all operating parameters.

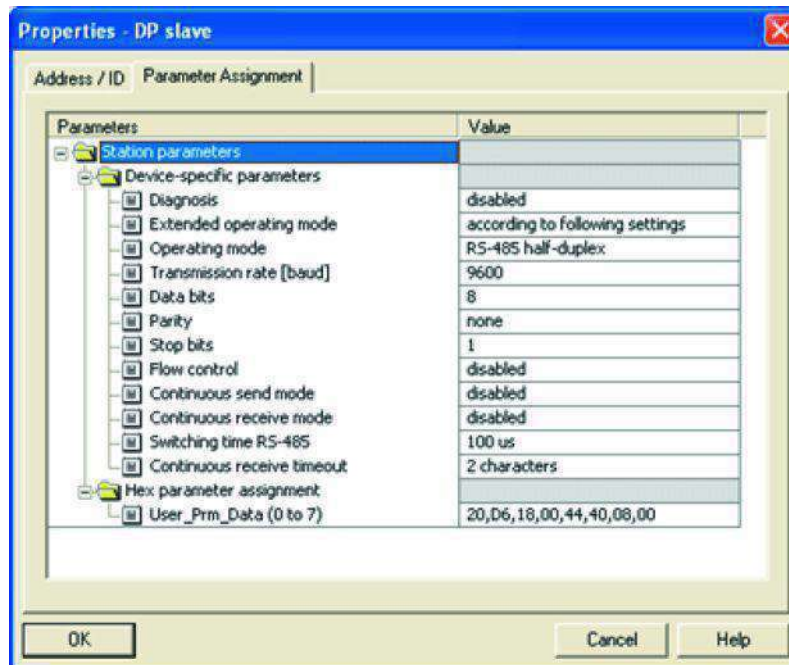


Figure 28: Example of the PROFIBUS DP Fieldbus Coupler/Controller Configuration Dialog

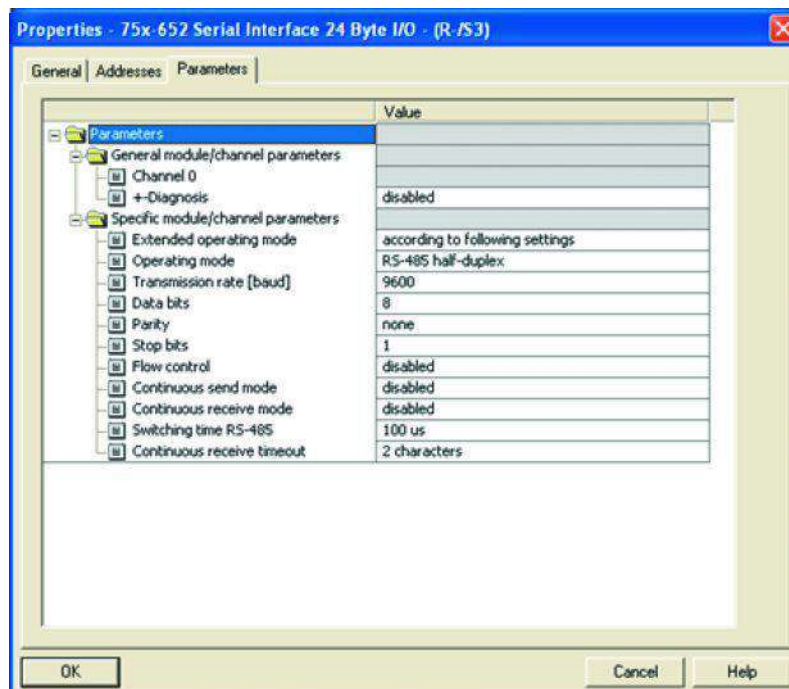


Figure 29: Example of the 750-370 Fieldbus Coupler Configuration Dialog

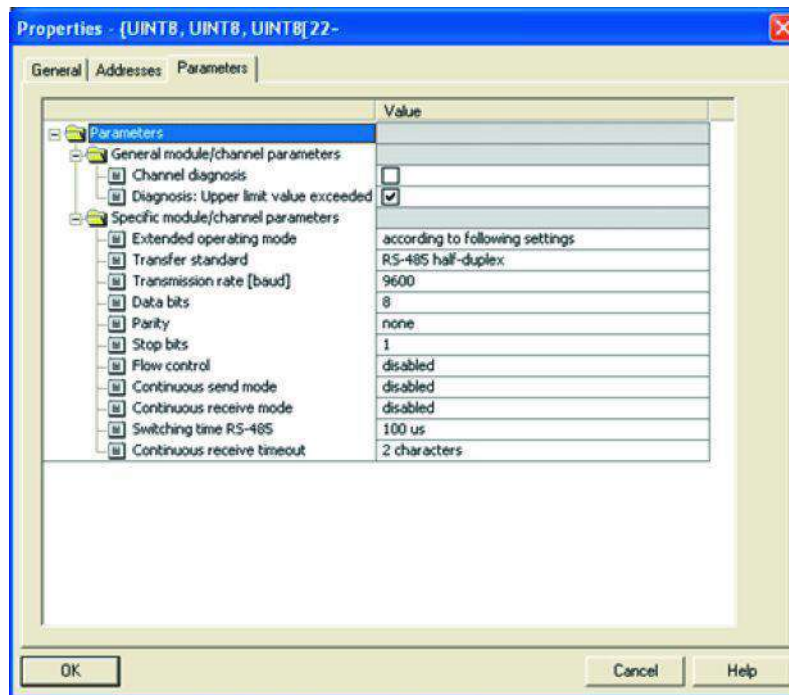


Figure 30: Example of the 750-375(/025-000) and 750-377(/025-000) Fieldbus Coupler Configuration Dialog

11.1.2.1 All PROFIBUS DP and PROFINET IO Fieldbus Couplers/Controllers

NOTICE

Component damage due to incorrect voltage level!

Incorrectly selected voltage levels can destroy the device!

Note when switching between operating modes that RS-232 and RS-485 use different voltage levels.

Switch off connected devices before changing operating modes!

Make sure that devices you connect support the voltage level of the current operating mode!

The following assignment applies to the parameters of the I/O module when using PROFIBUS-DP and PROFINET-IO fieldbus devices.

Table 56: Specific Module / Channel Parameters for 75x-652

GSD File		WAGO-I/O-CHECK	
Description	Value	Selection box	Value
Enhanced operating mode	according to the following settings	Operating Mode	(no equivalent)
	DMX half-duplex/250k	Operating Mode	DMX half-duplex/250k
Mode	RS-232	Operating Mode	RS-232
	RS-485 half-duplex ^{*)}	Operating Mode	RS-485 half-duplex ^{*)}
	RS-422 full-duplex	Operating Mode	RS-422 full-duplex
	Data exchange RS-422	Operating Mode	Data exchange RS-422

Table 56: Specific Module / Channel Parameters for 75x-652

GSD File		WAGO-I/O-CHECK	
Description	Value	Selection box	Value
Baud rate [Baud]	300	Transmission Rate [Baud]	300
	1200	Transmission Rate [Baud]	1200
	2400	Transmission Rate [Baud]	2400
	4800	Transmission Rate [Baud]	4800
	9600 ^{*)}	Transmission Rate [Baud]	9600
	19200	Transmission Rate [Baud]	19200
	38400	Transmission Rate [Baud]	38400
	57600	Transmission Rate [Baud]	57600
	115200	Transmission Rate [Baud]	115200
	600	Transmission Rate [Baud]	600
Data bits	8 ^{*)}	Data Bits	8 ^{*)}
	7	Data Bits	7
Parity	None ^{*)}	Parity	None ^{*)}
	Odd	Parity	Odd
	Straight	Parity	Straight
Stop bits	1 ^{*)}	Stop Bits	1 ^{*)}
	2	Stop Bits	2
Flow control	Deactivated ^{*)}	Flow Control	Disabled ^{*)}
	XON/XOFF	Flow Control	XON/XOFF
	RTS/CTS	Flow Control	RTS/CTS
	RTS, lead/follow-on time	Flow Control	RTS, lead/follow-on time
Continuous send	Lock ^{*)}	Continuous Send Mode	Disabled ^{*)}
	Release	Continuous Send Mode	Release
Continuous receive	Lock ^{*)}	Continuous Receive Mode	Disabled ^{*)}
	Release	Continuous Receive Mode	Release
Switching time RS-485	100 µs ^{*)}	Switchover Time RS-485	100 µs ^{*)}
	2 characters	Switchover Time RS-485	2 Characters
	4 characters	Switchover Time RS-485	4 Characters
Monitoring time con. receive	2 characters ^{*)}	Continuous Receive Timeout	2 Characters ^{*)}
	4 characters	Continuous Receive Timeout	4 Characters

^{*)} Default setting con.
= continuous

11.1.2.2 PROFIBUS DP Fieldbus Coupler/Controller 750-333(/0xx-000), 750-833(/0xx-000), PROFINET IO Fieldbus Coupler 750-370

The aforementioned fieldbus couplers/controllers allow module-specific configuration of behavior at diagnosis.

Table 57: General Module / Channel Parameters

Parameter	Value	Explanation
Diagnostics channel x (x = 0)	0 (lock) ^{*)}	The fieldbus coupler/controller signals a diagnosis if the I/O module reports the event: “Overflow (input buffer)” Diagnostics reported by the I/O module do not lead to the signaling of a diagnosis by the fieldbus coupler/controller.
	1 (release)	Diagnostics reported by the I/O module lead to the signaling of a diagnosis by the fieldbus coupler/controller.

^{*)} Default setting

11.1.2.3 PROFINET IO Fieldbus Coupler 750-375(/025-000), 750-377(/025-000)

The aforementioned fieldbus couplers allow module-specific configuration of behavior at diagnosis.

Table 58: General Module / Channel Parameters

Parameter	Value	Explanation
Channel diagnostics Channel x (x = 0)	0 (lock) ^{*)}	The fieldbus coupler signals a diagnosis if the I/O module reports the event: "Overflow (input buffer)" Diagnostics reported by the I/O module do not lead to the signaling of a diagnosis or an entry in the diagnostics database by the fieldbus coupler.
	1 (release)	Diagnostics reported by the I/O module with activated station diagnostics and error type for the corresponding signal channel lead to dispatch of a diagnostic interrupt. The respective error is entered by the fieldbus coupler in the diagnostics database.
Diagnostics: Top user limit value exceeded Channel x (x = 0)	0 (lock)	The fieldbus coupler signals a diagnosis if the I/O module reports the event: "Overflow (input buffer)" Diagnostics reported by the I/O module do not lead to the signaling of a diagnosis or an entry in the diagnostics database by the fieldbus coupler.
	1 (released) ^{*)}	Diagnostics reported by the I/O module with activated channel diagnostics and error type for the corresponding signal channel lead to dispatch of a diagnostic interrupt. The respective error is entered by the fieldbus coupler in the diagnostics database.

^{*)} Default settings

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Internet: <http://www.wago.com>

Fișă tehnică | Număr articol: 750-1405 16-
channel digital input; 24 VDC; 3 ms; light gray

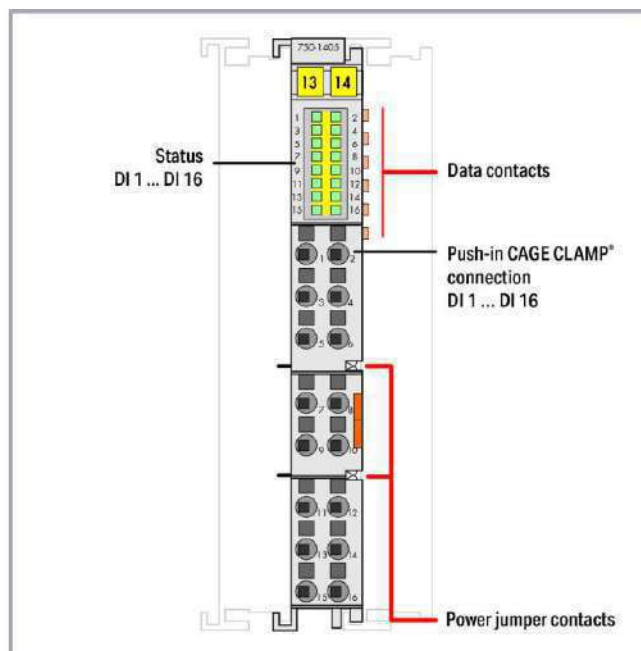
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RoHS
Compliant

BOMcheck.net

Culoare:



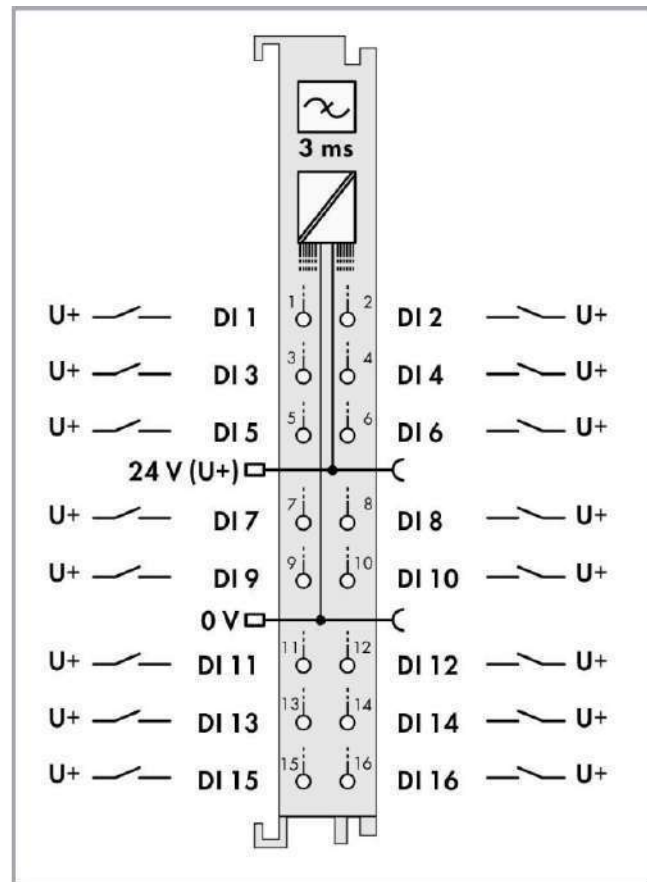
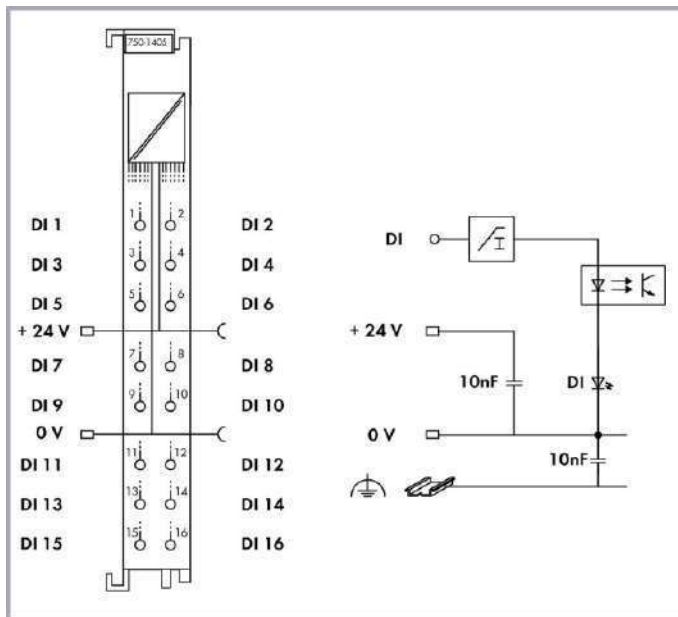
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Aveți întrebări despre produsele noastre?

Vă stăm la dispoziție pentru preluarea apelului la +40 (0) 31 421 85 68.



Descriere articol

The digital input module provides sixteen channels in a width of just 12 mm (0.47 inch).

It receives binary control signals from digital field devices (e.g., sensors, encoders, switches or proximity switches).

The module features Push-in CAGE CLAMP[®] connections enabling solid conductors to be connected by simply pushing them in.

Each input channel has a noise-rejection RC filter with 3.0 ms time constant.

A green LED indicates the switched status of each channel.

Field and system levels are electrically isolated.

An operating tool with a 2.5 mm blade (210-719) is required to open the Push-in CAGE CLAMP[®] connections.

Date

Technical Data

Number of digital inputs

16

Supus modificărilor.

WAGO Kontakttechnik GmbH & Co. KG

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Aveți întrebări despre produsele noastre?

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Total number of channels (module)	16
Type of signal	Voltage
Type of signal voltage	DC24V
Sensor connection	16 x (1-conductor)
Input characteristic	high-side switching
Input filter (digital)	3 ms
Input current per channel for signal (0) typ.	0,6 mA
Input current per channel for signal (1) min.	2,1 mA
Input current per channel for signal (1) max.	2,4 mA
Voltage range for signal (0)	-3 ... +5 VDC
Voltage range for signal (1)	15 ... 30 VDC
Max input data width (internal)	16 Bit
System supply voltage	DC 5 V; via data contacts
Current consumption, system supply (5 V)	25 mA
Field supply voltage	DC 24 V (-25 ... +30 %); via power jumper contacts (power supply via blade contact; transmission via spring contact)
Isolation	500 V system/supply
Indicators	LED (1-16) green: Status DI 1 ... DI 16
Number of incoming power jumper contacts	2
Number of outgoing power jumper contacts	2
Current carrying capacity of the power jumper contacts	10 A

Connection data

Connection technology: In-/Outputs	16 x Push-in CAGE CLAMP [®]
Connection type (1)	Inputs/Outputs
Solid conductor	0.08 ... 1.5 mm ² / 28 ... 16 AWG
Fine-stranded conductor	0.25 ... 1.5 mm ² / 22 ... 16 AWG
Strip length	8 ... 9 mm / 0.31 ... 0.35 inch

Geometrical Data

Width	12 mm / 0.472 inch
Height	69 mm / 2.717 inch
Height from upper-edge of DIN-35 rail	61.8 mm / 2.433 inch
Depth	100 mm / 3.937 inch

Mechanical data

Type of mounting	DIN-35 rail
------------------	-------------

Supus modificărilor.

WAGO Kontakttechnik GmbH & Co. KG

/Representative Office Romania

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Tel.: +40-(0)31 421 85 68 | Email: info-RO@wago.com

Aveți întrebări despre produsele noastre?

Vă stăm la dispoziție pentru preluarea apelului la +40 (0) 31 421 85 68.

**Material Data**

Color	light gray
Housing material	Polycarbonate, polyamide 6.6
Fire load	0,996 MJ
Weight	46,5 g
Conformity marking	CE

Environmental Requirements

Surrounding air (operating) temperature	0...55°C
Surrounding air (storage) temperature	-40 ... 85 °C
Protection class	IP20
Degree of pollution (5)	2 per IEC 61131-2
Operating altitude	0 ... 2000 m
Mounting position	horizontal (standing/lying) or vertical
Relative air humidity (no condensation)	95 %
Vibration resistance	4g per IEC 60068-2-6
Shock resistance	15g per IEC 60068-2-27
EMC immunity to interference	acc. to EN 61000-6-2, marine applications
EMC emission of interference	acc. to EN 61000-6-3, marine applications
Exposure to pollutants	Per IEC 60068-2-42 and IEC 60068-2-43
Permissible H ₂ S contaminant concentration at a relative humidity 75 %	10 ppm
Permissible SO ₂ contaminant concentration at a relative humidity 75 %	25 ppm

Commercial data

Product Group	15 (Remote I/O)
Packaging type	BOX
Country of origin	DE
GTIN	4045454905590
Customs Tariff No.	85389099990

Aprobări / certificate**Ex-Approvals**

Emblemă	Aprobare	Text de aprobare suplimentar	Nume certificat
---------	----------	------------------------------	--------------------

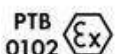
Supus modificărilor.

WAGO Kontakttechnik GmbH & Co. KG
 /Representative Office Romania
 Sos. Pipera-Tunari nr. 1/1
 building 1, 2nd floor | 077190 Voluntari, Ilfov

Tel.: +40-(0)31 421 85 68 | Email: info-RO@wago.com

Aveți întrebări despre produsele noastre?

Vă stăm la dispoziție pentru preluarea apelului la +40 (0) 31 421 85 68.

	ATEX TUEV Nord Cert GmbH	EN 60079-0	TÜV 07 ATEX 554086
			X en.
	TUEV Nord TUEV Nord Cert GmbH	IEC 60079-0	IECEx TUN 09.0001
			X
	UL Underwriters Laboratories Inc. (HAZARDOUS LOCATIONS)	UL 121201	E198726 Sec.1

Country specific Approvals

Emblemă	Aprobare	Text de aprobare suplimentar	Nume certificat
	KC National Radio Research Agency	Article 58-2, Clause 3	MSIP- REM- W43- DIM750

Ship Approvals

Emblemă	Aprobare	Text de aprobare suplimentar	Nume certificat
	ABS American Bureau of Shipping	-	19- HG1821926
	BV Bureau Veritas S.A.	-	30389/B0 BV
	DNV GL Det Norske Veritas, Germanischer Lloyd	-	TAA0000194
	KR Korean Register of Shipping	-	KR HMB05880- AC001
	LR Lloyds Register	-	02/20026 (E6)

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NK

Nippon Kaiji Kyokai

-

TA17255M



PRS

Polski Rejestr Statków

-

TE/2236

/880590/19



RINA

RINA Germany GmbH

-

ELE066419XG

UL-Approvals

Emblemă	Aprobare	Text de aprobare suplimentar	Nume certificat
	UL	UL 508	E175199
	UL International Netherlands B.V. (ORDINARY		Sec.1
	LOCATIONS)		

Produse compatibile

Carrier rail

Nr. articol: 210-112	
Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; according to EN 60715; "Hole width 25 mm	www.wago.com/210-112
Nr. articol: 210-113	
Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; according to EN 60715	www.wago.com/210-113
Nr. articol: 210-114	
Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; unslotted; similar to EN 60715	www.wago.com/210-114
Nr. articol: 210-115	
Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; according to EN 60715; "Hole width 18 mm	www.wago.com/210-115
Nr. articol: 210-118	www.wago.com/210-118

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Aveți întrebări despre produsele noastre?

Vă stăm la dispoziție pentru preluarea apelului la +40 (0) 31 421 85 68.

	Nr. articol: 210-118	www.wago.com/210-118
	Steel carrier rail; 35 x 15 mm; 2.3 mm thick; 2 m long; unslotted; according to EN 60715	
	Nr. articol: 210-196	
	Aluminum carrier rail; 35 x 8.2 mm; 1.6 mm thick; 2 m long; unslotted; similar to EN 60715; silver-colored	www.wago.com/210-196
	Nr. articol: 210-197	www.wago.com/210-197
	Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; slotted; similar to EN 60715	
	Nr. articol: 210-198	
	Copper carrier rail; 35 x 15 mm; 2.3 mm thick; 2 m long; unslotted; according to EN 60715; copper-colored	www.wago.com/210-198
	Nr. articol: 210-504	www.wago.com/210-504
	Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; galvanized; according to EN 60715	
	Nr. articol: 210-505	www.wago.com/210-505
	Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; galvanized; according to EN 60715	
	Nr. articol: 210-506	www.wago.com/210-506
	Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; unslotted; galvanized; similar to EN 60715	
	Nr. articol: 210-508	www.wago.com/210-508
	Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; slotted; galvanized; similar to EN 60715	
shield connection		
	Nr. articol: 790-108	www.wago.com/790-108
	Shield clamping saddle; 11 mm wide; diameter of compatible conductor; 3 ... 8 mm	
	Nr. articol: 790-116	www.wago.com/790-116
	Shield clamping saddle; 19 mm wide; diameter of compatible conductor; 7 ... 16 mm	
	Nr. articol: 790-124	www.wago.com/790-124
	Shield clamping saddle; 27 mm wide; diameter of compatible conductor; 6 ... 24 mm	
	Nr. articol: 790-140	www.wago.com/790-140
	Shield clamping saddle; diameter of compatible conductor	
	Nr. articol: 790-208	www.wago.com/790-208
	Shield clamping saddle; 12.4 mm wide; 3 ... 8 mm	
	Nr. articol: 790-216	www.wago.com/790-216
	Shield clamping saddle; 21.8 mm wide; 6 ... 16 mm	
	Nr. articol: 790-220	www.wago.com/790-220
	Shield clamping saddle; 30 mm wide; 6 ... 20 mm	
system box		
	Nr. articol: 850-804	www.wago.com/850-804
	IP65 enclosure; Stainless steel; WxHxD (400x123x200 mm); 4 x M20, 16 x M16, 28 x M12 cable grip	
	Nr. articol: 850-804/000-001	www.wago.com/850-804
	IP65 enclosure; Stainless steel; WxHxD (400x123x200 mm); 2 x M20, 13 x M16, 32 x M12 cable grip /000-001	
	Nr. articol: 850-805	

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Aveți întrebări despre produsele noastre?

Vă stăm la dispoziție pentru preluarea apelului la +40 (0) 31 421 85 68.

	Nr. articol: 850-805 IP65 enclosure; Stainless steel; WxHxD (600x123x200 mm); 4 x M20, 19 x M16, 67 x M12 cable grip	www.wago.com/850-805
	Nr. articol: 850-814/002-000 IP65 enclosure; Sheet steel (RAL 7035); WxHxD (200x120x200 mm); without flange plate	www.wago.com/850-814/002-000
	Nr. articol: 850-815/002-000 IP65 enclosure; Sheet steel (RAL 7035); WxHxD (300x120x200 mm); without flange plate	www.wago.com/850-815/002-000
	Nr. articol: 850-816/002-000 IP65 enclosure; Sheet steel (RAL 7035); WxHxD (400x120x200 mm); without flange plate	www.wago.com/850-816/002-000
	Nr. articol: 850-817/002-000 IP65 enclosure; Sheet steel (RAL 7035); WxHxD (600x120x200 mm); without flange plate	www.wago.com/850-817/002-000
	Nr. articol: 850-825 IP65 enclosure; Aluminium (RAL 7032); WxHxD (160x100x160 mm); 9 x M12, 4 x M20	www.wago.com/850-825
	Nr. articol: 850-826 IP65 enclosure; Aluminium (RAL 7032); WxHxD (240x100x160 mm); 4 x M20, 4 x M16, 14 x M12 cable grip	www.wago.com/850-826
	Nr. articol: 850-826/002-000 IP65 enclosure; Aluminium (RAL 7035); WxHxD (240x100x160 mm); 4 x M20, 4 x M16, 14 x M12 cable grip	www.wago.com/850-826/002-000
	Nr. articol: 850-827 IP65 enclosure; Aluminium (RAL 7032); WxHxD (320x100x160 mm); 4 x M20, 8 x M16, 17 x M12 cable grip	www.wago.com/850-827
	Nr. articol: 850-827/002-000 IP65 enclosure; Aluminium (RAL 7035); WxHxD (320x100x160 mm); 4 x M20, 8 x M16, 17 x M12 cable grip	www.wago.com/850-827/002-000
	Nr. articol: 850-828 IP65 enclosure; Aluminium (RAL 7032); WxHxD (480x100x160 mm); 4 x M20, 10 x M16, 35 x M12 cable grip	www.wago.com/850-828
	Nr. articol: 850-828/002-000 IP65 enclosure; Aluminium (RAL 7035); WxHxD (480x100x160 mm); 4 x M20, 10 x M16, 35 x M12 cable grip	www.wago.com/850-828/002-000
	Nr. articol: 850-834 IP65 enclosure; Polyester (RAL 7032); WxHxD (164x100x164 mm); 9 x M12, 4 x M20	www.wago.com/850-834
	Nr. articol: 850-835 IP65 enclosure; Polyester (RAL 7032); WxHxD (244x100x164 mm); 4 x M20, 4 x M16, 14 x M12 cable grip	www.wago.com/850-835
	Nr. articol: 850-836 IP65 enclosure; Polyester (RAL 7032); WxHxD (324x100x164 mm); 4 x M20, 8 x M16, 17 x M12 cable grip	www.wago.com/850-836

Supply module

Supus modificărilor.

Supply module

	Nr. articol: 750-601 Power Supply; 24 VDC; fuse holder; light gray	www.wago.com/750-601
	Nr. articol: 750-602 Power Supply; 24 VDC; light gray	www.wago.com/750-602
	Nr. articol: 750-610 Power Supply; 24 VDC; fuse holder; Diagnostics	www.wago.com/750-610
	Nr. articol: 750-612 Power Supply; 0 ... 230 V AC/DC; light gray	www.wago.com/750-612

Marking accessories

	Nr. articol: 2009-145 Mini-WSB Inline; for Smart Printer; on reel; stretchable 5 - 5.2 mm; plain; snap-on type; white	www.wago.com/2009-145
	Nr. articol: 2009-145/000-002 Mini-WSB Inline; for Smart Printer; on reel; stretchable 5 - 5.2 mm; plain; snap-on type; yellow	www.wago.com/2009-145/000-002
	Nr. articol: 2009-145/000-005 Mini-WSB Inline; for Smart Printer; on reel; stretchable 5 - 5.2 mm; plain; snap-on type; red	www.wago.com/2009-145/000-005
	Nr. articol: 2009-145/000-006 Mini-WSB Inline; for Smart Printer; on reel; stretchable 5 - 5.2 mm; plain; snap-on type; blue	www.wago.com/2009-145/000-006
	Nr. articol: 2009-145/000-007 Mini-WSB Inline; for Smart Printer; on reel; stretchable 5 - 5.2 mm; plain; snap-on type; gray	www.wago.com/2009-145/000-007
	Nr. articol: 2009-145/000-012 Mini-WSB Inline; for Smart Printer; on reel; stretchable 5 - 5.2 mm; plain; snap-on type; orange	www.wago.com/2009-145/000-012
	Nr. articol: 2009-145/000-023 Mini-WSB Inline; for Smart Printer; on reel; stretchable 5 - 5.2 mm; plain; snap-on type; green	www.wago.com/2009-145/000-023
	Nr. articol: 2009-145/000-024 Mini-WSB Inline; for Smart Printer; on reel; stretchable 5 - 5.2 mm; plain; snap-on type; violet	www.wago.com/2009-145/000-024
	Nr. articol: 248-501 Miniature WSB Quick marking system; plain; Marker width 5 mm; 10 strips with 10 markers per card	www.wago.com/248-501
	Nr. articol: 248-501/000-002 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; yellow	www.wago.com/248-501/000-002
	Nr. articol: 248-501/000-005	www.wago.com/248-501/000-005

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Aveți întrebări despre produsele noastre?
Vă stăm la dispoziție pentru preluarea apelului la +40 (0) 31 421 85 68.

	Nr. articol: 248-501/000-005 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; red	www.wago.com/248-501/000-005
	Nr. articol: 248-501/000-006 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; blue	www.wago.com/248-501/000-006
	Nr. articol: 248-501/000-007 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; gray	www.wago.com/248-501/000-007
	Nr. articol: 248-501/000-012 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; orange	www.wago.com/248-501/000-012
	Nr. articol: 248-501/000-017 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; light green	www.wago.com/248-501/000-017
	Nr. articol: 248-501/000-023 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; green	www.wago.com/248-501/000-023
	Nr. articol: 248-501/000-024 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; violet	www.wago.com/248-501/000-024
	Nr. articol: 750-103 Group marker carrier	www.wago.com/750-103
	Nr. articol: 750-107 Group marker carrier	www.wago.com/750-107
tools		
	Nr. articol: 210-719 Operating tool; Blade: 2.5 x 0.4 mm; with a partially insulated shaft	www.wago.com/210-719

Descărcări Documentation

Manual

16-channel, 24VDC, 3.0ms high-side switching	V 1.2.0	pdf 2,3 MB	Descărcare
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Additional Information

Disposal; Electrical and electronic equipment, Packaging	V 1.0.0	pdf 265,8 kB	Descărcare
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Aveți întrebări despre produsele noastre?

Vă stăm la dispoziție pentru preluarea apelului la +40 (0) 31 421 85 68.



System Description

Design Notes	V 2.0.0	pdf	Descărcare
Basic conditions and recommendations for higher operational safety		1,5 MB	
Overview on WAGO-I/O-SYSTEM 750 approvals		pdf	Descărcare
		780,2 kB	
Use in Hazardous Environments	V 1.0.0	pdf	Descărcare
Term definition, marking and installation regulations		1,0 MB	
750/753 Series I/O-System – General Product Information		pdf	Descărcare
		1,7 MB	

CAD/CAE-Data

CAD data

2D/3D Models 750-1405	URL	Descărcare
CAE data		
EPLAN Data Portal 750-1405		Descărcare
WSCAD Universe 750-1405		Descărcare

Device Files

Device Driver

WAGO USB Service Kabel Treiber / Serie 750 und 857	6.5.3.0	zip	Descărcare
	Sep 10, 2014	4,8 MB	

Installation Notes

Familie de produse

750/753 Series – I/O System
[Afișare globală produse din familie.](#)

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Aveți întrebări despre produsele noastre?

Vă stăm la dispoziție pentru preluarea apelului la +40 (0) 31 421 85 68.

HMI with 15.6" WVA Display



FEATURE

- The oTP integrated touch solution offers an edge-to-edge design, high-resolution and high-transmittance.
- 15.6" 1920 x 1080 Wide Viewing Angle LCD
- Supports Vibration Alerting
- Quad-core Cortex-A17 CPU with High Performance dedicated 3D Processor
- Fan-less Cooling System
- Built-in 4GB Flash Memory and RTC
- COM1 / COM3 RS-485 2W Supports MPI 187.5K, please use one at a time.
- Built-in Power Isolator
- NEMA4/IP66 Compliant Front Panel

Display	Display	15.6" Wide Viewing Angle (WVA)
	Resolution	1920 x 1080
	Brightness (cd/m ²)	300
	Contrast Ratio	800:1
	Backlight Type	LED
	Backlight Life Time	>30,000 hrs.
	Colors	16.2M
Touch Panel	LCD Viewing Angle (T/B/R/L)	89/89/89/89
	Pixel Pitch (mm)	0.17925(H) x 0.17925(V)
Memory	Type	Tempered Glass, Capacitive Type
	Hardness Scale	7H
Processor	Flash	4 GB
	RAM	1 GB
I/O Port	Processor	Quad-core RISC
	SD Card Slot	N/A
	USB Host	USB 2.0 x 1
	USB Client	N/A
	Ethernet	LAN 1: 10/100/1000 Base-T x 1 LAN 2: 10/100 Base-T x 1
	COM Port	Con.A: COM1 RS-485 2W/4W, COM3 RS-485 2W, CAN Bus Con.B: COM1 RS-232 4W, COM3 RS-232 2W*
	RS-485 Isolation	N/A
RTC	CAN Bus	Yes
	HDMI	N/A
	Audio Output	Built-in Mono Speaker
Power	Input Power	Built-in
	Power Isolation	24±20%VDC
	Power Consumption	Built-in
	Voltage Resistance	1.3A@24VDC
	Isolation Resistance	500VAC (1 min.)
Specification	PCB Coating	Exceed 50M @ 500VDC
	Enclosure	Yes
	Dimensions WxHxD	Front bezel: Plastic, Rear Enclosure: Aluminum 400 x 263 x 27.6 mm
	Panel Cutout	384 x 247 mm
	Weight	Approx. 1.6 kg
	Mount	Panel mount, VESA mount 100 x 100 mm
Environment	Protection Structure	NEMA4 / IP66 Compliant Front Panel
	Storage Temperature	-20° ~ 60°C (-4° ~ 140°F)
	Operating Temperature	0° ~ 50°C (32° ~ 122°F)
	Relative Humidity	10% ~ 90% (non-condensing)
Certificate	Vibration Endurance	10 to 25Hz (X, Y, Z direction 2G 30 minutes)
	CE	CE marked
Software	UL	cULus Listed
	EasyBuilder Pro	V6.04.01 or later versions*
	Weincloud	EasyAccess 2.0 (Optional), Dashboard (Optional)
	CODESYS®	Optional

*Only Tx & Rx (no RTS/CTS) may be used for COM1 RS-232 when COM3 RS-232 is also used.

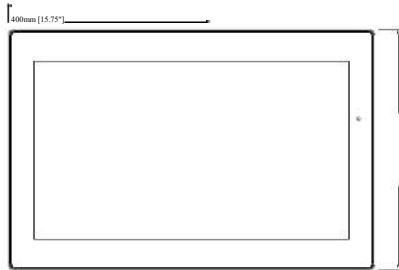
*For units labeled as cMT3162X (V2), please select cMT3162X (V2) as the HMI model in EasyBuilder Pro (minimum software requirement: EasyBuilder Pro V6.07.02).

*CODESYS® is a trademark of 3S-Smart Software Solutions GmbH.

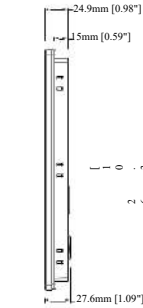
Dimensions



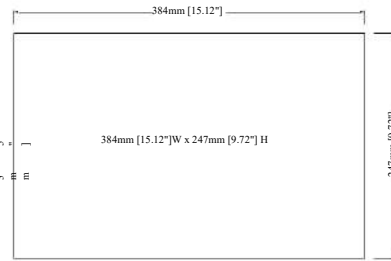
Top View



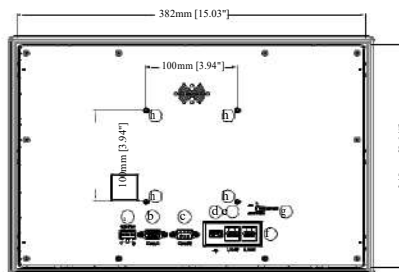
Front View



Side View



Cutout Dimensions



Rear View



Bottom View

a	Power Connector	e	LAN2
b	COM1 RS-485, COM3 RS-485, CAN Bus (Con.A)	f	LAN1
c	COM1 RS-232, COM3 RS-232 (Con.B)	g	DIP SW
d	USB Host	h	VESA 100mm Screw Holes

Ordering Information

□ cMT3162X:

15.6" 1920 x 1080 WVA LCD HMI, 4GB flash memory, 1GB RAM on board

Optional:

- **RZ0CDS000**: CODESYS activation card & license sticker
- **RZACEA020**: EasyAccess 2.0 Activation Card

Pin Assignment:

Con. B: COM1 / COM3 [RS232] 9 Pin, Male, D-sub

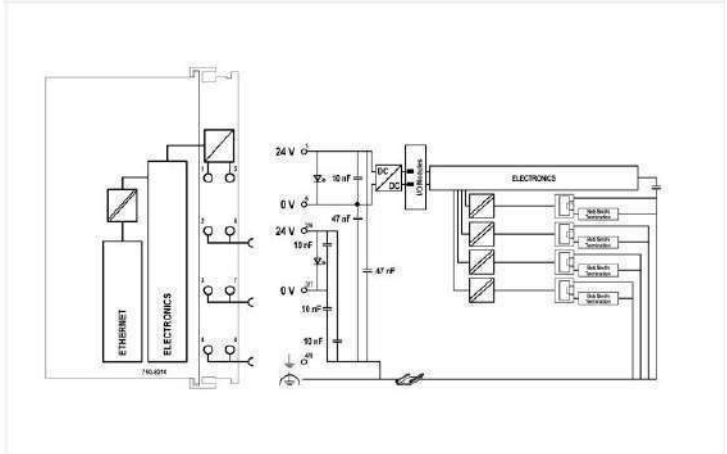
PIN#	COM1 [RS232]4W	COM3 [RS232]2W
1		
2	RxD	
3	TxD	
4		
5	GND	
6		
7	RTS	TxD
8	CTS	RxD
9	GND	

Con. A: COM1 / COM3 [RS485]/ CAN Bus 9 Pin, Female, D-sub

PIN#	COM1 [RS485]2W	COM1 [RS485]4W	COM3 [RS485]2W	CAN Bus
1	Data-	Rx-		
2	Data+	Rx+		
3		Tx-		
4		Tx+		
5	GND			
6			Data-	
7				CAN_L
8				CAN_H
9			Data+	

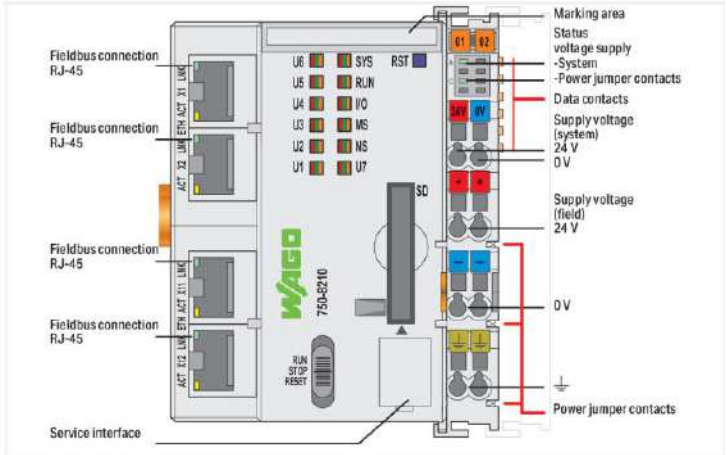


Color: light gray



PFC200 Communication Options Overview

Module	Protocol	Address	Function	Notes
U1	Modbus TCP	1	Master/Slave	
U2	Modbus RTU	1	Master/Slave	
U3	Modbus RTU	1	Master/Slave	
U4	Modbus RTU	1	Master/Slave	
U5	Modbus RTU	1	Master/Slave	
U6	Modbus RTU	1	Master/Slave	
U7	Modbus RTU	1	Master/Slave	
U8	Modbus RTU	1	Master/Slave	
U9	Modbus RTU	1	Master/Slave	
U10	Modbus RTU	1	Master/Slave	
U11	Modbus RTU	1	Master/Slave	
U12	Modbus RTU	1	Master/Slave	
U13	Modbus RTU	1	Master/Slave	
U14	Modbus RTU	1	Master/Slave	
U15	Modbus RTU	1	Master/Slave	
U16	Modbus RTU	1	Master/Slave	
U17	Modbus RTU	1	Master/Slave	
U18	Modbus RTU	1	Master/Slave	
U19	Modbus RTU	1	Master/Slave	
U20	Modbus RTU	1	Master/Slave	
U21	Modbus RTU	1	Master/Slave	
U22	Modbus RTU	1	Master/Slave	
U23	Modbus RTU	1	Master/Slave	
U24	Modbus RTU	1	Master/Slave	
U25	Modbus RTU	1	Master/Slave	
U26	Modbus RTU	1	Master/Slave	
U27	Modbus RTU	1	Master/Slave	
U28	Modbus RTU	1	Master/Slave	
U29	Modbus RTU	1	Master/Slave	
U30	Modbus RTU	1	Master/Slave	
U31	Modbus RTU	1	Master/Slave	
U32	Modbus RTU	1	Master/Slave	
U33	Modbus RTU	1	Master/Slave	
U34	Modbus RTU	1	Master/Slave	
U35	Modbus RTU	1	Master/Slave	
U36	Modbus RTU	1	Master/Slave	
U37	Modbus RTU	1	Master/Slave	
U38	Modbus RTU	1	Master/Slave	
U39	Modbus RTU	1	Master/Slave	
U40	Modbus RTU	1	Master/Slave	
U41	Modbus RTU	1	Master/Slave	
U42	Modbus RTU	1	Master/Slave	
U43	Modbus RTU	1	Master/Slave	
U44	Modbus RTU	1	Master/Slave	
U45	Modbus RTU	1	Master/Slave	
U46	Modbus RTU	1	Master/Slave	
U47	Modbus RTU	1	Master/Slave	
U48	Modbus RTU	1	Master/Slave	
U49	Modbus RTU	1	Master/Slave	
U50	Modbus RTU	1	Master/Slave	
U51	Modbus RTU	1	Master/Slave	
U52	Modbus RTU	1	Master/Slave	
U53	Modbus RTU	1	Master/Slave	
U54	Modbus RTU	1	Master/Slave	
U55	Modbus RTU	1	Master/Slave	
U56	Modbus RTU	1	Master/Slave	
U57	Modbus RTU	1	Master/Slave	
U58	Modbus RTU	1	Master/Slave	
U59	Modbus RTU	1	Master/Slave	
U60	Modbus RTU	1	Master/Slave	
U61	Modbus RTU	1	Master/Slave	
U62	Modbus RTU	1	Master/Slave	
U63	Modbus RTU	1	Master/Slave	
U64	Modbus RTU	1	Master/Slave	
U65	Modbus RTU	1	Master/Slave	
U66	Modbus RTU	1	Master/Slave	
U67	Modbus RTU	1	Master/Slave	
U68	Modbus RTU	1	Master/Slave	
U69	Modbus RTU	1	Master/Slave	
U70	Modbus RTU	1	Master/Slave	
U71	Modbus RTU	1	Master/Slave	
U72	Modbus RTU	1	Master/Slave	
U73	Modbus RTU	1	Master/Slave	
U74	Modbus RTU	1	Master/Slave	
U75	Modbus RTU	1	Master/Slave	
U76	Modbus RTU	1	Master/Slave	
U77	Modbus RTU	1	Master/Slave	
U78	Modbus RTU	1	Master/Slave	
U79	Modbus RTU	1	Master/Slave	
U80	Modbus RTU	1	Master/Slave	
U81	Modbus RTU	1	Master/Slave	
U82	Modbus RTU	1	Master/Slave	
U83	Modbus RTU	1	Master/Slave	
U84	Modbus RTU	1	Master/Slave	
U85	Modbus RTU	1	Master/Slave	
U86	Modbus RTU	1	Master/Slave	
U87	Modbus RTU	1	Master/Slave	
U88	Modbus RTU	1	Master/Slave	
U89	Modbus RTU	1	Master/Slave	
U90	Modbus RTU	1	Master/Slave	
U91	Modbus RTU	1	Master/Slave	
U92	Modbus RTU	1	Master/Slave	
U93	Modbus RTU	1	Master/Slave	
U94	Modbus RTU	1	Master/Slave	
U95	Modbus RTU	1	Master/Slave	
U96	Modbus RTU	1	Master/Slave	
U97	Modbus RTU	1	Master/Slave	
U98	Modbus RTU	1	Master/Slave	
U99	Modbus RTU	1	Master/Slave	
U100	Modbus RTU	1	Master/Slave	



The PFC200 Controller is a compact PLC for the modular WAGO I/O System. Besides network and fieldbus interfaces, the controller supports all digital, analog and specialty modules found within the 750/753 Series. Four ETHERNET interfaces and an integrated switch enable line topology wiring. An integrated Webserver provides user configuration options, while displaying PFC200 status information. Besides the processing industry and building automation, typical applications for the PFC200 include standard machinery and equipment control (e.g., packaging, bottling and manufacturing systems, as well as textile, metal and wood processing machines).

- Advantages:
- Programmable per IEC 61131-3
 - Programmable with CODESYS V3.5 from Firmware Release 23, WAGO-I/O-PRO V2.3 or e!COCKPIT up to Firmware Release 22
 - Direct connection of WAGO's I/O modules
 - 4 x ETHERNET (configurable)
 - Linux® operating system with PREEMPT_RT patch
 - Configuration via CODESYS or Web-Based Management user interface
 - Maintenance-free

Technical data	
Communications	Modbus TCP master/slave Modbus (UDP), WagoAppPlcModbus Library Modbus (RTU), WagoAppPlcModbus Library ETHERNET EtherNet/IP™ Adapter (slave) EtherNet/IP™ Scanner EtherCAT® Master OPC UA Server/Client OPC UA Pub/Sub (can be installed later) MQTT BACnet/IP, requires an additional license Telecontrol protocols, requires an additional license

Technical data

ETHERNET protocols	DHCP DNS NTP FTP FTPS SNMP HTTP HTTPS SSH
Telecontrol protocols	IEC 60870 (additional license as slave or master) IEC 61850 (additional license as Client or Server) DNP3 (additional license as Slave or Master)
Visualization	Web-Visu
Operating system	Real-time Linux (with PREEMPT_RT patch)
CPU	Cortex A8; 1 GHz
Programming languages per IEC 61131-3	Instruction List (IL) Ladder Diagram (LD) Function Block Diagram (FBD) Continuous Function Chart (CFC) Structured Text (ST) Sequential Function Chart (SFC)
Programming environment	CODESYS V3.5, Firmware Release 23 or higher <i>e!COCKPIT</i> (based on CODESYS V3) up to Firmware Release 22 WAGO-I/O-PRO V2.3 (based on CODESYS V2.3), up to Firmware Release 22
Configuration options	CODESYS V3 <i>e!COCKPIT</i> WAGO-I/O-CHECK Web-Based Management <i>e!RUNTIME</i> library CODESYS Library
Transmission rate	ETHERNET: 10/100 Mbit/s
Transmission medium (communication/fieldbus)	ETHERNET: Twisted pair S-UTP; 100 Ω; Cat. 5; 100 m maximum cable length
Main memory (RAM)	512 MB
Internal memory (flash)	4096 MB
Non-volatile hardware memory	128 KB
Program memory	CODESYS V2: 16 MB; CODESYS V3: 32 MB
Data memory	CODESYS V2: 64 MB; CODESYS V3: 128 MB
Non-volatile software memory	128 KB
Non-volatile software memory	128 KB
Type of memory card	SD and SDHC up to 32 GB (all guaranteed properties only valid with WAGO's memory card)
Memory Card Slot	Push-push mechanism; cover lid (sealable)
Number of modules per node (max.)	250
Number of modules without a bus extension (max.)	64
Input and output process image (internal) max.	1000 words/1000 words
Input and output process image (Modbus®) max.	CODESYS V2: 1000 words/1000 words; CODESYS V3: 32000 words/32000 words
Drift – system clock (25 °C)	20 ppm
Drift – Real Time Clock (25 °C)	3 ppm
RTC backup time (25 °C)	30 days
Indicators	LED (SYS, RUN, I/O, U1 ... U7) red/green/orange: Status of system, program, local data bus, status programmable by user (can be used via CODESYS library); LED (A, C) green: Status of system power supply, field supply
Supply voltage (system)	24 VDC (-25 ... +30 %); via pluggable connector (CAGE CLAMP® connection)
Input current (typ.) at nominal load (24 V)	550 mA
Total current (system supply)	1700 mA
Supply voltage (field)	24 VDC (-25 ... +30 %); via power jumper contacts
Current carrying capacity (power jumper contacts)	10 A
Number of outgoing power jumper contacts	3
Isolation	500 V system/field

Connection data

Connection technology: communication/fieldbus	Modbus (TCP, UDP): 4 x RJ-45
Connection technology: system supply	2 x CAGE CLAMP®
Connection technology: field supply	6 x CAGE CLAMP®
Connectable conductor materials	Copper
Connection type	System/field supply
Solid conductor	0.08 ... 2.5 mm² / 28 ... 14 AWG
Fine-stranded conductor	0.08 ... 2.5 mm² / 28 ... 14 AWG
Strip length	8 ... 9 mm / 0.31 ... 0.35 inches
Connection technology: device configuration	1 x Male connector; 4-pole

Physical data

Width	78.6 mm / 3.094 inches
Height	100 mm / 3.937 inches
Depth	71.9 mm / 2.831 inches
Depth from upper-edge of DIN-rail	64.7 mm / 2.547 inches

Mechanical data

Mounting type	DIN-35 rail
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Material data

Color	light gray
Housing material	Polycarbonate; polyamide 6.6
Fire load	2.228 MJ
Weight	215.4 g
Conformity marking	CE

Environmental requirements

Ambient temperature (operation)	0...+55°C
Ambient temperature (storage)	-25 ... +85 °C
Protection type	IP20
Pollution degree	2 per IEC 61131-2
Operating altitude	without temperature derating: 0 ... 2000 m; with temperature derating: 2000 ... 5000 m (0.5 K/100 m); 5000 m (max.)
Mounting position	Horizontal left, horizontal right, horizontal top, horizontal bottom, vertical top and vertical bottom
Relative humidity (without condensation)	95 %
Vibration resistance	4g per IEC 60068-2-6
Shock resistance	15g per IEC 60068-2-27
EMC immunity to interference	per EN 61000-6-2, marine applications
EMC emission of interference	per EN 61000-6-3, marine applications
Exposure to pollutants	per IEC 60068-2-42 and IEC 60068-2-43
Permissible H ₂ S contaminant concentration at a relative humidity 75 %	10 ppm
Permissible SO ₂ contaminant concentration at a relative humidity 75 %	25 ppm



Commercial data		
PU (SPU)	1 pcs	
Packaging type	Box	
Country of origin	DE	
GTIN	4055143981378	
Customs tariff number	85371091990	

Product Classification		
UNSPSC	32151705	
ETIM 9.0	EC000236	
ETIM 8.0	EC000236	
ECCN	NO US CLASSIFICATION	

Environmental Product Compliance		
CAS-No.	1303-86-2 1317-36-8 693-98-1 7439-92-1 79-94-7	
REACH Candidate List Substance	2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol 2-methylimidazole Diboron trioxide Lead Lead monoxide Perfluorobutane sulfonic acid (PFBS) and its salts	
RoHS Compliance Status	Compliant,With Exemption	
RoHS Exemption	6(c) 7(a) 7(c)-I 7(c)-II	
SCIP notification number (Austria)	dc9d91d9-660d-4ff3-afd9-1d47b1c4db22	
SCIP notification number (Belgium)	7cfc8258-17a2-4e67-ad78-d3920994dcba	
SCIP notification number (Bulgaria)	bd7968c1-1c76-4bac-a9d1-3e23fd451bf5	
SCIP notification number (Czech Republic)	d57b7125-570f-4220-816a-da895613054a	
SCIP notification number (Denmark)	da29e0cc-8fbc-427a-a275-3e831bb84990	
SCIP notification number (Finland)	5cdf7c7d-1f6e-4181-8bcb-e1305f363d19	
SCIP notification number (France)	234f6839-55d0-4a9b-adb9-12e286a015ca	
SCIP notification number (Germany)	ac2448b4-9ace-40cf-880f-03fc1c577665	
SCIP notification number (Hungary)	bc2677ec-9534-4c90-9195-2c7e68f7b043	
SCIP notification number (Italy)	39201fc2-dbc7-454b-8e5e-c8b90d123483	
SCIP notification number (Netherlands)	33ec5db1-3a59-45cd-a929-05e09617b643	
SCIP notification number (Poland)	edd73d07-57be-496d-be65-7ea0ea1e825f	
SCIP notification number (Romania)	608bdf5d-7202-495e-a25a-72561a2c1382	
SCIP notification number (Sweden)	42ea4e59-9700-4af7-ba01-b03142aa4933	

Approvals / Certificates		
General approvals		General approvals
  		UL Underwriters Laboratories Inc. (ORDINARY LOCATI- ONS) E175199
Approval	Standard	Certificate Name
EAC	TP TC 020/2011	EAC CoC 03083
GZO Almaty Standart		
KC	Article 58-2, Clause 3	MSIP-REM-W43-PFC750
National Radio Research		
Agency		



Declarations of conformity and manufacturer's declarations

Approval	Standard	Certificate Name
EU-Declaration of Confor-	-	-
mity		
WAGO GmbH & Co. KG		

Approvals for marine applications

					
Approval	Standard	Certificate Name			
BSH	-	1104			
Bundesamt fuer See-					
schifffahrt und Hydrogra-					
phie					
BV	Rules for class. of Steel	66711/A0			
Bureau Veritas S.A.	Ships				
DNV	DNV-CG-0339,Aug.2021	TAA0000194			
DNV GL SE					
KR	-	KR HMB05880-AC001			
Korean Register of Ship-					
ping					
NK	Guidel. Perform. Type Ap-	TA25276M			
Nippon Kaiji Kyokai	provals				
PRS	-	TE/1101/880590/23			
Polski Rejestr Statków					

Downloads

Environmental Product Compliance

Compliance Search
Environmental Product Compliance 750-8210



Documentation

Manual			
WAGO Solution Builder			
Function Manual for	3621366155 2 en-US	pdf	
PFC100 2nd Generati-	2024-12-16 12:45	4012.25 KB	
on, PFC200 2nd Gene-	16.12.2024		
ration and PFC300			
Product Manual	2324826635 2 en-US	pdf	
PFC200; G2; 4ETH	8/6/2024 10:00	3335.59 KB	
	07.08.2024		
System Manual Series			
750/753			
Product Manual OPC	V 1.1.0	pdf	
UA Mapping Editor	11.03.2022	3314.23 KB	
OPC_UA Mapping Edi-			
tor			
Product Manual Docu-	936373771 13 en-US	pdf	
mentation WAGO Solu-	2025-07-07 14:41	10481.70 KB	
tion Builder	10.07.2025		
Migration Guide	2023631499 8 en-US	pdf	
	2025-01-22 17:30	4851.82 KB	
	28.01.2025		
Migrationsleitfaden von			
e!COCKPIT-Projekten			
zu CODESYS V3.5			



System Description		
Overview on WAGO-I/	pdf	
O-SYSTEM 750 appro-	770.48 KB	
vals		
Controller PFC100/200,	pdf	
General Product Infor-	578.66 KB	
mation		



Additional Information			
WAGO OPC UA Server	V 1.1.0	pdf	
	28.01.2021	1132.87 KB	—

Bid Text			
750-8210		docx	
		18.62 KB	—
750-8210		xml	
		10.02 KB	—
ausschreiben.de			↓
750-8210			

CAD/CAE-Data

CAD data			
2D/3D Models			
750-8210			—

CAE data			
EPLAN Data Portal			
750-8210			—
ZUKEN Portal			
750-8210			—

Engineering-Software

Configuration and Commissioning Software			
CODESYS V3.5		png	
		315.13 KB	—
WAGO-IO-PRO Demo- Version (759-912) / Serie 750, 758 und 762	V 2.3.9.68 17.02.2022	zip	
		122524.17 KB	—
(759-316) WAGO Ethernet Settings / Serie 750	06.18.01.01 02.09.2021	zip	
		26678.54 KB	—
WAGOupload	1.16.1.0 02.02.2022	zip	
		12111.45 KB	—

Runtime Software

Firmware			
Image Update (SD Karte) PFC100/200 für Codesys V2.3 u. E!cockpit	V 22 SP1 12.12.2022	zip	
		205815.20 KB	—
PFC200, Firmware Update für CoDeSys V3.5	V 23 24.02.2023	zip	
		167985.38 KB	—
WUP Update (WAGOuploadTool) PFC100/200 Codesys V2.3 u. E!cockpit	V 22 SP1 12.12.2022	zip	
		203580.70 KB	—

1 Compatible Products

1.1 Product Expansions

1.1.1 Runtime software

 Item No.: 2759-2283/211-1000 Runtime; BACnet; 300; M; Single License; Online activation	 Item No.: 2759-2273/211-1000 Runtime; BACnet; 300; S; Single License; Online activation	 Item No.: 2759-283/211-1000 Runtime; BACnet; 300; Single License; Online activation	 Item No.: 2759-2293/211-1000 Runtime; DNP3 Master; M; Single License; Online activation
 Item No.: 2759-2290/211-1000 Runtime; DNP3 Slave; Single License; On-line activation	 Item No.: 2759-293/211-1000 Runtime; IEC60870 Master; M; Single License; Online activation	 Item No.: 2759-290/211-1000 Runtime; IEC60870 Slave; Single License; Online activation	 Item No.: 2759-2243/211-1000 Runtime; IEC61850 Client; M; Single License; Online activation
 Item No.: 2759-2240/211-1000 Runtime; IEC61850 Server; Single License; Online activation	 Item No.: 2759-248/211-1000 Runtime; Multi Cloud Connectivity; Single License; Online activation	 Item No.: 2759-247/211-1000 Runtime; Sparkplug; Single License; Online activation	

1.2 Optional Accessories

1.2.1 Cables and connectors

1.2.1.1 Connector plug

 Item No.: 750-979/000-011 Connector ETHERNET; RJ-45; Cat. 6A; angled; Code T568A; AWG 22; Strain relief	 Item No.: 750-979/000-021 Connector ETHERNET; RJ-45; Cat. 6A; angled; Code T568A; AWG 24; Strain relief	 Item No.: 750-979/000-012 Connector ETHERNET; RJ-45; Cat. 6A; angled; Code T568B; AWG 22; Strain relief	 Item No.: 750-979/000-022 Connector ETHERNET; RJ-45; Cat. 6A; angled; Code T568B; AWG 24; Strain relief
 Item No.: 750-977/000-011 Connector ETHERNET; RJ-45; Cat. 6A; straight; Code T568A; AWG 22	 Item No.: 750-978/000-011 Connector ETHERNET; RJ-45; Cat. 6A; straight; Code T568A; AWG 22; Strain relief	 Item No.: 750-977/000-021 Connector ETHERNET; RJ-45; Cat. 6A; straight; Code T568A; AWG 24	 Item No.: 750-978/000-021 Connector ETHERNET; RJ-45; Cat. 6A; straight; Code T568A; AWG 24; Strain relief
 Item No.: 750-977/000-012 Connector ETHERNET; RJ-45; Cat. 6A; straight; Code T568B; AWG 22	 Item No.: 750-978/000-012 Connector ETHERNET; RJ-45; Cat. 6A; straight; Code T568B; AWG 22; Strain relief	 Item No.: 750-977/000-022 Connector ETHERNET; RJ-45; Cat. 6A; straight; Code T568B; AWG 24	 Item No.: 750-978/000-022 Connector ETHERNET; RJ-45; Cat. 6A; straight; Code T568B; AWG 24; Strain relief
 Item No.: 750-975 ETHERNET RJ-45 connector, IP20; ETHERNET 10/100 Mbit/s; for field assembly			

1.2.2 Communication

1.2.2.1 Communication cable



Item No.: 750-923

Configuration cable; USB connector; Length: 2.5 m

Item No.: 750-923/000-001

Configuration cable; USB connector; Length: 5 m

1.2.3 DIN-rail

1.2.3.1 Mounting accessories



Item No.: 210-196

Aluminum carrier rail; 35 x 8.2 mm; 1.6 mm thick; 2 m long; unslotted; similar to EN 60715; silver-colored

Item No.: 210-198

Copper carrier rail; 35 x 15 mm; 2.3 mm thick; 2 m long; unslotted; according to EN 60715; copper-colored

Item No.: 210-508

Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; slotted; galvanized; similar to EN 60715; silver-colored

Item No.: 210-197

Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; slotted; similar to EN 60715; silver-colored



Item No.: 210-506

Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; unslotted; galvanized; similar to EN 60715; silver-colored

Item No.: 210-114

Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; unslotted; similar to EN 60715; silver-colored

Item No.: 210-118

Steel carrier rail; 35 x 15 mm; 2.3 mm thick; 2 m long; unslotted; according to EN 60715; silver-colored

Item No.: 210-115

Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; according to EN 60715; "Hole width 18 mm; silver-colored



Item No.: 210-112

Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; according to EN 60715; "Hole width 25 mm; silver-colored

Item No.: 210-504

Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; galvanized; according to EN 60715; silver-colored

Item No.: 210-113

Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; according to EN 60715; silver-colored

Item No.: 210-505

Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; galvanized; according to EN 60715; silver-colored

1.2.4 Marking

1.2.4.1 Group marker carrier



Item No.: 750-107

Group marker carrier

1.2.4.2 Marker



Item No.: 2009-145/000-006

Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; blue

Item No.: 2009-145/000-007

Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; gray

Item No.: 2009-145/000-023

Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; green

Item No.: 2009-145/000-012

Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; orange



Item No.: 2009-145/000-005

Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; red

Item No.: 2009-145/000-024

Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; violet

Item No.: 2009-145

Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; white

Item No.: 2009-145/000-002

Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; yellow



Item No.: 248-501/000-006

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; blue

Item No.: 248-501/000-007

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; gray

Item No.: 248-501/000-023

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; green

Item No.: 248-501/000-017

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; light green

1.2.4.2 Marker



Item No.: 248-501/000-012

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; orange



Item No.: 248-501/000-005

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; red



Item No.: 248-501/000-024

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; violet



Item No.: 248-501

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; white



Item No.: 248-501/000-002

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; yellow

1.2.4.3 Marker carrier



Item No.: 750-103

Group marker carrier

1.2.5 Memory card

1.2.5.1 Memory card



Item No.: 758-879/000-2108 Memory

Card SD; pSLC-NAND; 8 GB;

Temperature range: -40 to 90 °C



Item No.: 758-879/000-001

Memory Card SD; SLC-NAND; 2 GByte;

Temperature from -40 to 90 °C

1.2.6 Shield termination

1.2.6.1 Shield clamping saddles



Item No.: 790-108

Shield clamping saddle; 11 mm wide; diameter of compatible conductor; 3 ... 8 mm



Item No.: 790-208

Shield clamping saddle; 12.4 mm wide; 3 ... 8 mm



Item No.: 790-116

Shield clamping saddle; 19 mm wide; diameter of compatible conductor; 7 ... 16 mm



Item No.: 790-216

Shield clamping saddle; 21.8 mm wide; diameter of compatible conductor; 7 ... 16 mm



Item No.: 790-124

Shield clamping saddle; 27 mm wide; diameter of compatible conductor; 6 ... 24 mm



Item No.: 790-220

Shield clamping saddle; 30 mm wide; 6 ... 20 mm



Item No.: 790-140

Shield clamping saddle; diameter of compatible conductor

1.2.7 Software

1.2.7.2 Software Application



Item No.: 2759-2015/260-1000

Application Grid Gateway; Single License



Item No.: 2759-2015/261-1000

Application Grid Gateway; Single License; Online activation



Item No.: 2759-245/211-1000

Library Controller Redundancy Master; Single License; Online activation

1.2.8 System enclosure

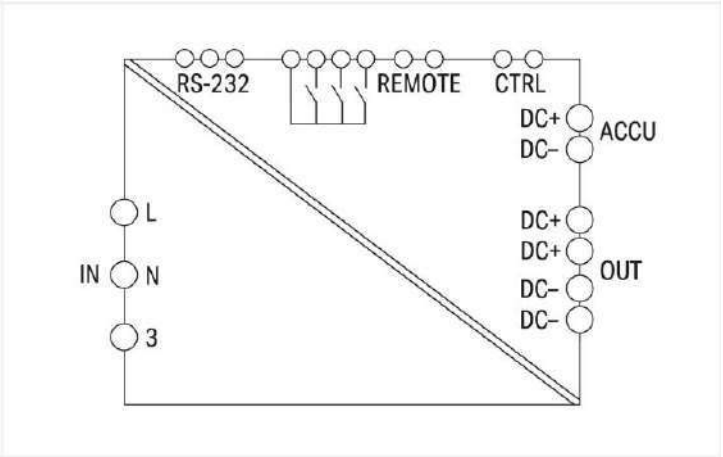
1.2.8.1 System enclosure

			
Item No.: 850-825 IP65 enclosure; Aluminium (RAL 7032); WxHxD (160x100x160 mm); 9 x M12, 4 x M20	Item No.: 850-826 IP65 enclosure; Aluminium (RAL 7032); WxHxD (240x100x160 mm); 4 x M20, 4 x M16, 14 x M12 cable grip	Item No.: 850-827 IP65 enclosure; Aluminium (RAL 7032); WxHxD (320x100x160 mm); 4 x M20, 8 x M16, 17 x M12 cable grip	Item No.: 850-828 IP65 enclosure; Aluminium (RAL 7032); WxHxD (480x100x160 mm); 4 x M20, 10 x M16, 35 x M12 cable grip
			
Item No.: 850-826/002-000 IP65 enclosure; Aluminium (RAL 7035); WxHxD (240x100x160 mm); 4 x M20, 4 x M16, 14 x M12 cable grip	Item No.: 850-827/002-000 IP65 enclosure; Aluminium (RAL 7035); WxHxD (320x100x160 mm); 4 x M20, 8 x M16, 17 x M12 cable grip	Item No.: 850-828/002-000 IP65 enclosure; Aluminium (RAL 7035); WxHxD (480x100x160 mm); 4 x M20, 10 x M16, 35 x M12 cable grip	Item No.: 850-834 IP65 enclosure; Polyester (RAL 7032); WxHxD (164x100x164 mm); 9 x M12, 4 x M20
			
Item No.: 850-835 IP65 enclosure; Polyester (RAL 7032); WxHxD (244x100x164 mm); 4 x M20, 4 x M16, 14 x M12 cable grip	Item No.: 850-836 IP65 enclosure; Polyester (RAL 7032); WxHxD (324x100x164 mm); 4 x M20, 8 x M16, 17 x M12 cable grip	Item No.: 850-814/002-000 IP65 enclosure; Sheet steel (RAL 7035); WxHxD (200x120x200 mm); without flange plate	Item No.: 850-815/002-000 IP65 enclosure; Sheet steel (RAL 7035); WxHxD (300x120x200 mm); without flange plate
			
Item No.: 850-816/002-000 IP65 enclosure; Sheet steel (RAL 7035); WxHxD (400x120x200 mm); without flange plate	Item No.: 850-817/002-000 IP65 enclosure; Sheet steel (RAL 7035); WxHxD (600x120x200 mm); without flange plate		

Data Sheet | Item Number: 787-1675

Sursă de alimentare în comutație cu încărcător integrat și controler; Classic; 1 fază;
24 V c.c. tensiune de ieșire; 5 A intensitate de ieșire; capacitate de comunicare

<https://www.wago.com/787-1675>



Features:

- Switched-mode power supply with integrated charger and controller for uninterruptible power supply (UPS)
- Battery control technology for smooth charging and predictive maintenance applications
- Potential-free contacts provide function monitoring
- Buffer time can be set on site via rotary switch
- Parameter setting and monitoring via RS-232 interface
- Natural convection cooling when horizontally mounted
- Encapsulated for use in control cabinets
- Electrically isolated output voltage (SELV) per EN 60950-1/UL 60950-1; PELV per EN 60204

Technical data

Input		Output	
Nominal input voltage U_i nom	100 ... 240 VAC	Nominal output voltage U_o nom	24 VDC (SELV)
Input voltage range	85 ... 264 VAC; 120 ... 372 VDC	Output voltage range	23 ... 28,5 VDC (mains operation); 18.5 ... 27.5 VDC (buffer mode)
Input voltage derating	-1.5 %/V (< 110 VAC); -1 %/V (< 150 VDC)	Nominal output current I_o nom	5 A
Nominal mains frequency range	44 ... 66 Hz; 0 Hz	Nominal output power	120 W
Input current I_i	$\leq 1,1$ A (230 VAC; 5 ADC); $\leq 2,2$ A (110 VAC; 5 ADC)	Deviation	≤ 1 %
Discharge current	≤ 1 mA	Residual ripple	≤ 50 mV (peak-to-peak)
Inrush current	≤ 30 A	Current limitation	1.1 x I_o nom (typ.); TopBoost
Power factor correction (PFC)	Passive	Overload behavior	Constant current

Energy storage systems		Signaling and communication	
Buffer time	1 s ... 20 min or constant; PC mode; configurable via software	Signaling	1 x Alarm LED (red) 1 x Battery charge LED (yellow) 1 x DC OK LED (green) 3 x Signal output (24 VDC; max. 200 mA in total)
Switch-on threshold	DC 20 ... 25,5 V (Adjustable via software; pre-configured: 22 VDC)	Operation status indicator	1 x RS-232 interface Green LED (DC OK) Yellow LED (battery mode) Red LED (alarm)
Memory type	Lead-acid fleece	Communications	RS-232 serial interface
Charging current	0,3...1A	Remote input	Switching buffer mode off
End-of-charge voltage	26 ... 29,5 VDC (temperature-controlled; optional fixed setting)		
Recommended battery module	787-871, 787-872, 787-873, 787-876, 787-1671		



Efficiency/power losses	
Power loss P _I	≤ 5,2 W (Buffer mode; 24 VDC; 5 A); ≤ 17 W (Mains operation; 230 VAC; 24 VDC; 5 A);≤22W
Power loss (max.) P _I (max.)	30 W (90 VAC; charging process)
Efficiency (typ.)	88 %

Circuit protection	
Internal fuse	T 4 A / 250 VAC (input side)
Pre-fuse (required)	An external DC fuse is required for the DC input voltage.
Backup fuse (recommended)	Circuit breaker: 6 A, 10 A, 16 A; Tripping characteristic: B or C

Safety and protection	
Isolation voltage (pri.-sec.)	DC 4,242 kV
Isolation voltage (pri.-PE)	DC 2,2 kV
Isolation voltage (sec.-PE)	0,7 kVDC
Protection class	I
Protection type	IP20; Per EN 60529
Reverse voltage protection	Yes
Resistance to reverse feed	≤ 35 VDC
Overvoltage category	II
Pollution degree	2
Transient suppression (primary)	Varistor
Overvoltage protection; secondary	Internal protective circuit ≤ 38 VDC (in the event of a fault)
Parallel operation	Yes, up to 3 battery modules for extending the buffer time
Series operation	No
MTBF	> 500,000 h (per IEC 61709)

Connection data	
Cable length (max.)	3 m (Output, battery control)
Connection 1	
Connection type	Input/output/signaling
Connection technology	CAGE CLAMP®
WAGO connector	WAGO 721 Series
Solid conductor	0,08 ... 2,5 mm² / 28 ... 12 AWG
Fine-stranded conductor	0,08 ... 2,5 mm² / 28 ... 12 AWG
Strip length	8 ... 9 mm / 0.31 ... 0.35 inci

Connection 2	
Connection type	Interface
Connection technology	CAGE CLAMP®
WAGO connector	WAGO 734 Series
Solid conductor	0,08 ... 1,5 mm² / 28 ... 14 AWG
Fine-stranded conductor	0,08 ... 1,5 mm² / 28 ... 14 AWG
Strip length	6 ... 7 mm / 0.24 ... 0.28 inci

Physical data	
Width	60 mm / 2.362 inci
Height	127 mm / 5 inci
Depth from upper-edge of DIN-rail	135,5 mm / 5.335 inci

Mechanical data

Mounting type	DIN-35 rail
---------------	-------------

Material data

Fire load	0.617 MJ
Weight	885 g

Environmental requirements

Ambient temperature (operation)	-25 ... +70 °C (Device starts at -40 °C (type-tested))
Ambient temperature (storage)	-25 ... +85 °C
Relative humidity	5 ... 96 % (no condensation permissible)
Derating	-3 %/K (> 50 °C)
Climatic category	3K3 (per EN 60721)

Standards and specifications

Conformity marking	CE
Standards/specifications	EN 61010-1 EN 61010-2-201 EN 61204-3 EN 61558-2-16 UL 60950 UL 508 DNV

Commercial data

Product Group	6 (INTERFACE ELECTRONIC)
PU (SPU)	1 Buc.
Packaging type	Box
Country of origin	DE
GTIN	4050821502616
Customs tariff number	85044083900

Product Classification

UNSPSC	39121004
eCl@ss 10.0	27-04-07-01
eCl@ss 9.0	27-04-07-01
ETIM 9.0	EC002540
ETIM 8.0	EC002540
ECCN	NO US CLASSIFICATION

Environmental Product Compliance

RoHS Compliance Status	Compliant, No Exemption
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Approvals / Certificates

General approvals			Declarations of conformity and manufacturer's declarations		
 					
Approval	Standard	Certificate Name	Approval	Standard	Certificate Name
UL	UL 508	E255817	EU-Declaration of Confor-	-	-
Underwriters Laboratories			mity		
Inc.			WAGO GmbH & Co. KG		
UR	UL 60950-1	E255815			
Underwriters Laboratories					
Inc.					

Approvals for marine applications

		
Approval	Standard	Certificate Name
DNV	DNVGL-CG-339,Dec.2019	TAA00002YC
DNV Germany GmbH		

Downloads

Environmental Product Compliance

Compliance Search	
Environmental Product Compliance 787-1675	

Documentation

Manual				Quick-Start Guide			
Product Manual Primary	V 1.0.0	pdf		Quickstart for Software	V 1.0.0	pdf	
Switch Mode Power Supply with Integrated UPS Charger and Controller		3133.43 KB	—	759-870		3043.43 KB	—
Bid Text				Instruction Leaflet			
787-1675	12.07.2019	xml		Primär getaktete Stromversorgung mit integrierter USV Lade- und Kontrolleinheit	05.05.2020	pdf	
		9.33 KB	—			247.29 KB	—
787-1675	12.07.2019	docx					
		23.28 KB	—				
ausschreiben.de							
787-1675							



CAD/CAE-Data	
CAD data	CAE data
2D/3D Models	EPLAN Data Portal
787-1675	787-1675
	WSCAD Universe
	787-1675
	ZUKEN Portal
	787-1675

Engineering-Software			
Configuration and Commissioning Software			
WAGO Software	4.13	zip	
759-870	10.05.2021	38762.69 KB	

1 Compatible Products
1.1 Optional Accessories
1.1.1 Cables and connectors
1.1.1.1 Communication cable



Item No.: 787-892
Cablul de comunicație RS-232; Lungime 1,8 m; pentru 0787-1675

1.1.1.2 Connecting cable
Item No.: 761-9005 Adaptor USB; cu cablu de conexiune de 1m



1.1.2 Marking
1.1.2.1 Marking strip



Item No.: 210-831
Benză de marcat; pe bobină; Lățime de 2,3 mm; simplu;; Auto-adeziv; alb



Item No.: 210-832
Benză de marcat; pe bobină; Lățime de 3 mm; simplu;; Auto-adeziv; alb



1.1.3 Mounting adapter

1.1.3.1 DIN-rail adapter



Item No.: 787-897/000-010
Adaptor şină suport din zinc turnat sub presiune; horisontal montering av 787-16xx (TS35)

1.1.4 Power supply

1.1.4.1 Uninterruptible power supply



Item No.: 787-871 Modul baterie AGM acid-plumb; 24 V c.c. tensiune de intrare; 20 A intensitate de ieşire; 3,2 Ah capacitate; cu control baterie	Item No.: 787-873 Modul baterie AGM acid-plumb; 24 V c.c. tensiune de intrare; 40 A intensitate de ieşire; 12 Ah capacitate; cu control baterie	Item No.: 787-872 Modul baterie AGM acid-plumb; 24 V c.c. tensiune de intrare; 40 A intensitate de ieşire; 7 Ah capacitate; cu control baterie	Item No.: 787-1671 Modul baterie AGM acid-plumb; 24 V c.c. tensiune de intrare; 5 A intensitate de ieşire; 0,8 Ah capacitate; cu control baterie
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Item No.: 787-876
Modul baterie AGM acid-plumb; 24 V c.c. tensiune de intrare; 7,5 A intensitate de ieşire; 1,2 Ah capacitate; cu control baterie

1.1.5 Tool

1.1.5.1 Operating tool



Item No.: 210-769 ŞURUBELNIŢĂ; verde	Item No.: 210-719 Unealtă de operare; Lamă: 2,5 x 0,4 mm; cu mâner izolat parțial	Item No.: 210-720 Unealtă de operare; Lamă: 3,5 x 0,5 mm; cu mâner izolat parțial; multicolor
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Fișă tehnică: E-SE - Modul industrial de avertizare cu flash pentru efracție.

Nr. crt.	Specificațiile tehnice oferite	Producător - Denumire
0	1	2
1.	Parametrii tehnici și funcționali: — Montaj exterior; — Carcasă dublă polycarbonat + metal; — Material carcasă ABS plastic UV stabilizat; — Grad de protecție min. IP54; — Putere acustică: minim 90 dB la 1m; — Semnal luminos: flash galben; — Lampa Flash High Bright LED; — Autotestare periodică cu raportare status; — Tamper antisabotaj; — Autoprotecție contra tăierii firelor și a sabotajului; — Timp de alarmare programabil (3, 5 sau 10 minute); — Sunet sirenă programabil (sabotaj sunet diferit); — Leșire suplimentară pentru semnalizare defect; — Compatibil cu centrala de semnalizare a efracție.	SL-900B
2.	Condiții privind conformitatea cu standarde relevante: — EN 50131; EN 60529.	
3.	Condiții de garanție și postgaranție: — Producătorul va garanta calitatea și buna funcționare a produsului timp de 24 luni de la punerea în funcțiune sau de 36 luni de la data livrării. — Produsul va corespunde normelor tehnice și standardelor europene.	
4.	Condiții cu caracter tehnic: — Vor fi anexate: ▪ instrucțiuni de montaj (scheme de conectare, broșuri, cataloage); ▪ instrucțiuni de exploatare; ▪ buletine de încercări, verificări, probe; ▪ declarație de conformitate.	

PROIECTANT,

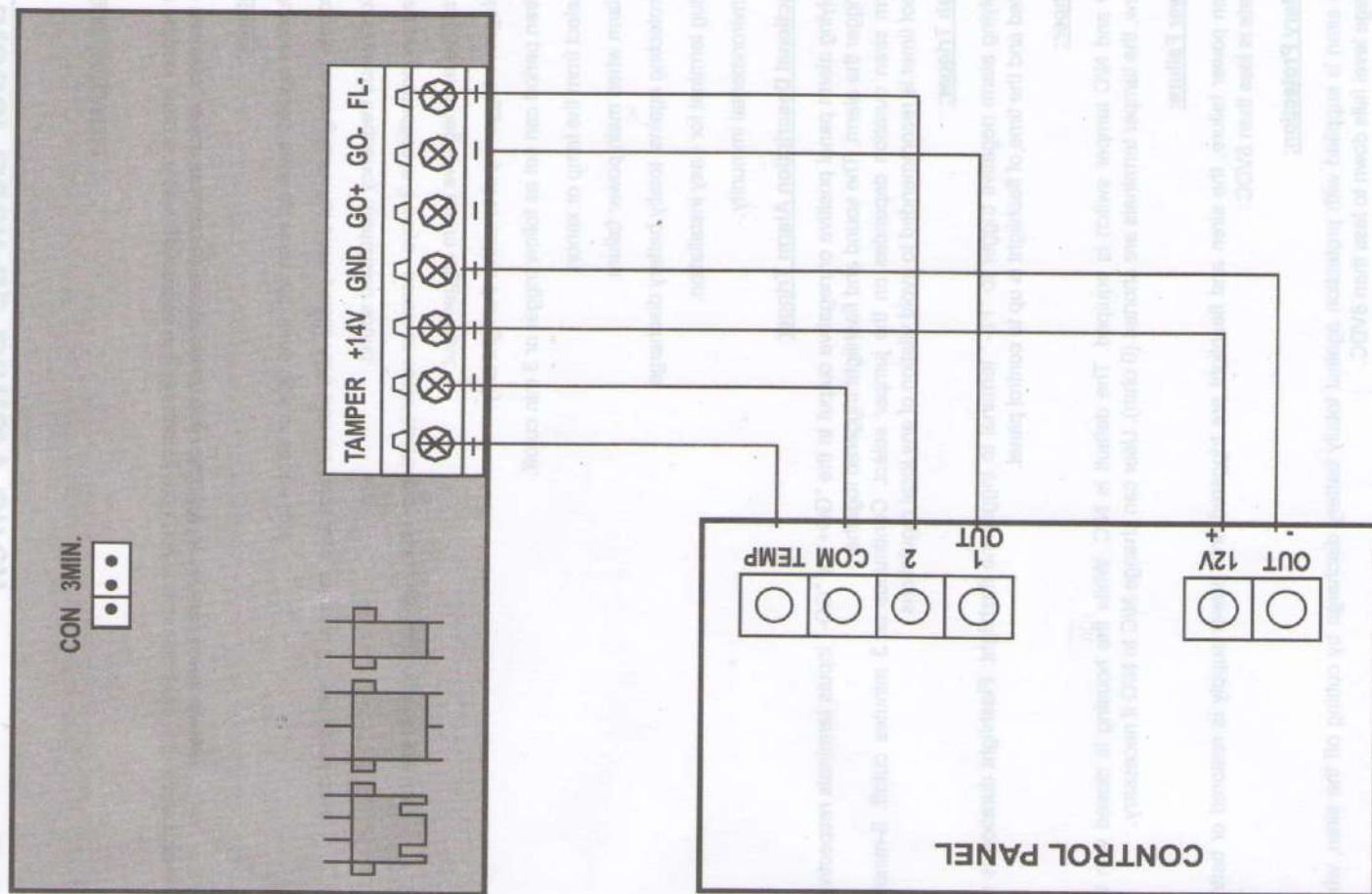
PRECIZARE:

1. Responsabilitatea completării coloanelor 2 și 3 revine ofertantului.
2. Toate cerințele din prezenta fișă tehnică sunt obligatorii.
3. Se vor considera edițiile în vigoare a normativelor și standardelor la care se fac referire.
4. În coloana 2 ofertantul va preciza corespondența între oferta tehnică și prezenta fișă tehnică.
5. În acest scop, ofertantul va preciza pentru fiecare solicitare din fișă tehnică (coloana 1): documentul, pagina, articolul/paragraful din oferta tehnică prin care se atestă îndeplinirea cerinței.
6. Oferta va conține un cuprins care va indica paginile unde se găsesc toate cerințele din fișă tehnică.
Se vor oferta și livra numai echipamente noi, de ultimă generație și originale, conform cu specificațiile și documentele specifice ale producătorului. Nu se vor oferta produse demo, recondiționate sau refuzate de alți beneficiari.
7. Ofertarea se va face în limba română. Ofertantul își asumă corectitudinea traducerii.



Siren Specifications	
SPL	120db
Fundamental Frequency	1850Hz
Siren Tone	Yelp
Frequency Range	1300-2400Hz
Flashlight	Lamp 12VDC/5W
Power supply Voltage	13.8-14.2VDC
Charge Current Limit	250mA
Current Consumption(Speaker and strobe)	Standby: 8mA
Maximum Power	Alarm 1600mA@13.8VDC
	50W(peak)
Trigger Level	Trigger Low=Max.1VDC
Siren Alarm Period	Trigger High=Min.9VDC
	continuous
	3 minutes
Input Impedance(Alarm/Flash/Trigger)	1K ohm
Tamper Switch	N.C 28VDC Maximum current 0.1A-open when cover is removed
Backup Battery	Rechargeable Lead Acid Battery 12VDC up to 4Ah
Low Battery Level	8VDC+/-0.3VDC
Material	External Box: ABS (3mm Thickness)
Dimensions of Unit	Internal cover: zinc plated metal
	L=275mm*W=190mm*H=95mm
Weight(without battery)	1.85Kg
Operating Temperature Range	-30 to +60 °C
Case Protection Level	Water splash resistant
	Plastic ABS with UV Protection
	Conformal coated circuit board

REFERENCE WIRING



Outdoor Back-up Battery Siren

Manual Installation

The outdoor siren is a new generation of professional high power acoustic siren with battery back-up and flashlight, which includes all performance and reliability for security alarm system.

Features:

- ◆ Outdoor battery back-up siren with lamp light or strobe light.
- ◆ Double housing: External-3mm plastic ABS with UV perention, internal 0.8mm metal case.
- ◆ Continuous frequency modulated sound.
- ◆ Tamper protection in 3 ways –screw or cover opening or taking off housing from the wall.
- ◆ Positive and negative alarm trigger input.
- ◆ Negative trigger input to active the light only.
- ◆ Siren period can set as follow trigger or 3 min cutoff.
- ◆ Select from the lamp or xenon.
- ◆ Alarm when main power failure.
- ◆ Protecting against totally battery discharge.
- ◆ Plug terminal for easy installation.
- ◆ Environmental immunity.

Functional Description Alarm Trigger

Applying alarm panel positive or negative output to the "GO+" or "GO-" inputs terminals respectively to trigger the alarm. The sound and flashlight triggered together.

Alarm siren duration depends on the jumper select. Continuous or 3 minutes cutoff. 3-minutes cutoff timer is recommended to avoid vibration of any local regulations.

Flash Trigger:

Applying alarm negative trigger to "FL-" terminal to trigger the flashlight. Flashlight duration is not limited and the time of flashlight is up to control panel.

Tamper:

N/O and N/C tamper switch is equipped. The default is N/C. While the housing is closed with the screw, the tamper terminals are shorted (0 ohm). User can change N/C to N/O if necessary.

Power Failure:

When power failure, the siren and flashlight are triggered until power supply is restored or battery voltage is less than 8VDC.

Battery Protection:

The siren is supplied with protection against totally battery discharge by cutting off the siren, when voltage level falls down to less than 8VDC.

Installation instructions

1. Choose the mounting location for the siren-the wall must be even and free of hole and excessive protrusions.
2. Mark and drill 5 holes with help of attach drill pattern plate (4 holes for the housing base and 1 for the hanging hole).
3. Open the siren housing (1 screw on the front), and remove the metal cover (2 screws)

Important: Cut off the power before you make the connection!

4. UnPlug the removable terminal, mount the siren housing on the wall. Connect the wires to the terminals.
5. Plug the terminals to your PCB board.
6. Power on the system and check its function properly
7. Connect the back-up battery

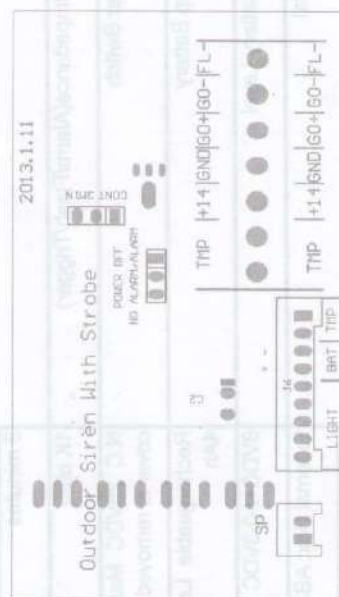
Important: keep attention to the polarity of the battery; a reverse polarity can cause damage of the driver circuit.

8. Mount the metal cover with 2 screws

9. Close the housing with 1 screw.

Terminal Block Connection

fig 1



Terminal 1-Marked "FL-" trigger for the flashlight only, it is connected to the negative output of the alarm system, Active while the input is low.

Terminal 2- Marked "Go-" trigger for the siren and the flashlight, active while the input is negative.

Terminal 3-Marked "GO+" trigger for the siren and flashlight, active while the input is positive.

Terminal 4-Marked the "GND" connect to the ground of the control unit.

Terminal 5-Marked "+14V" connect to a positive voltage output of the 13.6-14.2VDC source (usually from the alarm control unit).

Terminal 6&7-Marked "TMP" if a tamper function is required. Connect these terminals to a 24-hour normally closed alarm zone in the control unit, if the front cover of the siren is opened or siren box is taken from the wall, an immediate alarm signal will be sent to the control unit.

Fișă tehnică: E-SI - Modul industrial de avertizare cu flash pentru incendiu.

Nr. crt.	Specificațiile tehnice oferite	Producător - Denumire
0	1	2
1.	Parametri tehnici și funcționali : — Material protecție polycarbonat; — Material carcasă ABS plastic UV stabilizat; — Tensiune nominală: funcție de sistemul ales; — Culoare: roșu; — Temperatura de lucru: -20 C...+50 C; — Putere acustică: minim 90 dB la 1m; — Semnal luminos: flash roșu; — Lampa Flash High Bright LED; — Compatibil cu centrala de incendiu adresabilă.	INIM ES2020RE
2.	Specificații de performanță și condiții privind siguranța în exploatare: — Autoprotecție contra tăierii firelor și a sabotajului.	
3.	Condiții privind conformitatea cu standarde relevante: — EN 54.	
4.	Condiții de garanție și postgaranție: — Producătorul va garanta calitatea și buna funcționare a produsului timp de 24 luni de la punerea în funcțiune sau de 36 luni de la data livrării; — Produsul va corespunde normelor tehnice și standardelor europene.	
5.	Condiții cu caracter tehnic: — Vor fi anexate: □ instrucțiuni de montaj (scheme de conectare, broșuri, cataloage); □ instrucțiuni de exploatare; □ buletine de încercări, verificări, probe; □ declarație de conformitate.	

PROIECTANT,



ES2000

ANALOGUE ADDRESSABLE VISUAL/AUDIBLE ALARM INDICATORS,



EN 54-3
EN 54-17
EN 54-23



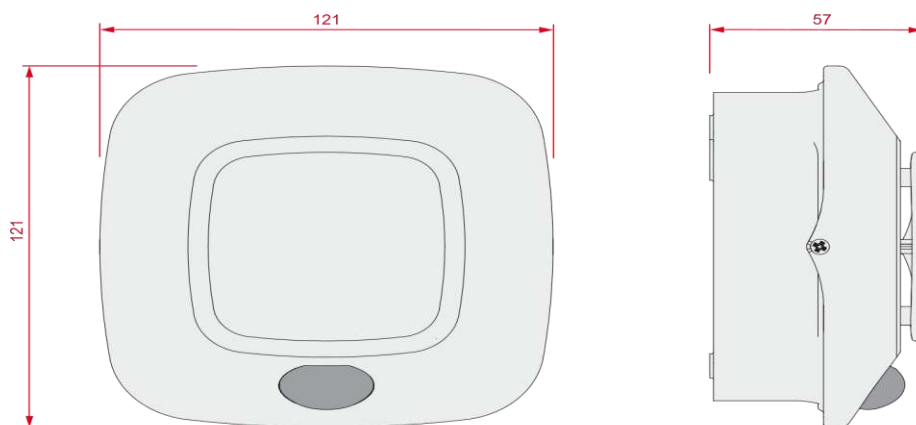
0051
0051-CPR-1316
0051-CPR-1317



Addressable visual/audible-alarm indicators for wall mounting, IP65 protection rated.

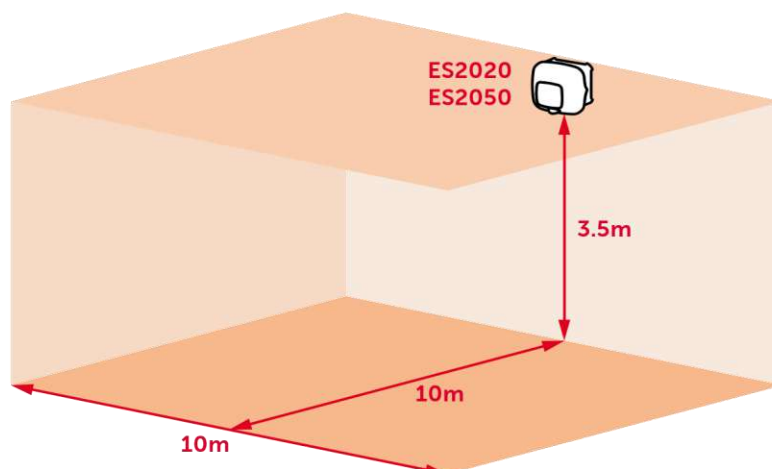
Volume, flash intensity and sound sequences can be selected via the control panel from the 14 tones on-board the device (and 16 voice messages available in 8 different languages, only for versions with the voice function). For models with the voice function, it is also possible to customize tones/voice messages by means of the EITK2000.

The device is powered via the loop but is equipped with terminals for an optional separate power input.

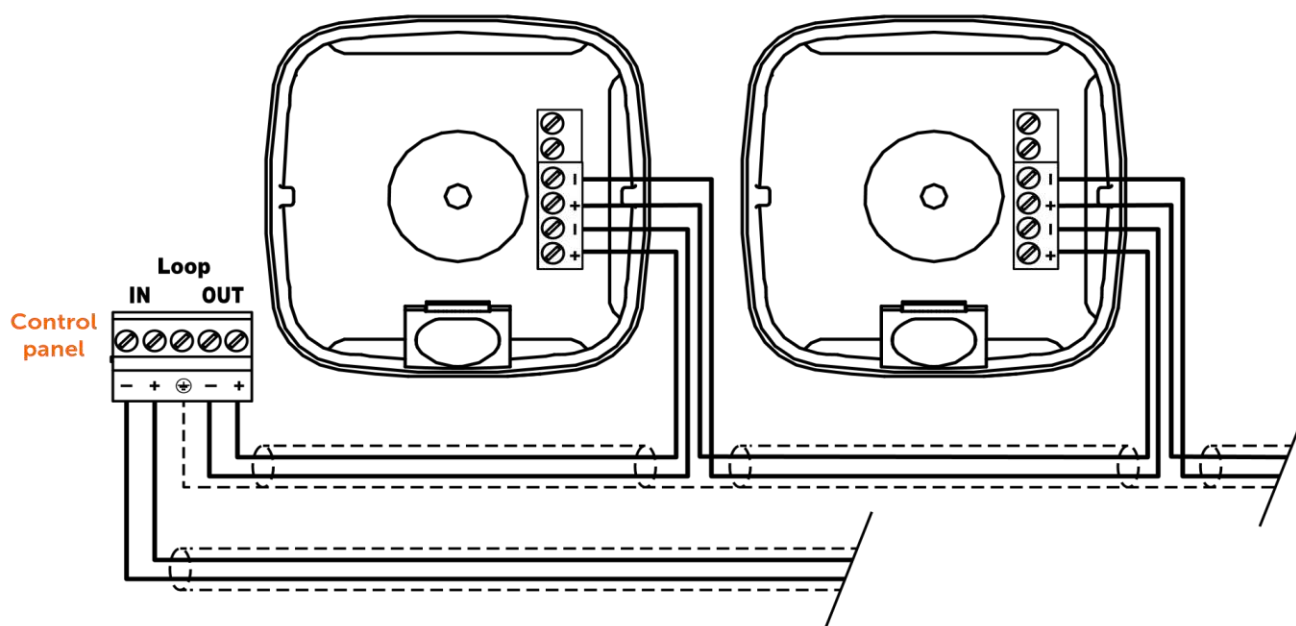


	ES2010	ES2020	ES2030	ES2050
Operating voltage	from 18 to 30V _{DC}			
Stand-by current draw	200µA			
Maximum current draw	25mA	40mA	25mA	40mA
Installation method	Wall mount			
Maximum installation height	-	3.5m	-	3.5m
Light coverage according to EN54-23	-	W 3,5-10	-	W 3,5-10
Flash frequency	-	0.5Hz	-	0.5Hz
Flash color	-	White	-	White
Number of selectable tones	14		104	
Sound pressure at 1mt	98dB			
IP Protection grade	IP65 (IP21 EN54-3 certified)			
Operating temperature	from -10 to 55°C			
Synchronization	Yes			
Multicolor indicating LED	Yes			
Built-in short-circuit isolator (EN54-17)	Yes			
Dimensions	121 x 121 x 57mm			
Weight	150g			

FLASH COVERAGE VOLUME



CONFIGURATION DIAGRAM



ORDER CODES

ES2010RE
ES2010WE
ES2020RE
ES2020WE
ES2030RE
ES2030WE
ES2050RE
ES2050WE

Fișă tehnică: E-SIC - Sistem de încălzire capsulat pentru conductă impuls.

Nr. crt.	Specificațiile tehnice oferite	Producător - Denumire
0	1	2
1.	Parametrii tehnici și funcționali: — Curent maxim : 2A (conform proiect); — Grad de protecție : minim IP65; — Putere : minim 100W; — Temperatură de lucru : -25 C...+50 C; — Material protecție : metalic; — Introducătoare de cablu : pentru medii cu pericol de explozie pentru cablu cu secțiunea de 1,5- 2,5mm²; — Marcare conform ATEX 94/9/EC; — Tipul de protecție Ex : pentru zona II cu pericol de explozie; — Temp. maximă de suprafață : corespunzătoare clasei T4; — Tensiune nominală : 230 Vca; — Funcție suplimentară : Autoreglare temperatură;	INTERTEC SL BLOCKTHERM DPAT
2.	Specificații de performanță și condiții privind siguranța în exploatare: — Se montează mecanic în zone cu pericol de explozie.	
3.	Condiții privind conformitatea cu standarde relevante: — EN 60679-1 și EN 60079-7; — EN 60529	
4.	Condiții de garanție și postgaranție: — Producătorul va garanta calitatea și buna funcționare a produsului timp de 24 luni de la punerea în funcțiune sau de 36 luni de la data livrării. — Produsul va corespunde normelor tehnice și standardelor europene.	
5.	Condiții cu caracter tehnic: — Vor fi anexate: □ instrucțiuni de montaj (scheme de conectare, broșuri, cataloage); □ instrucțiuni de exploatare; □ buletine de încercări, verificări, probe; □ declarație de conformitate.	

PROIECTANT,



SL BLOCKTHERM DPA... T.



1 Application

The self-limiting electric conduction heater is designed to be attached directly to manifolds, measuring instruments, control valves and similar equipment installed in hazardous areas. It heats the device by direct conduction. This is the easiest, safest and most economical method of freeze protection or temperature maintenance.

2 Special Features & Advantages

- Energy saving
- Self limiting, no fusible link or limiter
- Requires little space
- Hole pattern according to the SP SP76.00.02 Standard. The heater is specially designed to fit the NeSSI Generation II Standard, for example Parker IntraFlow™

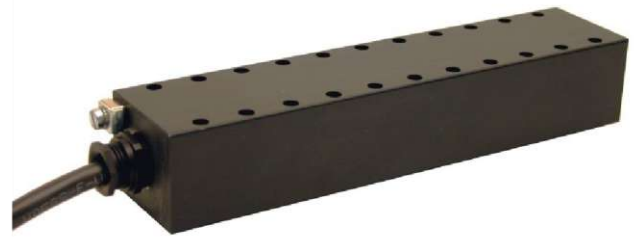
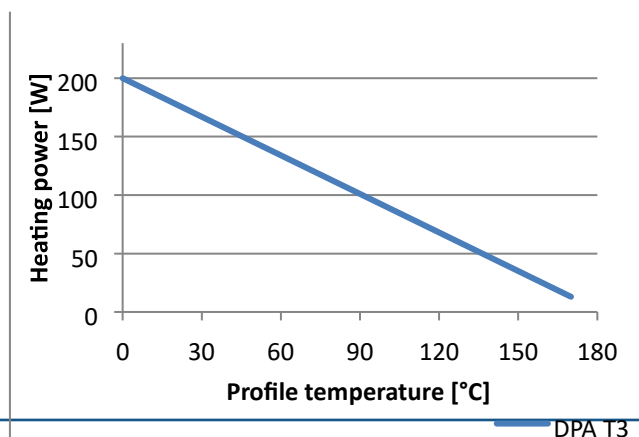
3 Description

BLOCKTHERM is a metal heating block. The PTC cartridge provides the heat that is transferred through the heater block to the device to which it is attached. Explosion-proof types of heaters are equipped with a ground terminal and a different nameplate.

4 Performance

A conduction heater requires considerably less power than a finned convection heater, as the heat conducting qualities of metal are much better than those of air. The air surrounding the whole installation in the enclosure serves as additional insulation.

The diagram below shows the heating power at different profile temperatures.



5 Explosion Protection

EU Examination Certificate	PTB 02 ATEX 1116 X
IEC Scheme Certificate	IECEx PTB 07.0055 X
IEC Scheme Type of Protection	II 2G Ex db IIC T6, T5, T4, T3
	II 2D Ex tb IIIC T85°C, T100°C, T135°C, T200°C

6 Technical Data

Ingress protection	IP66/ IP68 ¹ bar/30min
Nominal voltage	110 V to 265 V
Ambient temperature range	-60 to +180°C
Connection cable	silicone cable, notch and oil resistant, 3 x 1,5 mm ²
Length of connect. cable	1 m
Length x Width x Height	225 mm x 50 mm x 45 mm
Material	seawater-proof aluminium, black anodized

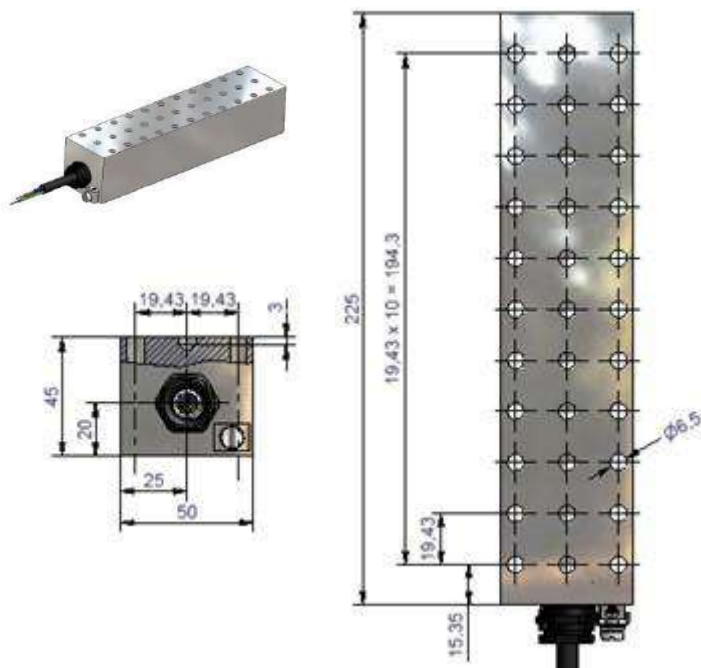
SL BLOCKTHERM	DPA	
Temperature Class	T4	T3
Nominal Power	100 W	150 W

(Other types upon request)

- All INTERTEC explosion-proof heaters can also be supplied
- to North American NEC/CEC standards (CSA C US)
 - in a less expensive, Non-explosion-proof design
 - as Bi-Standard (see datasheet [HDS10607](#))

7 Options

3M	Connection cable 3 m long
----	---------------------------



Fișă tehnică: E-TA - Transponder adresabil.

Nr. crt.	Specificațiile tehnice oferite	Producător - Denumire
0	1	2
1.	Parametrii tehnici și funcționali: — Material carcasă: policarbonat; — Tensiune alimentare : 12-40 Vdc; — Număr intrări :minim 4 buc.; — Număr ieșiri : minim 2 buc. (contact releu); — Contact releu: 30Vcc/1A; — Umiditate: max 95% fără condensare; — Temperatura de lucru: -10°C...+50°C; — Grad de protecție: minim IP30; — Sistem adresabil; — Compatibil cu centrala de detecție incendiu/centrala de efracție; — Conexiune electrică: terminale cu șurub;	Inim EM344S
2.	Specificații de performanță și condiții privind siguranța în exploatare: — Utilizat pentru preluarea în centrala de detecție incendiu/ centrala de efracție a detectoarelor, declanșatoarelor manuale convenționale din mediul Ex; — Toate transponderele se vor monta într-o cutie metalică cu grad de protecție minim IP54.	
3.	Condiții privind conformitatea cu standarde relevante: — Conform standardelor EN54-17 și EN54-18.	
4.	Condiții de garanție și postgaranție: — Producătorul va garanta calitatea și buna funcționare a produsului timp de 24 luni de la punerea în funcțiune sau de 36 luni de la data livrării; — Produsul va corespunde normelor tehnice și standardelor europene.	
5.	Condiții cu caracter tehnic: — Vor fi anexate: ▪ instrucțiuni de montaj (scheme de conectare, broșuri, cataloage); ▪ instrucțiuni de exploatare; ▪ buletine de încercări, verificări, probe; ▪ declarație de conformitate.	

PROIECTANT,



MULTI INPUT/OUTPUT MODULE AND CONVENTIONAL LINE INTERFACE



VERSA+



The EM3xx multi input/output module from ENEA series, provide up to 4 input and/or 4 output according to model. Each input/output is independent and fully programmable and can be associated to any control panel or network event.

Each device from the ENEA series is identified by a unique factory-assigned serial number. Therefore, these devices do not require the use of an address programmer. The serial number is located on the device label and on two stickers which can be positioned on the system layout and on the mounting base.

Once the loop wiring is complete, a manual programmer or a control panel via the LoopMap application, enrolls all the connected devices automatically and reconstructs a map indicating the wiring order of the connected devices, "T" junctions and all the physical characteristics of the Loop. LoopMap technology allows you reconstruct the exact installation layout and thus create an easy-to-use, interactive loop map which greatly simplifies and speeds up searches relating to system faults and maintenance work.

The serial self-addressing function, developed by Inim's R&D professionals, allows you to add new devices to an existing system without reprogramming it. In this way, the LoopMap specifications remain unchanged and the new devices are assigned available logical addresses (in order) and correctly positioned on the interactive map. The self-addressing function also eliminates many of the problems connected with the manual addressing procedure, such as time-consuming operations on rotary/DIP switches and errors caused by duplicated or wrong addresses and similar problems.

The inputs of EM34xx module are supervised at default (alarm, early-warning and fault). They can be used for the connection to the control panel and the addressing of detectors with relay output, gas detectors, beam detectors, thermosensitive cables, etc. During the installation, 2 inputs can be configured as conventional zones, powered from the loop or from a local power supply, or as 4-20mA gas inputs. The 4 outputs, according to model, can be supervised for sounder control or voltage free contacts.

The EM3xx, as all ENEA series devices, is equipped with an isolator module and it occupies 4 loop addresses.

The EM312SR module connects to the same line as the detectors.

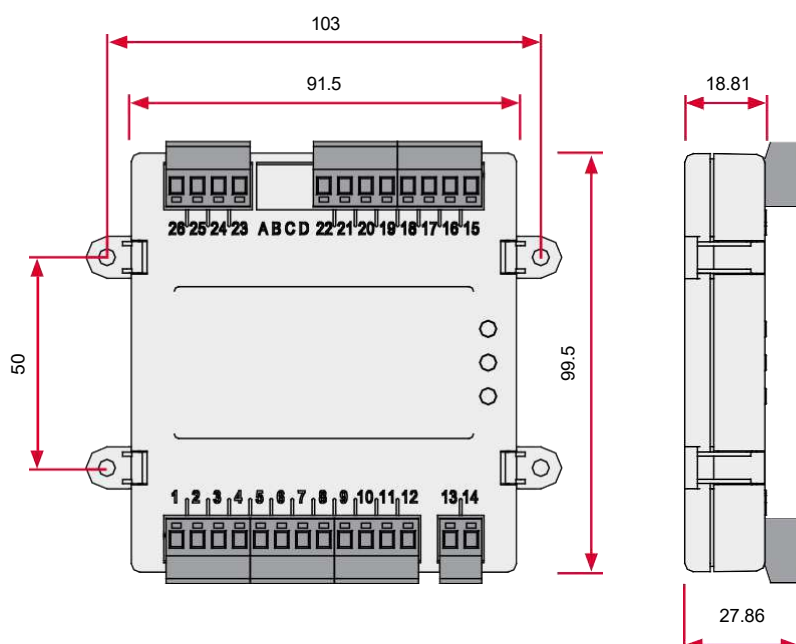


Model	Inputs		Outputs	
	number	selectable as conventional zone	number	type
EM344S	4	2	4	supervised
EM344R	4	2	4	dry contacts
EM340	4	2	/	/
EM304S	/	/	4	supervised
EM304R	/	/	4	dry contacts

TECHNICAL SPECIFICATIONS

- Certification: LPCB CPR EN54/pt18 -pt17
- Self-addressing (each device is identified by a factory-assigned serial number)
- LoopMap Technology
- Versa++ Technology
- 240 addresses
- 4 supervised inputs (according to the model)
- 2 inputs configurable as conventional line interface or as 4-20mA gas detector interface (according to the model)
- 4 supervised outputs (according to the model)
- 4 voltage free contact 1A@30Vdc outputs (according to the model)
- 1 supervised input for the activation of the devices connected to the output
- DIP switch for the assignment of the input functions
- Built-in short-circuit isolator
- Programmable warning threshold
- Power supply voltage: 19 - 30Vdc
- Current draw during stand-by max 80µA @ 24V
- Current draw during alarm max 20mA @ 27,6V
- Tri-colour LED for input/output/isolator status signalling
- Operating temperature: from -5°C to +40°C
- Dimensions (WxHxD) 113X106X29 mm

DIMENSIONS



IN THE PACKAGE

- Package dimensions: 110 x 97 x 57 mm
- Weight with packaging: 170g

ORDER CODES

- EM340** Analog addressable module with 4 supervised inputs, 2 of them configurable as conventional line interface or as 4-20mA gas detector interface
- EM304S** Analog addressable module with 4 supervised outputs
- EM344S** Analog addressable module with 4 supervised inputs, 2 of them configurable as conventional line interface or as 4-20mA gas detector interface, and with 4 supervised outputs
- EM304R** Analog addressable module with 4 voltage free outputs
- EM344R** Analog addressable module with 4 supervised inputs, 2 of them configurable as conventional line interface or as 4-20mA gas detector interface, and with 4 voltage free outputs
- EM110** Input module
- EM312SR** Input/output module
- EM411R** Conventional line input module
- EU311** Input/output micromodule
- EU311C** Micromodule for loop connection of conventional callpoints

Fișă tehnică: E-THT-Ex – Termostat Ex.

Nr. crt.	Specificațiile tehnice oferitate	Producător - Denumire
0	1	2
1.	Parametrii tehnici și funcționali: — Tip termostat: mecanic; Electronic — Tensiunea de lucru: 230Vac; — Curentul minim comutat: 30A sarcină rezistivă; — Tip senzor: capilar; RTD — Domeniu temperatura reglată: 0°C...+49°C; — Loc de montaj: zona 1 sau zona 2; — Tip material: poliester sau aluminiu; Poliester — Tip protecție: 2G Ex de IIC T6, T5; — Grad IP: minim IP66; — Temperatura de funcționare: -60°C...+55°C;	THERMON ECM-C-P12
2.	Specificații de performanță și condiții privind siguranța în exploatare: — Protecția terminalelor la atingere cu mana; — Presetupe Ex pentru cabluri armate; — Funcție de Fail-Safe în caz de rupere tub capilar.	
3.	Condiții privind conformitatea cu standarde relevante: — EN 60592; — EN 60079-0; — EN 60079-1; — EN 60079-7; — EN 60079-30-1.	
4.	Condiții de garanție și postgaranție: — Producătorul va garanta calitatea și buna funcționare a produsului timp de 24 luni de la punerea în funcțiune sau de 36 luni de la data livrării; — Produsul va corespunde normelor tehnice și standardelor europene.	
5.	Condiții cu caracter tehnic: — Vor fi anexate: ▪ instrucțiuni de montaj (scheme de conectare, broșuri, cataloage); ▪ instrucțiuni de exploatare; ▪ buletine de încercări, verificări, probe; ▪ declarație de conformitate.	

PROIECTANT,





PRODUCT DATASHEET

TRACENET™ ECM™

ELECTRONIC CONTROL MODULE

APPLICATION

The TraceNet ECM is an electronic control module specifically designed for controlling electric heat trace circuits used in freeze protection and temperature maintenance applications. The ECM serves both the temperature control as well as the sensor and power connection for a heat trace circuit. The ECM is housed in a glass reinforced nonmetallic enclosure with an environmental protection rating of IP66. Depending on options selected, the ECM may be used as a combination temperature control and limiter, a temperature controller with either low or high temperature alarm, or a temperature limiter. Rotary switches are provided for adjusting temperature control and limiter set points. The standard version of the ECM communicates on a physical network of RS485 by using a Modbus RTU communication protocol.

The ECM is approved for use in both ordinary (non-classified) and hazardous (classified) areas. The ECM-OS is available in a stainless steel junction box for use in offshore applications. (Refer to Form TEP0138)

RATINGS

Operating/control voltage 120/208/240 Vac
 Operating ambient range..... -60°C to 55°C (-76°F to 131°F)
 Minimum ambient storage range..... -74°C (-100°F)
 Control switch type options SPST and DPST
 Switching current ratings¹
 SPST ...30/30/20 amps 25°C, 40°C, 55°C (77°F, 104°F, 131°F)
 DPST ...28/23/17 amps 25°C, 40°C, 55°C (77°F, 104°F, 131°F)
 Alarm output current rating 2 A
 Electrical connectionterminal blocks³
 Adjustable temp. control range
 0°C to 500°C (32°F to 932°F)
 Measurement range-60°C to 500°C (-76°F to 932°F)
 Measurement accuracy (ambient)
 ± 1°C (0°C to +55°C) ± 1.8°F (32°F to +131°F)
 ± 2°C (0°C to -60°C) ± 3.6°F (32°F to +131°F)
 Temperature sensor(s) 100 Ohm three wire Platinum
 RTD
 High temp. alarm/tripprogrammable
 (auto or manual reset)
 RTD input circuitry.....intrinsically safe (Ex i)
 Life expectancy 250,000 cycles

CERTIFICATIONS/APPROVALS



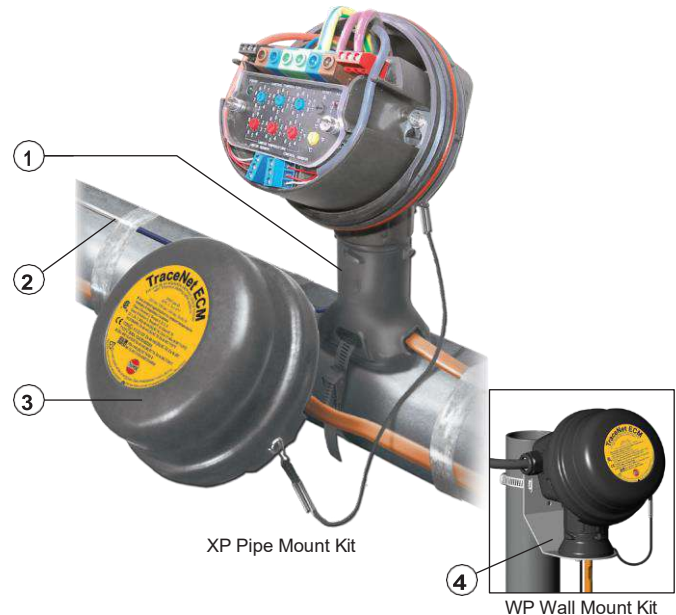
II 2 G Ex eb mb [ib] IIC T4 Gb SIRA 12ATEX5239X
 II 2 D Ex tb IIIC T135°C IP66 Db



International Electrotechnical Commission
 IEC Certification Scheme for Explosive Atmospheres
 SIR 12.0103X



Class I Division 2, Groups A, B, C, D
 Class II Division 2, Groups F, G; Class III; T4
 14.2709489X Ex eb mb [ib] IIC T4
 Ex tb IIIC T135°C
 Class 1, Zone 1, AEx eb mb [ib] IIC T4
 Zone 21, AEx tb IIIC T135°C



CONSTRUCTION

- 1 Pipe-mount expediter², glass-reinforced polymer
- 2 Three-wire RTD sensor (order separately)
- 3 Junction box, glass-reinforced polymer
- 4 316 Stainless Steel mounting bracket

PRODUCT FEATURES

- Encapsulated electronics and control
- One temperature control module for wide range of temperature control and limiter applications
- Energy saving accurate electronic temperature control action
- Data highway communication capability
- Selectable automatic or manual reset limiter action
- Control/limiter setting in degrees Centigrade or degrees Fahrenheit
- Combines power junction box and control module in one unit
- Also available as ambient thermostat (WP mount only)
- Refer to Form TEP0010, System Accessories - Heat Tracing Cables for additional accessories.

Notes

1. When located outdoors and subject to solar gain, some current de-rating will be required. Contact Thermon for additional information.
2. The pipe mount expediter has a maximum pipe exposure temperature of 482°F (250°C).
3. The terminal blocks consist of:
 (6) 8 AWG line/load/PE terminals
 (3) 12 AWG comm. port terminals
 (3) 12 AWG alarm relay terminals
 (2 x 3) 14 AWG sensor terminals
 See installation instructions for maximum wire size.



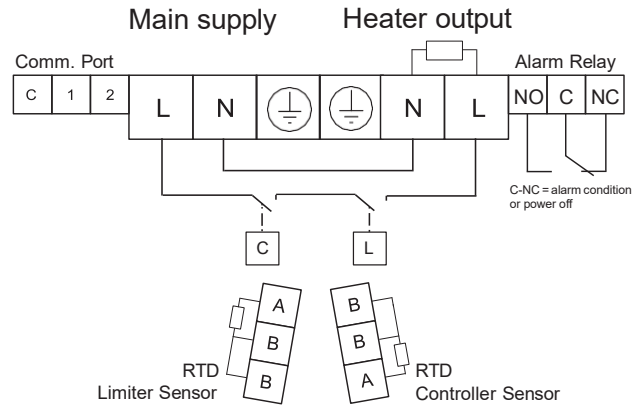
PRODUCT DATASHEET
TRACENET™ ECM™
ELECTRONIC CONTROL MODULE

PRODUCT REFERENCE LEGEND

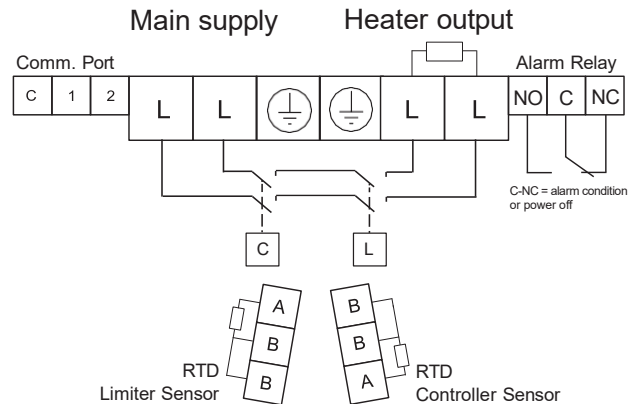
ECM-CL-12-P-XP-SP			
Control Type		Switch Configuration	
C = Controller (with low temp alarm)		SP = Single Pole (120 Vac)	
CH= Controller (with high temp alarm)		DP= Double Pole (208 or 240 Vac)	
CL= Controller and Limiter		Mounting Options	
		XP = Pipe-Mount Expediter	
		WP = Wall Mount Bracket with Expediter	
Comm. Network		Cable Profile	
1 = RS485		P = RSX, VSX-HT, BSX, KSX, HTSX, FP, HPT, USX	
Nominal Voltage Range			
1 = 120 Vac			
2 = 240 Vac			
3 = 208 Vac			

**TYPICAL WIRING DIAGRAM
(for controller with limiter)**

Single Pole



Double Pole



Fișă tehnică: E-UPS1 - Sursă neîntreruptibilă UPS pentru CCTV.

Nr. crt.	Specificațiile tehnice oferite	Producător - Denumire
0	1	2
1.	Parametrii tehnici și funcționali: – Capacitate putere: 1500VA; – Voltaj nominal output: 230 VCA; – Frecvența output: 50 - 60 Hz; – Distorsiuni: <5% U; – Conectori output: 8 x IEC 320 C13;2 x IEC Jumpers; – Voltaj nominal input: 151 - 302Vca; – Frecvența input: 50 - 60 Hz; – Conectori input: IEC 320 C14; – Timp mediu de încărcare: minim 3 ore; – Temperatura: 0°C...+40°C; – Umiditate: 0 - 95%; – Zgomot: minim 45 dB; – Temperatura depozitare: -15°C...+45°C; – Umiditate depozitare: 0 - 95%;	SPS - PRO 1500VA
2.	Specificații de performanță și condiții privind siguranța în exploatare: — Intrări: ▪ conexiuni de intrare: IEC-320 C20 , Schuko CEE 7 / EU1-16P , British BS1363A; ▪ tensiune nominală de intrare: 230V; ▪ frecvență de intrare: 50/60 Hz +/- 3 Hz (detectare automată); ▪ interval tensiune de intrare pentru operații principale: 140-280V; — Ieșiri: ▪ distorsiune tensiune de ieșire: Sub 5%; ▪ frecvență de ieșire (sincronizată cu alimentarea de la rețea): 50/60Hz +/- 3 Hz; ▪ conexiuni de ieșire: (8) IEC 320 C13 , (2) IEC 320 C19 , (2) IEC Jumpers; ▪ factor de vârf: 3 : 1; ▪ topologie dublă conversie; ▪ tip formă de undă: Undă sinusoidală; ▪ placă de rele pentru monitorizare semnale/alarme. — Protecție: ▪ capacitate nominală supratensiune: 645 Joules; ▪ filtrare multipolară zgomot, cu funcționare continuă: 0,3% Limitare supratensiune IEEE: timp de răspuns prindere zero : conform standardului UL 1449. — Baterie: Baterie cu plăci de plumb și acid, etanșată, care nu necesită întreținere, cu electrolit suspendat: etanș; — Management: Da; — Panou de control: LCD cu consolă; — Alarma sonora: Da; — Atenționari sonore: - Mod baterie; - Baterie slabă; - Suprasarcină.	

	— Filtrare: Da; — Preluare stare de alarmă în PLC.	
3.	Condiții privind conformitatea cu standarde relevante: — Construcție conform: IEC 60038 IEC Standard Voltages.	
4.	Condiții de garanție și postgaranție: — Producătorul va garanta calitatea și buna funcționare a produsului timp de 24 luni de la punerea în funcțiune sau de 36 luni de la data livrării; — Produsul va corespunde normelor tehnice și standardelor europene.	
5.	Condiții cu caracter tehnic: — Vor fi anexate: ▪ instrucțiuni de montaj (scheme de conectare, broșuri, cataloage); ▪ instrucțiuni de exploatare; ▪ buletine de încercări, verificări, probe; ▪ declarație de conformitate.	

PROIECTANT,

PRECIZARE:

1. Responsabilitatea completării coloanelor 2 și 3 revine ofertantului.
2. Toate cerințele din prezenta fișă tehnică sunt obligatorii.
3. Se vor considera edițiile în vigoare a normativelor și standardelor la care se fac referire.
4. În coloana 2 ofertantul va preciza corespondența între oferta tehnică și prezenta fișă tehnică.
5. În acest scop, ofertantul va preciza pentru fiecare solicitare din fișă tehnică (coloana 1): documentul, pagina, articolul/paragraful din oferta tehnică prin care se atestă îndeplinirea cerinței.
6. Oferta va conține un cuprins care va indica paginile unde se găsesc toate cerințele din fișă tehnică.
Se vor oferta și livra numai echipamente noi, de ultimă generație și originale, conform cu specificațiile și documentele specifice ale producătorului. Nu se vor oferta produse demo, recondiționate sau refuzate de alți beneficiari.
7. Ofertarea se va face în limba română. Ofertantul își asumă corectitudinea traducerii.





Model		PRO600I	PRO1000I	PRO1500I
Capacitate		600VA/360W	1000VA/600W	1500W/900W
Alimentare	Tensiune	110/120 VAC sau 220/230/240VAC		
	Plaja tensiunii de alimentare	81~145 VAC/ 162~290 VAC		
	Frecventa	60/50 Hz		
Iesire	Tensiune (mod acumulator)	± 10%		
	Forma de unda (mod acumulator)	dreptunghiular		
	Frecventa (mod acumulator)	60 Hz sau 50 Hz± 1 Hz		
	Timp transfer	2-6 ms, 10 ms max.		
Protectii	Protectie totala	Protectie la supraincarcare		
Interfata de comunicare		USB		
Acumulatori	Tip	Acumulatori etans plumb acid fara intretinere		
	Reincarcare	Dupa descarcare totala se incarca 6-8 ore la 90% din capacitate		
	Autonomie (la sarcina maxima)	3 min		
	Configuratie	12V7Ahx1	12V7Ahx2	12V9Ahx2
Semnalizari	Pe acumulator	Semnal acustic la 10 sec.		
	Acumulator descarcat	Semnal acustic in fiecare sec.		
	Suprasarcina	Semnal acustic de doua ori pe sec.		
	Avertizare inlocuire acumulatori	Semnal acustic in fiecare 2 sec.		
	Eroare	Semnal acustic continuu		
Altele	Zgomot la 1m	< 40 dB		
	Temperatura de functionare	0 -40 °C (fara condens)		
	Umiditate	0 - 95%		
	Greutate neta (kg)	4.25	7.8	10.1
	Dimensiuni aparat (mm)	298x101x142	338x149.3x162	380x158x198

Fișă tehnică: E-UPS2 - Sursă neîntreruptibilă UPS pentru automatizări.

Nr. crt.	Specificațiile tehnice oferite	Producător - Denumire
0	1	2
1.	Parametrii tehnici și funcționali: — Capacitate putere: 3000VA; — Voltaj nominal output: 230 VCA; — Frecvența output: 50 - 60 Hz; — Distorsiuni: <5% U — Conectori output: 8 x IEC 320 C13; 2 x IEC Jumpers — Voltaj nominal input: 151 - 276Vca; — Frecvența input: 50 - 60 Hz; — Conectori input: IEC 320 C20; — Timp mediu de încărcare: minim 3 ore; — Temperatura: 0 C...+40 C; — Umiditate: 0 - 95%; — Zgomot: minim 45 dB; — Temperatura depozitare: -15 C...+ 45 C; — Umiditate depozitare: 0 - 95%;	EATON – 9PX3000IRT3U
2.	Specificații de performanță și condiții privind siguranța în exploatare: — Intrări: □ conexiuni de intrare: IEC-320 C20 , Schuko CEE 7 / EU1-16P , British BS1363A □ tensiune nominală de intrare: 230V □ frecvență de intrare: 50/60 Hz +/- 3 Hz (detectare automată) □ interval tensiune de intrare pentru operații principale: 140 - 280V — — ieșiri: □ distorsiune tensiune de ieșire: Sub 5% □ frecvență de ieșire (sincronizată cu alimentarea de la rețea): 50/60Hz +/- 3 Hz □ conexiuni de ieșire: (8) IEC 320 C13 , (2) IEC 320 C19 , (2) IEC Jumpers □ tensiune nominală la ieșire: 230V □ factor de v rf: 3 : 1 □ topologie dublă conversie □ tip formă de undă: Undă sinusoidală □ placă de comunicație RS485; □ preluare contact EPO (emergency power off) n automaitzarea locală; — Protecție: □ capacitate nominală supratensiune: 645 Joules □ filtrare multipolară zgomot, cu funcționare continuă: 0, 3% Limitare supratensiune IEEE: timp de răspuns prindere zero : conform standardului UL 1449; — Baterie: Baterie cu plăci de plumb și acid, etanșată, care nu necesită întreținere, cu electrolit suspendat: etanș — Management: Da; — Panou de control: LCD cu consolă; — Alarma sonora: Da; — Attentionari sonore: - Mod baterie;	

	- Baterie slabă; - Suprasarcină; — Filtrare: Da;	
3.	Condiții privind conformitatea cu standarde relevante: — Construcție conform: IEC 60038 IEC Standard Voltages;	
4.	Condiții de garanție și postgaranție: — Producătorul va garanta calitatea și buna funcționare a produsului timp de 24 luni de la punerea în funcțiune sau de 36 luni de la data livrării. — Produsul va corespunde normelor tehnice și standardelor europene.	
5.	Condiții cu caracter tehnic: — Vor fi anexate: ☐ instrucțiuni de montaj (scheme de conectare, broșuri, cataloage); ☐ instrucțiuni de exploatare; ☐ buletine de încercări, verificări, probe; ☐ declarație de conformitate.	

PROIECTANT,



Specificații



Imaginile sunt doar cu titlu informativ



CSA 22.2

Eaton 9PX3000IRT3U

Eaton 9PX UPS, 3000 VA, 3000 W, Input: C20,
Outputs: (8) C13, (2) C19, Rack/tower, 3U

General specifications

PRODUCT NAME	Eaton 9PX UPS
CATALOG NUMBER	9PX3000IRT3U
UPC	743172081391
PRODUCT LENGTH/DEPTH	48.5 cm
PRODUCT HEIGHT	13 cm
PRODUCT WIDTH	44 cm
PRODUCT WEIGHT	28 kg
WARRANTY	3 year on electronics, 2 year on battery

CE Marked TUV cULus Listed

COMPLIANCES

FCC part 15 Class B
CISPR22 Class B

CERTIFICATIONS

cULus Listed
EAC
CE
ENERGY STAR certified
IEC/EN 62040-1
UL 1778
IEC/EN 62040-2



Battery	
BATTERY TYPE	Sealed, lead-acid
RUNTIME GRAPH	View runtime graph
BATTERY REPLACEMENT	Hot-swappable internal batteries and extended battery modules (EBMs)
BATTERY QUANTITY	6
BATTERY MANAGEMENT	• ABM & Temperature compensated charging method (user selectable) • Automatic battery test • Deep discharge protection • Automatic recognition of external battery units
BATTERY RATING	12 V / 9 Ah
EXTENDED BATTERY CAPABILITY	Yes

Electrical input

INPUT CONNECTION	C20
INPUT NOMINAL VOLTAGE	230V default (200/208/220/230/240V)
NOMINAL FREQUENCY	50/60 Hz
INPUT POWER FACTOR	>.99
INPUT CORD LENGTH	1.8m
INPUT VOLTAGE RANGE	176-276 V (100-276 V with derating)
INPUT FREQUENCY RANGE	40-70 Hz
INCLUDES NETWORK	No CARD

Electrical output	
RECEPTACLE	(8) C13, (2) C19
VOLTAGE	230V
WATTAGE	3000 W
OUTPUT POWER FACTOR	1
OUTPUT VOLTAGE RANGE	200/208/220/230/240 V +/- 1%
OUTPUT WAVEFORM	Sine wave
OUTPUT NOMINAL VOLTAGE	230V default (200/208/220/230/240V)
VOLTAGE DISTORTION OUTPUT (LINEAR LOAD) - MAX	3
FEED TYPE	1
TOPOLOGY	Online/Double-conversion
VA RATING	3000 VA

Communications

COMMUNICATION	• USB port (HID compliant) • Serial port (RS232) • Mini terminal block for remote On/Off • Mini-terminal block for remote power off • Mini-terminal block for output relay • Dry contacts (3 outputs, 1 input, optocoupler, DB9)
ETHERNET INTERFACE	No
USER INTERFACE	Multilingual graphical LCD display
POTENTIAL FREE SWITCH CONTACT	Yes
EXPANSION SLOTS	One slot for optional

Environmental	
ALTITUDE	3000 m
NOISE LEVEL	<40 dB at 1 meter
TEMPERATURE RANGE	0° to 40°C (32° to 104°F)
RELATIVE HUMIDITY	0-96% non-condensing

	communication card
SOFTWARE COMPATIBILITY	Eaton Intelligent Power Manager, Eaton Intelligent Power Protector
TYPE OF INTERFACE	Other

Additional specifications

PACKAGE CONTENTS	• UPS • Input cable • (2) IEC-IEC output cables USB • cable • Serial cable • (2) brackets for 19' mounting • (2) Rack-mounting kit • (2) Supports for tower mounting • Cable locking system • Safety instructions • Quickstart guide
INTERNAL BYPASS	Yes
AUTO SHUTDOWN FUNCTION	
	Yes
COLOR	Black/silver
EFFICIENCY AT MAX. LOAD	94
RACK MOUNTING KIT	Yes
PHASE (INPUT)	1
HOT SWAP POWER	No
CONSTRUCTION TYPE	482.6 mm (19 inch) device
PHASE (OUTPUT)	1

Resurse	
SPECIFICATIONS AND DATASHEETS	Eaton Specification Sheet - 9PX3000IRT3U

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATA:

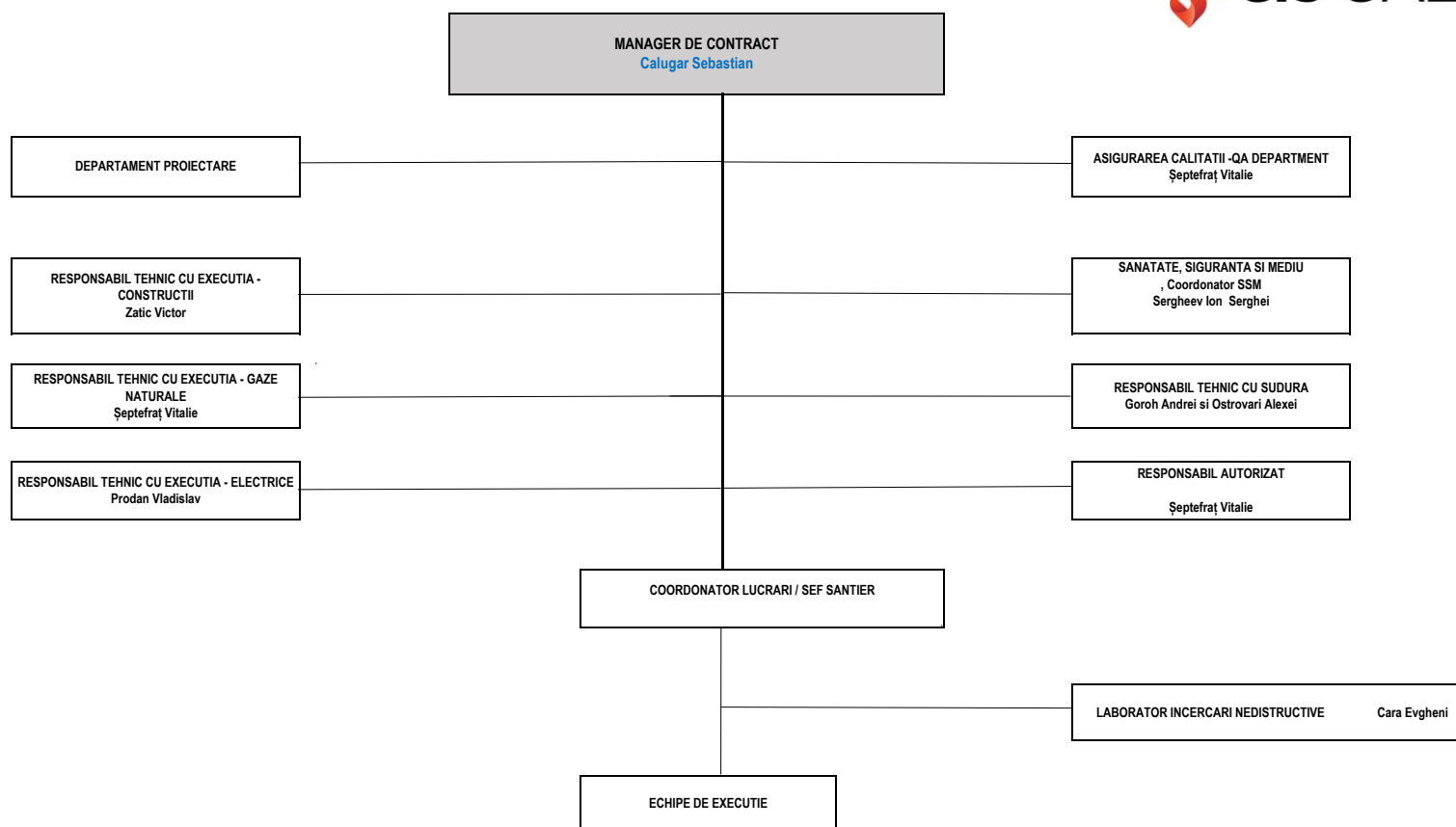


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ORGANIGRAMA de PROIECT
„Reconstrucția Stației de predare a gazelor naturale Causeni”





URS
CERTIFICĂRI



Certificat de înregistrare

Acest certificat se acordă organizației

CIS GAZ SA

Loc. Sântana de Mureș, Str. Voinicilor, Nr. 686, Jud. Mureș, CP 547565, România

pentru recunoașterea Sistemului de Management al Calității în conformitate cu cerințele

ISO 9001:2015

Domeniul de activitate acoperit de acest certificat este

Lucrări de construcții a proiectelor utilitare pentru fluide, proiectare și execuție de conducte de transport și stații de comprimare gaze naturale aferente acestora, racorduri și stații de reglare gaze naturale cu presiuni mai mari de 6 bari, instalații tehnologice de suprafață, stații de comprimare, conducte de colectare a gazelor naturale, furnizare gaze naturale, furnizare echipamente, reabilitare conducte petrol și gaze naturale, consultanță tehnică în domeniul gazelor naturale, lucrări de service, reparații și verificări tehnice periodice, activități de curățări industriale, curățări și inspecții interioare conducte țigă și gaze naturale, proiectare și execuție sisteme de distribuție a gazelor naturale

Data emiterii:

06 noiembrie 2024

Data limită a primului audit
anual de supraveghere:

27 noiembrie 2025

Data limită pentru al doilea
audit anual de supraveghere:

27 noiembrie 2026

Numărul certificatului

URS240141/0003/UAS/RO



Eliberat în numele
directorului general, de:

Data eliberării: (Original)
28 noiembrie 2012

Data expirării:
27 noiembrie 2027

Număr ediție:
005





URS
CERTIFICĂRI



Certificat de înregistrare

Acest certificat se acordă organizației

CIS GAZ SA

Loc. Sântana de Mureș, Str. Voinicilor, Nr. 686, Jud. Mureș, CP 547565, România

pentru recunoașterea Sistemului de Management de Mediu în conformitate cu cerințele

ISO 14001:2015

Domeniul de activitate acoperit de acest certificat este

Lucrări de construcții a proiectelor utilitare pentru fluide, proiectare și execuție de conducte de transport și stații de comprimare gaze naturale aferente acestora, racorduri și stații de reglare gaze naturale cu presiuni mai mari de 6 bari, instalații tehnologice de suprafață, stații de comprimare, conducte de colectare a gazelor naturale, furnizare gaze naturale, furnizare echipamente realizare conducte petrol și gaze naturale, consultanță tehnică în domeniul gazelor naturale, lucrări de service, reparații și verificări tehnice periodice, activități curățări industriale, curățări și inspecții interioare conducte țigle și gaze naturale, proiectare și execuție sisteme de distribuție a gazelor naturale

Data emiterii:

06 noiembrie 2024

Data limită a primului audit
anual de supraveghere:

27 noiembrie 2025

Data limită pentru al doilea
audit anual de supraveghere:

27 noiembrie 2026

Numărul certificatului

URS240141/0004/UAS/RO



Eliberat în numele
directorului general, de:

Data eliberării: (Original)
28 noiembrie 2012

Data expirării:
27 noiembrie 2027

Număr ediție:
005





URS
CERTIFICĂRI



Certificat de înregistrare

Acest certificat se acordă organizației

CIS GAZ SA

Loc: Sântana de Mureș, Str. Voinicilor, Nr. 686, Jud. Mureș, CP 547565, România

pentru recunoașterea Sistemului de Management al Sănătății și Securității în Muncă în conformitate cu cerințele

ISO 45001:2018

Domeniul de activitate acoperit de acest certificat este

Lucrări de construcții a proiectelor utilitare pentru fluide, proiectare și execuție de conducte de transport și stații de comprimare gaze naturale aferente acestora, racorduri și stații de reglare gaze naturale cu presiuni mai mari de 6 bari, instalații tehnologice de suprafață, stații de comprimare, conducte de colectare a gazelor naturale, furnizare gaze naturale, furnizare echipamente realizare conducte petrol și gaze naturale, consultanță tehnică în domeniul gazelor naturale, lucrări de service, reparații și verificări tehnice periodice, activități curățări industriale, curățări și inspecții interioare conducte țitel și gaze naturale, proiectare și execuție sisteme de distribuție a gazelor naturale

Data emiterii:

06 noiembrie 2024

Data limită a primului audit
anual de supraveghere:

27 noiembrie 2025

Data limită pentru al doilea
audit anual de supraveghere:

27 noiembrie 2026

Numărul certificatului

URS240141/0005/UAS/RO



Eliberat în numele
directorului general, de:

Data eliberării: (Original)
28 noiembrie 2012

Data expirării:
27 noiembrie 2027

Număr ediție:
005



Dacă aveți vreo nelămurire cu privire la autenticitatea acestui certificat vă rugăm să ne contactați la biroul nostru central pe adresa info@urscertificari.ro
URS CERTIFICĂRI SRL (CUI: 22685444) - Str. Madăch Imre, Nr. 8, Jud. Mureș, 547565, România

1670



*În temeiul prevederilor Legii energiei electrice și a gazelor naturale nr. 123/2012
cu modificările și completările ulterioare*

Se acordă

AUTORIZAȚIE

*destinată execuției sistemelor de distribuție a gazelor naturale,
a sistemelor de distribuție închise, precum și a instalațiilor
afereente activității de producere/stocare biogaz/biometan ce
funcționează în regim de medie, redusă și joasă presiune, tip
EDSB*

nr. 20496

CIS GAZ S.A.

*cu sediul în comuna Sântana de Mureș, str. Voinicenilor, nr. 686, județul
Mureș*

**Prezenta autorizație este valabilă până la 28.09.2026, în condițiile de
valabilitate anexate.**

București, 29.09.2021

p. PREȘEDINTE

Mircea MAN



ORIGINAL

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1. AUTORIZAȚIA nr. 20496 destinată execuției sistemelor de distribuție a gazelor naturale, a sistemelor de distribuție închise, precum și a instalațiilor aferente activității de producere/stocare biogaz/biometan ce funcționează în regim de medie, redusă și joasă presiune, tip EDSB este acordată de Autoritatea Națională de Reglementare în Domeniul Energiei, denumită în continuare ANRE, operatorului economic CIS GAZ S.A., înregistrat la Oficiul Național al Registrului Comerțului sub nr. J26/838/11.07.1991, CUI 1210493, denumit în continuare TITULAR.
2. AUTORIZAȚIA nr. 20496 este valabilă începând din data de 29.09.2021 până la data de 28.09.2026.
3. TITULARUL are obligația să respecte prevederile Condițiilor - cadru de valabilitate aferente autorizațiilor destinate activității de execuție în domeniul gazelor naturale, prevăzute în Anexa nr. 8 la Regulamentul pentru autorizarea operatorilor economici care desfășoară activități în domeniul gazelor naturale, aprobat prin Ordinul președintelui ANRE nr. 98/2015, cu modificările și completările ulterioare.

//



AUTORIZAȚIA

nr. 21535

pentru

**Execuția conductelor de alimentare din amonte și a instalațiilor tehnologice de suprafață aferente înmagazinării de gaze naturale, tip EPI
acordată**

CIS GAZ S.A.

cu sediul în comuna Sîntana de Mureș, str. Voiniceni nr. 686, județul Mureș,
CUI 1210493

înregistrat în Registrul comerțului sub nr. J26/838/1991

Durata de valabilitate a autorizației este nelimitată, începând cu data de 24.10.2022. Valabilitatea autorizației este condiționată de vizarea acesteia la data la care se împlinesc 5 ani de la data de 24.10.2022 sau, după caz, de la data ultimei vizări în scopul continuării activității autorizate.

Titularul autorizației are obligația să respecte prevederile din:

1. CONDIȚIILE-CADRU de valabilitate aferente autorizațiilor destinate activității de execuție în domeniul gazelor naturale;
2. Regulamentul pentru autorizarea operatorilor economici care desfășoară activități în domeniul gazelor naturale, aprobat prin Ordinul președintelui ANRE nr. 132/2021;
3. Legea energiei electrice și a gazelor naturale nr. 123/2012, cu modificările și completările ulterioare (*Lege*);
4. alte acte normative incidente.

Este interzisă realizarea de activități de proiectare, execuție și exploatare a obiectivelor/sistemelor/ instalațiilor din domeniul gazelor naturale de către persoane juridice sau persoane fizice care nu dețin autorizația corespunzătoare tipului de lucrări realizate sau pentru care autorizația nu a fost vizată.

Neîndeplinirea și/sau îndeplinirea necorespunzătoare a prevederilor prezentului regulament sau nerespectarea condițiilor-cadru de valabilitate asociate autorizației/autorizațiilor, în funcție de tipul de autorizație deținut, se sancționează potrivit dispozițiilor *Legii*.

p. PREȘEDINTE,
MIRCEA MAN



Data eliberării: 06.10.2022

<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>
<i>Următorul termen de vizare: 23.10.2027</i>	<i>Următorul termen de vizare:</i>	<i>Următorul termen de vizare:</i>	<i>Următorul termen de vizare:</i>
<i>Loc ștampilă ANRE Data vizării</i>	<i>Loc ștampilă ANRE Data vizării</i>	<i>Loc ștampilă ANRE Data vizării</i>	<i>Loc ștampilă ANRE Data vizării</i>
<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>
<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>
<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>



AUTORIZAȚIA

nr. 21536

pentru

Execuția sistemelor de transport, sistemelor de distribuție a gazelor naturale, sistemelor de distribuție închise, instalațiilor aferente activității de producere/stocare biogaz/biometan, precum și a instalațiilor de utilizare a gazelor naturale ce funcționează în regim de înaltă presiune, tip ET acordată

CIS GAZ S.A.

cu sediul în comuna Sîntana de Mureș, str. Voinicenilor nr. 686, județul Mureș,
CUI 1210493

înregistrat în Registrul comerțului sub nr. J26/838/11.07.1991

Durata de valabilitate a autorizației este nelimitată, începând cu data de 24.10.2022. Valabilitatea autorizației este condiționată de vizarea acesteia la data la care se împlinesc 5 ani de la data de 24.10.2022 sau, după caz, de la data ultimei vizări în scopul continuării activității autorizate.

Titularul autorizației are obligația să respecte prevederile din:

1. **CONDIȚIILE-CADRU** de valabilitate aferente autorizațiilor destinate activității de execuție în domeniul gazelor naturale;
2. Regulamentul pentru autorizarea operatorilor economici care desfășoară activități în domeniul gazelor naturale, aprobat prin Ordinul președintelui ANRE nr. 132/2021;
3. Legea energiei electrice și a gazelor naturale nr. 123/2012, cu modificările și completările ulterioare (*Lege*);
4. alte acte normative incidente.

Este interzisă realizarea de activități de proiectare, execuție și exploatare a obiectivelor/sistemelor/ instalațiilor din domeniul gazelor naturale de către persoane juridice sau persoane fizice care nu dețin autorizația corespunzătoare tipului de lucrări realizate sau pentru care autorizația nu a fost vizată.

Neîndeplinirea și/sau îndeplinirea necorespunzătoare a prevederilor prezentului regulament sau nerespectarea condițiilor-cadru de valabilitate asociate autorizației/autorizațiilor, în funcție de tipul de autorizație deținut, se sancționează potrivit dispozițiilor *Legii*.

**p. PREȘEDINTE,
MIRCEA MAN**



Data eliberării: 06.10.2022

<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>
<i>Următorul termen de vizare: 23.10.2027</i>	<i>Următorul termen de vizare:</i>	<i>Următorul termen de vizare:</i>	<i>Următorul termen de vizare:</i>
<i>Loc ștampilă ANRE Data vizării</i>	<i>Loc ștampilă ANRE Data vizării</i>	<i>Loc ștampilă ANRE Data vizării</i>	<i>Loc ștampilă ANRE Data vizării</i>
<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>
<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>
<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>



*În temeiul prevederilor Legii energiei electrice și a gazelor naturale nr. 123/2012
cu modificările și completările ulterioare.*

Se acordă

AUTORIZAȚIE

***destinată proiectării instalațiilor de utilizare a gazelor naturale
având regimul de medie, redusă și joasă presiune, tip PDIB***

nr. 20495

CIS GAZ S.A.

***cu sediul în comuna Sântana de Mureș, str. Voinicenilor, nr. 686, județul
Mureș***

**Prezenta autorizație este valabilă până la 28.09.2026, în condițiile de
valabilitate anexate.**

București, 29.09.2021

p. PREȘEDINTE

Mircea MAN



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1. AUTORIZAȚIA nr. 20495 destinată proiectării instalațiilor de utilizare a gazelor naturale având regimul de medie, redusă și joasă presiune, tip PDIB este acordată de Autoritatea Națională de Reglementare în Domeniul Energiei, denumită în continuare ANRE, operatorului economic CIS GAZ S.A., înregistrat la Oficiul Național al Registrului Comerțului sub nr. J26/838/11.07.1991, CUI 1210493, denumit în continuare TITULAR.
2. AUTORIZAȚIA nr. 20495 este valabilă începând din data de 29.09.2021 până la data de 28.09.2026.
3. TITULARUL are obligația să respecte prevederile Condițiilor - cadru de valabilitate aferente autorizațiilor destinate activității de proiectare în domeniul gazelor naturale, prevăzute în Anexa nr. 7 la Regulamentul pentru autorizarea operatorilor economici care desfășoară activități în domeniul gazelor naturale, aprobat prin Ordinul președintelui ANRE nr. 98/2015, cu modificările și completările ulterioare.

//



*În temeiul prevederilor Legii energiei electrice și a gazelor naturale nr. 123/2012
cu modificările și completările ulterioare*

Se acordă

AUTORIZAȚIE

*destinată proiectării sistemelor de distribuție a gazelor
naturale, a sistemelor de distribuție închise, precum și a
instalațiilor aferente activității de producere/stocare
biogaz/biometan ce funcționează în regim de medie, redusă și
joasă presiune, tip PDSB*

nr. 20494

CIS GAZ S.A.

*cu sediul în comuna Sântana de Mureș, str. Voinicenilor, nr. 686, județul
Mureș*

**Prezenta autorizație este valabilă până la 28.09.2026, în condițiile de
valabilitate anexate.**

București, 29.09.2021

p. PREȘEDINTE

Mircea MAN



ORIGINAL

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1. AUTORIZAȚIA nr. 20494 destinată proiectării sistemelor de distribuție a gazelor naturale, a sistemelor de distribuție închise, precum și a instalațiilor aferente activității de producere/stocare biogaz/biometan ce funcționează în regim de medie, redusă și joasă presiune, tip PDSB este acordată de Autoritatea Națională de Reglementare în Domeniul Energiei, denumită în continuare ANRE, operatorului economic CIS GAZ S.A., înregistrat la Oficiul Național al Registrului Comerțului sub nr. J26/838/11.07.1991, CUI 1210493, denumit în continuare TITULAR.
2. AUTORIZAȚIA nr. 20494 este valabilă începând din data de 29.09.2021 până la data de 28.09.2026.
3. TITULARUL are obligația să respecte prevederile Condițiilor - cadru de valabilitate aferente autorizațiilor destinate activității de proiectare în domeniul gazelor naturale, prevăzute în Anexa nr. 7 la Regulamentul pentru autorizarea operatorilor economici care desfășoară activități în domeniul gazelor naturale, aprobat prin Ordinul președintelui ANRE nr. 98/2015, cu modificările și completările ulterioare.

//



AUTORIZAȚIA

nr. 20830

pentru

proiectarea conductelor de alimentare din amonte și a instalațiilor tehnologice de suprafață aferente înmagazinării de gaze naturale, tip PPI
acordată

CIS GAZ S.A.

cu sediul în Sântana de Mureș, str. Voinicilor nr. 686, comuna Sântana de Mureș, județul Mureș
CUI 1210493

înregistrat în Registrul comerțului sub nr. J26/838/11.07.1991

Durata de valabilitate a autorizației este nelimitată, începând cu data de 16.03.2022. Valabilitatea autorizației este condiționată de vizarea acesteia la data la care se împlinesc 5 ani de la data emiterii sau, după caz, de la data ultimei vizări în scopul continuării activității autorizate.

Titularul autorizației are obligația să respecte prevederile din:

1. CONDIȚIILE-CADRU de valabilitate aferente autorizațiilor destinate activității de proiectare în domeniul gazelor naturale;
2. Regulamentul pentru autorizarea operatorilor economici care desfășoară activități în domeniul gazelor naturale, aprobat prin Ordinul președintelui ANRE nr. 132/2021;
3. Legea energiei electrice și a gazelor naturale nr. 123/2012, cu modificările și completările ulterioare (*Lege*);
4. alte acte normative incidente.

Este interzisă realizarea de activități de proiectare, execuție și exploatare a obiectivelor/sistemelor/ instalațiilor din domeniul gazelor naturale de către persoane juridice sau persoane fizice care nu dețin autorizația corespunzătoare tipului de lucrări realizate sau pentru care autorizația nu a fost vizată.

Neîndeplinirea și/sau îndeplinirea necorespunzătoare a prevederilor prezentului regulament sau nerespectarea condițiilor-cadru de valabilitate asociate autorizației/autorizațiilor, în funcție de tipul de autorizație deținut, se sancționează potrivit dispozițiilor *Legii*.

PREȘEDINTE,
DUMITRU CHIRIȚĂ



Data eliberării: 16.03.2022

<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>
<i>Următorul termen de vizare: 15.03.2027</i>	<i>Următorul termen de vizare:</i>	<i>Următorul termen de vizare:</i>	<i>Următorul termen de vizare:</i>
<i>Loc ștampilă ANRE Data vizării</i>	<i>Loc ștampilă ANRE Data vizării</i>	<i>Loc ștampilă ANRE Data vizării</i>	<i>Loc ștampilă ANRE Data vizării</i>
<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>
<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>
<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>



AUTORIZAȚIA

nr. 20831

pentru

proiectarea sistemelor de transport, sistemelor de distribuție a gazelor naturale, sistemelor de distribuție închise, instalațiilor aferente activității de producere/stocare biogaz/biometan, precum și a instalațiilor de utilizare a gazelor naturale care funcționează în regim de înaltă presiune, tip PT
acordată

CIS GAZ S.A.

cu sediul în Sântana de Mureș, str. Voinicenilor nr. 686, comuna Sântana de Mureș, județul Mureș
CUI 1210493

înregistrat în Registrul comerțului sub nr. J26/838/11.07.1991

Durata de valabilitate a autorizației este nelimitată, începând cu data de 16.03.2022. Valabilitatea autorizației este condiționată de vizarea acesteia la data la care se împlinesc 5 ani de la data emiterii sau, după caz, de la data ultimei vizări în scopul continuării activității autorizate.

Titularul autorizației are obligația să respecte prevederile din:

1. CONDIȚIILE-CADRU de valabilitate aferente autorizațiilor destinate activității de proiectare în domeniul gazelor naturale;
2. Regulamentul pentru autorizarea operatorilor economici care desfășoară activități în domeniul gazelor naturale, aprobat prin Ordinul președintelui ANRE nr. 132/2021;
3. Legea energiei electrice și a gazelor naturale nr. 123/2012, cu modificările și completările ulterioare (*Lege*);
4. alte acte normative incidente.

Este interzisă realizarea de activități de proiectare, execuție și exploatare a obiectivelor/sistemelor/ instalațiilor din domeniul gazelor naturale de către persoane juridice sau persoane fizice care nu dețin autorizația corespunzătoare tipului de lucrări realizate sau pentru care autorizația nu a fost vizată.

Neîndeplinirea și/sau îndeplinirea necorespunzătoare a prevederilor prezentului regulament sau nerespectarea condițiilor-cadru de valabilitate asociate autorizației/autorizațiilor, în funcție de tipul de autorizație deținut, se sancționează potrivit dispozițiilor *Legii*.

PREȘEDINTE,
DUMITRU CHIRIȚĂ



Data eliberării: 16.03.2022

<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>
<i>Următorul termen de vizare: 15.03.2027</i>	<i>Următorul termen de vizare:</i>	<i>Următorul termen de vizare:</i>	<i>Următorul termen de vizare:</i>
<i>Loc ștampilă ANRE Data vizării</i>	<i>Loc ștampilă ANRE Data vizării</i>	<i>Loc ștampilă ANRE Data vizării</i>	<i>Loc ștampilă ANRE Data vizării</i>
<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>
<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>	<i>Loc ștampilă ANRE Data vizării:</i>
<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>	<i>Următorul termen de vizare</i>

În conformitate cu **Decizia președintelui ANRE nr. 661/ 24-03-2023** se acordă societății **CIS GAZ S.A.** cu sediul în comuna Sîntana de Mureș, Str. Voinicenilor, nr. 686, județul Mureș, înregistrată în registrul comerțului cu nr. J26/838/1991, având codul unic de înregistrare nr. 1210493,

ATESTATUL

nr. 19204/ 24-03-2023

de tip B pentru "proiectare și executare de instalații electrice exterioare/interioare pentru incinte/ construcții civile și industriale, bransamente aeriene și subterane, la tensiunea nominală de 0,4 kV".

Condiții de valabilitate asociate atestatului:

- 1.Valabilitatea atestatului este condiționată de vizarea acestuia în condițiile Regulamentului pentru atestarea operatorilor economici care proiectează, execută și verifică instalații electrice, aprobat prin Ordinul președintelui Autorității Naționale de Reglementare în Domeniul Energiei nr. 134/2021.
- 2.Titularul atestatului are drepturile și trebuie să respecte obligațiile prevăzute în Condițiile-cadru de valabilitate asociate atestatului, prevăzute în anexele nr. 1 și nr. 2 la Regulamentul pentru atestarea operatorilor economici care proiectează, execută și verifică instalații electrice, aprobat prin Ordinul președintelui Autorității Naționale de Reglementare în Domeniul Energiei nr. 134/2021, precum și în orice altă reglementare aplicabilă aprobată de ANRE.
- 3.Neîndeplinirea și/sau îndeplinirea necorespunzătoare de către titularul prezentului atestat a obligațiilor impuse de lege sau de reglementările aprobate de ANRE în desfășurarea activităților ce fac obiectul atestatului nu atrag/nu atrage răspunderea penală, civilă, contravențională, administrativă sau materială a ANRE, iar atestarea operatorilor economici nu conduce la transferul de responsabilități de la aceștia către ANRE și nici nu îi exonerează pe aceștia de obligațiile ce le revin.

p. PREȘEDINTE,

MIRCEA MAN



Data emiterii: 24-03-2023

<i>Loc</i>  <i>ștampilă</i> <i>ANRE</i> <i>Data vizării</i>	<i>Loc</i> <i>ștampilă</i> <i>ANRE</i> <i>Data vizării</i>	<i>Loc</i> <i>ștampilă</i> <i>ANRE</i> <i>Data vizării</i>	<i>Loc</i> <i>ștampilă</i> <i>ANRE</i> <i>Data vizării</i>	<i>Loc</i> <i>ștampilă</i> <i>ANRE</i> <i>Data vizării</i>
Următorul termen de vizare 24-03-2028	Următorul termen de vizare	Următorul termen de vizare	Următorul termen de vizare	Următorul termen de vizare
<i>Loc</i> <i>ștampilă</i> <i>ANRE</i> <i>Data vizării</i>	<i>Loc</i> <i>ștampilă</i> <i>ANRE</i> <i>Data vizării</i>	<i>Loc</i> <i>ștampilă</i> <i>ANRE</i> <i>Data vizării</i>	<i>Loc</i> <i>ștampilă</i> <i>ANRE</i> <i>Data vizării</i>	<i>Loc</i> <i>ștampilă</i> <i>ANRE</i> <i>Data vizării</i>
Următorul termen de vizare	Următorul termen de vizare	Următorul termen de vizare	Următorul termen de vizare	Următorul termen de vizare

DECIZIA Nr. 661 din 24-03-2023**Având în vedere:**

- prevederile art. 1 alin. (2), art. 11 și art. 21 din Regulamentul pentru atestarea operatorilor economici care proiectează, execută și verifică instalații electrice, aprobat prin Ordinul președintelui ANRE nr. 134/ 2021 (denumit, în continuare, *Regulament*);
- cererea operatorului economic CIS GAZ S.A., înregistrată la ANRE sub nr. 8458/ 17.01.2023 referitoare la acordarea atestatului de tip B, precum și faptul că documentația depusă de societate a devenit completă la data de 20.02.2023, în urma completărilor înaintate prin adresa înregistrată la ANRE sub nr. 27407;
- Decizia ANRE nr. 205/ 23.07.2020 de împuternicire a domnului Mircea Man, vicepreședinte al Autorității Naționale de Reglementare în Domeniul Energiei.

În temeiul:

Dispozițiilor art. 5 alin. (1) lit. e) și art. 9 alin. (1) lit. s) din Ordonanța de urgență a Guvernului nr. 33/ 2007 privind organizarea și funcționarea Autorității Naționale de Reglementare în Domeniul Energiei, aprobată cu modificări și completări prin Legea nr. 160/2012, cu modificările și completările ulterioare,

Președintele Autorității Naționale de Reglementare în Domeniul Energiei emite prezenta

DECIZIE

- Art. 1. Se acordă societății CIS GAZ S.A. cu sediul în comuna Sîntana de Mureș, Str. Voinicilor, nr. 686, județul Mureș, înregistrată în registrul comerțului cu nr. J26/838/1991, având codul unic de înregistrare nr. 1210493, **Atestatul nr. 19204 de tip B** pentru "proiectare și executare de instalații electrice exterioare/ interioare pentru incinte/ construcții civile și industriale, bransamente aeriene și subterane, la tensiunea nominală de 0,4 kV".
- Art. 2. (1) Durata de valabilitate a atestatului prevăzut la art. 1 este nelimitată, începând cu data de **24.03.2023**, în condițiile verificării și vizării periodice a acestuia de către ANRE, până cel târziu la data înscrisă pe formularul de atestat, conform prevederilor *Regulamentului*.
- (2) În cazul în care atestatul prevăzut la art. 1 nu a fost vizat până la împlinirea termenului de vizare, acesta își pierde valabilitatea.
- Art. 3. Societatea CIS GAZ S.A. în calitate de titular de atestat, are competențele, drepturile și obligațiile prevăzute de *Regulament*.
- Art. 4. Prezenta decizie se comunică societății solicitante, conform prevederilor *Regulamentului*.
- Art. 5. Direcțiile generale, Direcțiile și Serviciile de resort din cadrul ANRE vor asigura aducerea la îndeplinire a prevederilor prezentei decizii și vor urmări respectarea de către titular a obligațiilor pe care le are în această calitate.

p. PREȘEDINTE,

MIRCEA MAN





1

A T E S T A T

PRIVIND CAPACITATEA REALIZĂRII DE ACTIVITĂȚI SPECIFICE

2

3

Numărul atestatului: GANEx.Q.2023.(05).12.2710

4 Activități de proiectare, montaj, mentenanță echipamente/instalații utilizate în medii potențial explozive.

5 Solicitor: CIS GAZ S.A. SÂNTANA DE MUREȘ
Str. Voinicenilor, nr. 686, jud. Mureș

6 Beneficiar utilizator: CIS GAZ S.A. SÂNTANA DE MUREȘ
Atestatul privind capacitatea realizării de activități specifice se referă la specificațiile prezentate în ANEXĂ

7 INSEMEX-GANEx, atestă pentru solicitator că are capacitatea necesară realizării de activități specifice Normativului NEx 01-06 precizate la pct. 4 dezvoltate pe cerințele SR EN ISO 9001: 2015 cu referire la cerințele specifice pentru instalații și echipamente din atmosfere potențial explozive din SR EN ISO 29001: 2020, SR EN 60079-14:2014, SR EN 60079-17:2014.

8 Prezentul atestat se bazează pe Chestionarul de evaluare a capacității nr. 5/2023.
Atestatul privind capacitatea realizării de activități specifice poate fi retras dacă titularul nu mai satisface cerințele specificate.
Constituie parte a prezentului atestat, rezultatele reevaluării periodice.

9 Data atestării curente : 06.01.2023

10 Prezentul atestat expiră la 06.01.2026 cu evaluare periodică anuală în schema INSEMEX-GANEx, și poate fi retrasă dacă titularul nu mai satisface cerințele privind asigurarea calității.

11 Prezentul atestat poate fi reprodus numai în totalitatea sa și fără nici o modificare, inclusiv anexa.

Supraveghere I

Supraveghere II

Acest atestat este acordat având în vedere condițiile generale INSEMEX-GANEx și este valabilă juridic numai însoțită de adresă oficială INSEMEX.

Dosar GANEx nr. 2710/2022
Pagina 1 din 2

Petroșani, 06.01.2023



INSTITUTUL NAȚIONAL DE CERCETARE-DEZVOLTARE
PENTRU SECURITATE MINIERĂ ȘI PROTECȚIE ANTIEXPLOZIVĂ
Str.Gen.V.Milea nr.32-34 Petrosani 332047 România
Tel.(++4)0254541621,22;; Fax.(++4) 0254546277
E-mail : insemex@insemex.ro.





A T E S T A T

PRIVIND CAPACITATEA REALIZĂRII DE ACTIVITĂȚI SPECIFICE

Numărul atestatului : GANEx.Q.2023.(05).12.2710

Activități de proiectare, montaj, mentenanță echipamente/instalații utilizate în medii potențial explozive

Metode de protecție la explozie pentru care a fost evaluat titularul:

Aparatură electrică cu tipuri de protecție:

Capsulare antideflagranta (d)

Securitate intrinsecă (i)

Securitate mărită (e)

Încapsulare în masă (m)

Protecție (n)

Presurizare (p)

Protecție prin carcasă (t)

Materiale fără pericol de scântei mecanice și electricitate statică

Echipamente neelectrice cu tipuri de protecție:

Capsulare antideflagranta

Securitate constructivă

Controlul surselor de aprindere

Imersie în lichid

Presurizare

Responsabilul activității:

ALEXANDRU FLORIN ANTON

Responsabilul calității:

GOTA MARIUS

Tipuri de echipamente din instalațiile tehnice pentru care a fost evaluat titularul

Motoare, transformatoare, generatoare, servomotoare liniare și rotative

Capsulări, cutii de borne și plăci de borne

Instrumentație, echipamente de măsură și comandă

Senzori, traductoare și comutatoare de semnalizare

Echipamente neelectrice

Echipamentele folosite trebuie să se identifice printr-un certificat emis de un organism recunoscut și de asemenea prin marcajul și declarația de conformitate.

În cazul în care sunt cuprinse în activitate alte tipuri de echipamente, fiecare tip suplimentar trebuie să fie însoțit de declarația de conformitate și documentația tehnică de evaluare a conformității cu cerințele esențiale din Anexa 2/HG 245/2016 elaborate de către producător sau reprezentantul său autorizat și după caz de certificatul adițional INSEMEX-GANEx privind aparatura adițională sau decizia de înregistrare a documentației la organismul recunoscut.

Prezentul atestat nu poate fi folosit fără identificarea documentară menționată mai sus și înțelegerea scrisă cu beneficiarul.

Specificații adiționale pentru supraveghere:

Specificațiile adiționale prevăzute în fiecare caz de atestare, privind securitatea la explozie și cerințele suplimentare pentru protecția la explozie care rezultă pentru supravegherea în schema GANEx cu reevaluare anuală și reciclare la trei ani.

Atestatul nu poate fi folosit fără specificațiile adiționale menționate.

Grup tehnic de lucru :

Dr. ing. T. Csaszar

Dr. ing. L. Moldovan

Numărul anexei 1/1

Pagina 2 din 2





MINISTERUL CERCETĂRII, INOVĂRII ȘI DIGITALIZĂRII
INSTITUTUL NAȚIONAL DE CERCETARE-DEZVOLTARE PENTRU
SECURITATE MINIERĂ ȘI PROTECȚIE ANTIEXPLOZIVĂ - INSEMEX PETROȘANI

Adresă: str. G-ral. Vasile Milea, nr. 32 - 34, cod 332047, Petroșani, jud. Hunedoara - ROMÂNIA
Tel: (40) 254 541 621; (40) 254 541 622; Fax: (40) 254 546 277
Nr. Reg. Com. J20/1504/1992, CUI 2564676, IBAN: RO18RNCB0165020175140001 BCR Petroșani
E-mail: insemex@insemex.ro Web: <http://www.insemex.ro>

DESTINATAR:

CIS GAZ S.A.

In atenția d-nei Alexandru Paula

Str. Voinicenilor, nr. 686,
cod poștal 547565,
Sântana de Mureș, Jud. Mureș

INCD INSEMEX PETROȘANI

05.IAN. 2023

IEȘIRE NR. 53

Ref. dvs. 2017/28.09.2022

Ref. dos. GANEx 2694/21.10.2022

Nr. intr. INSEMEX 10810/20.10.2022

Vă trimitem alăturat autorizațiile pentru ȘANTA-GYERESI IOAN (1039/29.11.2022), PETRAȘCU ADRIAN-HORIA (1040/29.11.2022) din cadrul CIS GAZ S.A.



ȘEF GANEx

DR. ING. ȘORIN BURIAN



AUTORIZAȚIE

pentru personalul cu responsabilități privind echipamentele
tehnice și instalațiile din spații industriale cu pericol de
atmosfere explozive

Nr. INSEMEX-GANex 1040 din 29.11.2022

Se atestă pregătirea profesională și capacitatea domnului
PETRAȘCU ADRIAN-HORIA pentru a presta servicii legate de
activitățile nominalizate în anexa ce face parte integrantă din prezenta
autorizație, în spații industriale cu pericol de atmosferă explozivă în
conformitate cu:

- Legea Securității și Sănătății în Muncă nr. 319 din 14.07.2006 și
Normele metodologice de aplicare;
- Normativul NEx 01-06/2007;
- HG 1058/2006;
- Standardele specifice aplicabile.

Valabilă până la **29.11.2025**.

*Acest document este valabil juridic numai însoțit de adresă oficială INSEMEX.
Persoana autorizată poate să-și exercite atribuțiile ce-i revin ca urmare a autorizării,
numai în cadrul unității care l-a delegat în acest scop.*



1. Numele și prenumele: **PETRAȘCU ADRIAN-HORIA**
Data, locul nașterii: 20.02.1980, Făgăraș, jud. Brașov
CNP 1800220081810
2. Persoana juridică angajatoare: CIS GAZ S.A.
Adresa: Str. Voinicenilor, nr. 686, Sântana de Mureș, jud. Mureș
3. Pregătirea profesională de bază: Universitatea "Lucian Blaga" din Sibiu - Facultatea de Inginerie
4. Experiența în domeniu: 15 ani
5. Meseria: inginer
6. Activitatea (activitățile) pentru care se acordă autorizația:
 - ♦ Proiectare ♦ Utilizare/Exploatare

INSEMEX Petroșani
Str. G-ral V.Milea nr. 32-34, 332047 Petroșani
Jud. Hunedoara - România



AUTORIZAȚIE

pentru personalul cu responsabilități privind echipamentele
tehnice și instalațiile din spații industriale cu pericol de
atmosfere explozive

Nr. INSEMEX-GANEx 1039 din 29.11.2022

Se atestă pregătirea profesională și capacitatea domnului
ȘANTA-GYEREȘI IOAN pentru a presta servicii legate de activități
nominalizate în anexa ce face parte integrantă din prezenta autorizație,
în spații industriale cu pericol de atmosferă explozivă în conformitate cu:

- Legea Securității și Sănătății în Muncă nr. 319 din 14.07.2006 și
Normele metodologice de aplicare;
- Normativul NEx 01-06/2007;
- HG 1053/2006;
- Standardele specifice aplicabile.

Valabilă până la 29.11.2025.

*Acest document este valabil juridic numai însoțit de adresă oficială INSEMEX.
Persoana autorizată poate să-și exercite atribuțiile ce-i revin ca urmare a autorizării,
numai în cadrul unității care l-a delegat în acest scop.*



ANEXA

1. Numele și prenumele: **ȘANTA-GYEREȘI IOAN**
Data, locul nașterii: 15.07.1954, Iclându Mare, Iclânzal, jud. Mureș
CNP 1540715264407
2. Persoana juridică angajatoare: CIS GAZ S.A.
Adresa: Str. Voinicilor, nr. 686, Sântana de Mureș, jud. Mureș
3. Pregătirea profesională de bază: Liceul de Chimie nr. 1 Târgu Mureș
- Școala Tehnică de Maiștri
4. Experiența în domeniu: 25 ani
5. Meseria: maistru
6. Activitatea (activitățile) pentru care se acordă autorizația:
 - ♦ Proiectare ♦ Montare ♦ Punere în funcțiune
 - ♦ Utilizare/Exploatare ♦ Inspecție ♦ Întreținere

INSEMEX Petroșani
Str. G-ral V.Milea nr. 32-34, 332047 Petroșani
Jud. Hunedoara - România



*În temeiul prevederilor Legii energiei electrice și a gazelor naturale nr. 123/2012
cu modificările și completările ulterioare*

Se acordă

AUTORIZAȚIE

*destinată execuției instalațiilor de utilizare a gazelor naturale
având regimul de medie, redusă și joasă presiune, tip EDIB*

nr. 20497

CIS GAZ S.A.

*cu sediul în comuna Sântana de Mureș, str. Voinicenilor, nr. 686, județul
Mureș*

**Prezenta autorizație este valabilă până la 28.09.2026, în condițiile de
valabilitate anexate.**

București, 29.09.2021

p. PREȘEDINTE

Mircea MAN



ORIGINAL

ORIGINAL

ORIGINAL

ORIGINAL