Biral®

Mehr als Pumpen

BS 5279 / BS 5319

Steuerung Optionen

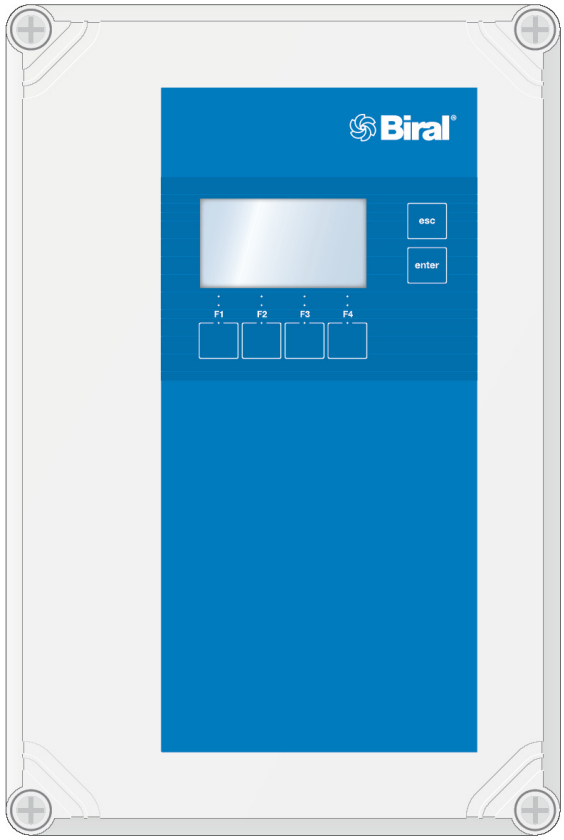
Einbauanleitung
Seite: 3

Options de commande

Instruction de montage
Page: 13

Control options

Fitting instructions
Page: 23



Contents **Page**

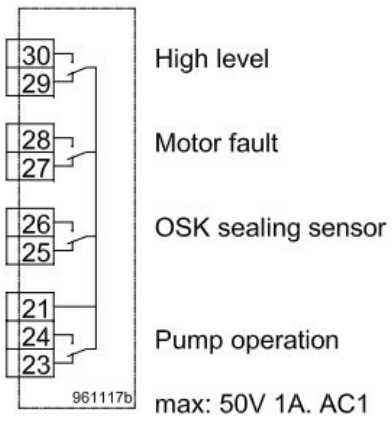
1 Purpose

These instructions supplement the operating instructions:

- BS 5279 (08 0508.2006)
- BS 5319 (08 0509.2006)

General information on the control units and their application can be found in the documents mentioned above.

2 Relay card for BS 5279 (1 pump)



2.1 Functional description

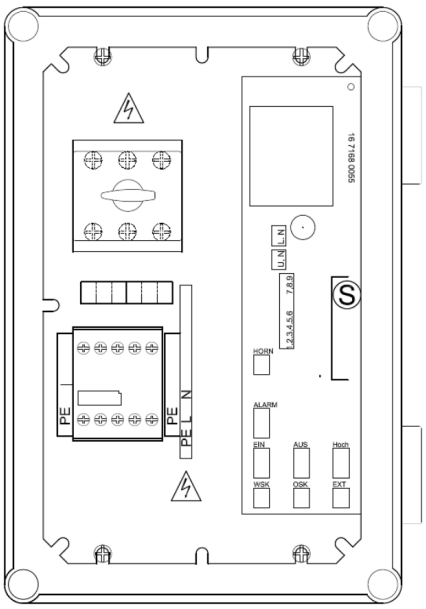
The relay card is used for communication between the control unit and a "central control and monitoring system“ (ZLT).
The ZLT relay card is fitted with 4 relays to supply the following operating messages to a ZLT system:

- High level
- Motor fault – WSK has operated, overcurrent
- OSK sealing sensor – water has penetrated into the oil-barrier chamber
- Pump operation - pump running

The zero potential contacts must be supplied with voltage via terminal 21. Maximum contact load 50 V / 1A (AC1).

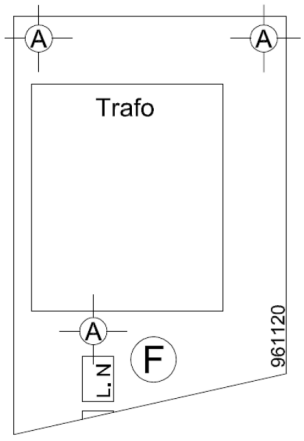
2.2 Control structure

Survey of control components and connector assignments.

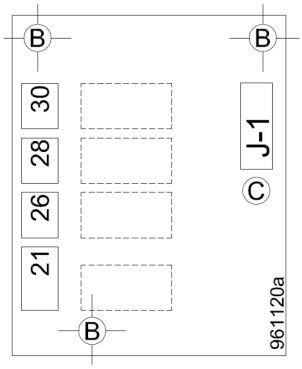


2.3 Installation

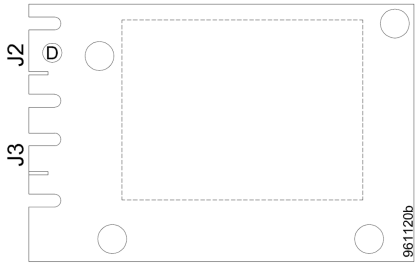
The relay card is fixed over the transformer with 3 spacing bolts. A connecting cable to the operating card ensures communication. The standard software is already configured for ZLT card operation.



1. Replace the fixing screws "A“ with the spacing bolts supplied.



2. Fit the ZLT card with the fixing screws "A“ on the spacing bolts "B“.



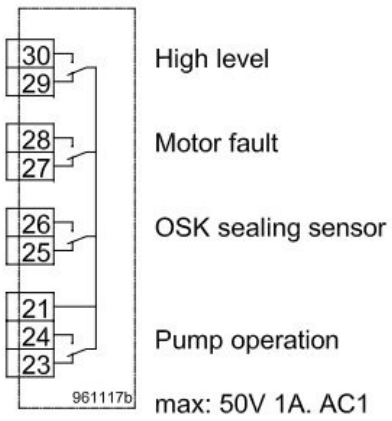
3. The ribbon cable is inserted between socket "J-1“ on the ZLT card and the contact strip "J2" of the operating card.

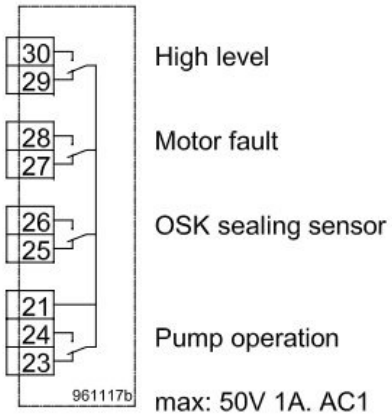
4. Test the functions of the ZLT card (refer to operating instructions BS 5279, section 7.2).

2.4 Spare-parts

Article designation	Art. no.
Relay card	16 7175 0000
Cable	16 1202 0000
Complete set	16 7175 0100

3 Relay card for BS 5319 (2 pumps)



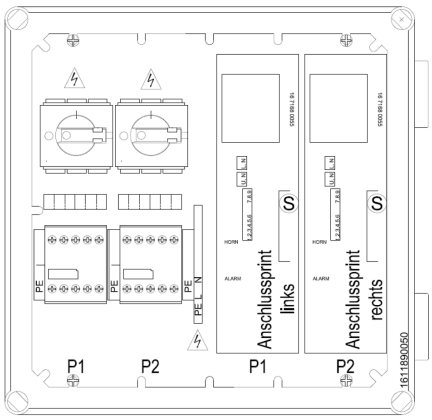


3.1 Functional description

The relay card is used for communication between the control unit and a "central control and monitoring system" (ZLT).
2 identical ZLT cards are used for dual pump systems.
The ZLT relay card is fitted with 4 relays (1 card per pump) in order to supply the following operating messages to a ZLT system:

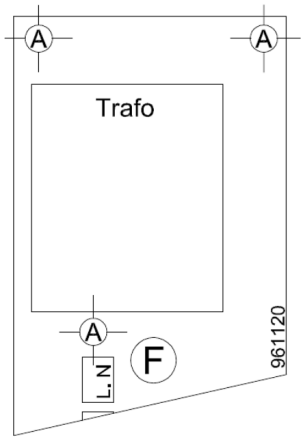
- High level
- Motor fault 1 / 2 - WSK has operated, overcurrent
- OSK sealing sensor 1 / 2 - water has penetrated into the oil-barrier chamber
- Pump 1 / 2 operation - pump running

The zero potential contacts must be supplied with voltage via terminal 21. Maximum contact load 50 V / 1A (AC1).



3.2 Control structure

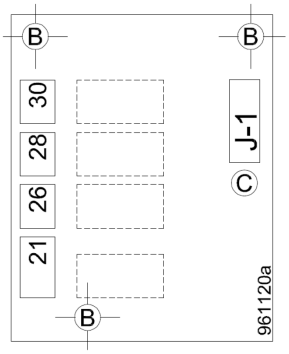
Survey of control components and connector assignments.



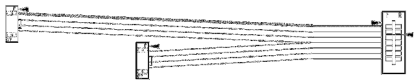
3.3 Installation

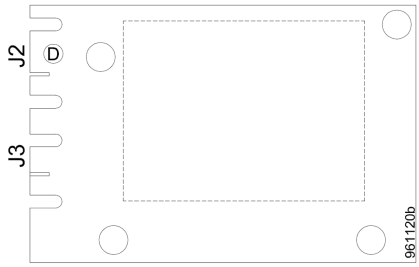
The relay card is fixed over the transformer of connecting card 1 or 2 with 3 spacing bolts. A connecting cable to the operating card ensures communication. The standard software is already configured for ZLT card operation.

1. Replace fixing screws "A“ with the spacing bolts supplied.



2. Fit the ZLT card with fixing screws "A“ on the spacing bolts "B“.





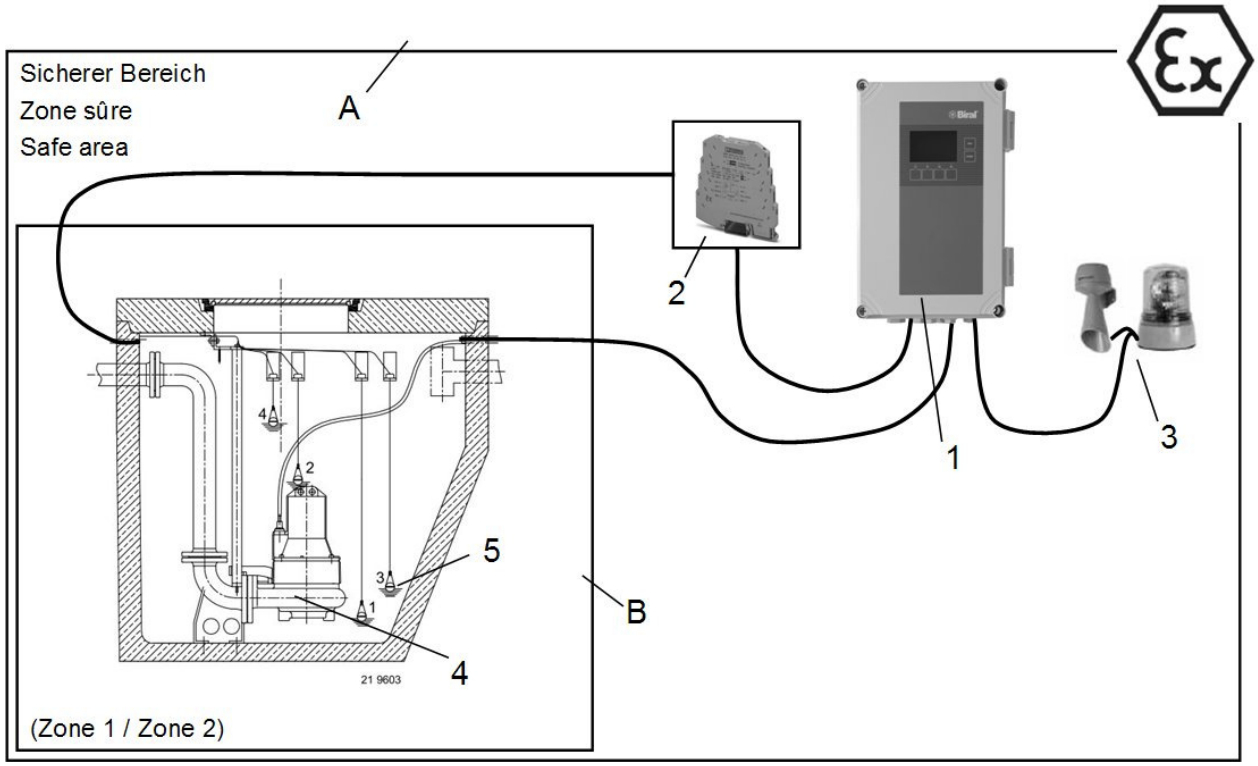
3. The longer end of the ribbon cable is inserted in socket "J-1“ of the ZLT-card on the left-hand connecting card, the shorter ribbon cable end in socket "J-1“ of the ZLT card on the right-hand connecting card. The common plug is inserted in contact strip "J2“ on the operating card.

4. Test the functions of the ZLT card (refer to operating instructions BS 5319, section 7.2).

3.4 Spare-parts

Article designation	Art. no.
Relay card	16 7175 0000
Cable 14-core	16 1203 0000
Complete set	16 7175 0200

4 ATEX signal separator box for BS 5279 (1 pump)



Explanation of diagram:
Safe area (position **A**) means that there is no danger of explosion in this area.
The following components must be installed in this room:

1. Control unit BS 5279
2. ATEX signal separator box for BS 5279 with 4 signal separators
3. Alarm indicator (signal horn, revolving lamp, etc)
    - Further components not conforming with ATEX

Area with danger of explosion (position **B**) means that there is a probability of development of explosive atmospheres.
For zones 1 and 2 we supply the following material with the corresponding approvals:

4. Waste water and sewage pump with ATEX protection class: II 2G/EExd IIB T4
5. Float switches with ATEX protection class: Ex ia IIC T6

4.1 Functional description

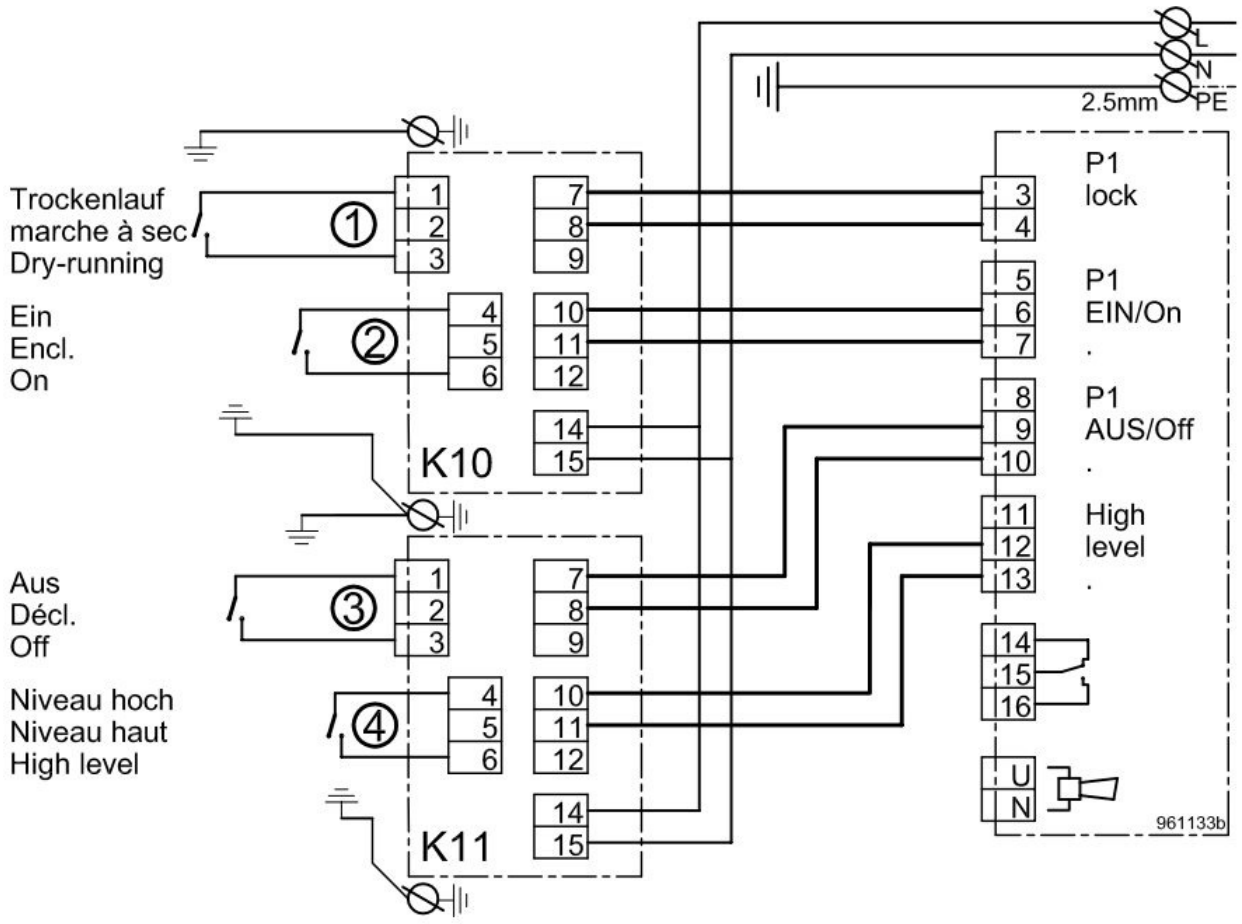
The ATEX signal separator box separates the signal lines between the control unit (BS 5279) and the float switches. This ensures a reliable exchange of signals between the safe area and the area subject to explosion.

A special feature for systems in rooms subject to explosion is that all mechanical friction, i.e. "sparking", must be avoided. This dry-running protection is ensured with an additional float switch. This is mounted in the shaft so that the switch operates and the pump is stopped shortly before the pump suction port emerges from the medium.

Caution, note:

- The control unit BS 5279 and the signal separator box must **not** be installed in areas subject to explosion.
- The float switches MS1EX are provided with an earth conductor. This must always be connected to the earth terminal in the signal separator box.
- Electrical connection must be performed by a qualified electrician in compliance with the local power supply companies (EVU). NIN (CENELEC) regulations must be observed.

4.2 Connection diagram for signal separator box for BS 5279



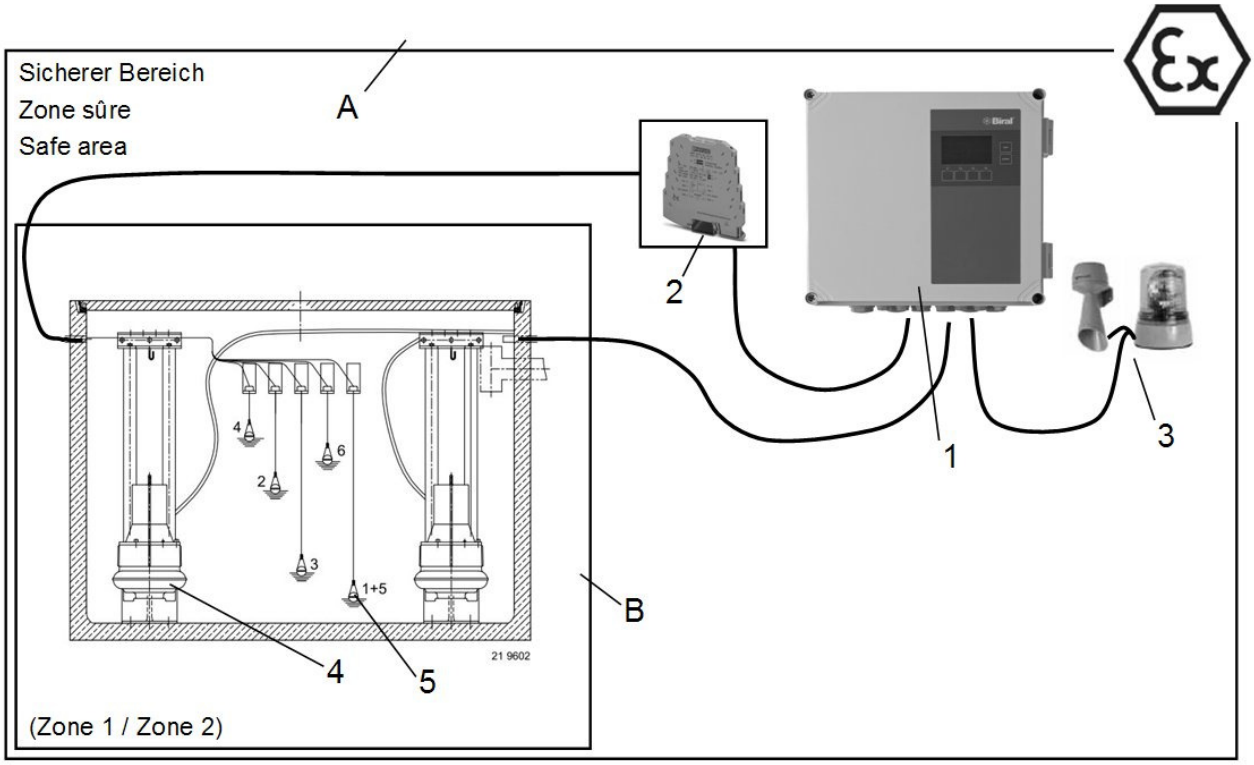
4.3 Control configuration

The software for control unit BS 5279 must be configured for application with "float switches with 2 conductor connection“. Refer to operating instructions 08 0503.2006 (control unit for single pump systems), section 7.2.

4.4 Spare-parts

Article designation	Art. no.
ATEX signal separator box for BS 5279	16 1204.0000
Signal separator (type test certificate PTB 00 ATEX 2081)	05 9352 6500
Float switch 6m	05 9331 0800
Float switch 12m	05 9331 0900

5 ATEX signal separator box for BS 5319 (2 pumps)



Explanation of diagram:
Safe area (position **A**) means that there is no danger of explosion in this area.
The following components must be installed in this room:
1 Control unit BS 5319
2 ATEX signal separator box for BS 5319 with 8 signal separators
3 Alarm indicator (signal horn, revolving lamp, etc)
- Further components not conforming with ATEX

Area with danger of explosion (position **B**) means that there is a probability of development of explosive atmospheres.
For zones 1 and 2 we supply the following material with the corresponding approvals:
4 Waste water and sewage pump with ATEX protection class: II 2G/EExd IIB T4
5 Float switches with ATEX protection class: Ex ia IIC T6

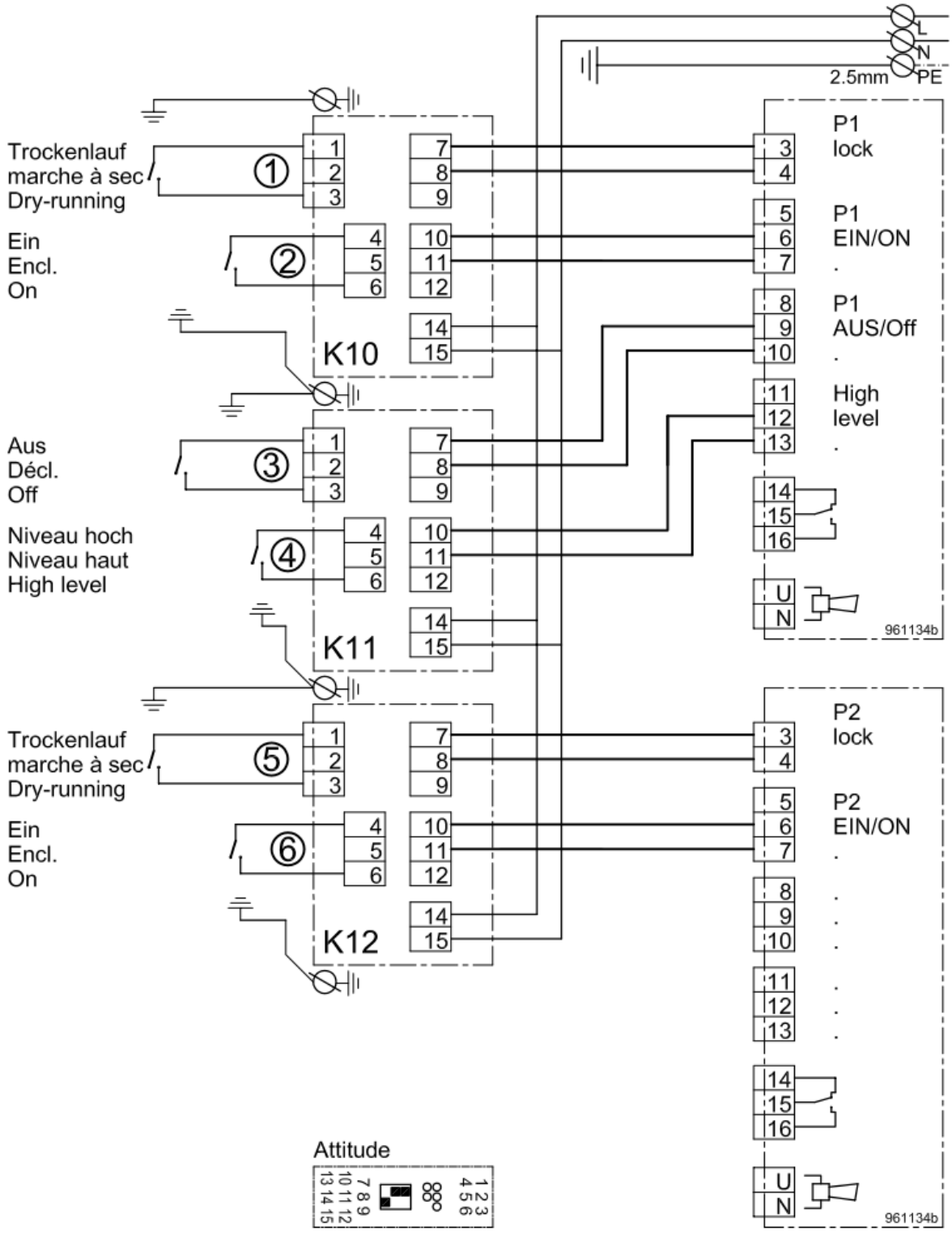
5.1 Functional description

The ATEX signal separator box separates the signal lines between the control unit (BS 5319) and the float switches. This ensures a reliable exchange of signals between the safe area and area subject to explosion.

A special feature for systems in rooms subject to explosion is that all mechanical friction, i.e. "sparking", must be avoided. This dry-running protection is ensured with an additional float switch. This is mounted in the shaft so that the switch operates and the pump is stopped shortly before the pump suction port emerges from the medium.

Caution, note:
- The control unit BS 5319 and the signal separator box must **not** be installed in areas subject to explosion.
- The float switches MS1EX are provided with an earth conductor. This must always be connected to the earth terminal in the signal separator box.
- Electrical connection must be performed by a qualified electrician in compliance with the local power supply companies (EVU). NIN (CENELEC) regulations must be observed.

5.2 Connection diagram for signal separator box for BS 5319



5.3 Control configuration

The software for the control unit BS 5319 must be configured for application with "float switches with 2 conductor connection". Refer to operating instructions 08 0505.2006 (control unit for double pump systems), section 7.2.

5.4 Spare-parts

Article designation	Art. no.
ATEX signal separator box for BS 5319	16 1205.0000
Signal separator (type test certificate PTB 00 ATEX 2081)	05 9352 6500
Float switch 6m	05 9331 0800
Float switch 12m	05 9331 0900

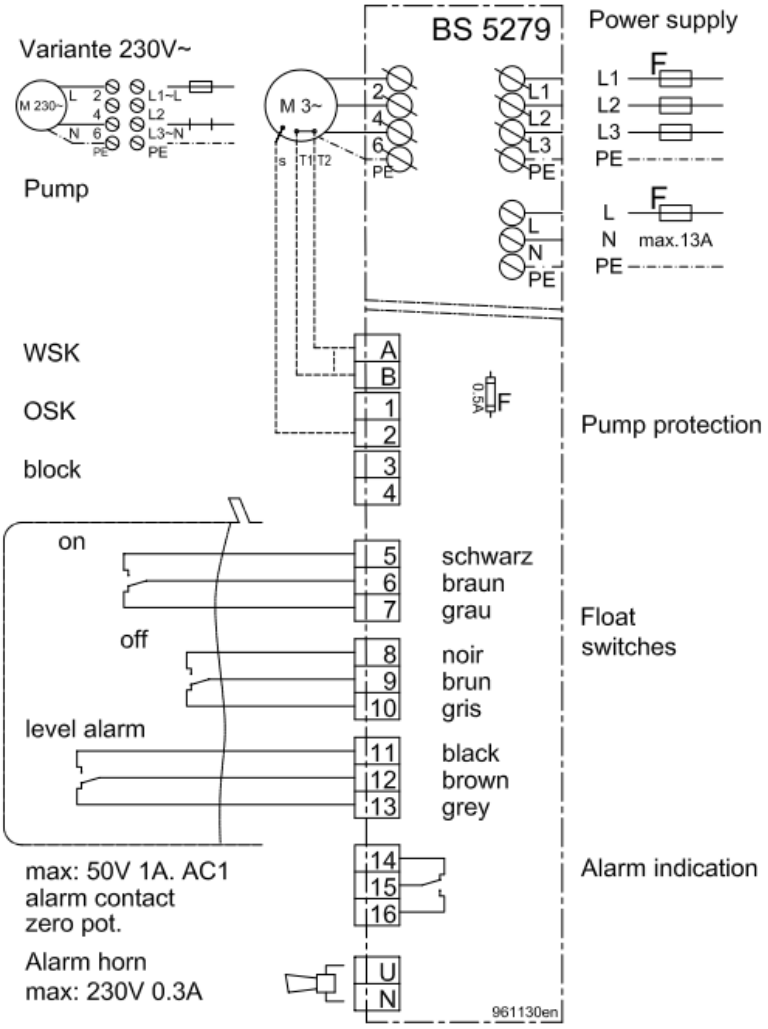
6 BS 5279 with "Fill shaft" function

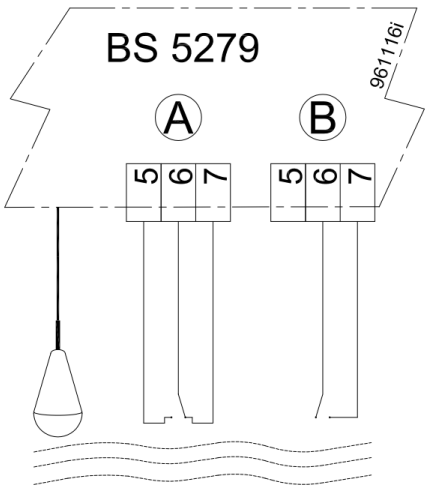
6.1 Functional description

With the following wiring, the BS 5279 control unit can be used to fill containers.

Note: The source is not then monitored.

6.2 Connection diagram





Note assignment of connections to float switches.

If the float switches are not connected according to the connection diagram, the correct symbols will not be shown on the display.

A = connection 3 conductor (recommended)
B = connection 2 conductor (configuration must be adapted)

Article designation	Art. no.
BS 5279 with “fill shaft” function	16 1216.0000

6.3 Dry-running protection

Dry-running protection (monitoring of source) is **not** provided with this control version.
If dry-running protection is required, the reservoir control unit BS 5185 (06 5185.00xx) must be used.

6.4 Display

These comments refer to the "Fill shaft / reservoir" function. Further details of operation and settings can be found in the operating instructions 08 0503.2006.

6.4.6 Automatic operation

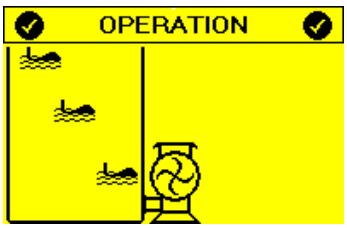


Fig. 1: Rest condition with float switches
- Pump ready
- No operation
- All float switches have tripped

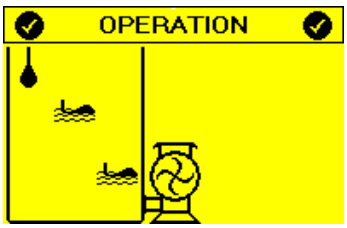


Fig. 2: Shaft / reservoir emptying
- Pump ready
- No operation
- **"Off"** float switch suspended (actuated)

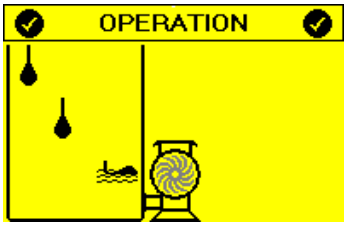


Fig. 3: Pump switches on
- Pump running
- **"On"** float switch suspended (actuated)
- **"Off"** float switch suspended (actuated)

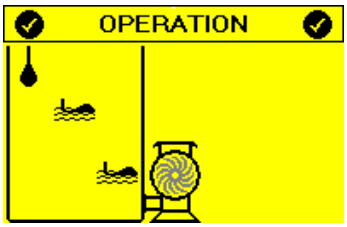
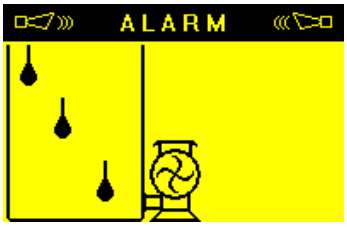


Fig. 4: Shaft / reservoir filling
- Pump running
- **"On"** float switch tripped
- **"Off"** float switch suspended

Return to initial condition (fig. 1)

6.4.7 Putting into service

The reservoir must be empty when putting into service.



The pump is started by the **"Low level"** float switch (lowest float switch) and the container begins to fill until the **"Off"** float switch (highest float switch) is actuated and the pump stops.

Note:
- The **"Low level alarm"** can only be acknowledged when the **"Low level"** float switch is no longer in the suspended condition.
- If no **"Low level"** float switch is fitted, a jumper *must* be fitted at the connecting terminal 11 / 12.
- The **"Low level"** float switch must *not* be fitted to the source as **"High level"** or as **"Dry-running protection",** since this starts the pump.

7 BS 5279 with manual pump starting

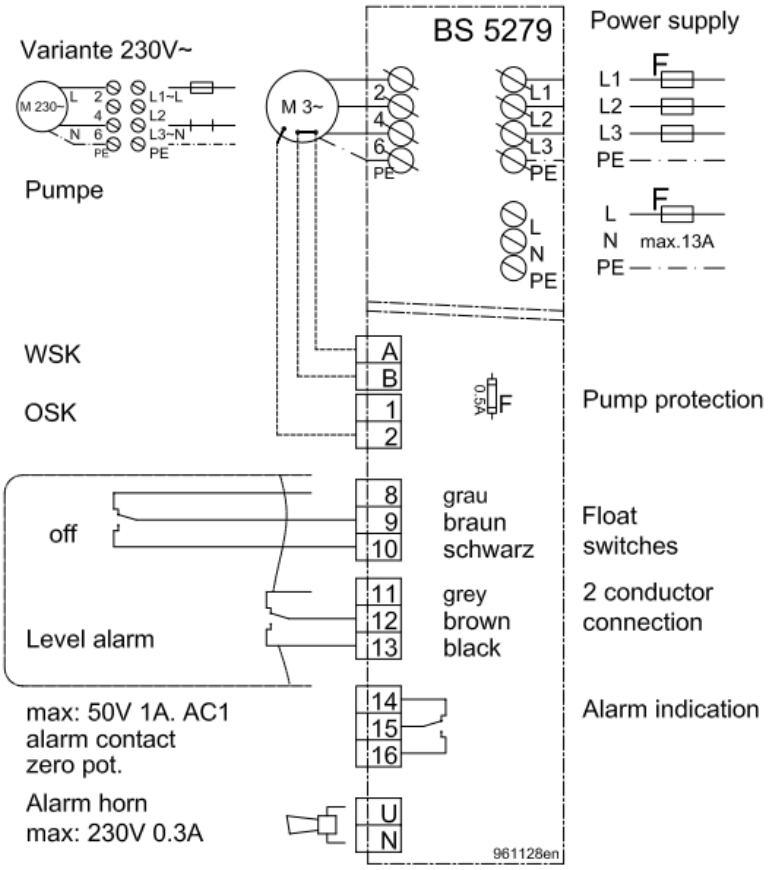
7.1 Functional description

The pump does not start automatically, but must be started with the pushbutton fitted.
When the **"High level"** filling level is reached, the operator is informed acoustically or visually that the pump should be started. After starting the pump manually, the pump runs until the **"Off"** float switch is reached and then stops.

Possible applications:

- Inspection of discharge pipe before pumping out (tightness)
- Inspection of medium composition before pumping out
- etc

7.2 Connection diagram



Article designation	Art. no.
BS 5279 with manual pump starting	06 5279.1008

7.3 Display

Serves as information for the customer to indicate that the pump must specifically be started manually.
This condition is abnormal in waste water plants and is shown visually.

7.3.6 Automatic operation

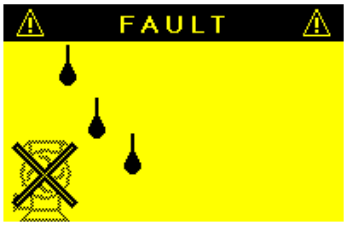


Fig. 1: Rest condition with float switches

- Pump blocked
- No pump operation
- All float switches are suspended (shaft empty)

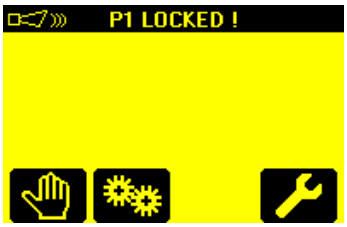


Fig. 2: Indicates that the pump is blocked

Fig. 3: Shaft filling

- Pump blocked
- No pump operation
- **"Off"** float switch tripped

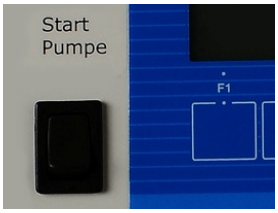
Note:
Shaft can, but need not yet, be emptied [*]

Fig. 4: Shaft filled

- Pump blocked
- **"Off"** float switch tripped
- **"High level"** float switch tripped
  - with **"High level"** alarm signal

Note:
Shaft **must** be emptied. Press **"Start pump"** button. The alarm can be acknowedged as soon as the "High level" float switch has reached the suspended position. Pump stopped with **"Off"** float switch.
In this mode, standby operation (pump switched on with the "High level" float switch) is deactivated.

Return to initial conditon (fig. 1)

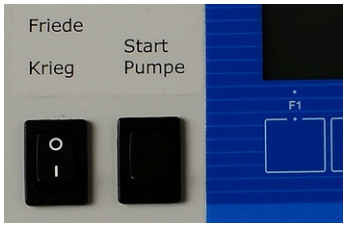


* **"Start pump"** button can be pressed at any time. Pump stopped with the **"Off"** float switch.

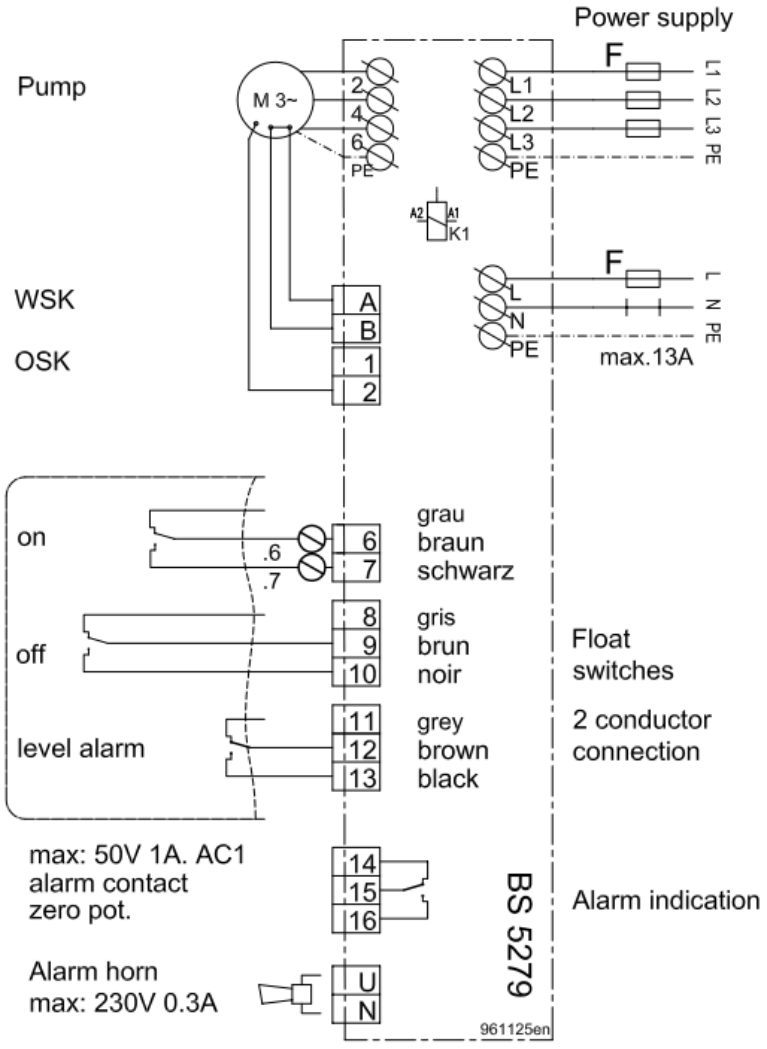
8 BS 5279 with man. / aut. pump start selector switch

8.1 Functional description

Control unit with a **"manual** / **automatic pump operation"** selector switch.
This version is designed specially for civil defence systems. When the selector switch is at the **"Peace"** position, the system operates fully automatically.
As soon as the selector switch is set to the **"War"** position, the system warden must first check the waste water pipes for defects and then start the pump cycle by pressing the button. The pump stops automatically when the switch-off level is attained. In this mode, standby operation (pump switched on with the "High level" float switch) is deactivated.



8.2 Connection diagram



Article designation	Art. no.
BS 5279 with aut. / man. pump starting	06 5279.2008

8.3 Display

Serves as information for the customer to indicate that the pump must specifically be started manually.
This condition is abnormal in waste water plants and is shown visually.

8.3.6 Automatic operation "Peace"

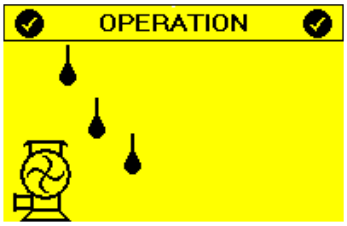


Fig. 1: Sequence according to operating instructions 08 0503.2006.

Button **“Friede** / **Krieg”** on position **"0"**

8.3.7 Wartime operation

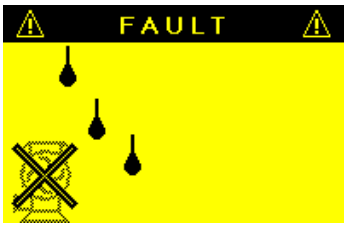


Fig. 2: Rest condition with float switches

- Pump blocked
- No pump operation
- All float switches are suspended (shaft empty)

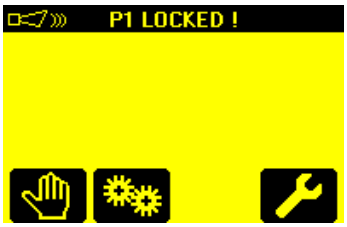


Fig. 3 Indication that the pump is blocked

Fig. 4: Shaft filling

- Pump blocked
- No pump operation
- **"Off"** float switch tripped

Note:
Shaft can, but need not, be emptied [*]

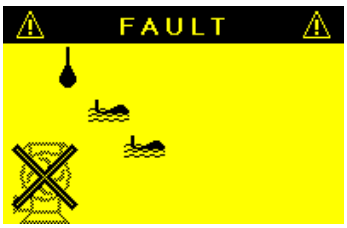


Fig. 5: Shaft filling

- Pump blocked
- **"Off"** float switch tripped
- **"On"** float switch tripped

Note:
Shaft can, but need not, be emptied [*]

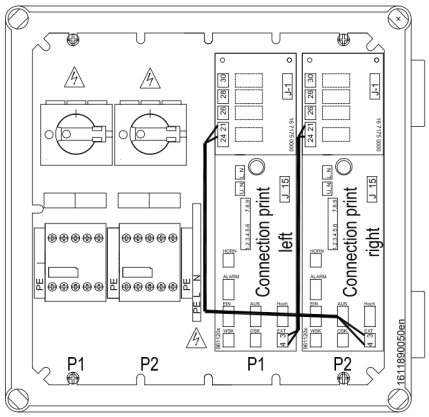
Fig. 6: Shaft full

- Pump blocked
- **"High level"** float switch tripped
- **"Off"** float switch tripped
- **"On"** float switch tripped
  - with **"High level"** alarm signal

Note:
Shaft **must** be emptied, press **"Start pump“** button, the alarm can be acknowledged as soon as the **"High level"** float switch has reached the suspended position. Pump stopped with the **"Off"** float switch.
In this mode, standby operation (pump switched on with the **"High level"** float switch) is deactivated.

* "**Start pump"** button can be pressed at any time, pump stopped with the **"Off"** float switch.

9 Electrical pump blocking unit BS 5319



4.1 Functional description

If parallel operation of the pumps is not permissible in a dual pump system with pressure sensor, the pumps must be mutually interlocked. This prevents the 2nd pump switching on when the water flow is high.

4.2 Instructions

Material required:

- Auxiliary card 16 7175.0200
- 0.5 mm² stranded wire (orange)

Construction of auxiliary card:

- See section 3

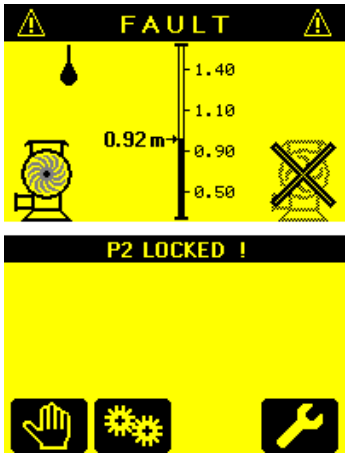
Wiring:

The following 4 jumpers must be provided:

Auxiliary card, connecting card left	Connecting card right
Terminal 21	Terminal 3
Terminal 24	Terminal 4

Auxiliary card, connecting card right	Connecting card left
Terminal 21	Terminal 3
Terminal 24	Terminal 4

4.3 Message on display



The message **"Fault - P1 / P2 blocked"** is shown on the display.
This is provided as information for the operator, so that it is clearly indicated that the pumps are interlocked.
No fault message or collective alarm is transmitted.

Biral AG Münsingen, Hauptsitz Schweiz

Biral AG
Südstrasse 10
CH-3110 Münsingen
T +41 31 720 90 00
F +41 31 720 94 42
info@biral.ch
www.biral.ch

Biral GmbH
Präzisionspumpen
Freiherr-vom-Stein-Weg 15
D-72108 Rottenburg am Neckar
T +49 07472 16 33 0
F +49 07472 16 34 0
info@biral.de
www.biral.de

Biral Pompen B.V.
Printerweg 13 3821 AP
Postbus 2650 3800 GE
NL–Amersfoort
Tel. +31 33 455 94 44
Fax +31 33 455 96 10
info@biral.nl
www.biral.nl

Nr 10/09 0805062006_01 d/f/e