

# Accompanying Book

## Operating Device in Potentially Explosive Atmospheres

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<b>Version</b>	<b>Date</b>	<b>Modifications</b>
1	08.12.2005	First Edition
2	25.04.2006	Chapter „Potential Equalization / Protective Conductor“ enlarged

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# 1 Operating Device in Potentially Explosive Atmospheres of Zone 2/22

## 1.1 Validity

This accompanying book is only valid for the operating devices specified under "Valid for" on the cover sheet. The warning instructions only apply to operating devices bearing the relevant explosion protection marking on the nameplate.

## 1.2 Area of Application

The operating devices bearing the relevant marking comply with the design requirements of EN 60079-15:2003 governing electrical equipment intended for use in potentially explosive areas of Zone 2 as well as the requirements of EN 61241-1:2004 governing electrical equipment intended for use in potentially explosive areas of Zone 22 under the following conditions:

- Use the original installation components (seal and mounting brackets) to install the operating device.
- The installation must comply with the IP54 degree of protection.
- The installation housing for the operating device must comply with the design requirements in accordance with EN 60079-15, Category 3 G or EN 61241-1, Category 3 D.
- Use the retaining devices provided to lock the connector.

### 1.3 Mounting the Device

Mount the operating device in a way that complies with at least the IP54 degree of protection. You can ensure an IP65 degree of protection at the front as follows:



Only use the original installation components (seal and mounting brackets).



When installing the device, leave a gap of at least 30mm (1.181") around the device to ensure sufficient air circulation.



When the operating device is installed horizontally, please note that additional sources of heat beneath the operating device may result in heat accumulation. Take care to provide for sufficient heat dissipation! Observe the permissible temperature range governing the use of the operating device!  
Horizontal installation position: 40°C (104°F), vertical installation position: 50°C (122°F).



To ensure the specified degree of protection, make sure that the seal rests flat on the mounting surface and that the threaded pins of the mounting brackets are uniformly tightened.



For the dimensions of the mounting cut-out, refer to the product-specific user manual for the operating device.

The device can be easily and quickly mounted from the rear of the device. Ideally, the device should be installed in switch panels with a plate thickness of approx. 1 mm to 6 mm (0.039" to 0.236").

1. Insert the device from the front through the mounting cutout.

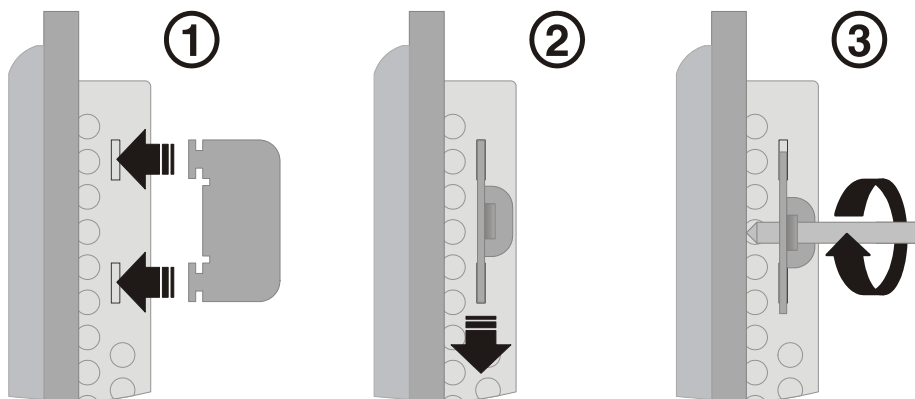


Bild 1-1 Mounting the device using a mounting bracket

2. Insert the mounting brackets into the appropriate openings (figure 1) and pull the brackets downwards until they lock in place (figure 2).
3. Fasten the device into position using the threaded pins (figure 3).

## 1.4 Surface Temperature of the Housing

The maximum surface temperature of the housing of the operating device is 65 °C (149° F) at an ambient temperature of 50 °C (122° F) for a vertical installation and 40°C (104°F) for a horizontal installation.



It is not permissible to cancel the degree of protection while the entire system is operating.

The absence of an explosive atmosphere must be guaranteed prior to any maintenance work being carried out.

In the event of damage to the operating device, it must be switched off immediately and exchanged. Damage may include the following:

Cracks or peeling of the individual protective covers or a crack in the area surrounding the display window.

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## 1.5 Connecting the Device

Connect the operating device in the following sequence:

1. Equipotential bonding
2. Controller
3. Programming computer
4. Peripherals (if required)
5. Supply voltage

### 1.5.1 EMC

An installation that conforms to EMC requirements as well as the use of interference-free cables represents a basic requirement in ensuring trouble-free operation.



- Use only shielded cables for all data connections.
  - Screw and lock all connectors in place.
  - Do not run data lines and power lines along the same cable duct.
  - Süttron electronic GmbH accepts no liability for any malfunction and damage resulting from the use of self-made cables.
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### 1.5.2 Potential Equalization / Protective Conductor

You have to connect all conductive parts, the construction and the installation into potential equalization.

You must connect the shieldings in several places to earth against inductive influences.

- The isolated earth conductor must have a minimum cross-section of 4 mm<sup>2</sup>.
- An insulation test of 500 V must be passed against all conductors and cable armourings from earth conductor and shielding.
- The isolated earth conductor and the shielding only may be connected to earth at the same point once. This must be in the not explosive area at the end of the cable.
- The isolated earth conductor must be placed protectedly against damages.

### 1.5.3 Supply Voltage 24 V


The supply voltage is supplied via connector X1.

The device has reverse polarity protection. In case of wrong polarity, the device will not operate.

This is a protection class I device. For safe operation, safety extra-low voltage (SELV) in accordance with DIN EN 61131 must be used for the supply voltage.

Connector in the operating device: 3 pin connector Phoenix COMBICON MSTBV 2.5/3-GF

Tabelle 1-1 Pin assignment supply voltage

Pin	Designation	Function
1		Low-Noise Ground
2	0 V	Supply Voltage 0 V
3	24 VDC	Supply Voltage 24 VDC

A suitable female connector strip of the type Phoenix COMBICON MSTB 2.5/3-STF is supplied.



Cables with finely stranded conductors with a minimum cross-section of 0.75 mm<sup>2</sup> (18 AWG) and a maximum cross-section of 2.5 mm<sup>2</sup> (14 AWG) must be used for the supply voltage.



Hazardous voltages can exist inside electrical installations that can pose a danger to humans. Coming in contact with live parts **may result in electric shock!**

Use the following procedure to connect the device to the supply voltage:

1. Strip approx. 30 mm (1.181") off the outer cable sheath and approx. 5 mm (0.197") off the wires.

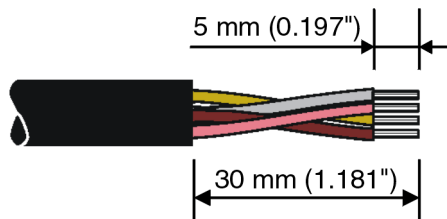


Bild 1-2 Preparing the cable

2. Fit the wires with wire end ferrules and connect the wires to the connector.

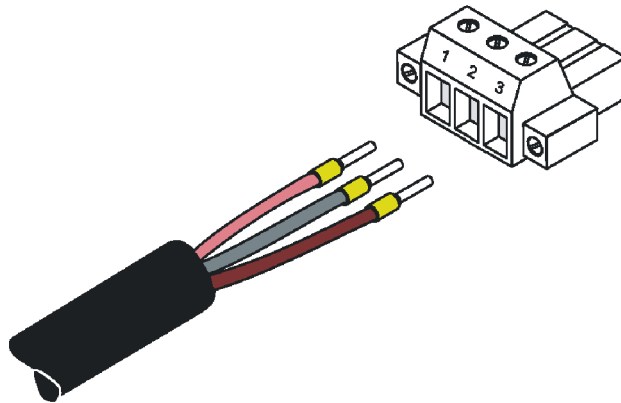


Bild 1-3 Connecting the female connector strip



If shielded connecting cables are used in the supply voltage area, the shield should be connected to pin 1.

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3. Plug the female connector strip onto connector X1.

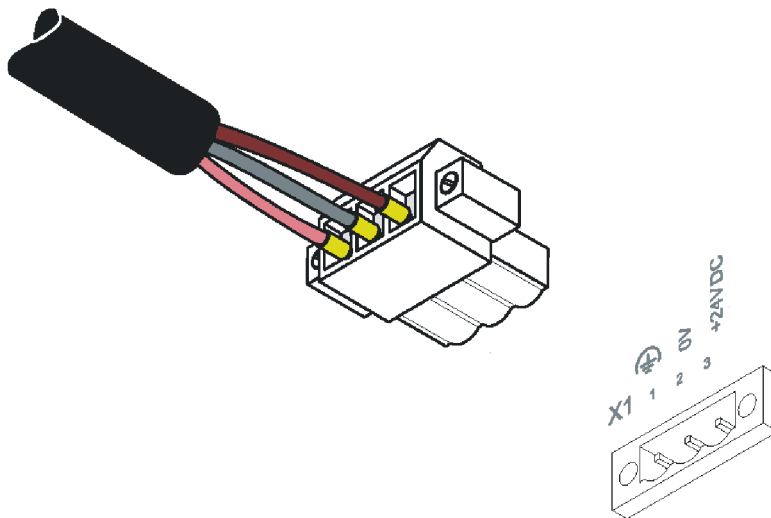


Bild 1-4 Female connector strip is plugged on

4. Secure the female connector strip in place with a screw-type locking to prevent it from slipping out.

## 1.6 Maintenance and Servicing

### 1.6.1 Front Panel and Enclosure



Inspect the membrane keyboard and the display unit for damages regularly. At damages to the membrane keyboard or the display unit the damaged parts must be immediately exchanged. The exchange can only be carried out by the company Süttron electronic GmbH.



You have to remove layers of dust  $\geq 5$  mm.

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### 1.6.2 Changing the Battery



The exchange of the battery can only be carried out by the company Süttron electronic GmbH.

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