

**Rotational Detection Unit
Model DS 9000**

Highlights

- **High Reliability**
- **Optocoupler Output**
- **Relay Output**
- **Low Power Consumption**
- **Designed For Harsh Environment**

General

The **DS 9000** can be used to detect the rotational direction of a quadrature encoder. The device has two inputs to connect the A and B channel of such an encoder. These input channels are optically isolated from the internal circuitry. The rotational direction is indicated via an open collector optocoupler output and a relay output.

Function

The internal logic unit is detecting the two input signals of channel A and B. This logic unit drives a relay contact and an optocoupler with open collector output.

The two way contact of the relay and the optocoupler will be switched if the signal of channel A (Connector 1) leads the signal of channel B. If there are no signals or channel B leads channel A the relay is in release condition and the optocoupler is in cut-off state.

The relay has a two-way contact which can switch 3A at 250VAC max. For the reason that the relay has a slow responsivity the device is also provided with an optocoupler output. The optocoupler is switched with a short delay time and can be used together with a PLC.

Mounting

The **DS 9000** is provided for DIN-rail mounting according to EN 50022. The range of the possible voltage supply reaches from 12VDC to 32VDC.

The DS9000 can be adjusted to the signal input voltage. With an DIP-switch which is placed inside the housing the device can be set to the following voltage levels: 5V, 12V and 24V.



The housing of the DS9000 has to be opened to change the DIP switch positions. The instructions to open the housing and the DIP switch settings are shown on the overleaf of this manual.

The assignment to the clamp terminal of the device is shown on the overleaf of this manual.

Attention!!!

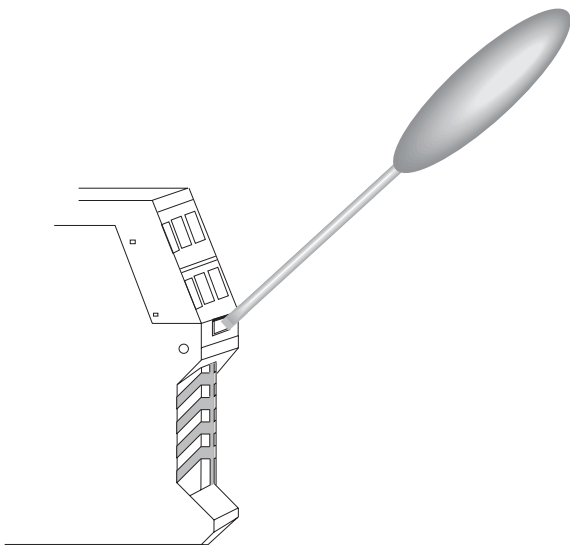
At delivery the device is set to an signal input voltage level of 24VDC. If the device should be used with an input voltage of 12VDC or 5VDC the DIP switch settings have to be changed to the correct voltage. Otherwise malfunctions are possible.

Specifications

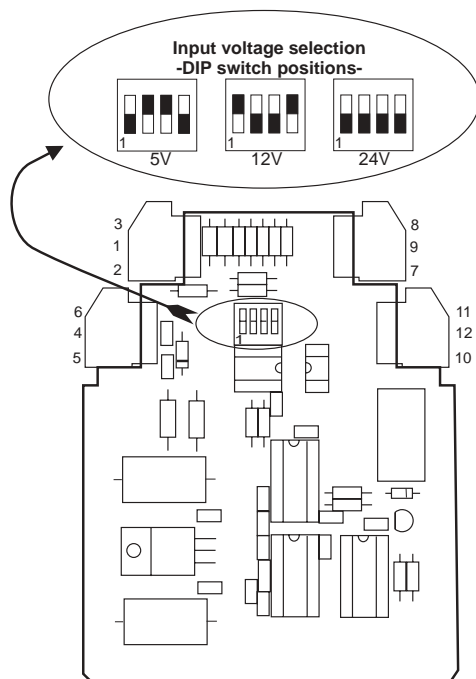
Input Channels (opto-isolated)	:5V/12/24V (adjustable.)
Tolerances of the input levels	: +/- 20% of the nominal input level for logic "1". Max. 20% of the nominal input level for logic "0".
Current	: 5 mA
Frequency	: max. 25 kHz
Output Channel Optocoupler:	: isolated
Voltage	: max. 30 V
Current	: max.10 mA
Relay Output	:
Contact Rating	: 3 A /250 VAC
Power Supply	: 12 V...32 V DC
Consumption	: max 50 mA (24 V)
Environmental Conditions	
EMV	: Accord.ENV 50121-3-2
Protection	: IP40
Classe	: VO (UL94)
Mounting	: EN 50022
Operating Temperature	: -5 to +55 °C
Abmessungen	: 99 x 114,5 x 17,5 mm
Weight	: 100 g

Opening the housing

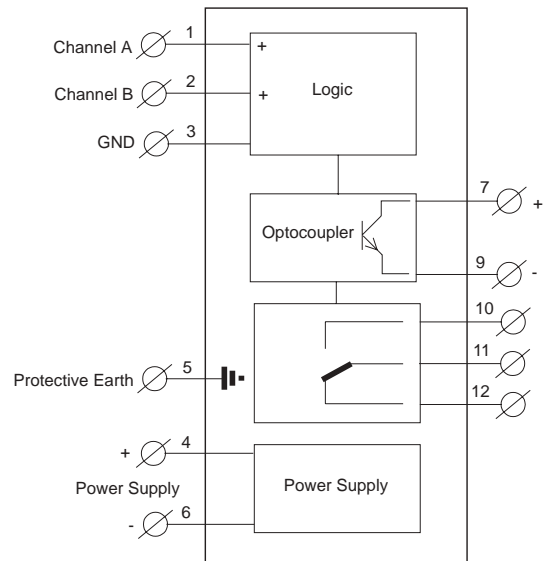
To open the Housing of the DS9000 only a small screwdriver is needed. With the screwdriver the two little flat links between the top and the base of the housing have to be pressed inwardly on both sides. When the flat links were pressed, the top can be separated from the base. Now, the PCB can be pulled out together with the top of the housing. Look for the possible DIP switch settings in the illustration on the bottom of this page. To put the housing together again just push the top with the PCB inside the base until the flat links snap in on both sides.



DIP Switch Settings



Connections



Screw Terminal 1	: Channel A Input
Screw Terminal 2	: Channel B Input
Screw Terminal 3	: GND for Input Channels
Screw Terminal 4	: Supply Voltage (+)
Screw Terminal 5	: Protective earth
Screw Terminal 6	: Supply Voltage (-)
Screw Terminal 7	: Optocoupler - Collector
Screw Terminal 9	: Optocoupler - Emitter
Screw Terminal 10	: Relais - NO
Screw Terminal 11	: Relais - Common
Screw Terminal 12	: Relais - NC

Dimensions

