

**■ Rotation Detection Unit with Enable Input Model DS 9001****Highlights**

- **Rotation detection**
- **1 relay output**
- **1 opto-coupler output**
- **1 enable input**
- **High reliability**
- **Low power consumption**
- **Small dimensions**

**General**

The **DS 9001** can be used to detect the rotation direction of an incremental 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 rotation direction is indicated via an open collector opto-coupler 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 opto-coupler with open collector output.

The two way contact of the relay and the opto-coupler 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 opto-coupler is in cut-off state.

**Input enable function**

The DS 9001 provides an input enable function. As long as a voltage is applied to terminal n° 8 all inputs are disabled and no signals are processed. If terminal n° 8 is open or connected to GND the inputs are enabled. The required voltage to disable the inputs can be set with an internal DIP switch. Instructions for opening the housing and setting the DIP switches can be found on the backside of this manual.

**Outputs**

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 opto-coupler output. The opto-coupler is switched with a short delay time and can be used together with a PLC.

**Mounting**

The **DS 9001** is provided for DIN-rail mounting according to EN 50022. The range of the possible voltage supply reaches from 12 VDC to 32 VDC.

The **DS 9001** 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: 5 V, 12 V and 24 V.

The housing of the **DS 9001** 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.

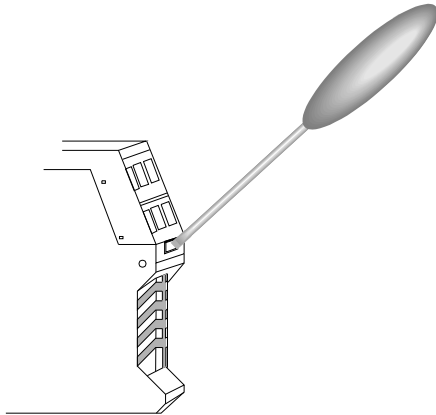
**Attention!!!**

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

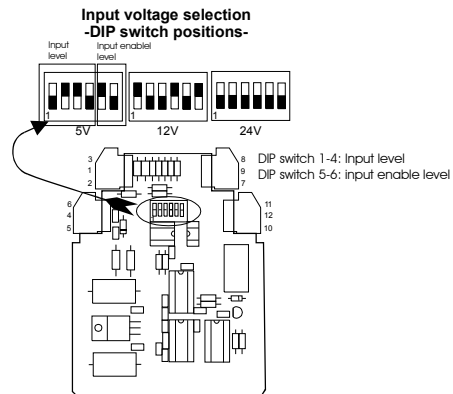
**Opening the housing**

To open the housing only a small screwdriver is needed. With the screwdriver, the two little fishplates on the narrow sides between the top and the base of the housing have to be pressed inwardly on both sides. When the fishplates were pressed, the top can be separated from

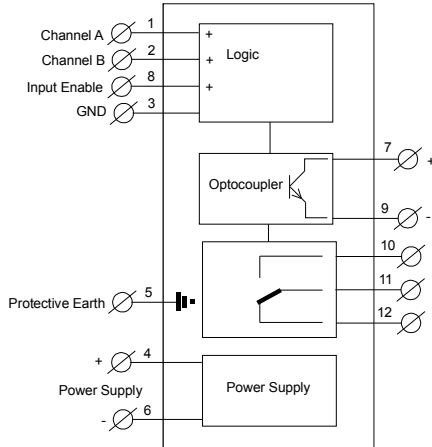
the base. Now, the PCB can be pulled out together with the top of the housing. Look for the possible DIP switch settings in the illustration on the right side of this page. To put the housing together again, just push the top with the PCB inside the base, until the fishplates snap in on both sides.



## DIP Switch Settings



## Connections



- Screw terminal 1 : Frequency input A
- Screw terminal 2 : Frequency input B
- Screw terminal 3 : Inputs GND
- Screw terminal 4 : Supply voltage (+)
- Screw terminal 5 : Protective earth
- Screw terminal 6 : Supply voltage (-)
- Screw terminal 7 : Opto-coupler-collector
- Screw terminal 8 : Input enable
- Screw terminal 9 : Opto-coupler-emitter
- Screw terminal 10 : Relay - operating cont.
- Screw terminal 11 : Relay - common cont.
- Screw terminal 12 : Relay - break contact

## Specifications

<b>Inputs (opto-isolated)</b>	: 5 V / 12 V / 24 V (adjustable)
Tol. of the input levels	: +/- 20% of the nominal input level f. logic "1" max. 20% of the nominal input level for logic "0".
Input current	: ≥ 5 mA
Input frequency	: max. 25 kHz
<b>Opto-coupler output</b>	: isolated
Voltage	: max. 30 V
Current	: max. 10 mA
<b>Relay output</b>	:
Contact Rating	: 3 A / 250 VAC
<b>Power supply</b>	: 12 V...32 VDC
Consumption	: max 50 mA (24 V)
<b>Environmental conditions</b>	
EMV	: accor. ENV 50121-3-2
Protection	: IP40
Flammability class	: VO (UL94)
Mounting	: EN 50022
Operating temperature	: -5 to +55 °C
Shock-resistance	: accor. VDE 0115/part 200/page 52/10.2.11
<b>Weight</b>	: 100 g

## Dimensions

