Version 1.8, 08/2007

VISATRON
Remote Indicator II
For Oil Mist Detectors

VNxxx/87plus
VNxxx/93
VNxxx/87-EMC

Operation Manual
Part-No. 15 006

Part-No. 11 506

SCHALLER AUTOMATION

About this Manual

This operation manual (Part-No. 15 006) was designed to answer your questions concerning the handling, operation and maintenance of the Remote Indicator II. It contains no details about repairs.

Should you encounter any interruptions or breakdowns during operation, please contact SCHALLER AUTOMATION Industrielle Automationstechnik GmbH & Co. KG. You can expect a safe and reliable operation of the Remote Indicator II only when the device is operated in accordance with this operation manual.

Please note the following rules:

- This operation manual is valid only for the connection of the Remote Indicator II to Oil Mist Detectors (OMD) VISATRON devices series VN93, VN87-EMC and VN87plus.
- Please acquaint yourself with the operation manual.
- Read the operation manual carefully and take into account the advice given.
- Use the Remote Indicator II only for the purpose described in the operation manual.
- Incorrect maintenance and handling errors may cause failures and accidents!
- The Remote Indicator II may be used by authorised specialised staff only.
- This operation manual must be available at the place of installation at all times.

The manufacturer does not accept any guarantees resulting from improper handling or insufficient maintenance and service.

SCHALLER AUTOMATION Industrielle Automationstechnik GmbH & Co. KG precludes all guarantees for the case that incorrect device combinations are operated with devices not certified to be compatible or not admitted by the manufacturer.

Conditions of Sale

The standard conditions of sale of SCHALLER AUTOMATION (current version) shall apply to all sales of VISATRON and connected products to any of our customers.

Safety instructions

The Remote Indicator II is manufactured according to the high quality standard of SCHALLER AUTOMATION and passes the stringent factory tests. In order to keep the device in a smooth and problem free operation, the user has to take note of the safety hints and warnings. In the instruction manual and at the device they are marked with the following symbol.

Used symbols

CAUTION! Do not ignore the warnings. The safety of persons can be imperilled or the device can be damaged.

WARNING! The marked text contains important information.

The marked text contains only a hint for faster processing.

Declaration of Conformity

EMC-Directive : 89 / 336 / EEC

We, the manufacturer

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declare on our own responsibility, that the product:

Kind of equipment:	**Monitoring Device**
Type-designation:	**VISATRON Remote Indicator II**
Part-No.:	**11 506**

is in compliance with following norms :

EN 61000-4-2
EN 61000-4-3
EN 61000-4-4
EN 61000-4-5
EN 61000-4-6
CISPR 16-1
CISPR 16-2

D-66440 Blieskastel, 2007, the 22th of Jan.

.....
Schaller jun.
President

Table of Contents

1 Introduction and functional overview

In combination with the Oil Mist Detection devices VISATRON the newly developed Remote Indicator II from SCHALLER AUTOMATION enables a user-friendly monitoring of the Schaller OMD device as a part of a safety system at large Diesel engines.

The Remote Indicator II allows the safe remote monitoring of the oil mist concentration from outside the engine room e.g. from the engine control room.

The device can be connected to VISATRON devices of series VN93, VN87plus and VN87-EMC.

In use with a VN93 or VN87plus, it is possible to monitor the relative opacity and the state of one OMD device similar to the OMD display. The connection to the VN93 and VN87plus units is realized by a RS485 two-wire bus.

Optional the Remote Indicator II can be connected to a VN87-EMC unit. This connection to the VN87-EMC is realized as a two-wire analog interface. If a VN87-EMC is connected to the Remote Indicator II, the device monitors only the oil mist concentration and not the state of the OMD device. In this case and to fulfil the IACS requests, it is necessary to monitor the status of the Ready- and the Alarm-Relay from the VISATRON device separately in your safety system.

Figure 01: Remote Indicator II

SCHALLER AUTOMATION developed this device to meet the IACS UR M10.11 of which are be valid since January 2006.

Thus, the Remote Indicator II is a further contribution to secure shipping traffic. Our goal is to avert lasting damage to real assets, the environment and individuals.

2 Installation instructions

2.1 Mechanical installation

slot size	IEC 61554, 92+0.8 mm x 45+0.6 mm

- Step 1: Prepare the slot as specified.
- Step 2: Select either the normal glass plate a) for vertical installation, the additional glass plate c) for horizontal installation (also scope of supply) or glass plate b) for VN87mode (see VN87-EMC operation mode)

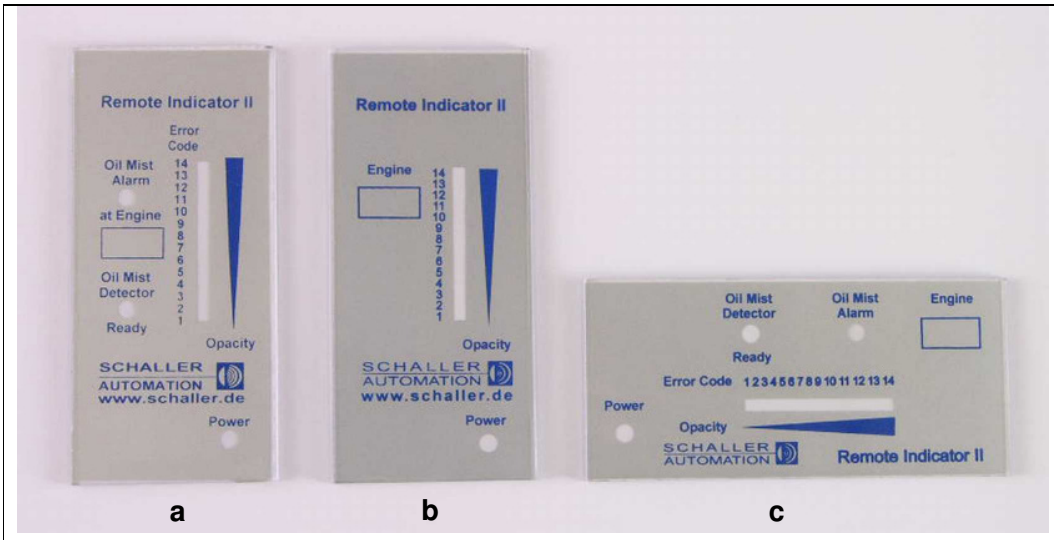


Figure 02: Front glass plates
a) VN87puls/VN93 vertical b) VN87-EMC vertical c) VN87plus/VN93 horizontal

- Step 3: Put the device into the slot (see figure 3).
- Step 4: Clip the fixing screws (see figure 4).
- Step 5: Fix the device by turning the screws.
- Step 6: Put the label ‘Engine type’ on the front glass (see figure 5).

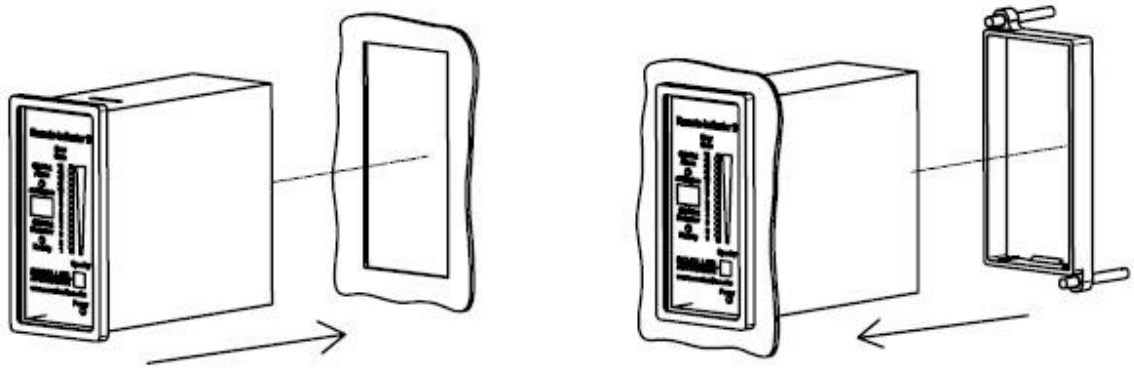


Figure 03: Insert the Remote Indicator II into the slot and push the holding frame on the device

Figure 04: Mounting the fixing screws

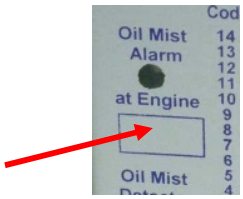


Figure 05: Location of the label 'Engine type'

2.2 Electrical installation on OMD-type VN93 or VN87plus

The electrical installation consists of following steps:

- Step 1: If OMD-type is VN93 or VN87plus: Installation of the Terminator and the grommet on the OMD device,
- Step 2: Connection of the VISATRON devices with the Remote Indicator II,
- Step 3: Switch-on the VISATRON OMD,
- Step 4: Connection of the power supply to the Remote Indicator II device.

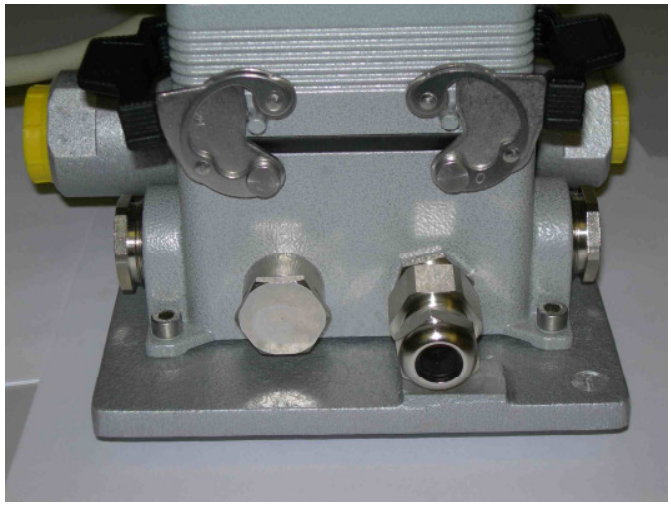


Figure 06: Cable entry and terminator on the bottom side of the VISATRON devices

It is necessary to terminate the data link on both sides of the cable. In the Remote Indicator II a terminating resistor is already integrated. The terminator (see figure 07) for the VN93 or VN87plus unit is scope of supply of the Remote Indicator II package as well as the grommet for the cable entry.

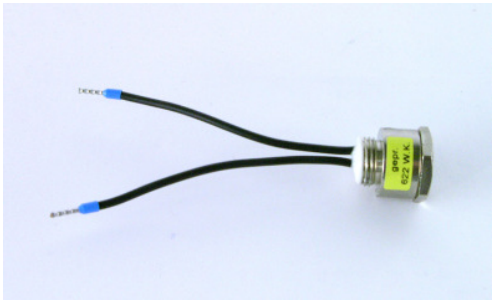


Figure 07: Terminator

All electrical connections of the Remote Indicator II are available at the rear connector of the type Phoenix Contact MC 1,5/12-GF-3,81 (see figure 08) and the plug FK-MCP 1,5/12-STF-3,81.

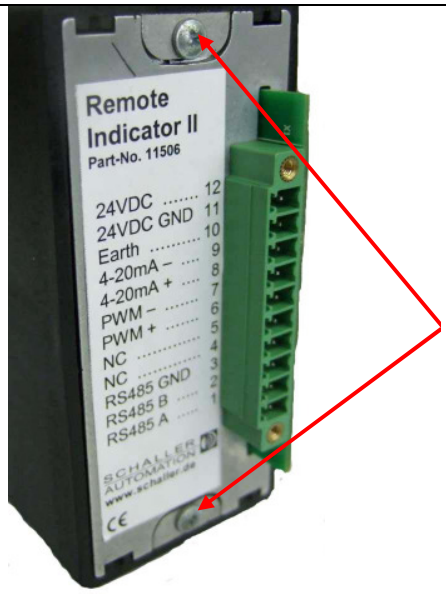


Figure 08: Connector on the rear side of the Remote Indicator II

The following tables show the pin assignment of the Remote Indicator II connector (see also the VISATRON VN93 and VN87plus manual).

Remote Indicator II to VN93 or VN87plus Oil Mist Detector		
Name	**Pin-No.**	**Connected to**
RS485 A	1	pin 13 of VN93 and VN87plus
RS485 B	2	pin 11 of VN93 and VN87plus
RS485 GND	3	
Optional current interface +	4	
Optional current interface -	5	
VN87 – PWM interface +	6	
VN87 – PWM interface -	7	
4 - 20mA Output + (max. 220Ohm)	8	optional to alarm monitoring system
4 - 20mA - Output -	9	optional to alarm monitoring system
Earth	10	earth and data cable shield
Power supply GND	11	0 Volts
Power supply 24Volts	12	+ 24Volts DC

Table 01: Pin assignment and connection to VN93 or VN87plus

The used data cable must be twisted pair and shielded. The total bus length is limited to 400 m. The grommet (see figure 06) at the VISATRON device is designed for cable diameter between 7,5 and 10,0 mm.

We recommend LAPPKABEL UNITRONIC-FD CP (TP) plus UL-CSA, AWG20.

The shield must be connected directly at the grommet!

After the correct electrical connection and a power-up phase of 30sec, following display appears:

Figure 09: Ready Mode

If the serial RS485-connection between the VISATRON Remote Indicator II and the VISATRON OMD device can not be established, the **Ready**-LED is **blinking**. In this case check that the OMD device is switched on and the wire of the communication cable are not interchanged.

2.3 Optional VN87-EMC operation mode

First step to adjust the VN87-EMC operation mode: Switch off the power!!

If the Remote Indicator II is connected to a VN87-EMC unit, following pin assignment is valid:

Remote Indicator II to VN87-EMC Oil Mist Detector		
Name	**Pin-No.**	**Connected to**
RS485 A	1	
RS485 B	2	
RS485 GND	3	
Optional current interface +	4	
Optional current interface -	5	
VN87 – PWM interface +	6	pin 9 of VN87
VN87 – PWM interface -	7	pin 10 of VN87
4 - 20mA Output + (max. 220Ohm)	8	optional to alarm monitoring system
4 - 20mA Output -	9	optional to alarm monitoring system
Earth	10	earth and data cable shield
Power supply GND	11	0 Volts
Power supply 24Volts	12	+ 24Volts DC

Table 02: Pin assignment and connection to VN87-EMC

To enable the VN87-EMC operation mode a jumper (also scope of supply) has to be installed inside the Remote Indicator II. First you have to remove the window at the front side and then open the two screws at the rear side (see figure 08). Now the jumper can be installed (see figure 10). Carefully push the PCB back inside the housing and lock the two screws. At least mount the window at the front side.

At least mount the window at the front side **using front glass plate b) (see Fig. 2) for vertical VN87-EMC installation**

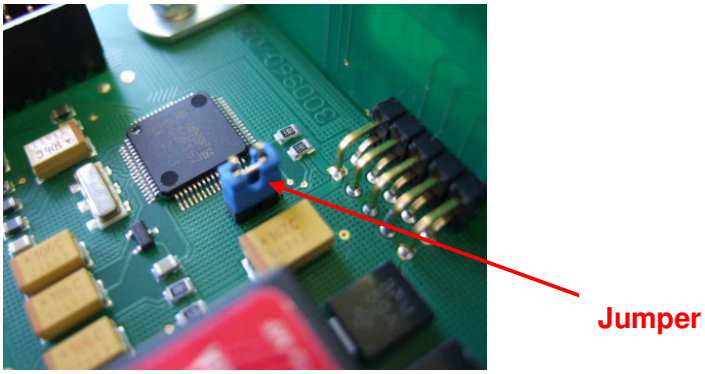
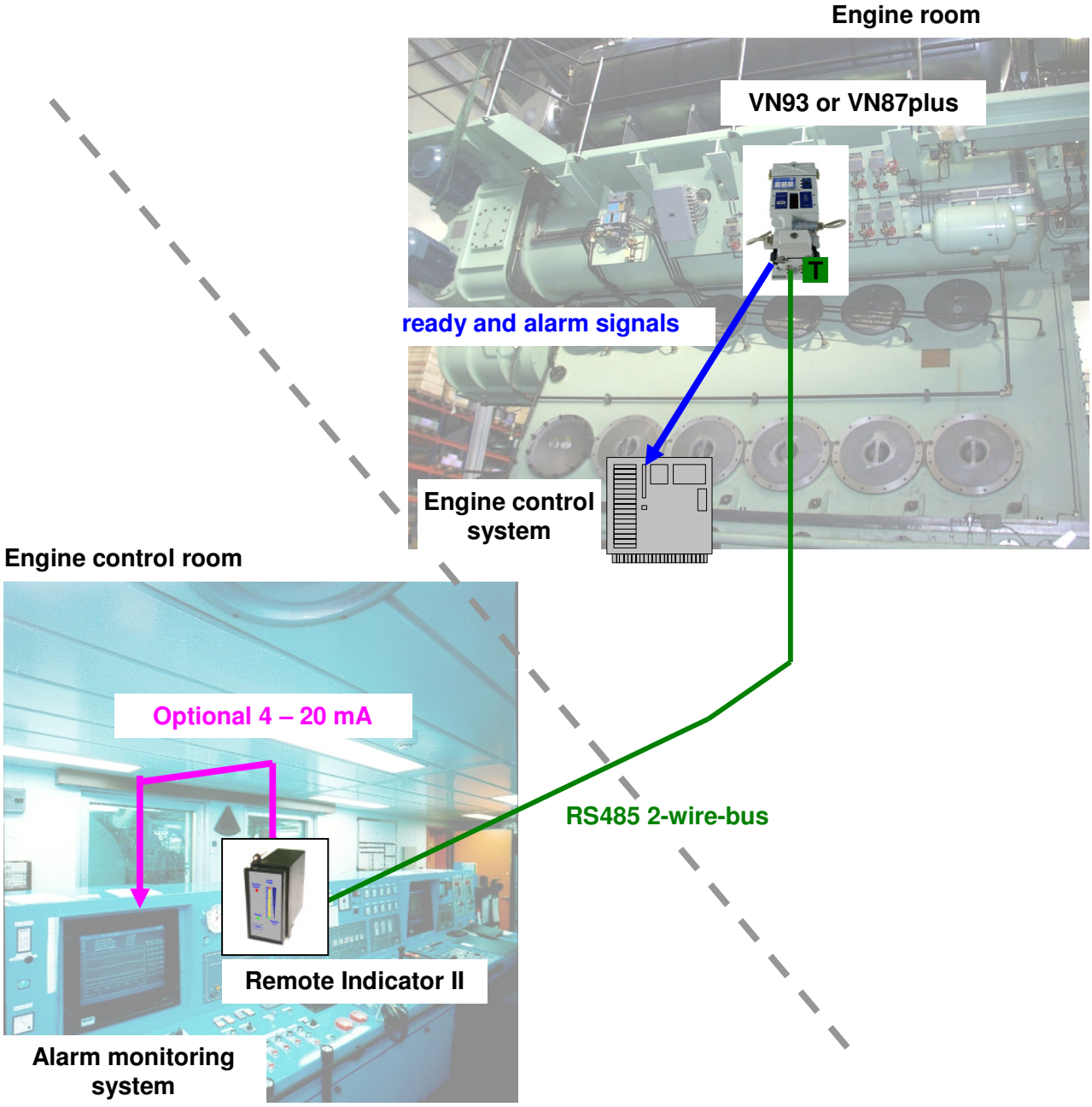


Figure 10: PCB with jumper

2.4 Schematic Connection Diagram



3 Functional description

The device can be connected to VISATRON devices of series VN93 and VN87plus. The display of the Remote Indicator II is similar to the display of the VN87plus OMD device. In normal operation mode the Power-LED and the Ready-LED are only lighting green. The LED bar on the right side shows the oil mist concentration in the unit 'Opacity'. If the upper LED is switched on, the oil mist concentration inside the crankcase is equal or higher than the adjusted alarm level. A detected oil mist alarm state was indicated by the red Alarm-LED.
If the Ready-LED is off and a LED of the LED bar is blinking, the OMD device (not the Remote Indicator!) has left the normal detection mode. The reason can be found out by reading the corresponding error code (see Table 03).

Optional the Remote Indicator II can be connected to a VN87-EMC unit. In this case, the device monitors only the oil mist concentration and not the state of the OMD device. In this case, it is necessary to monitor the status of the Ready- and Alarm-Relay from the VISATRON device separately with your safety system.
Also an error of the VN87-EMC will not be displayed by the Remote Indicator II.

Figure 11: Front panel of the Remote Indicator II

Blinking LED on Remote Indicator II	VN87plus failure	VN93 failure
14	Negative pressure/airflow too low	Negative pressure/airflow too low
13	Optical sensor dirty	Optical sensor dirty
12	Voltage of internal battery too low	Voltage of internal battery too low
11	Ambient temperature too low (<0°C)	Ambient temperature too low (<0°C)
10	Ambient temperature too high (>70°C)	Ambient temperature too high (>70°C)
9	Electronics temperature too low (<0°C)	Electronics temperature too low (<0°C)
8	Electronics temperature too low (>75°C)	Electronics temperature too low (>75°C)
7	Reset button defective	Light button defective
6	Supply voltage too high	Supply voltage too high
5	Switch for adjusting sensitivity defective	
4	Optical sensor defective	Optical sensor defective
3	Airflow-sensor defective	Airflow-sensor defective
2	Electronic module defective	Electronic module defective
1	Blinking: startup phase	Blinking: startup phase

Table 03: Error Codes

4 Maintenance procedures

Regularly clean the surface of the panel with a **soft, dry cloth**.

5 Accessories

Scopes of supply are all components to connect a Remote Indicator II to **one** VISATRON OMD-System excluding the cable. The recommended cable can be ordered in steps of 10 m.

Part-No. 11 506	Remote Indicator II Unit
Part-No. 11 507	Connector 'FK-MCP 1,5/12-STF-3,81'
Part-No. 11 501	Grommet
Part-No. 11 502	Network Terminator
Part-No. 11 510	Front glass plate for horizontal VN87plus/VN93 installation
Part-No. 11 511	Front glass plate for vertical VN87-EMC installation
Part-No. 11 512	Jumper
Part-No. 11 508	5x Label 'Engine type'
Part-No. 15 006	Manual

Table 04: Scope of supply

Part-No. 11 509	Front glass plate for vertical VN87plus/VN93 installation
Part-No. 11 503	UNITRONIC cable (10m)

Table 05: Accessories

6 Technical data

Mechanical data	
dimensions (w x h x d)	96 mm x 48 mm x 123 mm
standard slot size	IEC 61554, 92+0.8 mm x 45+0.6 mm
weight	210 g
display	LED-bar with 1 green, 12 yellow, 1 red LED 1 green Ready LED 1 red Alarm LED 1 green Power LED
Electrical data	
power supply	18 Volts – 31.2 Volts DC, 75mA
nominal voltage	24 Volts DC
communication interface to VN93 and VN87plus	2 wire RS485, galvanic separated
analog interface to VN87-EMC	2 wire PWM, 2 wire current loop
connector and plug	Phoenix Contact MC 1,5/12-GF-3,81 Phoenix Contact FK-MCP 1,5/12-STF-3,81
rel. Opacity Output	4 – 20 mA (max. 220 Ohm)
communication cable recommendation	LAPPKABEL UNITRONIC-FD CP (TP) plus UL-CSA, 2 x 2 x AWG20, max 400 m length, 7.5-10.0mm Ø
Environmental conditions	
operating temperature	0 - 55 °C
storage temperature	-20 – 80 °C
max. vibrations	0.7 g
relative humidity	up to 100%
protection class	IP41
Approval of classes	
	Approval from Germanischer Lloyd for closed areas, environmental category C, installation in control panels or cabinets

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