



EN

- Easy plug-in mounting
- Quick and safe installation
- Junction / terminal box integrated
- No variants only one basic unit
- Enhanced temperature range -40 ... +70°C
- Degree of protection IP66
- Switching outputs adjustable
- Adjustable hysteresis
- Integrated display
- Onsite parameterization
- LED status indication
- Low power input <3 W
- Cable length from the switch relay to the sensor up to 100 m
- Highly resistant against corrosion



SW.Nc + IR.Nc Manual

BA.Nc-0002.02.EN

Assembly and Installation Instructions for safe use of
switching relay SW.Nc with two relay outputs SPDT
and sensor IR.Nc for temperature, humidity, differential pressure, air flow



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1. General

The manual is included in the delivery and serves to ensure proper handling and optimum functioning of the device. The manufacturer is not responsible for this publication nor guarantee and improper handling of the products described any liability. For this reason, read the manual before operation. In addition, the manual is for all personnel who are involved in the transport, setup, operation, maintenance and repair to bring in knowledge. This manual may not, without the prior written consent of the manufacturer used for competition purposes and will not be passed on to third parties. Copies for personal use are permitted. This documentation may contain technical inaccuracies or typographical errors. The information contained is regularly revised, inform yourself about updates via our contact address. The manufacturer reserves the right to modify or alter the product described at any time.

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SYMBOLS



This sign shows
safety notes.

Safety notes must be followed. Failure to observe personal injury or property damage may result. The manufacturer assumes no liability.

SAFTEY NOTES



Installation, electrical connection, maintenance and commissioning may only be performed by trained specialist.



Avoid excessive mechanical stress and improper use.



Switch off power when mounting and dismantling



The display loses contrast and brightness in the cold conditions. Regenerates when the temperature rises to its original state.



Always review your application fully to eliminate any risks.

2. Product description

A basic unit SW.Nc and various sensors of the series IR.Nc solve a variety of measurement tasks. The sensors are available for multi-functionality, high accuracy and simple assembly.

The following sensors are available:

- Temperature
- Temperature and humidity, dew point
- Differential pressure
- Special sensors on request

In addition, allow the button a suburb commissioning and the LCD display is used as a suburb of measured values. The integrated terminal box ensures a direct electrical connection.

Due to the modular concept of separation of electronics and mounting plate a simple, easy installation and commissioning is guaranteed.

Options such as different sensor cable for difficult installation conditions supplement the product portfolio. Calibration of the measuring chain are made possible by the design of the device in the easiest way.

MEASUREMENT PRINCIPLE

The physical unit is detected in the series sensors IR.Nc. The measured value is digitally processed. The transfer to the switching relay SW.Nc done by an intelligent protocol that enables easy-to-change sensors and is open for future sensors.

The robust, interference-free signal from the sensor to transmitter allows even in harsh industrial environments to transfer up to 100 m.

In the SW.Nc module, the sensor signal is converted into freely scalable switching outputs. You can choose upper, lower limit and hysteresis which can be set by software menu.

3. Technical Data

SW.Nc SWITCHING RELAY

SUPPLY		
Voltage	20 – 28,8	V AC/DC
Frequency	50 – 60	Hz
Power consumption	3 / 5	W / VA
Protection class / over voltage category / pollution degree	III / 2 / III	insulated
OUTPUTS		
2 Relays with changeover contact (SPDT), hysteresis adjustable	Potential free	
Relay max.	30 / 2	V AC/DC
Relay min.	5 / 0,1	V AC/DC
Hysteresis adjustable	0,5-100	% FS
DISPLAY / BUTTON / LED		
LCD, backlight	128 x 64	pixel
LED red / green	Status indication	
HOUSING		
Corrosion resistance	On- and Offshore	With high salinity
IP protection	IP66	
GENERAL		
Terminal square	0,08 – 2,5 0,25 – 1,5	mm without end sleeve mm with end sleeve
Cable glands M20x1,5	6 - 13	Ø mm
Dimensions H x B x T	175 x 110 x 56	mm
Weight	600	g
MATERIALS		
Housing	High Tech Polymer	electrostatically conductive
Front plate, screws	Stainless steel	
Seals	EPDM	
Cable glands	brass plated	
Sensor connection M12	brass plated	
APPLICATION		
Ambient- and storage temperature	-40 ... +70	°C
Humidity, without condensation	0 ... 100	%rH
Mounting position	Any, recommended vertical	

IR.Nc-P/-V-... DIFFERENTIAL PRESSURE / AIR VOLUME / AIR FLOW

TYPES	MEASURE. RANGE	MIN. RANGE	MAX. PRESSURE	ACCURACY MAX / TYP.	
IR.Ex-P-0060	-60 ... +60	18	7000 (1 psi)	<2,5 % <0,5 %	Pa
IR.Ex-P-0100	-100 ... +100	30	7000 (1 psi)	<2,5 % <0,5 %	Pa
IR.Ex-P-0250	-250 ... +250	75	7000 (1 psi)	<1,25 % <0,5 %	Pa
IR.Ex-P-0600	-600 ... +600	180	7000 (1 psi)	<1 % <0,5 %	Pa
IR.Ex-P-1000	-1.000 ... +1.000	300	7000 (1 psi)	<1 % <0,5 %	Pa
IR.Ex-P-2500	-2.500 ... +2.500	750	35.000 (5 psi)	<1 % <0,5 %	Pa
IR.Ex-P-4000	2.500 ... +2.500	1.200	35.000 (5 psi)	<1 % <0,5 %	Pa
IR.Ex-P-10000	10.000 ... +10.000	3.000	35.000 (5 psi)	<1 % <0,5 %	Pa
other pressure ranges on request					
ACCURACY					
Long term stability 1.000 h / 25 °C				0,5	%
HOUSING					
Corrosion resistance	On- and Offshore				With high salinity
MATERIALS					
Housing	Plastic				
Front plate,	PE				
Screws	Stainless steel				
Seals	EPDM				
tube connection	brass plated				
APPLICATION					
Ambient-, storage temperature	-40 ... +125				°C
Humidity, without condensation	0 ... 100				%rH
Mounting position	Any, recommended vertical				

IR.Nc -RT / RH-...TEMPERATURE / HUMIDITY (ROOM)**TYPES AND MEASUREMENT RANGE**

IR.Nc-RT	Room Temperature Probe	-40 ... +125	°C
IR.Nc-RH	Room Humidity Probe	0 ... 100	°C / %rF

ACCURACY

Accuracy temperature @ 0 ... 60 °C	< 0,5	°C
Accuracy temperature @ -40 ... 0, @ 60 ... 125 °C	< 0,5 °C + 0,03°C/K	°C/K
Accuracy humidity	2,0	% FS
Hysteresis	1,0	%
Long term stability 1.000 h / 25 °C	0,5	%
MTTF (Sensor)	9.312.507	h

MATERIALS

Thermowell, end cap	Stainless Steel
Seals	EPDM
Sensor connection M12	brass plated

APPLICATION

Ambient-, storage temperature	-40 ... +125	°C
Humidity, without condensation	0 ... 100	%rH
Mounting position	Any, recommended vertical	

IR.Nc -DT / DH-...TEMPERATURE / HUMIDITY (DUCT)**TYPES AND MEASUREMENT RANGE**

IR.Nc-DT-50	Duct Temperature Probe 50 mm	-40 ... +125	°C
IR.Nc-DT-100	Duct Temperature Probe 100 mm	-40 ... +125	°C
IR.Nc-DT-200	Duct Temperature Probe 200 mm	-40 ... +125	°C
IR.Nc-DH-50	Duct Humidity Probe 50 mm	0 ... 100	%rH
IR.Nc-DH-100	Duct Humidity Probe 100 mm	0 ... 100	%rH
IR.Nc-DH-200	Duct Humidity Probe 200 mm	0 ... 100	%rH
other thermowell length on request			

ACCURACY

Accuracy temperature @ 0 ... 60 °C	< 0,5	°C
Accuracy temperature @ -40 ... 0, @ 60 ... 125 °C	< 0,5 °C + 0,03°C/K	°C/K
Accuracy humidity	2,0	% FS
Hysteresis	1,0	%
Long term stability 1.000 h / 25 °C	0,5	%
MTTF (Sensor)	9.312.507	h

MATERIALS

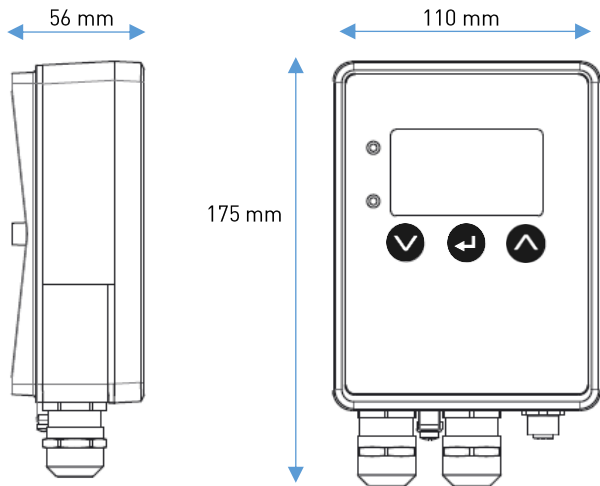
Housing	Plastic
Front plate	Stainless Steel
Screws	Stainless Steel
Seals	EPDM
Sensor connection M12	brass nickel plated

APPLICATION

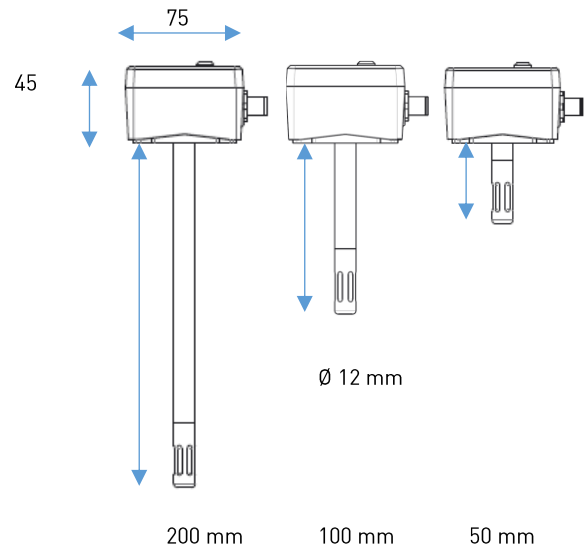
Ambient-, storage temperature	-40 ... +125	°C
Humidity, without condensation	0 ... 100	%rH
Mounting position	Any, recommended vertical	

4. Dimension

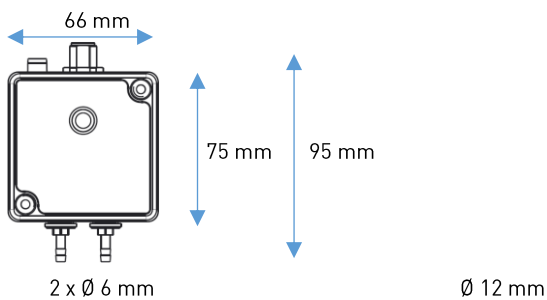
SW.Nc



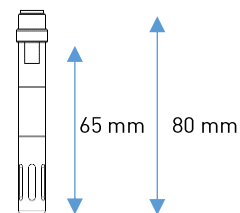
IR.Nc-D....(DUCT/KANAL)



IR.Nc-P....(PRESSURE/DRUCK)



IR.Nc-R....(ROOM/RAUM)



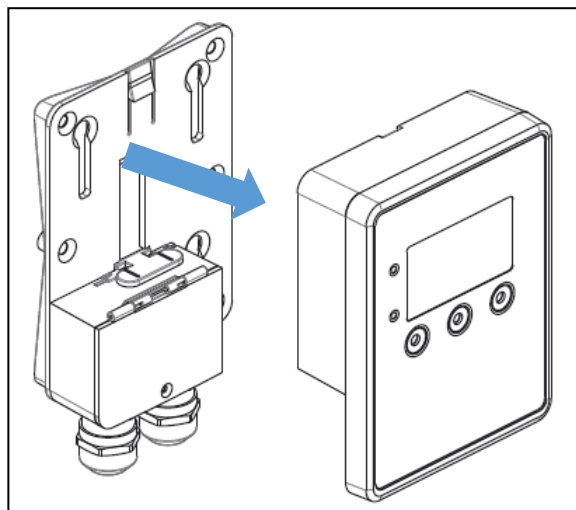
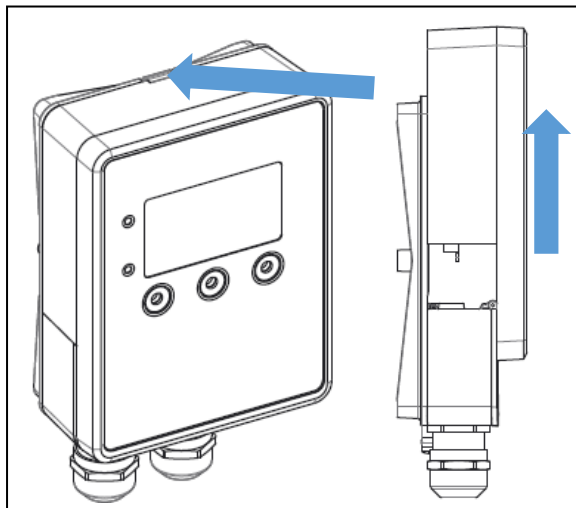
5. Assembly / Installation

UNLOCK ELECTRONIC

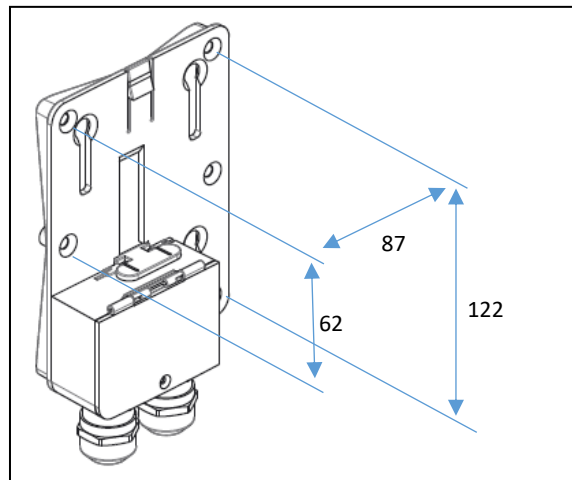


Switch off power and check

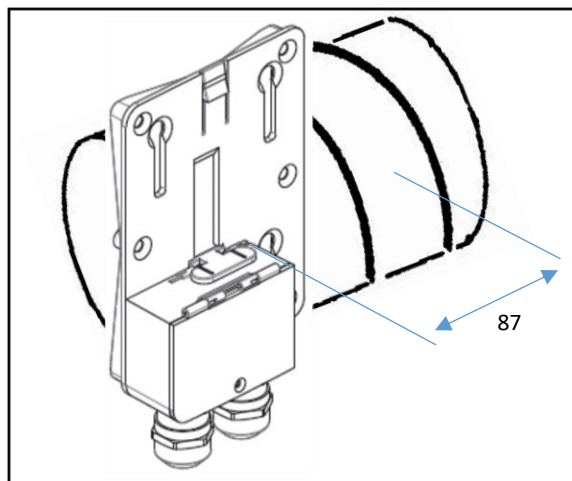
- Press down release tab carefully
- Slide electronic module up and
- Remove forward



WALL MOUNTING



DUCT MOUNTING



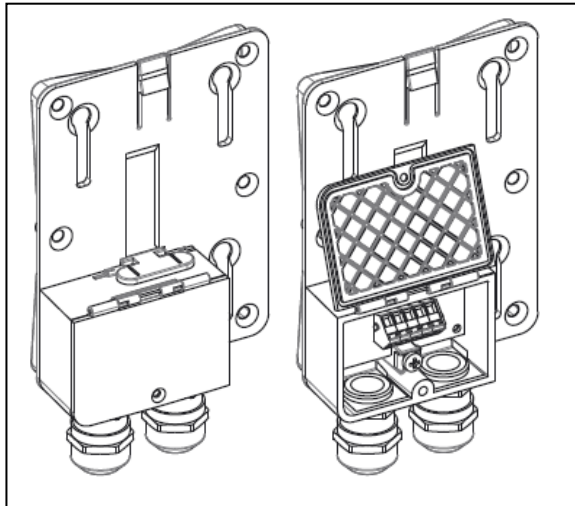
MOUNTING FRAME

- Drill holes according to the drilling plan (see illustration)
- Mount base frame with delivered screws.
- Make sure when mounting that the Mounting frame is not under strain or sags
- For outdoor use make sure that no water accumulates or can form frost.

ELECTRICAL CONNECTION

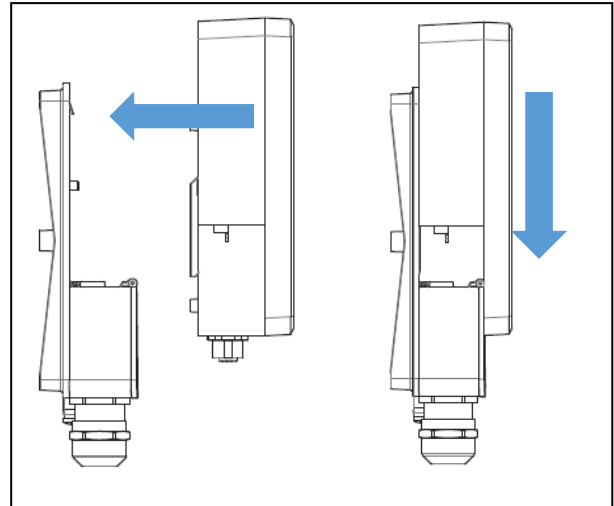
The integrated electrical connection box enables direct contact to the supply and the analog outputs. According to IEC 61010-1 protect the power supply with a fuse < 10 A.

- Switch off power and check
- Unhook electronic module (see cap. 5)
- Open M3 screw from the terminal cover
- Open terminal cover
- Removed dust cover in cable gland
- Open M3 screw from cover
- Open cover
- Insert cable
- Strip cable (6 mm)
- Open clamp by pressing gentle with a screwdriver
- Slide wire/s in
- Remove screwdriver
- Close cover
- Tighten cable glands
- Close unused opening with blind plugs



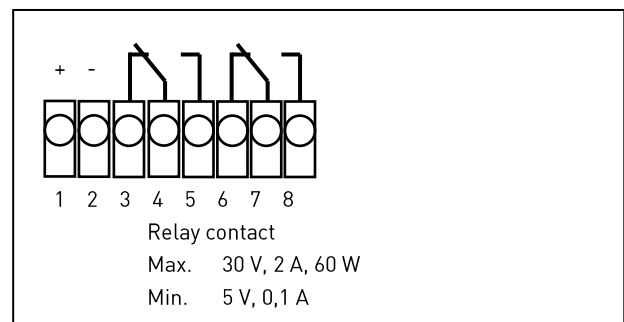
LOCK ELECTRONIC

- Attach electronic part
- Lock by sliding together

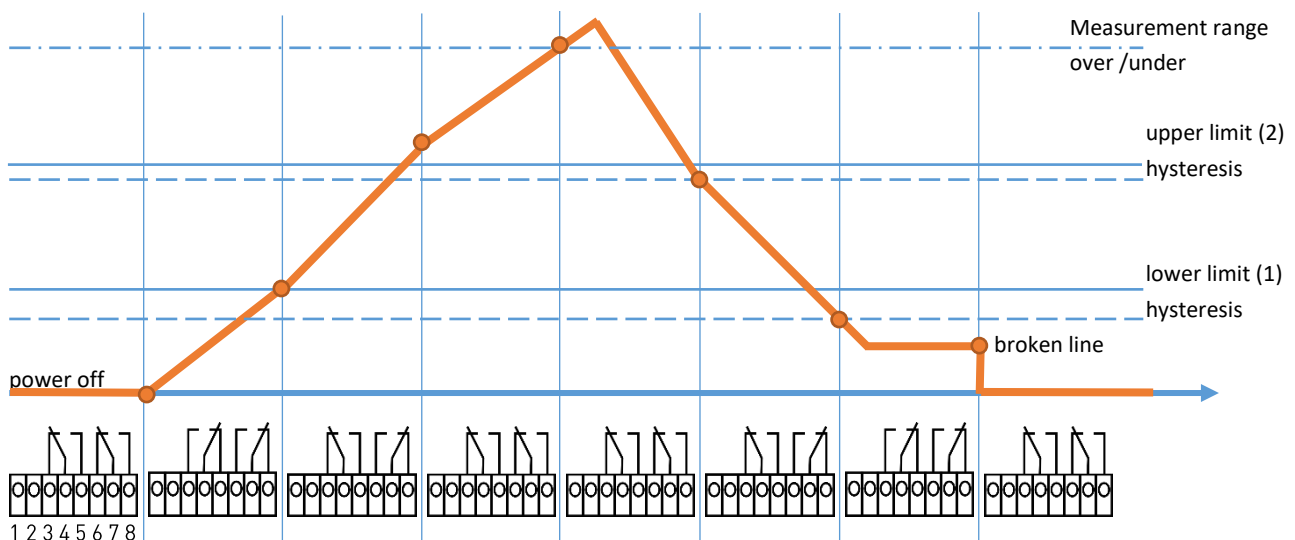


WIRING DIAGRAM

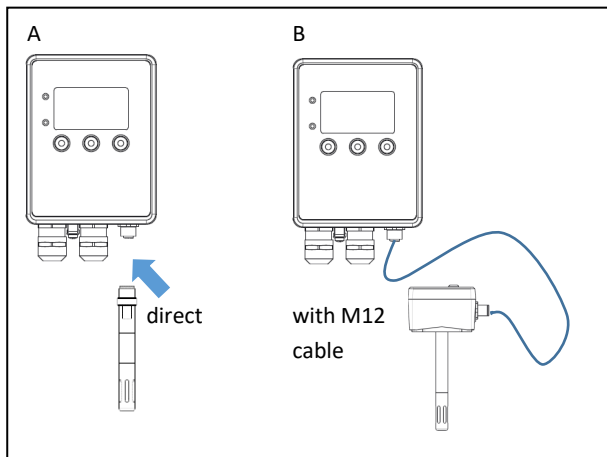
- Terminal 1(+), 2(-) Supply
- Terminal 3, 4, 5 lower limit relay SPDT
- Terminal 6, 7, 8 upper limit relay SPDT



EXAMPLE SWITCHPOSITION



MOUNTING PROBE

**A. Installation of a fixed probe:**

- The transmitter must be installed so that the sensor is facing down!

B. Mounting a remote probe:

- Using a pluggable connection cable, the sensor can be located up to 100 m.
- The sensor must be mounted so that no moisture enters. If possible, a drip should be fitted for each assembly
- The connection cable must be shielded

6. Commissioning

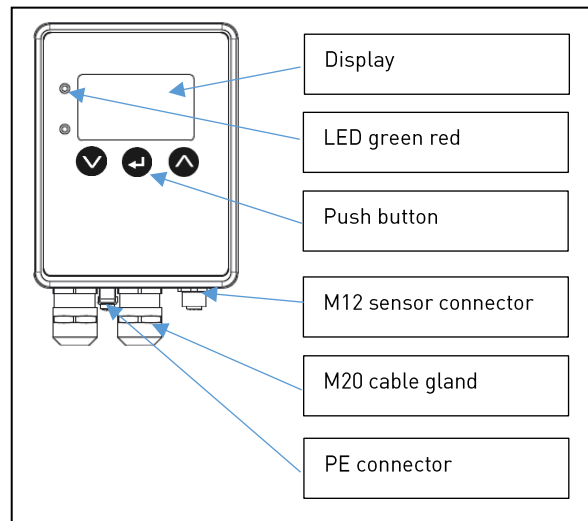
START OPERATION

Make sure that the device is properly installed in accordance with the preceding chapters and has been connected and the power supply with the specifications on the nameplate.

Turn on the power supply.

- Display to normal
- Sensor data loads
- LED lights green when connected sensors and within the set measuring range.

7. Operation



8. Dismantling

- Disconnect power and check
- press release tab carefully down
- electronics module push out
- Opening the terminal box
- Remove Cable

9. Parameterization

	ACTION	DISPLAY	ACTION	DISPLAY	ACTION	DESCRIPTION	ACTION
PARAMETER MODE							
	⬇					Push 3 Seconds	
LANGUAGE SETTING							
	⬆ ⬇ ⬆	D Deutsch GB English F Francais E Espanol I Italiano	⬇			Select using keys desired language press Enter	
SENSOR ADJUSTMENT							
⬇	⬇	Select unit	⬇	°C, °F, %rF, %rH, Pa	⬆ ⬇ ⬆	define unit	⬇
	⬇	Measurement range	⬇	0,00 100	⬆ ⬇ ⬆	Measuring range lower - upper limit	⬇
	⬇	Offset	⬇	0,000	⬆ ⬇ ⬆	Set Offset	⬇
	⬇	Lower limit	⬇	Contact 1	⬆ ⬇ ⬆	Relay 1	⬇
	⬇	Upper limit	⬇	Contact 2	⬆ ⬇ ⬆	Relay 2	⬇
	⬇	Hysteresis	⬇	0,5 100	⬆ ⬇ ⬆	From measure end value (full scale)	⬇
	⬇	Attenuation	⬇	1 50	⬆ ⬇ ⬆	1 = keine damping 50 = 5 Seconds	⬇
	⬇	Zero compensation	⬇		⬆ ⬇ ⬆		⬇
	⬇	k-factor	⬇	1 10000	⬆ ⬇ ⬆	at IR.Nc-V air volume only	⬇
	⬇	Switch-on delay	⬇	0 240	⬆ ⬇ ⬆	s	⬇
				Back to main menu			
FACTORY SETTING							
⬇	⬇	Factory setting		Load factory settings Back to menu	⬆ ⬇ ⬆		⬇
OUTPUT CALIBRATION							
⬇	⬇	output value		mA Volt 0,0 20,0	⬆ ⬇ ⬆	Set values are to be measured on channel 1 and 2	⬇
PASSWORD							
⬇	⬇	Password	⬇	0 0 0 0	⬆ ⬇ ⬆		⬇
		Save password		yes / no			
DISPLAY SETTING							
⬇	⬇	Display	⬇	Backlight on Backlight off	⬆ ⬇ ⬆		⬇
SAVE SETTINGS							
⬇	⬇	save	⬇	Save settings Discard settings Back to main menu	⬆ ⬇ ⬆		⬇

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10. Error Message

NO DISPLAY / LED

- Check power supply
- Check connection of mounting frame and electronic

NO OUTPUT SIGNAL

- Check power supply (LED red/green)
- Check wiring
- Check parameterizing

RED LED

- Reading out of range
- Line break sensor

11. Maintenance

The device is maintenance free annual function testing and regular cleaning of dust and dirt with a damp cloth is recommended.

12. Repair

A returned device for Obtaining Service. The installation and operation of the SW.Nc in accordance with this manual are very unproblematic. Should it happen that a device for repair or testing must be returned to our service, please note under the item service address on the last page of a return form must be provided.

13. Disposal

Every year, thousands of tons of polluting land Electronic components on landfills in the world. To ensure the best possible disposal or recovery of electronic components, the European Union has adopted the WEEE Directive. (Waste Electrical and Electronic Equipment) Please send us these products at the end of your life back directly so that we can control its proper disposal. The WEEE is an important contribution to the environment and we are happy to help to relieve the environment with this disposal concept.

14. Accessories Spare Parts

TITLE

Filter cap pore size 10 µm	FK.Va-10
1 m M12 cable for remote measurement	KV.Pu-1m
5 m M12 cable for remote measurement	KV.Pu-5m
10 m M12 cable for remote measurement	KV.Pu-10m
M12 female and M12 male 5 pole, shielded	CS.Ms-M12FM
Connector set. PG9 (for self ca	
Cable glands M20x1,5 Ms/Ni incl. nut	KL.Ms-20
Pressure connector M5 to tube 6 mm	DA.Ms-M5-6
Pressure connector M5 to tube 4 mm	DA.Ms-M5-4
M5 thread enlargement to 1/8"	GW.Va-M5-G1/8
M5 thread enlargement to 1/4"	GW.Va-M5-G1/4
1/8" clamp fitting to 6 mm tube V4A	RS.Va-1/8-6
1/8" clamp fitting to 8 mm tube V4A	RS.Va-1/8-8
Tube set with hose 6 mm, length 2 m	MA.Pa-06
Filter membrane for aggressive environment	FM.Pa
Hose diameter 4 mm	
Pitot tube D 3mm, l 200 mm for volumetric	SR.Va-200
flow measurement incl. adapter	

Revision Status

VERSION	DATE	SUPPLEMENT / CHANGE / NOTE
01	2018-05-17	First Edition
02	2019-12-12	Company name

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EU Konformitätserklärung EU Declaration of Conformity Déclaration de Conformité UE

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erklärt als Hersteller in alleiniger Verantwortung, dass das Produkt
declares as manufacturer under sole responsibility, that the product
déclare sous sa seule responsabilité en qualité de fabricant que le produit

SW.Nc

IR.Nc

den Vorschriften folgender Europäischer Richtlinien durch Anwendung harmonisierter Normen entspricht:
conforms with the provisions of the following European Directives by applying the harmonised standards:
est conforme aux prescriptions des Directives Européennes suivantes par l'application des normes harmonisées :

Richtlinien/Directives/Directives

2014/35/EU (LVD)

2014/30/EU (EMC)

2012/19/EU (WEEE)

2011/65/EU (RoHs)

Normen/Standards/Normes

EN 61010-1:2010+A1:2019

EN 60529:1991+A1:2000 + A2:2013

EN 61326-1:2013

EN 61326-2-3 :2013

Nürnberg, 12. Dezember 2019



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Geschäftsführer
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