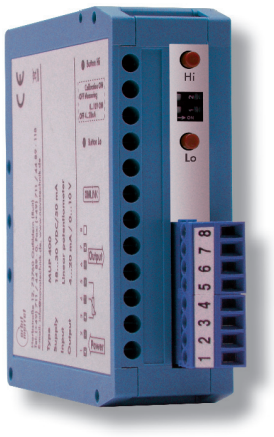
OMX 380



The OMX 380 model range are very fast digital transmitters to DIN rail with a Teach-in function

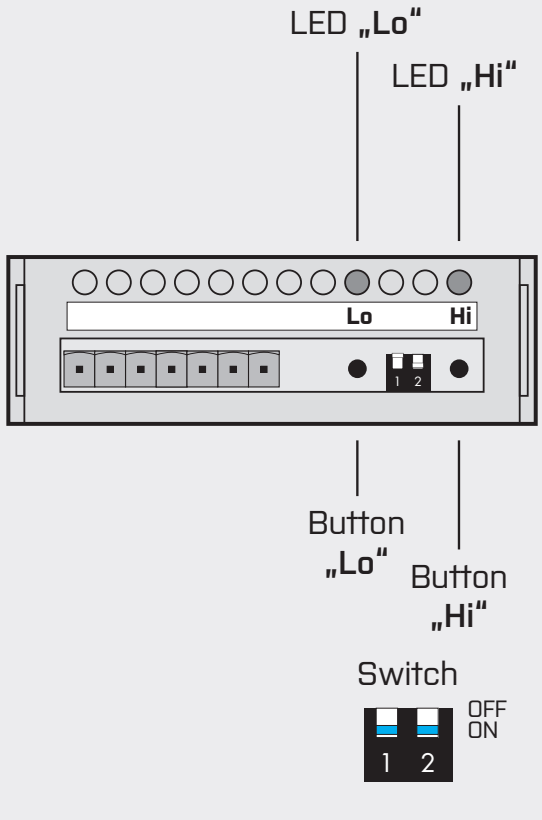
OMX 380PM Process Monitor (PM) input > analogue output
OMX 380DU Linear potentiometer > analogue output
OMX 380T Load cell > analogue output

The instrument is based on a single chip microcontroller, 24-bit A/D and 16-bit D/A converter, which ensures excellent accuracy, stability and easy operation of the instrument.
The transmitter is in a plastic housing fitted with a terminal board and mountable to 35mm DIN rail.

The instrument is controlled by two push buttons on the front panel. The mode of the output signal and the access to the teach-in mode is realized by a couple of dip switches in between the two push buttons.
Standard equipment are the OM Link and USB interfaces, which together with operating program called OM link SW enable the user to modify and file all instrument's settings as well as to perform firmware updates (using OM Link cable).
All settings are stored in the EEPROM memory (they are retained even after the instrument is switched off).

OPTIONS

Excitation can be used for powering sensors and transmitters. It is not galvanically isolated. The set values are either 15 V or 24 V.
Data outputs are for their rate and accuracy suitable for transmission of the measured data for further projection or directly into the control systems. We offer an RS485 with ASCII/ MESSBUS/MODBUS protocol.



Device setting

Selection of measuring range (PM, T)

1. To change the measuring range, turn dipswitch **no. 2** to „ON" and simultaneously push the „Lo" button. LEDs „Lo" and „Hi" ❋ indicate by their flashing which measuring range is currently selected. (tab. 1)
2. By pressing the „Lo" button repeatedly you can move step by step through the input ranges and LED „Lo" ❋ indicates the currently active input type (table 1)
3. Confirm your selection by pressing the „Hi" button, LEDs „Lo" ● and „Hi" ● light up
4. Turning dipswitch **no. 2** to „OFF" terminates the input selection
5. LED „Lo" ● is on

Changing the analogue output type

1. The type of analogue output is selectable by dipswitch **no. 1** on the front panel
2. Positions of dipswitch **no. 1** „OFF" 4...20 mA
   „ON" 0...10 V

Setting Teach-in

1. To enable the teach-in mode, turn dipswitch **no. 2** to „ON" LED „Lo" ❋ flashes.
2. Connect minimum input signal/load or move the sliding element of a potentiometer to its mechanical minimum position.
3. Confirm your selection of input signal level by pressing the „Lo" button > LED „Lo" ● lights up
   If during calibration the range is reduced to less than 20%, LED „Hi" ● lights up!
4. LED „Lo" ❋ flashes to signal that calibration of minimum has been successful.
5. Connect maximum input signal/load or move the sliding element of a potentiometer to its mechanical maximum position.
6. Confirm your selection of input signal level by pressing the „Hi" button > LED „Hi" ● lights up
   If during calibration the range is reduced to less than 20%, LED „Hi" ● lights up!
7. LED „Lo" ❋ flashes to signal that calibration of maximum has been successful.
8. Switching dipswitch **no. 2** to „OFF" terminates calibration and the transducer is in its measuring mode.
9. LED „Lo" ● is on.

Prior to performing the Teach-in procedure the desired measuring range has to be selected, see. "Selection of measuring range" an corresponding input signal has to be connected.

Restoration of manufacturer's /user settings

1. This is a good way how to return to the original manufacturer's setting especially when making a mistake during the set up process.
2. Switch dipswitch **no. 2** to „ON" sand connect power supply while pressing both push buttons simultaneously.
3. LEDs „Lo" ❋ and „Hi" ❋ indicate the process of restoration of manufacturer's settings and calibration is under way by flashing alternatively for approx. 3 seconds
4. When LEDs „Lo" ○ and „Hi" ○ stop flashing, turn dipswitch **no. 2** to „OFF" This completes the restoration process.

Table 1

MEASURING RANGES		
LED „HI“	**MEASURING RANGES**	
	PM	T
❋	0...20 mA	1...4 mV/V
❋ ❋	4...20 mA	2...8 mV/V
❋ ❋ ❋	0...10 V	4...16 mV/V

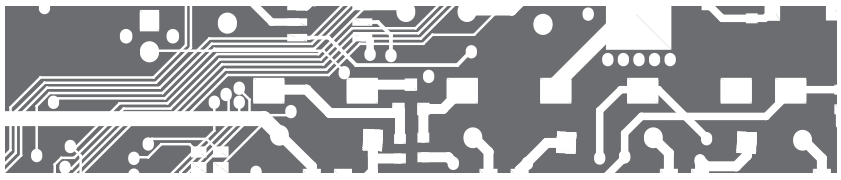
Table 2

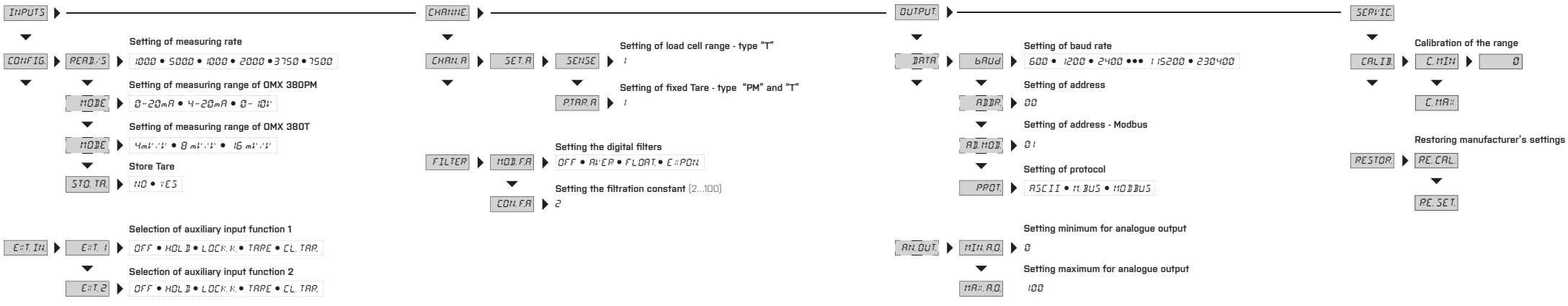
SIGNALLING LEDS	
LED „LO“	DESCRIPTION
●	transducer is switched on while button „Lo" is pressed > calibration „OK"
❋	transducer is in the calibration mode
●	input value or measured value are out of calibration range
❋	transducer is in the calibration mode, but out of range
LED „HI“	
●	while button „Hi" is pressed > calibration „OK"
●	the range of calibration values is ≤ 20% of the range (in such case accuracy and stability of conversion cannot be guaranteed) while button „Lo" is pressed > calibration is out of range while button „Hi" is pressed > calibration is out of range

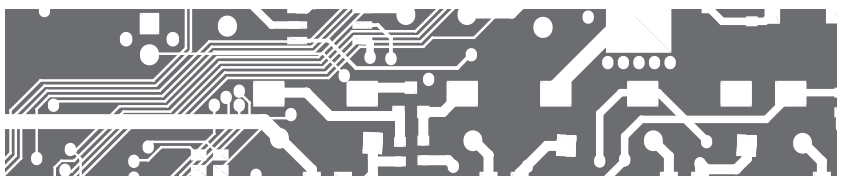
Table 3

LED SYMBOL LEGEND	
○	LED is off
● / ●	LED is on
❋ / ❋	LED flashes

OMX 380
SETTING **PROFI** FROM PC VIA SOFTWARE **OM LINK**







OMX 380
CONNECTION AND CONTROLLING OF INSTRUMENT / TECHNICAL DATA

MEASURING INPUT

INPUT	PM	Ranges	0...20 mA 4...20 mA 0...10 V	< 300 mV < 300 mV 1 MΩ	Input I Input I Input U
	DU	Supply of linear potentiometer	2,5 VDC/6 mA, min. resistance of potentiometer is 500 Ω		
	T	Ranges	1...4 mV/V 2...8 mV/V 4...16 mV/V		

INSTRUMENT'S ACCURACY

TC	10 ppm/°C	
Accuracy	±0,01 % of range ±0,03 % of range ±0,025 % of range	PM (U), DU PM (I) T
Rate	100/500/1000/2000/37507500 measurements/s	
Overload capacity	10x (t < 30 ms), 2x	
Digital filters	arithmetic average floating average exponential filter with adjustable constant 2...100 measurements	
Function	Hold - freezing the measured value Lock - disables push buttons Tare Zeroes Tare	
External inputs	2, with the possibility of assigning to them various functions in the instrument's menu	
OM Link	company communication interface for operating, setting and updating of instruments connectivity either via OML cable or via USB interface	
Watch-dog	reset after 400 ms	
Calibration	at 25°C and 40% r.h.	

EXCITATION

Fixed	(PM)	15 VDC/40 mA 24 VDC/40 mA
	(DU)	2,5 V
	(T)	10 V, max. load 80 Ω

DATA OUTPUT

Type	RS 485, isolated
Protocol	ASCII, MESSBUS, MODBUS - RTU
Data format	8 bit + no parity + 1 stop bit
Rate	600...230 400 Baud
Adressing	ASCII - max. 31 instruments MODBUS - max. 246 instruments

ANALOG OUTPUT

Type	isolated, programmable with 16-bit D/A converter, type and range are selectable
Non-linearity	0,024 % of range
TC	10 ppm/°C
Rate	response to change of value < 0,2 ms
Output	0...10 V, 4...20 mA (comp. < 500 Ω/12 V)
Ripple	5 mV residual ripple at output voltage of 10 V

POWER SUPPLY

Options	18...30 VDC/24 VAC, ±10 %, max. 3 VA, PF≥ 0,4, I_{STP}< 40 A/1 ms 10...30 VDC/24 VAC, ±10 %, max. 3 VA, PF≥ 0,4, I_{STP}< 40 A/1 ms, isolated

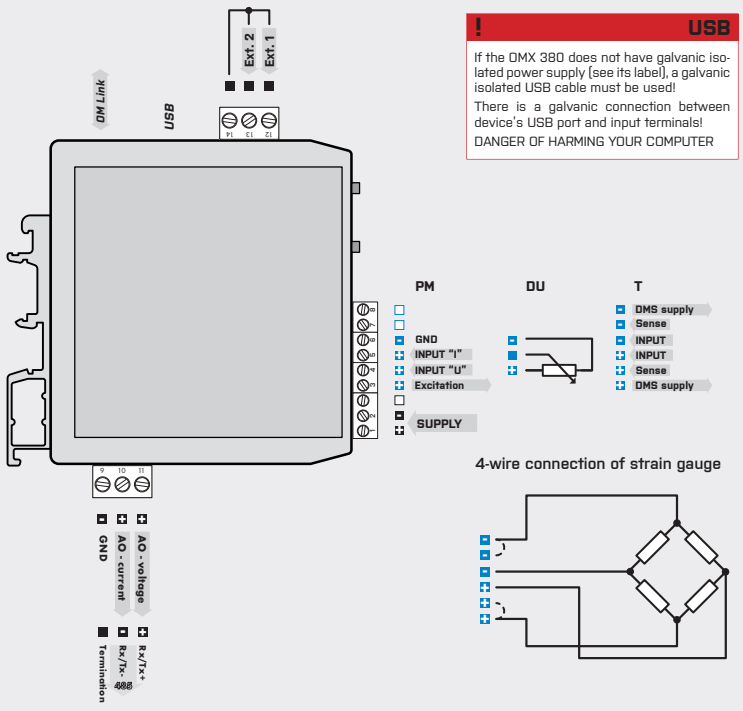
MECHANIC PROPERTIES

Material	PA 66, incombustible UL 94 V-0, blue
Dimensions	90,5 x 79 x 25 mm
Installation	to DIN rail, wide 35 mm

OPERATING CONDITIONS

Connection	connector terminal board, cross section < 1,5 mm²
Stabilization period	within 15 minutes after switch-on
Working temperature	-20°...60°C
Storage temperature	-20°...85°C
Cover	IP20
Execution	safety class I
El. safety	EN 61010-1, A2
Dielectric strength	2,5 kVAC after 1 min between supply and input 2,5 kVAC after 1 min between supply and data/analog output 2,5 kVAC after 1 min between input and data/analog output
Insulation resistance*	for pollution degree II, measuring cat. III. power supply > 550 V (PI), 255 V (DI)
EMC	EN 61326-1 (Industrial environment)

* PI - Primary insulation, DI - Double insulation



! USB

If the OMX 380 does not have galvanic isolated power supply (see its label), a galvanic isolated USB cable must be used!

There is a galvanic connection between device's USB port and input terminals!

DANGER OF HARMING YOUR COMPUTER

EXTERNAL INPUT

	DESCRIPTION	ACTION
EXT. 1	control input, functionality according to setting in the menu (see Menu > EXT. 1)	upon contact, terminal (no. 14 + 12)
EXT. 2	control input, functionality according to setting in the menu (see Menu > EXT. 2)	upon contact, terminal (no.. 14 + 13)

SAFETY INSTRUCTIONS

Please, read the enclosed safety instructions carefully and observe them!

These instruments should be safeguarded by either individual or shared fuses (circuit breakers) with respect to their actual power consumption!

For safety information the EN 61 010-1 + A2 standard must be observed.

This instrument is not explosion-safe!

TECHNICAL DATA

Transducers of the OMX 380 range comply with Directive 73/23/EEC, Directive 2004/108/EC) and complies with the following European standards:

EN 61010-1, Electrical safety

EN 61326-1, Electronic measuring, control and laboratory devices – Requirements for EMC "Industrial use"

The instrument is suitable for non-restricted use in agricultural and industrial areas.

Instrument's power supply leads should not be in vicinity of low level input signals. Contactors, medium and high power electrical motors must not be used in vicinity of the instrument. Input signal leads (measured value) need to be separated from all high power leads and devices. Instruments are tested in accordance with standards for industrial use, however we strongly advise you to adhere to the above mentioned precaution measures.

In order to ensure proper functionality of this instrument it is absolutely essential to connect the input leads shielding to the junction box' frame.

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