

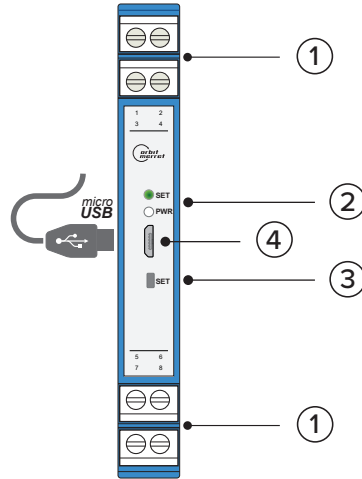
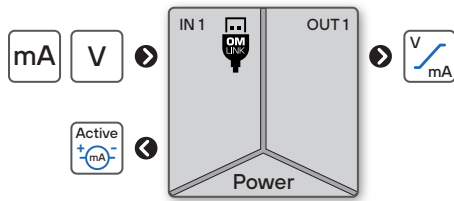
- Input 0...2/5/10 V
0...5/20 mA, 4...20 mA passive/active
- Analog output, passive/active
- Quick configuration by DIP switch
- PC configurable via USB port
- Galvanic isolation 2.5 kVAC
- Simple installation to DIN rail



OMX 211PM

Digital DIN rail mounted signal conditioner

INPUT FOR DC CURRENT/VOLTAGE



Legend

- ① Connectors
- ② RGB Status LED
- ③ Control button
- ④ microUSB port for PC connection

LED indication

PWR	SET	STATUS
●		Device is running
●		Device error - processor
●	○	Tare function is activated
●	●	Sensor error
●	●	Simulation mode is activated



DANGER

HAZARD OF ELECTRICAL SHOCK

- Disconnect all power and other supply lines before servicing equipment

Failure to follow this instruction may result in death or serious injury.



WARNING

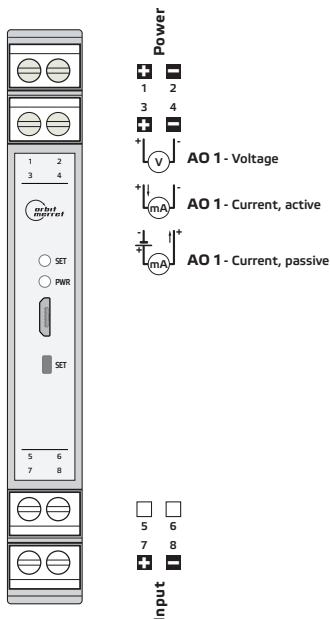
EQUIPMENT OPERATION HAZARD

- Do not use this product in safety critical system
- Do not disassemble, repair or modify this product
- Do not operate beyond the recommended operating environment

Failure to follow these instructions may result in death, serious injury, or equipment damage.

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by ORBIT MERRET for any consequences arising out of the use of this device.

Connection



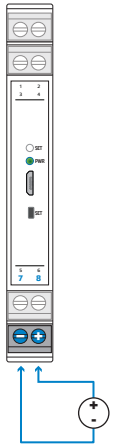
Note

Contactors, high power electric motors, frequency drives and other power devices should not be in a close proximity of the meter. Input signal leads (measured value) should be separated from all power lines and power devices. Even though the device has been designed and tested according to standards for industrial environment, we strongly advise to adhere to the above presented rules.

	0,05...2,5mm ² 30...12 AWG	
	Ø 3,5 mm Ø 0.14 in	

Wiring diagram

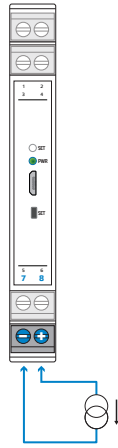
Input - Voltage [V]



Input - Current [mA]



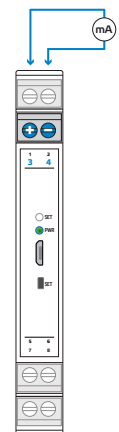
Input - Current, active [mA]



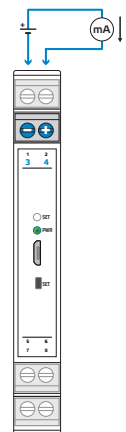
Output - Voltage [V]



Output - Current, active [mA]



Output - Current, passive [mA]



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Device setting

DIP switch

For a quick set up you can use the DIP switch. Changing a configuration only takes effect after power off/on.

1	2	3	4	Input - Type
				Working Mode includes Teach-in, Setup via OM Link
•				0...2 V
•				0...5 V
•				0...10 V
•	•			2...0 V
•	•			5...0 V
•	•			10...0 V
•	•	•		±10 V
•			•	0...5 mA
•			•	0...20 mA
•	•		•	4...20 mA <i>DEF</i>
•	•		•	4...20 mA + Excitation
•			•	5...0 mA
•	•		•	20...0 mA
•	•		•	20...4 mA
•	•	•	•	20...4 mA + Excitation

5	6	7	8	Without function
				<i>DEF</i>

9	10	Output - Range
		0...10 V
•		0...20 mA [Act]
•		4...20 mA [Act] <i>DEF</i>
•		4...20 mA [Pas]



Setting of **Analog input, Teach-in** is active only when DIP switches **No. 1-4** are in the "OFF" position, i.o. **Setting via OM Link**

Analog input range setting, Teach-in

1. Enter the teach-IN mode by a long press (>2 s) of the **SET** button - LED **PWR** ● yellow and LED **SET** ● turquoise (DIP 1-4 to OFF)
 2. Put the connected sensor in the position that shall have minimum output **RNG.MIN** (for example 4.02 mA)
 3. Set the minimum output value by a long press (>2 s) of the **SET** button - LED **PWR** ● yellow, LED **SET** ● purple
 4. Put the connected sensor in the position that shall have maximum output **RNG.MAX**. (for example 19.97 mA)
 5. Set the maximum output value by a long press (>2 s) of the **SET** button - LED **PWR** ● yellow, LED **SET** ● green
 6. Leave teach-IN mode by a short press of the **SET** button and return to the standard working mode - LED **PWR** ● green
- The teached measuring range is non volatile and retained even after power off/on



Minimum range of **Analog output** for U/I inputs signals is pre-set as unipolar, i.e. "0 V/mA" or "4 mA". If required, it is also possible to enter a negative value of the maximum in the minimum, i.e. zero will be in the middle of the selected range.

Zero settings (Tare)

1. Enter the tare mode by a short press of the **SET** button - LED **PWR** ○ white and LED **SET** ● turquoise
 2. Put the connected sensor in the position where the tare function shall be executed
 3. Set the tare by a long press (>2s) of the **SET** button - LED **PWR** ○ white, LED **SET** ● green
 4. Leave tare mode by a short press of the **SET** button - LED **PWR** ● green, LED **SET** ○ white
- The tare is always reset automatically when the device is switched off.



A short press at any time during the calibration will end the calibration without saving. After one minute of inactivity, the calibration is terminated without saving and both LEDs return to the basic state.

Input

Reset of internal values	CLEAR	>	CL. TAR.	Clear tare	
Sampling rate	READ./S	>	1 2 5 10 20 50 100	Measuring rate selection	
Measuring range	M.RANGE	>	2V 5V 10V 0-5mA 0-20mA 4-20mA	Measuring range selection	
Offset	OFFSET	>	-99999...0...999999	Setting the offset value ("0")	
Excitation	EXCIT.	>	ON OFF	Sensor excitation 24V – only for 4-20mA range	
Minimum of range	RNG.MIN.	>	-99999...4...999999	For the minimum of the selected input range	
Maximum of range	RNG.MAX.	>	-99999...20...999999	For the maximum of the selected input range	
Advanced input settings	TEACH-IN	>	T-IN.LO T-IN.HI	Setting the input range in the Teach-in mode	
	MANUAL	>	MAN. LO MAN. HI	Setting the input range in the Manual mode	
Filter mode	F.MODE	>	OFF AVER. FL. AVR. EXPON. ROUND.	Filters for math. adjust. of the input signal	
Filter constant	F.CONST.	>	0...9999	Setting the constant for the filter	

T-IN.LO	Device measures the value of the Lo signal
YES	Lo signal connection confirmed
T-IN.HI	Device measures the value of the Hi signal
YES	Hi signal connection confirmed
MAN. LO	Manual entry of Lo input signal for MIN
4.02	Entry of signal value (example: 4.02 mA)
MAN. HI	Manual entry of Hi input signal for MAX
19.97	Entry of signal value (example: 19.97 mA)

Function

Input of mathematical function	INP. M.F.	>	OFF INPUT INRFIL.	Input selection for the math function	
	TYPE M.F.	>	POL. IN. POL. LOGAR. EXPON. POWER. ROOT		
	CONST. A ... F	>	0...99	Setting constants for mathematical functions	
Input of linearization table	INP. L.T.	>	OFF INPUT INRFIL.	Input selection for the linearization table	
	N.OF.PTS.	>	5...100	Number of points in the table	
	VALUES	>	-9999...99999	Values X/Y	

POL.	Polynomial	$Ax^5 + Bx^4 + Cx^3 + Dx^2 + Ex + F$
IN. POL.	Inv. polynomial	$\frac{A}{x^2} + \frac{B}{x^3} + \frac{C}{x^4} + \frac{D}{x^5} + \frac{E}{x} + F$
LOGAR.	Logarithmic	$A \times \ln\left(\frac{Bx+C}{Dx+E}\right) + F$
EXPON.	Exponential	$A \times e^{\left(\frac{Bx+C}{Dx+E}\right)} + F$
POWER	Power	$A \times (Bx+C)^{(Dx+E)} + F$
ROOT	Square root	$A \times \sqrt{\frac{Bx+C}{Dx+E}} + F$

Output

Analog output	A.O. INP.	>	INPUT INRFIL. MAT.FNC. LIN.TAB.	Selection of input for analog output	
	A.O.TYPE	>	0-20 mA 4-20 mA R4-20 ER.4-20 0-10 V		
	A.O. MIN.	>	-99999...0...99999	Assigning the value of the input to the lower end of the range of AO	
	A.O. MAX.	>	-99999...100...99999	Assigning the value of the input to the upper end of the range of AO	

Selection of range for analog output	
R4-20	4...20 mA, passive
ER.4-20	4...20 mA, with error indication (< 3,6 mA)

Service

Sett password	PASSW.	>	0...9999	Password to connect the device to PC. If it is set to "0", access is not blocked
Delayed Start	DLY.STR.	>	0...99	Setting the time [sec.] - when the measurement is not performed after powering the device on
Save user settings	SAV.SET.	>	YES	Saves the current device settings
Load user settings	LOA.SET.	>	YES	Loads the user settings into the device
Factory reset	FACT.ST.	>	YES	Loads the original factory settings, restores the initial settings (BLUE TEXTS)
Erase user calibration	CLR.CAL.	>	YES	Clears user calibration, restores factory calibrations (after user calibration by script via OM Link SW had been performed)
Key lock	KEY.LCK.	>	ON. OFF	Disables the push button(s) on the front panel of the device
Simulation of input signal	SIM.MIN.	>	MIN > -99999...0...99999	Setting the beginning of the range for simulation
	SIM.MAX.	>	MAX > -99999...100...99999	Setting the end of range for simulation
	STEP	>	-99999...1...999999	Setting of increment/step value
	TIME	>	0...100...999.9	Setting the increment/step duration time [sec.]
	START	>	STOP > YES	Start of simulation
	STOP	>	START > YES	End of simulation



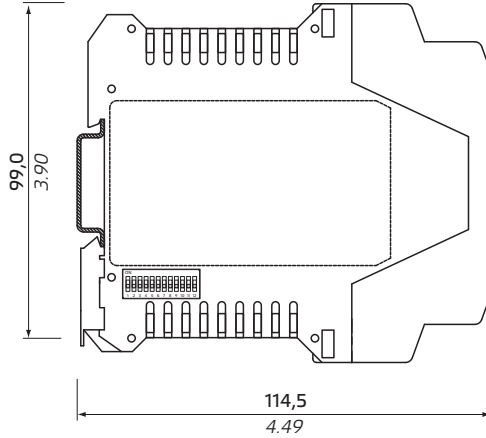
The USB connector is galvanically connected to the input!
 USB-to-USB Isolator must be used when input signal is connected to the device.
DANGER OF COMPUTER DAMAGE

5 Instrument dimensions and installation

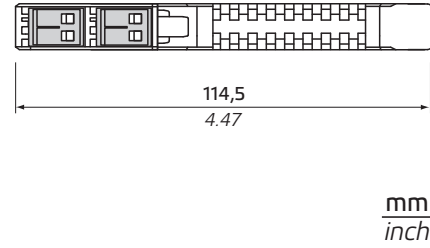
Front view



Side view



Top view



Installation to DIN rail of 35 mm width

mm
inch

6 Technical data

INPUT

No. of inputs	1	The range is selectable either by DIP switch or by OM Link free SW from PC
PM Range	0...5 mA 0...20 mA 4...20 mA ±2 V ±5 V ±10 V	< 200 mV < 200 mV < 200 mV 1 MΩ 1 MΩ 1 MΩ

INSTRUMENT SPECIFICATIONS

TC	50 ppm/°C
Accuracy	±0.1% of FS <i>accuracy is valid at 20 measurements/s</i>
Rate	1...100 measurements/s
Latency	< 13 ms
Overload	10x (t < 30 ms), 2x
Functions	Teach-in, Offset, Tare, Math functions, Simulation
Digital filters	exponential / floating / arithmetic average, rounding
Math functions	polynomial / inverse polynomial / logarithm / exponential / power / root
Linearization	linear interpolation in 100 points (only via OM Link)
OM Link	company communication interface for operation, setting and update of instruments. (microUSB)
Watch-dog	reset after 500 ms
Calibration	at 25°C and 40 % r.h.

ANALOG OUTPUT

No. of outputs	1
Type	isolated, configurable with a resolution of 10 000 parts, type and range are selectable in the menu
Accuracy	±0.1% of FS
TC	15 ppm/°C
Rate	response to change of value < 3.5 ms
Ranges	0...10 V <i>resistive load > 26 kΩ</i> 0...20 mA <i>compen. < 600 Ω/12 V</i> 4...20 mA (active/passive) <i>compen. < 600 Ω/12 V</i> with error indication (< 3.6 mA)
Error indication	at range 4...20 mA (ER 4-20) - A/D converter oversaturated - range exceeded by 20 % (in both directions) - broken current loop 4...20 mA (≤ 3.6 mA)

EXCITATION

Fixed voltage	24 VDC/35 mA, isolated (only for input 4...20mA)
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POWER SUPPLY

Power	10...30 VDC/24 VAC, ±10 %, PF ≥ 0.4, $I_{typ} < 40 A/1 ms$, isolated <i>Fuse inside (1500mA)</i>
Consumption	< 1.8 W / 1.7 VA

MECHANIC PROPERTIES

Material	PA66, incombustible UL 94 V-0, blue
Dimensions	114.5 x 99.0 x 12.5 mm
Installation	to DIN rail 35 mm wide

OPERATING CONDITIONS

Connection	connector terminal blocks, section < 2.5 mm ²
Stabilization period	within 5 minutes after switch-on
Working temp.	-20°...60°C
Working humidity	< 95 % r.h., non condensing
Storage temp.	-20°...85°C
Protection	IP20
Construction	safety class I
El. safety	EN 61010-1, A2
Dielectric strength	2.5 kVAC for 1 min. between power supply and signal input 2.5 kVAC for 1 min. between signal input and outputs
Insulation resist.*	for pollution degree II, measurement cat. III power supply > 300 V (PI), 255 V (DI) Input/outputs > 300 V (PI)
EMC	EN 61326-1 (Industrial area)
RoHS	EN IEC 63000000:2018
Seismic qualification	IEC/IEEE 60980-344 ed. 1.0:2020, par. 6, 9
Mechanical resistance	EN 60068-2-6 ed. 2:2008

* PI - Primary insulation, DI - Double insulation



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Measuring instruments of the OMX 211PM series conform to the European regulation 2014/30/EU, 2014/35/EU and 2011/65/EU, 2015/863/EU

This product must be installed, connected and used in compliance with prevailing standards and/or installation regulations. As standards, specifications and designs develop from time to time, always ask for confirmation of the information given in this publication.