Data Sheet

Digital Isolated Converter
Model OMX 312UNI

Distributed by

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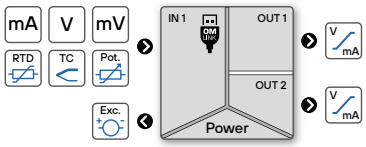
OMX 312UNI

- Multifunction input (DC, PM, RTD, T/C, DU)
- 2x Analogue outputs, passive/active
- Quick configuration by DIP switch
- PC configurable via USB port
- Excitation 24 VDC
- Galvanic isolation 2.5 kVAC
- Simple instalation to DIN rail
- Power supply 10...30 VDC, 24 VAC

DIGITAL ISOLATED CONVERTER



The OMX 300 model series are digital DIN rail mounted signal converters housed in an enclosure only 17.5 mm wide.

The OMX 312UNI type is a galvanic isolated single-channel universal signal converter / splitter. It can be configured for 10 different input variants. Setting of both the input and output ranges can be done conveniently by a DIP switch located on the side of the housing or from a PC via the OM Link SW.

You can also use this converter as a splitter into 2 analogue outputs.

This device is based on a microprocessor with a 24-bit ΔΣ A/D converter, which guarantees high accuracy and excellent stability.

OPERATION

The device can be configured either by DIP switches located on the side of the housing or by PC using the OM Link SW. The same SW can be used to edit and archive all device settings, as well as to perform firmware updates and customer calibration. A standard microUSB cable is required for PC to device connection.

Tech-in process can be performed for the measuring range currently selected using the front panel buttons.

All settings are stored in the EEPROM memory (preserved even after power-off)

STANDARD FUNCTIONS*

PROGRAMMABLE INPUT
Selection: of input type and measuring range
Standard setting: any input values can be assigned to Min and Max values of the analog output
Teach-in: any input values can be assigned to Min and Max values of the actual (unknown) input signal
Manual setting: the known Min and Max values of the input signal can be set manually and any analog output values can be assigned to each of them at the same time

ANALOG OUTPUT
Type: isolated, configurable with resolution of 10 000 parts, rate < 3.5 ms
Range: 0...10 V, 0...20 mA,4...20 mA

EXCITATION
Range: 24 VDC/35 mA, isolated

FUNCTIONS
Linearization: 100-point conversion of non-linear input signals by interpolation
Tare: designed to reset display upon non-zero input signal
Simulation: test mode in which range, value and duration of the step can be set
Math functions: polynomial, inverse polynomial, logarithm, exponential, power, root

DIGITAL FILTERS
Floating average: from 2...30 measurements
Exponential average: from 2...100 measurements
Arithmetic average: from 2...100 measurements

** this setting is only possible via the OM Link SW*

TECHNICAL DATA

INPUT

No. of inputs		1 The range is selectable either by DIP switch or by OM Link free SW from PC		
DC	Range	±60 mV	> 10 MΩ	Input 1
		±75 mV	> 10 MΩ	Input 1
		±100 mV	> 10 MΩ	Input 1
		±150 mV	> 10 MΩ	Input 1
		±300 mV	> 10 MΩ	Input 1
		±1000 mV	> 10 MΩ	Input 1
		±20 V	1 MΩ	Input 2
		±40 V	1 MΩ	Input 2
		±100 mA	< 200 mV	Input 3
PM	Range	±5 mA	< 200 mV	Input 3
		±20 mA	< 200 mV	Input 3
		4...20 mA	< 200 mV	Input 3
		±2 V	1 MΩ	Input 2
		±5 V	1 MΩ	Input 2
		±10 V	1 MΩ	Input 2
OHM	Range	0...100 / 300 Ω 0...1 / 3 / 10 / 30 / 100 kΩ 0...300 kΩ (only 2- and 4-wire)		
	Connection	2-, 3- or 4-wire, with broken cable/sensor detection		
Pt	Type	Pt 100/500/1 000, 3 851 ppm/°C		-50°...450°C
		Pt 100, 3 920 ppm/°C		-50°...450°C
		Pt 50, 3 910 ppm/°C		-200°...1100°C
		Pt 100, 3 910 ppm/°C		-200°...450°C
	Connection	2-, 3- or 4-wire, with broken cable/sensor detection		
Ni	Type	Ni 1 000/10 000, 5 000 ppm/°C		-50°...250°C
		Ni 1 000/10 000, 6 180 ppm/°C		-200°...250°C
	Connection	2-, 3- or 4-wire, with broken cable/sensor detection		
Cu	Type	Cu 50/100, 4 260 ppm/°C		-50°...200°C
		Cu 50/100, 4 280 ppm/°C		-200°...200°C
	Connection	2-, 3- or 4-wire, with broken cable/sensor detection		
NTC	Type	NTC 1	2k2, $B_{25/85}$ = 3600	-40°...125°C
		NTC 2	2k0, $B_{25/85}$ = 3528	-40°...125°C
		NTC 3	10k, $B_{25/85}$ = 3435	-40°...125°C
		NTC 4	10k, $B_{25/85}$ = 3977	-40°...125°C
		NTC 5	12k, $B_{25/85}$ = 3740	-40°...125°C
		NTC 6	20k, $B_{25/85}$ = 4263	-40°...125°C
	Connection	2-, 3- or 4-wire, with broken cable/sensor detection		
PTC	Type	KTY 81/210		-55°...150°C
	Connection	2-, 3- or 4-wire, with broken cable/sensor detection		

T/C	Type	J (Fe-CuNi)	-200°...900°C
		K (NiCr-Ni)	-200°...1 300°C
		T (Cu-CuNi)	-200°...400°C
		E (NiCr-CuNi)	-200°...690°C
		B (PtRh30-PtRh6)	300°...1 820°C
		S (PtRh10-Pt)	-50°...1 760°C
		R (Pt13Rh-Pt)	-50°...1 740°C
		N (Omegalloy)	-200°...1 300°C
		L (Fe-CuNi)	-200°...900°C
		XK (Chromel-Copel)	-200°...800°C
		with broken cable/sensor detection	
DU	Power	1,65 VDC/3 mA, potentiometer resistance > 500 Ω	

INSTRUMENT ACCURACY

TC: 50 ppm/°C
Accuracy: ±0,1% of range + 1 digit
Rate: 1...100 measurement/s
Overload capacity: 2x; 10x (t < 30 ms)
Compensation of conduct: max. 30 Ω (RTD)
Measurement accuracy CJC: ±1.5°C (T/C)
Functions: Teach-in, Tare, Math functions, Simulation
Digital filters: exponential / floating / arithmetic average, rouding
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 OUTPUTS

No. of outputs: 2
Type: isolated, configurable with a resolution of 10 000 parts, type and range are selectable in the menu
Non-linearity: 0.1% of range
TC: 15 ppm/°C
Rate: response to change of value < 3.5 ms
Ranges: 0...10 V, 10...0 V, resistive load < 2.6 kΩ
0...20 mA/20...0, 4...20/20...4 mA (active/passive), compen. < 600 Ω/12 V

EXCITATION

Fixed: 24 VDC/35 mA, isolated

POWER SUPPLY

Range: 10...30 V AC/DC, ±10 %, PF≥ 0,4, I_{STP}< 40 A/1 ms, isolated
Consumption: < 2.5 W/2.4 VA
Power supply is protected by a fuse inside the instrument.

MECHANICAL PROPERTIES

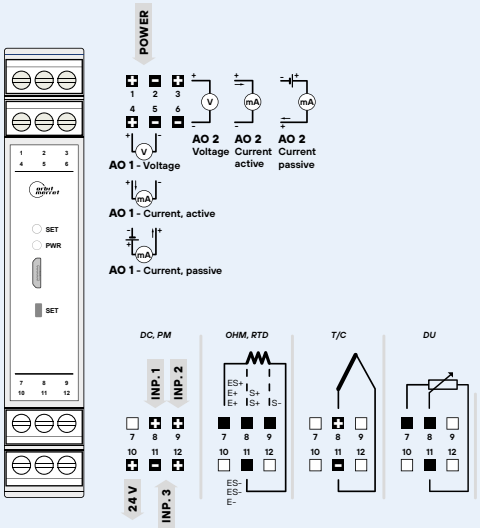
Material: PA 66, incombustible UL 94 V-I, blue
Dimensions: 17,5 x 99 x 114,5 mm (w x h x d)
Installation: on DIN rail, width 35 mm

OPERATING CONDITIONS

Connection: connector terminal blocks, section < 2.5 mm²
Stabilization period: within 5 minutes after switch-on
Working temperature: -20°...60°C
Storage temperature: -20°...80°C
Protection: IP20
El. safety: EN 61010-1, A2
Dielectric strength: 2.5 kVAC for 1 min test between supply and input
2.5 kVAC for 1 min. between signal input and outputs
2.5 kVAC for 1 min. between outputs
Insulation resistance: for pollution degree II, measuring cat. III
power supply > 300 V (PI), 255 V (DI)
input / output > 300 V (PI)
EMC: EN 61326-1
Seismic qualification: IEC/IEEE 60980-344 Edition 1.0, 2020, par. 6, 9
Mechanical resistance: EN 60068-2-6 ed. 2:2008

PI - Primary insulation, DI - Double insulation

CONNECTION



ORDER CODE

OMX 312UNI -☐

Specification	**customized version, do not fill in**	**00**