



Data Sheet

Digital Isolated Converter
Model OMX 311UNI

Distributed by



[www. BristolInstruments.com](http://www.BristolInstruments.com)

Bristol Instruments
90 Canal Street, 4th Floor
Boston, MA 02114

Toll free
877-866-8500



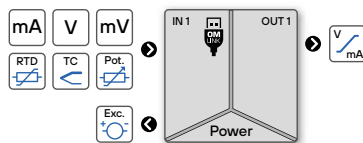
OMX 311UNI



- Multifunction input (DC, PM, RTD, T/C, DU)
- Analogue output, passive/active
- Quick configuration by DIP switch
- PC configurable via USB port
- Excitation 24 VDC
- Galvanic isolation 2.5 kVAC
- Simple installation to DIN rail
- Power supply 10...30VDC, 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 311UNI type is a galvanic isolated single-channel universal signal converter. 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.

This device is based on a microprocessor with a 24-bit $\Delta\Sigma$ 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 ₂₅₈₅ = 3600	-40°...125°C
		NTC 2 2k0, B ₂₅₈₅ = 3528	-40°...125°C
		NTC 3 10k, B ₂₅₈₅ = 3435	-40°...125°C
		NTC 4 10k, B ₂₅₈₅ = 3977	-40°...125°C
		NTC 5 12k, B ₂₅₈₅ = 3740	-40°...125°C
		NTC 6 20k, B ₂₅₈₅ = 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	Range
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, 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
 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_{STR} < 40 A/1 ms, isolated
 Consumption: < 2.5 W/2.4 VA
 Power supply is protected by a fuse inside the instrument.

MECHANICAL PROPERTIES

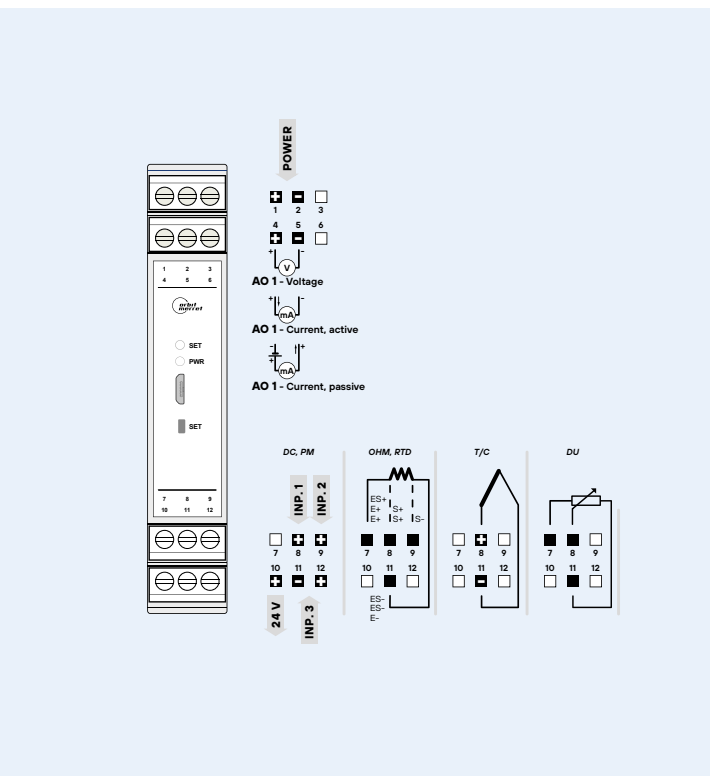
Material: PA 66, incombustible UL 94 V-I, blue
 Dimensions: 17,5 x 99 x 114,5 mm (w x h x d)
 Installation: on DIN rail, width 35 mm

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
 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 311UNI



Specification customized version, do not fill in 00