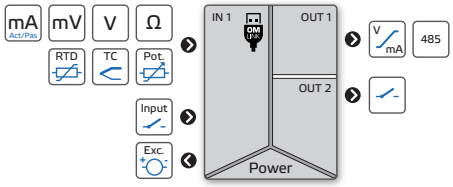
OMX 333iUNI

- Multifunction input (DC, PM, RTD, T/C, DU)
- Output 0/4...20 mA/0...5 mA/0...2/5/10 V/±10 V
- Teach-in, Digital filters, Tare, Linearization
- Quick configuration by DIP switch
- PC configurable via USB port
- Excitation 24 VDC
- Galvanic separation 2.5 kVAC
- Power supply 10...30 VDC / 24 VAC

Option

Comparators ● Data output

DIGITAL ISOLATED TRANSMITTER



The OMX 333i model series are simple DIN rail mountable adjustable trasmitters.

The OMX 333iUNI is a multifunction isolated transmitter. 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 32-bit processor, 24-bit ΔΣ ADC and 16-bit DAC, which guarantees high accuracy and excellent stability.

OPERATION

The device can be configured either by DIP switch 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.

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).

OPTION

COMPARATORS are intended for monitoring two limit values with relay or open collector output. A wide selection of operating modes from basic activation when Above/Below pre-set value, Window - from/to or Batch - period and time, enables many requirements to be met. Another option is to set the mode of contact in idle state (NO/NC), pulse – contact closure for a defined duration or continuous mode - safety relay (IEC EN 61496).

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 isolated RS485 with ASCII and Modbus protocol.

STANDARD FUNCTIONS

PROGRAMMABLE INPUT
Selection: of input type and measuring range
Standard setting: any display values can be assigned to Min and Max values of a defined standard input signal
Teach-in: any display values can be assigned to Min and Max values of actual (unknown) input signal
Manual setting: known Min and Max input signal values can be entered manually and any display values can be assigned to each signal

ANALOG OUTPUT
Type: isolated, programmable with a resolution of 16 bit, rate < 0.2 ms
Ranges: 0...2/5/10 V/±10 V, 0...5 mA/0/4...20 mA

EXCITATION
Range: 24 VDC/1 W, isolated

COMPENSATION
Wiring (RTD, OHM): automatic (3- or 4-wire) or manual in menu (2-wire)
Probes (RTD): internal wiring (resistance of conductors in the measuring head)
CJC (T/C): manual or automatic (terminal temperature)

FUNCTIONS
Linearization: non-linear signal is converted by a 100-point linear interpolation
Tare: designed to reset display upon non-zero input signal
Fixed tare: fixed preset tare
Min./max. value: registration of min./max. value reached during measurement
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
Rounding: setting a „shorter" number for further signal processing

EXTERNAL CONTROL
Hold: display/instrument blocking
Lock: control keys blocking
Tare: activation and tare resetting
Resetting Min/Max: resetting min/max value
Hold Min/Max: start of a measurement to evaluate the Min/Max value
Sample: start of a one-time measurement
Opening of a limit: a command to open the relay when in LATCH mode (safety relay)

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 3 ±75 mV > 10 MΩ Input 3 ±100 mV > 10 MΩ Input 3 ±150 mV > 10 MΩ Input 3 ±300 mV > 10 MΩ Input 3 ±1000 mV > 10 MΩ Input 3 ±20 V 1 MΩ Input 1 ±40 V 1 MΩ Input 1 ±100 mA < 200 mV Input 5	
PM	Range	±5 mA < 200 mV Input 5 ±20 mA < 200 mV Input 5 4...20 mA < 200 mV Input 5 ±2 V 1 MΩ Input 1 ±5 V 1 MΩ Input 1 ±10 V 1 MΩ Input 1	
OHM	Range	0...100 / 300 Ω 0...1 / 3 / 10 / 30 / 100 kΩ 0...300 kΩ (only 2- and 4-wire)	
	Connection	2-, 3- and 4-wire with broken cable/sensor detection	
Pt	Range	Pt 100/500/1 000, 3 850 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- and 4-wire with broken cable/sensor detection	
Ni	Range	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- and 4-wire with broken cable/sensor detection	
Cu	Range	Cu 50/100, 4 260 ppm/°C -50°...200°C Cu 50/100, 4 280 ppm/°C -200°...200°C	
	Connection	2-, 3- and 4-wire with broken cable/sensor detection	
NTC	Range	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- and 4-wire with broken cable/sensor detection	
PTC	Range	KTY 81/210 -55°...150°C	
	Connection	2-, 3- and 4-wire with broken cable/sensor detection	
T/C	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	
	CJC	adjustable: -20°...99°C or automatic	
DU	Sensor power supply	1.65 VDC/3 mA, potentiometer resistance > 500 Ω	

EXTERNAL INPUT

No. of inputs	1, on contact
Function	OFF no function assigned TARE tare activation CL.TAR. reset of Tare CL.M.M. reset of Min./Max. values CL.REL. open relay/OC (Type LATCH) HOLD measurement paused SAMPLE take a one-off measurement HLD.MIN start measurement of MIN HLD.MAX start measurement of MAX HLD.M-M start measurement of MAX-MIN KEY.LCK. device buttons blocked

INSTRUMENT SPECIFICATION

TC	50 ppm/°C
Accuracy	±0,07 % of FS ±0,05 % of FS DC, PM ±0,1 % of FS OHM - 100k/300k *the specified accuracy applies to 20 measurements/s*
Rate	1...400 measurements/s *speed of 400 meas./s is with FFT signal filtering*
Latency	< 2.5 ms
Overload	10x (t < 30 ms), 2x
Compensation of conduct	< 30 Ω RTD
Measurement accuracy CJC	±1.5°C T/C
Functions	Teach-in, tare, preset tare, min/max value, math. functions, delayed start, simulation
Digital filters	exponential / floating / arithmetic average, rouding
Math functions	polynomial / inverse polynomial / logarithm / exponential / power / root
Linearization	linear interpolation in 100 points *setup 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.

RELAYS / OC OUTPUT

No. of outputs	2
Type	digital, configurable in menu
Mode	RISE active above set value DROP active below set value WINDOW active in the set window / band BATCH active in set periods
Function Relays/OC	SW. ON is closed in active mode SW. OFF is open in active mode PULSE switches on once in active mode LATCH in active mode the output is switched permanently, disconnection is blocked (IEC EN 61496) *- disconnection is performed by ext. input*
Limits	-99999...999999
Hysteresis	0...999999
Delay	0...999.9 s
Outputs	2x relays with switch-on contact (Form A) (250 VAC/30 VDC, 3 A)* 2x open collector (30 VDC/100 mA)
Relays	1/8 HP 277 VAC, 1/10 HP 125 V, Pilot Duty D300

* values apply for resistance load

ANALOG OUTPUT

No. of outputs	1
Type	isolated, adjustable with 16-bit DAC, output type and range is selectable
TC	15 ppm/°C
Non-linearity	0.1 % from FS
Accuracy	±0.02 % of FS
Rate	response to change of value < 0.2 ms
Ranges	0...2 / 5 / 10 V, ±10 V, resistive load ≥ 1 kΩ 0...5 / 20 mA /4...20 mA, comp. < 600 Ω/12 V Indication of broken current loop Indication of error message (output < 3.2 mA)

DATA OUTPUTS

No. of outputs	1
Protocol	ASCII, Modbus RTU
Data format	8 bit + no parity + 1 stop bit
Rate	300...230 400 Baud
RS 485	isolated, addressing (max. 31 instruments)

EXCITATION

Fixed voltage	24 VDC/< 60 mA, isolated

POWER SUPPLY

Range	10...30 VDC / 24 AC, ±10 %, PF ≥ 0.4, I_{STP}< 40 A / 1 ms, isolated *Protection by fuse inside the device.*
Consumption	< 3.1 W / 3.0 VA

MECHANIC PROPERTIES

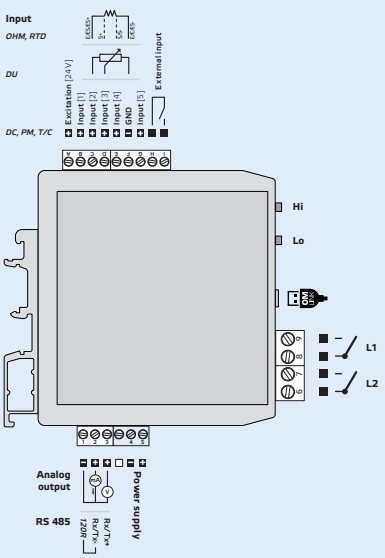
Material	PA66, incombustible UL 94 V-0, blue
Dimensions	25 x 79 x 90.5 mm (w x h x d)
Installation	to DIN rail 35 mm wide

OPERATING CONDITIONS

Connection	connector terminal blocks, section < 1.5/2.5 mm²
Stabilization period	within 5 minutes after switch-on
Working temperat.	-20°...60°C
Storage temperat.	-20°...85°C
Working humidity	< 95 % r.v., non condensing
Protection	IP20
Construction	safety class I
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. test between input and outputs 4 kVAC for 1 min. test between input and relays
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
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 333iUNI - □□ - □

Comparators	no	**0**		
	2x relay (Form A)	**2**		
	2x open collector	**4**		
Output	none		**0**	
	analog		**1**	
	RS 485s		**2**	
Specification	customized version, do not fill in			**00**

Basic configuration of the instrument is indicated in bold.