

OMX 102UNI

OMLINK

The OMX 102 model series are DIN rail mountable programmable transmitters designed with the utmost versatility and user comfort whilst keeping the cost at a favourable level.

Type OMX 102UNI is a multifunction two-input instrument with 8 possible input configurations easily adjustable in the instrument's menu.

The instrument is based on a single-chip microcontroller with a 24-bit A/D converter, which ensures good accuracy, stability and easy operation of the instrument.

For displaying measured data, easier setup and clear function arrangement, the instrument is delivered with a backlit LCD display.

PROGRAMMABLE ISOLATED TRANSMITTER

- 2x MULTIFUNCTION INPUT (DC, PM, RTD, T/C, DU)
- LCD DISPLAY, DIGIT. FILTERS, TARE, LINEARIZATION
- 2x OUTPUT
0/4...20 mA/0...5 mA/0,2...2,2 kHz/0...2/5/10 V/±10 V
- GALVANIC SEPARATION: 2,5 kVAC
- POWER SUPPLY 10...30 V AC/DC; 80...250 V AC/DC
- Option
Excitation • Comparators • Data output

OMX 102UNI

DC VOLTMETER AND AMMETER
PROCESS MONITOR
OHMMETER
THERMOMETER FOR PT/CU/NI/THERMOCOUPLES
DISPLAY FOR LINEAR POTENTIOMETERS

OPERATION

The instrument is set and controlled by two buttons located on the front panel. All programmable settings of the instrument may be performed in three adjusting modes:

LIGHT MENU is protected by optional number code and contains solely items necessary for instrument setting.

PROFI MENU is protected by optional number code and contains complete instrument setting.

USER MENU may contain arbitrary items from the programming menu (LIGHT/PROFI), which determine the right (see, change). Access w/o password.

Standard equipment is the OM Link interface, which together with operation program enables modification and filing of all instrument settings as well as performing firmware updates (with OML cable). The program is also designed for visualization and filing of measured values from more instruments.

All settings are stored in the EEPROM memory (settings hold even after the instrument is switched off).

The measured units can be projected on the display.

OPTION

EXCITATION for feeding sensors and transmitters. It is galvanically isolated with optional values 5/12/17/24 V.

COMPARATORS are assigned to monitor two limit values with relay output. The limits have adjustable hysteresis within the full range of the display as well as selectable delay of the switch-on in the range of 0...99,9 s. Reaching the preset limits is signalled by LED and simultaneously by the switch-on of the relevant relay.

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 RS232 and RS485 with the ASCII/MODBUS/PROFIBUS protocols and LAN.

STANDARD FUNCTIONS

PROGRAMMABLE INPUT

Selection: of input type and measuring range

Setting: manual, in menu it is possible to set for both limit values of the input signal arbitrary type (V, mA, Hz) and range of the analog output as well as projection on the LCD display

ANALOG OUTPUT

Type: isolated, programmable with a resolution of 16 bit, rate < 1 ms

Range: 0...2/5/10 V, ±10 V, 0...5 mA, 0/4...20 mA, 0,1...10 100 Hz

COMPENSATION

Of conduct (RTD, OHM): automatic (3- or 4-wire) or manual in menu (2-wire)

Of conduct in probe (RTD): internal connection (conduct resistance in measuring head)

Of CJC (T/C): manual or automatic, in menu it is possible to perform selection of the type of thermocouple and compensation of cold junctions, which is adjustable or automatic

FUNCTIONS

Linearization: linear interpolation in 177 points (only via OM Link)

Tare: designed to reset display upon non-zero input signal

Min./max. value: registration of min./max. value reached during measurement

Peak value: the display shows only max. or min. value

Mathemat. operations: polynomial, 1/x, logarithm, exponential, power, root, sin x and operations between inputs

DIGITAL FILTERS

Floating average: from 2...30 measurements

Exponential average: from 2...100 measurements

Arithmetic average: from 2...100 measurements

Rounding: setting the projection step for display

EXTERNAL CONTROL

Hold: display/instrument blocking

Lock: control keys blocking

Tare: activation and tare resetting

Resetting MM: resetting min/max value

TECHNICAL DATA

INPUT

Number inputs	2, isolated		
DC Range	optional in configuration menu		
±90 mA	< 200 mV	Input 5	
±180 mA	< 200 mV	Input 5	
±30 mV	> 10 MΩ	Input 3	
±60 mV	> 10MΩ	Input 3	
±1000 mV	> 100 MΩ	Input 3	
±20 V	1,25 MΩ	Input 1	
±40 V	1,25 MΩ	Input 1	
±80 V	1,25 MΩ	Input 1	
PM Range	optional in configuration menu		
±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	
DHM Range	optional in configuration menu with aut. range change		
0...100 Ω			
0...300 Ω			
0...15kΩ			
0...3 kΩ			
0...24 kΩ			
0...30 kΩ [only for 2- or 4-wire connection]			
Connect.	2, 3 or 4 wire		
RTD Type	optional in configuration menu		
EU > 100/500/1 000 Ω, with 3 850 ppm/°C	-50°...450°C		
US > 100 Ω, with 3 920 ppm/°C	-50°...450°C		
RU > 50 Ω with 3 910 ppm/°C	-200°...1 100°C		
RU > 100 Ω with 3 910 ppm/°C	-200°...450°C		
Connect.	2, 3 or 4 wire		
Ni Type	optional in configuration menu		
Ni 1 000/10 000 with 5 000 ppm/°C	-50°...250°C		
Ni 1 000/10 000 with 6 180 ppm/°C	-50°...250°C		
Connect.	2, 3 or 4 wire		
Cu Type	optional in configuration menu		
Cu 50/100 with 4 260 ppm/°C	-50°...200°C		
Cu 50/100 with 4 280 ppm/°C	-200°...200°C		
Connect.	2, 3 or 4 wire		
T/C Type	optional in configuration menu		
J (Fe-CuNi)	-100°...900°C		
K (NiCr-Ni)	-100°...1 300°C		
T (Cu-CuNi)	-200°...400°C		
E (NiCr-CuNi)	-100°...800°C		
B (PtRh30-PtRh6)	700°...1 820°C		
S (PtRh10-Pt)	100°...1 760°C		
R (Pt13Rh-Pt)	100°...1 740°C		
N (OmegaGalloy)	0°...1 300°C		
L (Fe-CuNi)	-100°...900°C		

DU Potent. power supply 2,5 VDC/6 mA, Potentiometer resistance > 500 Ω

Ext. inputs 2 inputs, on contact
The following functions can be assigned:
OFF / HLD. / B.HE. / TR.A / TR.B / C.T.A / C.T.B / C.M.M. / SAVE / LOC.

PROJECTION

Display: 99m...999M (prefixes „m“, „k“, „M“)
LCD with backlighting, 2x 3 digits + 2x description (3 digits)
Description: second and fourth line of the LCD display may be used for description of measured quantity, resp. output quantity (adjustable in menu)
Decimal point: adjustable - in menu

INSTRUMENT ACCURACY

TK: 50 ppm/°C
Accuracy: ±0,15% of range + 1 digit
±0,3/±0,6/±0,9% of range + 1 digit
Accuracy of cold junction measur.: ±15°C
Rate: 0,5...160 measur./s
Overload capacity: 2x; 10x (t < 30 ms) - not for > 200 V and 5 A
Resolution: 0,1°C (RTD), 1°C (T/C), for display
Digital filters: Exp./Floating/Arithm. average, Rounding
Functions: Offset, Min/max value, Tare, Peak value, Mat. operations
Linearization (DC, PM, DU): linear interpolation in 177 points and 3 tab.
DM Link: Company communication interface for operation, setting and update of instruments.
Watch-dog: reset after 20 ms
Calibration: at 25°C and 40% r.h.

T/C

COMPARATOR

Type: digital, menu adjustable, contact switch-on < 50 ms
Hysteresis mode: switching limit, hysteresis band „Lim ±1/2 Hys.“ and time (0...99,9 s) determining the switching delay
Mode From-To: switching on and switching off interval
Mode Batch: period, its multiples and time (0 ... 99,9 s), within which the output is active
Mode Error - adjustable limits for signaling underflow/overflow
Output: 1...2x Form A relays (250 VAC/30 VDC, 3 A), 1...2x open collector (30 VDC/100 mA)

DATA OUTPUTS

Protocol: ASCII, MODBUS RTU, PROFIBUS DP
Data format: 8 bit + no parity + 1 stop bit (ASCII)
Rate: 600...230 400 Baud
9 600 Baud...12 Mbaud (PROFIBUS), 1 Mbaud (CAN)
RS 232/RS 485: isolated, addressing (max. 31 instruments/RS485)
USB: non-isolated, two-way communication

ANALOG OUTPUTS

Type: isolated, dual programmable with 16-bit D/A converter, type and range are selectable in programming mode
Non-linearity: 0,1% of range
TK: 15 ppm/°C
Rate: response to change of value < 1 ms
Ranges: 0...2/5/10 V, ±10 V, 0...5 mA, 0/4...20 mA (comp. < 600 Ω/12 V)
Frequency: isolated, programmable, open collector with inside power resistor 0,2...2 200 Hz

EXCITATION

Adjustable: 5/12/17/24 VDC/max. 2,5 W, isolated

POWER SUPPLY

Range: 10...30 V AC/DC, ±10 %, PF≥0,4, I_{typ}< 40 A/1 ms, isolated
80...250 V AC/DC, ±10 %, PF≥0,4, I_{typ}< 40 A/1 ms, isolated
Consumption: < 9,4 W/9,2 VA
Power supply is protected by a fuse inside the instrument.

MECHANIC PROPERTIES

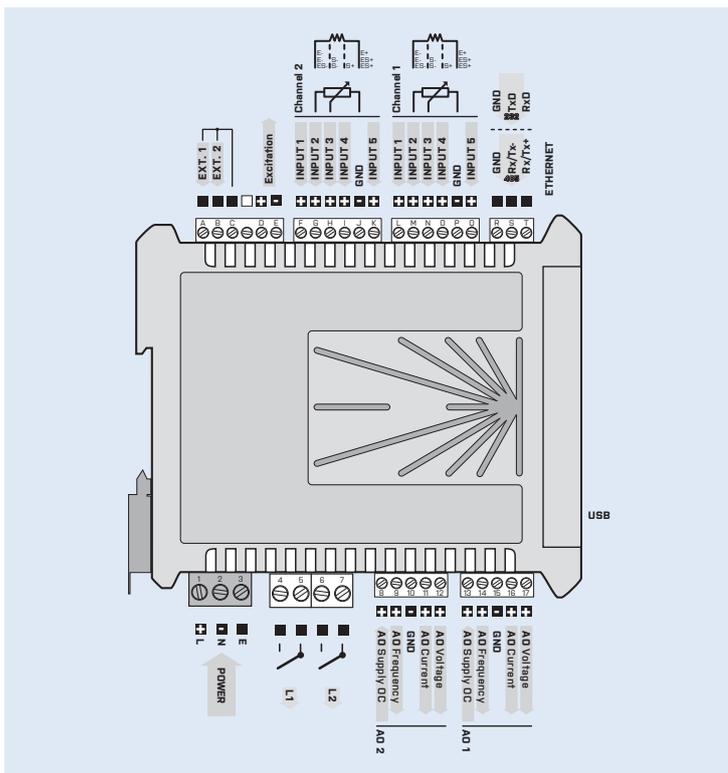
Material: PA 66, incombustible UL 94 V-1, blue
Dimensions: 35 x 98 x 113 mm [w x h x d]
Installation: on DIN rail, width 35 mm

OPERATING CONDITIONS

Connection: connector terminal blocks, section < 1,5/2,5 mm²
Stabilization period: within 15 minutes after switch-on
Working temperature: -20°...60°C
Storage temperature: -20°...80°C
Protection: IP20
El. safety: EN 61010-1, A2
Dielectric strength: 4 kVAC per 1 min test between supply and input 4 kVAC per 1 min test between supply and data/analog output 4 kVAC per 1 min test between input and relay output 3,75 kVAC per 1 min test between input and data/analog output 3,75 kVAC per 1 min test between inputs
Insulation resistance: for pollution degree II, measuring cat. III power supply, input, output, PN > 600 V (PI), 300 V (DI)
EMC: EN 61326-1
Seismic capacity: IEC 980: 1993, par. 6
SW validation: Class B, C in compl. with IEC 62138, 61226

PI - Primary insulation, DI - Double insulation

CONNECTION



ORDER CODE

OMX 102UNI

Power supply	10...30 VDC/24 VAC 80...250 V AC/DC	0	1						
Number inputs	1 input 2 inputs	A	B						
Comparators	no 1x relay [Form A] 2x relay [Form A] 1x open collector 2x open collector	0	1	2	3	4			
Analog outputs	none 1x 2x HART (not with data output)*	0	1	2	3				
Output	none RS 232 RS 485 [ASCII, MODBUS] PROFIBUS	0	1	2	4				
Excitation	no yes		0	1					
Data record	RTC FAST						0	1	2
Specification	customized version, do not fill in SW validation - IEC 62138, IEC 61226								00 VS

Basic configuration of the instrument is indicated in bold.

* Launch for sale has not been set.