OMX 390DU

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- Input for potentiometer
- Output 0 / 4…20 mA / 0…5 mA / 0…2 / 5 / 10 V / ±10 V
- Rate up to 7200 meas./s
- Teach-in, Digital filters, Tare, Linearization
- Quick configuration by DIP switch
- PC configurable via USB port
- Galvanic separation 2.5 kVAC
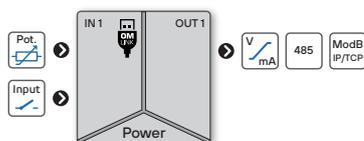- Power supply 10…30 VDC/24 VAC

Option
Data output

DIGITAL ISOLATED TRANSMITTER

The OMX 390 model series are very fast DIN rail mountable digital transmitters with a Teach-in function.

Type OMX 390DU is a isolated transmitter for potentiometers. 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, fast 24-bit ΔΣ ADC with PGA and 16-bit DAC, 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).

OPTION

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 protocol.

STANDARD FUNCTIONS

PROGRAMMABLE INPUT
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 < 160 μs
Ranges: 0…2/5/10 V/±10 V, 0…5 mA/0/4…20 mA

FUNCTIONS
Linearization: non-linear signal is converted by a 100-point linear interpolation
Tare: designed to reset display upon non-zero input signal
Offset: compensation for the difference between measured and actual/requir. value
Math functions: polynomial, inverse polynomial, logarithm, exponential, power, root
Simulation: test mode in which range, value and duration of the step can be set

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
Hold Min/Max/Max-Min/AVG: triggering the measurement for Min/Max/AVG value
Cumulative measurement: series of measurements with their total sum
Sample: start of a one-time measurement

INPUT

No. of inputs	1	
	The range is selectable either by DIP switch or by OM Link free SW from PC	
DU	Sensor power supply	2.5 VDC/3 mA, potentiometer resistance > 500 Ω

EXTERNAL INPUT

No. of inputs	2, on contact	
Function	OFF	No function assigned
	TARE	Activation of Tare
	CL.TAR.	Clear Taree
	TAR.-CL.	Activat. of Tare (<1 s) + clear Tare (>1 s)
	T-IN.OF.	Activation of Tech-In for Offset
	CUM.SUM.	Control of Cumulative measurement
	HOLD	Measurement paused
	SAMPLE	Initiates a one-off measurement
	HLD.MIN	Hold - Value of Minimum*
	HLD.MAX	Hold - Value of Maximum*
	HLD.M-M	Hold - Value of MAX-MIN*
	HLD.AVG	Hold - Average value*
	KEY.LCK.	Device buttons blocked

*The value is calculated from the period since the previous activation of the ext. input.

INSTRUMENT SPECIFICATION

TC	15 ppm/ºC
Accuracy	±0.01 % of FS
Rate	100...7 200 measurements/s *speed of 400 meas./s is with FFT signal filtering*
Latency	< 580 μs
Overload	10x (t < 30 ms), 2x
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 25ºC and 40 % r.h.

ANALOG OUTPUT

No. of outputs	1	
Type	isolated, adjustable with 16-bit DAC, output type and range is selectable	
TC	15 ppm/ºC	
Non-linearity	0.024 % from FS	
Accuracy	±0.02 % of FS	
	±0.03 % of FS	0...5 V
	±0.05 % of FS	0...2 V / 0...5 mA
Rate	response to change of value < 160 μs	
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
Type	RS 485, isolated 10/100BaseT
Protocol	Modbus RTU Modbus TCP/IP (Slave)
Rate	600...230 400 Baud 100 Mbits/s
Data format	Format 8bits + parity + stop bit
	Parity none / even / odd
	Stop bit 1 / 1.5 / 2
Addressing	1...247 instruments
Line termination	by internal resistance 120 Ω *wire jumper on the connector of the last device*

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	< 1.4 W / 1.3 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 mm^2
Stabilization period	within 5 minutes after switch-on
Working temperat.	-20º...60ºC
Storage temperat.	-20º...85ºC
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
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
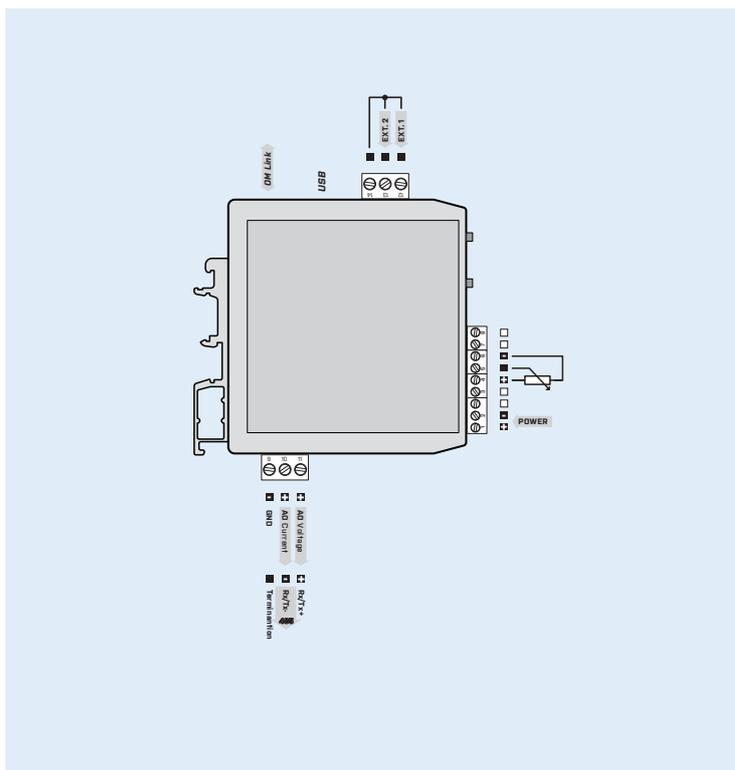
ORDER CODE

OMX 390DU   - ☐ - ☐

Output	Analog	**1**	
	Data - RS 485	2	
	Data - Ethernet	3	
Specification	customized version, do not fill in		00

Basic configuration of the instrument is indicated in bold.