Data Sheet

Digital Isolated Transmitter
Model OMX 380iT

Distributed by

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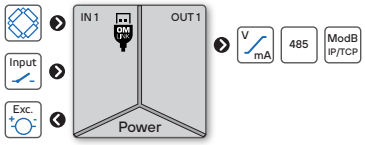
OMX 380iT

- Input for strain gauges
- 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 380i model series are very fast DIN rail mountable digital transmitters with a Teach-in function.

Type OMX 380iT is a transmitter for strain gauges. 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 PGQ 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.

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 and Modbus protocol.

STANDARD FUNCTIONS

PROGRAMMABLE INPUT
Measuring range: adjustable in menu
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
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

TECHNICAL DATA

INPUT

No. of inputs		1 The range is selectable either by DIP switch or by OM Link free SW from PC
T	Range	1…2 mV/V 2…4 mV/V 4…8 mV/V 8…16 mV/V
	Sensor power supply	10 VDC, load ≥ 80 Ω *on request 5 V*
	Connection	6-wire

EXTERNAL INPUT

No. of inputs	2, on contact	
Function	OFF	no function assigned
	TARE	tare activation
	CL.TAR.	reset of Tare
	CL.M.M.	reset of Min./Max. values
	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	15 ppm/°C
Accuracy	±0.01 % of FS ±0.02 % of FS PM - I
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 25°C 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/°C
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
Protocol	ASCII, Modbus RTU / TCP
Data format	8 bit + no parity + 1 stop bit
Rate	300…230 400 Baud
RS 485	isolated, addressing (max. 31 instruments)
Ethernet	10/100BaseT, Modbus TCP/IP (Slave)

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	< 3.4 W / 3.3 VA < 5.0 W / 4.9 VA (at 80 Ω load)

MECHANIC PROPERTIES

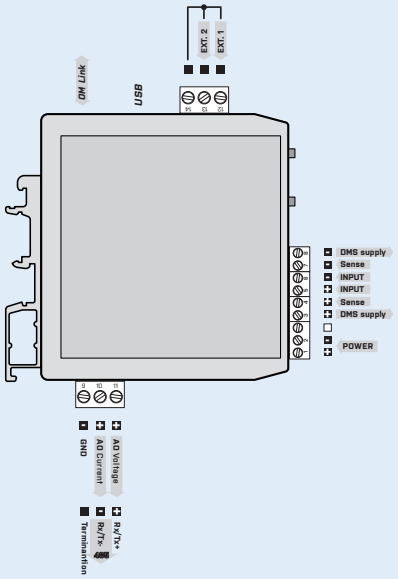
Material	PA66, incombustible UL 94 V-0, blue
Dimensions	25 x 79 x 90.5 mm (w x h x d)
Installation	to DIN rail 35 mm wide

OPERATING CONDITIONS

Connection	connector terminal blocks, section < 1.5 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
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

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Output	Analog	**1**		
	Data - RS 485	**2**		
	Data - Ethernet	**3**		
Strain gauge excitation	10 V		**1**	
	5 V		**2**	
Specification	customized version, do not fill in			**00**

Basic configuration of the instrument is indicated in bold.