



OMX 390T



- 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

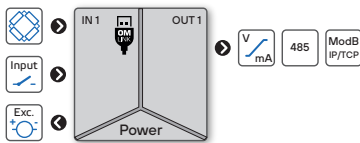
Data output

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

Type OMX 390T 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 $\Delta\Sigma$ ADC with PGA and 16-bit DAC, which guarantees high accuracy and excellent stability.

DIGITAL ISOLATED TRANSMITTER



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 μ s

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/require. 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

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 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/°C
Accuracy	±0.02% 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, rounding
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 % rh.

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 ±0.05% of FS 0...5 V 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 _{typ} < 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

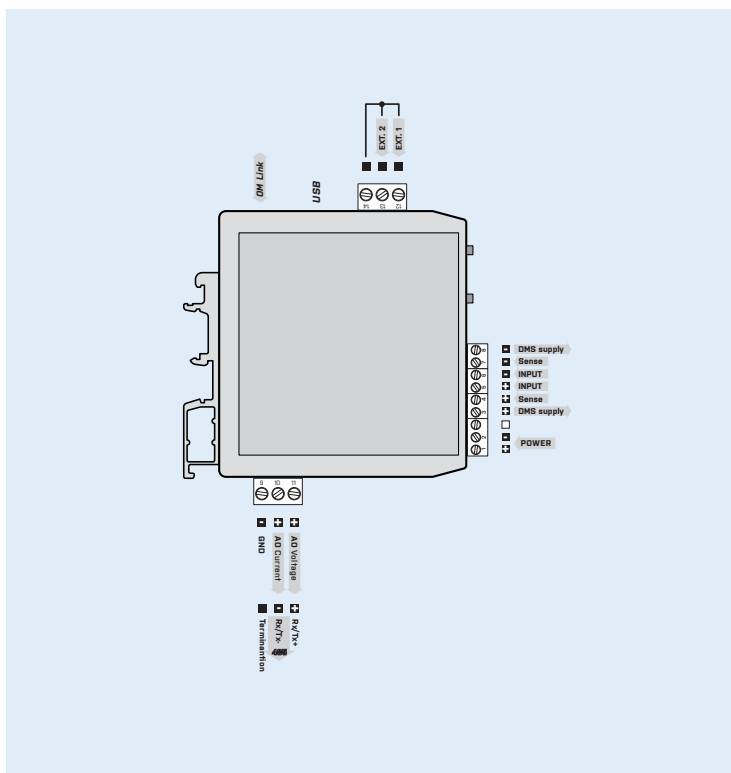
Material	PA66, incombustible UL 94 V-0, blue
Dimensions	25 x 79 x 90.5 mm (w x h x d)
Installation	to DIN rail 35 mm wide

OPERATING CONDITIONS

Connection	connector terminal blocks, section < 1.5 mm ²
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
EI. 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 390T

- [] - []

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.