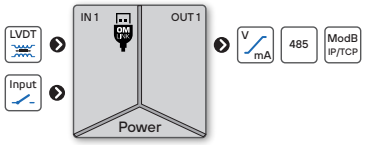
OMX 390LVDT

- Input for LVDT sensors
- Output 0/4...20 mA/0...5 mA/0...2/5/10 V/±10 V
- Teach-in, Digital filters, Tare, Mat. function, Linearization
- Quick configuration by DIP switch
- PC configurable via USB-C 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 390LVDT is a transmitter for LVDT sensor. 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.

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
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 / Exponential / Arithmetic average: from 2 to 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 adjustable in the instrument menu
LVDT Sensor power supply	1, 3, or 5 VAC with a frequency of 2.5, 5, or 10 kHz
Amplification	1, 2, 4 or 8
Connection	3-, 4-, 5- or 6-wire

EXTERNAL INPUT

No. of inputs	2, on contact
Function	No function assigned Activation of Tare Reset of Tare Tare activation (<1s) + Zero tare (>1s) Activation of Tech-In for Offset Controlling of cumulative measurement Measurement paused Take a one-off measurement Value of minimum * Value of maximum * Value of MAX-MIN* Hold - Average value* 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	±0.1 % of FS
Rate	1...100 measurements/s
Latency	< 580 µs
Overload	10x (t < 30 ms), 2x
Functions	Teach-in, tare, offset, math. functions, delayed start, simulation
Digital filters	exponential / floating / arithmetic average, rouding *setup only via OM Link*
Math functions	polynomial / inverse polynomial / logarithm /expo-nential / power / root *setup only via OM Link*
Linearization	linear interpolation in 100 points *setup only via OM Link*
OM Link	company communication interface for operation, setting and update of instruments (USB-C)
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
Accuracy	±0.02 % of FS ±0.03 % of FS 0...5 V ±0.06 % of FS 0...2 V / 0...5 mA
Rate	response to change of value < 160 µs
Ranges	Range / Error indication 0...2 V ~ 2.2 V *resistive load ≥ 1 kΩ* 0...5 V ~ 5.5 V *resistive load ≥ 1 kΩ* 0...10 V ~ 11.0 V *resistive load ≥ 1 kΩ* ±10 V ~ 11.0 V *resistive load ≥ 1 kΩ* 0...5 mA ~ 5.5 mA *comp. < 600 Ω/12 V* 0...20 mA ~ 22.0 mA *comp. < 600 Ω/12 V* 4...20 mA ~ 3.2 mA *comp. < 600 Ω/12 V* Indication of broken current loop
Error indication	one or more error conditions can be selected from a predefined list in the OM Link software according to user requirements.

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_{STR}< 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

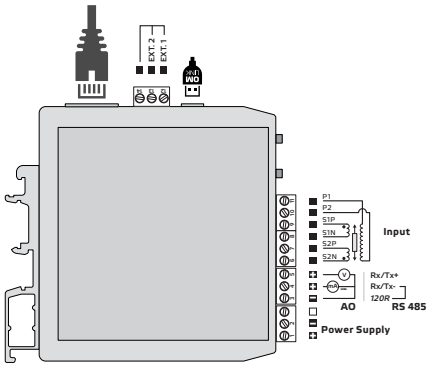
Material	PA66, incombustible UL 94 V-0, blue
Dimensions	25 x 79 x 90.5 mm (w x h x d)
Installation	to DIN rail 35 mm wide

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 61326-1:2021, Industrial area
RoHS	EN IEC 63000:2018
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 390LVDT - ☐ - ☐

Output	Analog	**1**	
	Data - RS 485	**2**	
	Data - TCP/IP Modbus	**3**	
Specification	customized version, do not fill in		**00**

Basic configuration of the instrument is indicated in bold.