DIGITAL TRANSMITTER for POTENTIOMETERS OMX380iDU

OMX380iDU is an isolated digital transmitter, which can be **coupled to a linear potentiometer to obtain the analogue signal output.**

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.

The 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.

- *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*
- *Fast mounting on DIN bar*

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.

DIGITAL ISOLATED TRANSMITTER

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
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

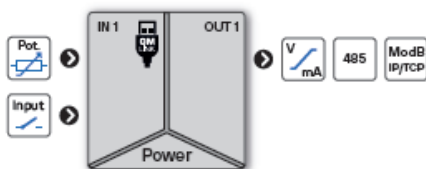*Hold:* display/instrument blocking
Lock: control keys blocking
Tare: activation and tare resetting
Resetting Min/Max: resetting min/max value
Hold Min/Max: start of a measurement to evaluate the Min/Max value
Sample: start of a one-time measurement

TECHNICAL DATA

INPUT
No. of inputs: 1 - *The range is selectable either by DIP switch or by OM Link free SW from PC*

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 — 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

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

INSTRUMENT SPECIFICATIONS
TC 15 ppm/°C
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 25° C and 40% r.h.

ANALOGUE 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÷2/5/10V, ±10V, resistive load ≥ 1 kΩ
0÷5 /20mA/4÷20mA, comp. <600Ω/12V
Indication of broken current loop
Indication of error message (output <3.2mA)

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 10/100 BaseT, Modbus TCP/IP (Slave)

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
Seismicqualification IEC/IEEE 60980-344 Edition 1.0, 2020, par. 6, 9
Mechanical resistance EN 60068-2-6 ed. 2:2008
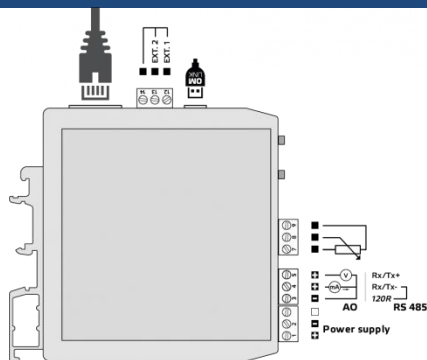** PI - Primary insulation, DI - Double insulation*

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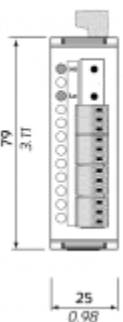**Dimensions** 25 x 79 x 90.5 mm (w x h x d)
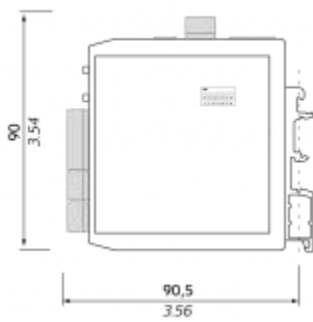**Installation** to DIN rail 35 mm wide
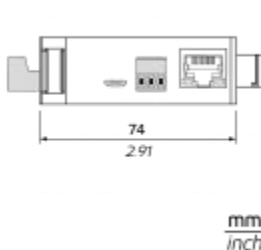
CONNECTIONS

DIMENSIONS

Front view
Side view
Top view

79 / 3.11
90 / 3.54
74 / 2.91
25 / 0.98
90,5 / 3.56
mm / inch
Installation to DIN rail of 35 mm width

REFERENCES

Further information at:

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