

OMX 380

FAST DIGITAL TRANSMITTERS TO DIN RAIL



1. DESCRIPTION



DESCRIPTION

The OMX 380 model range are very fast digital transmitters to DIN rail with a Teach-in function.

OMX 380PM	PM input ⇒ analog output
OMX 380DU	Linear poten. ⇒ analog output
OMX 380T*	DMS ⇒ analog output

The instrument is based on a single chip microcontroller, 24-bit A/D and 16-bit D/A converter, which ensures excellent accuracy, stability and easy operation of the instrument.

The transmitter is in a plastic DIN box with a terminal board to rail of 35 mm in width.

OPERATION

The instrument is controlled by two push buttons on the front panel. The mode of the output signal and the access to the teach-in mode is realised by a switch at the rear. Standard equipment is the OM Link interface, which together with operating program allows modification and filing of all instrument's settings as well as performing firmware updates (using OML cable).

All settings are stored in the EEPROM memory (they are retained even after the instrument is switched off).

OPTIONS

Excitation is suitable for powering sensors and transmitters. It is not galvanically isolated. The set values are either 15V or 24V.

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 RS485 with the ASCII/MODBUS protocol.

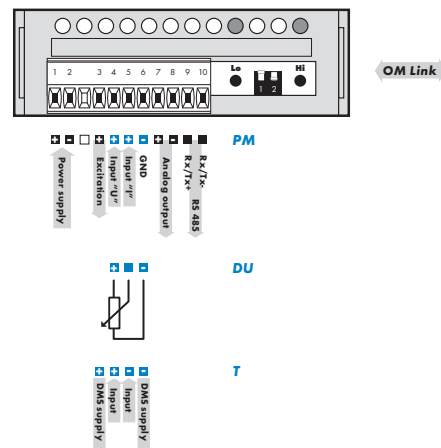
2. CONNECTION

The power input leads should not be in the proximity of the incoming low-potential signals.

Contactors, motors with larger input power and other efficient elements should not be in the proximity of the instrument.

The lead into the input of the instrument (the measured quantity) should be in sufficient distance from all power leads and appliances. Provided this cannot be secured, it is necessary to use shielded leads with connection to ground.

The instruments are tested in compliance with standards for use in industrial areas, yet we recommend to abide by the above mentioned principles.



SAFETY INSTRUCTIONS

Please, read the enclosed safety instructions carefully and observe them! These instruments should be safeguarded by either individual or shared fuses (circuit breakers) with respect to their actual power consumption! For safety information the EN 61 010-1 + A2 standard must be observed. This instrument is not explosion-safe!

TECHNICAL DATA

Transmitters of the OMX 380 series conform to the European regulation 89/336/EWG and the Ordinance 168/1997 Sb.

They are up to the following European and Czech standards:
EN 55 022, class B
EN 61000-4-2, -4, -5, -6, -8, -9, -10, -11

The instrument is suitable for non-restricted use in agricultural and industrial areas.

4. SETTING

TYPES OF ANALOGUE OUTPUT

The type of analogue output can be selected by the first switch on the front panel.

1 2 Output 4...20 mA

1 2 Output 0...10 V

TEACH - IN

The Teach-in function is used to set the output range. To activate it, the second switch needs to be in a specified position.

1 2 Teach-in function is blocked, standard position

1 2 Teach-in function activated

Teach-in

- flip the second switch into the „ON” position
- LED „Lo” starts flashing
- move the lin. pot slider into its minimum working range (electrical signal is at its minimum)
- press button „Lo” > LED „Lo” is illuminated in green if during the calibration process the electrical working range is reduced by > 80 %, the red LED „Hi” starts flashing
- LED „Lo” is flashing
- move the linpot slider into its maximum working range (electrical signal is at its maximum)
- press button „Hi” > LED „Hi” is illuminated in green if during the calibration process the electrical working range is reduced by > 80 %, the red LED „Hi” starts flashing
- LED „Lo” is flashing
- by flipping the second switch into the „OFF” position you end the calibration mode and enter the measuring mode
- LED „Lo” is illuminated in green

! **PM**
Before executing the „Teach-in” procedure, measuring range has to be selected first, see „setting the measuring range” and corresponding input has to be connected

SETTING THE MEASURING RANGE (PM)

The following functions are used to select the range and to restore factory settings.

Setting the measuring range (PM)

- flip the second switch into the „ON” position while simultaneously pressing the „Lo” button

- LED „Lo” and „Hi” is flashing according to the selected range

1x > 0...20 mA

2x > 4...20 mA

3x > 0...10 V

- by pressing „Lo” button you change the measuring range the number of flashes in a sequence indicates selected range
- confirm the selected range by pressing button „Hi” while this button is pressed both LEDs will be illuminated continuously
- by flipping the second switch into the „OFF” position you exit the range selection process and factory calibration restoration
- LED „Lo” is illuminated

LED SIGNALLING

LED „Lo”

- transmitter is on when button „Lo” is pressed > calibration is „OK” (in teach-in mode)
- transmitter is in the calibration mode
- measured value/input signal is out of the calibration range
- transmitter is in the calibration mode, but out of range

LED „Hi”

- when button „Hi” is pressed > calibration is „OK” (in teach-in mode)
- data output on (60 ms)
- range of acilbration values is <= 19% of the range (Accuracy and stability of the transmitted signal cannot be guaranteed) when button „Lo” is pressed > calib. out of range when button „Hi” is pressed > calib. out of range

*to be introduced soon

4. TECHNICAL DATA

Measuring range

0...10 V	1 MOhm	PM
0...20 mA	< 2 V	Input U
4...20 mA	< 2 V	Input I

Lin. potentiometer: 0,5...100 kOhm
Pot. power supply: 10 V, $\pm 0,2\%$

the range is fixed, according to order

Sensitivity: 1...4 mV/V
2...8 mV/V
4...16 mV/V

Connection: 4 wire

Load cell pwr sup: 10 VDC, max. load 150 Ohm

Instrument accuracy

TC: 10 ppm/ $^{\circ}\text{C}$
Accuracy: $\pm 0,01\%$ of range (for „T“ version is to be specified later)
 $\pm 0,04\%$ of range (for OMX 380PM - current input)
Rate: 1 000...7 500 meas./s (default 7 500 meas./s)
rate can be changed only using OM Link connection

Overload capacity: 10x (t < 30 ms); 2x

Watch-dog: reset after 400 ms

Functions: Teach-in

OM Link: Company communication interface for setting and update of instruments

Calibration: at 23 $^{\circ}\text{C}$ and 40 % r.h.

Data output**

Type: RS 485
Protocol: ASCII, MODBUS - RTU
Data format: 8 bit + no parity + 1 stop bit
Rate: 600...230 400 Baud
Addressing: ASCII - max. 31 instruments
MODBUS - max. 246 instruments

Analog output

Type: programmable with resolution of 16 bit, type and range are selectable
Non-linearity: 0,01 % of the range
TC: 10 ppm/ $^{\circ}\text{C}$
Rate: response to change of value < 0,2 ms
Voltage: 0...10 V, max. load 1 kOhm
Current: 4...20 mA, compensation of conduct up to 500 Ohm
Ripple: 5 mV of residual corrugation upon input signal 10 V

Excitation

Fixed: 13,8 VDC/20 mA (by supply 18...30 V)
15 VDC/40 mA** (by supply 10...30 V)
24 VDC/40 mA**

Power supply

18...30 VDC, $\pm 10\%$, max. 2,5 W
10...30 VDC, $\pm 10\%$, max. 2,5 W, isolated**

Mechanic properties

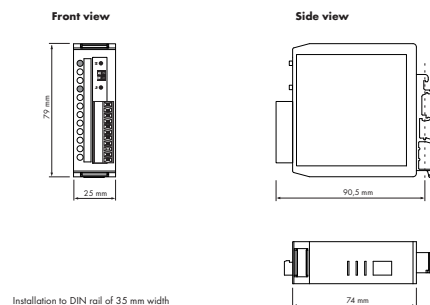
Material: PA 66S, incombustible UL 94 V0, green
Dimensions: 90,5 x 79 x 25 mm
Installation: to DIN rail, width 35 mm

Operating conditions

Connection: connector terminal board - conductor section up to 1,5 mm²
Stabilizat. period: within 15 minutes after switch-on
Working temp.: -20 $^{\circ}$...60 $^{\circ}\text{C}$
Storage temp.: -20 $^{\circ}$...85 $^{\circ}\text{C}$
Cover: IP20
El. safety: EN 61010-1, A2
Dielectric strength: 1,5 kV after 1 min between supply and input/output
Insulation resist.: for pollution degree II, measuring cat. III.
power supply > 550 V (ZI), 255 V (DI)
EMC: EN 61326-1

**see the order code

5. INSTRUMENT DIMENSIONS



6. DECLARATION OF CONFORM.

Company: ORBIT MERRET, spol. s r.o.
Klánova 81/141, 142 00 Prague 4
Czech Republic
IČO: 00551309

Manufacturer: ORBIT MERRET, spol. s r.o.
Vodňanská 675/30, 198 00 Prague 9
Czech Republic

declares at its explicit responsibility that the product presented hereunder meets all technical requirements, is safe for use when utilised under the terms and conditions determined by ORBIT MERRET, spol.s r.o. and that our company has taken all measures to ensure conformity of all products of the types referred to hereunder, which are being brought out to the market, with technical documentation and requirements of the appurtenant Czech statutory orders.

Product: Digital transmitter
Type: OMX 380
Version: PM, DU, T

It has been designed and manufactured in line with requirements of:

- Statutory order no. 17/2003 Coll., on low-voltage electrical equipment (directive no. 73/23/EHS)
- Statutory order no. 18/2003 Coll., on electromagnetic compatibility (directive no. 89/336/EHS)

The product qualities are in conformity with harmonized standard:

El. safety: EN 61010-1
EMC: EN 50131-1, chapter 14 and chapter 15
EN 50130-4, chapter 7 EN 61000-4-11
EN 50130-4, chapter 8 EN 61000-4-11
EN 50130-4, chapter 9 EN 61000-4-2
EN 50130-4, chapter 10 EN 61000-4-3
EN 50130-4, chapter 11 EN 61000-4-6
EN 50130-4, chapter 12 EN 61000-4-4
EN 50130-4, chapter 13 EN 61000-4-5
EN 50130-5, chapter 20
prEN 50131-2-1, par. 9.3.1
EN 61000-4-8
EN 61000-4-9
EN 61000-3-2 ed. 2:2001
EN 61000-3-3: 1997, Cor. 1:1998, Z1:2002
EN 55022, chapter 5 and chapter 6

The product is furnished with CE label issued in 2009.

As documentation serve the protocols of authorized and accredited organizations:

MO ČR, Agency for development of informatics, testing lab no.1558, accredited ČIA, in compliance with EN ISO/EIC 17025

In Prague, April 10, 2009

Miroslav Hackl
the Executive

Assessment of conformity pursuant to §22 of Act no. 22/1997 Coll. and changes as amended by Act no.71/2000 Coll. and 205/2002 Coll

7. CERTIFICATE OF GUARANTEE

Product: OMX 380 PM DU T

Type:

Manufact.No.:

Date of sale:

For this instrument applies a guarantee period of 24 months of the date of sale to the user.

Defects occurring during this period due to manufacturing error or due to material faults shall be eliminated free of charge.

For instrument quality, function and construction the guarantee shall apply provided the instrument was connected and used accurately in compliance with the instructions for use.

The guarantee does not apply to defects caused by:

- mechanical damage
- transportation
- intervention of unqualified person including the user
- irreversible event
- other unprofessional interference

The manufacturer performs guarantee and post-guarantee repairs unless provided for otherwise.

Stamp, signature



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