OMX 102


- PROGRAMMABLE ISOLATED TRANSMITTERS
- 2x MULTIFUNCTION INPUT (DC, PM, RTD, T/C, DU)
- LCD DISPLAY, DIGITAL FILTER, TARE
- 2x OUTPUT
$0 / 4 \ldots 20 \mathrm{~mA} / 0 \ldots 5 \mathrm{~mA} / 0,2 \ldots 2,2 \mathrm{kHz}, 0 \ldots 2 / 5 / 10 \mathrm{~V} / \pm 10 \mathrm{~V}$
- POWER SUPPLY 80... 250 V AC/DC
- Option

Excitation • Comparators • Data output • Data record
Power supply $10 . . .30 \mathrm{~V}$ AC/DC

## OPERATION

The instrument is set and controlled by two control keys located on the front panel. All programmable settings of the instrument may be performed in three adjusting modes:
LIGHT MENU is protected by optional number code and contains solely items necessary for instrument setting
PROFI MENU is protected by optional number code and contains complete instrument setting
USER MENU may contain arbitrary items from the programming menu [LIGHT/ PROFI), which determine the right (see, change). Access w/o password.
Standard equipment is the OM Link and USB interface, which together with operation program enables modification and filing of all instrument settings as well as perform firmware updates (with OML cable). The program is also designed for visualization and filing of measured values from more instruments
All settings are stored in the EEPROM memory (they hold even after the instrument is switched off).
The measured units may be projected on the display.

OPTION
EXCITATION is suitable for feeding of sensors and transmitters. It is isolated, with adjustable value in the range of $5 / 12 / 17 / 24 \mathrm{VDC}$.
COMPARATORS are assigned to monitor two limit values with relay output. The limits have adjustable hysteresis within the full range of the display as well as selectable delay of the switch-on in the range of $0 . . .99,9 \mathrm{~s}$. Reaching the preset limits is signalled by LED and simultaneously by the switch-on of the relevant relay.
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 RS232 and RS485 with the ASCII/PROFIBUS protocols, CAN and LAN.

The OMX 102 model range are DIN rail mountable programmable transmitters designed with the utmost versatility and user comfort in mind whilst keeping the cost at a favourable level. The OMX 102 various executions are UNI, DC, PWR, UQC and T. As a standard the instrument is fitted with a backlit LCD display which projects measured values and configuration settings.
OMX 102UNI is a multifunctional instrument with 8 possible input configurations easily adjustable in the instrument's menu.
OMX 102DC and OMX 102PWR are designed to measure extended AC and DC voltage and current.
The instrument is based on an 32-bit microcontroller with A/D converter, which ensures good accuracy, stability and easy operation of the instrument.
The OMX 102UOC type is a universal low-cost counter/frequencymeter/ stopwatch/timer.

## OMX 102DC

DC VOLTMETER AND AMMETER

## OMX 102UNI

DC VOLTMETER AND AMMETER
PROCESS MONITOR
OHMMETER
THERMOMETER FOR PT/CU/NI/TC
FOR LINEAR POTENTIOMETERS

## OMX 102PWR

AC VOLTMETER AND AMMETER
AC NETWORK ANALYSER
OMX 102UDC
UNIVERSAL COUNTER
OMX 102T
TRANSMITTER FOR STRAIN GAUGE

## STANDARD FUNCTIONS

## PROGRAMMABLE INPUT

Selection: of input type and measuring range
Setting: manual, in menu it is possible to set for both limit values of the input signal arbitrary type $[\mathrm{V}, \mathrm{mA}, \mathrm{Hz}$ ] and range of the analog output as well as projection on the LCD display
Weighing function [ $T$ ]: manual or automatic calibration, signalization of stabilized equilibrium, zero stabilization, aut. zero monitoring, defined number of segm. on the scale Setting [UDC): measuring mode counter/frequency/timer/ counter for IRC/clock with adjustable calibration coefficient, time base and projection

## ANALOG OUTPUT

Type: isolated, programmable with resolution of max. 16 bit, rate $<1 \mathrm{~ms}$
Rozsah: $0 \ldots 2 / 5 / 10 \mathrm{~V}, \pm 10 \mathrm{~V}, 0 \ldots 5 \mathrm{~mA}, 0 / 4 \ldots 20 \mathrm{~mA}, 0,2 \ldots 2200 \mathrm{~Hz}$

## COMPENSATION

Of conduct (RTD, OHM): automatic (3- and 4-wire) or manual in menu (2-wire) of conduct in probe [RTD]: internal connection [conduct resistance in measuring head] of CJC $[T / C)$ : manual or automatic, in menu it is possible to perform selection of the type of thermocouple and compensation of cold junctions, which is adjustable or automatic

## LINEARIZATION

Linearization: through linear interpolation in 50 points (solely via OM Link]

## DIGITAL FILTERS

Exponential average: from 2... 100 measurements
Rounding: setting the projection step for display
Filtration constant [UOC): transmits input signal up to $10 . . .1000 \mathrm{~Hz}$

## FUNCTIONS

Preset [UOC]: initial non-zero value, which is always read after resetting the instrument to zero
Setting current value [UDC]): initial value, e.g. amount passed-through
Tare: designed to reset display upon non-zero input signal

## EXTERNAL CONTROL

Hold: display/instrument blocking
Lock: control keys blocking
Resetting [UQC): counter resetting
Start/Stop [UOC]: stopwatch/timer control

TECHNICAL DATA

| PROJECTION | FAST [UNI] - display value, < 8k data | EXCITATION |
| :---: | :---: | :---: |
| Display: LCD wtih backlighting, $2 \times 3$ characters $+2 \times$ description [3 characters) | OM Link: Company communication interface for operation, setting and update of instruments | Adjustable: 5/12/17/24 VDC/max. 2,5 W, isolated |
| Description: second and fourth line of LCD display may be used for | Calibration: at $25^{\circ} \mathrm{C}$ and $40 \%$ r.h. | POWER SUPPLY |
| description of measured quantity, resp. output quantity $v$ menu] Decimal point: setting - in menu | COMPARATOR | $10 . . .30 \mathrm{~V} \mathrm{AC} / \mathrm{DC}, \pm 10 \%$, max. $13,5 \mathrm{VA}, \mathrm{PF} \geq 0,4, \mathrm{I}_{\mathrm{stp}}<40 \mathrm{~A} / 1 \mathrm{~ms}$ $80 . .250 \mathrm{VAC} / \mathrm{DC}, \pm 10 \%$, max. $13,5 \mathrm{VA}, \mathrm{PF} \geq 0,4, \mathrm{I}_{\mathrm{gTP}}<40 \mathrm{~A} / 1 \mathrm{~ms}$ |
| INSTRUMENT ACCURACY | Type: digital, setting in menu, contact switch-on < 50 ms Limits: 999, resp -99M. 999M | Power supply is protected by a fuse inside the instrument |
| TK: $50 \mathrm{ppm} /{ }^{\circ} \mathrm{C}$ | Hysteresis: 0...999, resp. 999 k | MECHANICAL PROPERTIES |
| Accuracy: $\pm 0,15 \%$ of range +1 digit (for 20 meas./s) | Delay: 0...99,9 s | Material: PA 66, incombustible UL 94 V-1, blue |
| $\pm 0,3 / \pm 0,6 / \pm 0,9 \%$ of range +1 digit $\quad$ PWR, T/C | Output: $2 \times$ Form A relays [ $250 \mathrm{VAC} / 30 \mathrm{VDC}$,3 A] | Dimensions: $113 \times 98 \times 35 \mathrm{~mm}$ |
| $\pm 0,05 \%$ of value +1 digit $\quad$ UQC | DATA OUTPUT | Installation: to DIN rail 35 mm wide |
| $\begin{array}{ll} \pm 0,01 \% \text { of value } \pm 2 \mathrm{~ms} \text { [UQC - stopwatch] } & \text { UQC } \\ \pm 0,01 \% \text { of value } \pm 130 \mathrm{~ms} \text { (UOC - RTC) } & \text { UQQ }\end{array}$ | Protocol: ASCII, MESSBUS, MODBUS - RTU, PROFIBUS | OPERATING CONDITIONS |
| Accuracy of cold junction measurement:: $\pm 1,5^{\circ} \mathrm{C}$ | Data format: 8 bit + no parity +1 stop bit (ASCII) <br> 7 bit + even parity + 1 stop bit (Messbus) | Connection: connector terminal board, section $<1,5 / 2,5 \mathrm{~mm}^{2}$ Stabilization period: within 15 minutes after switch-on |
| Rate: $0,5 \ldots . .160$ meas. $/ \mathrm{s}, 0,6 \ldots 5$ meas $/ \mathrm{s}$ for PWR | 7 bit + even parity + 1 stop bit (Messbus) <br> Rate: 600... 230400 Baud | Working temperature: $-20^{\circ} \ldots 60^{\circ} \mathrm{C}$ |
| Resolution: $0,1^{\circ} \mathrm{C}$ ( RTD ), $1^{\circ} \mathrm{C}$ ( $\mathrm{T} / \mathrm{C}$ ), for display | 9600 Baud... 12 Mbaud [PROFIBUS), 1 Mbaud ([AN) | Storage temperature: $-20^{\circ} \ldots 80^{\circ} \mathrm{C}$ |
| Watch-dog: reset after 20 ms | RS 232/RS 485: isolated, adresace [max. 31 instruments/RS485 | Cover: IP |
| Functions: HOLD, LOCK, Digital filters, Tare | Ethernet: 10/100BaseT, Security Protocols, POP3, ftp, http | Construction: safety class I <br> El. safety: EN 61010-1, A2 |
| Linearization [DC, PM, DU]: by linear interpolation in 50 points | ANALOG OUTPUT | Dielectric strength: 4 kVAC after 1 min between supply and inputs |
| Input filters (UOC): Filtration constant, Rounding | Type: isolated, dual programmable with 16-bit $\mathrm{D} / \mathrm{A}$ converter, type and range are selectable in programming mode | 4 kVAC after 1 min betweeni supply and data/anal. outuputs 4 kVAC after 1 min between input and relays |
| Time base (UOCC): $0,5 / 1 / 5 / 10 / 50 \mathrm{~s}$ Calibration constant (UOC): $0.01 \mathrm{~m} . .999 \mathrm{M}$ | Non-linearity: 0,1\% of range | $3,75 \mathrm{kVAC}$ after 1 min between input and data/anal. outuputs |
| Filtration constant [UOQC): 0/5/40/100/1000 Hz | TK: $15 \mathrm{ppm} /{ }^{\circ} \mathrm{C}$ | 3,75 kVAC after 1 min between inputs |
| PRESET [UOC): 0,01m...999M | Ranges: $0 . .2 / 5 / 10 \mathrm{~V}, \pm 10 \mathrm{~V}, 0 . .5 \mathrm{~mA}, 0 / 4 \ldots 20 \mathrm{~mA}$ | Insulation resistance: for pollution degree II, measuring cat. III. Power supply, nput, output, Exc. > 600 V [Zl), 300 V (미) |
| Measuring modes (PWR): voltage $\left(\mathrm{V}_{\text {RMS }}\right)$, current $\left[\mathrm{A}_{\text {RMS }}\right.$, real power $[\mathrm{W}$ ), frequency ( Hz ) and with calculation of $\mathrm{Q}, \mathrm{S}, \mathrm{cos} \mathrm{fi}$ | $\text { [comp. < } 600 \Omega / 12 \mathrm{~V} \text { ] }$ | EMC: EN 61326-1 |
| Data record: measured data record into instrument memory RTC - $15 \mathrm{ppm} /{ }^{\circ} \mathrm{C}$, time-date-display value, < 266k data | resistor, $0,2 \ldots 2200 \mathrm{~Hz}$ | SW validation [UNI]: class B, C in compliance with IEC 62138, 61226 |
|  |  | PI - Primary insulation, DI - Double insulation |

MEASURING RANGES

OMX 102 is a multifunction instrument available in following types and ranges type UNI [Channel 1 and 2]
DC: $\quad \pm 30 / \pm 60 / 1000 \mathrm{mV} i \pm 20 / \pm 40 / \pm 80 \mathrm{~V}_{i} \pm 90 / \pm 180 \mathrm{~mA}$
PM: $\quad \pm 5 / \pm 20 \mathrm{~mA} / 4 \ldots 20 \mathrm{~mA}: \pm 2 / \pm 5 / \pm 10 \mathrm{~V}$

OHM: $\quad 0 . .100 / 300 \Omega / 0 . .1,5 / 3 / 30 \mathrm{k} \Omega$
RTD: Pt 50/100/500/1 000
Cu: Cu 50/100
Ni 1 000/10 000
J/K/T/E/B/S/R/N/L
Linear potentiometer (min. $500 \Omega$ )
Type DC - Hi: $\pm 1 / \pm 5 \mathrm{~A}_{i} \pm 25 / \pm 50 / \pm 100 / \pm 200 / \pm 400 \vee$ [Channel 1]
$\begin{array}{ll}\text { Type PWR: } & 0 \ldots 1 / 5 \mathrm{~A}_{1} \\ & 0 \ldots 60 / 300 \mathrm{mV} ; 0 \ldots 10 / 120 / 250 / 450 \vee \text { [Channel 1] }\end{array}$
Type T: $\quad 1 . .4 / 2 \ldots 8 / 4 \ldots 16 \mathrm{mV} / \mathrm{V}$ [Channel 1]
Type UOQC: $\quad 0 . . .30 / 300 V_{1}$ [Channel 1]/12/17/274
comparation levels are adjustable in the menu,
input frequency $0,1 \mathrm{~Hz} \ldots 50 \mathrm{kHz}$

CONNECTION


CONNECTING INDIVIDUAL INPUTS

|  | INPUT 1 | INPUT 2 | INPUT 3 | INPUT 4 | INPUT 5 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| DC | $\pm 20 / \pm 4 \mathrm{o} / \pm 80 \mathrm{~V}$ |  | $\pm 3 \mathrm{O} / 60 \mathrm{mV} / \pm 1 \mathrm{~V}$ |  | $\pm 9 \mathrm{C} / 180 \mathrm{~mA}$ |
| PM | $\pm 2 / \pm 5 / \pm 10 \mathrm{~V}$ |  |  |  | $\pm 5 / 20 \mathrm{~mA}, 4 . .20 \mathrm{~mA}$ |
| т/C |  |  | J/K/T/E/B/S/R/N/L |  |  |
| DC/HI | $\begin{aligned} & \pm 25 / \pm 50 / \pm 100 \mathrm{~V} \\ & \pm 200 / \pm 400 \mathrm{~V} \\ & \text { Channel } 1 \end{aligned}$ |  |  |  | $\pm 1 / \pm 5 \mathrm{~A}$ Channel 2 |
| PWR-I |  |  |  | $0 . . .60 / 300 \mathrm{mv}$ <br> Channel 2 | $0 . .1 / 5 \mathrm{~A}$ Channel 2 |
| PWR-U | $0 . .450 \mathrm{~V}$ Channel 1 | 0... 250 V Channel 1 | 0... 120 V Channel 1 | 0... 10 V Channel 1 |  |

order code specification



