



## OMX 333

Model range OMX 333 are simple DIN rail mountable programmable signal convertors. The range consists of UNI, DC, PWR and UQC versions.

Type OMX 333UNI is a multifunction device which allows for selection from 8 inputs easily configurable in the instrument's menu.

OMX 333DC and OMX 333PWR are versions used for measurement of higher DC and AC voltage and current.

This instrument is based on a single-chip microcontroller with a 16bit A/D and D/A converter, which provides high accuracy, stability and ease of use.

Type OMX 333UQC is a universal counter/frequency meter.

- PROGRAMMABLE ISOLATED TRANSMITTERS
- MULTIFUNCTION INPUT UNI (DC, PM, RTD, T/C, DU)
- TEACH-IN, DIGITAL FILTER, TARE
- OUTPUT: 0/4...20 mA/0...5 mA/0...2/5/10 V/±10 V
- POWER SUPPLY 10...30 V AC/DC
- Option  
Comparators • Data output

### OMX 333DC

DC VOLTMETER AND AMMETER

### OMX 333UNI

DC VOLTMETER AND AMMETER  
PROCESS MONITOR

OHMMETER

THERMOMETER FOR PT/CU/NI/TC  
FOR LINEAR POTENTIOMETERS

### OMX 333PWR

AC VOLTMETER AND AMMETER  
AC NETWORK ANALYSER

### OMX 333UQC

UNIVERSAL COUNTER

## OPERATION

Instrument can be controlled by two push buttons and a DIP switch located on the front panel. When frequent changes of settings are needed, we recommend the use of OM Link interface, which in conjunction with free control SW allows for modification and storage of all instrument's settings and also for firmware upload (using OM Link cable) from a PC.

The above mentioned SW can also be used for visualisation and archiving of measured values from a number of instruments via the RS 485 line.

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

## OPTION

**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 s. Reaching the preset limits is signalled by LED and simultaneously by the switch-on of the relevant relay.

**DATA OUTPUT** 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 the ASCII protocol.

## STANDARD FUNCTIONS

### PROGRAMMABLE INPUT

**Setting:** manual, any type and range of analogue output can be assigned to any min. and max. values of input signal

**Setting (UQC):** measuring mode counter/frequency with adjustable calibration coefficient and time base

### ANALOG OUTPUT

**Type:** isolated, programmable with resolution of max. 16 bit, rate < 1 ms

**Ranges:** 0...2/5/10 V/±10 V, 0...5 mA/0/4...20 mA (comp. < 600 Ω)

### 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 25 points (solely via OM Link)

### DIGITAL FILTERS

**Exponential average:** from 2...100 measurements

**Rounding:** setting the projection step for display

**Filtration constant (UQC):** transmits input signal up to 10...1 000 Hz

### FUNCTIONS

**Preset (UQC):** initial non-zero value, which is always read after resetting the instrument to zero

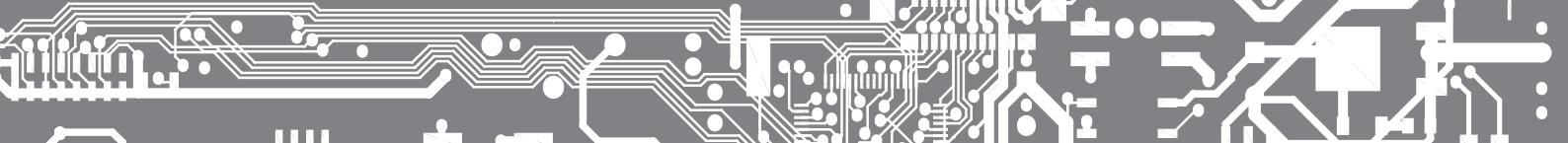
**Tare:** designed to reset display upon non-zero input signal

### EXTERNAL CONTROL

**Hold:** display/instrument blocking

**Resetting (UQC):** counter resetting

**Lock:** control keys blocking



## TECHNICAL DATA

### INSTRUMENT ACCURACY

TK: 50 ppm/ $^{\circ}$ C  
Accuracy:  $\pm 0.15\%$  of range [for 20 meas./s]

$\pm 0.3\%$  of range  
 $\pm 0.05\%$  of value

Accuracy of cold junction measurement:  $\pm 1.5\^{\circ}$ C

Rate: 0.5...100 meas./s

Overload capacity: 2x; 10x [ $t < 30$  ms] - not for  $> 200$  V and 5 A

Watch-dog: reset after 20 ms

Functions: HOLD, LOCK, Digital filters, Tare

Linearization [DC, PM, DU]: by linear interpolation in 25 points

Functions (UQC): Preset

Input filters (UQC): Filtration constant, Rounding

Time base (UQC): 0.5/10/100 s

Calibration constant (UQC): 0.01...9999

Filtration constant (UQC): 0/5/40/100/1000 Hz

PRESET (UQC): 0...999

Measuring modes [PWR]: voltage [ $V_{RMS}$ ], current [ $A_{RMS}$ ], real power [W],

frequency [Hz] and with calculation of Q, S, cos fi

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

Calibration: at  $25^{\circ}$ C and 40% r.h.

### COMPARATOR

Type: digital, setting in menu, contact switch-on < 50 ms

Limits: 999999

Hysteresis: 0...999999

Delay: 0...99.9 s

Output: 2x Form A relays [250 VAC/30 VDC, 3 A],

2x open collectors

PWR, T/C  
UQC

### DATA OUTPUT

Protocol: ASCII  
Data format: 8 bit + no parity + 1 stop bit [ASCII]

Rate: 600...230 400 Baud

RS 485: isolated, addressing [max. 31 instruments]

### ANALOG OUTPUT

Type: isolated, programmable with 16-bit D/A converter, type and range are selectable in programming mode

Non-linearity: 0.1% of range

TK: 15 ppm/ $^{\circ}$ C

Rate: response to change of value < 1 ms

Ranges: 0...2/5/10 V,  $\pm 10$  V, 0...5 mA, 0/4...20 mA [comp. < 600  $\Omega$ /12 V]

Ripple: 5 mV residual ripple at output voltage of 10 V

### POWER SUPPLY

10...30 VDC/24 VAC,  $\pm 10\%$ , 3 VA, PF  $\geq 0.4$ ,  $I_{STO} < 40$  A/1 ms  
10...30 VDC/24 VAC,  $\pm 10\%$ , 3 VA, PF  $\geq 0.4$ ,  $I_{STO} < 40$  A/1 ms, isolated

### MECHANIC PROPERTIES

Material: PA 66, incombustible UL 94 VO, blue

Dimensions: 90.6 x 79 x 25 mm

Installation: to DIN rail 35 mm wide

### OPERATING CONDITIONS

Connection: connector terminal board, section < 1.5 mm<sup>2</sup>

Stabilization period: within 15 minutes after switch-on

Working temperature: -20...60 $^{\circ}$ C

Storage temperature: -20...80 $^{\circ}$ C

Cover: IP20

El. safety: EN 61010-1, A2

Dielectric strength: 2.5 kVAC after 1 min between supply/input/outputs

Insulation resistance: for pollution degree II, measuring cat. III.

Power supply > 550 V [Z1], 265 V [D1]

EMC: EN 61326-1

PI - Primary insulation, DI - Double insulation

## MEASURING RANGES

OMX 333 is a multifunction instrument available in following types and ranges

### OMX 333UNI

DC:  $\pm 90/\pm 180$  mA,  $\pm 30/\pm 60$  mV/ $\pm 1/\pm 20/\pm 40/\pm 80$  V

PM:  $\pm 5/\pm 20$  mA/4...20 mA;  $\pm 2/\pm 5/\pm 10$  V

OHM: 0...100/300 0/0...1.5/3/24/30 k $\Omega$

RTD: Pt 60/100/500/1 000

Cu: Cu 50/100

Ni: Ni 1 000/10 000

T/C: J/K/T/E/B/S/R/N/L

DU: Linear potentiometer [min. 500  $\Omega$ ]

OMX 333DC  $\pm 1/\pm 5$  A;  $\pm 25/\pm 50/\pm 100/\pm 200/\pm 400$  V

OMX 333PWR 0...1/5 A; 0...60/300 mV/0...10/120/250 V/450 V

OMX 333UQC 0...30/300 V, comparation levels are adjustable in the menu, input frequency 0.1 Hz...50 kHz (20 kHz for QUADR and UP/DW, 10 kHz for QUADR - counter)

### CONNECTING INDIVIDUAL INPUTS

INPUT 1	INPUT 2	INPUT 3	INPUT 4	INPUT 5
DC $\pm 20/\pm 40/\pm 80$ V		$\pm 30/60$ mV/ $\pm 1$ V		$\pm 90/\pm 180$ mA
PM $\pm 2/\pm 5/\pm 10$ V				$\pm 20$ mA, 4...20 mA
T/C		J/K/T/E/B/S/R/N/L		
DC/HI $\pm 25/\pm 50/\pm 100$ V				$\pm 0.5/\pm 1/\pm 5$ A
$\pm 200/\pm 400$ V				
PWR 0...120/450 V	$0...10/250$ V	$0...60/300$ mV	$0...1/2,5/5$ A	

### ORDER CODE SPECIFICATION

PWR - U	PWR - I
K	0...60/300 mV
P	0...1/2,5/5 A
S	0...10/120 V
U	0...250/450 V

### ORDER CODE

#### OMX 333

Type

□□□ - □□□ - □

U	N	I	1	•	•
N	D	C	1	•	•
P	W	R	1	•	•
U	Q	C	•	•	•

Order code shall not include blank spaces!

Power supply

10...30 V AC/DC

10...30 V AC/DC, isolated

?

Option, see table „Order code specification“

?

Comparators

no

1x relay [Form A]

2x relays [Form A]

1x open collector

2x open collectors

?

Output

none

analog

RS 485

?

Other

customer version, do not fill in



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Default execution is shown in bold

## CONNECTION

