



- BARGRAPH 50 LED WITH DISPLAY AND LCD SCALE
- MULTIFUNCTION INPUT (DC, PM, RTD, T/C, DU)
- DIGITAL FILTERS, TARE, LINEARIZATION
- SIZE OF DIN 160 X 60 MM
- POWER SUPPLY 80...250 V AC/DC

Excitation • Comparators • Data output • Analog output Data record • Power supply 10...30 V AC/DC

OMB 451



The OMB 451 model series are programmable, three-color panel bargraphs with auxiliary display and adjustable LCD scale. The instruments are designed as dimensional replacement of the ZEPAKOMP instruments. Available are types UNI, PWR and UQC.

Type OMB 451UNI is a multifunction instrument with the option of configuration for 8 different types of input, easily configurable in the instrument menu.

The instrument is based on an 8-bit microcontroller with multi-channel 24-bit sigma-delta converter, which secures high accuracy, stability and easy operation of the instrument.

OMB 451UNI

DC VOLTMETER AND AMMETER PROCESS MONITOR OHMMETER THERMOMETER FOR Pt/Cu/Ni/Termocouples DISPLAY UNIT FOR LINEAR POTENTIOMETERS

OMB 451PWR

AC VOLTMETER AND AMMETER AC NETWORK ANALYSER

OMB 451UQC UNIVERSAL COUNTER

OPERATION

The instrument is set and controlled by two control keys and a turn knob located on the front panel. All programmable settings of the instrument are implemented in three setting 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

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 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).

OPTION

EXCITATION is suitable for feeding of sensors and transmitters. It is isolated, with continuously adjustable value in the range of 5...24 VDC.

COMPARATORS are assigned to monitor one, two, three or four limit values with relay output. The user may select limits regime: LIMIT/DOSING/FROM-TO. 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 O...99,9 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/MESSBUS/MODBUS/PROFIBUS protocol.

ANALOG OUTPUTS will find their place in applications where further evaluating or processing of measured data is required in external devices. We offer universal analog output with the option of selection of the type of output - voltage/current. The value of analog output corresponds with the displayed data and its type and range are selectable in menu.

MEASURED DATA RECORD is an internal time control of data collection. It is suitable where it is necessary to register measured values. Two modes may be used. FAST is designed for fast storage (40 records/s) of all measured values up to 8 000 records. Second mode is RTC, where data record is governed by Real Time with data storage in a selected time segment and cycle. Up to 266 000 values may be stored in the instrument memory. Data transmis sion into PC via serial interface RS232/485 and OM Link.

STANDARD FUNCTIONS

PROGRAMMABLE PROJECTION

Selection: of input type and measuring range

Measuring range: adjustable as fixed or with automatic change (OHM)

Scale: LCD, freely programmable

 $\textbf{Measuring modes (PWR): } voltage \text{ (V_{RMS}), current (A_{RMS}), real power (W), frequency (Hz) and } \\$ with calculation of Q, S, cos fi

Setting (UQC): measuring mode 2x counter (UP/DW, IRC)/2x frequency/timer/clock with

adjustable calibration coefficient, time base and projection Setting: manual, in menu optional projection on the display may be set for both limit

values of the input signal

Projection: 50 LED + 6-digit auxiliary display

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 (DC, PM, DU): through linear interpolation in 50 points (solely via OM Link)

DIGITAL FILTERS

Filtration constant (UQC): transmits input signal up to 10...2 000 Hz Floating/Exp./Arithmetic average: from 2...30/100/100 measurements Rounding: setting the projection step for display

MATHEMATIC FUNCTIONS

Min/max. value: registration of min/max. value reached during measurement

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

Peak value: the display shows only max. or min. value

Mat. operations: polynome, 1/x, logarithm, exponential, power, root, $\sin x$ and at the same time between inputs - sum, difference, product, quotient

EXTERNAL CONTROL*

Lock: control keys blocking Hold: display/instrument blocking

Tare: tare activation

Resetting MM: resetting min/max value

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TECHNICAL DATA

PROJECTION

Display: 50 three-color LED + three-color LED for indication of the limits, 6-digit auxiliary display (-99999...99999), digit height 9,1 mm illuminated and freely programmable LCD scale
Decimal point: setting - in menu
Brightness: setting - in menu

INSTRUMENT ACCURACY

TK: 50 ppm/5

Accuracy: ±0,1% of range + 1 digit (for projection 9999 and 5 meas./s) ±0,15% of range + 1 digit ±0,3% (0,6/0,9%) of range + 1 digit RTD, T/C

Accuracy of cold junction measurement:: ±1, Rate: 0,1...40 meas./s, 0,5...5 meas./s (PWR) nt:: +1.5°C

Overload capacity: 10x (t < 30 ms) - not for > 250 V and 5 A; 2x

Measuring modes (PWR): voltage (V_{mex}), current (A_{mex}), real power (W),
frequency (Hz) and with calculation of 0, S, cos fi

Linearization: by linear interpolation in 50 points

Time base (UOC): 0,2...50 s
Calibration constant (UQC): 0,00001...999999
Filtration constant (UQC): 0/10/20/45/55/../1000/2000 Hz

PRESET (UQC): 0...999999

Digital filters: Exp./Floating/Arithmetic average, Rounding

Functions: Ofset, Min/max. hod., Tare, Peak value, Mat. operations Ext. control: HOLD, LOCK, Tare, Reset

Data record: measured data record into instrument memory

RTC - 15 ppm/°C, time-date-display value, < 266k data

FAST (UNI) - display value, < 8k data

Watch-dog: reset after 0.4 s

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

Calibration: at 25°C and 40 % r.h.

COMPARATOR

Type: digital, setting in menu, contact switch < 30 ms Limits: -99999...999999

Hysteresis: 0...999999

Delay: 0...99,9 s

Output: 1...4x relays Form A (250 VAC/50 VDC, 3 A), 2x/4x open collector

DATA OUTPUT

Protocol: ASCII, MESSBUS, MODBUS - RTU, PROFIBUS

Data format: 8 bit + no parity + 1 stop bit (ASCII)
7 bit + even parity + 1 stop bit (Messbus)

Rate: 600...230 400 Baud

9 600 Baud...12 Mbaud (PROFIBUS)

RS 232: isolated

RS 485: isolated, addressing (max. 31 instruments)

Type: isolated, programmable with 12-bit D/A converter, type and range

are selectable in programming mode

Non-linearity: 0,1% of range

TK: 15 ppm/°C

Rate: response to change of value < 1 ms Ranges: 0...2/5/10 V, ±10 V, 0...5 mA, 0/4...20 mA

[comp. < 500 Ω/12 V or 1 000 Ω/24 V]

EXCITATION

Adjustable: 5...24 VDC/max. 1,2 W

POWER SUPPLY

10...30 V AC/DC, ±10 %, max. 13,5 VA, PF \geq 0,4, I $_{\rm srp}^{<}$ 40 A/1 ms 80...250 V AC/DC, ±10 %, max. 13,5 VA, PF \geq 0,4, $_{\rm Srp}^{<}$ 40 A/1 ms Power supply is protected by a fuse inside the instrument

MECHANIC PROPERTIES

Material: Noryl GFN2 SE1, incombustible UL 94 V-I Dimensions: $160 \times 60 \times 80 \, \text{mm}$

Panel cutout: 150 x 50 mm

OPERATING CONDITIONS

ection: connector terminal board, section < 1,5/2,5 mm² Stabilization period: within 15 minutes after switch-on Working temperature: -20°...60°C

Storage temperature: -20°...80°C

Cover: IP64 (front panel only)

El. safety: EN 61010-1, A2

Dielectric strength: 4 kVAC after 1 min between supply and input 4 kVAC after 1 min between supply and data/analog output

4 kVAC after 1 min between supply and relay output

2,5 kVAC after 1 min between input and data/analog output Insulation resistance: for pollution degree II, measuring cat. III.

Power supply > 670 V (ZI), 300 V (DI) input, output, Exc. > 300 V (ZI), 150 V (DI)

EMC: EN 61326-1

Seismic capacity: IEC 980: 1993, par. 6

SW validation (UNI): Class B, C in compliance with IEC 62138, 61226

PI - Primary insulation, DI - Double insulation

MEASURING RANGES

OMB 451 is a multifunction instrument available in following types and ranges

type UNI, standard (code "0")
DC: ±60/±150/±300/±1 200 mV DC:

0...5 mA/0...20 mA/4...20 mA/±2 V/±5 V/±10 V/±40 V 0...100 Ω/0...1 kΩ/0...10 kΩ/0...100 kΩ

OHM: RTD: Pt 100/Pt 500/Pt 1 000 Cu: Cu 50/Cu100

Ni 1 000/Ni 10 000 . I/K/T/F/B/S/R/N/I

Linear potentiometer (min. 500 Ω)

type UNI, Option A DC: ±0,1/±0,25/±0,5/±2/±5 A/±100 V/±250 V/±500 V

type PWR

0...10 V/0...120 V/0...250 V/0...450 V

0...60 mV/0...150 mV/0...300 mV/0...1 A/0...2.5 A/0...5 A input I:

type UQC

Measuring mode (UQC): input frequency 0,002 Hz...1 MHz (500 kHz for QUADR and UP/DW)

2x UP or DW counter, UP or DW counter + frequency, UP/DW counter, UP/DW counter for IRC + frequency, timer/ clock/phase

CONNECTING INDIVIDUAL INPUTS

		INPUT "I"	INPUT "U"					
1	DC		±60/±150/±300/±1200 mV					
1	PM	05/020 mA/420 mA	±2/±5/±10/40 V					

ORDER CODE SPECIFICATION

	UNI	PWR - U	PWR - I	nóc
w/o	standard			
A	±0,1/±0,25/±0,5//±2/±5 A ±100/±250/±500 V			standard contact, TTL, NPN/PNP
В	Expansion about three inputs (PM)			SSI input
С				line input
K			060/150/300 mV	
P			01/2,5/5 A	
S		010/120 V		
U		0250/450 V		
Z	on request	on request	on request	

CONNECTION

INPUT-U INPUT-U INPUT - U GND - U GND - I INPUT - I > 8 C GND - U/I INPUT-I ■ ■ □ □ □ □ □ □ □ DC, PA INPUT. ធ 12 2 2 2 2 2 2 2 2 2 5+ 5+ 5 5+ 5+ 5 □ □ □ □ □ T/C V LДJ

*GND (input + Option A) is galvanically connected with inputs EXT. and the OM Link connector *In case of Option B we recommend to connect termianls GND (main board/additional board) by external connection

ORDER CODE

			_			_	_			
OMB 451			·L							
Туре	UN	1	•	•	•	•	•	•	•	•
.,,-	P W	R*	•	••	•	•	•	•	•	•
Order code shall not include blank space	u o	C*	•	•	•	•	•	•	•	•
Power supply	1030 V AC	/DC	0							
	80250 V AC	/DC	1							
Option, see table "Order code spe	cification"			?						
Comparators	n	one			0					
	1x relay (Forn	n C)			1					
	2x relays (Forn	n C)			2					
	3x relays (Forn	n C)			3					1 2
	4x relays (Forn	n C)			4					
	2x open collec	tors			5					
	4x open collec	tors			6					
	ctors + 2x relays (Forn	n C)			7					
Analog output		no				0				
	mpensation < 500 Ω/1:					1				
	ensation < 1 000 Ω/2	4 V)				2				
Data output		one					0			
	RS :						1			
	RS -						2			
	MODE						3			
	PROFIE						4	_		
Excitation		no						0		
Data record		yes						- 1	_	
пата гесого		no RTC							0	
	FAST (only for I								2	
Colour of digital display		red								1
Colour of digital display		een								
Other custor	mer version, do not fi									_
	on - IEC 62138. IEC 61:									

For complete technical parameters of OMB 451UQC see the universal counter OM 602UQC

Default execution is shown in hold * Launch for sale has not been set