

- VERTICAL BARGRAPH 24 LED WITH DISPLAY
- MULTIFUNCTION INPUT UNI (DC, PM, RTD, T/C, DU)
- DIGITAL FILTERS, TARE, LINEARIZATION
- SIZE OF DIN 48 X 96 MM
- POWER SUPPLY 80...250 V AC/DC

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





The OMB 412 model series are panel programmable three-color bar graphs with auxiliary display designed for maximum efficiency and user comfort while maintaining its favourable price. Three versions are available: UNI, PWR

The OMB 412UNI is a multifunction instrument with the option of configuration for 8 various input options, easily configurable in the instrument menu.

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

OMB 412UNI

DC VOLTMETER AND AMMETER PROCESS MONITOR OHMMETR THERMOMETER PRO Pt/Cu/Ni/Thermocouple DISPLAY UNIT FOR LINEAR POTENTIOMETERS

OMB 412PWR

AC VOLTMETER AND AMMETER AC NETWORK ANALYSER

OMB 412UQC

UNIVERSAL COUNTER

OPERATION

The instrument is set and controlled by five 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

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).

OPTIONS

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)

Measuring modes (PWR): voltage ($V_{\rm BMS}$), current ($A_{\rm BMS}$), real power (W), frequency (Hz) and with calculation of Q, S, $\cos \varphi$

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: 24 LED + 3-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 (temperature at the input brackets)

LINEARIZATION

Linearization (DC, PM, DU): by 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: 24 three-color LED with 3-digit aux.display (-99...999), digit height 9,1mm

Decimal point: setting - in menu Brightness: setting - in menu

INSTRUMENT ACCURACY TK: 50 ppm/

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

±0,15% of range + 1 digit ±0,3% (0,6/0,9%) of range + 1 digit Accuracy of cold junction measurement

Rate: 1,3...40 meas./s, 0,5...5 meas./s (PWR) Overload capacity: 10x (t < 30 ms) - not for > 250 V, 5 A; 2x

Measuring modes (PWR): voltage (V_{BMS}) , current (A_{BMS}) , real power (W), frequency (Hz) and with calculation of $(O, S, \cos O)$

Linearization: by linear interpolation in 50 points
Time base (UQC): 0,2...50 s
Calibration constant (UQC): 0,00001...999999
Filtration constant (UQC): 0/10/20/45/55/.../1000/2000 Hz

PRESET (UOC): 0...999999

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

Functions: Offset, Min/max value, Tare, Peak value, Mat. operat. Ext. control: HOLD, LOCK, Tare, Reset

Data record: measured data record into instrument memory

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

FAST - display value, < 8k data Vatch-dog: reset after 1,2 s

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

Dutput: 2x relays Form A [250 VAC/30 VDC, 3 A] and 2x Form C relays [250 VAC/50 VDC, 3 A], 2x/4x open collectors,

2x SSR, 2x bistable relays

DATA OUTPUT

Protocol: ASCII, MESSBUS, MODBUS - RTU, PROFIBUS

Data format: 8 bit + no parity + 1 stop bit

7 bit + even parity + 1 stop bit (Messbus) Rate: 600...115 200 Baud

9 600 Baud...12 Mbaud (PROFIBUS)

RS 232: isolated

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

Ethernet: 10/100BaseT, Security Protocols, POP3, FTP

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

are selectable in programming mode

Non-linearity: 0,1% of range

TC: 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 $\Omega/12$ V or 1 000 $\Omega/24$ V]

EXCITATION

Adjustable: 5 24 VDC/max 12 W

POWER SUPPLY

10...30 V AC/DC, ±10 %, max. 13,5 VA, PF ≥ 0,4, $I_{\rm STP}$ < 40 A/1 ms 80...250 V AC/DC, ±10 %, max. 13,5 VA, PF ≥ 0,4, $I_{\rm STP}$ < 40 A/1 ms supply is protected by a fuse

MECHANIC PROPERTIES

Material: Noryl GFN2 SE1, incombustible UL 94 V-I Dimensions: $48 \times 96 \times 120 \, \text{mm}$ Panel cutout: 45 x 90.5 mm

OPERATING CONDITIONS

ction: 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°...85°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 (PI), 300 V (DI) input, output, Exc. > 300 V (PI), 150 V (DI)

EMC: EN 61326-1

Seismic capacity: IEC 980: 1993, par. 6

PI - Primary insulation, DI - Double insulation

MEASURING RANGES

OMB 412 is a multifunction instrument available in following types and ranges

+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

±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): 2x UP or DW counter, UP or DW counter + frequency, UP/DW counter, UP/DW counter

for IRC + frequency, timer/clock/phase (0,02 Hz...1 MHz)

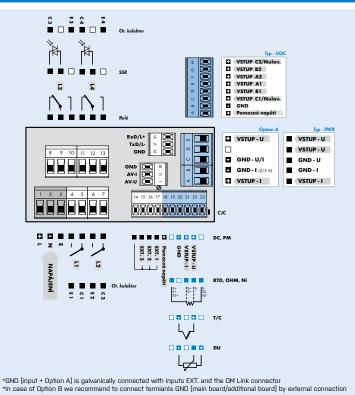
CONNECTING INDIVIDUAL INPUTS

	INPUT "I"	INPUT "U"							
DC		±60/±150/±300/±1200 mV							
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
C				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



ORDER CODE

OMB 412					-									-	
Туре		U	N	ı		•	•	•	•	•	•	•	•		
Order code shall not inc	clude blank spaces!	P	Q	R* C*		•	••	•	•	•	•	•	•		
Power supply		1030		,		0									
		0250				1	?								
	see table "Order cod	ie speci						0							_
Comparators		1x relay		none				1							
			-	-				2							
		x relays	-	-				3							
		3x relays 4x relays						4							
		1х генауз 2х орег						5							
		4х орег						6							
	2x open collector + 2							7							
		2x relays						8							
	-	zx rolaye	, (, 0,	SSR				9							
		2x bista	hle n					A							
	•	1x relay						В							
Analog output			Ç	no				Ť	0						
.	yes (Compensat	ion < 50	ο Ω/	12 V)					1						
	yes (Compensation	n < 100	o Ω/2	24 V)					2						
Data output	, - ,			none						0					
•			RS	232						1				1 2	
			RS	485						2					
			MOD	BUS						3					
		F	PROF	IBUS						4					
10/100BaseT Eth	ernet (not possible wit	h analog	g out	put)*						7					
Excitation				no							0				
				yes							1				
Data record				no								0			
				RTC								1			
		ST (only	/ por	UNI)								2			
Colour of digital d	isplay			red											
				reen									2		
Other	customer vers	sion, do	not :	fill in											00

For complete technical parameters of OMB 412UQC see the universal counter OM 602UQC

* Launch for sale has not been set