# **OM** 402PWR



## AC V-A METER/NETWORK ANALYSER

- 4-digit programmable projection
- Range: 0...1/2,5/5 A; 0...60/150/300 mV; 0...10/120/250/450 V
- Digital filters, Tare, Linearization
- Size of DIN 96 x 48 mm
- Power supply 10...30 V AC/DC; 80...250 V AC/DC
- Option Comparators • Data output • Analog output Data record • Three-color display - 20 mm

#### OPERATION

The instrument is set and controlled by five buttons 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 interface, which together with operation program enables modification and filing of all instrument settings as well as performing 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 (settings hold even after the instrument is switched off).

### OPTION

**COMPARATORS** are assigned to monitor one, two, three or four limit values with relay output. As a user you can select the mode limit: LIMIT/BATCH/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 0...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/PROFIBUS protocols.

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. 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 transmission into PC via serial interface RS232/485 and OM Link.

# **OM** 402PWR



The OM 402 model series are 4-digit panel programmable instruments designed for maximum efficiency and user comfort while maintaining their favourable price.

ւներուկներերել

Type OM 402PWR is a universal alternating current V-A meter with the extention of functions for further network analysis. The instrument measures voltage, current, active power, frequency, and with calculation also reactive power, apparent power and cos fi.

The instrument is based on a single-chip microcontroller with a true RMS converter, which ensures good accuracy, stability and easy operation of the instrument.

OM 402PWR AC VOLTMETER AND AMMETER AC NETWORK ANALYSER

#### STANDARD FUNCTIONS

### PROGRAMMABLE PROJECTION

Measuring range: adjustable in menu Measuring modes: voltage ( $V_{RMS}$ ), current ( $A_{RMS}$ ), power (W), frequency (Hz) and with calculation reactive power (Q), apparent power (S), power factor (cos fi) Setting: manual, optional projection on the display may be set in menu for both limit values of the input signal, e.g. input 0...60 mV > 0...500.0 Projection: -999...9999

#### FUNCTIONS

Linearization: non-linear signals can be linearized by the means of a linearization table (up to 50 points)

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

Mathemat. operations: polynom, 1/x, logarithm, exponential, power, root, sin x

#### **DIGITAL FILTERS**

Floating/Exp./Arithm. average: from 2...30/100/100 measurements Rounding: setting the projection step for display

#### **EXTERNAL CONTROL**

Lock: control keys blocking Hold: display/instrument blocking Tare: activation and tare resetting Resetting MM: resetting min/max value

INPUT					
Number of inputs		1			
AC	Range	partially fixed - by order			
		060 mV	21 kΩ	Input 1 - I	
		0150 mV	21 kΩ	Input 1 - I	
		0300 mV	1,2 kΩ	Input 1 - I	
		01A	< 150 mV	Input 1 - I	
		02,5 A	< 150 mV	Input 1 - I	
		05 A	< 150 mV	Input 1 - I	
		010 V	150 kΩ	Input 2 - U	
		0120 V	930 kΩ	Input 3 - U	
		0250 V	730 kΩ	Input 2 - U	
		0450 V	930 kΩ	Input 3 - U	

		Instrumer	nstrument can also be used for DC input signals		
	Input frequency	0400 Hz for amplit	)0 Hz nplitude from 8 V		
	Meas. quantit.	Voltage (\ Current (A Active por frequency	(ARMS) power (P)		
		reactive p apparent	vith calculation sactive power (Q) pparent power (S) ower factor (cos fi)		
xt. inputs		3 inputs, on contact			
		The follor OFF HOLD LOCK PASS. TARE I TARE U TARE P TARE F C.T. AL. C.T. ACT. SAVE SWIT.	wing functions can be assigned: input off display stop control keys blocking menu access blocking tare activation for "Channel I" tare activation for "Channel U" tare activation for "Channel F" tare activation for "Channel F" tare resetting on all channels tare resetting on all channels tare resetting on start (FAST/RTC) sequential or BCD channel switching		

PROJECTION
Display: -99999999999, single color 14-segment LED;
-9999999, 3-color 7-segment LED
Digit height: 14 or 20 mm
Display color: red or green (height 14 mm)
red/green/orange (height 20 mm)
Description: last two characters on the display may be used for description
of measured quantities
(menu adjustable - only 14 mm display)
Decimal point: adjustable - in menu
Brightness: adjustable - in menu
INSTRUMENT ACCURACY
TC: 50 ppm/°C
Accuracy: ±0,3% (0,6/0,9%) of range + 1 digit
(for proj. 9999 and 5 measur./s)
Rate: 0,55 measurement/s
Overload capacity: 2x; 10x (t < 30 ms) - not for > 250 V and 5 A
Measuring modes (PWR): voltage (V <sub>RMS</sub> ), current (A <sub>RMS</sub> ), power (W),
frequency (Hz) and with calculation Q, S, cos fi
Linearization: linear interpolation in 50 points (only via OM Link)
Digital filters: Exp./Floating/Arithm. average, Rounding
Functions: offset, min./max. value, tare, peak value
Data record: measured data record into instrument memory
RTC - 15 ppm/°C, time-date-display value < 266k data
Watch-dog: reset after 0,4 s
OM Link: company communication interface for operation, setting and
update of instruments
Calibration: at 25°C and 40 % r.h.
COMPARATOR
Type: digital, menu adjustable, contact switch-on < 30 ms
Hysteresis mode: switching limit, hysteresis band (Lim and ±1/2 Hys.) and
time (±99.9 s) determining the switching delay

time (±99.9 s) determining the switching delay Mode From-To: switching on and switching off interval Mode Batch: period, its multiples and time (0...99.9 s), within which the output is active Output: 1...2x relays Form A (250 VAC/30 VDC, 3 A) and 1...2x relays Form C (250 VAC/50 VDC, 3 A); 2x/4x open collector (30 VDC/100 mA); 2x SSR (250 VAC/1 A);

2x bistable relays (250 VAC/250 VDC, 3 A/0,3 A) DATA OUTPUTS

Protocol: ASCII, MESSBUS, MODBUS RTU, PROFIBUS DP Data format: 8 bit + no parity + 1 stop bit (ASCII) 7 bit + even parity + 1 stop bit (Messbus) Rate: 600...230 400 Baud, 0,0096...12 Mbaud (PROFIBUS) RS 232: isolated RS 485: isolated, addressing (max. 31 instruments)

#### ANALOG OUTPUTS

վկերունեւ

Type: isolated, programmable with a 16-bit D/A converter, output type and range are optional in the menu 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. < 600 Ω/12 V or 1 000 Ω/24 V) EXCITATION

Adjustable: 5...24 VDC/max, 1.2 W, separated

أيتناليا 

#### POWER SUPPLY

Range: 10...30 V AC/DC. +10 % PE>0.4 L < 40 A/1 ms. isolated 80...250 V AC/DC, ±10 %, PF≥0,4, IS<sub>TP</sub>< 40 A/1 ms, isolated Consumption: < 9.4 W/9.2 VA Power supply is protected by d by a fuse inside the instrument

MECHANIC PROPERTIES Material: Noryl GFN2 SE1, incombustible UL 94 V-I

#### Dimensions: 96 x 48 x 120 mm (w x h x d) Panel cutout: 90,5 x 45 mm (w x h)

#### OPERATING CONDITIONS

Connection: connector terminal blocks, section < 1,5/2,5 mm<sup>2</sup> Stabilization period: within 5 minutes after switch-on Working temperature: -20°...60°C Storage temperature: -20°...80°C Protection: IP64 (front panel only) El. safety: EN 61010-1, A2 Dielectric strength: 4 kVAC per 1 min test between supply and input 4 kVAC per 1 min test between supply and data/analog output 4 kVAC per 1 min test between input and relay output 2.5 kVAC per 1 min test 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, PN > 300 V (PI), 150 V (DI) EMC: EN 61326-1

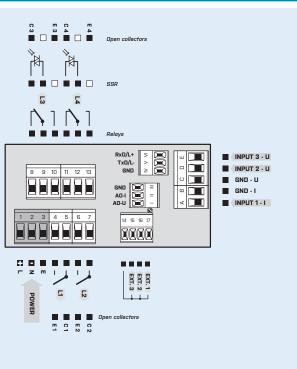
Seismic capacity: IEC 980: 1993, par. 6

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

# PI - Primary insulation, DI - Double insulation



F



\* GND (input) is galvanically connected with inputs EXT. and the OM Link connector

ORDER CODE

Power supply	1030 V AC/DC
Power supply	80250 V AC/DC
Measuring range - U	010/120 V
incacanny range e	0250/450 V
	on request
Measuring range - I	060/150/300 mV
	01/2,5/5 A
	on request
Comparators	nc
	1x relay (Form A)
	2x relay (Form A)
	3x relays (2x Form A + 1x Form C)
	4x relays (2x Form A + 2x Form C)
	2x open collector
	4x open collector
2x 0	open collector + 2x relays (Form C)
	2x relays (Form C)
	2x SSR
	2x relays, bistable
	1x relay (Form C)
Analog output	na
	yes (compensation < 600 $\Omega$ /12 V)
	yes (compensation < 1000 Ω/24 V)
Data output	no
	RS 232
	RS 485
	MODBUS*
Excitation	PROFIBUS
Excitation	no
Data record	yes
Data recolu	RTC
Display color	red (14 mm)
- op ay oolor	green (14 mm)
	red/green (20 mm)
Specification	customized version, do not fill in

