

# OMU 408UNI



## OMU 408UNI DC VOLTMETER AND AMMETER PROCESS MONITOR OHMMETER THERMOMETER FOR Pt, Cu THERMOMETER FOR Ni THERMOMETER FOR THERMOCOUPLES DISPLAY UNIT FOR LINEAR POTENTIOMETERS

### Description

OMU 408UNI is an 8-channel logger designed for maximum efficiency and user comfort while maintaining its favourable price. It 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 converters that secure high accuracy, stability and easy operation of the instrument.

Great quality of the instrument, owing to the high rate of sampling on individual channels, is the chance to evaluate all measuring inputs at the same time.

### 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 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 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.

### Options

**Comparators** are assigned to monitor four or eight limit values with relay output. For each input the user may select an arbitrary number of relays with

- 8-channel logger
- 4-digit programmable projection
- Digital filter, Tare, Linearization
- Size of DIN 96 x 48 mm
- Power supply 80...250 V AC/DC

OMLINK

### Options

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

the regime: LIMIT/FROM-TO. The limits have adjustable hysteresis within full range of the display and selectable delay of the switch-on. 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 and the option of assigning it to arbitrary input. 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 (80 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 532 000 values may be stored in the instrument memory. Data transmission into PC via serial interface RS232/485 and OM Link.

### Standard functions

#### PROGRAMMABLE PROJECTION

**Selection:** of input type and measuring range

**Setting:** manual, in menu optional projection on the display may be set for both limit values of the input signal

**Projection:** -999...9999

#### SWITCHING OF INPUTS

**Manual:** by control key on the front panel or from the outside (EXT. inputs)

**Automatic:** by a set time interval

#### 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:** by linear interpolation in 255 points/8 channels (solely via OM Link)

#### DIGITAL FILTERS

**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

**EXT inputs:** switching inputs from superior systems or control Hold, Lock, Tare and resetting Min/max. value

## Technical data

### PROJECTION

**Measured value:** -999...9999, red or green 14-segment LED, digit height 14 mm  
**Channel identification:** 9, red or green 7-segment LED, digit height 9,1 mm  
**Measuring units:** 99, red or green 7-segment LED, digit height 9,1 mm  
**Decimal point:** setting - in menu  
**Brightness:** setting - in menu

### INSTRUMENT ACCURACY

**TC:** 50 ppm/°C  
**Accuracy:** ±0,2% of range + 1 digit  
 The accuracy applies for projection 9999 and rate 5 meas./s  
**Accuracy of cold junction measurement:** ±1°C  
**Rate:** 1,3...40 meas./s  
**Resolution:** 0,1°C (RTD), 1°C (T/C)  
**Compensation of conduct:** max. 40 Ω  
**Linearization:** by linear interpolation in 255 points/for 8 Chan.  
**Compensation of CJC:** manual 0°...99°C or automatic  
**Digital filters:** Exp./Floating/Arithmetic average, Rounding  
**Functions:** Offset, Min/max value, Tare, Peak value, Mat. operat.  
**Ext. control:** HOLD, LOCK, Tare  
**Data record:** measured data record into instrument memory  
**RTC:** 15 ppm/°C, time-date-display value, < 532k data  
**FAST:** display value, < 8k 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, setting in prog. mode, limit may be assigned to arbitrary input, contact switch < 30 ms  
**Limits:** -999...9999  
**Hysteresis:** 0...9999  
**Delay:** 0...99,9 s  
**Outputs:** 4x/8x Form A relays (250 VAC/30 VDC, 3 A)

### 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)

### ANALOG OUTPUT

**Type:** isolated, programmable with resolution of max. 10 000 points, AO corresponds with the displayed data, type and range are selectable in programming mode  
**Non-linearity:** 0,2% of range  
**TC:** 50 ppm/°C  
**Rate:** response to change of value < 150 ms  
**Ranges:** 0...2/5/10 V, 0...5 mA, 0/4...20 mA (comp. < 500 Ω/12 V or 1 000 Ω/24 V)

### POWER SUPPLY

10...30 V AC/DC, ±10%, max. 13,5 VA  
 80...250 V AC/DC, ±10%, max. 13,5 VA  
*Power supply is protected by a fuse inside the instrument*

### MECHANIC PROPERTIES

**Material:** Noryl GFN2 SE1, incombustible UL 94 V-1  
**Dimensions:** 96 x 48 x 120 mm  
**Panel cutout:** 90,5 x 45 mm

### OPERATING CONDITIONS

**Connection:** connector terminal board, section < 1,5/2,5 mm<sup>2</sup>  
**Stabilization period:** within 15 minutes after switch-on  
**Working temperature:** -20°...60°C  
**Storage temperature:** -20°...85°C  
**Cover:** IP65 (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  
**SW validation:** class B, C in compliance with IEC 62138, 61226

PI - Primary insulation, DI - Double insulation

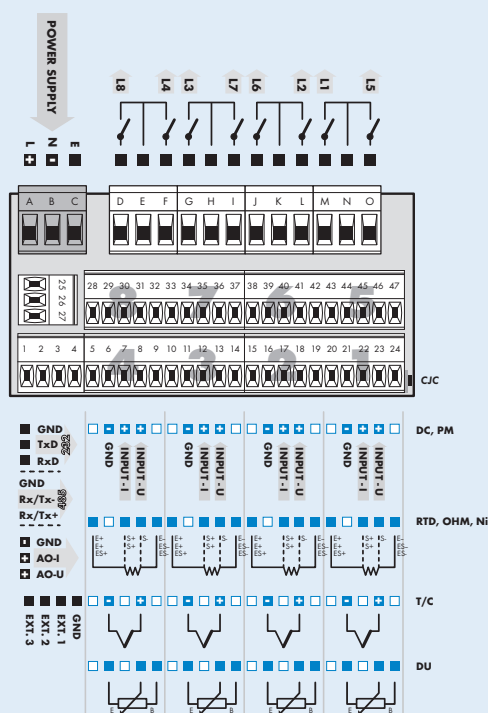
## Measuring ranges

OMU 408UNI is a multifunction instrument available in following types and ranges

**DC:** ±60/±150/±300/±1 200 mV  
**PM:** 0...5 mA/0...20 mA/4...20 mA/±2 V/±5 V/±10 V  
**OHM:** 0...100 Ω/0...1 kΩ/0...10 kΩ/0...100 kΩ  
**RTD:** Pt 100/Pt 500/Pt 1 000  
**Cu:** Cu 50/Cu 100  
**Ni:** Ni 1 000/Ni 10 000  
**T/C:** J/K/T/E/B/S/R/N/L  
**DU:** Linear potentiometer (min. 500 Ω)

*The inputs do not have galvanic separation among themselves!*  
 Maximum difference between the GND brackets is 0,2V - DC, PM, TC, DU  
 (internally connected through resistors 100R)  
 Brackets E - have to be on the same potential - OHM, RTD-Pt, RTD-Ni, RTD-Cu  
 (internal galvanic connection)

## Connection



## Order code

<b>OMU 408UNI</b>		-	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	-	<input type="text"/>
<b>Power supply</b>	10...30 V AC/DC	<b>0</b>								
	80...250 V AC/DC	<b>1</b>								
<b>Number of inputs</b>	4 inputs	<b>0</b>								
	8 inputs	<b>1</b>								
<b>Comparators</b>	none	<b>0</b>								
	4 relays	<b>1</b>								
	8 relays	<b>2</b>								
<b>Output</b>	none	<b>0</b>								
	Analog	<b>1</b>								
	RS 232	<b>2</b>								
	RS 485	<b>3</b>								
	PROFIBUS	<b>4</b>								
<b>Date record</b>	no	<b>0</b>								
	RTC	<b>1</b>								
	FAST*	<b>2</b>								
<b>Display color**</b>	red	<b>1</b>								
	green	<b>2</b>								
<b>Other</b>	customer version, do not fill in									<b>00</b>
	SW validation - IEC 62138, IEC 61226									<b>VS</b>

\*Recording measured values in the FAST mode is feasible from odd channels 1, 3, 5 and 7 only.

\*\*Identification of channel and measuring units have second color