# OML 643



# OML 643 [OMLINK]

The OML 643RS model is a 6-digit panel display device for projection of data from serial line RS 485.

The OML 643UQC type is a universal low-cost counter/frequencymeter/ evaluation of signal from IRC sensor/stopwatch/timer.

The instrument is based on an 8-bit microcontroller, which ensures good accuracy, stability and easy operation of the instrument.

- 6-DIGIT PROGRAMMABLE PROJECTION
- COUNTER/FREQUENCY/TIMER/CLOCK
- UP/DW COUNTER, IRC
- DIGITAL FILTER, TARE, LINEARIZATION, SUM
- SIZE OF DIN 96 x 48 MM
- POWER SUPPLY 10...30 V AC/DC

- Option
  Comparators • Power supply 10...30 V AC/DC, isolated

**OML 643UQC**
UNIVERSAL COUNTER

**OML 643RS**
DATA DISPLAY RS 485

## OPERATION

The instrument is set and controlled by five control keys located at the rear of the instrument. 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).

## OPTION

**COMPARATOR** is assigned to monitor a limit value with an optional relay output. The limit has 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 limit is signalled by LED and simultaneously by the switch-on of the relay.

**TIME BACKUP** is suitable where time needs to be measured even in case of supply voltage outage (upon power supply outage the instrument does not display)

## STANDARD FUNCTIONS

**PROGRAMMABLE PROJECTION**
Input (RS): RS 485, with protocole ASCII or MODBUS - RTU
Selection (UQC): measuring mode
Setting: measuring mode counter/frequency/timer/clock with adjustable calibration coefficient, time base and projection
Measuring mode: counter/frequency/UP-DW counter/frequency/counter for IRC
Measuring channels: A and B, from one measuring input two independent functions may be evaluated (counter/frequency)
Projection: -99999...999999

**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: transmits input signal up to 5...1 000 Hz

**FUNCTIONS**
Preset: initial non-zero value, which is always read after resetting the instrument to zero
Setting current value: initial value, e.g. the amount currently passed-through
Tare: designed to reset display upon non-zero input signal

**EXTERNAL CONTROL**
Hold: display/instrument blocking
Lock: control keys blocking
Resetting: counter resetting
Start/Stop: stopwatch/timer control
Magnet: easy contactless operation of preselected functions

## TECHNICAL DATA

### PROJECTION
**Display:** -99999...999999, red or green 7-segment LED, digit height 14 mm
**Decimal point:** setting - in menu
**Brightness:** setting - in menu

### INSTRUMENT ACCURACY
**TK:** 50 ppm/°C
**Accuracy:** ±0,02 % of value + 1 digit
±0,02 % of value ±2ms (stopwatch)
±0,02 % of value ±130ms (RTC)
**Overload capacity:** 2x; 10x (t < 30 ms)
**Watch-dog:** reset after 500 ms
**Functions:** HOLD, LOCK, Digital filters, Tare
**Functions:** Data backup, Time backup, Preset
**Input filters:** Filtration constant, Rounding
**Time base:** 0,5/1/5/10 s
**Calibration constant:** 0,00001...999999
**Filtration constant:** 0/5/40/100/1000 Hz
**PRESET:** 0...999999
**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-on < 50 ms
**Limit:** -99999...999999
**Hysteresis:** 0...999999
**Delay:** 0...99,9 s
**Output:** 1x Form A relays (250 VAC/30 VDC, 3 A)

### POWER SUPPLY
10...30 VDC/24 VAC, ±10 %, 3 VA, PF ≥ 0,4, $I_{STP}$ < 45 A/1,1 ms
10...30 VDC/24 VAC, ±10 %, 3 VA, PF ≥ 0,4, $I_{STP}$ < 45 A/1,1 ms, isolated

### MECHANICAL PROPERTIES
**Material:** Polycarbonate, incombustible UL 94 V-0
**Dimensions:** 96 x 48 x 30 mm
**Panel cutout:** 92 x 44 mm

### OPERATING CONDITIONS
**Connection:** connector terminal board, section < 1,5 mm²
**Stabilization period:** within 15 minutes after switch-on
**Working temperature:** -20°...60°C
**Storage temperature:** -20°...85°C
**Cover:** IP65 (front panel only, with the silicone gasket installed), rear side is open!
**El. safety:** EN 61010-1, A2
**Dielectric strength:** 2,5 kVAC after 1 min between supply and input
4 kVAC after 1 min between supply and relay output
**Insulation resistance:** for pollution degree II, measuring cat. III.
Power supply > 300 V (ZI)
input, output > 300 V (DI)
**EMC:** EN 61326-1

PI - Primary insulation, DI - Double insulation

## MEASURING RANGES

**OML 643 is a multifunction instrument available in following types**

**UQC:** 0...30 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)
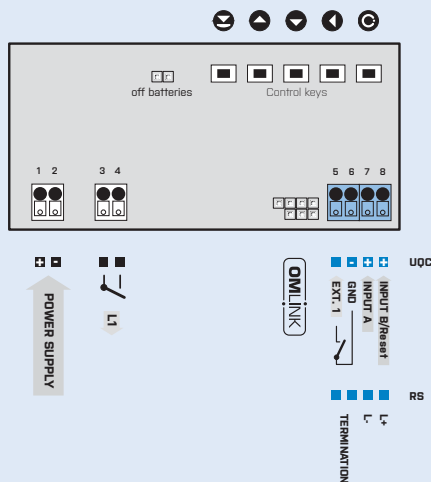
**Measuring modes**
| | |
|---|---|
| SINGLE | Counter/Frequencymeter |
| QUADR | Counter/Frequencymeter for IRC sensors |
| UP/DW | UP/DW Counter/Frequencymeter |
| | - used in inputs A, B (direction) and can display count/frequency |
| UP - DW | UP - DW Counter/Frequencymeter |
| | - used in inputs A (UP), B (DW) and can display count/frequency |
| TIME | Stopwatch |
| RTC | Timer |

**RS:** RS 485, Protocol ASCII, MODBUS - RTU

### ORDER CODE SPECIFICATION

| | RS | |
|---|---|---|
| A | ASCII | |
| B | MODBUS RTU | |

## CONNECTION

off batteries — Control keys

1 2  3 4  5 6 7 8

POWER SUPPLY

L1

OMLINK

UQC
INPUT B/Reset
INPUT A
GND
EXT. 1

RS

TERMINATION

## ORDER CODE

### OML 643

| | | | | | | | | | | | | - | | | | | | | | - | |

| | | U Q C | • | | • | • | • | • | • | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Type** Order code shall not include blank spaces! | | R S | • | • | • | | • | • | | |
| **Power supply** | 10...30 V AC/DC | 0 | | | | | | | | |
| | 10...30 V AC/DC, isolated | 1 | | | | | | | | |
| **Measuring range,** see table „Specification" | | | ? | | | | | | | |
| **Comparators** | no | | | 0 | | | | | | |
| | 1x relay (Form A) | | | 1 | | | | | | |
| **Time backup** Only for measuring mode „Watch" | no | | | | 0 | | | | | |
| | yes | | | | 1 | | | | | |
| **Display color** | red | | | | | 1 | | | | |
| | green | | | | | 2 | | | | |
| **Gasket** Silicone gasket between instrument and panel | no | | | | | | 0 | | | |
| | yes | | | | | | 1 | | | |
| **Magnet** For external activation of selected functions | no | | | | | | | 0 | | |
| | yes | | | | | | | 1 | | |
| **Other** | customer version, do not fill in | | | | | | | | | 00 |

Default execution is shown in bold