



Data Sheet  
**OM 602UQC**

*Distributed by*



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## OM 602UQC



OM 602UQC is a universal 6-digit panel programmable two-channel impulse counter/frequency meter/evaluation of signals from IRC sensors and timer/clock.

The instrument is based on a single-chip microprocessor and a powerful programmable gate array, which guarantees high accuracy, stability and easy control.

### UNIVERSAL TWO-CHANNEL COUNTER

- 6-digit programmable projection
- Counter/Frequency/Clock/Timer
- 0,002 Hz...1 MHz; UP/DW counter, IRC
- Mat. functions, Digit. filter, Tare, Preset, Sum
- 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 • Measuring data record

**OM 602UQC**  
UNIVERSAL TWO-CHANNEL COUNTER

#### 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). The measured units may be projected on the display.

#### 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.

**MEASURING DATA RECORD** is an internal time control of data collection. It is suitable where it is necessary to register measured values. Data record is governed via RTC 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.

#### STANDARD FUNCTIONS

##### PROGRAMMABLE PROJECTION

Input: NPN, PNP, on contact, IRC, line

Measuring modes: counter/frequency meter/UP-DW counter + frequency/counter for IRC + frequency

Calibration: calibration coef. for each channel may be set in menu independently

Projection: -99999...999999 with stabile or floating DT in format 10/24/60

Measur. channels: A and B, from one or more measuring inputs two independent functions may be evaluated

Time base: 0,05/0,5/1/2/5/10/20 s /1/2/5/10/15 min

##### EXCITATION

Range: 5...24 VDC/1,2 W, for feeding sensors and transmitters

##### FUNCTIONS

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

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

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

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

Mathemat. operations: polynom at the same time between inputs - sum, difference, product, quotient, absolute value

Preset: initial nonzero value that is always read after resetting the device

Current value: one-off setting of the initial value

Summation: registration of figures upon shift operation

Time backup: time is running even when the power supply is turned off (the display is off)

##### DIGITAL FILTERS

Input filter: transmits input signal up to 1 MHz...10 min

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: tare activation

Resetting MM: resetting min./max. value, counter resetting

Start/Stop: timer/clock control

## TECHNICAL DATA

<b>INPUT</b>	
Number of inputs	2
<b>UQC</b> Input	2 separate inputs selectable in the configuration menu on contact, TTL, NPN/PNP, Line 0...60 V, comparison levels are adjustable in the menu
Input frequency	0,002 Hz...1 MHz 0,002 Hz...100 kHz (Mode DUTY) 0,002 Hz...500 kHz (Mode QUADR. and UP/DW)
Measuring mode	SINGLE counter/frequency A * B counter/frequency with function AND xNOR counter/frequency with function NOR DUTY duty cycle measurement QUADR counter/frequency for IRC sensors UP/DW UP/DW counter/frequency - measures on inputs A, B (direction) and can display numbers/frequency  UP - DW UP - DW counter/frequency - measures on inputs A (UP), B (DW) and can display numbers/frequency  TIME Timer RTC Clock
Time base	0,05/1/2/3/5/10/20 s 1/2/5/10 min
Calibration constant	0,00001...999999
Preset	0...999999
Input filter	off 1/10/100/250/500/1000 kHz 1/10/45/55/65/100 Hz 2/5/10 s 1/10 min
Functions	Preset Summation One time setting of the initial value Time backup (Timer/clock) Mathematic functions between channels
Ext. inputs	3 inputs, on contact  The following functions can be assigned: OFF input off LOCK control keys blocking HOLD display stop TAR. x tare activation - 1, 2, All, Actual SUMA x sum showing - Channel 1, 2 C.SUM. x sum reset - Channel 1, 2, both CL. M.M. resetting min/max value CL. T.x tare resetting - 1, 2, All, Actual SAVE data recording start (FAST/RTC) SWIT. sequential or BCD channel switching

**PROJECTION**  
**Display:** -99999...999999, single color 14-segment LED  
**Digit height:** 14 mm  
**Display color:** red or green  
**Description:** the last two characters on the display can be used to describe the measured quantities  
**Decimal point:** adjustable - in menu  
**Brightness:** adjustable - in menu

**INSTRUMENT ACCURACY**  
**TC:** 50 ppm/°C  
**Accuracy:** ±0,01% of range + 1 digit (frequency)  
**Overload capacity:** 2x; 10x (t < 30 ms)  
**Digital filters:** Exp./Floating/Arithm. average, Rounding  
**Functions:** Min./max. value, tare, Peak value, Math. operations  
**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 < 10 ms (without filtration < 50 µs)  
**Hysteresis mode:** switching limit, hysteresis band (Lim and ±1/2 Hys.) and 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  
**Mode C-Puls** - automatic counter resetting at the set value  
**Mode On Run** - output is active when the timer is running  
**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  
 9 600 Baud...12 Mbaud (PROFIBUS)  
**RS 232:** isolated  
**RS 485:** isolated, addressing (max. 31 instruments)

**ANALOG OUTPUTS**  
**Type:** isolated, programmable with a 16 bit D/A converter, type and range of output is 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

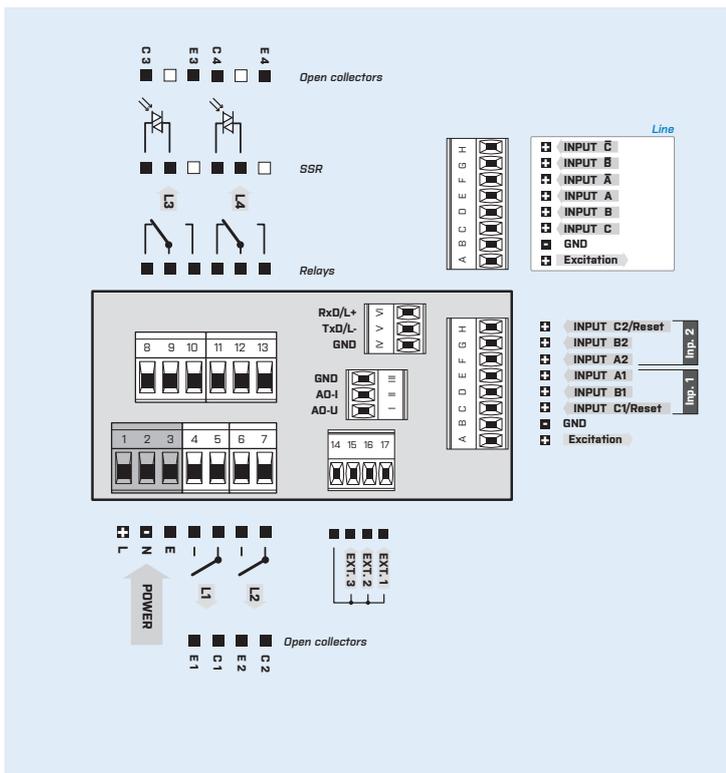
**POWER SUPPLY**  
**Range:** 10...30 V AC/DC, ±10 %, PF≥0,4, I<sub>STP</sub> < 40 A/1 ms, isolated  
 80...250 V AC/DC, ±10 %, PF≥0,4, I<sub>STP</sub> < 40 A/1 ms, isolated  
**Consumption:** < 8,0 W/7,8 VA  
**Power supply is protected by a fuse inside the instrument.**

**MECHANIC PROPERTIES**  
**Material:** Noryl GFN2 SE1, incombustible UL 94 V-1  
**Dimensions:** 96 x 48 x 120 mm (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°...85°C  
**Protection:** IP64 (front panel only)  
**EI. 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

PI - Primary insulation, DI - Double insulation

## CONNECTION



## ORDER CODE

<b>OM 602UQC</b>		- [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] -													
<b>Power supply</b>	10...30 V AC/DC 80...250 V AC/DC	<b>0</b>													
<b>Input</b>	2x standard (10 mV...60 V) line	<b>1</b>	<b>A</b>	<b>C</b>											
<b>Comparators</b>	none 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 open collector + 2x relays (Form C) 2x relays (Form C) 2x SSR 2x bistable relays 1x relay (Form C)	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>A</b>	<b>B</b>		
<b>Data output</b>	none RS 232 RS 485 MODBUS* PROFIBUS	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>									
<b>Analog output</b>	no yes (compensation < 600 Ω/12 V) yes (compensation < 1 000 Ω/24 V)	<b>0</b>	<b>1</b>	<b>2</b>											
<b>Time backup</b>	Only for Measuring mode „Timer/clock“	<b>yes</b>													
<b>Excitation</b>		<b>yes</b>													
<b>Data record</b>		<b>no</b>												<b>0</b>	<b>1</b>
<b>Display color</b>		<b>red</b>													<b>1</b>
		<b>green</b>													<b>2</b>
<b>Specification</b>	customized version, do not fill in														<b>00</b>

Basic configuration of the instrument is indicated in bold.

\* Unavailable in combination with RTC