# **OM** 602UQC



### **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



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.

#### **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 relav.

**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...99999 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

	HNICAL D								
NPU1	ŗ								
Numb	er of inputs	2							
UQC	Input	2 separate inputs selectable in the configuratemenu on contact, TTL, NPN/PNP, Line 060 V, comparison levels are adjustable in ti							
	Input frequency	menu  0,002 Hz1 MHz 0,002 Hz100 kHz (Mode DUTY) 0,002 Hz500 kHz (Mode QUADR. and UP/DW)							
	Measuring mode	SINGLE A * B xNOR DUTY QUADR UP/DW  UP - DW  TIME RTC	counter/frequency counter/frequency with function AND counter/frequency with function NOR duty cycle measurement counter/frequency for IRC sensors UP/DW counter/frequency - measures on inputs A, B (direction) and can display numbers/frequency UP - DW counter/frequency UP - DW counter/frequency Timer Clock						
	Time base	0,05/1/2/3/5/10/20 s 1/2/5/10 min							
	Calibration constant	0,00001999999							
	Preset	0999999							
	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, c	on contact						
		OFF LOCK HOLD TAR. x SUMA x							

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

#### 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. Type: digital, menu adjustable,

#### COMPARATOR

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/1A); 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)

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

Ranges: 0...2/5/10 V, ±10 V, 0...5 mA, 0/4...20 mA (comp. < 600  $\Omega$ /12 V or 1 000  $\Omega$ /24 V)

#### EXCITATION

Adjustable: 5...24 VDC/max. 1,2 W, separated

Range: 10...30 V AC/DC, ±10 %, PF≥ 0.4,  $I_{STP}$ < 40 A/1 ms, isolated 80...250 V AC/DC, ±10 %, PF≥ 0.4,  $I_{STP}$ < 40 A/1 ms, isolated Consumption: < 8,0 W/7,8 VA

ted 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°...85°C Protection: IP64 (front panel only)

El. safety: EN 61010-1, A2

electric 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 Onen collectors INPUT C INPUT B INPUT A INPUT A INPUT B INPUT C GND Excitation 0000000 8 9 10 11 12 13 INPUT A2 INPUT A1 Inp. 1 14 15 16 17 MMMK POWER 7

tare resetting - 1, 2, All, Actual data recording start (FAST/RTC) sequential or BCD channel switching

ORDER COL	DE											
OM 602UQC								1	1			-
Power supply	1030 V AC/DC 80250 V AC/DC		0									_
nput	2x standard (10 mV60 V)			A								
Comparators	none 1x relay (Form A) 2x relay (Form A)				0 1 2							
	3x relays (2x Form A + 1x Form C) 4x relays (2x Form A + 2x Form C) 2x open collector 4x open collector				3 4 5 6							
	2x open collector + 2x relays (Form C) 2x relays (Form C) 2x SSR				7 8 9							
	2x bistable relays 1x relay (Form C)				A B							
Data output	none RS 232 RS 485 MODBUS* PROFIBUS					0 1 2 3 4						
Analog output	yes (compensation < 600 Ω/12 V) yes (compensation < 1000 Ω/24 V)					7	0 1 2					
Time backup	Only for Measuring mode _Timer/clock* yes							1				
Excitation	yes								1			
Data record	no RTC									0		
Display color	red green										1 2	
Specification	customized version, do not fill in											

Basic configuration of the instrument is indicated in bold.

\* Unavailable in combination with RTC