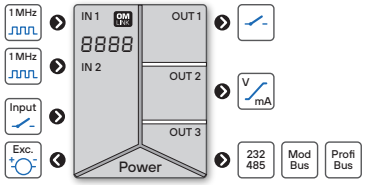
OM 602UQC

- 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

UNIVERSAL TWO-CHANNEL COUNTER



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.

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 signal is converted by a 50-point linear interpolation
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 Min/Max: resetting min./max. value, counter resetting
Start/Stop: timer/clock control

TECHNICAL DATA

INPUT

No. of inputs	2 The range is adjustable in the instrument menu	
UQC Input	on contact, TTL, NPN/PNP, Line 0...30 V, comparation levels are adjustable in the menu	
Input frequency	0.002 Hz...1 MHz 0.002 Hz...100 kHz DUTY 0.002 Hz...500 kHz QUADR., 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/frequenc 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	
Multiplication constant	0.00001...999999	
Dividing constant	0.00001...999999	
Preset	-99999...999999	
Input filter	off 1 / 10 / 100 / 250 / 500 / 1 000 kHz 1 / 10 / 45 / 55 / 65 / 100 Hz 2 / 5 / 10 s 1 / 10 min	
Functions	Offset Tare Preset Summation Min/Max value Peak value One time setting of the initial value Time backup (TIME / RTC) Mathematic functions between channels	

EXTERNAL INPUT

No. of inputs	3, on contact
Function	OFF no function assigned HOLD measurement paused LOCK control keys blocking TARE tare activation CLEAR display reseting CL. ST. resetting and preset of counter/clock 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 99.59.59 hours/minutes/seconds TIME 23.59.59 hours/minutes/seconds TIME 9999.59 hours/minutes TIME 9999.59 minuty/seconds TIME 59.59.99 minuty/seconds/hundredths TIME 99.59.99 minuty/seconds/hundredths TIME 9.59.59.9 hours/min./seconds/hundredths TIME 9.99.59.9 days/hours/minutes/seconds TIME 99.23.59 days/hours/minutes TIME	
Digit height	14 mm	
Display color	red or green	
Description	last two characters on the display may be used for description of measured quantities	
Decimal point	adjustable - in menu	
Brightness	adjustable - in menu	

INSTRUMENT SPECIFICATION

TC	50 ppm/ºC	
Accuracy	±0.05 % of value + 1 digit ±0.01 % of value ±2 ms TIME ±0.01 % of value ±130 ms RTC	
Overload	10x (t < 30 ms), 2x	
Digital filters	exponential / floating / arithmetic average, rouding	
Math functions	polynomial / inverse polynomial / logarithm / exponential / power / root	
Linearization	linear interpolation in 180 points *setup only via OM Link*	
Data record	RTC 15 ppm/ºC, time-date-display value < 266k data	
Time backup	Lithium cell CR 2032, 3V/220 mAh	
OM Link	company communication interface for operation, setting and update of instruments	
Watch-dog	reset after 500 ms	
Calibration	at 25ºC and 40 % r.h.	

RELAYS / OC OUTPUT

No. of outputs	up to 4
Type	digital, menu adjustable
Mode	HYSTER. active above set value WINDOW active in the set window / band BATCH active in set period C-PULS automatic counter resetting at the set value ON RUN output is active when the timer is running
Function Relays/OC	CLOSE is closed in active mode OPEN is open in active mode
Limits	-99999...999999
Hysteresis	0...999999
Delay	0...99.9 s
Outputs	1...2x relay with switch-on contact (Form A) (250 VAC/30 VDC, 3 A)* 1...2x relay with switching contact (Form C) (250 VAC/50 VDC, 3 A)* 2x bistable relays (250 VAC/250 VDC, 3 A/0,3 A) 2...4x open collector (30 VDC/100 mA)
Relays	1/8 HP 277 VAC, 1/10 HP 125 V, Pilot Duty D300

* values apply for resistance load

ANALOG OUTPUTS

No. of outputs	1
Type	isolated, adjustable with 16-bit DAC, output type and range is selectable
TC	15 ppm/ºC
Non-linearity	0.1 % from FS
Accuracy	±0.02 % of FS
Rate	response to change of value < 1 ms
Ranges	0...2 / 5 / 10 V, ±10 V, resistive load ≥ 1 kΩ 0...5 / 20 mA /4...20 mA, compensation < 600 Ω/12 V or 1000 Ω / 24 V Indication of error message (output < 3.2 mA)

DATA OUTPUTS

No. of outputs	1
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	300...230 400 Baud 9 600 Baud...12 Mbaud (PROFIBUS)
RS 232	isolated
RS 485	isolated, addressing (max. 31 instruments)

EXCITATION

Adjustable	5 / 12 /17 / 17 / 24 VDC, <2,5 W, isolated

POWER SUPPLY

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 *Protection by fuse inside the device.*
Consumption	< 8.0 W / 7.8 VA

MECHANIC PROPERTIES

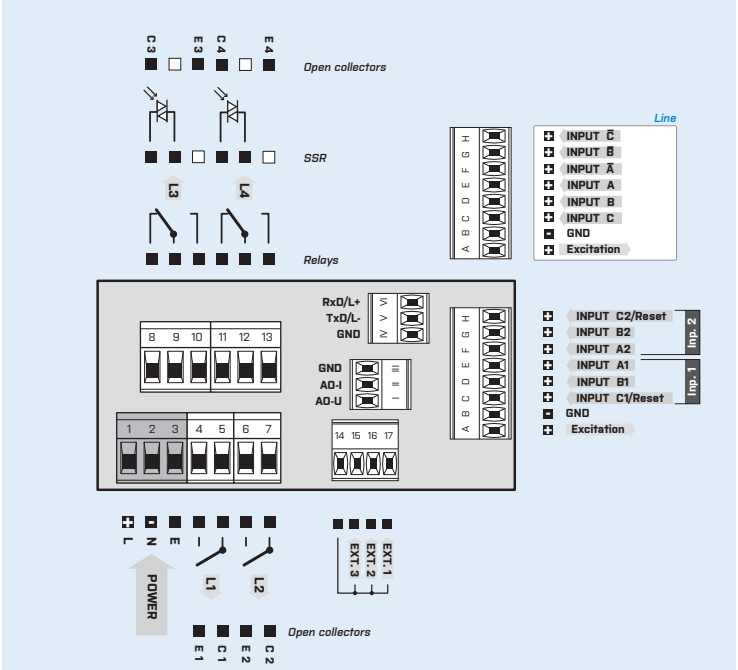
Material	Noryl GFN2 SE1, incombustible UL 94 V-I, black
Dimensions	96 x 48 x 120 mm (w x h x d)
Panel cutout	90.5 x 45 mm (w x h)

OPERATING CONDITIONS

Connection	connector terminal blocks, section < 1.5 / 2.5 mm²
Stabilization period	within 5 minutes after switch-on
Working temperat.	-20º...60ºC
Storage temperat.	-20º...85ºC
Working humidity	< 95 % r.v., non condensing
Protection	IP64, front panel only
Construction	safety class I
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 resist.*	for pollution degree II, measuring cat. III power supply, input > 670 V (PI), 300 (DI) input, output, excitation > 300 V (PI), 150 V (DI)
EMC	EN 61326-1, Industrial area
Seismic qualification	IEC/IEEE 60980-344 Edition 1.0, 2020, par. 6, 9
Mechanical resistance	EN 60068-2-6 ed. 2:2008

* PI - Primary insulation, DI - Double insulation

CONNECTION



ORDER CODE

OM 602UQC - _ _ _ _ _ 1 1 _ _ - _

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

Basic configuration of the instrument is indicated in bold.

* Unavailable in combination with RTC