

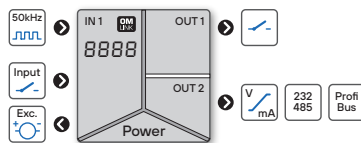


- 6-digit programmable projection
- Counter/Frequency/Clock/Timer
- 0.1 Hz...50 kHz; UP/DW counter, IRC
- Digital filters, Tare, Linearization, Sum
- Size of DIN 96 x 48 mm
- Power supply 10...30 V AC/DC; 80...250 V AC/DC

Option

Comparators ● Data output ● Analog output ● Three-color display (20 mm)

UNIVERSAL COUNTER



Type OM 653UQC is an inexpensive universal 6-digit panel counter/frequency meter/timer/clock designed for maximum efficiency and user comfort.

The instrument is based on a single-chip microcontroller, which secures good accuracy, stability and easy operation of the instrument.

OPERATION

The instrument is set and controlled by five buttons situated 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).

OPTION

COMPARATORS are assigned to monitor two limit values with relay output. 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.

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

Selection: measuring mode

Setting: Measuring mode counter/frequency/timer/clock with adjustable calibration coefficient, time base and projection

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

Measur. channels: A and B, two independent functions (number/frequency) can be evaluated from one measuring input)

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

EXCITATION

Range: 5/12/17/24 VDC/100 mA, for feeding sensors and transmitters

FUNCTIONS

Linearization: non-linear signal is converted by a 25-point linear interpolation

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

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

Exponential average: from 2...100 measurements

1/Fr.: filter to convert frequency to time

Rounding: setting the projection step for display

Input filter: passes the input signal up to 5...1 000 Hz

EXTERNAL CONTROL

Hold: display/instrument blocking

Lock: control keys blocking

Resetting: counter resetting

Start/Stop: timer/clock control

TECHNICAL DATA

INPUT

No. of inputs	1	
UQC Input	on contact, TTL, NPN/PNP 0...30/300 V, comparison levels are adjustable in the menu or automatic	
Input frequency	0.1 Hz...50 kHz 0.1 Hz...20 kHz 0.1 Hz...20 kHz 0.1 Hz...20 kHz 0.1 Hz...10 kHz	SINGLE UP/DW UP-DW QUADR., frequency QUADR., counter, duty cycle 50%
Measuring mode	SINGLE QUADR UP/DW UP-DW TIME RTC	counter/frequency counter/frequency for IRC sensors UP/DW counter/frequency - measures on inputs A, B (direction) and can display numbers/frequency UP - DW counter/frequency - measures on inputs A (UP), B (DW) and can display numbers/frequency Timer Clock
Time base	0.5/1/5/10 s	
Multiplication constant	0.00001...999999	
Dividing constant	0.00001...999999	
Preset	0...999999	
Input filter	0/5/40/100/1000 Hz	
Functions	Tare Preset Summation One time setting of the initial value Time backup (TIME/RTC)	

EXTERNAL INPUT

No. of inputs	1, on contact
Function	No function assigned Measurement paused Control keys blocking Menu access blocking Activation of Tare Reset of Tare Sum showing Counter/timer reset and preset Sum reset Switching counter/frequency display

PROJECTION

Display	-99999...999999, single color 7-segment LED -999...9999, 3-color 7-segment LED 99 59 59 hours/minutes/seconds 23 59 59 hours/minutes/seconds 99 59 hours/minutes 9999 59 hours/minute 9999 59 minute/seconds 59 59 99 minute/seconds/hundredths 99 59 99 minute/seconds/hundredths 9 59 59 9 hours/min/seconds/hundredths	TIME TIME TIME TIME TIME TIME TIME TIME
Digit height	14 mm 20 mm	
Display color	red or green red / green / orange	
Decimal point	adjustable - in menu	
Brightness	adjustable - in menu	

INSTRUMENT SPECIFICATION

TC	50 ppm/°C	
Accuracy	±0.05 % of value ±0.01 % of value ±2 ms ±0.01 % of value ±130 ms	TIME RTC
Overload	10x (t < 30 ms), 2x not valid for 300 V range	
Digital filters	exponential average, rounding	
Linearization	linear interpolation in 25 points setup only via OM Link	
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 25°C and 40 % rh.	

RELAYS / OC OUTPUT

No. of outputs	2
Type	digital, menu adjustable
Mode	HYSTER active above set value C-PULS automatic counter resetting at the set value (L1) ONCE only switching limit, which will switch off after the counter has been reset (L1) ON RUN output is active when the timer is running (L2)
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 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/°C	
Accuracy	±0.02 % of FS ±0.03 % of FS ±0.06 % of FS	0...5 V 0...2 V / 0...5 mA
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, comp. < 600 Ω/12 V Indication of error message (output < 3.2 mA)	

DATA OUTPUTS

No. of outputs	1
Protocol	ASCII, PROFIBUS DP
Data format	8 bit + no parity + 1 stop bit (ASCII)
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
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POWER SUPPLY

Range	10...30 V AC/DC, ±10 %, PF ≥ 0.4, I _{50%} < 40 A / 1 ms, isolated 80...250 V AC/DC, ±10 %, PF ≥ 0.4, I _{50%} < 40 A / 1 ms, isolated <i>Protection by fuse inside the device</i>
Consumption	< 6.9 W / 7.3 VA

MECHANIC PROPERTIES

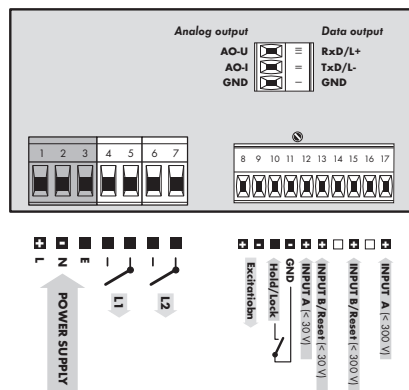
Material	Noryl GFN2 SE1, incombustible UL 94 V-1, black
Dimensions	96 x 48 x 120 mm (w x h x d)
Panel cutout	90.5 x 45 mm (w x h)

OPERATING CONDITIONS

Connection	connector terminal blocks, section < 15 / 2.5 mm ²
Stabilization period	within 5 minutes after switch-on
Working temperatur.	-20°...60°C
Storage temperatur.	-20°...85°C
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 61326-1:2021, Industrial area
RoHS	EN IEC 63000:2018
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 653UQC

Power supply	10...30 V AC/AC 80...250 V AC/DC	0 1							
Comparators	no 1x relay (Form A) 2x relay (Form A) 1x open collector 2x open collector	0 1 2 3 4							
Output	none Analog output RS 232 RS 485 PROFIBUS	0 2 3 4 6							
Excitation	yes				1				
Time backup	no Only for Measuring mode „Timer/clock“ yes				0 1				
Display color	red (14 mm) green (14 mm) red/green (20 mm)						1 2 3		
Specification	customized version, do not fill in								00

Basic configuration of the instrument is indicated in bold.