



Data Sheet
OM 653UQC

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www.bristolinstruments.com

Bristol Instruments
90 Canal Street, 4th Floor
Boston, MA 02114

Toll free
877-866-8500



OM 653UQC



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.

UNIVERSAL COUNTER

- 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

OM 653UQC
UNIVERSAL COUNTER

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 stabile 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 signals can be linearized by the means of a linearization table (up to 25 points)

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

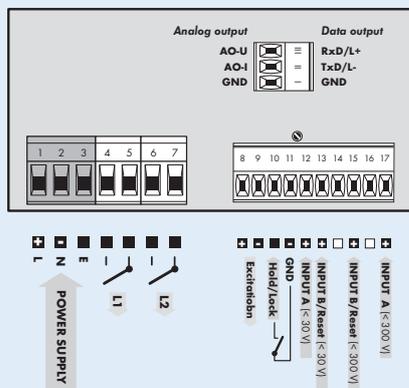
| INPUT | |
|----------------------|---|
| Number of inputs | 1 |
| UQC Input | optional in configuration menu on contact, TTL, NPN/PNP 0...30/300 V, comparison levels are adjustable in the menu or automatic |
| Input frequency | 0.1 Hz...50 kHz (Mode SINGLE) 0.1 Hz...20 kHz (Mode UP/DW) 0.1 Hz...20 kHz (Mode UP-DW) 0.1 Hz...20 kHz (Mode QUADR. - frequency) 0.1 Hz...10 kHz (Mode QUADR. - counter) (for duty cycle 50 %) |
| Measuring mode | SINGLE counter/frequency 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 | 0.5/1/5/10 s |
| Calibration constant | 0.00001...999999 |
| Preset | 0...999999 |
| Input filter | 0/5/40/100/1000 Hz |
| Functions | Preset Summation One time setting of the initial value Time backup (Timer/clock) |
| External input | 1 input, on contact The following functions can be assigned: OFF input off LOCK.K control keys blocking HOLD display stop TARE tare activation CLEAR display reset CLR.ST. counter/timer reset and preset SUM. sum showing CL.SUM. sum reset COUNT. switching counter/frequency display |

| PROJECTION | |
|---------------------|---|
| Display: | -99999...999999, single color 7-segment LED; -999...9999, 3-color 7-segment LED |
| Digit height: | 14 or 20 mm |
| Display color: | red or green (height 14 mm) red/green/orange (height 20 mm) |
| Decimal point: | adjustable - in menu |
| Brightness: | adjustable - in menu |
| INSTRUMENT ACCURACY | |
| TC: | 50 ppm/°C |
| Accuracy: | ±0.01% of range + 1 digit (frequency) ±0.02% of value ±2ms (timer) ±0.02% of value ±130ms (RTC) |
| Overload capacity: | 2x: 10x (t < 30 ms) - not for 300 V |
| Watch-dog: | reset after 500 ms |
| Digital filters: | exponential average, rounding, input filter, 1/Fr. |
| Functions: | data backup, Time backup, Preset, Sum, Tare |
| 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 < 50 ms |
| Hysteresis mode: | switching limit, hysteresis band (Lim and ±1/2 Hys.) and time (±99,9 s) determining the switching delay |
| Mode C-Puls (L1): | automatic counter resetting at the set value |
| Mode Once (L1): | switching limit, which will switch off only after the counter has been reset |
| Mode On Run (L2): | output is active when the timer is running |
| Output: | 1...2x Form A relays (250 VAC/30 VDC, 3 A); 1...2x open collector (30 VDC/100 mA) |
| DATA OUTPUTS | |
| 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) |
| 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) |

| EXCITATION | |
|---|---|
| Adjustable: | 5/12/17/24 VDC/max. 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 | |
| Consumption: | < 6.9 W/7.3 VA |
| Power supply is protected by a fuse inside the instrument. | |
| MECHANICAL PROPERTIES | |
| Material: | Noryl GF20 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 ² |
| 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 |
| 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 input, output, PN > 300 V (PI), 150 V (DI) |
| EMC: | EN 61326-1 |

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 | 1 | | |
| Excitation | yes | | | | |
| Time backup | no Only for Measuring mode „Timer/clock“ | | | 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.