Digital Counter with Bargraph
OC 7167

✓ Two Signal Channels for Frequency
  and for Analogue Signals
✓ Frequency Counter Function
✓ Analogue Signal Input
✓ 6 digit Display
✓ 30 LEDs Bargraph
✓ Free scalable
✓ Analogue Outputs 0/4-20mA, 0-10V
✓ RS 232, RS 422, RS 485
✓ BCD parallel
✓ Four Set Point Relay

Model OC7167 is a programmable counter with a digital display and a bargraph. The digital display has six digits. During the measurement, five digits are used with a maximum readout of 99999. All six digits are activated in programming mode.
The bargraph has 30 red LEDs.

OC7167 has two independent inputs A and B. The input A is for pulses, the input B is for analogue signals.
The pulses or the frequency is usually shown at the digital display, the analogue signal at the bargraph. With the keyboard the display and the bargraph can be assigned to any of the inputs. Following combinations are available:

☐ The display shows the frequency, the bargraph the analogue signal.
☐ The display and the bargraph show the frequency.
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The frequency input can be set for NPN, PNP or Namur sensors, resolver, Quadrature Encoder and many other signal sources. The analogue input accepts DC signals 0/4-20mA or 0-10V.

The counter can be programmed as frequency counter, up-down counter or incremental Quadrature Counter. As a frequency counter it measures in a range from 10Hz to 100 kHz. In other modes it measures from DC to 100 kHz.

The digital display can be scaled in process units such as RPM, litre/min, kg/sec, units etc. The display results are available for further usage at the serial data ports RS232 or RS485, BCD parallel port and two analogue outputs.

The analogue outputs 0-10V and 0/4-20mA can be assigned with the keyboard to any two display values.

The bargraph with 30 LEDs is isolated from the counter and designed for 0/4-20mA or 0-10V DC. Full scale and offset adjustment is provided.

Two excitations for supplying of external sensors are available, 5VDC/50mA and 5-24VDC/40mA adjustable.

Measuring rate can be set from 25ms to 3 sec. The analogue outputs and the data ports are refreshed with the same rate.

By using the floating point arithmetic, the processor positions automatically the decimal point as soon as the display arrives at over- or underrange.

The setting of parameters is by a service keyboard which is plugged into a socket inside the instrument. The menu contains following steps:

Password is required to enter the menu and to program the parameters.

Scale is a multiplicative 6 digit constant with decimal point and sign. It permits the measured input signal to be displayed in required process units such RPM, m/sec, litre/h etc.

Set is an additive 6 digit constant with decimal point and sign selectable from 0.00001 to ((9.99999. The display starts measurements at the Set value.

Two analogue outputs (Option) ±10V and 0/4-20mA are generated simultaneously. They can be assigned to any two display readings and can be programmed as direct proportional or inverted. The current output can be set for 0 or 4mA.

Serial Data Ports (Option) RS232 and RS485 have 8 bit, no Parity, 1 Start, 1 Stop, 1200 to 19200bd.
Up to 31 instruments can be addressed and operate at one RS485 data bus.
The outputs are optically isolated by 250V R.M.S. from the inputs and the power supply.

BCD parallel Data Port is available. The parallel port offers emitter follower or open collector power outputs with external voltage supply of 5- 40V.
Measuring speed can be set from 25 ms to 3.00 sec. The data and analogue outputs are generated with the same rate.

Reset determines the time after which the display turns to zero by absence of input pulses. It is programmable from 50ms to 6 sec.
Resolution of the display is programmable up to 4 decimal points. The autoranging moves the decimal point at over- and under-range.

SPECIFICATION

INPUTS
Pulses: NPN, PNP, Namur or sine wave resolver. The signal level is adjustable inside the instrument from 1V to 28V. The inputs are protected to 28V. The sensor type is selectable inside the instrument. The frequency range covers 10Hz-100 kHz.

Bargraph: 0 ... 10VDC or 0/4-20mA. Offset and Full Scale are calibrated with potentiometers inside the instrument.

DISPLAY
6 digit, 7 segments red, 10mm. Five digits are used during the measurement, 6 digit show the parameters during programming. The capacity is (99999(9).

SET POINTS
NPN open collector 60V/100mA.
Option: 4 Relay 5A-230VAC.

ACCURACY
The production calibration accuracy is 2 ppm. A software calibration with the keyboard is available.
Temco: 50ppm/K.

ARITHMETICS
4 byte floating point with autoranging facilities.

SAMPLING TIME
Programmable from 25ms to 3 sec.

RESET TIME
Programmable from 50ms to 6 sec.

SCALE
Multiplicative constant programmable from ± 0.00001 to ± 9.99999.

ANALOG OUTPUT
Voltage: -10V...+10V, max.10kΩ.
Current: 0/4-20mA, 0-400 Ω.
The analogue outputs can be programmed as direct acting or inverted. They are isolated by 250V.

DATA PORTS
BCD parallel: 1-2-4-8, with decimal point and Data Ready TTL 20ms.
Output type: Emitter follower with external supply 5-40VDC. The logic level follows the applied voltage. The data can be set for true or inverted. The outputs are isolated by 250V.

RS232 and RS485: 8 bit, 1 start, 1 stop, none parity, 1200 to 19200bd, with address selectable from 0 to 31. The address 0 activates RS232.
One of addresses 01 to 31 activates RS485.
The data outputs are isolated by 250V r.m.s.

KEYBOARD
Service keyboard with 5 keys UP, DOWN, ACK, MENU and SET can be inserted into a socket inside the instrument and used for parameter settings.
The programmed parameters are stored in a non-volatile memory also when the instrument is switched-off from the power.

SUPPLY
115V/230V $\pm$10%, 50-60Hz, 8VA.
Fused by: 80mA-T/230V,
160mA-T/115V.

Option: DC supply 9-36V DC, 4W.

EXCITATION
5V/50mA
5-24V/40mA adjustable inside the instrument.

CABINET
DIN 48 x 96 mm. Depth behind the panel 150mm.
Panel cut-out 45 x 93 mm.

IP65 FRONT COVER
Optionally available.

TERMINALS
Pluggable screw terminals.