

Turbidity and Suspended solids

Applications

- Potabilization and filtration plants
- Controlling and monitoring activated sludge plants
- Spring and mineral waters
- Ultrafiltration and disinfection
- Sedimentation and clariflocculator
- Swimming pools and water parks

Input from preamplified sensor

Manual, automatic operation

Selectable scales with autorange

Dual filter software

0/20 or 4/20 mA selectable output, programmable on the input scale

2 Set point with min/max function, hysteresis and adjustable delay

Signal for empty cell, or dirty cell

Alarm: min/max turbidity, set point timing, dirty lens, empty cell, external light too high Check signal of dirty lens

Autoclean relay with programmable cycle repetition, cleaning and holding time

Easy to use software with 3 access levels: display, calibration and configuration of process parameters

Additional features of TU 7685.010

- Manual, automatic, or simulated operating mode
- Selection of the probe TU820 (USEPA 180.1)
- Adjustable coefficient for mg/l/NTU both PSL and SiO₂
- Manual or automatic zero calibration
- Fine adjustment of the analog output
- On/Off of the hold of the analog output during the calibration
- Burned lamp alarm
- Continuous or flashing alarm



Technical Specifications

in addition to those common in the series 7685

Range TU 7685:	4.000/400.0 NTU - 40.00/4000 NTU 9.999/999.9 mg/l - 99.99/9999 mg/l of SiO ₂ 9.999/999.9 ppm - 99.99/9999 ppm of SiO ₂
Range TU 7685.010:	4.000/400.0 NTU - 40.00/4000 NTU 4.000/400.0 mg/l - 40.00/4000 mg/l of SiO ₂ 9.999/999.9 ppm - 99.99/9999 ppm of SiO ₂

Resolution: 0.05% of scale

Zero of the probe: 0.0/10.0 % f.s.

Sensitivity: 80.0/120.0 %

Filter software 90%RT: 5/220 s for small/large variations

Set point A/B: ON-OFF

Hysteresis: 0/10 % of the scale

Relay delay: 0.0/99.9 s

Relay contacts: 5 A 220V

Low/high alarm: 0 to full scale

Autoclean: Manual/Auto+Manual

Analog output: 0-20/4-20 mA isolated

Response time: 10 s for 98% of input

R max: 600 ohm

Humidity: 95% without condensate

Power: 110/220Vac +/-10% 50/60 Hz 5VA max

Isolation: 4000V (IEC 348)

Dimensions: 96x96x155 mm (1/4 DIN)

Options

091.3713: Dual analog output

091.4141: 9/36VDC power supply

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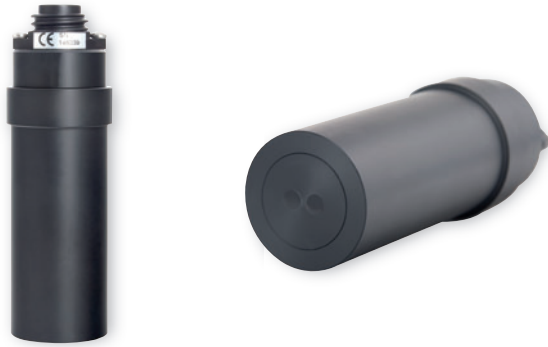
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Measuring probes in flow / overflow

In line sensors are available in various solution, so to satisfy all applications.



Technical Specifications (common to all probes)

Measuring method: Nephelometric

Response time: 10 s

Internal sensor: for empty cell and dirty lens checking

Preamplifier: built-in

Power: ± 12Vdc from TU 7685

Ambient Temperature: 0/50 °C

Sample Temperature: 0/50 °C

Sample Pressure: 6 bar max. a 20 °C

Connector: IP 67

Optical window material: Acrylic

Pipe Tee for direct inline mounting: 2" (DN 50)

Diameter: 40 mm

Cable length: 150 m max.

For very precise measures and low Turbidity values, as required by most drinking water application, we suggest to install the probe in the overflow cell **TU 910**.

The cell is equipped with a flow regulator to avoid air bubbles, which can come from grab samples under pressure. Cleaning the cell is extremely simple, and it can also be used for calibrations with Formazine.

Sensors can also be installed in pipes, and B&C provides special adapters and Tee assembly. Please contact our Sales Department for more details.

TU 810 - TU 8105

Technical Specifications

Measuring method: Nephelometric (ISO 7027 - EN 27027)

Range: 0/4000 NTU

Resolution: 0.001 on scale 0/4.000 NTU

0.01 on scale 0/40.00 NTU

0.1 on scale 0/400.0 NTU

1 on scale 0/4,000 NTU

Accuracy: ± 5% of reading on 0/400 NTU

± 10% of reading on 400/4,000 NTU

Light source: LED I.R. 890 nm

TU 810 material: Body in PVC - O Ring: NBR (Acrylat Nitrile)

TU 8105 material: Body in PVDF - O Ring: NBR (Acrylat Nitrile)

Cables

SZ 9481 Cable 10 m + connector

SZ 9483 Cable 30 m + connector

TU 820

Technical Specifications

Measuring method: Nephelometric (USEPA 180.1)

Range: 0/400 NTU

Resolution: 0.001 on scale 0/4.000 NTU

0.01 on scale 0/40.00 NTU

0.1 on scale 0/400.0 NTU

Accuracy: ± 5% of reading on 0/400 NTU

Light source: Tungsten lamp 2200 °K

Average life of the lamp: 100,000 hours

Sensor sensitivity: 600 nm

Material: Body in PVC - O Ring: NBR (Acrylat Nitrile)

Technical Specifications

Applications: in flow measurement

Flow of sample: 0.2/25 l/min.

Temperature: 0/50 °C

Temperature of sample: 0/50 °C

Pressure of sample: 6 bar max. a 20 °C

Material: PVC

Collar nut thread diameter: 2 1/2"

Fittings: 1/4"

Tubing: PVC 4x6 mm l=5m

Submersible probes with autoclean



Turbidity probes TU 8182 has been designed for submersible measures, and it is equipped with a built-in nozzle for autocleaning by means of pressured air blasts.

The high sensitivity of this probe and the meter allow for very low readings in the scale 4.000 NTU.

By selecting the proper scale of the controller, the system can be used for measuring suspended solids up to 9,999 mg/l

Accessories

0012.450043 Extension pipe adapter

0012.000624 Swivel mounting + 0012.450043

0012.440040 33 m PVC tubing for pressured air.



The controller can be installed in the autoclean module

0012.001246, which provides the required pressured air in those applications where is needed.

The module is made of the following parts:

- an IP65 enclosure, with a front panel location for installing the 7685 controller,
- a printed circuit for controlling the air compressor, the solenoid valve and an alarm relay for the compressor malfunctioning,
- an air compressor that generates air up to 3 Bar,
- a safety valve to avoid over pressure,
- a S.Steel reservoir, of approx. 9 cm in diameter, where the air is accumulated.

The cleaning is completely automatic, and the user can program the frequency through the controller software and dedicated menu.

Technical Specifications

Measuring method: Nephelometric (ISO 7027 - EN 27027)

Range: 0/4,000 NTU - 0/9,999 mg/l

Resolution: 0.001 on scale 0/4.000 NTU

0.01 on scale 0/40.00 NTU

0.1 on scale 0/400.0 NTU

1 on scale 0/4,000 NTU

Response time: 10 seconds

Light: LED IR 890 nm

Internal sensor: for dry cell and dirty lens checking

Preamplifier: built-in

Power: ± 12 Vdc

Operating Temperature: 0/50 °C

Temperature of the sample: 0/50 °C

Pressure of the sample: 6 Bar max. at 20 °C

Body: PVC

Optical lens: Acrylic

Cable length: 10 m

Protection: IP68

Auto clean: Built-in device

Air line connector: 1/4" I/E 3/8"

Air Pressure: 3 bar

Technical Specifications

Power supply: 110/220 Vac $\pm 10\%$, 50/60 Hz.

Operating temperature: -5/+50 °C, 0-95% humidity

Enclosure: plastic

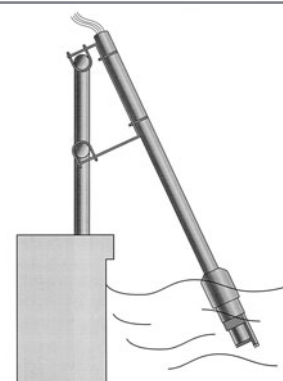
Mounting: wall

Cleaning system: pressured air at 3 Bar

Air output: PVC tubing, length 15 m

Power: 300 VA max.

Protection: IP65



Typical installation of the submersible sensor.

7685 Series microprocessor-based

General information

The **7685 Series** includes all of the most complete and most performing analyzers of B&C Electronics.

They include all of the following measures:

- **pH - ORP**
- **Conductivity - Resistivity**
- **Free residual chlorine, combined and total**
- **Residual chlorine dioxide**
- **Residual dissolved ozone**
- **Dissolved oxygen**
- **Turbidity and Suspended Solids**
- **Residual dissolved Sulfide/Sulfite**
- **ISE**

All controllers are manufactured in robust aluminum enclosures DIN 43700, with front panels in polycarbonate. Their reliability and precision, along with their functionality, make them easy to use in all applications. Finally, 7685 Series guarantees one of the best performance-price ratio in the marketplace.

Common features

Selectable input
Input from RTD Pt100 3 wires
Temperature readout
Dual filter software
Operating mode: automatic and manual
Calibration parameters display
Set-point and alarm conditions display
Automatic or manual temperature compensation
0/20 mA or 4/20 mA programmable isolated output
Dual set-point with hysteresis, delay and min/max programmable functions
Min/max and set-points timing alarm relay
Software: 3 access levels, user friendly, keyboard lock, watch-dog
EEPROM parameters storage
Automatic overload protection and reset
Extractable terminal blocks
96X96 (1/4" DIN) housing

Fieldbus Communication

The system is based on a digital communication through an open Modbus protocol, which interacts with the following Fieldbus: Profibus DP, Profinet, Modbus-TCP, DeviceNet, CANopen, EtherNet /IP/Modbus-TCP

Customers can view the main data and functions, such us:

- Primary and secondary measuring values
- Error messages
- Set-points relay, alarm relay and autoclean relay status

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Technical Specifications

common to all instruments of the 7685 Series

Temperature

Input: RTD Pt100 2/3 wires

Set point A and B:

Operation: ON/OFF

Hysteresis: adjustable

Delay: 0.0/99.9 s

* Function: Max/Min

Relay contacts: SPDT 220V 5 A (resistive load)

Alarm:

Low/High: adjustable

Delay: 0.0/99.9 s

* Relay status: activated/deactivated

* Alarm on max. operating time of set-point A/B: ON/OFF

* Max operating time of set-point A/B: 0/60 minutes

* Relay contacts: SPDT 220V 5 A (resistive load)

Analog output N° 1

* Input corresponding to the analog output (option 091.371x): selectable

* Output range: 0-20/4-20 mA (it can be made to represent any segment of the measuring scale)

Response time: 2.5 s for 98%

Isolation: 250 Vac

Load: 600 ohm max

Analog output N° 2 (option 091.371x)

* Input corresponding to the analog output: selectable

* Output range: 0-20/4-20 mA (it can be made to represent any segment of the measuring scale)

Response time: 2.5 s for 98%

Isolation: 250 Vac

Load: 600 ohm max

Configuration (*)

The above parameters indicated by asterisks "*", may be selected in the Configuration menu

General Specification

Alphanumeric display: 1 line x 16 characters

Operating temperature: 0/50 °C

Humidity: 95% without condensation

Power supply: 110/220Vac ± 10% 50/60 Hz

Isolation: 4 kV between primary and secondary (IEC 348)

Power: 5VA max.

Terminal block: extractable

Weight: 850 g

Dimensions: 96 x 96 x 155 mm

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