



**NIEUWKOOP**

# LEAFLET



## TU3020

TURBIDITY CONTROLLER



TO MEASURE  TO KNOW



**TU7685 – TU7685.010**

**Main features**

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

**In-line measuring probes**

**TU 810** Body in PVC. Method EN 27027 ISO 7027

**TU 820** Body in PVC. Method USEPA 180.1

**TU 8105** Body in PVDF. Method EN 27027 ISO 7027

**Submersible measuring probe**

**TU 8182** Body in PVC. Method EN 27027 ISO 7027

**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



<b>Technical Specifications</b>	
in addition to those common in the series 7685	
<b>Range TU 7685:</b>	4.000/400.0 NTU – 40.00/4000 NTU 9.999/999.9 mg/l – 99.99/9999 mg/l of SiO2 9.999/999.9 ppm – 99.99/9999 ppm of SiO2
<b>Range TU 7685.010:</b>	4.000/400.0 NTU – 40.00/4000 NTU 4.000/400.0 mg/l – 40.00/4000 mg/l of SiO2 9.999/999.9 ppm – 99.99/9999 ppm of SiO2
<b>Resolution:</b>	0.05% of scale
<b>Zero of the probe:</b>	0.0/10.0 % f.s.
<b>Sensitivity:</b>	80.0/120.0 %
<b>Filter software 90%RT:</b>	5/220 s for small/large variations
<b>Set point A/B:</b>	ON-OFF
<b>Hysteresis:</b>	0/10 % of the scale
<b>Relay delay:</b>	0.0/99.9 s
<b>Relay contacts:</b>	5 A 220V
<b>Low/high alarm:</b>	0 to full scale
<b>Autoclean:</b>	Manual/Auto+Manual
<b>Analog output:</b>	0–20/4–20 mA isolated
<b>Response time:</b>	10 s for 98% of input
<b>R max:</b>	600 ohm
<b>Humidity:</b>	95% without condensate
<b>Power:</b>	110/220Vac +/-10% 50/60 Hz 5VA max
<b>Isolation:</b>	4000V (IEC 348)
<b>Dimensions:</b>	96x96x155 mm (1/4 DIN)



**MEASURING PROBES IN FLOW / OVERFLOW**

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



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 Nieuwkoop provides special adapters and Tee assembly.

Please contact our Sales Department for more details.

**Cables**

**SZ9481** Cable 10 m + connector

**SZ9483** Cable 30 m + connector

<b>Technical Specifications</b> (common to all probes)
<b>Measuring method:</b> Nephelometric
<b>Response time:</b> 10 s
<b>Internal sensor:</b> for empty cell and dirty lens checking
<b>Preamplifier:</b> built-in
<b>Power:</b> ± 12Vdc from TU 7685
<b>Ambient Temperature:</b> 0/50 °C
<b>Sample Temperature:</b> 0/50 °C
<b>Sample Pressure:</b> 6 bar max. a 20 °C
<b>Connector:</b> IP 67
<b>Optical window material:</b> Acrylic
<b>Pipe Tee for direct inline mounting:</b> 2" (DN 50)
<b>Diameter:</b> 40 mm
<b>Cable length:</b> 150 m max.

<b>TU810 – TU8105</b>
<b>Technical Specifications</b>
<b>Measuring method:</b> Nephelometric (ISO 7027 - EN 27027)
<b>Range:</b> 0/4000 NTU
<b>Resolution:</b> 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
<b>Accuracy:</b> ± 5% of reading on 0/400 NTU ± 10% of reading on 400/4,000 NTU
<b>Light source:</b> LED I.R. 890 nm
<b>TU 810 material:</b> Body in PVC - O Ring: NBR (Acrylat Nitrile)
<b>TU 8105 material:</b> Body in PVDF - O Ring: NBR (Acrylat Nitrile)

<b>TU820</b>
<b>Technical Specifications</b>
<b>Measuring method:</b> Nephelometric (USEPA 180.1)
<b>Range:</b> 0/400 NTU
<b>Resolution:</b> 0.001 on scale 0/4.000 NTU 0.01 on scale 0/40.00 NTU 0.1 on scale 0/400.0 NTU
<b>Accuracy:</b> ± 5% of reading on 0/400 NTU
<b>Light source:</b> Tungsten Iap 2200 °K
<b>Average life of the lamp:</b> 100,000 hours
<b>Sensor sensitivity:</b> 600 nm
<b>Material:</b> Body in PVC - O ring: NBR (Acrylat Nitrile)

<b>Technical Specifications</b>
<b>Applications:</b> in flow measurement
<b>Flow of sample:</b> 0.2/25 l/min.
<b>Temperature:</b> 0/50 °C
<b>Temperature of sample:</b> 0/50 °C
<b>Pressure of sample:</b> 6 bar max. a 20 °C
<b>Material:</b> PVC
<b>Collar nut thread diameter:</b> 2 1/2"
<b>Fittings:</b> 1/4"
<b>Tubing:</b> 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

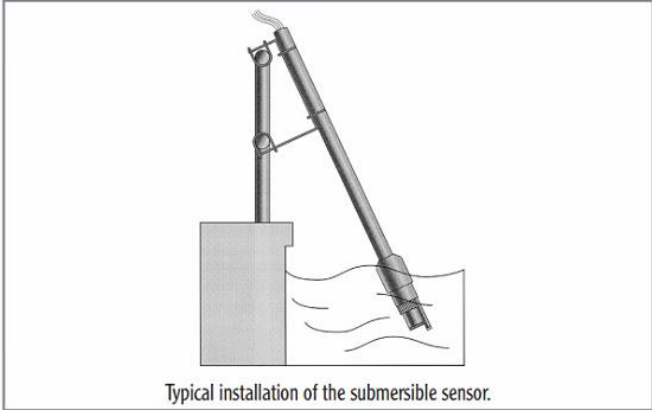
The controller can be installed in the autoclean module **0012.001246**, which provides the required pressured air in those applications where is needed.

- 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 aircompressor,
  - 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.

<b>TU810 – TU8105</b>	
<b>Technical Specifications</b>	
<b>Measuring method:</b> Nephelometric (ISO 7027 - EN 27027)	
<b>Range:</b> 0/4000 NTU – 0/9,999 mg/l	
<b>Resolution:</b> 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
<b>Response time:</b> 10 seconds	
<b>Light:</b> LED I.R. 890 nm	
<b>Internal sensor:</b> for dry cell and dirty lens checking	
<b>Preamplifier:</b> built-in	
<b>Power:</b> ±12Vdc	
<b>Operating Temperature:</b> 0/50 °C	
<b>Temperature of the sample:</b> 0/50 °C	
<b>Pressure of the sample:</b> 6 Bar max. at 20 °C	
<b>Body:</b> PVC	
<b>Optical lens:</b> Acrylic	
<b>Cable length:</b> 10 m	
<b>Protection:</b> IP68	
<b>Auto clean:</b> Built-in device	
<b>Air line connector:</b> 1/4" I/E 3/8"	

<b>Technical Specifications</b>
<b>Power supply:</b> 110/220Vac ±10%, 50/60 Hz.
<b>Operating temperature:</b> -5/+50 °C, 0-95% humidity
<b>Enclosure:</b> plastic
<b>Mounting:</b> wall
<b>Cleaning system:</b> pressured air at 3 Bar
<b>Air output:</b> PVC tubing, length 15 m
<b>Power:</b> 300VA max.
<b>Protection:</b> IP65





### General information

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

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.

### 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: 250Vac

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: 250Vac

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

#### Options

**091.701** RS 232 isolated output

The output sends the data to the serial port of the computer.

**091.404** 24Vac power supply

The technical specifications could be changed without notice.





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