IC 7685.010

Ion concentration controller with auto calibration and auto cleaning functions.

- **Applications:**
  - with ISE electrodes
  - water softeners
  - drinking water
  - electroplating industry
  - Aluminum surface coating
  - CO_2 in biotechnology

- **Input from any ISE and CO_2 electrodes**
- **Input form Pt100 3 wires**

- **Measuring unit: PPM - mg/l - gr/l - mbar - mmHg**
- **Measuring range from 0.01 to 1000**
- **Autoranging**
- **Up to 5 points calibration**

- **Temperature readout**
- **Calibration parameters display**
- **Dual set-point and alarm conditions display**
- **Automatic or manual temperature compensation**
- **Dual filter software**

- **Isolated output:**
  - 0/20 mA or 4/20 mA selectable
  - programmable input on the span
  - dual output as option

- **Automatic or manual operation**
- **Dual set-point with hysteresis, delay, and min/max programmable functions**

- **Alarm:**
  - continuous/flashing
  - min/max and delay programmable
  - on set-points timing

- **Auto calibration function**
- **Auto clean function**

Technical specifications
in addition to those common in the series 7685

Operating mode
Automatic/ manual

ISE electrodes input
* Type of Ion: X^{--}, X^-, X^+, X^{++}
   Measuring field: 5 decades from 0.01 to 1000

* Scale
10.00 – 1000 with auto ranging
Software filter 90%RT: 0.4/20.0 s for small/large variations

Calibration
Up to 5 points on the entire scale
Zero adjustment: ±100.0 mV
Range mV: ±1100.0 mV

Temperature
Input: RTD Pt100 3 wires
Measuring field: -10/100°C
Resolution: ±0.1°C
Zero correction: ±2°C
Manual temperature: -10/100°C

Thermo compensation
Compensation field: -10/110°C
Ref. temperature: 20°C

* Auto calibration function
Disabled – Manual – Automatic + manual
* Repetition time: 1/999 hours
* Calibration time: 0.1/19.0 minutes
* Restoring time: 0.1/19.0 minutes
* Standard solutions: 0.01/1000 PPM

* Auto cleaning function
Disabled – Manual – Automatic + manual
* Repetition time: 1/999 hours
* Cleaning time: 0.5/60.0 seconds
* Restoring time: 0.1/19.0 minutes

Option
091.4143   9/36 Vdc power supply

- **EEPROM parameters storage**
- **Automatic overload protection and reset**
- **Extractable terminal blocks**
- **96X96 (1/4" DIN) housing**

This model includes the auto calibration and auto cleaning functions of the sensor, done by external devices activated by the instruments.
For this, customers can make reliable and affordable ISE analyzers, through the use of ISE electrodes, which in continues applications, require frequent calibration and cleaning operations.

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

The "Virtual Instrument" is an innovative solution through which Customers can perform, from a remote station, all specific operations.
Custom versions with bidirectional communication of data are available for O.E.M. and system integrators.

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	
091.414X	9/36 VDC power supply	

The technical specifications could be changed without notice