

SENSORES DE ION SELECTIVO

Epoxy y cristal

DPF
sensors

Ion Selective Electrodes

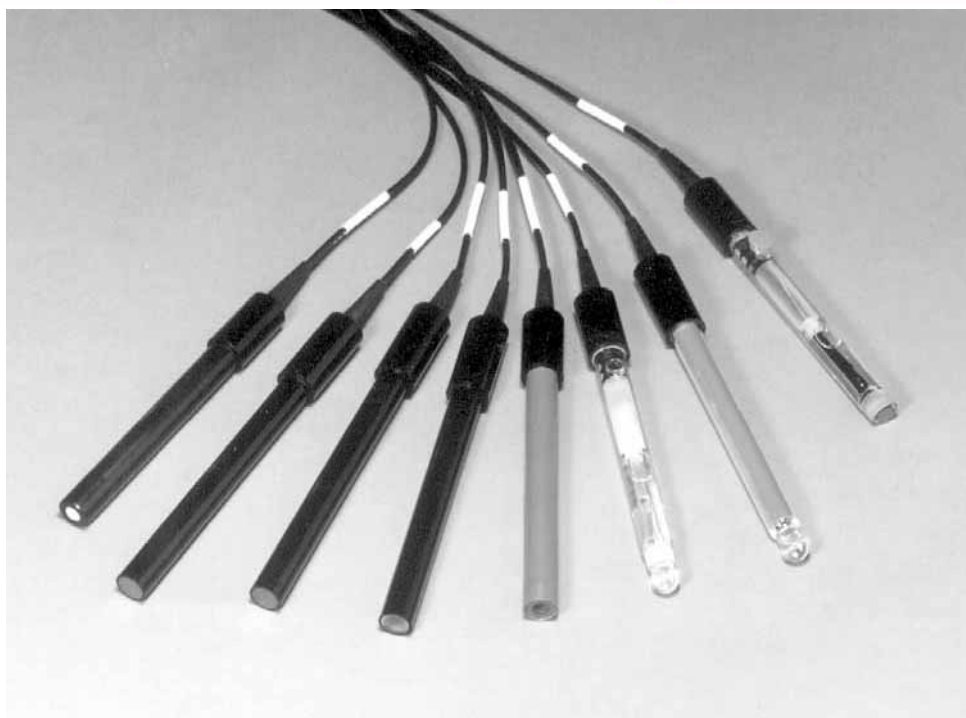
B&C Electronics offers a wide range of Ion Selective Electrodes including:

1. Polymer Membrane Electrodes
2. Solid State Electrodes
3. Gas Sensing Electrodes
4. Glass Membrane Electrodes

Ion Selective Electrodes are available as half-cells (mono) or as glass or epoxy combination electrodes.

Measurements with half-cell electrodes require the use of an additional reference electrode.

Ask our sales department in order to select the suitable ISE for continuous operation with our IC 7685 - IC 7685.010 Ion Concentration Controllers.



Electrode	P/N	Director Measurement Range		Slope mV/decade at 25°C	pH range	Temperature range °C		Response time sec. (95%, in 1x10M)	Interferences
		Molar	PPM			continuous	not continuous		
Ammonia (NH ₃)	NH31501	1.0 - 5x10 ⁻⁷	17,000-0.01	56±3	> 11	0-50	-	30	Volatile amines
Ammonium (NH ₄ ⁺)	NH41501/NH41502	1.0 - 5x10 ⁻⁶	18,000-0.1	56±2	4-10	0-50	-	30	K ⁺
Bromide (Br ⁻)	BRO1501/BRO1502	1.0 - 5x10 ⁻⁶	79,900-0.40	57±2	2-14	0-80	0-100	20	Cl ⁻ , CN ⁻ , S ²⁻ ; elevate conc. di Cl/NH ₃
Cadmium (Cd ²⁺)	CD21501/CD21502	1x10 ⁻⁶ - 1x10 ⁻⁷	11,200-0.01	27±2	2-12	0-80	0-100	20	Hg ²⁺ , Cu ²⁺ ; elevate conc. di Pb ²⁺ , Fe ²⁺
Calcium (Ca ²⁺)	CAL1501/CAL1502	1.0 - 5x10 ⁻⁶	40,000-0.2	27±2	3-10	0-50	-	30	Pb ²⁺ , Hg ²⁺ , Cu ²⁺ , Ni ²⁺
Carbon dioxide (CO ₂) (Carbonate CO ₃ ²⁻)	CO21501	1x10 ⁻⁶ - 1x10 ⁻⁴	440-4.4	56±3	4.8-5.2	0-50	-	30	Volatile weak acids
Chloride (Cl ⁻)	CLO1501/CLO1502	1.0 - 5x10 ⁻⁶	35,500-1.8	56±2	2-12	0-80	-	20	2Si ⁺ , CN ⁻ , Br ⁻
Copper (Cu ²⁺)	CU01501/CU01502	1x10 ⁻⁶ - 1x10 ⁻⁸	6,350-6.4x10 ⁶	27±2	0-12	0-80	0-100	20	Hg ²⁺ ; elevate conc. di Cl ⁻ , Br ⁻ , Fe ²⁺
Cyanide (CN ⁻)	CNO1501/CNO1502	1x10 ⁻⁶ - 5x10 ⁻⁶	260-0.13	57±2	11-13	0-80	0-100	20	2Si ⁺ , Br ⁻ , Cl ⁻
Fluoride (F ⁻)	FOO1501/FOO1502	Saturated - 1x10 ⁻¹⁰	Saturated -0.02	57±2	5-8	0-80	0-100	20	OH ⁻
Fluoroborate (BF ₄ ⁻)	BF45101 BF41502	1.0 - 7x10 ⁻⁶	10,800-0.1 (as B)	57±2 56±2	2.5-11	0-50	-	30	Cl ₂ O, CN ⁻
Iodide (I ⁻)	IOO1501/IOO1502	1.0 - 5x10 ⁻⁶	127,000-6x10 ⁶	57±2	0-14	0-80	0-100	20	3Si ⁺ , CN ⁻ , NH ₃ , S ₂ O ₃ ²⁻ , Cl ⁻ , Br ⁻
Lead (Pb ²⁺)	PB21501/PB21502	1x10 ⁻⁶ - 1x10 ⁻⁸	20,700-0.2	25±2	3-8	0-80	0-100	20	Hg ²⁺ ; elevate conc. di Cd ²⁺ e di Fe ²⁺
Lithium (Li ⁺)	LIT1501/LIT1502	1.0 - 1x10 ⁻⁶	6,900-0.7	56±2	5-10	0-50	-	30	Na ⁺ , K ⁺ , Ca ²⁺
Nitrate (NO ₃ ⁻)	NO31501/NO31502	1.0 - 7x10 ⁻⁶	62,000-0.5	57±2	2.5-11	0-50	-	30	Cl ₂ O, CN ⁻ , BF ₄ ⁻
Nitrogen Oxide (NO _x)	NOX1501	5x10 ⁻⁶ - 5x10 ⁻⁹	220-0.2	56±3	1.1-1.7	0-50	-	30	S ₂ O ₃ ²⁻ , HF, CH ₃ COOH
Perchlorate (ClO ₄ ⁻)	PER1501/PER1502	1.0 - 7x10 ⁻⁶	98,000-0.7	56±2	2.5-11	0-50	-	30	No significant interference
Potassium (K ⁺)	KOO1501/KOO1502	1.0 - 1x10 ⁻⁶	39,000-0.04	56±2	2-12	0-40	0-50	30	CSNH ₄ ⁺
Silver/Sulfide (Ag ⁺ /S ²⁻)	AGS1501 AGS1502	At=1.0 - 1x10 ⁻⁷ S=1.0 - 1x10 ⁻⁷	107,900-0.01 32,100-0.003	57±2 27	2-12	0-80	0-100	20	Hg ²⁺
Sodium (Na ⁺)	NA71501/NA71502	1.0 - 1x10 ⁻⁶	23,000-0.2	56±2	5-12	0-80	-	20	K ⁺ , Li ⁺ , H ⁺ , Ag ⁺ , Cs ⁺
Surfactant (X ⁻ , X ⁺)	SUR1501/SUR1502	5x10 ⁻¹¹ - 1x10 ⁻⁵	12,000-1.0	for titration	2-12	0-50	-	30	Similar types of Surfactants
Water Hardness (Ca ²⁺ /Mg ²⁺)	WHA1501/WHA1502	1.0 - 1x10 ⁻¹⁰	40,000-0.4 (as Ca)	26±3	5-10	0-50	-	20	Cd ²⁺ , Zr ²⁺ , Ni ²⁺ , Fe ²⁺

Models 1501 are mono, 1502 are combined glass body, 1503 are combined epoxy body

IC 7685

Ion Concentration controller



Example of applications

Add the following to the common Features/Specifications of the 7685 Series shown overleaf

- Applications:
 - with ISE electrodes
 - water softeners
 - drinking water
 - electroplating industry
 - Aluminum surface coating
 - CO₂ in biotechnology
- Input from any ISE and CO₂ electrodes
- Input from 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
- Filter software (2 levels)
- 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:
 - min/max and delay programmable
 - on set-points timing

Specifications

Operating mode
Automatic/manual

ISE input
* Ion type X⁻, X, X⁺, X⁺⁺
Measuring scales: 5 decades from 0.01 to 1000

* Scales
10.00 - 100.0 - 1000 autoranging
2 level of software filter for small/large variations

Calibration
Up to 5 points over all the measuring range
Zero adjustment: ± 100.0 mV
Range: ± 1100 mV

Temperature
Input: RTD Pt1000 3 wires
Measuring range: -10.0/110.0 °C
Resolution: ± 0.1 °C
Zero: ± 2 °C
Manual Temperature: -10/110 °C

Temperature compensation
Selectable: able/disable
Compensation range: -10/110 °C
Reference Temperature: 20 °C

The technical specifications may be changed without notice

Accessories

This instrument may use all the ISE sensors for continuous operation

SENSORES DE ION SELECTIVO

Controladores

DPF
sensors

IC 7685.010

Ion concentration controller with auto calibration and auto cleaning functions.



- Applications:
 - combined with ISE electrodes
 - softener
 - galvanic industry
- Input for all ISE electrodes
- Readout: PPM – mg/l – g/l – mbar – mmHg
- Measuring range: from 0.01 to 1000
- Selectable scale: 10.00 - 100.0 - 1000
- Auto ranging
- 5 calibration points
- Temperature input with Pt100 3 wires
- Temperature readout
- Manual and automatic temperature compensation
- Set-point and alarm conditions display
- Alphanumeric back-lighted LCD
- Dual software filter
- Analog output: 0/20 - 4/20 mA isolated
- Input field configurable in output range
- Automatic and manual operations
- 1 or 2 set point with programmable hysteresis, delay, min/max
- Alarm relay
- Auto calibration function
- Auto clean function
- Terminal blocks extractable
- Dimensions 96x96 DIN 43700
- Software:
 - easy to use
 - 3 access levels
 - keyboard lock
 - access code numbers
 - watch dog control system

Specifications

(add common to the 7685 specifications)

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: two levels from 0.4/20.0

seconds for large/small 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: $-10/100^{\circ}\text{C}$

Resolution: $\pm 0.1^{\circ}\text{C}$

Zero correction: $\pm 2^{\circ}\text{C}$

Manual temperature: $-10/100^{\circ}\text{C}$

Thermo compensation

Compensation field: $-10/110^{\circ}\text{C}$

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

Technical specifications could be changed without notice

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.

Gas sensing analyzers

Residual Sulfite, D. Sulfide, Total Residual Chlorine



This Monitor series takes a unique approach to the measurement of ion concentration. In operation a small amount of sample is pumped into the system and mixed with a suitable reagent.

The mixed sample flows into a special chamber where the ion is converted in a gas stripped from the sample.

A sensor located in the gas stream measures the gas concentration and displays the results in terms of equivalent ion concentration.

Monitors consist of two separate components:

- a chemistry module where the sample is conditioned properly to make the measurement

- an electronic readout module containing the measuring display, analog output, and alarm contacts.

This module is the S 7685 for Sulfite/Sulfide, and the CL 7685.010 for the Total Chlorine.

A 25 foot sensor cable is supplied to connect the two modules together, and the separation can be increased to 100 feet by the use of a junction box and additional signal cable.

A sample inlet overflow block is provided on the left side of the chemistry module.

Systems are extremely easy to operate and maintain, with the reagent usage limited to one liter every 10 days at standard flow rate.

Sample and reagent are pumped using long life peristaltic pump tubing that requires replacement approximately every 6 months.

The sensor requires no maintenance other than an occasional visual inspection to insure that no deposits have collected due to airborne particulates.

Chemistry module



Applications

Residual Sulfite: Dechlorination plants, Textile, Chemical, and Sulfur raw material industries.

Dissolved Sulfide: Spa, Drinking water, Tanneries, and Waste water plants.

Total Chlorine: Pulp and Paper, Chemical, and waste water industries

Measuring principle

