

Conductivity and TDS Digital Controllers

with Four-ring Potentiometric Probe

- **CAL Check™**
 - Alerts users of calibration status
- **ATC**
 - Automatic temperature compensation
- **2 Point Calibration**
 - Up to two point calibration
- **Backlight**
 - Backlit, LCD display

The HI700 series of controllers offer state of the art specifications for your process control. They can be configured for ON/OFF, proportional, PI or PID control. Thanks to our exclusive technology, they can be customized to best fit your application. Bright LED's show the current status even from a distance. A menu-driven display aids the user throughout the operations with running messages and clear prompts. All relevant parameters can be simply adjusted and will remain memorized until overwritten.

With self-diagnostic features and extractable terminals, installation and maintenance are fast and simple. Password protection guarantees that the calibration and predetermined parameters cannot be altered unnecessarily. The controllers can operate with four-ring probe or 4-20 mA signal. They accept probes with or without a built-in Pt100 temperature sensor. HI710 includes all of the features of the HI700 and adds TDS measurement.



Specifications	HI700	HI710	
Range	EC	0.0 to 199.9 µS/cm; 0 to 1999 µS/cm; 0.00 to 19.99 mS/cm; 0.0 to 199.9 mS/cm	0.0 to 199.9 µS/cm; 0 to 1999 µS/cm; 0.00 to 19.99 mS/cm; 0.0 to 199.9 mS/cm
	TDS	-	0.0 to 100.0 mg/L (ppm); 0 to 1000 mg/L (ppm); 0.00 to 10.00 g/L (ppt); 0.0 to 100.0 g/L (ppt)
	Temperature	-10.0 to 100.0°C	-10.0 to 100.0°C
Additional Specifications	Resolution	EC: 0.1 µS; 1 µS; 0.01 mS; 0.1 mS; 0.1 °C	EC: 0.1 µS; 1 µS; 0.01 mS; 0.1 mS; 0.1 °C TDS: 0.1 ppm; 1 ppm; 0.01 g/L (ppt); 0.1 g/L (ppt)
	TDS Conversion Factor	-	adjustable from 0.00 to 1.00
	Accuracy (@25°C/77°F)	±0.5% f.s. (EC / TDS); ±0.5°C (0 to 70°C); ±1°C (outside)	
	EC Calibration	automatic or manual at 1 point	
	Temperature Compensation	automatic or manual, -10 to 100°C with adjustable temperature coefficient from 0.00 to 10.00%/°C	
	Outputs	analog: isolated 0-1 mA, 0-20 mA and 4-20 mA; 0-5 VDC, 1-5 VDC and 0-10 VDC or digital: RS485 bi-directional opto-isolated	
	Analog Input	4-20 mA	
	Set Point Relay	two contact outputs SPDT 5A-250 VAC, 5A-30 VDC (resistive load), fuse protected (2A, 250V fast fuse)	
	Alarm Relay	contact output SPDT 5A-250 VAC, 5A-30 VDC (resistive load), fuse protected (2A, 250V fast fuse)	
	Power Supply	115 VAC ±10% or 230 VAC ±10%; 50/60 Hz	
	Power Consumption	15 VA	
	Over Current Protection	400 mA 250V fast fuse	
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing		
Dimensions	panel cutout: 140 x 140 mm, instrument: 144 x 144 x 170 mm		
Weight	1.6 kg (3.5 lb.)		
Ordering Information	Each HI700 and HI710 model is supplied with mounting brackets and instructions.		
	Choose your configuration		
	HI700221-1	dual setpoint, on/off and PID controls, analog output, 115V	
	HI700221-2	dual setpoint, on/off and PID controls, analog output, 230V	
	HI710221-1	dual setpoint, on/off and PID controls, analog output, 115V	
	HI710221-2	dual setpoint, on/off and PID controls, analog output, 230V	
	HI710222-1	dual setpoint, on/off and PID controls, RS485 output, 115V	
HI710222-2	dual setpoint, on/off and PID controls, RS485 output, 230V		

HI8931AN · HI8931BN
HI8931CN · HI8931DN

EC Analog Controller

with Input from Probe or Transmitter

- **ATC**
 - Automatic temperature compensation
- **Backlight**
 - Backlit, LCD display

HI8931 is a panel mounted conductivity controller designed for simplicity of use. For in-line applications, use the HI7635 probe, while for tanks the HI7638 with external threads is recommended. These probes are provided with a built-in NTC sensor for temperature compensated conductivity measurements.

HI8931 also features a direct connection up to 20 m (67'), without needing to amplify the signal to the conductivity probe.

Using the HI8931 in conjunction with a 4-20 mA output transmitter (HI8936 or HI8936L series) will assure a strong, interference free signal at distances up to 300 meters (1000').

A removable, transparent splash-proof cover protects the front panel.



Specifications	HI8931AN	HI8931BN	HI8931CN	HI8931DN
Range	0.0 to 199.9 mS/cm	0.00 to 19.99 mS/cm	0 to 1999 µS/cm	0.0 to 199.9 µS/cm
Resolution	0.1 mS/cm	0.01 mS/cm	1 µS/cm	0.1 µS/cm
Accuracy (@25°C/77°F)	±2% F.S. (excluding probe error)	±2% F.S. (excluding probe error)	±2% F.S. (excluding probe error)	±2% F.S. (excluding probe error)
Input from Transmitter	HI8936A / AL	HI8936B / BL	HI8936C / CL	HI8936D / DL
Set Point Range	0.0 to 199.9 mS/cm	0.00 to 19.99 mS/cm	0 to 1999 µS/cm	0.0 to 199.9 µS/cm
Alarm Range	0.0 mS and 100.0 mS	0.00 mS and 10.00 mS	0 µS and 1000 µS	0.0 µS and 100.0 µS
Temp. Compensation	automatic, 0 to 60°C with $\beta=2\%/^{\circ}\text{C}$; see also transmitter HI8936			
Inputs	DIN (probe) or 4-20 mA (transmitter)			
Conductivity Probe	HI7635 for in-line applications or HI3001D for flow-thru (not included)			
Calibration	manual, two point, through offset and slope trimmers			
Recorder Output	0 to 20 mA or 4 to 20 mA (isolated)			
Set Point and Alarm Relay	1, Isolated, 2A, max. 240V, resistive load, 1,000,000 strokes			
Dosing Control	OFF/AUTO/ON with selection switch			
Over Dosing Control	adjustable, from 5 min to 60 min with knob or disable by wire strap - on rear panel			
Backlight	continuous on			
Power Supply	115 VAC ±10% or 230 VAC ±10%; 50/60 Hz			
Enclosure	flame retardant ABS body and front panel; transparent splash-proof front cover			
Environment	-10 to 50°C (14 to 122°F); RH max 95% non-condensing			
Panel Cutout	141 x 69 mm (5.6 x 2.7")			
Weight	1 kg (2.2 lbs.)			
Ordering Information	The HI8931 series is supplied with mounting brackets and instructions.			

EC Analog Controller

with Direct Input from Potentiometric Probe

- **ATC**
 - Automatic temperature compensation
- **Backlight**
 - Backlit, LCD display

These controllers allow direct connection of a potentiometric conductivity probe (HI7638) with a cable up to 20 m long, without needing a transmitter to amplify the signal.

The output configuration for connecting a recorder or a PLC can be chosen between 0-20 or 4-20 mA.

The LED on the front panel indicates the operating status of the controller.

The Automatic Temperature Compensation (ATC) is performed directly by the HI7638 probe with built-in temperature sensor.

A removable, transparent splash-proof cover protects the front panel.



Specifications	HI943500A	HI943500B	HI943500C	HI943500D
Range	0.0 to 199.9 mS/cm	0.00 to 19.99 mS/cm	0 to 1999 μS/cm	0.0 to 199.9 μS/cm
Resolution	0.1 mS/cm	0.01 mS/cm	1 μS/cm	0.1 μS/cm
Accuracy (@25°C/77°F)	±2% F.S.			
Calibration	manual, two point, through offset and slope trimmers			
Temperature Compensation	automatic, 0 to 60°C (32 to 140°F), with β=2%/°C			
Recorder Output	4-20 mA (isolated)			
Set Point Relay	1, isolated, 2A, max. 240 V, resistive load, 1,000,000 strokes			
Alarm Relay	1, isolated, 2A, max. 240 V, resistive load, 1,000,000 strokes			
Power Supply	115 or 230 VAC ±10% (user selectable); 50/60 Hz			
Enclosure	black anodized aluminum body; front panel with flame retardant ABS; transparent splash-proof front cover			
Environment	-10 to 50°C (14 to 122°F); RH max 95%			
Panel Cutout	141 x 69 mm (5.6 x 2.7")			
Weight	1 kg (2.2 lb.)			
Ordering Information	The HI943500 series is supplied complete with mounting brackets and instructions.			
Probes	HI7638	PEI/glass body, 75 mm conductivity probe with internal temperature sensor and 3/8" NPT thread (immersion)		
	HI3001	PEI/PVDF body, 20 mm conductivity probe with internal temperature sensor, 1/2" NPT front thread (flow-thru) and 3/4" NPT back thread (submersion/pipe) mounting and 3 m (9.9') cable		
	HI3002	PEI/PVDF body, 60 mm conductivity probe with internal temperature sensor, 1/2" NPT front thread (flow-thru) and 3/4" NPT back thread (submersion/pipe) mounting and 3 m (9.9') cable		

EC Mini Controllers

Measuring in $\mu\text{S}/\text{cm}$

- Adjustable setpoint
- Fire-retardant casing
- Selectable overdose protection system
- Splash-resistant cover

These Hanna mini controllers have been specially designed for water conditioning and growing applications. Compact in size, they can be mounted in confined spaces or even right next to the vat or barrel containing the chemicals. These meters permit automatic control of installations previously checked manually.

EC measurements are shown on the display and the multi-colored LED continuously indicates if the mini controller is in measurement, dosing, or alarm mode.

Users can choose automatic or manual dosing mode with a switch on the front panel. Manual control is particularly useful during maintenance operations, because it permits operators to enable or disable the dosing relay according to need. The overtime control system advises users when the relay is active for too long, helping to prevent overdosage.



Specifications	BL983313	BL983320	BL983322
Range	0 to 1999 $\mu\text{S}/\text{cm}$	0.0 to 199.9 $\mu\text{S}/\text{cm}$	0.00 to 19.99 $\mu\text{S}/\text{cm}$
Resolution	1 $\mu\text{S}/\text{cm}$	0.1 $\mu\text{S}/\text{cm}$	0.01 $\mu\text{S}/\text{cm}$
Accuracy (@25°C/77°F)	±2% F.S.	±2% F.S.	±2% F.S.
Setpoint	adjustable from 0 to 1999 $\mu\text{S}/\text{cm}$	adjustable from 0 to 199.9 $\mu\text{S}/\text{cm}$	adjustable from 0 to 19.99 $\mu\text{S}/\text{cm}$
Temperature Compensation	automatic from 5 to 50°C (41 to 122°F) with $\beta = 2\%/^{\circ}\text{C}$		
Calibration	manual, with CAL trimmer		
Dosing Relay	maximum 2A (fuse protected), 250 Vac, 30 VDC contact closed when measure > setpoint		
Overtime	adjustable, typically from 5 to approximately 30 minutes		
Power Supply	models "-0": 12 VDC adapter (included) models "-1": 115/230 VAC, 50/60Hz		
Dimensions	83 x 53 x 99 mm (3.3 x 2.1 x 3.9")		
Weight	models "-0": 200 g (7.1 oz.) models "-1": 300 g (10.6 oz.)		
Ordering Information	BL983313-0 (12 VDC), BL983313-1 (115/230V), BL983320-0 (12 VDC), BL983320-1 (115/230V), BL983322-0 (12 VDC) and BL983322-1 (115/230V) are supplied with mounting brackets, transparent cover and instruction manual.		
Recommended Probe	HI7634-00 EC/TDS probe with internal temperature sensor and 2 m (6.6') cable (not included).		

EC Mini Controllers

Measuring in mS/cm

- Fire-retardant casing
- Selectable overdose protection system
- Splash-resistant cover

The BL983317 and BL983327 are panel-mounted mini controllers with output relays that have been designed for easy, affordable installation in tight spaces, ideal for simple yet effective process control.

Both instruments are provided with automatic compensation for variations in temperature. The probe (not included) is easy to clean and requires very little maintenance. The calibration is performed manually at one point, through a trimmer.

All wiring and connections to external devices are done through the terminals on the rear panel. The multi-color LED continuously indicates if the controller is in measurement, dosing, or alarm mode.

Users can choose automatic or manual dosing mode by a switch on the front panel. Manual control is particularly useful during maintenance operations because it permits operators to enable or disable the dosing relay according to need. To help prevent overdosing, the overtime control system advises users when the relay is active too long.



Specifications	BL983317	BL983327
Range	0.00 to 10.00 mS/cm	
Resolution	0.01 mS/cm	
Accuracy (@25°C/77°F)	±2% F.S.	
Temperature Compensation	automatic from 5 to 50°C (41 to 122°F) with $\beta = 2\%/^{\circ}\text{C}$	
Calibration	manual, with CAL trimmer	
Dosing Relay	maximum 2A (fuse protected), 250 Vac, 30 VDC	
	contact closed when measure < setpoint	contact closed when measure > setpoint
Setpoint	adjustable from 0 to 10 mS/cm	
Overtime	adjustable, typically from 5 to approximately 30 minutes	
Power Supply	models "-0": 12 VDC adapter (included) models "-1": 115/230 VAC, 50/60Hz	
Dimensions	83 x 53 x 99 mm (3.3 x 2.1 x 3.9")	
Weight	models "-0": 200 g (7.1 oz.) models "-1": 300 g (10.6 oz.)	
Ordering Information	BL983317-0 (12 VDC), BL983317-1 (115/230V), BL983327-0 (12 VDC) and BL983327-1 (115/230V) are supplied with mounting brackets, transparent cover and instruction manual.	
Recommended Probe	HI7632-00 EC/TDS probe with internal temperature sensor and 2 m (6.6') cable (not included).	

TDS Mini Controllers

- Adjustable overtime control
- Fire-retardant casing
- Selectable overdose protection system
- Splash-resistant cover

These instruments have been designed for TDS control in hydroponics, horticulture and water conditioning. Compact in size, they can be mounted in confined spaces or even right next to the vat or barrel containing the chemicals. These meters permit automatic control of installations that were previously checked manually.

Readings are shown on the display and the multi-colored LED continuously indicates if the mini controller is in measurement, dosing, or alarm mode.

Users can choose automatic or manual dosing mode with a switch on the front panel. Manual control is particularly useful during maintenance operations, because it permits operators to enable or disable the dosing relay according to your need.

The overtime control system advises users when the relay is active too long, helping to prevent overdosage.



Specifications	BL983315	BL983319	BL983321	BL983329
Range	0.0 to 199.9 mg/L (ppm)	0 to 1999 mg/L (ppm)	0.00 to 19.99 mg/L (ppm)	0 to 999 mg/L (ppm)
Resolution	0.1 mg/L (ppm)	1 mg/L (ppm)	0.01 mg/L (ppm)	1 mg/L (ppm)
Accuracy (@25°C/77°F)	±2% F.S.	±2% F.S.	±2% F.S.	±2% F.S.
TDS Conversion Factor	0.5	0.65	0.5	0.5
Dosing Relay	maximum 2A (fuse protected), 250 Vac, 30 VDC Contact close when measure:			
	> setpoint	< setpoint	> setpoint	> setpoint
Setpoint	adjustable from 0 to 199.9 mg/L (ppm)	adjustable from 0 to 1999 mg/L (ppm)	adjustable from 0 to 19.99 mg/L (ppm)	adjustable from 0 to 999 mg/L (ppm)
Temperature Compensation	automatic from 5 to 50°C (41 to 122°F) with $\beta = 2\%/^{\circ}\text{C}$			
Calibration	manual, with CAL trimmer			
Overtime	adjustable, typically from 5 to approximately 30 minutes			
Power Supply	models "-0": 12 VDC adapter (included) models "-1": 115/230 VAC; 50/60Hz			
Dimensions	83 x 53 x 99 mm (3.3 x 2.1 x 3.9")			
Weight	models "-0": 200 g (7.1 oz.) models "-1": 300 g (10.6 oz.)			
Ordering Information	BL983315-0 (12 VDC), BL983315-1 (115/230V), BL983319-0 (12 VDC), BL983319-1 (115/230V), BL983321-0 (12 VDC), BL983321-1 (115/230V), BL983329-0 (12 VDC) and BL983329-1 (115/230V) are supplied with mounting brackets, transparent cover and instruction manual.			
Recommended Probe	HI7634-00 EC/TDS probe with internal temperature sensor and 2 m (6.6') cable (not included).			

BL983318

TDS Mini Controllers

0 to 10,000 ppm

- Fire-retardant casing
- Selectable overdose protection system
- Splash-resistant cover

The BL983318 is a mini controller that has been designed for easy, affordable installation in tight spaces, ideal for simple yet effective process control.

The BL983318 features automatic temperature compensation and simple one-point calibration performed through the trimmer.

The multi-colored LED continuously indicates if the controller is in measurement, dosing, or alarm mode.

Wiring and external device connections are extremely simple to perform through the terminals on the rear of the instrument.

Users can choose automatic or manual dosing mode with a switch on the front panel. Manual control is particularly useful during maintenance operations because it permits operators to enable or disable the dosing relay according to need.

The overtime control system advises users when the relay is active too long, helping to prevent overdosage.



Specifications	BL983318
Range	0.00 to 10.00 g/L (ppt)
Resolution	0.01 g/L (ppt)
Accuracy (@25°C/77°F)	±2% F.S.
TDS Conversion Factor	0.5
Temperature Compensation	automatic from 5 to 50°C (41 to 122°F) with $\beta=2\%/^{\circ}\text{C}$
Calibration	manual, with CAL trimmer
Dosing Relay	maximum 2A (fuse protected), 250 Vac, 30 VDC contact closed when measure > setpoint
Setpoint	adjustable from 0 to 10 ppt (g/L)
Overtime	adjustable, typically from 5 to approximately 30 minutes
Power Supply	BL983318-0: 12 VDC adapter (included) BL983318-1: 115/230 VAC; 50/60Hz
Dimensions	83 x 53 x 99 mm (3.3 x 2.1 x 3.9")
Weight	BL983318-0: 200 g (7.1 oz.) BL983318-1: 300 g (10.6 oz.)
Ordering Information	BL983318-0 (12 VDC) and BL983318-1 (115/230V) are supplied with mounting brackets, transparent cover and instruction manual.
Recommended Probe	HI7632-00 EC/TDS probe with internal temperature sensor and 2 m (6.6') cable (not included).

TDS Mini Controllers

- Fire-retardant casing
- Selectable overdose protection system
- Splash-resistant cover

The BL983324 is a panel-mounted TDS controller, designed for easy installation, configuration and maintenance.

The meter is provided with a dosing relay that is activated when the TDS reading exceeds the setpoint value.

Measurements are compensated for temperature variations and are shown on the display automatically.

A multi-colored LED on the front panel continuously indicates if the mini controller is in measurement, dosing, or alarm mode.

Wiring and external device connections are extremely simple to perform through the terminals on the rear of the instrument.

Users can choose automatic or manual dosing mode with a switch on the front panel. Manual control is particularly useful during maintenance operations, because it permits operators to enable or disable the dosing relay according to need.

The overtime control system advises operators when the relay is active too long, helping to prevent overdosage.



Specifications	BL983324
Range	0.0 to 49.9 mg/L (ppm)
Resolution	0.1 mg/L (ppm)
Accuracy (@25°C/77°F)	±2% F.S.
TDS Conversion Factor	0.5
Temperature Compensation	automatic from 5 to 50°C (41 to 122°F) with $\beta=2\%/^{\circ}\text{C}$
Calibration	manual, with CAL trimmer
Dosing Relay	maximum 2A (fuse protected), 250 Vac, 30 VDC contact closed when measure > setpoint
Setpoint	adjustable from 0 to 49.9 mg/L (ppm)
Overtime	adjustable, typically from 5 to approximately 30 minutes
Power Supply	BL983324-0: 12 VDC adapter (included) BL983324-1: 115/230 VAC; 50/60Hz
Dimensions	83 x 53 x 99 mm (3.3 x 2.1 x 3.9")
Weight	BL983324-0: 200 g (7.1 oz.) BL983324-1: 300 g (10.6 oz.)
Ordering Information	BL983324-0 (12 VDC) and BL983324-1 (115/230V) are supplied with mounting brackets, transparent cover and instruction manual.
Recommended Probe	HI7634-00 EC/TDS probe with internal temperature sensor and 2 m (6.6') cable (not included).