



HI510 • HI520

Single and Dual-Channel Universal Process Controllers



HI510 • HI520

Single and Dual-Channel Universal Process Controllers

HI510 and HI520 are advanced process controllers that can be configured for applications requiring monitoring and/or control of four main water-analysis parameters: pH, ORP, Conductivity, and Dissolved Oxygen.

These controllers feature a digital probe input(s) that automatically detects and updates the controller with the parameter that it measures.

HI520 is Hanna's first dual-input process controller that accepts virtually any combination of compatible probes. Designed to adapt to unique process control requirements, users have the option to enable or disable each channel independently.

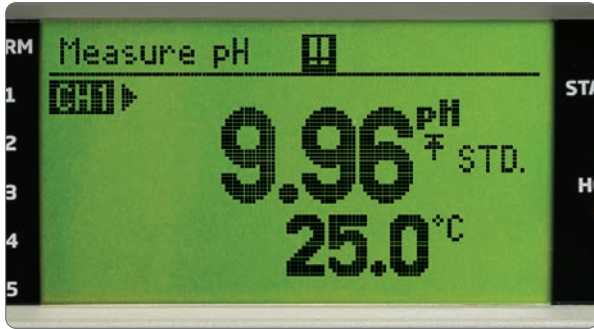
Additionally, HI520 introduces enhanced industrial control by operating a control-loop system whereby users have the option to run channel control either independently or configure to be triggered sequentially upon reaching the other channel's set point(s) (1, 2, or both). The device operates a logical channel with built-in mathematical functions. This function is intended for when the controller works as an analyzer for monitoring high/low parameter levels between two identical inputs with identical measuring configurations.

These Universal Process Controllers offer wall, pipe, and panel mounting options and feature a large backlit dot matrix display for easy viewing and provide an intuitive interface for setup options.

The controllers utilize multi-color LEDs for easy viewing of the instrument's status including relay activation, in alarm mode, or in hold status. All programming operations are done through the low profile vulcanized rubber keypad or with an RS485 connection to a Modbus-compliant supervisory computer.

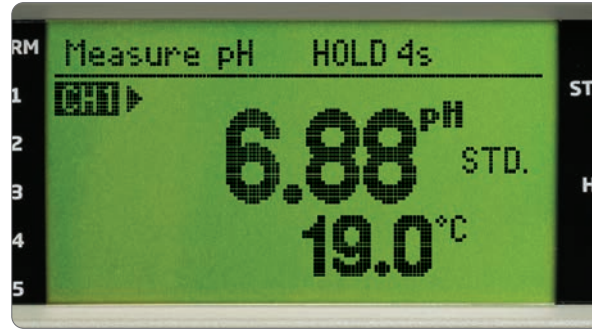
- Waterproof IP65 (NEMA 4X) enclosure
- Large backlit LCD
- Multi-color LED status indicators
- Audible alarm
- Tactile rubberized keypad
- Universal mounting
- Universal Hanna digital probe

Features Displayed on Screen



LCD Information

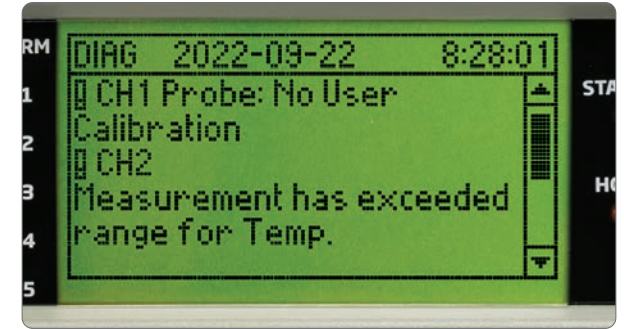
Local visual indicators of measurement details as well as errors are displayed. The ? DIAG key provides details of the issue.



Hold Function

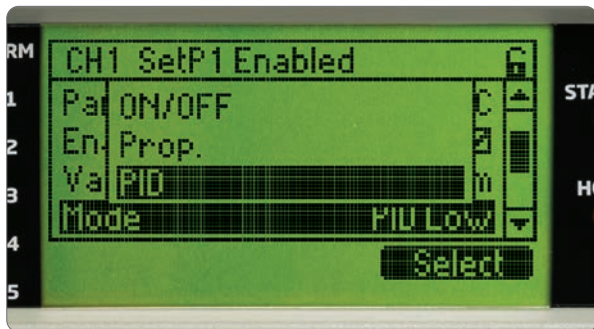
During calibration, cleaning, and configuration the controller automatically goes into Hold mode. During Hold mode all control loops related are disabled. The analog outputs may be configured to go to a fixed value or remain at the last value.

The Hold function can also be triggered manually, using an external digital input or by entering in Manual mode. This is useful for disabling control when performing maintenance.



? DIAG - Help and Diagnostic Key

The help and diagnostic key (? DIAG) provides information related to errors; or in setup mode, information about settings.

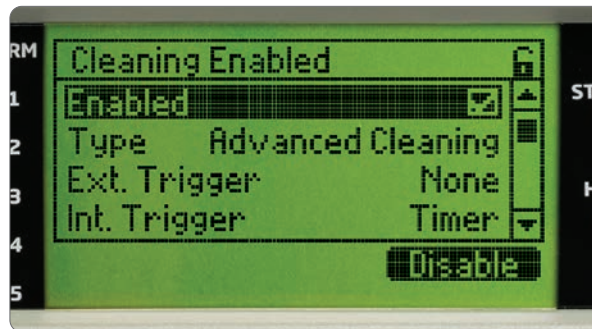


Control Modes

The control mode can be configured to be On/Off, Proportional, or PID. The mode can be set high or low. High control mode is required if the process value is too high and needs to be decreased. Low control mode is required if the process value is too low and needs to be increased.

For On/Off control, the hysteresis band is adjustable, while in Proportional and PID modes, deviation, control period, and other tuning parameters can be set to optimize control around a set point.

For HI520, each channel can run control independently or sequentially.



Auto-Cleaning Cycle

Difficult applications often require an almost continuous maintenance of the probe. Processes with high-suspended solids, fats, oils, pigments, and microorganisms will coat the pH sensing glass, ORP sensors, and the reference junction. The cleaning function allows programming of one or more wash cycles and uses the relays to activate valves, pumps or compressed air based on the type of washing that is required to maintain probes for reliable results.



Configurable Alarm System

The alarm system is configurable for measured parameters. The alarm can also be activated by event triggers or abnormal operation. For example, if a dosing relay remains closed for an excessive period of time or if temperature exceeds an upper limit during an exothermic neutralization reaction. A blinking red LED signals an alarm state.

All relays configured for control are inactivated until the alarm state is resolved.

On HI520 use channel configuration to setup and trigger an alarm.

Inputs and Outputs

Digital Inputs

- Two digital inputs for remotely triggering, cleaning and hold functions

Analog Outputs

- Up to 4 analog outputs and 5 relays used for control and for sending a signal to data loggers, PLC, SCADA and other remote monitoring systems
- 0-20 mA or 4-20 mA
- Scalable in selecting values for the range
- Can be used for control of pumps and valves
- On alarm state can output a 22 mA signal to the monitoring system

Digital Communication

- The Modbus-compliant unit can be integrated within a Modbus-based network and connected to other industrial electronic devices. The following tasks may be accomplished remotely:
 - Monitoring, using the virtual LCD (limited to a single remote control in the entire network)
 - Setup
 - Loading the Setup configuration file to a controller
- RS485 Digital output for PC and other device connectivity

Relays

- Up to 5 control and 1 alarm electromechanical relays
- Replaceable 5A fuses to protect all relays
- Extractable terminal blocks for easy wiring
- Relay options include single pole double throw (SPDT) and single pole single throw (SPST)
- Control relays can be programmed for On/Off, Proportional, or PID control as well as Cleaning and Hold functions
- Configurable alarm relay
- Relays terminal blocks and their wires paths are separated from the low voltage section for additional safety



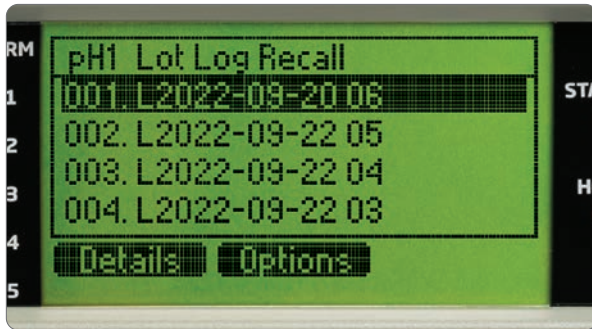
HI520 shown

Data and Event Logging

Automatic Data-logging

HI510 and HI520 have built-in data logging that stores data at selectable intervals along with relay control settings and calibration data.

- Data stored in up to 100 lots with each holding 8600 records
- Selectable log interval: from 10 seconds to 3 hours
- Logged Data includes:
 - Measured values and alarms for all supported parameters
 - Calibration information including solutions used.
For pH, the offset and slope is recorded.



Event Log

The Event Log file can hold a maximum of 100 events. It includes errors, alarms, warnings, calibration events, configuration changes, and cleaning events.



Password protection

The controllers feature password protected calibration and setup.



Enclosure Features



NEMA 4X Enclosure

The HI510 is suitable for indoor or outdoor environments. The NEMA 4X enclosure ensures the electronics are protected against splashing and hose-directed water or windblown dirt, dust, rain or sleet. It also provides corrosion protection for use near salt water.

Enclosure Features



Cable Glands

To maintain the NEMA 4X enclosure rating during use, the conduit openings and connection cables are sealed against the environment using the provided cable glands, seals and plugs.



Spring Loaded Screws

The front panel is hinged at the front of the enclosure for easy access to wiring locations. It features spring loaded screws that won't fall out when accessed.



USB Type-C Port

Logged data can be transferred to a flash drive as a .csv file using the USB Type-C port. A rubberized plug helps protect the port against the ingress of water.

Panel-Mount



Panel-Mount



The controller can be securely panel mounted through a ½ DIN opening using the HI510-01 Panel-Mount Kit. The kit includes a sealing gasket, dual zinc coated brackets, and associated hardware.



Wall-Mount



Wall-Mount



The controller can be surface mounted using the HI510-02 Wall-Mount Kit. The kit includes a zinc coated mounting plate and associated hardware. The plate may be oriented vertically or horizontally.

Pipe-Mount



Pipe-Mount





HI510-0540



HI510-0320



HI520-0540



HI520-0320

Specifications

Specifications	HI510	HI520
Digital Probes	See the following pages	
Channels	1	2
Display	Graphic LCD, 128 x 64 pixel B/W with backlight	
Digital Inputs	2 independent, galvanically isolated inputs (configurable for Hold & Cleaning functions) On state: 5 to 24 Vdc, low or high level active	
Analog Outputs	2 or 4 independent, galvanically isolated outputs 0 - 22 mA configurable as: 0 - 20 mA; 4 - 20 mA 22 mA as alarm signal, configurable option	
Analog Output Accuracy	±0.2% f.s.	
Digital Communication	RS485 serial port - Remote monitoring and control USB-C port - Retrieve log files and firmware upgrading	
Relays	Up to 5 relays (independently configurable for process variables, Hold & Cleaning functions) Electromechanical relay SPDT and SPST contact outputs 5A - 250 Vac; 5A - 30 Vdc (resistive load) Fuse protected: 5A, 250V slow blow fuse	
Alarm Relay for All Measurement Alarms	Electromechanical relay SPDT contact output 5A - 250 Vac; 5A - 30 Vdc (resistive load) Fuse protected: 5A, 250V slow blow fuse	
Data Logging	Interval log, up to 100 files, maximum 8600 records on each stored file. When the maximum limit of 100 stored files is reached, the most recent file will automatically erase the oldest one. Event log, maximum 100 records. When the maximum limit is reached, the last record overwrites the oldest one.	
Power Supply	100 - 240 Vac ±10%; 50/60 Hz; 15VA; fuse protected (2A, 250V slow blow fuse)	
Power Consumption	15VA	
Installation Category	II	
Environment	-20 to 50 °C (-4 to 122 °F); maximum 100% RH non-condensing	
Enclosure*	Single case ½ DIN, type 4X, IP65 ingress protection	
Weight	Approximately 1.6 kg (3.5 lb.)	
Dimensions	Width: 144.0 mm (5.7") Height: 144.0 mm (5.7") Depth: 151.3 mm (6.0")	
Ordering Information	<p>HI510-0540 universal process controller with 5 relays and 4 analog outputs is supplied with 3m power cable, cable gland set, instrument certificate, and quick reference guide with instructions for manual download.</p> <p>HI510-0320 universal process controller with 3 relays and 2 analog outputs is supplied with 3m power cable, cable gland set, instrument certificate, and quick reference guide with instructions for manual download.</p> <p>HI520-0540 universal process controller with 5 relays and 4 analog outputs is supplied with 3m power cable, cable gland set, instrument certificate, and quick reference guide with instructions for manual download.</p> <p>HI520-0320 universal process controller with 3 relays and 2 analog outputs is supplied with 3m power cable, cable gland set, instrument certificate, and quick reference guide with instructions for manual download.</p>	
Accessories	<p>HI510-01 panel-mount kit</p> <p>HI510-02 wall-mount kit</p> <p>HI510-03 pipe-mount kit</p> <p>HI76510-05 patch cable, 5 m (16'5")</p>	<p>HI76510-10 patch cable, 10 m (32'9")</p> <p>HI76510-15 patch cable, 15 m (49'2")</p> <p>HI76510-25 patch cable, 25 m (82')</p> <p>HI76510-50 patch cable, 50 m (164')</p>

* For a water tight seal: Gland seals need to be used over cables and the four screws on the front casing need to be tightened to 13.3 lbf·in (1.5 N·m, maximum 2.0 N·m), of torque.

HI1006-18 • HI1016-18 • HI1006-38
HI1016-38 • HI1006-48 • HI1016-48

pH and Temperature Industrial Smart Probes

These industrial pH probes are intended for industrial process control when paired with the HI510 or HI520 Universal Process Controller.

- HI1006-18 and HI1016-18 series, designed for low conductivity or low-temperature process environments
- HI1006-38 and HI1016-38 series, designed for extended pH range or high-temperature process environments
- HI1006-48 and HI1016-48 series, designed for process environments where hydrofluoric acid is present

An integral temperature sensor measures water temperature and adjusts the probe signal over the specified temperature range.

The flat tip eliminates deposits that can foul the sensor and significantly reduces necessary maintenance.

The PVDF body material is easy to clean and disinfect, and resistant to most chemicals (e.g. solvents, sodium hypochlorite), ultraviolet light, and fungal growth.

Suitable for continuous measurement of pH required in applications such as urban wastewater treatment, industrial effluent treatment, and surface water monitoring, the probe (and accessories) can be installed directly in-line, immersed in a tank, or in a flow cell.

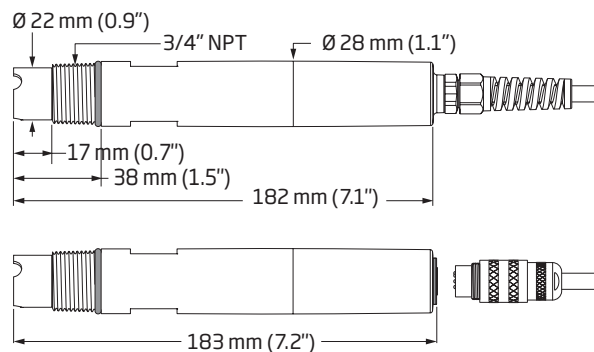
The probe is available with an integral connector that permits connections after installation.

Patch cables may be purchased separately to connect between the probe and controller up to 50 meters (164 ft).

- Rugged, chemically-resistant PVDF body
- Specialized glass sensor for fast stabilization and accurate results
- 3/4" NPT external thread for mounting
- Built-in temperature sensor for measurement and compensation
- Matching pin helps avoid typical problems caused by grounding loop current
- Digital probe stores model, firmware, serial number, and calibration information



Dimensions



Specifications

HI1006-18zz - example		
pH	Range	0.00 to 12.00 pH
	Resolution	0.1 pH or 0.01 pH
	Accuracy	±0.02 pH
	Calibration	Up to three-points (option to select from five standard buffers)
Temperature	Range	-5.0 to 80.0 °C (23.0 to 176.0 °F)
	Resolution	0.1 °C; 0.1 °F
	Accuracy	±0.5 °C; ±1.0 °F
	Calibration	Single point offset (controller setting)
Temperature Compensation	Automatic	0.0 to 80.0 °C (32.0 to 176.0 °F)
Temperature Source	Automatic (from Probe)	
	Manual	
Body	PVDF	
Junction	PTFE	
Sensor	Body	LT glass
	Tip shape	flat, self-cleaning
	Diameter	22 mm (0.9")
	Insertion length	17 mm (0.7")
Maximum Pressure	6 bar (87 psi) at 25 °C (77 °F)	
Threaded Connection	3/4" NPT external thread for mounting	
Wetted Parts	Probe body	PVDF
	Sensor body	Glass
	O-ring	NBR
	Junction	PTFE
	Matching pin	Titanium
Protection Rating	IP68	
Cable Length	zz, see Ordering Information	

Ordering Information

Each probe is supplied with quick reference guide with probe quality certificate.

HI10 x x - y 8 z z

Choose your configuration:

xx	06	PTFE junction
	16	Ceramic junction
y	1	Low Temperature (LT) glass sensor, titanium matching pin -5.0 to 80.0 °C (23.0 to 176.0 °F) 0.00 to 12.00 pH
	3	High Temperature (HT) glass sensor, titanium matching pin 0.0 to 100.0 °C (32.0 to 212.0 °F) 0.00 to 14.00 pH
	4	Fluoride-resistant (HF) glass sensor, titanium matching pin -5.0 to 60.0 °C (23.0 to 140.0 °F) 0.00 to 10.00 pH
	8	Smart probe, with RS485 connection
zz	00	supplied with DIN connector (without cable). See Accessories section for patch cable ordering codes.
	05, 10, 15, 25, 50	fixed cable length (in meters)

HI1026-1803

pH and Temperature Industrial Smart Probe for Meat Applications

To ensure consistent and safe meat products that comply with food safety regulations, pH levels must be monitored and maintained at a low value throughout the meat production process.

Hanna® industrial meat pH probe has been specifically designed to be tipped with a 49 mm (2") stainless steel blade. The blade features a 35 mm (1.4") cutout opening allowing the electrode to come in contact with the sample. Made of high-grade steel, the tip is rustproof and corrosion resistant and has a dual function: it both protects the glass pH electrode from breakage and is razor sharp for piercing into meat.

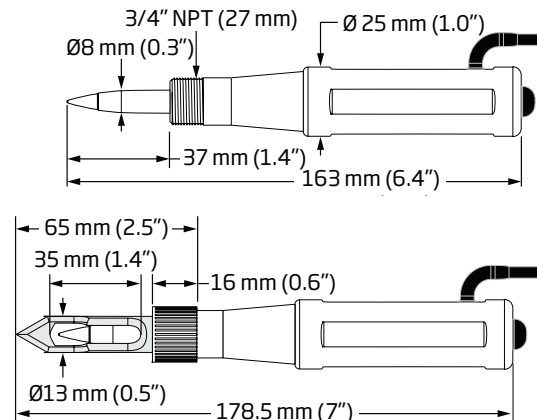
Intended for industrial use when paired with the HI510 or HI520 Universal Process Controller, the system allows for shared management of settings between controller and probe. The probe manages temperature compensation and buffer calibration settings whereas the controller manages application settings defined by process requirements.

Ideal for meat processing industry, including abattoirs, meat processing, and butchers.

- Chemically-resistant PP body
- Specialized glass sensor for fast stabilization and accurate results
- Built-in temperature sensor for measurement and compensation
- Matching pin helps avoid typical problems caused by grounding loop current
- Food grade, PVDF sensor sleeve that is easy to clean, disinfect, and resistant to most chemicals (e.g. solvents, sodium hypochlorite), ultraviolet light, and fungal growth
- Model, firmware, serial number, and calibration information are stored on the wired probe
- Stainless steel blade for meat processing
 - Made of high-grade stainless steel for long life
 - Razor sharp for piercing into meat
 - Protects glass pH electrode from breakage



Dimensions



Specifications

pH	Range	0.00 to 12.00 pH
	Resolution	0.1 pH or 0.01 pH
	Accuracy	±0.02 pH
	Calibration	Up to three-points (option to select from five standard buffers)
Temperature	Range	0.0 to 50.0 °C (32.0 to 122.0 °F)
	Resolution	0.1 °C; 0.1 °F
	Accuracy	±0.5 °C; 1.0 °F
	Calibration	Single point offset (controller setting)
Temperature Compensation	Automatic	0.0 to 50.0 °C (32.0 to 122.0 °F)
Temperature Source	Automatic (from probe) Manual	
Body	PP	
Junction	Open	
Sensor	Body	LT glass
	Sleeve	PVDF
	Tip shape	Conic
	Tip size	6 x 10 mm (0.23 x 0.39")
	Diameter	8 mm (0.3")
Insertion length	37 mm (1.4")	
Reference Cell	Single Ag/AgCl	
Electrolyte	Viscolene	
Maximum Pressure	0.1 bar (1.45 psi)	
Threaded Size	M16 x 1.5	
Wetted Parts	Sensor sleeve	PVDF
	Sensor body	Glass
Protection Rating	IP68	
Cable Length	3 m (9'10")	

Ordering Information

HI1026-1803 is supplied with HI70300 Storage solution for pH and ORP electrodes, stainless steel blade, and quick reference guide with probe quality certificate.

HI1126-1805

pH and Temperature Industrial Smart Probe for Food Applications

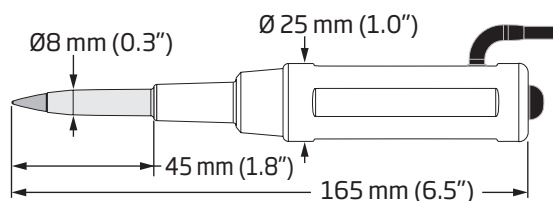
Designed as a versatile, general purpose electrode, HI1126-1805 is made of a sturdy, chemically resistant PP body with a conical tip probe that can be used in most food applications.

Intended for industrial use when paired with the HI510 or HI520 Universal Process Controller, the system allows for shared management of settings between controller and probe. The probe manages temperature compensation and buffer calibration settings whereas the controller manages application settings defined by process requirements.

- Chemically-resistant PP body
- Specialized glass sensor for fast stabilization and accurate results
- Built-in temperature sensor for measurement and compensation
- Matching pin helps avoid typical problems caused by grounding loop current
- Food grade, PVDF sensor sleeve that is easy to clean, disinfect, and resistant to most chemicals (e.g. solvents, sodium hypochlorite), ultraviolet light, and fungal growth
- Model, firmware, serial number, and calibration information are stored on the wired probe



Dimensions



Specifications

pH	Range	0.00 to 12.00 pH
	Resolution	0.1 pH or 0.01 pH
	Accuracy	±0.02 pH
	Calibration	Up to three-points (option to select from five standard buffers)
Temperature	Range	0.0 to 50.0 °C (32.0 to 122.0 °F)
	Resolution	0.1 °C; 0.1 °F
	Accuracy	±0.5 °C; 1.0 °F
	Calibration	Single point offset (controller setting)
Temperature Compensation	Automatic	0.0 to 50.0 °C (32.0 to 122.0 °F)
Temperature source	Automatic (from probe) Manual	
Body	PP	
Junction	Open	
Sensor	Body	LT glass
	Sleeve	PVDF
	Tip shape	Conic
	Tip size	6 x 10 mm (0.23 x 0.39")
	Diameter	8 mm (0.3")
	Insertion length	45 mm (1.8")
Reference Cell	Single Ag/AgCl	
Electrolyte	Viscolene	
Maximum Pressure	0.1 bar (1.45 psi)	
Wetted Parts	Sensor sleeve	PVDF
	Sensor body	Glass
Protection Rating	IP68	
Cable Length	5 m (16'5")	

Ordering Information

HI1126-1805 is supplied with HI70300 Storage solution for pH and ORP electrodes, and quick reference guide with probe quality certificate.

HI2004-18 • HI2014-18
HI2004-28 • HI2014-28

ORP and Temperature Industrial Smart Probes

HI20X4-18 and HI20X4-28 are ORP and temperature probes designed for use with the Hanna Instruments® HI510 or HI520. The system is designed to monitor and control disinfection chemicals or follow and control a critical oxidation (or reduction) reaction. mV measurements are auto-compensated for barometric pressure and temperature.

- HI2004-18 and HI2014-18 platinum-sensor series are designed to provide the best response over a wide range of applications. Used in reducing processes such as chlorine dosing in pools and spas or chromate reduction.
- HI2004-28 and HI2014-28 gold-sensor series are designed for oxidative processes such as cyanide oxidation in the mining industry.

The probe features a flat tip (ideal for solutions containing aggressive chemicals) which virtually eliminates dirt deposits and significantly reduces maintenance.

Suitable for continuous measurement of ORP required for monitoring and/or controlling oxidizers and reducing agents in water treatment monitoring, industrial effluent treatment, and swimming pools, the probe can be submersed/immersed using the 3/4" NPT threads, or installed directly in-line or in a flow cell installation, using the lower sensor threads.

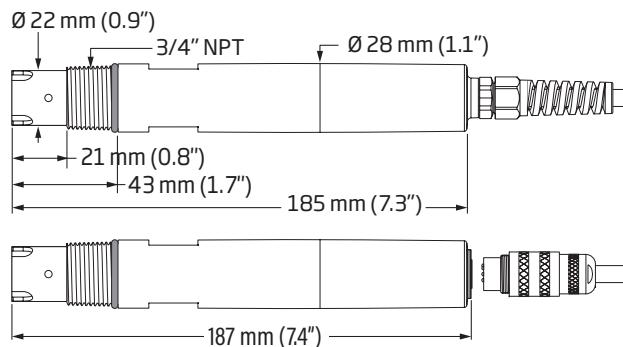
The probe is also available with an integral connector that permits cable connections after installation.

Patch cables may be purchased separately to connect between the probe and controller up to 50 meters (164 ft).

- Rugged, chemically-resistant PVDF body
- 3/4" NPT external thread
- 6 bar (87 psi) maximum pressure at 25 °C (77 °F)
- Built-in temperature sensor for measurement
- Digital probe stores model, firmware, serial number, and calibration information
- Minimum maintenance



Dimensions



Specifications

example HI2004-18zz		
ORP	Range	-2000 to +2000 mV
	Resolution	1 mV
	Accuracy	±2 mV
	Calibration	Single point, value can be adjusted ±60 mV around measured mV
Temperature	Range	-5.0 to 100.0 °C (23.0 to 212.0 °F)
	Resolution	0.1 °C; 0.1 °F
	Accuracy	±0.5 °C; ±1.0 °F
	Calibration	Single point offset (controller setting)
Temperature Source	Automatic (from Probe) Manual	
Body	PVDF	
Junction	PTFE	
Sensor	Material	platinum
	Body	glass
	Tip shape	flat
	Diameter	22 mm (0.9")
	Insertion length	21 mm (0.8")
Maximum Pressure	6 bar	
Threaded Connection	3/4" NPT external thread for mounting	
Wetted Parts	Probe body	PVDF
	Sensor body	glass
	O-ring	NBR
	Junction	PTFE
	Matching pin	titanium
Protection Rating	IP68	
Cable Length	zz, see Ordering Information	

Ordering Information

Each probe is supplied with quick reference guide with probe quality certificate.

HI20 x x - y 8 z z

Choose your configuration:

xx	04	PTFE junction
	14	Ceramic junction
y	1	Platinum sensor; -5.0 to 100.0 °C (23.0 to 212.0 °F); ±2000 mV
	2	Gold sensor; -5.0 to 100.0 °C (23.0 to 212.0 °F); ±2000 mV
8	Smart probe, with RS485 connection	
zz	00 supplied with DIN connector (without cable). See page 15.56 (HI510 and HI520 accessories section) for patch cable ordering codes. 05, 10, 15, 25, 50 fixed cable length (in meters)	

HI7630-28

Conductivity and Temperature Industrial Smart Probes

HI7630-28 is a conductivity and temperature probe designed to be paired with the HI510 Universal Process Controller.

This two-electrode probe is recommended for a wide range of water applications such as pure and ultrapure water.

An integral temperature sensor measures the process temperature and adjusts the measured conductivity to a reference temperature by applying specialized compensation standards:

- **Linear:** appropriate when it is assumed that the temperature coefficient of variation has the same value for all measurement temperatures.
- **Standard:** appropriate for high-purity water measurements and documented in ASTM Standard D5391-14. This setting should be used for resistivity measurements.
- **Natural:** appropriate for natural ground, well, or surface water (or water with similar composition) in accordance with ISO7888 standard.

The result is reliable electrolytic conductivity (EC), TDS (Total Dissolved Solids), resistivity, or Seawater Salinity in percent, psu, or ppt units.

This conductivity probe can be installed directly in-line, immersed in a tank, or in a flow cell, and is suited for continuous measurement of conductivity and associated parameters required in applications such as water treatment, drinking water, feed water condensate, or other clean water applications as well as sea water and surface-water monitoring.

The probe is available with an integral connector that permits connections after installation.

Patch cables may be purchased separately to connect between the probe and controller up to 50 meters (164 ft).

- Rugged, chemically-resistant PVDF body
- 3/4" NPT external thread for mounting
- 6 bar (87 psi) maximum pressure at 25 °C (77 °F)
- Digital probe stores model, firmware, serial number, and calibration information



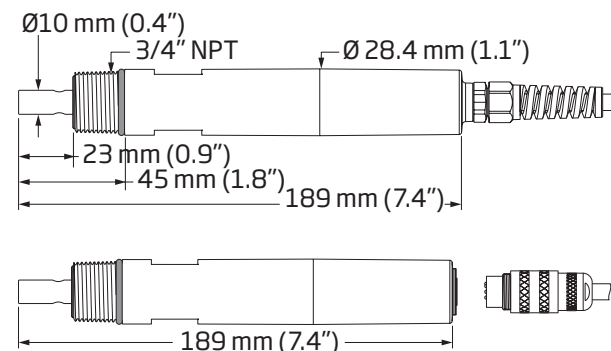
Two-electrode

Two-electrode probes can be calibrated using a standard with a value close to the measurement value.



Two-electrode

Dimensions



Specifications

example HI7630-28zz

EC	Range	0.000 μ S/cm to 30.00 mS/cm*
	Resolution**	0.001, 0.01, 0.1 μ S/cm; 0.001, 0.01 mS/cm
	Accuracy	$\pm 2\%$ of reading or ± 0.050 μ S/cm, whichever is greater
	Calibration	Standard: Automatic, two-point with standard solution Process: Single point
TDS	Range	0.000 mg/L to 15.00 g/L (TDS factor 0.5)*
	Resolution**	0.001, 0.01, 0.1 mg/L; 0.001, 0.01, 0.1 g/L
	Accuracy	$\pm 2\%$ of reading or ± 0.025 mg/L, whichever is greater
	Calibration	Standard: Automatic, two-point with standard solution Process: Single point
Resistivity	Range	34 Ω •cm to 99.99 M Ω •cm*
	Resolution**	1 Ω •cm; 0.01, 0.1, 1 k Ω •cm; 0.01 M Ω •cm
Temperature	Range	0.0 to 50.0 °C (32.0 to 122.0 °F)
	Accuracy	± 0.5 °C; ± 1.0 °F
	Calibration	Single point offset (controller setting)
Temperature Compensation Mode	Linear, Natural, Standard, None	
Temperature Source	Automatic (from probe) Manual	
Body	PVDF	
Sensor	Type	Two-electrode, concentric cylinder design
	Material	AISI 316 stainless steel
	Insulator	PVDF/Silicone
	Diameter	10 mm (0.4")
	Insertion length	23 mm (0.9")
Maximum Pressure	6 bar (87 psi)	
Threaded Connection	3/4" NPT external thread for insertion mounting	
Protection Rating	IP68	
Cable Length	zz, see Ordering Information	

* Absolute values (not temperature compensated)

** Automatic ranging

Ordering Information

Each probe is supplied with quick reference guide and probe quality certificate.

HI7630 - 2 8 z z

Choose your configuration:

2	Two-electrode cell conductivity, AISI 316 stainless steel cell constant $k \approx 0.1$ /cm
8	Smart probe, with RS485 connection
zz	00 supplied with DIN connector (without cable). See Accessories section for patch cable ordering codes. 05, 10, 15, 25, 50 fixed cable length (in meters)

HI7630-48

Conductivity and Temperature Industrial Smart Probes

HI7630-48 is a Conductivity and Temperature probe designed to be paired with the HI510 Universal Process Controller.

This four-ring probe is recommended for a wide range of water applications such as industrial process water.

An integral temperature sensor measures the process temperature and adjusts the measured conductivity to a reference temperature by applying specialized compensation standards:

- **Linear:** appropriate when it is assumed that the temperature coefficient of variation has the same value for all measurement temperatures.
- **Standard:** appropriate for high-purity water measurements and documented in ASTM Standard D5391-14. This setting should be used for resistivity measurements.
- **Natural:** appropriate for natural ground, well, or surface water (or water with similar composition) in accordance with ISO7888 standard.

The result is reliable electrolytic conductivity (EC), TDS (Total Dissolved Solids), resistivity, or Seawater Salinity in percent, psu, or ppt units.

This conductivity probe can be installed directly in-line, immersed in a tank, or in a flow cell, and is suited for continuous measurement of conductivity and associated parameters required in applications such as water treatment, drinking water, feed water condensate, or other clean water applications as well as sea water and surface-water monitoring.

The probe is available with an integral connector that permits connections after installation.

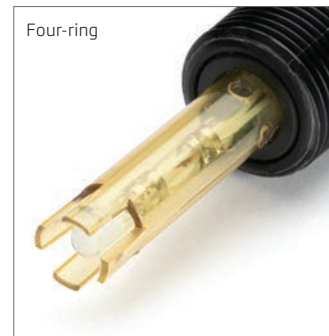
Patch cables may be purchased separately to connect between the probe and controller up to 50 meters (164 ft).

- Rugged, chemically-resistant PVDF body
- 3/4" NPT external thread for mounting
- 6 bar (87 psi) maximum pressure at 25 °C (77 °F)
- Digital probe stores model, firmware, serial number, and calibration information



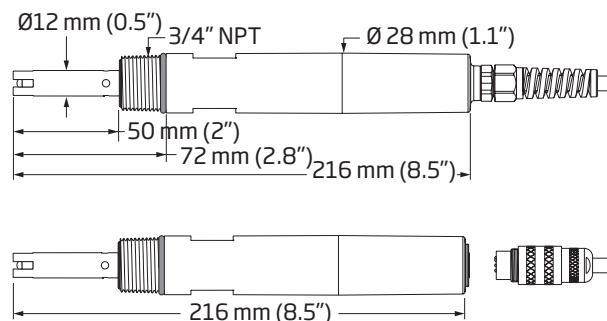
Four-ring

Four-ring probes provide stable measurements over a wide measure range and do not require frequent calibrations.



Four-ring

Dimensions



Specifications

example HI7630-48zz

EC	Range	0.0 μ S/cm to 999.9 mS/cm*
	Resolution**	0.1 μ S/cm; 0.001, 0.01, 0.1 mS/cm
	Accuracy	$\pm 2\%$ of reading or $\pm 1 \mu$ S/cm, whichever is greater
	Calibration	Standard: Automatic, two-point with standard solution Process: Single point
TDS	Range	0.0 mg/L to 400.0 g/L (TDS factor 0.5)*
	Resolution**	0.1 mg/L; 0.001, 0.01, 0.1 g/L
	Accuracy	$\pm 2\%$ of reading or ± 0.5 mg/L, whichever is greater
	Calibration	Standard: Automatic, two-point with standard solution Process: Single point
Resistivity	Range	1.0 $\Omega \cdot$ cm to 9.99 M $\Omega \cdot$ cm*
	Resolution**	0.1, 1 $\Omega \cdot$ cm; 0.01, 0.1, 1 k $\Omega \cdot$ cm; 0.01 M $\Omega \cdot$ cm
	Calibration	Single point
Temperature	Range	0.0 to 100.0 °C (32.0 to 212.0 °F)
	Accuracy	± 0.5 °C; ± 1.0 °F
	Calibration	Single point offset (controller setting)
Temperature Compensation Mode	Linear, Natural, Standard, None	
Temperature Source	Automatic (from probe) Manual	
Body	PVDF	
Sensor	Type	Four-ring, platinum
	Insulator	Glass
	Diameter	12 mm (0.5")
	Insertion length	50 mm (2")
Maximum Pressure	6 bar (87 psi)	
Threaded Connection	3/4" NPT external thread for insertion mounting	
Protection Rating	IP68	
Cable Length	zz, see Ordering Information	

* Absolute values (not temperature compensated)

** Automatic ranging

Ordering Information

Each probe is supplied with quick reference guide and probe quality certificate.

HI7630 - 4 8 z z

Choose your configuration:

4	Four-ring conductivity, platinum on glass cell constant $k \approx 1.0$ /cm
8	Smart probe, with RS485 connection
zz	00 supplied with DIN connector (without cable). See Accessories section for patch cable ordering codes. 05, 10, 15, 25, 50 fixed cable length (in meters)

HI7640-18

Galvanic Dissolved Oxygen Industrial Smart Probe

The HI7640-18 is a galvanic-style oxygen probe designed for use with the Hanna Instruments® HI510 or HI520 process controller. The system is suited for continuous measurement of oxygen dissolved in water.

An integral temperature sensor measures water temperature and adjusts the probe signal over the specified temperature range. The result is reliable dissolved oxygen (DO) concentration or percent saturated measurements.

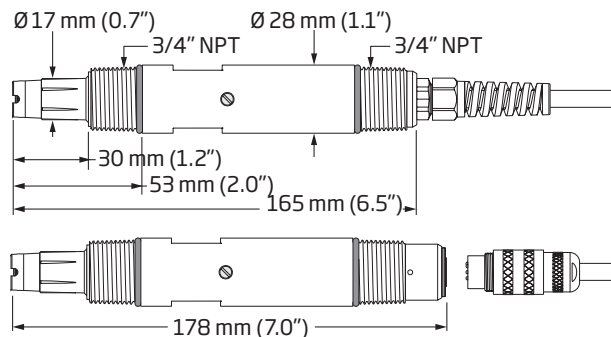
Suitable for control applications in municipal and industrial wastewater treatment, the probe can be submersed/immersed using the 3/4" NPT threads, or installed directly in-line or in a flow cell installation, using the lower sensor threads.

The probe is available with an integral connector that permits connections after installation.

Patch cables may be purchased separately to connect between the probe and controller up to 50 meters (164 ft).

- Galvanic probe with digital processing
- Simple membrane-cap replacement
- Large electrolyte reservoir provides longer service life
- Rugged, chemically-resistant PVDF body
- Built-in temperature sensor for measurement and DO compensation
- Digital probe stores model, firmware, serial number, and calibration information
- 3/4" NPT external thread for mounting
- 3 bar (43.5 psi) maximum pressure

Dimensions



Ordering Information

Each probe is supplied with HI7042B Galvanic DO electrolyte solution, 30 mL (2 pcs.), HI7640-18A Replacement membrane cap and O-ring (5 pcs. of each), syringe and cone shaped plastic tip, electrolyte screw and fill hole O-ring (2 pcs. of each), protective probe cap, quick reference guide with probe quality certificate.

HI7640 - 1 8 z z

Choose your configuration:

1	Galvanic sensor
8	Smart probe, with RS485 connection
zz	00 supplied with DIN connector (without cable). See Accessories section for patch cable ordering codes. 05, 10, 15, 25, 50 fixed cable length (in meters)

Specifications

example HI7640-18zz

Dissolved Oxygen	Range	0.00 to 50.00 mg/L (ppm) concentration 0.0 to 500.0 % saturation
	Resolution	0.01 mg/L (ppm); 0.1% saturation
	Accuracy	from 0.00 to 20.00 mg/L (ppm): ±2 % of reading or ±0.2 mg/L (ppm), whichever is greater; from 20.00 to 50.00 mg/L (ppm): ±6% of reading from 0.0 to 200.0 % saturation: 2 % of reading or ±2.0 %, whichever is greater; from 200.0 to 500.0 % saturation: ±6 % of reading
Calibration		One or two points: at 100% and/or 0% or 8.25 mg/L and/or 0 mg/L in water-saturated air or zero-oxygen solution Single point process calibration: using value entered by the user in % saturation or mg/L
	Temperature	Range
Temperature	Resolution	0.1 °C; 0.1 °F
	Accuracy	±0.5 °C; ±1.0 °F
	Calibration	Single point offset (controller setting)
Temperature Compensation	Automatic	
Temperature Source	Automatic (from probe) Manual	
Pressure Compensation	Automatic	420 to 850 mmHg
Salinity Compensation	Automatic	0 to 70 g/L (set manually)
Body	PVDF	
Sensor	Type	Galvanic cell
	Cathode	Silver (Ag)
	Anode	Zinc (Zn)
	Diameter	Ø17 mm (0.7")
	Insertion length	30 mm (1.2")
Max. Pressure	3 bar (43.5 psi) at 25 °C (77 °F)	
Threaded Connection	3/4" NPT external thread for insertion mounting	
Wetted Parts	Sensor body	PVDF
	Membrane cap	PEI and PTFE
	O-ring	NBR
Protection Rating	IP68	
Cable Length	zz, see Ordering Information	



HI7640-58

Optical Dissolved Oxygen Industrial Smart Probe

The HI7640-58 is an optical dissolved oxygen probe with HI764113-1 Smart Caps for measurement of dissolved oxygen.

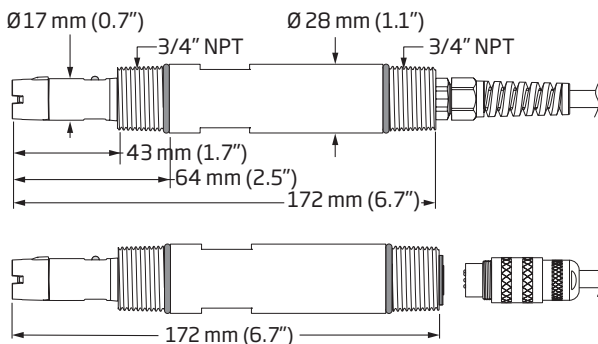
The probe is designed to work with the Hanna Instruments® HI510 or HI520 process controller. When paired with the controller, the system provides accurate dissolved oxygen measurements auto-compensated for barometric pressure, salinity (set manually), and temperature.

Suitable for control applications in aeration basins, ponds, and tanks where optimizing oxygen transfer is a key element, the probe can be submersed/immersed in a tank using the 3/4" NPT threads, or installed in a flow cell using the lower sensor threads.

Several extension cables can be purchased separately to cover up to 50 meter (164 ft) distance between probe and controller.

- Factory calibrated Smart Cap that stores data
- 3/4" NPT external thread at both ends
- Built-in temperature sensor for measurement
- Digital probe stores model, firmware, serial number, calibration information and Smart Cap data (serial number, installation date)
- Minimum maintenance (no electrolyte refill or membrane replacement)
- Measurement reliability independent of flow rate
- Reduced response time
- Stable readings even when oxygen concentration is low

Dimensions



HI764113-1 DO Smart Cap



Smart Cap stores factory calibration coefficients.



The domed surface helps repel surface bubbles and provides increased luminophore surface area for better measurement sensitivity.



Ordering Information

Each probe is supplied with HI764113-1 DO Smart Cap with O-ring, protective cap, calibration beaker, sachet with silicone grease, syringe, and quick reference guide with probe quality certificate.

HI7640 - 5 8 z z

Choose your configuration:

5	Optical DO sensor
8	Smart probe with RS485 connection
zz	00 supplied with DIN connector (without cable). See Accessories section for patch cable ordering codes. 05, 10, 15, 25, 50 fixed cable length (in meters)

Specifications

example HI7640-58zz

Dissolved Oxygen	Range	0.00 to 50.00 mg/L (ppm) concentration 0.0 to 500.0 % saturation
Resolution		0.01 mg/L (ppm) 0.1% saturation
Accuracy		from 0.00 to 20.00 mg/L (ppm): 1.5 % of reading or ±0.01 mg/L (ppm), whichever is greater; from 20.00 to 50.00 mg/L (ppm): ±5% of reading from 0.0 to 200.0 % saturation: ±1.5 % of reading or ±0.1 %, whichever is greater; from 200.0 to 500.0 % saturation: ±5 % of reading
Calibration		One or two points: at 100% and/or 0% or 8.26 mg/L and/or 0 mg/L in water-saturated air or zero-oxygen solution Single point process calibration: using value entered by the user in % saturation or mg/L
Temperature	Range	-5.0 to 50.0°C (23.0 to 122.0 °F)
Resolution		0.1 °C; 0.1 °F
Accuracy		±0.3 °C / ±0.5 °F
Calibration		Single point offset (controller setting)
Temperature Compensation		Automatic
Temperature source		Automatic (from probe) Manual
Pressure Compensation	Automatic	420 to 850 mmHg
Salinity Compensation	Automatic	0 to 70 g/L (salinity factor set by user)
Body		ABS
Sensor	Type	Optical DO
	Diameter	Ø17 mm (0.7")
	Insertion length	43 mm (1.7")
Maximum Pressure		2 bar (29 psi) at 25 °C (77 °F)
Threaded Connection		3/4" NPT external thread (both ends)
Wetted Parts	Sensor body	PVDF
	Smart cap material	Polypropylene
	Dome-shaped membrane	PMMA
	O-ring	NBR
	Temperature contact	stainless steel
Protection Rating		IP68
Cable Length		zz, see Ordering Information

Accessories



BL120-450
Flow-cell kit for 50 mm
pipe diameter



BL120-463
Flow-cell kit for 63 mm
pipe diameter



BL120-475
Flow-cell kit for 75 mm
pipe diameter



BL120-550
Probe saddle for
50 mm pipe diameter,
1 1/4" thread



BL120-563
Probe saddle for
63 mm pipe diameter,
1 1/4" thread



BL120-575
Probe saddle for
75 mm pipe diameter,
1 1/4" thread



BL120-410
Flow cell



BL120-401
Flow-cell valve



BL120-400
Flow-cell probe
adapter kit



BL120-500
Probe fitting kit



BL120-402
Flow-cell tubing (10 m)



HI605011
PVC mounting flange



HI60542
In-line electrode
holder, direct pipe
installation



HI60501
PVC immersion
electrode holder

HI60501-2
PVC protective
end cap, inside height
z68 mm (2.6")

HI60501-0
O-rings for HI60501
electrode holder



HI60503
PVDF immersion
electrode holder

HI60503-2
PVDF protective
end cap, inside height
68 mm (2.6")



HI76510-05
Patch cable, 5 m (16'5")

HI76510-10
Patch cable, 10 m (32'8")

HI76510-15
Patch cable, 15 m (49'2")

HI76510-25
Patch cable, 25 m (82')

HI76510-50
Patch cable, 50 m (164')

