HANNA instruments Hanna HI520 Dual-Channel Process Controller User Manual

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Dual-Channel Process Controller – Hanna HI520

The Hanna HI520 is a dual-input process controller that is designed to meet the demands of various industries. It accepts virtually any combination of compatible probes, providing the user with the flexibility to adapt to unique process control requirements. Each channel can be independently enabled or disabled.

Ordering Information

- HI520-0320 – 3 relays and 2 analog inputs supplied with 3m power cable, cable gland set, instrument certificate, and quick reference guide with instructions for product manual download.
- HI520-0540 – 5 relays and 4 analog inputs supplied with 3m power cable, cable gland set, instrument certificate, and quick reference guide with instructions for product manual download.

Benefits

- **Control Modes:** The HI520 offers On/Off, proportional, or PID types of control. It allows fine-tuning of a set point to be maintained with tight control preventing any overshoot and waste of chemicals.
- **Data-Logging:** The HI520 can store data at selectable intervals along with relay control settings and calibration data. It can store up to 100 lots, each holding 8,600 records. Data can be transferred to a flash drive or directly to a PC as a .csv file using the USB Type-C port.
- **Digital Communication with Modbus:** The Modbus-compliant unit can be integrated within a Modbus-based network and connected to other industrial electronic devices, allowing you to accomplish tasks remotely.
- **Spring Loaded Screws:** The front panel features spring-loaded screws that won’t fall out when accessed and is hinged for easy access to wiring locations.
- **NEMA 4X Enclosure:** The controllers are suitable for indoor and 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.
- **Cable Glands:** The provided cable glands, seals, and plugs ensure the conduit openings and connection cables are sealed against the environment, maintaining the NEMA 4X enclosure rating during use.
- **USB Type-C Port:** A rubberized plug helps protect the USB Type-C port used for transferring logged data to a

flash drive or PC against the ingress of water.

- **Backlit LCD:** The HI520 sports a 128×64 pixel B/W Graphic LCD with backlight, allowing local visual indicators of measurement details as well as errors to be displayed clearly day and night.
- **DIAG Key:** The help and diagnostic key (? DIAG) provides contextual information related to errors or, in setup mode, information about settings.
- **Configurable Alarm System:** The alarm system is configurable for measured parameters. It can also be activated by event triggers or abnormal operation, such as a dosing relay remaining closed for an excessive period or temperature exceeding 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.

Product Usage Instructions

1. Connect the compatible probes to the HI520.
2. Enable or disable each channel independently as per the requirement.
3. Configure the control modes as per the application requirement. The HI520 offers On/Off, proportional, or PID types of control.
4. Store data by selecting the intervals and transfer it to a flash drive or PC using the USB Type-C port.
5. Integrate the Modbus-compliant unit within a Modbus-based network and connect to other industrial electronic devices for remote operations.
6. Use the spring-loaded screws for wiring and easy access to wiring locations.
7. The NEMA 4X enclosure ensures protection against splashing and hose-directed water or windblown dirt, dust, rain or sleet. Maintain the enclosure rating during use using the provided cable glands, seals, and plugs.
8. Use the DIAG key for contextual information related to errors or settings.
9. Activate the alarm system for measured parameters or abnormal operations. Resolve the alarm state to activate all relays configured for control.

Meet the demands of your industry!

Bottom line

The 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.

Ordering Information

HI520-0320 – 3 relays and 2 analog inputs supplied with 3m power cable, cable gland set, instrument certificate and quick reference guide with instructions for product manual download.
HI520-0540 – 5 relays and 4 analog inputs supplied with 3m power cable, cable gland set, instrument certificate and quick reference guide with instructions for product manual download.

Benefits

Control Modes
Set points for control operations can be configured to be On/Off, proportional, or PID types of control. The flexibility in programming allows for fine-tuning of a set point to be maintained with tight control preventing any overshoot and waste of chemicals.

Data-Logging
Store info at selectable intervals along with relay control settings and calibration data. Up to 100 lots, each holding 8,600 records. Transfer to a flash drive or directly to a PC as a .csv file using the USB Type-C port.

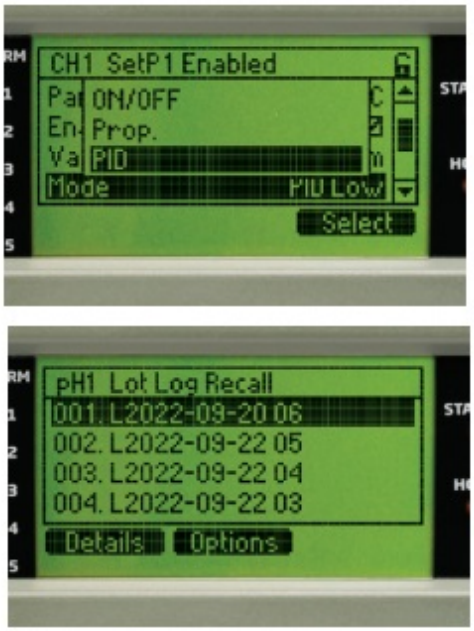
Digital Communication with Modbus

- The Modbus-compliant unit can be integrated within a Modbus-based network and connected to other industrial electronic devices, allowing you to accomplish tasks remotely.

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.

Auto-Cleaning Cycle

Difficult applications often require an almost continuous maintenance of the probe. Processes with high-suspended solids, fats, oils, pigments, or microorganisms will coat the pH sensing glass, ORP sensors, and the reference functions. 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.



Control Modes
The control modes 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.

Automatic Data-Logging and Password Protection
The HI520 has built-in data logging that stores data at selectable intervals along with relay control settings and calibration data. The data is stored in up to 100 lots with each holding 8,600 records. The log interval can be set from every 10 sections up to once every 3 hours. The unit also holds up to 100 events in it's even log that include errors, alarms, warnings, calibration , configuration changes, and cleaning events. This unit also features password protected calibration and setup as a feature to ensure no unauthorized access.

Probes and Other Accessories

HI1006 and HI1016
HI1006 and HI1016 pH and Temperature Industrial Smart Probes are intended for industrial process control. With an internal temperature sensor, flat tip, and PVDF body these probes are suitable for continuous measurement of pH in applications like wastewater treatment, industrial effluent treatment, and surface water monitoring. These probes can be installed in-line, immersed in a tank, or installed into a flow cell.

HI1026-1803
HI1026-1803 pH and Temperature Industrial Smart Probe for Meat Applications are designed to ensure consistent and safe meat product measurement that comply with food safety regulations. It is ideal for the meat processing industry including abattoirs, meat processing, and butchers. It is also compatible with a 49 mm (2″) stainless steel blade tip that is rustproof, corrosion resistant and functions to protect the pH glass and pierce into a meat sample.

HI1126-1805
The HI1126-1805 Industrial Smart Probe for Food Applications is designed as a versatile general purpose

electrode. It sports a sturdy, chemically resistant PP body with a conical tip probe that can be used in most food applications. The probe manages temperature compensation and buffer calibration settings.

HI2004 and HI2014
HI2004 and HI2014 are designed to monitor and control disinfection chemicals or follow and control a critical oxidation (or reduction). mV measurements are auto- compensated. The PTFE junction is ideal for samples with high content of suspended solids or for high pressure installations, while the ceramic junction is porous and chemically resistant making it ideal to handle more general applications .

HI7630-28
The HI7630-28 is a dual electrode probe that is ideal for testing in pure and ultra-pure water. It is recommended to be calibrated with a standard value that is close to the measurement value. This probe can be installed directly in-line, immersed in a tank, or installed into a flow cell. It is suited for continuous measurement of conductivity, TDS, or resistivity required commonly in water treatment, feed water condensate, and drinking water. It is also capable of working in applications needing sea water or surface water monitoring. The internal temperature sensor measures process temperature and adjusts the measured conductivity to a reference temperature by applying specialized compensation standards: Linear, Standard, and Natural.

HI7630-48
The HI7630-48 is a four-ring probe that is ideal for general applications such as industrial process water. It offers stable measurements over a wide range and does not require frequent calibration.This probe can be installed directly in-line,
immersed in a tank, or installed into a flow cell. It is suited for continuous measurement of conductivity, TDS, or resistivity required commonly in water treatment, feed water condensate, and drinking water. It is also capable of working in applications needing sea water or surface water monitoring. The internal temperature sensor measures process temperature and adjusts the measured conductivity to a reference temperature by applying specialized compensation standards: Linear, Standard, and Natural.

HI7640-18
The HI7640-18 is the galvanic dissolved oxygen option compatible with the HI520. It is suitable for control applications in municipal and industrial wastewater treatment. The probe can be submersed/ immersed using the 3/4″ NPT threads, installed directly in-line, or in a flow cell. This probe has a larger electrolyte reservoir to provide a longer service life, though the caps and electrolyte will still need replacement. This probe has a 3 bar (43.5 psi) maximum pressure.

HI7640-58
The HI7640-58 is Hanna's first optical dissolved oxygen option for process instrumentation. When paired with the controller, the system provides accurate dissolved oxygen measurements auto- compensated for barometric pressure, salinity (set manually), and temperature. The probe is designed 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 threads. The optical probe requires a replacement membrane cap only once a year and it does not use electrolyte. Detecting oxygen does not require the consumption of oxygen to take place like in that of polarographic or galvanic dissolved oxygen probes.

Documents / Resources

	**HANNA instruments Hanna HI520 Dual-Channel Process Controller** [pdf] User Manual Hanna HI520 Dual-Channel Process Controller, Hanna HI520, Dual-Channel Process Controller, Process Controller, Controller

References

- **pH Meters, Photometers, Titrators, Controllers - Hanna Instruments**