QUICK REFERENCE GUIDE

HANNA® instruments

HI520 Universal Process Controller
Multiparameter Platform

Available Models

HI520-0320
3 relays & **2** analog outputs

HI520-0540
5 relays & **4** analog outputs

Package Contents

- HI520
- Cable gland seals (1 set)
- Power cable, 3 m (9.84') long
- Quick reference guide
- Instrument quality certificate

Note: Save all packing material. Any damaged or defective item must be returned in its original packing material with the supplied accessories.

Main Features

- Hanna Instruments smart digital probes
- Modbus RS-485 serial communication protocol
- Independent / sequential channel control
- Flexible function assignment for control, cleaning, Hold relays
- Waterproof IP65 enclosure

Safety Precautions

- Electrical connection must be carried out by specialized personnel only. Read safety manual instructions before connecting to power.
- Do not make electrical connections with device connected to power.
- Do not run other cables through the designated power cable gland.
- Have a disconnect switch installed in the vicinity of the instrument to ensure electrical circuit is de-energized for installation.

Connecting to Power

- Loosen the four screws, enough for the springs to push them out.
- Grasp the front bezel and swing open to access the two-terminal power supply board.
- Remove the safety cover to access Terminal 1 block (power path).
- Remove the blank plug and thread the cable through the power cable gland.
- Connect the power cable leads to the removable terminal connector marked **POWER**.
- Follow **L** (live), **PE** (ground), **N** (neutral) lead markings for correct wiring of output leads.
- Carefully put wired terminal connector into place on the board.
- Replace safety cover over Terminal 1.

Terminal 1 Power path

Blank plug

Power cable

L PE N
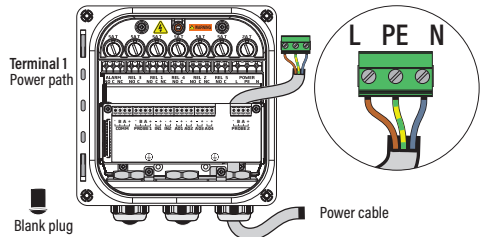
Controller Wiring

- High voltage connections: **POWER**, **ALARM**, **REL 1** to **REL 5** (relays) are made to the Terminal 1 block.
- Low voltage connections: **COMM** (RS-485), **PROBE1**, **IN1** and **IN2** (digital inputs), **A01** to **A04** (analog outputs), and **PROBE2** are made to the raised Terminal 2 block.
- Follow the positive/negative lead markings to ensure that output leads are wired to the correct position on the main board.

Terminal 1

Terminal 2
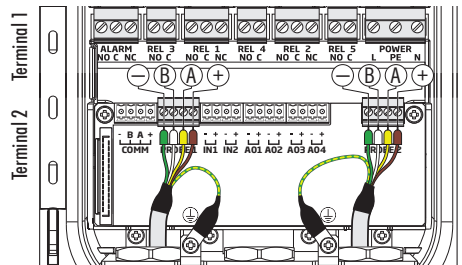
Hanna Instruments is committed to developing and deploying digital solutions with a positive impact on the environment and climate.

Probe Wiring

1. Ensure the controller is not powered.
2. Run the probe cable through the conduit opening.
3. Connect probe leads to the removable terminal connector marked PROBE1 or PROBE2.
   Follow the lead markings (positive/negative) for correct wiring.
4. Carefully put the wired terminal connector into place on the board.
5. Position excess cable through the cable gland before tightening the nut.
6. Remove the ground screw and hardware located below the PROBE1 or PROBE2 connector. Attach the ground lead ($\perp$).

Probe cabling color code

Probe	Marking	Attached Cable	Patch Cable	Function
pH, ORP, EC, DO	−	GREEN	BLACK	0 V
	B	WHITE	WHITE	RS485 D −
	A	YELLOW	BLUE	RS485 D +
	+	BROWN	RED	5 V
	⏚	GREEN-YELLOW	GREEN-YELLOW	PROTECTIVE GROUND
Turbidity (TU)	−	GREEN		
	B	WHITE		
	A	YELLOW		
	+	BROWN		
	⏚	GREEN-YELLOW		

Note:
Ensure wiring regulations are correctly followed when controller unit is part of a larger industrial installation.

Accessories

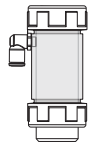Installation accessories can be ordered from your local sales office.

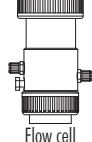|		
Saddle BL120-5XX	Rail mount holder HI605101	Low range turbidity probe dry standard HI7676604
Flow cell BL120-4XX	Flow cell for TU probe HI7676602	Low range turbidity probe calibration beaker HI7676603

Immersion electrode holders HI60501 HI60503

HI510-01 Panel mount   HI510-02 Wall mount   HI510-03 Pipe mount

Scan the QR codes to download probes user manuals.

pH   ORP   EC   Galvanic DO   Optical DO   TU

Probe Series and Configurations

HI10 | X | X | − | Y | 8 | Z | Z | **pH & Temperature**

XX	06	**PTFE** junction			
	16	**Ceramic** junction			

Y		Glass sensor	Titanium Matching Pin	pH range	Temperature range
	1	Low temperature		0.00 to 12.00 pH	−5.0 to 80.0 °C (23.0 to 176.0 °F)
	3	High temperature		0.00 to 14.00 pH	0.0 to 100.0 °C (32.0 to 212.0 °F)
	4	Fluoride resistant		0.00 to 10.00 pH	−5.0 to 60.0 °C (23.0 to 140.0 °F)

HI20 | X | X | − | Y | 8 | Z | Z | **ORP & Temperature**

XX	04	**PTFE** junction		
	14	**Ceramic** junction		

Y		Sensor type	mV range	Temperature range
	1	Platinum	± 2000 mV	−5.0 to 100.0 °C (23.0 to 212.0 °F)
	2	Gold		

HI7630 − | Y | 8 | Z | Z | **EC & Temperature**

Y	2	Two-electrode cell conductivity, SS AISI 316, cell constant k ≈ 0.1/cm	EC 0.000 μS/cm to 30.00 mS/cm TDS 0.000 mg/L to 15.00 g/L (TDS factor 0.5) RES 34 Ω•cm to 99.99 MΩ•cm Temperature 0.0 to 50.0 °C (32.0 to 122.0 °F)
	4	Four-ring conductivity, platinum on glass, cell constant k ≈ 1.0/cm	EC 0.0 μS/cm to 999.9 mS/cm TDS 0.0 mg/L to 400.0 g/L (TDS factor 0.5) RES 1.00 Ω•cm to 9.99 MΩ•cm Seawater Salinity 400.0 %NaCl, 42 psu, 80 ppt Temperature 0.0 to 100.0 °C (32.0 to 212.0 °F)

HI7640 − | 1 | 8 | Z | Z | **Galvanic DO & Temperature**

Galvanic DO sensor	Concentration 0.00 to 50.00 mg/L (ppm) Saturation 0.0 to 500.0 % Temperature −5.0 to 50.0 °C (23.0 to 122.0 °F)

HI7640 − | 5 | 8 | Z | Z | **Optical DO & Temperature**

Optical DO sensor	Concentration 0.00 to 50.00 mg/L (ppm) Saturation 0.0 to 500.0 % Temperature −5.0 to 50.0 °C (23.0 to 122.0 °F)

HI7660 − | 2 | 8 | Z | Z | **Low Range Turbidity**

Turbidity sensor	FNU range	Temperature range
	0.000 to 4.000 FNU 0.00 to 40.00 FNU 0.0 to 400.0 FNU	−5 to 50 °C (23 to 122 °F)

8	**Smart probe**, with RS-485 connection
ZZ	**00** supplied with DIN connector (without cable) **05, 10, 15, 25, 50** fixed cable length (in meters) **02, 05, 10** fixed cable length (in meters) › **HI7660-28** TU probe only