

AS950 IO9000 INPUT/OUTPUT MODULE



Applications

- Wastewater
- Collections
- Industrial Pretreatment
- Environmental Monitoring
- Stormwater

Maximum Versatility

The IO9000 Module allows the use of digital and analog inputs and outputs with the AS950 sampler. With the IO9000 module, the AS950 provides more input and output options than any other Hach sampler before it. For added versatility the IO9000 is available in two versions; IO9001 is available for simple applications that only require 1 high voltage relay while the IO9004 is fully loaded. See specifications for more detail.

Outputs

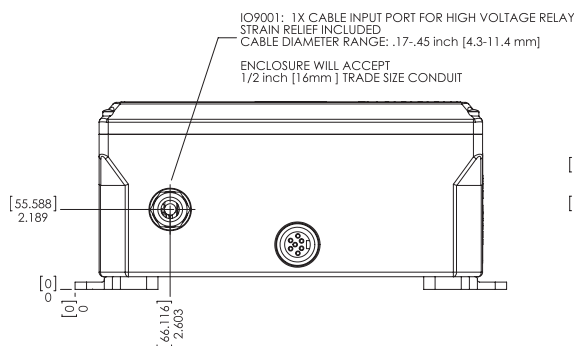
The digital outputs can be used to indicate an alarm or an event. Analog 0/4-20 mA outputs can be used to send information to a SCADA system for parameters such as level, velocity, flow and pH. Examples of alarms and events include: sensor outside of limits (flow related, water quality related, internal temperature or ambient temperature), program started, program completed, sample being taken, bottle full (single bottle), pump running forward, pump running in reverse, pump error, distributor error, power failure, or main battery low.

Inputs

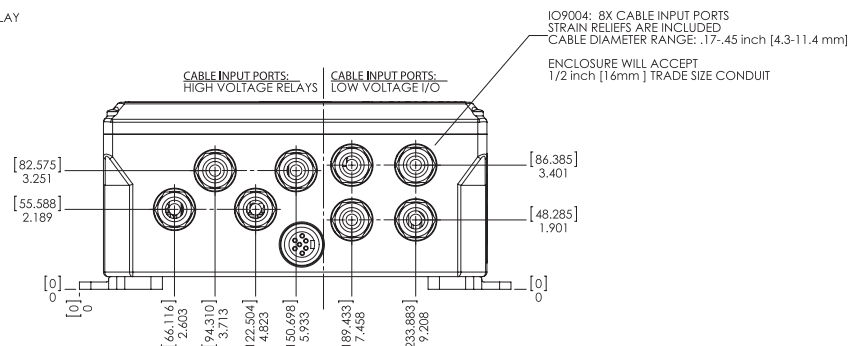
Analog 0/4-20mA inputs can be used to interface third party sensors to the AS950. Once logged, the analog process measurement can be used like a Hach sensor in applications such as setpoint alarms or event-based sampling. In addition, the third party measurements can be monitored on the user interface along with Hach sensors and peripherals. Digital inputs can be used for control signals from a SCADA system or PLC used as a sampling controller.

Relays

Like the digital outputs, these relay outputs are used to indicate alarms or events. The difference is that relays can be used for switching AC mains line voltage to control higher power functions. Examples for use are for a warning light or sound signal, switching a diversion valve or gate or a control signal to another machine.



Input Port Configuration: IO9001



Input Port Configuration: IO9004



Be Right™

Specifications*

General IO9001/IO9004

| | |
|-----------------------------------|------------------------------|
| Storage Temperature | -40 to 80 °C (-40 to 176 °F) |
| Operating Temperature | -40 to 50 °C (-40 to 122 °F) |
| Storage/Operating Humidity | 100% non-condensing |
| Altitude | 2000 Meters |
| Certifications | CETLus |

Mechanical – IO9001/IO9004

| | |
|---|---|
| Enclosure Rating | NEMA 4X, IP 66 |
| Enclosure Material | Polycarbonate (UL94 VO), hardware 18-8SS |
| Enclosure Dimensions (W x D x H) | Enclosure with supplied Mounting Brackets: 9.71" Length, 11.82" Width, 5.12" Depth |
| Instrument Cable | 1.22 m (4 ft) |
| Enclosure Inputs Cable Entry | IO9001: 1 High voltage port, 0 low voltage ports IO9004: High Voltage Ports: 4 Cable Bushings (accommodate cable diameters 0.170"-0.450") Low Voltage Ports: 4 Cable Bushings (accommodate cable diameters 0.170"-0.450") All ports accept user installed ½" (16mm) Trade Size Conduit |
| Weight | 2.5 kg (5.5 lb) |
| Mounting | Mounting Brackets and Hardware included. |
| Wire Connections | Screw terminal strips |

Electrical – IO9001/IO9004

| | |
|--------------------|-----------------------|
| Input Power | Powered by controller |
|--------------------|-----------------------|

Electrical – IO9001

High-Voltage Relays

Form C (SPDT) one contact normally open, one contact normally closed, field wire-able and mapped to alarm events.

- Voltage Rating (Contacts Open): 20Vac-rms to 230Vac-rms
- Current Rating (Contacts Closed): 6mAac-rms to 500mAac-rms

NOTE: Below minimum specified levels the relays may not close or open as expected.
Wire Size: 20 AWG to 14 AWG solid or stranded copper

Electrical – IO9004

Digital Outputs

(4) Low-voltage contact closure mapped to alarm events.

- ±30Vdc max, 150mAdc
- 20Vac-rms, 150mAac-rms

Wire Size: 24 AWG to 16 AWG solid or stranded copper

High-Voltage Relays

(4) Form C (SPDT) one contact normally open, one contact normally closed, field wire-able and mapped to alarm events.

- Voltage Rating (Contacts Open): 20Vac-rms to 230Vac-rms
- Current Rating (Contacts Closed): 6mAac-rms to 500mAac-rms

NOTE: Below minimum specified levels the relays may not close or open as expected.
Wire Size: 20 AWG to 14 AWG solid or stranded copper

Analog Outputs

(3) 0/4-20mA outputs that map logged analog measurements (ex. Level, velocity, flow, pH) - Can function as loop-powered or self-powered.

- Accuracy: 0.8% of FSR over -40 to 50 °C
0.4% of FSR over -10 to 50 °C
- Resolution: <0.05% of FSR
- External Loop Power Supply Voltage: 18V maximum
- Internal Loop Power Supply Voltage: 14V min, 18V max
- Loop Minimum Resistance: 0Ω
- Burden Voltage: 3.6V maximum at 25mA

Wire Size: 24 AWG to 16 AWG solid or stranded copper

Analog Inputs

(2) 0/4-20mA inputs generic to map external processes to logable measurements (ex., third party ultrasonic level).
Current Input Mode:

- Accuracy: 0.5% of FSR over -40 to 50 °C
0.3% of FSR over -10 to 50 °C
- Resolution: <0.05% of FSR
- Loop Power Supply Voltage: 18V maximum (referenced to (-) input)
- Burden: 108Ω max + 0.4V max

Digital Inputs

(4) For event based sampling.

- Input Voltage Range (input pins): 0V to 25Vpeak
- Input Resistance (input pins): 120kΩ typ.
- Default Internal Threshold: 1.5V typ.
- Input Voltage Range (threshold pin): 0.5V to 25Vpeak
- Threshold Using Vth Input: 0.5*Vth typ.

Wire Size: 24 AWG to 16 AWG solid or stranded copper 10kΩ pull-up to external voltage available

User Calibration

2 point linear user calibration for analog output and analog inputs via controller UI

**Subject to change without notice.*

Ordering Information

| | |
|----------------|--------|
| 9494500 | IO9001 |
| 9494600 | IO9004 |

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