Opto 22 SNAP-AIMA-4

01 Four-Channel Analog Current Input Module

Opto 22 SNAP-AIMA-4 converts multiple current loops into controller data while sharing the input reference. Transmitter power topology, polarity and scaling must be coordinated before combining loops on the module.

1. Externally powered loops
2. Shared-reference inputs
3. Current conversion
4. Controller scaling

Externally powered loops in the installed system

All inputs share a common reference, so the module is placed at the appropriate beginning or end of a current loop. Standard and self-sourcing transmitters must not be mixed on the same module using an incompatible common arrangement; separate modules or supplies are required as applicable.

Shared-reference inputs in the installed system

Positive-common and negative-common wiring affect the sign of the measured current. Preserve the intended topology and configure range and engineering scaling to match the actual transmitter circuit rather than correcting a wiring mismatch with an arbitrary offset.

Current conversion in the installed system

Conversion freshness and application scan behavior both affect the resulting response. Validate each channel using known current values and then exercise the application behavior. A single working loop does not prove the common wiring and interpretation of all four.

The SNAP-AIMA-4 columns establish four shared-reference current inputs. Do not transfer the input resistance, timing or isolation of AIMA-8 or isolated -i models.

Opto 22 SNAP-AIMA-4

02 Ratings, interfaces and applicable limits

Input channels	4
Nominal current range	−20 to +20 mA
Over-range interval	−22 to +22 mA
Resolution	0.8 µA
Maximum data freshness	23 ms
Input resistance	200 Ω per channel
Accuracy	0.05%, 10 µA
Module supply	5 V DC ±0.15 V, 170 mA
Operating temperature	−20 to +70 °C

Configuration-specific engineering data

Maximum survivable input	36 mA or 9 V DC
Gain drift	30 ppm/°C
Offset drift	15 ppm/°C
Connector screw torque	5.22 in-lb / 0.59 N·m
Hold-down screw torque	≤1 in-lb / 0.11 N·m
Conductor range	22–14 AWG

Applying these values to the complete installation

The SNAP-AIMA-4 columns establish four shared-reference current inputs. Do not transfer the input resistance, timing or isolation of AIMA-8 or isolated -i models. Plan transmitter power and common connections together; the four channels are not independent floating input circuits.

Opto 22 SNAP-AIMA-4

03 Application decisions and system boundaries

01 Four-loop current acquisition

Read compatible transmitters with a consistent shared-reference arrangement.

02 Process signal scaling

Convert measured current into application engineering units.

03 SNAP rack integration

Use a compatible rack and configured controller/brain.

04 Current-loop maintenance

Validate all channels after changing common or excitation wiring.

Common-reference topology

Plan transmitter power and common connections together; the four channels are not independent floating input circuits.

Loop voltage budget

Include the module input burden and all other series drops when checking available transmitter compliance.

Acquisition versus application timing

Evaluate module freshness together with controller and application behavior when accepting transient response.

Replacement boundary: Match the four-channel shared-reference execution, rack compatibility, loop-power topology and application range/scaling.

Opto 22 SNAP-AIMA-4

04 Eight questions beyond the specification table

1 Can independent floating-loop assumptions be used for SNAP-AIMA-4?

No. All inputs share a reference. Assess common wiring before connecting otherwise separate transmitters.

2 Does SNAP-AIMA-4 provide the current needed to excite a two-wire transmitter?

No. Provide the appropriate external loop supply and verify its path through the transmitter and input.

3 Why might SNAP-AIMA-4 report a negative current for a healthy transmitter?

The positive/negative common arrangement determines sign. Compare wiring topology and configured interpretation before changing scaling.

4 Can standard and self-sourcing transmitters share SNAP-AIMA-4 indiscriminately?

No. Separate them onto appropriate modules or supplies as required by the wiring arrangement; common-reference conflicts must be avoided.

5 How should the burden of SNAP-AIMA-4 be included in a transmitter loop budget?

Allow for the voltage drop across its 200 Ω input at the required current, as well as cable and other series loads.

6 Does SNAP-AIMA-4's data-freshness figure establish the total control response time?

No. Controller scan, communication and application filtering add to module acquisition timing.

7 Why check every channel after rewiring one input on SNAP-AIMA-4?

A shared reference means common wiring errors can affect several loops. Verify all channels with known signals.

8 Can the connector torque for SNAP-AIMA-8 be applied to SNAP-AIMA-4 without checking?

No. Use the torque specific to SNAP-AIMA/SNAP-AIMA-4 rather than transferring a neighboring model's value.

Opto 22 SNAP-AIMA-4

05 Selection boundary and service reference

Identify the offered assembly

Compare the SNAP-AIMA-4 label, connector arrangement and installed SNAP rack. Request available label and connector photos. Have your maintenance team compare the offered SNAP-AIMA-4 with the installed equipment and applicable Opto 22 documents.

Lifecycle and replacement assessment

The current production and manufacturer-support stage for this exact execution is unconfirmed. Match the four-channel shared-reference execution, rack compatibility, loop-power topology and application range/scaling.

Companion equipment and scope

Confirm the module; rack, controller/brain, power supply and field transmitters only when itemized. A related product is not an automatic substitute; assess the installed interface and application requirements independently.

Engineering handover

Evaluate module freshness together with controller and application behavior when accepting transient response. Retain the complete hardware identities, approved configuration and accepted test outcome with the installation record.

Related product references

Opto 22 SNAP-AIV-8

Opto 22 SNAP-AIMA-I

Opto 22 SNAP-PAC-S1

Technical basis: Opto 22 SNAP PAC System Specification Guide, 1696. Apter Power technical synthesis for this product configuration.