1746SC-INI4VI

01 / Product identity and role

Four-Channel Isolated Analog Input Module

AB 1746SC-INI4VI is a four-channel isolated analog input module for an SLC 500 installation. Spectrum Controls produces this SLC-compatible module; each channel is selectable for voltage or current measurement.

Signal route

Four field loops enter separately isolated analog channels

Channel setup

Current or voltage selection is configured channel by channel

Host exchange

SLC slot ID and image words determine controller access

Acceptance focus

Check channel scaling, filter choice and live readings against the loop schedule

Installed-system context

The four differential channels can accept the documented current ranges 0-20 mA and 4-20 mA or voltage ranges 0-5 V, 1-5 V, 0-10 V and ±10 V. Channel-to-channel isolation limits common-path interference between independent field circuits, while field wiring is separately isolated from the SLC backplane.

Controller platform reference: SLC 500 1746 chassis. Match the host project, slot map and field-loop power arrangement.

What SLC module ID should be entered for 1746SC-INI4VI?

The Spectrum Controls manual assigns ID code 3520 to the 1746sc-INI4vi. Confirm the actual slot and the controller program’s I/O configuration before writing or downloading the project.

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02 / Electrical and interface data

Input channels	4 individually configurable differential inputs	**Current ranges**	0-20 mA or 4-20 mA
Voltage ranges	0-5 V, 1-5 V, 0-10 V or ±10 V	**Conversion resolution**	16 bits
Module ID code	3520	**Configuration words**	O:e.0 through O:e.3, one per channel
Input data type	Voltage or current per channel	**Channel isolation**	125 VAC continuous
Field-to-backplane isolation	125 VAC continuous	**Voltage input impedance**	Greater than 220 kΩ

Applicability

These electrical and configuration values apply to the Spectrum Controls 1746sc-INI4vi variant represented by the offered AB 1746SC-INI4VI marking. Verify the installed chassis and program revision before replacing a module.

How is each input of 1746SC-INI4VI changed between current and voltage operation?

Set the individual channel configuration word for the required signal type and range, then compare terminal wiring and the field instrument with that selection. A common setting across all four channels is not required.

Why can a 4-20 mA transmitter connected to 1746SC-INI4VI read zero?

The module measures loop current but does not provide excitation. Check the external transmitter supply, loop continuity, polarity, configured range and channel status before suspecting the converter.

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03 / Host configuration and performance

Current input impedance	Less than 250 Ω	**Backplane requirement**	5 V at 550 mA typical; 24 V at 0 mA
Current-input protection	33 mA continuous, 70 mA transient	**Voltage-input protection**	50 VDC continuous
Operating temperature	0 to 60 °C	**Recommended wiring**	Shielded twisted pair
Loop excitation	External; module does not source loop power		

The Spectrum Controls user manual assigns module ID code 3520 to the 1746sc-INI4vi and uses output image words O:e.0 through O:e.3 for channel configuration. The selected filter, engineering scale and fault-handling choices must match the application program and sensor wiring.

The datasheet specifies 16-bit resolution and typical 5 V backplane draw of 550 mA for the voltage/current variant. For 4-20 mA loops, the module measures current but does not provide transmitter excitation, so the field loop must have its specified external supply arrangement.

Which output image words configure the channels of 1746SC-INI4VI?

Output words O:e.0 through O:e.3 configure channels 0 through 3 respectively, where e is the installed slot number. Preserve the existing channel-to-loop map when changing hardware.

What does channel isolation mean for 1746SC-INI4VI field wiring?

The datasheet specifies 125 VAC continuous channel-to-channel and field-to-backplane isolation. These ratings do not remove the need to follow the complete circuit and grounding design.

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04 / Applications and operating boundaries

Mixed analog acquisition

Configure each channel for the connected voltage or current instrument without assuming a common range across all four loops.

Isolated field circuits

Bring separately referenced measurements into one SLC module while respecting the documented channel and backplane isolation boundaries.

Process signal monitoring

Map measured values and channel status into the host program for application-specific display, alarms or control decisions.

Maintenance replacement

Retain the original slot address, channel configuration, scaling and sensor supply arrangement during an exact-model exchange.

Precautions for service

Match the host slot

Confirm the 1746 chassis location and module ID code 3520 in the SLC I/O configuration before energizing.

Protect field wiring

Isolate field supplies and compare polarity, shield termination and each terminal assignment with the installed drawing.

Provide loop excitation

A 4-20 mA transmitter needs its specified external supply; the input module does not power the loop.

Preserve channel setup

Save each range, filter, scale limit and fault response from the controller project before removing the old module.

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05 / Service decisions and support

Check power budget

Include the voltage/current variant’s typical 550 mA demand on the 5 V backplane when checking the chassis supply.

Prove each input

After replacement, apply a known signal to all four channels and compare raw values, engineering units and diagnostic bits with the pre-work record.

Can 1746SC-INI4VI replace a current-only 1746sc-INI4i without reviewing the program?

Do not assume drop-in equivalence. The INI4vi permits voltage or current selection and has its own module ID, power requirement and configuration. Compare the complete marking, slot definition and channel setup.

Related Apter Power product pages

Allen-Bradley 1746SC-CTR4

Allen-Bradley 1746-NIO4V

Allen-Bradley 1747-L552

Technical enquiry

sales13@apterpower.com | +86 18030235313