Allen-Bradley 1746-NIO4I

SLC 500 analog combination module

VERIFIED ENGINEERING FACTS / 23 distinct technical points

SLC chassis
1746 mounting; preserve the slot assignment and I/O image in the controller program.

Backplane power
55 mA maximum on 5 V and 145 mA maximum on 24 V, per 1746-IN008C-EN-P.

Input accuracy
+/- 0.365% of full scale maximum at 25 C for the standard current-input group.

Output response
2.5 ms to 95% for a current-output step.

Channel update
General analog update time is 512 microseconds for all channels in parallel.

Wire size
Maximum 14 AWG conductor at the terminal block.

Backplane check
Sum all 5 V and 24 V module draws against the installed SLC supply before energizing.

Lifecycle
Rockwell lists 1746-NIO4I as discontinued on 29 April 2021 with Engineering Replacement category.

Input channels
Two differential voltage/current selectable inputs; channels are not individually isolated.

Field isolation
500 V DC field wiring to backplane; not channel-to-channel isolation.

Output range
0-20 mA normal; 5% overrange to 21 mA minus one LSB.

Output load
0-500 ohms; 100 microhenry maximum reactance in the original output table.

Connections
Removable terminal block; analog commons are electrically joined inside the module and not tied to earth inside it.

Environment
Operating 0 to 60 C; storage -40 to +85 C; 5-95% relative humidity without condensation.

Input test
Use a known signal on each input and verify the application scaling; distinguish wiring errors from module failure.

Output channels
Two current outputs, 0-20 mA normal; channels are not individually isolated.

Input range
-20 to +20 mA normal current input with 250 ohm input impedance.

Input resolution
1.22070 microamps per least significant bit in current mode.

Output resolution
14 bit and 2.56348 microamps per least significant bit.

Output accuracy
+/- 0.298% of full scale maximum at 25 C.

Shielding
Rockwell recommends shielded Belden 8761 cable. Apply the documented drain-wire and earth-ground method.

Before removal
Record module series, slot, controller program, voltage/current selection, terminal labels and as-found four-channel readings.

Output test
Measure each loop load and commanded current independently. Check field polarity and common return.

Manufacturer references: Rockwell 1746-NIO4I product record | SLC 500 4-Channel Analog I/O Modules Installation Instructions, 1746-IN008C-EN-P

Technical enquiry

sales13@apterpower.com | +86 18030235313