Overview

This chapter describes the 1746-NI8 analog input module and explains how the SLC 500™ processor gathers analog input from the module. Included is information about:

- the module's hardware and diagnostic features
- an overview of system operation

General Description

The module receives and stores digitally converted analog data into its image table for retrieval by all fixed and modular SLC 500 processors. The module supports connections from any combination of up to eight voltage or current analog sensors.

The 1746-NI8 is a multiclass (Class 1 or Class 3) single-slot module. Class 1① configuration utilizes 8 input words and 8 output words. Class 3 configuration utilizes 16 input words and 12 output words. Fixed and SLC 5/01™ processors can only operate as Class 1. The SLC 5/02™, SLC 5/03™, and SLC 5/04™ processors can be configured for either Class 1 or Class 3.

The 8 high-impedance input channels can be wired as either single-ended or differential inputs. The module provides a direct interface to the following input types:

- ±10V dc
- 1–5V dc
- 0–5V dc
- 0–10V dc
- 0–20 mA
- 4–20 mA
- ±20 mA
- 0–1 mA

The data presented to the processor can be configured as:

- Engineering Units
- Scaled-for-PID
- Proportional Counts (–32,768 to +32,767 range)
- Proportional Counts with User Defined Range (Class 3 only)
- 1746-NI4 Data Format

① Requires use of Block Transfer in a remote configuration.

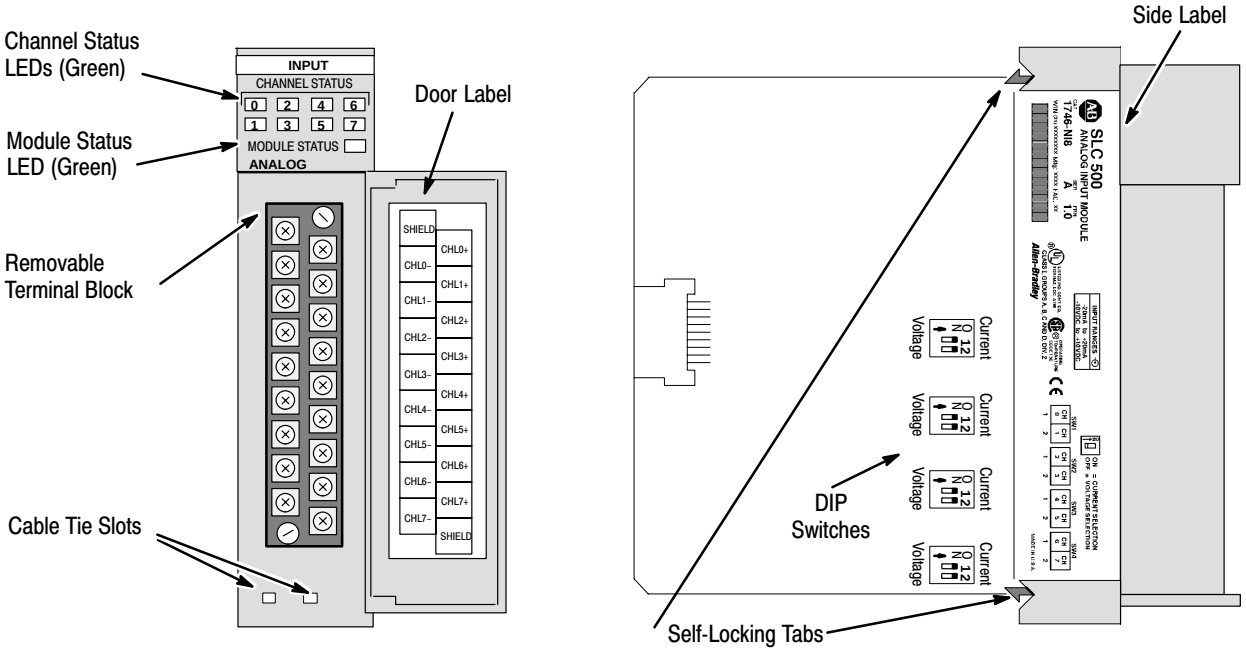
Each input channel also provides open-circuit, out-of-range, and invalid configuration indication via the LEDs. In Class 3 operation these conditions are also in the channel status word.

Important: Status words are only available when the module is configured for Class 3.

Hardware Features

The module fits into any slot, except the processor slot (0), in either an SLC 500 modular system or an SLC 500 fixed system expansion chassis (1746-A2).

The module contains a removable terminal block providing connection for eight analog input channels, which is specifically designed to interface with analog current and voltage input signals. The channels can be wired as either single-ended or differential inputs. There are no output channels on the module. Module configuration is done via the user program. There are DIP switches on the circuit board for selecting voltage or current input.



Hardware Feature	Function
Channel Status LED Indicators	Displays channel operating and fault status.
Module Status LED	Displays module operating and fault status.
Side Label (Nameplate)	Provides module information.
Removable Terminal Block	Provides physical connection to input devices.
Door Label	Permits easy terminal identification.
Cable Tie Slots	Secures and route wiring from module.
Self-Locking Tabs	Secures module in chassis slot.
Voltage/current Selection DIP Switches	Selects voltage or current input type to match the analog sensor.