

# Allen-Bradley 1746 1747 Series Service Manual

1746-NI8

## 1. Description

The Allen-Bradley 1746-NI8 is a SLC 500 Analog I/O Module. This Analog I/O Module has Eight (8) non-isolated differential, voltage or current selectable input channels. This module occupies single slot of the SLC 500 chassis and compatible with fixed or modular style hardware. Technical specifications for 1746-NI8

## 2. Specifications

| Specification | Value                                                                                                                                                 |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manufacturer  | Rockwell Automation                                                                                                                                   |
| Brand         | Allen-Bradley                                                                                                                                         |
| Part          | Number/Catalog No. 1746-NI8                                                                                                                           |
| Series        | SLC 500                                                                                                                                               |
| Module        | Type Analog I/O Module                                                                                                                                |
| Backplane     | Current (5 Volts) 200 milliamps                                                                                                                       |
| Inputs        | 1746-NI4                                                                                                                                              |
| Backplane     | Current (24 Volts DC) 100 milliamps                                                                                                                   |
| Input         | signal Category -20 to +20 mA (or) -10 to +10V dc                                                                                                     |
| Bandwidth     | 1-75 Hertz                                                                                                                                            |
| Input         | Filter Frequencies 1 Hz, 2 Hz, 5 Hz, 10 Hz, 20 Hz, 50 Hz, 75 Hz                                                                                       |
| Update        | Time 6 milliseconds                                                                                                                                   |
| Chassis       | location Any I/O module slot except slot 0                                                                                                            |
| Resolution    | 16 bits                                                                                                                                               |
| Backplane     | Current (5 Volts) 200 mA;(24 Volts DC) 100 mA                                                                                                         |
| Step          | Response 0.75-730 milliseconds                                                                                                                        |
| Conversion    | type Successive approximation, switched capacitor                                                                                                     |
| Applications  | Combination 120 Volts AC I/O                                                                                                                          |
| Input         | Types, Voltage 10V dc 1-5V dc 0-5V dc 0-10V dc                                                                                                        |
| Backplane     | Power Consumption 14 Watts Maximum                                                                                                                    |
| Input         | Type, Current 0-20 mA 4-20 mA 20 mA 0-1 mA                                                                                                            |
| Input         | Impedance 250 Ohms                                                                                                                                    |
| Data          | Format Engineering Units Scaled for PID Proportional Counts (-32,768 to +32,767 range), Proportional Counts (User Defined Range, Class 3 only). 1746- |

## 3. Product Information

The Allen-Bradley 1746-NI8 is a SLC 500 Analog I/O Module. This Analog I/O Module has Eight (8) non-isolated differential, voltage or current selectable input channels. This module occupies single slot of the SLC 500 chassis and compatible with fixed or modular style hardware. Technical specifications for 1746-NI8

Manufacturer Rockwell Automation

Brand Allen-Bradley

Part Number/Catalog No. 1746-NI8

Series SLC 500

Module Type Analog I/O Module

Backplane Current (5 Volts) 200 milliamps

Inputs 1746-NI4

Backplane Current (24 Volts DC) 100 milliamps

Input signal Category -20 to +20 mA (or) -10 to +10V dc

Bandwidth 1-75 Hertz

Input Filter Frequencies 1 Hz, 2 Hz, 5 Hz, 10 Hz, 20 Hz, 50 Hz, 75 Hz

Update Time 6 milliseconds

Chassis location Any I/O module slot except slot 0

Resolution 16 bits

Backplane Current (5 Volts) 200 mA; (24 Volts DC) 100 mA

Step Response 0.75-730 milliseconds

Conversion type Successive approximation, switched capacitor

Applications Combination 120 Volts AC I/O

Input Types, Voltage 10V dc 1-5V dc 0-5V dc 0-10V dc

Backplane Power Consumption 14 Watts Maximum

Input Type, Current 0-20 mA 4-20 mA 20 mA 0-1 mA

Input Impedance 250 Ohms

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

Cable 1492-ACABLE\*C

LED Indicators 9 green status indicators one for each of 8 channels and one for module status

Thermal Dissipation 3.4 Watts

Wire Size 14 AWG

UPC 10662072678036

UNSPSC 32151705 Description

www.oilautotech.com

The Allen-Bradley 1746-NI8 is an analog single-slot I/O module for the SLC 500 system. It is suitable for time-sensitive applications that require fast analog signal conversion and high accuracy. The 1746-NI8 module has an 8-Channel input with an isolated backplane. Its backplane current consumption is 200mA and 100mA at 5 Volts DC and 24 Volts DC respectively. It has a maximum backplane power consumption of 1 Watt at 5 Volts DC and 2.4 Watts at 24 Volts DC. The 1746-NI8 can be installed in any I/O slot, except Slot 0 of the SLC 500 I/O chassis. Input signal data is converted to digital data via successive approximation conversion. The 1746-NI8 module uses programmable filter frequencies with a low-pass digital filter for input filtering. It performs continuous autocalibration and has an isolation voltage of 750 Volts DC and 530 Volts AC, tested for 60 seconds. It has a common-mode voltage ranging from -10 to 10 Volts with a maximum of 15 Volts between any two terminals. The 1746-NI8 module comes with a removable terminal block of 18 positions. For wiring, the Belden 8761 or a similar cable must be used with one or two 14 AWG wires per terminal. The cable has a maximum loop impedance of 40 Ohms at the voltage source and 250 Ohms at the current source. For troubleshooting and diagnostics, it has 9 green LED status indicators. The 8 channels have one indicator each to display the input status and one each for displaying the module status. The 1746-NI8 has a Division 2 hazardous environment standard with an operating temperature of 0 to 60 degrees Celsius. The 1746-NI8 features Eight (8) channel analog input module compatible for used with SLC 500 Fixed or modular hardware style controllers. This module from Allen-Bradley has individually selectable voltage or current input channels. Available selectable input signals include 10V dc, 1-5V dc, 0-5V dc, 0-10V dc for Voltage while 0-20 mA, 4-20 mA, +/-20 mA for Current. Input signals may be represented as Engineering Units, Scaled-for-PID, Proportional Counts (-32,768 to +32,767 range), Proportional Counts with User Defined Range (Class 3 only) and 1746-NI4 Data.

This Eight (8) channel module is compatible for use with SLC 5/01, SLC 5/02, SLC 5/03, SLC 5/04 and SLC 5/05 processors. SLC 5/01 may only operate as class 1 while SLC 5/02, 5/03, 5/04 are configurable for Class 1 and Class 3 operation. The channels of each module may be wired in single-ended or differential input.

This module has a removable terminal block for connection to input signals and easy replacement of module without the need of rewiring. Selection of input signal type is done with the use of embedded DIP switches.