Allen-Bradley 1746 1747 Series Service Manual

1746-HSCE2

1. Description

The Allen-Bradley 1746-HSCE2 is an SLC 500 input module. This is a multi-channel High-speed counter module. This is an intelligent module that is capable of counting in both directions. It has inputs ±A1, ±B1, ±Z1, ±A2, ±B2, and ±Z2 with input voltage range of 4.2V dc to 12V dc and 10V dc to 30V dc. It also has Eight (8) outputs composed of Four (4) virtual and Four (4) real 5-30 VDC Technical specifications for 1746-HSCE2

2. Specifications

Specification	Value
Manufacturer	**Rockwell Automation**
Module	**Type High-Speed input module**
Series	**SLC 500**
Part	**Number/Catalog No. 1746-HSCE2**
Brand	**Allen-Bradley**
Module	**inputs: ±A1, ±B1, ±Z1, ±A2, ±B2, and ±Z2**
Input	**Voltage, nominal 5VDC; 24VDC**
Operating	**Voltage Range 4.2V dc to 12V dc; 10V dc to 30V dc**
Min.	**Pulse Width 475 ns**
Min.	**Phase Separation 200 ns**
Max.	**Input Frequency 1 MHz**
Module	**outputs: Eight (8) outputs; Four (4) Virtual / Four (8) real**
Output	**voltage range: 10-30 VDC**
Inputs	**4 Single-Ended and 2 Differential Quadrature**
Outputs	**4**
Input	**Frequency 1 Megahertz**
Backplane	**Current (5 Volts) 250 milliamps**
Update	**Time 1.5 milliseconds**
Slots	**1**
I/O	**Connection 1746-RT25G**
Step	**Response 100 milliseconds in, 2.5 milliseconds out**
Input	**Voltage 30 Volts DC**
UPC	**10611320083757 Description**
The	**1756-HSCE2 is a multi-channel High-speed counter module. This module is an intelligent module, used for specific purposes of counting, totalizing, position monitoring and other high-speed applications. This module comes with**

3. Product Information

The Allen-Bradley 1746-HSCE2 is an SLC 500 input module. This is a multi-channel High-speed counter module. This is an intelligent module that is capable of counting in both directions. It has inputs ±A1, ±B1, ±Z1, ±A2, ±B2, and ±Z2 with input voltage range of 4.2V dc to 12V dc and 10V dc to 30V dc. It also has Eight (8) outputs composed of Four (4) virtual and Four (4) real 5-30 VDC Technical specifications for 1746-HSCE2

Manufacturer Rockwell Automation

Module Type High-Speed input module

Series SLC 500

Part Number/Catalog No. 1746-HSCE2

Brand Allen-Bradley

Module inputs: ±A1, ±B1, ±Z1, ±A2, ±B2, and ±Z2

Input Voltage, nominal 5VDC; 24VDC

Operating Voltage Range 4.2V dc to 12V dc; 10V dc to 30V dc

Min. Pulse Width 475 ns

Min. Phase Separation 200 ns

Max. Input Frequency 1 MHz

Module outputs: Eight (8) outputs; Four (4) Virtual / Four (8) real

Output voltage range: 10-30 VDC

Inputs 4 Single-Ended and 2 Differential Quadrature

Outputs 4

Input Frequency 1 Megahertz

Backplane Current (5 Volts) 250 milliamps

Update Time 1.5 milliseconds

Slots 1

I/O Connection 1746-RT25G

Step Response 100 milliseconds in, 2.5 milliseconds out

Input Voltage 30 Volts DC

UPC 10611320083757 Description

The 1756-HSCE2 is a multi-channel High-speed counter module. This module is an intelligent module, used for specific purposes of counting, totalizing, position monitoring and other high-speed applications. This module comes with ±A1, ±B1, ±Z1, ±A2, ±B2, and ±Z2 with input voltage range of 4.2VDC to 12VDC and 10VDC to 30VDC. It is also provided with Eight (8) outputs that is comprised of Four (4) virtual and Four (4) real 5-30 VDC sourcing outputs.

The input channels of this module accepts signals with minimum pulse width of 475ns with minimum pulse separation of 200 ns and maximum input frequency of 1 MHz. This module has backplane isolation of 1000V and channel to output isolation of 500V. Each channel of the module has an input voltage range of 4.2V dc to 12V dc when operated at 5VDC and 10V dc to 30V dc when operated at 24VDC.

The module’s output specifications include an output voltage range of 5-30 VDC with maximum On-state output current per channel of 1.0 A while the Max. On-State Current per module is 2.0 A at 40°C and 1.5 A at 60°C. The maximum On-state voltage drop is 0.5V and Maximum Off-State Leakage Current of 100 µA. The 1746-HSCES has backplane isolation of 1000V and output to input isolation of 500V.

This module can be configured to perform counting on both directions. It supports up to Four (4) pulse counters or Two (2) quadrature counters. Each module counter is capable of counting up to +/- 8,388,607, configured as linear or ring counter. This counter module has a dedicated processor to process signals. It can be used in the entire SLC 500 system and with the 1747-ASB SLC Remote I/O Adapter (RIO) Module as a RIO component.

The input channels A and B are configurable to count single-ended pulse for up to 4 input devices. The module features a capacity to control adjustments when actively counting pulses. This allows for greater reliability. The Z input channel handles the storing, holding, and resetting of the counter data. When using a low-frequency input signal, the 1746-HSCE2 may accept false pulses. To avoid high-frequency noise on low-frequency signals, the user should remove the noise with the 1746-HSCE2 input cable to lead the current away from noise sources.

In case of short circuit or overloaded current, the 1746-HSCE2 has a protection that is thermal cut-out based. This serves as a limit that will turn off all channels within milliseconds when the thermal cut-out temperature is reached. The 1746-HSCE2 is compatible with all SLC 500 CPU modules. The counter capability extends to 24 bits (±8,388,607) with operating class 1 or 4. The input voltage ranges from 4.2 to 30 Volts DC and output current to 1 Ampere. Input frequency response reaches to 1 M Hz and 0.7 to 1.6 milliseconds back-plane response time. It is a self-determined rate of periods with no sequence mode and has 16 ranges to count/rate modes. The controller has a 1 preset input for Counters 1 and 2 only but no preset input for Counters 3 and 4. The controller’s isolation voltage is tested to withstand at 1000 Volts. The back-place current at 5 Volts is 250 mA and 0 mA at 24 Volts with a typical throughput of 700 µs. It also has a maximum and minimum thermal dissipation of 1.25 Watts.