

Allen-Bradley 1756 Series Service Manual

1756-HSC

1. Description

Mfr. Part Number:

2. Specifications

Specification	Value
Manufacturer	Rockwell Automation
Brand	Allen-Bradley
Part	Number/Catalog No. 1756-HSC
Series	ControlLogix
Inputs	3 per Counter
Module	Type High Speed Counter Module
Outputs	4-Point
Signal	Frequencies 1 MHz in counter modes (A input); 500 KHz in rate measurement mode (A input); 250 KHz in encoder mode (A/B inputs, X1 or X4); 50Hz with debounce filter enabled
Operation	Modes Counter, Rate Measurement, Encoder, Debounce Filter
Backplane	Current (5Volts) 300 milliamps
Backplane	Current (24 Volts) 3 milliamps
Power	Dissipation (Max) 5.6 Watts at 60 Celsius
Count	Range 0-16, 214, 777
Removeable	Terminal Blocks 1756-TBCH, 1756-TBS6H
Location	Chassis (Any Slot)
Slot	Width 1
UPC	10612598186287 Description
The	Allen-Bradley 1756-HSC is a counter module that is used to perform high-speed counting for industrial applications. This module has selectable modes such as the frequency mode, or the counter mode for processing input signals. The counter mode is set as the default mode which can update da

3. Product Information

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Mfr. Part Number:

1756-HSC

Manufacturer: Allen-Bradley / Rockwell Automation

Description: Allen-Bradley 1756-HSC ControlLogix High Speed Counter Module 2 Channel 4 Output

Full Description: Allen-Bradley 1756-HSC ControlLogix High Speed Counter Module 2 Channel 4 Output (36 Pin). Mode of Operation: Counter - 1 MHz max., Rate Measurement - 500 kHz max., Encoder - 250 kHz max., Debounce filter - 70 Hz max; Number of Counters: 2; Inputs per Counter: 3 (A, B, Z for Gate/Reset); Counter Range: 0...16, 777, 214; Input voltage range: 5V operation: 4.5-5.5V DC, 12/24V operation: 10-31.2V DC; Number of Outputs: 4 (2 per common); Current draw at 5.1V: 300 mA; Current draw at 24V: 3 mA; Power dissipation, max: 5.6 W @ 60°C. The module counts incoming pulses from pulse generators, counters, limit switches, and other devices, and can either return a count to the controller or activate on-board outputs for a specific action depending on application. The 1756-HSC is a High-Speed Counter module is used for interfacing instruments such as encoders, totalizers and other instruments for motion and position control applications and metering systems. It has Two (2) Counters with each Counter capable of Three (3) input in A, B and Z for Gate / Reset signals. This module is installed to a ControlLogix chassis only. Technical specifications for 1756-HSC

Manufacturer Rockwell Automation

Brand Allen-Bradley

Part Number/Catalog No. 1756-HSC

Series ControlLogix

Inputs 3 per Counter

Module Type High Speed Counter Module

Outputs 4-Point

Signal Frequencies 1 MHz in counter modes (A input); 500 KHz in rate measurement mode (A input); 250 KHz in encoder mode (A/B inputs, X1 or X4); 50Hz with debounce filter enabled

Operation Modes Counter, Rate Measurement, Encoder, Debounce Filter

Backplane Current (5Volts) 300 milliamps

Backplane Current (24 Volts) 3 milliamps

Power Dissipation (Max) 5.6 Watts at 60 Celsius

Count Range 0-16, 214, 777

Removeable Terminal Blocks 1756-TBCH, 1756-TBS6H

Location Chassis (Any Slot)

Slot Width 1

UPC 10612598186287 Description

The Allen-Bradley 1756-HSC is a counter module that is used to perform high-speed counting for industrial applications. This module has selectable modes such as the frequency mode, or the counter mode for processing input signals. The counter mode is set as the default mode which can update data every 2 milliseconds. Users can change the storage of the count values because the 1756-HSC module uses the user-configured presets to evaluate it against the count values. This gives the module a faster response time for activating outputs, compared to when an evaluation is done in the controller. Preinstalled configuration tags are available with the 1756-HSC module and these tags will decide whether the pulse that is counted will be an accumulated count, ranging from 1 to 16 million, or a positive or negative frequency, depending on the rotation's direction.

The 1756-HSC module has 3 inputs per counter (A, B, and Z for gate reset) and 4 outputs (2 points per group) that are available for each module. The maximum input frequency is 1 megahertz in the counter mode (A Input), 500 kilohertz in the rate measurement mode (A Input), 250 kilohertz in the encoder mode (A/B Inputs, X1 or X4) and 70 Hertz with the filter enabled. Additionally, each counter channel can assign any number of output channels, with each output having as much as 2 turn-off preset values. Outputs on the 1756-HSC module can be turned on or off at the user's discretion. The operating voltage range at 5 Volts operation is from 4.5 to 5.5 Volts DC and 10 to 31.2 Volts DC for 12/24 Volts operation, the total backplane power dissipation is 1.9 Watts, and the maximum power dissipation is 5.6 Watts at 60 degrees Celsius. The 1756-HSC module is commonly used together with the Allen-Bradley 845 incremental encoder, the PHOTOSWITCH series 10,000 photoelectric sensors, and the Allen-Bradley Bulletin 872 3-wire DC proximity sensor.

The Allen-Bradley 1756-HSC is a High-Speed Counter module that belongs to the 1756 ControlLogix product family. This module is used for counting applications and detecting position or degree of rotation of rotary devices such as a motor.

This module is capable of being used with encoders and pulse generating devices such as metering devices for Flow Totalization and magnetic pick-up sensors to detect the rotation speed of an equipment.

This module has built in Counter and Frequency modes. The selected mode determines the manner on how the pulse will be counted and stored including output behavior.

This module support pulse signals with frequencies of 1 MHz in counter modes (A input) 500 KHz in rate measurement mode (A input) 250 KHz in encoder mode (A/B inputs, X1 or X4) 50Hz with debounce filter enabled. The Count range of this module can reach up to a maximum value of 0 - 16,777,214 which can be reset via an external signal or a memory bit which may be triggered manually or automatically.