

Allen-Bradley 1756 Series Service Manual

1756-OF4

1. Description

Overview Allen-Bradley 1756-OF4 ControlLogix Analog Output Module 4-Ch

2. Specifications

Specification	Value
Manufacturer	Rockwell Automation
Brand	Allen-Bradley
Part	Number/Catalog No. 1756-OF4
Series	ControlLogix
Outputs	4 Current-Voltage
Module	Type Analog Output Module
Output	Voltage Range $\pm 10V$
Output	Current Range 4...20 mA
Output	Voltage Resolution 15 bits across 10.5V, 320 μV /bit 0
Output	Current Resolution 15 bits across 21 mA, 650 nA/bit
Backplane	Current (5Volts) 150 milliamps
Backplane	Current (24 Volts) 120 milliamps
Power	Dissipation (Max) 4.9 Watts at 60 Celsius
Removable	Terminal Blocks 1756-TBNH, 1756-TBSH
UPC	10612598171825
Isolation	Voltage 50 Volts Continuous
Enclosure	None Description
The	Allen-Bradley 1756-OF4 module is a ControlLogix non-isolated output module. It has 4 voltage or current outputs available with a current resolution of 15 bits across 21 mA, 650 nA/bit for a voltage resolution of 16 bits across 10.5V, 320 μV /bit. It requires a 20 pin RTB, or Removable Terminal Block housing for connection to field devices. The compatible RTBs are the 1756-TBSH and the 1756-T

3. Product Information

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Overview Allen-Bradley 1756-OF4 ControlLogix Analog Output Module 4-Ch

Mfr. Part Number:

1756-OF4

Manufacturer: Allen-Bradley / Rockwell Automation

Description: Allen-Bradley 1756-OF4 ControlLogix Analog Output Module Current/Voltage 4-Ports

Full Description: Allen-Bradley 1756-OF4 ControlLogix Analog Output Module, Current/Voltage, 4 Points (20 Pin). Number of Outputs: 4 voltage or current; Resolution: 15 bits; Removable Terminal Block Housing: 1756-TBNH or 1756-TBSH. The 1756-OF4 module supports On-board data alarming, Scaling to engineering units, Real-time channel sampling, IEEE 32-bit floating point or 16-bit integer data formats. The 1756-OF4 is a ControlLogix Four (4) channel analog output module. This module has an output Voltage and Current signals with ranges of ± 10 VDC and 4-20 mA signals respectively. This module is used to drive modulating actuators and devices. This module is directly installed to any 1756 ControlLogix chassis. Technical specifications for 1756-OF4

Manufacturer Rockwell Automation

Brand Allen-Bradley

Part Number/Catalog No. 1756-OF4

Series ControlLogix

Outputs 4 Current-Voltage

Module Type Analog Output Module

Output Voltage Range ± 10 V

Output Current Range 4...20 mA

Output Voltage Resolution 15 bits across 10.5V, 320 μ V/bit

Output Current Resolution 15 bits across 21 mA, 650 nA/bit

Backplane Current (5Volts) 150 milliamps

Backplane Current (24 Volts) 120 milliamps

Power Dissipation (Max) 4.9 Watts at 60 Celsius

Removable Terminal Blocks 1756-TBNH, 1756-TBSH

UPC 10612598171825

Isolation Voltage 50 Volts Continuous

Enclosure None Description

The Allen-Bradley 1756-OF4 module is a ControlLogix non-isolated output module. It has 4 voltage or current outputs available with a current resolution of 15 bits across 21 mA, 650 nA/bit for a voltage resolution of 16 bits across 10.5V, 320 μ V/bit. It requires a 20 pin RTB, or Removable Terminal Block housing for connection to field devices. The compatible RTBs are the 1756-TBSH and the 1756-TBNH. It is important to ensure that the chassis and power supply have already been installed and grounded prior to installing the module to it with the RTB. This output module features a rolling timestamp of data, Removal and Insertion Under Power (RIUP), onboard features, module resolution, producer/consumer communication, and multiple data formats. Data formats available for this module are floating-point mode and integer mode. This module can also multicast fault data and status to the owner-listening controller using the channel data. The 1756-OF4 module has voltage and current ratings of 5.1V DC for the backplane, a maximum of 150 milliamps for 24V DC. It has a current draw of 150 milliamps at 5.1V and 120 milliamps at 24V and a total backplane power of 5.8 W. Its power consumption is 3.7 W of backplane power and its overvoltage protection is 24V DC. The module's open circuit detection is only for current output, but the output should be set to greater than 0.1 milliamps. It also has a short-circuit protection that is limited to 21 milliamps or less. With an output range of 0 to 20 milliamps, it has a low signal and user count of 0 milliamps and -32768 counts and a high signal and user count of 21.2916 milliamps and 32767 counts respectively. At an output range of ± 10 V, the module's low signal and user count are -10.4336V and -32768 counts and the high signal and user count are 10.4336V and 32767 counts respectively. It has been routine-tested for 2 seconds at 1350V AC and has a continuous isolation voltage of 250V. This module as a voltage drive capability of greater than 2000 ohms and a current drive capability of 0 to 750 ohms. It has a module scan time of 12 ms floating-point and a scan time of 8 ms integer with a module error of 0.15% of the range for voltage and 0.3% of the range for current. Its settling time is less than 2 ms to 95% of final value with resistive loads. It also has a maximum power dissipation of 3.25 W (4 channel current) and a thermal dissipation of 10.91 BTU/hr.

The Allen-Bradley 1756-OF4 is an analog output module that is capable of providing analog voltage and current signals. These output signals may be used to actuate modulating devices and actuators or used to retransmit signals for use by recorders, indicators, data loggers and external controllers.

This module has an output Voltage signal of ± 10 VDC or 4-20 mA with resolution of 15 bits across 10.5V, 320 μ V/bit and 15 bits across 21 mA, 650 nA/bit. Using R-Ladder DAC, monotonicity with no missing codes conversion method. When configured for floating point, the module scan time is 12 ms while 8 ms for integer. Analog output modules are typically used for modulating actuators and devices such as Variable Frequency Drives (VFD), Modulating Control Valve, Dampers, Louvers and other actuators. It is typically designed to implement the control outputs or commands configured in the user program. Such user program may include Proportional-Integral-Derivative (PID) controllers, Math calculations, Manual entry interfaces, Move and similar analog handling instructions.

Analog outputs may also be used by recorders, indicators and data loggers. It may also be used to interface external controllers as a remote setpoint to become part of a more advanced control strategies such as Cascade, Feedforward and other control strategies that user more than Two (2) process variables. This module requires calibration every 12 months with calibration accuracy of better than 0.05% of range from 4 to 21 mA, -10.4 to 10.4V.