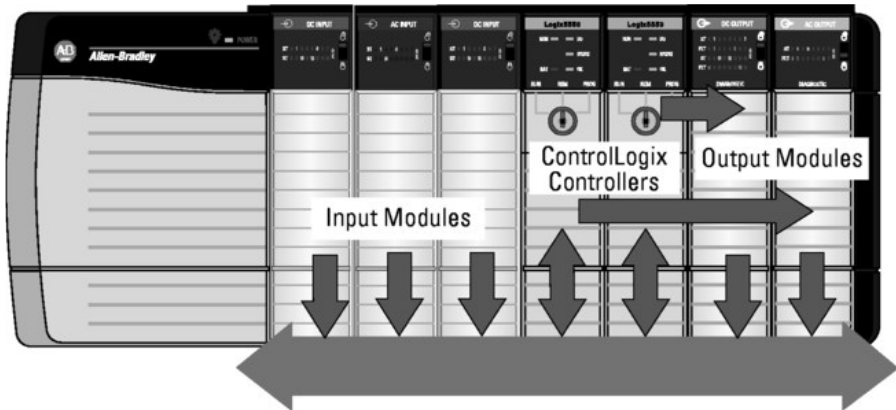


I/O Modules

1756 ControlLogix I/O Modules

The ControlLogix architecture provides a wide range of input and output modules to span many applications, from high-speed digital to process control. The ControlLogix architecture uses Producer-Consumer technology, which allows input information and output status to be shared among multiple ControlLogix controllers.



Each ControlLogix I/O module mounts in a ControlLogix chassis and **requires** either a removable terminal block (RTB) or a 1492 interface module (IFM) to connect all field-side wiring. RTBs and IFMs are not included with the I/O modules. They must be ordered separately.

Environmentals and Certifications

ControlLogix I/O Modules Environmental Specifications

	ControlLogix I/O Modules
Operating Temperature	0...60 °C (32...140 °F)
Storage temperature	-40...85 °C (-40...185 °F)
Relative Humidity	5...95% noncondensing
Vibration	2 g at 10...500 Hz
Operating Shock	30 g
Nonoperating Shock	50 g

ControlLogix I/O Modules Certifications

Certifications: (When product is marked.) c-UL-us, CE, CSA, C-Tick, FM, ATEX, TÜV.

See the Product Certifications link at ab.rockwellautomation.com/ for Declarations of Conformity, Certificates, and other certification details. For TÜV and SIL certification details, see the Safety Certificates and SIL link.

Digital I/O Modules

The 1756 digital I/O modules support these features.

- Variety of voltage interface capabilities
- Isolated and nonisolated module types
- Point-level output fault states
- Direct-connect or rack-optimized communication
- Field-side diagnostics on select modules

In addition, you can select these types of digital I/O modules.

Digital I/O Type	Description
Diagnostic	These modules provide diagnostic features to the point level. These modules have a D at the end of the catalog number.
Electronic fusing	These modules have internal electronic fusing to prevent too much current from flowing through the module. These modules have an E at the end of the catalog number.
Individually isolated	These modules have individually isolated inputs or outputs. These modules have an I at the end of the catalog number.

Digital AC Input Modules

Specifications [PDF]

Cat. No.	Inputs/Outputs	Voltage Category	Operating Voltage Range	Removable Terminal Block
1756-IA8D	8 diagnostic inputs (4 points/group)	120V AC	79...132V AC	1756-TBNH 1756-TBSH
1756-IA16	16 inputs (8 points/group)	120V AC	74...132V AC	1756-TBNH 1756-TBSH
1756-IA16K	Conformal coated 16 inputs (8 points/group)	120V AC	74...132V AC	1756-TBNH 1756-TBSH
1756-IA16I	16 individually isolated inputs	120V AC	74...132V AC	1756-TBCH 1756-TBS6H
1756-IA16IK	Conformal coated 16 individually isolated inputs	120V AC	74...132V AC	1756-TBCH 1756-TBS6H
1756-IA32	32 diagnostic inputs (4 points/group)	120V AC	74...132V AC	1756-TBCH 1756-TBS6H
1756-IM16I	16 individually isolated inputs	240V AC	159...265V AC	1756-TBCH 1756-TBS6H
1756-IM16IK	Conformal coated 16 individually isolated inputs	240V AC	159...265V AC	1756-TBCH 1756-TBS6H
1756-IN16	16 inputs (8 points/group)	24V AC	10...30V AC	1756-TBNH 1756-TBSH

Digital AC Output Modules

Specifications [PDF]

Cat. No.	Inputs/Outputs	Voltage Category	Operating Voltage Range	Removable Terminal Block
1756-OA8	8 outputs (4 points/group)	120/240V AC	79...265V AC	1756-TBNH 1756-TBSH
1756-OA8D	8 diagnostic, electronically fused outputs (4 points/group)	120V AC	74...132V AC	1756-TBNH 1756-TBSH
1756-OA8E	8 electronically fused outputs (4 points/group)	120V AC	74...132V AC	1756-TBNH 1756-TBSH
1756-OA16	16 mechanically fused/group outputs (8 points/group)	120/240V AC	74...265V AC	1756-TBNH 1756-TBSH
1756-OA16K	Conformal coated 16 mechanically fused/group outputs (8 points/group)	120/240V AC	74...265V AC	1756-TBNH 1756-TBSH
1756-OA16I	16 individually isolated outputs	120/240V AC	74...265V AC	1756-TBCH 1756-TBS6H
1756-OA16IK	Conformal coated 16 individually isolated outputs	120/240V AC	74...265V AC	1756-TBCH 1756-TBS6H
1756-ON8	8 outputs (4 points/group)	24V AC	10...30V AC, current >50 mA 16...30V AC, current <50 mA	1756-TBNH 1756-TBSH

Digital DC Input Modules

Specifications [PDF]

Cat. No.	Inputs/Outputs	Voltage Category	Operating Voltage Range	Removable Terminal Block
1756-IB16	16 inputs (8 points/group)	12/24V DC sink	10...31.2V DC	1756-TBNH 1756-TBSH
1756-IB16K	Conformal coated 16 inputs (8 points/group)	12/24V DC sink	10...31.2V DC	1756-TBNH 1756-TBSH
1756-IB16D	16 diagnostic inputs (4 points/group)	12/24V DC sink	10...30V DC	1756-TBCH 1756-TBS6H
1756-IB16DK	Conformal coated 16 diagnostic inputs (4 points/group)	12/24V DC sink	10...30V DC	1756-TBCH 1756-TBS6H
1756-IB16I	16 individually isolated inputs	12/24V DC sink/source	10...30V DC	1756-TBCH 1756-TBS6H
1756-IB16IF	16 individually isolated fast inputs	24V DC sink/source	10...30V DC	1756-TBCH 1756-TBS6H
1756-IB16IFK	Conformal coated 16 individually isolated fast inputs	24V DC sink/source	10...30V DC	1756-TBCH 1756-TBS6H
1756-IB16ISOE	16 individually isolated, sequence of events inputs	24/48V DC sink/source	10...55V DC	1756-TBCH 1756-TBS6H
1756-IB32	32 inputs (16 points/group)	12/24V DC sink	10...31.2V DC	1756-TBCH 1756-TBS6H
1756-IB32K	Conformal coated 32 inputs (16 points/group)	12/24V DC sink	10...31.2V DC	1756-TBCH 1756-TBS6H
1756-IC16	16 inputs (8 points/group)	48V DC sink	30...55V DC at 60 °C 30...60V DC at 55 °C	1756-TBNH 1756-TBSH
1756-IG16	16 inputs (8 points/group)	5V DC TTL source (Low=True)	4.5...5.5V DC	1756-TBNH 1756-TBSH
1756-IH16I	16 individually isolated inputs	125V DC sink/source	90...146V DC	1756-TBCH 1756-TBS6H
1756-IH16ISOE	16 individually isolated, sequence of events inputs	125V DC sink/source	90...140V DC	1756-TBCH 1756-TBS6H
1756-IV16	16 inputs (8 points/group)	12/24V DC source	10...30V DC	1756-TBNH 1756-TBSH
1756-IV32	32 inputs (16 points/group)	12/24V DC source	10...30V DC	1756-TBCH 1756-TBS6H

Digital DC Output Modules

Specifications [PDF]

Cat. No.	Inputs/Outputs	Voltage Category	Operating Voltage Range	Removable Terminal Block
1756-OB8	8 outputs	12/24V DC source	10...30V DC	1756-TBNH 1756-TBSH
1756-OB8EI	8 electronically fused, individually isolated outputs	12/24V DC source	10...30V DC	1756-TBCH 1756-TBS6H
1756-OB16D	16 diagnostic outputs (8 points/group)	24V DC source	19.2...30V DC	1756-TBCH 1756-TBS6H
1756-OB16DK	Conformal coated 16 diagnostic outputs (8 points/group)	24V DC source	19.2...30V DC	1756-TBCH 1756-TBS6H
1756-OB16E	16 electronically fused outputs (8 points/group)	12/24V DC source	10...31.2V DC	1756-TBNH 1756-TBSH
1756-OB16EK	Conformal coated 16 electronically fused outputs (8 points/group)	12/24V DC source	10...31.2V DC	1756-TBNH 1756-TBSH
1756-OB16I	16 individually isolated outputs	12/24V DC sink/source	10...30V DC	1756-TBCH 1756-TBS6H
1756-OB16IS	16 individually isolated outputs 8 scheduled outputs	12/24V DC sink/source	10...30V DC	1756-TBCH 1756-TBS6H
1756-OB16IEF	16 individually isolated, electronically-fused fast outputs	12/24V DC sink/source	10...30V DC	1756-TBCH 1756-TBS6H
1756-OB16IEFK	Conformal coated 16 individually isolated, electronically-fused fast outputs	12/24V DC sink/source	10...30V DC	1756-TBCH 1756-TBS6H
1756-OB32	32 outputs (16 points/group)	12/24V DC source	10...31.2V DC	1756-TBCH 1756-TBS6H
1756-OB32K	Conformal coated 32 outputs (16 points/group)	12/24V DC source	10...31.2V DC	1756-TBCH 1756-TBS6H
1756-OC8	8 outputs (4 points/group)	48V DC source	30...60V DC	1756-TBNH 1756-TBSH
1756-OG16	16 outputs (8 points/group)	5V DC TTL Source (Low=True)	4.5...5.5V DC	1756-TBNH 1756-TBSH
1756-OH8I	8 individually isolated outputs	120V DC	90...146V DC	1756-TBCH 1756-TBS6H
1756-OV16E	16 electronically fused outputs (8 points/group)	12/24V DC sink	10...30V DC	1756-TBNH 1756-TBSH
1756-OV32E	32 electronically fused outputs (16 points/group)	12/24V DC sink	10...30V DC	1756-TBCH 1756-TBS6H

Contact Output Modules

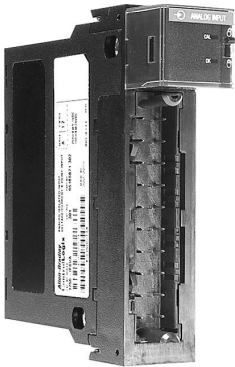
Specifications [PDF]

Cat. No.	Inputs/Outputs	Operating Voltage Range	Removable Terminal Block
1756-OW16I	16 N.O. individually isolated outputs	5...150V DC 10...265V AC	1756-TBCH 1756-TBS6H
1756-OW16IK	Conformal coated 16 N.O. individually isolated outputs	5...150V DC 10...265V AC	1756-TBCH 1756-TBS6H
1756-OX8I	8 N.O. 8 N.C. individually isolated outputs (2 points/group)	5...150V DC 10...265V AC	1756-TBCH 1756-TBS6H

Analog I/O Modules

The 1756 analog I/O modules support these features.

- 6-pt Modules
 - On-board data alarming
 - Scaling to engineering units
 - Real-time channel sampling
 - Data Format: Integer mode (left justified, 2s complement) IEEE 32-bit floating point
 - Module keying: Electronic software configurable
 - RTB keying: User-defined mechanical
- 8-pt Modules
 - Increased accuracy, repeatability and stability over entire temperature operating ranges
 - No field calibration requirement
 - Increased precision with 24 bits of usable resolution
 - CIPSynch-enabled, allowing Timestamping in PTP
 - Synchronized input sampling across all modules anywhere in a CIPSynch system
 - Fast (1 ms) input sampling of floating point values and faster output response times



- Per channel status and fault LED annunciation

Analog Input Modules

Specifications [PDF]

Cat. No.	Inputs/Outputs	Range	Resolution	Removable Terminal Block
1756-IF6CIS	6 individually isolated inputs, current sourcing	0...21 mA	16 bits 0.34 µA/bit	1756-TBNH 1756-TBSH
1756-IF6I	6 individually isolated inputs	±10.5V 0...10.5V 0...5.25V 0...21 mA	16 bits 10.5V: 343 µV/bit 0...10.5V: 171 µV/bit 0...5.25V: 86 µV/bit 0...21 mA: 0.34 µA/bit	1756-TBNH 1756-TBSH
1756-IF8	8 single-ended inputs 4 differential inputs 2 high-speed differential inputs	±10.25V 0...10.25V 0...5.125V 0...20.5 mA	±10.25V: 320 µV/cnt (15 bits + sign bipolar) 0...10.25V: 160 µV/cnt (16 bits) 0...5.125V: 80 µV/cnt (16 bits) 0...20.5 mA: 0.32 µA/cnt (16 bits)	1756-TBCH 1756-TBS6H
1756-IF8K	Conformal coated - 8 single-ended inputs 4 differential inputs 2 high-speed differential inputs			
1756-IF8H	8 differential voltage or current inputs, HART interface	±10V 0...5V 1...5V 0...10V 0...20 mA 4...20 mA	16...21 bits	1756-TBCH 1756-TBS6H
1756-IF8HK	8 differential voltage or current inputs, conformal coated HART interface			
1756-IF8I	8 single-ended inputs, 4 differential inputs, or 2 high-speed differential inputs individually isolated, Configurable as voltage or current inputs	±10V 0...10V 0...5V 0...20 mA	±10.25V: 320 µV/cnt (15 bits + sign bipolar) 0...10.25V: 160 µV/cnt (16 bits) 0...5.125V: 80 µV/cnt (16 bits) 0...20.5 mA: 0.32 µA/cnt (16 bits)	1756-TBCH 1756-TBS6H
1756-IF8IK	Conformal coated 8 single-ended inputs, 4 differential inputs, or 2 high-speed differential inputs individually isolated, Configurable as voltage or current inputs			
1756-IF16	16 single-ended inputs 8 differential or 4 differential (high speed) inputs	±10.5V 0...10.5V 0...5.25V 0...21 mA	16 bits ±10.5V: 343 µV/bit 0...10.5V: 171 µV/bit 0...5.25V: 86 µV/bit 0...21 mA: 0.34 µA/bit	1756-TBCH 1756-TBS6H
1756-IF16K	Conformal coated 16 single-ended inputs 8 differential or 4 differential (high speed) inputs			
1756-IF16H	16 differential current inputs, HART interface	0...20 mA 4...20 mA	16...21 bits 0...21mA: 0.32 µA/bit	1756-TBCH 1756-TBS6H
1756-IF16HK	16 differential current inputs, conformal coated HART interface			

Analog RTD and Thermocouple Modules

Specifications [PDF]

Cat. No.	Inputs/Outputs	Range	Resolution	Thermocouple Types	Removable Terminal Block
1756-IR6I	6 individually isolated RTD inputs	1...487 Ω 2...1000 Ω 4...2000 Ω 8...4020 Ω	16 bits 1...487 Ω: 7.7 mΩ/bit 2...1000 Ω: 15 mΩ/bit 4...2000 Ω: 30 mΩ/bit 8...4020 Ω: 60 mΩ/bit	N/A	1756-TBNH 1756-TBSH
1756-IT6I	6 individually isolated thermocouple inputs 1 CJC	-12...78 mV -12...30 mV	16 bits -12...78 mV: 1.4 µV/bit -12...30 mV: 0.7 µV/bit	B, E, J, K, R, S, T, N, C	
1756-IT6I2	6 individually isolated thermocouple inputs 2 CJC	-12...78 mV (1.4 µV per bit) -12...30 mV (0.7 µV per bit - high resolution range)	16 bits -12...78 mV: 1.4 Vµ/bit -12...30 mV: 0.7 µV/bit	B, E, J, K, R, S, T, N, C, D, L (TXK/XK)	
1756-IRT8I*	8 isolated channels - Any combination of RTD or Thermocouple mode	1...500 Ω 2...1000 Ω 4...2000 Ω 8...4000 Ω -100...100 mV	24 bits 0...510 Ω: 0.06 m Ω /count 0...1020 Ω: 0.12 m Ω /count 0...2040 Ω: 0.25 m Ω /count 0...4080 Ω: 0.50 m Ω /count -101...101 mV: 0.01 µV/count	B, C, D, E, J, K, N, R, S, T, TXK/XK (L)	
1756-IRT8IK*	Conformal coated 8 isolated channels - Any combination of RTD or Thermocouple mode				

* Two CJC sensors for Thermocouple use. The CJC sensors, product catalog number 1756-CJC, do not come with the module. You must order the sensors separately.

Thermocouple Accessories

Cat. No.	Description
1756-CJC	CJC sensor kit. This part is sold separately and ordered when the 1756-IRT8I modules are used in Thermocouple mode and temperature correction is required. Kit includes two jumpers.

Analog Output Modules

Specifications [PDF]

Cat. No.	Inputs/Outputs	Range	Resolution	Removable Terminal Block
1756-OF4	4 voltage or current outputs	±10.4V 0...21 mA	Voltage: 15 bits across 10.5V, 320 µV/bit Current: 15 bits across 21mA, 650 nA/bit	1756-TBNH 1756-TBSH
1756-OF6CI	6 individually isolated current outputs	0...21 mA	13 bits across 21mA (2.7 µA)	1756-TBNH 1756-TBSH
1756-OF6VI	6 individually isolated voltage outputs	± 10.5V	14 bits across 21V (1.3 mV) (13 bits across 10.5V +sign bit)	1756-TBNH 1756-TBSH
1756-OF8	8 voltage or current outputs	±10.4V 0...21 mA	15 bits across 21 mA - 650 nA/bit 15 bits across 10.4V - 320 µV/bit	1756-TBNH 1756-TBSH
1756-OF8K	Conformal coated - 8 voltage or current outputs			
1756-OF8H	8 voltage or current outputs, HART interface	±10.4V 0...20 mA	15...16 bits	1756-TBNH 1756-TBSH
1756-OF8HK	8 voltage or current outputs, conformal coated HART interface	4...20 mA		
1756-OF8I	8 isolated channels - Any combination of voltage or current mode	±10V 0...10V 0...5V 0...20 mA	15 bits across 21 mA - 650 nA/bit 15 bits across 10.4V - 320 µV/bit	1756-TBCH 1756-TBS6H
1756-OF8IK	Conformal coated - 8 isolated channels - Any combination of voltage or current mode			

Analog Combination Input and Output Module

Specifications [PDF]

Cat. No.	Inputs/Outputs	Range	Resolution	Removable Terminal Block
1756-IF4FXOF2F	4 high-speed, sub-millisecond, differential inputs 2 high-speed voltage or current outputs	Input: ± 10.5V 0...10.5V 0...5.25V 0...21 mA Output: ± 10.4V 0...21 mA	Input: Approx. 14 bits across ±10V DC (21V total) ±10V: 1.3 mV/bit, 14-bit effective 0...10.5V: 1.3 mV/bit, 13-bit effective 0...5.25V: 1.3 mV/bit, 12-bit effective Approx. 12 bits across 21 mA 0...21 mA: 5.25 µA/bit Output: 13 bits across 21 mA = 2.8 µA/bit 14 bits across 21.8V = 1.3 mV/bit	1756-TBCH 1756-TBS6H

Specialty I/O Modules

Specialty I/O modules are available for more application-specific needs.

Specialty I/O Modules

Specifications [PDF]

Cat. No.	Inputs/Outputs	Description	Removable Terminal Block
1756-CFM	4 inputs (2 per channel) 2 outputs, current sourcing	Configurable flow meter module 2 Flowmeter (F) inputs used for all modes 2 Gate inputs used in Totalizer mode for prover/store count	1756-TBNH 1756-TBSH
1756-HSC	2 counters, each with 3 inputs (A, B, Z for gate/reset) 4 outputs (2 points/group)	High-speed counter module 5V Operation: 4.5...5.5V DC 12/24V Operation: 10...31.2V DC	1756-TBCH 1756-TBS6H
1756-LSC8XIB8I	8 individually isolated, standard input or counter control functionality	24V Isolated Input/Low Speed Counter Module	1756-TBCH 1756-TBS6H
1756-PLS	Left section: 2 groups of 4 outputs and 4 inputs each Center section: resolver interface and I/O control Right section: 2 groups of 4 outputs and 4 inputs each	Programmable limit switch module	Requires 3 RTBs: 1756-TBNH or 1756-TBSH

Accessories—I/O Modules

Removable Terminal Blocks

Removable terminal blocks (RTBs) provide a flexible interconnection between your plant wiring and 1756 I/O modules. The RTB plugs into the front of the I/O module. The type of module determines which RTB you need. You can choose screw-clamp or spring-clamp RTBs.



RTBs are not shipped with I/O modules. You must order them separately. The standard housing on the front of the wiring arm is not deep enough for 2.5 mm² (14 AWG) wiring. If you plan to use 2.5 mm² (14 AWG) wiring, also order the extended housing.

Removable Terminal Blocks

Specifications [PDF]

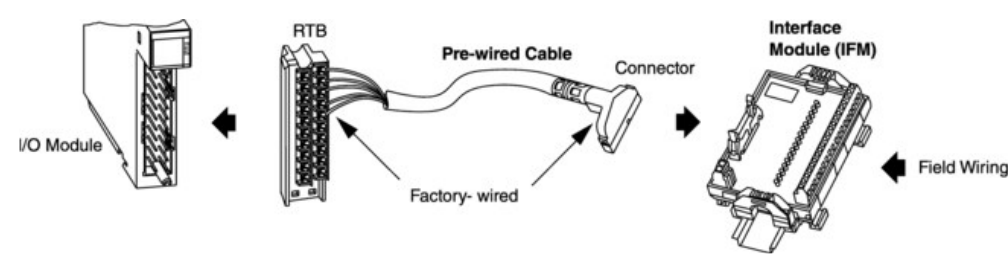
Cat. No.	1756-TBNH	1756-TBSH	1756-TBCH	1756-TBS6H	1756-TBE
Description	20-position NEMA screw-clamp RTB	20-pin spring-clamp RTB with standard housing	36-pin cage-clamp RTB with standard housing	36-pin spring-clamp RTB with standard housing	Extended depth terminal block housing
Screw Torque	0.8...1 N•m 7...9 lb•in		0.4 N•m 4.4 lb•in		—
Screwdriver width	8 mm (5/16 in.) max				

Wiring Systems

As an alternative to buying RTBs and connecting the wires yourself, you can buy a wiring system of:



- interface modules (IFMs) that provide the output terminal blocks for digital I/O modules. Use the pre-wired cables that match the I/O module to the IFM.
- analog interface modules (AIFMs) that provide the output terminal blocks for analog I/O modules. Use the pre-wired cables that match the I/O module to the AIFM.
- I/O module-ready cables. One end of the cable assembly is an RTB that plugs into the front of the I/O module. The other end has individually color-coded conductors that connect to a standard terminal block.



For more information, see the Allen-Bradley Industrial Controls Catalog, Terminal Blocks and Wiring Systems.

Or find a wiring system for your I/O module using our Build a Catalog Number product selection tool.