

# Programmable Controller Wiring Systems

## Catalog Number Explanation

### Analog Cables

#### Pre-Wired

Bulletin 1492 pre-wired cables are designed to minimize control wiring in a panel. Pre-wired cables, when used with an analog IFM, replace the point-to-point wiring between Allen-Bradley programmable controller I/O modules and individual terminal blocks. The pre-wired cables have a removable terminal block or wiring arm from the PLC on one end of the cable and a D-Shell connector with a slide-locking mechanism on the other to connect to the IFM. Most pre-wired cables use twisted pairs and all have shield to aid noise immunity of the low-level analog signals. Most cables have a prepared drain wire with a ring lug at the I/O module end of the cable for convenient grounding of the cable shield to the chassis. They are 100% tested for continuity to make a perfect connection every time. The analog pre-wired cables are offered in four standard lengths of 0.5, 1.0, 2.5, and 5.0 m to fit a variety of applications. Other length cables are also available as build-to-order products. Pre-wired analog cables are available for many of the Bulletin 1746 SLC I/O, Bulletin 1756 ControlLogix I/O, Bulletin 1769 Compact I/O for CompactLogix, MicroLogix 1500, 1794 Flex I/O, and Bulletin 1771 PLC-5 I/O modules.

### Analog Cables

I/O Ready - Not Available

### Analog Cables

IFM Ready - Not Available

### Cat. No. Explanation

Analog Cables for Bulletins 1746, 1756/1757, and 1771

## 1492 – ACABLE 010 A

*a                      b                      c*

<i>a</i>
Analog Interface Cables

Standard or Build-to-Order Length Cable		
Code	Description	
005	0.5 m (1.64 ft)	Standard
010	1.0 m (3.28 ft)	
025	2.5 m (8.20 ft)	
050	5.0 m (16.40 ft)	
001-020	0.1...2.0 m (0.328...6.56 ft) 0.1 m (0.328 ft increments)	Build-to-Order
020-100	2.0...10.0 m (6.56...32.8 ft) 0.5 m (1.64 ft increments)	
100-300	10.0...30.0 m (32.8...98.42 ft) 1.0 m (3.28 ft increments)	

A-Cable Type	
Code	Description
A, B, C, D, K, L, P, Q, R	Pre-wired cables for Bulletin 1746 analog and RTD I/O modules.
E, F, G, H, J	Pre-wired cables for Bulletin 1771 analog and RTD I/O modules.
TA, TB, TC, TD, UA, UB, UC, UD, VA, VB, WA, WB, X, Y, Z, ZA, ZB, ZC	Pre-wired cables for Bulletin 1756 analog, RTD, and thermocouple I/O modules.
YT	Pre-wired cable for Bulletin 1756 thermocouple I/O modules.
M	Pre-wired cables for Bulletin 1757 pulse input I/O modules

**Important:** Use tables as a product configurator for pre-wired, IFM-ready, and I/O module-ready cables for Bulletins 1746, 1756, and 1771 digital I/O module cables. All combinations of these fields make valid product cat. nos. Refer to selection tables for IFM/XIM compatibility, additional cables, and ordering.

### Cat. No. Explanation

Analog Cables for Bulletin 1746, 1769, 700H/700S and 1794

## 1492 – ACAB 005 A46

*a                      b                      c*

<i>a</i>
Analog Interface Cables

Standard or Build-to-Order Length Cable		
Code	Description	
005	0.5 m (1.64 ft)	Standard
010	1.0 m (3.28 ft)	
025	2.5 m (8.20 ft)	
050	5.0 m (16.40 ft)	
001-020	0.1...2.0 m (0.328...6.56 ft) 0.1 m (0.328 ft increments)	Build-to-Order
020-100	2.0...10.0 m (6.56...32.8 ft) 0.5 m (1.64 ft increments)	
100-300	10.0...30.0 m (32.8...98.42 ft) 1.0 m (3.28 ft increments)	

Cable Type	
Code	Description
A46	Analog cable for SLC500
AA69, AB69, BA69, BB69, BC69, BD69, C69, CA69, CB69, CC69, D69, EA69, EB69, EC69, ED69	Analog cable for 1769 I/O
Z7H	Analog cable PowerFlex 700H
X7S, Z7S	Analog cable PowerFlex 700S
Z94	Analog cable for Flex I/O

**Important:** For explanation purposes only. It is not a product configurator. All combinations of fields are not valid product cat. nos. First, select the desired AIFM using the steps in Ordering Digital and Analog Wiring Systems in publication 1492-TD008\_EN-P. Then, use this breakdown for verification and explanation only.



## Digital IFM Modules with Field-Removable Terminal Blocks (RTBs)

Select groups of standard, fused and relay digital 1492 wiring system modules (refer to Selection Tables) have field terminal blocks that can be removed (RTB). This RTB feature can provide easier wiring of field devices in a control cabinet where the IFM is located in a hard to reach area, or where hand-access is limited. It can also provide easier and faster replacement of a damaged or defective 1492 wiring system module. The removable plug portion of the RTB assembly has a screw at each end to securely fasten it to the RTB socket, which is mechanically secured to the module circuit board hand housing. Modules are shipped with the RTB socket, but without the removable plug(s). Plugs are available with screw style (e.g., 1492-RTB20N) or push-in style (e.g., 1492-RTB16P) terminals and must be ordered separately (two pieces per cat. no.). Refer to the selection tables for the particular PLC I/O system of interest to determine which modules are offered with field removable terminal blocks.



All of the features available on fixed terminal block products (e.g. labels, agency certification, etc.) are also provided for the removable terminal block 1492 wiring system modules.

## Analog AIFM Modules with Field-Removable Terminal Blocks (RTBs)

Select groups of analog 1492 wiring system modules (refer to Selection Tables) have field terminal blocks that can be removed (RTB). This RTB feature can provide easier wiring of field devices in a control cabinet where the IFM is located in a hard to reach area, or where hand-access is limited. It can also provide easier and faster replacement of a damaged or defective 1492 wiring system module. The removable plug portion of the RTB assembly has a screw at each end to securely fasten it to the RTB socket, which is mechanically secured to the module circuit board and housing. Modules are shipped with the RTB socket, but without the removable plug(s). Plugs are available with screw style (1492-RTBxxN) or push-in style (1492-RTBxxP) terminals and must be ordered separately (Two pieces per cat. no.). Refer to the Selection Tables for the particular PLC I/O system of interest to determine which modules are offered with field Removable Terminals Blocks.



All of the features available on analog fixed terminal block products (e.g. labels, agency certification, etc.) are also provided for the removable terminal block 1492 wiring system modules.

## Catalog Number Explanation RTB Plugs

**Important:** The following cat. no. breakdown is for explanatory purposes only. It is not a product configurator. Not all combinations of fields are valid cat. nos. Use this breakdown for verification and explanation only.

$$1492 - \frac{RTB}{a} \quad \frac{20}{b} - \frac{N}{c}$$

*a*

*b*

*c*

Removable Terminal Block Plug
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Number of Poles/Terminal	
Code	
8	
12	
14	
16	
17	
20	

Connector Style	
Code	Description
N	Screw Style
P	Push-in Style

## Selecting a Wiring System

### Use of Selection Tables

- Locate I/O module required. The top row indicates the I/O module for the I/O platform.
- Locate the interface module required. The second and third column indicates the interface module catalog number.
- Determine if an interface module exists for the I/O module; indicated by "Letter Code" in row (interface catalog number) and the column (I/O module).
- Locate cable. This is the letter indicated by "Letter Code" in the row (interface catalog number) and the column (I/O module). The "Letter Code" represents the suffix of the pre-wired cable.
- Determine cable catalog number. Add 1492-CABLE\_ \_ \_ "Letter Code", example 1492-CABLE\_ \_ \_ A.
- Determine length of cable required, standard lengths are 0.5, 1.0, 2.5, and 5.0 m; which represents 005, 010, 025 and 050 for \_ \_ \_ in the cable catalog number. Example 1492-CABLE010A = a 1.0 m cable with "Letter Code" A.

# Programmable Controller Wiring Systems

## Bulletin 1756 ControlLogix Modules

### Digital IFMs and Cables for Bulletin 1756 ControlLogix 8-point and 16-point I/O Modules

Voltage [V]	Term. per I/O	Description	Fixed Terminal Block Cat. No.	Removable Terminal Block Cat. No.	RTB Plugs ✦ Cat. No.	Bulletin 1756 ControlLogix I/O Module															
						1756-IA8D	1756-IA16	1756-IB16	1756-IC16	1756-IN16	1756-IV16	1756-OA8	1756-OA8D	1756-OA8E	1756-OA16	1756-OB8	1756-OB16E	1756-OC8	1756-ON8	1756-OV16E	
<b>Feed-Through</b>																					
24...	1	Standard	<b>1492-IFM20F</b>	<b>1492-RIFM20F</b>	1492-RTB10✦	U	X	X	X	X	X	U	U	U	X	U	X	U	U	X	
240	2	Extr. Term.	<b>1492-IFM20F-2</b>	<b>1492-RIFM20F-2</b>	1492-RTB20✦	U	X	X	X	X	X	U	U	U	X	U	X	U	U	X	
24...	1	Narrow	<b>1492-IFM20FN</b>	<b>1492-RIFM20FN</b>	1492-RTB20✦	U	X	X	X	X	X	U	U	U	X	U	X	U	U	X	
120	3	Sensor	<b>1492-IFM20F-3</b>	—	—		X	X	X	X											
<b>LED Indicating</b>																					
24	1	Standard	<b>1492-IFM20D24</b>	—	—			X	X	X							X			X	
	1	Narrow	<b>1492-IFM20D24N</b>	—	—			X	X	X							X				
	2	Extr. Term. (input)	<b>1492-IFM20D24A-2</b>	—	—			X	X	X											
	2	Extr. Term. (output)	<b>1492-IFM20D24-2</b>	—	—													X		X	
	3	Sensor	<b>1492-IFM20D24-3</b>	—	—			X	X	X											
120	1	Narrow	<b>1492-IFM20D120N</b>	—	—	U	X								X						
	2	Extr. Term. (input)	<b>1492-IFM20D120A-2</b>	—	—	U	X														
	2	Extr. Term. (output)	<b>1492-IFM20D120-2</b>	—	—											X					
120	4	Isolated w/Extr.Term.	1492-IFM20DS120-4	—	—											W		W	W		
	4	Isolated w/Extr.Term.	1492-IFM20DS120-4	—	—								W	V	V						
<b>Fusible</b>																					
24	2	Blown fuse LED	<b>1492-IFM20F-F24-2</b>	<b>1492-RIFM20F-F24-2</b>	1492-RTB20✦												X			X	
	2	Blown fuse LED (input)	<b>1492-IFM20F-F24A-2</b>	<b>1492-RIFM20F-F24A-2</b>				X	X												
24...	2	Extra Terminals	<b>1492-IFM20F-F-2</b>	1492-RIFM20F-F-2												X	X			X	
120	2	Blown fuse LED	<b>1492-IFM20F-F120-2</b>	<b>1492-RIFM20F-F120-2</b>												X					
120	2	Blown fuse LED (input)	<b>1492-IFM20F-F120A-2</b>	<b>1492-RIFM20F-F120A-2</b>			X														
<b>Fusible, Isolated</b>																					
24	2	Blown fuse LED	<b>1492-IFM20F-FS24-2</b>	—	—											W		W	W		
24...	2	Extra Terminals	<b>1492-IFM20F-FS-2</b>	—	—							W	V	V		W		W	W		
120	2	Blown fuse LED	<b>1492-IFM20F-FS120-2</b>	—	—							W	V	V							
	4	Blown fuse LED	1492-IFM20F-FS120-4	—	—							W	V	V							
	4	Blown fuse LED (input)	1492-IFM20F-FS120A-4	—	—	U															
240	4	Blown fuse LED	1492-IFM20F-FS240-4	—	—							W									

See footnotes on the following page.



# Programmable Controller Wiring Systems

Bulletin 1756 ControlLogix Modules

## Relay XIMs and Cables for Bulletin 1756 ControlLogix 8-point and 16-point I/O Modules

Voltage [V]	Term. per I/O	Description	Fixed Terminal Block Cat. No.	Removable Terminal Block Cat. No.	RTB Plugs ❖ Cat. No.	Bulletin 1756 ControlLogix I/O Module											
						1756-IA8D	1756-IA16	1756-IB16	1756-IC16	1756-IN16	1756-IV16	1756-OA8	1756-OA8D	1756-OA8E	1756-OA16	1756-OB8	1756-OB16E
						Digital Cable Cat. No. Suffix †											
<b>Relay Master, LED Indicating §❖</b>																	
24	1	8 Relays	<b>1492-XIM2024-8R</b>	—	—												X
	1	16 Relays	<b>1492-XIM2024-16R</b>	—	—												X
	1	16 Relays w/Fusing	<b>1492-XIM2024-16RF</b>	—	—												X
120	1	8 Relays	<b>1492-XIM20120-8R</b>	—	—												X
	1	16 Relays	<b>1492-XIM20120-16R</b>	—	—												X
	1	16 Relays w/Fusing	<b>1492-XIM20120-16RF</b>	—	—												X
<b>High Density Relay Master, LED Indicating §❖</b>																	
24	1	16 Relays - Mechanical	1492-XIMTR2024-16R	1492-RXIMTR2024-16R	1492-RTB20❖												X
	1	16 Relays - Solid-State	1492-XIMTS2024-16R	1492-RXIMTS2024-16R	1492-RTB20❖												X
<b>Relay Expander, LED Indicating §❖</b>																	
24	1	8 Relays	<b>1492-XIM24-8R</b>	1492-RXIM24-8R	1492-RTB12❖												*
120	1	8 Relays	1492-XIM120-8R	—	—											*	
<b>Fusible Expander</b>																	
120	2	8-ch - blown fuse indication	1492-XIMF-F24-2	—	—											*	
120	2	8-ch - blown fuse indication	1492-XIMF-F120-2	—	—										*		
<b>Feed-Through Expander</b>																	
120	2	8-ch	<b>1492-XIMF-2</b>	—	—										*	*	

† To order a Pre-wired Cable, add the appropriate **letter** from the selection table above to the end of the **Cat. No.** below.

0.5M Cable = 1492-CABLE005\_  
 1.0M Cable = 1492-CABLE010\_  
 2.5M Cable = 1492-CABLE025\_  
 5.0M Cable = 1492-CABLE050\_

Custom Length Cable = 1492-CABLEXXX\_. See Catalog Number Explanation on page 12-137 for available Custom Length Codes to replace XXX in Cat. No.

❖ Order plugs separately (two plugs per catalog number). Plugs are available in screw style and push in style terminal types. To order, replace the ❖ in the catalog number with the code for the desired terminal style. The code for screw style is **N** and the code for push in style is **P**.

\* Can have up to one (1) expander module depending upon master used (total 16 outputs or less). An extender cable is provided.

❖ LED indicating PLC output status

§ The voltage rating is relay control/coil voltage. For relay contact ratings, refer to page 9-42.

Analog AIFMs and Cables for Bulletin 1756 ControlLogix Isolated, RTD, Thermocouple and Specialty Modules

Voltage [V]	Term. per I/O	Description	Fixed Terminal Block Cat. No.	Removable Terminal Block Cat. No.	RTB Plugs ❖ Cat. No.	Bulletin 1756 Analog I/O Module*												
						1756-IF6I (Current)	1756-IF6I (Voltage)	1756-IF6CIS	1756-OF6CI	1756-OF6VI	1756-IR6I	1756-IT6I	1756-IT6I2	1756-IF8H (Voltage with HART)	1756-IF8H (Current with HART)	1756-IF16H (Single-ended with HART)	1756-IF16H (Differential with HART)	1756-OF8H (Voltage with HART)
						Analog Cable Cat. No. Suffix †												
<b>Feed-through</b>																		
24	3..4	6-ch isolated	<b>1492-AIFM6S-3</b>	<b>1492-RAIFM6S-3</b>	1492-RTB12❖	X	Y	Z	Y	Y	Z							
	3	8-ch differential, 16-ch single-ended	<b>1492-AIFM8-3</b>	<b>1492-RAIFM8-3</b>	1492-RTB16❖										UC	UD	WA	WB
<b>Thermocouple</b>																		
24	3	6-ch	<b>1492-AIFM6TC-3</b>	—	—								Y	YT				
<b>High-Speed Counter/Encoder</b>																		
24	1	2-ch, counter input 4 outputs	<b>1492-AIFMCE4</b>	—	—												XA	XB
<b>Fusible High-Speed Counter/Encoder</b>																		
24	1	2-ch, fused counter input, fused outputs	<b>1492-AIFMCE4-F</b>	—	—												XA	XB
<b>Fusible Analog</b>																		
24	5	8-ch w/ blown fuse LED	<b>1492-AIFM8-F-5</b>	—	—									UC	UD			
	3	16-ch w/ blown fuse LED	<b>1492-AIFM16-F-3</b>	—	—										UB	§		
	1	8 input/ 2 output ch	1492-AIFMPI	—	—													

† To order a Pre-wired Cable, add the Suffix No. from the table above to the end of the Cat. No. below.

- 0.5M Cable = 1492-ACABLE005\_
- 1.0M Cable = 1492-ACABLE010\_
- 2.5M Cable = 1492-ACABLE025\_
- 5.0M Cable = 1492-ACABLE050\_

Custom Length Cable = 1492-CABLEXXX\_. See Catalog Number Explanation on page 12-137 for available Custom Length Codes to replace XXX in Cat. No.

❖ Order plugs separately (two plugs per catalog number). Plugs are available in screw style and push in style terminal types. To order, replace the ❖ in the catalog number with the code for the desired terminal style. The code for screw style is **N** and the code for push in style is **P**.

\* Some analog I/O modules can be operated in up to four modes (current/voltage, single-ended/differential) based on connections. In all cases, each channel is factory-configured for the same mode. However, you can field configure any channel for another mode. You may need to alter the terminal block wiring to match the application. Refer to the *PLC I/O Module Installation Manual*.

§ Requires two Cat. No. 1492-AIFM16-F-3, one cable, Cat. No. 14952-AC005005UF, is required.

§ This 1492 module is for use in SIL2 safety systems only. It does not satisfy the requirements for general I/O fault tolerance. To use this module in a SIL2 application, specially developed application software for the ControlLogix processor must be used. To obtain the latest revision of this application software contact Technical Support at 1-440-646-3434.

# Programmable Controller Wiring Systems

## Specifications

### General Wiring System Specifications

	Catalog Number 1492-...
Agency Certifications: Modules and Cables	cULus Listed: Hazardous Locations: Class I Div 2 (all except modules with relays); Groups A, B, D, and D. Temperature Code: T3C @ 60 °C. Standard UL File No. E10314, Guide No. NRAG/NRAG7
Agency Certification Modules	cULus Standard Locations; Module with relays; UL File No. E11372, Guide No. NRAQ/NRAQ7
Agency Certification Modules	Factory Mutual (FM): Hazardous Locations; Class I Div 2 (all except modules with relays); Groups A, B, C, and D. Temperature Rating: T3C @ 60 °C. FM File J.I.3000590
CE Certifications	Compliant for all applicable directives
Maximum Peak Transient Voltage	600V ‡
Maximum Current (per circuit)	2 A (except relays) §
Maximum Current (per module)	12 A (except relays) ➤§
Terminal Block Wire Range (Rated Cross Section) *	Fixed Screw Style: #12...#22 AWG (4.0...0.2 mm <sup>2</sup> ) Removable Screw Style: #12 to #22 AWG 2.5...0.5 mm <sup>2</sup> ) Removable Push-in Style: #12 to #26 AWG (2.5...0.2mm <sup>2</sup> )
Wire Strip Length	Fixed Screw Style:.32 in. (8.0 mm) Removable Screw Style:.28 in. (7.0 mm) Removable Push-in Style:.39 in. (10.0 mm)
Recommended Terminal Block Screw Tightening Torque	Fixed Screw Style: 3.5...4.5 lb-in. (0.38...0.50 Nm) Removable Screw Style: 3.5...4.5 lb-in. (0.38...0.50 Nm) Removable Push-in Style: NA (See Push-in RTB Plug Specifications)
Operating Temperature Range	0...+60 °C
Storage Temperature Cables	-20...+80 °C
Storage Temperature Modules	-40...+85 °C
Operating Humidity	5...95% non-condensing
Pollution Degree	2* <sup>⊛</sup>

Max. AWG	#22	#20	#18	#16	#14	#12
Max. No. of Wires per Terminal *	3	3	3	2	1	1

➤ Cat. Nos. 1492-IFM40F-F24AD-4 and 1492-IFM40F-F24D-2 are rated at 8 A.

\* Maximum number of the same gauge stranded copper conductors allowed per wire funnel.

⊛ Pollution Degree 2 is an environment where normally only non-conductive pollution occurs, except for occasional temporary conductivity caused by condensation shall be expected.

‡ For transients >600V, use UL Recognized suppression device rated at 2.5 kV withstand.

§ For relay contact ratings, refer to page 9-42.

