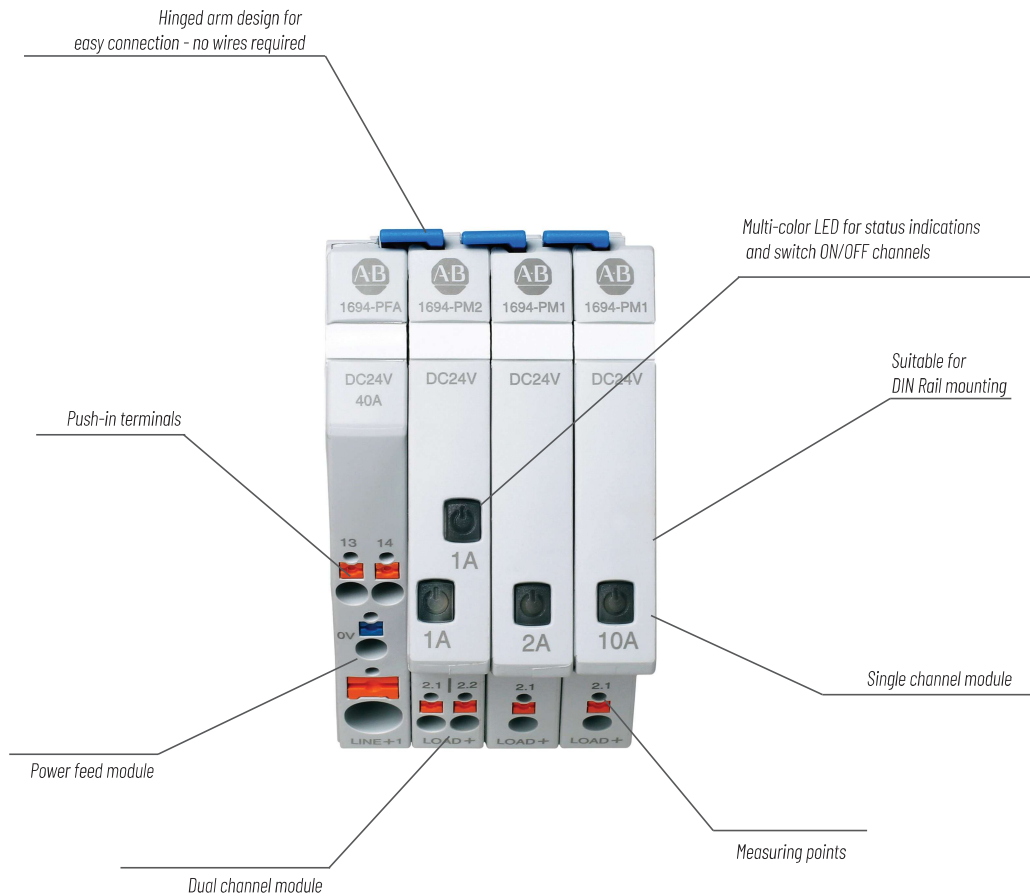


Bulletin 1694 Electronic Circuit Protectors



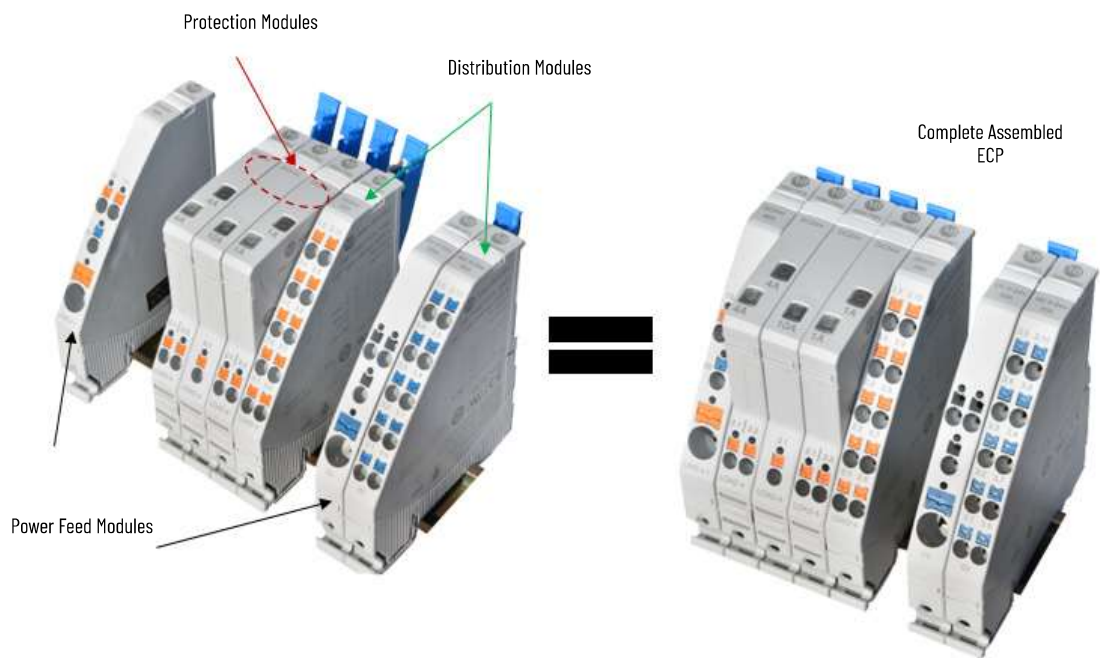
Bulletin 1694 Electronic Circuit Protection (ECP) Modules protect the secondary circuit of 24V DC switched mode power supplies. The modular system can handle multiple channels or 40 A of total current consumption. Designed for 24V DC circuits, 1694 Electronic Circuit Protectors provide comprehensive protection against short circuit and overcurrent conditions while allowing for inrush current.

Features include:

- Clear status indication by means of multicolor light-emitting diode (LED) and auxiliary contact (located in power feed)
- Selective load protection by means of electronic trip curve
- No tools required at commissioning
- Width per channel only 12.5 mm (1-channel) or 6.25 mm (2-channel)

1694 Electronic Circuit Protectors	
Voltage	24V DC (18...30V DC)
Output Current	1 A...10 A (1-channel) 1 A/1 A...6 A/6 A (2-channel) 1 A...4 A NEC Class 2
Standards Compliance	UL 2367, File No. E350272 UL 1310 NEC Class 2 cULus508, File No. E56639
Certifications	CE Marked RoHS Compliant China RoHS Morocco EMC WEEE RCM Certified EAC Certified UKCA Marked

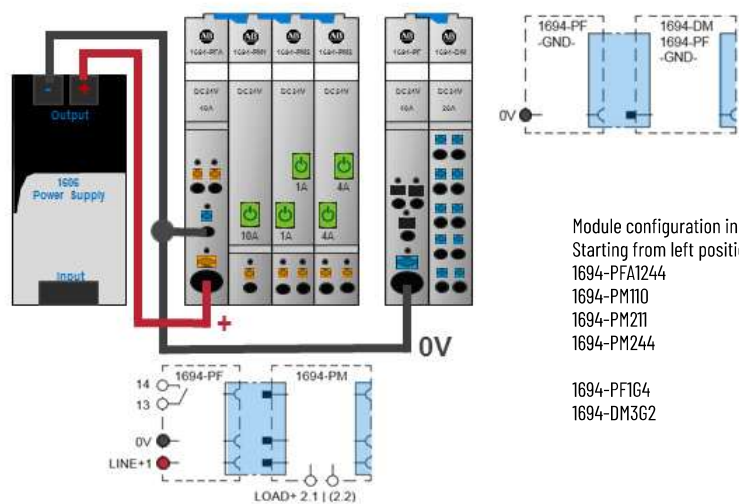
Assembly Example



Power Feed Options

IMPORTANT These are sample schematic diagrams for 24V DC power connection. Load connections to protection modules are not displayed. Number of protection modules may vary. The power supply shown is a representation.

Cat. No. 1694-PF1244 or -PFA1244 Left Mount Power Feed Module (standard)

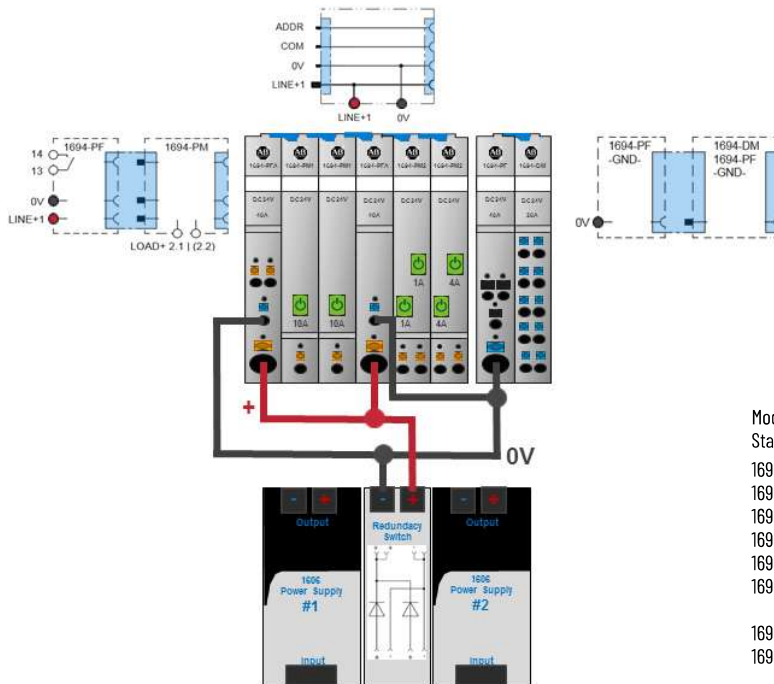


Module configuration in sample schematic diagram
Starting from left position:
1694-PFA1244
1694-PM110
1694-PM211
1694-PM244

1694-PF104
1694-DM302

Cat. No. 1694-PF3L4C Mid or Right Mount Power Feed Module

Typical application: the power supply is connected to both power feed modules. This can be used for redundancy power distribution. AUX contacts (13/14) of the left mount power feed, cat. no. 1694-PFA1244, can be used for signaling tripping information to a PLC.



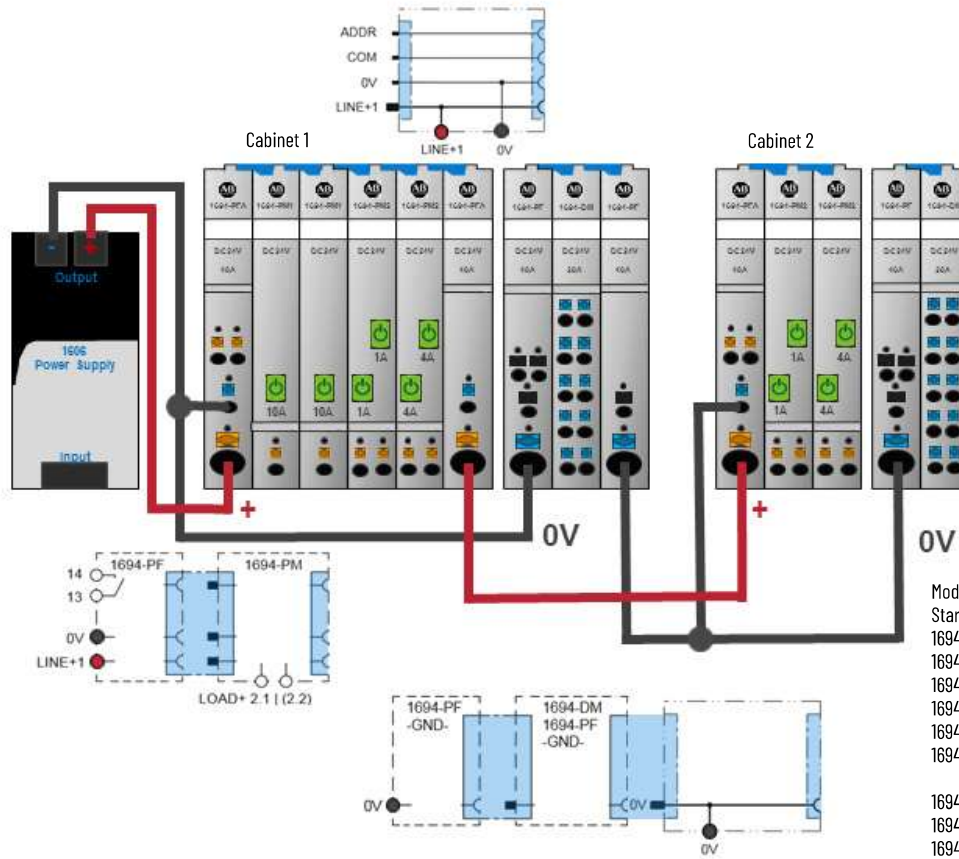
Module configuration in sample schematic diagram
Starting from left position:

- 1694-PFA1244^(a)
- 1694-PM110
- 1694-PM110
- 1694-PF3L4C
- 1694-PM211
- 1694-PM244
- 1694-PF1G4
- 1694-DM3G2

(a) Left-mount power feed, cat. no. 1694-PFA1244 or 1694-PF1244, must be connected as end device on the far left position. If not mounted, there is a non-connected blue hinged arm to the far left mount protection module (in example to cat. no. 1694-PM110).

Cat. No. 1694-PF3L4C Mid or Right Mount Power Feed Module

Typical application: the mid/right mount power feed module, cat. no. 1694-PF3L4C, can be used for distributing the 24V DC (+ and 0V) to another decentralized cabinet. Power consumption of the Bulletin 1694 electronic circuit protector assembly in Cabinet 1 and power consumption of the Bulletin 1694 electronic circuit protector assembly in Cabinet 2 cannot exceed 40 A.



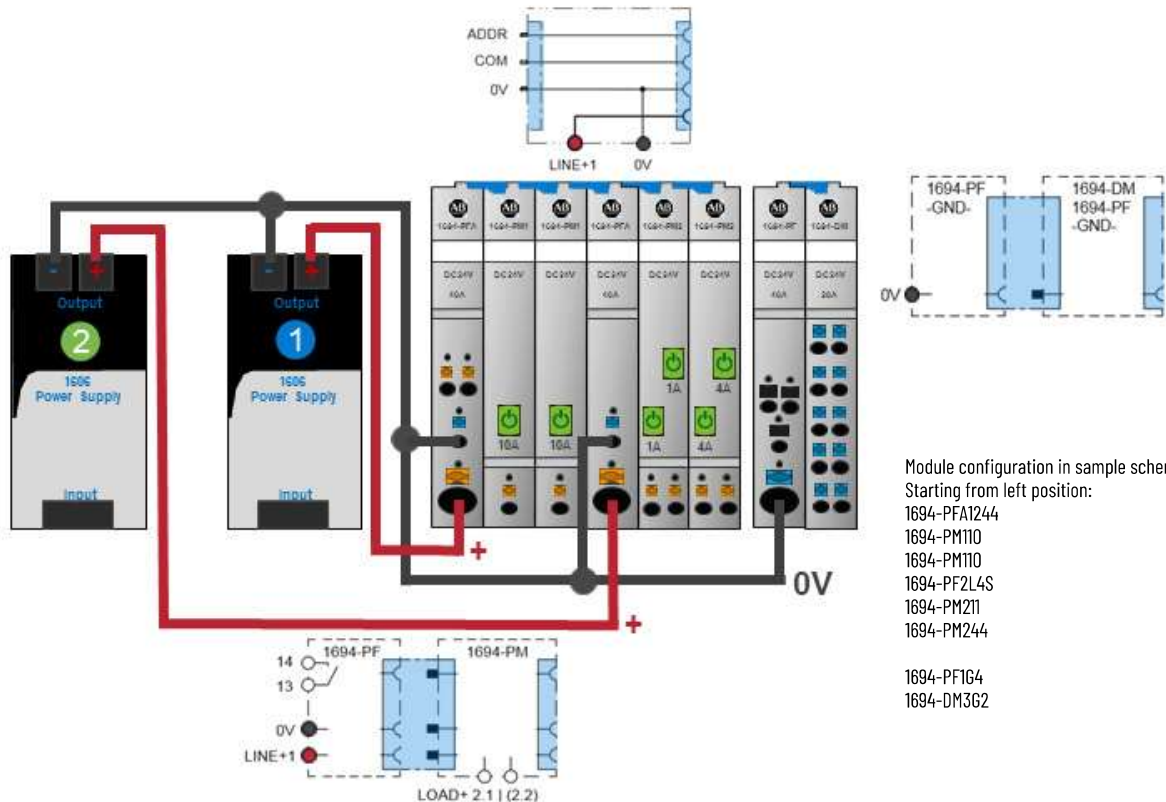
Module configuration in sample schematic diagram
Starting from left position (Cabinet 1 only):

1694-PFA1244
1694-PM110
1694-PM110
1694-PM211
1694-PM244
1694-PF3L4C

1694-PF164
1694-DM362
1694-PF364

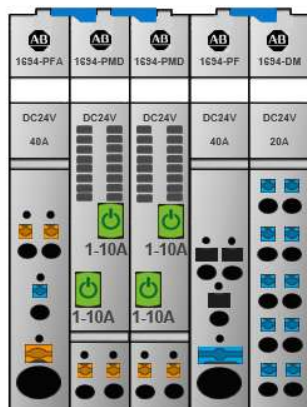
Cat. No. 1694-PF2L4S Mid Mount Power Feed Module

Typical application: different sections of a machine for example, power supply ❶ for sensors, power supply ❷ for actuators. The tripping information of the whole assembly is connected with the AUX contact (13/14) on the left mount power feed, cat. no. 1694-PFA1244, if an uninterruptible power supply (UPS) is used as a supply for certain circuits and protectors.



Cat. No. 1694-PMD2A10 Adjustable Current Protection Module

Protection Module, cat. no. 1694-PMD2A10, can be used in standard, non-communicating assemblies. See the following example:



IMPORTANT Standard protection modules (Cat. No. 1694-PM_) can not be used in IO-Link configurations. For adjustable current Protection Module (Cat. No. 1694-PMD2A10) product selection, see [Bulletin 1694 Electronic Circuit Protectors - Communication Devices on page 103](#).

Catalog Number Explanation

Examples that are given in this section are not intended to be used for product selection. Not all combinations generate a valid catalog number. Use ProposalWorks™ software to configure the PC. ProposalWorks software is available from rok.auto/systemtools.

Power Feed Modules^(a)

1694 - PFA 1 24 4
a b c d



a

Module Type	
Code	Description
PF	Power Feed Module Standard
PFA	Power Feed Module Standard with AUX Contact

b

Mounting Position	
Code	Description
1	Left
2	Middle
3	Middle or Right

c

Function	
Code	Description
24	Line (24V DC input)
L	Line
G	Ground

d

Max Current	
Code	Description
4	40 A
4C ⁽¹⁾	Line Connected
4S ⁽¹⁾	Line Separated

(1) With line option only.

Protection Modules

1694 - PM 1 4 - CL2
a b c d



a

Module Voltage	
Code	Description
PM	Protection Module

b

Number of Channels	
Code	Description
1	1-channel
2	2-channels

d

Rating	
Code	Description
blank	No options
CL2 ⁽¹⁾	Class 2

c

Output Current Rating	
Code	Description
1	1 A
2	2 A
3	3 A
4	4 A
6	6 A
8	8 A
10	10 A
11	1 A, 1 A
22	2 A, 2 A
33	3 A, 3 A
44	4 A, 4 A
66	6 A, 6 A

(1) Class 2 (100 VA) = 1 A...4 A

(a) For an adjustable current protection module, see [Bulletin 1694 Electronic Circuit Protectors - Communication Devices on page 103](#).

Distribution Modules



1694 -

DM

1

L

2

a

b

c

d

a

Module Type	
Code	Description
DM	Distribution Module

b

Terminal Designator	
Code	Description
1	10 Terminals (1 x Line entry/ 9 x Load +)
2	10 Terminals (2 x Line entry separate/ 4 x Load + each)
3	10 terminals GND

c

Function	
Code	Description
L	Line
G	Ground

d

Max Current	
Code	Description
2	20 A

Product Selection

Power Feed Modules

Mounting Position	Supply Voltage	Max Current [A]	Aux Contact	Pkg. Qty.	Cat. No.
Left	24V DC	40	No	1	1694-PF1244
	24V DC	40	Yes	1	1694-PFA1244
	0V Ground	40	No	1	1694-PF164
Middle	24V DC	40, Line Separated	No	1	1694-PF2L4S
Middle or Right	24V DC	40, Line Connected	No	1	1694-PF3L4C
	0V Ground	40	No	1	1694-PF364

Protection Modules

Number of Channels	Fixed or Adjustable Current	Current [A]	Class 2	Pkg. Qty.	Cat. No.
1	Fixed	1	—	4	1694-PM11
			Yes	4	1694-PM11-CL2
		2	—	4	1694-PM12
			Yes	4	1694-PM12-CL2
		3	—	4	1694-PM13
			Yes	4	1694-PM13-CL2
		4	—	4	1694-PM14
			Yes	4	1694-PM14-CL2
		6	—	4	1694-PM16
		8	—	4	1694-PM18
		10	—	4	1694-PM110
2	Fixed	1	—	4	1694-PM211
			Yes	4	1694-PM211-CL2
		2	—	4	1694-PM222
			Yes	4	1694-PM222-CL2
		3	—	4	1694-PM233
			Yes	4	1694-PM233-CL2
		4	—	4	1694-PM244
			Yes	4	1694-PM244-CL2
		6	—	4	1694-PM266

Distribution Modules

Description	Pkg. Qty.	Cat. No.
10 Terminals, 1 x Line, 9 x Load, $I_{\max}$ 20 A	1	1694-DM1L2
10 Terminals, 2 x Line, 4 x Load, $I_{\max}$ 20 A	1	1694-DM2L2
10 Terminals, Ground, $I_{\max}$ 20 A	1	1694-DM3G2

Specifications

Electrical Ratings	
Operating voltage	24V DC (18...30V DC)
Operating current	Max. 40 A
Rated current	1...10 A fixed current
Environmental	
Operating temperature	-25°...+60°C (-13...140°F)
Storage temperature	-40°...+70°C (-40...158°F)
Humidity/Damp heat	96 hrs/95% climate class 3K3
Degree of pollution	2
Degree of protection	IP 20

Construction		
Terminal wire gauge	Push-in terminal PT10	AWG 20 ...8 (0.5mm ² to 10mm ²)
	Push-in terminal PT2.5	AWG 24 ...14 (0.14mm ² to 2.5mm ²)
Termination type		Push-in
Weight per module lb. (g)		approx. 0.13 (60)

Approximate Dimensions

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

Figure 134 - Power Feed Modules

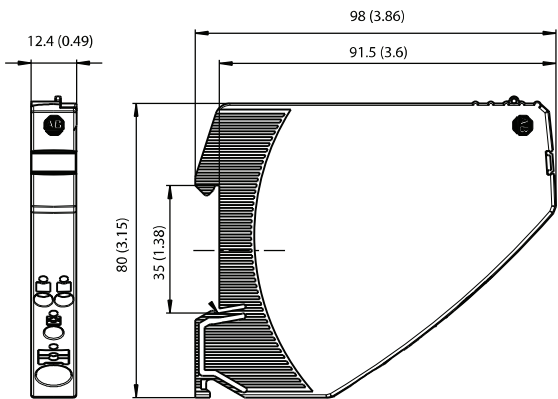


Figure 136 - Distribution Modules

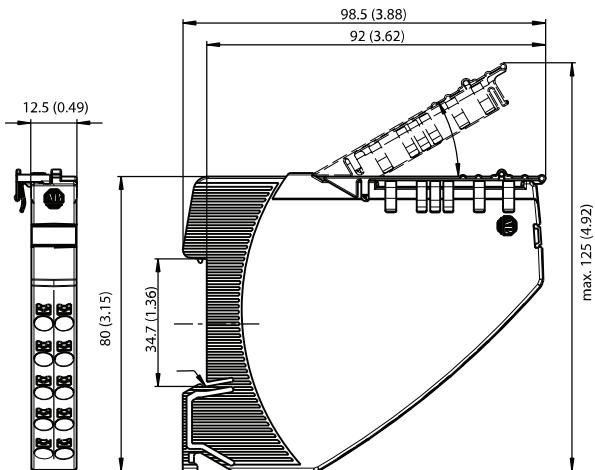
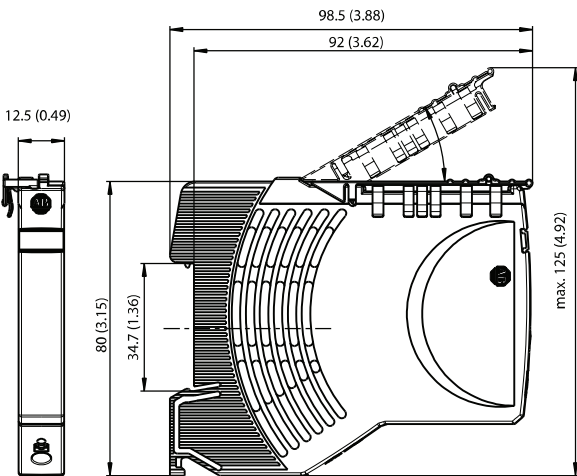


Figure 135 - Protection Modules



Bulletin 1694 Electronic Circuit Protectors - Communication Devices



Bulletin 1694 Electronic Circuit Protection (ECP) communication devices offer the same basic functionality as the standard, non-communication devices of the Bulletin 1694 product line. The communication versions of the protection modules allow for monitoring and parameter setting. A two-channel protection module allows adjustable current from 1...10 A.

The communication power feed allows for IO-Link communication via a plug-in connector. This connector uses a cable to link to the IO-Link Master.

Features include:

- Monitoring of current, voltage, and trip counter
- Remote reset capability
- Warning threshold for nominal current selectable
- Adjustable current setting for corresponding module

1694 Electronic Circuit Protectors	
Voltage	24V DC (18...30V DC)
Output Current	1 A...10 A (1-channel) 1 A/1 A...6 A/6 A (2-channel) 1 A...4 A NEC Class 2
Standards Compliance	UL 2367, File No. E350272 UL 1310 NEC Class 2 cULus508, File No. E56639
Certifications	CE Marked RoHS Compliant China RoHS Morocco EMC WEEE RCM Certified EAC Certified UKCA Marked

IO-Link Sample System

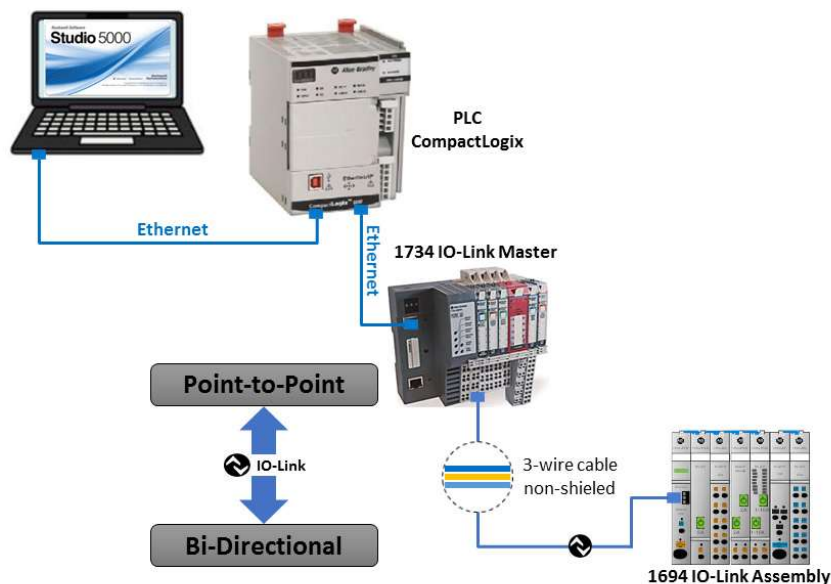
IMPORTANT This is a Rockwell Automation sample system. IO-Link communication works with any IO-Link Master/System components.

This is a short overview of IO-Link technology. For more details please see the IO-Link specification published on the IO-Link community web page <https://io-link.com>.

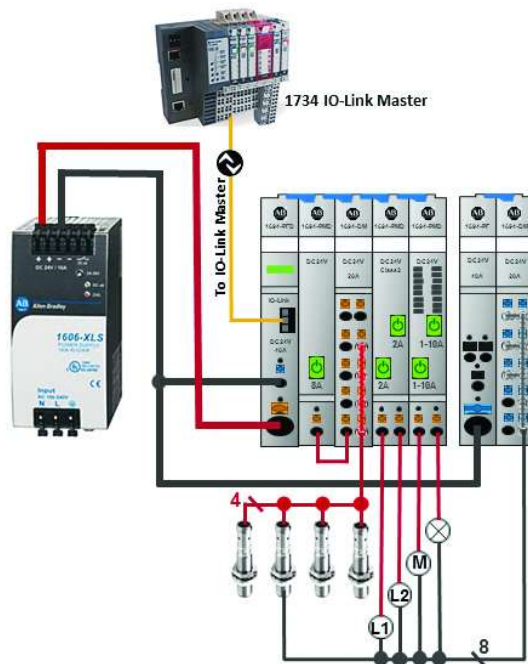
The IO-Link technology is an open point-to-point communication standard and was launched as (IS) IEC 61131-9. IO-Link is now the globally standardized technology developed initially mainly for sensor and actuator communication with a field bus system. This technology provides benefits to both original equipment manufacturers (OEMs) and end users.

IO-Link provides a point-to-point link between the I/O module and device that is used for transferring detailed diagnostics, device identity information, process data, and parameterization.

IO-Link communication is based on a structure in which the master controls the interface access to the IO-Link device. The option of using the intelligence that is integrated into the IO-Link device provides you with new commissioning methods. Benefits range from reduced installation time during startup to increased diagnostics over the lifetime of the machine.



1694 IO-Link Application Example



Module configuration in sample schematic diagram
Starting from left position:

1694-PFD1244
1694-PMD18
1694-DM1L2
1694-PMD222-CL2
1694-PMD2A10
1694-PF1G4
1694-DM3G2

IMPORTANT Distribution modules for +24V DC (Line) and 0V GND can be used universally for standard and IO-Link assemblies. The same statement is valid for 0V GND power feed modules.

Catalog Number Explanation

Examples that are given in this section are not intended to be used for product selection. Not all combinations generate a valid catalog number. Use ProposalWorks™ software to configure the PC. ProposalWorks software is available from rok.auto/systemtools.

Power Feed Module



1694	-	PFD	1	24	4
		a	b	c	d
		a		b	
		Module Type		Mounting Position	
		Code	Description	Code	Description
		PFD	Power Feed Module IO-Link	1	Left
				c	
				Function	
				Code	Description
				24	Line (24V DC input)
				d	
		Max Current			
		Code	Description		
		4	40 A		

Protection Modules



1694	-	PMD	1	4	-	CL2
		a	b	c		d

a	
Module Voltage	
Code	Description
PMD	Protection Module IO-Link

b	
Number of Channels	
Code	Description
1	1-channel
2	2-channels

c	
Output Current Rating	
Code	Description
1	1 A
2	2 A
3	3 A
4	4 A
6	6 A
8	8 A
10	10 A
11	1 A, 1 A
22	2 A, 2 A
33	3 A, 3 A
44	4 A, 4 A
66	6 A, 6 A
A10	Adjustable 1...10 A

d	
Rating	
Code	Description
blank	No options
CL2 ⁽¹⁾	Class 2

(1) Class 2 (100 VA) = 1 A...4 A

Distribution Modules

IMPORTANT Distribution modules for +24V DC (Line) and 0V GND can be used universally for standard and IO-Link assemblies. The same statement is valid for 0V GND power feed modules.

Product Selection

Power Feed Module +24V DC (Line)

Mounting Position	Supply Voltage	Max Current [A]	Aux Contact	Pkg. Qty.	Cat. No.
Left	24V DC	40	No	1	1694-PFD1244

Protection Modules

Number of Channels	Fixed or Adjustable Current	Current [A]	Class 2	Pkg. Qty.	Cat. No.
1	Fixed	8	—	4	1694-PMD18
		10	—	4	1694-PMD110
2	Fixed	1	—	4	1694-PMD211
			Yes	4	1694-PMD211-CL2
		2	—	4	1694-PMD222
			Yes	4	1694-PMD222-CL2
		3	—	4	1694-PMD233
			Yes	4	1694-PMD233-CL2
		4	—	4	1694-PMD244
			Yes	4	1694-PMD244-CL2
		6	—	4	1694-PMD266
	Adjustable	1...10	—	4	1694-PMD2A10

Specifications

Electrical Ratings		
Operating voltage		24V DC (18...30V DC)
Operating current		Max. 40 A
Rated current		1...10 A fixed current 1...10 A adjustable current
Environmental		
Operating temperature		-25...+60 °C (-13...140 °F)
Storage temperature		-40...+70 °C (-40...158 °F)
Humidity/Damp heat		96 hrs/95% climate class 3K3
Degree of pollution		2
Degree of protection		IP 20
Construction		
Terminal wire gauge	Push-in terminal PT10	AWG 20...8 (0.5...10mm ²)
	Push-in terminal PT2.5	AWG 24...14 (0.14...2.5mm ²)
Termination type		Push-in
Weight per module lb. (g)		Approximately 0.13 (60)

Approximate Dimensions

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

Figure 137 - Power Feed Module

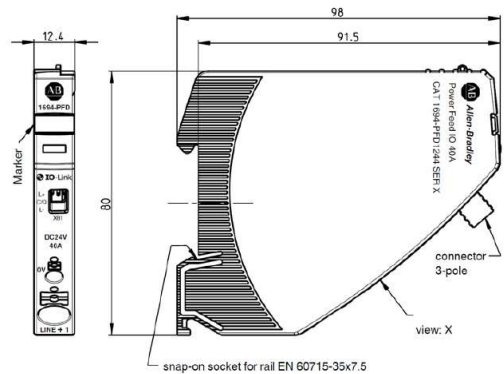


Figure 138 - Protection Modules

