



On-Machine Media for Armor PowerFlex, ArmorStart, and ArmorConnect Products

Bulletin Numbers 35, 280, 284, 285, 357, 879, 888, 889, 898, 1485, 1585



Allen-Bradley

by ROCKWELL AUTOMATION

Selection Guide

What's Inside

Topic	Page
What's New	2
Armor PowerFlex Drive and ArmorStart Controller Cables and Media	3
Armor PowerFlex Listed Enclosure Ratings when used with Cable Assemblies and Sealing Caps	5
Typical Wiring Configurations	6
ArmorConnect Three-phase Power Media	19
Three-phase Power Trunk Cables	20
Three-phase Power Drop Cables	22
Three-phase Power T-ports and Reducing Adapters	24
Three-phase Power Receptacles	27
Three-phase Power Field-installed Connectors	29
ArmorConnect Control/Auxiliary Power Media	31
Auxiliary Power Cables	32
Auxiliary Power T-Ports	35
Auxiliary Power Receptacles	37
Auxiliary Power Shorting Plugs	39
Motor and Brake Media	41
Motor Cables	41
Hybrid Motor and Brake Cables	45
Brake Cables	47
Motor Receptacles	49
Hybrid Motor and Brake Receptacles	51
Brake Receptacles	52
Field-installed Electromechanical (EM) Brake Connectors	53
Field-installed Motor Connectors	54
I/O and Network Communication Media	57
I/O Media	57
Ethernet Media	59
DeviceNet Media	60
Accessories	63
Locking Clips	63
Locking Tag	63
Motor Connector Adapter – M25 to Square	63
Safety I/O Bypass Plug	63
Sealing Caps	64
Mounting Nuts and Sealing Washers for Receptacles	64
Cord Grips	65
Additional Resources	67

What's New

Topic	Pages
Added Armor PowerFlex drives with daisy-chained hardwired safety wiring diagram	8

Product Description

The Armor™ PowerFlex® drive and ArmorStart® distributed motor controller use ArmorConnect® media and motor, brake, I/O, and network media to make their connections. The modular design of the Armor PowerFlex and ArmorStart product families offers simplicity in wiring by using quick connects for the I/O, communications, power, and motor connections. Quick connects fully integrate the plug-n-play solution that results in significant installation cost savings.

Compared to the traditional conduit installations, these products:

- Reduce commissioning time and labor costs
- Feature a plug-and-play design that helps to eliminate wiring errors
- Increase system design flexibility
- Use standard tools



The cable lengths that are listed in this publication include their connectors in the overall length dimension. Be sure to order a sufficient length for your application.

Armor PowerFlex Drive and ArmorStart Controller Cables and Media

This section contains descriptions of three-phase power, control (auxiliary) power, motor, brake, I/O, and network communication media, suitable for Armor PowerFlex drive and ArmorStart controller connections. This section also contains typical wiring diagrams for various Armor PowerFlex drives and ArmorStart controllers. Each diagram lists common cables and media that are used.

ArmorConnect Three-phase Power Input Media

ArmorConnect power media offers both three-phase and control power cable systems of cordsets, patchcords, receptacles, tees, reducers and accessories, to be used with the Armor PowerFlex drive and ArmorStart controller. These cable system components allow quick connection of Armor PowerFlex drives and ArmorStart controllers, which reduces installation time. They allow for repeatable, consistent connection of the three-phase and control power to the Armor PowerFlex drive, ArmorStart controller, and motor. They provide a plug-and-play environment that also helps to avoid mis-wiring of the system. See [ArmorConnect Three-phase Power Media on page 19](#) for details.

		
Trunk cable assemblies	Tee, reducer adapter, and field-attachable connector	Through-panel receptacles

Control (Auxiliary) Power Media

Auxiliary power media offers a quick connect cable that provides a secure connection to the Armor PowerFlex drives and ArmorStart controllers. For Armor PowerFlex drives, the auxiliary power media components are based on a 5-pin, L-code connector. For ArmorStart ST controllers, the auxiliary power media components are based on a 4-pin, mini-connector. Other ArmorStart controllers use 6-pin/5-used mini-connectors. The connectors can be straight or right angled and are physically keyed to avoid incorrect wiring. See [ArmorConnect Control/Auxiliary Power Media on page 31](#) for details.

		
4-pin mini auxiliary power cables	Teas	Through-panel receptacles

Motor and Brake Media

Motor and brake cables and receptacles vary depending on the type of Armor PowerFlex or ArmorStart device. The cables are available in multiple configurations and lengths.

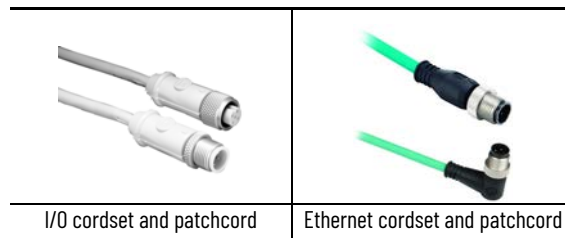
- See [Motor and Brake Media on page 41](#) for details.



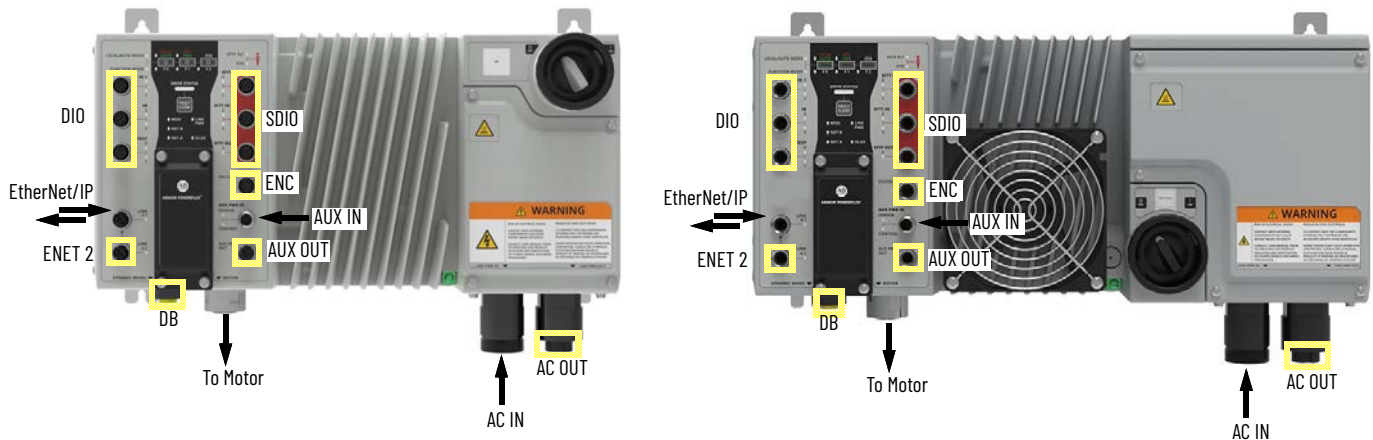
I/O and Network Media

Connection Devices include network media for Ethernet, DeviceNet[®], input and output devices, and safety connection systems. Rockwell Automation offers many product solutions in cordsets, patchcords, V- and Y-cables, splitters, field-attachable connectors, and receptacles.

- See [I/O Media on page 57](#) for available I/O connection options.
- See [Ethernet Media on page 59](#) for available Ethernet options.
- See [DeviceNet Media on page 60](#) for available DeviceNet options.



Armor PowerFlex Listed Enclosure Ratings when used with Cable Assemblies and Sealing Caps



Yellow boxes	These boxes identify connectors that require a sealing cap or a cable assembly to meet the UL Listed enclosure rating.
Black arrows	These arrows indicate where a cable assembly is attached for normal operation. These are the minimum requirements for the drive to function.
Factory cap	These are sealing caps that are shipped with the drive from the factory.
Accessory cap	These are optional sealing caps that you can order separately to achieve a desired enclosure rating. To order, see Sealing Caps on page 64 .
Cable	These are cable assemblies that you order to complete your system configuration. See the appropriate pages in this document, to select the cable assemblies that you need.

IMPORTANT Factory caps, accessory caps, and cable assemblies have individual product enclosure ratings. Use the following table to see how the application of factory caps, accessory caps, and cable assemblies impact the Armor PowerFlex enclosure rating.

Armor PowerFlex Enclosure Ratings when used with Cable Assemblies and Sealing Caps

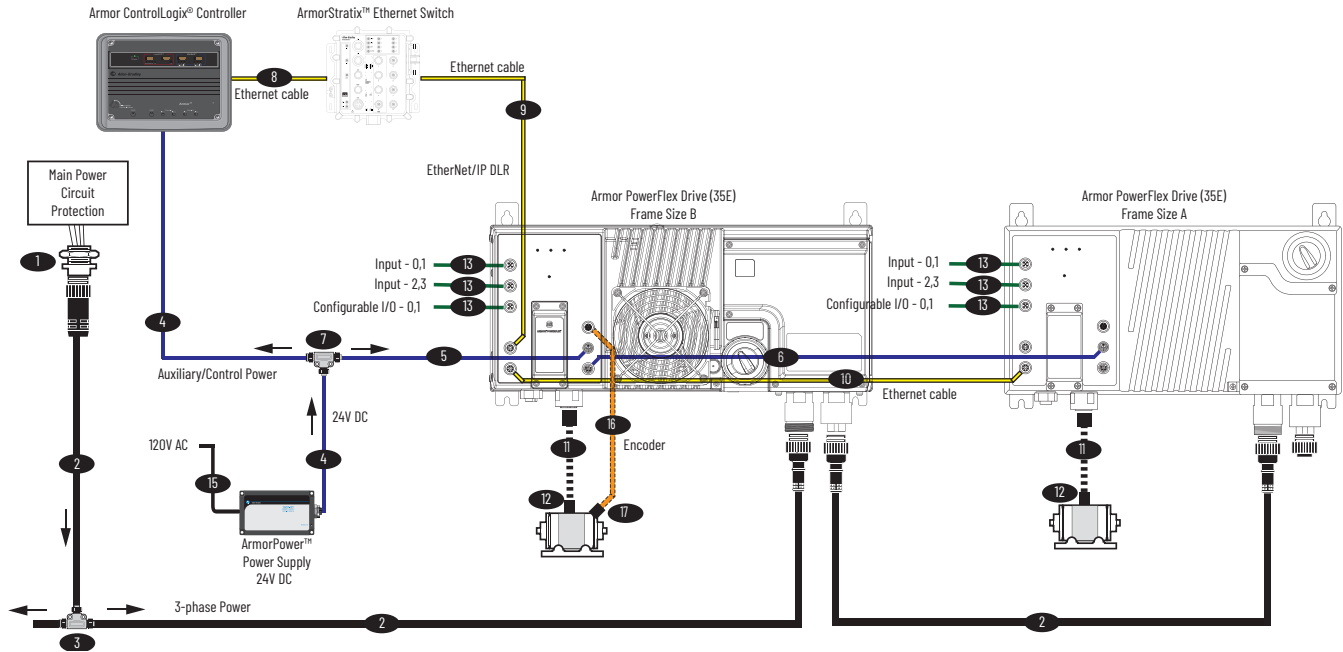
		UL Type 1	UL Type 12	UL Type 4	NEMA Type 1	NEMA Type 12	NEMA Type 4	IEC IP54	IEC IP66
DIO - I/O	Cable	Yes	Yes	No	Yes	Yes	No	Yes	Yes
	Factory Cap	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SDIO - Safety I/O	Cable	Yes	Yes	No	Yes	Yes	No	Yes	Yes
	Factory Cap	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ENET 2 - EtherNet	Cable	Yes	(1)	(1)	Yes	(1)	(1)	Yes	Yes
	Factory Cap	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ENC - Encoder	Cable	Yes	No	No	Yes	Yes	Yes	Yes	Yes
	Factory Cap	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AUX OUT - Auxiliary power output	Cable	Yes	Yes	No	Yes	Yes	No	Yes	Yes
	Factory Cap	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DB - Dynamic brake	Cable	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Factory Cap	Yes	No	No	Yes	No	No	Yes	No
	Accessory Cap	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AC OUT - AC power out	Cable	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Factory Cap	Yes	No	No	Yes	No	No	Yes	No
	Accessory Cap	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

(1) Rating applies when used with x-code to x-code cables (1585D-M8UGDM-xx, 1585D-M8TGDE-xx, or 1585D-E8TGDE-xx). Rating does **NOT** apply when used with x-code to d-code cables (1585D-M8TGD4M-xx or 1585D-E8TGD4E-xx).

Typical Wiring Configurations

Typical motor control systems include selections from several categories of Allen-Bradley® motor control products and connection media.

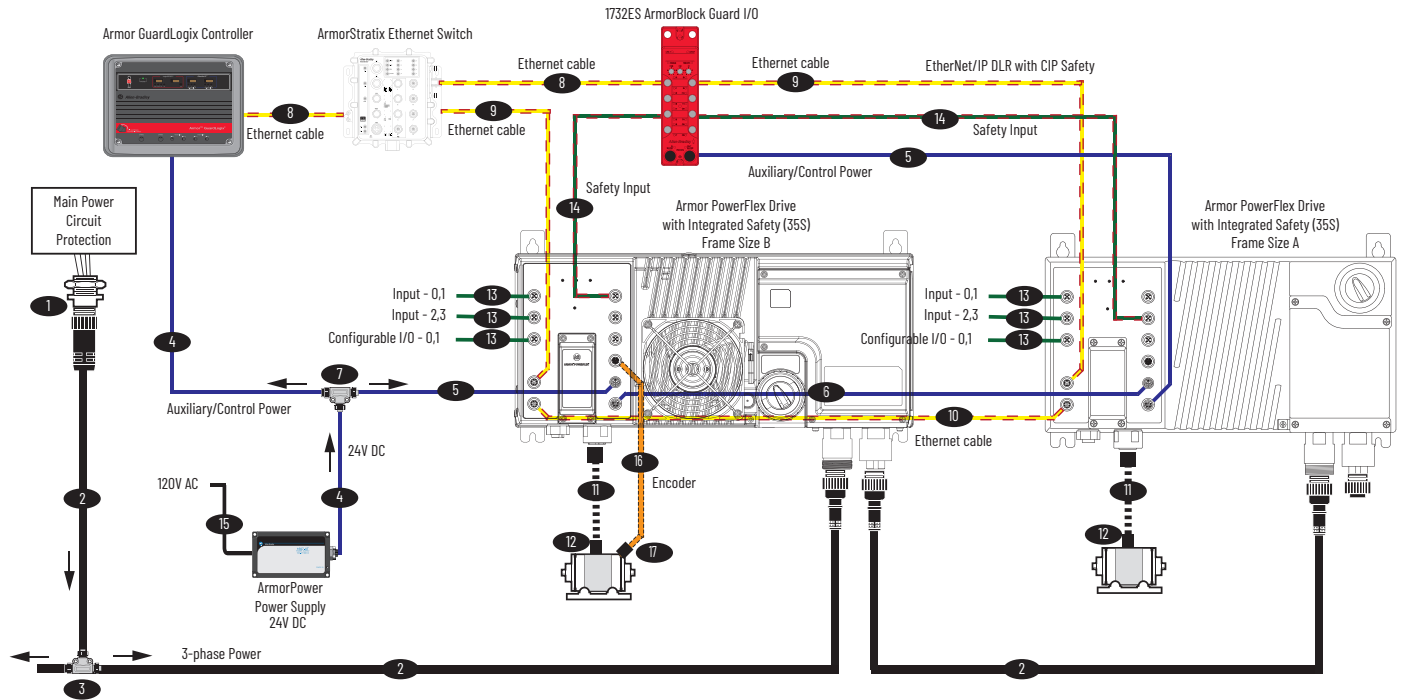
Armor PowerFlex Drive Standard System



Item	Description	Example Cat. No.	Use these links to see configuration details and lengths:
1	Three-phase power receptacle, round or Three-phase power receptacle, square	280-M35F-Mxx ⁽¹⁾ or HARTING® 61 04 201 2753	See Three-phase Power Receptacles on page 27
2	Three-phase power cable, round or Three-phase power cable, square	280-PWRM35A-Mxx ⁽¹⁾ or HARTING 61 04 202 2953 Lxx ⁽¹⁾	See Three-phase Power Trunk Cables on page 20
3	Three-phase power t-port, round or Three-phase power t-port, square	280-T35 or HARTING 09 12 008 4720	See Three-phase Power T-ports and Reducing Adapters on page 24
4	Auxiliary/Control power cable, 4-pin	889N-F4AFNM-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
5	Auxiliary/Control power cable, 4 to 5-pin	889L-R5JFN4M-xx ⁽¹⁾	
6	Auxiliary/Control power cable, 5-pin	889L-R5JFLE-xx ⁽¹⁾	
7	Auxiliary/Control power t-port, 4-pin	898N-43PB-N4KF	See Auxiliary Power T-Ports on page 35
not shown	Auxiliary/Control power receptacle, 4-pin	888N-D4AF1-xx ⁽¹⁾	See Auxiliary Power Receptacles on page 37
8	Ethernet patchcord 10/100 MB, D-code to D-code	1585D-M4TBDM-xx ⁽¹⁾	See Ethernet Media on page 59
9	Ethernet patchcord 10/100 MB, X-code to D-code	1585D-E8TGD4E-xx ⁽¹⁾	
10	Ethernet patchcord 1 GB, X-code to X-code	1585D-E8TGDE-xx ⁽¹⁾	
11	Motor cable (with EM brake), 7-pin or Motor cable (without EM brake), 4-pin	357-PWRM29A-Mxx ⁽¹⁾ or 280-PWRM29A-Mxx ⁽¹⁾ 284-PWRM29A-Mxx ⁽¹⁾	See Hybrid Motor and Brake Cables on page 45 or See Motor Cables on page 41
12	Motor receptacle (with EM brake), 7-pin or Motor receptacle (without EM brake), 4-pin	357-M29M-M05 or 284-M29M-M03	See Hybrid Motor and Brake Receptacles on page 51 or See Motor Receptacles on page 49
13	I/O cables, standard	889D-R5ACDE-xx ⁽¹⁾	See I/O Media on page 57
15	120V AC line in cable	889N-F3AFC-F-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
16	Encoder cable	889D-R8FBDE-xx ⁽¹⁾	See Encoder Cable Patchcord on page 58
17	Encoder receptacle	888D-F8AB3-xx ⁽¹⁾	See Encoder Cable Receptacle on page 58

(1) xx specifies the available cable/wire lengths.

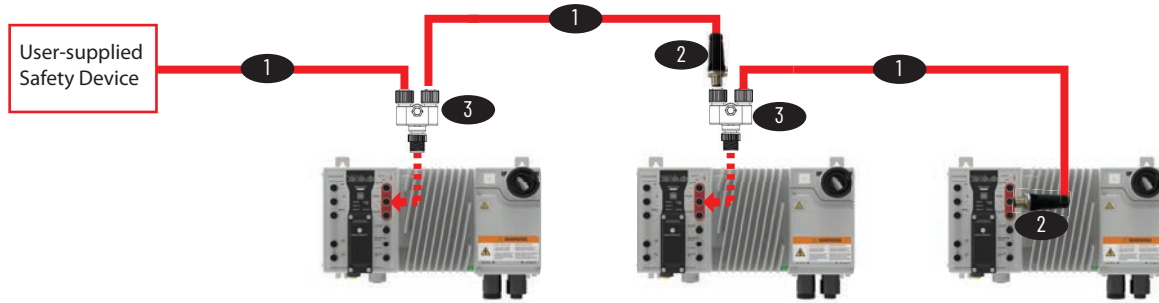
Armor PowerFlex Drive with Hardwired Safety



Item	Description	Example Cat. No.	Use these links to see configuration details and lengths:
1	Three-phase power receptacle, round or Three-phase power receptacle, square	280-M35F-Mxx ⁽¹⁾ or HARTING 61 04 201 2753	See Three-phase Power Receptacles on page 27
2	Three-phase power cable, round or Three-phase power cable, square	280-PWRM35A-Mxx ⁽¹⁾ or HARTING 61 04 202 2953 Lxx ⁽¹⁾	See Three-phase Power Trunk Cables on page 20
3	Three-phase power t-port, round or Three-phase power t-port, square	280-T35 or HARTING 09 12 008 4720	See Three-phase Power T-ports and Reducing Adapters on page 24
4	Auxiliary/Control power cable, 4-pin	889N-F4FNM-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
5	Auxiliary/Control power cable, 4 to 5-pin	889L-R5JFN4M-xx ⁽¹⁾	
6	Auxiliary/Control power cable, 5-pin	889L-R5JFLE-xx ⁽¹⁾	
not shown	Auxiliary/Control power receptacle, 4-pin	888N-D4AF1-xx ⁽¹⁾	See Auxiliary Power Receptacles on page 37
8	Ethernet patchcord 10/100 MB, D-code to D-code	1585D-M4TBDM-xx ⁽¹⁾	See Ethernet Media on page 59
9	Ethernet patchcord 10/100 MB, X-code to D-code	1585D-E8TGD4E-xx ⁽¹⁾	
10	Ethernet patchcord 1 GB, X-code to X-code	1585D-E8TGDE-xx ⁽¹⁾	
11	Motor cable (with EM brake), 7-pin or Motor cable (without EM brake), 4-pin	357-PWRM29A-Mxx ⁽¹⁾ or 280-PWRM29A-Mxx ⁽¹⁾ 284-PWRM29A-Mxx ⁽¹⁾	See Hybrid Motor and Brake Cables on page 45 or See Motor Cables on page 41
12	Motor receptacle (with EM brake), 7-pin or Motor receptacle (without EM brake), 4-pin	357-M29M-M05 or 284-M29M-M03	See Hybrid Motor and Brake Receptacles on page 51 or See Motor Receptacles on page 49
not shown	Safety bypass plug (see page 63 for details)	35-SPM12M	See Safety I/O Bypass Plug on page 63
13	I/O cables, standard	889D-R5ACDE-xx ⁽¹⁾	See I/O Media on page 57
14	I/O cables, safety	889D-R5NCDE-xx ⁽¹⁾	
15	120V AC line in cable	889N-F3AFC-F-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
16	Encoder cable	889D-R8FBDE-xx ⁽¹⁾	See Encoder Cable Patchcord on page 58
17	Encoder receptacle	888D-F8AB3-xx ⁽¹⁾	See Encoder Cable Receptacle on page 58

(1) xx specifies the available cable/wire lengths.

Armor PowerFlex Drives with Daisy-chained Hardwired Safety

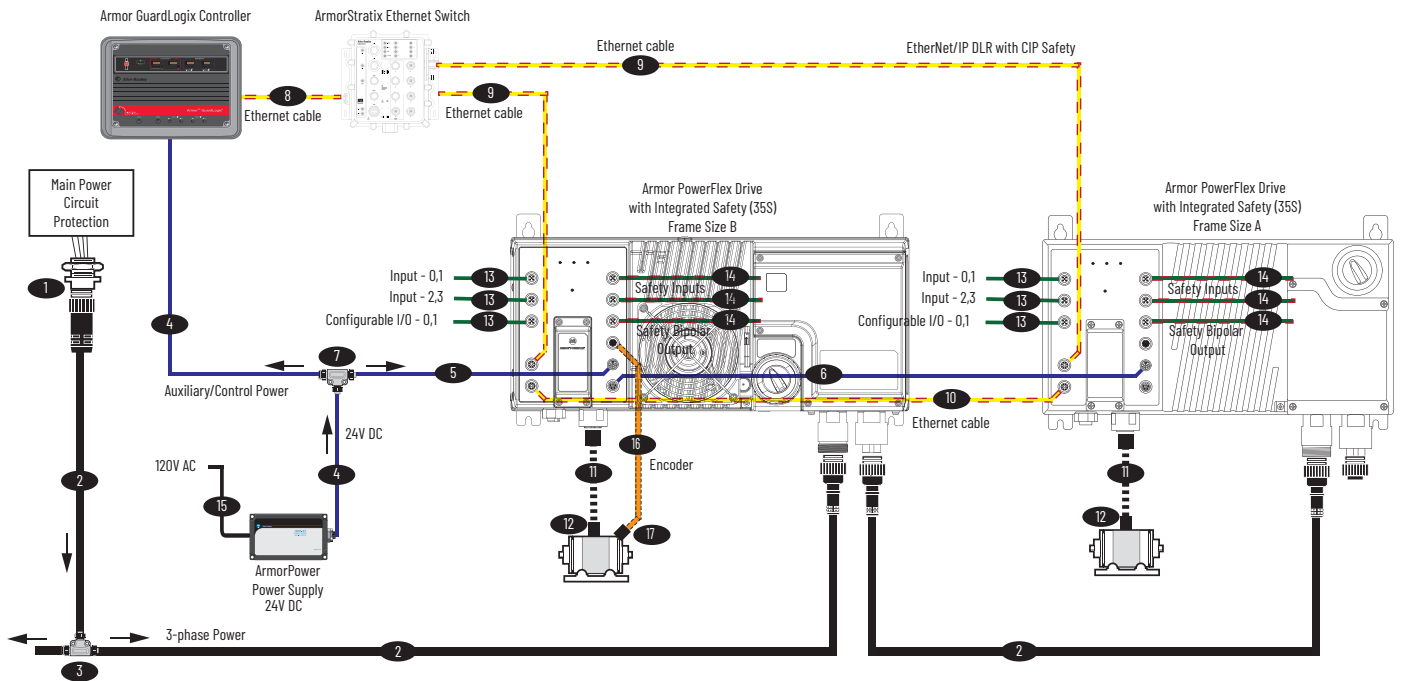


Item	Cat. No.	Description
1	889D-M5NC-10	Safety I/O Cordset: DC Micro (M12), Male, Straight, 5-Pin, PVC Cable, Red, Unshielded, IEC Color Coded, No Connector, 10 meter (32.8 feet), 22 AWG
2	871A-TS5-DM1	Terminal Chamber, DC Micro (M12), Straight Male, 5-Pin, 6-8mm (0.24-0.32 In)
3	1485P-RDR5	Splitter - Two 5-pin female DC Micro to one 5-pin DC Micro, Tap-Style Wiring, Epoxy coated Zinc, Standard



For details about Armor PowerFlex hardwired STO, see the Armor PowerFlex AC Drives User Manual, publication [35-UM001](#).

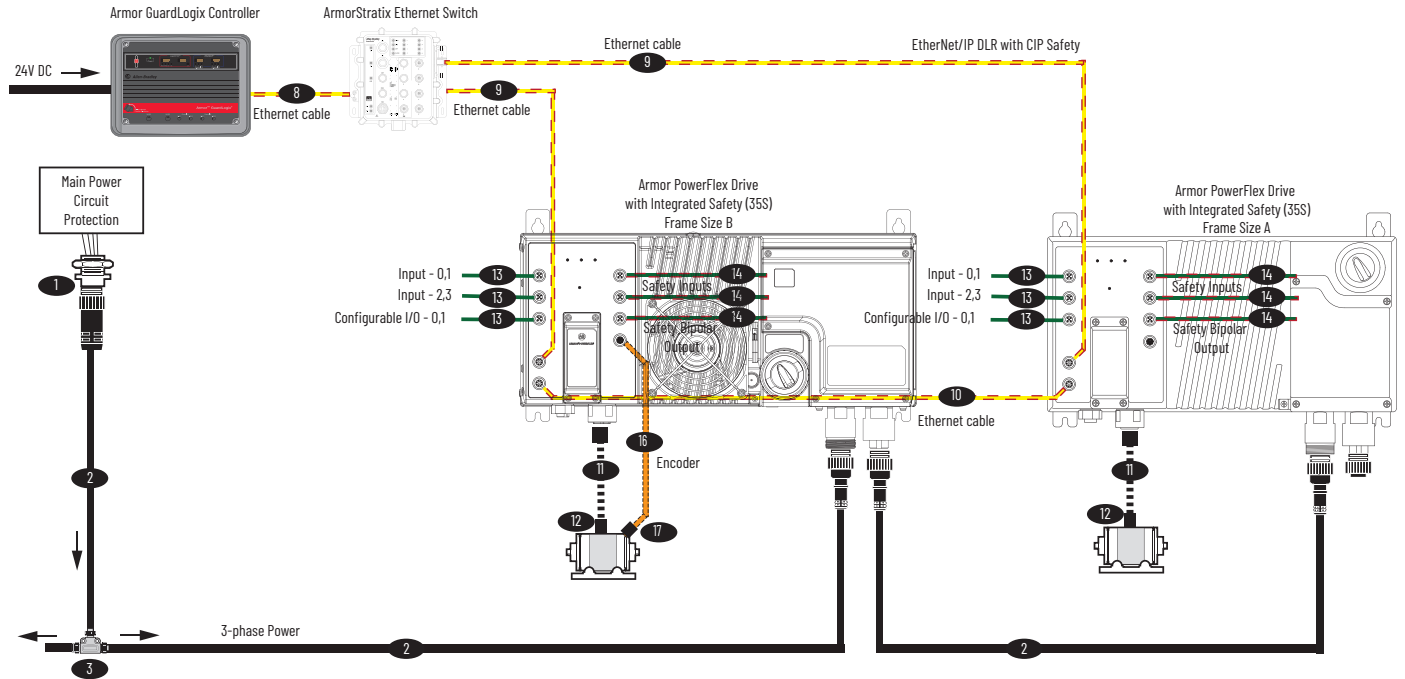
Armor PowerFlex Drive with Integrated Safety



Item	Description	Example Cat. No.	Use these links to see configuration details and lengths:
1	Three-phase power receptacle, round or Three-phase power receptacle, square	280-M35F-Mxx ⁽¹⁾ or HARTING 61 04 201 2753	See Three-phase Power Receptacles on page 27
2	Three-phase power cable, round or Three-phase power cable, square	280-PWRM35A-Mxx ⁽¹⁾ or HARTING 61 04 202 2953 Lxx ⁽¹⁾	See Three-phase Power Trunk Cables on page 20
3	Three-phase power t-port, round or Three-phase power t-port, square	280-T35 or HARTING 09 12 008 4720	See Three-phase Power T-ports and Reducing Adapters on page 24
4	Auxiliary/Control power cable, 4-pin	889N-F4AFNM-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
5	Auxiliary/Control power cable, 4 to 5-pin	889L-R5JFN4M-xx ⁽¹⁾	
6	Auxiliary/Control power cable, 5-pin	889L-R5JFLE-xx ⁽¹⁾	
7	Auxiliary/Control power t-port, 4-pin	898N-43PB-N4KF	See Auxiliary Power T-Ports on page 35
not shown	Auxiliary/Control power receptacle, 4-pin	888N-D4AF1-xx ⁽¹⁾	See Auxiliary Power Receptacles on page 37
8	Ethernet patchcord 10/100 MB, D-code to D-code	1585D-M4TBDM-xx ⁽¹⁾	See Ethernet Media on page 59
9	Ethernet patchcord 10/100 MB, X-code to D-code	1585D-E8TGD4E-xx ⁽¹⁾	
10	Ethernet patchcord 1 GB, X-code to X-code	1585D-E8TGDE-xx ⁽¹⁾	
11	Motor cable (with EM brake), 7-pin or Motor cable (without EM brake), 4-pin	357-PWRM29A-Mxx ⁽¹⁾ or 280-PWRM29A-Mxx ⁽¹⁾ 284-PWRM29A-Mxx ⁽¹⁾	See Hybrid Motor and Brake Cables on page 45 or See Motor Cables on page 41
12	Motor receptacle (with EM brake), 7-pin or Motor receptacle (without EM brake), 4-pin	357-M29M-M05 or 284-M29M-M03	See Hybrid Motor and Brake Receptacles on page 51 or See Motor Receptacles on page 49
not shown	Safety bypass plug (see page 63 for details)	35-SPM12M	See Safety I/O Bypass Plug on page 63
13	I/O cables, standard	889D-R5ACDE-xx ⁽¹⁾	See I/O Media on page 57
14	I/O cables, safety	889D-R5NCDE-xx ⁽¹⁾	
15	120V AC line in cable	889N-F3AFC-F-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
16	Encoder cable	889D-R8FBDE-xx ⁽¹⁾	See Encoder Cable Patchcord on page 58
17	Encoder receptacle	888D-F8AB3-xx ⁽¹⁾	See Encoder Cable Receptacle on page 58

(1) xx specifies the available cable/wire lengths.

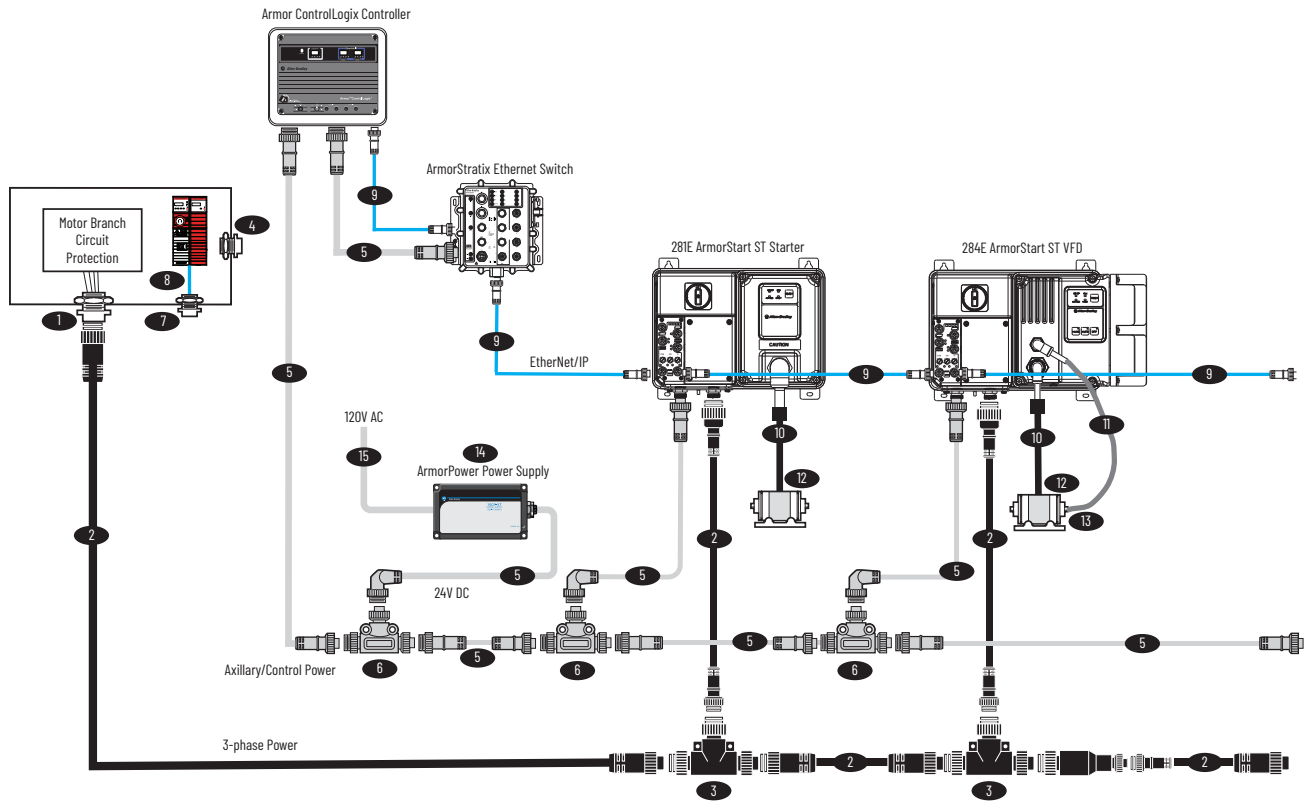
Armor PowerFlex Drive with Integrated Safety and with Internal Power Supply



Item	Description	Example Cat. No.	Use these links to see configuration details and lengths:
1	Three-phase power receptacle, round or Three-phase power receptacle, square	280-M35F-Mxx ⁽¹⁾ or HARTING 61 04 201 2753	See Three-phase Power Receptacles on page 27
2	Three-phase power cable, round or Three-phase power cable, square	280-PWRM35A-Mxx ⁽¹⁾ or HARTING 61 04 202 2953 Lxxx ⁽¹⁾	See Three-phase Power Trunk Cables on page 20
3	Three-phase power t-port, round or Three-phase power t-port, square	280-T35 or HARTING 09 12 008 4720	See Three-phase Power T-ports and Reducing Adapters on page 24
8 9 10	Ethernet patchcord 10/100 MB, D-code to D-code Ethernet patchcord 10/100 MB, X-code to D-code Ethernet patchcord 1 GB, X-code to X-code	1585D-M4TBDM-xx ⁽¹⁾ 1585D-E8TGD4E-xx ⁽¹⁾ 1585D-E8TGDE-xx ⁽¹⁾	See Ethernet Media on page 59
11	Motor cable (with EM brake), 7-pin or Motor cable (without EM brake), 4-pin	357-PWRM29A-Mxx ⁽¹⁾ or 280-PWRM29A-Mxx ⁽¹⁾ 284-PWRM29A-Mxx ⁽¹⁾	See Hybrid Motor and Brake Cables on page 45 or See Motor Cables on page 41
12	Motor receptacle (with EM brake), 7-pin or Motor receptacle (without EM brake), 4-pin	357-M29M-M05 or 284-M29M-M03	See Hybrid Motor and Brake Receptacles on page 51 or See Motor Receptacles on page 49
not shown	Safety bypass plug (see page 63 for details)	35-SPM12M	See Safety I/O Bypass Plug on page 63
13 14	I/O cables, standard I/O cables, safety	889D-R5ACDE-xx ⁽¹⁾ 889D-R5NCDE-xx ⁽¹⁾	See I/O Media on page 57
15	120V AC line in cable	889N-F3AFC-F-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
16	Encoder cable	889D-R8FBDE-xx ⁽¹⁾	See Encoder Cable Patchcord on page 58
17	Encoder receptacle	888D-F8AB3-xx ⁽¹⁾	See Encoder Cable Receptacle on page 58

(1) xx specifies the available cable/wire lengths.

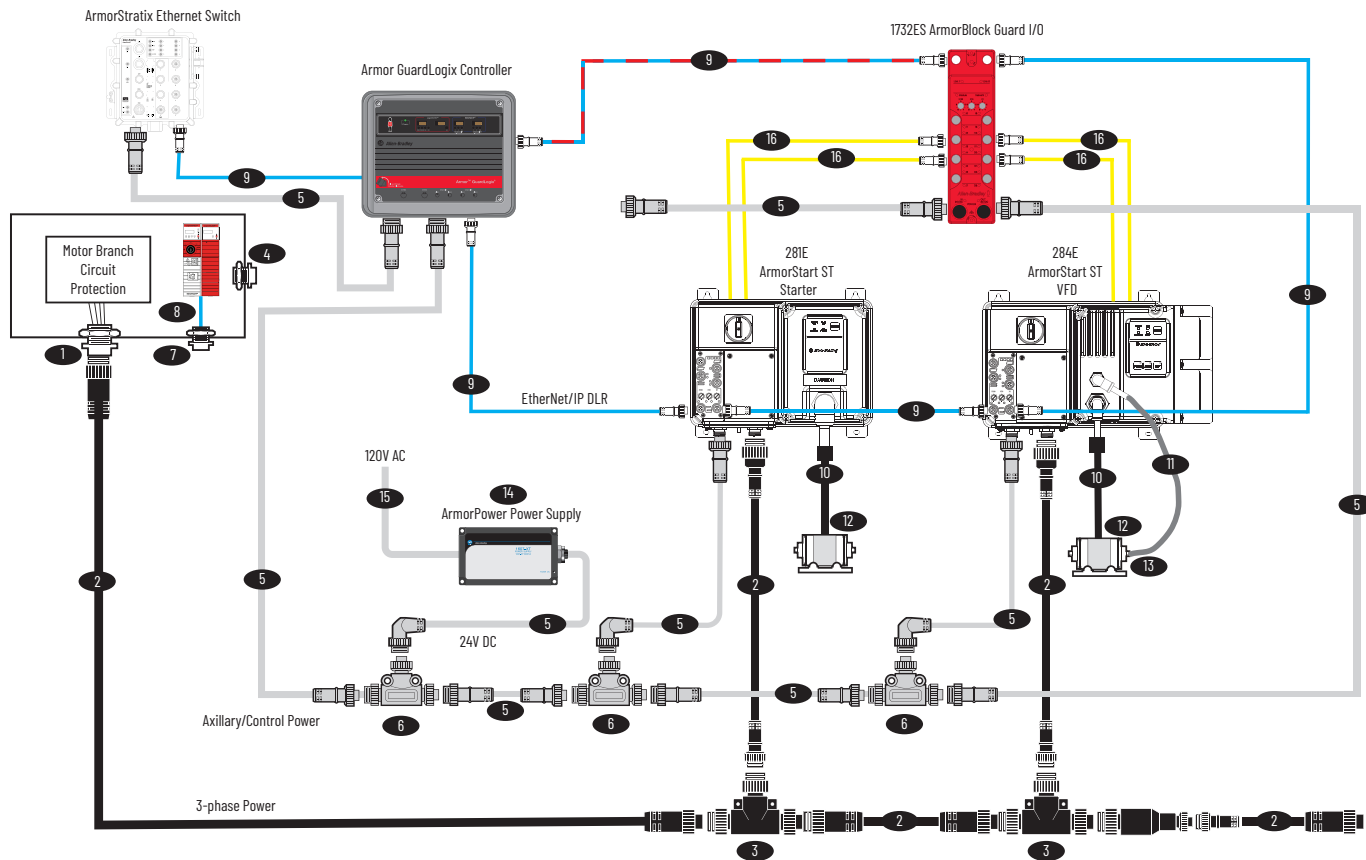
ArmorStart ST Controller Standard System



Item	Description	Example Cat. No.	Use these links to see cable configuration details and lengths:
1	Three-phase power receptacle	280-M35F-Mxx ⁽¹⁾	See Three-phase Power Receptacles on page 27
2	Three-phase power trunk cable and drop cable	280-PWRM35A-Mxx ⁽¹⁾	See Three-phase Power Trunk Cables on page 20
3	Three-phase power t-port	280-T35	See Three-phase Power T-ports and Reducing Adapters on page 24
4	Auxiliary/Control power receptacle	888N-D4AF1-xx ⁽¹⁾	See Auxiliary Power Receptacles on page 37
5	Auxiliary/Control power trunk and drop cable	889N-F4AFNM-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
6	Auxiliary/Control power t-port	898N-43PB-N4KF	See Auxiliary Power T-Ports on page 35
7	Ethernet bulkhead adapter (RJ45-M12)	1585A-DD4JD	See Ethernet Media on page 59
8	Ethernet transition cable (RJ45 patchcord-M12 receptacle)	1585D-D4TBJMxx ⁽¹⁾	See Ethernet Media on page 59
9	Ethernet patchcord	1585D-M4TBDM-xx ⁽¹⁾	See Ethernet Media on page 59
10	Motor cable	280-PWRM29A-Mxx ⁽¹⁾ 284-PWRM29A-Mxx ⁽¹⁾	See Motor Cables on page 41
11	Brake cable	285-BRC22-Mxx ⁽¹⁾ D	See Brake Cables on page 47
12	Motor receptacle	284-M29M-M05	See Motor Receptacles on page 49
13	Brake receptacle	285-M24M-M05	See Brake Receptacles on page 52
14	24V DC power supply	1607-XT50D1A	See ArmorPower™ On-Machine™ Power Supplies: https://ab.rockwellautomation.com/Power-Supplies/ArmorPower-On-Machine
15	120V AC line in cable, 3-pin	889N-F3AFC-F-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
not shown	I/O cables	889D-F4ACDM-xx ⁽¹⁾	See I/O Media on page 57

(1) xx specifies the available cable lengths.

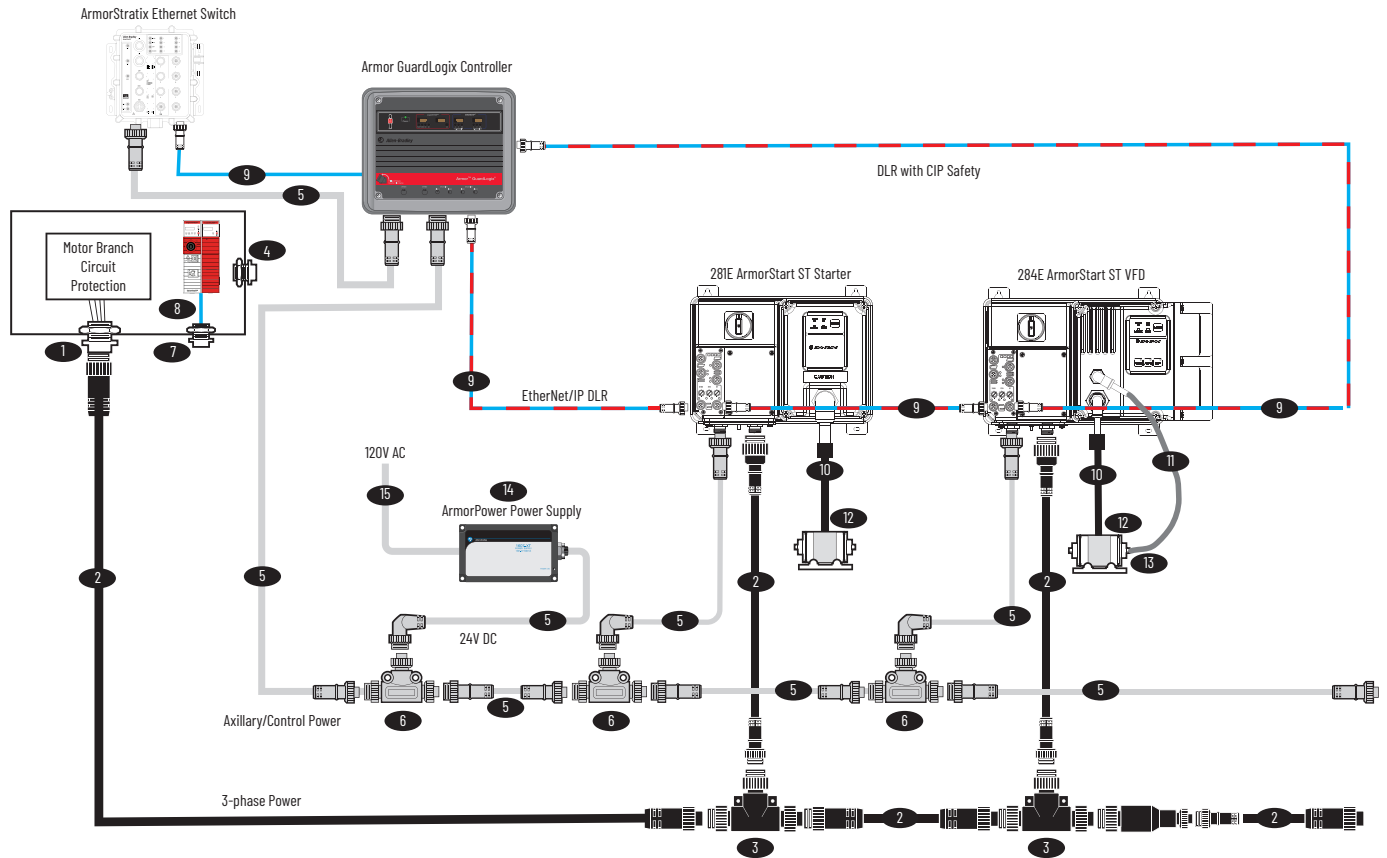
ArmorStart ST Safety Controller with Hardwired Safety



Item	Description	Example Cat. No.	Use these links to see cable configuration details and lengths:
1	Three-phase power receptacle	280-M35F-Mxx ⁽¹⁾	See Three-phase Power Receptacles on page 27
2	Three-phase power trunk cable and drop cable	280-PWRM35A-Mxx ⁽¹⁾	See Three-phase Power Trunk Cables on page 20
3	Three-phase power t-port	280-T35	See Three-phase Power T-ports and Reducing Adapters on page 24
4	Auxiliary/Control power receptacle	888N-D4AF1-xx ⁽¹⁾	See Auxiliary Power Receptacles on page 37
5	Auxiliary/Control power trunk and drop cable	889N-F4AFNM-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
6	Auxiliary/Control power t-port	898N-43PB-N4KF	See Auxiliary Power T-Ports on page 35
7	Ethernet bulkhead adapter (RJ45-M12)	1585A-DD4JD	See Ethernet Media on page 59
8	Ethernet transition cable (RJ45 patchcord-M12 receptacle)	1585D-D4TBJMxx ⁽¹⁾	See Ethernet Media on page 59
9	Ethernet patchcord	1585D-M4TBDM-xx ⁽¹⁾	See Ethernet Media on page 59
10	Motor cable	280-PWRM29A-Mxx ⁽¹⁾ 284-PWRM29A-Mxx ⁽¹⁾	See Motor Cables on page 41
11	Brake cable	285-BRC22-Mxx ⁽¹⁾ D	See Brake Cables on page 47
12	Motor receptacle	284-M29M-M05	See Motor Receptacles on page 49
13	Brake receptacle	285-M24M-M05	See Brake Receptacles on page 52
14	24V DC power supply	1607-XT50D1A	See ArmorPower On-Machine Power Supplies: https://ab.rockwellautomation.com/Power-Supplies/ArmorPower-On-Machine
15	120V AC line in cable, 3-pin	889N-F3AFC-F-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
16	ArmorBlock® Guard I/O™ DC mini cable	889D-F4AEDM-xx ⁽¹⁾	See I/O Media on page 57
not shown	I/O cables	889D-F4ACDM-xx ⁽¹⁾	See I/O Media on page 57

(1) xx specifies the available cable lengths.

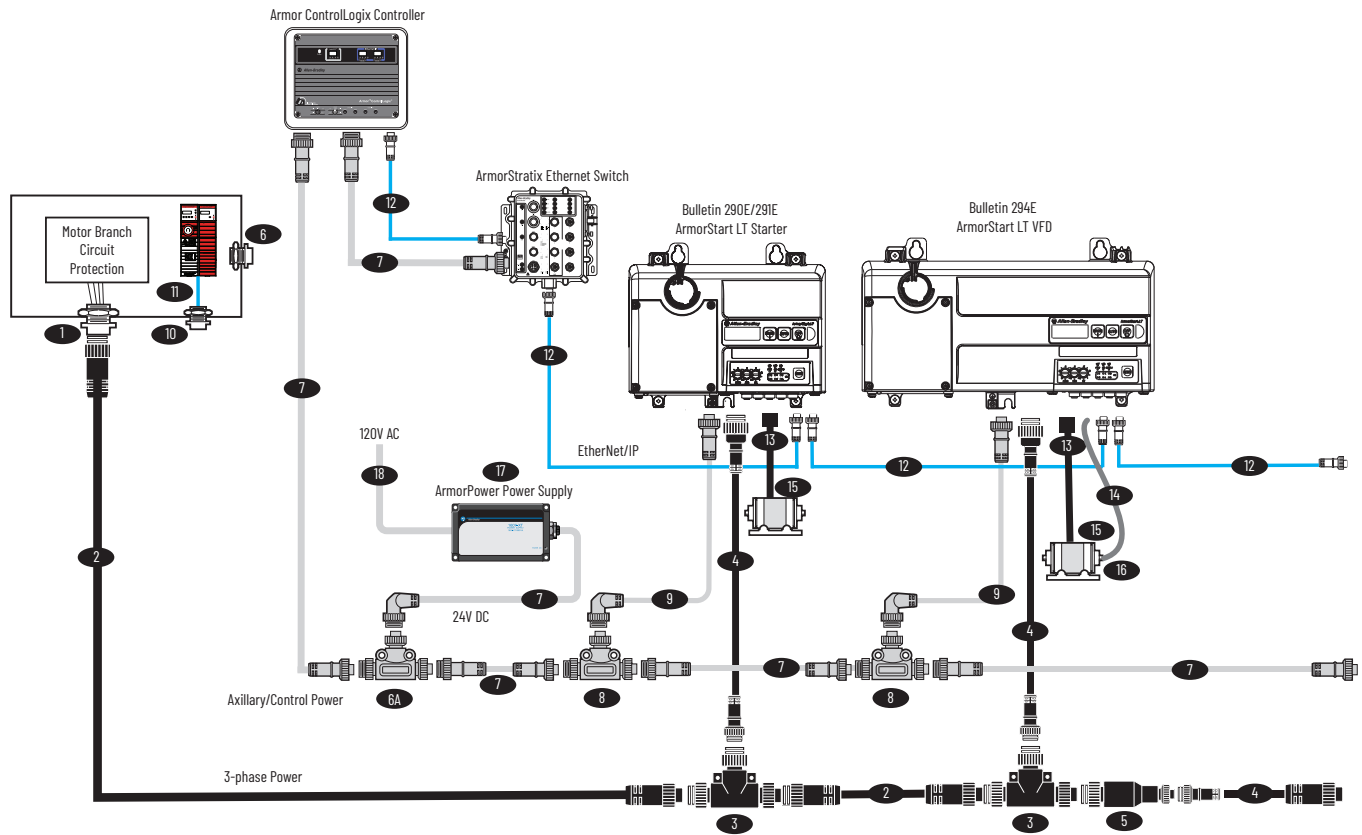
ArmorStart ST Safety Controller with Integrated Safety



Item	Description	Example Cat. No.	Use these links to see cable configuration details and lengths:
1	Three-phase power receptacle	280-M35F-Mxx ⁽¹⁾	See Three-phase Power Receptacles on page 27
2	Three-phase power trunk cable and drop cable	280-PWRM35A-Mxx ⁽¹⁾	See Three-phase Power Trunk Cables on page 20
3	Three-phase power t-port	280-T35	See Three-phase Power T-ports and Reducing Adapters on page 24
4	Auxiliary/Control power receptacle	888N-D4AF1-xx ⁽¹⁾	See Auxiliary Power Receptacles on page 37
5	Auxiliary/Control power trunk and drop cable	889N-F4AFNM-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
6	Auxiliary/Control power t-port	898N-43PB-N4KF	See Auxiliary Power T-Ports on page 35
7	Ethernet bulkhead adapter (RJ45-M12)	1585A-DD4JD	See Ethernet Media on page 59
8	Ethernet transition cable (RJ45 patchcord-M12 receptacle)	1585D-D4TBJMxx ⁽¹⁾	See Ethernet Media on page 59
9	Ethernet patchcord	1585D-M4TBDM-xx ⁽¹⁾	See Ethernet Media on page 59
10	Motor cable	280-PWRM29A-Mxx ⁽¹⁾ 284-PWRM29A-Mxx ⁽¹⁾	See Motor Cables on page 41
11	Brake cable	285-BRC22-Mxx ⁽¹⁾ D	See Brake Cables on page 47
12	Motor receptacle	284-M29M-M05	See Motor Receptacles on page 49
13	Brake receptacle	285-M24M-M05	See Brake Receptacles on page 52
14	24V DC power supply	1607-XT50D1A	See ArmorPower On-Machine Power Supplies: https://ab.rockwellautomation.com/Power-Supplies/ArmorPower-On-Machine
15	120V AC line in cable, 3-pin	889N-F3AFC-F-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
not shown	I/O cables	889D-F4ACDM-xx ⁽¹⁾	See I/O Media on page 57

(1) xx specifies the available cable lengths.

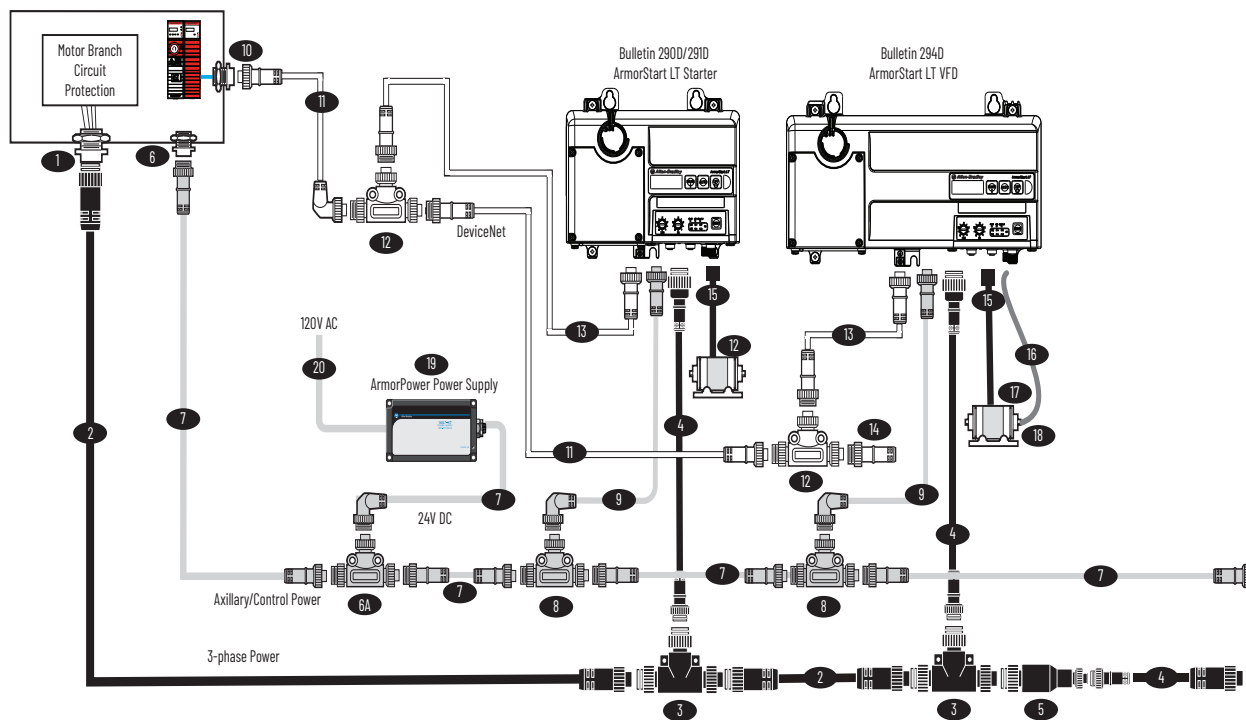
ArmorStart LT Controller with Ethernet Communication Network



Item	Description	Example Cat. No.	Use these links to see cable configuration details and lengths:
1	Three-phase power receptacle	280-M35F-Mxx ⁽¹⁾	See Three-phase Power Receptacles on page 27
2	Three-phase power trunk cable	280-PWRM35A-Mxx ⁽¹⁾	See Three-phase Power Trunk Cables on page 20
3	Three-phase power t-port, reducing drop	280-RT35	See Three-phase Power T-ports and Reducing Adapters on page 24
4	Three-phase power drop cable	284-PWRM22A-Mxx ⁽¹⁾	See Three-phase Power Drop Cables on page 22
5	Three-phase power reducing adapter	280-RA35	See Three-phase Power T-ports and Reducing Adapters on page 24
6	Auxiliary/Control power receptacle	888N-D4AF1-xx ⁽¹⁾	See Auxiliary Power Receptacles on page 37
6A	Auxiliary/Control power t-port	898N-43PB-N4KF	See Auxiliary Power T-Ports on page 35
7	Auxiliary/Control power trunk cable	889N-F4AFNM-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
8	Auxiliary/Control power t-port	898N-543ES-NKF	See Auxiliary Power T-Ports on page 35
9	Auxiliary/Control power drop cable	889N-F65GFNM-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
10	Ethernet bulkhead adapter (RJ45-M12)	1585A-DD4JD	See Ethernet Media on page 59
11	Ethernet transition cable (RJ45 patchcord-M12 receptacle)	1585D-D4TBJMxx ⁽¹⁾	See Ethernet Media on page 59
12	Ethernet patchcord	1585D-M4TBDM-xx ⁽¹⁾	See Ethernet Media on page 59
13	Motor cable	280-PWRM22A-Mxx ⁽¹⁾ 280-PWRM24A-Mxx ⁽¹⁾	See Motor Cables on page 41
14	Brake cable	285-BRC22-Mxx ⁽¹⁾ D	See Brake Cables on page 47
15	Motor receptacle	280-M22M-M1	See Motor Receptacles on page 49
16	Brake receptacle	285-M24M-M05	See Brake Receptacles on page 52
17	24V DC power supply (Note: ArmorStart LT has an optional internal power supply)	1607-XT50D1A	See ArmorPower On-Machine Power Supplies: https://ab.rockwellautomation.com/Power-Supplies/ArmorPower-On-Machine
18	120V AC line in cable, 3-pin	889N-F3AFC-F-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
not shown	I/O cables	889D-F4ACDM-xx ⁽¹⁾	See I/O Media on page 57

(1) xx specifies the available cable lengths.

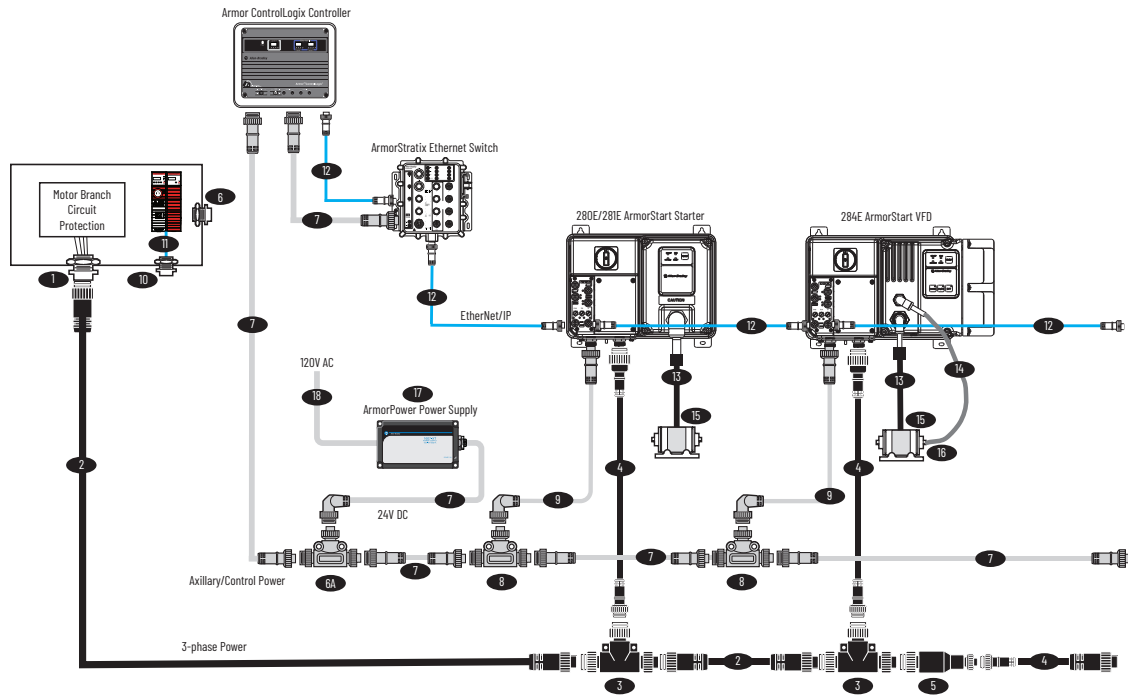
ArmorStart LT Controller with DeviceNet Communication Network



	Description	Example Cat. No.	Use these links to see cable configuration details and lengths:
1	Three-phase power receptacle	280-M35F-Mxx ⁽¹⁾	See Three-phase Power Receptacles on page 27
2	Three-phase power trunk cable	280-PWRM35A-Mxx ⁽¹⁾	See Three-phase Power Trunk Cables on page 20
3	Three-phase power t-port, reducing drop	280-RT35	See Three-phase Power T-ports and Reducing Adapters on page 24
4	Three-phase power drop cable	284-PWRM22A-Mxx ⁽¹⁾	See Three-phase Power Drop Cables on page 22
5	Three-phase power reducing adapter	280-RA35	See Three-phase Power T-ports and Reducing Adapters on page 24
6	Auxiliary/Control power receptacle	888N-D4AF1-xx ⁽¹⁾	See Auxiliary Power Receptacles on page 37
6A	Auxiliary/Control power t-port	898N-43PB-N4KF	See Auxiliary Power T-Ports on page 35
7	Auxiliary/Control power trunk cable	889N-F4AFNM-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
8	Auxiliary/Control power t-port	898N-543ES-NKF	See Auxiliary Power T-Ports on page 35
9	Auxiliary/Control power drop cable	889N-F65GFNM-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
10	DeviceNet receptacle	1485F-P1N5-A	See DeviceNet Media on page 60
11	DeviceNet trunk cable	1485C-Pxx ⁽¹⁾ N5-M5	See DeviceNet Media on page 60
12	DeviceNet t-port	1485P-P1N5-MN5KF	See DeviceNet Media on page 60
13	DeviceNet drop cable	1485G-Pxx ⁽¹⁾ N5-M5	See DeviceNet Media on page 60
14	DeviceNet terminator	1485A-T1M5	See DeviceNet Media on page 60
15	Motor cable	280-PWRM22A-Mxx ⁽¹⁾ 280-PWRM24A-Mxx ⁽¹⁾	See Motor Cables on page 41
16	Brake cable	285-BRC22-Mxx ⁽¹⁾ D	See Brake Cables on page 47
17	Motor receptacle	280-M22M-M1 280-M24M-M1	See Motor Receptacles on page 49
18	Brake receptacle	285-M24M-M05	See Brake Receptacles on page 52
19	24V DC power supply (Note: ArmorStart LT has an optional internal power supply)	1607-XT50D1A	See ArmorPower On-Machine Power Supplies: https://ab.rockwellautomation.com/Power-Supplies/ArmorPower-On-Machine
20	120V AC line in cable, 3-pin	889N-F3AFC-F-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
not shown	I/O cables	889D-F4ACDM-xx ⁽¹⁾	See I/O Media on page 57

(1) xx specifies the available cable lengths.

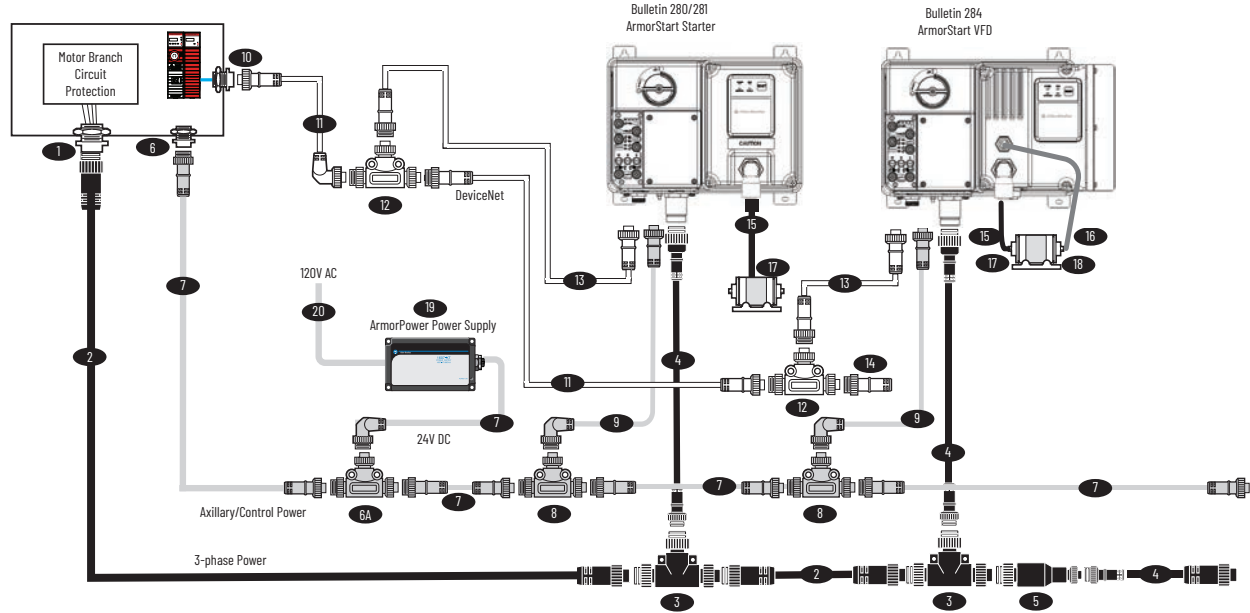
ArmorStart Controller with Ethernet Communication Network



Item	Description	Example Cat. No.	Use these links to see cable configuration details and lengths:
1	Three-phase power receptacle	280-M35F-M1	See Three-phase Power Receptacles on page 27
2	Three-phase power trunk cable	280-PWRM35A-Mxx ⁽¹⁾	See Three-phase Power Trunk Cables on page 20
3	Three-phase power t-port or Three-phase power t-port, reducing drop	280-T35 or 280-RT35	See Three-phase Power T-ports and Reducing Adapters on page 24
4	Three-phase power drop cable	280-PWRM35A-Mxx ⁽¹⁾ or 280-PWRM22A-Mxx ⁽¹⁾	See Three-phase Power Trunk Cables on page 20 or See Three-phase Power Drop Cables on page 22
5	Three-phase power reducing adapter	280-RA35 (units with 10 A bases)	See Three-phase Power T-ports and Reducing Adapters on page 24
6	Auxiliary/Control power receptacle	888N-D4AF1-xx ⁽¹⁾	See Auxiliary Power Receptacles on page 37
6A	Auxiliary/Control power t-port	898N-43PB-N4KF	See Auxiliary Power T-Ports on page 35
7	Auxiliary/Control power trunk cable	889N-F4AFNM-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
8	Auxiliary/Control power t-port	898N-543ES-NKF	See Auxiliary Power T-Ports on page 35
9	Auxiliary/Control power drop cable	889N-F65GFNM-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
not shown	Auxiliary/Control power shorting plug	898N-4IAU-NM4	See Auxiliary Power Shorting Plugs on page 39
10	Ethernet bulkhead adapter (RJ45-M12)	1585A-DD4JD	See Ethernet Media on page 59
11	Ethernet transition cable (RJ45 patchcord-M12 receptacle)	1585D-D4TBJMxx ⁽¹⁾	See Ethernet Media on page 59
12	Ethernet patchcord	1585D-M4TBDM-xx ⁽¹⁾	See Ethernet Media on page 59
13	Motor cable	280-MTR35-Mxx ⁽¹⁾ D 280-MTR22-Mxx ⁽¹⁾ D	See Motor Cables on page 41
14	Brake cable	285-BRC25-Mxx ⁽¹⁾ D	See Brake Cables on page 47
15	Motor receptacle	280-M35M-M1 280-M22M-M1	See Motor Receptacles on page 49
16	Brake receptacle	285-M25M-M05	See Brake Receptacles on page 52
17	24V DC power supply	1607-XT50D1A	See ArmorPower On-Machine Power Supplies: https://ab.rockwellautomation.com/Power-Supplies/ArmorPower-On-Machine
18	120V AC line in cable, 3-pin	889N-F3AFC-F-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
not shown	I/O cables	889D-F4ACDM-xx ⁽¹⁾	See I/O Media on page 57

(1) xx specifies the available cable lengths.

ArmorStart Controller with DeviceNet Communication Network



Item	Description	Example Cat. No.	Use these links to see cable configuration details and lengths:
1	Three-phase power receptacle	280-M35F-M1	See Three-phase Power Receptacles on page 27
2	Three-phase power trunk cable	280-PWRM35A-Mxx ⁽¹⁾	See Three-phase Power Trunk Cables on page 20
3	Three-phase power t-port or Three-phase power t-port, reducing drop	280-T35 or 280-RT35	See Three-phase Power T-ports and Reducing Adapters on page 24
4	Three-phase power drop cable	280-PWRM35A-Mxx ⁽¹⁾ or 280-PWRM22A-Mxx ⁽¹⁾	See Three-phase Power Trunk Cables on page 20 or See Three-phase Power Drop Cables on page 22
5	Three-phase power reducing adapter	280-RA35 (units with 10 A bases)	See Three-phase Power T-ports and Reducing Adapters on page 24
6	Auxiliary/Control power receptacle	888N-D4AF1-xx ⁽¹⁾	See Auxiliary Power Receptacles on page 37
6A	Auxiliary/Control power t-port	898N-43PB-N4KF	See Auxiliary Power T-Ports on page 35
7	Auxiliary/Control power trunk cable	889N-F4AFNM-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
8	Auxiliary/Control power t-port	898N-543ES-NKF	See Auxiliary Power T-Ports on page 35
9	Auxiliary/Control power drop cable	889N-F65GFNM-xx ⁽¹⁾	See Auxiliary Power Cables on page 32
not shown	Auxiliary/Control power shorting plug	898N-41AU-NM4	See Auxiliary Power Shorting Plugs on page 39
10	DeviceNet receptacle	1485F-Pxx ⁽¹⁾ N5-A	See DeviceNet Media on page 60
11	DeviceNet trunk cable	1485C-Pxx ⁽¹⁾ N5-M5	See DeviceNet Media on page 60
12	DeviceNet t-port	1485P-P1N5-MN5KF	See DeviceNet Media on page 60
13	DeviceNet drop cable	1485G-Pxx ⁽¹⁾ N5-M5	See DeviceNet Media on page 60
14	DeviceNet terminator	1485A-T1M5	See DeviceNet Media on page 60
15	Motor cable	280-MTR35-Mxx ⁽¹⁾ D 280-MTR22-Mxx ⁽¹⁾ D	See Motor Cables on page 41
16	Brake cable	285-BRC25-Mxx ⁽¹⁾ D	See Brake Cables on page 47
17	Motor receptacle	280-M35M-M1 280-M22M-M1	See Motor Receptacles on page 49
18	Brake receptacle	285-M25M-M05	See Brake Receptacles on page 52
19	24V DC power supply	1607-XT50D1A	See ArmorPower On-Machine Power Supplies: https://ab.rockwellautomation.com/Power-Supplies/ArmorPower-On-Machine
20	120V AC line in cable, 3-pin	889N-F3AFC-F-xx ⁽¹⁾	See Auxiliary Power Cables on page 32

(1) xx specifies the available cable lengths.

Notes:

ArmorConnect Three-phase Power Media





The three-phase power media features quick connect cables that can provide a secure connection to the Armor PowerFlex drive or ArmorStart controller. The connectors can be straight or right angled and are physically keyed to help prevent wiring mishaps.

The three-phase power tee, reducing tee, and reducer offer flexibility in system design.

The receptacles provide a termination point at the panel and motor junction box. The socket receptacles can be used for a panel mount connection. The plug receptacles can be used for a quick connect at the motor junction box.

Field-installable receptacles allow for custom power cable lengths. Custom lengths reduce the amount of excess cable and provide a neater appearance to machines. Selecting just a few cordsets provides the sufficient cable lengths that are needed to meet the required applications. This selection minimizes project costs and complexity by reducing the number of different part numbers that are necessary.

Three-phase power media components are rated for motor branch circuits per UL 2237.

Attributes	 Three-phase Power Trunk Cable	 Three-phase Power Drop Cable	 Three-phase Power Tees and Reducers	 Three-phase Power Receptacles
Description	<ul style="list-style-type: none"> • Cordset - Cable with integral socket or plug connector on one end • Patchcord - Cable with integral socket or plug connector on each end 	<ul style="list-style-type: none"> • Cordset - Cable with integral socket or plug connector on one end • Patchcord - Cable with integral socket or plug connector on each end 	<ul style="list-style-type: none"> • Tee - Connects to a single drop line to trunk with M35 connectors • Reducing Tee - Connects to a single M22 drop line to trunk M35 connector • Reducer - Connects from M35 plug connector to M22 socket connector 	<ul style="list-style-type: none"> • Socket receptacles are a panel mount connector with flying leads • Plug receptacles are a motor junction box-mounted connector with flying leads • Field-installable receptacle for custom length cable
Features	<ul style="list-style-type: none"> • Rated for Motor Branch Circuits <ul style="list-style-type: none"> - Meets UL 2237 for Industrial Machinery - 65 or 100 kA High fault rating (SCCR) - Rated for wash down environments • Straight or right angle connectors • 4-pin connector type • Cable rating: TC-ER • Multiple standard lengths 	<ul style="list-style-type: none"> • Rated for Motor Branch Circuits <ul style="list-style-type: none"> - Meets UL 2237 for Industrial Machinery - 65 kA High fault rating (SCCR) - Rated for wash down environments • Straight or right angle connectors • 4-pin connector type • Cable rating: TC-ER • Multiple standard lengths 	<ul style="list-style-type: none"> • Rated for Motor Branch Circuits <ul style="list-style-type: none"> - Meets UL 2237 for Industrial Machinery - 65 kA SCCR (or 100 kA SCCR High fault when applied with Armor PowerFlex drives) - Rated for wash down environments • Trunk Tee, Reducing Tee and Reducer • 4-pin connector type 	<ul style="list-style-type: none"> • Rated for Motor Branch Circuits <ul style="list-style-type: none"> - Meets UL 2237 for Industrial Machinery - 65 kA SCCR (or 100 kA SCCR High fault when applied with Armor PowerFlex drives) - Rated for wash down environments • Plug and socket configurations • 4-pin connector type • 1/2 in. NPT • Available up to 1 meter length
Cable-rated Voltage	600V	600V	600V	600V
Page	20	22	24	27

Three-phase Power Trunk Cables

- 4-pin cables are suitable as a 3-phase power trunk cable for all Armor PowerFlex and ArmorStart devices
- 4-pin cables can also be used as a drop cables for:
 - ArmorStart ST controllers
 - 25 A short circuit protection rated ArmorStart controllers with Ethernet or DeviceNet communication
 - or when desired to minimize voltage drops on extended cable runs
- 4-pin cables are one piece molded design, M35 connection
- Listed per UL 2237 for use in motor branch circuits per NFPA 79
- HARTING® 7-pin square connector style is optional for Armor PowerFlex drives



Product Selection

Cordsets



For Use as Trunk Cable With ⁽¹⁾	Type	No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. No.			
						Straight socket	Right-Angle Socket	Straight Plug	Right-Angle Plug
Armor PowerFlex ArmorStart ST ArmorStart with EtherNet/IP™ ArmorStart with DeviceNet	M35, unshielded	4	10 AWG	600V, 32 A	IP66, IP67, UL 1/4/12, NEMA 1/4/12	280-PWRM35E-Mxx ⁽²⁾	280-PWRM35F-Mxx ⁽²⁾	280-PWRM35G-Mxx ⁽²⁾	280-PWRM35H-Mxx ⁽²⁾
Armor PowerFlex	46 6 mm ² square unshielded	7	14...10 AWG	600V	IP66	HARTING# 61 04 201 2741 Lyyy ⁽³⁾	HARTING# 61 04 201 2740 Lyyy ⁽³⁾	—	—

Patchcords



For Use as Trunk Cable With ⁽¹⁾	Type	No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. No.			
						Straight Socket/ Straight Plug	Right-angle Socket/ Straight Plug	Straight Socket/ Right-angle Plug	Right-angle Socket/ Right-Angle Plug
Armor PowerFlex ArmorStart ST ArmorStart with EtherNet/IP ArmorStart with DeviceNet	M35, unshielded	4	10 AWG	600V, 32 A	IP66, IP67, UL 1/4/12, NEMA 1/4/12	280-PWRM35A-Mxx ⁽²⁾	280-PWRM35B-Mxx ⁽²⁾	280-PWRM35C-Mxx ⁽²⁾	280-PWRM35D-Mxx ⁽²⁾
Armor PowerFlex	46 6 mm ² square unshielded	7	14...10 AWG	600V	IP66	HARTING# 61 04 202 2953 Lyyy ⁽³⁾	—	—	HARTING# 61 04 202 2952 Lyyy ⁽³⁾

(1) Cables are used as drop cables for ArmorStart ST and ArmorStart controllers with 25 A bases.

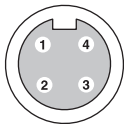
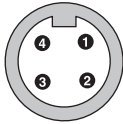
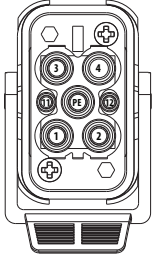

(2) xx specifies the cable length, see [Trunk Cable Lengths](#) table to complete the cat. no. (for example the cable length for Cat. No. 280-PWRM35A-M1 is 1 m).

(3) For HARTING cable lengths, specifications, and ordering information, see the [HARTING website](#).

Trunk Cable Lengths

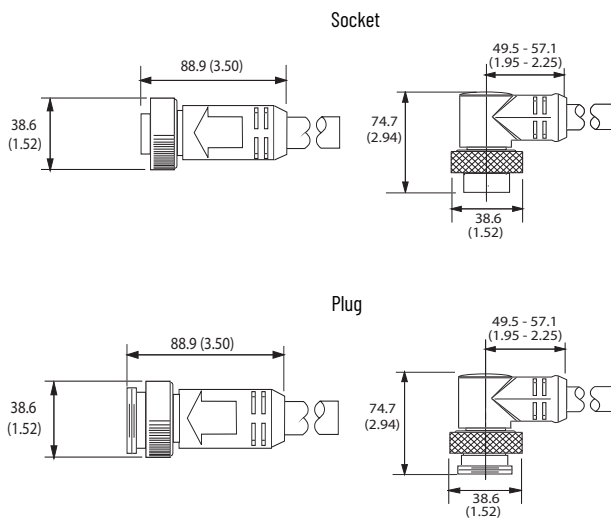
Code	05	1	015	2	025	3	4	6	8	10	12	14	15	20	25	30	35
Length [m (ft)]	0.5 (1.6)	1 (3.3)	1.5 (4.9)	2 (6.6)	2.5 (8.1)	3 (9.8)	4 (13.1)	6 (19.7)	8 (26.2)	10 (32.8)	12 (39.4)	14 (45.9)	15 (49.2)	20 (65.6)	25 (82.0)	30 (98.4)	35 (114.8)

Pinout and Color Code

Face View Pinout		Series A	Series B
		Pin 1: L1 Black	Black
		Pin 2 ^(a) : Ground Green/Yellow	Green/Yellow
		Pin 3: L3 Red	Black
		Pin 4: L2 White	Black
(a) Extended pin on plug side			
For HARTING cable lengths, specifications, and ordering information, see the HARTING website .			
		Pin 1: L1 Black	Black
		Pin 2: L2 Black	Black
		Pin 3: L3 Black	Black
		Pin 4: not used —	—
		Pin 11: not used —	—
		Pin 12: not used —	—
		Center Pin: Chassis (PE) Green/Yellow	Green/Yellow

Approximate Dimensions – 4-pin Round Cables

Dimensions in millimeters (inches). Dimensions aren't intended to be used for manufacturing purposes and are subject to change.



Specifications – 4-pin Round Connectors

Mechanical	
Coupling Nut	Black anodized aluminum
Housing	Black TPE
Insert	Black TPE
Contacts	Copper alloy with gold over nickel plating
Cable	Series A⁽¹⁾ : Black PVC, dual rated UL TC-ER for open wiring, ST00W Series B⁽¹⁾ : Black TPE, TC-ER
Cable Diameter	Series A⁽¹⁾ : 0.775 in. +/- 0.12 in. (19.68 mm +/- 0.5 mm) Series B⁽¹⁾ : 0.53 in. (13.46 mm)
Bend Radius, min	Series A⁽¹⁾ : Ten times (10x) the cable diameter Series B⁽¹⁾ : Twelve times (12x) the cable diameter
Tightening Torque	Tighten by hand, to approximately 2.8 N•m (25 lb•in). Do not wrench tighten.
Electrical	
Cable Rating	600V AC/DC
Assembly Rating	4-pin – 10 AWG: 600V, 32 A
Short Circuit Current Rating (SCCR)	When used with Armor PowerFlex (Bulletin 35E and 35S) drives: Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 100,000 RMS symmetrical amperes at 480V AC maximum. Fusing: Suitable for use on a circuit capable of delivering not more than 100,000 RMS symmetrical amperes at 480Y/277V AC maximum. When used with ArmorStart (Bulletin 280, 281, and 284) controllers: Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 480V AC maximum when protected by Bul. 140G-H frame circuit breaker, not rated more than 480V, 100 A and a maximum interrupting of 65,000 RMS symmetrical amperes. Fusing: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 600V AC maximum when protected by CC, J, and T class fuses.
Environmental	
Certifications	UL Listed (File No. E318496, Guide PVVA)
Enclosure Rating	IP66, IP67, UL Type 1/4/12, NEMA 1/4/12; 1200 psi washdown
Operating Temperature	UL Type TC 600V 90 °C Dry 75 °C Wet, Exposed Run (ER) or MTW 600V 90 °C or ST00W 105 °C 600V – CSA ST00W 600V FT2

(1) You cannot order a specific series. When series A is no longer available, it will be replaced by series B.

Three-phase Power Drop Cables

Note: Cables can also be used as non-shielded motor cables for ArmorStart LT controllers. The cables aren't compatible with Armor PowerFlex drives and ArmorStart ST controllers.

- Listed per UL 2237 for use in motor branch circuits per NFPA 79
- One piece molded design
- Suitable as a drop cable for ArmorStart LT controllers and ArmorStart controllers with Ethernet or DeviceNet communication
- Also used as a non-shielded motor cable for ArmorStart LT controllers



Product Selection

Cordsets



For Use as Drop Cable With ⁽¹⁾	Type	No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. No.			
						Straight Socket	Right-Angle Socket	Straight Plug	Right-Angle Plug
ArmorStart LT ArmorStart with EtherNet/IP ArmorStart with DeviceNet	M22, unshielded	4	16 AWG	600V, 10 A	IP67, UL 4/12, NEMA 4/12	280-PWRM22E-Mxx ⁽²⁾	280-PWRM22F-Mxx ⁽²⁾	280-PWRM22G-Mxx ⁽²⁾	280-PWRM22H-Mxx ⁽²⁾
	M24, unshielded		14 AWG	600V, 15 A		280-PWRM24E-Mxx ⁽²⁾	280-PWRM24F-Mxx ⁽²⁾	280-PWRM24G-Mxx ⁽²⁾	280-PWRM24H-Mxx ⁽²⁾

Patchcords



For Use as Drop Cable With ⁽¹⁾	Type	No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. No.			
						Straight Socket/ Straight Plug	Right-angle Socket/ Straight Plug	Straight Socket/ Right-angle Plug	Right-angle Socket/ Right-Angle Plug
ArmorStart LT ArmorStart with EtherNet/IP ArmorStart with DeviceNet	M22, unshielded	4	16 AWG	600V, 10 A	IP67, UL 4/12, NEMA 4/12	280-PWRM22A-Mxx ⁽²⁾	280-PWRM22B-Mxx ⁽²⁾	280-PWRM22C-Mxx ⁽²⁾	280-PWRM22D-Mxx ⁽²⁾
	M24, unshielded		14 AWG	600V, 15 A		280-PWRM24A-Mxx ⁽²⁾	280-PWRM24B-Mxx ⁽²⁾	280-PWRM24C-Mxx ⁽²⁾	280-PWRM24D-Mxx ⁽²⁾

(1) Cables can also be used as unshielded motor cables for ArmorStart LT controllers.

(2) xx specifies the cable length, see [Drop Cable Lengths](#) table to complete the cat. no. (for example the cable length for Cat. No. 280-PWRM22A-M1 is 1 m).

Drop Cable Lengths

Code	05	1	015	2	025	3	4	6	8	10	12	14
Length [m (ft)]	0.5 (1.6)	1 (3.3)	1.5 (4.9)	2 (6.6)	2.5 (8.1)	3 (9.8)	4 (13.1)	6 (19.7)	8 (26.2)	10 (32.8)	12 (39.4)	14 (45.9)

Pinout and Color Code

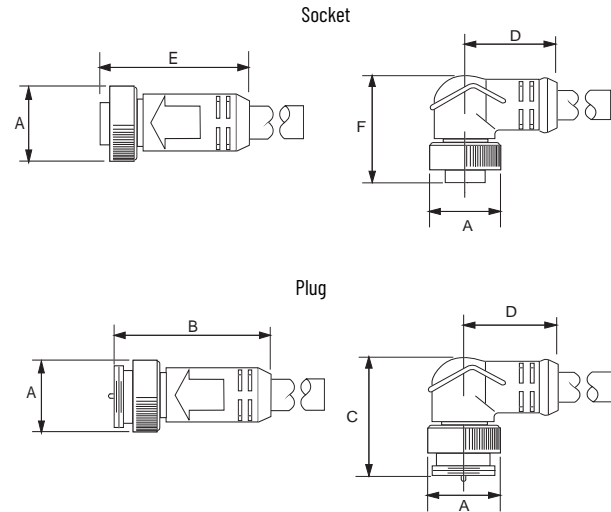
Face View Pinout			Series A	Series B
		Pin 1:	Black	Black
		Pin 2:	White	Black
		Pin 3:	Red	Black
		Pin 4 ^(a) :	Green/Yellow	Green/Yellow
		(a) Extended pin on plug side		

Specifications

Mechanical	
Coupling Nut	Black anodized aluminum
Housing	Black TPE
Insert	Black TPE
Contacts	Brass with gold over nickel plating
Cable	Series A⁽¹⁾ : Black PVC, dual rated UL TC-ER for open wiring, ST00W Series B⁽¹⁾ : Black TPE, TC-ER
Cable Diameter	Series A⁽¹⁾ M22 : 0.43 in. +/- 0.12 in. (10.9 mm +/- 0.5 mm) with four 16 AWG conductors M24 : 0.58 in. +/- 0.12 in. (14.7 mm +/- 0.5 mm) with four 14 AWG conductors Series B⁽¹⁾ M22 : 0.339 in. (8.61 mm) M24 : 0.373 in. (9.47 mm)
Bend Radius, min	Series A⁽¹⁾ : Ten times (10x) the cable diameter Series B⁽¹⁾ : Twelve times (12x) the cable diameter
Tightening Torque	Tighten by hand, to approximately 1.7 N•m (15 lb•in). Do not wrench tighten.
Electrical	
Cable Rating	600V AC/DC
Assembly Rating	M22 : 4-pin – 16 AWG, 600V, 10 A M24 : 4-pin – 14 AWG, 600V, 15 A
Short Circuit Current Rating (SCCR)	Fusing : Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 600V AC maximum when protected by CC, J, and T class fuses, rated 40 A non-time delay or 20 A time delay. Circuit Breaker : Suitable for use on a circuit capable of delivering not more than 45,000 RMS symmetrical amperes at 480Y/277V AC maximum when protected by Cat. No. 140U-D6D3-C30 circuit breaker, not rated more than 480Y/277V, 30 A, having an interrupting rating not less than 45,000 RMS symmetrical amperes, 480Y/277V maximum.
Environmental	
Certifications	UL Listed (File No. E318496, Guide PVVA)
Enclosure Rating	IP67, UL Type 4/12, NEMA 4/12; 1200 psi washdown
Operating Temperature	UL Type TC 600V 90 °C Dry 75 °C Wet, Exposed Run (ER) or MTW 600V 90 °C or ST00W 105 °C 600V – CSA ST00W 600V FT2

(1) You cannot order a specific series. When series A is no longer available, it will be replaced by series B.

Approximate Dimensions



Dimensions in millimeters (inches). Dimensions aren't intended to be used for manufacturing purposes and are subject to change.

	A	B	C	D	E	F
M22	25.4 (1.00)	59.4 (2.34)	43.2 (1.70)	32.5 (1.28)	56.1 (2.21)	40.4 (1.59)
M24	31.8 (1.25)	73.7 (2.90)	—	—	71.9 (2.83)	—

Three-phase Power T-ports and Reducing Adapters

- Listed per UL 2237 for use in motor branch circuits per NFPA 79
- One piece molded design
- 4-pin T-port connects a single drop line to the trunk
- HARTING “square” connector style is optional for Armor PowerFlex drives



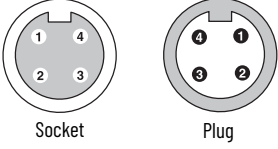

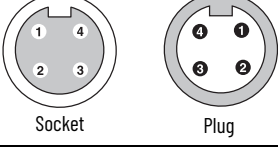

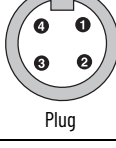
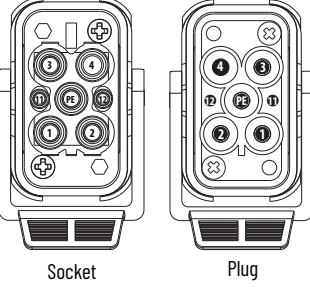
Product Selection

	For Use With	No. of Pins	Environmental Rating	Assembly Rating	Wiring Diagram	Cat. No.
Power T-port (M35)	Armor PowerFlex ArmorStart ST ArmorStart with EtherNet/IP ⁽¹⁾ ArmorStart with DeviceNet ⁽¹⁾	4	IP66, IP67, UL 1/4/12, NEMA 1/4/12	32 A		280-T35
Power T-port (M35 with reducing M22 drop)	ArmorStart LT ArmorStart with EtherNet/IP ⁽¹⁾ ArmorStart with DeviceNet ⁽¹⁾		Trunk 32 A / Drop 15 A		280-RT35	
Reducing Adapter (M35)	ArmorStart LT ArmorStart with EtherNet/IP ArmorStart with DeviceNet		15 A	IP67, UL 4/12, NEMA 4/12		280-RA35
HARTING Power T-port (3x or 5x distribution)	Armor PowerFlex		7	IP66, NEMA 4/12	(2)	HARTING 3- connector distribution port
				(2)	HARTING 5- connector distribution port	HARTING# 61 12 203 0007 ⁽²⁾

(1) Use 280-T35 for units with 25 A bases. Use 280-RT35 for units with 10 A bases.

(2) For HARTING specifications and ordering information, see the [HARTING website](#).

Pinout and Color Code

	Face View Pinout	
	M22 Connector	M35 Connector
Power T-port	—	 <p>Socket Plug</p> <p>1 Black 3 Red 2 Green/Yellow⁽¹⁾ 4 White</p>
Power T-port with Reducing Drop	 <p>Socket</p> <p>1 Black 3 Red 2 White 4 Green/Yellow⁽¹⁾</p>	 <p>Socket Plug</p> <p>1 Black 3 Red 2 Green/Yellow⁽¹⁾ 4 White</p>
Reducing Adapter	 <p>Socket</p> <p>1 Black 3 Red 2 White 4 Green/Yellow⁽¹⁾</p>	 <p>Plug</p> <p>1 Black 3 Red 2 Green/Yellow⁽¹⁾ 4 White</p>
HARTING Power Distribution Ports	 <p>Socket Plug</p>	<p>For HARTING specifications and ordering information, see the HARTING website.</p> <p>Pin 1: L1 Pin 2: L2 Pin 3: L3 Pin 4: not used Pin 11: not used Pin 12: not used Center Pin: Chassis (PE)</p>

(1) Extended pin on plug side

Specifications (4-pin Round Connector Ports and Adapter)

Mechanical	
Coupling Nut	Black anodized aluminum (Trunk), black zinc die-cast (Drop)
Housing	Black TPE
Insert	Black TPE
Contacts	Copper alloy with gold over nickel plating
Tightening Torque	Tighten by hand, to approximately 2.8 N•m (25 lb•in). Do not wrench tighten.

Electrical	
Voltage	600V AC/DC
Assembly Rating	Trunk Tee: 600V @ 32 A Reducing Tee: Trunk 600V @ 32 A / Drop 600V @ 15 A Reducer: 600V @ 15 A

When used on Armor PowerFlex (Bulletin 35E and 35S) drives:
Power T-port Fusing: Suitable for use on a circuit capable of delivering not more than 100,000 RMS symmetrical amperes at 480V AC maximum.
Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 100,000 RMS symmetrical amperes at 480Y/277V AC maximum.

When used on ArmorStart (Bulletin 280, 281, and 284) controllers:
Power T-port Fusing: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 600V AC maximum when protected by CC, J, and T class fuses.
Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 480V AC maximum when protected by Bulletin 140G-H frame circuit breaker, not rated more than 480V, 100 A and a maximum interrupting of 65,000 RMS symmetrical amperes.

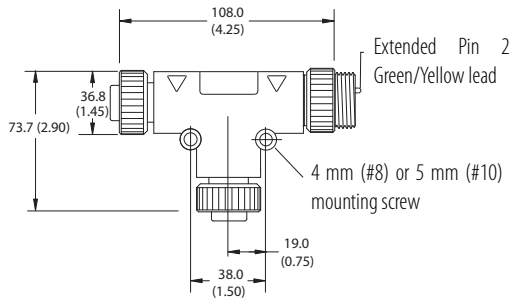
Power T-port with reducing drop and Reducing Adapter Fusing: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 600V AC maximum when protected by CC, J, and T class fuses, rated 40 A non-time delay or 20 A time delay.
Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 45,000 RMS symmetrical amperes at 480Y/277V AC maximum when protected by Cat. No. 140U-D6D3-C30 circuit breaker, not rated more than 480Y/277V, 30 A, having an interrupting rating not less than 45 000 RMS symmetrical amperes, 480Y/277V maximum.

Environmental	
Enclosure Rating	IP66, IP67, UL Type 1/4/12, NEMA 1/4/12; 1200 psi washdown

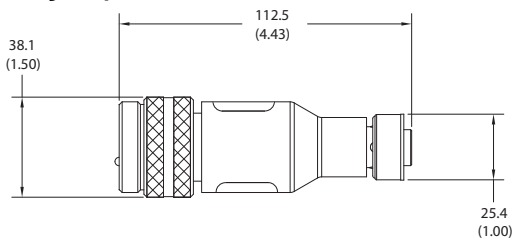
Approximate Dimensions (4-pin Ports and Adapter)

Dimensions in millimeters (inches). Dimensions aren't intended to be used for manufacturing purposes and are subject to change.

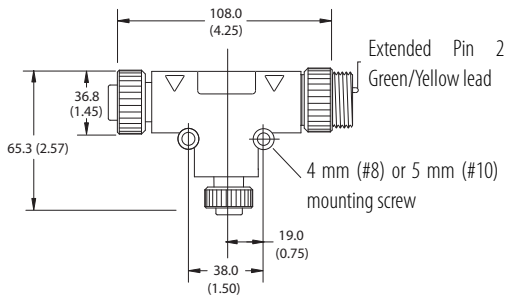
Power T-port



Reducing Adapter



Power T-port with Reducing Drop



Three-phase Power Receptacles

- Listed per UL 2237 for use in motor branch circuits per NFPA 79
- 16 AWG, 14 AWG, and 10 AWG conductors
- 4-pin configuration, M35 or M22 connection
- Socket receptacles can be used for panel mount connection
- Plug receptacles can be used for quick connect motor junction box
- 1/2 in.-14 NPT threads
- HARTING receptacles are optional for Armor PowerFlex drives



Product Selection

For Use With	Connector	No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. No.	
						Socket	Plug
ArmorStart LT ⁽¹⁾ ArmorStart with EtherNet/IP ⁽¹⁾ ArmorStart with DeviceNet ⁽¹⁾	M22	4	16 AWG	600V, 10 A	IP66, IP67, UL 1/4/12, NEMA 1/4/12	280-M22F-Mxx ⁽²⁾	280-M22M-Mxx ⁽²⁾
ArmorStart LT ⁽¹⁾ ArmorStart with EtherNet/IP ⁽¹⁾ ArmorStart with DeviceNet ⁽¹⁾	M22		14 AWG	600V, 15 A		280-M24F-Mxx ⁽²⁾	280-M24M-Mxx ⁽²⁾
Armor PowerFlex ArmorStart ST ArmorStart with EtherNet/IP ArmorStart with DeviceNet	M35		10 AWG	600V, 32 A		280-M35F-Mxx ⁽²⁾	280-M35M-Mxx ⁽²⁾
Armor PowerFlex	square ⁽³⁾	7	10 AWG	600V	IP66, NEMA 4/12	HARTING# 61 04 201 2753 ⁽⁴⁾	HARTING# 61 04 201 2754 ⁽⁴⁾

(1) Optional sizes for three-phase cabling networks that do not use any reducing devices (Power Tee with reducing drop or Reducing Adapter).

(2) Replace xx with length in meters: 05 for 0.5 m, 1 for 1 m or 3 for 3 m.

(3) To install on a M25 motor connection, see [Motor Connector Adapter – M25 to Square on page 63](#).

(4) For HARTING specifications and ordering information, see the [HARTING website](#).

- Field installable products are also available. See [Three-phase Power Field-installed Connectors](#).
- For mounting nuts and washers, see [Accessories](#).

Pinout and Color Code

Face View Pinout

M22 Connector				M35 Connector					
		Pin 1: Pin 2: Pin 3: Pin 4 ^(a) :	Series A Black White Red Green/Yellow	Series B Black Black Black Green/Yellow			Pin 1: Pin 2 ^(a) : Pin 3: Pin 4:	Series A Black Green/Yellow Red White	Series B Black Green/Yellow Black Black
(a) Extended pin on plug side				(a) Extended pin on plug side					

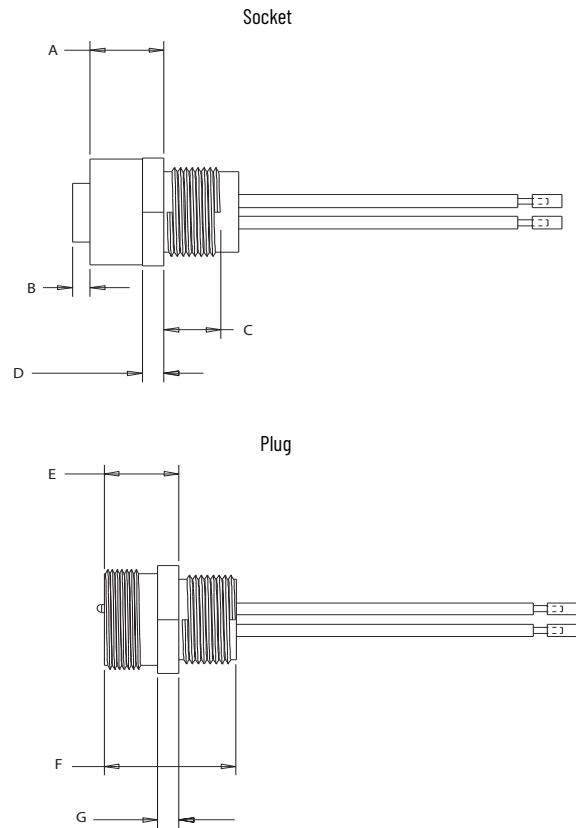
HARTING Connector

		For HARTING specifications and ordering information, see the HARTING website .
Pin 1: L1 Pin 2: L2 Pin 3: L3 Pin 4: not used Pin 11: not used Pin 12: not used Center Pin: Chassis (PE)		

Specifications (4-pin Round Receptacles)

Mechanical	
Insert	Black TPE
Receptacle Shell Material	Black anodized aluminum (socket) and zinc die-cast, black E-coat (plug)
Contacts	Copper alloy with gold over nickel plating (Trunk), brass with gold over nickel plating (Drop)
Tightening Torque	4.52 N•m (40 lb•in)
Electrical	
Cable Rating	600V AC/DC
Assembly Rating	M22: 4-pin – 16 AWG, 600V, 10 A M22: 4-pin – 14 AWG, 600V, 15 A M35: 4-pin – 10 AWG, 600V, 32 A
Short Circuit Current Rating (SCCR)	When used on Armor PowerFlex (Bulletin 35E and 35S) drives: 4-pin – 10 AWG Fusing: Suitable for use on a circuit capable of delivering not more than 100,000 RMS symmetrical amperes at 480V AC maximum. Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 100,000 RMS symmetrical amperes at 480Y/277V AC maximum.
	When used on ArmorStart (Bulletin 280, 281, and 284) controllers: 4-pin – 16 AWG or 14 AWG Fusing: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 600V AC maximum when protected by CC, J, and T class fuses, rated 40 A non-time delay or 20 A time delay. Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 45,000 RMS symmetrical amperes at 480Y/277V AC maximum when protected by Cat. No. 140U-D6D3-C30 circuit breaker, not rated more than 480Y/277V, 30 A, having an interrupting rating not less than 45,000 RMS symmetrical amperes, 480Y/277V maximum.
	4-pin – 10 AWG Fusing: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 600V AC maximum when protected by CC, J, and T class fuses Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 480V AC maximum when protected by Bul. 140G-H frame circuit breaker, not rated more than 480V, 100 A and a maximum interrupting of 65,000 RMS symmetrical amperes.
Environmental	
Enclosure Rating	IP66, IP67, UL Type 1/4/12, NEMA 1/4/12; 1200 psi washdown

Approximate Dimensions (4-pin Round Receptacles)



Dimensions in millimeters (inches). Dimensions aren't intended to be used for manufacturing purposes and are subject to change.

	A	B	C	D	E	F	G
M22	18.5 (0.73)	3.81 (0.15)	12.1 (0.48)	7.32 (0.29)	16.0 (0.63)	28.0 (1.10)	4.75 (0.19)
M35	45.3 (1.78)	7.62 (0.30)	11.9 (0.47)	6.35 (0.25)	51.6 (2.03)	63.5 (2.50)	6.35 (0.25)

Three-phase Power Field-installed Connectors

- Listed per UL 2237 for use in motor branch circuits per NFPA 79
- 16 ...10 AWG conductors
- 4-pin configuration, M35 or M22 connection
- Used to configure custom-length cordsets



Product Selection

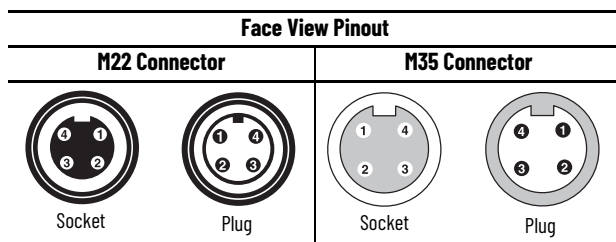
For Use With	Type	No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. No.		
						Straight Socket	Right-angle Socket	Plug
ArmorStart LT ⁽¹⁾ ArmorStart with EtherNet/IP ⁽¹⁾ ArmorStart with DeviceNet ⁽¹⁾	M22 ⁽²⁾	4	16 AWG 14 AWG	600V, 10 A 600V, 15 A	IP66, IP67, UL 1/4/12, NEMA 1/4/12	280-FAM22F	—	280-FAM22M
Armor PowerFlex ArmorStart ST ArmorStart with EtherNet/IP ArmorStart with DeviceNet	M35 ⁽²⁾		10 AWG	600V, 32 A		280-FAM35F	—	280-FAM35M
Armor PowerFlex	Square	7	14...10 AWG	(3)	IP66, NEMA 4/12	HARTING# 61 04 401 2727 ⁽³⁾	HARTING# 61 04 401 2726 ⁽³⁾	—

(1) Optional size for three-phase cabling networks that do not use any reducing devices (Power Tee with reducing drop or Reducing Adapter).

(2) The field-installed receptacle for use with an M24 cordset, is an M35 receptacle and if needed, its corresponding M35 mating receptacle.

(3) For HARTING specifications and ordering information, see the [HARTING website](#).

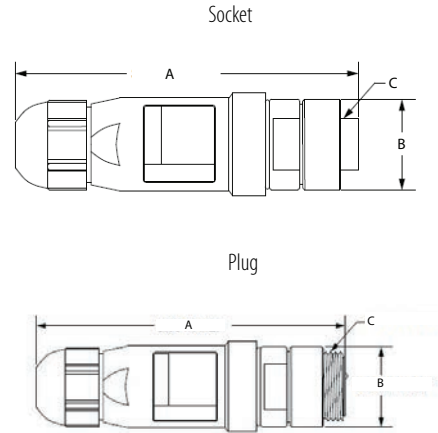
Pinout



Specifications (4-pin Round Receptacles)

Mechanical				
Insert	Black TPE			
Receptacle Shell Material	Black anodized aluminum (socket) and zinc die-cast, black E-coat (plug)			
Contacts	Copper alloy with gold over nickel plating (Trunk), brass with gold over nickel plating (Drop)			
Electrical				
Cable Rating	600V AC/DC: 14 AWG Listed TC, 16 AWG Listed TC-ER/STOOW, 10 AWG Listed TC-ER/STOOW			
Assembly Rating	<p>Note: When applied with 14 AWG or larger wire, this is suitable for use on Motor Branch Circuits, per NFPA 79.</p> <table border="0"> <tr> <td>4-pin – 16 AWG, 600V, 10 A</td> </tr> <tr> <td>4-pin – 14 AWG, 600V, 15 A</td> </tr> <tr> <td>4-pin – 10 AWG, 600V, 32 A</td> </tr> </table>	4-pin – 16 AWG, 600V, 10 A	4-pin – 14 AWG, 600V, 15 A	4-pin – 10 AWG, 600V, 32 A
4-pin – 16 AWG, 600V, 10 A				
4-pin – 14 AWG, 600V, 15 A				
4-pin – 10 AWG, 600V, 32 A				
Short Circuit Current Rating (SCCR)	<p>When used on Armor PowerFlex (Bulletin 35E and 35S) drives: 4-pin – 10 AWG Fusing: Suitable for use on a circuit capable of delivering not more than 100,000 RMS symmetrical amperes at 480V AC maximum when protected by CC, J, and T class fuses. Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 100,000 RMS symmetrical amperes at 480Y/277V AC maximum.</p>			
	<p>When used on ArmorStart (Bulletin 280, 281, and 284) controllers: 4-pin – 16 and 14 AWG Fusing: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 600V AC maximum when protected by CC, J, and T class fuses, rated 40 A non-time delay or 20 A time delay. Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 45,000 RMS symmetrical amperes at 480V AC maximum when protected by Cat. No. 140U-D6D3-C30 circuit breaker, not rated more than 480Y/277V, 30 A, having an interrupting rating not less than 45,000 RMS symmetrical amperes, 480Y/277V maximum.</p>			
	<p>4-pin – 10 AWG Fusing: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 600V AC maximum when protected by CC, J, and T class fuses. Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 480V AC maximum when protected by Bul. 140G-H frame circuit breaker, not rated more than 480V, 100 A and a maximum interrupting of 65,000 RMS symmetrical amperes.</p>			
Environmental				
Enclosure Rating	IP66, IP67, UL Type 1/4/12, NEMA 1/4/12; 1200 psi washdown			

Approximate Dimensions (4-pin Round Receptacles)



Dimensions in millimeters (inches). Dimensions aren't intended to be used for manufacturing purposes and are subject to change.

	A	B	C (thread)
M22	92.2 (3.63)	27.9 (1.10)	7/8 - 16 UN-2B
M35	111.8 (4.40)	38.6 (1.52)	1-3/8 - 16 UN-2A

ArmorConnect Control/Auxiliary Power Media






The auxiliary power media offers a quick connect cable that provides a secure connection to the Armor PowerFlex drive or ArmorStart controller. The connectors can be straight or right angled and are physically keyed to prevent wiring mishaps.

The auxiliary power tees offer flexibility in system design. The T-port connects a single drop line to the trunk. Three types of tees are offered:

- The E-stop In tee is used to connect to the Bulletin 800F On-Machine E-stop station using an auxiliary power media patchcord.
- The E-stop Out tee is used with cordset or patchcord to connect to the Armor PowerFlex drive or ArmorStart controller.
- The auxiliary tees allow users to apply standard 4-wire auxiliary power down the trunk to other tees and devices.

The receptacles provide a termination point at the panel and ArmorStart Distributed Motor Controller. The socket receptacles can be used for a panel mount connection. The plug receptacles can be used for a quick connect at the ArmorStart Distributed Motor Controller with gland plate design.

This manual lists auxiliary power media products that are suitable for use with Armor PowerFlex drives and ArmorStart controllers. See Cordsets & Field Attachables Technical Data, publication [889-TD002](#) for additional auxiliary power media options and technical specifications.

Attributes	 Control Power Cordsets & Patchcords	 Control Power T-ports	 Control Power Receptacles	 Control Power Shorting Plugs	 Control Power Accessories
Description	<ul style="list-style-type: none"> • Cable with integral connector on either one or both ends 	<ul style="list-style-type: none"> • Cable with single plug connector that is attached to two socket connectors 	<ul style="list-style-type: none"> • Panel mount connector with flying leads 	<ul style="list-style-type: none"> • Integral connector with leads shorted for specific application requirements 	<ul style="list-style-type: none"> • Sealing caps, mounting nuts, and sealing washers
Features	<ul style="list-style-type: none"> • Plug and socket • Straight or right angle versions • 16 AWG conductors, cable dual rated UL TC/ Open Wiring and ST00W • Multiple standard lengths 	<ul style="list-style-type: none"> • Compact design • Color-coded E-stop in and E-stop out configurations 	<ul style="list-style-type: none"> • Plug and socket • 16 AWG conductors • 1/2 NPT mounting threads • Multiple standard lengths 	<ul style="list-style-type: none"> • 6-pin/5-used configuration • Plug • Multiple versions color coded for simple identification 	<ul style="list-style-type: none"> • Rugged durable construction • Designed to mate with control power media
Rated Voltage	600V	600V	600V	600V	—
Page	32	35	37	39	63

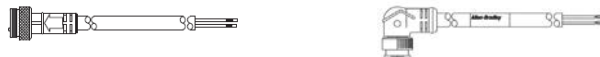
Auxiliary Power Cables

- One-piece molded design, 16 AWG rated cable
- Ratcheting coupling nut for vibration resistance (3, 4, or 5-pin)



Product Selection

Cordsets



For Use With	Type	Wire Size	Assembly Rating	Environmental Rating	Cat. No.			
					Straight Socket	Right-Angle Socket	Straight Plug	Right-Angle Plug
Bulletin 1607 On-Machine Auxiliary Power Supply	3-pin, Mini, M22	16 AWG	600V, 13 A	IP66, IP67, UL 1/4/12	889N-F3AFC-xx ⁽¹⁾	889N-R3AFC-xx ⁽¹⁾	889N-U3AFC-xx ⁽¹⁾⁽²⁾	889N-V3AFC-xx ⁽¹⁾⁽²⁾
ArmorStart ST	4-pin, Mini, M22	16 AWG	600V, 10 A	NEMA 1/4/12/13	889N-F4AFC-xx ⁽¹⁾	889N-R4AFC-xx ⁽¹⁾	889N-M4AFC-xx ⁽¹⁾	889N-E4AFC-xx ⁽¹⁾
ArmorStart with EtherNet/IP, ArmorStart with DeviceNet, or ArmorStart LT	6-pin/5 used, Mini, M22	16 AWG	600V, 10 A	IP66, IP67, NEMA 1/4/12	889N-F65GF-yy ⁽³⁾	889N-R65GF-yy ⁽³⁾	889N-M65GF-yy ⁽³⁾	889N-E65GF-yy ⁽³⁾
Armor PowerFlex ⁽⁴⁾	5-pin, L-code, M12	16 AWG	50V AC, 60V DC, 16 A	IP66, UL Type 1/12	889L-F5JF-yy ⁽³⁾	889L-R5JF-yy ⁽³⁾	889L-M5JF-yy ⁽³⁾	889L-E5JF-yy ⁽³⁾

- (1) xx specifies the cable length, see [Cordset 3- or 4-pin Standard Lengths](#) table to complete the cat. no. (for example, the cable length for Cat. No. 889N-F3AFC-6F is 6 ft). Custom cable lengths are also available, contact your local Rockwell Automation sales office or Allen-Bradley distributor.
- (2) Connector has internal threads.
- (3) yy specifies the cable length, see [Cordset 5- or 6-pin/5 used Standard Lengths](#) table to complete the cat. no. (for example the cable length for Cat. No. 889N-F65GF-2 is 2 m).
- (4) The maximum 24V Auxiliary Power IN overall cable length for Armor PowerFlex is 20 m (65.6 ft). A maximum of two cables can be connected in series to achieve the desired overall length.

Cordset 3- or 4-pin Standard Lengths

Code	6F	12F	20F	30F	40F	50F
Length [ft (m)]	6 (1.8)	12 (3.7)	20 (6.1)	30 (9.1)	40 (12.2)	50 (15.2)

Cordset 5- or 6-pin/5 used Standard Lengths

Code	1 ⁽⁵⁾	2	3 ⁽⁵⁾	4 ⁽⁵⁾	5	6 ⁽⁵⁾	10
Length [m (ft)]	1 (3.3)	2 (6.6)	3 (9.8)	4 (13.1)	5 (16.4)	6 (19.7)	10 (32.8)

(5) Lengths not available for 6-pin/5-used cordsets.

Patchcords



For Use With	Type	Wire Size	Assembly Rating	Environmental Rating	Cat. No.			
					Straight Socket Straight Plug	Right-Angle Socket Straight Plug	Straight Socket Right-Angle Plug	Right-Angle Socket Right-Angle Plug
ArmorStart ST	4-pin, Mini, M22	16 AWG	600V, 10 A	IP66, IP67, UL 1/4/12	889N-F4AFNM-xx ⁽¹⁾	889N-R4AFNM-xx ⁽¹⁾	889N-F4AFNE-xx ⁽¹⁾	889N-R4AFNE-xx ⁽¹⁾
Armor PowerFlex ⁽⁴⁾	5-pin, L-code, M12	16 AWG	50V AC, 60V DC, 16 A	IP66, UL Type 1/12	889L-F5JFLM-zz ⁽²⁾	889L-R5JFLM-zz ⁽²⁾	889L-F5JFLE-zz ⁽²⁾	889L-R5JFLE-zz ⁽²⁾
ArmorStart with EtherNet/IP, ArmorStart with DeviceNet, or ArmorStart LT	6-pin/5 used, Mini, M22	16 AWG	600V, 10 A	IP66, IP67, NEMA 1/4/12	889N-F65GFNM-yy ⁽³⁾	889N-R65GFNM-yy ⁽³⁾	889N-F65GFNE-yy ⁽³⁾	889N-R65GFNE-yy ⁽³⁾
Armor PowerFlex M22 Adapter ⁽⁴⁾	4-pin, Mini, M22 to 5-pin L-code, M12	16 AWG	50V AC, 60V DC, 8 A	IP66, UL Type 1/12	5-pin Straight Socket 4-pin Straight Plug	5-pin Right-Angle Socket 4-pin Straight Plug	5-pin Straight Plug 4-pin Straight Socket	5-pin Right-Angle Plug 4-pin Straight Socket
					889L-F5JFN4M-zz ⁽²⁾	889L-R5JFN4M-zz ⁽²⁾	889N-F4JFL5M-zz ⁽²⁾	889N-F4JFL5E-zz ⁽²⁾

- (1) xx specifies the cable length, see [Patchcord 4-pin Standard Lengths](#) table to complete the cat. no. (for example the cable length for Cat. No. 889N-F4AFNM-2 is 2 m). Custom cable lengths are also available, contact your local Rockwell Automation sales office or Allen-Bradley distributor.
- (2) zz specifies the cable length, see [Patchcord 5-pin/4 to 5-pin Standard Lengths](#) table to complete the cat. no. (for example the cable length for Cat. No. 889L-R5JFLE-2 is 2 m).
- (3) yy specifies the cable length, see [Patchcord 6-pin/5 used Standard Lengths](#) table to complete the cat. no. (for example the cable length for Cat. No. 889N-F65GFNM-2 is 2 m).
- (4) The maximum 24V Auxiliary Power IN overall cable length for Armor PowerFlex is 20 m (65.6 ft). A maximum of two cables can be connected in series to achieve the desired overall length.

Patchcord 4-pin Standard Lengths

Code	0M3	2	5	10
Length [m (ft)]	0.3 (1.0)	2 (6.6)	5 (16.4)	10 (32.8)

Patchcord 6-pin/5 used Standard Lengths

Code	0M5	1	2	3	5	6	8	10
Length [m (ft)]	0.5 (1.6)	1 (3.3)	2 (6.6)	3 (9.8)	5 (16.4)	6 (19.7)	8 (26.2)	10 (32.8)

Patchcord 5-pin/4 to 5-pin Standard Lengths

Code	0M3	1	2	3	4	5	6	10
Length [m (ft)]	0.3 (1.0)	1 (3.3)	2 (6.6)	3 (9.8)	4 (13.1)	5 (16.4)	6 (19.7)	10 (32.8)

Face View					
6-pin/5-used, Mini, M22		4-pin, Mini, M22		3-pin, Mini, M22	
Socket	Plug	Socket	Plug	Socket	Plug
1 Red (+) 2 Black (-) 3 Green (GND)	4 Blank/Not Used 5 Blue (S1) 6 White (S2)	1 Black 2 White	3 Red 4 Green/Yellow Extended PIN	1 Green 2 Black	3 White

5-pin, L-code, M12 4-pin, Mini, M22 to 5-pin, L-code, M12			
Socket	Plug	Socket	Plug
1 Brown 2 White 3 Blue	4 Black FE Gray	1 Black 2 Brown	3 Blue 4 White

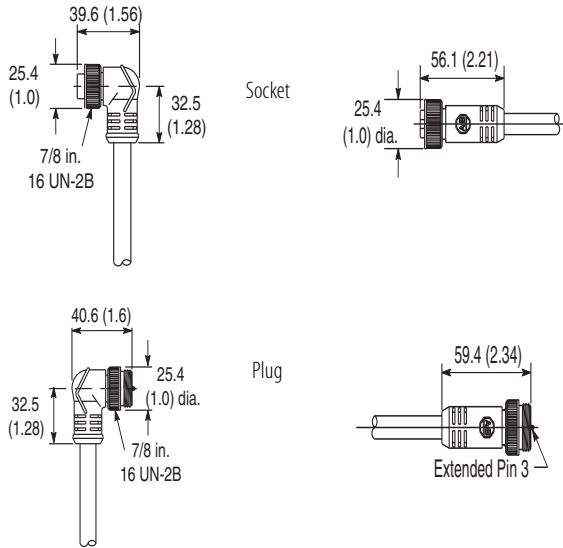
Specifications

	6-pin/5 used	3/4-pin	5-pin	4 to 5-pin
Mechanical				
Coupling Nut	Black epoxy-coated zinc	Epoxy-coated zinc	Cu/Zn/Ni	5-pin: Cu/Zn/Ni 4-pin: Anodized BK
Overmold	Black Riteflex TPE	Oil-resistant TPE	Black TPE	5-pin: Black TPU 4-pin: Yellow TPU
Insert	Yellow Riteflex TPE	—	—	—
Contacts	Brass/gold over palladium nickel	Gold-plated palladium/nickel	Cu/Ni/Au	5-pin: Cu/Ni/Au 4-pin: CuZn/CuAu
Cable	Gray PVC, 16 AWG, dual rated UL TC/Open Wiring and STOOW	Oil-resistant yellow PVC jacket, 16 AWG stranded copper, 600V; UL and CSA, STOOW-A	Black PUR, 16 AWG, stranded BC	Black PUR, 16 AWG stranded BC
Cable Diameter	0.44 in. (11.2 mm) +/- 25%	3-pin: 0.39 in. (10 mm) +/- 25% 4-pin: 0.43 in. (11 mm) +/- 25%	0.31 in (8 mm)	0.29 in (7.4 mm)
Bend Radius, min	Ten times (10x) the cable diameter			
Tightening Torque	Tighten by hand, to approximately 0.5...0.6 N•m (4.4...5.3 lb•in). Do not wrench tighten.			
Electrical				
Cable Rating	UL Type TC 600V 90 °C Dry 75 °C Wet, Open Wiring or MTW 600V 90 °C or STOOW 105 °C 600V - CSA STOOW 600V FT2	UL STOOW VW-1105 °C 600V, CSA ST 105 °C 600V FT2, UV oil and water resistant	UL PVVA	UL PVVA
Assembly Rating	6-pin/5-used – 16 AWG, 600V, 10 A	3-pin: 600V, 13 A 4-pin: 600V, 10 A	5-pin – 16 AWG, 50V AC, 60V DC, 16 A	4 to 5-pin – 16 AWG, 50V AC, 60V DC, 8 A
Environmental				
Enclosure Type Rating	IP66, IP67, NEMA 1/4/12, 1200 psi washdown	IP66, IP67, UL 1/4/12, NEMA 1/4/6P/12/13, 1200 psi washdown	IP66, UL 1/12	IP66, UL 1/12
Operating Temperature	-20...+90 °C (-4...+194 °F)	-20...+105 °C (-4...+221 °F)	-40...+125 °C (-40...+257 °F)	-40...+90 °C (-40...+194 °F)

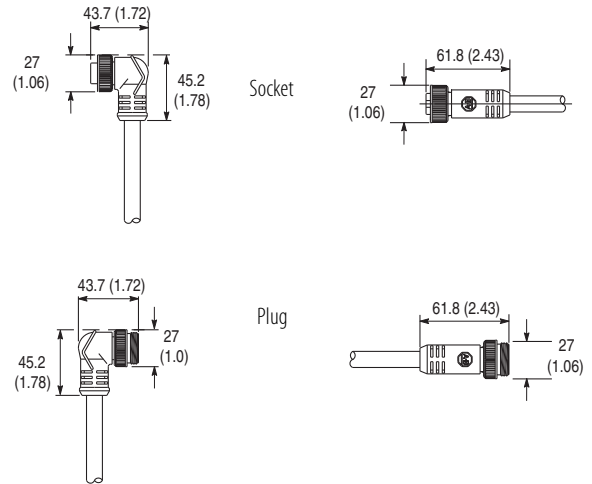
Approximate Dimensions

Dimensions in millimeters (inches). Dimensions aren't intended to be used for manufacturing purposes and are subject to change.

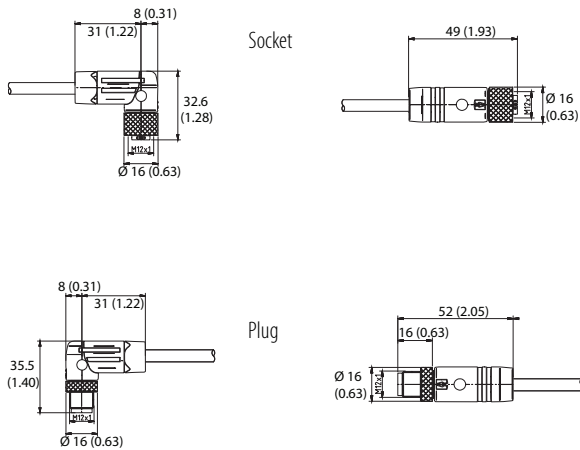
6-pin/5-used



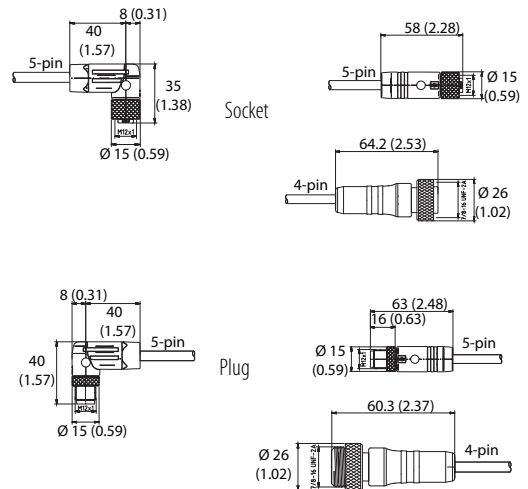
3/4-pin



5-pin



4 to 5-pin



Auxiliary Power T-Ports





- 6-pin/5-used configuration to help prevent mis-wiring with network connectors
- One piece molded design
- Durable compact design
- ArmorStart adapter T-Port for use with auxiliary power media



Product Selection

Type	For Use With	Pin Configuration	Assembly Rating	Environmental Rating	Wiring Diagram	Cat. No.
Auxiliary power	Armor PowerFlex (when applied with the L-code to M22 adapter cable)	Drop: 22 mm, 4-pin Trunk: 22 mm, 4-pin Keyway toward socket	300V, 8 A	IP66, NEMA 1/4/12		898N-43PB-N4KF
	ArmorStart ST	Drop: 22 mm, 4-pin Trunk: 22 mm, 4-pin Keyway toward plug				898N-43PB-N4KT
Auxiliary device (Adapter tee that allows an ArmorStart EtherNet/IP, ArmorStart DeviceNet, and ArmorStart LT drop to connect to an ArmorStart ST Auxiliary Trunk line.)	ArmorStart with EtherNet/IP, ArmorStart with DeviceNet, or ArmorStart LT	Drop: 22 mm, 6-pin/5-used Trunk: 22 mm, 4-pin	600V, 8 A	IP67, NEMA 4/12		898N-543ES-NKF
E-stop out, control power	ArmorStart with EtherNet/IP, ArmorStart with DeviceNet, or ArmorStart LT	22 mm, 6-pin/5-used	600V, 10 A	NEMA 4/12		898N-653ES-NKF
E-stop in, control power	ArmorStart with EtherNet/IP, ArmorStart with DeviceNet, or ArmorStart LT	22 mm, 6-pin/5-used	600V, 10 A	IP67, NEMA 4/12		898N-653ST-NKF

Pinout and Color Code

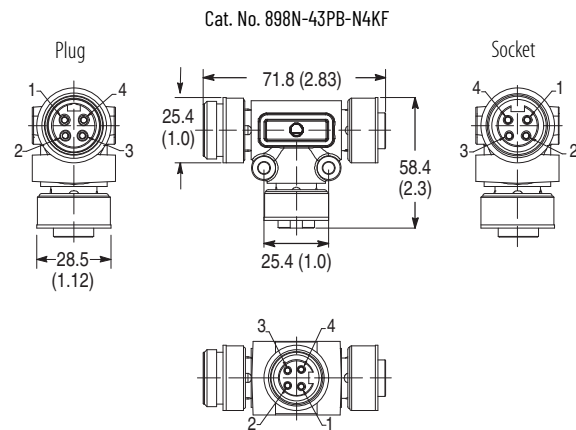
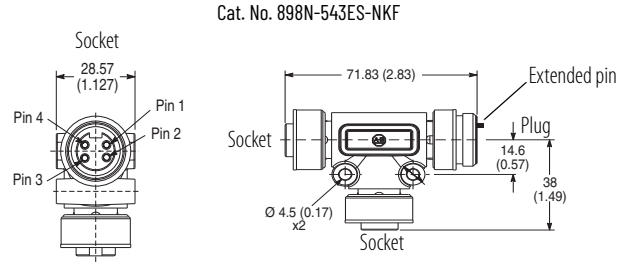
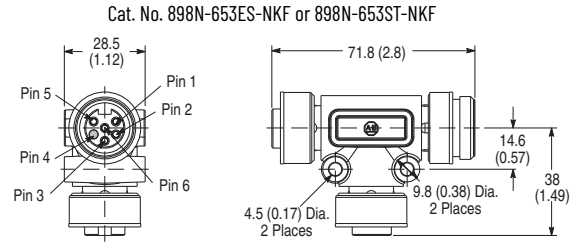
No. of Pins	Face View Pinout	
6-pin/5-used		
	1 Red 2 Black 3 Green	4 Blank/Not Used 5 Blue 6 White
4-pin		
	1 White 2 Black	3 Blue 4 Red

Specifications

	Drop: 6-pin/5-used Trunk: 6-pin/5-used or 4-pin	Drop: 4-pin Trunk: 4-pin
Mechanical		
Coupling Nut	Black epoxy-coated zinc	Black epoxy-coated zinc
Housing	Black Riteflex TPE	TPE
Insert	Yellow Riteflex TPE	—
Contacts	Brass/gold over palladium nickel	Gold-plated palladium/nickel
Tightening Torque	Tighten by hand, to approximately 0.5...0.6 N·m (4.4...5.3 lb·in). Do not wrench tighten.	
Electrical		
Assembly Rating	600V, 8 A (10 A E-stops)	300V, 8 A
Environmental		
Enclosure Type Rating	IP67, 1200 psi washdown	IP66, IP67, NEMA 1/4/12, 1200 psi washdown
Operating Temperature	-20...+90 °C (-4...+194 °F)	-25...+70 °C (-13...+158 °F)

Approximate Dimensions

Dimensions in millimeters (inches). Dimensions aren't intended to be used for manufacturing purposes and are subject to change.



Auxiliary Power Receptacles



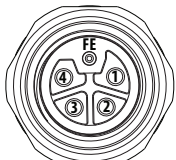
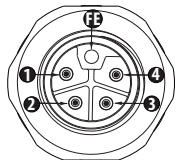


Helps to prevent mis-wiring with end devices



Product Selection

For Use With	Type	Wire Size	Assembly Rating	Environmental Rating	Wire Length	Cat. No.	
						Socket	Plug
ArmorStart ST	4-pin, Mini, M22	16 AWG	600V, 10 A	NEMA 4/12	1 ft (0.3 m)	888N-D4AF1-1F	888N-M4AF1-1F
					3 ft (0.9 m)	888N-D4AF1-3F	888N-M4AF1-3F
					6 ft (1.8 m)	888N-D4AF1-6F	888N-M4AF1-6F
					12 ft (3.7 m)	888N-D4AF1-12F	888N-M4AF1-12F
Armor PowerFlex	5-pin, L-code, M12	16 AWG	63V, 16 A	IP66, UL Type 1/12	1.65 ft (0.5 m)	888L-F5AF9-0M5	888L-M5AF9-0M5
ArmorStart with EtherNet/IP, ArmorStart with DeviceNet, or ArmorStart LT	6-pin/5 used, Mini, M22	16 AWG	600V, 10 A	IP66, NEMA 1/4/12	0.3 m (1.0 ft)	888N-D65AF1-0M3	888N-M65AF1-0M3
					1 m (3.3 ft)	888N-D65AF1-1	888N-M65AF1-1
					2 m (6.6 ft)	888N-D65AF1-2	888N-M65AF1-2

Pinout and Color Code

No. of Pins	Face View Pinout	
6-pin/5-used, Mini, M22		
	Socket 1 Red (+) 2 Black (-) 3 Green (GND)	Plug 4 Blank/Not Used 5 Blue (S1) 6 White (S2)
5-pin, L-code, M12		
	Socket 1 Brown 2 White 3 Blue	Plug 4 Black FE Gray
4-pin, Mini, M22		
	Socket 1 Black 2 White	Plug 3 Red 4 Green/Yellow Extended PIN

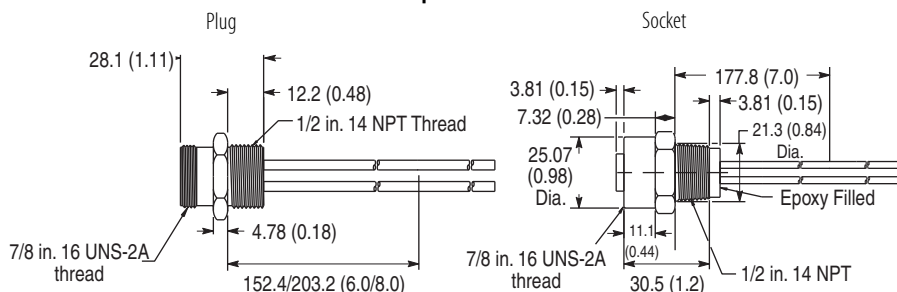
Specifications

	6-pin/5-used	5-pin	4-pin
Mechanical			
Receptacle Shell	Socket: Black anodized aluminum Plug: Black epoxy-coated diecast zinc	Copper/zinc, nickel-plated	Socket: Aluminum with clear sealant Plug: Diecast zinc with clear sealant
Insert	Yellow PVC	PBT	PVC
Contacts	Brass/gold over palladium nickel	Copper/nickel, copper/gold-plated	Gold over nickel-plated brass
Tightening Torque	Tighten by hand, to approximately 0.5...0.6 N•m (4.4...5.3 lb•in). Do not wrench tighten.		
Electrical			
Assembly Rating	6-pin/5-used – 16 AWG, 600V, 10 A	5-pin – 16 AWG, 63V, 16 A	4-pin – 16 AWG, 600V, 10 A
Environmental			
Enclosure Type Rating	IP67, NEMA 4/12, 1200 psi washdown	IP66, UL 1/12	IP66, IP67, NEMA 1/4/12, 1200 psi washdown
Operating Temperature	-20...+90 °C (-4...+194 °F)	-40...+125 °C (-40...+257 °F)	-30...+105 °C (-22...+221 °F)

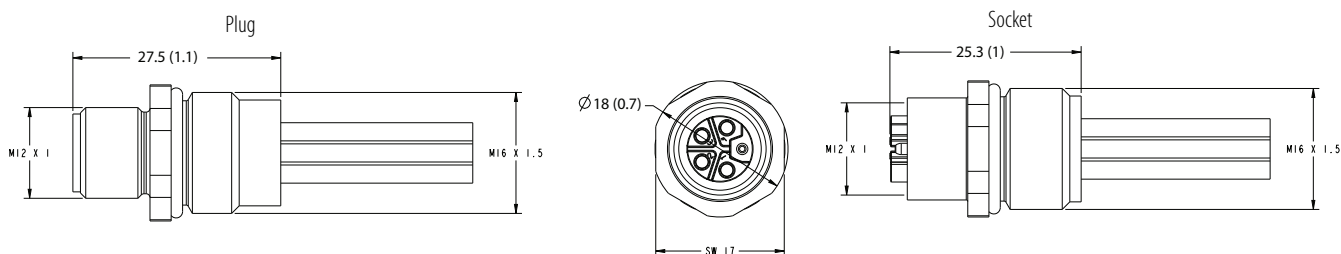
Approximate Dimensions

Dimensions in millimeters (inches). Dimensions aren't intended to be used for manufacturing purposes and are subject to change.

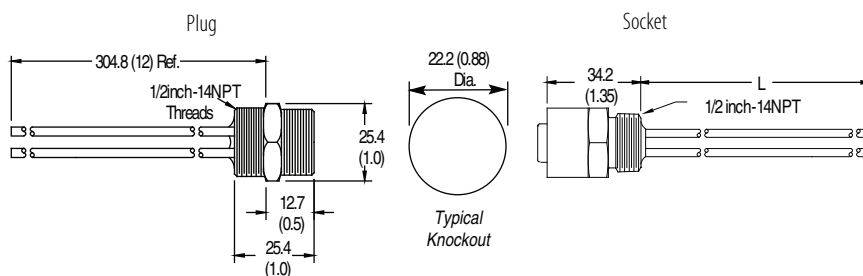
6-pin/5-used



5-pin



4-pin



Auxiliary Power Shorting Plugs

1/2 in. - 14 NPT threads



Product Selection

Type	For Use With	No. of Pins	Assembly Rating	Environmental Rating	Wiring Diagram	Cat. No.
E-stop in	ArmorStart with EtherNet/IP, ArmorStart with DeviceNet, or ArmorStart LT	6 (5 used)	600V, 10 A	IP67	1. ← 2. ← N/C 3. ← N/C 4. ← Blank 5. ← N/C 6. ←	889A-M65SP61
E-stop out					1. ← N/C 2. ← N/C 3. ← N/C 4. ← Blank 5. ← 6. ←	889A-M65SP65
Shorting plug	ArmorStart ST	4	600V, 10 A	IP67, NEMA 4/12	1 ○ — 2 ○ — ● 3 ○ — 4 ○ — ●	898N-41AU-NM4

Pinout and Color Code

No. of Pins	Face View Pinout					
6-pin/5-used	<p>Socket Plug</p>					
	<table border="0"> <tr> <td>1 Red (+)</td> <td>4 Blank/Not Used</td> </tr> <tr> <td>2 Black (-)</td> <td>5 Blue (S1)</td> </tr> <tr> <td>3 Green (GND)</td> <td>6 White (S2)</td> </tr> </table>	1 Red (+)	4 Blank/Not Used	2 Black (-)	5 Blue (S1)	3 Green (GND)
1 Red (+)	4 Blank/Not Used					
2 Black (-)	5 Blue (S1)					
3 Green (GND)	6 White (S2)					
4-pin	<p>Plug</p>					
	<table border="0"> <tr> <td>1 Black</td> <td>3 Red</td> </tr> <tr> <td>2 White</td> <td>4 Green/Yellow⁽¹⁾</td> </tr> </table>	1 Black	3 Red	2 White	4 Green/Yellow ⁽¹⁾	
1 Black	3 Red					
2 White	4 Green/Yellow ⁽¹⁾					

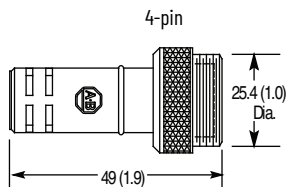
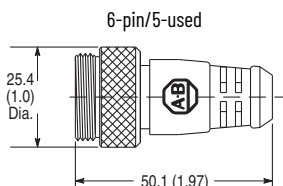
(1) Extended pin on plug side

Specifications

	6-pin/5-used	4-pin
Mechanical		
Coupling Nut	Black epoxy-coated zinc	Epoxy-coated zinc
Overmold	Riteflex TPE	Red Santoprene
Insert	Yellow Riteflex TPE	—
Contacts	Brass/gold over palladium nickel	Gold over nickel-plated brass
Tightening Torque	Tighten by hand, to approximately 0.5...0.6 N•m (4.4...5.3 lb•in). Do not wrench tighten.	
Electrical		
Assembly Rating	6-pin/5-used, 600V, 10 A	4-pin, 600V, 10 A
Environmental		
Enclosure Type Rating	IP67, NEMA 4/12, 1200 psi washdown	IP67, NEMA 4/12, 1200 psi washdown
Operating Temperature	-20...+90 °C (-4...+194 °F)	-25...+70 °C (-13...+158 °F)

Approximate Dimensions

Dimensions in millimeters (inches). Dimensions aren't intended to be used for manufacturing purposes and are subject to change.



Motor and Brake Media

Motor Cables

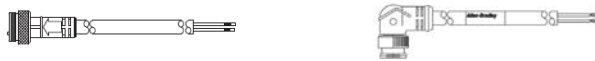
- Listed per UL 2237 for use in motor branch circuits per NFPA 79
- A shielded, 4-conductor cordset is required when the EMI filter is selected.
- Armor PowerFlex drives and ArmorStart ST and LT controllers require a separately purchased shielded motor cable.
- ArmorStart DeviceNet and ArmorStart EtherNet/IP controllers may come with a 3 m, 4-conductor shielded motor cable; longer cables are available when purchased separately.



The cables that are listed are suitable as motor cables for use with the indicated Armor PowerFlex drives and ArmorStart controllers.

Product Selection

Cordsets



For Use With	Type		No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. No.		
							Straight Plug	High-flex Straight Plug	Right-angle Plug
ArmorStart LT	M22	Shielded ⁽¹⁾	4	16 AWG	600V, 10 A	IP66, IP67, NEMA 1/4/12	284-PWRM22G-Mxx ⁽³⁾	—	—
		Shielded ⁽¹⁾		14 AWG	600V, 15 A		284-PWRM24G-Mxx ⁽³⁾	—	—
		Unshielded		16 AWG	600V, 10 A		280-PWRM22G-Mxx ⁽³⁾	—	280-PWRM22H-Mxx ⁽³⁾
		Unshielded		14 AWG	600V, 15 A		280-PWRM24G-Mxx ⁽³⁾	—	—
Armor PowerFlex ⁽²⁾ ArmorStart ST	M29	Shielded ⁽¹⁾		12 AWG	600V, 25 A		284-PWRM29G-Mxx ⁽³⁾	284-PWRF29G-Mxx ⁽³⁾	—
Unshielded		12 AWG		600V, 25 A	280-PWRM29G-Mxx ⁽³⁾		—	280-PWRM29H-Mxx ⁽³⁾	

Patchcords



For Use With	Type		No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. No.		
							Straight Plug/Straight Socket	High-flex Straight Plug/Straight Socket	Right-angle Plug/Right-angle Socket
ArmorStart LT	M22	Shielded ⁽¹⁾	4	16 AWG	600V, 10 A	IP66, IP67, NEMA 1/4/12	284-PWRM22A-Mxx ⁽³⁾	—	—
		Shielded ⁽¹⁾		14 AWG	600V, 15 A		284-PWRM24A-Mxx ⁽³⁾	—	—
		Unshielded		16 AWG	600V, 10 A		280-PWRM22A-Mxx ⁽³⁾	—	280-PWRM22D-Mxx ⁽³⁾
		Unshielded		14 AWG	600V, 15 A		280-PWRM24A-Mxx ⁽³⁾	—	—
Armor PowerFlex ⁽²⁾ ArmorStart ST	M29	Shielded ⁽¹⁾		12 AWG	600V, 25 A		284-PWRM29A-Mxx ⁽³⁾	284-PWRF29A-Mxx ⁽³⁾	—
Unshielded		12 AWG		600V, 25 A	280-PWRM29A-Mxx ⁽³⁾		—	280-PWRM29D-Mxx ⁽³⁾	

(1) Required to meet CE compliance for radiated electromagnetic emissions. Cable length not to exceed 10 m.

(2) This cable does NOT include the EM brake connections.





(3) xx specifies the cable length, see [Cable Lengths](#) table to complete the cat. no. (for example, the cable length for Cat. No. 284-PWRM29A-M1 is 1 m).

Cable Lengths

Code	05	1	015	2	025	3	4	6	8	10	12	14
Length [m (ft)]	0.5 (1.6)	1 (3.3)	1.5 (4.9)	2 (6.6)	2.5 (8.1)	3 (9.8)	4 (13.1)	6 (19.7)	8 (26.2)	10 (32.8)	12 (39.4)	14 (45.9)

IMPORTANT If you install a motor cable that has a connector on one end and floating leads for a field-attachable connector on the other end (cordset), use the connector end to attach to an Armor PowerFlex drive. The field-attachable connector can attach to the motor receptacle.

Pinout and Color Code

Face View Pinout					
M22 Connector			M29 Connector		
		Pin 1: Pin 2: Pin 3: Pin 4 ^(a) :	Series A Black White Red Green/Yellow	Series B Black Black Black Green/Yellow	(a) Extended pin on plug side
		Pin 1: Pin 2: Pin 3: Pin 4 ^(a) :	Black White Red Green/Yellow		(a) Extended pin on plug side

Specifications

Electrical	
Cable Rating	600V AC/DC
Assembly Rating	4-pin – 16 AWG, 600V, 10 A 4-pin – 14 AWG, 600V, 15 A 4-pin – 12 AWG, 600V, 25 A
Short Circuit Current Rating (SCCR)	<p>When used on Armor PowerFlex (Bulletin 35E and 35S) drives: 4-pin – 12 AWG Fusing: Suitable for use on a circuit capable of delivering not more than 100,000 RMS symmetrical amperes at 480V AC maximum when protected by CC, J, and T class fuses. Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 100,000 RMS symmetrical amperes at 480Y/277V AC maximum.</p> <p>When used on ArmorStart (Bulletin 280, 281, and 284) controllers: 4-pin – 12 AWG Fusing: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 600V AC maximum when protected by CC, J, and T class fuses Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 480V AC maximum when protected by Bul. 140U-H frame circuit breaker, not rated more than 480V, 100 A and a maximum interrupting of 65,000 RMS symmetrical amperes.</p> <p>4-pin – 16 AWG or 14 AWG Fusing: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 600V AC maximum when protected by CC, J, and T class fuses, rated 40 A non-time delay or 20 A time delay. Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 45,000 RMS symmetrical amperes at 480Y/277V AC maximum when protected by Cat. No. 140U-D6D3-C30 circuit breaker, not rated more than 480Y/277V, 30 A, having an interrupting rating not less than 45,000 RMS symmetrical amperes, 480Y/277V maximum.</p>

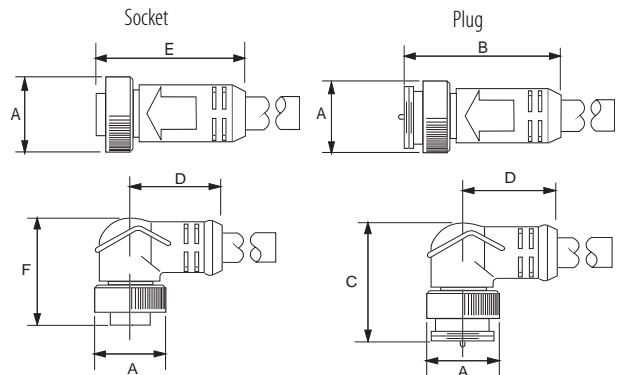
Environmental	
Certifications	UL Listed (File No. E318496, Guide PVVA)
Enclosure Rating	IP66, IP67, UL Type 1/4/12, NEMA 1/4/12; 1200 psi washdown
Operating Temperature	UL Type TC 600V 90 °C Dry 75 °C Wet, Exposed Run (ER) or MTW 600V 90 °C or ST00W 105 °C 600V – CSA ST00W 600V FT2

Mechanical	
Coupling Nut	Black anodized aluminum
Housing	Black TPE
Insert	Black TPE

Mechanical	
Coupling Nut	Black anodized aluminum
Housing	Black TPE
Insert	Black TPE
Contacts	Copper alloy with gold over nickel plating
Cable	Series A⁽¹⁾: Black PVC, dual rated UL TC-ER for open wiring, ST00W Series B⁽¹⁾: Black TPE, TC-ER ⁽¹⁾
Cable Diameter	Series A⁽¹⁾ 280-PWRM22: 0.43 in. +/- 0.12 in. (10.9 mm +/- 0.5 mm) with four 16 AWG conductors 280-PWRM24: 0.58 in. +/- 0.12 in. (14.73 mm +/- 0.5 mm) with four 14 AWG conductors 280-PWRM29: 0.657 in. +/- 0.12 in. (16.69 mm +/- 0.5 mm) with four 12 AWG conductors Series B⁽¹⁾ 280-PWRM22: 0.339 in. (8.61 mm) 280-PWRM24: 0.373 in. (9.47 mm) 280-PWRM29: 0.420 in. (10.67 mm)
Bend Radius	Ten times (10x) the cable diameter, minimum.
Tightening Torque	Tighten by hand, to the approximate values listed. Do not wrench tighten. 12 AWG: 2.26 N•m (20 lb•in) 14/16 AWG: 1.7 N•m (15 lb•in)

(1) You cannot order a specific series. When series A is no longer available, it will be replaced by series B.

Approximate Dimensions



Dimensions in millimeters (inches). Dimensions aren't intended to be used for manufacturing purposes and are subject to change.

	A	B	C	D	E	F
M22/M24	25.4 (1.00)	59.4 (2.34)	43.2 (1.70)	32.5 (1.28)	56.1 (2.21)	40.4 (1.59)
M29	31.8 (1.25)	73.7 (2.90)	50.8 (2.00)	19.1 (1.75)	71.9 (2.83)	49.0 (1.93)

Motor Cables, continued

- For use in motor branch circuits per NFPA 79
- Use only with ArmorStart DeviceNet or ArmorStart EtherNet/IP as a Listed assembly

The cables that are listed are suitable as motor cables for use with the indicated ArmorStart controllers.



Product Selection

Cordsets



For Use With	Type		No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. Nos.	
							Right-angle Plug	High-flex, Right-angle Plug
ArmorStart with EtherNet/IP ArmorStart with DeviceNet	M22	Shielded ⁽¹⁾	4	16 AWG	600V, 10 A	IP67, UL 4/12, NEMA 4/12	284-MTRS22-Mxx ⁽²⁾	—
	M22	Unshielded		16 AWG	600V, 10 A		280-MTR22-Mxx ⁽²⁾	280-MTRF22-Mxx ⁽²⁾
	M35 ⁽⁴⁾	Unshielded		10 AWG	600V, 32 A		280-MTR35-Mxx ⁽²⁾	—

Patchcords



For Use With	Type		No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. Nos.
							Right-angle Plug/ Straight Socket
ArmorStart with EtherNet/IP ArmorStart with DeviceNet	M22	Shielded ⁽¹⁾	4	16 AWG	600V, 10 A	IP67, UL 4/12, NEMA 4/12	284-MTRS22-Mxx ^{(2)D} ⁽³⁾
	M22	Unshielded		16 AWG	600V, 10 A		280-MTR22-Mxx ^{(2)D}
	M35 ⁽⁴⁾	Unshielded		10 AWG	600V, 32 A		280-MTR35-Mxx ^{(2)D}

(1) Required to meet CE compliance for radiated electromagnetic emissions. Cable length not to exceed 10 m.

(2) xx specifies the cable length, see [Cable Lengths](#) table to complete the cat. no. (for example, the cable length for Cat. No. 284-MTRS22-M1D is 1 m).

(3) 284-MTRS22-MxxD is only available in 1 m (3.3 ft) or 3 m (9.8 ft) lengths.

(4) M35 cables are suitable for units with 25 A bases (10 Hp, non-VFD controllers).

Cable Lengths

Code	1	3	4 ⁽¹⁾	6	8 ⁽¹⁾	10	12 ⁽¹⁾	14	20 ⁽¹⁾
Length [m (ft)]	1 (3.3)	3 (9.8)	4 (13.1)	6 (19.7)	8 (26.2)	10 (32.8)	12 (39.4)	14 (45.9)	20 (65.6)

(1) Not available for high-flex cordsets and patchcords.

Pinout and Color Code

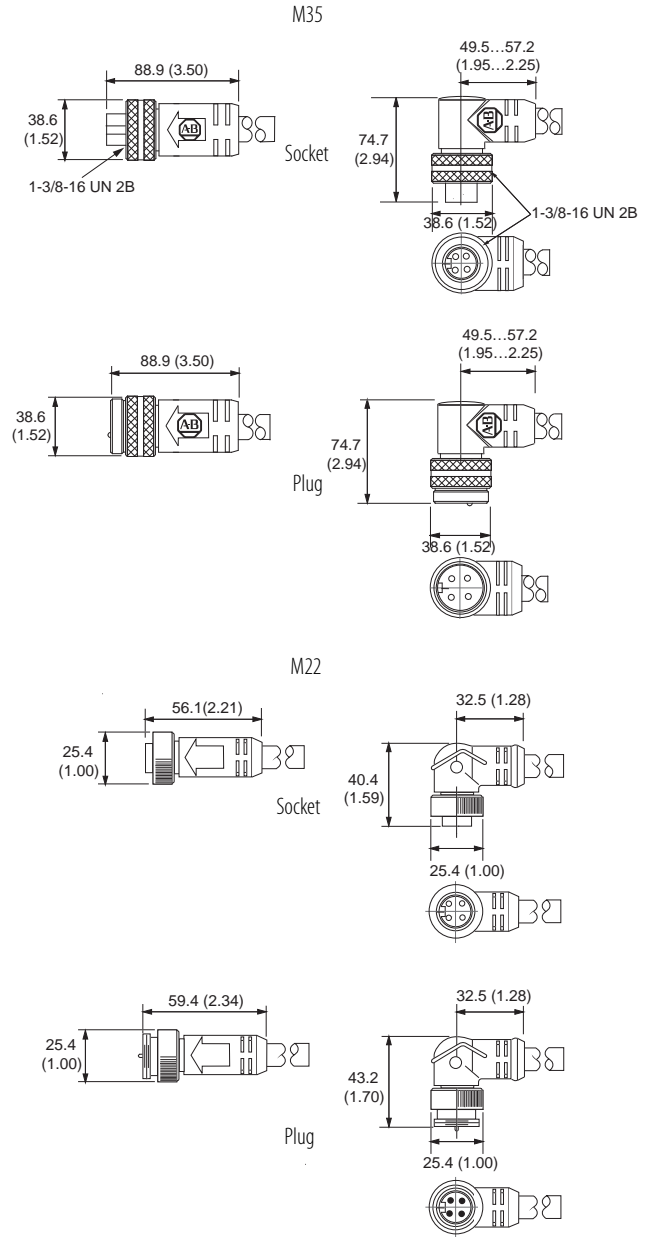
Face View Pinout									
M22 Connector					M35 Connector				
		Pin 1: Pin 2: Pin 3: Pin 4 ^(a) :	Series A Black White Red Green/Yellow	Series B Black Black Black Green/Yellow			Pin 1: L1 Pin 2 ^(a) : L2 Pin 3: L3 Pin 4: not used	Series A Black Green/Yellow Red White	Series B Black Green/Yellow Black Black
Socket	Plug	(a) Extended pin on plug side			Socket	Plug	(a) Extended pin on plug side		

Specifications

Mechanical	
Coupling Nut Housing	Black anodized aluminum
	Black TPE
Insert	Black TPE
Contacts	Copper alloy with gold over nickel plating
Cable	Black PVC, dual rated UL TC-ER for open wiring, STOOW
Cable Diameter	0.43 in. +/- 0.12 in. (10.9 mm +/- 0.5 mm) with four 16 AWG conductors
	0.78 in. +/- 0.12 in. (19.8 mm +/- 0.5 mm) with four 10 AWG conductors
Bend Radius, min	Ten times (10x) the cable diameter
Tightening Torque	Tighten by hand, to the approximate values listed. Do not wrench tighten.
	10 AWG: 2.8 N•m (25 lb•in) 16 AWG: 1.7 N•m (15 lb•in)
Electrical	
Cable Rating	600V AC/DC
Assembly Rating	4-pin – 16 AWG, 600V @ 10 A
	4-pin – 10 AWG, 600V @ 32 A
Short Circuit Current Rating (SCCR)	4-pin – 16 AWG
	Fusing: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 600V AC maximum when protected by CC, J, and T class fuses, rated 40 A non-time delay or 20 A time delay.
	Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 45,000 RMS symmetrical amperes at 480Y/277V AC maximum when protected by Cat. No. 140U-D6D3-C30 circuit breaker, not rated more than 480Y/277V, 30 A, having an interrupting rating not less than 45,000 RMS symmetrical amperes, 480Y/277V maximum.
	4-pin – 10 AWG
Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 480V AC maximum when protected by Bul. 140U-H frame circuit breaker, not rated more than 480V, 100 A and a maximum interrupting of 65,000 RMS symmetrical amperes.	
Fusing: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 600V AC maximum when protected by CC, J, and T class fuses.	
Environmental	
Certifications	UL Listed (File No. E318496, Guide PVVA)
Enclosure Rating	IP67, UL Type 4/12, NEMA 4/12; 1200 psi washdown
Operating Temperature	UL Type TC 600V 90 °C Dry 75 °C Wet, Exposed Run (ER) or MTW 600V 90 °C or STOOW 105 °C 600V - CSA STOOW 600V FT2

Approximate Dimensions

Dimensions in millimeters (inches). Dimensions aren't intended to be used for manufacturing purposes and are subject to change.



Hybrid Motor and Brake Cables

- Listed per UL 2237 for use in motor branch circuits per NFPA 79
- 7-conductor combination eliminates the need for two separate cables

The cables that are listed are suitable for use with the indicated Armor PowerFlex drives with EM brakes.

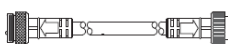
Product Selection

Cordsets



For Use With	Type		No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. No.	
							Straight Plug	High-flex Straight Plug
Armor PowerFlex with EM brake	M29	Shielded ⁽¹⁾	7	12 AWG: pins 1...4 16 AWG: pins 5...7	600V, 25 A	IP54, IP66, UL 1/4/12, NEMA 1/4/12	357-PWRM29G-Mxx ⁽¹⁾	357-PWRF29G-Mxx ⁽¹⁾

Patchcords



For Use With	Type		No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. No.	
							Straight Plug/Straight Socket	High-flex Straight Socket/Straight Plug
Armor PowerFlex with EM brake	M29	Shielded ⁽¹⁾	7	12 AWG: pins 1...4 16 AWG: pins 5...7	600V, 25 A	IP54, IP66, UL 1/4/12, NEMA 1/4/12	357-PWRM29A-Mxx ⁽¹⁾	357-PWRF29A-Mxx ⁽¹⁾

(1) xx specifies the cable length, see [Cable Lengths](#) table to complete the cat. no. (for example, the cable length for Cat. No. 357-PWRM29A-M1 is 1 m).

Cable Lengths

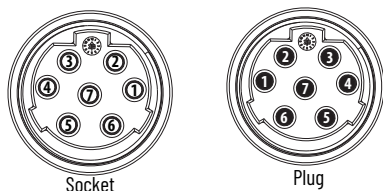
Code	1	2 ⁽¹⁾	3	4 ⁽¹⁾	6	8 ⁽¹⁾	10	12 ⁽¹⁾	14
Length [m (ft)]	1 (3.3)	2 (6.6)	3 (9.8)	4 (13.1)	6 (19.7)	8 (26.2)	10 (32.8)	12 (39.4)	14 (45.9)

(1) Not available for high-flex cordsets and patchcords.

IMPORTANT If you install a motor and brake cable that has a connector on one end and floating leads for a field-attachable connector on the other end (cordset), use the connector end to attach to an Armor PowerFlex drive. The field-attachable connector can attach to the motor receptacle.

Pinout and Color Code

M29 Connector



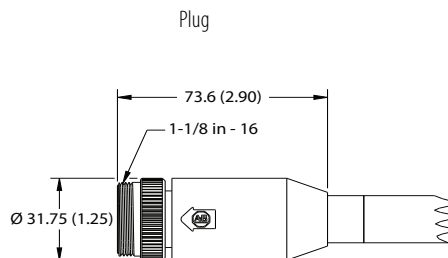
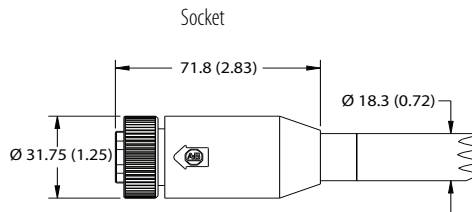
- | | |
|----------------|----------------|
| 1 Black | 5 White |
| 2 Black | 6 Black |
| 3 Black | 7 Shield/Drain |
| 4 Green/Yellow | |

Specifications

Mechanical	
Coupling Nut	Nickel-plated brass
Housing	TPE
Insert	Black, TPE
Contacts	Gold-plated copper alloy
Cable Diameter	18.3 mm (0.72 in)
Bend Radius, min	Twelve times (12x) the cable diameter; 219.6 mm (8.65 in.) High Flex Stationary: 119.4 mm (4.7 in.) High Flex Continuous Bending: 177.8 mm (7.0 in.)
Tightening Torque	Tighten by hand, to approximately 2.7 N•m (20 lb•in). Do not wrench tighten.
Electrical	
Cable Rating	Pins 1...4: 12 AWG, 600V AC/DC, 25 A Pins 5...7: 16 AWG, 600V AC/DC, 6 A
Short Circuit Current Rating (SCCR)	up to 100 kA (for Armor PowerFlex drive applications)
Environmental	
Certifications	UL Listed (File No. E318496, Guide PVVA)
Enclosure Rating	IP54, IP66, UL 1/4/12, NEMA 1/4/12
Operating Temperature	-30...+55 °C (-22...+131 °F)

Approximate Dimensions

Dimensions in millimeters (inches). Dimensions aren't intended to be used for manufacturing purposes and are subject to change.



Brake Cables

- Listed per UL 2237 for use in motor branch circuits per NFPA 79
- ArmorStart ST and LT require a separately purchased electromechanical (EM) brake cable
- ArmorStart DeviceNet and ArmorStart EtherNet/IP controllers may come with a 3 m, 3-conductor EM brake cable; longer cables are available when purchased separately



The cables that are listed are suitable for use with the indicated ArmorStart controllers.

Product Selection

Cordsets



For Use With	Type		No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. Nos.	
							Straight Plug	Right-angle Plug
ArmorStart ST ArmorStart LT	M22	Unshielded	3	16 AWG	600V, 10 A	IP67, UL 4/12, NEMA 4/12	285-BRC22-Mxx ⁽¹⁾	285-BRC22H-Mxx ⁽¹⁾
ArmorStart with EtherNet/IP ArmorStart with DeviceNet	M25	Unshielded	3	16 AWG	600V, 10 A	IP67, UL 4/12, NEMA 4/12	—	285-BRC25-Mxx ⁽¹⁾

Patchcords



For Use With	Type		No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. Nos.	
							Straight Plug/Straight Socket	Right-angle Plug/Straight Socket
ArmorStart ST ArmorStart LT	M22	Unshielded	3	16 AWG	600V, 10 A	IP67, UL 4/12, NEMA 4/12	285-BRC22-Mxx ^{(1)D}	285-BRC22D-Mxx ⁽¹⁾
ArmorStart with EtherNet/IP ArmorStart with DeviceNet	M25	Unshielded	3	16 AWG	600V, 10 A	IP67, UL 4/12, NEMA 4/12	—	285-BRC25-Mxx ^{(1)D}

(1) xx specifies the cable length, see [Cable Lengths](#) table to complete the cat. no. (for example, the cable length for Cat. No. 285-BRC22-M1D is 1 m).

Cable Lengths

Code	1	3	4	6	8	10	12	14	20
Length [m (ft)]	1 (3.3)	3 (9.8)	4 (13.1)	6 (19.7)	8 (26.2)	10 (32.8)	12 (39.4)	14 (45.9)	20 (65.6)

Pinout and Color Code

Face View Pinout			
M22 Connector		M25 Connector	
Socket	Plug	Socket	Plug
1 Green/Yellow ⁽¹⁾ 2 Black	3 White	1 Black 2 Green/Yellow ⁽¹⁾	3 White

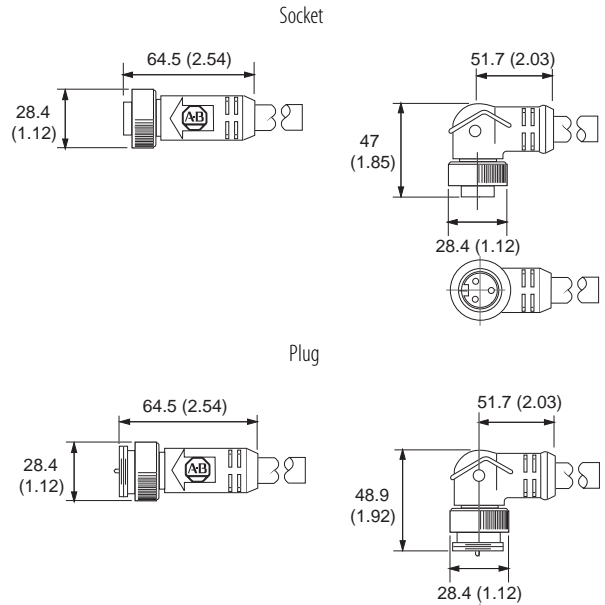
(1) Extended pin on plug side

Specifications

Mechanical	
Coupling Nut Housing	Black anodized aluminum
	Black TPE
Insert	Black TPE
Contacts	Copper alloy with gold over nickel plating
Cable	Gray PVC, dual rated UL TC-ER for open wiring, ST00W
Electrical	
Cable Rating	600V AC/DC
Assembly Rating	3-pin – 16 AWG, 600V @ 10 A
Tightening Torque	Tighten by hand, to approximately 1.7 N•m (15 lb•in). Do not wrench tighten.
Short Circuit Current Rating (SCCR)	<p>Fusing: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 600V AC maximum when protected by CC, J, and T class fuses, rated 40 A non-time delay or 20 A time delay.</p> <p>Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 45,000 RMS symmetrical amperes at 480Y/277V AC maximum when protected by Cat. No. 14OU-D6D3-C30 circuit breaker, not rated more than 480Y/277V, 30 A, having an interrupting rating not less than 45,000 RMS symmetrical amperes, 480Y/277V maximum.</p>
Environmental	
Certifications	UL Listed (File No. E318496, Guide PVVA)
Enclosure Rating	IP67, UL Type 4/12, NEMA 4/12; 1200 psi washdown
Operating Temperature	UL Type TC 600V 90 °C Dry 75 °C Wet, Exposed Run (ER) or MTW 600V 90 °C or ST00W 105 °C 600V – CSA ST00W 600V FT2

Approximate Dimensions

Dimensions in millimeters (inches). Dimensions aren't intended to be used for manufacturing purposes and are subject to change.



Motor Receptacles

Listed per UL 2237 for use in motor branch circuits per NFPA 79

The receptacles that are listed are suitable for use with the indicated Armor PowerFlex drives and ArmorStart controllers.



Product Selection

For Use With	Type		No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. Nos. ⁽¹⁾	
							Straight Plug	Straight Socket for Panel
ArmorStart LT ArmorStart with EtherNet/IP ArmorStart with DeviceNet	M22	Unshielded	4	16 AWG	600V, 10 A	IP66, IP67, UL 1/4/12, NEMA 1/4/12	280-M22M-M1	280-M22F-M1
ArmorStart LT	M22	Shielded	4	14 AWG	600V, 15 A		284-M24M-M1	284-M24F-M1
ArmorStart LT	M22	Unshielded	4	14 AWG	600V, 15 A		280-M24M-M1	280-M24F-M1
Armor PowerFlex ⁽²⁾ ArmorStart ST	M29	Shielded	4	12 AWG	600V, 25 A		284-M29M-M03	284-M29F-M03
ArmorStart with EtherNet/IP ArmorStart with DeviceNet	M35 ⁽³⁾	Unshielded	4	10 AWG	600V, 32 A		280-M35M-M1	280-M35F-M1

(1) Lengths: M03 = 0.3 m (1 ft), M1 = 1 m (3.3 ft).

(2) This receptacle does not include EM brake connections.

(3) The M35 receptacle is only used when applied to the 10 Hp starter version. Other Hp versions use M22 or M29 receptacles.

Field installable products are also available. See [Field-installed Motor Connectors](#).

For mounting nuts and washers, see [Accessories](#).

Pinout and Color Code

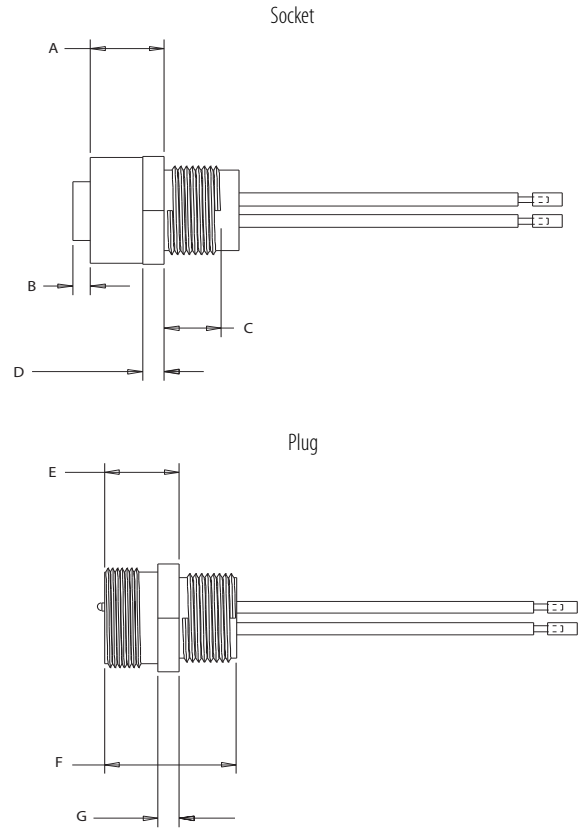
Face View Pinout			
M22 and M29 Connectors		M35 Connector	
Socket	Plug	Socket	Plug
1 Black 2 White	3 Red 4 Green/Yellow ⁽¹⁾	1 Black 2 Green/Yellow ⁽¹⁾	3 Red 4 White

(1) Extended pin on plug side

Specifications

Mechanical	
Insert	Black PVC
Receptacle Shell Material	Black epoxy-plated zinc diecast or black anodized aluminum
Contacts	—
Tightening Torque	Tighten by hand, to approximately 1.7 N•m (15 lb•in). Do not wrench tighten.
Electrical	
Cable Rating	600V AC/DC
Assembly Rating	M22: 4-pin – 16 AWG, 600V, 10 A M24: 4-pin – 14 AWG, 600V, 15 A M29: 4-pin – 12 AWG, 600V, 25 A M35: 4-pin – 10 AWG, 600V, 32A
Short Circuit Current Rating (SCCR)	When used on Armor PowerFlex (Bulletin 35E and 35S) drives: 4-pin – 10 or 12 AWG Fusing: Suitable for use on a circuit capable of delivering not more than 100,000 RMS symmetrical amperes at 480V AC maximum. Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 100,000 RMS symmetrical amperes at 480V AC maximum.
	When used on ArmorStart (Bulletin 280, 281, and 284) controllers: 4-pin – 10 or 12 AWG Fusing: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 600V AC maximum when protected by CC, J, and T class fuses Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 480V AC maximum when protected by Bul. 140U-H frame circuit breaker, not rated more than 480V, 100 A and a maximum interrupting of 65,000 RMS symmetrical amperes.
	4-pin – 16 AWG or 14 AWG Fusing: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 600V AC maximum when protected by CC, J, and T class fuses, rated 40 A non-time delay or 20 A time delay. Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 45,000 RMS symmetrical amperes at 480Y/277V AC maximum when protected by Cat. No. 140U-D6D3-C30 circuit breaker, not rated more than 480Y/277V, 30 A, having an interrupting rating not less than 45,000 RMS symmetrical amperes, 480Y/277V maximum.
Environmental	
Enclosure Rating	IP66, IP67, UL Type 1/4/12, NEMA 1/4/12; 1200 psi washdown

Approximate Dimensions



Dimensions in millimeters (inches). Dimensions aren't intended to be used for manufacturing purposes and are subject to change.

	A	B	C	D	E	F	G
M22	18.5 (0.73)	3.81 (0.15)	12.1 (0.48)	7.32 (0.29)	16.0 (0.63)	28.0 (1.10)	4.75 (0.19)
M29	—	—	14.0 (0.55)	—	30.0 (1.18)	43.9 (1.73)	9.65 (0.38)
M35	45.3 (1.78)	7.62 (0.30)	11.9 (0.47)	6.35 (0.25)	51.6 (2.03)	63.5 (2.50)	6.35 (0.25)

Hybrid Motor and Brake Receptacles



The receptacles that are listed are suitable for use with Armor PowerFlex drives.

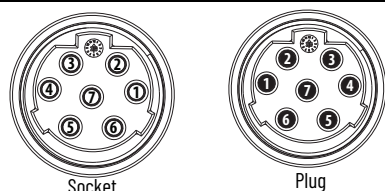
Product Selection

For Use With	Type		No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. Nos. ⁽¹⁾	
							Straight Plug	Straight Socket for Panel
Armor PowerFlex	M29	Unshielded	7	12 AWG: pins 1...4 16 AWG: pins 5...7	600V, 25 A: pins 1...4 600V, 13 A: pins 5...7	IP54, IP66, IP67, UL 1/4/12, NEMA 1/4/12	357-M29M-M05	357-M29F-M05

(1) Length: M05 = 0.5 m (1.6 ft)

Pinout and Color Code

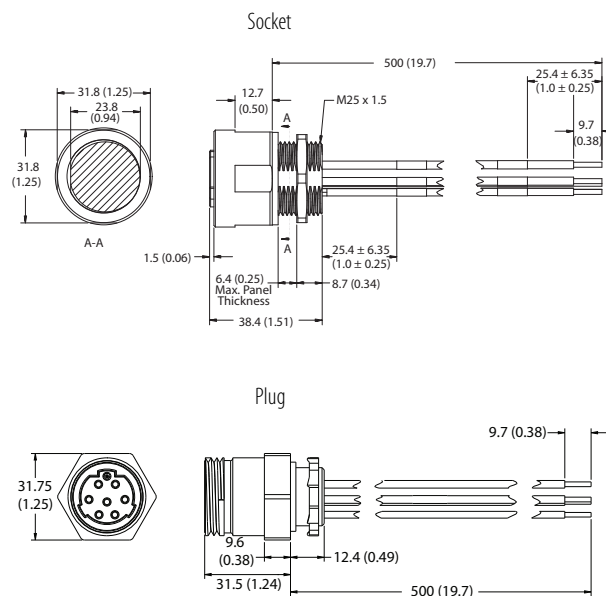
Face View Pinout



- | | |
|----------------|----------------|
| 1 Black | 5 White |
| 2 Black | 6 Black |
| 3 Black | 7 Shield/Drain |
| 4 Green/Yellow | |

Approximate Dimensions

Dimensions in millimeters (inches). Dimensions aren't intended to be used for manufacturing purposes and are subject to change.



Specifications

Mechanical	
Receptacle Shell	Nickel-plated brass
Insert	Black, TPE
Panel Nut	Zinc-plated steel
Contacts	Gold-plated copper alloy
Tightening Torque	Tighten by hand, to approximately 2.7 N•m (20 lb•in). Do not wrench tighten.
Electrical	
Cable Rating	Pins 1...4: 12 AWG, 600V AC/DC, 25 A Pins 5...7: 16 AWG, 600V AC/DC, 13 A
Short Circuit Current Rating (SCCR)	<100 kA (for Armor PowerFlex drive applications)
Environmental	
Certifications	UL Listed (File No. E318496, Guide PVVA)
Enclosure Rating	IP54, IP66, IP67, UL 1/4/12, NEMA 1/4/12
Operating Temperature	-30...+55 °C (-22...+131 °F)

Brake Receptacles

- Listed per UL 2237 for use in motor branch circuits per NFPA 79

The receptacles that are listed are suitable for use with the indicated ArmorStart controllers.



Electromechanical (EM) Brake Receptacles

For Use With	Type	No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. Nos. ⁽¹⁾	
						Straight Plug	Straight Socket for Panel
ArmorStart ST ArmorStart LT	M22, unshielded	3	14 AWG	600V, 15 A	IP67, UL 4/12, NEMA 4/12	285-M24M-M05	285-M24F-M025
ArmorStart with EtherNet/IP ArmorStart with DeviceNet	M25, unshielded	3	16 AWG	600V, 10 A		285-M25M-M05	—

(1) Lengths: M025 = 0.25 m (0.83 ft), M05 = 0.5 m (1.66 ft).

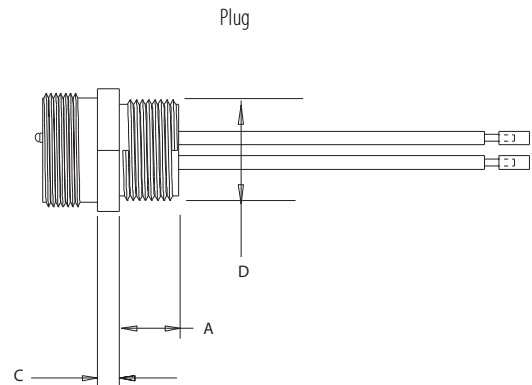
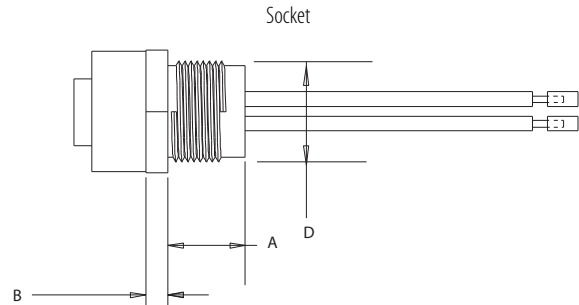
For mounting nuts and washers, see [Accessories](#).

Pinout and Color Code

Face View Pinout			
M22 Connector		M25 Connector	
Socket	Plug	Socket	Plug
1 Green/Yellow ⁽¹⁾ 2 Black	3 White	1 Black 2 Green/Yellow ⁽¹⁾	3 White

(1) Extended pin on plug side

Approximate Dimensions



Dimensions in millimeters (inches). Dimensions aren't intended to be used for manufacturing purposes and are subject to change.

	A	B	C	D
M24	12.2 (0.48)	4.57 (0.18)	—	22.4 (0.88)
M25	12.2 (0.48)	3.18 (0.13)	7.04 (0.28)	12.2 (0.48)

Specifications

Mechanical	
Insert	Black TPE
Receptacle Shell Material	Zinc die-cast, black epoxy coat
Contacts	Brass, copper alloy - gold or nickel plated
Electrical	
Cable Rating	600V AC/DC
Assembly Rating	M25: 3-pin – 16 AWG, 600V @ 10 A M22: 3-pin – 14 AWG, 600V @ 15 A
Tightening Torque	Tighten by hand, to approximately 1.7 N•m (15 lb•in). Do not wrench tighten.
Short Circuit Current Rating (SCCR)	Fusing: Suitable for use on a circuit capable of delivering not more than 65,000 RMS symmetrical amperes at 600V AC maximum when protected by CC, J, and T class fuses, rated 40 A non-time delay or 20 A time delay. Circuit Breaker: Suitable for use on a circuit capable of delivering not more than 45,000 RMS symmetrical amperes at 480Y/277V AC maximum when protected by Cat. No. 140U-D6D3-C30 circuit breaker, not rated more than 480Y/277V, 30 A, having an interrupting rating not less than 45,000 RMS symmetrical amperes, 480Y/277V maximum.
Environmental	
Enclosure Rating	IP67, UL Type 4/12, NEMA 4/12; 1200 psi washdown

Field-installed Electromechanical (EM) Brake Connectors

- Listed per UL 2237 for use in motor branch circuits per NFPA 79

The connectors that are listed are suitable for use with the indicated ArmorStart controllers.

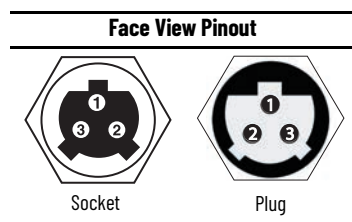


Product Selection

For Use With	Type	No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. Nos.	
						Straight Plug	Straight Socket for Panel
ArmorStart ST ArmorStart LT	M22, unshielded	3	24...14 AWG	600V, 15 A	IP54, IP66, IP67, UL 12, NEMA 12	285-FAM22M	285-FAM22F

For mounting nuts and washers, see [Accessories](#).

Pinout

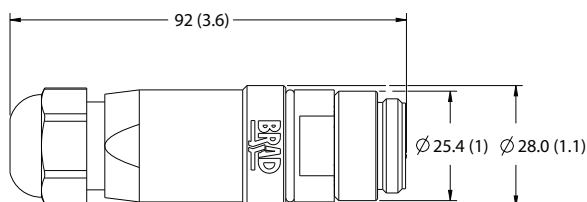


Specifications

Mechanical	
Receptacle Shell Material	Black PA
Tightening Torque	
Electrical	
Connector Rating	600V, 15 A
Assembly Rating	600V (UL PVVA or PVVA2), 500V (IEC 60664)
Short Circuit Current Rating (SCCR)	up to 65 kA
Environmental	
Enclosure Rating	IP54, IP66, IP67, UL Type 12, NEMA 12
Operating Temperature	-22...+131 °F (-30...+55 °C)
Humidity	5...95%, non-condensing
Shock Resistance	> 25 G (per IEC 60068-2-28)
Vibration Resistance	3 G (per IEC 60028-2-6)
Altitude	< 2000 m (6562 ft) up to 4800 m (16,748 ft)

Approximate Dimensions

Dimensions in millimeters (inches). Dimensions aren't intended to be used for manufacturing purposes and are subject to change.



Field-installed Motor Connectors

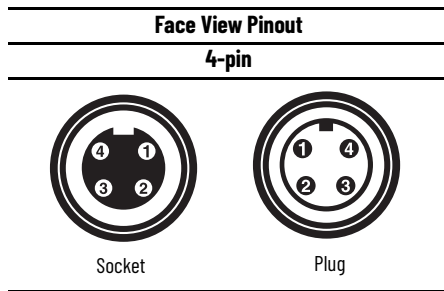
- Listed per UL 2237 for use in motor branch circuits per NFPA 79
- 16 ...12 AWG conductors
- 4-pin configuration, M29 connection
- Used to configure custom-length cordsets



Product Selection

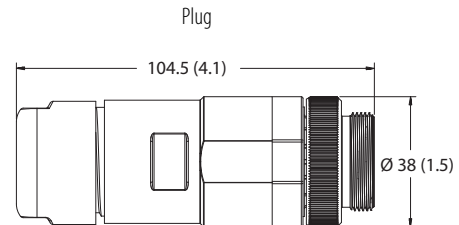
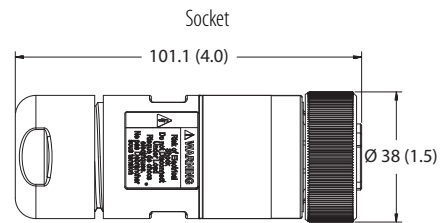
For Use With	Type		No. of Pins	Wire Size and Assembly Rating	Environmental Rating	Cat. Nos.	
						Straight Socket	Straight Plug for Panel
Armor PowerFlex (without EM brake control option)	M29	Unshielded	4	12 AWG – 600V, 25 A	IP54, IP66, UL Type 1/4/12, NEMA 1/4/12	280-FAM29F	280-FAM29M
ArmorStart ST							

Pinout



Approximate Dimensions

Dimensions in millimeters (inches). Dimensions aren't intended to be used for manufacturing purposes and are subject to change.



Specifications

Mechanical	
Insert	Black TPE
Receptacle Shell Material	Nylon
Coupling Nut	Aluminum
Contacts	Copper alloy, gold-plated
Tightening Torque	Tighten by hand, to approximately 2.26 N•m (20 lb•in). Do not wrench tighten.
Electrical	
Connector Rating	600V AC/DC
Assembly Rating	12 AWG, 600V, 25 A
Short Circuit Current Rating (SCCR)	When used on Armor PowerFlex (Bulletin 35E and 35S) drives: up to 100 kA When used on ArmorStart (Bulletin 280, 281, and 284) controllers: up to 65kA
Environmental	
Enclosure Rating	IP54, IP66, IP67, UL Type 1/4/12, NEMA 1/4/12
Operating Temperature	-22...+131 °F (-30...+55 °C)

Field-installed Hybrid Motor and Brake Connector

Listed per UL 2237 for use in motor branch circuits per NFPA 79

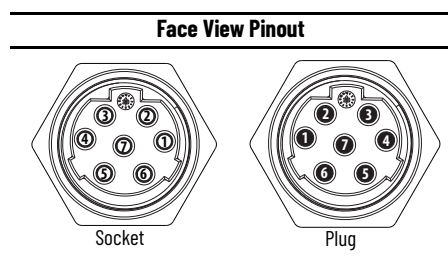
The receptacles that are listed are suitable for use with the indicated devices.



Product Selection

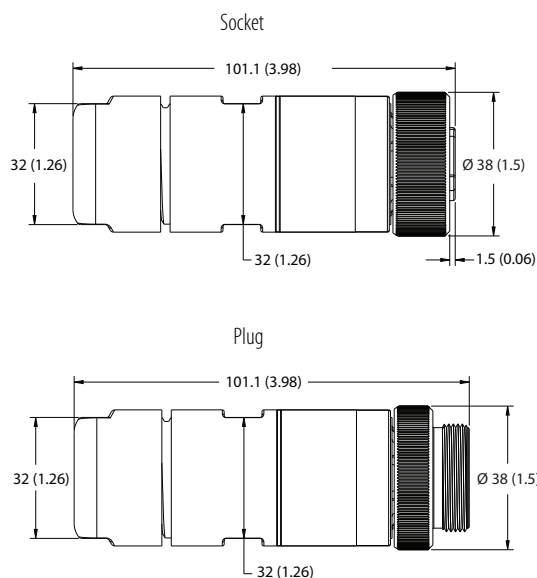
For Use With	Type		No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. Nos.	
							Straight Plug	Straight Socket
Armor PowerFlex	M29	Shielded	7	12 AWG: pins 1...4 16 AWG: pins 5...7	600V, 25 A: pins 1...4 600V, 6 A: pins 5...7	IP54, IP66, UL 4/12, NEMA 4/12	357-FAM29M	357-FAM29F

Pinout



Approximate Dimensions

Dimensions in millimeters (inches). Dimensions aren't intended to be used for manufacturing purposes and are subject to change.



Specifications

Mechanical	
Insert	Black TPE
Receptacle Shell Material	Nickel-plated brass
Coupling Nut	Anodized aluminum
Contacts	Copper alloy, gold-plated
Tightening Torque	Tighten by hand, to approximately 2.26 N•m (20 lb•in). Do not wrench tighten.
Electrical	
Cable Rating	600V AC/DC
Assembly Rating	Pins 1...4: 12 AWG, 600V, 25 A Pins 5...7: 16 AWG, 600V, 6 A
Short Circuit Current Rating (SCCR)	up to 100 kA, when used on Armor PowerFlex drives (Bulletins 35E and 35S)
Environmental	
Enclosure Rating	IP54, IP66, UL 4/12, NEMA 4/12
Operating Temperature	-22...+131 °F (-30...+55 °C)

Notes:

I/O and Network Communication Media

I/O Media

The Armor PowerFlex and ArmorStart product families offer a flexible solution for inputs and outputs for field devices. Wiring the I/O to the sensors and actuators is easy using pre-wired quick connect cables. These tables list a **sample** of I/O media that is suitable for connection to Armor PowerFlex and ArmorStart devices.



See [DC Micro \(M12\) Connection Systems](#) for additional cable and media selections.

See Cordsets & Field Attachables Technical Data, publication [889-TD002](#), for pinout, dimension, and other specifications.

DC Micro V-cable (Input)

For Use With	No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Wiring Diagram	Cat. No.	
						Straight Socket	Right-Angle Socket
ArmorStart with DeviceNet ArmorStart with EtherNet/IP ArmorStart ST input connector, when both inputs are used	4	22 AWG	300V, 4 A	IP67, IP69K, NEMA 4/12		879D-F4ACDM-xx ⁽¹⁾	879D-R4ACDM-xx ⁽¹⁾
Armor PowerFlex	5	22 AWG	300V, 4 A	IP67, IP69K, NEMA 4/12		879D-F5ACDM-2 Length -2 m (6.6 ft)	879D-R5ACDM-2 Length -2 m (6.6 ft)

(1) xx specifies the cable length. Standard length codes in m (ft) are: **0M3**- 0.3 (1), **1**- 1 (3.2), and **2**- 2 (6.6). Example: the cable length for Cat. No. 879D-F4ACDM-0M3 is 0.3 m.

AC Micro Patchcord

For Use With	No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. No.	
					Straight Socket Straight Plug	Straight Socket Right-Angle Plug
ArmorStart DeviceNet Outputs	3	18 AWG	unshielded, 250V, 4 A	IP67, IP69K	889R-F3AERM-xx ⁽¹⁾	889R-F3AERE-xx ⁽¹⁾

(1) xx specifies the cable length. Standard lengths in m (ft) are: 1 (3.2), 2 (6.6), 5 (16.4), and 10 (32.8). Example: the cable length for Cat. No. 889R-F3AERM-1 is 1 m (3.2 ft).

DC Micro Cordset (Input/Output)

For Use With	No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. No.			
					Straight Socket	Right-Angle Socket	Straight Plug	Right-Angle Plug
Armor PowerFlex standard I/O	5	22 AWG	unshielded	IP69K, UL 4/12, NEMA 4/12	889D-F5AC-xx ⁽¹⁾	889D-R5AC-xx ⁽¹⁾	889D-M5AC-xx ⁽¹⁾	889D-E5AC-xx ⁽¹⁾
			shielded		889D-F5EC-xx ⁽¹⁾	889D-R5EC-xx ⁽¹⁾	889D-M5EC-xx ⁽¹⁾	889D-E5EC-xx ⁽¹⁾
Armor PowerFlex safety I/O	5	22 AWG	unshielded	IP66, UL 4/12, NEMA 4/12	889D-F5NC-xx ⁽¹⁾	889D-R5NC-xx ⁽¹⁾	889D-M5NC-xx ⁽¹⁾	889D-E5NC-xx ⁽¹⁾

(1) Many lengths are available, for selection, see [DC Micro \(M12\) Cordsets & Patchcords](#).

DC Micro Patchcord (Input/Output)

For Use With	No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. No.			
					Straight Socket Straight Plug	Right-Angle Socket Straight Plug	Straight Socket Right-Angle Plug	Right-Angle Socket Right-Angle Plug
All ArmorStart 24V DC I/O, except for ArmorStart DeviceNet OUTPUTs – see DC Micro Patchcord	4	22 AWG	250V, 4 A	IP67, NEMA 4/12	889D-F4ACDM-xx ⁽¹⁾	889D-R4ACDM-xx ⁽¹⁾	889D-F4ACDE-xx ⁽¹⁾	889D-R4ACDE-xx ⁽¹⁾
Armor PowerFlex standard I/O	5	22 AWG	unshielded	IP69K, UL 4/12, NEMA 4/12	889D-F5ACDM-xx ⁽¹⁾	889D-R5ACDM-xx ⁽¹⁾	889D-F5ACDE-xx ⁽¹⁾	889D-R5ACDE-xx ⁽¹⁾
			shielded		889D-F5ECDM-xx ⁽¹⁾	889D-R5ECDM-xx ⁽¹⁾	889D-F5ECDE-xx ⁽¹⁾	889D-R5ECDE-xx ⁽¹⁾
Armor PowerFlex safety I/O	5	22 AWG	unshielded	IP66, UL 4/12, NEMA 4/12	889D-F5NCDM-xx ⁽¹⁾	889D-R5NCDM-xx ⁽¹⁾	889D-F5NCDE-xx ⁽¹⁾	889D-R5NCDE-xx ⁽¹⁾

(1) Many lengths are available, for selection, see [DC Micro \(M12\) Cordsets & Patchcords](#).

DC Micro Patchcord

This table refers to ArmorStart DeviceNet Safety and ArmorStart ST Hardwired Safety controllers. These are the cables that are used between the safety I/O block and the ArmorStart controller.

For Use With	No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. No.			
					Straight Socket Straight Plug	Right-Angle Socket Straight Plug	Straight Socket Right-Angle Plug	Right-Angle Socket Right-Angle Plug
ArmorBlock® Guard I/O™	4	18 AWG	250V, 4 A	IP67, NEMA 4/12	889D-F4AEDM-xx ⁽¹⁾	889D-R4AEDM-xx ⁽¹⁾	889D-F4AEDE-xx ⁽¹⁾	889D-R4AEDE-xx ⁽¹⁾

(1) xx specifies the cable length. Standard lengths in m (ft) are: 2 (6.6), 5 (16.4), and 10 (32.8). Example: the cable length for Cat. No. 889D-F4AEDM-2 is 2 m.

Encoder Cable Cordset

For Use With	No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. No.		
					Straight Socket	Right-Angle Socket	Straight Plug
Armor PowerFlex	8	24 AWG	Shielded, 30V AC/36V DC, 1.5 A	IP67, IP69K, NEMA 4/12	889D-F8FB-xx ⁽¹⁾	889D-R8FB-xx ⁽¹⁾	889D-M8FB-xx ⁽¹⁾

(1) xx specifies the cable length, see [Encoder Cable Lengths](#) to complete the cat. no. (for example, the cable length for Cat. No. 889D-F8FB-10 is 10 m). The maximum encoder cable length for Armor PowerFlex is 20 m (65.6 ft). A maximum of two cables can be connected in series to achieve the desired overall length – not to exceed 20 m (65.6 ft).

Encoder Cable Patchcord

For Use With	No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. No.		
					Straight Socket Straight Plug	Straight Socket Right-Angle Plug	Right-Angle Socket Straight Plug
Armor PowerFlex	8	24 AWG	Shielded, 30V AC/36V DC, 1.5 A	IP67, IP69K, NEMA 4/12	889D-F8FBDM-xx ⁽¹⁾	889D-F8FBDE-xx ⁽¹⁾	889D-R8FBDM-xx ⁽¹⁾

(1) xx specifies the cable length, see [Encoder Cable Lengths](#) to complete the cat. no. (for example, the cable length for Cat. No. 889D-F8FBDM-10 is 10 m). The maximum encoder cable length for Armor PowerFlex is 20 m (65.6 ft). A maximum of two cables can be connected in series to achieve the desired overall length – not to exceed 20 m (65.6 ft).

Encoder Cable Lengths

Code	1	2	3	4	5	6	10	15
Length [m (ft)]	1 (3.2)	2 (6.6)	3 (9.8)	4 (13.1)	5 (16.4)	6 (19.7)	10 (32.8)	15 (49.2)

Encoder Cable Receptacle

For Use With	No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. No.	
					Socket	Plug
ArmorStart DeviceNet Outputs	8	24 AWG	300V, 1.5 A	IP67	888D-F8AB3-xx ⁽¹⁾	888D-M8AB3-xx


(1) xx specifies the cable length. Standard length codes in m (ft) are: **0M3**- 0.3 (1) and **1**- 1 (3.2). Example: the cable length for Cat. No. 888D-F8AB3-1 is 1 m.

Ethernet Media

For use with Armor PowerFlex drives and ArmorStart controllers that use an Ethernet communication network. These tables list a **sample** of Ethernet media that is suitable for connection to ArmorStart devices with Ethernet communication networks.


For additional cable and media, and for information and technical specifications, see Ethernet Media Technical Data, publication [1585-TD001](#).

Patchcords

	No. of Pins	Wire Size	Configuration	Environmental Rating	Cat. No.			
					Straight Socket Straight Plug	Straight Plug Straight Plug	Straight Plug Right-Angle Plug	Right-Angle Plug Right-Angle Plug
	4	24 AWG	D-code to D-code	NEMA 4/12	1585D-M4TBDF-xx ⁽¹⁾	1585D-M4TBDM-xx ⁽¹⁾	1585D-M4TBDE-xx ⁽¹⁾	1585D-E4TBDE-xx ⁽¹⁾
	4	24 AWG	D-code to D-code	IP67, NEMA 4/12	—	1585D-M4UBDM-xx ⁽¹⁾	—	—
	8	24 AWG	X-code to X-code	IP67, NEMA 4/12	—	1585D-M8UGDM-xx ⁽¹⁾	1585D-M8TGDE-xx ⁽¹⁾	1585D-E8TGDE-xx ⁽¹⁾
	8 to 4	24 AWG	X-code (8-pin) to D-code (4-pin)	IP66, IP67	—	1585D-M8TGD4M-xx ⁽¹⁾	—	1585D-E8TGD4E-xx ⁽¹⁾


(1) xx specifies the cable length in meters, for example, the cable length for Cat. No. 1585D-M4TBDM-1 is 1 m. Standard lengths are 1, 2, 5, or 10 m. Additional lengths are available, see [Ethernet Network Media On-Machine M12 Cable product selection](#).

Receptacles

	Description	No. of Conductors	Wire Size	Assembly Rating	Environmental Rating	Cat. No.	
						Unshielded	Shielded
	Socket M12 D-code , front mount to RJ45 plug	4	Unshielded: 24 AWG Shielded: 26 AWG	300V	NEMA 4/12	1585D-D4TBJM-xx ⁽¹⁾	1585D-D4UBJM-xx ⁽¹⁾


(1) xx specifies the cable length in meters, (for example, the cable length for Cat. No. 1585D-D4TBJM-1 is 1 m). Standard lengths are 1, 2, 5, or 10 m. Additional lengths are available, see [Ethernet Network Media On-Machine M12 Cable product selection](#).

Transition Cable

	Description	No. of Pins	Wire Size	Environmental Rating	Cat. No.	
					Unshielded	Shielded
	Straight M12 D-code plug to RJ45 plug	4	Unshielded: 24 AWG Shielded: 26 AWG	IP67, NEMA 4/12	1585D-M4TBJM-xx ⁽¹⁾	1585D-M4UBJM-xx ⁽¹⁾
	Straight M12 X-code plug to straight RJ45 plug	8	26 AWG	NEMA 4/12	—	1585D-M8UGJM-xx ⁽¹⁾
	Right-angle M12 X-code plug to straight RJ45 plug	8	26 AWG	NEMA 4/12	—	1585D-E8TGM-xx ⁽¹⁾

(1) xx specifies the cable length in meters, for example, the cable length for Cat. No. 1585D-M4TBJM-1 is 1 m. Standard lengths are 1, 2, 5, or 10 m. Additional lengths are available, see [Ethernet Network Media On-Machine M12 Cable product selection](#).

Bulkhead Adapter



	Description	Features	No. of Pins	Assembly Rating	Environmental Rating	Cat. No.
						Unshielded
	Socket M12 D-code receptacle to RJ45 socket right-angle adapter	<ul style="list-style-type: none"> Transition from IP20 environment to IP67 environment In-cabinet connectivity with RJ45 connector, providing On-Machine solution with M12 connector Differential 100 Ω terminators that are used for unused pairs Cat 5e 	4	32V, 4 A	IP67, NEMA 4/12	1585A-DD4JD
	Socket M12 X-code receptacle to RJ45 socket right-angle adapter		8			1585A-DD8JD

DeviceNet Media

For use with ArmorStart controllers that use a DeviceNet communication network. These tables list a **sample** of DeviceNet media that is suitable for connection to ArmorStart devices.

For additional cable and media, and for information and technical specifications, see DeviceNet Media System Technical Data, publication [1485-TD001](#).


Trunk and Drop Patchcords

	No. of Pins	Wire Size	Assembly Rating	Environmental Rating	Cat. No.			
					Straight Socket Straight Plug	Straight Socket Right-Angle Plug	Right-Angle Socket Straight Plug	Right-Angle Socket Right-Angle Plug
	5	22 AWG, 24 AWG	250V, 4 A	IP67, UL 4/12, NEMA 4/12	1485G-Pxx ⁽¹⁾ N5-M5	1485G-Pxx ⁽¹⁾ W5-N5	1485G-Pxx ⁽¹⁾ M5-Z5	1485G-Pxx ⁽¹⁾ W5-Z5
	5	15 AWG, 18 AWG	300V, 8 A	IP67, NEMA 4/12	1485C-Pxx ⁽²⁾ N5-M5	1485C-Pxx ⁽²⁾ W5-N5	1485C-Pxx ⁽²⁾ M5-Z5	1485C-Pxx ⁽²⁾ W5-Z5

(1) xx specifies the cable length in meters, for example the cable length for Cat. No. 1485G-P1N5-M5 is 1 m. Standard cable lengths are: 1, 2, 3, 4, 5, and 6 m.


(2) xx specifies the cable length in meters, for example the cable length for Cat. No. 1485C-P1N5-M5 is 1 m. Standard cable lengths: 1, 2, 3, 4, 5, 6, 8, 10, 12, 18, 24, and 30 m.

Receptacles


	No. of Conductors	Wire Size	Assembly Rating	Environmental Rating	Cat. No.	
					Socket	Plug
	5	22 AWG, 24 AWG	250V, 4 A	IP67, NEMA 4/12	1485F-Pxx ⁽¹⁾ N5-CG	1485F-Pxx ⁽¹⁾ M5-CG
	5	15 AWG, 18 AWG	300V, 8 A	IP67, NEMA 4/12	1485F-Pxx ⁽¹⁾ N5-A	1485F-Pxx ⁽¹⁾ M5-A

(1) xx specifies the cable length in meters, for example the cable length for Cat. No. 1485F-P1N5-CG is 1 m. Standard cable lengths are: 1, 2, 3, 4, 5, and 6 m.


T-ports

	No. of Pins	Assembly Rating	Environmental Rating	Cat. No.	
				Left Keyway	Right Keyway
	5	50V, 8 A	IP67, NEMA 4/12	1485P-P1N5-MN5KM	1485P-P1N5-MN5KF


Terminators

	No. of Pins	Assembly Rating	Environmental Rating	Cat. No.	
				Socket	Plug
	5	250V, 8 A	IP67, UL 4/12, NEMA 4/12	1485A-T1N5	1485A-T1M5

KwikLink Pig Tail Drop Cables

	Description	Assembly Rating	Environmental Rating	Cat. No.			
				1 m(3.3 ft)	2 m(6.5 ft)	3 m(9.8 ft)	6 m(19.8 ft)
	KwikLink™ pigtail drops are Insulation Displacement Connector (IDC) with integral Class 1 round cables for interfacing devices or power supplies to flat cable.	24V DC, 8 A	NEMA 4/12	1485P-P1E4-B1-N5	1485P-P1E4-B2-N5	1485P-P1E4-B3-N5	1485P-P1E4-B6-N5

Configuration Terminal

	Description	Length m (ft)	Cat. No.
	DeviceNet Configuration Terminal Used to interface with objects on a DeviceNet network. Includes 1 m communications cable.	1 (3.3)	193-DNCT
	Communication cable, color-coded bare leads	1 (3.3)	193-CB1
	Communication cable, microconnector (plug)	1 (3.3)	193-CM1
	Panel Mount Adapter/Door Mount Bezel Kit	—	193-DNCT-BZ1


Notes:

Accessories


Various accessories are available for ArmorStart controllers:

- Locking Clips
- Locking Tags
- Sealing Caps
- Mounting Nuts and Sealing Washers
- Cord Grips


Locking Clips

	Description	Connector Type	Material	Pkg. Quantity	Cat. No.
	Clam shell design clips over the three-phase power media drop connection, to limit customer access.	M22	ABS/PC plastics	10	280-MTR22-LC
	Clam shell design clips over the three-phase power media trunk connection, to limit customer access.	M29			280-PWRM29-LC
	Clam shell design clips over the three-phase power media trunk connection, to limit customer access.	M35			280-MTR35-LC

Locking Tag

	Description	Cat. No.
	Locking Tag Padlock attachment to the lockable handles Up to three padlocks 4...8 mm (5/16 in. diameter) shackle	140M-C-M3


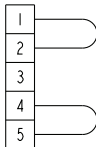
Motor Connector Adapter – M25 to Square

	Description	Cat. No.
	HARTING Compact Screw-in Adapter A HARTING receptacle can be mounted on a motor with M25 thread, using this adapter.	HARTING# 61 04 000 0039 ⁽¹⁾

(1) For HARTING specifications and ordering information, see the [HARTING website](#).

Safety I/O Bypass Plug

Used to bypass Armor PowerFlex safety I/O ports when no safety cable connection is required

	For Use With	Type	No. of Pins	Environmental Rating	Wiring Diagram	Cat. No.
	Armor PowerFlex	M12	5	IP54/66, UL Type 4/12 & NEMA 4/12		35-SPM12M

Sealing Caps



For Use With	Connector Type	Material	Environmental Rating	Thread Configuration	Dimensions	Cat. No.
Armor PowerFlex ArmorStart ST ArmorStart LT with EtherNet/IP ArmorStart with EtherNet/IP	M12	Plastic	Armor PowerFlex: IP66, NEMA 4/12 All others: IP54, UL 12, NEMA 12	External, plug	 M12 x 1 Threads	1485A-M12
Armor PowerFlex ArmorStart ST ArmorStart LT	M22	Aluminum, gray anodized	Armor PowerFlex: IP66, NEMA 4/12 All others: IP20	External, plug	 7/8 in. -16 UN 2 A Threads Gasket	1485A-C1
ArmorStart ST ArmorStart LT	M22	Aluminum, gray anodized	IP67, NEMA 4/12: 1200 psi washdown	Internal, socket	 7/8 in. -16 UN 2 B Threads Gasket	889A-NCAP
ArmorStart with EtherNet/IP ArmorStart with DeviceNet	M25	Aluminum, black anodized	IP67	External, plug	 1-16 USN-2A THREADS	280-BRCAP-M25
Armor PowerFlex ArmorStart ST ArmorStart LT ArmorStart with EtherNet/IP ArmorStart with DeviceNet	M35	Aluminum, gray anodized	Armor PowerFlex: IP66, NEMA 4/12 All others: IP67, NEMA 4/12: 1200 psi washdown	External, plug	 1-3/8 in. -16 UN 2A Threads Gasket	889A-QMCAP
				Internal, socket	 1-3/8 in. -16 UN 2B Threads Gasket	889A-QCAP

Mounting Nuts and Sealing Washers for Receptacles

Description	Package Quantity	Cat. No.
Mounting nuts for 1/2 in. - 14 NPT threaded receptacles	10	889A-U1NUT-10
Flat sealing washers for 1/2 in. - 14 NPT threaded receptacles		889A-U1FSL-10

Cord Grips

For use with ArmorStart LT controllers

Recommended EMI/RFI Cord Grips⁽¹⁾

<p>Metal connector body makes direct contact with the braid wires</p> <p>Braid wires pulled back in a 360° pattern around the ground cone of the connector</p> <p>Ground Bushing</p> <p>(T1) (T2) (T3) PE One or More Ground Leads</p> <p>Metal locknut bonds the connector to the panel</p> <p>Drain wires pulled back in a 360° pattern around the ground cone of the connector</p>	<p>The cable connector that is selected must provide good 360° contact and low transfer impedance from the shield or armor of the cable to the conduit entry plate at both the motor and the drive or drive cabinet for electrical bonding.</p>	<p>Recommendation: SKINTOP MS-SC/MS-SCL cable grounding connectors or NPT/PG adapters from LAPPUSA</p>
---	---	--

Cord grip for Motor, Power, and Control Recommended Thomas and Betts Cord Grips for G1 and G3 Glands.⁽²⁾

Description	Gland	Knockout Size	Cable Diameter Range [in ²]	Thomas and Betts Part Nos.		
				Cord Grip	Sealing Ring	Locknut
Motor/Source Brake	G1	0.75 in. (19 mm)	0.500...0.750	2932NM	5263	142TB
Motor/Source Brake	G1	0.75 in. (19 mm)	0.660...0.780	2675	5263	142TB
Power	G1	1.0 in. (25.4 mm)	0.660...0.780	2676	5264	143
Power	G1	1.0 in. (25.4 mm)	0.770...0.895	2677	5264	143
Control Power, Motor/Source Brake	G3	M20	0.236...0.473	CC-IS020-G	(2)	GMN-M20
3-Phase Power	G3	M25	0.512...0.709	CC-IS025-G	(2)	GMN-M25

(1) This is **required** to contain radiated electromagnetic emissions and to be CE-compliant.

(2) Contact Thomas and Betts for additional details or alternative solutions.

For use with ArmorStart with DeviceNet controllers

Cord Grips for use with CR/CRW Gland

	<p>Thomas & Betts Cord Grip 0.75 in. Strain Relief Cord Connector, 0.75 in. Locknut Cable Range: 0.31...0.56 in. (7.9...14.2 mm)</p>	<p>Thomas & Betts Part No. 2931NM</p>
	<p>Thomas & Betts Cord Grip 1 in. Strain Relief Cord Connector, 1 in. Lock Nut Cable Range: 0.31...0.56 in. (7.9...14.2 mm)</p>	<p>Thomas & Betts Part No. 2940NM</p>

Notes:

Additional Resources

These documents contain additional information concerning related products from Rockwell Automation. You can view or download publications at rok.auto/literature.

Resource	Description
Armor PowerFlex User Manual, publication 35-UM001	Provides basic information on how to install, configure, and program, the Armor PowerFlex drives.
ArmorStart Distributed Motor Controllers Selection Guide, publication 280-SG002	Provides information on product specifications, ratings, certifications, system interface, wiring diagrams, and dimensions, to aid in product selection.
Cordsets & Field Attachables Technical Data, publication 889-TD002	Provides specifications and other product information about cordsets & field attachables.
Ethernet Media Technical Data, publication 1585-TD001	Provides specifications and other product information about Ethernet media.
DeviceNet Media System Technical Data, publication 1485-TD001	Provides specifications and other product information about DeviceNet media.
ArmorStart ST Motor Controller with Integrated Safety User Manual, publication 280ES-UM002	Provides information on how to install, configure, program, and use ArmorStart ST with integrated safety controllers.
ArmorStart ST Motor Controller User Manual, publication 280ES-UM001	Provides information on how to install, configure, program, and use ArmorStart ST controllers.
ArmorStart LT Distributed Motor Controller – EtherNet/IP User Manual, publication 290E-UM001	Provides information on how to install, configure, program, and use ArmorStart LT with EtherNet/IP controllers.
ArmorStart LT Distributed Motor Controller – DeviceNet User Manual, publication 290D-UM001	Provides information on how to install, configure, program, and use ArmorStart LT with DeviceNet controllers.
ArmorStart Distributed Motor Controller with EtherNet/IP User Manual, publication 280E-UM001	Provides information on how to install, configure, program, and use ArmorStart with EtherNet/IP controllers.
ArmorStart Distributed Motor Controller with DeviceNet User Manual, publication 280-UM002	Provides information on how to install, configure, program, and use ArmorStart with DeviceNet controllers.
ArmorStart Distributed Motor Controller Safety Version User Manual, publication 280-UM004	Provides information on how to install, configure, program, and use ArmorStart with DeviceNet safety version controllers.
Armor PowerFlex Specifications Technical Data, publication 35-TD001	Provides product information about the Armor PowerFlex drive.
ArmorStart ST Distributed Motor Controller Specifications, publication 280ES-TD001	Provides specification information for ArmorStart ST controllers.
ArmorStart LT Distributed Motor Controller Specifications, publication, 290-TD001	Provides specification information for ArmorStart LT controllers.
EtherNet/IP Network Devices User Manual, publication ENET-UM006	Describes how to configure and use EtherNet/IP devices to communicate on the EtherNet/IP network.
Ethernet Reference Manual, publication ENET-RM002	Describes basic Ethernet concepts, infrastructure components, and infrastructure features.
System Security Design Guidelines Reference Manual, publication SECURE-RM001	Provides guidance on how to conduct security assessments, implement Rockwell Automation products in a secure system, harden the control system, manage user access, and dispose of equipment.
UL Standards Listing for Industrial Control Products, publication CMPNTS-SR002	Assists original equipment manufacturers (OEMs) with construction of panels, to help ensure that they conform to the requirements of Underwriters Laboratories.
American Standards, Configurations, and Ratings: Introduction to Motor Circuit Design, publication IC-AT001	Provides an overview of American motor circuit design based on methods that are outlined in the NEC.
Industrial Components Preventive Maintenance, Enclosures, and Contact Ratings Specifications, publication IC-TD002	Provides a quick reference tool for Allen-Bradley industrial automation controls and assemblies.
Safety Guidelines for the Application, Installation, and Maintenance of Solid-state Control, publication SGI-1.1	Designed to harmonize with NEMA Standards Publication No. ICS 1.1-1987 and provides general guidelines for the application, installation, and maintenance of solid-state control in the form of individual devices or packaged assemblies incorporating solid-state components.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Selection and Configuration tools, rok.auto/systemtools	Helps configure complete, valid catalog numbers and build complete quotes based on detailed product information.
Rockwell Automation Global SCCR tool, rok.auto/sccr	Provides coordinated high-fault branch circuit solutions for motor starters, soft starters, and component drives.
Product Certifications website, rok.auto/certifications	Provides declarations of conformity, certificates, and other certification details.

Rockwell Automation Support

Use these resources to access support information.

Technical Support Center	Find help with how-to videos, FAQs, chat, user forums, Knowledgebase, and product notification updates.	rok.auto/support
Local Technical Support Phone Numbers	Locate the telephone number for your country.	rok.auto/phonesupport
Technical Documentation Center	Quickly access and download technical specifications, installation instructions, and user manuals.	rok.auto/techdocs
Literature Library	Find installation instructions, manuals, brochures, and technical data publications.	rok.auto/literature
Product Compatibility and Download Center (PCDC)	Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes.	rok.auto/pcdc

Documentation Feedback

Your comments help us serve your documentation needs better. If you have any suggestions on how to improve our content, complete the form at rok.auto/docfeedback.





Allen-Bradley, Armor, ArmorBlock Guard I/O, ArmorConnect, ArmorPower, ArmorStart, ArmorStratix, Armor GuardLogix, ControlLogix, expanding human possibility, Guard I/O, KwikLink, On-Machine, PowerFlex, and Rockwell Automation are trademarks of Rockwell Automation, Inc.

DeviceNet and EtherNet/IP are trademarks of ODVA, Inc.

Trademarks not belonging to Rockwell Automation are property of their respective companies.

Rockwell Automation maintains current product environmental compliance information on its website at rok.auto/pec.

Rockwell Otomasyon Ticaret A.Ş. Kar Plaza İş Merkezi E Blok Kat:6 34752, İçerenköy, İstanbul, Tel: +90 (216) 5698400 EEE Yönetmeliğine Uygundur

Connect with us.    

rockwellautomation.com ————— **expanding human possibility®**

AMERICAS: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000

EUROPE/MIDDLE EAST/AFRICA: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2663 0600

ASIA PACIFIC: Rockwell Automation SEA Pte Ltd, 2 Corporation Road, #04-05, Main Lobby, Corporation Place, Singapore 618494, Tel: (65) 6510 6608

UNITED KINGDOM: Rockwell Automation Ltd., Pitfield, Kiln Farm, Milton Keynes, MK11 3DR, United Kingdom, Tel: (44)(1908) 838-800

Publication 280PWR-SG001H-EN-P - July 2024

Supersedes Publication 280PWR-SG001H-EN-P - February 2024

Copyright © 2024 Rockwell Automation, Inc. All rights reserved. Printed in the U.S.A.