

Bulletin 280/281/284

ArmorStart® Distributed Motor Controllers – Safety Version

Advantages

- Provides an ArmorStart Safety solution integrated into DeviceNet™ safe installations
- Lower Installation Costs
 - Dramatically reduced compared to Point-to-Point wiring
 - Labor cost reduced 30%
 - Overall system costs reduced 25 %
- Reduced Engineering Time
 - Integrated, pre-engineered, enclosed motor starter
 - No large custom panels reduces total plant area
- Ease of Maintenance and Troubleshooting
 - LED status indication and built-in diagnostics capabilities
- Connectivity to ArmorConnect® Power Media
 - Reduced commissioning time and labor costs
 - Plug and play design eliminates wiring errors
- Easy Configuration
 - via RSNetWorx for DeviceNet
 - Includes DeviceLogix and Peer to Peer communications (ZIP)

Suitable for safety applications up to Safety Category 4 PL e



Overview

The safety version of the ArmorStart Distributed Motor Controller provides a safety solution integrated into DeviceNet Safety installations. Bulletin 280/281/284 ArmorStart Safety achieves Category 4 functionality by using redundant contactors and also offers quick connects to the 1732DS-IB8XOBV4 safety I/O module. The safety I/O module inputs will monitor the status of the safety rated contactors inside the ArmorStart while the outputs provide 24V DC power for control power to the ArmorStart.

Bulletin 280/281/284 ArmorStart Safety is suitable for safety applications up to Safety Category 4 PL e (TÜV assessment per ISO 13849-1:2008). TÜV compliance letter is available upon request.

The ArmorStart Distributed Motor Controllers are integrated, pre-engineered starters with the Bulletin 280/281 for full voltage and reversing applications and the Bulletin 284 for variable frequency AC drive applications. The ArmorStart offers a robust IP67/Nema Type 4 enclosure design, suitable for water wash down environments.

The modular “plug and play” design makes wiring the installation simple. Quick disconnects for the I/O, communications, and motor connection reduce wiring and minimizes wiring errors. The ArmorStart offers four DC inputs and two relay outputs, to be used with sensors and actuators respectively, for monitoring and controlling the application process. The ArmorStart’s LED status indication and built-in diagnostics capabilities allow ease of maintenance and troubleshooting.

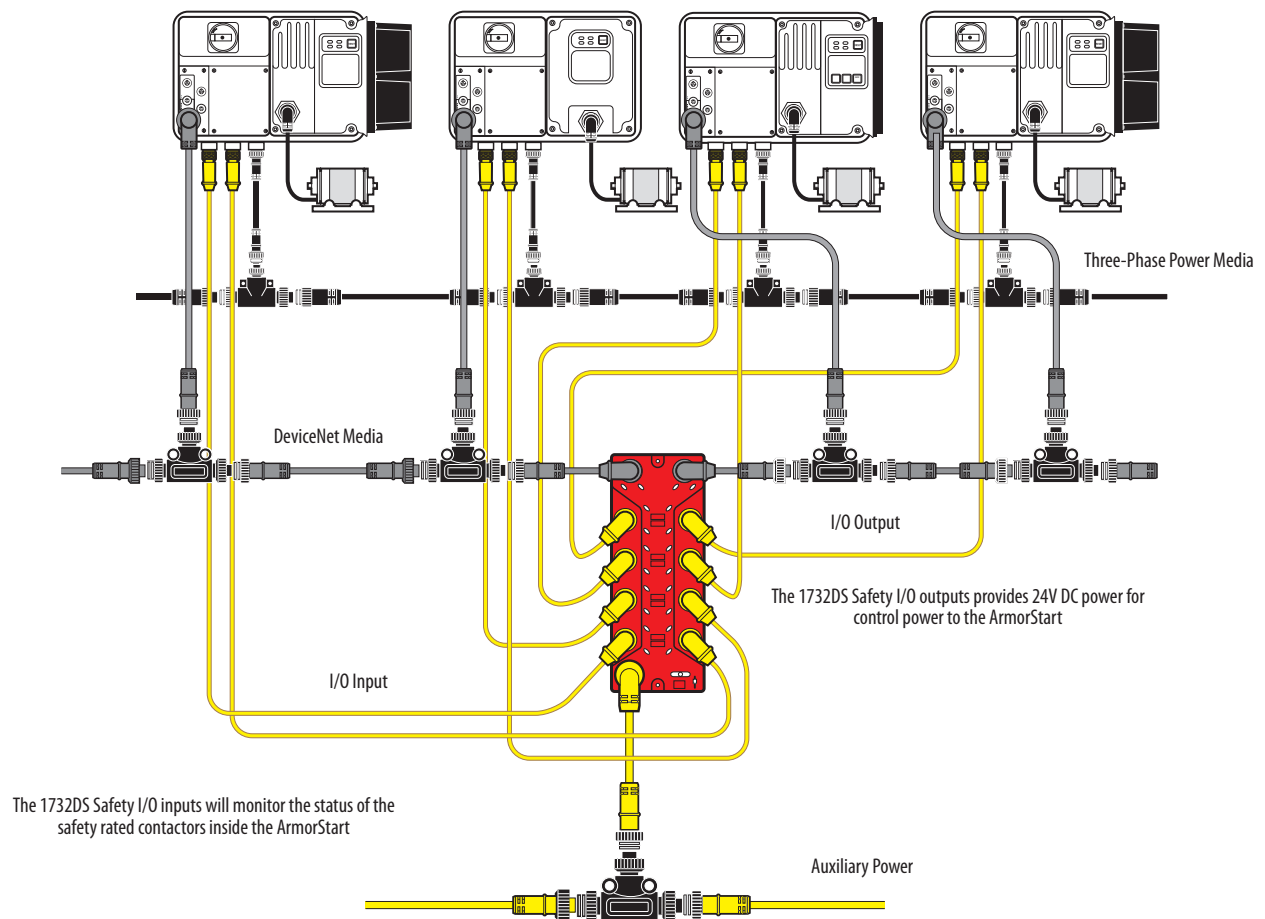
The ArmorStart Distributed Motor Controller delivers enhanced control to access parameter settings and provides both fault diagnostics and remote start-stop control. DeviceNet™ is the communication protocol provided with the ArmorStart including DeviceLogix™ and Peer to Peer Communications (ZIP).

LISTEN.
THINK.
SOLVE.®

Allen-Bradley Motors

Allen-Bradley • Rockwell Software

Rockwell
Automation



Benefits of 1732DS ArmorBlock® Guard I/O™ Module

- TÜV certified for use in safety applications, up to SIL3 and Category 4
- Water and corrosion-resistant with an IP67 rated enclosure: install almost anywhere in many environmentally challenging applications
- Simplified installation: a single M12 cable connection to dual-channel devices on inputs and outputs using quick disconnects
- I/O point level diagnostics and LEDs: quickly identify a problem and reduce machine downtime
- Easy configuration via RSNetWorx™ for DeviceNet

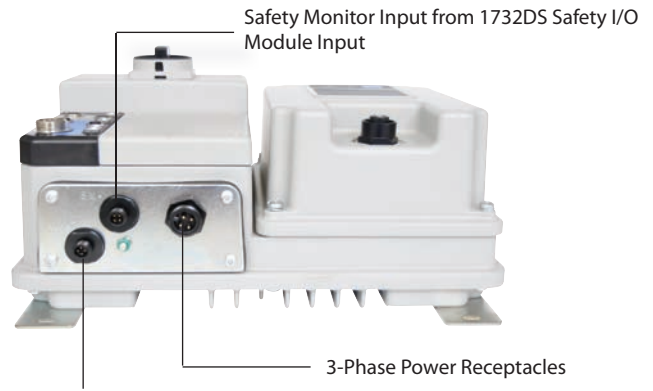
Bulletin 1732DS-IB8XOBV4 Safety I/O Module



ArmorStart with ArmorConnect Connectivity

Compared to the traditional conduit installations, with the ArmorConnect Power Media you profit and benefit from.

- Reduced commissioning time
- Plug and play design eliminates wiring errors
- Increased system design flexibility
- No special tools required
- Reduced labor costs
- Factory-installed receptacles for safety and three-phase power offer the greatest wiring savings and labor cost reduction



A1/A2 — 24V DC control power from 1732DS Safety I/O Module output

ArmorConnect Power Media

Reduced Commission and Installation Time



Three-phase Media rated for motor branch circuits per UL 2237

1732DS ArmorBlock Guard I/O Recommended Compatible Cables and Connectors

DC Micro (M12) Male Cordset



Cat. No. 889D-F4HJ-*

DC Micro Style Patchcord



Cat. No. 889D-F4HJDM-*

M12 Terminal Chamber, Straight Male



Cat. No. 871A-TS4-DM

M12 Terminal Chamber, Right Angle Male



Cat. No. 871A-TR4-DM

* Replace symbol with 1 (1 m), 2 (2 m), 5 (5 m) or 10 (10 m) for standard cable length.

Product Selection*

Current Rating [A]	kW		HP			Cat. No. Control Voltage 24V DC
	230V AC 50 Hz	400V AC 50 Hz	200V AC 60 Hz	230V AC 60 Hz	460V AC 60 Hz	
Full Voltage Starters — IP67/NEMA 4 with Conduit Entrance — Up to 480V AC						
0.5...2.5	0.37	0.75	0.5	1	1	280D-F12S-10B-CR
1.1...5.5	1.1	2.2	1	3	3	280D-F12S-10C-CR
3.2...16	4	7.5	3	10	10	280D-F23S-25D-CR
Reversing Starters — IP67/NEMA 4 with Conduit Entrance — Up to 480V AC						
0.5...2.5	0.37	0.75	0.5	1	1	281D-F12S-10B-CR
1.1...5.5	1.1	2.2	1	3	3	281D-F12S-10C-CR
3.2...16	4	7.5	3	10	10	281D-F23S-25D-CR
Full Voltage Starters — IP67/NEMA 4 with Quick Disconnects for ArmorConnect Power Media — Up to 480V AC						
0.5...2.5	0.37	0.75	0.5	1	1	280D-F12S-10B-RR
1.1...5.5	1.1	2.2	1	3	3	280D-F12S-10C-RR
3.2...16	4	7.5	3	10	10	280D-F23S-25D-RR
Reversing Starters — IP67/NEMA 4 with Quick Disconnects for ArmorConnect Power Media — Up to 480V AC						
0.5...2.5	0.37	0.75	0.5	1	1	281D-F12S-10B-RR
1.1...5.5	1.1	2.2	1	3	3	281D-F12S-10C-RR
3.2...16	4	7.5	3	10	10	281D-F23S-25D-RR

Sensorless Vector Control VFD — IP67/NEMA 4 with Conduit Entrance — Up to 480V AC

Input Voltage	3-Phase kW Rating	3-Phase HP Rating	Output Current [A]	Cat. No.
380...480V 50/60 Hz 3-Phase	0.4	0.5	1.4	284D-FVD1P4S-10-CR
	0.75	1.0	2.3	284D-FVD2P3S-10-CR
	1.5	2.0	4.0	284D-FVD4P0S-10-CR
	2.2	3.0	6.0	284D-FVD6P0S-10-CR
	3.0	5.0	7.6	284D-FVD7P6S-10-CR

Sensorless Vector Control VFD — IP67/NEMA 4 with Quick Disconnects for ArmorConnect Power Media — Up to 480V AC

Input Voltage	3-Phase kW Rating	3-Phase HP Rating	Output Current [A]	Cat. No.
380...480V 50/60 Hz 3-Phase	0.4	0.5	1.4	284D-FVD1P4S-10-RR
	0.75	1.0	2.3	284D-FVD2P3S-10-RR
	1.5	2.0	4.0	284D-FVD4P0S-10-RR
	2.2	3.0	6.0	284D-FVD6P0S-10-RR
	3.0	5.0	7.6	284D-FVD7P6S-10-RR

* See ArmorStart selection guide, publication 280D-SG001_-EN-P.

ArmorStart, ArmorConnect and ArmorBlock are registered trademarks of Rockwell Automation. Guard I/O and RSNetWorx are trademarks of Rockwell Automation. DeviceNet is a trademark of ODVA.

www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation, Vorstlaan/Boulevard du Souverain 36, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846