

SURESERVO2 ACCESSORIES

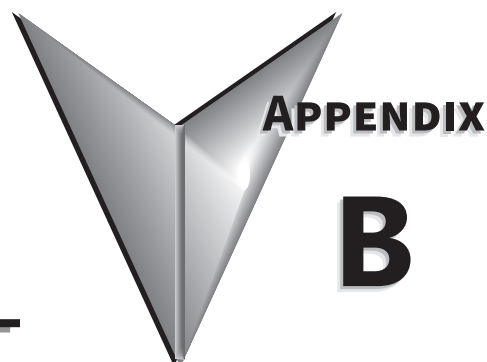


TABLE OF CONTENTS

Appendix B: SureServo2 Accessories	B-1
Introduction	B-3
B.1 - Power Connector.	B-3
B.2 - Power Cables	B-4
B.2.1 - Up to 750W Low Inertia Motors (no brake)	B-4
B.2.2 - Up to 750W Low Inertia Motors (with brake)	B-5
B.2.3 - For SV2L-210N, SV2L-410N, SV2M-410N, SV2L-415N, SV2L-420N	B-5
B.2.4 - For SV2L-210B, SV2L-410B, SV2M-410B, SV2L-415B, SV2L-420B	B-6
B.2.5 - 230V 1 and 1.5 kW Medium Inertia Motors (no brake)	B-6
B.2.6 - 230V 1 and 1.5 kW Medium Inertia Motors (with brake)	B-7
B.2.7 - For SV2M-220N, SV2M-230N, and SV2H-430N Motors	B-7
B.2.8 - For SV2M-220B, SV2M-230B, and SV2H-430B Motors	B-8
B.2.9 - For SV2H-245N, SV2H-445N, SV2H-455N, and SV2H-475N Motors	B-8
B.2.10 - For SV2H-245B, SV2H-445B, SV2H-455B, and SV2H-475B Motors.	B-9
B.2.11 - 230V 5.5 to 11 kW High Inertia Motors (with and without brake)	B-9
B.2.12 - 11 to 15 kW High Inertia Motors (460V, with and without brake)	B-10
B.2.13 - 230V 15kW High Inertia Motors (with and without brake)	B-10
B.2.14 - 230V 5.5 to 15 kW High Inertia Motors and 460V 11 and 15kW High Inertia Motors (with brake)	B-11
B.3 - Encoder Connector.	B-11
B.4 - Encoder Cables.	B-12
B.4.1 - Up to 750W Motors	B-12
B.4.2 - 1 to 15 kW Motors	B-12
B.5 - Secondary Encoder Cables	B-13
B.6 - External Battery.	B-14
B.6.1 - Battery Box	B-14
B.6.2 - Battery Box Cable.	B-14
B.7 - I/O Connector	B-15
B.8 - Additional Terminal Options.	B-15
B.8.1 - Terminal Block Module.	B-15
B.8.2 - Direct Mount Feedthrough Module	B-16
B.9 - Ferrite Ring	B-17
B.10 - EMI Filters	B-17
B.11 - RS-485 Splitter	B-18

B.12 - RS-485 Terminating Resistor B-18

B.13 - USB Programming Cable B-19

B.14 - Replacement Parts B-20

B.14.1 - Connector Kit B-20

B.14.2 - STO (Safe Torque Off) Connector for CN10. B-20

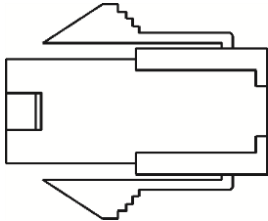
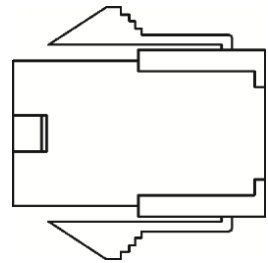
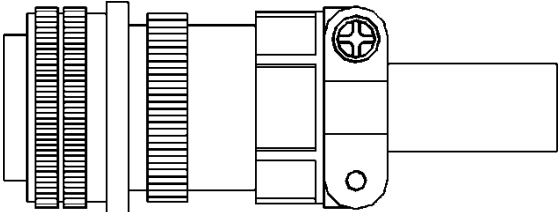
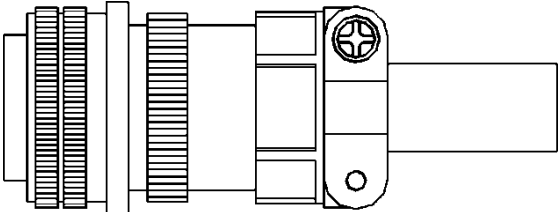
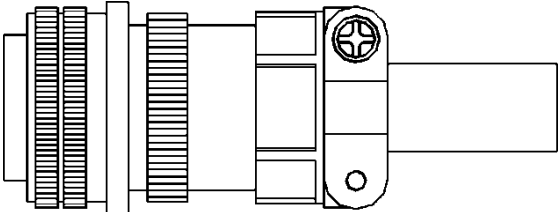
B.14.3 - Safety Specifications B-20

INTRODUCTION

This appendix details the accessories available for use with SureServo2 series drives and motors.

B.1 - POWER CONNECTOR

The following power connectors are compatible with SureServo2 motors:

Power Connector	Non-AutomationDirect Part Number	Use With	Reference Drawing
SV2C-PA-CON	Molex 39-01-2041	Up to 750W motors without brake	
SV2C-PB-CON	Molex 39-01-2061	Up to 750W motors with brake	
SV2C-PC-CON	3106A20-18S-R	230VAC 1kW-1.5 kW and 460VAC 1kW-2kW SureServo2 motors	
SV2C-PD-CON	3106A24-11S-R	230VAC 2kW-4.5 kW and 460VAC 3kW-7.5 kW SureServo2 motors.	
SV2C-PF-CON	3106A32-17S-R	230VAC 5.5 kW-15kW and 460VAC 11kW-15kW SureServo2 motors	

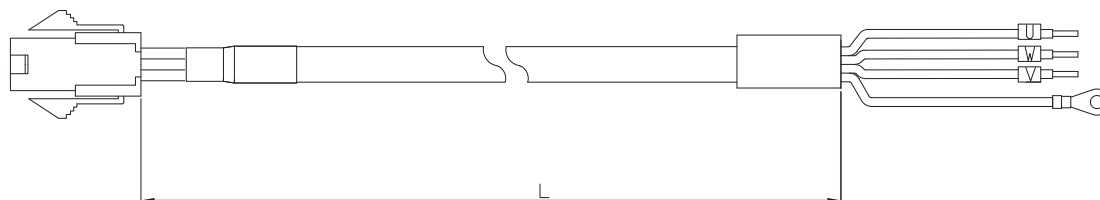
B.2 - POWER CABLES

All the power cables described in this section are compatible with SureServo2 motors. For cable entry into a panel, do not disassemble the connector/cable. Please use a Murrplastik KDL or KDP Cable Entry System to feed large connectors through an enclosure wall and retain a high IP rating. To find cables appropriate for your motor, determine the power rating of your motor and whether it has a built-in brake or not, then refer to the reference table below: SureServo2 power cables are not rated for long term use in oil environments.

Motor Type	Brake	Refer to
Up to 750W	N	B.2.1
	Y	B.2.2
SV2L-210N, SV2L-410N, SV2M-410N, SV2L-415N, SV2L-420N	N	B.2.3
SV2L-210B, SV2L-410B, SV2M-410B, SV2L-415B, SV2L-420B	Y	B.2.4
230V Medium Inertia 1kW and 1.5 kW	N	B.2.5
	Y	B.2.6
SV2M-220N, SV2M-230N, SV2H-430N	N	B.2.7
SV2M-220B, SV2M-230B, SV2H-430B.	Y	B.2.8
SV2H-245N, SV2H-445N, SV2H-455N, SV2H-475N	N	B.2.9
SV2H-245B, SV2H-445B, SV2H-455B, SV2H-475B	Y	B.2.10
230V 5.5 to 11 kW	Either	B.2.11
230V 15kW High Inertia Motors	Either	B.2.13
460V 11 to 15kW High Inertia Motors	Either	B.2.12
230V 5.5 to 15kW High Inertia Motors and 460V 11 to 15kW High Inertia Motors	Y	B.2.14

B.2.1 - UP TO 750W LOW INERTIA MOTORS (NO BRAKE)

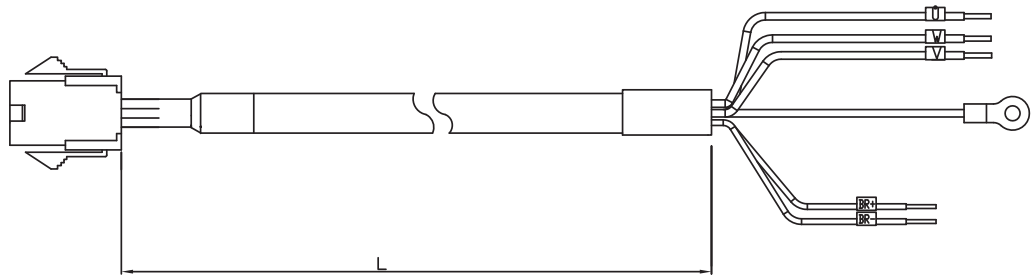
Cable Type	Part Number	Use With	Connector	Diameter (mm)	Gauge	L		Bend Radius (mm)
						mm	inch	
Non-flex Rated	SV2C-PA18-03NN	Up to 750W motors without brake	SV2C-PA-CON	8	18	3000 ± 50	118 ± 2	60.75
	SV2C-PA18-05NN					5000 ± 50	197 ± 2	
	SV2C-PA18-10NN					10000 ± 100	394 ± 4	
	SV2C-PA18-20NN					20000 ± 100	788 ± 4	
Flex Rated	SV2C-PA18-03FN					3000 ± 50	118 ± 2	
	SV2C-PA18-05FN					5000 ± 50	197 ± 2	
	SV2C-PA18-10FN					10000 ± 100	394 ± 4	
	SV2C-PA18-20FN					20000 ± 100	788 ± 4	

SV2C-PA18-xxxx Diagram

B.2.2 - Up to 750W Low INERTIA MOTORS (WITH BRAKE)

Cable Type	Part Number	Use With	Connector	Diameter (mm)	Gauge	L		Bend Radius (mm)
						mm	inch	
Non-flex Rated	SV2C-PB18-03NB	Up to 750W motors with brake	SV2C-PB-CON	9	18	3000 ± 50	118 ± 2	67.5
	SV2C-PB18-05NB					5000 ± 50	197 ± 2	
	SV2C-PB18-10NB					10000 ± 100	394 ± 4	
	SV2C-PB18-20NB					20000 ± 100	788 ± 4	
Flex Rated	SV2C-PB18-03FB					3000 ± 50	118 ± 2	
	SV2C-PB18-05FB					5000 ± 50	197 ± 2	
	SV2C-PB18-10FB					10000 ± 100	394 ± 4	
	SV2C-PB18-20FB					20000 ± 100	788 ± 4	

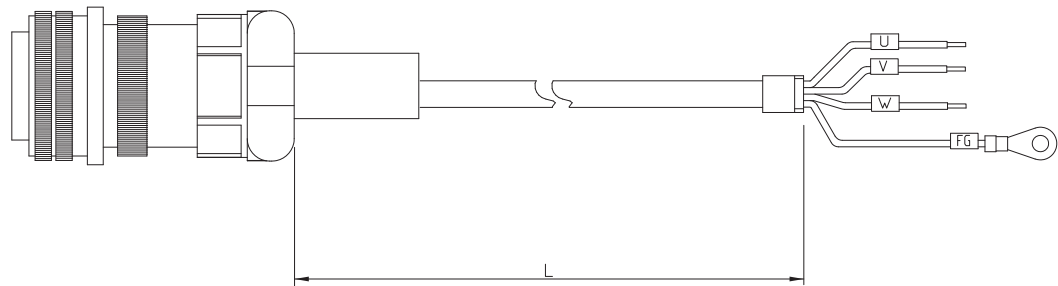
SV2C-PB18-xxxx Diagram



B.2.3 - For SV2L-210N, SV2L-410N, SV2M-410N, SV2L-415N, SV2L-420N

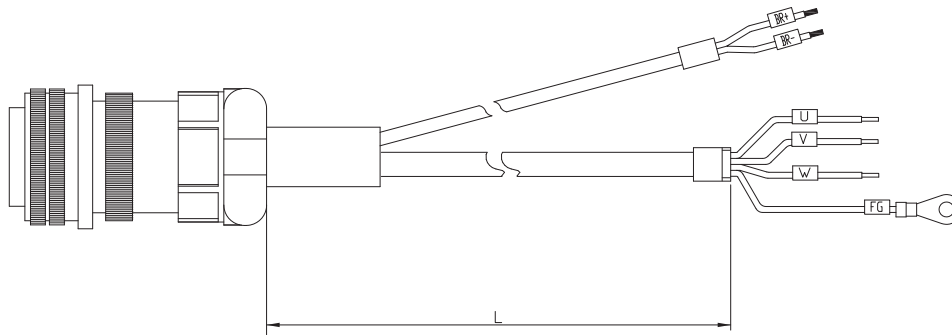
Cable Type	Part Number	Use With	Connector	Diameter (mm)	Gauge	L		Bend Radius (mm)
						mm	inch	
Non-flex Rated	SV2C-PC16-03NN	1kW low inertia motors without brake	SV2C-PC-CON	11	16	3000 ± 50	118 ± 2	82.5
	SV2C-PC16-05NN					5000 ± 50	197 ± 2	
	SV2C-PC16-10NN					10000 ± 100	394 ± 4	
	SV2C-PC16-20NN					20000 ± 100	788 ± 4	
Flex Rated	SV2C-PC16-03FN					3000 ± 50	118 ± 2	
	SV2C-PC16-05FN					5000 ± 50	197 ± 2	
	SV2C-PC16-10FN					10000 ± 100	394 ± 4	
	SV2C-PC16-20FN					20000 ± 100	788 ± 4	

SV2C-PC16-xxxN Diagram

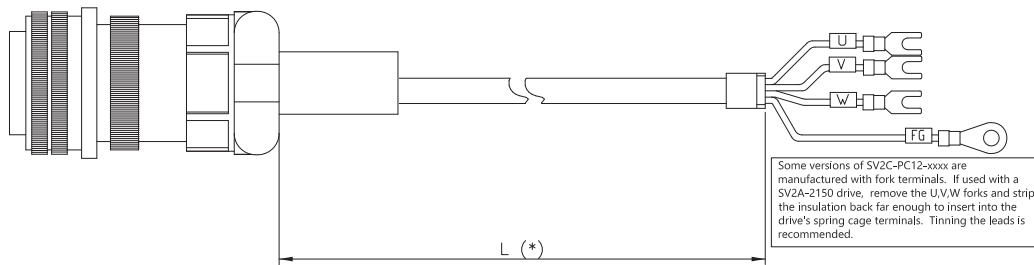


B.2.4 - For SV2L-210B, SV2L-410B, SV2M-410B, SV2L-415B, SV2L-420B

Cable Type	Part Number	Use With	Connector	Diameter (mm)	Gauge	L		Bend Radius (mm)
						mm	inch	
Non-flex Rated	SV2C-PC16-03NB	1kW low inertia motors with brake	SV2C-PC-CON	11	16	3000 ± 50	118 ± 2	82.5
	SV2C-PC16-05NB					5000 ± 50	197 ± 2	
	SV2C-PC16-10NB					10000 ± 100	394 ± 4	
	SV2C-PC16-20NB					20000 ± 100	788 ± 4	
Flex Rated	SV2C-PC16-03FB					3000 ± 50	118 ± 2	
	SV2C-PC16-05FB					5000 ± 50	197 ± 2	
	SV2C-PC16-10FB					10000 ± 100	394 ± 4	
	SV2C-PC16-20FB					20000 ± 100	788 ± 4	

SV2C-PC16-xxxB Diagram**B.2.5 - 230V 1 AND 1.5 kW MEDIUM INERTIA MOTORS (NO BRAKE)**

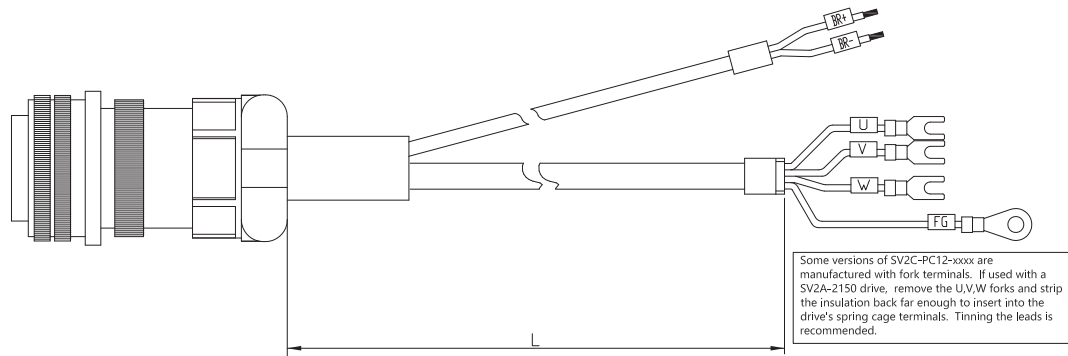
Cable Type	Part Number	Use With	Connector	Diameter (mm)	Gauge	L		Bend Radius (mm)
						mm	inch	
Non-flex Rated	SV2C-PC12-03NN	1kW and 1.5 kW medium inertia motors without brake	SV2C-PC-CON	15	12	3000 ± 50	118 ± 2	108.75
	SV2C-PC12-05NN					5000 ± 50	197 ± 2	
	SV2C-PC12-10NN					10000 ± 100	394 ± 4	
	SV2C-PC12-20NN					20000 ± 100	788 ± 4	
Flex Rated	SV2C-PC12-03FN					3000 ± 50	118 ± 2	
	SV2C-PC12-05FN					5000 ± 50	197 ± 2	
	SV2C-PC12-10FN					10000 ± 100	394 ± 4	
	SV2C-PC12-20FN					20000 ± 100	788 ± 4	

SV2C-PC12-xxxN Diagram

B.2.6 - 230V 1 AND 1.5 kW MEDIUM INERTIA MOTORS (WITH BRAKE)

Cable Type	Part Number	Use With	Connector	Diameter (mm)	Gauge	L		Bend Radius (mm)
						mm	inch	
Non-flex Rated	SV2C-PC12-03NB	1kW and 1.5 kW medium inertia motors with brake	SV2C-PC-CON	15	12	3000 ± 50	118 ± 2	108.75
	SV2C-PC12-05NB					5000 ± 50	197 ± 2	
	SV2C-PC12-10NB					10000 ± 100	394 ± 4	
	SV2C-PC12-20NB					20000 ± 100	788 ± 4	
Flex Rated	SV2C-PC12-03FB					3000 ± 50	118 ± 2	
	SV2C-PC12-05FB					5000 ± 50	197 ± 2	
	SV2C-PC12-10FB					10000 ± 100	394 ± 4	
	SV2C-PC12-20FB					20000 ± 100	788 ± 4	

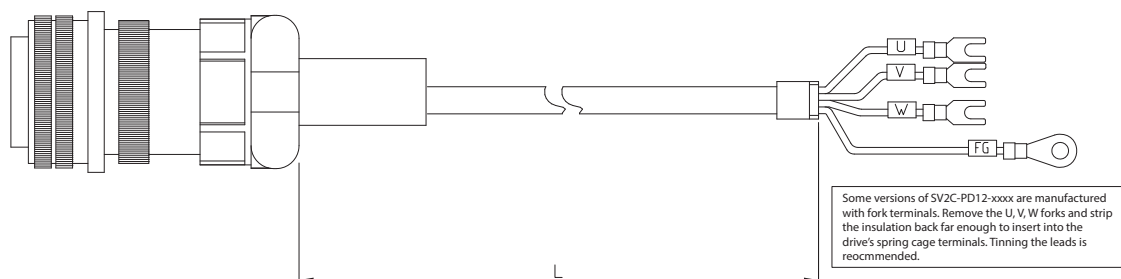
SV2C-PC12-xxxB Diagram



B.2.7 - For SV2M-220N, SV2M-230N, AND SV2H-430N MOTORS

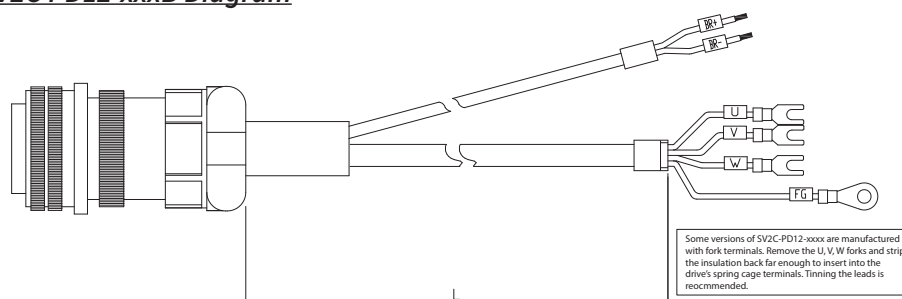
Cable Type	Part Number	Use With	Connector	Diameter (mm)	Gauge	L		Bend Radius (mm)
						mm	inch	
Non-flex Rated	SV2C-PD12-03NN	2kW and 3kW medium inertia motors without brake	SV2C-PD-CON	15	12	3000 ± 50	118 ± 2	108.75
	SV2C-PD12-05NN					5000 ± 50	197 ± 2	
	SV2C-PD12-10NN					10000 ± 100	394 ± 4	
	SV2C-PD12-20NN					20000 ± 100	788 ± 4	
Flex Rated	SV2C-PD12-03FN					3000 ± 50	118 ± 2	
	SV2C-PD12-05FN					5000 ± 50	197 ± 2	
	SV2C-PD12-10FN					10000 ± 100	394 ± 4	
	SV2C-PD12-20FN					20000 ± 100	788 ± 4	

SV2C-PD12-xxxN Diagram

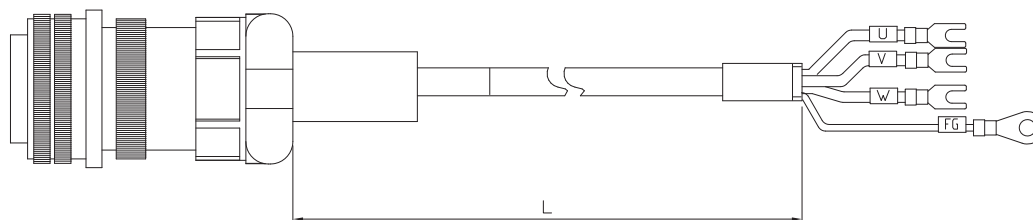


B.2.8 - For SV2M-220B, SV2M-230B, AND SV2H-430B MOTORS

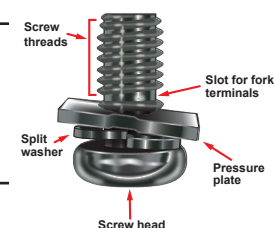
Cable Type	Part Number	Use With	Connector	Diameter (mm)	Gauge	L		Bend Radius (mm)
						mm	inch	
Non-flex Rated	SV2C-PD12-03NB	2kW and 3kW medium inertia motors with brake	SV2C-PD-CON	15	12	3000 ± 50	118 ± 2	108.75
	SV2C-PD12-05NB					5000 ± 50	197 ± 2	
	SV2C-PD12-10NB					10000 ± 100	394 ± 4	
	SV2C-PD12-20NB					20000 ± 100	788 ± 4	
Flex Rated	SV2C-PD12-03FB					3000 ± 50	118 ± 2	
	SV2C-PD12-05FB					5000 ± 50	197 ± 2	
	SV2C-PD12-10FB					10000 ± 100	394 ± 4	
	SV2C-PD12-20FB					20000 ± 100	788 ± 4	

SV2C-PD12-xxxB Diagram**B.2.9 - For SV2H-245N, SV2H-445N, SV2H-455N, AND SV2H-475N MOTORS**

Cable Type	Part Number	Use With	Connector	Diameter (mm)	Gauge	L		Bend Radius (mm)
						mm	inch	
Non-flex Rated	SV2C-PD08-03NN	4.5 kW high inertia motors without brake	SV2C-PD-CON	22	8	3000 ± 50	118 ± 2	165
	SV2C-PD08-05NN					5000 ± 50	197 ± 2	
	SV2C-PD08-10NN					10000 ± 100	394 ± 4	
	SV2C-PD08-20NN					20000 ± 100	788 ± 4	
Flex Rated	SV2C-PD08-03FN					3000 ± 50	118 ± 2	
	SV2C-PD08-05FN					5000 ± 50	197 ± 2	
	SV2C-PD08-10FN					10000 ± 100	394 ± 4	
	SV2C-PD08-20FN					20000 ± 100	788 ± 4	

SV2C-PD08-xxxN Diagram

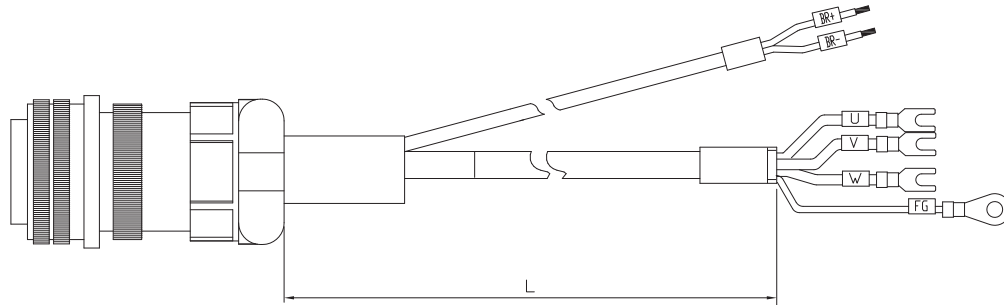
NOTE: The fork connectors on the PD08 motor power cables (for 4.5kW motors) may not fit around the threads of the 5.5kW drive's motor power screws. There is a small area between the screw threads and the screw head (beside the screw's pressure plate) where the threads taper off. Slide the fork terminals around the screw there (near the pressure plate).



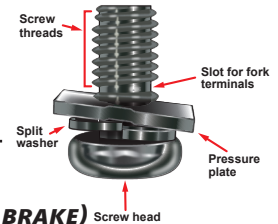
B.2.10 - For SV2H-245B, SV2H-445B, SV2H-455B, AND SV2H-475B MOTORS

Cable Type	Part Number	Use With	Connector	Diameter (mm)	Gauge	L		Bend Radius (mm)
						mm	inch	
Non-flex Rated	SV2C-PD08-03NB	4.5 kW high inertia motors with brake	SV2C-PD-CON	22	8	3000 ± 50	118 ± 2	165
	SV2C-PD08-05NB					5000 ± 50	197 ± 2	
	SV2C-PD08-10NB					10000 ± 100	394 ± 4	
	SV2C-PD08-20NB					20000 ± 100	788 ± 4	
Flex Rated	SV2C-PD08-03FB					3000 ± 50	118 ± 2	
	SV2C-PD08-05FB					5000 ± 50	197 ± 2	
	SV2C-PD08-10FB					10000 ± 100	394 ± 4	
	SV2C-PD08-20FB					20000 ± 100	788 ± 4	

SV2C-PD08-xxxB Diagram



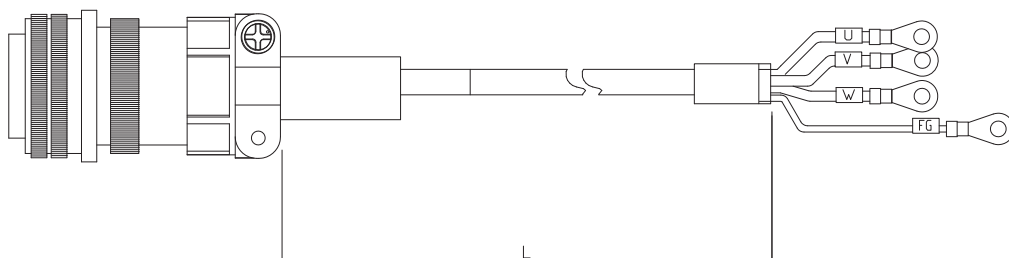
NOTE: The fork connectors on the PD08 motor power cables (for 4.5kW motors) may not fit around the threads of the 5.5kW drive's motor power screws. There is a small area between the screw threads and the screw head (beside the screw's pressure plate) where the threads taper off. Slide the fork terminals around the screw there (near the pressure plate).



B.2.11 - 230V 5.5 TO 11 kW HIGH INERTIA MOTORS (WITH AND WITHOUT BRAKE)

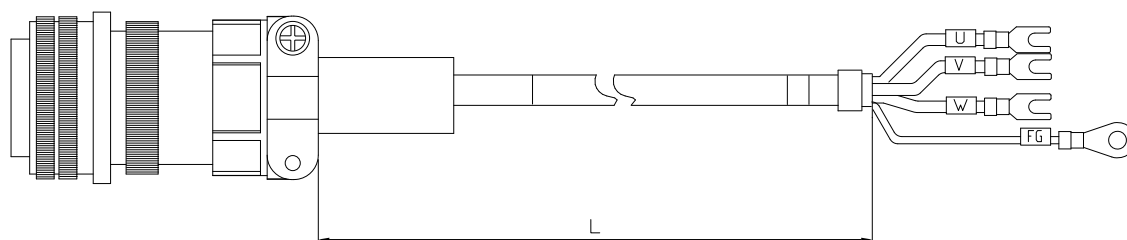
Cable Type	Part Number	Use With	Connector	Diameter (mm)	Gauge	L		Bend Radius (mm)
						mm	inch	
Non-flex Rated	SV2C-PF06-03NN	230V 5.5 to 11 kW high inertia motors (brake motors also require SV2C-B120-xxxB cable, see next page)	SV2C-PF-CON	27	6	3000 ± 50	118 ± 2	210
	SV2C-PF06-05NN					5000 ± 50	197 ± 2	
	SV2C-PF06-10NN					10000 ± 100	394 ± 4	
	SV2C-PF06-20NN					20000 ± 100	788 ± 4	
Flex Rated	SV2C-PF06-03FN					3000 ± 50	118 ± 2	
	SV2C-PF06-05FN					5000 ± 50	197 ± 2	
	SV2C-PF06-10FN					10000 ± 100	394 ± 4	
	SV2C-PF06-20FN					20000 ± 100	788 ± 4	

SV2C-PF06-xxxN Diagram

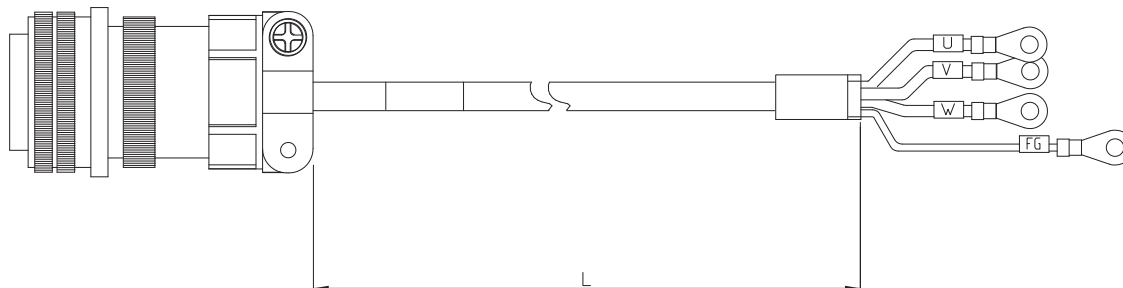


B.2.12 - 11 TO 15 kW HIGH INERTIA MOTORS (460V, WITH AND WITHOUT BRAKE)

Cable Type	Part Number	Use With	Connector	Diameter (mm)	Gauge	L		Bend Radius (mm)
						mm	inch	
Non-flex Rated	SV2C-PF08-03NN	11-15 kW 460V high inertia motors (brake motors also require SV2C-B120-xxxB cable, see below)	SV2C-PF-CON	22	8	3000 ± 50	118 ± 2	165
	SV2C-PF08-05NN					5000 ± 50	197 ± 2	
	SV2C-PF08-10NN					10000 ± 100	394 ± 4	
	SV2C-PF08-20NN					20000 ± 100	788 ± 4	
Flex Rated	SV2C-PF08-03FN					3000 ± 50	118 ± 2	
	SV2C-PF08-05FN					5000 ± 50	197 ± 2	
	SV2C-PF08-10FN					10000 ± 100	394 ± 4	
	SV2C-PF08-20FN					20000 ± 100	788 ± 4	

SV2C-PF08-xxxN Diagram**B.2.13 - 230V 15kW HIGH INERTIA MOTORS (WITH AND WITHOUT BRAKE)**

Cable Type	Part Number	Use With	Connector	Diameter (mm)	Gauge	L		Bend Radius (mm)
						mm	inch	
Non-flex Rated	SV2C-PF04-03NN	15kW high inertia motors (brake motors also require SV2C-B120-xxxB cable, see below)	SV2C-PF-CON	32	4	3000 ± 50	118 ± 2	240
	SV2C-PF04-05NN					5000 ± 50	197 ± 2	
	SV2C-PF04-10NN					10000 ± 100	394 ± 4	
	SV2C-PF04-20NN					20000 ± 100	788 ± 4	
Flex Rated	SV2C-PF04-03FN					3000 ± 50	118 ± 2	
	SV2C-PF04-05FN					5000 ± 50	197 ± 2	
	SV2C-PF04-10FN					10000 ± 100	394 ± 4	
	SV2C-PF04-20FN					20000 ± 100	788 ± 4	

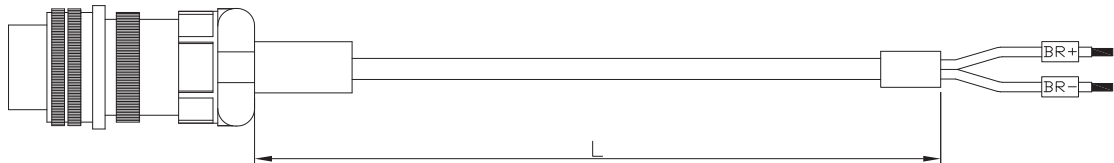
SV2C-PF04-xxxN Diagram

B.2.14 - 230V 5.5 TO 15 kW HIGH INERTIA MOTORS AND 460V 11 AND 15kW HIGH INERTIA MOTORS (WITH BRAKE)

The 5.5 to 15 kW high inertia motors use the same motor power cable as the non-brake versions plus the specialized brake cable detailed below.

Cable Type	Part Number	Use With	Connector	Diameter (mm)	Gauge	L		Bend Radius (mm)
						mm	inch	
Non-flex Rated	SV2C-B120-03NB	5.5 to 15 kW high inertia motors with brake	SV2C-B1-CON	5.5	20	3000 ± 50	118 ± 2	41.25
	SV2C-B120-05NB					5000 ± 50	197 ± 2	
	SV2C-B120-10NB					10000 ± 100	394 ± 4	
	SV2C-B120-20NB					20000 ± 100	788 ± 4	
Flex Rated	SV2C-B120-03FB					3000 ± 50	118 ± 2	
	SV2C-B120-05FB					5000 ± 50	197 ± 2	
	SV2C-B120-10FB					10000 ± 100	394 ± 4	
	SV2C-B120-20FB					20000 ± 100	788 ± 4	

SV2C-B120-xxxB and SV2C-B1-CON Diagram



Note: Non-ADC part number is 3106A10SL-4S-R.

B.3 - ENCODER CONNECTOR

The following encoder connectors are compatible with SureServo2 systems:

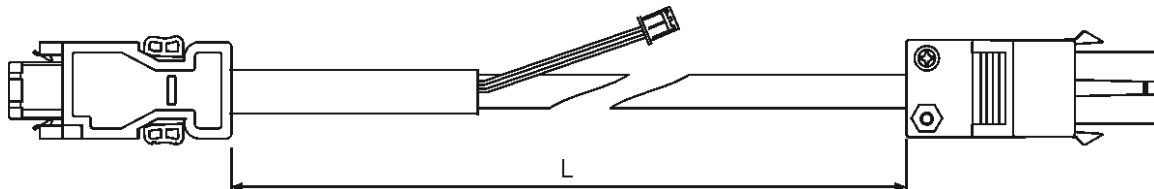
Encoder Connector	Non-ADC Part Number	Use With	Reference Drawing
SV2C-E1-CON motor cable connector	TE Connectivity 1-172161-9	Up to 750W motors	
SV2C-E2-CON motor connector	Apex WPS3106A20-29S-R	1kW to 15kW motors	
SV2C-E3-CON drive connector	Standard Firewire	All drives	

B.4 - ENCODER CABLES

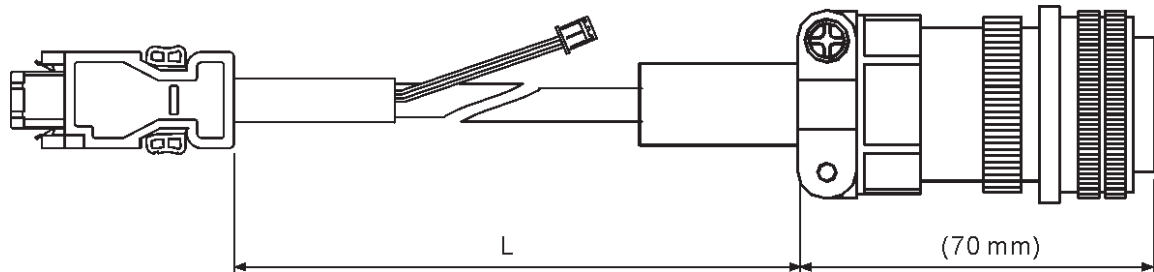
SureServo2 encoder cables are not rated for long term use in oil environments.

B.4.1 - UP TO 750W MOTORS

Cable Type	Part Number	Use With	Connector	Diameter (mm)	L		Bend Radius (mm)
					mm	inch	
Non-flex Rated	SV2C-E122-03NN	Up to 750W motors	SV2C-E1-CON	7	3000 ± 50	118 ± 2	52.5
	SV2C-E122-05NN				5000 ± 50	197 ± 2	
	SV2C-E122-10NN				10000 ± 100	394 ± 4	
	SV2C-E122-20NN				20000 ± 100	788 ± 4	
Flex Rated	SV2C-E122-03FN				3000 ± 50	118 ± 2	
	SV2C-E122-05FN				5000 ± 50	197 ± 2	
	SV2C-E122-10FN				10000 ± 100	394 ± 4	
	SV2C-E122-20FN				20000 ± 100	788 ± 4	

SV2C-E122-xxxN Diagram**B.4.2 - 1 TO 15 kW MOTORS**

Cable Type	Part Number	Use With	Connector	Diameter (mm)	L		Bend Radius (mm)
					mm	inch	
Non-flex Rated	SV2C-E222-03NN	1 to 15 kW motors	SV2C-E2-CON	7	3000 ± 50	118 ± 2	52.5
	SV2C-E222-05NN				5000 ± 50	197 ± 2	
	SV2C-E222-10NN				10000 ± 100	394 ± 4	
	SV2C-E222-20NN				20000 ± 100	788 ± 4	
Flex Rated	SV2C-E222-03FN				3000 ± 50	118 ± 2	
	SV2C-E222-05FN				5000 ± 50	197 ± 2	
	SV2C-E222-10FN				10000 ± 100	394 ± 4	
	SV2C-E222-20FN				20000 ± 100	788 ± 4	

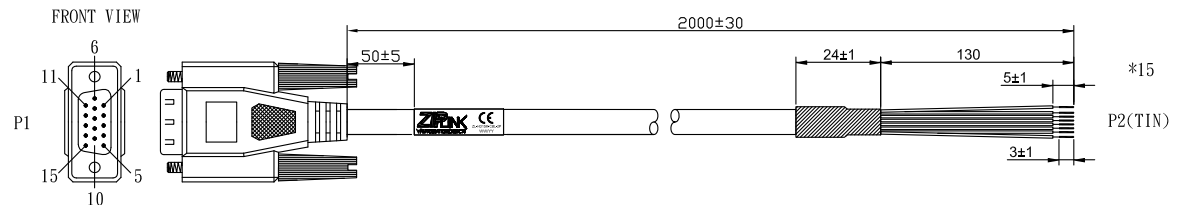
SV2C-E222-xxxN Diagram

B.5 - SECONDARY ENCODER CABLES

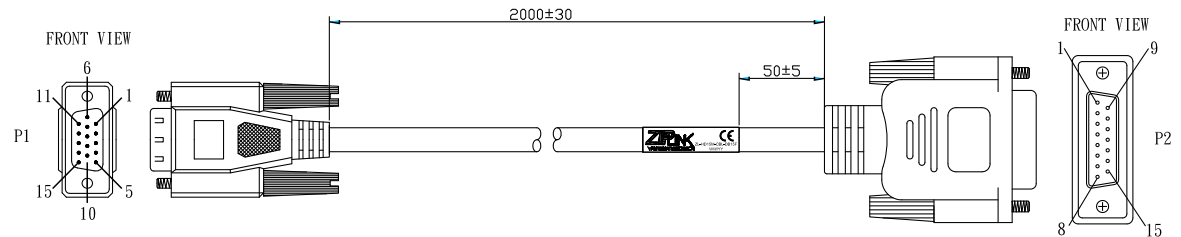
CN5 secondary encoder cables used to connect an external secondary encoder to the drive. Note that CN5 uses a wire not present in standard VGA cables (pin 8) - a standard VGA HD15 cable will not work, you must use one of these cables.

Cable Type	Part Number	Description	Use With	L	
				mm	inch
15-pin male to pigtail	ZL-HD15M-CBL-2P	ZIPLink communication cable, 15-pin D-sub HD15 male to pigtail, shielded, twisted pair.	All SureServo2 drives	2000 ± 30	78.74 ± 1.18
15-pin female to 15-pin male	ZL-HD15M-CBL-DB15F	ZIPLink communication cable, 15-pin female D-sub to 15-pin D-sub HD15 male, shielded, twisted pair. Use with ZL-RTB-DB15 breakout board.			

ZL-HD15M-CBL-2P Diagram



ZL-HD15M-CBL-DB15F Diagram



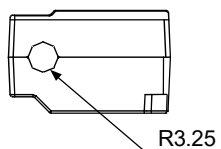
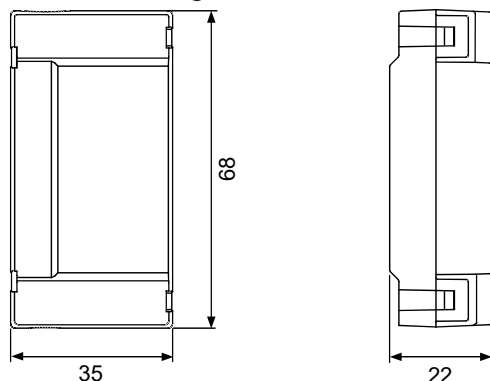
NOTE: Use with ZL-RTB-DB15 breakout board.

B.6 - EXTERNAL BATTERY

Encoders used with SureServo2 can be connected to an external battery box for power. This will allow the encoder to track position even when the servo power is off (results in an absolute positioning system). The BBOX mounts onto the encoder cable near the drive connector. Each encoder cable has a small mating connector that accepts the BBOX connector.

B.6.1 - BATTERY BOX

Part Number	Type	Use With	Connector	Battery
SV2-BBOX-1	Single battery box	All SureServo2 drives	SV2-BBOX-CBL	(1) AA lithium battery included

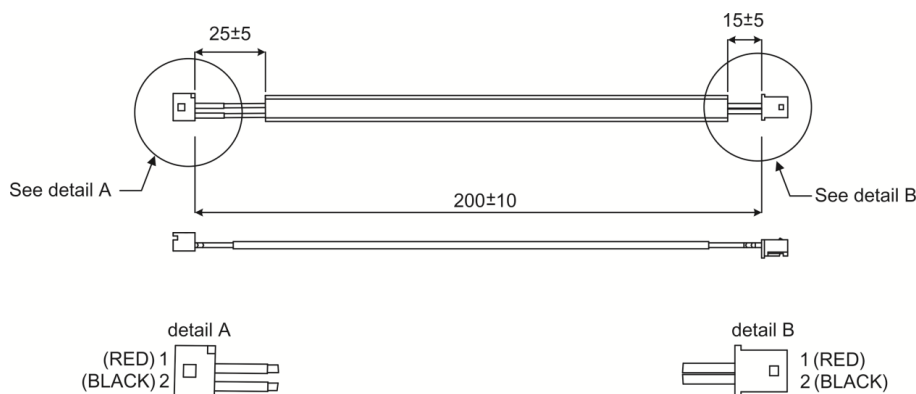
SV2-BBOX-1 Diagram

Unit: mm
Weight: 44 g

B.6.2 - BATTERY BOX CABLE

Optional. Use to mount the BBOX away from the encoder cable and drive if desired.

Part Number	Type	Use With	L	
			mm	inch
SV2-BBOX-CBL	Battery box connector cable	SV2-BBOX-1	200 ± 10	7.87 ± 0.39



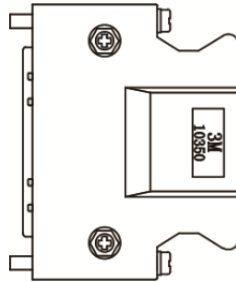
Unit: mm

B.7 - I/O CONNECTOR

Use this solder-type connector to create a custom CN1 cable. Not recommended if more than a few wires are needed. See SV2-CN1-CBL50-x or SV2-CN1-LTB20.

Part Number	Type	Use With
SV2-CN1-CON	Optional I/O connector	All SureServo2 drives

SV2-CN1-CON Diagram

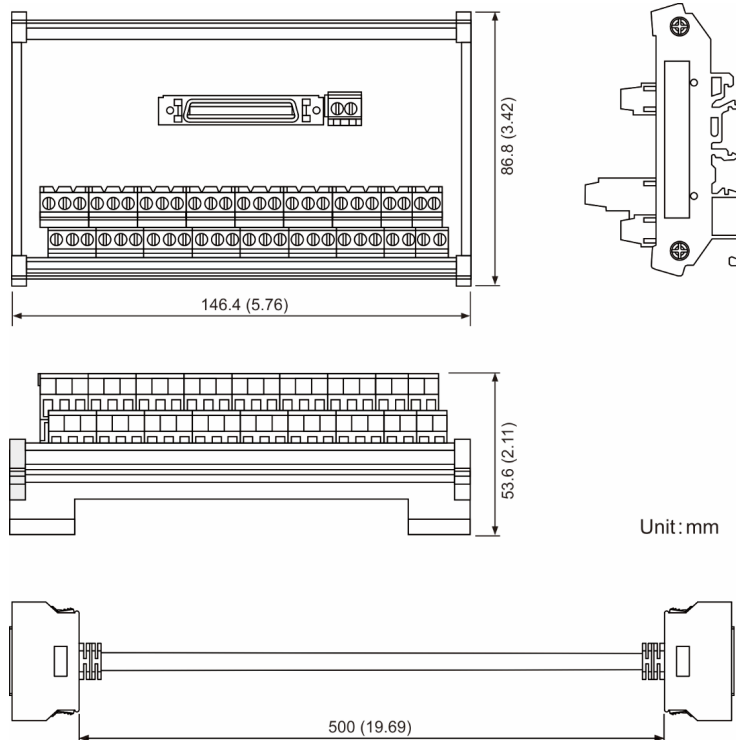


B.8 - ADDITIONAL TERMINAL OPTIONS

B.8.1 - TERMINAL BLOCK MODULE

Part Number	Type	Use With	L	
			mm	inch
SV2-CN1-RTB50	SureServo2 feedthrough module, 50-pole, DIN rail mount	All SureServo2 drives	–	–
SV2-CN1-CBL50	SureServo2 control cable with mating connectors		500	19.69
SV2-CN1-CBL50-1			1000	39.37
SV2-CN1-CBL50-2			2000	78.74

SV2-CN1-RTB50 and SV2-CN1-CBL50-x Diagram

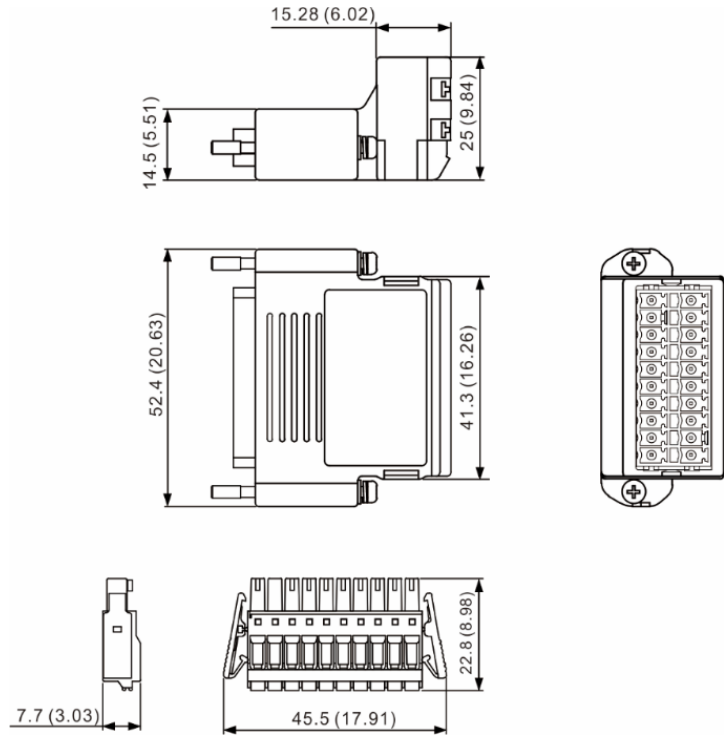


B.8.2 - DIRECT MOUNT FEEDTHROUGH MODULE

The SV2-CN1-LTB20 quick connector is designed for easy wiring and can be used with SureServo2 drives for applications that don't require too many I/O points. There are five digital inputs, four digital outputs, one Z phase open-collector output, and differential pulse command inputs.

Part Number	Type	Use With	L	
			mm	inch
SV2-CN1-LTB20	SureServo2 feedthrough module, 20-pole, direct mount.	All SureServo2 drives	–	–

SV2-CN1-LTB20

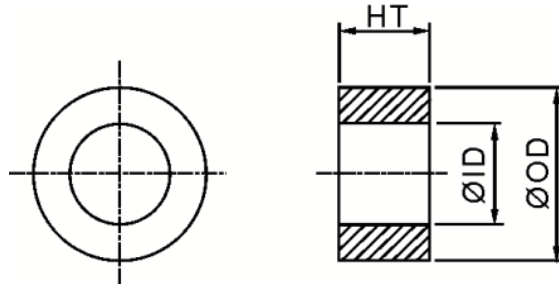


B.9 - FERRITE RING

Toroids are used to mitigate high frequency noise/EMI. See Section 2.6 for installation and use.

Part Number	Type	Use With	Diameter (mm [inches])		Height (mm [inches])
			Inner	Outer	
SV2-TOR1	Toroid ring for EMI/RFI filtering	All SureServo2 drives	44.0 ± 0.6 [1.73 ± 0.02]	68.0 ± 0.6 [1.73 ± 0.02]	13.5 ± 0.5 [1.73 ± 0.0197]

SV2-TOR1 Diagram



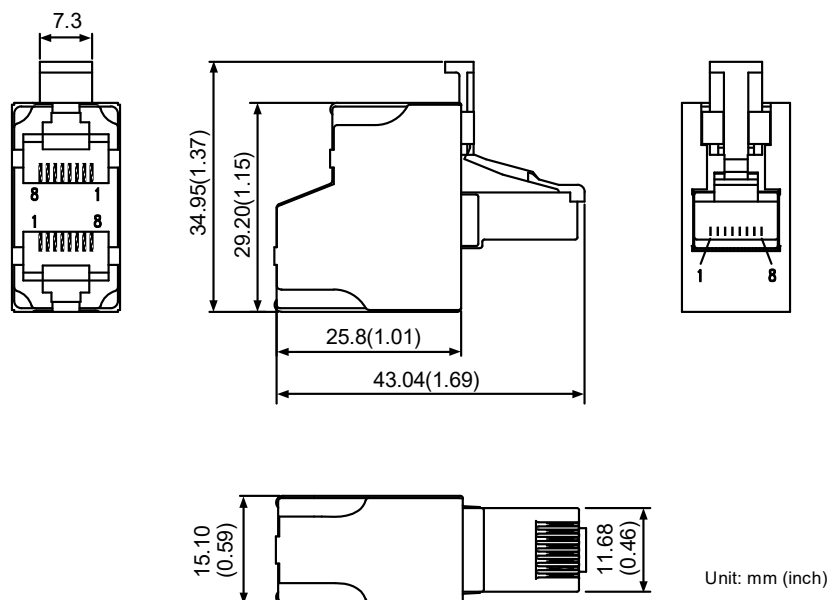
B.10 - EMI FILTERS

Servo drive model	Main Voltage Level	Drive Rated Input	Recommended Circuit Protection	GS Series Standard Performance EMI Filter	Roxburgh Good Performance EMI Filter	Roxburgh High Performance EMI Filter
SV2A-2040	100-120VAC 1-phase	3.98 A	8	EMF11AM21A	RES90F10	MIF10
	200-230VAC 1-phase	4.69 A	10	EMF11AM21A	RES90F10	MIF10
	200-230VAC 3-phase	2.76 A	5	EMF10AM23A	KMF306A	MIF310
SV2A-2075	100-120VAC 1-phase	7.73 A	15	EMF27AM21B	RES90F16	MIF16
	200-230VAC 1-phase	8.71 A	16	EMF27AM21B	RES90F16	MIF16
	200-230VAC 3-phase	5.09 A	10	EMF10AM23A	KMF310A	MIF310
SV2A-2150	100-120VAC 1-phase	12.56 A	20	EMF27AM21B	RES90S20	MIF23
	200-230VAC 1-phase	14.82 A	20	EMF27AM21B	RES90S20	MIF23
	200-230VAC 3-phase	8.09 A	15	EMF24AM23B	KMF318A	MIF316
SV2A-2200	100-120VAC 1-phase	18.03 A	30	EMF27AM21B	RES90S30	MIF330B
	200-230VAC 1-phase	20.83 A	30	EMF27AM21B	RES90S30	MIF330B
	200-230VAC 3-phase	11.36 A	20	EMF24AM23B	KMF325A	MIF323
SV2A-2300	200-230VAC 3-phase	14.52 A	30	EMF24AM23B	KMF336A	MIF330B
SV2A-2550	200-230VAC 3-phase	27.06 A	40	NA	KMF350A	MIF350
SV2A-2750	200-230VAC 3-phase	37.33 A	40	NA	KMF350A	MIF350
SV2A-2F00	200-230VAC 3-phase	69.95 A	70	NA	KMF3100A	MIF3100
SV2A-4040	460V 3-phase	1.5	3	EMF6A0M43A	KMF306A	MIF310
SV2A-4075	460V 3-phase	2.3	5	EMF6A0M43A	KMF306A	MIF310
SV2A-4150	460V 3-phase	5.0	7	EMF12AM43B	KMF310A	MIF310
SV2A-4200	460V 3-phase	6.3	10	EMF12AM43B	KMF318A	MIF316
SV2A-4300	460V 3-phase	9.9	15	EMF23AM43B	KMF325A	MIF323
SV2A-4550	460V 3-phase	16.8	25	NA	KMF336A	MIF330B
SV2A-4750	460V 3-phase	23.1	35	NA	KMF350A	MIF350
SV2A-4F00	460V 3-phase	36.7	50	NA	KMF370A	MIF375

B.11 - RS-485 SPLITTER

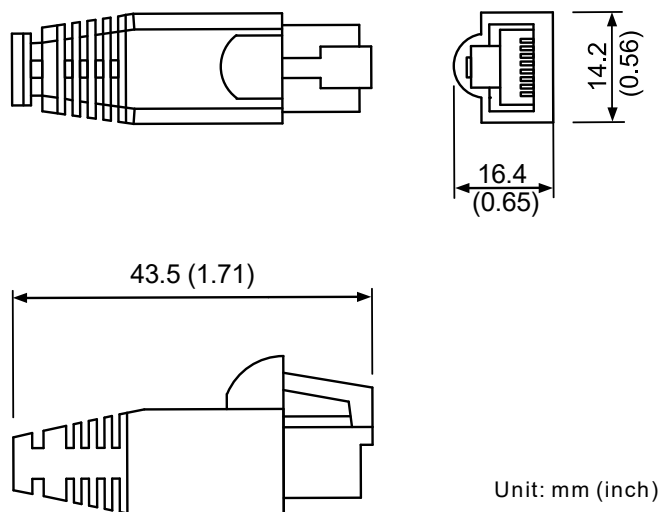
SureServo2 uses RJ45 connectors for CN3 (Modbus serial RS485). Use this 2-into-1 RJ45 adapter, standard RJ45 Ethernet cables, and an ZL-RTB-RJ45 breakout board to create an RS485 network with minimal customer wiring.

Part Number	Type	Use With
SV2-CN3-CON-2	SureServo2 splitter, (2) RS-485 (RJ45) to (1) RS-485 (RJ45)	All SureServo2 drives

SV2-CN3-CON-2 Diagram**B.12 - RS-485 TERMINATING RESISTOR**

Use this terminating resistor at the end of an RS485 network. Use this resistor combined with SV2-CN3-CON on the last drive on the network.

Part Number	Type	Use With
SV2-CN3-TR2	Terminating resistor, 120 ohm, RJ45 8P8C male.	All SureServo2 drives

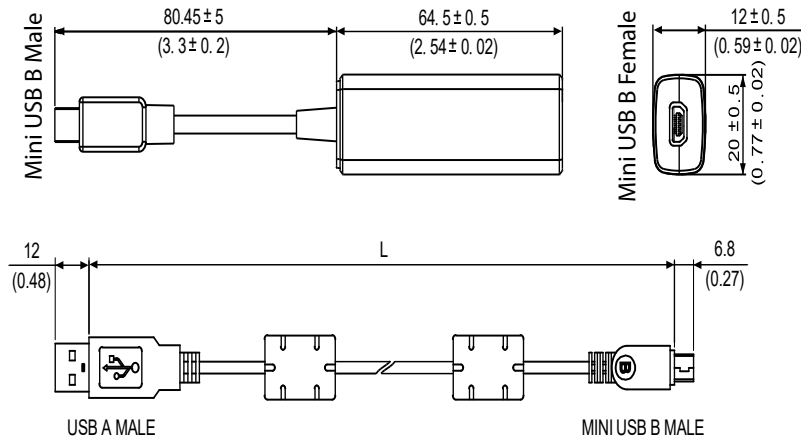
SV2-CN3-TR2 Diagram

B.13 - USB PROGRAMMING CABLE

Each USB programming cable consists of two parts: a standard USB A to miniB USB cable, and a USB miniB filter/isolator. The filter/isolator is used in noisy environments to ensure consistent communication with the drive. The standard cable will allow a PC's USB port to power the servo CPU. The filter/isolator will isolate the USB power to the servo (only allows comms).

Part Number	Type	Use With	L	
			mm	inch
SV2-PGM-USB15	Programming cable, USB A to miniB-USB	All SureServo2 drives	1500 ± 100	59 ± 4
SV2-PGM-USB30			3000 ± 100	118 ± 4

SV2-PGM-USBxx Diagram

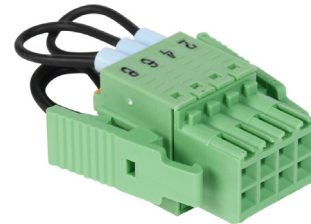


B.14 - REPLACEMENT PARTS**B.14.1 - CONNECTOR KIT**

Part Number	Type	Contents	Use With
SV2-CON-KIT	SureServo2 replacement connector kit	(1) SV2-CN10-STO STO connector (2) AC power connectors (1) Power resistor connector (1) Motor power connector (1) Wire insert tool	Up to 750W SureServo2 drives

SV2-CON-KIT**B.14.2 - STO (SAFE TORQUE OFF) CONNECTOR FOR CN10**

Part Number	Type	Use With
SV2-CN10-STO	Replacement SureServo2 STO connector	For use with all SureServo2 drives

**B.14.3 - SAFETY SPECIFICATIONS**

The SureServo2 series servo drive conforms to the following safety specifications:

Item	Description	Standard	Safety Data
SFF	Safe failure fraction	IEC61508	Channel1: 80.08% Channel2: 68.91%
HFT (Type A subsystem)	Hardware fault tolerance	IEC61508	1
SIL	Safety integrity level	IEC61508	SIL2
		IEC62061	SILCL2
PFH	Probability of dangerous failure per hour (h ⁻¹)	IEC61508	9.56x10 ⁻¹⁰
PFD _{av}	Average probability of failure on demand	IEC61508	4.18x10 ⁻⁶
Category	Category	ISO13849-1	Category 3
PL	Performance level	ISO13849-1	d
MTTF _d	Mean time to dangerous failure	ISO13849-1	High
DC	Diagnostic coverage	ISO13849-1	Low