Specification
for
Mitsubishi Electric AC Servo System
Encoder / Power supply brake cable

Type SC-AEPB3C□M-■-L

MITSUBISHI ELECTRIC
SYSTEM & SERVICE CO.,LTD

Note

Revision				Drawn	Check	Design	Approved
A	10 July, 2023			*N.Ishii*	*S.Kariya*	*T.Kasahara*	*D.Fukushima*

Send to								Date	Dwg
									X953503D70003-E06A
								Order	

1. SCOPE

This specification covers the requirements for the General purpose AC Servo Encoder / Power supply brake cable.

・SC-AEPB3C□M-■-L

※ The Products covered in this specification don't include the toxic substances in RoHS2 (Lead, Mercury, Cadmium, Hexavalent Chromium, PBDE, PBB, HBCDD, DEHP, BPP, DBP).

※ UL's Wiring Harnesses Traceability program provides traceability for this cable.

2. CABLE TYPE

SC - AEPB 3 C □ M - ■ - L

Sign	Bending life
L	Standard (For fixed part)

Sign	Cable lead out direction
A1	Motor shaft side
A2	Opposite of motor shaft

Sign	Length of cable
□	Refer to clause 4

Sign	Motor connection side connector specifications
3	1 connector / 2 cables (Power supply brake cable with shield)

Sign	Application
AEPB	Encoder / Power supply brake cable

3. APPLICABLE STANDARDS

Wire part : UL standard (UL 758 : AWM)

Application department	UL Style No.	Rated	
Encoder cable side	20276	80°C	30V
Power supply / brake cable side	2586	105°C	600V

4. LENGTH OF CABLE

0.5m or 1 to 20m

※The maximum cable length differs depending on the motor.
Refer to the cable length selection table "R9535021-018028-010" for details.

5. EXAMPLE OF PRINTING CABLE TYPE NAME

SC-AEPB3C□M-■-L ×××××××

※ □ is a figure from 0.5 or 1 to 20.
※ ■ is cable lead out direction from A1, A2.
※ ××××××× are the serial number for seven digits.

6. STRUCTURE AND CHARACTERISTICS

(1) Wire

Item		Unit	Specification		
			For encoder	For power supply / brake	
Structure		—	AWG22×3P	AWG18×4C＋AWG24×2C	
Conductor	Conductor size	—	AWG22	AWG18	AWG24
	Outer diameter	mm	Approx.0.8	Approx.1.3	Approx.0.6
Insulation	Material	—	PVC	ETFE	
	Outer diameter	mm	Approx.1.2	Approx.1.8	Approx.1.0
Twisted pair	Number of insulated core wire	—	2C	—	
	Outer diameter	mm	2.3	—	
Twisted	Number of pairs	—	3P	—	—
	Number of insulated core wire	—	—	4C	2C
Shield	Material	—	Tin coated copper braid	Tin coated copper braid	
Sheath	Material	—	Flame resisting PVC	Flame resisting PVC	
	color	—	Black	Black	
Overall diameter		mm	Approx. 7.5	Approx. 7.5	
Cable weight		kg/km	80	100	
Electrical characteristics	Insulation resistance	MΩ・km	Over 10	Over 100	
	Withstand voltage	V / for 1 min	AC500	AC2000	
Minimum bend radius		mm	6 times the overall diameter	6 times the overall diameter	
Flame retardant		—	UL1581 VW-1	UL1581 VW-1	

(2) Connector

Amplifier side	Encoder side	Type	Molex Japan Co., Ltd. 54599-1016 (Connector set)
		IP rating	IP20*1
	Power supply/ brake side	—	Discrete wires
Motor side		Type	Hirose Electric Co., Ltd. MT50W-8D/2D4ES-CVLD(7.5) (Connector set)
		IP rating	IP65*1

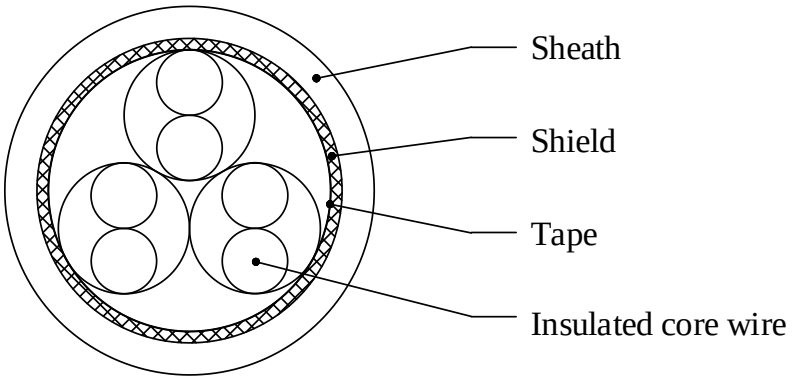
*1 The IP rating indicated is for the connector's protection against ingress of dust and water when coupled to a servo amplifier/servo motor. If the IP rating of the servo amplifier/servo motor differs from that of these connectors, overall IP rating depends on the lowest of all.

(3) Cable harness

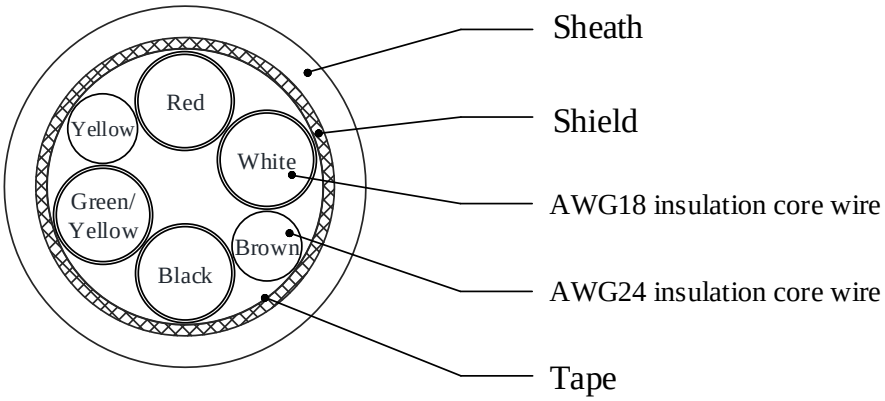
Environment	Ambient temperature	°C	0 to 60 (Without freezing)
	Ambient humidity	%RH	5 to 95 (Without condensation)
	Ambience	—	Indoors (no direct sunlight), no corrosive gas, inflammable gas, oil mist, or dust
Electrical characteristics	Insulation resistance	MΩ・km	Over 10
	Withstand voltage	V / for 1 min	For encoder : AC500 For power supply / brake : AC1800

7. STRUCTURAL DRAWING

7.1. For encoder

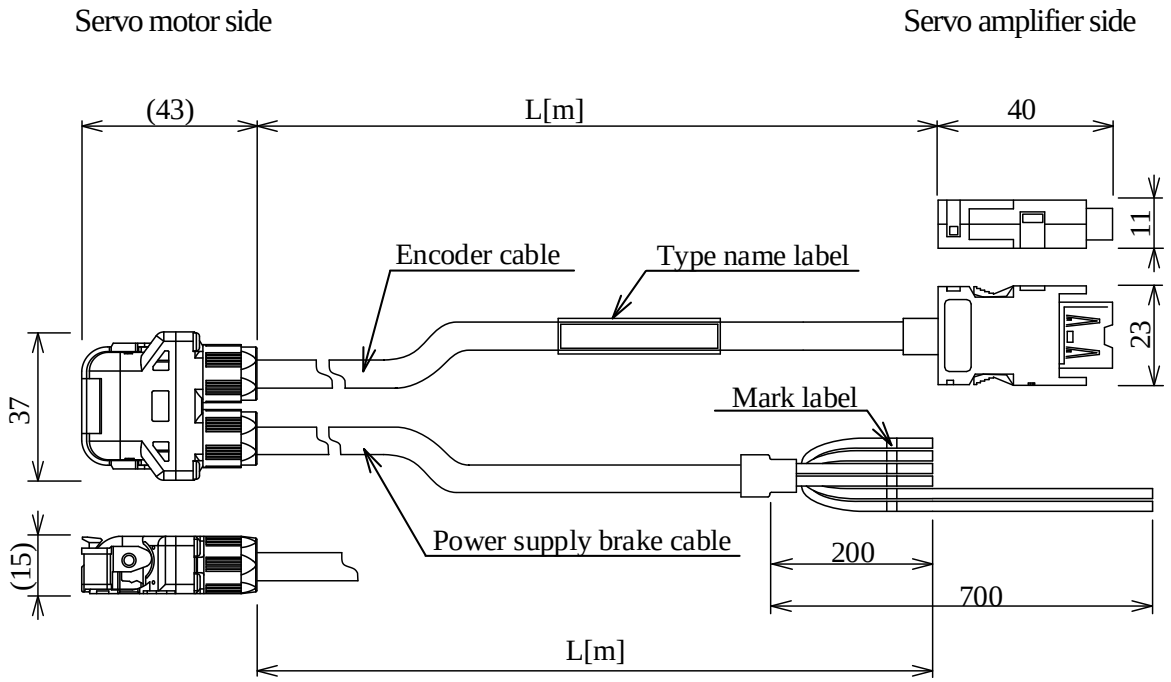


7.2. For power supply / brake



8. OUTLINE DRAWING

[Unit : mm]



※ This outline drawing is for the cable lead out direction "A1".
The cable lead out direction "A2" reverses the position of the encoder cable and the power supply brake cable.

Refer to the following table for mark label and insulation color.

Application	Mark label	Insulation color
For motor power supply	U	Red
	V	White
	W	Black
	E	Green / Yellow
For brake circuit	B1	Yellow
	B2	Brown