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

Type SC-AEP3C□M-■-H

MITSUBISHI ELECTRIC
SYSTEM & SERVICE CO.,LTD

Note

Revision				Drawn	Check	Design	Approved
A	2 Aug.,2022			*N.Ishii*	*S.Kariya*	*T.Kasahara*	*D.Fukushima*
B	10 July, 2023						
C	7 June 2024						

Send to								Date	Dwg
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								Order	

1. SCOPE

This specification covers the requirements for the Mitsubishi Electric AC Servo System Encoder / Power supply cable.

・SC-AEP3C□M-■-H

※ The products specified in this specification comply with the EU RoHS Directive.
※ UL's Wiring Harnesses Traceability program provides traceability for this cable.

2. CABLE TYPE

SC - AEP 3 C □ M - ■ - H

Sign	Bending life
H	Long bending life

Sign	Cable lead out direction
A1	Motor shaft side
A2	Opposite of motor shaft
A5	Vertical side

Sign	Length of cable
□	Refer to clause 4

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

Sign	Application
AEP	Encoder / Power supply 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 cable side	2586	105°C	600V

4. LENGTH OF CABLE

0.5m 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-AEP3C□M-■-H ×××××××

※ □ is a figure from 0.5 to 20.
※ ■ is cable lead out direction from A1, A2, or A5.
※ ××××××× are the serial number for seven digits.

6. STRUCTURE AND CHARACTERISTICS

(1) Wire

Item		Unit	Specification	
			For encoder	For power supply
Structure		—	AWG22×3P	AWG18×4C
Conductor	Conductor size	—	AWG22	AWG18
	Outer diameter	mm	Approx.0.8	Approx.1.4
Insulation	Material	—	ETFE	ETFE
	Outer diameter	mm	Approx.1.2	Approx.1.9
Twisted pair	Number of insulated core wire	—	2C	—
	Outer diameter	mm	Approx.2.3	—
Twisted	Number of pairs	—	3P	—
	Number of insulated core wire	—	—	4C
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
Approx. weight		kg/km	80	90
Electrical characteristics	Insulation resistance	MΩ・km	Over 100	Over 100
	Withstand voltage	V / for 1 min	AC500	AC2000
Minimum bend radius		mm	6 times the overall diameter	6 times the overall diameter
Bending life		—	Over 1 million times*1 (by Minimum bend radius)	Over 1 million times*1 (by Minimum bend radius)
Flame retardant		—	UL1581 VW-1	UL1581 VW-1

*1 It is a test outcome, and not a guaranteed value. (The performance is different according to customer's environment.)

(2) Connector

Amplifier side	Encoder side	Type	Molex Japan Co., Ltd. 54599-1016 (Connector set)
		IP rating	IP20*2
	Power supply side	—	Discrete wires
Motor side	Cable lead out direction A1, A2	Type	Hirose Electric Co., Ltd. MT50W-8D/2D4ES-CVLD(7.5) (Connector set)
		IP rating	IP65*2
	Cable lead out direction A5	Type	Hirose Electric Co., Ltd. MT50W-8D/2D4ES-CVSD(7.5) (Connector set)
		IP rating	IP65*2

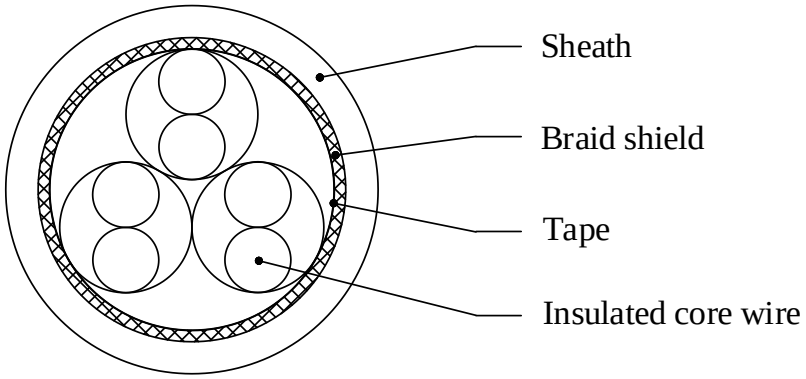
*2 The IP rating indicated is for the connector's protection against ingress of dust and water when coupled to a servo amplifier/servo motor. If the IP rating of the servo amplifier/servo motor differs from that of these connectors, overall IP rating depends on the lowest of all.

(3) Cable harness

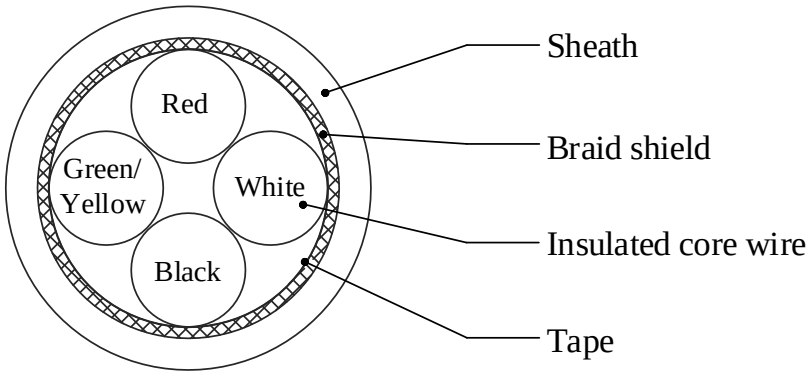
Environment	Ambient temperature	℃	0 to 60 (non-freezing)
	Ambient humidity	%RH	5 to 95 (non-condensing)
	Ambience	—	Indoors (no direct sunlight), no corrosive gas, inflammable gas, oil mist, or dust
Electrical characteristics	Insulation resistance	MΩ・km	Over 10
	Withstand voltage	V / for 1 min	For encoder : AC500 For power supply : AC1800

7. STRUCTURAL DRAWING

7.1. For encoder



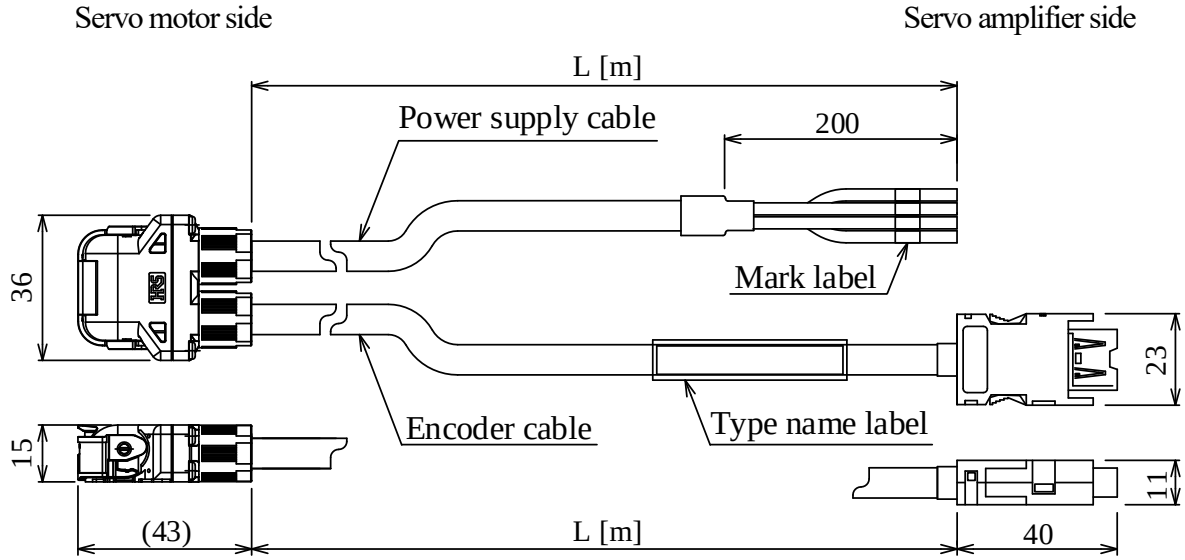
7.2. For power supply



8. OUTLINE DRAWING

(1) SC-AEP3C□M-A1-H / SC-AEP3C□M -A2-H

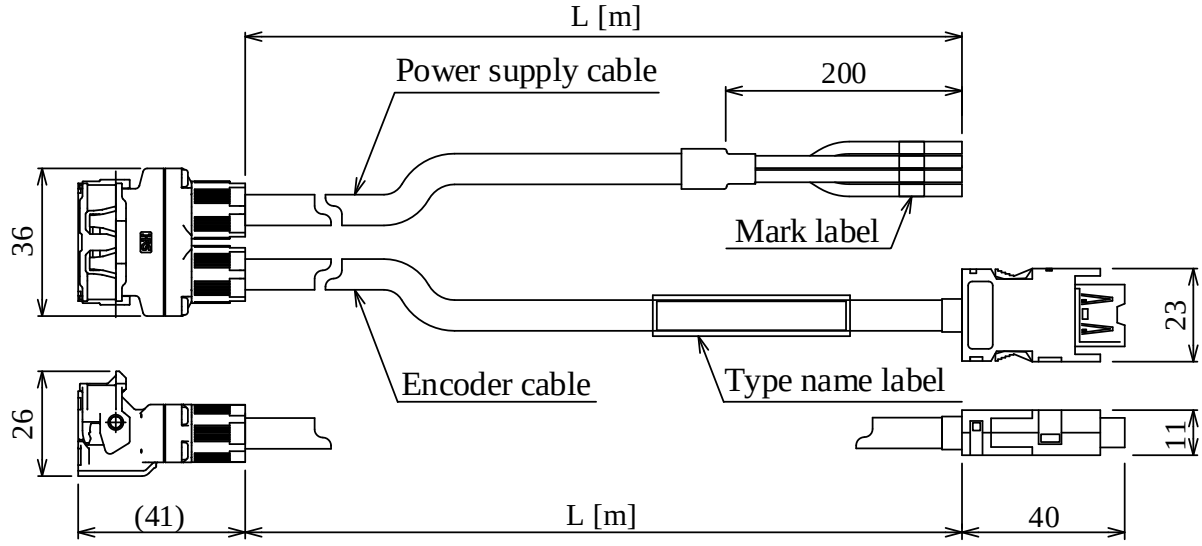
[Unit : mm]



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

(2) SC-AEP3C□M-A5-H

[Unit : mm]



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

Mark label	Insulation color
U	Red
V	White
W	Black
E	Green / Yellow