Factory Automation Solution Parts Catalog

SYSTEM & SERVICE

e-F@ctory

MITSUBISHI ELECTRIC SYSTEM & SERVICE CO., LTD.

The FA solution parts are products which support system constructions by corresponding to various connection environments between FA equipment.

Cables / Network device-related products

Coming soon CC-Link IE Field Basic switching hub

Sequencer

MELSECNET

Optical fiber cable

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CC-Link IE Control

Optical fiber cable

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Optical media converter

Page1-14

Connection terminal

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CC-Link IE Field

Ethernet cable

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Industrial switching hub

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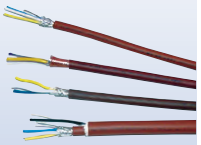
CC-Link

CC-Link cable



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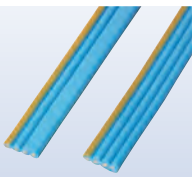
CC-Link/LT

Connection accessory



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Renewal Tool-related products

Servo

AC Servo Renewal Tool

MR-J2S Renewal Tool

Page 2-2

Inverter-related products

Digital frequency meter

Page 3-2

Analog frequency meter

Page 3-3

Peripheral member

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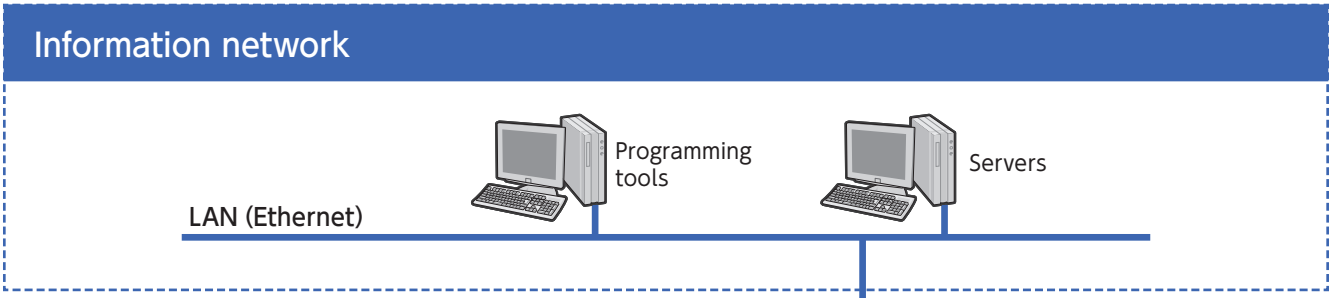
Cables / Network device-related products

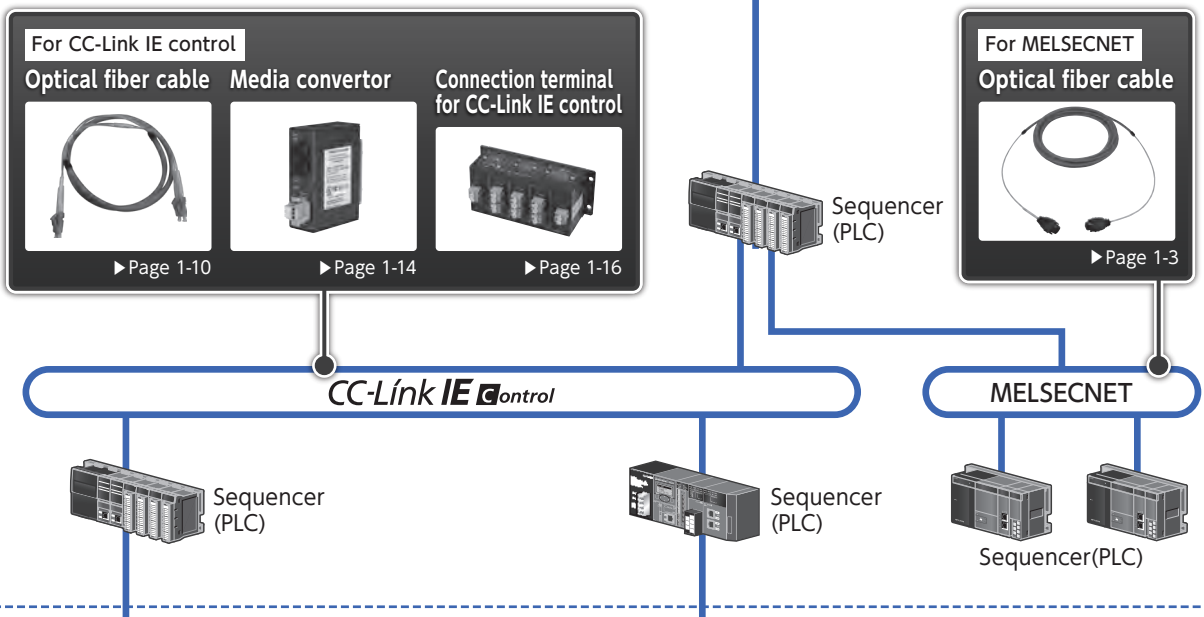
Network cable / Network device

Cables / Network device-related products

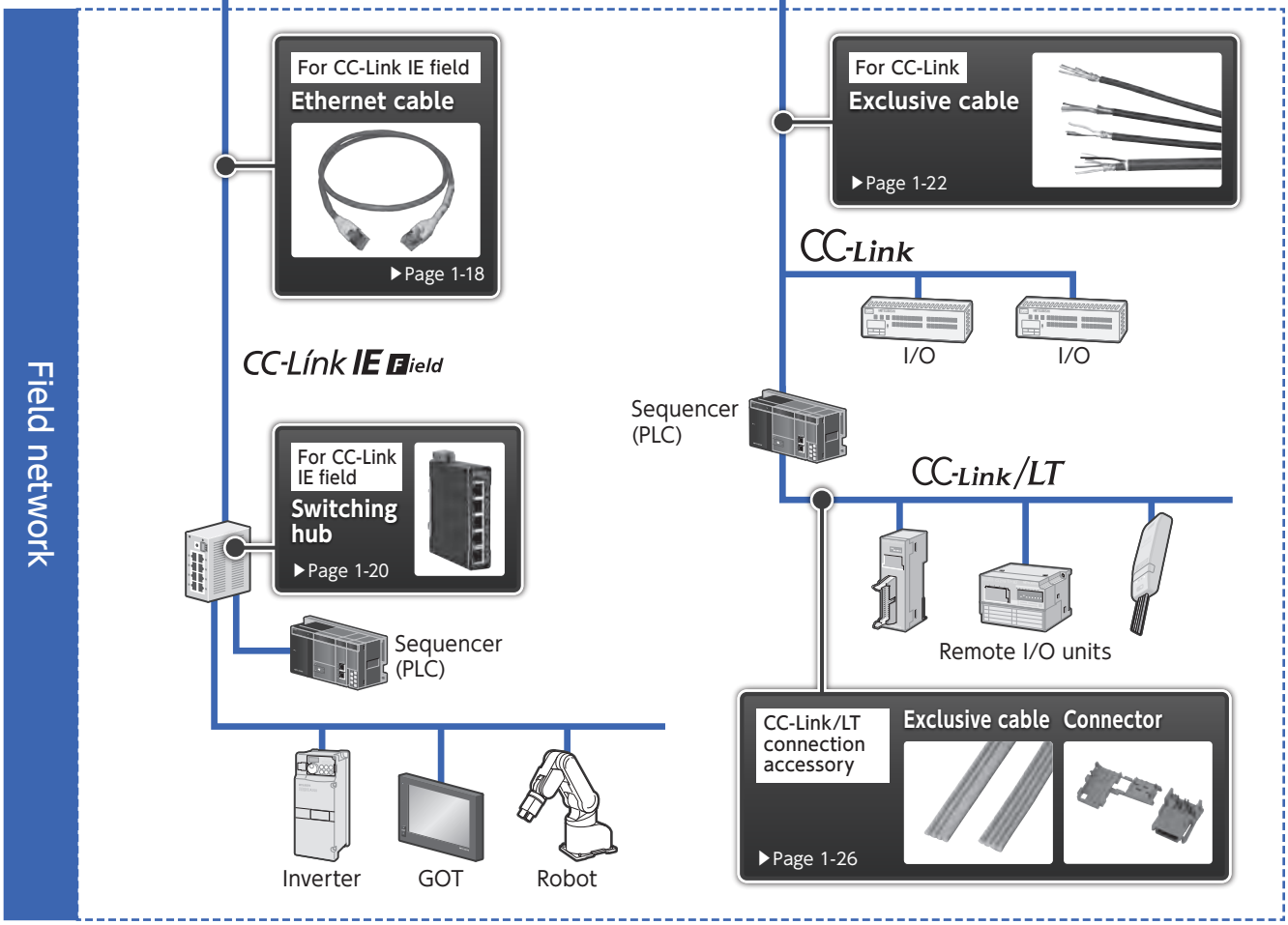
Information network



Controller network



Field network



Optical fiber cable for MELSECNET

Optical fiber cable for Mitsubishi general purpose sequencers, MELSECNET

Features

■It shall enable to built highly reliable network

Based on MELSEC's outstanding design philosophy, we offer optical fibers that can be used safely with carefully selected materials and advanced processing technology.

■Extensive specifications of cable

A wide range of lineup is available to select the appropriate cable according to the usage environment.

■Large capacity and super high speed transmission are achieved

Broadband, large capacity and super high speed transmission is possible.
Also the construction of highly reliable and flexible system with high noise tolerance is achieved.

■Highly reliable terminal processing and fusion work on site

We offer connector installation work and fusion work on site with security and satisfaction.

Optical fiber cable selection table

Please select the cable type from the table below according to your MELSECNET usage environment, distance between stations.

<table>
<tr><th rowspan="3">Network names</th><th colspan="3">SI cable</th><th colspan="2">GI cable</th><th rowspan="3">Usage environment</th></tr>
<tr><th rowspan="2">Connection models</th><th colspan="2">Station to station distance (m)</th><th rowspan="2">Connection models</th><th>Station to station distance (m)</th></tr>
<tr><th>1 to 400</th><th>1 to 1000</th><th>1 to 2000</th></tr>
<tr><td rowspan="4">MELSECNET/H
25 Mbps</td><td rowspan="4">〈Sequencer model name〉
QJ71LP21-25
QJ71LP21S-25
QJ72LP25-25
〈GOT model name〉
GT15-J71LP23-25
〈Interface board model name for personal computer〉
Q80BD-J71LP21-25
Q81BD-J71LP21-25
Q80BD-J71LP21S-25</td><td>AS-A</td><td>QH-A</td><td rowspan="4"></td><td rowspan="4"></td><td>In a panel (A)</td></tr>
<tr><td>AS-B</td><td>QH-B</td><td>Indoor (B)</td></tr>
<tr><td colspan="2">QL-C</td><td>Outdoor (C)</td></tr>
<tr><td>AS-D</td><td>QH-D/
QL-DL</td><td>Outdoor
(reinforcement)(D)</td></tr>
<tr><td rowspan="4">MELSECNET/H
10 Mbps
MELSECNET/10</td><td rowspan="4">〈Sequencer model name〉
QJ72LP25 A1SJ71QLP21
AJ71QLP21 A1SJ71QLP21S
AJ71QLP21S A1SJ71LP21
AJ71LP21 A1SJ72QLP25
AJ72QLP25
AJ72LP25
〈GOT model name〉
GT15-J71LP23-25
〈Interface board model name for personal computer〉
Q80BD-J71LP21-25
Q81BD-J71LP21-25
Q80BD-J71LP21S-25</td><td colspan="2">AS-A/QH-A</td><td rowspan="4">〈Sequencer model name〉
QJ71LP21G
QJ72LP25G
AJ71QLP21G
AJ71LP21G
AJ72QLP25G
AJ72LP25G
〈Interface board model name for personal computer〉
Q80BD-J71LP21G</td><td>SG-A/SG-AW</td><td>In a panel (A)</td></tr>
<tr><td colspan="2">AS-B/QH-B</td><td>SG-BV</td><td>Indoor (B)</td></tr>
<tr><td colspan="2">QL-C</td><td>—</td><td>Outdoor (C)</td></tr>
<tr><td colspan="2">AS-D/QH-D/QL-DL</td><td>SG-DL/SG-EL</td><td>Outdoor
(reinforcement)(D)</td></tr>
<tr><td rowspan="4">MELSECNET(Ⅱ)</td><td rowspan="4">A1SJ71AP21</td><td colspan="2">AS-A</td><td rowspan="4"></td><td rowspan="4"></td><td>In a panel (A)</td></tr>
<tr><td colspan="2">AS-B</td><td>Indoor (B)</td></tr>
<tr><td colspan="2">QL-C</td><td>Outdoor (C)</td></tr>
<tr><td colspan="2">AS-D/QL-DL</td><td>Outdoor
(reinforcement)(D)</td></tr>
</table>

* Type QH can not be used for MELSECNET(Ⅱ)
* Please use the dedicated cable above when using with high speed communication

<table>
<tr><th rowspan="3">Network names</th><th colspan="2">Sequencer model name</th><th rowspan="3">Usage environment</th><th colspan="3">Station to station distance (m)</th></tr>
<tr><th rowspan="2">SI cable</th><th rowspan="2">GI cable</th><th colspan="2">SI cable</th><th>GI cable</th></tr>
<tr><th colspan="2">1 to 1000</th><th>1 to 2000</th></tr>
<tr><th></th><th></th><th></th><th></th><th>H-PCF</th><th>Broadband</th><th>GI</th></tr>
<tr><td rowspan="4">CC-Link
(repeater unit)</td><td rowspan="4">AJ65SBT-RPS</td><td rowspan="4">AJ65SBT-RPG</td><td>In a panel (A)</td><td>AS-A</td><td>QH-A</td><td>SG-A/SG-AW</td></tr>
<tr><td>Indoor (B)</td><td>AS-B</td><td>QH-B</td><td>SG-BV</td></tr>
<tr><td>Outdoor (C)</td><td>-</td><td>QL-C</td><td>-</td></tr>
<tr><td>Outdoor
(reinforcement)(D)</td><td>AS-D</td><td>QH-D/QL-DL</td><td>SG-DL</td></tr>
</table>

Network names	Usage environment	The maximum station to station distance (m)
		50
MELSECNET/MINI	In a panel (A/C)	M-A/M-C
	Indoor (reinforcement)(B)	M-B

Cable types by laying environment

Application classification \ Model names and types of cable		AS-A QH-A SG-A SG-AW	AS-B QH-B	SG-BV	QL-C	AS-D QH-D	QL-DL SG-DL SG-EL	PICOFLEC	PICOCABLE
Indoor environment	Indoor, piping	×	△1	○	△1	○	○	○	○
	Ruck	△2	○1	○	○1	○	○	○	○
	Duct	△2	○1	○	○1	○	○	○	○
	Free access	△2	○1	○	○1	○	○	○	○
	In a panel	○	△5	△5	△5	△5	△5	○	△5
Outdoor environment	Underground pipe passage	Not applicable			△1,3	△3	○	×	○
	Ruck				○1	○	○	×	○
	Trough				△2,3	△3	○	×	○
	Aerial				×	△4	△4	×	△4
	Direct buried				×	×	×	×	○
	Submerged environment				×	×	○2	×	○3

- In any cases, please lay cables so as not to be under other electric wires etc.
- Even indoors, please use outdoor cables if there are risks of being flooded or temporary submerged.

○: Applicable

△: Conditionally applicable

×: Not applicable

○1: Applicable when the pulling wiring is not adopted.
○2: Temporary submersion is applicable. (Permanent submersion is not applicable)
○3: Permanent submersion is applicable. (excepting flexible parts)
△1: Applicable when the feed wiring using exclusive route of light is adopted. (Not applicable to the pulling wiring)
△2: Applicable when outer force is not exerted by protecting the bent parts and contact parts.
△3: Applicable not to be submerged.
△4: Applicable when laying an indication line separately and fix a cable along the line.
△5: Applicable when there is sufficient bending radius or storage space.

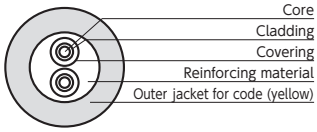
MELSECNET series

For inside the panel (SI cable)

Type AS-A H-PCF

- Suitable for short-range transmission
- Low transmission loss

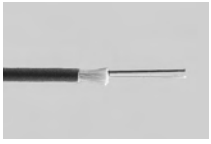
Station to station distance	MELSECNET/H 25 Mbps	400 m
	MELSECNET/10/H 10 Mbps	1000 m
	MELSECNET(II)	1000 m
Number of cable cores		2 cores
Type		H-PCF
Connector for use		DL-72ME

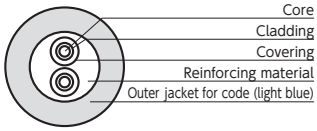


Type QH-A Broadband H-PCF

- Suitable for broadband short-range transmission
- Low transmission loss

Station to station distance	MELSECNET/H 25 Mbps	1000 m
	MELSECNET/10/H 10 Mbps	1000 m
	MELSECNET(II)	—
Number of cable cores		2 cores
Type		Broadband H-PCF
Connector for use		DL-72ME



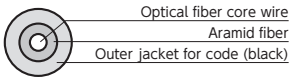


For inside the panel (GI cable)

Type SG-A Type GI Quartz glass fiber

- As a relay cable for MELSEC, suitable for long-range transmission
- Low transmission loss

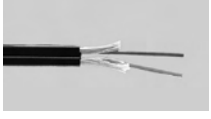
Station to station distance	MELSECNET/10/H 10 Mbps	2000 m
	MELSECNET(II)	2000 m
Number of cable cores		Single core
Type		Type GI
Connector for use		DL6-CP

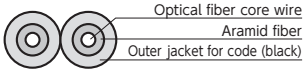


Type SG-AW Type GI Quartz glass fiber

- As a relay cable for MELSEC, suitable for long-range transmission
- Low transmission loss

Station to station distance	MELSECNET/10/H 10 Mbps	2000 m
	MELSECNET(II)	2000 m
Number of cable cores		2 cores
Type		Type GI
Connector for use		DL6-CP



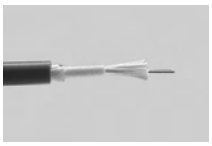


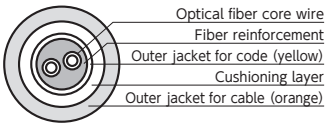
For indoor (SI cable)

Type AS-B H-PCF

·Suitable for short and middle-range transmission
·Low transmission loss

Station to station distance	MELSECNET/H 25 Mbps	400 m
	MELSECNET/10/H 10 Mbps	1000 m
	MELSECNET(II)	1000 m
Number of cable cores		2 cores
Type		H-PCF
Connector for use		DL-72ME

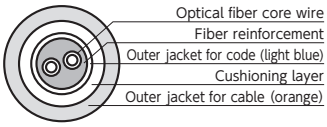




Type QH-B Broadband H-PCF

·Suitable for short and middle-range broadband transmission
·Low transmission loss

Station to station distance	MELSECNET/H 25 Mbps	1000 m
	MELSECNET/10/H 10 Mbps	1000 m
	MELSECNET(II)	—
Number of cable cores		2 cores
Type		Broadband H-PCF
Connector for use		DL-72ME

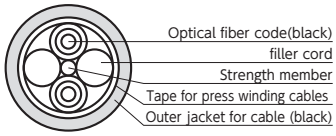


For indoor (GI cable)

Type SG-BV Type GI Quartz glass fiber

·Suitable for long-range transmission
·Low transmission loss

Station to station distance	MELSECNET/10/H 10 Mbps	2000 m
	MELSECNET(II)	2000 m
Number of cable cores		2 cores/4 cores/6 cores
Type		Type GI
Connector for use		DL6-CP

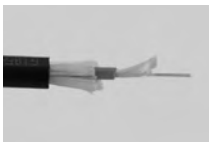


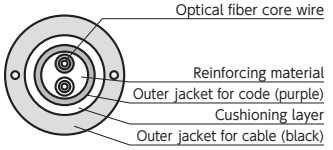
For outdoor (SI cable)

Type QL-C Broadband Quartz glass fiber

·Suitable for medium-range broadband transmission
·Available for outdoor environment

Station to station distance	MELSECNET/H 25 Mbps	1000 m
	MELSECNET/10/H 10 Mbps	1000 m
	MELSECNET(II)	1000 m
Number of cable cores		2 cores
Type		Broadband/Quartz glass
Connector for use		CA7003

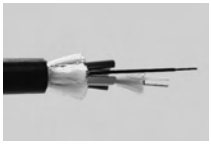


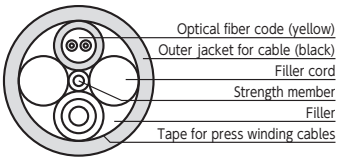


Type AS-D Reinforced H-PCF

·Suitable for medium-range broadband transmission
·Available for outdoor environment

Station to station distance	MELSECNET/H 25 Mbps	400 m
	MELSECNET/10/H 10 Mbps	1000 m
	MELSECNET(II)	1000 m
Number of cable cores		2 cores/4 cores/ 6 cores/8 cores
Type		H-PCF
Connector for use		DL-72ME

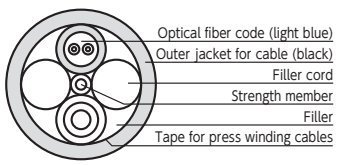




Type QH-D Reinforced Broadband H-PCF

·Suitable for medium-range broadband transmission
·Available for outdoor environment

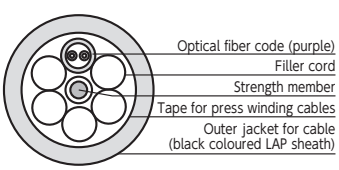
Station to station distance	MELSECNET/H 25 Mbps	1000 m
	MELSECNET/10/H 10 Mbps	1000 m
	MELSECNET(II)	—
Number of cable cores		2 cores/4 cores/ 6 cores/8 cores
Type		Broadband H-PCF
Connector for use		DL-72ME



Type QL-DL Reinforced Broadband Quartz glass fiber

·Suitable for medium-range broadband transmission
·Available for outdoor environment
·Waterproof specification

Station to station distance	MELSECNET/H 25 Mbps	1000 m
	MELSECNET/10/H 10 Mbps	1000 m
	MELSECNET(II)	1000 m
Number of cable cores		2 cores*
Type		Broadband/Quartz glass
Connector for use		CA7003



* 4 cores, 6 cores and 8 cores are built-to-order products

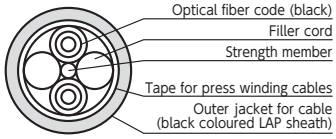
MELSECNET series

For outdoor (GI cable)

Type SG-DL Type GI Quartz glass fiber

·Suitable for long-range transmission
·Available for outdoor environment
·Waterproof specification

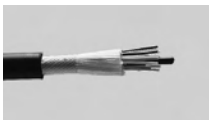
Station to station distance	MELSECNET/H 10 Mbps	2000 m
	MELSECNET(II)	2000 m
Number of cable cores		2 cores/4 cores/ 6 cores/8 cores
Type		Type GI
Connector for use		DL6-CP

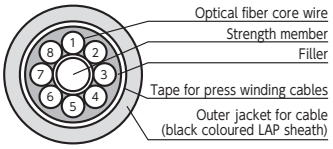


Type SG-EL Layer Twisted Type GI Quartz glass fiber (Eco-cable: Eco-friendly cable)

·Suitable for long-range transmission
·Available for outdoor environment
·Excellent cost performance
·Waterproof specification
·Not able to install connectors

Station to station distance	MELSECNET/H 10 Mbps	2000 m
	MELSECNET(II)	2000 m
Number of cable cores		2 cores/4 cores/ 6 cores/8 cores
Type		Type GI
Connector for use		Fusion splicing





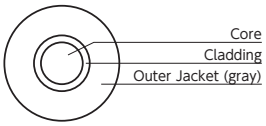
MELSECNET/MINI series

For inside the panel

Type M-A Plastic fiber cable

·Suitable for short-range transmission
·Flame retardant PVC coated (UL Standards: VW-1)

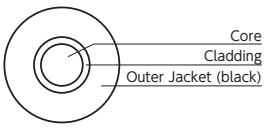
Station to station distance	MELSECNET/MINI	50 m
Number of cable cores		Single core
Type		Type SI
Connector for use		CA9104AP



Type M-C Plastic fiber cable

·Suitable for short-range transmission
·Polyethylene coated (excellent water resistance)

Station to station distance	MELSECNET/MINI	50 m
Number of cable cores		Single core
Type		Type SI
Connector for use		CA9104AP

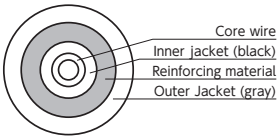


For indoor

Type M-B Plastic fiber cable

·Suitable for short-range transmission

Station to station distance	MELSECNET/MINI	50 m
Number of cable cores		Single core
Type		Type SI
Connector for use		CA9104AP



Reinforced optical fiber cables

This optical fiber cable is 3 times stronger than our standard cables.

PICOFLEC

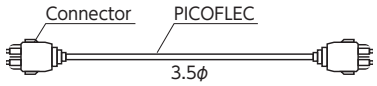
By applying flame-retardant PVC coating treatment to the stainless steel flexible pipe, the strength (lateral pressure, tension) of the optical fiber is three times stronger than our standard products and the usability has been significantly improved.

①As for a device side terminal cable, suitable for relatively short distance laying.
②Unnecessary to install a protective pipe, so construction cost can be reduced.
③The optical fiber will not be disconnected by combustion in a short time (1000℃ for about 5 minutes).
④The standard color of the flexible tube is orange. However, other colors can be specified.
Black (B), Green (G), Yellow (Y), Blue (S), Red (R), White (H) and Ash (N)

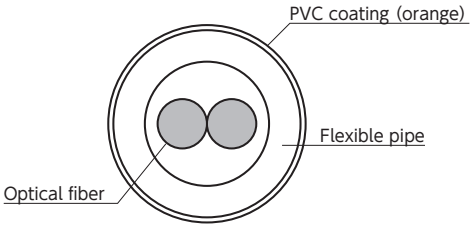
PLJ n/n DLH2018*1, 2

		2 core	4 core
Cable	Diameter*3	3.5 mm (1 to 300 m) 4.8 mm (301 to 600 m) 6.0 mm (601 to 1000 m)	6.0 mm (1 to 300 m) 7.0 mm (301 to 600 m)
	Weight*3	25 kg/km (1 to 300 m) 30 kg/km (301 to 600 m) 49 kg/km (601 to 1000 m)	49 kg/km (1 to 300 m) 55 kg/km (301 to 600 m)
Core wire (optical fiber)		H-PCF	
Connector		DL-72ME	
Outer jacket		Flexible stainless steel metal pipe + Flame retardant PVC coated	
Allowable bending radius		40 mm	
Allowable tension		147 N	
Allowable lateral pressure		2450 N/50 mm	
Service temperature range		-20 to 70℃	
Transmission loss		6 dB/km or less (λ: 0.85 μm)	

Form for 2-core type



Structure for 2-core type



*1. n/n indicates the number of connectors. (1/1 for double-ended connector.)
*2. Please contact us separately for color, length of Flec Cables.
*3. The diameter and weigh vary with the cable length. For 4 cores, the maximum length of cable is 600m.

PICOCABLE

The PICOCABLE is a combination of PICOFLEC at both ends, with PICOCABLE at the center which is a long semi-seamless tube (stainless steel tube) and the optical fibers are passed through. The performance of strength (lateral pressure, tension) is enhanced compared to the standard cables and the usability has been significantly improved. As for a main cable, suitable for relatively long distance.

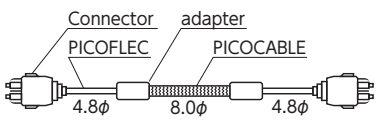
①This cable can be used in a wide range of laying environments.
②Laying is easy with the same handling methods as regular cables.
③Laying costs can be reduced depending on laying method of cable conduit,etc.
④The standard color of the flexible tube is orange. However, other colors can be specified.
Black (B), Green (G), Yellow (Y), Blue (S), Red (R), White (H) and Ash (N)

* For more than 100 m of cable length, a simple pooling eye is attached to one side of cable. (Attaching a pooling eye to both side of cable is possible. For less than 100 m of cable length is also available.) Please contact us separately for 6 cores or 8 cores.

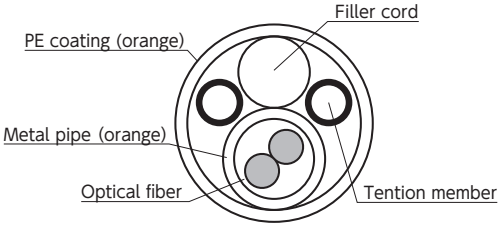
PCJ n/n DLH2026*1, 2

		2 cores	4 cores	6 cores	8 cores
Cable	Diameter	8.3 mm		10.2 mm	
	Weight	65 kg/km		75 kg/km	
Core wire (optical fiber)		H-PCF			
Connector		DL-72ME			
Outer jacket		Stainless steel semi-seamless metal pipe + PE coating			
Allowable bending radius		80 mm		100 mm	
Allowable tension	PICOFLEC	147 N			
	PICOCABLE	980 N			
Allowable lateral pressure	PICOFLEC	2450 N/50 mm			
	PICOCABLE	7840 N/50 mm			
Service temperature range		-20 to 70℃			
Transmission loss		6 dB/km or less (λ: 0.85 μm)			

Form for 2-core type



Structure for 2-core type



*1. n/n indicates the number of connectors. (1/1 for double-ended connector.)
*2. Please contact us separately for color, length of Flec Cables.

Optical fiber cable specification

Optical fiber cable SI Type

Use	In the panel		Indoor		Outdoor	Outdoor reinforced type		
Cable type name	AS-A	QH-A	AS-B	QH-B	QL-C	AS-D	QH-D	QL-DL
Type	H-PCF	Broadband H-PCF	H-PCF	Broadband H-PCF	Broadband quartz glass	H-PCF	Broadband H-PCF	Broadband quartz glass
Core (μm)	200	200	200	200	185	200	200	185
Cladding (μm)	250	250	250	250	230	250	250	230
Transmission loss (dB/km)	6.0*1	5.0*1	6.0*1	5.0*1	5.5*1	6.0*1	5.0*1	5.5*1
Connector for use	DL-72ME	DL-72ME	DL-72ME	DL-72ME	CA7003	DL-72ME	DL-72ME	CA7003
Outside diameter (mm)	2.8	2.8	6.0	6.0	7.5	10.6	10.6	14.0
Outer jacket color	Yellow	Light blue	Orange	Orange	Black	Black	Black	Black
Print display	—	—	MELSECNET OPTICAL FIBER CABLE + Model name					
Outer Jacket material	PVC	PVC	PVC	PVC	PVC	Outer: PE Inner: PVC	Outer: PE Inner: PVC	PE LAP
Approximate net weight (kg/km)	7.0	7.0	30	30	50	85	85	170
Allowable tension (N)	196	196	196	196	150	735	735	1600
Allowable bending radius (mm)	30*2	30*2	100*2	100*2	60*2	100*2	100*2	140*2
Service temperature range (℃)	-20 to 70	-20 to 70	-20 to 70	-20 to 70	-20 to 70	-20 to 70	-20 to 70	-20 to 70
Maximum length of one unit (m)	1000	1000	1000	1000	1000	1000	1000	1000

*1. This is a numerical value when the wavelength is 0.85μm. (The central emission wavelength of the measurement light source.)
*2. Both are the bending radius when the cables are fixed. (no load)

Optical fiber cable GI Type

Use	In the panel		Indoor	Outdoor	
Cable type name	SG-A	SG-AW	SG-BV	SG-DL	SG-EL
Type	Quartz glass GI Type	Quartz glass GI Type	Quartz glass GI Type	Quartz glass GI Type	Quartz glass GI Type
Core (μm)	50	50	50	50	50
Cladding (μm)	125	125	125	125	125
Transmission loss (dB/km)	3.0*1	3.0*1	3.0*1	3.0*1	3.0*1
Connector for use	DL6-CP*2	DL6-CP*2	DL6-CP*2	DL6-CP*2	—*4
Outside diameter (mm)	2.8	2.8 × 5.6	11.0*3	12.0*3	9.0
Outer jacket color	Black	Black	Black	Black	Black
Print display	—	—	MELSECNET OPTICAL FIBER CABLE + Model name		
Outer Jacket material	PVC	PVC	PVC	LAP sheath	LAP sheath
Approximate net weight (kg/km)	8.0	16	120*3	120*3	85
Allowable tension (N)	80	160	400*3	490*3	1180
Allowable bending radius (mm)	30*6	30*6	120*3, 6	120*3, 6	90*6
Service temperature range (℃)	-20 to 60	-20 to 60	-20 to 60	-20 to 60	-20 to 60
Maximum length of one unit (m)	1000	500	1000	1000*5	2000

*1. This is a numerical value when the wavelength is 0.85μm. (The central emission wavelength of the measurement light source.)
*2. It is enable to install as a relay connection for FC and SC connector.
*3. This is a numerical value when using 2 cores, 4 cores. (When using more than 6 cores, please check the specification sheet.)
*4. It is unable to install connectors directly, to be attached by fusion splicing.
*5. If the cable length exceeds 1000 m, please consult us about price and delivery.
*6. Both are the bending radius when the cables are fixed. (no load)

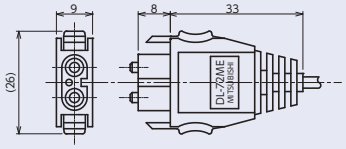
Plastic optical cable

Use	In the panel	Indoor	In the panel
Cable type name	M-A	M-B	M-C
Type	APF plastic	APF plastic	APF plastic
Core (μm)	980	980	980
Cladding (μm)	1000	1000	1000
Transmission loss (dB/km)	260.0	260.0	260.0
Connector for use	CA9104AP	CA9104AP	CA9104AP
Outside diameter (mm)	2.2	5.0	2.2
Outer jacket color	Gray	Gray	Black
Outer Jacket material	Flame-retardant PVC	Reinforced PVC	PE
Approximate net weight (kg/km)	5.5	30	4.0
Allowable tension (N)	70	245	70
Allowable bending radius (mm)	25	25	25
Service temperature range (℃)	-10 to 70	-10 to 70	-10 to 70
Maximum length of one unit (m)	500	500	500

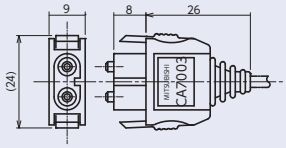
Optical connector outline drawing * Shown in parentheses are the JIS standard number

For optical cable Type SI

DL-72ME (F08 Type)

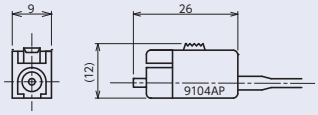


CA7003 (F08 Type)



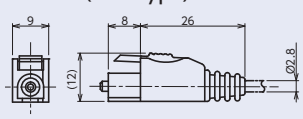
For plastic optical cable

CA9104AP

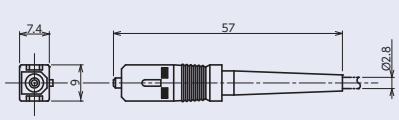


For optical cable Type GI

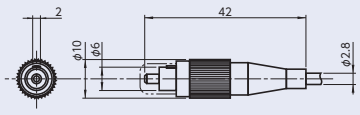
DL6-CP (F06 Type)



SC connector



FC connector

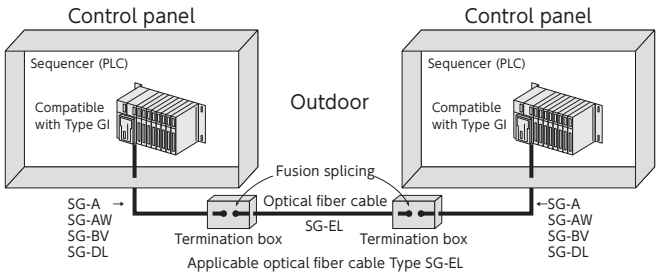


Unit (mm)

Optical connector installation work and cable Type GI fusion splicing work on site

We also take orders for optical connector installation work and fusion splicing work on site.

Fusion splicing sample



A terminal box

<Notice>
Type SG-EL is attached in the termination box by fusion splicing.
(The connector cannot be installed directly.)

* Cable Type SI is not compatible with fusion splicing. This termination box is an exclusive item for cable Type GI.
When relaying cable Type SI, please use relay adapter (PA7003).

Option

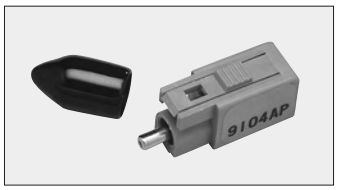
Protective holder

OFHLD-FK

* Please use this holder to prevent breakage at the base of the connector.

Optical connector for MELSECNET/MINI

CA9104AP connector



■Features
●Possible to assemble by the users

Applicable fibers	M-A M-B M-C

Relay adapters

PA7003

Applicable connectors	DL-72ME CA7003 DL6-CP

Specifying method when ordering optical fiber cables

<Order example of cable with connector type SI>

AS - 2P - 50M - B
① ② ③ ④

<Order example of cable with connector type GI>

SG - 2P - 50M - BV - C C
① ② ③ ④ ⑤ ⑥

<Single item order example of cable type SI>

AS - 50M - B
① ③ ④

<Single item order example of cable type GI>

SG - 50M - BV
① ③ ④

①Optical fiber cable series name:
Please select <series name> of optical fiber cable according to MELSECNET series.
Optical fiber cable series name: AS,QH,QL,SG,M

②Connector installation:
2P: install on both ends of connector
1P: install on one end of connector (only SG)*1
None: Cable only (site works etc.)

③Length of cable:
Please specify the required length (in 1 m increments)

④Cable types
Please select the cable according to the usage environment.
A: For inside of the panel / B: For indoor / C: For outdoor*2 /
D: Outdoor reinforced Type / AW: For inside of the panel, the glasses-shaped Type (SG only) / BV: For indoor (SG only)*4 / DL: Outdoor LAP Type (QL, SG only) /
EL: Outdoor Layer Twisted Type (SG only)*4

*1. After processing both ends of a connector, the loss measurement is carried out and one end of the connector is cut off.
*2. QL only, Type M is excluded.
*3. When using 2 core ×2, it is 2D. When using 2 core ×3, it is 3D. (SG is excluded)
*4. When selecting BV, DL or EL, please specify "2 cores", "4 cores" or "6 cores" in the end of model names (QL is excluded)

⑤Type of left side connector (only SG type specified)
C: DL6-CP
F: FC connector
S: SC connector
N: no connector

⑥Type of right side connector (only SG type specified)
C: DL6-CP
F: FC connector
S: SC connector
N: no connector

* As the following cables may not be able to be manufactured in increments of 1 m depending on the order lot, please contact us separately.
Cable more than 4 cores (AS-D, QH-D, QL-DL, SG-BV, SG-DL), SG-EL, special optical fiber cables (AS-VCT, and so on).

List of optical fiber cables with connector (standard stock items)

Model name	Use	Cable length
AS-2P-1M-A	For inside of a panel	1 m
AS-2P-2M-A	For inside of a panel	2 m
AS-2P-3M-A	For inside of a panel	3 m
AS-2P-5M-A	For inside of a panel	5 m
AS-2P-10M-A	For inside of a panel	10 m
AS-2P-15M-A	For inside of a panel	15 m
AS-2P-20M-A	For inside of a panel	20 m

Model name	Use	Cable length
AS-2P-1M-B	For indoor	1 m
AS-2P-2M-B	For indoor	2 m
AS-2P-3M-B	For indoor	3 m
AS-2P-5M-B	For indoor	5 m
AS-2P-10M-B	For indoor	10 m
AS-2P-15M-B	For indoor	15 m
AS-2P-20M-B	For indoor	20 m
AS-2P-25M-B	For indoor	25 m
AS-2P-30M-B	For indoor	30 m
AS-2P-40M-B	For indoor	40 m
AS-2P-50M-B	For indoor	50 m

AS-2P-5M-B

Optical fiber cable for CC-Link IE controller network

- ●QG-AW (For inside of the panel)
- ●QG-B (For indoor)
- ●QG-BU (UL certified for indoor)
- ●QG-VCT (For indoor movable part)
- ●QG-C (For outdoor)
- ●QG-DL (For outdoor reinforced type)

Features

- ■It is an optical fiber cable that passed the CC-Link Partner Association recommended product test. Please use the cables with confidence.
- ■Since we have a rich line-up such as inside of the panel use, indoor use, outdoor use, and outdoor reinforced type, it can correspond to various environments.
- ■For indoor and outdoor cables, by adopting a small diameter cables or collective structure cables, it can be used in a narrow installation environment of the factory at ease.
- ■The cables for indoor use and outdoor use can be towed directly because they have the same allowable tension as the outdoor reinforced type without tension member.
- ■The indoor UL certified cable (OG-BU) is UL Listed (UL OFNR) compliant cable with a high flame retardant and passed UL 1666 (Riser Cable Fire Test).
- ■Cable for indoor movable part can be used at the movable parts which need repetitive action.
- ■Cables for outdoor reinforced Type have waterproof property and can withstand flooding and temporary submersion.
- ■By attaching the supplied protective holder, it is possible to prevent breakage at the base of the connector and save space inside the panel.
- ■By connector boot with enhanced bending characteristic, disconnection at the base of the connector will be reduced.
- ■We manufacture in 1 m increments according to customer specified dimensions.

Connection model list

Network name	Connection model		
CC-Link IE controller network	Sequencer (PLC)	iQ-R series	RJ71GP21-SX
		Q series	QJ71GP21-SX
			QJ71GP21S-SX
	Interface board for PC		Q81BD-J71GP21-SX
			Q81BD-J71GP21S-SX
			Q80BD-J71GP21-SX
			Q80BD-J71GP21S-SX
			ECP-CLECBD
			ECP-CLECBDS
	GOT	Communication unit	GT15-J71GP23-SX

System of model names*1

Please order with the following model names. We provide them in 1 m increments.

〈Order example of cable with connector〉

QG - G50 - 2C - 10M - AW - LL

① ② ③ ④ ⑤ ⑥⑦

〈Order example of cable as a sigle unit〉

QG - G50 - 2C - 10M - AW

① ② ③ ④ ⑤

* When cable is sold as a single unit, the connector specification (the above ⑥⑦) is not necessary.

① Series name

② Optical fiber type
G50: core shape 50 ㎛ / GI cable

③ Number of core wire
2C: 2 cores / 4C: 4 cores*2 / 6C: 6 cores*2 / 8C: 8 cores*2

④ Cable length (m)
Cable only: 1 to 2000 (AW (in the panel) only 1 to 1000) with connector: 1 to 550

⑤ Usage environment
AW: inside the panel / B: indoor / BU: indoor UL certified item / C: outdoor
DL: outdoor reinforced type / VCT: indoor movable part

⑥ Left side connector type
L: LCF connector / S: SC connector / F: FC connector / N: No connector*3

⑦ Right side connector type
L: LCF connector / S: SC connector / F: FC connector / N: No connector*3

*1. We also offer special products such as high flame retardant specifications and direct embedding. Please consult us separately.
*2. Support only type DL.
*3. When making a cable with no connector on one side, after processing both ends of a connector, the loss measurement is carried out and one end of the connector is cut off.

Cable specification

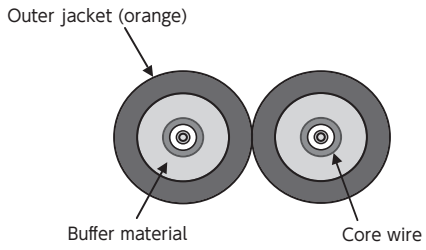
Items		QG-AW	QG-B	QG-BU	QG-VCT	QG-C	QG-DL		
Usage environment/ use		In the panel	Indoor	UL-certified products for indoor use	Indoor movable part	Outdoor	Reinforced type for outdoor use (water shielding)		
Maximum cable length		Maximum 550 m							
Optical fiber types		Multi-mode optical fiber (GI)							
Transmission loss		3.0 dB/km or less [λ = 850 nm]/1.0 dB/km or less [λ = 1300 nm]							
Transmission band		500 MHz·km or more [λ = 850 nm]/600 MHz·km or more [λ =1300 nm]							
Standard		In accordance with IEC60793-2-10 A1a.1		In accordance with IEC60793-2-10 A1a.1 UL1651 (UL TYPE OFNR)	In accordance with IEC60793-2-10 A1a.1				
Material/ outside diameter	Core	Quartz glass/50 ± 3 μm							
	Cladding	Quartz glass/125 ± 2 μm							
	Inner jacket	PVC (Orange)/ ϕ2.0 mm×2	PVC (Orange)/ ϕ2.0 mm	PVC (Orange)/ ϕ1.8 mm	PVC (Orange)/ ϕ2.0 mm	PVC (Orange)/ϕ2.0 mm			
	Outer jacket	—	Flame-retardant PE (Orange)/ ϕ6.0 mm	Flame-retardant PVC (Blue)/ϕ5.0 mm	Elastic PVC (Orange)/ ϕ6.0 mm	Flame-retardant PE (Black)/ ϕ6.0 mm	LAP sheath (Black) 10.0 mm (2, 4 cores)/11.0 mm (6 cores)/ 12.0 mm (8 cores)		
Allowable tension		60 N or less	420 N or less				2 cores	4 cores	6 cores/ 8 cores
							420 N or less	540 N or less	780 N or less
Allowable bending radius		Not less than 15 mm*1	Not less than 60 mm*1		Not less than 60 mm*2	Not less than 60 mm*1	2 cores/ 4 cores	6 cores	8 cores
							Not less than 100 mm*1	Not less than 110 mm*1	Not less than 120 mm*1
Bending performance		—			10 million times No disconnection*3 (Bending radius: 60 mm point)		—		
Approximate weight		8 kg/km	35 kg/km	20 kg/km	30 kg/km	35 kg/km	2 cores/ 4 cores	6 cores	8 cores
							75 kg/km	100 kg/km	120 kg/km
Service temperature range		-20 to 60℃							
Connector for use		LCF connector (Duplex LC connector)*4/SC connector/FC connector							

The λ: Central emission wavelength of the measurement light source.
*1. It is the bending radius when the cable is fixed (no load).
*2. It is the bending radius under no load. Please note that the code portion can not be used in the movable part.
*3. It is a test result, not a guaranteed value. (The Performance varies depending on the usage environment of the customer.)
*4. When connecting to CC-Link IE Controller network products, the LCF connector is used.
When laying optical fiber cables compatible with CC-Link IE controller network, please refer to the installation manual issued by the CC-Link Partner Association.

Sectional view

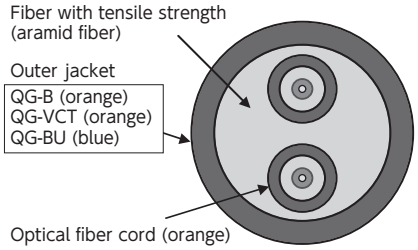
QG-AW (for inside of the panel)

Wire diameter: ϕ2.0 mm (per core)



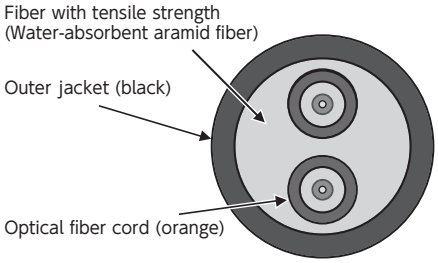
QG-B (for Indoor use)/ QG-BU (UL-certified products for indoor use)/ QG-VCT (for Indoor movable part use)

Wire diameter: ϕ6.0 mm (QG-B, QG-VCT)
ϕ5.0 mm (QG-BU)



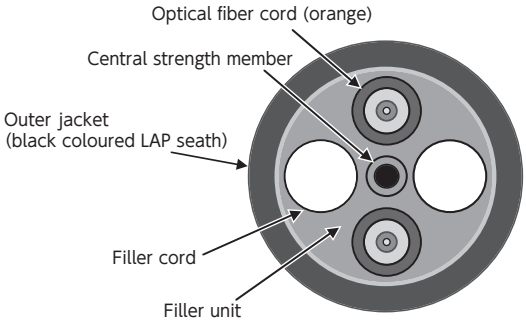
QG-C (for outdoor use)

Wire diameter: ϕ6.0 mm

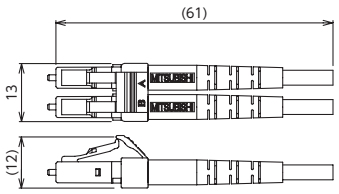
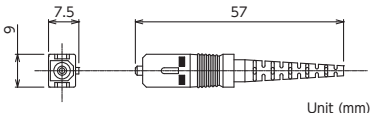
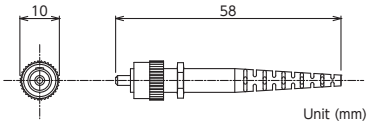


QG-DL (outdoor reinforced type)

Wire diameter: ϕ10 mm



Connector *Not to be sold separately

Items	Contents		
Names	LCF connector	SC connector	FC connector
Model names	DLCF-G50-D2	DSC-G50-D2	DFC-G50-D2
Connection loss	Less than 0.3 dB (to master fiber cable)		
Polishing method	Physical contact polish		
Standard	IEC61754-20: TypeLC In accordance with	IEC61754-4	IEC61754-13
External form			
Use	For connecting CC-Link IE network products	For relay	

Standard accessories

Protective holder (included one holder per cable)

- Protection and prevention of breakage at the base of the connector
- Maintain minimum bending radius
- Space saving inside the control panel (60 mm or less from the front of the sequencer to the end of the protection holder)

Applicable connector	LCF connector

Caution:
The protective holder is exclusively for our LFC connector and cannot be sold the holder alone.
Moreover, it can not attach to other company's LCF connector.

Option

Relay adapter (2 pcs)

Please use it for extension of optical fiber cable (relay connection) and temporary connection for future expansion part.

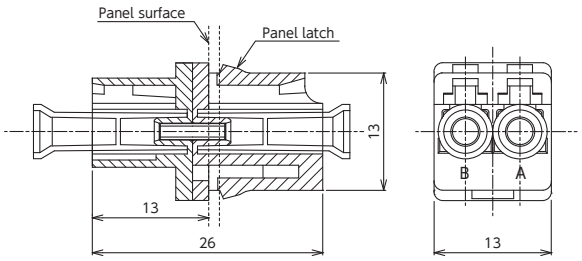
Item name	Model name	Specification
Relay adapter for LCF connector	SPAD-LCF-G50	Double-core for Multi-mode, the connection loss 0.3 dB (vs. master fiber)
Relay adapter for SC connector	SPAD-SCF-G50	Double-core for Multi-mode, the connection loss 0.3 dB (vs. master fiber)
Relay adapter for FC connector	SPAD-FC-G50	Single-core for Multi-mode, the connection loss 0.3 dB (vs. master fiber)

For LCF connector

For SC connector

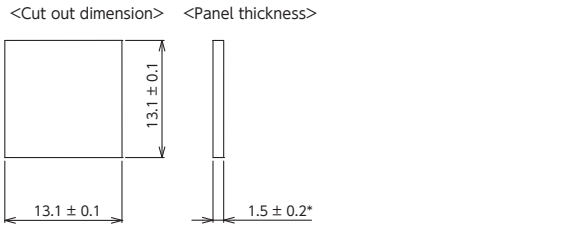
For FC connector

SPAD-LCF-G50



Unit (mm)

Panel cutout dimensions



* Dimensions after surface treatment such as painting

Unit (mm)

SCT-SLM connector detaching tool

・Attaching and disconnecting a connector to a narrow space such as a rear slot of PC

Applicable connector	LCF connector LC connector SC connector MU connector

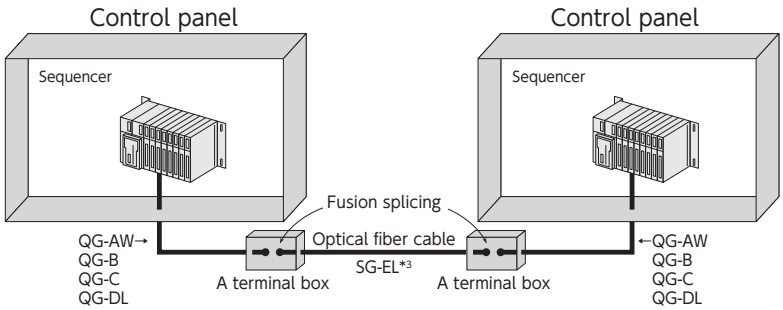
On-site construction

We also take orders for optical connectors installation work and fusion splicing work on site.

[Fusion Splicing]

Optical fiber cable type GI can be extended by fusion splicing.

* The following is a connection example.



A terminal box

Protective members of fusion spliced portion and relay connecting portion

*3. Our SG-EL can be used with CC-Link IE controller network.

Optical media converter for CC-Link IE controller network

●DMC-1000SL-DC

DMC-1000SL-DC

Features

■Expansion of communication distance in CC-Link IE controller network

If station to station distance is 550 m or more, it is enable to increase the distance between stations by up to 15 km by inserting two of this product in between and connecting the single mode optical fiber cable.

■Low jitter transmission by 3R playback system

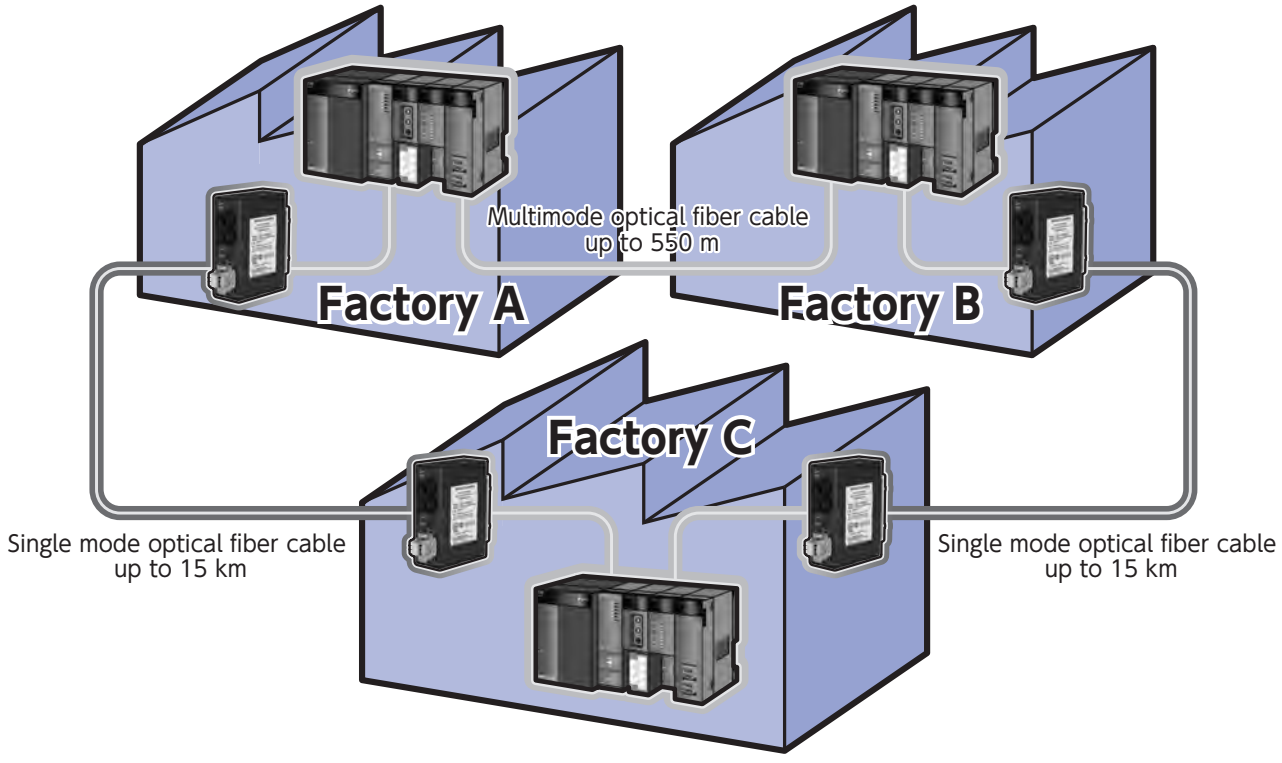
Cascade connection up to 4 stages becomes possible by performing low jitter signal relay with 3R (Re-generating 〈playback〉, Re-shaping 〈shaping〉, Re-timing 〈synchronous〉 playback system.

■Corresponding auto negotiation, link pass-through

This product transmits the received signal as it is without creating the autonegotiation signal.
Please use the setting of both counter devices at the autonegotiation setting.

CC-Link IE controller network communication configuration example

When the station to station distance is 550 m or more (between factory A and C, between factory B and C), inserting 2 units of this product in between and connecting the single mode optical fiber cable make it possible to expand its distance up to 15 km.



General specification

Items	DMC-1000SL-DC
Usage environment	In the panel
Service temperature/humidity range	-10 to 55℃/95% RH or less (with no condensation)
Installation method	DIN rail or screw
Weight	250 g (including DIN rail mounting foot, power terminal block)
External dimensions	W 31 mm × H 95 mm × D 90 mm (including DIN rail mounting foot, power terminal block)
Power supply specification	20.4 to 26.4 V DC (terminal block input)
Safety standard	UL, CE, FCC Part15 classB, VCCI class B
Cascade connection	maximum 4 stages

Detailed specification

Items		DMC-1000SL-DC	
		OPT 1 port	OPT 2 port
Compliant standard		IEEE802.3z Gigabit Ethernet (1000BASE-LX)	IEEE802.3z Gigabit Ethernet (1000BASE-SX)
Transmission method		Full duplex	
Applicable cable	Optical fiber	Single mode optical fiber cable, compatible with 1000BASE-LX Multi-mode optical fiber cable (bandwidth 500 MHz·km or more, λ = 850 nm), compatible with 1000BASE-SX	Multi-mode optical fiber cable (bandwidth 500 MHz·km or more, λ = 850 nm), compatible with 1000BASE-SX
	Connector	Dual LC connector (IEC 61754-20)	Dual LC connector (IEC 61754-20)
	Polishing method	PC, SPC, AdPC, UPC polishing	PC, SPC polishing
	Connection	Cross connection (one side A side connector is connected to the other B side connector)	
Emission central wavelength		1270 to 1360 nm	830 to 860 nm
Light allowable loss		10 dB	7.5 dB
Estimated transmission distance		15 km or less*2 550 m or less*3	550 m or less

*1. When connecting to the CC-Link IE controller network product, use the following optical fiber cable.
(We have various cables conforming to this standard.) Optical fiber cable with dual LC connector on both ends
*2. It is a standard when connecting with the same model using a single mode optical fiber cable.
When connecting to a 1000BASE-LX compatible unit other than this product, it is 5 km.
*3. This is when connecting with Multi-mode optical fiber cable.

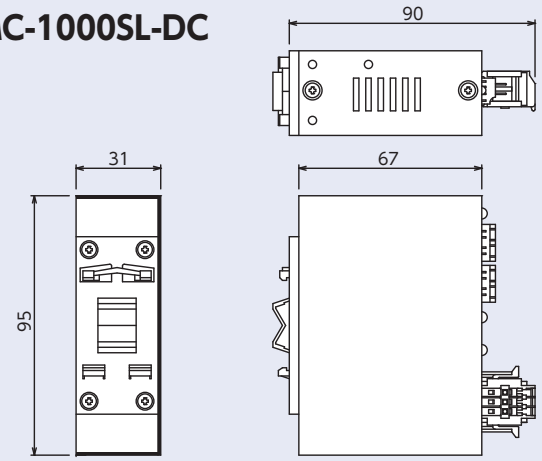
1000BASE-SX standard/1000BASE-LX standard mean

One of Gigabit Ethernet standards with maximum communication speed of 1 Gbps.
It is a standard using an optical fiber cable as a transmission medium and is defined as a part of IEEE802.3z.

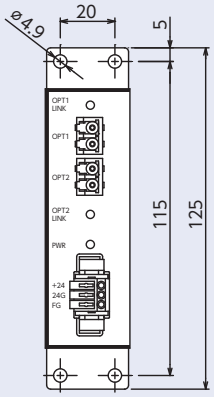
- 1000BASE-SX standard: Using Multi-mode optical fiber cable, communicate an optical signal with 850 nm wavelength. The maximum transmission distance is 550 m.
- 1000BASE-LX standard: Using single mode optical fiber cable or Multi-mode optical fiber cable, communicate an optical signal with 1300 nm wavelength. The transmission distance is 550 m when Multi-mode optical fiber cable is used, and 5 km when single mode optical fiber cable is used.

External dimension drawing

DMC-1000SL-DC



When attaching mounting bracket



Unit (mm)

Applicable optical fiber cable

●When using this product, the following optical fiber cable with connector is required separately.

OPT 1 board (single mode optical fiber cable side)

Items	Specification
Applicable optical fiber cable	Single mode optical fiber cable compatible with 1000BASE-LX
Applicable connector	Dual LC connector (IEC 61754-20)
Connector polishing method	PC, SPC, AdPC, UPC polishing

OPT 2 board (Multi-mode optical fiber cable side)

Items	Specification
Applicable optical fiber cable	Multi-mode optical fiber cable, compatible with 1000BASE-SX*1
Transmission band	500 MHz·km or more (λ = 850 nm)
Applicable connector	Dual LC connector (IEC 61754-4)
Connector polishing method	PC, SPC polishing*2

*1. We have various cables conforming to this standard.
*2. Please use PC polishing with reflection attenuation amount of 22 dB or more for optical connectors.
(Communication failure may occur when surface polishing or oblique polishing connectors are used.)

Connection terminal for CC-Link IE controller network

●SC-ECT-P3

Star connection makes it easy to add and remove units, improving maintainability.

Features

■It is possible to add up to 3 units (concentrator) between stations.
(To add (concentrate) more than 4 units, please add the required number of connection terminals.)

■Additioning and removing units become easier and the maintainability improves.

■It is possible to start up in stages without replacing existing cables.
(For additional units, only the installation with one 4-core cable required.)

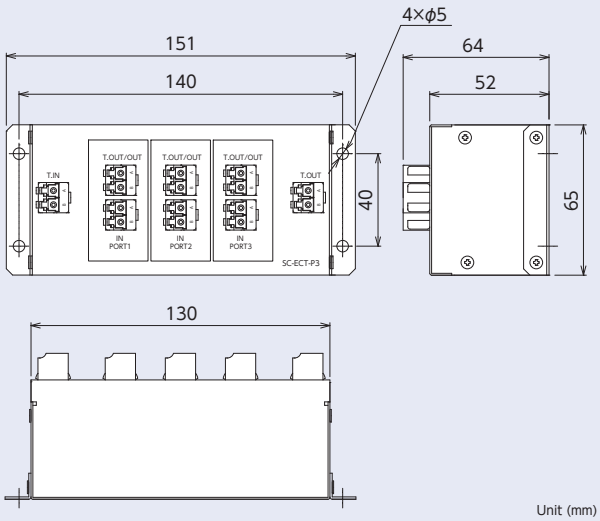
■Both screw mounting and DIN rail mounting are possible.
Note) Unit: CC-Link IE controller network compatible product

Specification

Items	Specification
Adaptable network	CC-Link IE controller network
Model name	SC-ECT-P3
Adaptable optical fiber	Optical fiber cable compatible with 1000BASE-SX (MMF)
Standard	IEC60793-2-10 Types A1a.1 (50/125 μm Multi-mode)
Transmission loss (max)	3.5 (dB/km) or less (λ = 850 nm)
Transmission band (min)	500 (MHz•km) more than (λ = 850 nm)
Model name	QG series*1
Adaptable optical connector	Dual LC connector
Standard	IEC61754-20:Type LC connector
Connection loss	0.3 (dB) or less
Polished surface	PC polishing
Model name	DLCF-G50-D2*1
Connectable number	Up to 3 units*2
Usage environment	In the panel
Service temperature/ humidity range	0 to 55℃/5 to 95% RH (with no condensation)
Connection distance	Up to 150 m*3
Installation method	Screw or DIN rail*4
Weight	Approximately 300 g
External dimensions	W 151 × D 64 × H 65 (mm) (For details, see the external dimension drawing)

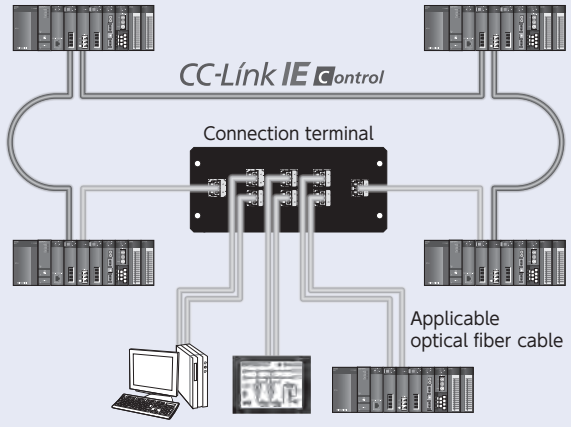
*1. It is our company's model name.
*2. Be sure to connect at least one unit to the connection terminal.
*3. Cable length between "connection terminal ⇔ connection terminal" and "connection terminal ⇔ unit". (Please consult us if it is over 150 m.)
*4. DIN rail mounting foot required. DIN rail fixing part: SC-DIN-M (our model name)

External dimension drawing



Unit (mm)

Communication Configuration Example

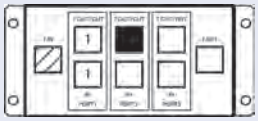


* ═ The cable length of the wire section is 150 m or less.
If one unit is disconnected, loopback will occur.

Connection method

Depending on the number of units connected, the connection position is fixed. Be sure to connect from PORT 1.

① When connected 1 unit



② When connected 2 units

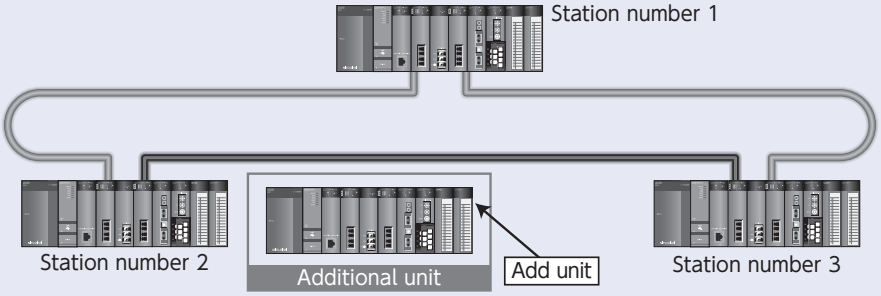
③ When connected 3 units

1 : PORT 1
2 : PORT 2
3 : PORT 3
▨ : Front station or connection terminal
■ : Next station or connection terminal
□ : Not used

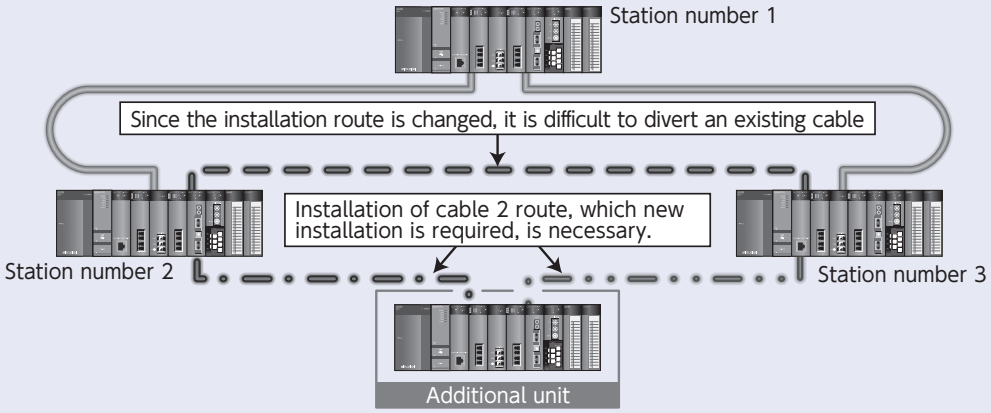
Connect the OUT side / IN side cable of each connecting unit to the above position.

Examples of use

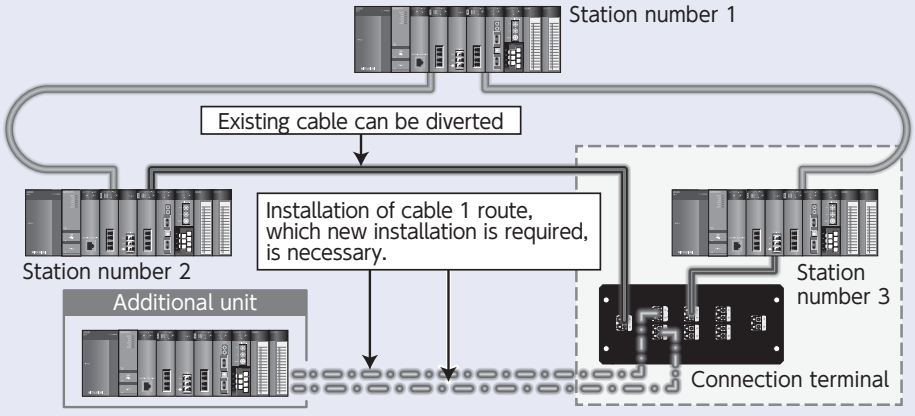
●Add unit



●When not using the connection terminal

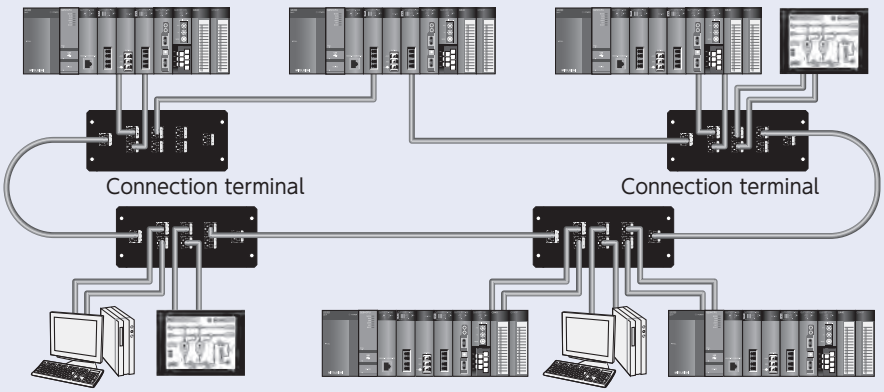


●When using the connection terminal



Communication conditions

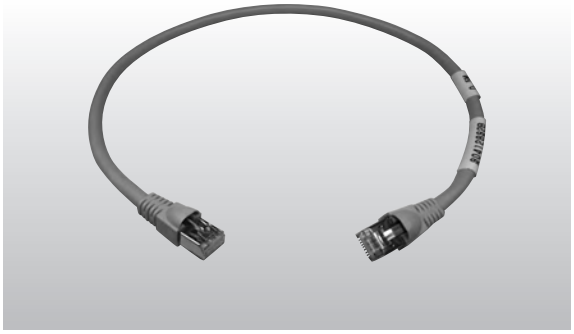
Be sure to connect at least one unit to the connection terminal. (See the figure below)



When using other than the above, please consult our local office / branch.

Ethernet cable for CC-Link IE field network

●SC-E5EW-S□M (indoor use)
●SC-E5EW-S□M-MV (for indoor movable parts)
●SC-E5EW-S□M-L (indoor/outdoor use)



It is a double shielded cable with high resistance to external noise conforming to the 1000BASE-T standard.

Features

■This cable has passed the CC-Link partner Association recommended product test. Please use with confidence.

■It is an Ethernet cable conforming to the IEEE802.3 1000BASE-T standard.

■Because of the double shield structure with aluminum tape and braid, the shielding property is excellent.

■Because of its excellent shielding property, it can be used for EMI measures when using Ethernet and for measures against external noise.

■The movable part cable (SC-E5EW-MV) can be used in movable parts that perform repetitive tasks, such as cable protection chains and hoist cranes.

■We manufacture it from 1 m to 100 m in 1 m increments (build to order). We provide cables of the length suitable for your facilities. We also offer a products with standard length (stock production) at lower prices.

* When using the movable part cable, the insertion loss is large and the possible transmission distance becomes shorter since the conductor size is thin. (Maximum 45 m)

Specification

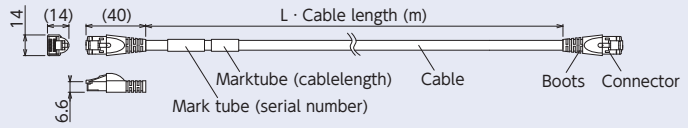
Item		SC-E5EW-S□M*1	SC-E5EW-S□M-MV*2	SC-E5EW-S□M-L*1
Usage environment/use		Indoor	Indoor movable part	Indoor/outdoor
Cable types		(With double shield · STP) straight cable		
Compliant standard		IEEE802.3 1000BASE-T		
		ANSI/TIA/EIA-568-B (Category 5e)		
		ISO/IEC 11801		
Safety standard (electric wire section)*3		UL AWM STYLE 20276	UL AWM STYLE 20276 cUL AWM I AB (CSA C22.2 No.210.2)	—
Number of core wire		8-core (4 pairs of twist)		
Conductor	Material	Annealed copper single wire for electrical use	Annealed copper stranded wire for electrical use	Annealed copper single wire for electrical use
	Size	24 AWG	26 AWG	24 AWG
Double shield		Aluminum/polyester tape		
		Tinned annealed copper wire braid		
Cable jacket	Material	Flame retardant PVC		LAP sheath
	Color	Orange		Black
Finished outside diameter		6.8 mm	6.5 mm	10 mm
Allowable bending radius		26 mm or more*4	52 mm or more*5	60 mm or more*4
Allowable tension		110 N	80 N	110 N
Mechanical performance*6	U-shaped transfer bending	—	Stroke 500 mm, bending radius 50 mm (1 million times no disconnection)	—
	Repeated bending	—	Right and left 90°, bending radius 50 mm (1 million times no disconnection)	—
	Twisting	—	± 180°, helical length 300 mm (1 million times no disconnection)	—
Maximum cable length*7		100 m	45 m	100 m
Service temperature range		-10 to 60℃	-10 to 60℃ (fixed part)/ 0 to 60℃ (movable part)	-10 to 60℃
Approximate weight		60 g/m	55 g/m	90 g/m
Connector	Type	Shielded RJ45 plug		
	Wiring method	Straight connection		
Boots	Material	PVC, UL 94, V-O material		
	Color	Light gray		

*1. □: Cable length (1 m unit, up to 100 m)
*2. □: Cable length (1 m unit, up to 45 m)
*3. UL wiring harness · program is applied.
*4. It is the bending radius when the cable is fixed (no load).
*5. It is the bending radius under no load.
*6. It is a test result and not a guaranteed value. (Performance varies depending on customer's usage environment.)
*7. It is when wiring consists of only one single-wire or stranded conductor cable (at 20℃). For other wiring methods, please refer to "CC-Link IE Field Network Installation Manual" issued by the CC-Link Partner Association [CC-1006-14].

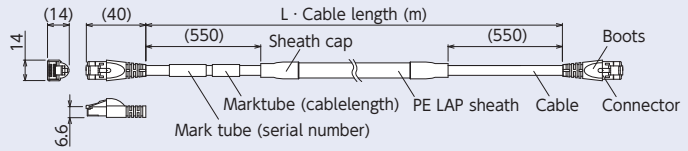
External dimension drawing

■For indoor / indoor movable parts

Unit (mm)

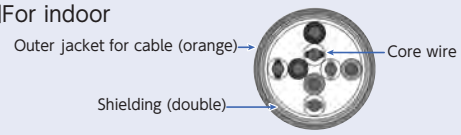


■For outdoor

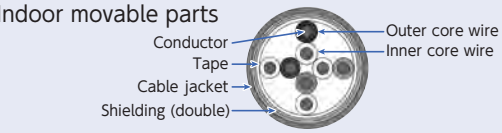


Structure

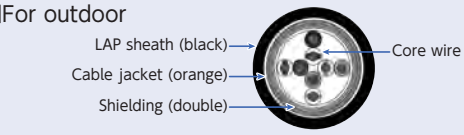
■For indoor



■Indoor movable parts



■For outdoor



Shape name body shape

SC–E5EW – S □M–○

① ② ③ ④

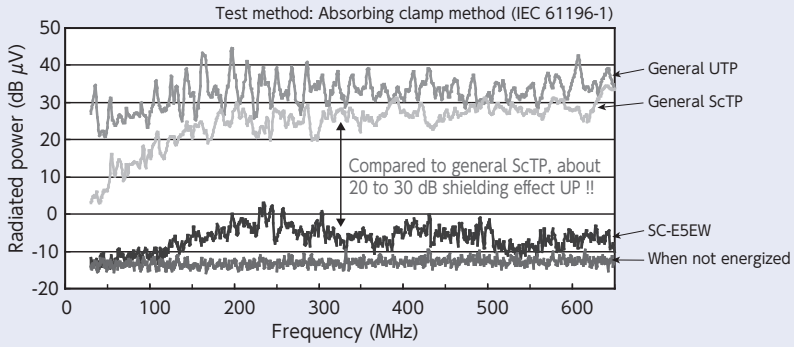
①Series name
②Connector installation
〈S: With both ends shielded RJ45 plug mounted / not provided: Cable only〉
③Cable length (m) □:
〈With plug: for indoor use, outdoor use: 1 to 100 / for indoor movable part: 1 to 45〉
〈Cable only (1 strand length): for indoor use, indoor movable part, outdoor use: 1 to 200〉
④Usage environment ○:
〈None: For indoor use / MV: for indoor movable parts / L: for outdoor use〉

Option

Item name	Model name	Adaptable connector	Category	Service temperature	Compliant standard
Relay adapter (2 pieces)	SPAD-RJ45S-E5E	Shielded RJ45 plug	Category 5e	-10 to 60℃	IEEE802.3 1000BASE-T ANSI/TIA/EIA-568-B (Category 5e) ISO/IEC 11801

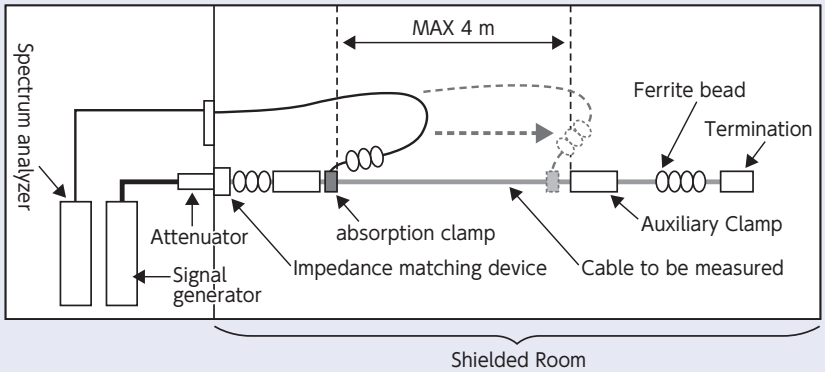
〈Use〉
·It can be used for extension of cable (relay connection) and connection with patch cord.
·It can be used for detachment inside and outside the control panel (panel mounted), with patch panel.

Cable shielding property



* The above graph is the measurement of the electric power radiated to the outside by applying noise to the cable.

■Test method
Move the absorption clamp and measure the radiation power for each frequency.



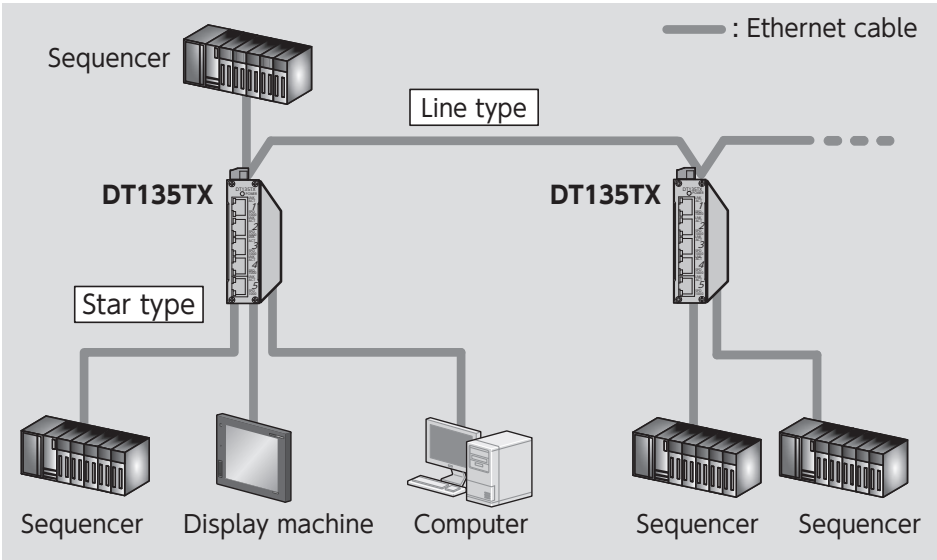
Industrial switching hub for CC-Link IE field network

●DT135TX

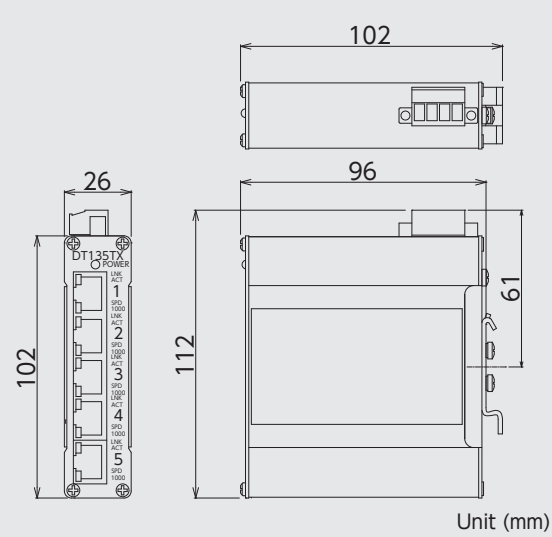
Features

- ■It is a switching hub that passed the CC-Link Partner Association recommended product test.
- ■Compact size, with 5 ports of 10/100/1000 Mbps ports.
- ■Auto MDI/MDI-X function and auto negotiation function are carried.
- ■Power supply redundancy configuration enables two power supply inputs.
- ■It corresponds to the wide range power supply of 12 V DC to 24 V DC.
- ■It is possible to build networks of star type, line type, star type and line type mixed.
- ■Since UL and CE standards have already been acquired, export to Europe and America is also possible.

Example of CC-Link IE Field communication configuration



External dimension drawing



General specification

Items		Specification
Model name		DT135TX
Operating ambient temperature		-10 to 55℃
Operation and storage humidity		95% RH or less (without condensation)
External dimensions		W 26 mm × D 112 mm × D 102 mm (including DIN rail mounting foot, power terminal block)
Weight		270 g (including DIN rail mounting foot, power terminal block)
Applicable power supply wire size	Single wire/stranded wire	AWG. 16 to 28
	Peeling line length	7 mm
	Tightening torque	0.5 to 0.6 N•m
Earth wire		more than AWG. 14
Usage environment		In the panel
Compliant safety standard	UL/cUL	UL508/C22.2 No.14-M05, C22.2 No.213-M1987
	CE	EN61000-6-2/4, IEC61000-4-2/3/4/5/6, EN55011
	FCC	Part 15, SubpartB, ClassA
Noise immunity		Simulator noise 500 Vp-p, noise width: 1 μs by noise simulator of 25 to 60 Hz in noise frequency
Anti-vibration		Frequency: 13.2 to 100 Hz, Acceleration: 4.9 m/s^2, Number of sweeps: 2 hours each in X, Y, Z directions
Anti-shock		Acceleration: 980m/s^2, Number of shocks: 3 times each in X, Y, Z directions

Power supply specification

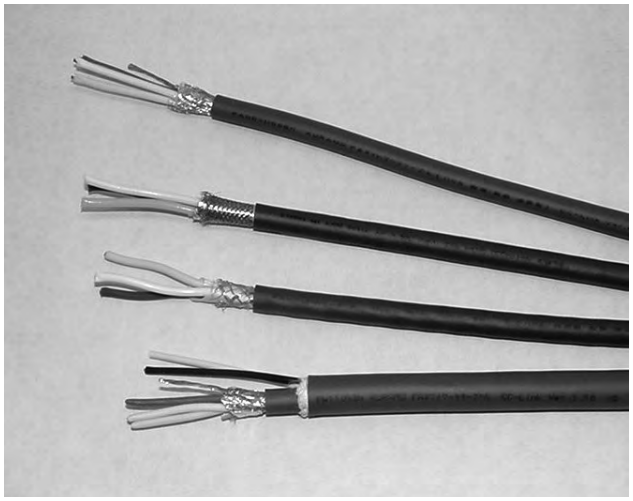
Items	Specification
Power supply specification	12 to 24 V DC (10.8 to 26.4 V DC)
Power supply configuration	Redundant power supply
Current consumption	230 mA (24 V DC)

Detailed specification

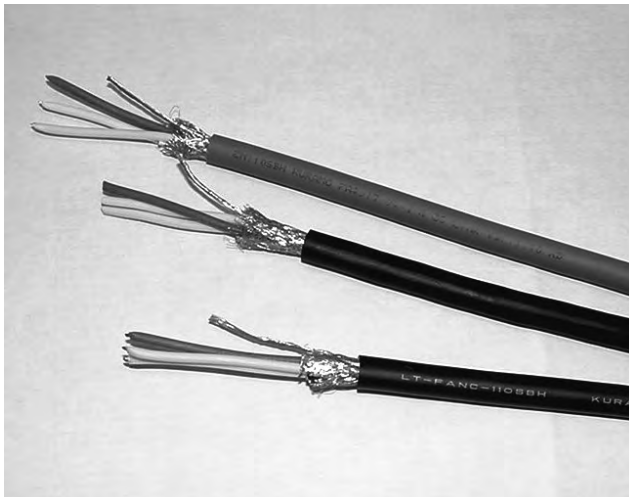
Items		Specification
Compliant communication standard		IEEE 802.3ab 1000BASE-T
		IEEE 802.3u 100BASE-TX
		IEEE 802.3 10BASE-T
Transmission speed		10 Mbps, 100 Mbps, 1000 Mbps (automatic recognition)
Transmission method		Full duplex/half duplex
Number of ports		5 ports
Port setting		AutoMDI/MDI-X
Applicable cable*1	Cable	Category 5 or more, UTP/STP cable
	Standard	IEEE802.3, ANSI/TIA/EIA-568-B
	Connector	RJ45 plug
	Company model name	SC-E 5 EW series
Estimated transmission distance		Up to 100 m*2
Switching method		Store & Forward
Cascade connection		Maximum 20 units*3
Jumbo frame		Correspondence*4
Address table		4K entry

*1. When using an applicable cable with CC-Link IE Field, please use a straight cable CAT5e or more (double shielded · STP).
*2. The distance depends on the cable used. Please refer to the cable specification for details.
*3. It is when using cascade connection with CC-Link IE Field. Since it also varies depending on system configuration and whether there are abnormal stations, we recommend you to test it in a state similar to the real system before starting actual operation.
*4. When using this function, other network equipments on the communication route must also be compatible with jumbo frames.

CC-Link cable (compatible with Ver.1.10)



For fixing parts, for high movable parts,
for movable parts, built-in power supply line type



Eco cable, for outdoor pipe fixing part,
for low temperature fixing parts

Features

■We have prepared variations according to various usage environments.

■FANC-110SBH, SCC110-HMV-7 and PW110SBH are UL standard compliant products.

■When newly installing CC-Link, we recommend using Ver.1.10 compatible cable.

For fixing part: FANC-110SBH

The combination of aluminum tape and tinned annealed copper wire braid provides superior shielding property.

For high movable parts: SCC110-HMV-7

Insulator (ETFE) and wire structure with excellent bending property have realized high bending performance of 1 million times. *1

(*1. This is the measured value under specified conditions.)

For movable parts: FANC-110SBZ-5

By increasing the braiding density, bending property and shielding have established.

Built-in power supply line type: PW110SBH

It is a composite type with built-in power supply line that can also wire the power supply to the unit at the same time.

Eco cable: EM110SBH

It is an environmentally friendly cable that uses flame-resistant polyethylene for the outer covering.

For outdoor piping fixing part: WR110SBH

This cable uses polyethylene for the outer covering and it has excellent weather resistance.
(Piping/outdoor under eaves use.)

For low temperature fixing part: LT110SBH

This cable uses cold-resistant vinyl for the outer covering and is hard to cure even at low temperatures.
Service temperature range: -40 to 60℃

UL compliant product listed: FANC-110SBH/CM

This cable has high oil resistance and flame retardance and compliants to UL listed.
It corresponds to NFPA 70 and NFPA 79 standards, and it can be wired to a system composed of NFP 70, NFPA 79 compatible equipment/parts.

Specification

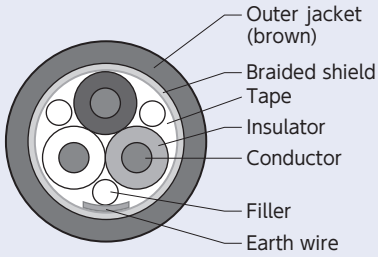
Model name	FANC-110SBH	SCC110-HMV-7	FANC-110SBZ-5	PW110SBH	
Use	For fixing part	For high movable parts	For movable parts	Built-in power supply line type	
Size	20 AWG × 3	0.5 mm^2 × 3	0.5 mm^2 × 3	20 AWG × 3 (for communication)	0.75 mm^2 × 2 (for power supply)*2
Insulator material	Formed polyethylene	ETFE	Polyethylene	Formed polyethylene	Vinyl mixture
Insulator color	Blue/White/Yellow				Black/White
Outer jacket material	Oil resistant PVC	Highly elastic PVC	Oil resistant PVC		
Outer jacket color	Brown		Dark brown	Brown	
Service temperature range*1	-15 to 75℃	-10 to 55℃	0 to 75℃	-15 to 75℃	
Tensile strength	49 N	300 N	49 N	98 N	
Minimum bending radius	35 mm	56 mm	60 mm	50 mm	
Finished outside diameter	About 7.6 mm	About 8.0 mm		About 12.0 mm	
Approximate net weight	70 kg/km	83 kg/km	70 kg/km	145 kg/km	
Conductor resistance (20℃)	34.5 Ω/km or less	53.0 Ω/km or less	43.4 Ω/km or less	34.5 Ω/km or less	25.1 Ω/km or less
Characteristic impedance	110 ± 15 Ω	110 ± 10 Ω	110 ± 15 Ω		–
Rated voltage	–	–	–	–	24 V DC
Allowable current	–	–	–	–	8 A (at 30℃)
Compliance standard	UL AWM Style 2464 CSA-C22.2 No.210 (c-UL) GOST-R	UL AWM Style 20276	GOST-R	UL AWM Style 2464 CSA-C22.2 No.210 (c-UL) GOST-R	

Model name	EM110SBH	WR110SBH	LT110SBH	FANC-110SBH/CM
Use	Eco Cable (Eco-friendly cable)	For outdoor piping fixing part	For low temperature fixing part	For fixing part
Size	20 AWG × 3			
Insulator material	Formed polyethylene			
Insulator color	Blue/White/Yellow			
Outer jacket material	Flame resistant polyethylene	Polyethylene	Cold resistant PVC	Oil resistant PVC
Outer jacket color	Brown	Black		Brown/Ivory/Blue/Yellow
Service temperature range*1	-15 to 75℃		-40 to 60℃	-15 to 75℃
Tensile strength	49 N			
Minimum bending radius	35 mm			
Finished outside diameter	About 7.6 mm	About 8.1 mm	About 7.6 mm	
Approximate net weight	70 kg/km			
Conductor resistance (20℃)	34.5 Ω/km or less			
Characteristic impedance	110 ± 15 Ω			
Compliance standard	–	–	–	UL444 NEC TYPE CM

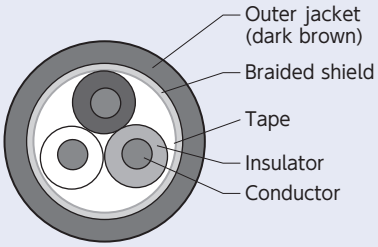
*1. The upper limit of the service temperature range indicates the heat resistant temperature of the cable material.
The possible transmission distance may be shortened for use in the high temperature section.
*2. Please consider the voltage drop and select the cable length.

Structural drawing

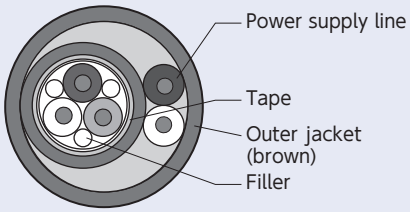
For fixing part



For movable parts



Built-in power supply line type



Communication speed and cable length

Communication speed	10 Mbps	5 Mbps	2.5 Mbps	625 kbps	156 kbps
Maximum transmission distance	100 m	160 m	400 m	900 m	1200 m
Cable length of station to station	20 cm or more*1				

*1. When used Ver.1.10

Notes

1. Please note that the transmission distance of the movable part cable is shorter than that of the fixing part cable.
   〔High movable part cable (SCC110-HMV-7)〕
   ●When used alone: The transmission distance is 70% of the maximum transmission distance of the fixing part cable.
   ●When mixed use (when use the movable part cable and the fixing part cable together):
   Since the transmission distance corresponds to the distance of about 1.42 times the fixing part cable, please refer to the formula shown below.

   $$\text{Maximum transmission distance of CC-Link fixing part cable} \geqq \text{(CC-Link fixing part cable length)} + \text{(High movable part cable length} \times 1.42\text{)}$$

   〔Movable part cable (FANC-110SBZ-5)〕
   ●When used alone: The transmission distance is 50% of the maximum transmission distance of the fixing part cable.
   ●When mixed use (when use the movable part cable and the fixing part cable together):
   Since the transmission distance corresponds to the distance of about 2 times the fixing part cable, please refer to the formula shown below.

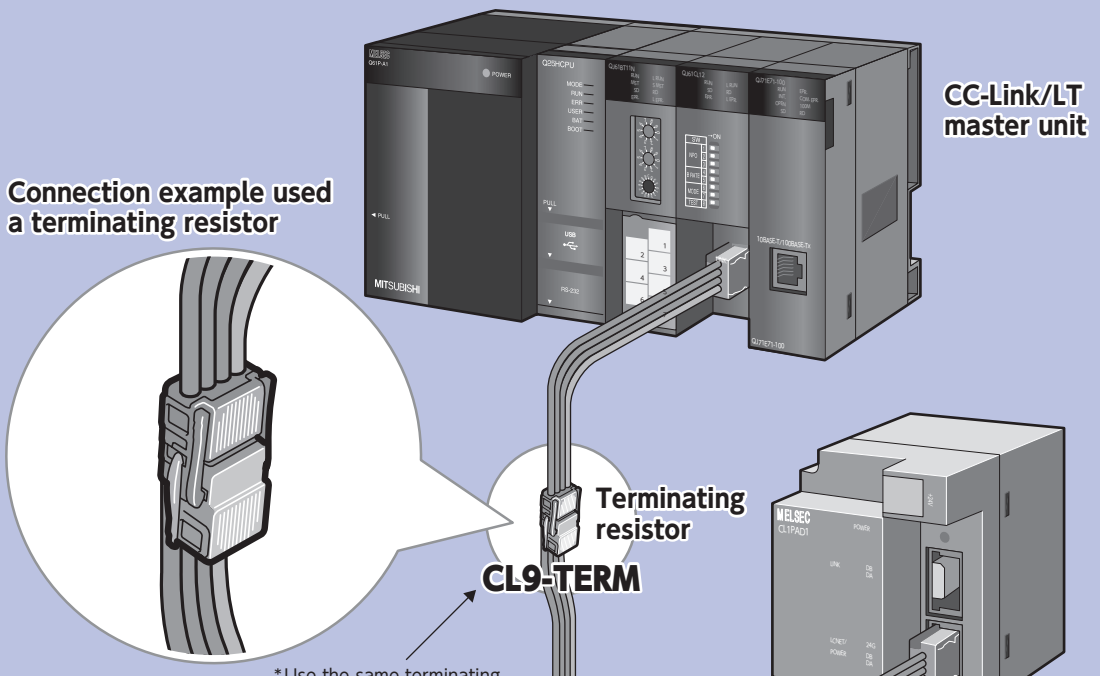
   $$\text{Maximum transmission distance of CC-Link fixing part cable} \geqq \text{(CC-Link fixing part cable length)} + \text{(Movable part cable length} \times 2\text{)}$$

2. Cable compatible with Ver.1.10 can be mixed even with cables between different manufacturers.
3. When using an connector for connection, please check whether applicable wire specification of connector (conductor size, insulator external dimensions, etc.) conform to the cable.
4. When the equipment and cables of Ver.1.00 are mixed in the system, the cable length of station to station and the maximum total cable length are specified as Ver.1.00.
5. Ver.1.10 compatible cable can be used for Ver.2.00 equipment.
6. Please refer to the installation manual issued by the CC-Link Partner Association when laying CC-Link cable.

* About the specification of Ver.1.00 compatible cable, please inquire separately.

MEMO

CC-Link/LT system configuration example



■Press-contact tool for connector

■Press-contact tool for open sensor connector

■Tool for Spring Clamp Terminal Block

CC-Link/LT

■Flat cable connection connector

CL9-CNF-18

■VCTF cable connection connector

CL9-CNR-23

■Movable cable connection connector

CL9-CNR-20

■Terminating resistor

CL9-TERM

■Exclusive flat cable

CL9-FL4-18

■Exclusive movable cable

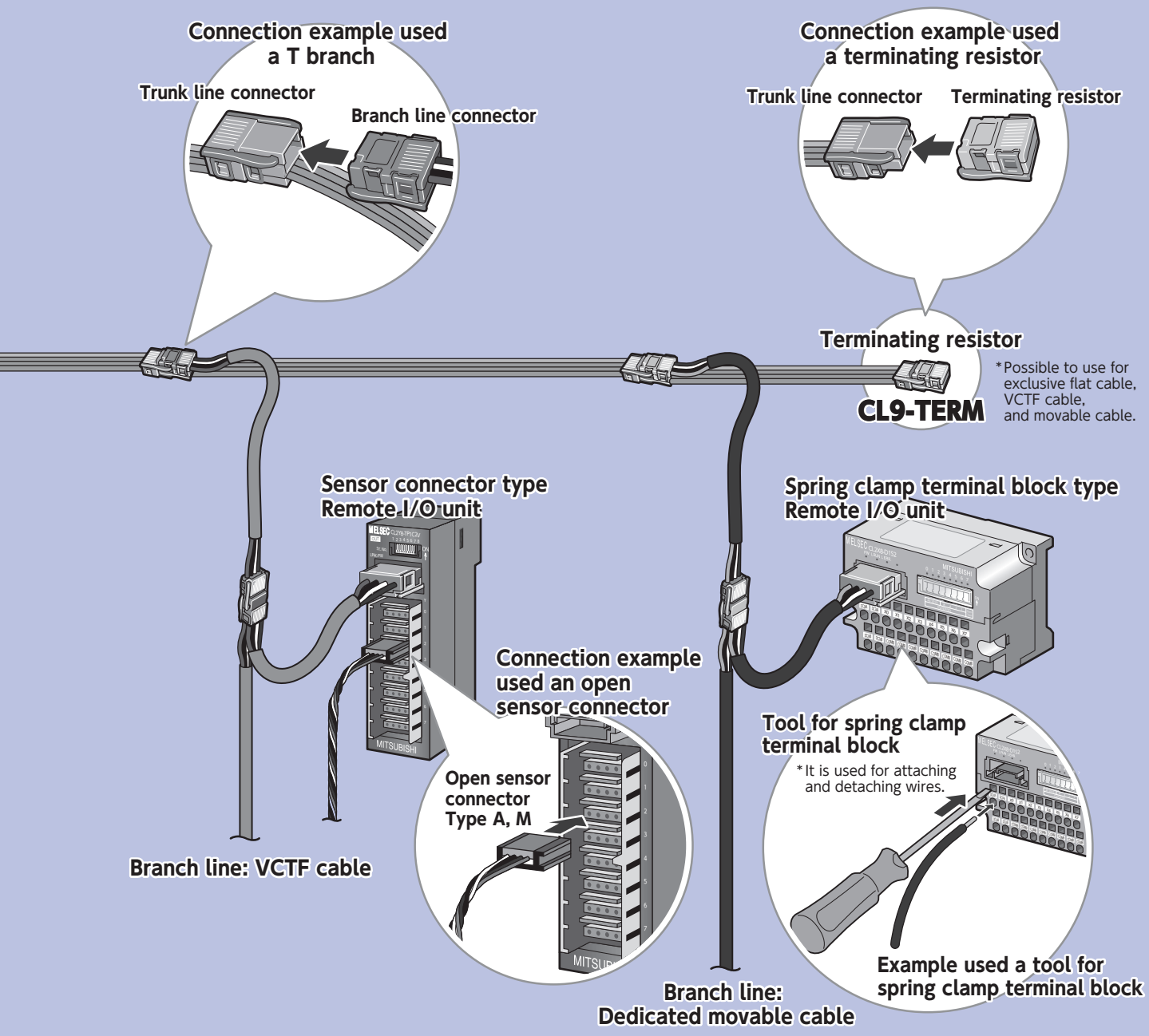
CL9-MV4-075

■Open sensor connector M type

ECN-M***

■Open sensor connector A type

ECN-A***



CC-Link/LT connection accessory

Dedicated flat cable

CL9-FL4-18

Features

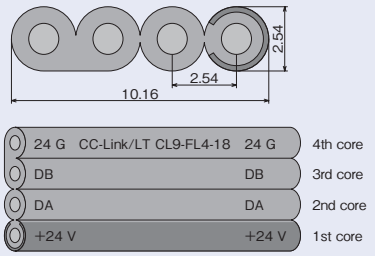
●Cost reduction
・By using a dedicated flat cable, it is possible to reduce wiring man-hour and wiring cost.

●Prevention of miswiring
・Because this cable is asymmetrical on the front and back, if you connect it in reverse, the connector will not close.

Specification

Item	Specification
Cable type	Flat cable
Service temperature range	-10 to 80℃
Rated voltage	24 V DC
Number of core wire	4
Conductor size	18 AWG
Conductor material	Tinned annealed copper wire bunch strand
Conductor resistance (20℃)	23.4 Ω/km or less
Insulator material	Non-lead heat resistant PVC
Insulation resistance (20℃)	10 MΩ or more
Withstand voltage	500 V AC for 1 minute

■External dimension drawing



Unit [mm]

Exclusive movable cable

CL9-MV4-075

Features

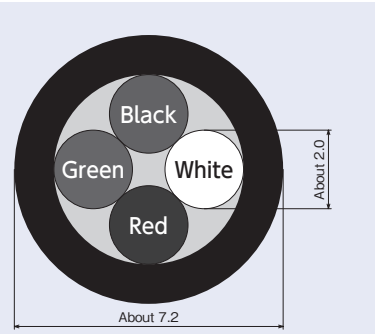
●Insulator with excellent bending property (ETFE) and wire structure enable bending performance of 4 million times or more.*1
*1. This is the measured value under specified conditions.

●A sheath with excellent oil resistance enables to use in environments where cutting oil and lubricant are easily adhered.

Specification

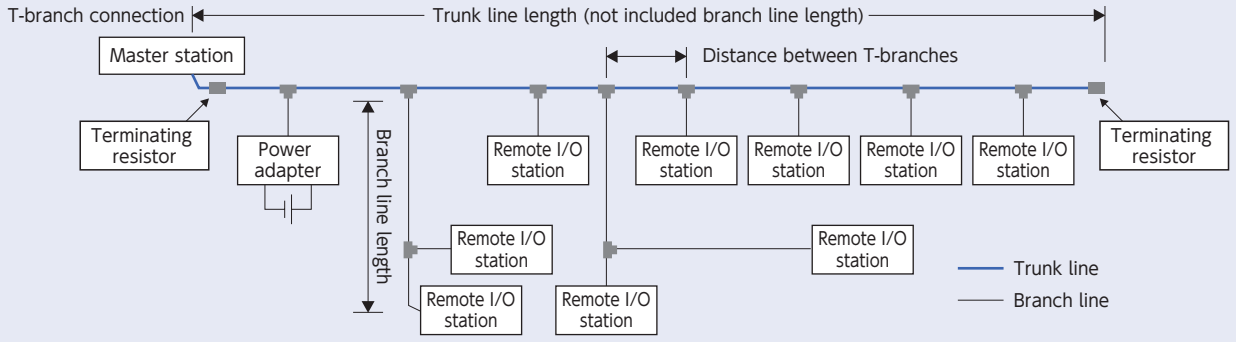
Item	Specification
Cable type	Round type cabtire cable for moving parts
Service temperature range	-10 to 105℃
Rated voltage	24 V DC
Number of core wire	4
Conductor size	0.75 mm^2
Conductor material	Annealed copper wire for electrical use
Conductor resistance (20℃)	26.0 Ω/Km
Insulator material	ETFE
Insulation resistance (20℃)	2500 MΩ · km or more
Withstand voltage	1500 V AC for 1 minute

■External dimension drawing



Unit [mm]

Communication (network wiring) specification



Item	Specification			Remarks
Transmission speed	2.5 Mbps	625 kbps	156 kbps	–
Station to station distance	Unlimited			–
Maximum number of connected branches (per branch)	8 units			–
Trunk line length	35 m	100 m	500 m	Cable length between terminating resistors (Not included branch line length)
Distance between T-branches	Unlimited			–
Maximum branch line length*1	4 m	16 m	60 m	Cable length per branch (Including cable from connector to equipment)
Total branch line length*1	15 m	50 m	200 m	The Total Branch line length

*1. The length branched from the branch line is also included in the maximum branch line length and total branch line length.
It is disable to mix different kind of cables in the trunk line and the same branch line.

Crimp tool for connector

L-TOOL-N

Features

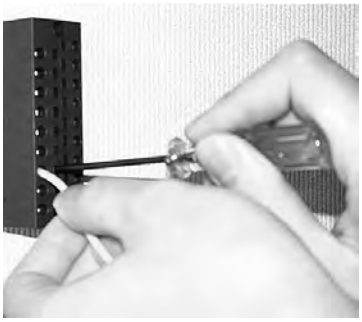
- It is used when crimping a connector onto a cable. Since the press-contacting surface is flat and operates in parallel, once operation enables press-contact reliably.
- Almost no pressure crack on the connector.
- The stopper prevents excessive pressure welding and breakage.

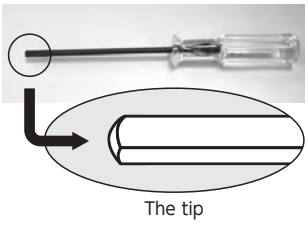
Tool for spring clamp terminal block

KD-5339

Features

- Use for attaching and detaching the wire to the spring clamp terminal block.
- Exclusively developed tool maintains the reliability. Since the tip is processed in a round shape, no damage to the spring clamp terminal part or the terminal block resin part.





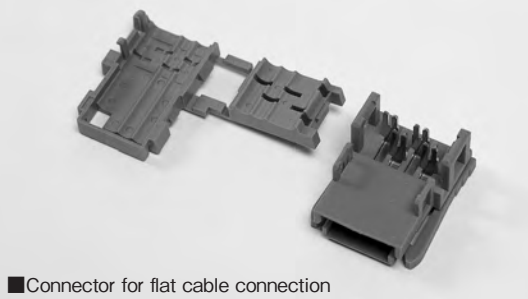
Connector

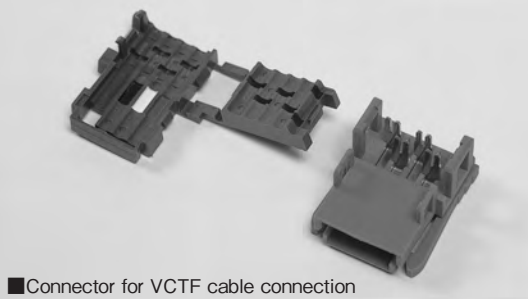
Features

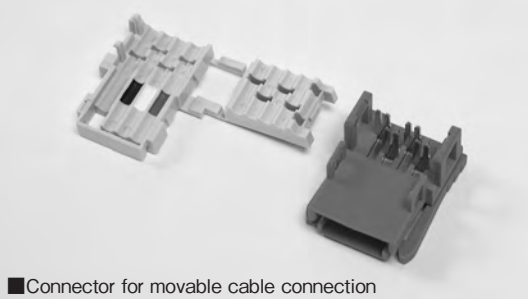
●Easy task
・Connector installation can be easily pressed with a dedicated crimp tool (model: L-TOOL-N).
The installation can also be done with pliers on the market.

●Prevention of miswiring
・The connector has a window for checking miswiring.
With the connector for flat cable connection, it is incorrect wiring if orange cable from the confirmation window is shown.
・With the connector for VCTF/movable cable connection, if red, white and black cable are shown, it is incorrect wiring.
・Cover of the VCTF/movable cable connector has a color mark for preventing miswiring.

●Multifunctional connector
・Cutting the tip resin part of cover with a nipper and so on, it can be used as a connector for branch connection.
・The fitting part has both male connector and female connector, it is possible to join with same connector.
Also, each connector of dedicated flat/VCTF/movable cable can also be jointed to each other.


■Connector for flat cable connection


■Connector for VCTF cable connection


■Connector for movable cable connection

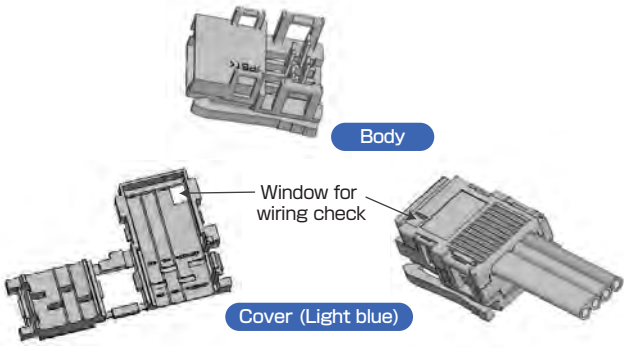
Specification

Item	Specification
Service temperature range	-20 to 85℃ (when 2 A is energized) -20 to 70℃ (when 5 A is energized)
Rated voltage	24 V DC
Rated current	5.0 A
Latch holding force	98 N or more (vertical direction)
Insertion durability	300 insertions
Insulation resistance	1000 MΩ or more
Withstand voltage	1000 V AC for 1 minute
Flame retardance	UL 94 V-0

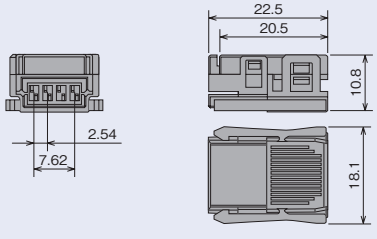
Connector for flat cable

CL9-CNF-18

Component diagram



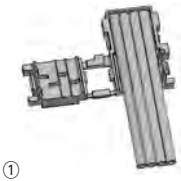
■External dimension drawing



Unit [mm]

Work procedure of pressure welding connector

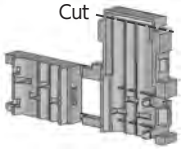
1) Terminal processing


① Set the wire correctly on the cover. (Pay attention to wire color)


② Close the cover so as to sandwich the wire.


③ Press the cover by pushing with the hand tool such as pliers.

2) T-branch processing



① Cut above the dotted line in the figure.


② Set the wire correctly on the cover. (Pay attention to wire color)

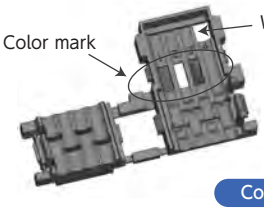

③ Press the cover by pushing with the hand tool such as pliers.

Connector for VCTF cable

CL9-CNR-23

Component diagram

Body

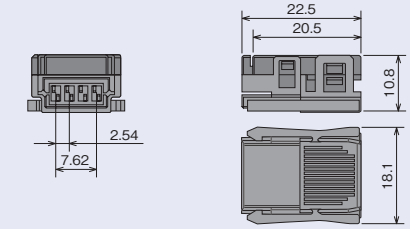


Cover CL9-CNR-23 (green)
CL9-CNR-20 (yellow green)

Applicable cable specification

Item	Type	
	VCTF cable	Movable cable
Number of core wire (color)	4 cores (red, white, black, green)	
Conductor nominal cross-sectional area	0.75 mm^2	
Cable insulator outer diameter	ϕ2.1~2.4	ϕ1.8~2.1
Applicable cable	Product conforming to JIS C 3306	CC-Link Association certified product (Model name: CL9-MV4-075)

■External dimension drawing



・CL9-CNR-23
cover color:green

・CL9-CNR-20
cover color:yellow green

Unit [mm]

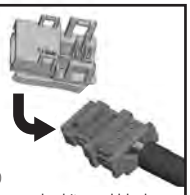
Connector for movable cable

CL9-CNR-20

Work procedure of pressure welding connector

1) Terminal processing

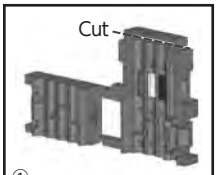
① Match the color mark of the cover with the color of the cable.



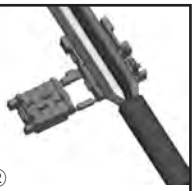
② When red, white and black cables are shown from the windows for checking miswiring, it is incorrect wiring.

③ Check the four latches are set.

2) T-branch processing



① Cut above the dotted line in the figure.



② Match the color mark of the cover with the color of the cable.

③ When red, white and black cables are shown from the windows for checking miswiring, it is incorrect wiring.

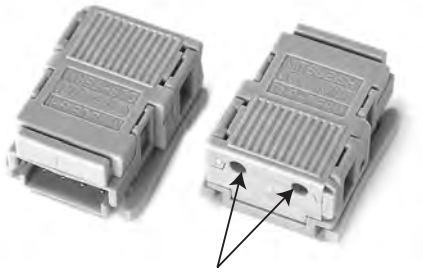
Terminating resistor

CL9-TERM

Features

●Easy Maintenance
・A small size.
One touch mounting is possible.
Windows for voltage check make it easy to check the voltage of the trunk line.

●CL9-TERM
・It can be used when configuring the system with a dedicated flat/VCTF/movable cable alone, and when configuring the system by mixing a dedicated flat/VCTF/movable cable.



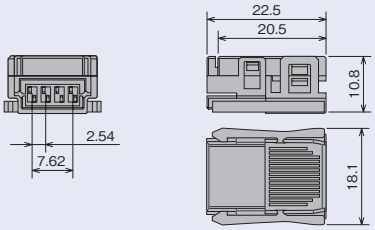
Windows for voltage check

Specification

Item	Specification
Service temperature range	-20 to 70℃
Rated voltage	24 V DC
Rated power	1/2 W
Latch holding force	98 N or more (vertical direction)
Insertion durability	300 insertions
Insulation resistance	1000 MΩ or more
Withstand voltage	1000 V AC for 1 minute
Flame retardance	UL94 V-0

* Use terminating resistors of the same model name at both ends of the trunk line.

■External dimension drawing



・CL9-TERM

Unit [mm]

MEMO

Renewal Tool-related products

■Servo-related products
MR-J2S Renewal Tool: page 2-2

Mitsubishi General-Purpose AC Servo Renewal Tool

We will support you to replace MR-J2 Super series with MR-J4 series.

■Compatible models
- •MR-J2S-A(1) (0.1 to 37 kW)
- •MR-J2S-A4 (0.6 to 55 kW)
- •MR-J2S-B(1) (0.1 to 37 kW)
- •MR-J2S-B4 (0.6 to 55 kW)
- •MR-J2S-CP (0.1 to 7 kW)

MR-J2S

MR-J4

Features

■Replacement can be done in a short time by diverting the existing wiring and the mounting holes.

■Replacement is possible without changing host controller and SSCNET cable.

■It is possible to replace only single axis with a multi-axis system.

■MR-J4 servo amplifier can control MR-J2S motor.

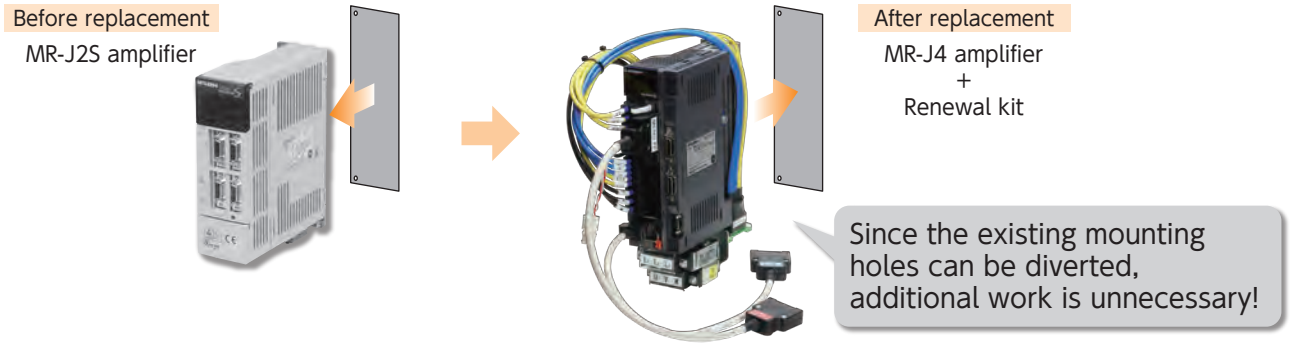
Notes on replacement

- For MR-J2S servo amplifiers and MR-J4 servo amplifiers, since these initialization time after power is supplied are different, it may be necessary to change the program of the existing device.
  (* Please pay particular attention to the electromagnetic brake release time of the vertical axis. The vertical axis may descend.)
- When using this renewal tool, the external dimensions will increase compared to the existing MR-J2S servo amplifier. Please refer to the external dimensions drawing for the incremental dimensions and select after confirming whether you can secure the incremental dimensions.
- In secondary replacement or batch replacement (both first and second step replacement), the monitor output value (motor rotation speed) differs from the existing amplifier due to the difference in the motor maximum rotation speed. Please note that the program change is needed when using monitor output with existing equipment.
- Even when this renewal tool is used, please note that depending on the function, the function of MR-J2S servo may not be 100% compatible.
- When using the servo system controller and positioning unit (model: A1SD75P, etc.), depending on the existing situation, it may be necessary to change the existing wiring and add noise filters and so on to prevent noise.
- For replacing MR-J2S Series with MR-J4 Series, please refer to Guide for Replacing MR-J2S/J2M Series with J4 Series “L(NA)03093)” issued by Mitsubishi Electric Corporation, and Guide for Replacing MELSERVO-J2S Series using MR-J2S Renewal Tool (X903130707) available on our Mitsubishi Electric System & Service website.
- The renewal kit does not support the alarm code output function nor the RS-422/232 serial communication function.
- The renewal kit for J2S-CP does not support the DI/DO combined use function. Also, when the settings of the EMG signal are changed by the existing J2S-CP amplifier, it is necessary to change the existing wiring.
- When the existing encoder cable is a 4 wire type cable, special products are used for the motor side conversion cable. Please contact us for purchase separately.

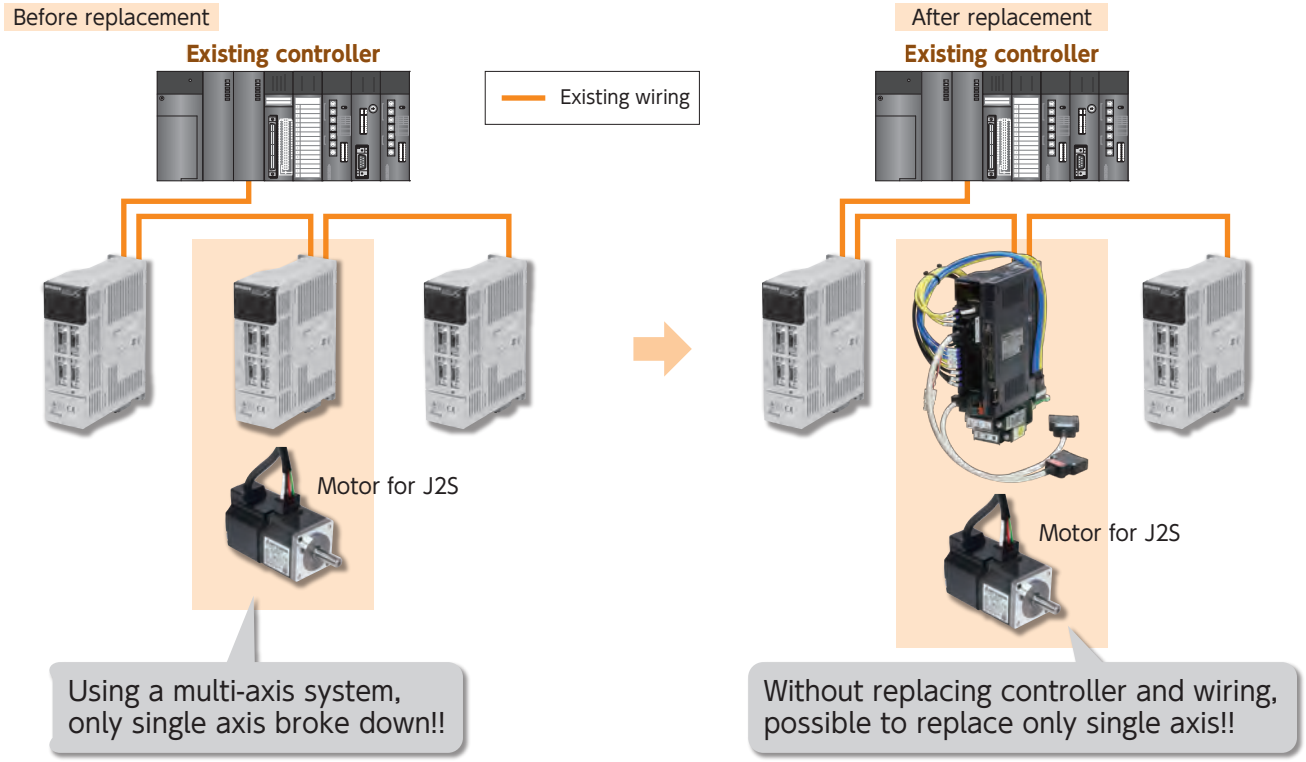
Replace MELSERVO-J2S series with MELSERVO-J4 series.

The MR-J2S renewal tool is used to replace the MR-J2S series amplifier in present use with the MR-J4 series amplifier.
The renewal kit provides compatibility with both the existing mounting dimensions and terminal block.
In addition, the conversion cable has compatibility so that various existing cables can be diverted to replacement models.

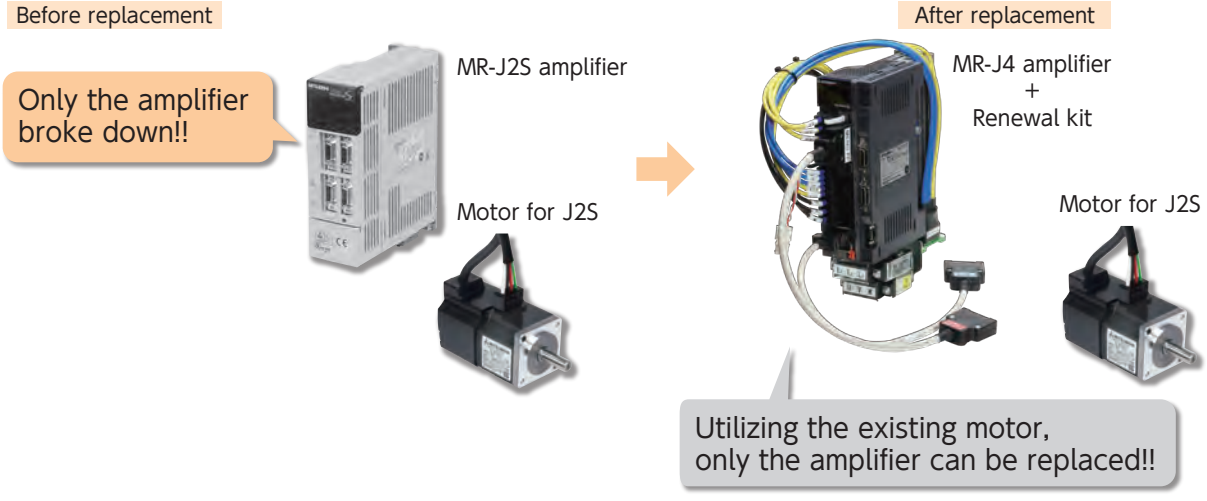
Diverting the mounting holes, possible to replace in a short time!



Without changing the host controller and the existing wiring, possible to replace! Using a multi-axis system, possible to replace only single axis!



With the MR-J4 amplifier, posssible to drive the motor for MR-J2S!

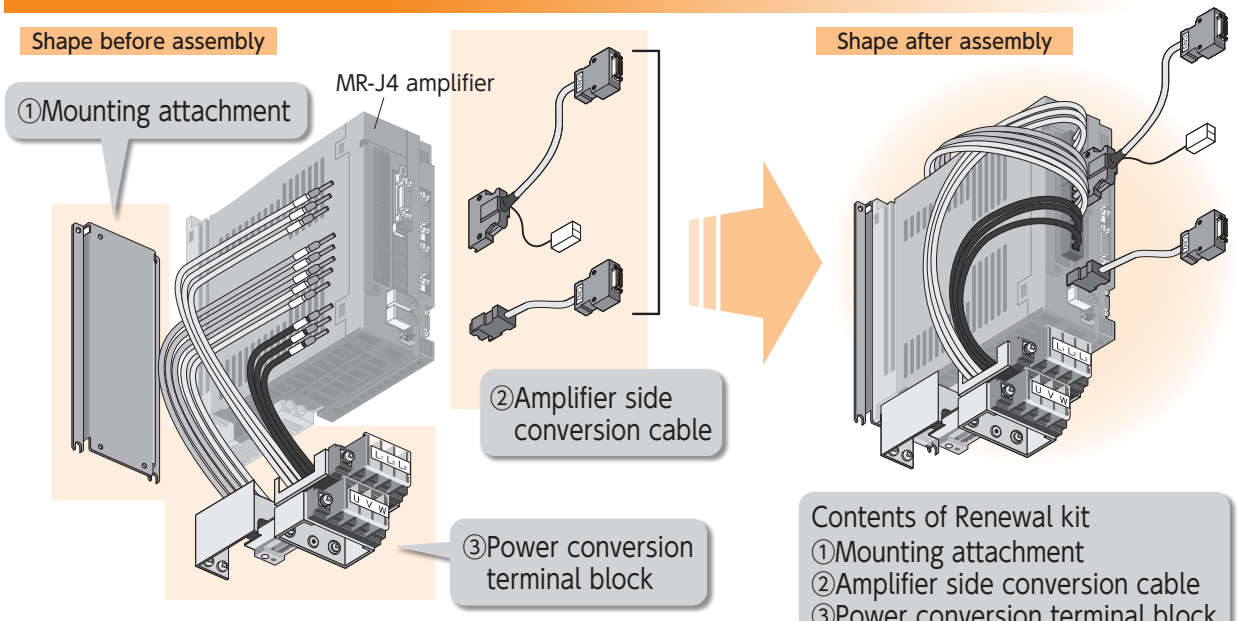


Renewal Tool-related products

Renewal Tool (*1)

Amplifier side conversion tool

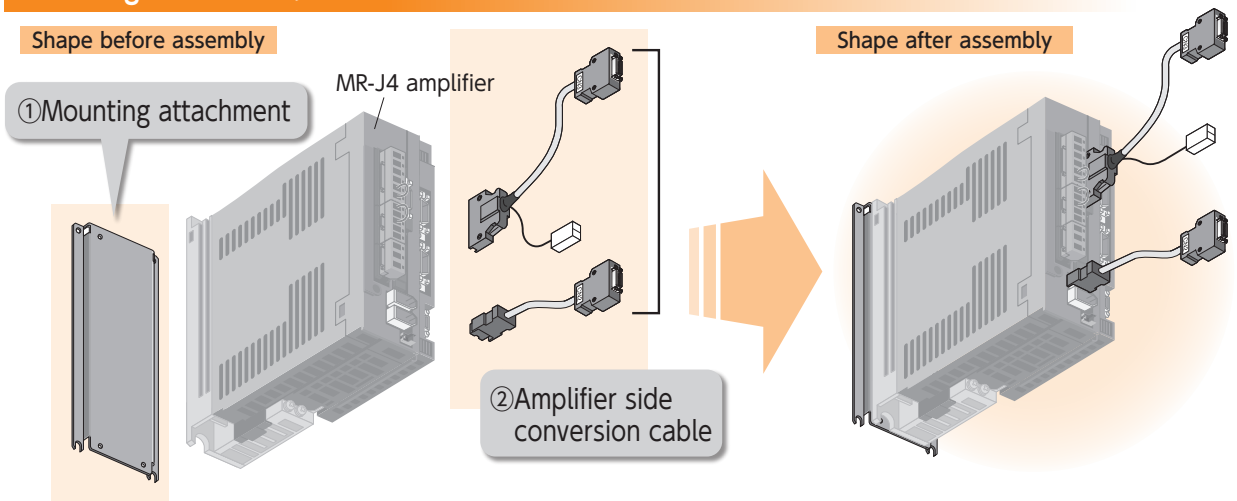
Renewal kit structure



* This figure shows Renewal Kit SC-J2SBJ4KT1K.
* Renewal kit SC-J2S□J4KT02K, SC-J2S□J4KT06K has no mounting attachment.

When the existing space is narrow and the renewal kit cannot be installed with, please select the below.

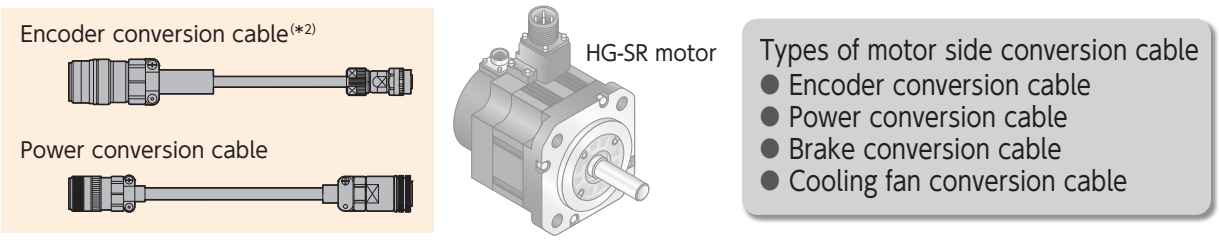
Mounting attachment, conversion cable set



* This figure shows mounting attachment SC-J2SJ4BS02 + amplifier side conversion cable set SC-J2SBJ4CSET-01.
* There is no power conversion terminal block in mounting attachment.
* When replacing, please purchase both mounting attachment and amplifier side conversion cable set.

Motor side conversion tool

Motor side conversion cable



* This figure shows motor side conversion cable for HG-SR motor. Cable shape varies depending on the motor.
* When using a motor with a brake, a separate brake conversion cable is required.

*1. The renewal tool is a generic term including renewal kit, various conversion cables, mounting attachment and so on.
*2. If the existing encoder cable is a 4 wire type cable, special products are used for the motor side conversion cable. Please contact us for purchase separately.

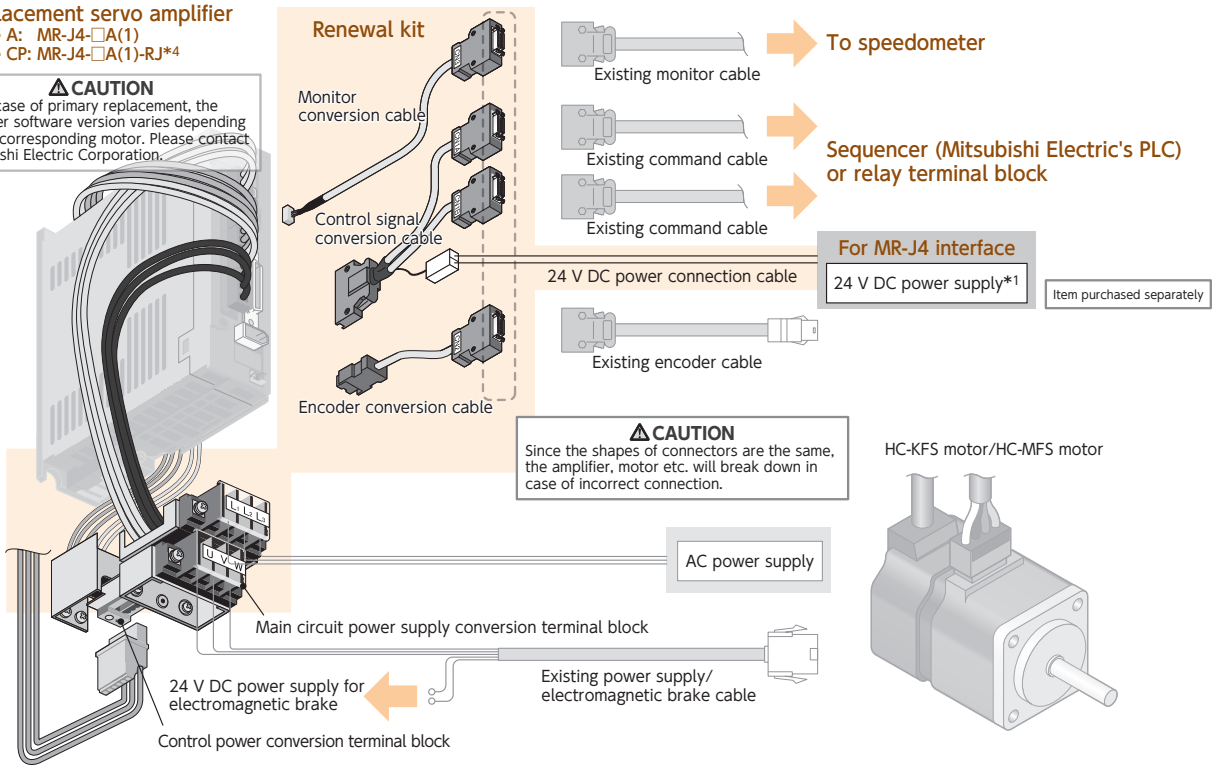
【Note】
If there is not enough space to install the power supply conversion terminal block at the bottom of the existing amplifier, please select the mounting attachment and conversion cable set.

Basic configuration examples (for 100 V AC/200 V AC)
Type A (general-purpose interface)/Type CP (for built-in positioning function)*5, 6, 7

Primary replacement (when replacing only the servo amplifier)

●Replacement servo amplifier
Type A: MR-J4-□A(1)
Type CP: MR-J4-□A(1)-RJ*4

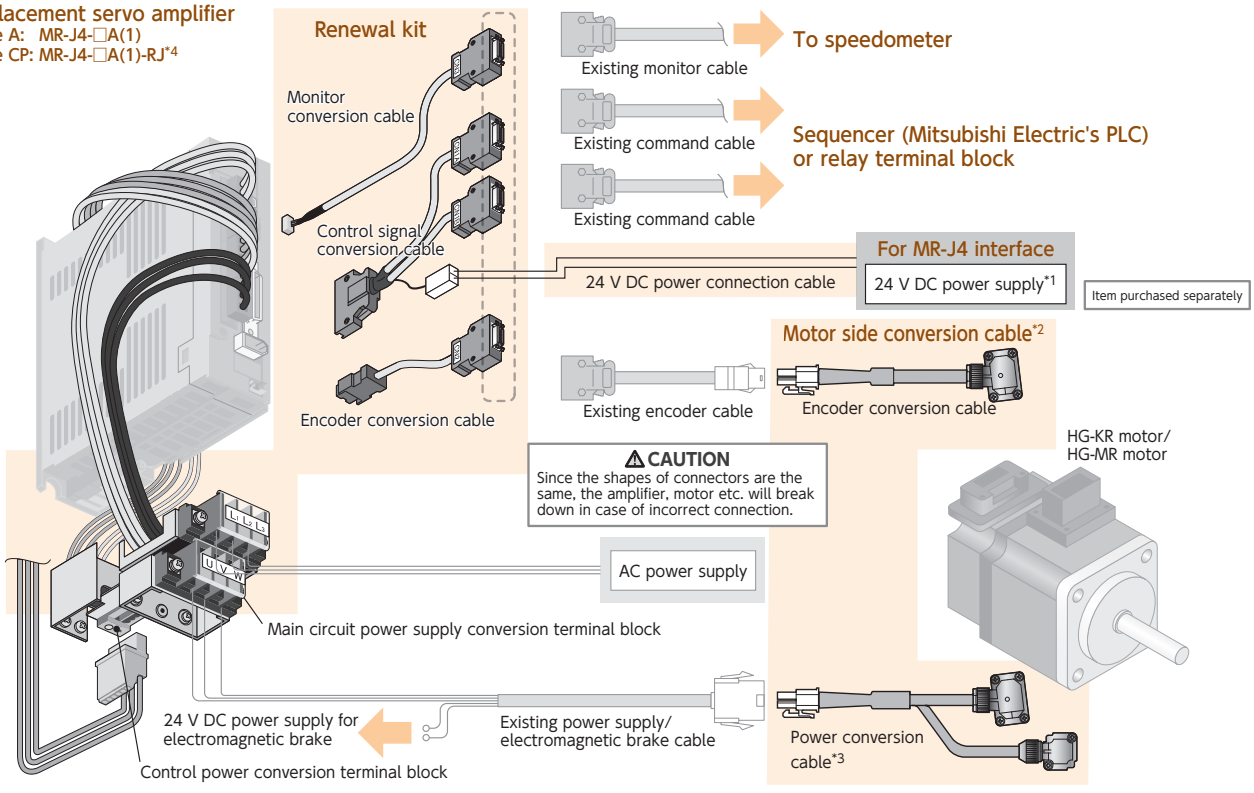
⚠CAUTION
In the case of primary replacement, the amplifier software version varies depending on the corresponding motor. Please contact Mitsubishi Electric Corporation.



Secondary replacement (when servo motor is replaced after servo amplifier replacement)

Batch replacement (when replacing servo amplifier and servo motor at once)

●Replacement servo amplifier
Type A: MR-J4-□A(1)
Type CP: MR-J4-□A(1)-RJ*4



*1. In the case of replacing, a separate 24 V DC power supply (current capacity 80 mA or more) is required for the interface.
With regards to details of recommended specifications, please refer to page 2-18.
(It is required only when using 24 V DC power supply for internal interface with MR-J2S servo amplifier. On the other hand, it is unnecessary when the 24 V DC power supply for interface is supplied externally.)

*2. For the motor side conversion cable, please refer to the replacement combination table on page 2-9, 2-13.

*3. When replacing HC-KFS, MFS motor with HG-KR, MR motor, the electromagnetic brake cable is built in the power supply cable.

*4. Software version B3 and later support J2S-CP renewal.

*5. When replacing the J2S 30 kW, 37 kW amplifier, please select the mounting attachment and the amplifier side conversion cable set.

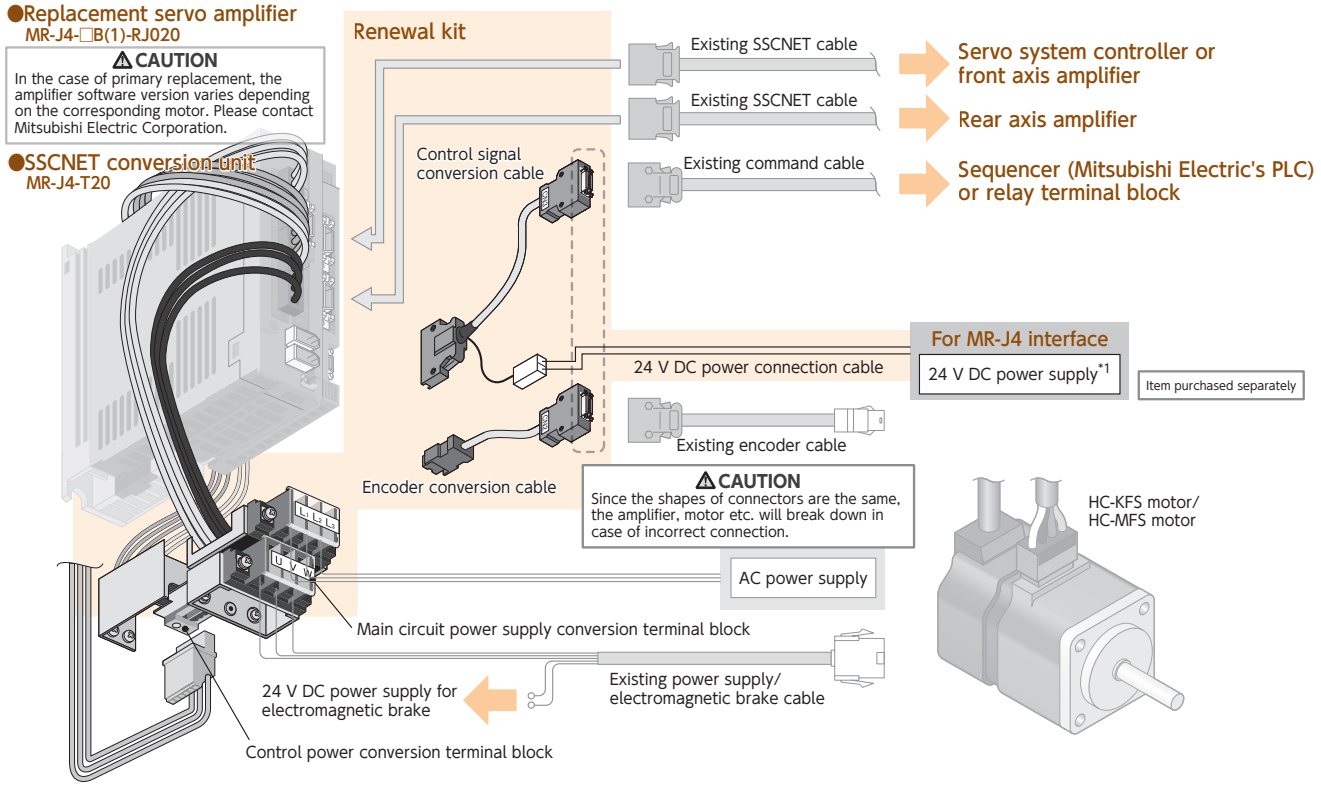
*6. Renewal kit neither support alarm code output function nor RS-422/232 serial communication function.

*7. The renewal kit for J2S-CP does not support the DI / DO combined use function. Also, when the settings of the EMG signal are changed by the existing J2S-CP amplifier, it is necessary to change the existing wiring.

[Note]
If there is not enough space to install the power supply conversion terminal block at the bottom of the existing amplifier, please select the mounting attachment and conversion cable set.

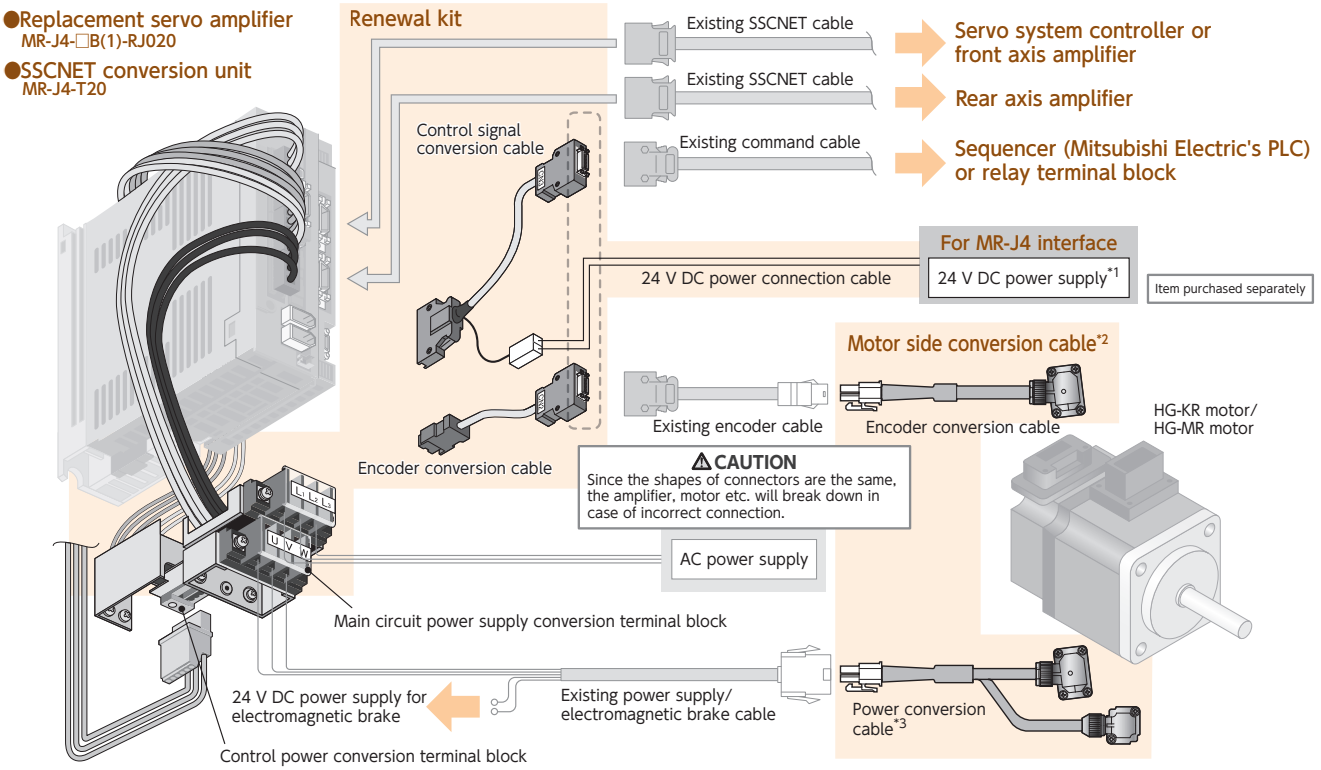
Basic configuration examples (for 100 V AC/200 V AC) Type B (SSCNET interface)*4

Primary replacement (when replacing only the servo amplifier)



Secondary replacement (when servo motor is replaced after servo amplifier replacement)

Batch replacement (when replacing servo amplifier and servo motor at once)



*1. In the case of replacing, a separate 24 V DC power supply (current capacity 80 mA or more) is required for the interface.
With regards to details of recommended specifications, please refer to page 2-18.
(It is required only when using 24 V DC power supply for internal interface with MR-J2S servo amplifier. On the other hand, it is unnecessary when the 24 V DC power supply for interface is supplied externally.)

*2. For the motor side conversion cable, please refer to the replacement combination table on page 2-11, 2-12.

*3. When replacing HC-KFS, MFS motor with HG-KR, MR motor, the electromagnetic brake cable is built in the power supply cable.

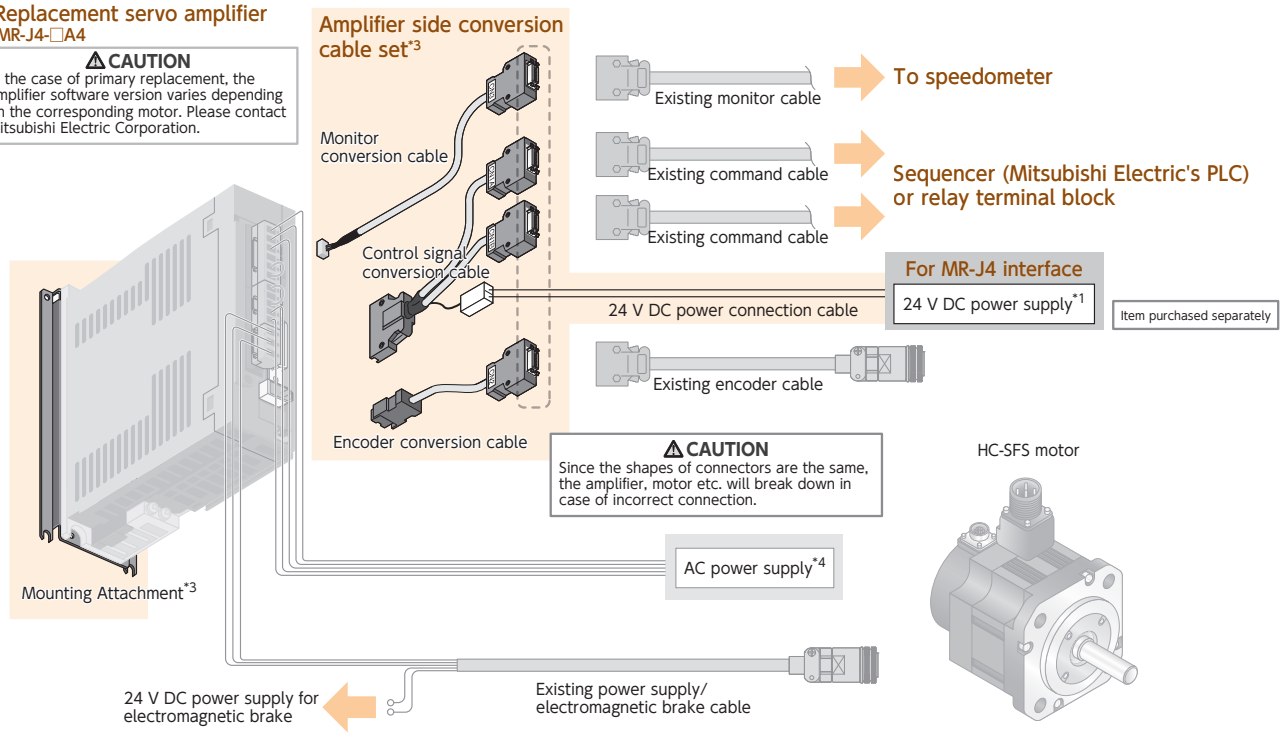
*4. When replacing the J2S 30 kW, 37 kW amplifier, please select the mounting attachment and the amplifier side conversion cable set.

Basic configuration example (for 100 V AC/200 V AC/400 V AC)
Type A (general-purpose interface) *3, 4, 6

Primary replacement (when replacing only the servo amplifier)

●Replacement servo amplifier
MR-J4-□A4

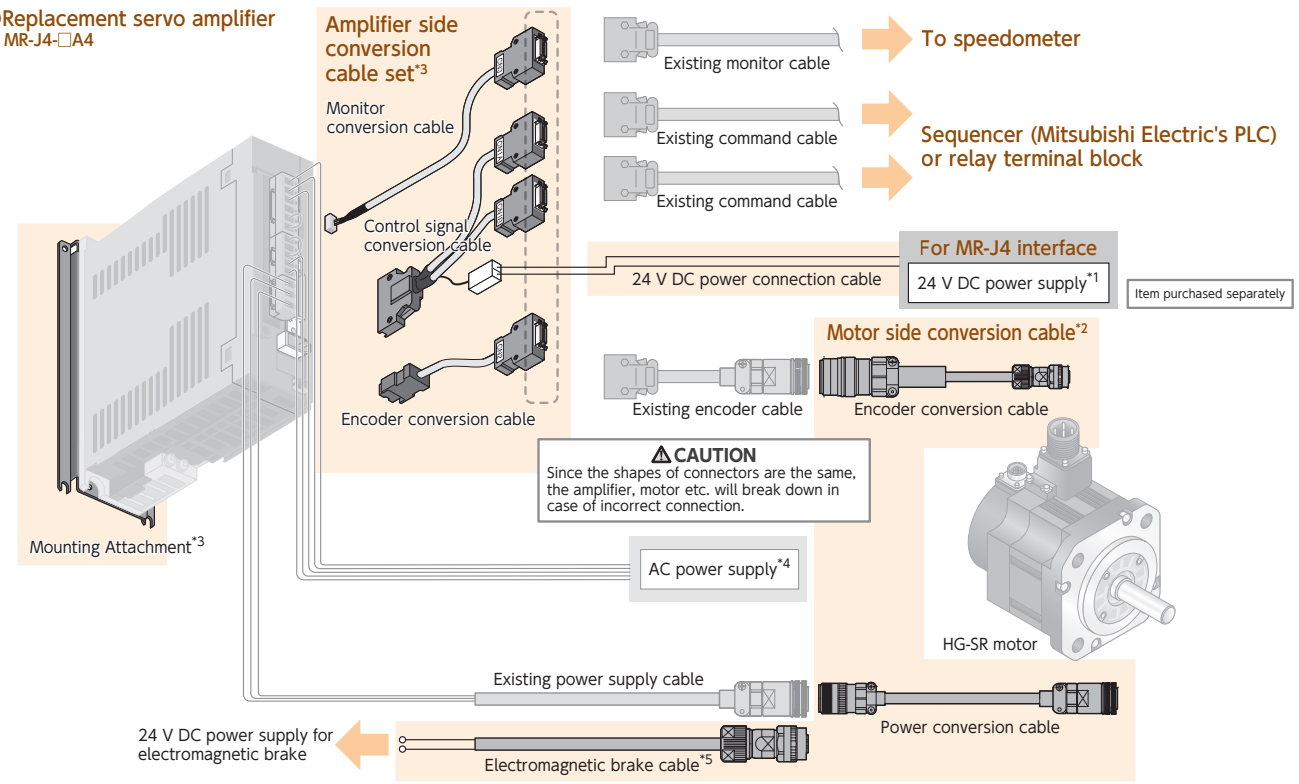
⚠CAUTION
In the case of primary replacement, the amplifier software version varies depending on the corresponding motor. Please contact Mitsubishi Electric Corporation.



Secondary replacement (when servo motor is replaced after servo amplifier replacement)

Batch replacement (when replacing servo amplifier and servo motor at once)

●Replacement servo amplifier
MR-J4-□A4



*1. In the case of replacing, a separate 24 V DC power supply (current capacity 80 mA or more) is required for the interface.
With regards to details of recommended specifications, please refer to page 2-18.
(It is required only when using 24 V DC power supply for internal interface with MR-J2S servo amplifier. On the other hand, it is unnecessary when the 24 V DC power supply for interface is supplied externally.)

*2. For the motor side conversion cable, please refer to the replacement combination table on page 2-9, 2-10.

*3. When replacing, it is necessary to arrange the mounting attachment and the amplifier side conversion cable set separately. For the selection method, please refer to the replacement combination table on page 2-9, 2-10.

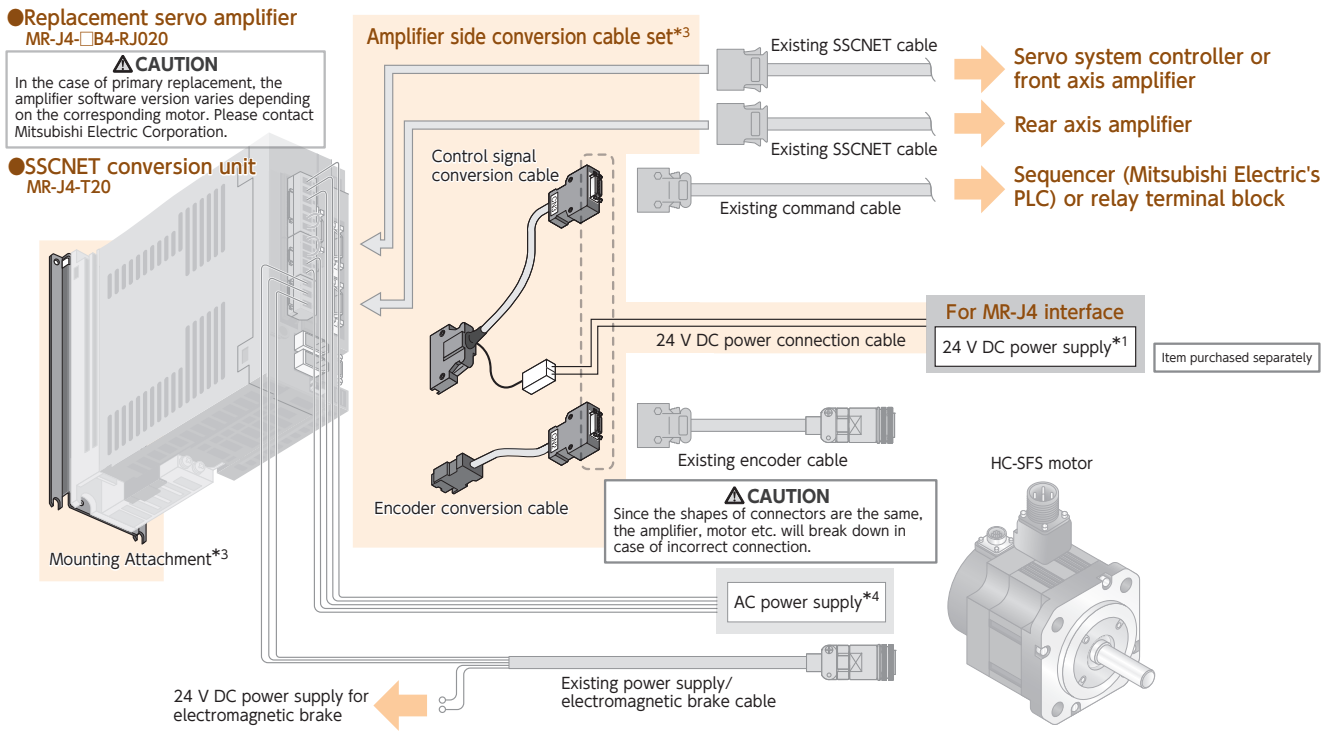
*4. The mounting attachment does not have conversion terminal block for main circuit power supply nor control power supply. For the wiring method, please refer to MR-J4 servo amplifier technical data published by Mitsubishi Electric Corporation.

*5. In the case of secondary replacement or batch replacement of the motor with a brake of the HC-SFS series, it is necessary to install a new electromagnetic brake cable. Please use our company's electromagnetic brake cable (SC-BKC1CBL□M-L or SC-BKC1CBL□M-H).

*6. Renewal kit does not support alarm code output function nor RS-422/232 serial communication function.

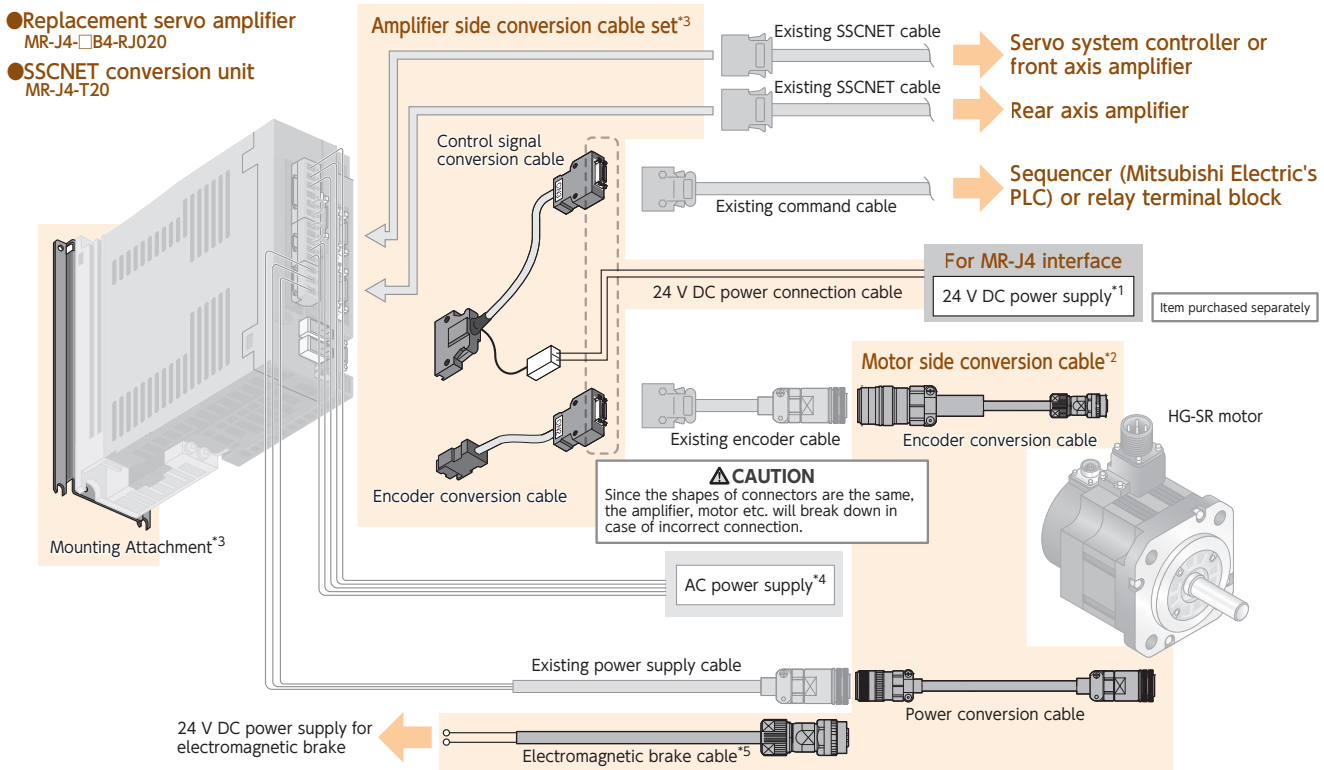
Basic configuration example (for 100 V AC/200 V AC/400 V AC) Type B (SSCNET interface)*3, 4

Primary replacement (when replacing only the servo amplifier)



Secondary replacement (when servo motor is replaced after servo amplifier replacement)

Batch replacement (when replacing servo amplifier and servo motor at once)



*1. In the case of replacing, a separate 24 V DC power supply (current capacity 80 mA or more) is required for the interface.
With regards to details of recommended specifications, please refer to page 2-18.
(It is required only when using 24 V DC power supply for internal interface with MR-J2S servo amplifier. On the other hand, it is unnecessary when the 24 V DC power supply for interface is supplied externally.)

*2. For the motor side conversion cable, please refer to the replacement combination table on page 2-11, 2-12.

*3. When replacing, it is necessary to arrange the mounting attachment and the amplifier side conversion cable set separately. For the selection method, please refer to the replacement combination table on page 2-11, 2-12.

*4. The mounting attachment does not have conversion terminal block for main circuit power supply nor control power supply.
For the wiring method, please refer to MR-J4 servo amplifier technical data published by Mitsubishi Electric Corporation.

*5. For secondary replacement or batch replacement of the motor with brake of the HC-SFS series, it is necessary to install a new electromagnetic brake cable.
Please use our company's electromagnetic brake cable (SC-BKC1CBL□M-L or SC-BKC1CBL□M-H).

Renewal replacement combination table

Primary replacement
When replacing only the servo amplifier

Secondary replacement
When servo motor is replaced after servo amplifier replacement

Batch replacement
When replacing servo amplifier and servo motor at once

Type A (100 V AC/200 V AC) (*1)

○: Compatible, △: Limited function or available with some conditions, ×: Incompatible

Existing models		Primary replacement/ batch replacement models(*2, 3)		Secondary replacement/batch replacement models					
						Motor side conversion cable model name (*18, 21)			
Servo amplifier model name	Servo motor model name	Servo amplifier model name (*4, 5)	Renewal kit model name (*19)	Servo motor model name (*4)	Compatible	Power conversion cable	Encoder conversion cable	Brake conversion cable
[Small capacity, low inertia HC-KFS series Standard/with a brake] (B) means with a brake								
MR-J2S-10A(1)	HC-KFS053(B)	MR-J4-10A(1)	SC-J2SJ4KT02K	HG-KR053(B)	△ (*6)	Without a brake: SC-J2SJ4PW1C03M-■ With a brake: SC-J2SJ4PWBK1C03M-■	SC-HAJ3ENM1C03M-■	Built-in power conversion cable
	HC-KFS13(B)			HG-KR13(B)				
MR-J2S-20A(1)	HC-KFS23(B)	MR-J4-20A(1)		HG-KR23(B)				
MR-J2S-40A(1)	HC-KFS43(B)	MR-J4-40A(1)	SC-J2SJ4KT06K	HG-KR43(B)				
MR-J2S-70A	HC-KFS73(B)	MR-J4-70A	SC-J2SJ4KT1K	HG-KR73(B)				
[Small capacity, ultra low inertia HC-MFS series Standard/with a brake] (B) means with a brake								
MR-J2S-10A(1)	HC-MFS053(B)	MR-J4-10A(1)	SC-J2SJ4KT02K	HG-MR053(B)	○	Without a brake: SC-J2SJ4PW1C03M-■ With a brake: SC-J2SJ4PWBK1C03M-■	SC-HAJ3ENM1C03M-■	Built-in power conversion cable
	HC-MFS13(B)			HG-MR13(B)				
MR-J2S-20A(1)	HC-MFS23(B)	MR-J4-20A(1)		HG-MR23(B)				
MR-J2S-40A(1)	HC-MFS43(B)	MR-J4-40A(1)	SC-J2SJ4KT06K	HG-MR43(B)				
MR-J2S-70A	HC-MFS73(B)	MR-J4-70A	SC-J2SJ4KT1K	HG-MR73(B)				
[Medium capacity, medium inertia HC-SFS series Standard/with a brake] (B) means with a brake								
MR-J2S-60A	HC-SFS52(B)	MR-J4-60A	SC-J2SJ4KT06K	HG-SR52(B)	△ (*7)	SC-SAJ3PW2KC1M-S2	SC-HAJ3ENM3C1M	(*8)
MR-J2S-100A	HC-SFS102(B)	MR-J4-100A	SC-J2SJ4KT1K	HG-SR102(B)				
MR-J2S-200A	HC-SFS152(B)	MR-J4-200A	SC-J2SJ4KT3K	HG-SR152(B)				
	HC-SFS202(B)			HG-SR202(B)		SC-HAJ3PW1C1M		
MR-J2S-350A	HC-SFS352(B)	MR-J4-350A		HG-SR352(B)				
MR-J2S-500A	HC-SFS502(B)	MR-J4-500A	SC-J2SJ4KT5K	HG-SR502(B)				
MR-J2S-700A	HC-SFS702(B)	MR-J4-700A	SC-J2SJ4KT7K	HG-SR702(B)		Existing cables available		
[Medium Capacity, ultra low inertia HC-RFS series Standard/with a brake] (B) means with a brake								
MR-J2S-200A	HC-RFS103(B)	MR-J4-200A	SC-J2SJ4KT3K	HG-RR103(B)	○	Existing cables available	SC-HAJ3ENM3C1M	Existing cables available
	HC-RFS153(B)			HG-RR153(B)				
MR-J2S-350A	HC-RFS203(B)	MR-J4-350A		HG-RR203(B)				
MR-J2S-500A	HC-RFS353(B)	MR-J4-500A	SC-J2SJ4KT5K	HG-RR353(B)				
	HC-RFS503(B)			HG-RR503(B)				
[Medium capacity, flat type HC-UFS series Standard/with a brake] (B) means with a brake								
MR-J2S-70A	HC-UFS72(B)	MR-J4-70A	SC-J2SJ4KT1K	HG-UR72(B)	○	Existing cables available	SC-HAJ3ENM3C1M	Existing cables available
MR-J2S-200A	HC-UFS152(B)	MR-J4-200A	SC-J2SJ4KT3K	HG-UR152(B)				
MR-J2S-350A	HC-UFS202(B)	MR-J4-350A		HG-UR202(B)				
MR-J2S-500A	HC-UFS352(B)	MR-J4-500A	SC-J2SJ4KT5K	HG-UR352(B)				
	HC-UFS502(B)			HG-UR502(B)				
[Small capacity, flat type HC-UFS series Standard/with a brake] (B) means with a brake								
MR-J2S-10A(1)	HC-UFS13(B)	MR-J4-10A(1)	SC-J2SJ4KT02K	HG-KR13(B)	× (*9)	Without a brake: SC-J2SJ4PW1C03M-■ With a brake: SC-J2SJ4PWBK1C03M-■	SC-HAJ3ENM1C03M-■	Built-in power conversion cable
MR-J2S-20A(1)	HC-UFS23(B)	MR-J4-20A(1)		HG-KR23(B)				
MR-J2S-40A(1)	HC-UFS43(B)	MR-J4-40A(1)	SC-J2SJ4KT06K	HG-KR43(B)				
MR-J2S-70A	HC-UFS73(B)	MR-J4-70A	SC-J2SJ4KT1K	HG-KR73(B)				

Existing models		Primary replacement models(*2)		Secondary replacement/batch replacement models						
								Motor side conversion cable model name (*18, 21)		
Servo amplifier model name	Servo motor model name	Servo amplifier model name (*4, 5)	Renewal kit model name (*19)	Servo amplifier model name (*4)	Servo motor model name (*4)	Compatible	Renewal kit model name	Power conversion cable	Encoder conversion cable	Brake/cooling fan conversion cable
[Medium large capacity, low inertia HA-LFS 2000 r/min series Standard/with a brake] (B) means with a brake										
MR-J2S-500A	HA-LFS502	MR-J4-500A	SC-J2SJ4KT5K	MR-J4-500A	HG-SR502	× (*9)	SC-J2SJ4KT5K	SC-HAJ3PW1C1M	SC-HAJ3ENM3C1M	
MR-J2S-700A	HA-LFS702	MR-J4-700A	SC-J2SJ4KT7K	MR-J4-700A	HG-SR702		SC-J2SJ4KT7K	Existing cables available		
MR-J2S-11KA	HA-LFS11K2(B)	MR-J4-11KA	SC-J2SJ4KT15K	MR-J4-11KA	HG-JR11K1M(B) (*6)		SC-J2SJ4KT15K	SC-J2SJ4PW3C1M-■	Existing cables available	·Brake cable: Existing cable can be used ·Cooling fan cable (*11)
MR-J2S-15KA	HA-LFS15K2(B)	MR-J4-15KA (*12)	SC-J2SJ4KT15K	MR-J4-11KA (*12)	HG-JR11K1M(B)					
MR-J2S-22KA	HA-LFS22K2(B)	MR-J4-22KA (*12)	SC-J2SJ4KT22K	MR-J4-15KA (*12)	HG-JR15K1M(B)		SC-J2SJ4CSET-02 (*13)			
MR-J2S-30KA	HA-LFS30K2	MR-J4-DU30KA (*12, 15)	SC-J2SJ4BS09 + SC-J2SJ4CSET-02	MR-J4-22KA (*12)	HG-JR22K1M			(*10)	(*14)	Cooling fan conversion cable: SC-J2SJ4FAN1C1M
MR-J2S-37KA	HA-LFS37K2	MR-J4-DU37KA (*12, 15)		MR-J4-DU30KA (*12, 15)	HG-JR30K1M		SC-J2SJ4BS09 + SC-J2SJ4CSET-02			

For precautions, please refer to page 2-13.

Renewal Tool-related products

Type A (400 V AC)

○: Compatible, △: Limited function or available with some conditions, ×: Incompatible

Existing models		Primary replacement/ batch replacement models (*2, 3)		Secondary replacement/batch replacement models					
						Motor side conversion cable model name (*21)			
Servo amplifier model name	Servo motor model name	Servo amplifier model name (*4, 5)	Renewal kit model name (*19)	Servo motor model name (*4)	Compatible	Power conversion cable	Encoder conversion cable	Brake conversion cable
[Medium capacity, medium inertia HC-SFS series Standard/with a brake] (B) means with a brake								
MR-J2S-60A4	HC-SFS524(B)	MR-J4-60A4	SC-J2SJ4BS02 + SC-J2SJ4CSET-01	HG-SR524(B)	△ (*7)	SC-SAJ3PW2KC1M-S2	SC-HAJ3ENM3C1M	(*8)
MR-J2S-100A4	HC-SFS1024(B)	MR-J4-100A4		HG-SR1024(B)				
MR-J2S-200A4	HC-SFS1524(B)	MR-J4-200A4	SC-J2SJ4BS03 + SC-J2SJ4CSET-01	HG-SR1524(B)				
	HC-SFS2024(B)			HG-SR2024(B)		SC-HAJ3PW1C1M		
MR-J2S-350A4	HC-SFS3524(B)	MR-J4-350A4	SC-J2SJ4BS04 + SC-J2SJ4CSET-01	HG-SR3524(B)				
MR-J2S-500A4	HC-SFS5024(B)	MR-J4-500A4	SC-J2SJ4CSET-01 (*17)	HG-SR5024(B)				
MR-J2S-700A4	HC-SFS7024(B)	MR-J4-700A4	SC-J2SJ4BS05 + SC-J2SJ4CSET-01	HG-SR7024(B)		Existing cables available		

Existing models		Primary replacement models (*2)		Secondary replacement/batch replacement models						
								Motor side conversion cable model name (*18, 21)		
Servo amplifier model name	Servo motor model name	Servo amplifier model name (*4, 5)	Renewal kit model name (*19)	Servo amplifier model name (*4)	Servo motor model name (*4)	Compatible	Renewal kit model name	Power conversion cable	Encoder conversion cable	Brake/cooling fan conversion cable
[Medium large capacity, low inertia HA-LFS 2000 r/min series Standard/with a brake] (B) means with a brake										
MR-J2S-11KA4	HA-LFS11K24(B)	MR-J4-11KA4	SC-J2SJ4BS06 + SC-J2SJ4CSET-02	MR-J4-11KA4	HG-JR11K1M4(B) (*6)	× (*9)	SC-J2SJ4BS06 + SC-J2SJ4CSET-02	SC-J2SJ4PW3C1M-■	Existing cables available	・Brake cable: Existing cable can be used ・Cooling fan cable(*11)
MR-J2S-15KA4	HA-LFS15K24(B)	MR-J4-15KA4 (*12)		MR-J4-11KA4 (*12)	HG-JR11K1M4(B)					
MR-J2S-22KA4	HA-LFS22K24(B)	MR-J4-22KA4 (*12)	SC-J2SJ4BS07 + SC-J2SJ4CSET-02	MR-J4-15KA4 (*12)	HG-JR15K1M4(B) (*6)		SC-J2SJ4CSET-02 (*13)			
MR-J2S-30KA4	HA-LFS30K24	MR-J4-DU30KA4 (*12, 16)	SC-J2SJ4BS08 + SC-J2SJ4CSET-02	MR-J4-22KA4 (*12)	HG-JR22K1M4			(*10)	(*14)	Cooling fan conversion cable: SC-J2SJ4FAN1C1M
MR-J2S-37KA4	HA-LFS37K24	MR-J4-DU37KA4 (*12, 16)	SC-J2SJ4BS09 + SC-J2SJ4CSET-02	MR-J4-DU30KA4 (*12, 16)	HG-JR30K1M4		SC-J2SJ4BS09 + SC-J2SJ4CSET-02			
MR-J2S-45KA4	HA-LFS45K24	MR-J4-DU45KA4 (*12, 16)		MR-J4-DU37KA4 (*12, 16)	HG-JR37K1M4					
MR-J2S-55KA4	HA-LFS55K24	MR-J4-DU55KA4 (*12, 16)		MR-J4-DU45KA4 (*12, 16)	HG-JR45K1M4 (*6)					

For precautions, please refer to page 2-13.

Type B (100 V AC/200 V AC) (*1)

○: Compatible, △: Limited function or available with some conditions, ×: Incompatible

Existing models		Primary replacement/batch replacement models (*2, 3)			Secondary replacement/batch replacement models				
							Motor side conversion cable model name (*18, 21)		
Servo amplifier model name	Servo motor model name	Servo amplifier model name (*4, 5)	SSCNET conversion unit model name (*4)	Renewal kit model name	Servo motor model name (*4)	Compatible	Power conversion cable	Encoder conversion cable	Brake conversion cable
[Small capacity, low inertia HC-KFS series Standard/with a brake] (B) means with a brake									
MR-J2S-10B(1)	HC-KFS053(B)	MR-J4-10B(1)-RJ020	MR-J4-T20	SC-J2SBJ4KT02K	HG-KR053(B)	△ (*6)	Without a brake: SC-J2SJ4PW1C03M-■ With a brake: SC-J2SJ4PWBK1C03M-■	SC-HAJ3ENM1C03M-■	Built-in power conversion cable
	HC-KFS13(B)				HG-KR13(B)				
MR-J2S-20B(1)	HC-KFS23(B)	MR-J4-20B(1)-RJ020			HG-KR23(B)				
MR-J2S-40B(1)	HC-KFS43(B)	MR-J4-40B(1)-RJ020		SC-J2SBJ4KT06K	HG-KR43(B)				
MR-J2S-70B	HC-KFS73(B)	MR-J4-70B-RJ020		SC-J2SBJ4KT1K	HG-KR73(B)				
[Small capacity, ultra low inertia HC-MFS series Standard/with a brake] (B) means with a brake									
MR-J2S-10B(1)	HC-MFS053(B)	MR-J4-10B(1)-RJ020	MR-J4-T20	SC-J2SBJ4KT02K	HG-MR053(B)	○	Without a brake: SC-J2SJ4PW1C03M-■ With a brake: SC-J2SJ4PWBK1C03M-■	SC-HAJ3ENM1C03M-■	Built-in power conversion cable
	HC-MFS13(B)				HG-MR13(B)				
MR-J2S-20B(1)	HC-MFS23(B)	MR-J4-20B(1)-RJ020			HG-MR23(B)				
MR-J2S-40B(1)	HC-MFS43(B)	MR-J4-40B(1)-RJ020		SC-J2SBJ4KT06K	HG-MR43(B)				
MR-J2S-70B	HC-MFS73(B)	MR-J4-70B-RJ020		SC-J2SBJ4KT1K	HG-MR73(B)				
[Medium capacity, medium inertia HC-SFS series Standard/with a brake] (B) means with a brake									
MR-J2S-60B	HC-SFS52(B)	MR-J4-60B-RJ020	MR-J4-T20	SC-J2SBJ4KT06K	HG-SR52(B)	△ (*7)	SC-SAJ3PW2KC1M-S2	SC-HAJ3ENM3C1M	(*8)
MR-J2S-100B	HC-SFS102(B)	MR-J4-100B-RJ020		SC-J2SBJ4KT1K	HG-SR102(B)				
MR-J2S-200B	HC-SFS152(B)	MR-J4-200B-RJ020		SC-J2SBJ4KT3K	HG-SR152(B)				
	HC-SFS202(B)				HG-SR202(B)		SC-HAJ3PW1C1M		
MR-J2S-350B	HC-SFS352(B)	MR-J4-350B-RJ020			HG-SR352(B)				
MR-J2S-500B	HC-SFS502(B)	MR-J4-500B-RJ020		SC-J2SBJ4KT5K	HG-SR502(B)				
MR-J2S-700B	HC-SFS702(B)	MR-J4-700B-RJ020		SC-J2SBJ4KT7K	HG-SR702(B)		Existing cables available		
[Medium Capacity, ultra low Inertia HC-RFS series Standard/with a brake] (B) means with a brake									
MR-J2S-200B	HC-RFS103(B)	MR-J4-200B-RJ020	MR-J4-T20	SC-J2SBJ4KT3K	HG-RR103(B)	○	Existing cables available	SC-HAJ3ENM3C1M	Existing cables available
	HC-RFS153(B)				HG-RR153(B)				
MR-J2S-350B	HC-RFS203(B)	MR-J4-350B-RJ020			HG-RR203(B)				
MR-J2S-500B	HC-RFS353(B)	MR-J4-500B-RJ020		SC-J2SBJ4KT5K	HG-RR353(B)				
	HC-RFS503(B)				HG-RR503(B)				
[Medium capacity, flat type HC-UFS series Standard/with a brake] (B) means with a brake									
MR-J2S-70B	HC-UFS72(B)	MR-J4-70B-RJ020	MR-J4-T20	SC-J2SBJ4KT1K	HG-UR72(B)	○	Existing cables available	SC-HAJ3ENM3C1M	Existing cables available
MR-J2S-200B	HC-UFS152(B)	MR-J4-200B-RJ020		SC-J2SBJ4KT3K	HG-UR152(B)				
MR-J2S-350B	HC-UFS202(B)	MR-J4-350B-RJ020			HG-UR202(B)				
MR-J2S-500B	HC-UFS352(B)	MR-J4-500B-RJ020		SC-J2SBJ4KT5K	HG-UR352(B)				
	HC-UFS502(B)				HG-UR502(B)				
[Small capacity, flat type HC-UFS series Standard/with a brake] (B) means with a brake									
MR-J2S-10B(1)	HC-UFS13(B)	MR-J4-10B(1)-RJ020	MR-J4-T20	SC-J2SBJ4KT02K	HG-KR13(B)	× (*9)	Without a brake: SC-J2SJ4PW1C03M-■ With a brake: SC-J2SJ4PWBK1C03M-■	SC-HAJ3ENM1C03M-■	Built-in power conversion cable
MR-J2S-20B(1)	HC-UFS23(B)	MR-J4-20B(1)-RJ020			HG-KR23(B)				
MR-J2S-40B(1)	HC-UFS43(B)	MR-J4-40B(1)-RJ020		SC-J2SBJ4KT06K	HG-KR43(B)				
MR-J2S-70B	HC-UFS73(B)	MR-J4-70B-RJ020		SC-J2SBJ4KT1K	HG-KR73(B)				

Existing models		Primary replacement models (*2)			Secondary replacement/batch replacement models							
										Motor side conversion cable model name (*18, 21)		
Servo amplifier model name	Servo motor model name	Servo amplifier model name (*4, 5)	SSCNET conversion unit model name (*4)	Renewal kit model name	Servo amplifier model name (*4)	SSCNET conversion unit model name (*4)	Servo motor model name (*4)	Compatible	Renewal kit model name	Power conversion cable	Encoder conversion cable	Brake/cooling fan conversion cable
[Medium large capacity, low inertia HA-LFS 2000 r/min series Standard/with a brake] (B) means with a brake												
MR-J2S-500B	HA-LFS502	MR-J4-500B-RJ020	MR-J4-T20	SC-J2SBJ4KT5K	MR-J4-500B-RJ020	MR-J4-T20	HG-SR502	× (*9)	SC-J2SBJ4KT5K	SC-HAJ3PW1C1M	SC-HAJ3ENM3C1M	
MR-J2S-700B	HA-LFS702	MR-J4-700B-RJ020		SC-J2SBJ4KT7K	MR-J4-700B-RJ020		HG-SR702		SC-J2SBJ4KT7K	Existing cables available		
MR-J2S-11KB	HA-LFS11K2(B)	MR-J4-11KB-RJ020		SC-J2SBJ4KT15K	MR-J4-11KB-RJ020		HG-JR11K1M(B) (*6)		SC-J2SBJ4KT15K	SC-J2SJ4PW3C1M-■	Existing cables available	·Brake cable: Existing cable can be used ·Cooling fan cable(*11)
MR-J2S-15KB	HA-LFS15K2(B)	MR-J4-15KB-RJ020 (*12)		SC-J2SBJ4KT15K	MR-J4-11KB-RJ020 (*12)							
MR-J2S-22KB	HA-LFS22K2(B)	MR-J4-22KB-RJ020 (*12)		SC-J2SBJ4KT22K	MR-J4-15KB-RJ020 (*12)		HG-JR15K1M(B)		SC-J2SBJ4CSET-02 (*13)			
MR-J2S-30KB	HA-LFS30K2	MR-J4-DU30KB-RJ020 (*12, 15)		SC-J2SJ4BS09 + SC-J2SBJ4CSET-02	MR-J4-22KB-RJ020 (*12)		HG-JR22K1M			(*10)	(*14)	Cooling fan conversion cable: SC-J2SJ4FAN1C1M
MR-J2S-37KB	HA-LFS37K2	MR-J4-DU37KB-RJ020 (*12, 15)			MR-J4-DU30KB-RJ020 (*12, 15)		HG-JR30K1M		SC-J2SJ4BS09 + SC-J2SBJ4CSET-02			

For precautions, please refer to page 2-13.

Renewal Tool-related products

Type B (400 V AC)

○: Compatible, △: Limited function or available with some conditions, ×: Incompatible

Existing models		Primary replacement/ batch replacement models (*2, 3)			Secondary replacement/batch replacement models				
							Motor side conversion cable model name (*21)		
Servo amplifier model name	Servo motor model name	Servo amplifier model name (*4, 5)	SSCNET conversion unit model name (*4)	Renewal kit model name	Servo motor model name (*4)	Compatible	Power conversion cable	Encoder conversion cable	Brake conversion cable
[Medium capacity, medium inertia HC-SFS series Standard/with a brake] (B) means with a brake									
MR-J2S-60B4	HC-SFS524(B)	MR-J4-60B4-RJ020	MR-J4-T20	SC-J2SJ4BS02 + SC-J2SBJ4CSET-01	HG-SR524(B)	△ (*7)	SC-SAJ3PW2KC1M-S2	SC-HAJ3ENM3C1M	(*8)
MR-J2S-100B4	HC-SFS1024(B)	MR-J4-100B4-RJ020			HG-SR1024(B)				
MR-J2S-200B4	HC-SFS1524(B)	MR-J4-200B4-RJ020		SC-J2SJ4BS03 + SC-J2SBJ4CSET-01	HG-SR1524(B)				
	HC-SFS2024(B)				HG-SR2024(B)		SC-HAJ3PW1C1M		
MR-J2S-350B4	HC-SFS3524(B)	MR-J4-350B4-RJ020		SC-J2SJ4BS04 + SC-J2SBJ4CSET-01	HG-SR3524(B)				
MR-J2S-500B4	HC-SFS5024(B)	MR-J4-500B4-RJ020		SC-J2SBJ4CSET-01 (*17)	HG-SR5024(B)				
MR-J2S-700B4	HC-SFS7024(B)	MR-J4-700B4-RJ020		SC-J2SJ4BS05 + SC-J2SBJ4CSET-01	HG-SR7024(B)		Existing cables available		

Existing models		Primary replacement models (*2)			Secondary replacement/batch replacement models							
										Motor side conversion cable model name (*18, 21)		
Servo amplifier model name	Servo motor model name	Servo amplifier model name (*4, 5)	SSCNET conversion unit model name (*4)	Renewal kit model name	Servo amplifier model name (*4)	SSCNET conversion unit model name (*4)	Servo motor model name (*4)	Compatible	Renewal kit model name	Power conversion cable	Encoder conversion cable	Brake/cooling fan conversion cable
[Medium large capacity, low inertia HA-LFS 2000 r/min series Standard/with a brake] (B) means with a brake												
MR-J2S-11KB4	HA-LFS11K24(B)	MR-J4-11KB4-RJ020	MR-J4-T20	SC-J2SJ4BS06 + SC-J2SBJ4CSET-02	MR-J4-11KB4-RJ020	MR-J4-T20	HG-JR11K1M4(B) (*6)	× (*9)	SC-J2SJ4BS06 + SC-J2SBJ4CSET-02	SC-J2SJ4PW3C1M-■	Existing cables available	・Brake cable: Existing cable can be used ・Cooling fan cable(*11)
MR-J2S-15KB4	HA-LFS15K24(B)	MR-J4-15KB4-RJ020 (*12)			MR-J4-11KB4-RJ020 (*12)		HG-JR11K1M4(B)					
MR-J2S-22KB4	HA-LFS22K24(B)	MR-J4-22KB4-RJ020 (*12)		SC-J2SJ4BS07 + SC-J2SBJ4CSET-02	MR-J4-15KB4-RJ020 (*12)		HG-JR15K1M4(B)		SC-J2SBJ4CSET-02 (*13)			
MR-J2S-30KB4	HA-LFS30K24	MR-J4-DU30KB4-RJ020 (*12, 16)		SC-J2SJ4BS08 + SC-J2SBJ4CSET-02	MR-J4-22KB4-RJ020 (*12)		HG-JR22K1M4			(*10)	(*14)	Cooling fan conversion cable: SC-J2SJ4FAN1C1M
MR-J2S-37KB4	HA-LFS37K24	MR-J4-DU37KB4-RJ020 (*12, 16)		SC-J2SJ4BS09 + SC-J2SBJ4CSET-02	MR-J4-DU30KB4-RJ020 (*12, 16)		HG-JR30K1M4		SC-J2SJ4BS09 + SC-J2SBJ4CSET-02			
MR-J2S-45KB4	HA-LFS45K24	MR-J4-DU45KB4-RJ020 (*12, 16)			MR-J4-DU37KB4-RJ020 (*12, 16)		HG-JR37K1M4					
MR-J2S-55KB4	HA-LFS55K24	MR-J4-DU55KB4-RJ020 (*12, 16)			MR-J4-DU45KB4-RJ020 (*12, 16)		HG-JR45K1M4					

For precautions, please refer to page 2-13.

Type CP (*1)

○: Compatible, △: Limited function or available with some conditions, ×: Incompatible

Existing models		Primary replacement/ batch replacement models (*2, 3)		Secondary replacement/batch replacement models				
						Motor side conversion cable model name (*18, 21)		
Servo amplifier model name	Servo motor model name	Servo amplifier model name (*4, 5)	Renewal kit model name (*19,20)	Servo motor model name (*4)	Compatible	Power conversion cable	Encoder conversion cable	Brake conversion cable
[Small capacity, low inertia HC-KFS series Standard/with a brake] (B) means with a brake								
MR-J2S-10CP(1)	HC-KFS053(B)	MR-J4-10A(1)-RJ	SC-J2SCPJ4KT02K	HG-KR053(B)	△ (*6)	Without a brake: SC-J2SJ4PW1C03M-■ With a brake: SC-J2SJ4PWBK1C03M-■	SC-HAJ3ENM1C03M-■	Built-in power conversion cable
	HC-KFS13(B)			HG-KR13(B)				
MR-J2S-20CP(1)	HC-KFS23(B)	MR-J4-20A(1)-RJ		HG-KR23(B)				
MR-J2S-40CP(1)	HC-KFS43(B)	MR-J4-40A(1)-RJ	SC-J2SCPJ4KT06K	HG-KR43(B)				
MR-J2S-70CP	HC-KFS73(B)	MR-J4-70A-RJ	SC-J2SCPJ4KT1K	HG-KR73(B)				
[Small capacity, ultra low inertia HC-MFS series Standard/with a brake] (B) means with a brake								
MR-J2S-10CP(1)	HC-MFS053(B)	MR-J4-10A(1)-RJ	SC-J2SCPJ4KT02K	HG-MR053(B)	○	Without a brake: SC-J2SJ4PW1C03M-■ With a brake: SC-J2SJ4PWBK1C03M-■	SC-HAJ3ENM1C03M-■	Built-in power conversion cable
	HC-MFS13(B)			HG-MR13(B)				
MR-J2S-20CP(1)	HC-MFS23(B)	MR-J4-20A(1)-RJ		HG-MR23(B)				
MR-J2S-40CP(1)	HC-MFS43(B)	MR-J4-40A(1)-RJ	SC-J2SCPJ4KT06K	HG-MR43(B)				
MR-J2S-70CP	HC-MFS73(B)	MR-J4-70A-RJ	SC-J2SCPJ4KT1K	HG-MR73(B)				
[Medium capacity, medium inertia HC-SFS series Standard/with a brake] (B) means with a brake								
MR-J2S-60CP	HC-SFS52(B)	MR-J4-60A-RJ	SC-J2SCPJ4KT06K	HG-SR52(B)	△ (*7)	SC-SAJ3PW2KC1M-S2	SC-HAJ3ENM3C1M	(*8)
MR-J2S-100CP	HC-SFS102(B)	MR-J4-100A-RJ	SC-J2SCPJ4KT1K	HG-SR102(B)				
MR-J2S-200CP	HC-SFS152(B)	MR-J4-200A-RJ	SC-J2SCPJ4KT3K	HG-SR152(B)				
	HC-SFS202(B)			HG-SR202(B)		SC-HAJ3PW1C1M		
MR-J2S-350CP	HC-SFS352(B)	MR-J4-350A-RJ		HG-SR352(B)				
MR-J2S-500CP	HC-SFS502(B)	MR-J4-500A-RJ	SC-J2SCPJ4KT5K	HG-SR502(B)				
MR-J2S-700CP	HC-SFS702(B)	MR-J4-700A-RJ	SC-J2SCPJ4KT7K	HG-SR702(B)		Existing cables available		
[Medium capacity, ultra Low Inertia HC-RFS series Standard/with a brake] (B) means with a brake								
MR-J2S-200CP	HC-RFS103(B)	MR-J4-200A-RJ	SC-J2SCPJ4KT3K	HG-RR103(B)	○	Existing cables available	SC-HAJ3ENM3C1M	Existing cables available
	HC-RFS153(B)			HG-RR153(B)				
MR-J2S-350CP	HC-RFS203(B)	MR-J4-350A-RJ		HG-RR203(B)				
MR-J2S-500CP	HC-RFS353(B)	MR-J4-500A-RJ	SC-J2SCPJ4KT5K	HG-RR353(B)				
	HC-RFS503(B)			HG-RR503(B)				
[Medium capacity, flat type HC-UFS series Standard/with a brake] (B) means with a brake								
MR-J2S-70CP	HC-UFS72(B)	MR-J4-70A-RJ	SC-J2SCPJ4KT1K	HG-UR72(B)	○	Existing cables available	SC-HAJ3ENM3C1M	Existing cables available
MR-J2S-200CP	HC-UFS152(B)	MR-J4-200A-RJ	SC-J2SCPJ4KT3K	HG-UR152(B)				
MR-J2S-350CP	HC-UFS202(B)	MR-J4-350A-RJ		HG-UR202(B)				
MR-J2S-500CP	HC-UFS352(B)	MR-J4-500A-RJ	SC-J2SCPJ4KT5K	HG-UR352(B)				
	HC-UFS502(B)			HG-UR502(B)				
[Small capacity, flat type HC-UFS series Standard/with a brake] (B) means with a brake								
MR-J2S-10CP(1)	HC-UFS13(B)	MR-J4-10A(1)-RJ	SC-J2SCPJ4KT02K	HG-KR13(B)	× (*9)	Without a brake: SC-J2SJ4PW1C03M-■ With a brake: SC-J2SJ4PWBK1C03M-■	SC-HAJ3ENM1C03M-■	Built-in power conversion cable
MR-J2S-20CP(1)	HC-UFS23(B)	MR-J4-20A(1)-RJ		HG-KR23(B)				
MR-J2S-40CP(1)	HC-UFS43(B)	MR-J4-40A(1)-RJ	SC-J2SCPJ4KT06K	HG-KR43(B)				
MR-J2S-70CP	HC-UFS73(B)	MR-J4-70A-RJ	SC-J2SCPJ4KT1K	HG-KR73(B)				
[Medium capacity, low inertia HA-LFS series Standard]								
MR-J2S-500CP	HA-LFS502	MR-J4-500A-RJ	SC-J2SCPJ4KT5K	HG-SR502	× (*9)	SC-HAJ3PW1C1M	SC-HAJ3ENM3C1M	
MR-J2S-700CP	HA-LFS702	MR-J4-700A-RJ	SC-J2SCPJ4KT7K	HG-SR702		Existing cables available		

*1. Please refer to our website for motors with speed reducer and models not listed in the table.
*2. If the gain of the existing servo amplifier is extremely high, the characteristics may slightly differ when primary replacement is performed. Please always set the gain again.
*3. The replacement servo amplifier, SSCNET conversion unit and renewal kit are common to primary/secondary/batch replacement (first and second replacement).
*4. Please purchase from Mitsubishi Electric Corporation.
*5. The software version of servo amplifier for primary replacement varies depending on the corresponding motor. Please contact Mitsubishi Electric Corporation for ordering.
*6. In the case of replacing motors, the motor moment of inertia differs the motor before replacement. Please note the ratio of the load moment of inertia. Depending on existing equipment, it is necessary to revise the operation pattern.
For motor specifications, refer to "Guidance for replacement of MELSERVO-J2S/J2M series with J4 series (L (NA) 03093)" issued by Mitsubishi Electric Corporation.
*7. Please note that the motor connector may interfere with the device side since the total length of motor will be shorter.
*8. For secondary replacement or batch replacement of the motor with brake, it is necessary to install a new electromagnetic brake cable.
Please use our company's electromagnetic brake cables (SC-BKC1CBL□M-L or SC-BKC1CBL□M-H).
*9. When replacing the motor, please note that it is necessary to change the attachment part and the coupling part with the servo motor shaft such as the coupling, pulley and so on since the flange dimensions and shaft end dimensions are not compatible. For motor specifications, refer to "Guidance for replacement of MELSERVO-J2S/J2M series with J4 series (L (NA) 03093)" issued by Mitsubishi Electric Corporation.
*10. When replacing the motor, it is necessary to change a crimp terminal of existing power supply cable. For motor specifications, refer to "Guidance for replacement of MELSERVO-J2S/J2M series with J4 series (L (NA) 03093)" issued by Mitsubishi Electric Corporation.
*11. When replacing the motor, the replacement motor has no cooling fan. As existing wiring becomes unnecessary, please insulate it.
*12. Since it is necessary to replace the servo amplifier again at secondary replacement, we recommend batch replacement.
*13. In the case of secondary replacement or batch replacement, because the external shape of servo amplifier is significantly different due to the change of servo amplifier capacity, the renewal kit can not be used. Please use the amplifier side conversion cable set.
*14. When replacing the motor, laying out a new encoder cable is required. Please consult us about purchasing new cables.
*15. Please use this amplifier in combination with the converter unit MR-CR55K.
*16. Please use this amplifier in combination with the converter unit MR-CR55K4.
*17. The renewal kit is not necessary when using this combination. Please purchase only the amplifier side conversion cable as necessary.
*18. ■ in the model name is "A1", "A2". ("A1" is the load side connection, "A2" is the counter load side connection)
*19. Renewal kit does not support alarm code output function and RS-422/232 serial communication function.
*20. Renewal kit does not support DI/DO combined use function.
*21. When the existing encoder cable is a 4 wire type cable, special products are used for the motor side conversion cable. Please contact us for purchase separately.

For replacement models of motors not listed in the replacement combination table, please refer to our website. http://www.melsc.co.jp/business/

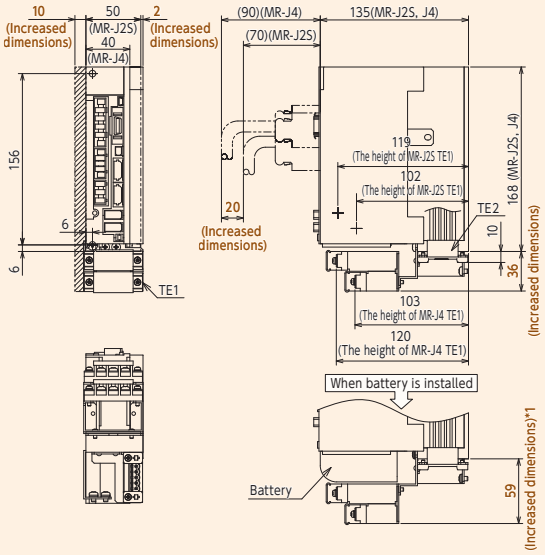
[Note]
If there is not enough space to install the power supply conversion terminal block at the bottom of the existing amplifier, please select the mounting attachment and conversion cable set.

External dimensions drawing

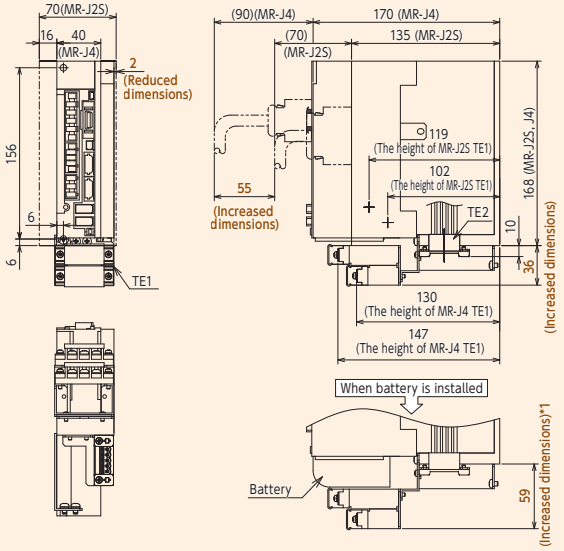
Renewal kit (for 100 V AC/200 V AC)

Unit (mm)

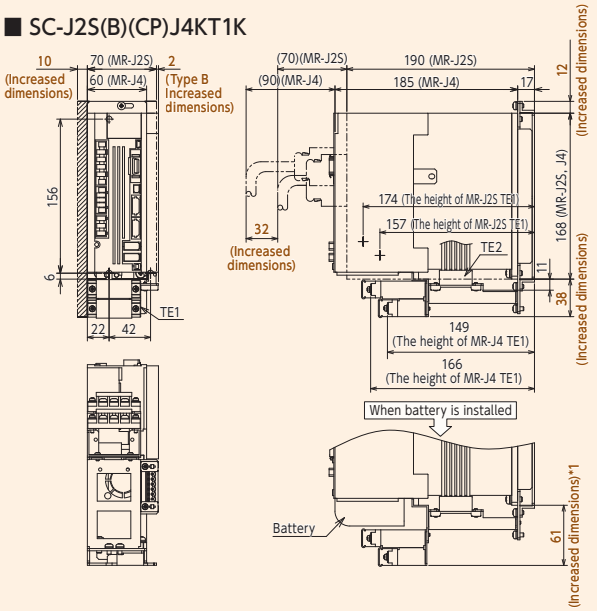
■ SC-J2S(B)(CP)J4KT02K



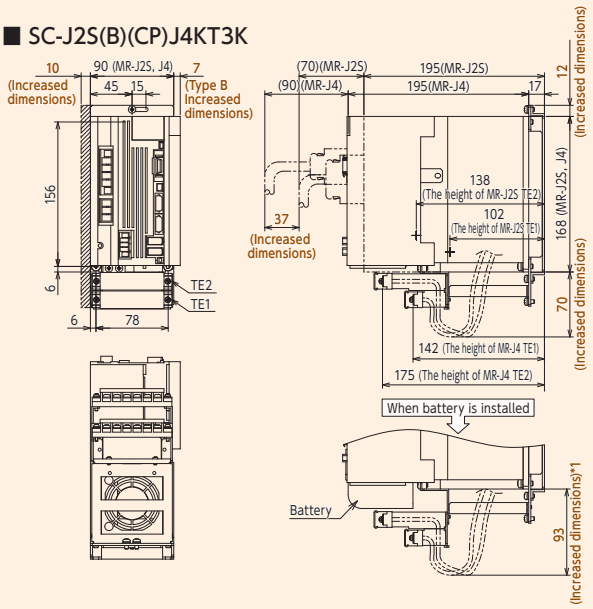
■ SC-J2S(B)(CP)J4KT06K



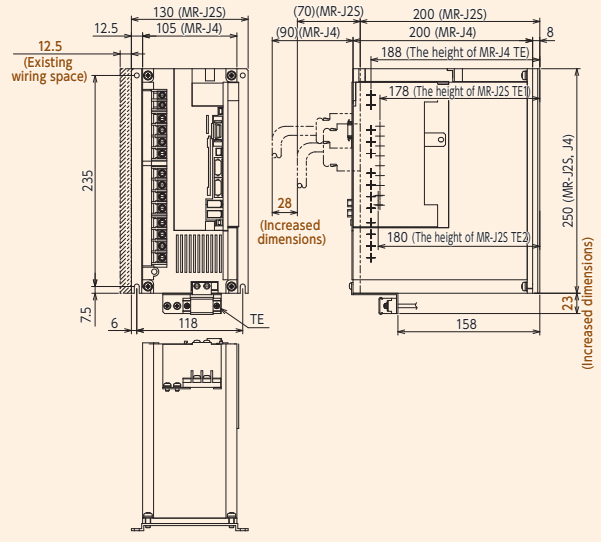
■ SC-J2S(B)(CP)J4KT1K



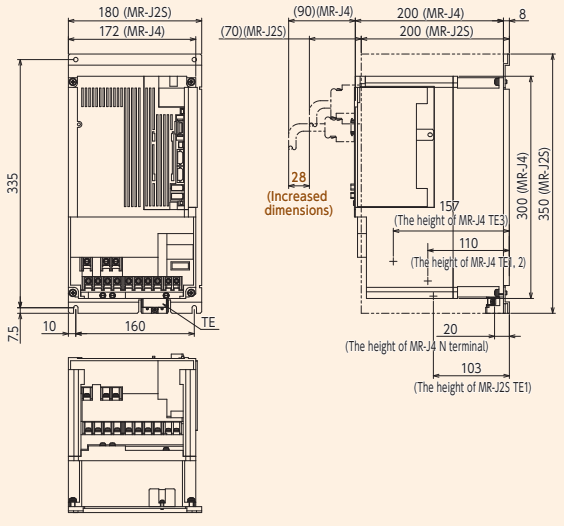
■ SC-J2S(B)(CP)J4KT3K



■ SC-J2S(B)(CP)J4KT5K



■ SC-J2S(B)(CP)J4KT7K



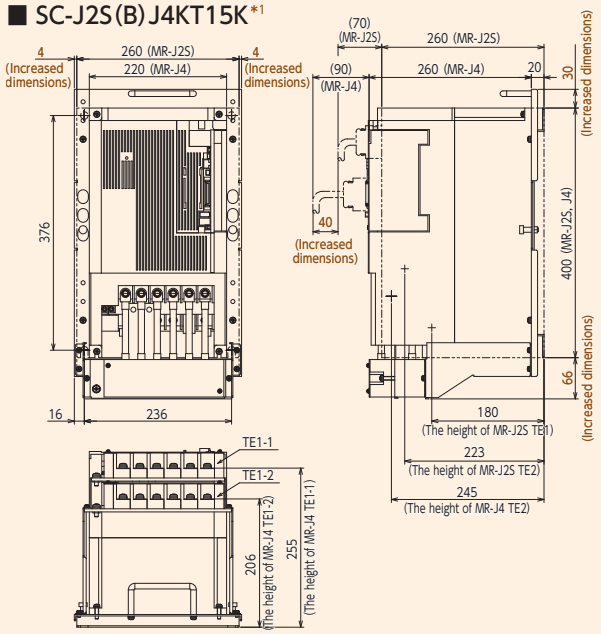
*1. The dimensions are when MR-BAT6V1SET is installed. Please note that MR-BAT6V1BJ can not be installed in 4 kinds of servo amplifiers the above mentioned.

【Note】
If there is not enough space to install the power supply conversion terminal block at the bottom of the existing amplifier, please select the mounting attachment and conversion cable set.

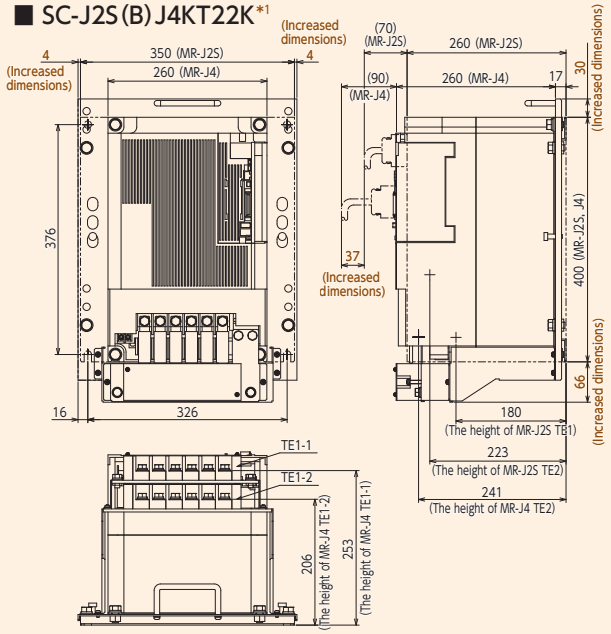
Renewal kit (for 100 V AC/200 V AC)

Unit (mm)

■ SC-J2S(B)J4KT15K*1



■ SC-J2S(B)J4KT22K*1

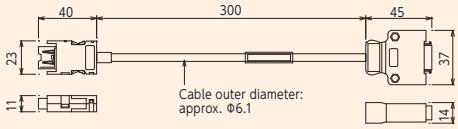


*1. Renewal kits do not support the cooling fin external attachment of MR-J2S.

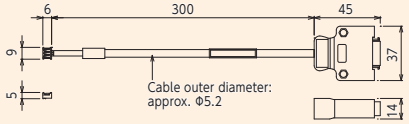
Amplifier side conversion cable

Unit (mm)

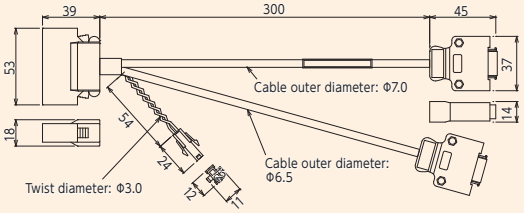
■Encoder conversion cable (common for all models)



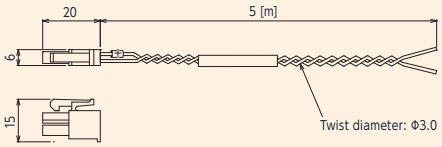
■Monitor conversion cable (for Type A: 7 KW or less, for CP type)



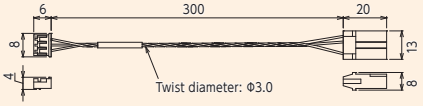
■Control signal conversion cable (for Type A and CP type)



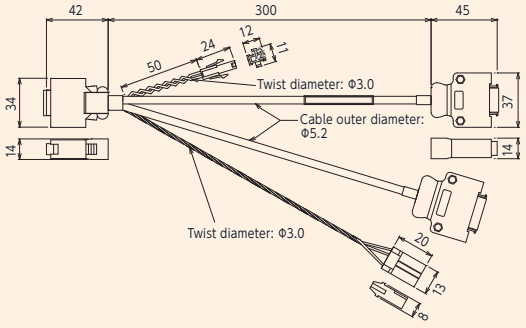
■24 V DC power connection cable (common for all models)



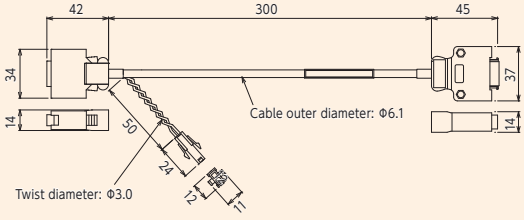
■Amplifier side monitor conversion cable (for Type A, 11 KW or more)



■Control signal conversion cable (for Type B, 11 kW or more)



■Control signal conversion cable (for Type B, 7 kW or less)

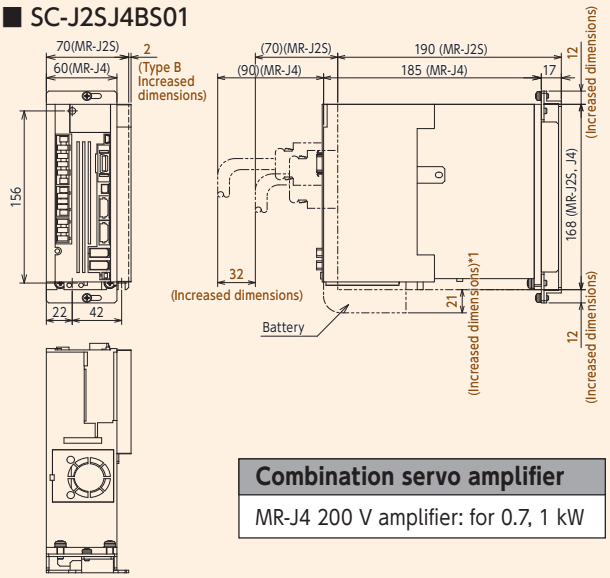


External dimensions drawing

Renewal kit (for 400 V AC)/When using mounting attachment (for 100 V AC/200 V AC)

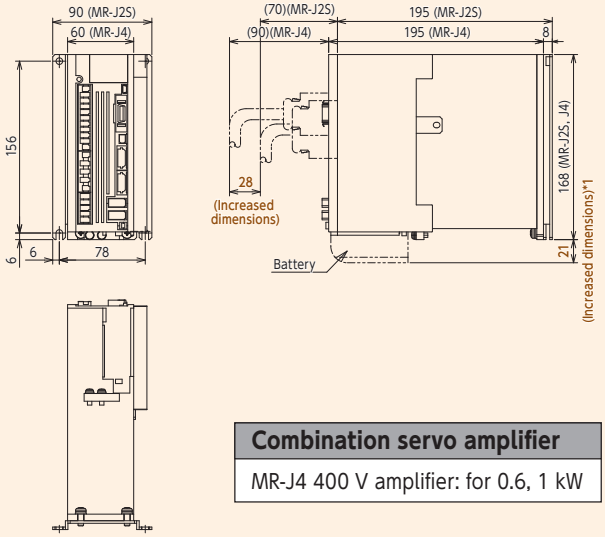
Unit (mm)

■ SC-J2SJ4BS01



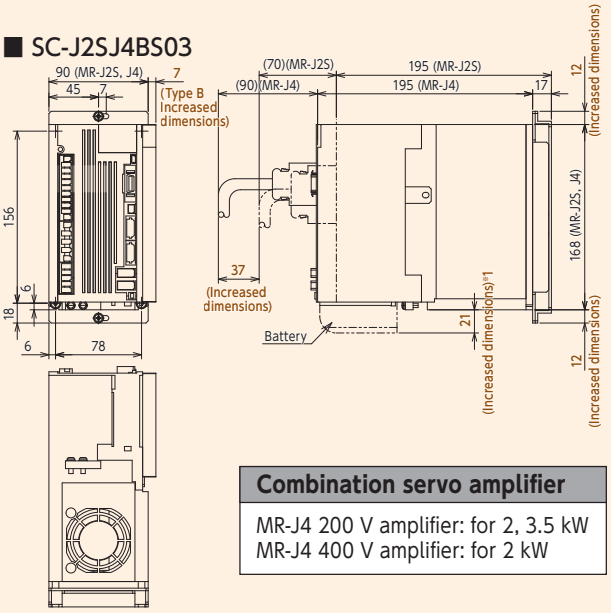
Combination servo amplifier
MR-J4 200 V amplifier: for 0.7, 1 kW

■ SC-J2SJ4BS02



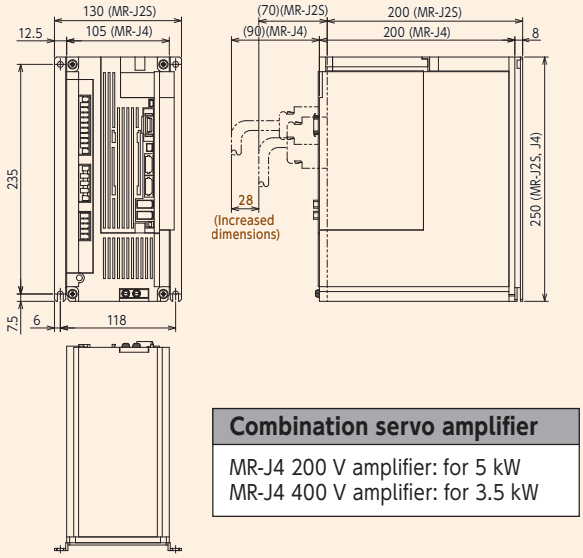
Combination servo amplifier
MR-J4 400 V amplifier: for 0.6, 1 kW

■ SC-J2SJ4BS03



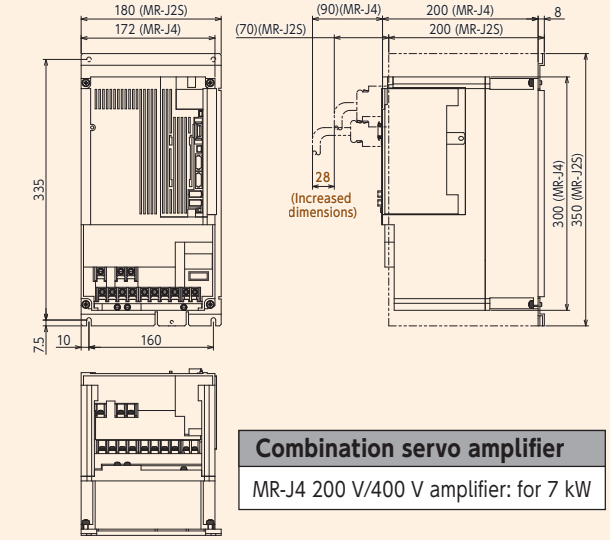
Combination servo amplifier
MR-J4 200 V amplifier: for 2, 3.5 kW MR-J4 400 V amplifier: for 2 kW

■ SC-J2SJ4BS04



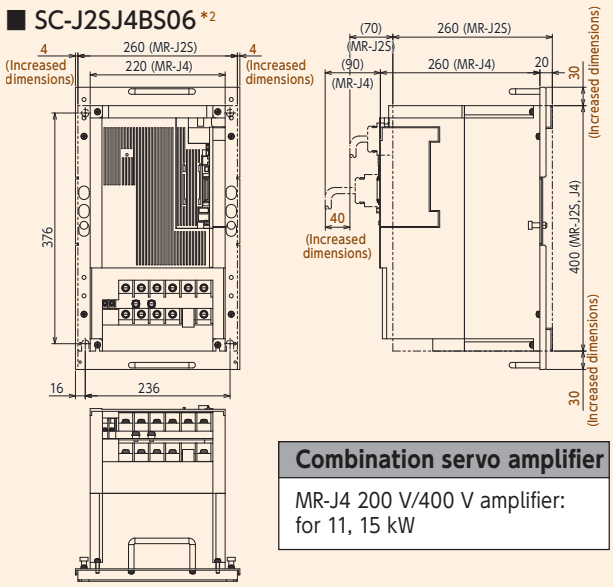
Combination servo amplifier
MR-J4 200 V amplifier: for 5 kW MR-J4 400 V amplifier: for 3.5 kW

■ SC-J2SJ4BS05



Combination servo amplifier
MR-J4 200 V/400 V amplifier: for 7 kW

■ SC-J2SJ4BS06 *2



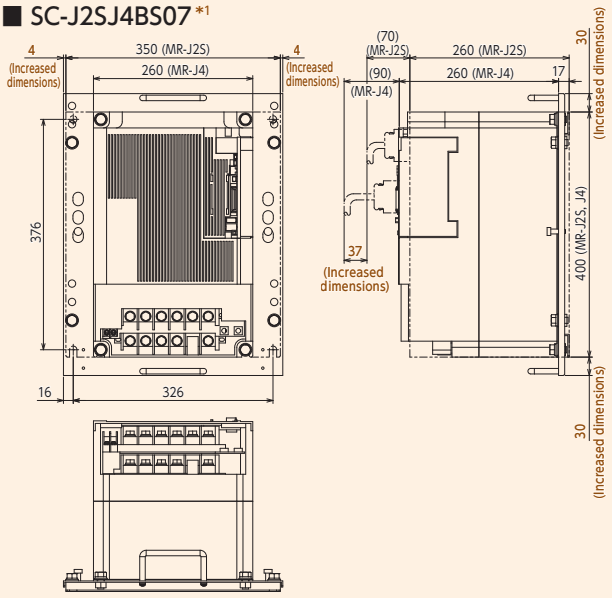
Combination servo amplifier
MR-J4 200 V/400 V amplifier: for 11, 15 kW

*1. The dimensions are when MR-BAT6V1SET is installed.
*2. Renewal kits do not support the cooling fin external attachment of MR-J2S.

Renewal kit (for 400 V AC)/When using mounting attachment (for 100 V AC/200 V AC)

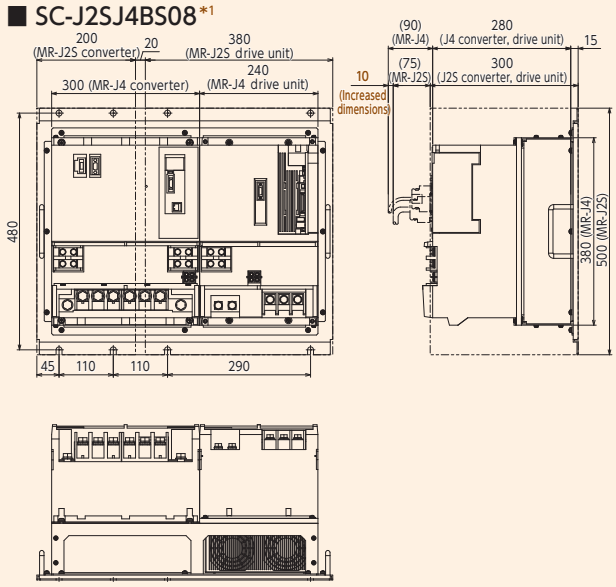
Unit (mm)

■ SC-J2SJ4BS07 *1



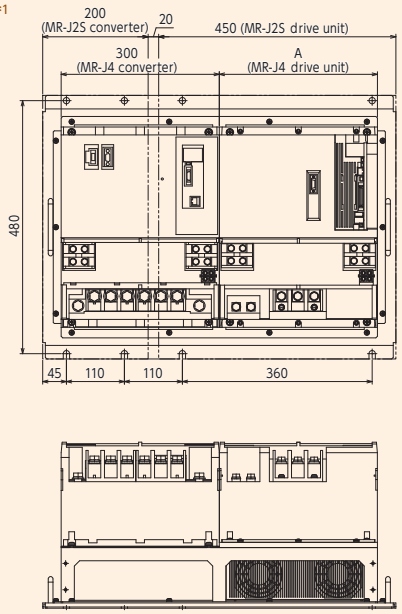
Combination servo amplifier
MR-J4 200 V/400 V amplifier: for 22 kW

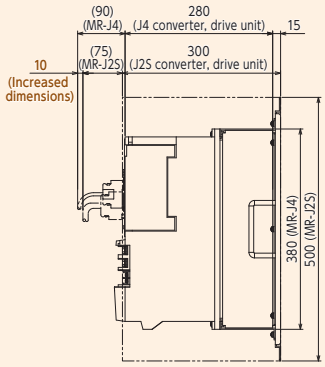
■ SC-J2SJ4BS08 *1



Combination servo amplifier
MR-J4 400 V amplifier: for 30 kW

■ SC-J2SJ4BS09 *1





Dimension change table

Servo amplifier		A
MR-J4	400 V 37 kW	240
MR-J4	200 V 30, 37 kW 400 V 45, 55 kW	300

Combination servo amplifier
MR-J4 200 V amplifier: for 30, 37 kW MR-J4 400 V amplifier: for 37, 45, 55 kW

*1. Renewal kits do not support the cooling fin external attachment of MR-J2S.

Mounting attachment selection table

Model name*3	Applicable amplifier*2	Contents
SC-J2SJ4BS01	MR-J4 200 V amplifier: for 0.7, 1 kW	Mounting plate (base × 1, amplifier base × 1)
SC-J2SJ4BS02	MR-J4 400 V amplifier: for 0.6, 1 kW	Mounting plate (amplifier base × 1)
SC-J2SJ4BS03	MR-J4 200 V amplifier: for 2, 3.5 kW/MR-J4 400 V amplifier: for 2 kW	Mounting plate (base × 1, amplifier base × 1)
SC-J2SJ4BS04	MR-J4 200 V amplifier: for 5 kW/MR-J4 400 V amplifier: for 3.5 kW	Mounting plate (amplifier base × 1)
SC-J2SJ4BS05	MR-J4 200 V/400 V amplifier: for 7 kW	Mounting plate (amplifier base × 1)
SC-J2SJ4BS06	MR-J4 200 V/400 V amplifier: for 11, 15 kW	Mounting plate (base × 1, amplifier base × 1)
SC-J2SJ4BS07	MR-J4 200 V/400 V amplifier: for 22 kW	Mounting plate (base × 1, amplifier base × 1)
SC-J2SJ4BS08	MR-J4 400 V amplifier: for 30 kW	Mounting plate (amplifier base frame × 4, base × 1)
SC-J2SJ4BS09	MR-J4 200 V amplifier: for 30, 37 kW/MR-J4 400 V amplifier: for 37, 45, 55 kW	Mounting plate (amplifier base frame × 4, base × 1)

*2. Mounting attachments are common to A type, B type and CP type.
*3. Since the following servo amplifiers are compatible with J2S amplifiers, a mounting attachment is not necessary.
・MR-J2S 0.6 kW or less amplifier and MR-J4 0.6 kW or less amplifier
・MR-J2S-500□4 amplifier and MR-J4-500□4 amplifier

Renewal Tool-related products

Product List

Item name		Model name	Contents
Renewal kit	Type A	SC-J2SJ4KT02K	·Mounting Attachment ·Power conversion terminal block ·Amplifier side conversion cable set
		SC-J2SJ4KT06K	
		SC-J2SJ4KT1K	
		SC-J2SJ4KT3K	
		SC-J2SJ4KT5K	
		SC-J2SJ4KT7K	
		SC-J2SJ4KT15K	
		SC-J2SJ4KT22K	
	Type B	SC-J2SBJ4KT02K	
		SC-J2SBJ4KT06K	
		SC-J2SBJ4KT1K	
		SC-J2SBJ4KT3K	
		SC-J2SBJ4KT5K	
		SC-J2SBJ4KT7K	
		SC-J2SBJ4KT15K	
		SC-J2SBJ4KT22K	
	Type CP	SC-J2SCPJ4KT02K	
		SC-J2SCPJ4KT06K	
		SC-J2SCPJ4KT1K	
		SC-J2SCPJ4KT3K	
		SC-J2SCPJ4KT5K	
		SC-J2SCPJ4KT7K	
Mounting Attachment		SC-J2SJ4BS01	MR-J4 200 V amplifier: for 0.7, 1 kW
		SC-J2SJ4BS02	MR-J4 400 V amplifier: for 0.6, 1 kW
		SC-J2SJ4BS03	MR-J4 200 V amplifier: for 2, 3.5 kW MR-J4 400 V amplifier: for 2 kW
		SC-J2SJ4BS04	MR-J4 200 V amplifier: for 5 kW MR-J4 400 V amplifier: for 3.5 kW
		SC-J2SJ4BS05	MR-J4 200 V/400 V amplifier: for 7 kW
		SC-J2SJ4BS06	MR-J4 200 V/400 V amplifier: for 11, 15 kW
		SC-J2SJ4BS07	MR-J4 200 V/400 V amplifier: for 22 kW
		SC-J2SJ4BS08	MR-J4 400 V amplifier: for 30 kW
		SC-J2SJ4BS09	MR-J4 200 V amplifier: for 30, 37 kW MR-J4 400 V amplifier: for 37, 45, 55 kW
Amplifier side conversion cable set	Type A	SC-J2SJ4CSET-01 (more less 7 kW)	·Control signal conversion cable ·Monitor conversion cable ·Encoder conversion cable ·24 V DC power connection cable
		SC-J2SJ4CSET-02 (more than 11 kW)	
	Type B	SC-J2SBJ4CSET-01 (more less 7 kW)	·Control signal conversion cable ·Encoder conversion cable ·24 V DC power connection cable
		SC-J2SBJ4CSET-02 (more than 11 kW)	
	Type CP	SC-J2SCPJ4CSET-01	·Control signal conversion cable ·Monitor conversion cable ·Encoder conversion cable ·24 V DC power connection cable
Amplifier side encoder conversion cable		SC-J2SJ4ENC03M	—
Motor side power conversion cable		SC-J2SJ4PW1C03M-■	—
		SC-J2SJ4PWBK1C03M-■	—
		SC-J2SJ4PW2C1M	—
		SC-J2SJ4PW3C1M-■	—
		SC-SAJ3PW2KC1M-S2	—
		SC-HAJ3PW1C1M	—
Motor side encoder conversion cable		SC-HAJ3ENM1C03M-■	—
		SC-HAJ3ENM3C1M	—
Motor side cooling fan conversion cable		SC-J2SJ4FAN1C1M	—

* "■" in the model name will be "A1", "A2". ("A1" is the load side connection, "A2" is the counter load side connection)
* Please contact us about the motor side conversion cable not listed in the product list.

Recommended power supply specification

Item name	Specification
24 V DC power supply for interface	Output 24 V DC ± 10%, current capacity 80 mA or more

Mitsubishi Electric Corp. related materials

Mitsubishi Electric Corp. catalog

Renewal catalog explaining replacement of MR-J2S System with MR-J4

■MR-J2S Renewal Catalog
L (NA) 03091A

Mitsubishi Electric Corp. Replacement Guide

Guide explaining replacement of MR-J2S System with MR-J4. Refer to this guide for details on the parameter settings and option settings, etc.

■Guide for Replacing MR-J2S/ J2M Series with J4 Series
L (NA) 03093

Inverter-related products

Inverter-related products

Digital frequency meter
●HZ-1N

Features

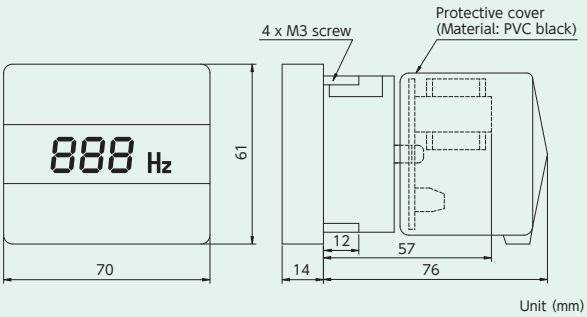
■Input inverter FM output (pulse), convert into frequency and display.
■Frequency display of 0 to 240 Hz is possible.
■Frequency can be confirmed at places away from the inverter main unit and the control panel.
■Visibility has been improved by enlarging the LED display size.
■Up to two HZ-1N can be connected in parallel to one inverter.

Specification

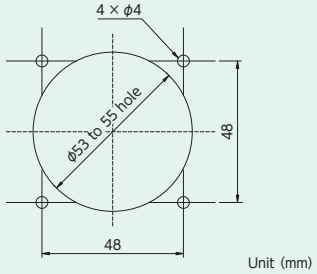
Item	Specification
Model name	HZ-1N
Display digits	3 digits
LED display	Red
Panel color	Black
Minimum resolution	1 Hz
Frequency display switching	0 to 60 Hz, 0 to 120 Hz, 0 to 240 Hz switchable (factory default setting at 60 Hz)
Power-supply voltage	100 V AC/200 V AC ±10% 50 Hz/60 Hz
Power consumption	About 1.0 VA
Input	0 to 8 V DC (Mitsubishi inverter FM output)
Maximum wire length	With a twisted pair cable 0.5 to 0.75 mm², within 50 m
Usage environment	Installed in the control panel
Mounting method	Installed in 4 places with M3 nuts of the accessories (washer included)
Ambient operating temperature	-5 to 55℃
Ambient operating humidity	25 to 85% RH (non condensation)
External dimensions	61 mm (H) × 70 mm (W) × 90 mm (D)

* It can not be used for FR-A800 series CA type.

External dimensions drawing



Panel cut dimensions drawing



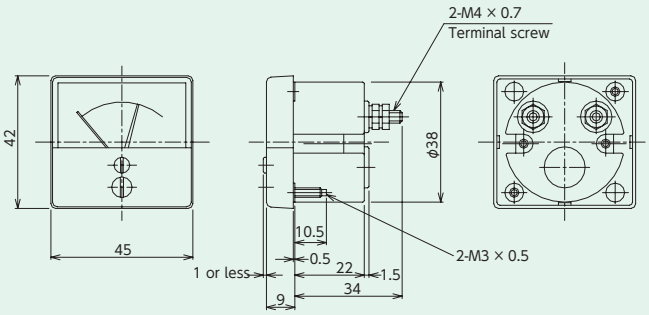
Analog frequency meter ●KY-452

Specification

Item	Specification
Model name	KY-452
Rating	1 mA DC
Scale	0 to 60 Hz/0 to 120 Hz
Mounting position	Vertical (⊥)
Mounting method	M3 nut
Withstand voltage	2000 V AC, 1 minute
Insulation resistance	10 MΩ or more, 500 V DC (between the electric circuit of the instrument and the outer box)
External dimensions	42 mm × 45 mm

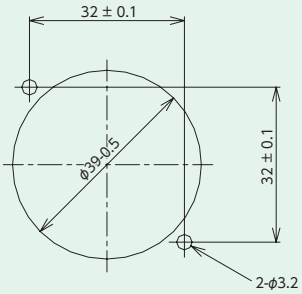
* It can not be used for FR-A800 series CA type.

External dimensions drawing



Unit (mm)

Panel cut dimensions drawing



Unit (mm)

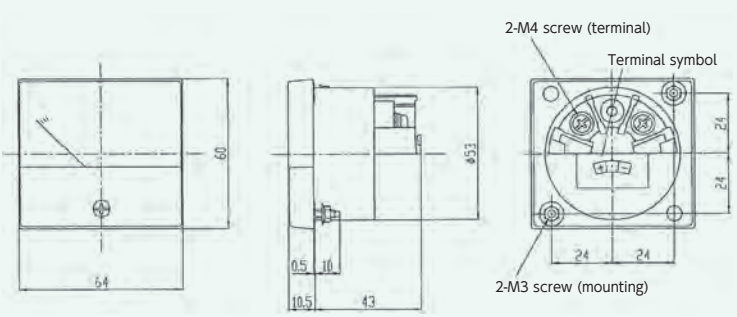
Analog frequency meter ●YM-206NRI

Specification

Item	Specification
Model name	YM-206NRI
Rating	1 mA DC
Scale	0 to 65 Hz/0 to 130 Hz
Mounting position	Vertical (⊥)
Mounting method	M3 nut
Withstand voltage	2000 V AC, 1 minute
Insulation resistance	10 MΩ or more, 500 V DC (between the electric circuit of the instrument and the outer box)
External dimensions	60 mm × 64 mm

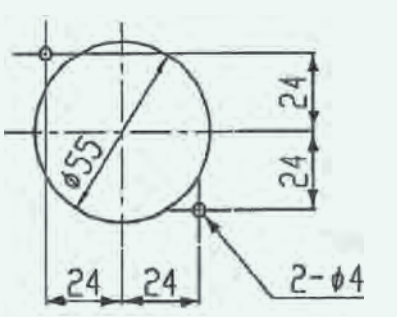
* It can not be used for FR-A800 series CA type.

External dimensions drawing



Unit (mm)

Panel cut dimensions drawing



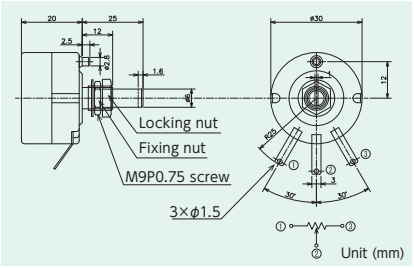
Unit (mm)

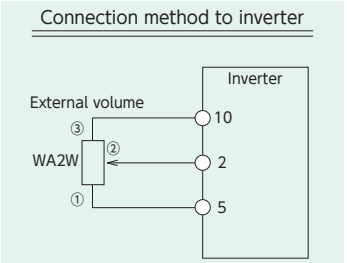
Peripheral member

Item name	Frequency setting device	Scale plate	Knob	Scale plate	Scale calibration resistor
Model name	WA2W	MEM-40	K-3	MEM-63	RV-24YN20S B103
	Set model name: WA-2W40SET-S				
Specification	Resistance value: 1 KΩ ± 10% Rating: 2 W	Material: Aluminum Plate thickness: 0.5 mm	Material: Phenolic Resin	Material: Aluminum Plate thickness: 0.5 mm	Resistance value: 10 KΩ ± 10% Rating: 0.25 W
External appearance					

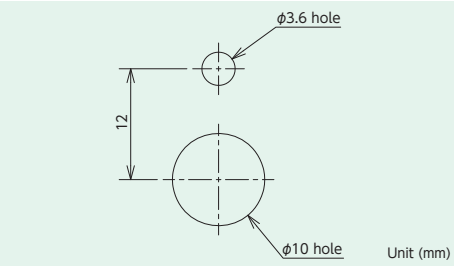
Analog frequency meter peripheral member ●WA2W

External dimensions drawing



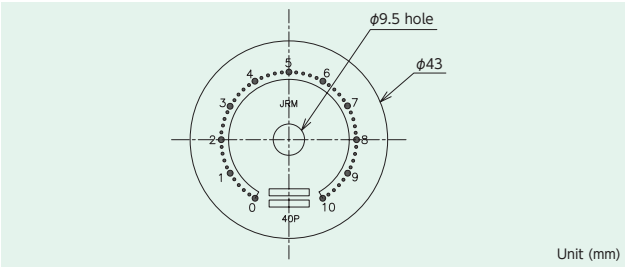


Panel cut dimensions drawing



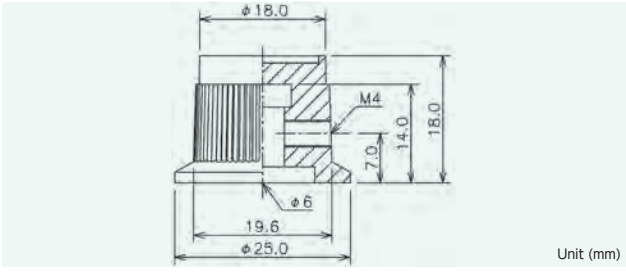
Analog frequency meter peripheral member ●MEM-40

External dimensions drawing



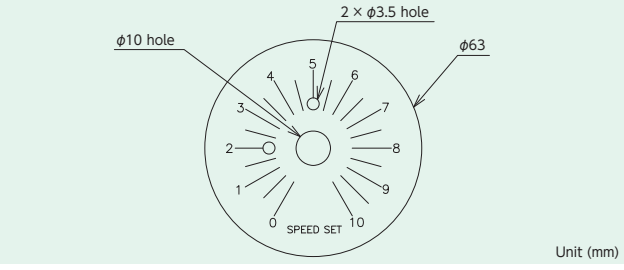
Analog frequency meter peripheral member ●K-3

External dimensions drawing



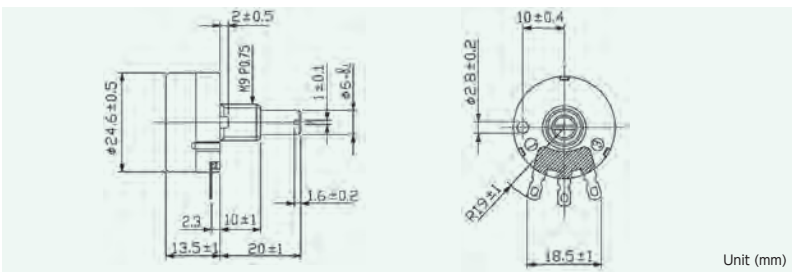
Analog frequency meter peripheral member ●MEM-63

External dimensions drawing



Analog frequency meter peripheral member ●RV-24YN20S B103

External dimensions drawing



About product warranty

Before using, please be sure to confirm the contents of product warranty below.

Free warranty period and free warranty range

During free warranty period, in case that failure or defect of products is occurred by our liability, we repair it or provide a substitute product at free of charge through the sales shop where you purchased.

■Free warranty period

Free warranty period of products is about 1 year since the purchase of products, or the delivery completion when products are delivered at designated place.
However the distribution period of our products is maximum 6 months since the shipment. The upper limit of free warranty period is 18 months since the manufacturing.
In addition, free warranty period of repair products isn't extended beyond original warranty period before the repair.

■free warranty range

(1)It is restricted to the case that products are used with normal condition. The usage condition, usage method, usage environment are accordance with terms, notes stated in instruction manual, warning label attached to products.

(2)Even during free warranty period, the following cases are exempted from the coverage of warranty.

①Failure which is occurred by inappropriate storage or handling, carelessness, fault by customers.

②Failure which is caused by remodeling, repair by customers without our approval.

③Failure which is used with usage method other than the primary purpose. Failure which is used with usage method beyond the industrial wisdom.

④Failure which is admitted to be preventable, if cables or accessories designated in instruction manual are changed appropriately and the apparatus is maintained properly.

⑤Failure by reasons which is unpredictable under the standard of scientific technology when we shipped.

⑥Failure by cause which we have no liability. External factors by irresistible force such as fire. Natural disasters such as earthquake, thunder, storm or flood.

⑦Failure which is done by something other than our liability. Failure which customer accept we have no liability.

Onerous warranty period after the production discontinuation

The period which we can accept to repair products for a profit is 7 years since the production discontinuation of the products. Supply of products nor substitute products after the production discontinuation is not available.

Exemption from the compensatory obligation to opportunity loss, secondary loss

Regardless of whether the period of free warranty is valid or not, we shall not be held any liability to compensate for the following cases.
Damage which is occurred by reason we have no liability.
Customer's opportunity loss, profit loss due to the failure of our products.
Damage, secondary damage, accident which is occurred by special circumstances regardless of our predictability.
Damage to everything except for our products.
Loss in other business.

The change in product specifications

The specifications stated in the catalog, the specification sheet, the technical material are subject to change without notice.

The application of products

■Terms of use

When using our products, the followings are terms of use.
In case that failure or malfunction is occurred, the purpose does not lead to serious accident.
The measure such as backup is supposed to be taken.

■Exemption from application

(1)Our products are designed and manufactured for general industry purpose. The following purposes are exempted from application. The purpose which has a big influence on public. For example, nuclear power plant, other power station, public transportation like railway or airline. The purpose which requires special quality assurance system. For example, vehicle facility, medical device, amusement equipment, safety device, incineration facility, equipment which conforms to the regulations enforced by administrative organization or individual industry.

(2)The following purposes are exempted from application. The purpose which is predicted to have a big influence on human life and property. The purpose which requires extremely high reliability for safety and control system.

(3)However even purposes above, if customers approve that they limit the purpose and don't require special quality, it can be applicable.

■Overseas service

Regarding overseas service, please contact the selling agency.

Factory Automation Solution Parts Catalog

MITSUBISHI ELECTRIC SYSTEM & SERVICE CO., LTD.

OVERSEAS SERVICE SECTION
Email:osb.webmaster@melsc.jp

⚠ Attention about safety

To use the product described in this catalog correctly please firstly read product manual.

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Specifications subject to change without notice.

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