Controller Options for RVFR and RHFRH Series

Name	Type	CR800		Functional Specification
		R Type	D Type	
Basic Teach Pendant	R32TB / R32TB-15	X	X	Cable length = 7m; 15m for models with -15 suffix
Enhanced Function Teach Pendant	R56TB / R56TB-15	X	X	
Teach Pendant Safety Signal Interface	2F-TBSTS-01	X	X	Safety IO signal box for R32TB/R56TB. Allows access to teach pendant safety signals.
Remote Parallel I/O Interface Unit	2A-RZ361 (Sink)	-	X	32 input/output points (12/24VDC: 0.1A/1 point)
	2A-RZ371 (Source)	-	X	32 input/output points (12VDC: 3mA, 24VDC: 7mA)
Remote Parallel I/O Cable	2A-CBL_ _	-	X	Device side connection cable for 2A-RZ361/371. (Flying leads on device side) 5m and 15m lengths. __ indicates cable length (05, 15)
Remote Parallel I/O Net Link Cable	FCUA-R211-_M	-	X	Communication cable to connect from 2A-RZ361/371 to additional remote parallel I/O units. 0.5m, 1m, 3m, 5m, 10m, 15m, 20m lengths. __ indicates cable length (0.5, 1.0, 3.0, 5.0, 10.0, 15.0, 20.0)
Remote Parallel I/O DC Cable	F070-_ _M	-	X	DC power cable to connect from robot controller to 2A-RZ361/371. 5m, 15m lengths. __ indicates cable length (05, 15)
On-Board Parallel I/O Interface (Installed Internally)	2D-TZ368 (Sink)	-	X	32 input/output points (12/24VDC: 0.1A/1 point)
	2D-TZ378 (Source)	-	X	32 input/output points (12VDC: 3mA, 24VDC: 7mA)
On-Board Parallel I/O Cable	2D-CBL_ _	-	X	Device side connection cable for 2D-TZ368/378. (Flying leads on device side) 5m and 15m lengths. __ indicates cable length (05, 15)
CC-Link Interface Card	2D-TZ576	-	X	CC-Link interface card for D Series controllers. Version 2.0, 1 to 4 stations
CC-Link IE Field Interface Card	2F-DQ600CIEF	-	X	CC-Link IE Field interface card for D Series controllers
DeviceNet Interface Card	2D-TZ571	-	X	DeviceNet interface card for D Series controllers
EtherNet/IP Interface Card	2D-TZ600EIP	-	X	Ethernet IP interface card for D Series controllers
PROFINET Interface Card	2D-TZ600PN	-	X	PROFINET interface card for D Series controllers
PROFIBUS Interface Card	2D-TZ577	-	X	Profibus interface card for D Series controllers
iQ-R Robot CPU Interface Kit	4F-R16RTCPU	X	X	iQ-R interface card to connect CR800 controller to iQ-R platform and provides CR800-R functionality (Includes 10m SSCNET III Cable)
Force Sensor Set	4F-FS002H-W200	X	X	Force sensor, interface module, power supply and connection cables 4F-FS002H-W200: 200N working range 4F-FS002H-W1000: 1000N working range
	4F-FS002H-W1000	X	X	
Encoder Multiplexer Unit	2F-YZ581	X	X	Allows the input of a single encoder to be sent to a maximum of 4 devices
MELFA Safe Plus	4F-SF002-01	X	X	Safety monitoring system for CR800 controllers. Supports SS1 (STO), SS2 (SOS), SLS, SLP modes. Safety rated connections available for 8 inputs and 4 outputs. (Requires RT-Toolbox3 for programming and setup. Customer supplied external safety devices may be required for some modes.)
MELFA Smart Plus Card Pack	2F-DQ510	X	X	Option card to enable: Calibration assistance, temperature compensation, and coordinated control of additional axes. (Enables all listed functions)
MELFA Smart Plus Card	2F-DQ511	X	X	Option card to enable: Calibration assistance, temperature compensation, and coordinated control of additional axes. (Enables ONLY 1 function that is user selectable)
SSCNET Cable	MR-J3BUS_M-A	X	-	SSCNET to Amp cable for iQ-R. (Replacement/custom length) 5m, 20m lengths. __ indicates cable length (05, 20)
	MR-J3BUS30M-B	X	-	SSCNET to Amp cable for iQ-R 30m (Replacement)
AC Power Cable	CR800-PWR-CBL-_ _M	X	X	Replacement AC power cable for CR800 controllers. (single phase, connector on controller side, flying leads on source side) __ indicates cable length (05, 10, 15)
iQube	RBT-CONT-ENC-R1	X	X	Controls solution for CR800-R robot controllers. Includes iQ-R backplane, power supply, PLC, discrete input/output cards, Gig-E Ethernet switch, 24V power, and power distribution components. (Supports up to 3 CR800 controllers. Accepts optional VFDs, servo amplifiers, force sensor interface and safety monitoring systems)
iQube Wheels	RBT-CONT-ENC-WH	-	-	Locking caster wheels for iQube
PC Programming and Simulation Software	RT-TOOLBOX3-C1	X	X	Software that facilitates the programming and 3D simulation of Mitsubishi robots. Legacy support for all versions of MELFA Basic and Movemaster languages.
3D Simulation Software for Solidworks (MELFA-Works)	RT-TOOLBOX3PRO-C1	X	X	Add-in software for Solidworks® (*1) that enables the programming and simulation of Mitsubishi robots within Solidworks®. (Includes full version of RT-Toolbox3)
Canon 3D Vision System	RV-_00-3DVS	X	X	3D vision system to locate trained parts in 3D space and guide a robot to pick them. Provides bin collision avoidance and part interference checking. (Requires 3D CAD model of part and robot tooling. Calibration jigs and PC not included) __ corresponds to field of view: 3=340x340x100 / 5=540x540x200 / 10=1160x1160X600.
Canon 3D Vision Software Option	RV-OPU0_	X	X	Software option to provide additional functionality to Canon 3DVS 1 = Enables system to accommodate slide mounting 2 = Dictionary creation and transfer via 2nd PC 3 = Batch recognition and multi-pallet handling 4 = Consecutive recognition checking 5 = Partial work piece recognition __corresponds to option selected

Note 1: SolidWorks® is a registered trademark of SolidWorks Corporation (USA)

Multifunctional Electric Hand Option

Cam Type

Model Number		4F-MEHGR-01	4F-MEHGR-02	4F-MEHGR-03
Gripping Force	Max. Continuous Rating (N)	5	6	22
	Minimum Setting [%] (N)	1.5	30 (1.8)	30 (6.6)
	Resolution [%] (N)	1 (0.05)	1 (0.06)	1 (0.22)
Open/Close Stroke [mm]		3.2	7.6	14.3
Speed	Max (Rating) [mm/sec]	100	100	100
	Min. Setting [%] (mm/sec)	20 (20)	20 (20)	20 (20)
	Resolution [%] (mm/sec)	1 (1)	1 (1)	1 (1)
	Constant-Speed Move and Grip (max) [%]	50	50	50
Positioning	Repeatability [mm]	±0.02	±0.02	±0.02
Finger	Max. Mass (1 Pair)) [g]	10	15	30
	Allowable Load (N)	12	450	350
	Allowable Pitching Moment (N•m)	0.04	0.7	0.5
	Allowable Yawing Moment (N•m)	0.04	0.8	0.6
	Allowable Rolling Moment (N•m)	0.08	2.3	2.8
	Max. Gripping Point (mm)	20	20	20
	Max. Overhang (mm)	20	20	25
Guide Structure		Linear guide		
Max. Overhang (kg)		0.06	0.22	0.05
Operating Temperature Range (°C)		0 to 40		
Operating Humidity Range (%)		RH35 to 90		
Operating Storage Temperature (°C)		-10 to +60		
Weight (g)		90	160	300

Screw Type

| Model Number		4F-MEHGR-04
Gripping Force	Max. Continuous Rating (N)	150
	Minimum Setting [%] (N)	30 (45)
	Resolution [%] (N)	1 (1.5)
Open/Close Stroke (mm)		38
Speed	Max (Rating) [mm/sec]	50
	Min. Setting [%] (mm/sec)	20 (10)
	Resolution [%] (mm/sec)	1 (0.5)
	Constant-Speed Move and Grip (max) [%]	50
Positioning	Repeatability (mm)	±0.01
Finger	Max. Mass (1 Pair) [g]	80
	Allowable Load [N]	1300
	Allowable Pitching Moment (N•m)	5
	Allowable Yawing Moment (N•m)	6
	Allowable Rolling Moment (N•m)	12.7
	Max. Gripping Point (mm)	30
	Max. Overhang (mm)	20
Guide Structure		Linear guide
Max. Overhang (kg)		1.5
Operating Temperature Range (°C)		0 to 40
Operating Humidity Range (%)		RH35 to 90
Operating Storage Temperature (°C)		-10 to +60
Weight (g)		890

3-Finger Single Cam Type

Model Number		4F-MEHGR-05
Gripping Force	Max. Continuous Rating (N)	2
	Minimum Setting [%] (N)	30 (0.6)
	Resolution [%] (N)	1 (0.02)
Open/Close Stroke [mm]		13
Speed	Max (Rating) [mm/sec]	100
	Min. Setting [%] (mm/sec)	20 (20)
	Resolution [%] (mm/sec)	1 (1)
	Constant-Speed Move and Grip (max) [%]	50
Positioning	Repeatability (mm)	±0.03
Finger	Max. Mass (1 Pair) [g]	20
	Allowable Load (N)	20
	Allowable Moment (N•m)	0.1
	Max. Gripping Point (mm)	20
Guide Structure		Linear guide
Max. Gripping Weight (kg)		0.02
Operating Temperature Range (°C)		0 to 40
Operating Humidity Range (%)		RH35 to 90
Operating Storage Temperature (°C)		-10 to +60
Weight (g)		190

Configuration of the Multi-Function Electric Hand

RV2FR Series

	Item	Quantity	Source	Specifications
1	Electric Hand	1	Mitsubishi Electric	Electric hand used by customers
2	Control Unit for the Electric Hand: 4F-MEHCU-01	1		Control unit to operate electric hand
3	Electric Hand Installation Flange	1	Fabricated by customers	For attachment of the electric hand to the robot flange
4	Robot	1	Mitsubishi Electric	Standard specifications
5	Cable Securing Hardware	As required	Fabricated by customers	For securing a cable

Electric hand control unit
Electric hand
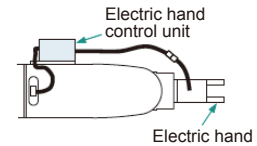
RV4FR/7FR/13FR/20FR Series (External Wiring)

	Item	Quantity	Source	Remarks
1	Electric Hand	1	Mitsubishi Electric	Electric hand used by customers
2	Control Unit for the Electric Hand: 4F-MEHCU-02	1		Control unit to operate electric hand
3	Adapter Cable: 4F-MEHCBL-01	1		Interface cable to connect the electric hand with the control unit/robot
4	Electric Hand Installation Flange	1	Fabricated by customers	For attachment of the electric hand to the robot flange
5	Electric Hand Control Unit Installation Stand	1		For wiring to the forearm
6	Robot, Standard (External Wiring) Specifications	1	Mitsubishi Electric	Standard specifications External wiring sets (option) connections at both the forearm and base
7	External Wiring Unit for the Base	1		1F-HA01S-01: When the hand input signal and Ethernet signal are used together 1F-HA02S-01: When the force sensor signal and Ethernet signal are used together
8	External Wiring Unit for the Forearm	1		1F-HA01S-01: When the hand input signal and Ethernet signal are used together 1F-HA02S-01: When the force sensor signal and Ethernet signal are used together
9	Wrist Wiring Internal-Wiring Specifications: RV_FRSH02/SH03	1		Wrist wiring custom specifications SH02: When the hand input signal and vision sensor signal are used together SH03: When the force sensor signal and vision sensor signal are used together

(Items 6–9 are grouped under "Robot")

Electric hand   Adapter cable
External wiring set for the forearm
In-machine cable outlet
Electric hand control unit
Base part
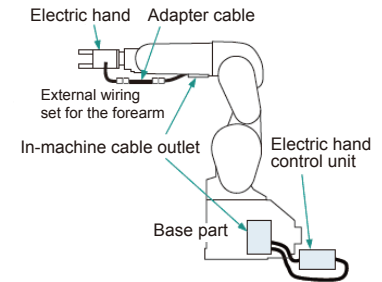
RV4FR/7FR/13FR/20FR Series (Through Wrist Wiring/Piping Versions)

Specifications	Possible Hand Configuration	Accessory		Remarks
		External Wiring Set for the Forearm	External Wiring Set for the Base	
-SH02	Electric Hand + Hand Input Signal Vision Sensor	-	1F-HA01S-01	An external wiring set for the base is included with the internal wiring type robot
-SH03	Electric Hand; Vision Sensor Force Sensor	-	1F-HA02S-01	

RH3FRH/6FRH/12FRH/20FRH Series

	Item	Quantity	Source	Remarks
1	Electric Hand	1	Mitsubishi Electric	Electric hand used by customers
2	Control Unit for the Electric Hand: 4F-MEHCU-02	1		Control unit to operate electric hand
3	Adapter Cable: Select 1 from Table Below	1		Interface cable to connect the electric hand with the control unit/robot
	RH3FRH35/45/5515 & C Specifications Z=120 RH6FRH(M)(C)35/45/5520	4F-MEHCBL-02 (Length: 1300 + 150mm)		
	RH6FRH(M)(C) 35/45/5534	4F-MEHCBL-03 (Length: 1600 + 150mm)		
	RH12FRH(M)(C) 55/70/8535 RH20FRH(M)(C)8535	4F-MEHCBL-04 (Length: 1800 + 150mm)		
	RH12FRH(M)(C) 55/70/854	4F-MEHCBL-05 (Length: 2100 + 150mm)		
4	Cable Securing Hardware	1	Fabricated by customers	For securing a cable
5	Electric Hand Installation Flange	1		For attachment of the electric hand to the robot flange

Hand cable
Electric hand control unit
Control unit attachment plate
Electric hand