

FA-A-0271-A

[1 / 10]

Transition to made-to-order production and production discontinuation of the CC-Link Positioning Modules

Date of Issue
December 2018
Relevant Models
AJ65BT-D75P2-S3, A1SD75-C01H, A1SD75-C01HA

Thank you for your continued support of Mitsubishi Electric programmable controllers. Production of the following CC-Link positioning modules and related products (conversion cables for connection with peripherals) will be discontinued.

1 Models to be discontinued

Models to be discontinued		Alternative models		Remarks
Product	Model	Product	Model	
CC-Link positioning module	AJ65BT-D75P2-S3	MELSEC iQ-F series FX5UC CPU module (positioning function)	 FX5UC-32MT/D FX5-CCL-MS FX5-CNV-IFC 	Select a module from the following according to the positioning function.
		MELSEC iQ-F series FX5U CPU module (positioning function)	• FX5U-32MT/DS • FX5-CCL-MS	CPU module (positioning function) Positioning module (open collector output differential
		MELSEC iQ-F series positioning module (open collector output)	• FX5-20PG-P • FX5UC-32MT/D • FX5-CCL-MS • FX5-CNV-IFC	driver output) When connecting MELSEC iQ-F series products to the CC-Link network, use the CC-Link system master/ intelligent device module.
		MELSEC iQ-F series positioning module (differential driver output)	Pries • FX5-20PG-D CC-Link s ile • FX5UC-32MT/D intelligent r output) • FX5-CCL-MS • FX5-CNV-IFC	
Conversion cables for connection with peripherals	• A1SD75-C01H • A1SD75-C01HA	None		Special cable for AJ65BT- D75P2-S3

2 Schedule

- Transition to made-to-order: March 31, 2019
- Order acceptance: Through February 15, 2021
- Production discontinuation: March 31, 2021

3 Reason for discontinuation

Some main parts of the above products are now obsolete, and we will have difficulty to maintain our production system.

4 Repair support

Repair support period: Until March 31, 2028 (for seven years after the discontinuation of production)

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE : TOKYO BUILDING, 2-7-3 MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN NAGOYA WORKS : 1-14 , YADA-MINAMI 5-CHOME , HIGASHI-KU, NAGOYA , JAPAN

FA-A-0271-A

5 Recommendable proposals

The delivery time for the made-to-order production is 3.5 months.

Please allow for this time and purchase the models to be discontinued early enough. For detailed delivery schedule, please contact a Mitsubishi Electric branch office or agency.

6 Comparison of specifications for the discontinued and alternative models

6.1 FX5UC-32MT/D, FX5U-32MT/DS

Model to be discontinued		Alternative models	
Product	Model		
CC-Link positioning module	AJ65BT-D75P2-S3	 FX5UC-32MT/D (FX5UC CPU module) FX5-CCL-MS (CC-Link system master/intelligent device module) FX5-CNV-IFC (connector conversion module) 	
		FX5U-32MT/DS (FX5U CPU module) FX5-CCL-MS (CC-Link system master/intelligent device module)	

Performance specifications

\bigcirc : Compatible, \bigtriangleup : Check required, \times : Incompatible

Item	AJ65BT-D75P2-S3	FX5UC-32MT/D, FX5U-32MT/DS	Compati bility
No. of control axes	2 axes	■CW/CCW mode 2 axes ■PULSE/SIGN mode 4 axes	0
Interpolation function	2-axis direct interpolation	Simple linear interpolation operation by 2-axis simultaneous start	Δ
	2-axis circular interpolation	None	×
Control method	PTP (Point To Point) control	PTP (Point To Point) control	0
	Speed control	Speed control	0
	Speed/position changeover control	Interrupt 1-speed positioning	Δ
	Path control (Both line and arc can be set.)	None	×
Control unit	mm, inch, degree, pulse	mm, inch, degree, pulse	0
Positioning data	600 data/axis setting possible	Table operation (can be set in GX Works3.) 100 data/axis	Δ
Backup	Parameters and positioning data can be saved to flash ROM.	Parameters and positioning data can be saved to flash ROM.	0

[3 / 10]

FA-A-0271-A

Item		AJ65BT-D75P2-S3	FX5UC-32MT/D, FX5U-32MT/DS	Compati bility
Positioning	Positioning range (Normal mode)	 Absolute method -214748364.8 to 214748364.7 (μm) -21474.83648 to 21474.83647 (inch) 0 to 359.99999 (degree) -2147483648 to 2147483647 (pulse) 	 Absolute method -2147483648 to 2147483647 (μm) -2147483648 to 2147483647 (0.0001 inch) -2147483648 to 2147483647 (mdegree) -2147483648 to 2147483647 (pulse) 	0
		 Incremental method -214748364.8 to 214748364.7 (μm) -21474.83648 to 21474.83647 (inch) -21474.83648 to 21474.83647 (degree) -2147483648 to 2147483647 (pulse) 	 Incremental method -2147483648 to 2147483647 (μm) -2147483648 to 2147483647 (0.0001 inch) -2147483648 to 2147483647 (mdegree) -2147483648 to 2147483647 (pulse) 	0
	Speed command	 0.01 to 600000.00 (mm/min) 0.001 to 600000.000 (inch/min) 0.001 to 600000.000 (degree/min) 1 to 1000000 (pulse/s) 	 1 to 2147483647 (cm/min) 1 to 2147483647 (inch/min) 1 to 2147483647 (10 degree/min) 1 to 200000 (pulse/s) 	
	Acceleration/	Automatic trapezoidal acceleration/deceleration	Automatic trapezoidal acceleration/deceleration	0
	deceleration process	S-curve acceleration/deceleration	None	×
	Acceleration/ deceleration time	Acceleration/deceleration time can be changed. Four patterns each can be set for acceleration time and deceleration time. ■Setting range 1 to 65535 (ms), 1 to 8388608 (ms)	Acceleration/deceleration time can be changed. ■Setting range 0 to 32767 (ms)	
	Sudden stop deceleration time	Can be changed.	None	×
	Start time	20ms or less (excluding link scan time)	■When using an external start signal 50µs or less ■Interpolation Operation 300µs or less	0
Positioning function external connection	Max. output pulse	 When connected to differential driver 400kpps When connected to open collector 200kpps 	 When connected to differential driver Not supported When connected to open collector 200kpps 	×
	Max. connection distance between servos	 When connected to differential driver 10m When connected to open collector 2m 	 When connected to differential driver Not supported When connected to open collector According to the electrical characteristics of input/ output signal 	Δ
CC-Link	CC-Link station type	Intelligent device station	Intelligent device station	0
	Number of occupied stations	4 stations (RX/RY: 128 points each, RWr/RWw: 16 points each)	1 to 4 stations (selectable)	0
	Applicable crimping terminal	RAV1.25-3.5, RAV2-3.5 (bare crimp terminal) M3.5 terminal screw	 FV1.25-B3A (bare crimp spade terminal) M3 terminal screw FV2-MS3 (bare crimp ring terminal) M3 terminal screw 	0
Module mounting	J	 Mounting using a DIN rail Direct mounting (screw: M4×0.7mm, length of 16mm or more) 	 Mounting using a DIN rail Direct mounting (screw: M4)^{*1} 	×
Applicable DIN ra	ail	TH35-7.5Fe, TH35-7.5AI, TH35-15Fe (compliant with JIS C 2812)	DIN46277 (35mm width)	0
Flash ROM write	count	Maximum 100,000 times	Maximum 20,000 times	
Dielectric withsta	nd voltage	500VAC for 1 minute across power supply/ communication system and external input/output	500VAC for 1 minute across power supply and external input/output	0
Insulation resista	nce	$10M\Omega$ or higher at 500VDC insulation resistance tester across power supply/communication system and external input/output	$10 M \Omega$ or higher at 500VDC insulation resistance tester	0

FA-A-0271-A

Item		AJ65BT-D75P2-S3	FX5UC-32MT/D, FX5U-32MT/DS	Compati bility
External power supply	External power supply	24VDC (20.4 to 26.4VDC)	 FX5UC-32MT/D 30W/24VDC (20%, -15%) (20.4 to 28.8VDC) FX5U-32MT/DS 30W/24VDC (20%, -30%) (16.8 to 28.8VDC) 	Δ
	Internal current consumption (24VDC)	0.30A		

*1 Only when using FX5U-32MT/DS

External wiring

Item		AJ65BT-D75P2-S3	FX5UC-32MT/D	FX5U-32MT/DS
Positioning function external connection	External device connector	 10136-3000VE (soldered type, accessory) 10136-6000EL (crimp type, sold separately) 	Use a 20-pin socket (single in line) compliant with MIL-C-83503. Certified connectors • HU-200S2-001 (housing) • HU-411S, HU-411SA (crimp contact) • FRC2-A020-30S (crimp connector)	 FV1.25-B3A (bare crimp spade terminal) M3 terminal screw FV-MS3 (bare crimp ring terminal) M3 terminal screw
	Applicable wire size	■10136-3000VE Approx. 0.05 to 0.2mm ² (30 to 24 AWG) ■10136-6000EL Approx. 0.08mm ² (28 AWG)	■HU-200S2-001 or HU-411S 0.3mm (22 AWG) ■HU-200S2-001 or HU-411SA 0.5mm (20 AWG) ■FRC2-A020-30S 0.1mm (28 AWG)	■FV1.25-B3A Approx. 0.3 to 1.3mm (22 to 16 AWG) ■FV-MS3 Approx. 1.3 to 2.1mm (16 to 14 AWG)
External power supply (24VDC)	Applicable crimping terminal	RAV1.25-3.5, RAV2-3.5 (bare crimp terminal) M3.5 terminal screw	For the FRC2-A020-30S provided as an accessory, use the power supply cable. (connection with connectors)	 FV1.25-B3A (bare crimp spade terminal) M3 terminal screw FV-MS3 (bare crimp ring terminal) M3 terminal screw
	Applicable conductor size	0.75 to 2.00mm		■FV1.25-B3A Approx. 0.3 to 1.3mm (22 to 16 AWG) ■FV-MS3 Approx. 1.3 to 2.1mm (16 to 14 AWG)

FA-A-0271-A

Functions

\bigcirc . Compatible, \triangle . Check required, \land . Incompatible	O: Compatible,	\triangle : Check	required,	×: Incom	patible
---	----------------	---------------------	-----------	----------	---------

Item		AJ65BT-D75P2-S3		FX5UC-32MT/D, FX5U-32MT/DS	Compati bility
Main functions	Zero point return control method	Machine zero point return control	Near-point dog method	Near-point dog method	0
			Stopper stop method 1	None	×
			Stopper stop method 2	Available by program.	Δ
			Stopper stop method 3		
			Count method 1		
			Count method 2		
		High-speed zero point	return control	High-speed zero point return control	0
		Data setting method ze	ero point return control	None	×
	Main positioning	Speed control		Speed control	0
	control	Linear control (1-axis,	2-axis interpolation)	Linear control (1-axis, simple interpolation)	Δ
		Fixed feed control (1-a	xis, 2-axis)	Fixed feed control (1-axis only)	Δ
		2-axis circular interpola	ation control	None	×
		Speed/position change	over control	None	×
	Advanced positioning	Simultaneous start		Simultaneous start	0
	control	Block start (normal start)		Available by program.	Δ
		Conditional start			
		Wait start			
М		Repeated start (FOR loop, FOR condition)			
		Stop			
	Manual control	JOG operation		JOG operation	0
		Manual pulse generato unit/axis)	or operation: 2 units (1	None	×
Other control		JUMP command		JUMP command	0
	Current value change			HCMOV/DHCMOV command	0
-	Operation pattern	Independent positioning control (positioning complete)		Independent positioning control (positioning complete)	0
		Continuous positioning control		Continuous positioning control	0
		Continuous path contro	bl	None	×
Auxiliary functions	Machine zero point	Zero point return retry	function	Dog search function	Δ
	return	Zero point shift function	า	OPR zero signal count	0
	Control	Electronic gear function	n	Electronic gear function	0
	compensation	Backlash compensatio	n function	Available by program.	Δ
		Near pass mode functi	on	None	×
	Functions to limit the	Speed limit function		Speed limit function	0
	control	Hardware stroke limit f	unction	Forward limit and reverse limit	Δ
		Torque limit function		None	×
		Software stroke limit fu	nction	None	×
	Functions to change	Speed change function	1	Speed change function	0
	the control details	Override function		Available by program.	Δ
		Acceleration/decelerati	on time change function	None	×
		Torque change function	1	None	×
Absolute position resto	oration function	Available		ABS/DABS command	0

FA-A-0271-A

Precautions at replacement

This section describes precautions when replacing with alternative models.

■Wiring

- The applicable wire size and connection method differ.
- The mounting method and external wiring differ by module. (Mounting using a DIN rail, direct mounting, wiring using connectors, etc.)
- The current consumption of the external power supply (24VDC) differs.

■Positioning function

- Stopper stop method 1 for data setting method zero point return control and machine zero point return control is not available. Please change the operation to high-speed zero point return control or machine zero point return control other than stopper stop method 1.
- Sudden stop deceleration time cannot be changed.
- The setting range of the acceleration/deceleration time becomes smaller. Operation may differ with the same function. Ensure that it does not cause any problems in the system.
- Positioning start time becomes shorter. Ensure that it does not cause any problems in the system.
- Path control is not available.
- Only the simple linear interpolation function is available for the interpolation function.

■Limit function

The alternative models do not have the following limit functions.

- Torque limit function
- Software stroke limit function

■Operation when a CC-Link communication error occurs

When a communication error occurs during positioning control operation, the operation differs.

Product	Stop/continuation of positioning control
AJ65BT-D75P2-S3	Stop
FX5UC-32MT/D, FX5U-32MT/DS	Continuation

When a communication error occurs in FX5UC-32MT/D or FX5U-32MT/DS, use the program to stop the positioning control.

Point P

When replacing the model with an alternative one, please contact a Mitsubishi Electric branch office or agency.

FA-A-0271-A

6.2 FX5-20PG-P, FX5-20PG-D

Model to be discontinued		Alternative models
Product	Model	
CC-Link positioning module	AJ65BT-D75P2-S3	 FX5-20PG-P (positioning module (open collector output)) FX5UC-32MT/D (FX5UC CPU module) FX5-CCL-MS (CC-Link system master/intelligent device module) FX5-CNV-IFC (connector conversion module)
		 FX5-20PG-D (positioning module (differential driver output)) FX5UC-32MT/D (FX5UC CPU module) FX5-CCL-MS (CC-Link system master/intelligent device module) FX5-CNV-IFC (connector conversion module)

Performance specifications

 \bigcirc : Compatible, \bigtriangleup : Check required, \times : Incompatible

Item		AJ65BT-D75P2-S3	FX5-20PG-P, FX5-20PG-D	Compati bility
No. of control axes		2 axes	2 axes	0
Interpolation function		2-axis direct interpolation	2-axis direct interpolation	0
		2-axis circular interpolation	2-axis circular interpolation	0
Control method		PTP (Point To Point) control	PTP (Point To Point) control	0
		Speed control	Speed control	0
		Speed/position changeover control	Speed/position changeover control	0
		Path control (Line and arc can be set.)	Path control (Line and arc can be set.)	0
Control unit		mm, inch, degree, pulse	mm, inch, degree, pulse	0
Positioning data		600 data/axis setting possible	600 data/axis setting possible	0
Backup		Parameters and positioning data can be saved to flash ROM.	Parameters and positioning data can be saved to flash ROM.	0
Positioning	Positioning range (normal mode)	 Absolute method -214748364.8 to 214748364.7 (μm) -21474.83648 to 21474.83647 (inch) 0 to 359.99999 (degree) -2147483648 to 2147483647 (pulse) 	 Absolute method -214748364.8 to 214748364.7 (μm) -21474.83648 to 21474.83647 (inch) 0 to 359.99999 (degree) -2147483648 to 2147483647 (pulse) 	0
		 Incremental method -214748364.8 to 214748364.7 (μm) -21474.83648 to 21474.83647 (inch) -21474.83648 to 21474.83647 (degree) -2147483648 to 2147483647 (pulse) 	 Incremental method -214748364.8 to 214748364.7 (μm) -21474.83648 to 21474.83647 (inch) -21474.83648 to 21474.83647 (degree) -2147483648 to 2147483647 (pulse) 	0
	Speed command	 0.01 to 600000.00 (mm/min) 0.001 to 600000.000 (inch/min) 0.001 to 600000.000 (degree/min) 1 to 1000000 (pulse/s) 	 0.01 to 2000000.00 (mm/min) 0.001 to 2000000.000 (inch/min) 0.001 to 3000000.000 (degree/min) 1 to 5000000 (pulse/s) 	0
	Acceleration/ deceleration process	Automatic trapezoidal acceleration/ deceleration	Automatic trapezoidal acceleration/ deceleration	0
		S-curve acceleration/deceleration	S-curve acceleration/deceleration	0
	Acceleration/ deceleration time	Acceleration/deceleration time can be changed. Four patterns each can be set for acceleration time and deceleration time. Setting range 1 to 65535 (ms), 1 to 8388608 (ms)	Acceleration/deceleration time can be changed. Four patterns can be set each for acceleration time and deceleration time. Setting range 1 to 8388608 (ms)	0
	Sudden stop deceleration time	Can be changed.	Can be changed.	0
	Start time	20ms or less (excluding link scan time)	0.83ms or less	0

FA-A-0271-A

Item		AJ65BT-D75P2-S3	FX5-20PG-P, FX5-20PG-D	Compati bility
Positioning function external connection	Max. output pulse	 When connected to differential driver 400kpps When connected to open collector 200kpps 	 When connected to differential driver (FX5-20PG-D) 5Mpps When connected to open collector (FX5-20PG-P) 200kpps 	0
	Max. connection distance between servos	 When connected to differential driver 10m When connected to open collector 2m 	 When connected to differential driver (FX5-20PG-D) 10m When connected to open collector (FX5-20PG-P) 2m 	0
CC-Link	CC-Link station type	Intelligent device station	Intelligent device station	0
	Number of occupied stations	4 stations (RX/RY: 128 points each, RWr/ RWw: 16 points each)	1 to 4 stations (selectable)	0
	Applicable crimping terminal	RAV1.25-3.5, RAV2-3.5 (bare crimp terminal) M3.5 terminal screw	 FV1.25-B3A (bare crimp spade terminal) M3 terminal screw FV2-MS3 (bare crimp ring terminal) M3 terminal screw 	0
Module mounting		 Mounting using a DIN rail Direct mounting (screw: M4×0.7mm, length of 16mm or more) 	 Mounting using a DIN rail Direct mounting (screw: M4) 	0
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al, TH35-15Fe (compliant with JIS C 2812)	DIN46277 (35mm width)	0
Flash ROM write count	:	Maximum 100,000 times	Maximum 100,000 times	0
Dielectric withstand voltage		500VAC for 1 minute across power supply/ communication system and external input/ output	500VAC for 1 minute between all terminals and ground terminal	0
Insulation resistance		10MΩ or higher at 500VDC insulation resistance tester across power supply/ communication system and external input/ output	$10M\Omega$ or higher at 500VDC insulation resistance tester	0
External power supply	External power supply	24VDC (20.4 to 26.4VDC)	24VDC (20.4 to 28.8VDC)	
	Internal current consumption (24VDC)	0.30A	■FX5-20PG-P 120mA ^{*1} ■FX5-20PG-D 165mA ^{*1}	Δ

*1 The current consumption of the external power supply is the total of that of the provided modules and peripherals. For the current consumption of the modules that the system configured of, refer to the manuals for each module.

External wiring				
Item		AJ65BT-D75P2-S3	FX5-20PG-P, FX5-20PG-D	
Positioning function external connection	External device connector	 10136-3000VE (soldered type, accessory) 10136-6000EL (crimp type, sold separately) 	A6CON1, A6CON2, A6CON4 (sold separately)	
	Applicable wire size	■10136-3000VE Approx. 0.05 to 0.2mm ² (30 to 24 AWG) ■10136-6000EL Approx. 0.08mm ² (28 AWG)	■A6CON1 or A6CON4 0.088 to 0.3mm ³ (28 to 22 AWG) stranded wire ■A6CON2 0.088 to 0.24mm ³ (28 to 24 AWG) stranded wire	
External power supply (24VDC)	Applicable crimping terminal	RAV1.25-3.5, RAV2-3.5 (bare crimp terminal) M3.5 terminal screw	Use the power supply cable provided as an accessory. (connection with connectors)	
	Applicable conductor size	0.75 to 2.00mm		

FA-A-0271-A

Functions

0:0	Compatible.	\triangle : Check	reauired.	×: Incom	patible
<u> </u>	•••••••••				P 0

Item		AJ65BT-D75P2-S3		FX5-20PG-P, FX5-20PG-D	Compati bility
Main functions	Zero point return control method	Machine zero point return control	Near-point dog method	Near-point dog method	0
			Stopper stop method 1	Stopper stop method 1	0
			Stopper stop method 2	Stopper stop method 2	0
			Stopper stop method 3	Stopper stop method 3	0
			Count method 1	Count method 1	0
			Count method 2	Count method 2	0
		High-speed zero point	return control	High-speed zero point return control	0
		Data setting method zero point return control		Data setting method zero point return control	0
	Main positioning	Speed control		Speed control	0
	control	Linear control (1-axis, 2-axis interpolation)		Linear control (1-axis, 2-axis interpolation)	0
		Fixed feed control (1-axis, 2-axis)		Fixed feed control (1-axis, 2-axis)	0
		2-axis circular interpolation control		2-axis circular interpolation control	0
		Speed/position change	eover control	Speed/position changeover control	0
	Advanced positioning	Simultaneous start		Simultaneous start	0
	control	Block start (normal start)		Block start (normal start)	0
		Conditional start		Conditional start	0
		Wait start		Wait start	0
		Repeated start		Repeated start	0
		Stop		Available by program.	Δ
	Manual control	JOG operation		JOG operation	0
		Manual pulse generator operation: 2 units (1 unit/axis)		Manual pulse generator operation: 1 unit	Δ
	Other control	JUMP command		JUMP command	0
		Current value change		Current value change using the HCMOV/ DHCMOV command	0
	Operation pattern	Independent positioning control (positioning complete)		Independent positioning control (positioning complete)	0
		Continuous positioning control		Continuous positioning control	0
		Continuous path control		Continuous path control	0
Auxiliary functions	Machine zero point	Zero point return retry function		Zero point return retry function	0
	return	Zero point shift function	า	Zero point shift function	0
	Control compensation	Electronic gear function	n	Electronic gear function	0
		Backlash compensation function		Backlash compensation function	0
		Near pass mode functi	on	Near pass mode function	0
	Functions to limit the control	Speed limit function		Speed limit function	0
		Hardware stroke limit function		Hardware stroke limit function	0
		Torque limit function		Torque limit function	0
		Software stroke limit fu	inction	Software stroke limit function	0
	Functions to change the control details	Speed change function	1	Speed change function	0
		Override function		Override function	0
		Acceleration/decelerati	ion time change function	Acceleration/deceleration time change function	0
		Torque change function	n	Torque change function	0
Absolute position resto	oration function	Available		Available	0

FA-A-0271-A

Precautions at replacement

This section describes precautions when replacing with alternative models.

■Wiring

- The applicable wire size and connection method differ.
- The mounting method and external wiring differ by module. (Mounting using a DIN rail, wiring using connectors, etc)
- The current consumption of the external power supply (24VDC) differs.

■Positioning function

Positioning start time becomes shorter. Ensure that it does not cause any problems in the system.

■Operation when a CC-Link communication error occurs

When a communication error occurs during positioning control operation, the operation differs.

Product	Stop/continuation of positioning control
AJ65BT-D75P2-S3	Stop
FX5-20PG-P, FX5-20PG-D	Continuation

When a communication error occurs in FX5-20PG-P or FX5-20PG-D, use the program to stop the positioning control.

Point P

When replacing the model with an alternative one, please contact a Mitsubishi Electric branch office or agency.

REVISIONS

Version	Date of issue	Revision
A	December 2018	First edition

TRADEMARKS

The company names, system names and product names mentioned in this manual are either registered trademarks or trademarks of their respective companies.

In some cases, trademark symbols such as 'TM, or '[®], are not specified in this manual.