



AFP7MC16EC | FP7 Motion control unit



※Photo may vary from actual product.

Product Number	AFP7MC16EC
Part Number	AFP7MC16EC
Product	FP7 Motion Control Unit
Details	EtherCAT type
Product name	FP7 Motion control unit

Spec Detail

As of May 30, 2021

Specifications and design of the products are subject to change without notice for the product improvement.

Item	Specifications
Product Number	AFP7MC16EC
Part Number	AFP7MC16EC
Connected slave	Panasonic AC servo motor MINAS A6B / A5B series EtherCAT-compatible S-LINK V gateway controller SL-VGU1-EC (Note1) A6B and SL-VGU1-EC are compatible with the FP7 motion control unit Ver.1.2 or later. (Note2) One unit or more A6B or A5B must exist on the network. Also, A6B and A5B can both be used on the network. (Note3) The hub for EtherCAT / Ethernet cannot be used.
Number of control axes	Real axis : 16 axes Virtual axis : 8 axes
Communication cycle	0.5ms / 1ms / 2ms / 4ms
Interpolation control	2-axis linear interpolation, 2-axis circular interpolation, 3-axis linear interpolation and 3-axis spiral interpolation
Number of occupied I/O points	Input : 16 points, Output : 16 points
Automatic operation : Positioning control (CSP) : Position specification method	Absolute (specified absolute position), Increment (specified relative position)
Automatic operation : Positioning control (CSP) : Position specified unit	pulse μm (select a minimum instruction unit of 0.1 μm or 1 μm) inch (select a minimum instruction unit of 0.00001 inch or 0.0001 inch) degree (select a minimum instruction unit of 0.1 degree or 1 degree)
Automatic operation : Positioning control (CSP) : Position reference range	pulse : -2,147,483,648 to 2,147,483,647pulse μm (0.1μm) : -214,748,364.8 to 214,748,364.7μm μm (1μm) : -2,147,483,648 to 2,147,483,647μm inch (0.00001inch) : -21,474.83648 to 21,474.83647inch inch (0.0001inch) : -214,748.3648 to 214,748.3647inch degree (0.1degree) : -214,748,364.8 to 214,748,364.7degree degree (1degree) : -2,147,483,648 to 2,147,483,647degree
Automatic operation : Positioning control (CSP) : Speed reference range	pulse : 1~2,147,483,647pps μm : 1~2,147,483,647$\mu\text{m/s}$ inch : 0.001~2,147,483.647inch/s degree : 0.001~2,147,483.647rev/s
Automatic operation : Positioning control (CSP) : Acceleration / deceleration type	Linear acceleration/deceleration, S-shaped acceleration/deceleration
Automatic operation : Positioning control (CSP) : Acceleration / deceleration time	0 to 10,000ms(adjustable in 1 ms increments)
Automatic operation : Positioning control (CSP) : Number of positioning tables	Each axis : 1,000 points

Automatic operation : Positioning control (CSP) : Control method : Independent	PTP control (E point control, C point control), CP control (P point control), Speed control (J point control)
Automatic operation : Positioning control (CSP) : Control method : 2-axis interpolation : Linear interpolation	E point, P point and C point controls : Specify synthesis speed or major axis speed
Automatic operation : Positioning control (CSP) : Control method : 2-axis interpolation : Circular interpolation	E point, P point and C point controls : Center point or passing point
Automatic operation : Positioning control (CSP) : Control method : 3-axis interpolation : Linear interpolation	E point, P point and C point controls : Specify synthesis speed or major axis speed
Automatic operation : Positioning control (CSP) : Control method : 3-axis interpolation : Spiral interpolation	E point, P point and C point controls : Center point or passing point
Automatic operation : Positioning control (CSP) : Other function : Dwell time	0 to 32,767ms (adjustable in 1 ms increments)
Manual operation : JOG/inching operation : Speed reference range	pulse : 1~2,147,483,647pps μm : 1~2,147,483,647μm/s inch : 0.001~2,147,483.647inch/s degree : 0.001~2,147,483.647rev/s
Manual operation : JOG/inching operation : Acceleration / deceleration type	Linear acceleration/deceleration, S-shaped acceleration/deceleration
Manual operation : JOG/inching operation : Acceleration / deceleration time	0 to 10,000ms (adjustable in 1 ms increments)
Manual operation : Home return : Speed reference range	pulse : 1~2,147,483,647pps μm : 1~2,147,483,647μm/s inch : 0.001~2,147,483.647inch/s degree : 0.001~2,147,483.647rev/s
Manual operation : Home return : Acceleration / deceleration type	Linear acceleration/deceleration, S-shaped acceleration/deceleration
Manual operation : Home return : Acceleration / deceleration time	0 to 10,000ms (adjustable in 1 ms increments)
Manual operation : Home return : Return methods	DOG method (4 types), Limit method (2 types), Data set method, Z phase method, Stop-on-contact method (2 types)
Stop function : Deceleration stop : Deceleration time	Axis operation mode startup time of activated axis
Stop function : Emergency stop : Deceleration time	0 to 10,000 ms (adjustable in 1 ms increments)
Stop function : Limit stop : Deceleration time	0 to 10,000 ms (adjustable in 1 ms increments)
Stop function : Error stop : Deceleration time	0 to 10,000 ms (adjustable in 1 ms increments)
Stop function : System stop : Deceleration time	Immediate stop (1 ms), all axes stop
Synchronous operation function : Synchronous basic setting : Master axis	Selection possible of real axis and virtual axis
Synchronous operation function : Synchronous basic setting : Slave axis	Max. 8 axes/master
Synchronous operation function : Electronic gear function : Operation setting	Gear ratio setting
Synchronous operation function : Electronic gear function : Operation method	Direct method, Acceleration/deceleration method
Synchronous operation function : Electronic clutch function : Clutch ON	Contact input

trigger

Synchronous operation function : Electronic clutch function : Clutch method	Direct method, Linear slide method
Synchronous operation function : Electronic cam function : Cam curve	Select from 20 types Multiple curves can be specified within a phase (0 to 100 %).
Synchronous operation function : Electronic cam function : Resolution	1024, 2048, 4096, 8192, 16384, 32768
Synchronous operation function : Electronic cam function : Number of cam patterns	16 to 64 (Depends on resolution)
Other specifications : Software limit function : Set range	pulse : -2,147,483,648 to 2,147,483,647pulse µm (0.1µm) : -214,748,364.8 to 214,748,364.7µm µm (1µm) : -2,147,483,648 to 2,147,483,647µm inch (0.00001inch) : -21,474.83648 to 21,474.83647inch inch (0.0001inch) : -214,748.3648 to 214,748.3647inch degree (0.1degree) : -214,748,364.8 to 214,748,364.7degree degree (1degree) : -2,147,483,648 to 2,147,483,647degree
Other specifications : Monitor judgment : Torque judgment	Torque judgment Selection possible of active/non-active and error/warning 0.0 to ±500.0 %
Other specifications : Monitor judgment : Actual speed judgment	Actual speed judgment Selection possible of active/non-active and error/warning 0.0 to ±5,000 rpm
Other specifications : Backup	Parameters and positioning data are saved to flash memory (battery free)
Other specifications	· Limit input CWL, CCWL monitor and proximity (DOG) monitor · General-purpose input : 5 points, General-purpose output : 1 point (I/O from AMP) · Auxiliary output contact and auxiliary output cord
[[COMMON GENERAL SPECIFICATIONS]]Ambient temperature	0 to +55 °C +32 to +131 °F , Storage: -40 to +70 °C -40 to +158 °F
[[COMMON GENERAL SPECIFICATIONS]]Ambient humidity	10 to 95 % RH (at +25 °C +77 °F , no condensation), Storage: 10 to 95 % RH (at +25 °C +77 °F , no condensation)
[[COMMON GENERAL SPECIFICATIONS]]Breakdown voltage	500 V AC for 1 minute
[[COMMON GENERAL SPECIFICATIONS]]Insulation resistance	100 MΩ or more (at 500 V DC)
[[COMMON GENERAL SPECIFICATIONS]]Vibration resistance	5 to 8.4 Hz, single amplitude of 3.5 mm 0.138 in , 1 sweep/min. (IEC 61131-2) ; 8.4 to 150 Hz, constant acceleration of 9.8 m/s ² , 1 sweep/min. (IEC 61131-2), 10 times each in X, Y, and Z directions
[[COMMON GENERAL SPECIFICATIONS]]Shock resistance	147 m/s ² or more , 3 times each in X, Y, and Z directions (IEC61131-2)
[[COMMON GENERAL SPECIFICATIONS]]Noise immunity	1,000 V [p-p] with pulse width 50 ns and 1 µs (using a noise simulator)
[[COMMON GENERAL SPECIFICATIONS]]Operating condition	Free from corrosive gasses and excessive dust
[[INDIVIDUAL GENERAL SPECIFICATIONS]]Rated voltage range	-
[[INDIVIDUAL GENERAL SPECIFICATIONS]]Current consumption	180 mA approx.
[[INDIVIDUAL GENERAL SPECIFICATIONS]]Net weight	150 g approx.

Accessories



Product **AFP7MC16EC**



Product **AFP7MC16EC**

Number		Number	
Part Number	AFP7MTEN	Part Number	AFP7MTKEY
Product name	Control Motion Integrator	Product name	-

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