A.1 ASDA-B3 series servo drive

A.1.1 Specifications of the ASDA-B3 servo drive

A.1.1.1 220V series

ASDA-B3			100 W	200 W	400 W	750 W	1 kW	1.5 kW	2 kW	3 kW
			01	02	04	07	10	15	20	30
Main circuit power	Phase / Voltage		Single- / Three-phase 220 V_{AC}						Three-phase 220 V_{AC}	
	Permissible voltage		Single- / Three-phase 200 - 230 V_{AC}, -15% to +10%						Three-phase 200 - 230 V_{AC}, -15% to +10%	
	Input current (3PH) (Arms)		0.88	1.29	2.04	3.52	5.72	6.33	7.6	10.3
	Input current (1PH) (Arms)		1.47	2.35	3.74	6.47	10.4	11.7	-	-
	Inrush current (220V) (Arms)		5.50	5.50	5.50	5.50	12.45	12.45	12.45	12.45
Control circuit power	Phase / Voltage		Single-phase 220 V_{AC}							
	Permissible voltage		Single-phase 200 - 230 V_{AC}, -15% to +10%							
	Input current (220V) (Arms)		0.13	0.13	0.13	0.13	0.15	0.15	0.17	0.17
	Inrush current (220V) (Arms)		24.89	24.89	24.89	24.89	24.89	24.89	24.89	24.89
Continuous output current (Arms)			0.9	1.55	2.65	5.1	7.3	8.3	13.4	19.4
Max. instantaneous output current (Arms)			3.88	7.07	10.6	14.14	21.21	24.3	38.3	53.03
Regenerative resistor	Built-in	Resistance (Ohm)	-	-	100	100	100	100	20	20
		Capacity (Watt)	-	-	40	40	40	40	80	80
	External	Minimum allowable resistance (Ohm)	60	60	60	60	30	30	15	15
Cooling method			Air convection cooling				Fan cooling			

Note:

1. The input current is the actual value measured when the servo drive is under the rated output condition with an AC power supply at 220V.
2. When an electronic transformer is used, the output of the servo drive will be derated to 70%.

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Specification table

Item			Specification
Servo drive resolution			24-bit (16777216 p/rev)
Main circuit control			SVPWM control
Tuning mode			Manual / Auto
Position control mode	Pulse type		Pulse + symbol, CCW pulse + CW pulse, A phase + B phase
	Max. input pulse frequency		Pulse + symbol: 4 Mpps CCW pulse + CW pulse: 4 Mpps A phase + B phase: single-phase 2 Mpps Open collector: 200 Kpps
	Command source		External pulse / Register
	Smoothing method		Low-pass filter; S-curve filter; moving filter
	E-Gear ratio		E-Gear ratio: N/M times; 1 ≤ N/M ≤ 262144
	Torque limit		Parameter settings
	Feedforward compensation		Parameter settings
Speed control mode	Analog command input	Voltage range	-10 to +10 V_{DC}
		Resolution	12-bit
		Input impedance	1 MΩ
		Time constant	25 μs
	Speed control range[*1]		1 : 6000
	Command source		External analog command / Register
	Smoothing method		Low-pass filter; S-curve filter; moving filter
	Torque limit		Parameter settings / Analog input
	Bandwidth		Maximum 3.1 kHz
	Speed calibration ratio[*2]		Max. ±0.01% at 0% to 100% load fluctuation
			Max. ±0.01% at ±10% power fluctuation
			Max. ±0.01% at ambient temperature between 0˚C to 50˚C (32˚F to 122˚F)
Torque control mode	Analog command input	Voltage range	-10 to +10 V_{DC}
		Input impedance	1 MΩ
		Time constant	25 μs
	Command source		External analog command / Register
	Smoothing method		Low-pass filter
	Speed limit		Parameter settings / Analog input
Analog monitor output			Monitor signal can be set by parameters (voltage output range: ±8V); resolution: 10-bit
Digital input			-L models: 9 DI points; -M, -F, and -E models: 4 DI points; -P models: 6 DI points. Refer to Chapter 8 for the function settings.

Item		Specification
Digital output		-L models: 6 DO points; -M, -F, and -E models: 2 DO points; -P models: 3 DO points. Refer to Chapter 8 for the function settings.
Protection function		Overcurrent, Overvoltage, Undervoltage, Overheat, Regeneration error, Overload, Excessive speed deviation, Excessive position deviation, CN2 communication failure, Emergency stop, Positive / negative limit error, Serial communication error, RST power error, Serial communication timeout, Short-circuit protection for terminals U, V, W.
Communication interface		RS-485 / Mini USB / CANopen / DMCNET / EtherCAT / PROFINET
Environment	Installation site	Indoors (avoid direct sunlight), no corrosive vapor (avoid fumes, flammable gases, and dust)
	Altitude	Less than 2,000 m above sea level
	Atmospheric pressure	86 kPa - 106 kPa
	Ambient temperature	0˚C to 55˚C (32˚F to 131˚F) (If the ambient temperature is above 45˚C (113˚F), forced cooling is required)
	Storage temperature	-20˚C to +65˚C (-4˚F to +176˚F)
	Humidity	0 - 90% RH (non-condensing)
	Vibration	10 Hz to 57 Hz: 0.075 mm amplitude; 58 Hz to 150 Hz: 1 G
	IP rating	IP20
	Power system	TN system[*3*4]
	Approvals[*5]	IEC/EN/UL 61800-5-1

Note:

1. Within the rated load, the speed ratio is: the minimum speed (smooth operation) / rated speed.
2. Within the rated speed, the speed calibration ratio is: (rotation speed with no load - rotation speed with full load) / rated speed.
3. TN system: the neutral point of the power system connects directly to the ground. The exposed metal components connect to the ground through the protective ground conductor.
4. Use a single-phase three-wire power system for models using a single-phase power supply.
5. Only the B3A series has received the TÜV Functional Safety certification.
6. Go to Delta's website for the certificates.

A.1.1.2 400V series

ASDA-B3			1 kW	1.5 kW	2 kW	3 kW	4.5 kW	5.5 kW	7.5 kW
			10	15	20	30	45	55	75
Main circuit power	Phase / Voltage		Three-phase 400 V_{AC}						
	Permissible voltage		Three-phase 380 - 440 V_{AC}, -10% to +10%						
	Input current (400V) (Arms)		2.91	3.52	5.06	6.14	12	14.5	20
	Inrush current (400V) (Arms)		5.66	5.66	5.66	5.66	37.72	37.72	37.72
Control circuit power	Phase / Voltage		Single-phase 400 V_{AC}						
	Permissible voltage		Single-phase 380 - 440 V_{AC}, -10% to +10%						
	Input current (400V) (Arms)		0.1	0.1	0.1	0.1	0.13	0.13	0.13
	Inrush current (400V) (Arms)		37.72	37.72	37.72	37.72	37.72	37.72	37.72
Continuous output current (Arms)			3.37	4.09	5.96	9.11	13.30	15.34	22.11
Max. instantaneous output current (Arms)			7.07	10.6	18.98	27.33	35.35	49.29	53.03
Regenerative resistor	Built-in	Resistance (Ohm)	100	100	50	50	35	35	35
		Capacity (Watt)	80	80	80	80	100	100	100
	External	Minimum allowable resistance (Ohm)	80	60	45	40	35	25	25
Cooling method			Fan cooling						

Note: the input current is the actual value measured when the servo drive is under the rated output condition with an AC power supply at 400V.

Specification table

Item			Specification
Servo drive resolution			24-bit (16777216 p/rev)
Main circuit control			SVPWM control
Tuning mode			Manual / Auto
Position control mode	Pulse type		Pulse + symbol, CCW pulse + CW pulse, A phase + B phase
	Max. input pulse frequency		Pulse + symbol: 4 Mpps CCW pulse + CW pulse: 4 Mpps A phase + B phase: single-phase 2 Mpps Open collector: 200 Kpps
	Command source		External pulse / Register
	Smoothing method		Low-pass filter; S-curve filter; moving filter
	E-Gear ratio		E-Gear ratio: N/M times; 1 ≤ N/M ≤ 262144
	Torque limit		Parameter settings
	Feedforward compensation		Parameter settings
Speed control mode	Analog command input	Voltage range	-10 to +10 V_{DC}
		Resolution	12-bit
		Input impedance	1 MΩ
		Time constant	25 μs
	Speed control range[*1]		1 : 6000
	Command source		External analog command / Register
	Smoothing method		Low-pass filter; S-curve filter; moving filter
	Torque limit		Parameter settings / Analog input
	Bandwidth		Maximum 3.1 kHz
	Speed calibration ratio[*2]		Max., ±0.01% at 0% to 100% load fluctuation
			Max. ±0.01% at ±10% power fluctuation
			Max. ±0.01% at ambient temperature between 0˚C to 50˚C (32˚F to 122˚F)
Torque control mode	Analog command input	Voltage range	-10 to +10 V_{DC}
		Input impedance	1 MΩ
		Time constant	25 μs
	Command source		External analog command / Register
	Smoothing method		Low-pass filter
	Speed limit		Parameter settings / Analog input
Analog monitor output			Monitor signal can be set by parameters (voltage output range: ±8V); resolution: 10-bit
Digital input			-L models: 9 DI points; -M, -F, and -E models: 4 DI points; -P models: 6 DI points. Refer to Chapter 8 for the function settings.

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Item		Specification
Digital output		-L models: 6 DO points; -M, -F, and -E models: 2 DO points; -P models: 3 DO points. Refer to Chapter 8 for the function settings.
Protection function		Overcurrent, Overvoltage, Undervoltage, Overheat, Regeneration error, Overload, Excessive speed deviation, Excessive position deviation, CN2 communication failure, Emergency stop, Positive / negative limit error, Serial communication error, RST power error, Serial communication timeout, Short-circuit protection for terminals U, V, W.
Communication interface		RS-485 / Mini USB / CANopen / DMCNET / EtherCAT / PROFINET
Environment	Installation site	Indoors (avoid direct sunlight), no corrosive vapor (avoid fumes, flammable gases, and dust)
	Altitude	Less than 2,000 m above sea level
	Atmospheric pressure	86 kPa - 106 kPa
	Ambient temperature	0˚C to 55˚C (32˚F to 131˚F) (If the ambient temperature is above 45˚C (113˚F), forced cooling is required and the average load rate should be 80% or less)
	Storage temperature	-20˚C to +65˚C (-4˚F to +176˚F)
	Humidity	0 - 90% RH (non-condensing)
	Vibration	10 Hz to 57 Hz: 0.075 mm amplitude; 58 Hz to 150 Hz: 1 G
	IP rating	IP20
	Power system	TN system*3
	Approvals*4*5	IEC/EN 61800-5-1 CE

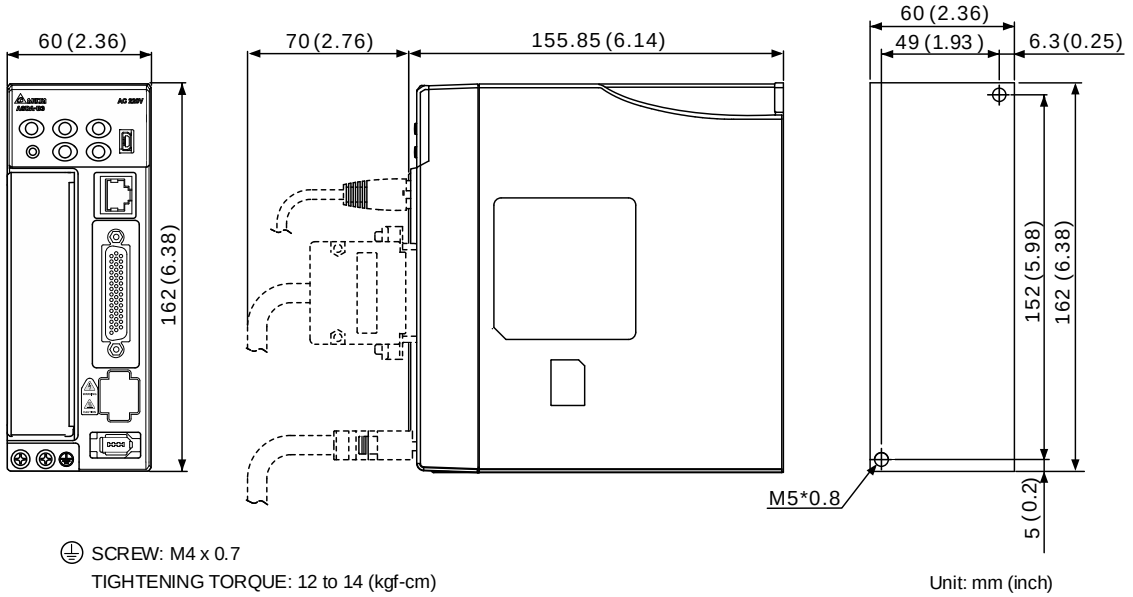
Note:

1. Within the rated load, the speed ratio is: the minimum speed (smooth operation) / rated speed.
2. Within the rated speed, the speed calibration ratio is: (rotation speed with no load - rotation speed with full load) / rated speed.
3. TN system: the neutral point of the power system connects directly to the ground. The exposed metal components connect to the ground through the protective ground conductor.
4. TÜV certification application is in progress.
5. TÜV Functional Safety certification application for the B3A series is in progress.
6. Go to Delta's website for the certificates.

A.1.2 Dimensions of the servo drive

A.1.2.1 220V series

100 W / 200 W / 400 W

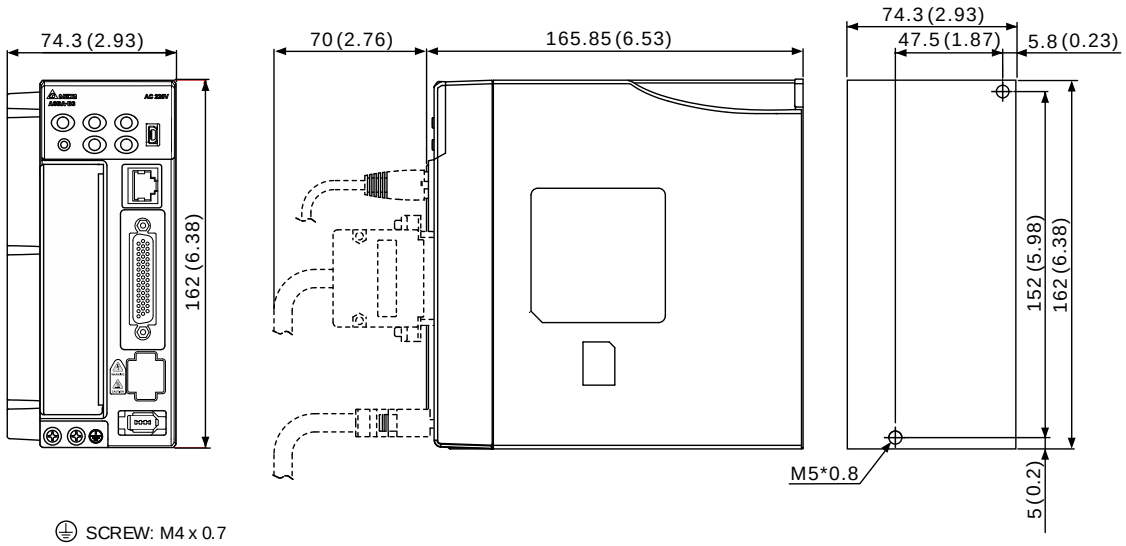


⏚ SCREW: M4 x 0.7
TIGHTENING TORQUE: 12 to 14 (kgf-cm)

Unit: mm (inch)

Weight	0.9 kg (1.98 lb)

750 W



⏚ SCREW: M4 x 0.7
TIGHTENING TORQUE: 12 to 14 (kgf-cm)

Unit: mm (inch)

Weight	1.2 kg (2.64 lb)

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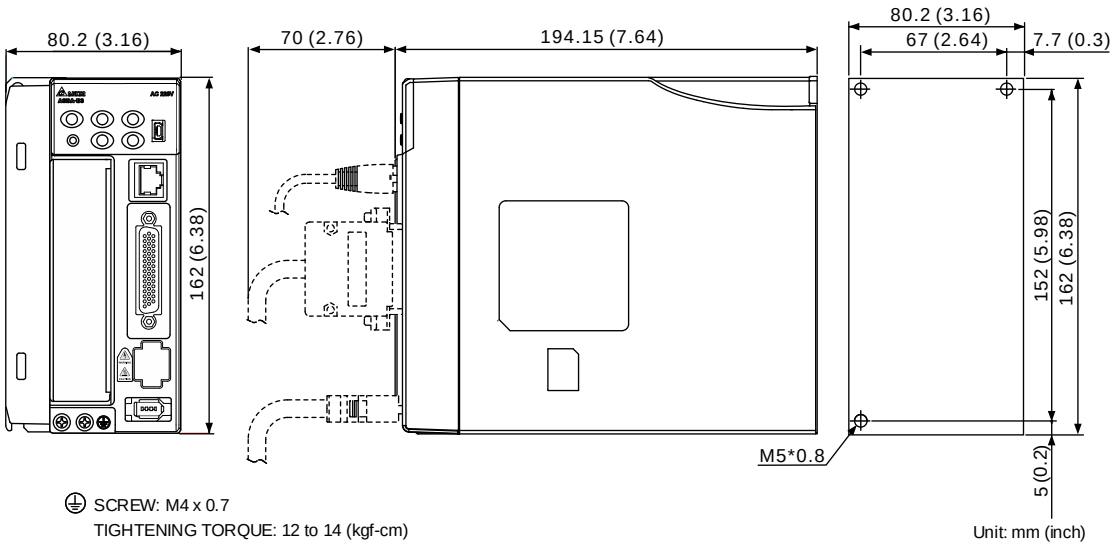
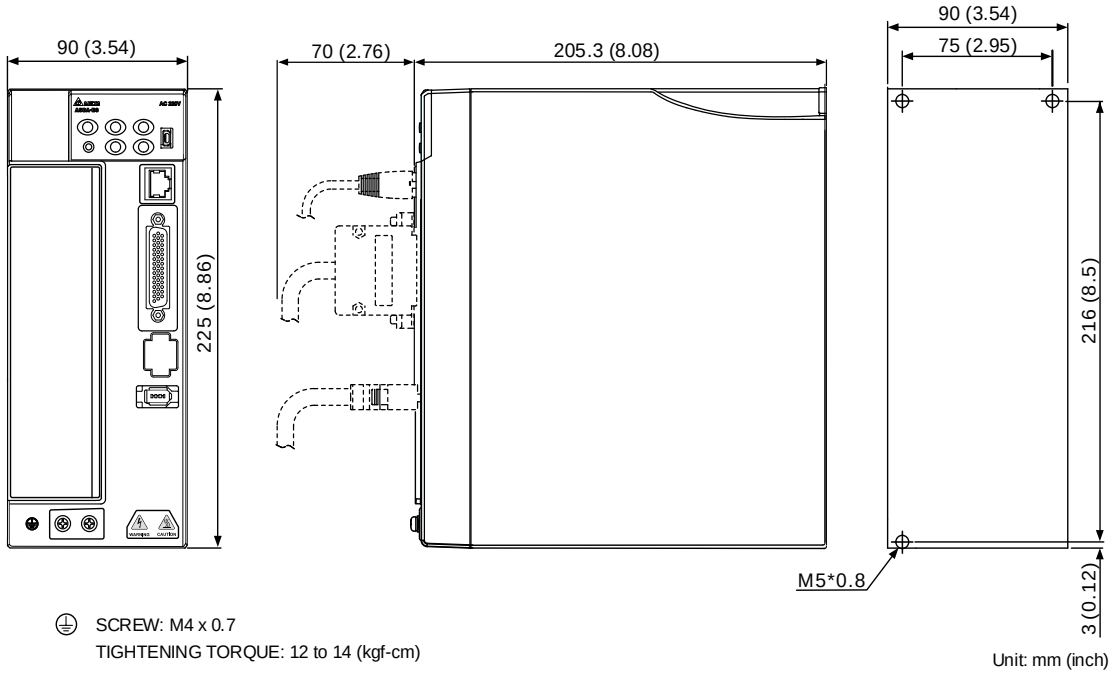
1 kW / 1.5 kW



Weight	1.8 kg (3.96 lb)

2 kW / 3 kW

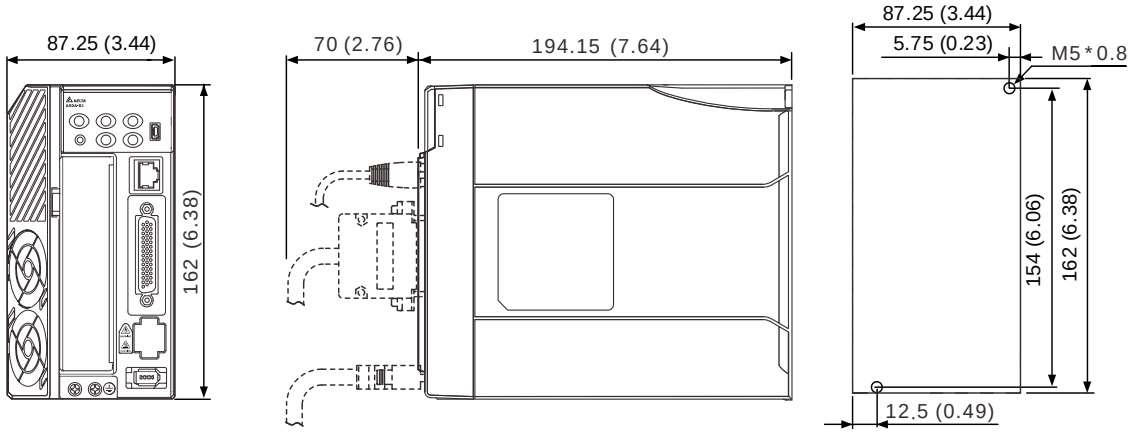


Weight	2.8 kg (6.17 lb)

Note: dimensions and weights of the servo drive may be updated without prior notice.

A.1.2.2 400V series

1 kW / 1.5 kW / 2 kW / 3 kW

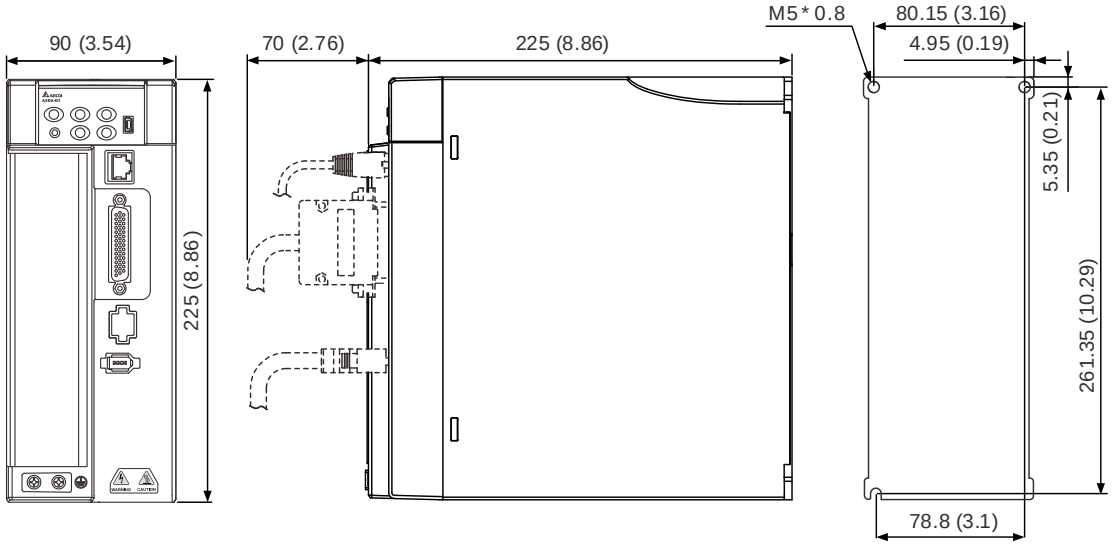


⏚ SCREW: M4 x 0.7
TIGHTENING TORQUE: 12 to 14 (kgf-cm)

Unit: mm (inch)

Weight	1.6 kg (3.53 lb)	1 kW / 1.5 kW
	1.7 kg (3.75 lb)	2 kW / 3 kW

4.5 kW / 5.5 kW / 7.5 kW



⏚ SCREW: M4 x 0.7
TIGHTENING TORQUE: 12 to 14 (kgf-cm)

Unit: mm (inch)

Weight	2.9 kg (6.39 lb)

Note: dimensions and weights of the servo drive may be updated without prior notice.