

High Performance for Higher Efficiency



M5 Series Servo System

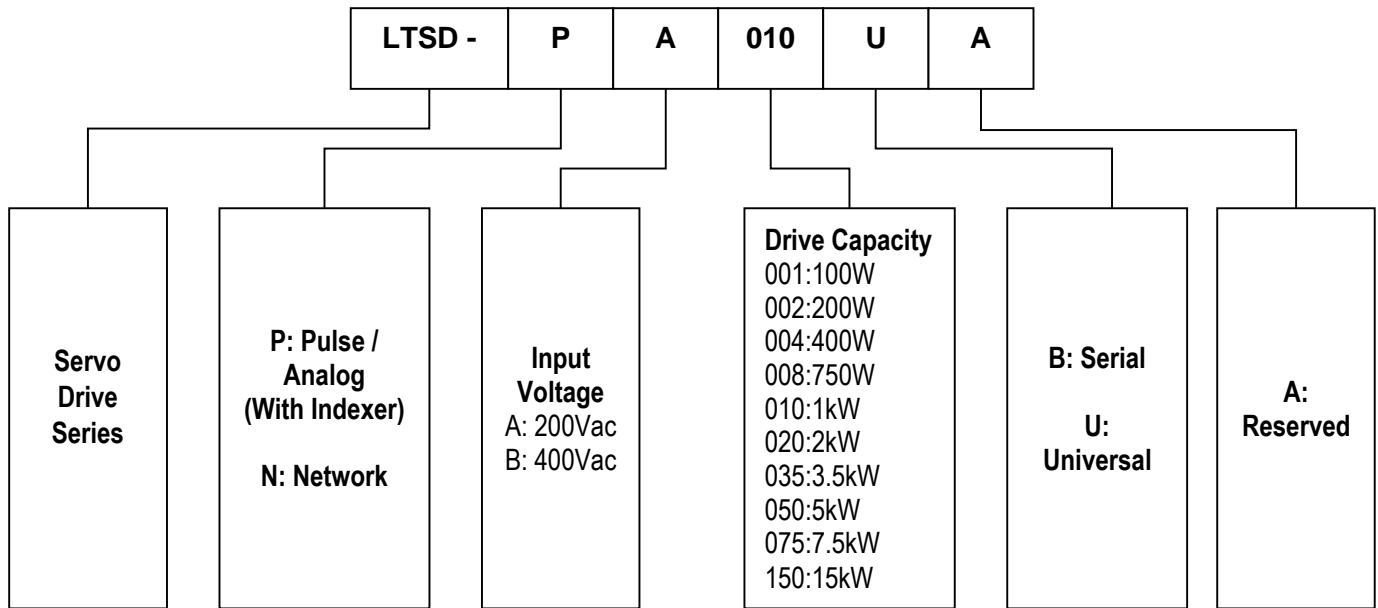
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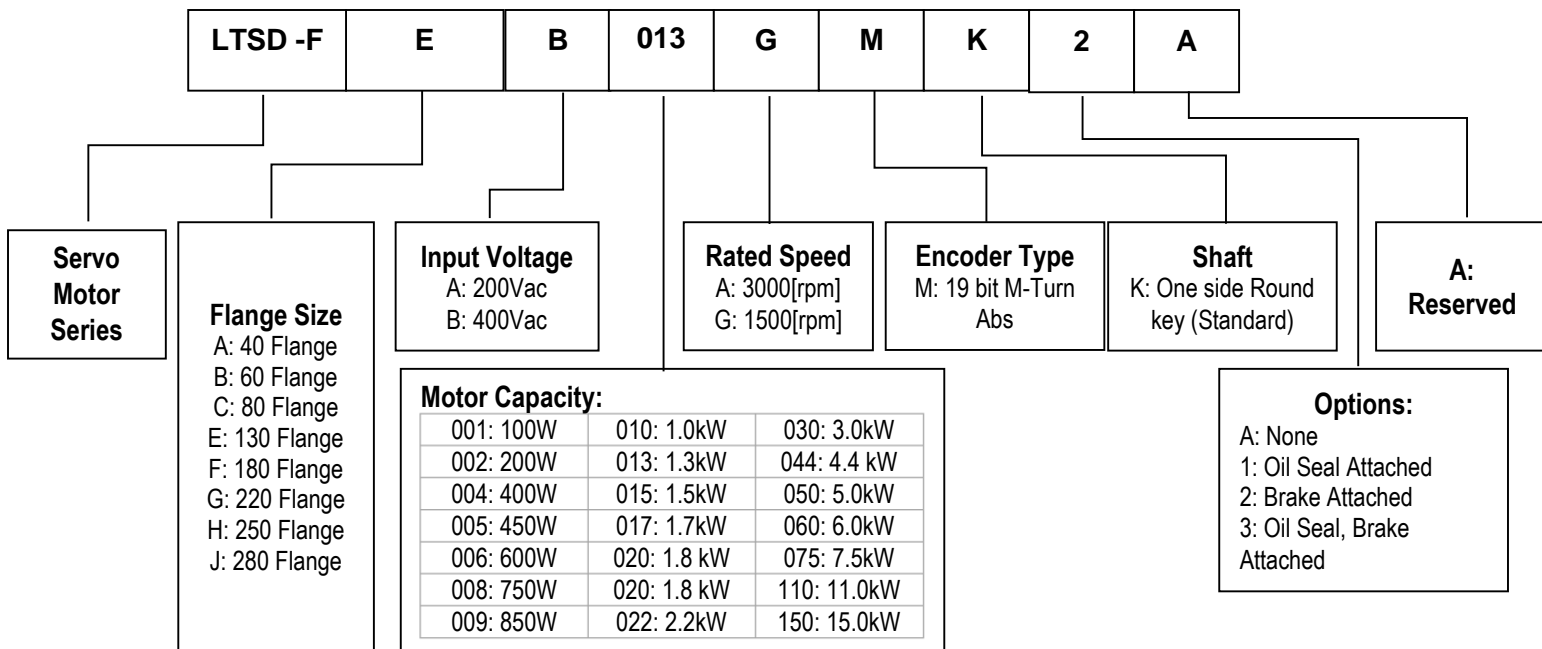
1. Servo Drive / Motor Designation



Servo Drive Designation



Servo Motor Designation



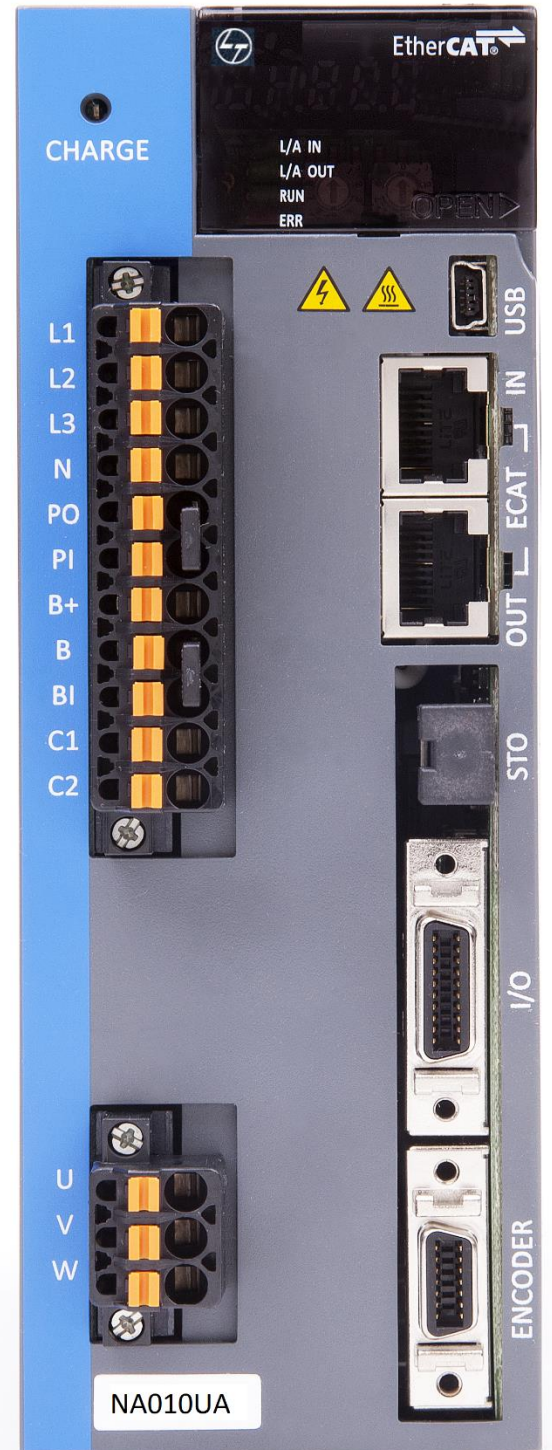
2. Servo Drive – Identifying Parts

All-in-One EtherCAT Communication Type LTSD-N

Real-time control through EtherCAT

- High speed, Real-time capability and Synchronization Mechanism
- EtherCAT communication speed (min. 250us, DC support)
- Supporting CoE, EoE and FoE
- Speed Response(=1.6kHz) Frequency

1. Display
2. State LED
3. Charge Lamp
4. Main Power Connector (L1, L2, L3)
5. DC Reactor Connector (PO, PI)
6. Regenerative Resistance Connector (B+, B, BI)
Short-Circuit B, BI terminals when standard type
Use B+, B terminals when using external resistor
7. Control Power Connector (C1, C2)
8. Servo Motor Connecting Terminal (U,V,W)
9. Connector for Analog Monitor
10. Node Address Setting Switch
11. USB Connector
12. EtherCAT Communication Port (IN)
13. EtherCAT Communication Port (OUT)
14. Safety Connector (STO)
15. Input / Output signal /Connector
16. Encoder Connector (ENCODER)
17. Ground Terminal

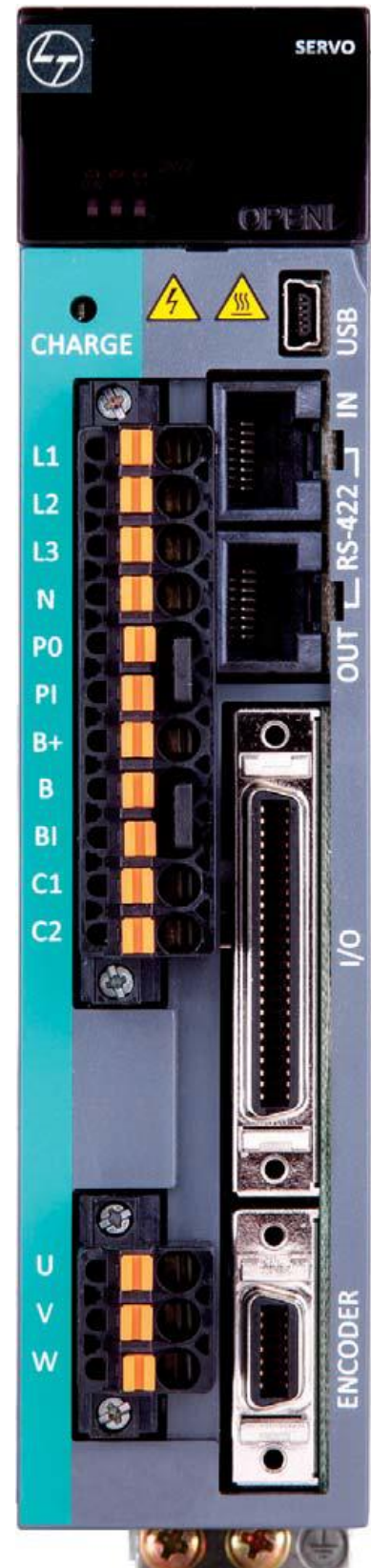


Indexer Function Type LTSD-P

Providing Program Function built-in single axis position determination module

- Supporting position control mode by pulse input
- Position control mode
- Possible to use without upper controller
- Modbus RTU Protocol (RS-422)

1. Display
2. Status LED
3. Charge Lamp
4. Main Power Connector (L1, L2, L3)
5. DC Reactor Connector(PO, PI) Short-Circuit When Not used
6. Regenerative Resistor Connector (B+, B, BI)
Short-Circuit B, BI terminals when standard type
Use B+, B terminals when using external resistor
7. Control Power connector (C1, C2)
8. Motor power connector(U, V, W)
9. Connector for analogue monitor
10. Switch for nod address setting
11. USB connector (USB)
12. RS-422 communication connector (CN3, CN4)
13. Control signal connector (I/O)
14. Encoder Connector (ENCODER)
15. Ground



3. Servo Drive / motor Combination Chart

Drive Combination Table – 200Vac

Rated Speed [rpm]	Max. Speed [rpm]	Flange Size	Wattage	Applicable Servo Motor	Applicable Servo Drive		Encoder Cable (L=3m)		Power Cable (L=3m)			Connector							
					With Pulse	With Network	INC	Abs	Power	Brake	Power + Brake	Power	Power + Brake						
3000	5000	□60	100	LTSM-FBA001AMKAA	LTSD-PA001UA	LTSD-NA001UA	XLCS-EN03ESE-LT	XLCS-EN03ES2E-LT + XLCS-BATT36-LT	XLCS-PN03LSE-LT	XLCS-BN03QSE-LT	NA	NA	NA						
			200	LTSM-FBA002AMKAA	LTSD-PA002UA	LTSD-NA002UA													
			400	LTSM-FBA004AMKAA	LTSD-PA004UA	LTSD-NA004UA													
		□80	600	LTSM-FCA006AMKAA	LTSD-PA008UA	LTSD-NA008UA													
			750	LTSM-FCA008AMKAA	LTSD-PA008UA	LTSD-NA008UA													
			1000	LTSM-FCA010AMKAA	LTSD-PA010UA	LTSD-NA010UA													
		□130	1500	LTSM-FEA015AMKAA	LTSD-PA020UA	LTSD-NA020UA	XLCS-EN03DSE-LT	XLCS-EN03DS2E-LT + XLCS-BATT36-LT	XLCS-PN03HSE-LT	NA	XLCS-PN03NBE-LT	XLC-PF00ESE-LT (MS 3108A 20-4S)	XLC-PF00MBE-LT (MS 3108A 20-15S)						
			2200	LTSM-FEA022AMKAA	LTSD-PA020UA	LTSD-NA020UA													
			3000	LTSM-FEA030AMKAA	LTSD-PA035UA	LTSD-NA035UA													
		□180	5000	LTSM-FFA050AMKAA	LTSD-PA050UA	LTSD-NA050UA								XLCS-PN03JSE-LT	NA	XLCS-PN03LBE-LT	XLC-PF00FSE-LT (MS 3108A 22-22S)	XLC-PF00NB-LT (MS 3108A 24-10S)	
			□130	450	LTSM-FEA005GMKAA	LTSD-PA008UA													LTSD-NA008UA
				850	LTSM-FEA009GMKAA	LTSD-PA010UA													LTSD-NA010UA
1300	LTSM-FEA013GMKAA	LTSD-PA020UA		LTSD-NA020UA															
1700	LTSM-FEA017GMKAA	LTSD-PA020UA		LTSD-NA020UA															
1500	3000	□180	1800	LTSM-FFA020GMKAA	LTSD-PA020UA	LTSD-NA020UA			XLCS-PN03ISE-LT	NA	XLCS-PN03PBE-LT	XLC-PF00FSE-LT (MS 3108A 22-22S)	XLC-PF00NB-LT (MS 3108A 24-10S)						
			2700	LTSM-FFA030GMKAA	LTSD-PA035UA	LTSD-NA035UA													
	3000		3000	LTSM-FFA030GMKAA	LTSD-PA035UA	LTSD-NA035UA													
			4400	LTSM-FFA044GMKAA	LTSD-PA050UA	LTSD-NA050UA			XLCS-PN03JSE-LT	NA	XLCS-PN03LBE-LT	XLC-PF00FSE-LT (MS 3108A 22-22S)	XLC-PF00NB-LT (MS 3108A 24-10S)						

Drive Combination Table – 400Vac

Rated Speed [rpm]	Max. Speed [rpm]	Flange Size	Wattage	Applicable Servo Motor	Applicable Servo Drive		Encoder Cable (L=3m)		Power Cable (L=3m)			Connector			
					With Pulse	With Network	INC	Abs	Power	Brake	Power + Brake	Power	Power + Brake		
3000	5000	□130	900	LTSM-FEB009AMKAA	LTSD-PB010UA	LTSD-NB010UA	XLCS-EN03DSE-LT	XLCS-EN03DS2E-LT + XLCS-BATT36-LT	XLCS-PN03HSE-LT	NA	XLCS-PN03NBE-LT	XLC-PF00ESE-LT (MS 3108A 20-4S)	XLC-PF00MBE-LT (MS 3108A 20-15S)		
			1500	LTSM-FEB015AMKAA	LTSD-PB020UA	LTSD-NB020UA									
			2200	LTSM-FEB022AMKAA	LTSD-PB035UA	LTSD-NB035UA									
			3000	LTSM-FEB030AMKAA	LTSD-PB035UA	LTSD-NB035UA									
		□180	5000	LTSM-FFB050AMKAA	LTSD-PB050UA	LTSD-NB050UA			XLCS-PN03JSE-LT	XLCS-PN03LBE-LT	XLC-PF00FSE-LT (MS 3108A 22-22S)	XLC-PF00NB-LT (MS 3108A 24-10S)			
1500	3000	□130	450	LTSM-FEB005GMKAA	LTSD-PB010UA	LTSD-NB010UA			XLCS-EN03DSE-LT	XLCS-EN03DS2E-LT + XLCS-BATT36-LT	XLCS-PN03HSE-LT	NA	XLCS-PN03NBE-LT	XLC-PF00ESE-LT (MS 3108A 20-4S)	XLC-PF00MBE-LT (MS 3108A 20-15S)
			850	LTSM-FEB009GMKAA	LTSD-PB010UA	LTSD-NB010UA									
			1300	LTSM-FEB013GMKAA	LTSD-PB020UA	LTSD-NB020UA									
			1700	LTSM-FEB017GMKAA	LTSD-PB020UA	LTSD-NB020UA									
	2700	□180	1800	LTSM-FFB020GMKAA	LTSD-PB020UA	LTSD-NB020UA					XLCS-PN03ISE-LT	XLCS-PN03PBE-LT	XLC-PF00FSE-LT (MS 3108A 22-22S)	XLC-PF00NB-LT (MS 3108A 24-10S)	
			3000	LTSM-FFB030GMKAA	LTSD-PB035UA	LTSD-NB035UA	XLCS-PN03JSE-LT	XLCS-PN03LBE-LT			XLC-PF00FSE-LT (MS 3108A 22-22S)	XLC-PF00NB-LT (MS 3108A 24-10S)			
			4400	LTSM-FFB044GMKAA	LTSD-PB050UA	LTSD-NB050UA									
	2500	□180	6000	LTSM-FFB060GMKAA	LTSD-PB075UA	LTSD-NB075UA	XLCS-PN03MSE-LT	NA			NA	XLC-PF00RS-LT (MS 3108A 32-17S)	NA		
	2200		7500	LTSM-FFB075GMKAA	LTSD-PB075UA	LTSD-NB075UA									
	2000	□220	11000	LTSM-FGB110GMKAA	LTSD-PB150UA	LTSD-NB150UA	XLCS-PN03MSE-LT	NA			NA	XLC-PF00RS-LT (MS 3108A 32-17S)	NA		
			15000	LTSM-FGB150GMKAA	LTSD-PB150UA	LTSD-NB150UA									

4. Servo Drive Characteristics

Drive Features: LTSD-PA, 200VAC

Name		LTSD-PA							
		001U	002U	004U	008U	010U	020U	035U	050U
Input power	Main power	3-phase AC200 ~ 230[V](-15 ~ +10[%]), 50 ~ 60[Hz]							
	Control power	Single-phase AC200 ~ 230[V](-15 ~ +10[%]), 50 ~ 60[Hz]							
	Rated current (A)	1.4	1.7	3	5.2	6.75	13.5	16.7	32
	Peak current (A)	4.2	5.1	9	15.6	20.25	40.5	50.1	96
Control Performance	Speed control range	Maximum 1 : 5000							
	Frequency response	Maximum 1[kHz] or above(when 19bit Serial encoder is applied)							
	Speed change rate	±0.01 [%] or below (with load change of 0 ~ 100[%]) ±0.1[%] or below(temperature 25±10[°C]).							
	Accel / Decel Time	Straight or S-curve acceleration/deceleration (0~10,000[ms], 0~1,000[ms] Unit configurable)							
	Input Frequency	1[Mpps], line drive / 200[kpps], open collector							
	Input Pulse Type	Symbol + Pulse Series, CW+CCW, A/B Phase							
RS422 Communication Specifications	Communication Specifications	ANSI/TIA/EIA-422 Standard Specifications							
	Communication Protocol	MODBUS-RTU							
	Connector	RJ45 x 2							
	Synchro Method	Asynchronous							
	Transmission Speed	9600 /19200/38400/57600 [bps] (Can be configured at [0x3002])							
	Transmission Distance	Maximum 200 [m]							
	Power Consumption	100[mA] or below							
	Terminating Resistance	Dip S/W(On/Off), Built-In 120Ω							
Digital Input / Output	Digital Input	Input voltage range: DC 12[V] ~ DC 24[V] Total 16 input channel (selectable) 32 function inputs can be selectively allocated: (*SV_ON, *POT, *NOT, *A-RST, *START, *STOP, *REGT, *EMG, *HOME, *HSTART, *ISEL0, *ISEL1, *ISEL2, *ISEL3, *ISEL4, *ISEL5, PCON, GAIN2, P_CL, N_CL, MODE, PAUSE, ABSRQ, JSTART, JDIR, PCLR, AOVR, SPD1/LVSF1, SPD2/LVSF2, SPD3, PROBE1, PROBE2) Note) * Basic allocation signal.							
	Digital Output	Use rating: DC 24[V] ±10%, 120[mA], Total 8 input channel (selectable) 19 function inputs can be selectively allocated: (*ALARM±, *READY±, *BRAKE±, *INPOS1±, *ORG±, *EOS±, *TGON±, *TLMT±, VLMT±, INSPD±, ZSPD±, WARN±, INPOS2±, IOOUT±, IOOUT1±, IOOUT2± IOOUT3±, IOOUT4±, IOOUT5±) Note) * Standard Allocation signal							
Analog Input / Output	Analog input	Total 2 channels analog speed override input(-10(V) ~ +10[V]), analog torque command input(-10(V) ~ +10[V])							
	Analog output	Total 2 channels, 15 function inputs can be selectively allocated							
USB Comm	Function	Firmware download, Parameter setting, Tuning, Secondary function, Parameter copy							
	Comm. Specifications	Complies with USB 2.0 Full Speed Specifications							
	Connection Device	PC or USB storing medium							
Internal function	Dynamic braking	Standard built-in(activated by servo alarm or servo OFF)							
	Regenerative braking	Built-in, external brake attachable							
	Display function	7 segments (5 DIGIT)							
	Self-setting function	Drive node address can be set using rotary switch							
	Additional function	Gain tuning, alarm history, JOG operation, origin search							
Environment	Protection function	Excessive current, overload, excessive current limit, overheating, excessive voltage, low voltage, excessive speed, encoder fail, position following fail, current sensing fail							
	Temperature	0 ~ +50[°C] / -20~ +65[°C]							
	Humidity	Below 90[%]RH(avoid dew-condensation)							
	Environment	Indoor, Avoid corrosive, inflammable gas or liquid, and electrically conductive dust.							

Drive Features: LTSD-PA, 400VAC

Name		LTSD-PB			
		010U	020U	035U	050U
Input power	Main power	3-phase AC380 ~ 480[V](-15 ~ +10[%]), 50 ~ 60[Hz]			
	Control power	Single-phase AC380 ~ 480[V](-15 ~ +10[%]), 50 ~ 60[Hz]			
	Rated current (A)	3.7	8	10.1	17.5
	Peak current (A)	11.1	24	30.03	47.25
Control Performance	Speed control range	Maximum 1 : 5000			
	Frequency response	Maximum 1[kHz] or above(when 19bit Serial encoder is applied)			
	Speed change rate	±0.01 [%] or below (with load change of 0 ~ 100[%]) ±0.1[%] or below(temperature 25±10[°C]).			
	Accel / Decel Time	Straight or S-curve acceleration/deceleration (0~10,000[ms], 0~1,000[ms] Unit configurable)			
	Input Frequency	1[Mpps], line drive / 200[kpps], open collector			
	Input Pulse Type	Symbol + Pulse Series, CW+CCW, A/B Phase			
RS422 Communication Specifications	Communication Specifications	ANSI/TIA/EIA-422 Standard Specifications			
	Communication Protocol	MODBUS-RTU			
	Connector	RJ45 x 2			
	Synchro Method	Asynchronous			
	Transmission Speed	9600 /19200/38400/57600 [bps] (Can be configured at [0x3002])			
	Transmission Distance	Maximum 200 [m]			
	Power Consumption	100[mA] or below			
	Terminating Resistance	Dip S/W(On/Off), Built-In 120Ω			
Digital Input / Output	Digital Input	Input voltage range: DC 12[V] ~ DC 24[V] Total 16 input channel (selectable) 32 function inputs can be selectively allocated: (*SV_ON, *POT, *NOT, *A-RST, *START, *STOP, *REGT, *EMG, *HOME, *HSTART, *ISEL0, *ISEL1, *ISEL2, *ISEL3, *ISEL4, *ISEL5, PCON, GAIN2, P_CL, N_CL, MODE, PAUSE, ABSRQ, JSTART, JDIR, PCLR, AOVR, SPD1/LVSF1, SPD2/LVSF2, SPD3, PROBE1, PROBE2) Note) * Basic allocation signal.			
	Digital Output	Use rating: DC 24[V] ±10%, 120[mA], Total 8 input channel (selectable) 19 function inputs can be selectively allocated: (*ALARM±, *READY±, *BRAKE±, *INPOS1±, *ORG±, *EOS±, *TGON±, *TLMT±, VLMT±, INSPD±, ZSPD±, WARN±, INPOS2±, IOU0±, IOU1±, IOU2± IOU3±, IOU4±, IOU5±) Note) * Standard Allocation signal			
Analog Input / Output	Analog input	Total 2 channels analog speed override input(-10(V) ~ +10[V]), analog torque command input(-10(V) ~ +10(V))			
	Analog output	Total 2 channels, 15 function inputs can be selectively allocated			
USB Comm	Function	Firmware download, Parameter setting, Tuning, Secondary function, Parameter copy			
	Comm. Specifications	Complies with USB 2.0 Full Speed Specifications			
	Connection Device	PC or USB storing medium			
Internal function	Dynamic braking	Standard built-in(activated by servo alarm or servo OFF)			
	Regenerative braking	Built-in, external brake attachable			
	Display function	7 segments (5 DIGIT)			
	Self-setting function	Drive node address can be set using rotary switch			
	Additional function	Gain tuning, alarm history, JOG operation, origin search			
	Protection function	Excessive current, overload, excessive current limit, overheating, excessive voltage, low voltage, excessive speed, encoder fail, position following fail, current sensing fail			
Environment	Temperature	0 ~ +50[°C] / -20~ +65[°C]			
	Humidity	Below 90[%]RH(avoid dew-condensation)			
	Environment	Indoor, Avoid corrosive, inflammable gas or liquid, and electrically conductive dust.			

Drive Features: LTSD-NA, 200VAC

Name		LTSD-NA							
		001U	002U	004U	008U	010U	020U	035U	050U
Input power	Main power	3-phase AC200 ~ 230[V](-15 ~ +10[%]), 50 ~ 60[Hz]							
	Control power	Single-phase AC200 ~ 230[V](-15 ~ +10[%]), 50 ~ 60[Hz]							
Rated current (A)		1.4	1.7	3	5.2	6.75	13.5	16.7	32
Peak current (A)		4.2	5.1	9	15.6	20.25	40.5	50.1	96
Control Performance	Speed control range	Maximum 1 : 5000							
	Frequency response	Maximum 1[kHz] or above(when 19bit Serial encoder is applied)							
	Speed change rate	±0.01 [%] or below (with load change of 0 ~ 100[%]) ±0.1[%] or below(temperature 25±10[°C]).							
	Torque Control Repetition Accuracy	Within ±1%							
EtherCAT Communication Specifications	Communication Standard	FoE (Firmware download) EoE (Parameter setting by UDP, Tuning, Secondary function, Parameter copy) CoE (IEC 61158 Type12, IEC 61800-7 CIA 402 Drive profile)							
	Physical Layer	100BASE-TX(IEEE802.3)							
	Connector	RJ45 x 2							
	Communication distance	Within connection between nodes 100[m]							
	DC(Distributed Clock)	By DC mode synchronism. minimum DC cycle: 250[us]							
	LED Display	LinkAct IN, LinkAct OUT, RUN, ERR							
	Cia402 Drive Profile	Profile Position Mode Profile Velocity Mode Profile Torque Mode Cyclic Synchronous Position Mode Cyclic Synchronous Velocity Mode Cyclic Synchronous Torque Mode Homing Mode							
Digital Input / Output	Digital Input	Input Voltage range : DC 12[V] ~ DC 24[V] Total 8 input channels (allocable) 12 functions can be used selectively for assignment. (*POT, *NOT, *HOME, *STOP, *PCON, *GAIN2, *P_CL, *N_CL, PROBE1, PROBE2, EMG, A_RST) *Basic allocation signal							
	Digital Output	Service rating: DC 24[V] ±10%, 120[mA] Total 4 input channels (allocable) Above 11 functions can be used selectively for assignment. (*BRAKE, *ALARM, *READY, *ZSPD, INPOS, TLMT, VLMT, INSPD, WARN, TGON, INPOS) *Basic allocation signal							
Safety Function		2 Input Channels (STO1, STO2), 1 Output Channels (EDM±)							
USB Comm	Function	Firmware download, Parameter setting, Tuning, Secondary function, Parameter copy							
	Comm. Specifications	Complies with USB 2.0 Full Speed Specifications							
	Connection Device	PC or USB storing medium							
Internal function	Dynamic braking	Standard built-in(activated by servo alarm or servo OFF)							
	Regenerative braking	Built-in, external brake attachable							
	Display function	7 segments (5 DIGIT)							
	Self-setting function	The [MODE] key changes the content displayed in 7 segments							
	Additional function	Auto gain tuning function							
	Protection function	Overcurrent, overload, overvoltage, insufficient voltage, main power input problem, control power input problem, overspeed, motor cable, overheat(power module overheat, abnormal drive operation's temp), encoder problem, over-regenerative, sensor problem, communication problem							
Environment	Temperature	0 ~ +50[°C] / -20~ +65[°C]							
	Humidity	Below 90[%]RH(avoid dew-condensation)							
	Environment	Indoor, Avoid corrosive, inflammable gas or liquid, and electrically conductive dust.							

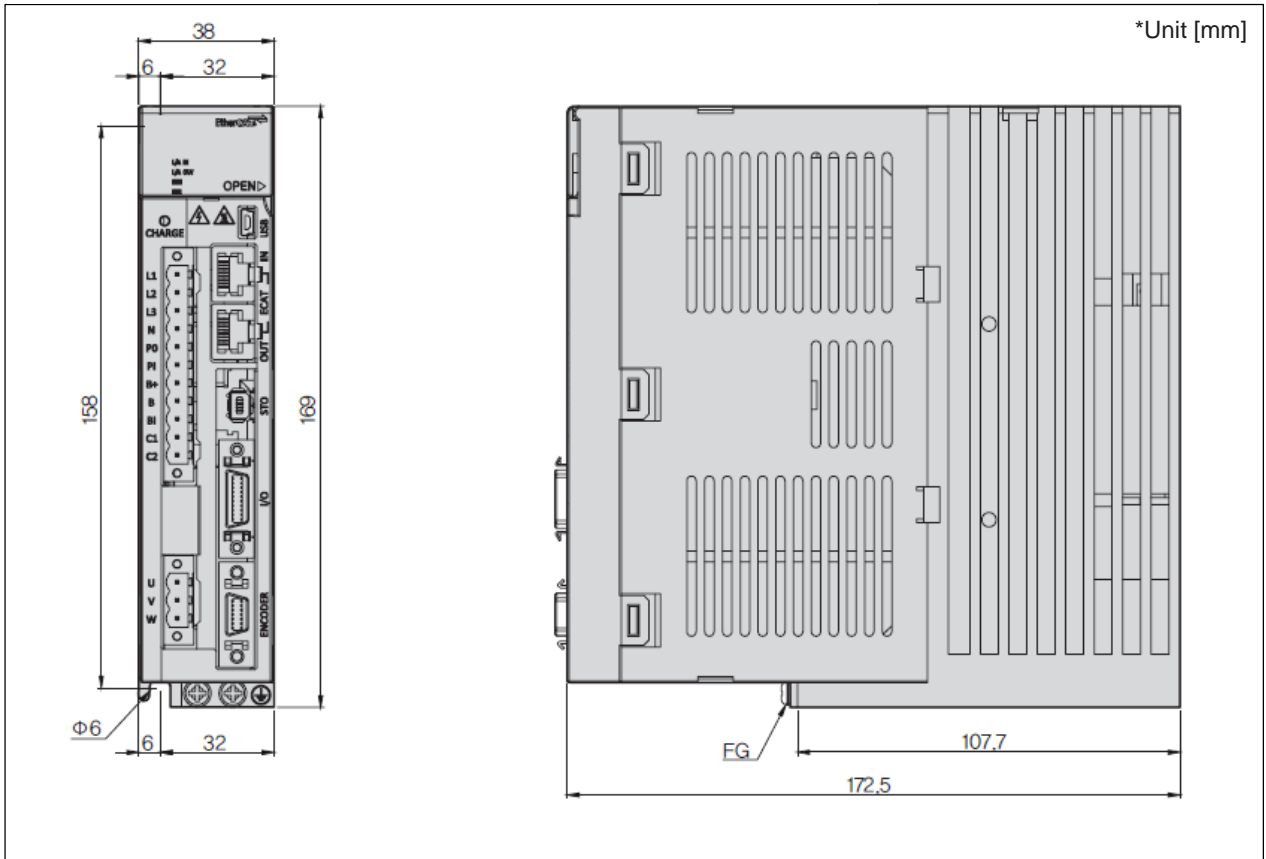
Drive Features: LTSD-NB, 400VAC

Name		LTSD-NB					
		010U	020U	035U	050U	075U	150U
Input power	Main power	3-phase AC380 ~ 480[V](-15 ~ +10[%]), 50 ~ 60[Hz]					
	Control power	Single-phase AC380 ~ 480[V](-15 ~ +10[%]), 50 ~ 60[Hz]					
	Rated current (A)	3.7	8	10.1	17.5	22.8	39
	Peak current (A)	11.1	24	30.3	47.25	57	97.5
Control Performance	Speed control range	Maximum 1 : 5000					
	Frequency response	Maximum 1[kHz] or above(when 19bit Serial encoder is applied)					
	Speed change rate	±0.01 [%] or below (with load change of 0 ~ 100[%]) ±0.1[%] or below(temperature 25±10[°C]).					
	Torque Control Repetition Accuracy	Within ±1%					
EtherCAT Communication Specifications	Communication Standard	FoE (Firmware download) EoE (Parameter setting by UDP, Tuning, Secondary function, Parameter copy) CoE (IEC 61158 Type12, IEC 61800-7 CIA 402 Drive profile)					
	Physical Layer	100BASE-TX(IEEE802.3)					
	Connector	RJ45 x 2					
	Communication distance	Within connection between nodes 100[m]					
	DC(Distributed Clock)	By DC mode synchronism. minimum DC cycle: 250[us]					
	LED Display	LinkAct IN, LinkAct OUT, RUN, ERR					
Digital Input / Output	Cia402 Drive Profile	Profile Position Mode Profile Velocity Mode Profile Torque Mode Cyclic Synchronous Position Mode Cyclic Synchronous Velocity Mode Cyclic Synchronous Torque Mode Homing Mode					
	Digital Input	Input Voltage range : DC 12[V] ~ DC 24[V] Total 8 input channels (allocable) 12 functions can be used selectively for assignment. (*POT, *NOT, *HOME, *STOP, *PCON, *GAIN2, *P_CL, *N_CL, PROBE1, PROBE2, EMG, A_RST) *Basic allocation signal					
	Digital Output	Service rating: DC 24[V] ±10%, 120[mA] Total 4 input channels (allocable) Above 11 functions can be used selectively for assignment. (*BRAKE, *ALARM, *READY, *ZSPD, INPOS, TLMT, VLMT, INSPD, WARN, TGON, INPOS) *Basic allocation signal					
Safety Function		2 Input Channels (STO1, STO2), 1 Output Channels (EDM±)					
USB Comm	Function	Firmware download, Parameter setting, Tuning, Secondary function, Parameter copy					
	Comm. Specifications	Complies with USB 2.0 Full Speed Specifications					
	Connection Device	PC or USB storing medium					
Internal function	Dynamic braking	Standard built-in(activated by servo alarm or servo OFF)					
	Regenerative braking	Built-in, external brake attachable					External
	Display function	7 segments (5 DIGIT)					
	Self-setting function	The [MODE] key changes the content displayed in 7 segments					
	Additional function	Auto gain tuning function					
	Protection function	Overcurrent, overload, overvoltage, insufficient voltage, main power input problem, control power input problem, overspeed, motor cable, overheat(power module overheat, abnormal drive operation's temp), encoder problem, over-regenerative, sensor problem, communication problem					
Environment	Temperature	0 ~ +50[°C] / -20~ +65[°C]					
	Humidity	Below 90[%]RH(avoid dew-condensation)					
	Environment	Indoor, Avoid corrosive, inflammable gas or liquid, and electrically conductive dust.					

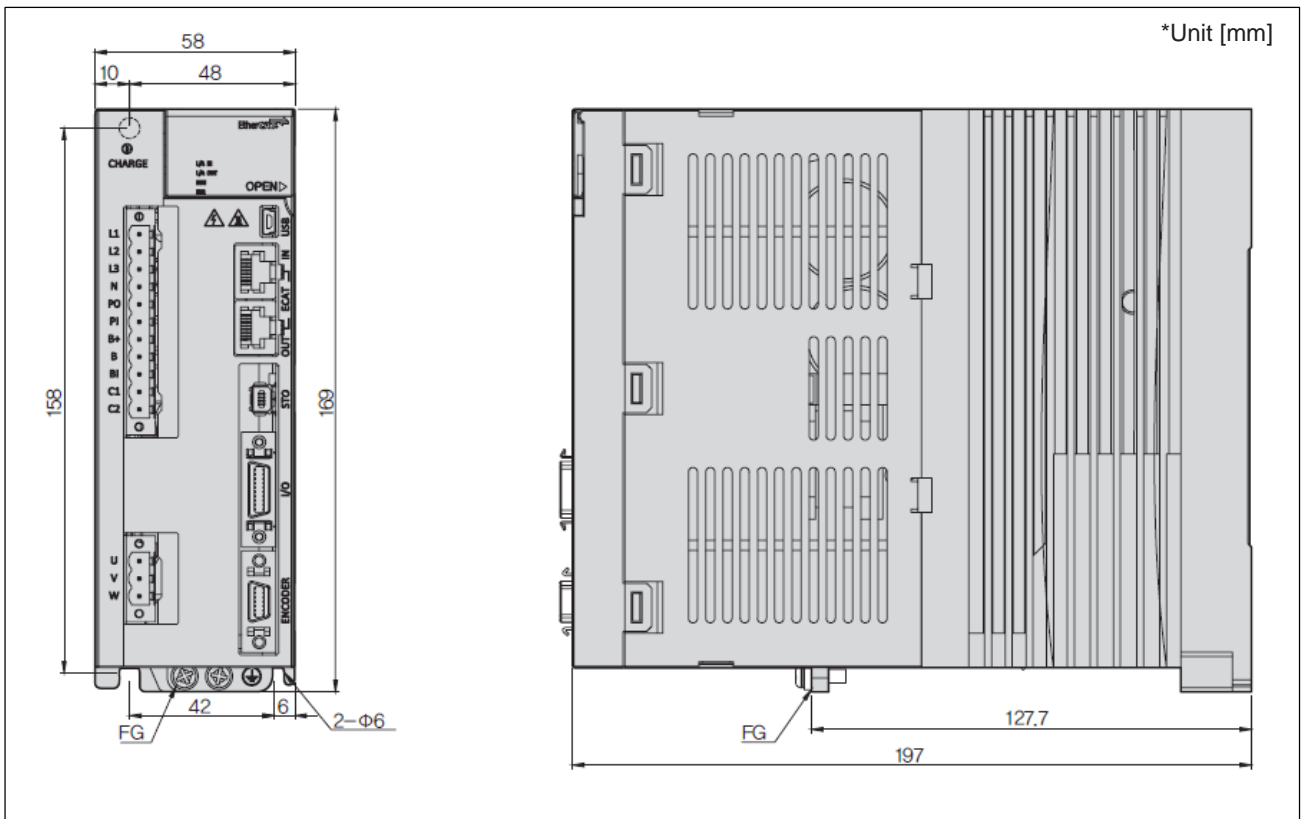
5. External Dimensions of Servo Drive

External Dimensions

100W-400W, [Weight: 1.0kg]

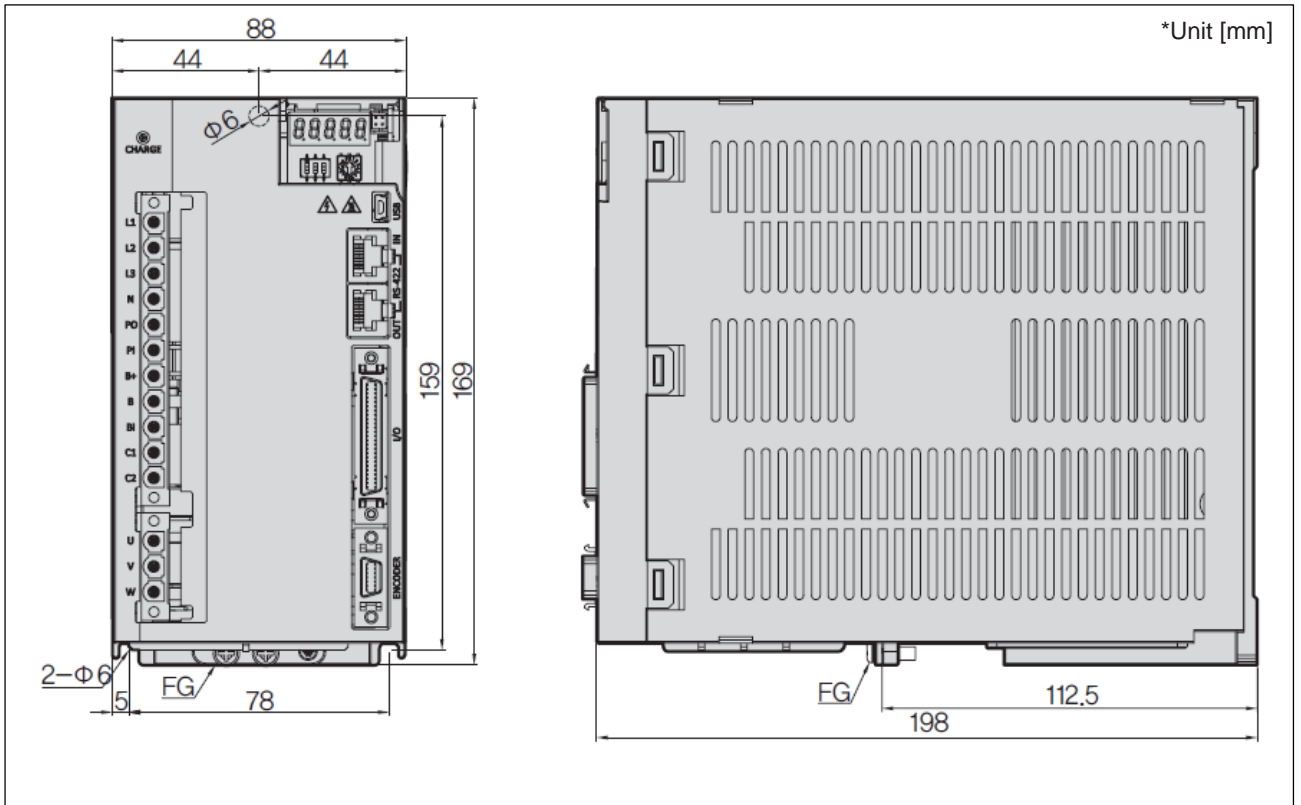


750W-1.0kW, [Weight: 1.5kg]

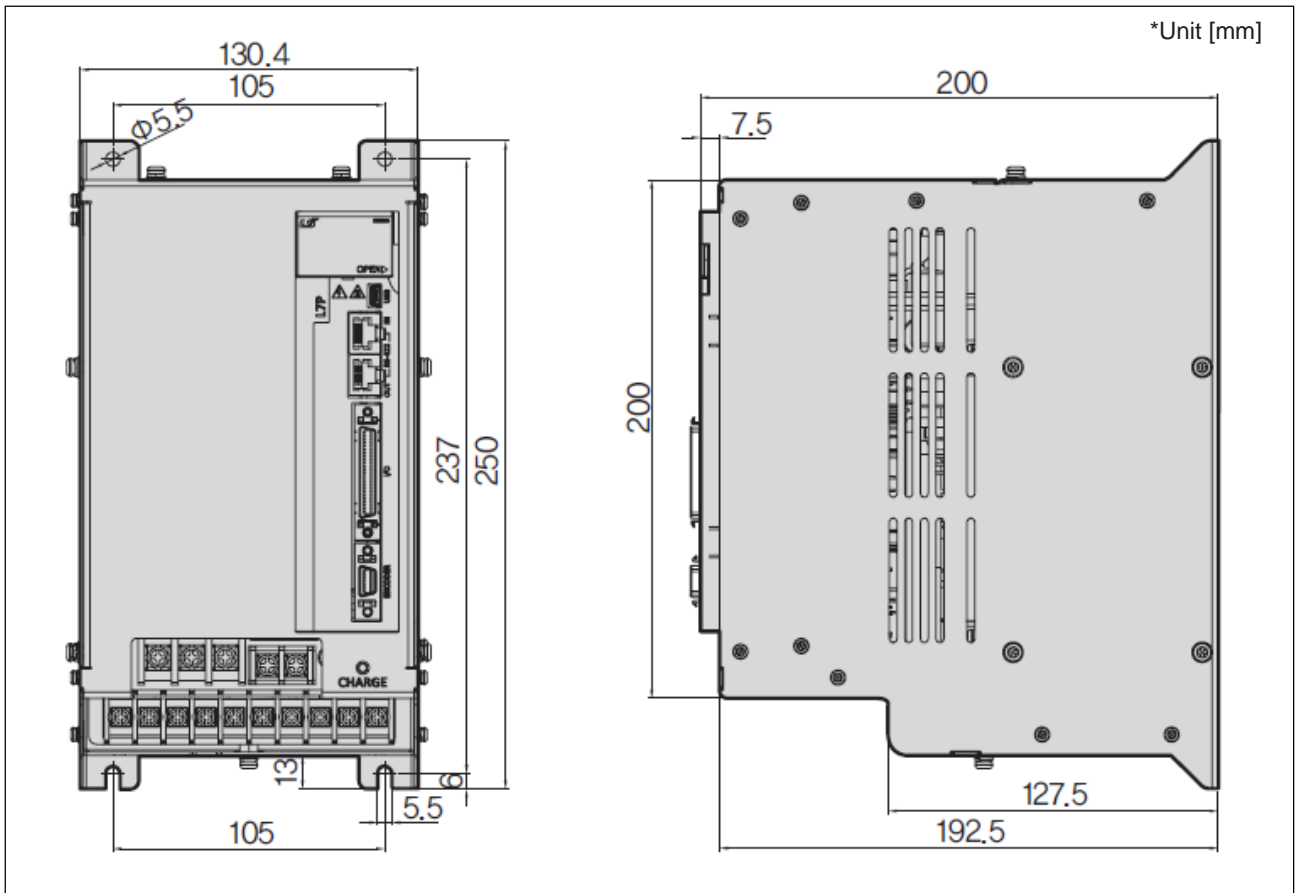


External Dimensions

2.0kW-3.5kW, [Weight: 2.5kg]

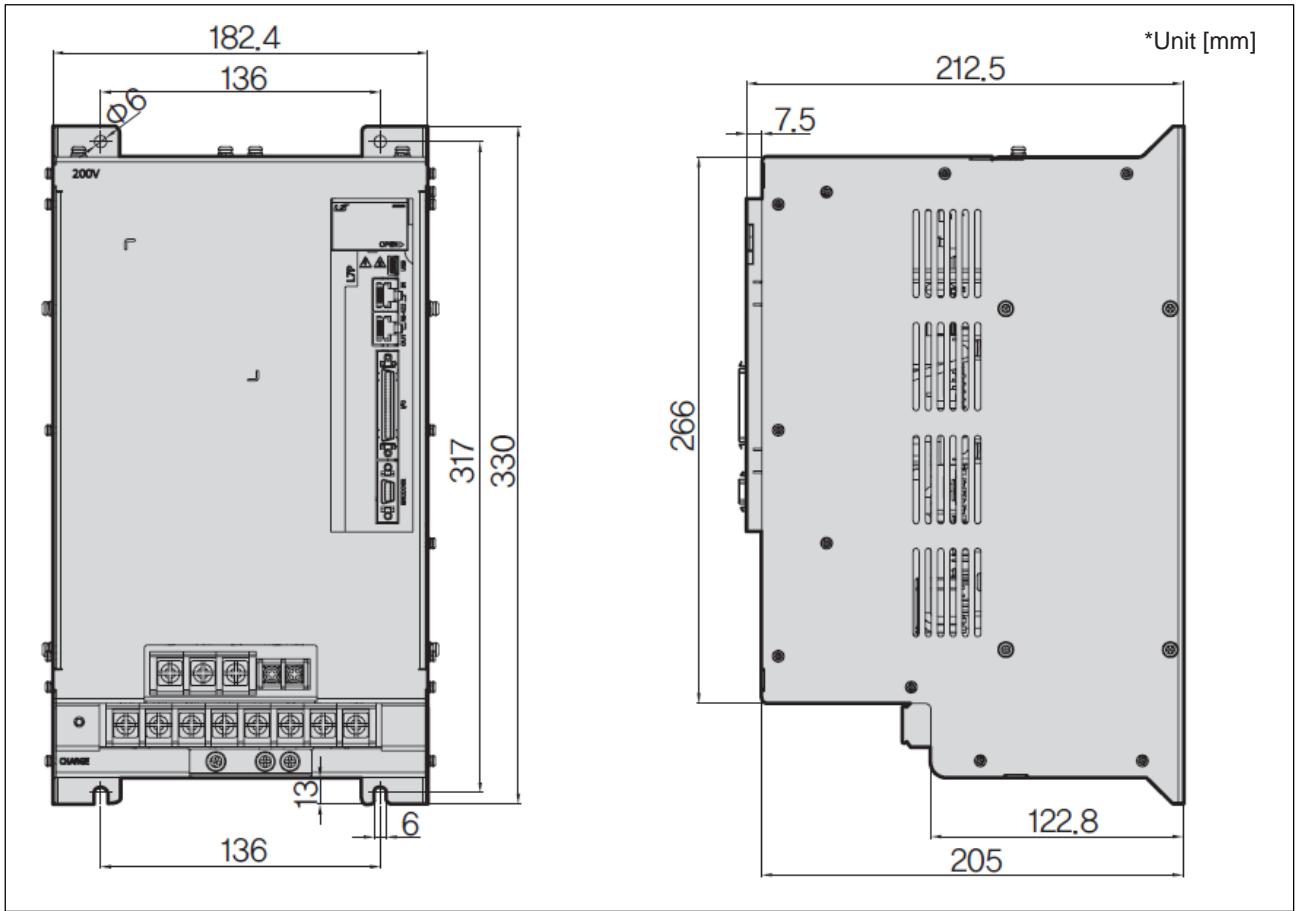


5.0kW, [Weight: 5.5kg]

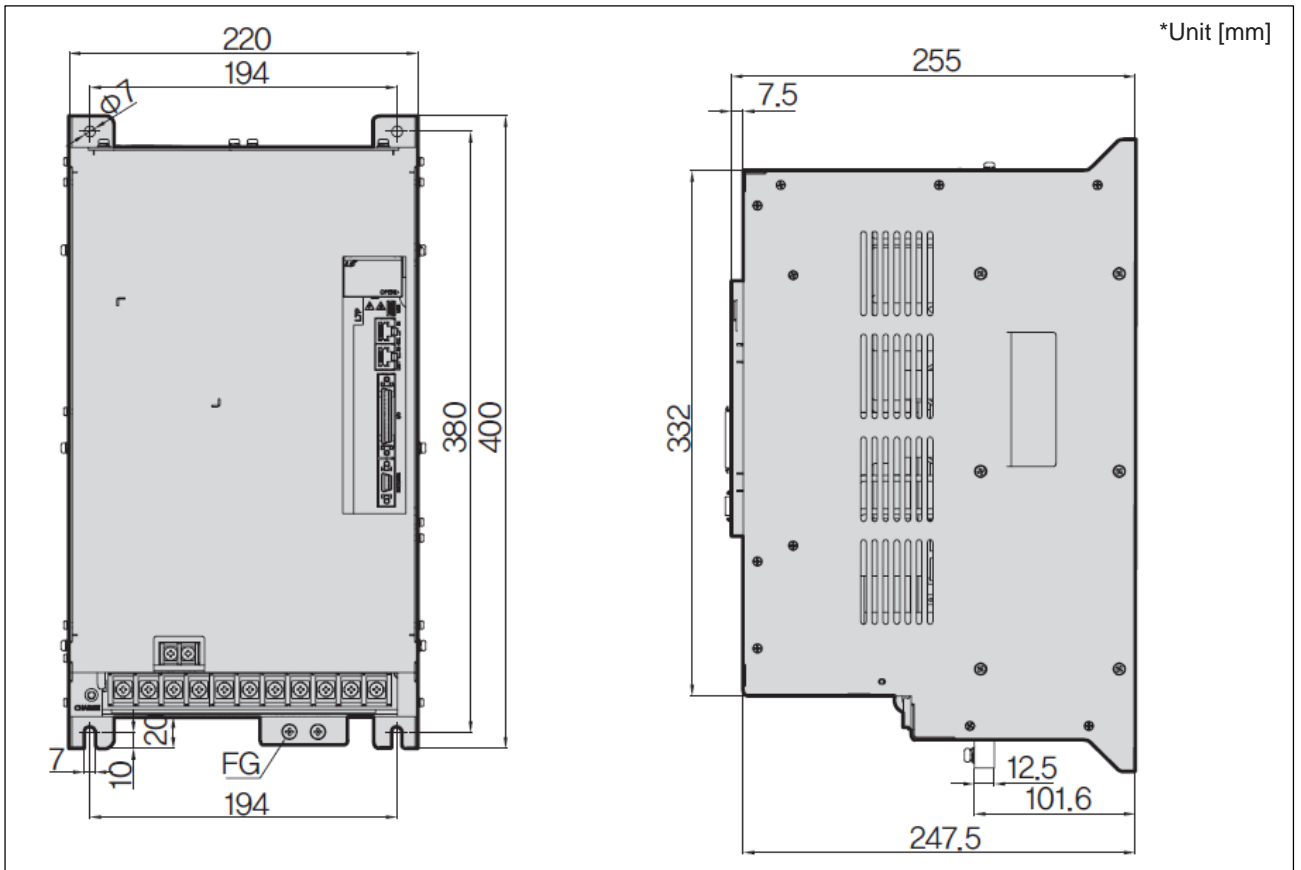


External Dimensions

7.5kW, [Weight: 8.5kg]



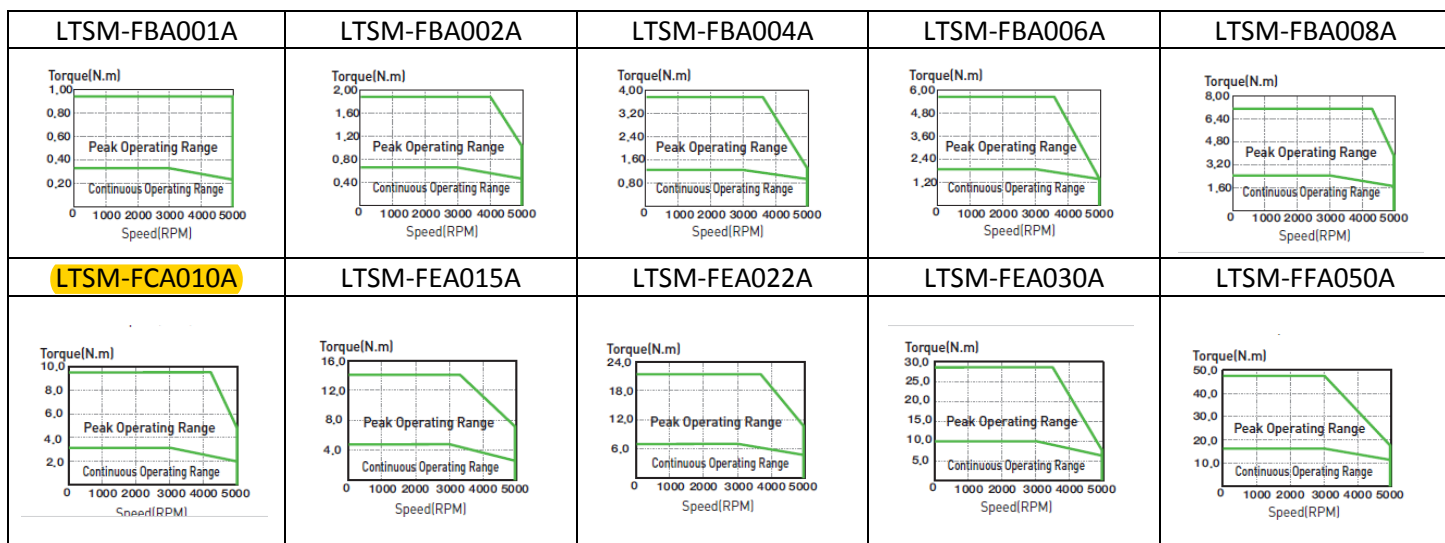
15.0kW, [Weight: 15.5kg]



6. Servo Motor Characteristics

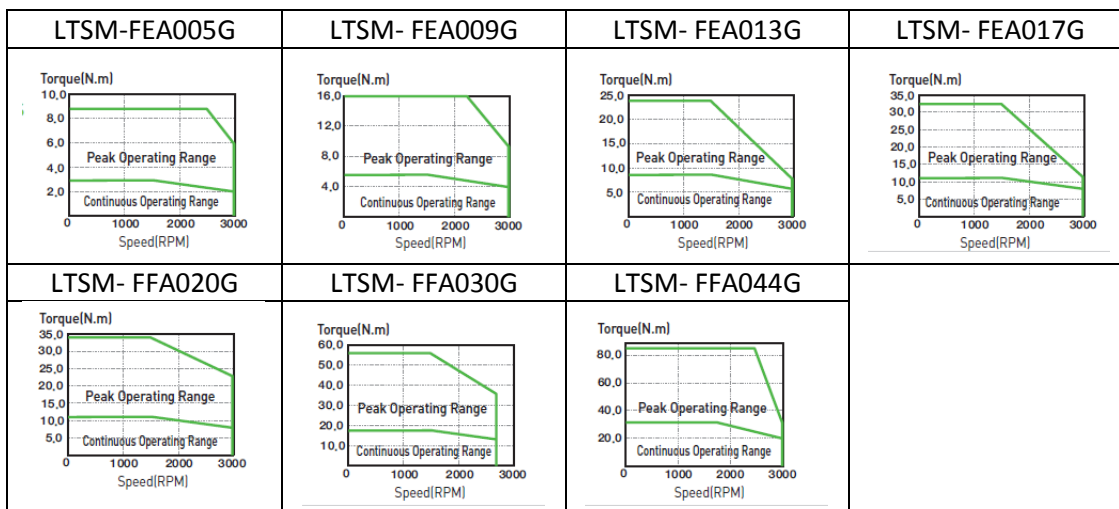
200vac Motor Specifications [Rated: 3000rpm]

Servo Motor (LTSM-□□□□□□□□)		FBA 001A	FBA 002A	FBA 004A	FCA 006A	FCA 008A	FCA 010A	FEA 015A	FEA 022A	FEA 030A	FFA 050A
Applicable Drive (LTSD-□□□□□□□□)		□A001U	□A002U	□A004U	□A008U		□A010U	□A020U		□A035U	□A050U
Flange[□]		□60			□80			□130			□180
Rated Output	[kW]	0.1	0.2	0.4	0.6	0.75	1	1.5	2.2	3	5
Rated torque	[N×m]	0.32	0.64	1.27	1.91	2.39	3.18	4.77	7	9.55	15.91
	[kgf×cm]	3.25	6.49	12.99	19.49	24.36	32.48	48.7	71.4	97.4	162.3
Max Instantaneous Torque	[N×m]	0.96	1.91	3.82	5.73	7.16	9.55	14.32	21.01	28.65	47.74
	[kgf×cm]	9.74	19.48	38.96	58.47	73.08	97.44	146.1	214.3	292.2	487
Rated Current	[A]	0.95	1.45	2.6	3.81	5.02	5.83	9.15	13.24	16.09	26.47
Max. Current	[A]	2.85	4.35	7.8	11.42	15.07	17.5	27.45	39.72	48.27	79.41
Rated rotation speed	[r/min]	3000									
Max. rotation speed	[r/min]	5000									
Inertia moment	[kg×m ² ×10 ⁻⁴]	0.091	0.147	0.248	0.897	1.264	1.632	10.18	14.62	19.04	46.56
	[gf×cm×s ²]	0.093	0.15	0.253	0.915	1.29	1.665	10.39	14.92	19.43	47.51
Allowable Load Inertia Ratio		20 times of motor inertia			15 times of motor inertia		10 times of motor inertia				5 times of motor inertia
Rated power rate	[kW/s]	11.09	27.6	27.07	40.66	45.09	62.08	22.38	33.59	47.85	54.33
Encoder	Standard	Serial Type 19[bit]									
Specifications and features	Method of protection	Fully closed. self-cooling IP67 (excluding axis penetration)					Fully closed. self-cooling IP65 (excluding axis penetration)				
	Time rating	Continuous									
	Ambient temperature	Operating : 0 ~ 40[°C] Storage : -10 ~ 60[°C]									
	Ambient humidity	90[%]RH Below (avoid dew-condensation)									
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust.									
	Anti-vibration	Elevation/vibration 49[m/s ²](5G)									
Weight	[kg]	0.56	0.74	1.06	2.14	2.68	3.3	6.7	8.5	10.1	17.4



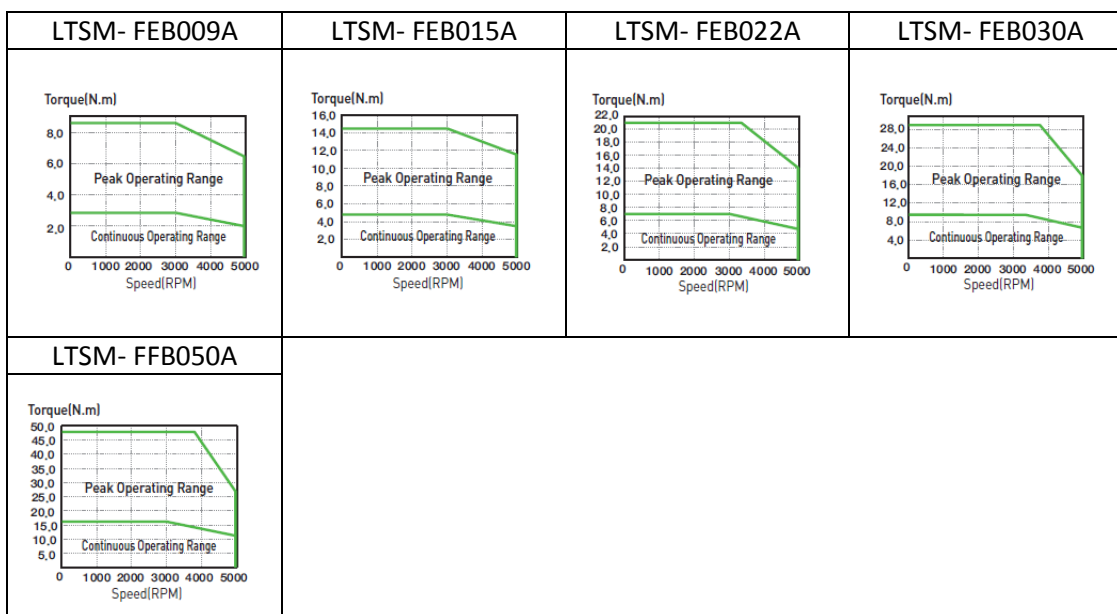
200vac Motor Specifications [Rated: 1500rpm]

Servo Motor (LTSM-□□□□□□□□)		FEA 005G	FEA 009G	FEA 013G	FEA 017G	FFA 020G	FFA 030G	FFA 044G
Applicable Drive (LTSD-□□□□□□□□)		□A008U	□A010U	□A020U	□A020U	□A020U	□A035U	□A050U
Flange[□]		□130				□180		
Rated Output	[kW]	0.45	0.85	1.3	1.7	1.8	2.9	4.4
Rated torque	[N×m]	2.86	5.41	8.27	10.82	11.45	18.46	28
	[kgf×cm]	29.22	55.19	84.41	110.38	116.9	188.3	285.7
Max Instantaneous Torque	[N×m]	8.59	16.23	24.82	32.46	34.35	55.38	84.03
	[kgf×cm]	87.66	165.57	253.23	331.14	350.6	564.9	851.1
Rated Current	[A]	4.56	6.67	11.9	13.36	12.16	15.98	30.7
Max. Current	[A]	13.68	20.01	35.7	40.08	36.48	47.94	92.1
Rated rotation speed	[r/min]	1500						
Max. rotation speed	[r/min]	3000		3000		2700		3000
Inertia moment	[kg×m ² ×10 ⁻⁴]	5.66	10.18	14.62	19.04	27.96	46.56	73.85
	[gf×cm×s ²]	5.77	10.39	14.92	19.43	28.53	47.51	75.36
Allowable Load Inertia Ratio		10 times of motor inertia				5 times of motor inertia		
Rated power rate	[kW/s]	14.49	28.74	46.81	61.46	46.92	73.14	106.15
Encoder	Standard	Serial Type 19[bit]						
Specifications and features	Method of protection	Fully closed, self-cooling IP65 (excluding axis penetration)						
	Time rating	Continuous						
	Ambient temperature	Operating : 0 ~ 40[°C] Storage : -10 ~ 60[°C]						
	Ambient humidity	90[%]RH Below (avoid dew-condensation)						
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust.						
	Anti-vibration	Elevation/vibration 49[m/s ²](5G)						
Weight	[kg]	5	6.7	8.5	10.1	12.5	17.4	25.2



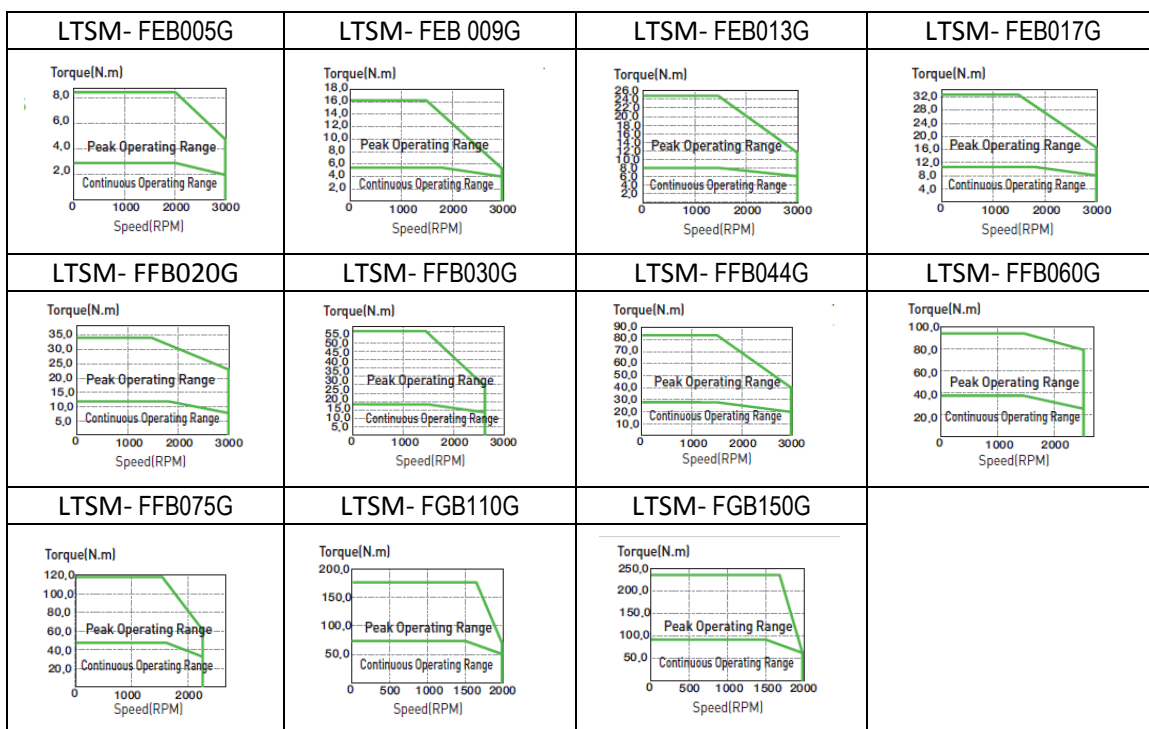
400vac Motor Specifications [Rated: 3000rpm]

Servo Motor (LTSM-□□□□□□□□)		FEB 009A	FEB 015A	FEB 022A	FEB 030A	FFB 050A
Applicable Drive (LTSD-□□□□□□□□)		□B010U	□B020U	□B035U	□B035U	□B050U
Flange[□]		□130				□180
Rated Output	[kW]	0.9	1.5	2.2	3	5
Rated torque	[N×m]	2.86	4.77	7	9.55	15.92
	[kgf×cm]	29.33	48.72	71.46	97.44	162.4
Max Instantaneous Torque	[N×m]	8.59	14.32	20.01	28.65	38.79
	[kgf×cm]	87.7	146.16	214.37	292.33	406.01
Rated Current	[A]	3.47	6.68	9.12	9.94	16.07
Max. Current	[A]	10.4	20.03	27.35	29.81	48.22
Rated rotation speed	[r/min]	3000				
Max. rotation speed	[r/min]	5000				
Inertia moment	[kg×m ² ×10 ⁻⁴]	5.659	10.179	14.619	19.04	46.56
	[gf×cm×s ²]	5.774	10.387	14.917	19.429	47.51
Allowable Load Inertia Ratio		10 times of motor inertia				5 times of motor inertia
Rated power rate	[kW/s]	14.5	22.4	33.55	47.89	54.4
Encoder	Standard	Serial Type 19[bit]				
Specifications and features	Method of protection	Fully closed. self-cooling IP65 (excluding axis penetration)				
	Time rating	Continuous				
	Ambient temperature	Operating : 0 ~ 40[°C] Storage : -10 ~ 60[°C]				
	Ambient humidity	90[%]RH Below (avoid dew-condensation)				
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust.				
	Anti-vibration	Elevation/vibration 49[m/s ²](5G)				
Weight	[kg]	5.5	7.54	9.68	11.78	17.7



400vac Motor Specifications [Rated: 1500rpm]

Servo Motor (LTSM-□□□□□□□□)		FEB 005G	FEB 009G	FEB 013G	FEB 017G	FFB 020G	FFB 030G	FFB 044G	FFB0 60G	FFB0 75G	FGB 110G	FGB 150G
Applicable Drive (LTSD-□□□□□□□□)		□B010U		□B020U			□B035U	□B050U	□B075U		□B150U	
Flange[□]		□130				□180				□220		
Rated Output	[kW]	0.45	0.85	1.3	1.7	1.8	2.9	4.4	6	7.5	11	15
Rated torque	[N×m]	2.86	5.41	8.28	10.82	11.46	18.46	28.01	38.2	47.75	70.03	95.49
	[kgf×cm]	29.23	55.22	84.45	110.43	116.93	188.39	285.83	389.7	487.21	714.57	974.42
Max Instantaneous Torque	[N×m]	8.59	16.23	24.83	32.47	34.38	55.39	84.03	95.49	119.37	175.07	238.73
	[kgf×cm]	87.7	166.65	253.35	331.3	350.79	565.16	857.49	974.4	1,218	1,786	2,436
Rated Current	[A]	3.28	3.5	5.39	7.01	7.56	10.14	15.68	20.23	20.01	28.28	35.71
Max. Current	[A]	9.83	10.5	16.16	21.02	22.69	30.12	47.04	50.58	50.03	68.83	87.7
Rated Speed	[r/min]	1500										
Max. rotation speed	[r/min]	3000				2700	3000	2500	2200	2000		
Inertia moment	[kg×m ² ×10 ⁻⁴]	5.659	10.179	14.619	19.04	27.96	46.56	73.85	106.7	131.29	51.42	424.5
	[gf×cm×s ²]	5.774	10.387	14.917	19.429	28.531	47.51	75.357	108.9	133.96	52.47	433.2
Allowable Load Inertia Ratio		10 times of motor inertia					5 times of motor inertia					
Rated power rate	[kW/s]	14.5	28.77	46.85	61.52	46.96	73.21	106.25	136.7	173.64	168.3	214.8
Encoder	Standard	Serial Type 19[bit]										
Specifications and features	Method of protection	Fully closed, self-cooling IP65 (excluding axis penetration)										
	Time rating	Continuous										
	Ambient temperature	Operating : 0 ~ 40[°C] Storage : -10 ~ 60[°C]										
	Ambient humidity	90[%]RH Below (avoid dew-condensation)										
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust.										
	Anti-vibration	Elevation/vibration 49[m/s ²](5G)										
Weight	[kg]	5.5	7.54	9.68	11.78	12.4	17.7	26.3	35.6	39.4	66.3	92.2

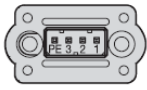


7. External Dimensions of Servo Motor

Servo Motor Dimensions

FB Series

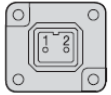
Plug Specifications



Power

Pin No.	Color	Signal
1	Red	U
2	White	V
3	Black	W
4	Green	Ground

(Power Connector Pin Table)



Brake

Pin No.	Signal
1	BK+
2	BK-

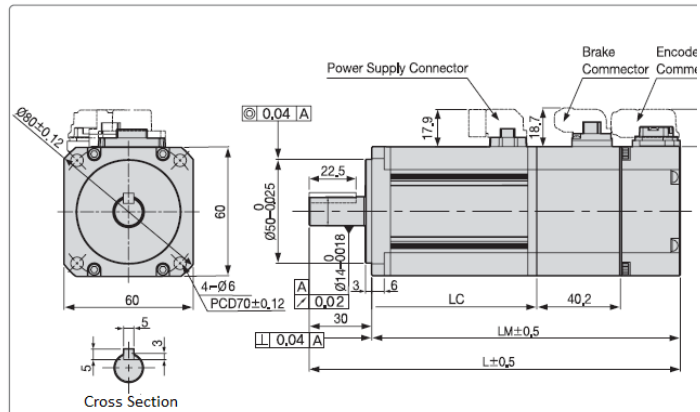
(Brake Connector Pin Table)



Encoder

Multi Turn (M)	
Pin No.	Signal
1	MA
2	SLO
3	GND_B
4	OV
5	SHIELD
6	MA
7	SLO
8	VDD_B
9	+5V

(Encoder Connector Pin Table)

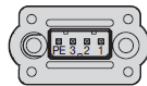


Model	External Dimensions(mm)					Key			Weight (kg)
	L	LM	LC	S	H	T	W	U	
FBA01A	107.2(147.2)	77.2(117.2)	48.5(48.3)	14	-0.018	5	5	3	0.56(1.3)
FBA02A	118.2(158.2)	88.2(128.2)	59.5(59.3)	14	-0.018	5	5	3	0.74(1.48)
FBA04A	138.2(178.2)	108.2(148.2)	79.5(79.3)	14	-0.018	5	5	3	1.06(1.8)

Note1) Use DC[24V] for brake input power supply. Note2) The () is for brake-attached type. Note3) For external dimensions for oil-sealed type. Please kindly contact us separately.

FC Series

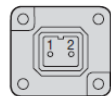
Plug Specifications



Power

Pin No.	Color	Signal
1	Black	U
2	White	V
3	Red	W
PE	Green	Ground

(Power Connector Pin Table)



Brake

Pin No.	Signal
1	BK+
2	BK-

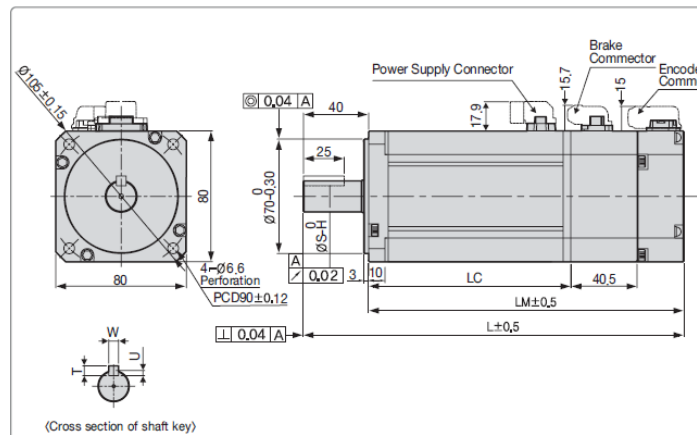
(Brake Connector Pin Table)



Encoder

Multi Turn (M)	
Pin No.	Signal
1	MA
2	SLO
3	GND_B
4	OV
5	SHIELD
6	MA
7	SLO
8	VDD_B
9	+5V

(Encoder Connector Pin Table)



Model	External Dimensions(mm)					Key			Weight(kg)
	L	LM	LC	S	H	T	W	U	
FCA006A	156.7(197.5)	116.7(157.5)	88(87.8)	19	-0.021	6	6	3.5	2.14(2.94)
FCA008A	174.7(215.5)	134.7(175.5)	106(105.8)	19	-0.021	6	6	3.5	2.68(3.48)
FCA010A	192.7(233.5)	152.7(193.5)	124(123.8)	19	-0.021	6	6	3.5	3.30(4.10)

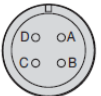
Note1) Use DC[24V] for brake input power supply. Note2) The () is for brake-attached type. Note3) For external dimensions for oil-sealed type. Please kindly contact us separately.

Servo Motor Dimensions

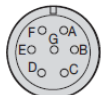
FE Series

Plug Specifications

[Power]



Spec.: MS3102A20-4P
(Standard)



Spec.: MS3102A20-15P
(Brake-attached type)

Power

Pin No.	Signal
A	U
B	V
C	W
D	Ground

Pin No.	Signal	Pin No.	Signal
A	U	D	Ground
B	V	E	BK+
C	W	F	BKPin

[Encoder]

Serial type

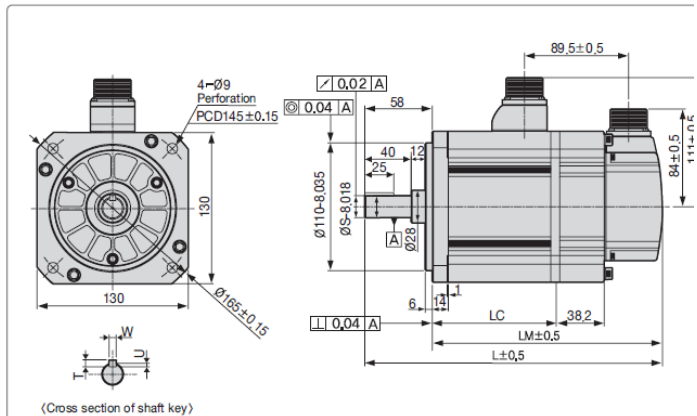


Spec.: MS3102A20-29P

Encoder

Pin No.	Signal	Pin No.	Signal
A	MA	M	-
B	MA	N	-
C	SLO	P	-
D	SLO	R	-
E	VOD_B	H	+5V
F	GND_B	G	0V
K	-	J	SHIELD
L	-	-	-

(Multi Turn Encoder Connector Pin Table)



(Cross section of shaft key)

Model	External Dimensions(mm)				Key				Weight(kg)
	L	LM	LC	S	T	W	U		
FEA005G, FEB009A, FEB005G	197.3(235.3)	139.3(177.3)	89.8(89.6)	19	5	5	3	5.04(6.58)	
FEA015A, FEA009G, FEB015A, FEB009G	217.3(255.3)	159.3(197.3)	109.8(109.6)	19	5	5	3	6.74(8.28)	
FEA022A, FEA013G, FEB022A, FEB013G	237.3(275.3)	179.3(217.3)	129.8(129.6)	22	6	6	3.5	8.48(10.02)	
FEA030A, FEA017G, FEB030A, FEB017G	255.3(293.3)	197.3(235.3)	147.8(147.6)	24	7	8	4	10.05(11.59)	

Note1) Use DC[24V] for brake input power supply. Note2) The [] is for brake-attached type.

FF Series

Plug Specifications

[Power]



Spec.: MS3102A22-22P
(Standard)



Spec.: MS3102A24-10P
(Brake-attached type)

Power

Pin No.	Signal
A	U
B	V
C	W
D	Ground

Pin No.	Signal	Pin No.	Signal
A	U	D	Ground
B	V	E	BK+
C	W	F	BK-

[Encoder]

Serial type

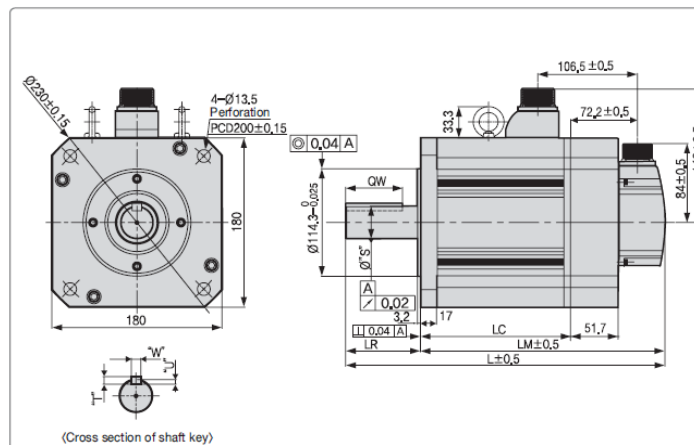


Spec.: MS3102A20-29P

Encoder

Pin No.	Signal	Pin No.	Signal
A	MA	M	-
B	MA	N	-
C	SLO	P	-
D	SLO	R	-
E	VDD_B	H	+5V
F	GND_B	G	0V
K	-	J	SHIELD
L	-	-	-

(Multi Turn Encoder Connector Pin Table)



(Cross section of shaft key)

Model	External Dimensions(mm)				Key					Weight(kg)
	L	LM	LC	LR	S	QW	T	W	U	
FFA020G, FFB020G	257.5(308.9)	178.5(229.9)	129(128.7)							12.5(19.7)
FFA050A, FFA030G, FFB050A, FFB030G	287.5(338.9)	208.5(259.9)	159(158.7)		35+ ^{0.01}		10			17.4(24.6)
FFA044G, FFB044G	331.5(382.9)	252.5(303.9)	203(202.7)			60	8		5	25.2(32.4)
FFB060G	384.5(435.9)	305.5(356.9)	256(255.7)		42- ^{0.016}				12	33.8(41.0)
FFB075G	439.5	326.5	277	113		96				38.5(45.7)

Note1) 4.4kW or above models have eye bolts

Note2) Use DC[24V] for brake input power supply.

Note3) The [] is for brake-attached type.

Note4) Use MS3102A32-17 for FF75G Power connector.

Servo Motor Dimensions

FG Series

Plug Specifications



Spec.: MS3102A32-17P
(Standard)

Power

Pin No.	Signal
A	U
B	V
C	W
D	Ground



Spec.: MS3102A14S-7P

Brake

Pin No.	Signal
A	BK+
B	BK-
C	NC

[Encoder]

Serial type



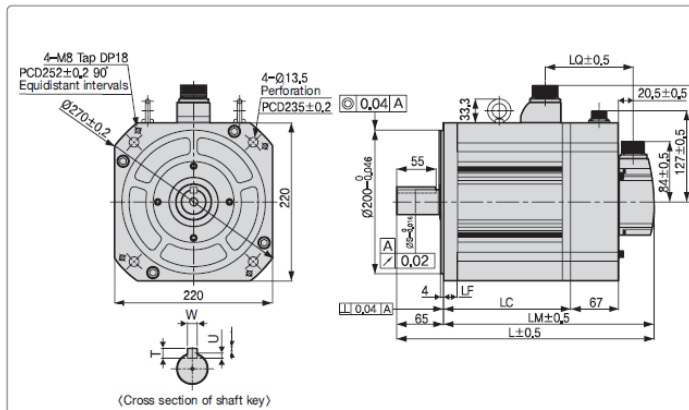
Spec.: MS3102A20-29P

Encoder

Pin No.	Signal	Pin No.	Signal
A	MA	M	-
B	MA	N	-
C	SLO	P	-
D	SLO	R	-
E	VDD_B	H	+5V
F	GND_B	G	0V
K	-	J	SHIELD
L	-		

(Multi Turn Encoder Connector Pin Table)

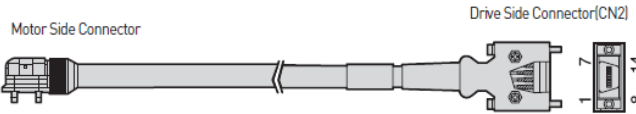


Note1) For external dimensions for oil-sealed type.
Please kindly contact us separately.



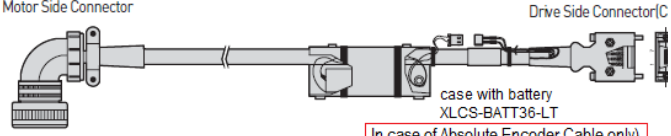



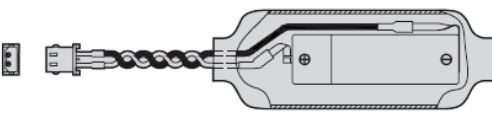
Model	External Dimensions(mm)						Key					Weight (kg)
	L	LM	LC	LR	LF	LQ	S	QK	T	W	U	
FGP110G	469	354	304	115	21	66	42 ^{-0.016}	96	10	12	5	66.3
FGP110G	575	459	409	115	35		55 ^{-0.016}	96	10	16	6	92.2

8. Cable & Accessories Details

Encoder Cable

Type	Product Type	Model Name ^[Note1]	Applicable Drive ^[Note2]	Applicable Motor	Specifications																																																								
For Signal	Incremental Encoder Cable	XLCS- E□□□ES- □	LTSD- NA□□□U PA□□□U	All Models of LTSM- FBA FCA Series	 <p>Motor Side Connector</p> <p>Drive Side Connector(CN2)</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Front Direction</p> <p>Rear Direction</p> </div> <table border="1"> <thead> <tr> <th>PIN No.</th> <th>Encoder Signal</th> </tr> </thead> <tbody> <tr><td>1</td><td>MA</td></tr> <tr><td>2</td><td>SLO</td></tr> <tr><td>3</td><td>-</td></tr> <tr><td>4</td><td>OV</td></tr> <tr><td>5</td><td>SHIELD</td></tr> <tr><td>6</td><td>MA</td></tr> <tr><td>7</td><td>SLO</td></tr> <tr><td>8</td><td>-</td></tr> <tr><td>9</td><td>+5V</td></tr> </tbody> </table> <p>Tyco Connector (7Circuits)</p> <p>[Motor Side Connector]</p> </div> <div style="text-align: center;">  <table border="1"> <thead> <tr> <th>PIN No.</th> <th>Encoder Signal</th> <th>PIN No.</th> <th>Encoder Signal</th> </tr> </thead> <tbody> <tr><td>1</td><td>-</td><td>8</td><td>-</td></tr> <tr><td>2</td><td>-</td><td>9</td><td>-</td></tr> <tr><td>3</td><td>MA</td><td>10</td><td>-</td></tr> <tr><td>4</td><td>MA</td><td>11</td><td>-</td></tr> <tr><td>5</td><td>SLO</td><td>12</td><td>-</td></tr> <tr><td>6</td><td>SLO</td><td>13</td><td>-</td></tr> <tr><td>7</td><td>OV</td><td>14</td><td>+5V</td></tr> <tr><td colspan="2">PLATE</td><td colspan="2">SHIELD</td></tr> </tbody> </table> <p>[Drive Side Connector]</p> </div>	PIN No.	Encoder Signal	1	MA	2	SLO	3	-	4	OV	5	SHIELD	6	MA	7	SLO	8	-	9	+5V	PIN No.	Encoder Signal	PIN No.	Encoder Signal	1	-	8	-	2	-	9	-	3	MA	10	-	4	MA	11	-	5	SLO	12	-	6	SLO	13	-	7	OV	14	+5V	PLATE		SHIELD	
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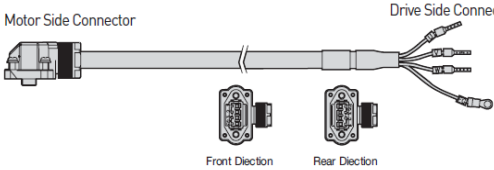
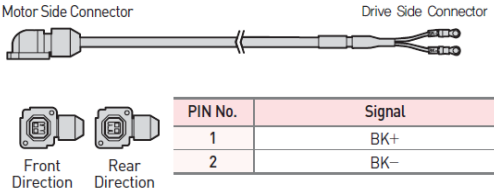
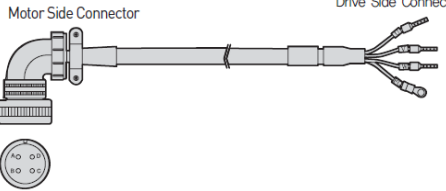
Encoder Cable

Type	Product Type	Model Name ^(Note1)	Applicable Drive ^(Note2)	Applicable Motor	Specifications																																																																										
For Signal	Absolute Encoder Cable	XLCS-E□□□DS2	LTSD-NA□□□U PA□□□U	All Models of LTSM-FEA/FEB FFA/FFB FGB Series	 <p>Motor Side Connector</p> <p>Drive Side Connector(C)</p> <p>case with battery XLCS-BATT36-LT</p> <p>In case of Absolute Encoder Cable only)</p>																																																																										
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Battery For Encoder	Battery	XLCS-BATT36-LT	LTSD-NA□□□U PA□□□U	All Models of LTSM-	 <table border="1"> <thead> <tr> <th>PIN No.</th> <th>Signal</th> <th>Color</th> </tr> </thead> <tbody> <tr><td>1</td><td>+</td><td>Red</td></tr> <tr><td>2</td><td>-</td><td>Black</td></tr> </tbody> </table> <p>1. Plug Spec. : 5264-02 (Molex) 2. Plug Pin Spec. : 5263PBT (Molex) 3. Battery Spec. : ER6V/3.6V, 2000mAh (TOSHIBA)</p>	PIN No.	Signal	Color	1	+	Red	2	-	Black																																																																	
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2	-	Black																																																																													

^{Note1}) □ □ □ of Model Name indicates the kind and length of cable. And the declaration is as below.

Cable Length(m)	3	5	10	20
General Cable	N03	N05	N10	N20
Robotic Cable	F03	F05	F10	F20

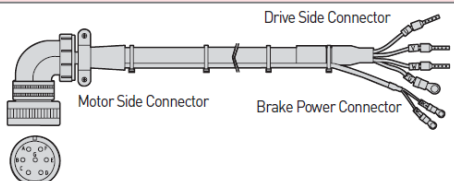
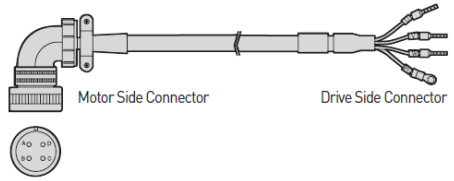
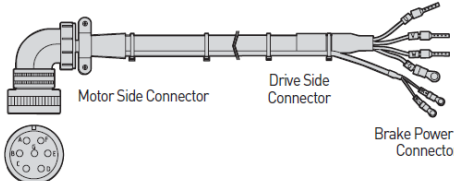
Power Cable: 200vac Motor

Type	Product Type	Model Name ^[Note1]	Applicable Drive ^[Note2]	Applicable Motor	Specifications										
For Power	Power Cable (Small Capacity)	XLCS-P □□□LS-□	LTSD-NA□□□U PA□□□U	All Models of LTSM-FBA FCA SERIES	 <table border="1" data-bbox="1209 432 1385 544"> <thead> <tr> <th>PIN No.</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>U</td> </tr> <tr> <td>B</td> <td>V</td> </tr> <tr> <td>C</td> <td>W</td> </tr> <tr> <td>D</td> <td>Ground</td> </tr> </tbody> </table> <ol style="list-style-type: none"> Motor Side Connector <ul style="list-style-type: none"> Plug Spec. : SM-JN8FT04(Suntone) Socket Spec. : SMS-201(Suntone) Drive Side Connector (U,V,W,FG) <ul style="list-style-type: none"> U, V, W Pin Spec. : 1512(Ferrule) FG Pin Spec. : 1.5x4 (Ring Terminal) Cable Spec. : 4C×0.75SQ or 4C×18AWG In case of FAL products, Please install Power Cable first before connecting Encoder Cable 	PIN No.	Signal	A	U	B	V	C	W	D	Ground
PIN No.	Signal														
A	U														
B	V														
C	W														
D	Ground														
For Power	Brake Cable for Flat Motor (Small Capacity)	XLCS-B □□□QS-□	LTSD-NA□□□U PA□□□U	All Models of LTSM-FBA FCA SERIES	 <table border="1" data-bbox="1066 880 1385 958"> <thead> <tr> <th>PIN No.</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>BK+</td> </tr> <tr> <td>2</td> <td>BK-</td> </tr> </tbody> </table> <ol style="list-style-type: none"> Motor Side Connector <ul style="list-style-type: none"> Plug Spec. : KN5FT02SJ1 Socket Spec. : ST-KN-S-C1B-3500 Drive Side Connector <ul style="list-style-type: none"> Connecting terminal Spec. : 1.5x3(Ring Terminal) Cable Spec. : 2C×0.5SQ or 2C×20AWG 	PIN No.	Signal	1	BK+	2	BK-				
PIN No.	Signal														
1	BK+														
2	BK-														
For Power	Power Cable (Middle Capacity)	XLCS-P □□□HS	LTSD-NA□□□U PA□□□U	All Models of LTSM-FEA SERIES	 <table border="1" data-bbox="906 1417 1385 1541"> <thead> <tr> <th>PIN No.</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>U</td> </tr> <tr> <td>B</td> <td>V</td> </tr> <tr> <td>C</td> <td>W</td> </tr> <tr> <td>D</td> <td>Ground</td> </tr> </tbody> </table> <ol style="list-style-type: none"> Motor Side Connector <ul style="list-style-type: none"> Plug Spec. : MS3108A20-4S Drive Side Connector <ul style="list-style-type: none"> FG Pin Spec. : 22x6(Ring Terminal) Cable Spec. : 4C×2.5SQ or 4C×14AWG 	PIN No.	Signal	A	U	B	V	C	W	D	Ground
PIN No.	Signal														
A	U														
B	V														
C	W														
D	Ground														

Note1 □ □ □ of Model Name indicates the kind and length of cable. And the declaration is as below.

Cable Length(m)	3	5	10	20
General Cable(N)	N03	N05	N10	N20
Robotic Cable(F)	F03	F05	F10	F20

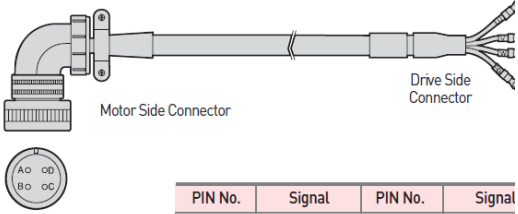
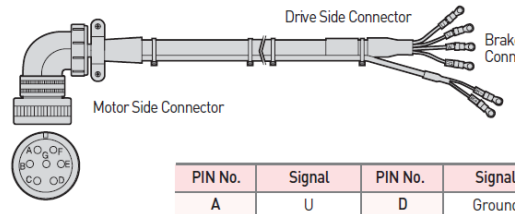
Power Cable: 200vac Motor

Type	Product Type	Model Name ^(Note1)	Applicable Drive ^(Note2)	Applicable Motor	Specifications																
For Power	Power Cable (Brake Type)	XLCS-P □□□NB	LTSD-NA□□□U PA□□□U	All Models of LTSM-FEA SERIES	 <table border="1"> <thead> <tr> <th>PIN No.</th> <th>Signal</th> <th>PIN No.</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>U</td> <td>D</td> <td>Ground</td> </tr> <tr> <td>B</td> <td>V</td> <td>E</td> <td>BK+</td> </tr> <tr> <td>C</td> <td>W</td> <td>F</td> <td>BK-</td> </tr> </tbody> </table> <p>1. Motor Side Connector • Plug Spec. : MS3108A20-15S(MS)</p> <p>2. Drive Side Connector • U, V, W Pin Spec. : 2512 • Cable Spec. : 4Cx2.5SQ or 4Cx41AWG • FG Pin Spec. : 2.5x4(Ring Terminal)</p> <p>3. Brake Power side Connector • BK Pin Spec. : 1.5x3(Ring Terminal) • Cable Spec. : 2Cx0.75SQ or 2Cx18AWG</p>	PIN No.	Signal	PIN No.	Signal	A	U	D	Ground	B	V	E	BK+	C	W	F	BK-
PIN No.	Signal	PIN No.	Signal																		
A	U	D	Ground																		
B	V	E	BK+																		
C	W	F	BK-																		
For Power	Power Cable (Middle Capacity)	XLCS-P □□□IS	LTSD-NA□□□U PA□□□U	LTSM-FFA020G / FFA030G	 <table border="1"> <thead> <tr> <th>PIN No.</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>U</td> </tr> <tr> <td>2</td> <td>V</td> </tr> <tr> <td>3</td> <td>W</td> </tr> <tr> <td>4</td> <td>Ground</td> </tr> </tbody> </table> <p>1. Motor Side Connector • Plug Spec. : MS3108A22-22S(MS)</p> <p>2. Drive Side Connector • U, V, W Pin Spec. : 2512 • FG Pin Spec. : 2.5x4(Ring Term)</p> <p>3. Cable Spec. : 4C × 2.5SQ or 4C14AWG</p>	PIN No.	Signal	1	U	2	V	3	W	4	Ground						
PIN No.	Signal																				
1	U																				
2	V																				
3	W																				
4	Ground																				
For Power	Power Cable (Brake Type)	XLCS-P □□□PB	LTSD-NA□□□U PA□□□U	LTSM-FFA020G / FFA030G	 <table border="1"> <thead> <tr> <th>PIN No.</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>U</td> </tr> <tr> <td>B</td> <td>V</td> </tr> <tr> <td>C</td> <td>W</td> </tr> <tr> <td>D</td> <td>Ground</td> </tr> <tr> <td>E</td> <td>BK+</td> </tr> <tr> <td>F</td> <td>BK-</td> </tr> </tbody> </table> <p>1. Motor Side Connector • Plug Spec. : MS3108A24-10S(MS)</p> <p>2. Drive Side Connector • U, V, W Pin Spec. : F2512 • Cable Spec. : 4Cx2.5SQ or 4Cx14AWG • FG Pin Spec. : 2.5x4(Ring Terminal)</p> <p>3. Brake Power side Connector • BK Pin Spec. : 1.5x3(Ring Terminal) • Cable Spec. : 2Cx0.75 S or 2Cx18AWG</p>	PIN No.	Signal	A	U	B	V	C	W	D	Ground	E	BK+	F	BK-		
PIN No.	Signal																				
A	U																				
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C	W																				
D	Ground																				
E	BK+																				
F	BK-																				

Note1) □ □ □ of Model Name indicates the kind and length of cable. And the declaration is as below.

Cable Length(m)	3	5	10	20
General Cable(N)	N03	N05	N10	N20
Robotic Cable(F)	F03	F05	F10	F20

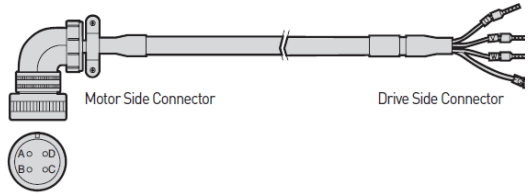
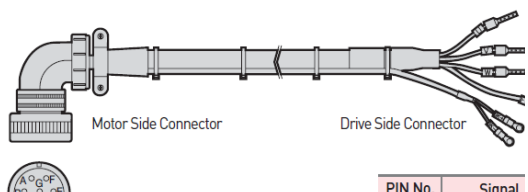
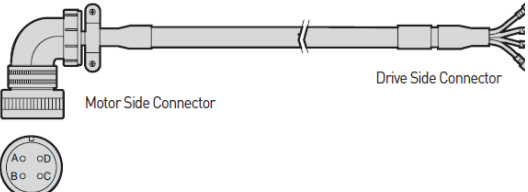
Power Cable: 200vac Motor

Type	Product Type	Model Name ^[Note1]	Applicable Drive ^[Note2]	Applicable Motor	Specifications																
For Power	Power Cable (Middle Capacity)	XLCS-P □□□JS	LTSD-NA□□□U PA□□□U	LTSM-FFA050A / FFA044G	 <table border="1"> <thead> <tr> <th>PIN No.</th> <th>Signal</th> <th>PIN No.</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>U</td> <td>C</td> <td>W</td> </tr> <tr> <td>B</td> <td>V</td> <td>D</td> <td>Ground</td> </tr> </tbody> </table> <ol style="list-style-type: none"> Motor Side Connector <ul style="list-style-type: none"> Plug Spec. : MS3108A22-22S(MS) Drive Side Connector <ul style="list-style-type: none"> Connecting terminal Spec. : 6.0x5(Ring Terminal) Brake Power Side Connector <ul style="list-style-type: none"> Cable Spec. : 4Cx6.0SQ or 4Cx10AWG 	PIN No.	Signal	PIN No.	Signal	A	U	C	W	B	V	D	Ground				
PIN No.	Signal	PIN No.	Signal																		
A	U	C	W																		
B	V	D	Ground																		
For Power	Power Cable (Brake Type)	XLCS-P □□□LB	LTSD-NA□□□U PA□□□U	LTSM-FFA050A / FFA044G	 <table border="1"> <thead> <tr> <th>PIN No.</th> <th>Signal</th> <th>PIN No.</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>U</td> <td>D</td> <td>Ground</td> </tr> <tr> <td>B</td> <td>V</td> <td>E</td> <td>BK+</td> </tr> <tr> <td>C</td> <td>W</td> <td>F</td> <td>BK-</td> </tr> </tbody> </table> <ol style="list-style-type: none"> Motor Side Connector <ul style="list-style-type: none"> Plug Spec. : MS3108A24-10S Drive Side Connector <ul style="list-style-type: none"> Connecting terminal Spec. : 6x5(Ring Terminal) 4Cx6.0SQ or 4Cx10AWG Brake Power side Connector <ul style="list-style-type: none"> Connecting terminal Spec. : 1.5x3(Ring Terminal) Cable Spec. : 2Cx0.75SQ or 2Cx18AWG 	PIN No.	Signal	PIN No.	Signal	A	U	D	Ground	B	V	E	BK+	C	W	F	BK-
PIN No.	Signal	PIN No.	Signal																		
A	U	D	Ground																		
B	V	E	BK+																		
C	W	F	BK-																		

Note1 □□□ of Model Name indicates the kind and length of cable. And the declaration is as below.

Cable Length(m)	3	5	10	20
General Cable(N)	N03	N05	N10	N20
Robotic Cable(F)	F03	F05	F10	F20

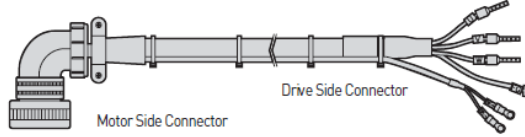

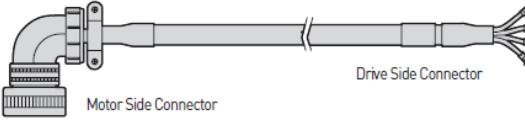

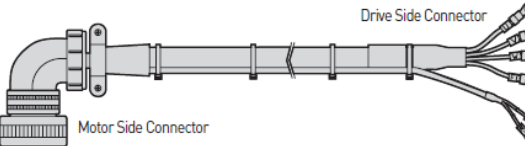

Power Cable: 400vac Motor

Type	Product Type	Model Name ^(Note1)	Applicable Drive ^(Note2)	Applicable Motor	Specifications														
For Power	Power Cable	XLCS-P □□□HS	LTSD- NB□□□U PB□□□U	All Models of LTSM- FEB Series	 <table border="1"> <thead> <tr> <th>PIN No.</th> <th>Signal</th> <th>PIN No.</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>U</td> <td>C</td> <td>W</td> </tr> <tr> <td>B</td> <td>V</td> <td>D</td> <td>Ground</td> </tr> </tbody> </table> <ol style="list-style-type: none"> Motor Side Connector <ul style="list-style-type: none"> Plug Spec. : MS3108A 20-4S Drive Side Connector(U,V,W,FG) <ul style="list-style-type: none"> U, V, W Pin Spec. : 1512(Ferrule) FG Pin Spec. : 1.5x4(Ring Terminal) Cable Spec: 4Cx1.5SQ or 4Cx15AWG 	PIN No.	Signal	PIN No.	Signal	A	U	C	W	B	V	D	Ground		
PIN No.	Signal	PIN No.	Signal																
A	U	C	W																
B	V	D	Ground																
For Power	Power Cable (Brake Type)	XLCS-P □□□NB	LTSD- NB□□□U PB□□□U	All Models of LTSM- FEB Series	 <table border="1"> <thead> <tr> <th>PIN No.</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>U</td> </tr> <tr> <td>B</td> <td>V</td> </tr> <tr> <td>C</td> <td>W</td> </tr> <tr> <td>D</td> <td>Ground</td> </tr> <tr> <td>E</td> <td>BK+</td> </tr> <tr> <td>F</td> <td>BK-</td> </tr> </tbody> </table> <ol style="list-style-type: none"> Motor Side Connector <ul style="list-style-type: none"> Plug Spec. : MS3108A 20-15S Drive Side Connector (U,V,W,FG) <ul style="list-style-type: none"> U, V, W Pin Spec. : 1512(Ferrule) FG Pin Spec. : 1.5 x 4(Ring Terminal) Power Cable Spec. : 4Cx1.5SQ or 4Cx15AWG Brake Power side Connector <ul style="list-style-type: none"> Connecting terminal Spec. : 1.5 x 3(Ring Terminal) Brake Cable Spec. : 2Cx0.75SQ or 2Cx19AWG 	PIN No.	Signal	A	U	B	V	C	W	D	Ground	E	BK+	F	BK-
PIN No.	Signal																		
A	U																		
B	V																		
C	W																		
D	Ground																		
E	BK+																		
F	BK-																		
For Power	Power Cable	XLCS-P □□□IS	LTSD- NB□□□U PB□□□U	LTSM- FFB020A / FFB020G / FFB030G	 <table border="1"> <thead> <tr> <th>PIN No.</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>U</td> </tr> <tr> <td>B</td> <td>V</td> </tr> <tr> <td>C</td> <td>W</td> </tr> <tr> <td>D</td> <td>Ground</td> </tr> </tbody> </table> <ol style="list-style-type: none"> Motor Side Connector <ul style="list-style-type: none"> Plug Spec. : MS3108A 22-22S(MS) Drive Side Connector (U,V,W,FG) <ul style="list-style-type: none"> U, V, W Pin Spec : 2512(Ferrule) FG Pin Spec. : 2.5x4 (Ring Terminal) Cable Spec. : 4Cx2.5SQ or 4Cx14AWG 	PIN No.	Signal	A	U	B	V	C	W	D	Ground				
PIN No.	Signal																		
A	U																		
B	V																		
C	W																		
D	Ground																		

Note1) □ □ □ of Model Name indicates the kind and length of cable. And the declaration is as below.
In case of 400V products, you can use Robotic Cable only.

Cable Length(m)	3	5	10	20
Robotic Cable(F)	F03	F05	F10	F20

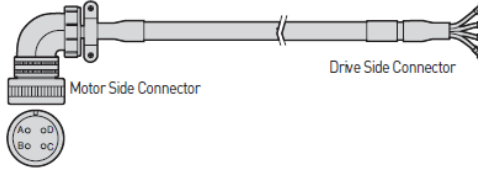
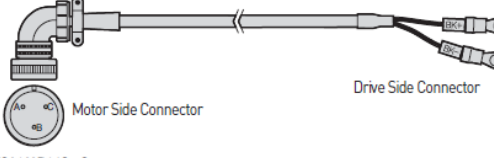
Power Cable: 400vac Motor

Type	Product Type	Model Name ^{Note1)}	Applicable Drive ^{Note2)}	Applicable Motor	Specifications														
For Power	Power Cable (Brake Type)	XLCS-P □□□PB	LTSD- NB□□□U PB□□□U	LTSM- FFB020A / FFB020G / FFB030G	 <p>Motor Side Connector</p> <p>Drive Side Connector</p>  <table border="1"> <thead> <tr> <th>PIN No.</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>U</td> </tr> <tr> <td>B</td> <td>V</td> </tr> <tr> <td>C</td> <td>W</td> </tr> <tr> <td>D</td> <td>Ground</td> </tr> <tr> <td>E</td> <td>BK+</td> </tr> <tr> <td>F</td> <td>BK-</td> </tr> </tbody> </table> <ol style="list-style-type: none"> Motor Side Connector <ul style="list-style-type: none"> Plug Spec. : MS3108A 24-10S(MS) Drive Side Connector <ul style="list-style-type: none"> U, V, W Pin Spec. : 1512 FG Pin Spec. : 1.5 x 3(Ring Terminal) Power Cable Spec. : 4Cx1.5SQ or 4Cx15AWG Brake Power side Connector <ul style="list-style-type: none"> Connecting terminal Spec. : 1.5 x 3(Ring Terminal) Brake Cable Spec. : 2Cx0.75SQ or 2Cx18AWG 	PIN No.	Signal	A	U	B	V	C	W	D	Ground	E	BK+	F	BK-
PIN No.	Signal																		
A	U																		
B	V																		
C	W																		
D	Ground																		
E	BK+																		
F	BK-																		
For Power	Power Cable (Middle Capacity)	XLCS-P □□□JS	LTSD- NB□□□U PB□□□U	LTSM- FFB050A / FFB044G / FFB060G	 <p>Motor Side Connector</p> <p>Drive Side Connector</p>  <table border="1"> <thead> <tr> <th>PIN No.</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>U</td> </tr> <tr> <td>B</td> <td>V</td> </tr> <tr> <td>C</td> <td>W</td> </tr> <tr> <td>D</td> <td>Ground</td> </tr> </tbody> </table> <ol style="list-style-type: none"> Motor Side Connector <ul style="list-style-type: none"> Plug Spec. : MS3108A 22-22S(MS) Drive Side Connector (U,V,W,FG) <ul style="list-style-type: none"> U, V, W Pin Spec. : 4.0x 5(Ring Terminal) Cable Spec. : 4Cx4.0SQ or 4Cx11AWG 	PIN No.	Signal	A	U	B	V	C	W	D	Ground				
PIN No.	Signal																		
A	U																		
B	V																		
C	W																		
D	Ground																		
For Power	Power Cable (Brake Type)	XLCS-P □□□LB	LTSD- NB□□□U PB□□□U	LTSM- FFB050A / FFB044G / FFB060G	 <p>Motor Side Connector</p> <p>Drive Side Connector</p>  <table border="1"> <thead> <tr> <th>PIN No.</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>U</td> </tr> <tr> <td>B</td> <td>V</td> </tr> <tr> <td>C</td> <td>W</td> </tr> <tr> <td>D</td> <td>Ground</td> </tr> <tr> <td>E</td> <td>BK+</td> </tr> <tr> <td>F</td> <td>BK-</td> </tr> </tbody> </table> <ol style="list-style-type: none"> Motor Side Connector <ul style="list-style-type: none"> Plug Spec. : MS3108A 24-10S(MS) Drive Side Connector <ul style="list-style-type: none"> U, V, W Pin Spec. : 4.0X5(Ring Terminal) Power Cable Spec. : 4Cx4.0SQ or 4Cx11AWG Brake Power side Connector <ul style="list-style-type: none"> Connecting terminal Spec. : 1.5 x 3(Ring Terminal) Brake Cable Spec. : 2Cx0.75SQ or 2Cx18AWG 	PIN No.	Signal	A	U	B	V	C	W	D	Ground	E	BK+	F	BK-
PIN No.	Signal																		
A	U																		
B	V																		
C	W																		
D	Ground																		
E	BK+																		
F	BK-																		

Note1) □□□ of Model Name indicates the kind and length of cable. And the declaration is as below.
In case of 400V products, you can use Robotic Cable only.

Cable Length(m)	3	5	10	20
Robotic Cable(F)	F03	F05	F10	F20

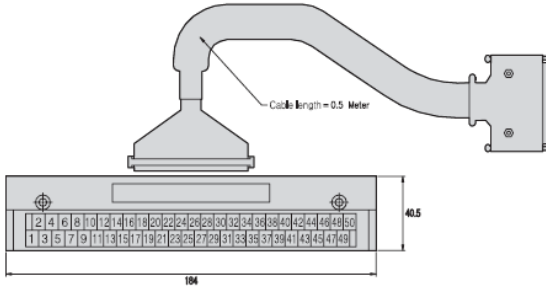
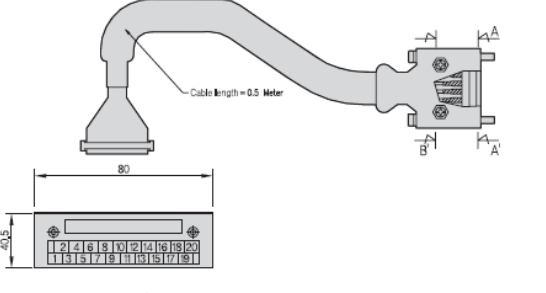
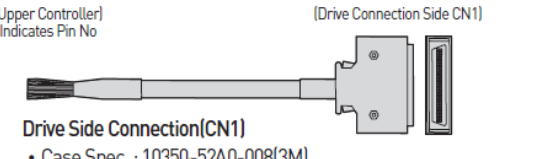
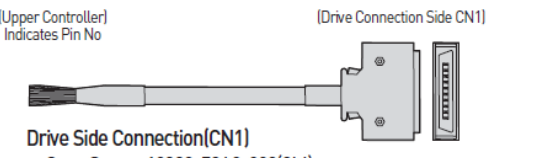
Power Cable: 400vac Motor

Type	Product Type	Model Name ^(Note1)	Applicable Drive ^(Note2)	Applicable Motor	Specifications														
For Power	Power Cable (Middle Capacity)	XLCS-P □□□MS	LTSD-NB□□□U PB□□□U	LTSM-FFB075G / FGB110G / FGB150G	 <table border="1" data-bbox="925 421 1385 497"> <thead> <tr> <th>PIN No.</th> <th>Signal</th> <th>PIN No.</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>U</td> <td>C</td> <td>W</td> </tr> <tr> <td>B</td> <td>V</td> <td>D</td> <td>Ground</td> </tr> </tbody> </table> <ol style="list-style-type: none"> Motor Side Connector <ul style="list-style-type: none"> Plug Spec. : MS3108A 32-17S(MS) Drive Side Connector(U,V,W,FG) <ul style="list-style-type: none"> U, V, W Pin Spec. : 10x5(Ring Terminal) Cable Spec: 4Cx10SQ or 4Cx7AWG 	PIN No.	Signal	PIN No.	Signal	A	U	C	W	B	V	D	Ground		
PIN No.	Signal	PIN No.	Signal																
A	U	C	W																
B	V	D	Ground																
For Power	Brake Cable (same with 200V)	XLCS-P □□□SB	LTSD-NB□□□U PB□□□U	LTSM-FFB075G / FGB110G / FGB150G	 <p>MS3108B14S-7S (2Circuits)</p> <table border="1" data-bbox="1236 918 1385 1093"> <thead> <tr> <th>PIN No.</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>U</td> </tr> <tr> <td>B</td> <td>V</td> </tr> <tr> <td>C</td> <td>W</td> </tr> <tr> <td>D</td> <td>Ground</td> </tr> <tr> <td>E</td> <td>BK+</td> </tr> <tr> <td>F</td> <td>BK-</td> </tr> </tbody> </table> <ol style="list-style-type: none"> Motor Side Connector <ul style="list-style-type: none"> Plug Spec. : MS3108B 14-7S(MS) Brake Power side Connector <ul style="list-style-type: none"> Connecting terminal Spec. : 1.5x3(Ring Terminal) Cable Spec. : 2Cx0.75SQ or 2Cx19AWG 	PIN No.	Signal	A	U	B	V	C	W	D	Ground	E	BK+	F	BK-
PIN No.	Signal																		
A	U																		
B	V																		
C	W																		
D	Ground																		
E	BK+																		
F	BK-																		

Note1 □ □ □ of Model Name indicates the kind and length of cable. And the declaration is as below.
In case of 400V products, you can use Robotic Cable only.

Cable Length(m)	3	5	10	20
General Cable(N)	N03	N05	N10	N20
Robotic Cable(F)	F03	F05	F10	F20

IO Cable

Type	Product Type	Model Name ^{Note1)}	Applicable Drive ^{Note2)}	Specifications
T/B	CN1 T/B	XLCS-VSCN1T-□□	LTSD-P	 <ul style="list-style-type: none"> • Extended CN1 T/B • Available Cable Length : 0.5[m], 1[m], 1.5[m], 2[m], 3[m]
	CN1 T/B	XLCS-L7NCN1T-□□	LTSD-N	 <ul style="list-style-type: none"> • Extended CN1 T/B • Available Cable Length : 0.5[m], 1[m], 1.5[m], 2[m]
IO Cable	CN1 Cable	XLC-CN1-□□A	LTSD-P	 <p>Drive Side Connection(CN1)</p> <ul style="list-style-type: none"> • Case Spec. : 10350-52A0-008(3M) • Connector Spec. : 10150-3000VE(3M) • Cable Spec. : 20276-SB 25P(AWG28)
	CN1 Cable	XLCS-CN1-□□A	LTSD-N	 <p>Drive Side Connection(CN1)</p> <ul style="list-style-type: none"> • Case Spec. : 10320-52A0-008(3M) • Connector Spec. : 10120-3000VE(3M) • Cable Spec. : ROW-SB0.1C×20C(AWG28)

Note1) □ □ □ of Model Name indicates the kind and length of cable. And the declaration is as below.

Cable Length(m)	3	5	10	20
General Cable(N)	N03	N05	N10	N20
Robotic Cable(F)	F03	F05	F10	F20

XLC-VSCN1T					
Cable Length(m)	0.5	1	1.5	2	3
Declaration	None	01	015	02	03

XLCS-L7NCN1T					
Cable Length(m)	0.5	1	1.5	2	3
Declaration	None	01	015	02	03

Electrical Standard Products (ESP) Offices:

HEAD OFFICE

L&T Business Park,
Tower 'B' / 3rd Floor
Saki Vihar Road, Powai
Mumbai 400 072
Tel: 022-67053229
Fax: 022-67051112
e-mail: cic@LNTEBG.com

BRANCH OFFICES

501, Sakar Complex I
Opp. Gandhigram Rly. Station
Ashram Road
Ahmedabad 380 009
Tel: 079-66304006-11
Fax: 079-66304025
e-mail: esp-ahm@LNTEBG.com

38, Cubbon Road, P. O. Box 5098
Bengaluru 560 001
Tel: 080-25020100 / 25020324
Fax: 080-25580525
e-mail: esp-blr@LNTEBG.com

131/1, Zone II
Maharana Pratap Nagar
Bhopal 462 011
Tel: 0755-3080511 / 05 / 08 / 13 / 17 / 19
Fax: 0755-3080502
e-mail: esp-bho@LNTEBG.com

Plot No. 559, Annapurna Complex
Lewis Road
Bhubaneswar 751 014
Tel: 0674-6451342 / 2436690 / 2436696
Fax: 0674-2537309
e-mail: esp-bsr@LNTEBG.com

Aspire Towers, 4th Floor
Plot No. 55, Phase-I
Industrial & Business Park
Chandigarh-160 002
Tel: 0172-4646840 / 41 / 42 / 46 / 53
Fax: 0172-4646802
Email: esp-chd@LNTEbg.com

L&T Construction Campus
TC-1 Building, II Floor
Mount-Poonamallee Road
Manapakkam
Chennai 600 089
Tel: 044-2270 6800
Fax: 044-22706940
e-mail: esp-maa1@LNTEBG.com

67, Appuswamy Road
Post Bag 7156
Opp. Nirmala College
Coimbatore 641 045
Tel: 0422-2588120 / 1 / 5
Fax: 0422-2588148
e-mail: esp-cbe@LNTEBG.com

Khairasol, Degaul Avenue
Durgapur 713 212
Tel: 0343-2540448 / 2540449 / 2540443
Fax: 0343-2540442
e-mail: esp-dgp@LNTEBG.com

5, Milanpur Road, Bamuni Maidan
Guwahati 781 021
Tel: +91 8876554410 / 8876554417
Fax: 361-2551308
e-mail: esp-ghy@LNTEBG.com

II Floor, Vasantha Chambers
5-10-173, Fateh Maidan Road
Hyderabad 500 004
Tel: 040-67015052
Fax: 040-23296468
e-mail: esp-hyd@LNTEBG.com

Monarch Building, 1st Floor
D-236 & 237, Amrapali Marg
Vaishali Nagar
Jaipur 302 021
Tel: 0141-4385914 to 18
Fax: 0141-4385925
e-mail: esp-jai@LNTEBG.com

Akashdeep Plaza, 2nd Floor
P. O. Golmuri
Jamshedpur 831 003
Jharkhand
Tel: 0657-2312205 / 38
Fax: 0657-2341250
e-mail: esp-jam@LNTEBG.com

Skybright Bldg; M. G. Road
Ravipuram Junction, Ernakulam
Kochi 682 016
Tel: 0484-4409420 / 4 / 5 / 7
Fax: 0484-4409426
e-mail: esp-cok@LNTEBG.com

3-B, Shakespeare Sarani
Kolkata 700 071
Tel: 033-42005982
Fax: 033-22821025 / 7587
e-mail: esp-ccu@LNTEBG.com

A28, Indira Nagar, Faizabad Road
Lucknow 226 016
Tel: 0522-4929905 / 04
Fax: 0522-2311671
e-mail: esp-Lko@LNTEBG.com

No: 73, Karpaga Nagar, 8th Street
K. Pudur
Madurai 625 007
Tel: 0452-2567405 / 2561068 / 2561657
Fax: 0452-2567552
e-mail: esp-mdu@LNTEBG.com

L&T Business Park,
Tower 'B' / 5th Floor
Saki Vihar Road, Powai
Mumbai 400 072
Tel: 022-67052874 / 2737 / 1156
Fax: 022-67051112
e-mail: esp-bom@LNTEBG.com

12, Shivaji Nagar
North Ambajhari Road
Nagpur 440 010
Tel: 0712-2260012 / 6606421
Fax: 2260030 / 6606434
e-mail: esp-nag@LNTEBG.com

32, Shivaji Marg
P. O. Box 6223
New Delhi 110 015
Tel: 011-41419514 / 5 / 6
Fax: 011-41419600
e-mail: esp-del@LNTEBG.com

L&T House
P. O. Box 119
191/1, Dhole Patil Road
Pune 411 001
Tel: 020-66033395 / 66033279
Fax: 020-26164048 / 26164910
e-mail: esp-pnq@LNTEBG.com

Crystal Tower,
4th Floor, G. E. Road
Telibandha
Raipur - 492 006
Tel: 0771-4283214
e-mail: esp-raipur@LNTEBG.com

3rd Floor
Vishwakarma Chambers
Majura Gate, Ring Road
Surat 395 002
Tel: 0261-2473726
Fax: 0261-2477078
e-mail: esp-sur@LNTEBG.com

Radhadaya Complex
Old Padra Road
Near Charotar Society
Vadodara 390 007
Tel: 0265-6613610 / 1 / 2
Fax: 0265-2336184
e-mail: esp-bar@LNTEBG.com

Door No. 49-38-14/3/2, 1st floor,
NGGO's Colony, Akkayyapalem,
Visakhapatnam - 530 016
Tel: 0891-2791126 / 2711125
Fax: 0891-2791100
Email: esp-viz@LNTEBG.com

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Tel : 022 6774 5858, Fax : 022 6774 5859
E-mail : cic@Lntebg.com / Website www.Lntebg.com

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