Xmotion

Servo System L7NH

L7NH Series

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L7NH Series

Servo Drive Designation

L7	NH	A	004	U	AA
	Communication	Input Power Supply	Capacity	Encoder Type	Option
	Network / All-in-One Type	A:200VAC B:400VAC	001:100W 002:200W 004:400W 008:750W 010:1.0kW 020:2.0kW 035:3.5kW 050:5.0kW 075:7.5kW 110:11kW 150:15kW	U:Universal	Exclusive Option Code

* Range
- 200V : 0.1kW~3.5kW
- 400V : 1.0kW~15kW

All-in-One EtherCAT Communication Type L7NH

Real-time control through EtherCAT

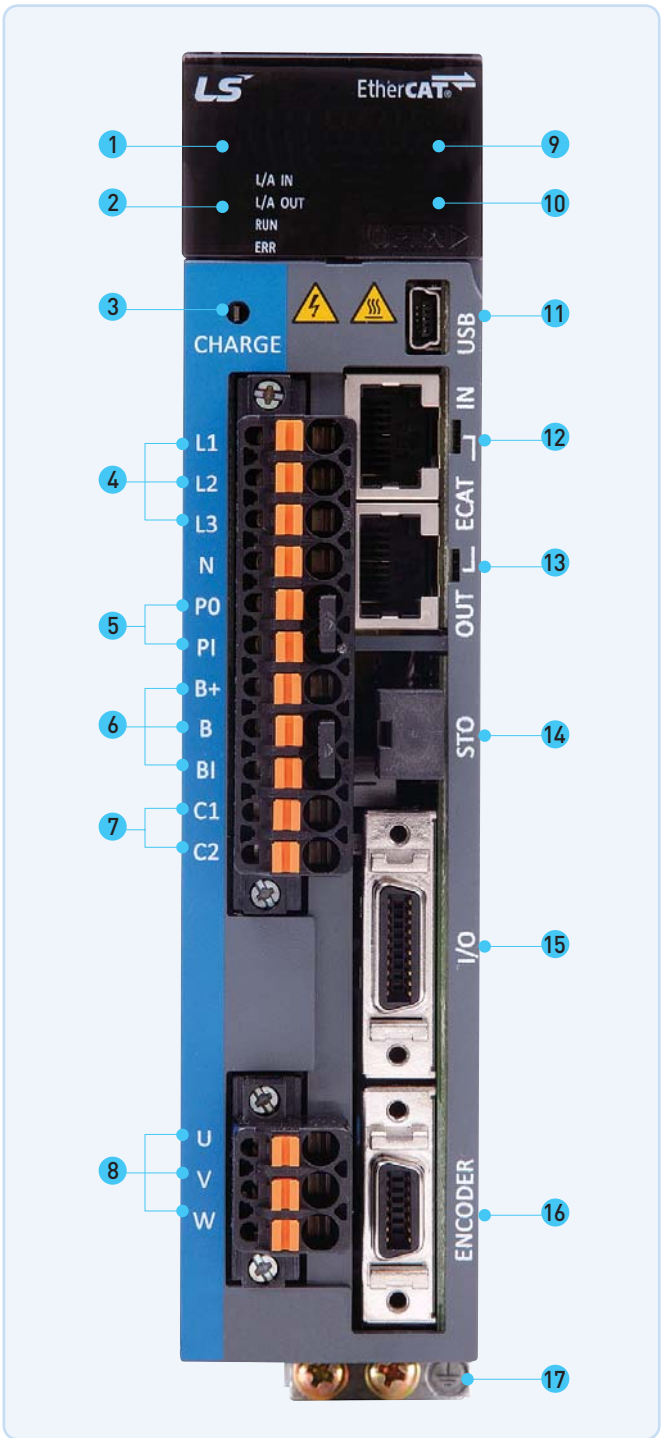
- High speed, Real-time capability and Synchronization mechanism
- Improved EtherCAT communication speed (min. 250us, DC support)
- Supporting CoE, EoE and FoE
- Improved Speed Response(≒1kHz) Frequency

Support various motor and Encoder drive

- Supporting Rotary, DD and Motor drive (supporting3rd party motor)
- Quadrature, BiSS-C, Tamagawa serial abs, EnDat 2.2, Resolver

Improved Control Performance

- Improved Control bandwidth
- Providing 4-step Notch-Filter
- Vibration control by Real-time FET
- Real-time gain tuning function



1. Display
2. State LED
3. Charge Lamp
4. Main Power Connector (L1, L2, L3)
5. DC Reactor Connector (P0, 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

Drive Combination Table

L7NHA Serial Type

Rated Speed (rpm)	Maximum Speed (rpm)	Flange Size	Applicable Motor	Applicable Drive	Standard Encoder Type	Encoder Cable		Power Cable		
					Serial Type	Serial	Abs	For power	Power + Brake	Brake
3,000	5,000	□40	FALR5A	L7NHA001U	* 18Bit Serial Absolute	APCS-E□□□ES	APCS-E□□□□ES1	APCS-P□□□LS	-	APCS-B□□□QS
		□40	FAL01A	L7NHA001U						
		□40	FAL015A	L7NHA004U						
		□60	FBL01A	L7NHA001U	* 19Bit Serial Absolute					
		□60	FBL02A	L7NHA002U						
		□60	FBL04A	L7NHA004U						
		□80	FCL04A	L7NHA004U						
		□80	FCL06A	L7NHA008U						
		□80	FCL08A	L7NHA008U						
		□80	FCL10A	L7NHA010U						
		□60	FB01A	L7NHA001U				APCS-P□□□FS		
		□60	FB02A	L7NHA002U						
		□60	FB04A	L7NHA004U						
		□80	FC04A	L7NHA004U						
		□80	FC06A	L7NHA008U						
		□80	FC08A	L7NHA008U						
		□80	FC10A	L7NHA010U						
		□130	FE09A	L7NHA010U		APCS-E□□□DS	APCS-E□□□□DS1	APCS-P□□□HS	APCS-P□□□NB	-
		□130	FE15A	L7NHA020U						
		□130	FE22A	L7NHA020U						
		□130	FE30A	L7NHA035U						
		□180	FF30A	L7NHA035U				APCS-P□□□IS	APCS-P□□□PB	
		□180	FF50A	L7NHA050U				APCS-P□□□JS	APCS-P□□□LB	
2,000	3,000	□80	FCL03D	L7NHA004U		APCS-E□□□ES	APCS-E□□□□ES1	APCS-P□□□LS	-	APCS-B□□□QS
		□80	FCL05D	L7NHA008U						
		□80	FCL06D	L7NHA008U						
		□80	FCL07D	L7NHA008U						
		□80	FC03D	L7NHA004U				APCS-P□□□FS		
		□80	FC05D	L7NHA008U						
		□80	FC06D	L7NHA008U						
		□80	FC07D	L7NHA008U						
		□130	FE06D	L7NHA008U		APCS-E□□□DS	APCS-E□□□□DS1	APCS-P□□□HS	APCS-P□□□NB	-
		□130	FE11D	L7NHA010U						
		□130	FE16D	L7NHA020U						
		□130	FE22D	L7NHA020U						
		□180	FF22D	L7NHA020U				APCS-P□□□IS	APCS-P□□□PB	
		□180	FF35D	L7NHA035U						
		□180	FF55D	L7NHA050U				APCS-P□□□JS	APCS-P□□□LB	
	2,500	□180	FF75D	L7NHA075U						
	3,000	□220	FG22D	L7NHA020U				APCS-P□□□IS	-	APCS-P□□□SB
		□220	FG35D	L7NHA035U						
		□220	FG55D	L7NHA050U				APCS-P□□□JS		
	2,500	□220	FG75D	L7NHA075U						
		□220	FG110D	L7NHA150U				APCS-P□□□VS		
1,500	3,000	□130	FE05G	L7NHA008U		APCS-E□□□DS	APCS-E□□□□DS1	APCS-P□□□HS	APCS-P□□□NB	-
		□130	FE09G	L7NHA010U						
		□130	FE13G	L7NHA020U						
		□130	FE17G	L7NHA020U						
		□180	FF20G	L7NHA020U				APCS-P□□□IS	APCS-P□□□PB	
	2,700	□180	FF30G	L7NHA035U						
	3,000	□180	FF44G	L7NHA050U				APCS-P□□□JS	APCS-P□□□LB	
	2,500	□180	FF60G	L7NHA075U						
	2,000	□180	FF75G	L7NHA075U				APCS-P□□□MS		
	3,000	□220	FG20G	L7NHA020U				APCS-P□□□IS	-	APCS-P□□□SB
	2,700	□220	FG30G	L7NHA035U						
	3,000	□220	FG44G	L7NHA050U				APCS-P□□□JS		
	2,500	□220	FG60G	L7NHA075U						
		□220	FG85G	L7NHA150U				APCS-P□□□VS		
		□220	FG110G	L7NHA150U						
		□220	FG150G	L7NHA150U				APCS-P□□□OS		
1,000	2,000	□130	FE03M	L7NHA004U		APCS-E□□□DS	APCS-E□□□□DS1	APCS-P□□□HS	APCS-P□□□NB	-
		□130	FE06M	L7NHA008U						
		□130	FE09M	L7NHA010U						
		□130	FE12M	L7NHA020U						
		□180	FF12M	L7NHA020U				APCS-P□□□IS	APCS-P□□□PB	
		□180	FF20M	L7NHA020U						
	1,700	□180	FF30M	L7NHA035U				APCS-P□□□JS	APCS-P□□□LB	
	2,000	□180	FF44M	L7NHA050U						
		□220	FG12M	L7NHA020U				APCS-P□□□IS	-	APCS-P□□□SB
		□220	FG20M	L7NHA020U						
	1,700	□220	FG30M	L7NHA035U						
	2,000	□220	FG44M	L7NHA050U				APCS-P□□□JS		APCS-P□□□SB
		□220	FG60M	L7NHA075U				APCS-P□□□MS		

L7NHB Serial Type

Rated Speed (rpm)	Maximum Speed (rpm)	Flange Size	Applicable Motor	Applicable Drive	Standard Encoder Type	Encoder Cable		Power Cable		
					Serial Type	Serial	Abs	For power	Power + Brake	Brake
3,000	5,000	□130	FEP09A	L7NHB010U	* 19Bit Serial Absolute	APCS-E □ □□DS	APCS-E □ □□ DS1	APCF-P □ □□HS	APCF-P □ □□NB	-
		□130	FEP15A	L7NHB020U						
		□130	FEP22A	L7NHB035U						
		□130	FEP30A	L7NHB035U						
		□180	FFP30A	L7NHB035U				APCF-P □ □ □IS	APCF-P □ □□PB	
		□180	FFP50A	L7NHB050U				APCF-P □ □□JS	APCF-P □ □□LB	
2,000	3,000	□130	FEP06D	L7NHB010U				APCF-P □ □□HS	APCF-P □ □□NB	
		□130	FEP11D	L7NHB010U						
		□130	FEP16D	L7NHB020U						
		□130	FEP22D	L7NHB020U						
		□180	FFP22D	L7NHB020U				APCF-P □ □□IS	APCF-P □ □□PB	
		□180	FFP35D	L7NHB035U						
		□180	FFP55D	L7NHB050U				APCF-P □ □□JS	APCF-P □ □□LB	
	2,500	□180	FFP75D	L7NHB075U						
	3,000	□220	FGP22D	L7NHB020U				APCF-P □ □□IS	-	APCF-P □ □□SB
	2,700	□220	FGP35D	L7NHB035U						
	3,000	□220	FGP55D	L7NHB050U				APCF-P □ □□JS		
	2,500	□220	FGP75D	L7NHB075U						
		□220	FGP110D	L7NHB150U				APCF-P □ □□MS		
1,500	3,000	□130	FEP05G	L7NHB010U				APCF-P □ □□HS	APCF-P □ □□NB	-
		□130	FEP09G	L7NHB010U						
		□130	FEP13G	L7NHB020U						
		□130	FEP17G	L7NHB020U						
		□180	FFP20G	L7NHB020U				APCF-P □ □□IS	APCF-P □ □□PB	
	2,700	□180	FFP30G	L7NHB035U						
	3,000	□180	FFP44G	L7NHB050U				APCF-P □ □□JS	APCF-P □ □□LB	
	2,500	□180	FFP60G	L7NHB075U						
	2,200	□180	FFP75G	L7NHB075U				APCF-P □ □□MS		
	3,000	□220	FGP20G	L7NHB020U				APCF-P □ □□IS	-	APCF-P □ □□SB
	2,700	□220	FGP30G	L7NHB035U						
	3,000	□220	FGP44G	L7NHB050U				APCF-P □ □□JS		
	2,500	□220	FGP60G	L7NHB075U						
		□220	FGP85G	L7NHB150U				APCF-P □ □□MS		
	2,000	□220	FGP110G	L7NHB150U						
		□220	FGP150G	L7NHB150U						
1,000	2,000	□130	FEP03M	L7NHB010U				APCF-P □ □□HS	APCF-P □ □□NB	-
		□130	FEP06M	L7NHB010U						
		□130	FEP09M	L7NHB010U						
		□130	FEP12M	L7NHB020U						
		□180	FFP12M	L7NHB020U				APCF-P □ □□IS	APCF-P □ □□PB	
		□180	FFP20M	L7NHB020U						
	1,700	□180	FFP30M	L7NHB035U				APCF-P □ □□JS	APCF-P □ □□LB	
	2,000	□180	FFP44M	L7NHB050U						
		□220	FGP12M	L7NHB020U				APCF-P □ □□IS	-	APCF-P □ □□SB
		□220	FGP20M	L7NHB020U						
		□220	FGP30M	L7NHB050U				APCF-P □ □□JS		
		□220	FGP44M	L7NHB050U						
		□220	FGP60M	L7NHB150U				APCF-P □ □□MS		

L7NHA Drive

Item	Type Name	L7NHA001U	L7NHA002U	L7NHA004U	L7NHA008U	L7NHA010U	L7NHA020U	L7NHA035U	L7NHA050U	L7NHA075U	L7NHA150U
Input Power	Main Power Supply	3 Phase AC200 ~ 230[V](-15 ~ +10[%]), 50 ~ 60[Hz]									
	Control Power Supply	Single Phase AC200 ~ 230[V](-15 ~ +10[%]), 50 ~ 60[Hz]									
Rated Current[A]		1.4	1.7	3.0	5.2	6.75	13.5	16.7	32	39.4	76
Peak Current[A]		4.2	5.1	9.0	15.6	20.25	40.5	50.1	90.88	98.5	190
Encoder Type		Quadrature(Incremental) BiSS-B, BiSS-C(Absolute, Incremental) Tamagawa Serial(Absolute, Incremental) EnDat 2.2 Sinusoidal Analog Hall									
Control Performance	Speed Control Range	Maximum 1: 5000									
	Frequency Response	Maximum 1[kHz] or above(When the 19-bit Serial Encoder is applied)									
	Speed Variation Ratio	±0.01[%] or lower(When the load changes between 0 and 100%) ±0.1[%] or less(Temperature of 25℃[±10]									
	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) Above 12 functions can be used selectively for assignment. (*POT, *NOT, *HOME, *STOP, *PCON, *GAIN2, *P_CL, *N_CL, PROBE1, PROBE2, EMG, A_RST)									
	Digital Output	Service rating: DC 24[V] ±10%, 120[㎃] 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±)									
Safety Function		2 Input Channels (STO1, STO2), 1 Output Channels (EDM±)									
USB Communication	Function	Firmware download, Parameter setting, Tuning, Secondary function, Parameter copy									
	Communication Standard	USB 2.0 Full Speed (applies standard)									
	Connect	PC or USB storing medium									
Internal Function	Dynamic Braking	Standard built-in brake (activated when the servo alarm goes off or when the servo is off).									
	Regenerative Braking	Default built-in(excluding 15kW), external installation possible									
	Display Function	7 segments(5DIGIT)									
	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									
Operation Environment	Operating Temperature / Storage Temperature	0 ~ 50[℃] / -20 ~ 70[℃]									
	Operating Humidity / Storage Humidity	Below 80[%]RH / Below 90[%]RH(avoid dew-condensation)									
	Environment	Indoor, Avoid corrosive, inflammable gas or liquid, and electrically conductive dust.									

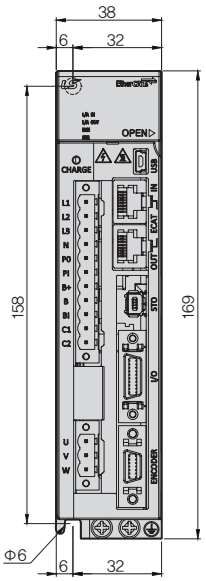
L7NHB Drive

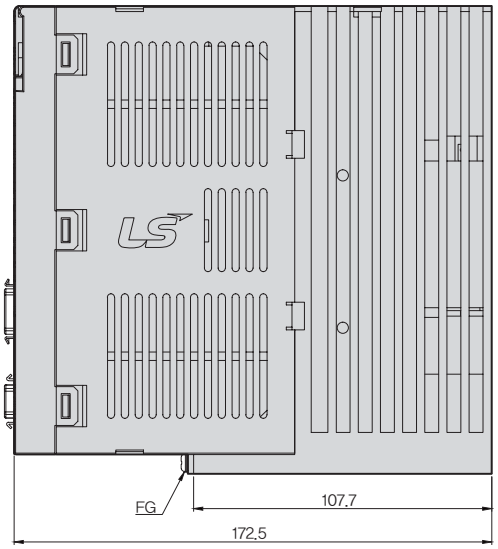
Item	Type Name	L7NHB010U	L7NHB020U	L7NHB035U	L7NHB050U	L7NHB075U	L7NHB150U
Input Power	Main Power Supply	3 Phase AC380 ~480[V](-15 ~ +10[%]), 50 ~ 60[Hz]					
	Control Power Supply	Single Phase AC380 ~ 480[V](-15 ~ +10[%]), 50 ~ 60[Hz]					
Rated Current[A]		3.7	8	10.1	17.5	22.8	39
Peak Current[A]		11.1	24	30.3	47.25	57	97.5
Encoder Type		Quadrature(Incremental) BiSS-B, BiSS-C(Absolute, Incremental) Tamagawa Serial(Absolute, Incremental) EnDat 2.2 Sinusoidal Analog Hall					
Control Performance	Speed Control Range	Maximum 1: 5000					
	Frequency Response	Maximum 1[kHz] or above(When the 19-bit Serial Encoder is applied)					
	Speed Variation Ratio	±0.01[%] or lower(When the load changes between 0 and 100%) ±0.1[%] or less(Temperature of 25°C[±10]					
	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) Above 12 functions can be used selectively for assignment. (*POT, *NOT, *HOME, *STOP, *PCON, *GAIN2, *P_CL, *N_CL, PROBE1, PROBE2, EMG, A_RST)					
	Digital Output	Service rating: DC 24[V] ±10%, 120[㎃] 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±)					
Safety Function		2 Input Channels (STO1, STO2), 1 Output Channels (EDM±)					
USB Communication	Function	Firmware download, Parameter setting, Tuning, Secondary function, Parameter copy					
	Communication Standard	USB 2.0 Full Speed (applies standard)					
	Connect	PC or USB storing medium					
Internal Function	Dynamic Braking	Standard built-in brake (activated when the servo alarm goes off or when the servo is off).					
	Regenerative Braking	Default built-in(excluding 15kW), external installation possible					
	Display Function	7 segments(5DIGIT)					
	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					
Operation Environment	Operating Temperature / Storage Temperature	0 ~ 50[°C] / -20 ~ 70[°C]					
	Operating Humidity / Storage Humidity	Below 80[%]RH / Below 90[%]RH(avoid dew-condensation)					
	Environment	Indoor, Avoid corrosive, inflammable gas or liquid, and electrically conductive dust.					

External Dimensions

L7NHA001U ~ L7NHA004U[Weight : 1.0kg]

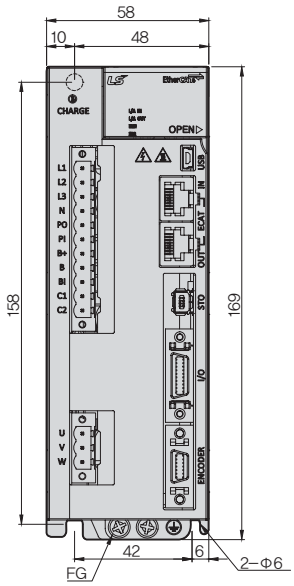
*Unit [mm]

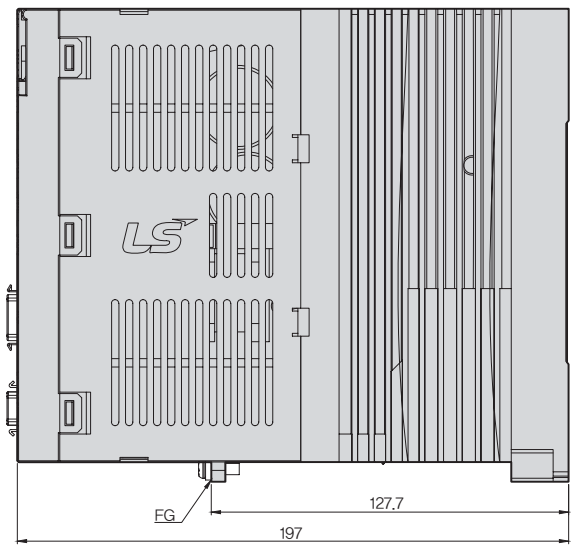




L7NHA008U / L7NHA010U[Weight : 1.5kg(Fan-Cooling included)]

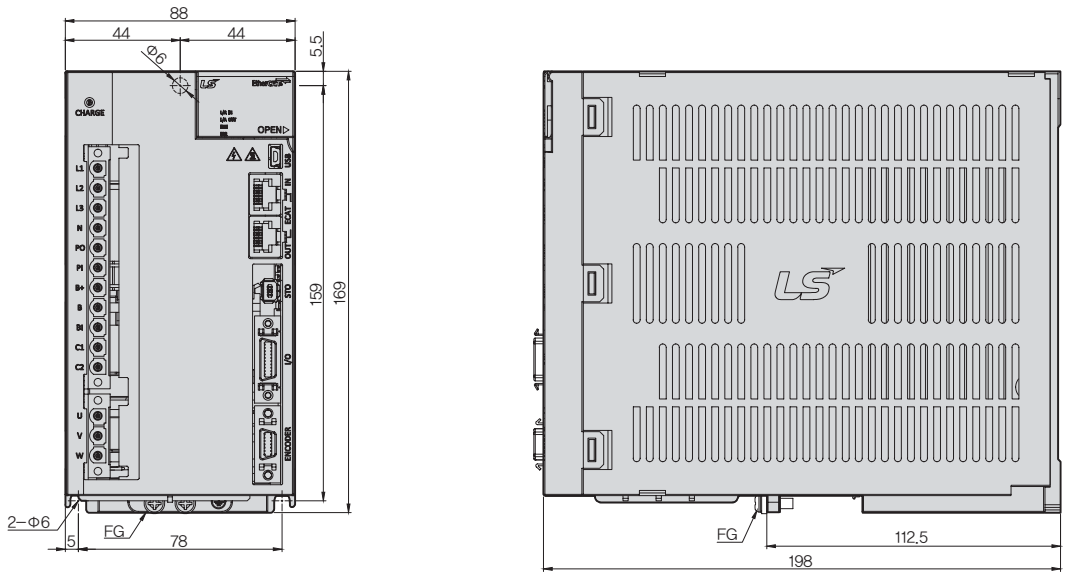
*Unit [mm]





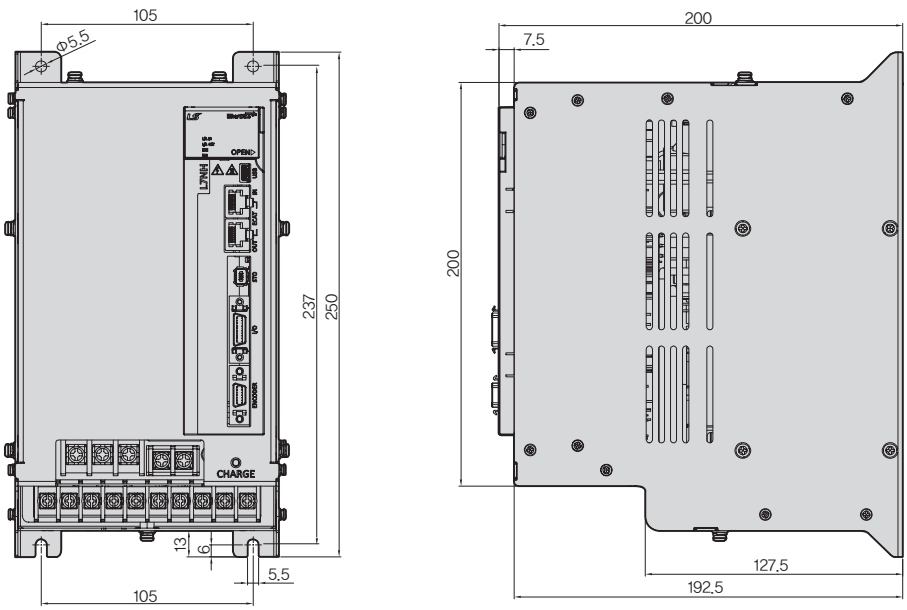
L7NHA020U / L7NHA035U[Weight : 2.5kg(Fan-Cooling included)]

*Unit [mm]



L7NHA050U[Weight : 5.5kg(Fan-Cooling included)]

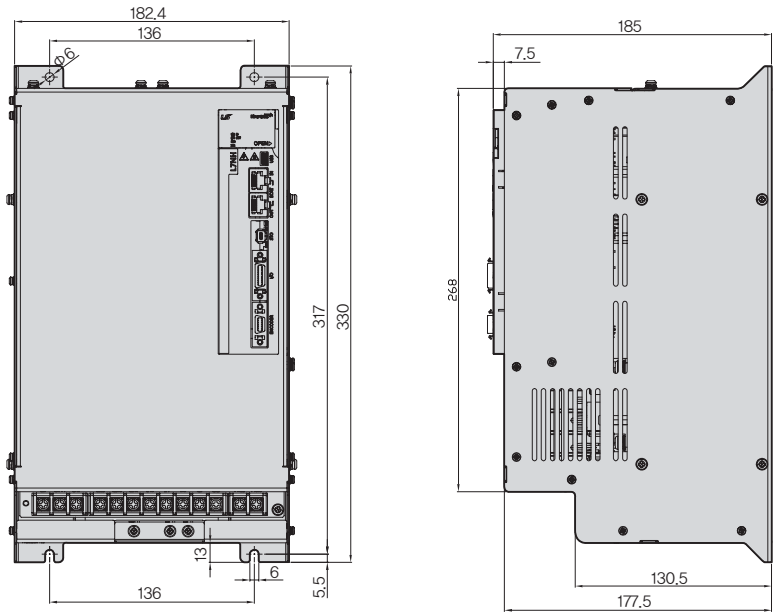
*Unit [mm]



External Dimensions

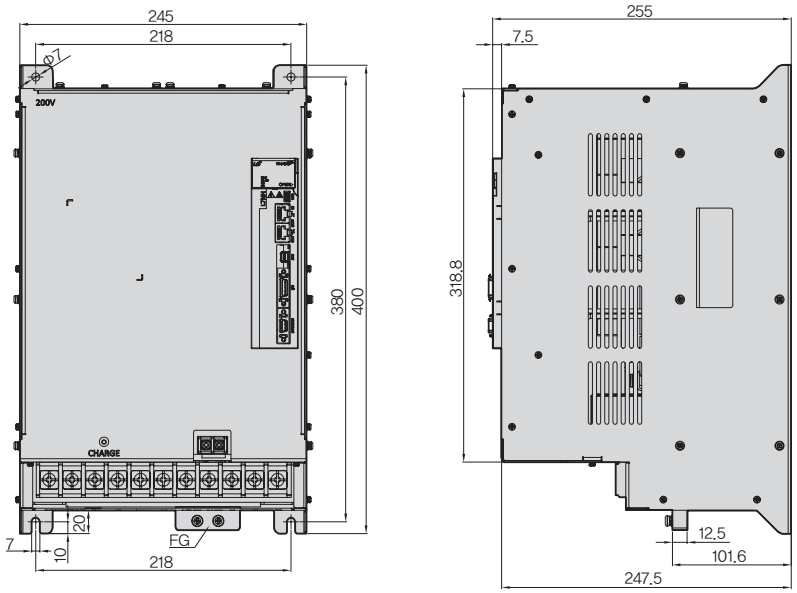
L7NHA075U [Weight : 8.5kg(Fan-Cooling included)]

*Unit [mm]



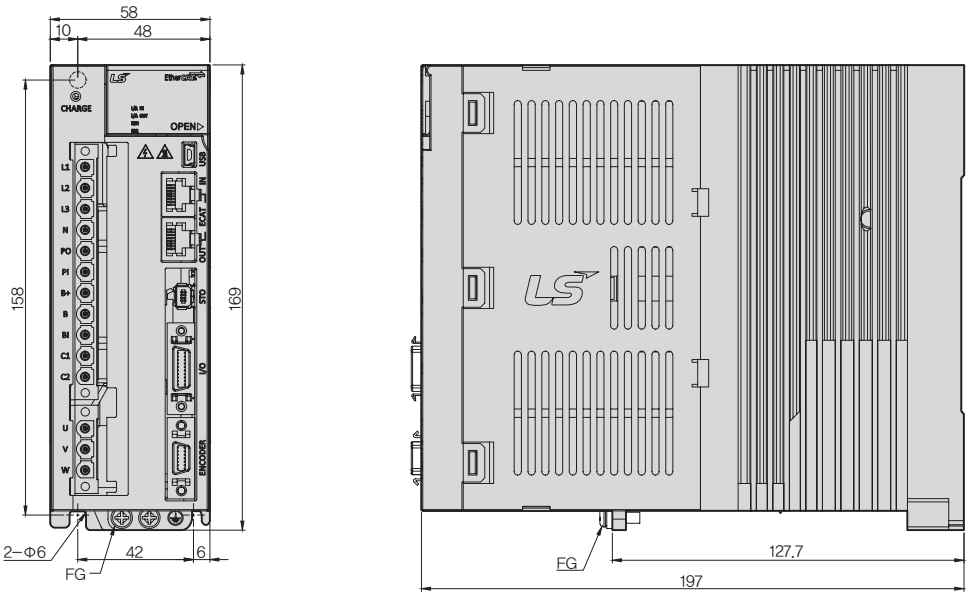
L7NHA150U [Weight : 16.2kg(Fan-Cooling included)]

*Unit [mm]



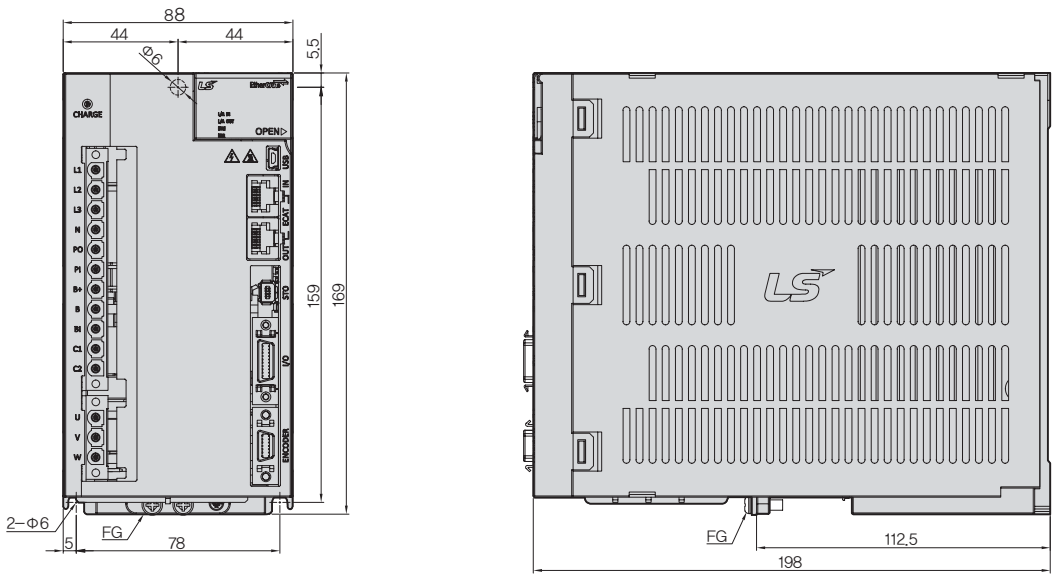
L7NHB010U [Weight : 1.5kg(Fan-Cooling included)]

*Unit [mm]



L7NHB020U / L7NHB035U [Weight : 2.5kg(Fan-Cooling included)]

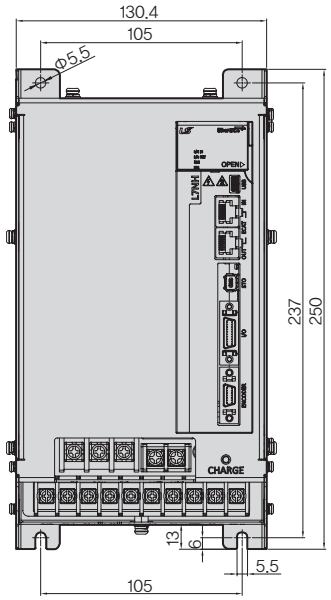
*Unit [mm]

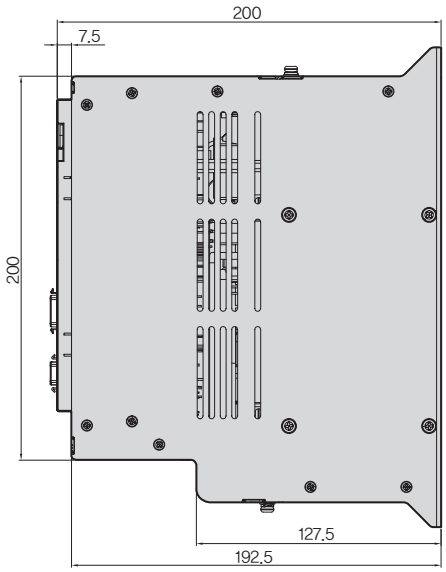


External Dimensions

L7NHB050U[Weight : 5.5kg(Fan-Cooling included)]

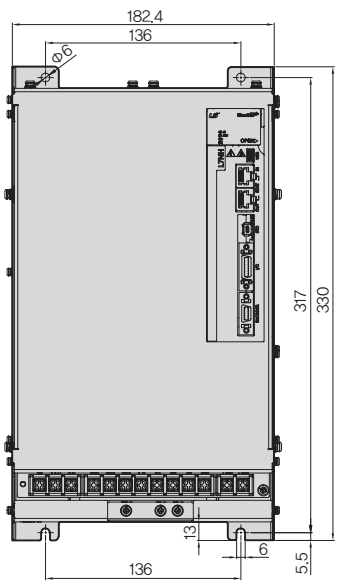
*Unit [mm]

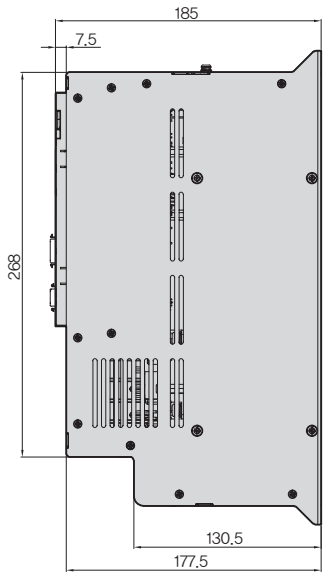




L7NHB075U[Weight : 8.5kg(Fan-Cooling included)]

*Unit [mm]





L7NHB150U[Weight : 15.5kg(Fan-Cooling included)]

*Unit [mm]