LS800 Series Inverter

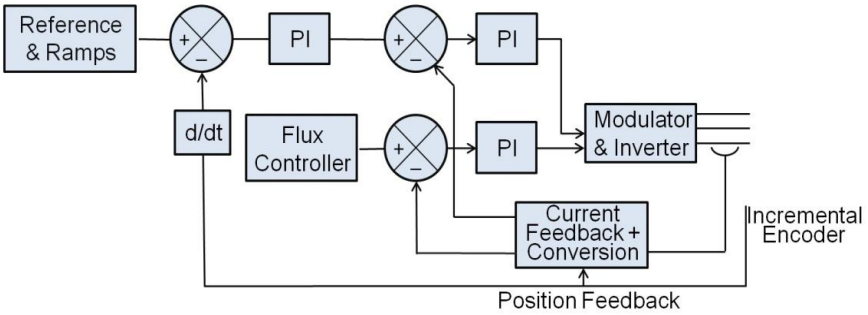
Features

1. Operational control modes.
2. International standard communication protocol.
3. Built-in Multi-Function I/O interfaces.
4. Built-in special practical functions.
5. Multi-function compiler feedback card.

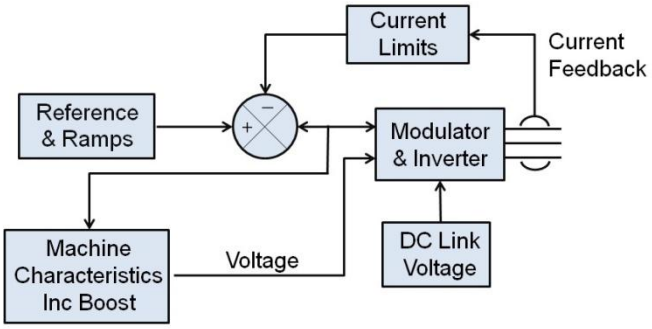
Standard Specification

Operational control modes

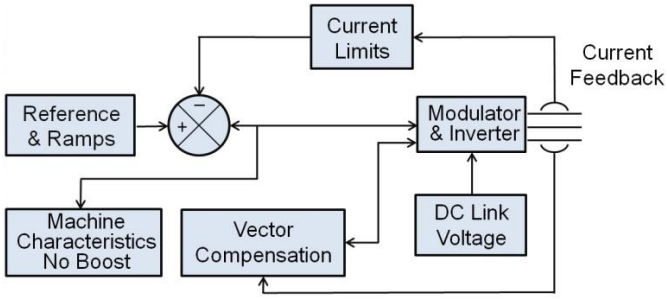
◆ Sine wave V/F vector control.
◆ Sine wave V/F vector closed-loop control and closed-loop speed PI adjustment.
◆ Sine wave V/F sensorless vector control.
◆ Flux vector closed-loop control and closed-loop speed PI adjustment.
◆ Flux vector sensorless control and sensorless speed PI adjustment.



Open loop V/F vector control mode



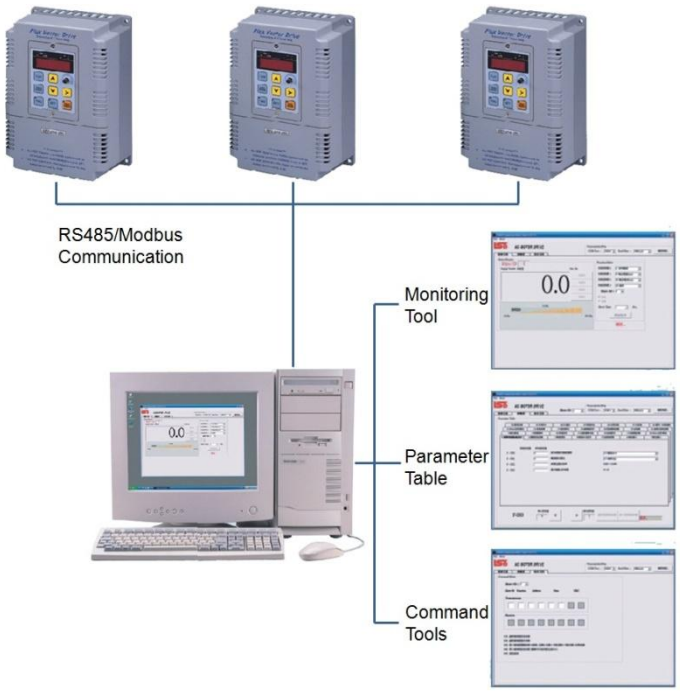
Magnetic flux current vector closed-loop control mode



Flux vector sensorless control mode

International standard communication protocol

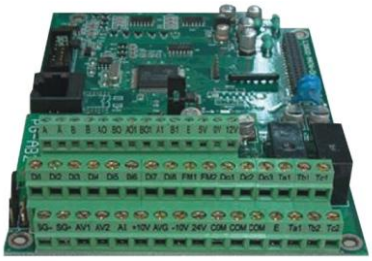
◆ Built-in RS485 digital operator format.
◆ International standard Modbus Protocol RS485 communication format
◆ Applies to man-machine interface and graphics and graphics control software
◆ Offers customized software which:
(1)Can use PC to simulate digital operator format control for human-interface operation and instant showing function introduction
(2)With Rs485 Modbus format, can use PC, PLC, etc. to quickly search, monitor, set, and modify the



parameter groups, etc.

(3) Before the monitor, can perform saving N sets of parameter groups and multi-machine control, monitoring with automatic synchronous status, etc.

Built-in Multi-Function I/O interfaces



◆ 8 sets of Digital-In can perform multi-function compilation
◆ 3 sets of Digital-Out can perform multi-function compilation
◆ 2 sets of Analog-In, 1 set of current signal input
◆ 2 sets of Analog-Out can perform multi-function compilation
◆ 2 sets of Relay can perform multi-function compilation
◆ 8 sets of Di and 3 sets of Do can perform Sink and Source in convertible mode control
◆ Offering DC 24V/200mA for the use of digital terminals

Built-in special practical functions

◆ With digital operator, can perform duplication function and parameter saving function
◆ Auto-Tune parameter of motors with Precision
◆ Can input parameters automatically or manually
◆ Speed errors within ±1 r.p.m
◆ In Standstill Position, rotational torque output 100% in speed zero
◆ 2 sets of multi-function PID setting
◆ 16 sets of speed, 8 for PLC compilation and the other 8 for terminal compilation
◆ 1 set of multi-function Counter function
◆ Built-in intelligent multi-functional parameter group specialized for water pump
◆ Can perform 4 quadrant rotational torque control
◆ Can perform fixed current and fixed rotational torque, and fixed tension control
◆ Speed and rotational torque commands are set and controlled by VR individually
◆ S curve, linear curve and V/F curve
◆ Slip and rotational torque are compensated automatically
◆ AVR automatic voltage regulator control
◆ Power saving control system with high efficiency

Multi-function compiler feedback card

◆ Response frequency can accept 300KHz to its maximum 400KHz
◆ Can perform impulse to monitor input and output
◆ Can perform Master and Slave for multi-machine control

Item		220V Rating	400V Rating
Power source	Input voltage, frequency	Three phase 220/208/220V 50/60Hz，230V 60Hz	Three phase 380/400/415/440/460V 50/60Hz
	Allow voltage variance	+10% , -15%	
	Allow frequency variance	±5%	
	Max. output frequency	Three phase 200/208/220/230V input voltage	Three phase 380/400/415/440/460V input voltage
	Rated output frequency	Setting Max. Range 0.1Hz~400Hz	
Control characteristics	Control model	Sine wave SVPWM two or three phase modulated switch frequency 2K~16KHz adjustable, choose one of 5 control modes: V/f, V/f+ closed loop, V/f sensorless, flux vector control + closed loop, and flux vector sensorless	
	Starting Torque	150%/speed zero(150%/1Hz without PG card)	
	Range of speed control	1:1000 with PG card, 1:100 without PG card	
	Precision of speed control	±0.02%(±0.2% without PG card)	
	Torque control	Four quadrant control, zero speed vector positioning control, variable and constant current toque control	
	Control function	36 indications, 8 command sources of rotation speed, speed searching, toque limits, zero speed vector control, variable and constant current torque control, sink and source option, multi-work input and output terminal control, 16 preset speeds control, option card, jump frequency, AVR, Auto-tuning dynamic motor parameters, S curve, slip compensation, torque compensation, upper and lower frequency setting, DC brake in start/stop, double PID function, power saving operation, intelligent water pump function setting, RS485/Modbus communication.	
	Frequency precision (Temperature Variation)	Digital signal: ±0.1%(-10℃~+40℃) Analog signal: ±0.1% (25℃~±10℃)	
	Frequency setting resolution	Digital signal: 0.1Hz(0.1~400Hz) Analog signal: 0.1Hz/60Hz* (11bit+symkbol)	
	Frequency out resolution	0.1Hz	
	Overload limited	Rated current 150%, 1 min.	
	Analog rated setting signal	DC 0~±10V，0~10V，0~20mA(499Ω，with PG card for impulse input control)	
	Time for speed Acc/Dec	0.1sec~1200sec, 4adjustments are individually distributed to 16 speeds	
	Torque for Braking	About 20%，up to 125% with braking controller	

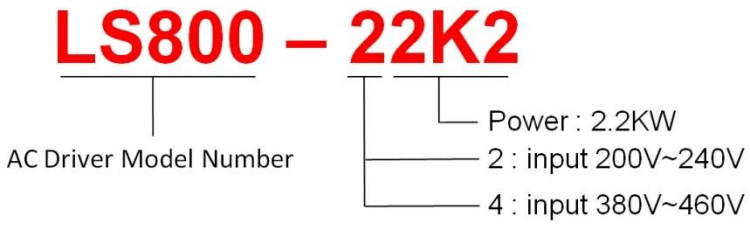
Protection Function	**Motor protection**	Integral electrical thermo protection	
	Instantaneous over current	When over 200% rated current and skip current protection, motor stops	
	Overload	About 150% rated output current, motor stops after 1 min.	
	Over voltage	DC voltage in main circuit about 400V, motor stops	DC voltage in main circuit about 800V, motor stops
	Low voltage	DC voltage in main circuit below 180V, motor stops	DC voltage in main circuit below 380V, motor stops
	Power protection	Input(equipped above 5.5KW), output phase lag protection (equipped above 0.4KW)	
	Instantaneous power break compensation	Factory setting: instantaneous power break, motor stops in 15 ms	
	Ventilation over-heat	Protected by thermo-switch, can be read and monitored	
	Stall prevention	In speed Acc/Dec, stall prevention during operation	
	Ground protection	Electrical circuit protection	
	Charging Indicating	DC voltage in main circuit over 50V, charging light is “on”	
Environment	**Location**	Indoor, no corrosive and free from dust	
	Ambient Temp.	-10~+40℃ (closed and wall mounted type),-10~+45℃ (open type), no freezing	
	Storage Temp.(*2)	-20~+60℃	
	Humidity	Below 90%RH (no condensing)	
	Vibration	1G below 20Hz, 0.2G during 20~50Hz	

(Note 1): Max. applicable capacity of motor is based on 4-pole motor.

(Note 2): If storage temperature is too high, it might destroy the capacitor in main circuit.

(Note 3): Large capacity under development, please contact us.

Model Instructions



Standard specifications

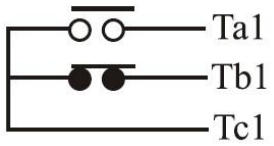
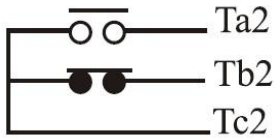
	LS800 Model	20K7	21K5	22K2	24K0	25K5	27K5	2011	2015	2018
200V Series	Max. motor(kw) rated	0.75	1.5	2.2	4.0	5.5	7.5	11	15	18.5
	Output capacity(KVA) of drive	1.7	2.8	4.2	6.0	9.1	12.2	17.5	23	29
	Rated current(A) of drive	4.5	7.5	11	16	24	33	46	61	76

	LS800 Model	2022	2030	2037	2045	2055	2075	2090	2110
	Max. motor(kw) rated	22	30	37	45	55	75	90	110
	Output capacity(KVA) of drive	34.7	44	55	67	82	110	140	160
	Rated current(A) of drive	90	115	145	175	215	300	350	450

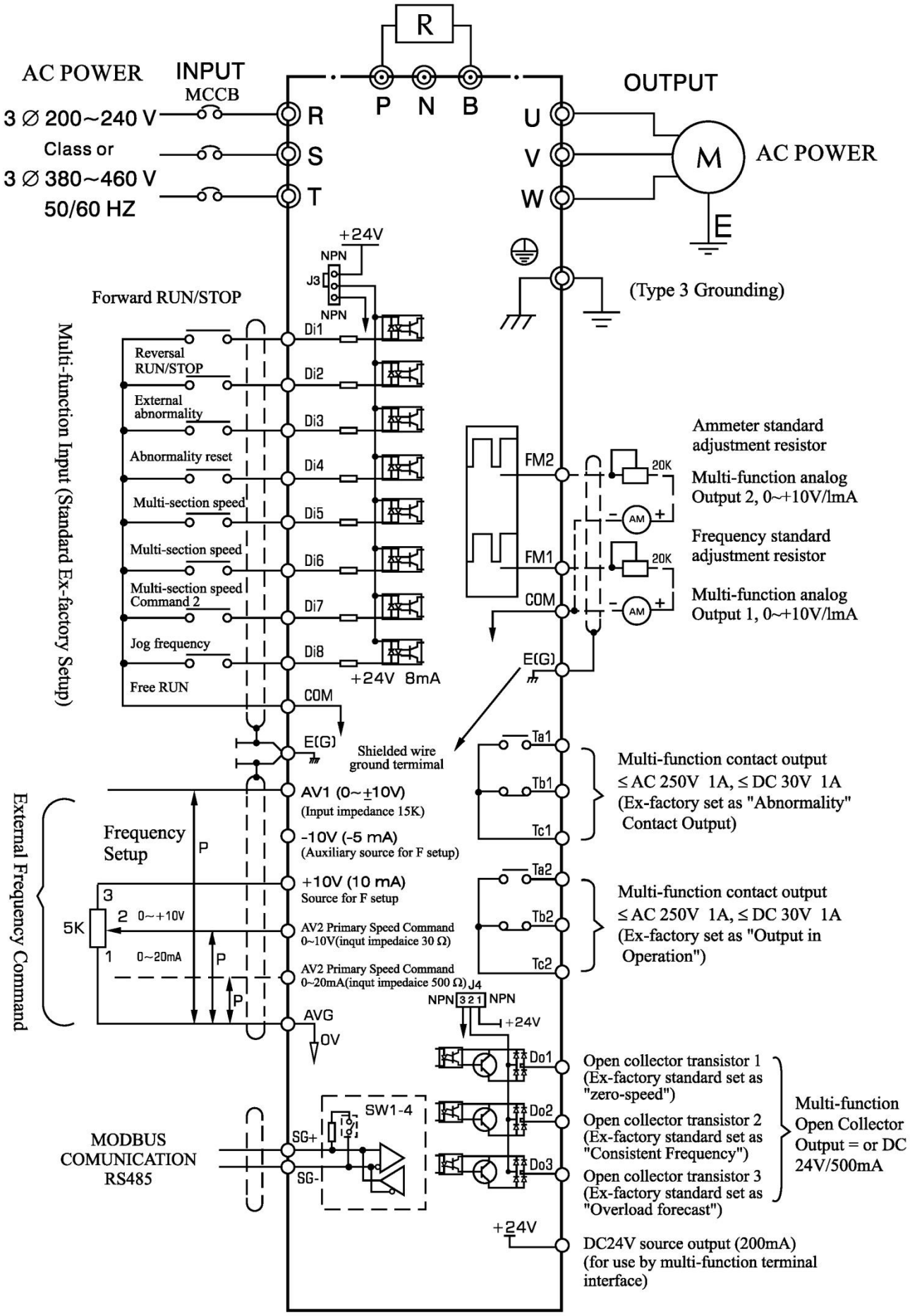
400V Series	LS800 Model	40K7	41K5	42K2	44K0	45K5	47K5	4011	4015	4018	4022
	Max. motor(kw) rated	0.75	1.5	2.2	4.0	5.5	7.5	11	15	18.5	22
	Output capacity(KVA) of drive	2.0	3.2	4.2	7.0	9.5	13	18	23.5	29	33
	Rated current(A) of drive	3.2	4.5	7.0	9.0	12	17	23	30	38	43
	LS800 Model	**4030**	**4037**	**4045**	**4055**	**4075**	**4090**	**4110**	**4132**	**4160**	**4185**	**4220**
	Max. motor(kw) rated	30	37	45	55	75	90	110	132	160	185	220
	Output capacity(KVA) of drive	46	53	68	84	110	150	170	210	230	260	340
	Rated current(A) of drive	58	70	85	110	150	190	216	275	300	350	450

Schedule Of Control Terminal Function

Terminal Mark		Terminal Designation	Description
Multi-function Input Terminals	**Di1**	Forward revolution command	Forward revolution when Di1-COM is ON; and stop, OFF
	Di2	Reversal revolution command	Reversal revolution when Di2-COM is ON; and stop, OFF
	Di3	Input in case of external abnormality(NC)	AC Drive trips off to stop when external abnormality signal is ON. (Err29)
	Di4	Abnormality reset	The status retained when reset to ON to release failure in order to protect loop
	Di5	Multi-section command 1	To execute four-section speed control with binary 2Bit.
	Di6	Multi-section command 2	
	Di7	Jog inching frequency	To execute inching frequency when ON
	Di8	Free-run	When activated (ON), the drive immediately stops outputting
	COM	I/O common terminal	Terminal common by multi-function I/O terminals and pulse FM terminals

Analog F Setting	**+10V**	Source for F setup	Source output DC+10V for frequency setup (maximal 10mA allowed)	
	-10V	Negative source for F setup	Auxiliary negative source output DC-10V for F setup (maximal-5mA allowed)	
	AVG	Common terminals for F setup	Common reference potential terminal for F setup input signals (terminal AV1.AV2.AI)	
	AV1	Analog voltage F command	With input voltage at DC0~±10V(or DC0~+10V), the input impedance is 15kΩ	
	AV2	Analog voltage F command	With input Voltage at DC0~+10V, the input impedance is 30kΩ	
	AI	Analogy current F command	With input current at DC0~20mA, the input impedance is 500kΩ(or DC0~+10V, 30KΩ)	
Multi-function Output Terminals	**DO1**	Zero-speed detected	ON in stop status or below zero- speed level	
	DO2	Consistent F	ON when the output F at any setting is over the detected F	
	DO3	Overload forecast	On when the drive detection output is over the OL level	
	COM	I/O Common terminal	Terminal shared by multi-function I/O terminals and pulse FM terminals	
	24V	Auxiliary source for terminal	Auxiliary source 24V/200mA MAX. for I/O terminals	
	Ta1	Output in normality(NC) 	la and lb contacts function n to output when the abnormality protection mechanism of the drives activated	
	Tb1		*Ta1-Tc1 is ON in case	Contact capacity: AC250V 1A DC30V 1A
	Tc1		*Tb1-Tc1 is OFF in case of abnormality contact	
	Ta2	In operation 	1a and 1b contacts function to output when the F to activate the output of ac drive is above the value as preset.	
	Tb2		*Ta2-Tc2 is ON during operation contact	Contact capacity: AC250V 1A DC30V 1A
	Tc2		*Tb2-Tc2 is OFF during operation contact	
	FM1	Analog output, FM	Multi-function analog monitor 1, DC0~10V/100%FM meter head	
	FM2	Analog output, amperage monitor	Multi-function analog monitor 2, DC+~+10V/100% ac drive rated A.	
COM	**SG+**	RS-485series com interface	RS-485serires com jack, positive end input	
	SG-	RS-485 series com interface	RS-485series com jack, negative end input	
	E	Earth cable terminal	Exclusively for the shielded cable to connect the selected earth shielded cable use.	

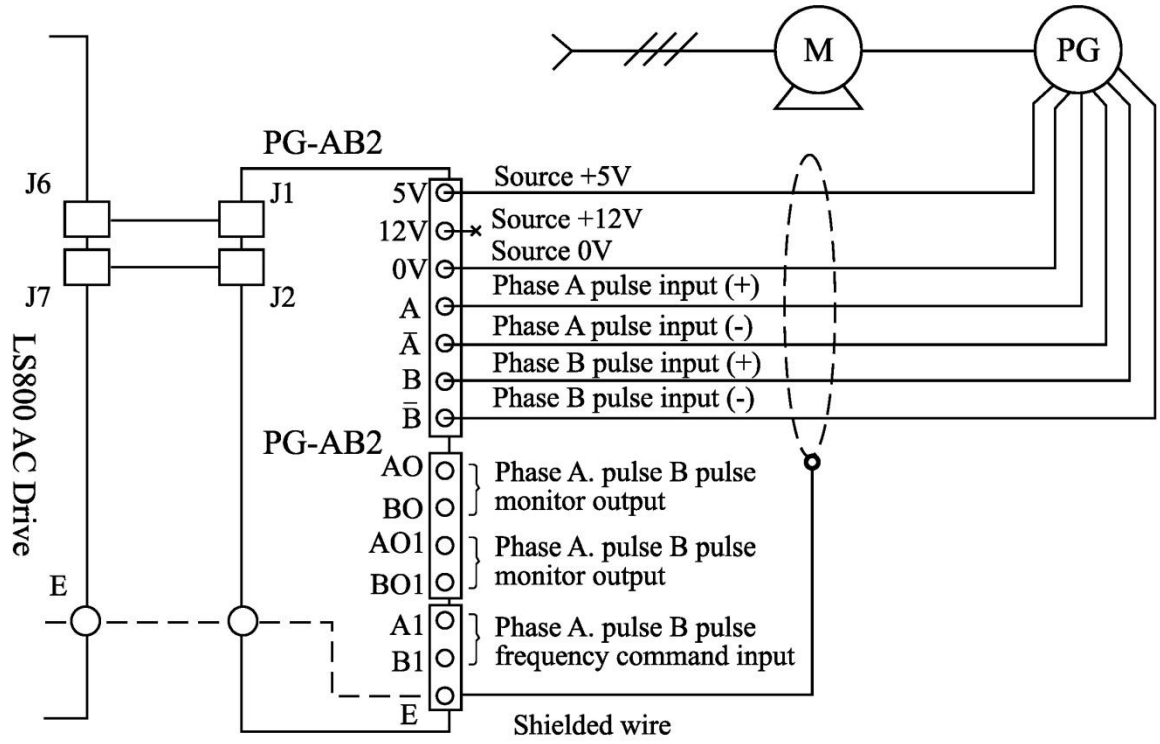
Control Circuit Wiring Diagram



PG-AB2 Terminal & Specification

Terminal Mark	Description	Specification
E	Shielded cable connection ground terminal	---
A	Phase A pulse input(+)	※Adaptable to line driver, encoder with 5V or 12V source of complementary and open collector transistor, A, B. Phase signal output. ※Maximal response frequency 300KHz. ※If open collector transistor type of input is used, connect Phase A and B terminals to source terminals of 12V encoder.
$\overline{A}$	Phase A pulse input(−)	
B	Phase B pulse input(+)	
$\overline{B}$	Phase B pulse input(−)	
AO	Phase A pulse monitor output	※The maximal for Phase A and Phase B open collector transistor output is DC 5V/30mA ※Maximal response frequency 300KHz
BO	Phase B pulse monitor output	
5V	Pulse generator dedicated source	DC+5V (±5%),200mA (max.)
12V		DC+12V (±5%)，200mA (max.)
0V		DC 0V (+5V and +12Vshare the common grounding terminal)
A1	Phase A pulse frequency command input	For Phase A and Phase B, the input is done by open collector transistor type (0~300KHz). (Select J3 according to the specification. Refer to page 2-12 to selection a correct signal voltage.)
B1	Phase B pulse frequency command input	
AO1	Phase A pulse frequency command output	※Phase A and B open collector transistor output, DC 5V/30mA (max.) ※Maximal response frequency 300KHz
BO1	Phase B pulse frequency command output	

PG-AB2 Wiring Diagram



Outside Dimension Chart

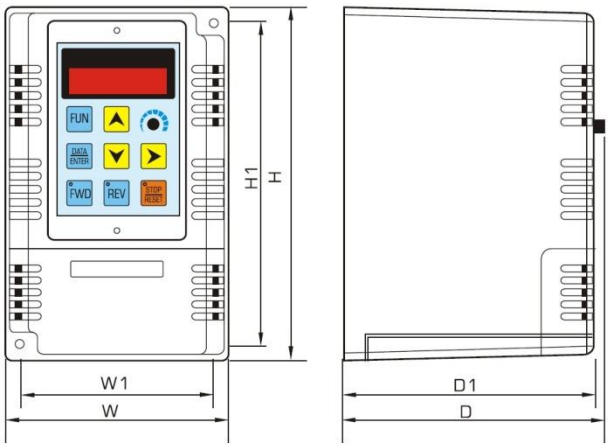


Diagram A

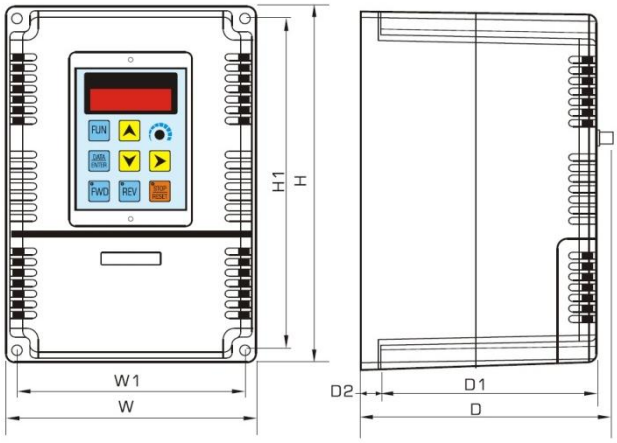


Diagram B

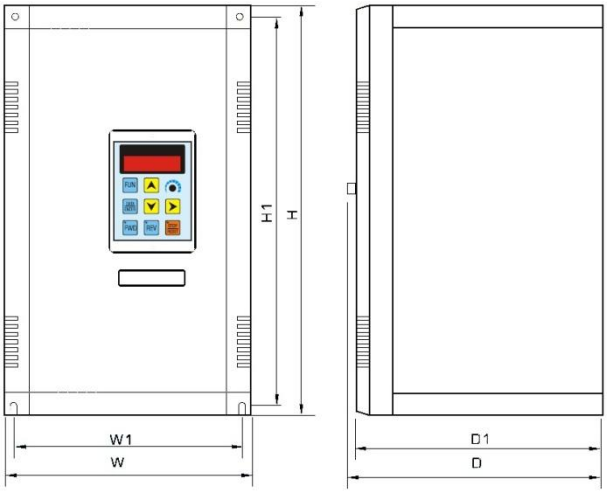


Diagram C

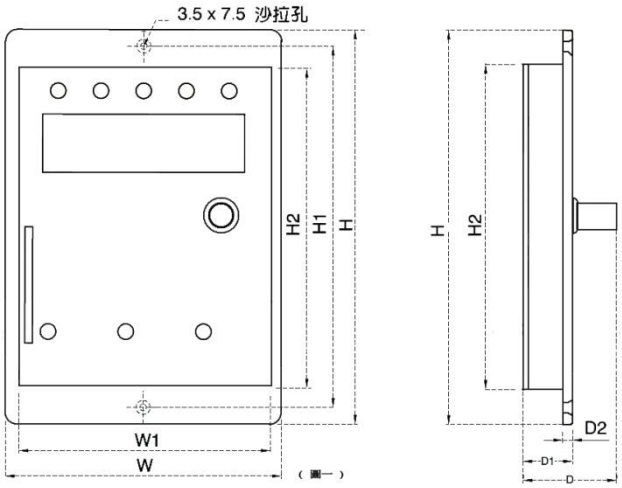


Diagram D

Model \ Area		W	W1	H	H1	D	D1	Net Weight (Kg)	Gross Weight (Kg)	Measu-rement (Cu ft³)	Fix Screw
A	LS800-20K7 LS-800-40K7 LS800-21K5 LS800-41K5	114.2	101	172.1	159	146	136	1.4	1.9	0.2	M4
B	LS800-22K2 LS800-42K2 LS800-24K0 LS800-44K0	148	128	152	138	142	132	1.8	2.0	0.3	M4
C	LS600-2007 LS600-2010 LS600-2015 LS600-4007 LS600-4010 LS600-4015	188	170	300	282	180	170	8.0	10	0.9	M6

		W	W1	H	H1	H2	D	D1	D2	Net (g)	G. Weight (g)
D	LS800 Operation box (KP-AD20)	70.9	65.3	101.6	93	84.5	25.8	15.8	2.5	66	72

*The correct dimension, please checking us. Unit: m/m

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