



ES10A Series Economical Inverter

User Manual

SHENZHEN DIRISE ELECTRIC TECHNOLOGY CO.,LTD

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Introduction

Thank you for choosing the product of Dirise, ES10A series economical inverter.

ES10A series economical inverter employs modular functional design concept and can provide special solutions industrial demands.

Please read this manual carefully before use to ensure correct operation. This manual includes operating instructions of inverter and precautions for use. Incorrect use may cause unexpected accidents. This manual is attached to machine upon delivery and must be stored properly for troubleshooting and maintenance in the future.

Though we have examined the consistency of contents with the software and hardware, still, there may be contradictions and mistakes which will be revised in future versions. We will periodically update the contents without notice. We are open to any suggestions for improvement.

Must-Know In Use:

The safe operation of product is dependent to correct installation, operation, transportation and maintenance. Please must read carefully and pay special attentions to the information about safety included in this manual.

- Make sure to have sufficient understanding about inverter, safety information and all precautions before use.
- This manual should be held by actual users.
- This manual has defined safety level as “Danger” and “Warning” which is indicated by following signs:



危險

DANGER

: risk of heavy casualties due to false operation.

- Must install a matching breaker to the input side of frequency

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inverter power source; otherwise, it may cause casualties, damage of equipment or other accidents;

- Must ground PE terminal of inverter reliably; otherwise, it may cause electric shock or fire;
- Power source input terminal and motor output terminal must be tightened by bolts; otherwise, it may cause a fire;
- Wiring must be charged by professionals;
- Must make sure power source is shut down and charge lamp is off before wiring operation;
- Must not carry out troubleshooting or maintenance until internal charge lamp is off or 10 minutes after power cut; otherwise, it may cause electric shock;
- Maintenance of machine is for professionals only; otherwise, it may cause electric shock or casualties;



注意

WARNING: risk of medium harm or injury, or property loss due to false operation.

- Make sure not to leave any electric conductor inside machine after maintenance; otherwise, it may cause damage;
- For the inverter left unused for a long time, internal capacity must be charged before use. Frequency inverter's Input voltage must be raised slowly by a voltage regulator (must not exceed rated input voltage of inverter); otherwise, there is risk of accident.

Version 1.1

Revision date: 03, 2021

2 Product Information

2.1 Check upon delivery

When opening the package of machine, please check the following items carefully:

Check if product is intact from transportation;

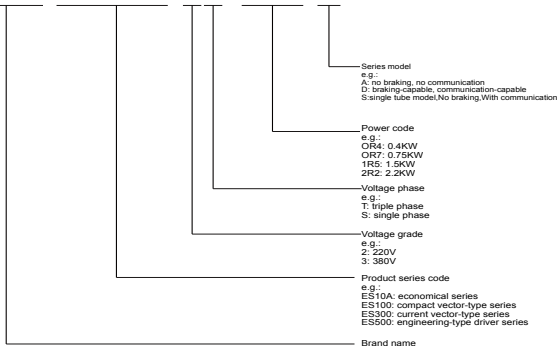
Read the information on nameplate to check if the model and specification of product is consistent with order requirements;

Check if accessories are complete according to packing list.

The product is developed and manufactured in strict accordance with ISO9001. If something is found abnormal, please make contact with your agent or distributor.

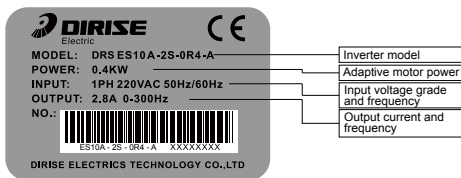
2.2 Model Description

DRS-ES10A-2S-1R5-A



2.3 Nameplate description

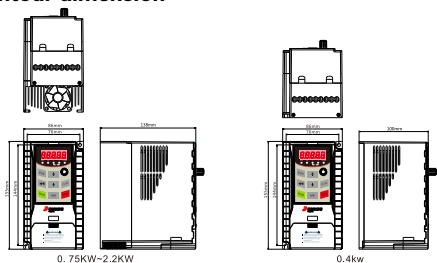
There is a nameplate indicating machine model and rated value at the bottom of right-side plate of inverter housing. Information of nameplate is shown as follow:



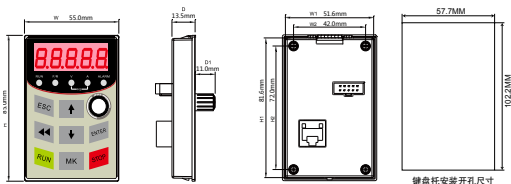
2.4 ES10A series inverter model

Voltage grade	Product model	Adaptive motor (KW)	Rated output current (A)
Single-phase 220V	DRS ES10A-2S-0R4G-A	0.4	2.8
	DRS ES10A-2S-0R4G-D		
	DRS ES10A-2S-0R7G-A	0.75	4.8
	DRS ES10A-2S-0R7G-D		
	DRS ES10A-2S-1R5G-A	1.5	8.0
	DRS ES10A-2S-1R5G-D		
Triple-phase 220V	DRS ES10A-2T-0R7G-D	0.75	4.8
Triple-phase 380V	DRS ES10A-3T-0R7G-D	0.75	2.8
	DRS ES10A-3T-0R7G-S		
	DRS ES10A-3T-1R5G-D	1.5	4.8
	DRS ES10A-3T-1R5G-S		
	DRS ES10A-3T-2R2G-D	2.2	6.0
	DRS ES10A-3T-2R2G-S		

2.5 Contour dimension



Exterior view



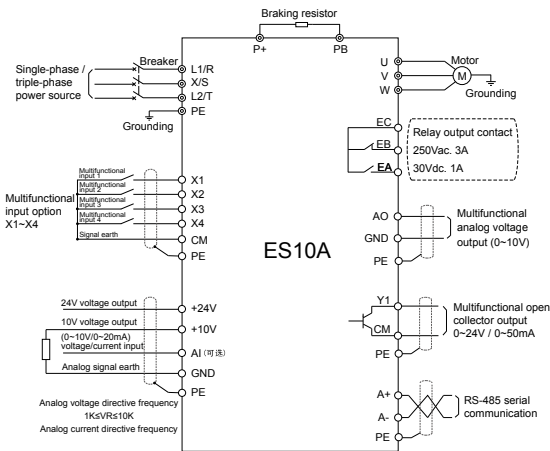
Keyboard size and keypad opening size

2.6 Technical specification

Function Description		Specification Indicators
Power Input	Rated input voltage	Single-phase:220V±20%, triple-phase:380V±20%
	Rated input frequency	50 ~ 60Hz (±5%)
Power Output	Rated output voltage	No higher than input voltage
	Rated output current	Rated output current of inverter
	Overload capacity	150% of rated current for 1 minute; 180% of rated current for 10 seconds
Control Function	Control way	V/F control
	Maximum frequency	300.00Hz
	Frequency resolution	Digital: 0.01 Hz Analog: maximum frequency 0.1% by default
	Adjustable velocity range	1: 50

Control Function	Steady velocity precision	1%
	Torque boost	Fixed torque boost, random torque boost
	Acceleration and deceleration curve	Straight line, S curve
	Acceleration and deceleration time	0.01S ~ 600.00S
	Auto voltage adjustment	When network voltage varies, it can automatically maintain output voltage constantly.
	Overcurrent and voltage stall	Current and voltage is automatically limited during operation, in order to prevent tripping from overcurrent or overvoltage.
Peripheral interface	External power source	10V / 10mA 24V / 150mA
	Digital input	4 digital can programme and input terminals
	Digital output	1 digital can programme Y1 terminal output, 1 can programme relay output R1
	Analog input	AI: 0 ~ 10V/0 ~ 20mA input
Keyboard	Analog output	AO: 0 ~ 10V output
	LED display	5-digit nixie tube display
Protection	Keypad	8 keys for operation
	Failure protection	Overcurrent, overvoltage, undervoltage, overheated, overload protection and so on.
Environment	Installation occasion	Indoor environment free from direct exposure to sunshine, dust, corrosive gases, combustible gases, oil mist, vapour, water drop or salt.
	Elevation	Lower than 1000m
	Environment temperature	-10°C ~ +40°C
Cooling way	Ventilated place	0.4 KW for natural cooling
		0.75 ~ 2.2KW for strong air cooling

2.7 Connection diagram of terminals in main circuit and control circuit is shown as follow:



Note:

1. [] indicates shielded wire connection.
2. ⊕ indicates main terminal and ○ indicates control terminal.
3. GND and CM is connected to common ground.
4. When JP1 toggle switch is switched downward to V: voltage source 0 ~ 10V
When JP1 toggle switch is switched upward to I: current source 0 ~ 20mA

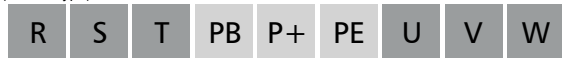
- When multifunctional output terminals are connected to inductive load (e.g. relay coil), make sure to connect freewheel diode to both ends of load in parallel.
- The distance from inverter or control wire in cabinet to power cable should be 100mm at least. Being in the same wiring trough is forbidden; if signal wire must go through power cable, both should maintain orthogonal position (90° angle). Control wire should be shielded twisted pair and shielded layer be connected to GND of terminal. Power cable should be sheathing and shielding cable for better.
- As strong electromagnetic jamming is unavoidable to inverter, it will cause bad influence on various electric devices and instruments in the same environment. To restrain the interference, output cable of inverter can be fitted into a grounded metal pipe or sheathing and shielding cable should be used and grounded. Besides, addition of magnet ring to output cable can also effectively restrain the interference.

2.8 Functions of main loop terminals

Main loop terminals of ES10A series inverter single phase (220V) are shown as follow:



Main loop terminals of ES10A series inverter triple phase (380V) are shown as follow (Module type):



Main loop terminals of ES10A series inverter triple phase (380V) are shown as follow (Single tube type):



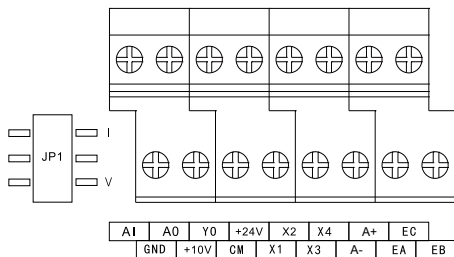
Functions of main loop terminals

Terminal label	Function Description
L1、X、L2 / R、S、T	AC power inputs terminals, single phase (220V) connects to L1 / X / L2; triple phase (380V) connects to R / S / T.
U、V、W	Inverter outputs terminals and connects to triple phase AC asynchronous motor.
P+、PB	External braking resistor connects to terminals, one end connecting to P+ and the other end connecting to PB (maximum driving capacity of braking pipe is 15A, single-phase 220V, 10A, triple-phase 380V please select a proper resistor)
PE	Connect to ground

- **Must not connect any terminal beyond L1、X、L2 / R、S、T to AC 220V power source; otherwise, there is risk of damage in inverter.**
- Check if rated input voltage of inverter is consistent with the voltage of AC power supply. If not, there is risk of damage.
- Make sure to connect grounding terminal of inverter and motor housing to ground lead. Ground lead should be copper wire and sectional area be above 4cm², and ground resistance must be lower than 10Ω.
- Must connect a non-fuse breaker between power supply and inverter lest the accident caused by inverter failure becomes serious, damages power distribution unit or results in a fire.

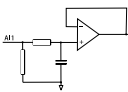
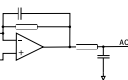
2.9 Functions of control loop terminals

Control loop terminals of ES10A series inverter are shown as follow:



Switches JP1 toggle upward for current I and switched downward for voltage V

Type	Terminal	Functions	Electric Spec	Internal Circuit
Digital multifunctional terminals	X1	Start, stop, forward and reverse rotation can be embodied by function code programming.	Input impedance: 27K Ω ; Input voltage: 0~24V ; Input frequency: 1KHz;	
	X2			
	X3			
	X4			
Switch terminal output	Y0	The state of Frequency inverter's forward and reverse rotation can be outward outputted through functional code programming.	Open collector output; Load capacity: 50mA/24V; Output frequency: 1KHz;	
	EA	Relay output can be programmed by function codes. EA, EB and EC respectively indicates as "constant on", "constant off", and public terminal.	Contact rating : 3A/250V AC Output frequency: < 50Hz	
	EB			
	EC			

Analog input/output terminal	AI	AI analog voltage input	Voltage source: Input voltage: 0~10V; Input impedance: 1M Ω ; Current source: Input current: 0~20mA; Input impedance: 250 Ω ; Resolution: 0.2%; Option: Toggle switch JP1 down to V: voltage input; Toggle switch JP1 up to I: current input;	
	AO	AO output can be programmed by function codes to reflect operating frequency of inverter, set frequency and other statuses.	Output voltage: 0~10V; Load capacity: < 4mA; Resolution: 0.1V;	
Power terminals	10V	10V power output terminal	Loading capacity: 10mA	/
	GND	10V power ground		
	24V	24V power output terminal	Loading capacity: 150mA	/
	CM	24V power ground		

3 Function parameter list

“o” : indicates a code parameter is adjustable during running status;

“ ” : indicates a code parameter is non-adjustable during running status;

“x” : indicates a code parameter is read-only and non-adjustable.

Group P00 basic parameters

Function Code	Name	Setting Range	Unit	Default	Property
P00.00	Control way	0: V/F control		0	
P00.01	Command source options	0: local keyboard 1: external terminal 2: PC communication		0	
P00.02	Main frequency source options	0: main digital frequency 1: keyboard potentiometer 2: AI		1	

P00.03	Auxiliary frequency source options	0: auxiliary digital frequency 1: keyboard potentiometer 2: AI 3: reserved 4: PLC 5: PID		0	
P00.04	Output frequency source options	0: main frequency source 1: auxiliary frequency source 2: main + auxiliary 3: main - auxiliary 4: MAX (main, auxiliary) 5: MIN (main, auxiliary)		0	
P00.05	Auxiliary frequency source range in stacking	0: relative to maximum frequency 1: relative to main frequency		0	
P00.06	Auxiliary frequency source ratio in stacking	0.00 ~ 200.00	%	100.00	○
P00.07	Output frequency source control	0: output frequency source 1: AI * output frequency source		0	
P00.08	Main digital frequency	0.00 ~ maximum frequency	Hz	0.00	○
P00.09	Auxiliary digital frequency	0.00 ~ maximum frequency	Hz	0.00	○
P00.10	Running direction setting	0: forward rotation 1: reverse rotation		0	○
P00.11	Acceleration time 1	0.00 ~ 600.00	S	10.00	○
P00.12	Deceleration time 1	0.00 ~ 600.00	S	10.00	○
P00.13	Carrier frequency	2.000 ~ 8.000	KHz	4.000	○
P00.14	Maximum frequency	20.00 ~ 300.00	Hz	50.00	
P00.15	Upper-limit frequency	Lower-limit frequency ~ maximum frequency	Hz	50.00	
P00.16	Lower-limit frequency	0.00 ~ upper-limit frequency	Hz	0.00	
P00.17	Lower-limit frequency control	0: running at lower-limit frequency 1: when lower-limit frequency running times up, running at zero rate.		0	

P00.18	Lower-limit frequency running time	0.00 ~ 600.00	S	60.00	
P00.19	Reverse rotation control	0: forward/reverse rotation is allowed. 1: reverse rotation is forbidden.		0	
P00.20	Forward/reverse rotation dead time	0.00 ~ 600.00	S	0.00	
P00.21	Load velocity coefficient	0.00 ~ 300.00		30.00	○
P00.22	Reset to default value	0: invalid 1: reset to default value		0	

Group P01 start/stop control

Function Code	Name	Setting Range	Unit	Default	Property
P01.00	Acceleration/deceleration mode	0: linear mode 1: S curve mode		0	
P01.01	S curve time	0.00 ~ 600.00	S	0.00	
P01.02	Enablement DC braking current	0.00 ~ 150.00	%	0.00	
P01.03	Enablement DC braking time	0.00 ~ 30.00	S	0.00	
P01.04	Stop way	0: stop in deceleration 1: free stop		0	
P01.05	Stop DC braking frequency	0.10 ~ 60.00	Hz	2.00	
P01.06	Stop DC braking current	0.00 ~ 150.00	%	0.00	
P01.07	DC braking waiting time	0.00 ~ 30.00	S	0.00	
P01.08	Stop DC braking time	0.00 ~ 30.00	S	0.00	

Group P02 motor parameters

Function Code	Name	Setting Range	Unit	Default	Property
P02.00	Rated motor power	0.4 ~ 2.2	KW	XX.XX	
P02.01	Rated motor voltage	0 ~ 380	V	XXX	
P02.02	Rated motor current	0.1 ~ 1500.0	A	XX.X	
P02.03	Rated motor frequency	20.00 ~ 300.00	Hz	XX.XX	
P02.04	Rated motor rotate velocity	1 ~ 30000	rpm	XX.XX	
P02.05	Motor connection way	0: Y 1: Δ		X	

P02.06	Power factor	0.70 ~ 0.95		X.XX	
P02.07	Motor efficiency	70.00 ~ 97.00	%	XX.XX	
P02.08	No-load current	0.1 ~ 1000.0	A	X.XX	
P02.09	Stator resistance R1	0.01 ~ 300.00	Ω	X.XX	
P02.10	Stator resistance R2	0.01 ~ 300.00	Ω	X.XX	
P02.11	Interaction inductive reactance	0.1 ~ 3000.0	mH	XXX.X	
P02.12	Leakage inductance coefficient	0.001 ~ 1.000		X.XXX	
P02.13	Parameter self-recognition	0: no recognition		0	

Group P03 V/F control parameters

Function Code	Name	Setting Range	Unit	Default	Property
P03.00	V/F curve setting	0: straight line V/F curve 1: multi-point V/F curve 2: fan curve 1 3: fan curve 2 4: fan curve 3 4: fan curve 4		1	○
P03.01	Reference frequency	20.00 ~ 300.00	Hz	50.00	
P03.02	V/F voltage value V0	0.00 ~ 100.00	%	1.00	○
P03.03	V/F voltage value V1	0.00 ~ 100.00	%	4.00	○
P03.04	V/F voltage value V2	0.00 ~ 100.00	%	10.00	○
P03.05	V/F voltage value V3	0.00 ~ 100.00	%	16.00	○
P03.06	V/F frequency value F0	0.00 ~ frequency value F1	%	1.00	○
P03.07	V/F frequency value F1	frequency value F0 ~ F2	%	4.00	○
P03.08	V/F frequency value F2	frequency value F1 ~ F3	%	10.00	○
P03.09	V/F frequency value F3	frequency value F2 ~ 100.00	%	16.00	○

Group P04 input terminal control

Function Code	Name	Setting Range	Unit	Default	Property
P04.00	DI terminal filtering	0 ~ 100		10	

P04.01	DI input logic	Bit3	Bit2	Bit1	Bit0		0000000	
		X4	X3	X2	X1			
		0: closing valid 1: disconnection valid						
P04.02	X1 delay time	0.00 ~ 300.00				S	0.00	
P04.03	X2 delay time	0.00 ~ 300.00				S	0.00	
P04.04	Multifunction input X1	0: No function 1: Run RUN 2: Forward-reverse F/R 3: 3-line operation stop control 4: Forward rotation jog F JOG 5: Reverse rotation jog R JOG 6: Terminal UP 7: Terminal DOWN 8: UP/DOWN reset 9: Free stop FRS 10: Fault reset RST 11: External failure EXT 12: Acceleration/deceleration forbidden 13: Multiple frequency terminal 1 14: Multiple frequency terminal 2 15: Multiple frequency terminal 3 16: Acceleration/deceleration time switching 17: Running command switching to terminal					1	
P04.05	Multifunction input X2						2	
P04.06	Multifunction input X3						13	
P04.07	Multifunction input X4	18: Switching to auxiliary rate 19: Stop DC braking 20: Program operation reset					14	
P04.08	Reserved							
P04.09	Reserved							
P04.10	Terminal command ways	0: 2-line control 1 1: 2-line control 2 2: 3-line control 1 3: 3-line control 2					0	
P04.11	Keyboard potentiometer filtering time	0.00 ~ 10.00				S	0.10	○
P04.12	AI filtering time	0.00 ~ 10.00				S	0.10	○
P04.13	Reserved							
P04.14	Minimum input of keyboard potentiometer	0.0 ~ 100.0				%	1.0	○
P04.15	Maximum input of keyboard potentiometer	0.0 ~ 100.0				%	98.0	○

P04.16	AI output offset 0	-100.0 ~ 100.0	%	0.0	○
P04.17	AI output offset 1	-100.0 ~ 100.0	%	25.0	○
P04.18	AI output offset 2	-100.0 ~ 100.0	%	75.0	○
P04.19	AI output offset 3	-100.0 ~ 100.0	%	100.0	○
P04.20	AI input offset 0	0.0 ~ AI input offset 1	%	0.0	○
P04.21	AI input offset 1	AI input offset 0 ~ 2	%	25.0	○
P04.22	AI input offset 2	AI input offset 1 ~ 3	%	75.0	○
P04.23	AI input offset 3	AI input offset 2 ~ 100.0	%	100.0	○
P04.24	P04.24 – P04.31 reserved				
P04.32	AI proportional gain	0.00 ~ 300.00	%	100.00	○

Group P05 output terminal control

Function Code	Name	Setting Range	Unit	Default	Property
P05.00	Multifunctional output Y0	0: inverter operation 1: reverse operation 2: frequency arrival (FAR) 3: frequency detection (FDT)		0	
P05.01	Relay output R1	4: inverter failure 5: upper-limit frequency arrival 6: lower-limit frequency arrival 7: Operation ready		4	
P05.02	Analog output A0	0: operation frequency 1: set frequency 2: output current (FAR) 3: output voltage (FDT) 4: busbar voltage 5: AI 6: reserved 7: +10V		0	
P05.03	A0 output lower-limit	0.00 ~ 100.00	%	0.00	○

P05.04	A0 output upper-limit	0.00 ~ 100.00	%	100.00	○
P05.05	A0 output gain	0.00 ~ 300.00	%	100.00	○
P05.06	FDT upper bound	0.00 ~ maximum frequency	Hz	30.00	
P05.07	FDT lower bound	0.00 ~ maximum frequency	Hz	30.00	
P05.08	FAR frequency arrival	0.00 ~ 20.00	Hz	5.00	○

Group P06 auxiliary parameters

Function Code	Name	Setting Range	Unit	Default	Property
P06.00	Jog digital frequency	0.00 ~ maximum frequency	Hz	5.00	○
P06.01	Jog acceleration time	0.00 ~ 600.00	S	10.00	○
P06.02	Jog deceleration time	0.00 ~ 600.00	S	10.00	○
P06.03	Acceleration time 2	0.00 ~ 600.00	S	10.00	○
P06.04	Deceleration time 2	0.00 ~ 600.00	S	10.00	○
P06.05	Multistage velocity 1	0.00 ~ maximum frequency	Hz	0.00	○
P06.06	Multistage velocity 2	0.00 ~ maximum frequency	Hz	5.00	○
P06.07	Multistage velocity 3	0.00 ~ maximum frequency	Hz	10.00	○
P06.08	Multistage velocity 4	0.00 ~ maximum frequency	Hz	15.00	○
P06.09	Multistage velocity 5	0.00 ~ maximum frequency	Hz	20.00	○
P06.10	Multistage velocity 6	0.00 ~ maximum frequency	Hz	25.00	○
P06.11	Multistage velocity 7	0.00 ~ maximum frequency	Hz	30.00	○
P06.12	UP/DOWN velocity	0.00 ~ 100.00 0.00 (automatic velocity)		1.00	○
P06.13	Brown-out storage	0: unsaving the frequency before power down 1: saving the frequency before power down		0	

Group P07 communication function

Function Code	Name	Setting Range	Unit	Default	Property
P07.00	Local address	0: broadcast address 1 ~ 247		1	

P07.01	Communication bit rate	0: 4800 1: 9600 2: 19200 3: 38400	bps	1	
P07.02	Communication format	0: no parity 1+8+1 1: even parity check 1+8+1+1 2: odd parity check 1+8+1+1		0	
P07.03	Timeout period	0.0 ~ 60.0 0.0 communication timeout invalid	S	0.0	
P07.04	Main frame and slave communication way	0: local is slave. 1: local is main frame		0	
P07.05	Slave address written by main frame	0: main digital frequency 1: Auxiliary digital frequency		0	
P07.06	Reception proportionality coefficient	0.00 ~ 300.00	%	100.00	○
P07.07	Main frame communication send data	0: output frequency 1: set frequency 2: main digital frequency 3: keyboard potentiometer 4: AI		0	

Group P08 PID control function

Function Code	Name	Setting Range	Unit	Default	Property
P08.00	PID given source	0: digital given 1: AI		0	
P08.01	PID digital given	0.0 ~ 100.0	%	50.0	○
P08.02	PID feedback source	0: AI		0	
P08.03	PID full scale	0 ~ 60000		1000	○
P08.04	PID action direction	0: positive action 1: negative action		0	
P08.05	PID output gain	0.00 ~ 100.00	%	100.00	○
P08.06	Proportional gain Kp	0.00 ~ 100.00		0.40	○

P08.07	Integral time Ti	0.00 ~ 30.00, 0.00: no integral	S	2.00	○
P08.08	Derivative time Td	0.00 ~ 30.00, 0.00: no derivative	mS	0.00	○
P08.09	Integral action range	0.00 ~ 100.00	%	100.00	○
P08.10	PID deviation limit	0.0 ~ 100.0	%	0.0	○
P08.11	PID output upper-limit	-100.0 ~ 100.0	%	100.0	○
P08.12	PID output lower-limit	-100.0 ~ 100.0	%	0.0	○
P08.13	PID feedback broken conductor detection value	0.0 ~ 100.0	%	0.0	○
P08.14	PID feedback broken conductor detection time	0.0 ~ 30.0	S	1.0	○

Group P09 Simple PLC Function

Function Code	Name	Setting Range	Unit	Default	Property														
P09.00	PLC operation way	0: stop after single operation 1: stop after limited cycles 2: run from 7th stage after single operation 3: cycle operation		0															
P09.01	PLC operation control	0: start operation from break-off stage 1: start from 1st stage		0															
P09.02	PLC operation direction	<table border="1"> <tr> <td>Bit6</td><td>Bit5</td><td>Bit4</td><td>Bit3</td><td>Bit2</td><td>Bit1</td><td>Bit0</td> </tr> <tr> <td>T7</td><td>T6</td><td>T5</td><td>T4</td><td>T3</td><td>T2</td><td>T1</td> </tr> </table> 0: forward rotation 1: reverse rotation	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	T7	T6	T5	T4	T3	T2	T1		000000	
Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0													
T7	T6	T5	T4	T3	T2	T1													
P09.03	The first stage operation time T1	0 ~ 60000	S	30	○														
P09.04	The second stage operation time T2	0 ~ 60000	S	30	○														
P09.05	The third stage operation time T3	0 ~ 60000	S	30	○														
P09.06	The fourth stage operation time T4	0 ~ 60000	S	30	○														
P09.07	The fifth stage operation time T5	0 ~ 60000	S	30	○														
P09.08	The sixth stage operation time T6	0 ~ 60000	S	30	○														

P09.09	The seventh stage operation time T7	0 ~ 60000	S	30	○
P09.10	Limited cycle number	1 ~ 30000		1	○

Group P10 fault and protection

Function Code	Name	Setting Range	Unit	Default	Property																
P10.00	Motor overload protection	0: invalid 1: valid		1																	
P10.01	Motor overload protection time	30 ~ 300	S	60																	
P10.02	Overcurrent stall protection	0: invalid 1: valid		1																	
P10.03	Current-limiting level	50.00 ~ 180.00	%	120.00																	
P10.04	Overvoltage stall protection	0: invalid 1: mode 1 2: mode 2		2																	
P10.05	Overvoltage point at stalling	370 ~ 400	V	390																	
P10.06	Failure retry control	0: failure retry invalid 1 ~ 3: failure retry 1, 2 and 3 times 4: unlimited failure retry		0																	
P10.07	Failure output option during failure retry	0: inaction 1: action		0																	
P10.08	Failure retry interval	0.01 ~ 30.00	S	0.50																	
P10.09	No failure interval	0.01 ~ 30.00	S	10.00																	
P10.10	Failure retry options	<table border="1"> <tr> <td>Bit4</td> <td>Bit3</td> <td>Bit2</td> <td>Bit1</td> <td>Bit0</td> </tr> <tr> <td>ERR07</td> <td>ERR05</td> <td>ERR04</td> <td>ERR03</td> <td>ERR02</td> </tr> </table> 0: failure retry is allowed 1: failure retry is forbidden	Bit4	Bit3	Bit2	Bit1	Bit0	ERR07	ERR05	ERR04	ERR03	ERR02		11111							
Bit4	Bit3	Bit2	Bit1	Bit0																	
ERR07	ERR05	ERR04	ERR03	ERR02																	
P10.11	Failure screening	<table border="1"> <tr> <td>Bit7</td> <td>Bit6</td> <td>Bit5</td> <td>Bit4</td> </tr> <tr> <td>*</td> <td>ERR15</td> <td>ERR12</td> <td>ERR07</td> </tr> <tr> <td>Bit3</td> <td>Bit2</td> <td>Bit1</td> <td>Bit0</td> </tr> <tr> <td>ERR10</td> <td>ERR06</td> <td>ERR05</td> <td>ERR04</td> </tr> </table> 0: failure valid 1: failure screening	Bit7	Bit6	Bit5	Bit4	*	ERR15	ERR12	ERR07	Bit3	Bit2	Bit1	Bit0	ERR10	ERR06	ERR05	ERR04		0000 0110	
Bit7	Bit6	Bit5	Bit4																		
*	ERR15	ERR12	ERR07																		
Bit3	Bit2	Bit1	Bit0																		
ERR10	ERR06	ERR05	ERR04																		

Group P11 Control Parameters

Function Code	Name	Setting Range	Unit	Default	Property
P11.00	Fan control	0: run at power-on 1: start running		1	
P11.01	Carrier way	0: fixed carrier 1: random carrier		0	○
P11.02	Carrier upper-limit	2.000 ~ 8.000	KHz	6.000	○
P11.03	Carrier lower-limit	2.000 ~ 8.000	KHz	2.000	○
P11.04	Automatic voltage regulator AVR	0: invalid 1: valid 2: invalid when exceeding rated voltage		0	
P11.05	Energy consumption braking control	0: valid at power-on 1: valid in operation 2: valid in deceleration		0	
P11.06	Braking usage rate	5.00 ~ 100.00	%	100.00	
P11.07	Energy consumption braking voltage	350 ~ 400	V	380	
P11.08	Output voltage	5.00 ~ 100.00	%	100.00	○
P11.09	Over-modulation function	0: invalid 1: valid		0	○
P11.10	Vibration inhibition	0 ~ 100		0	○
P11.11	Deviation compensation coefficient	0.00 ~ 200.00	%	0.00	○
P11.12	Voltage compensation coefficient	0.00 ~ 200.00	%	80.00	○
P11.13	Excitation control	0 ~ 2		1	
P11.14	Fall time of current-limiting at constant speed	0.00 ~ 30.00	S	5.00	○

Group P12 keyboard and display

Function Code	Name	Setting Range	Unit	Default	Property
P12.00	User password	0 ~ 65535		XXXXXX	
P12.01	Parameter setting control	0: parameter setting allowed 1: parameter locked 0 2: parameter locked 1		0	

P12.02	Parameter modification way	0: keyboard and communication both valid 1: keyboard valid 2: communication valid		0	
P12.03	Multifunctional key definition	0: invalid 1: inching jog operation 2: forward/reverse rotation switching		1	
P12.04	Stop Monitoring code options	0 ~ 17: P13.00 ~ P13.17		0	
P12.05	Monitoring code options	0 ~ 17: P13.00 ~ P 13.17		1	
P12.06	Inverter running time	0 ~ 65535	HOURL	XXXXX	x
P12.07	Inverter running time	0 ~ 60	Min	XXXXX	x
P12.08	Running time control	0: invalid 1: valid		0	
P12.09	Running time setting	0 ~ 65535	HOURL	XXXXX	
P12.10	Running time control password	0 ~ 65535		XXXXX	
P12.11	Rated inverter power		kW	XXXX	x
P12.12	Rated inverter voltage		V	XXX	x
P12.13	Rated inverter current		A	XXXXX	x
P12.14	Software version			X.XX	x
P12.15	Default password	0 ~ 65535		XXXXX	

Group P13 Monitoring Parameters

Function Code	Name	Setting Range	Unit	Default	Property
P13.00	Input frequency	0.00 ~ maximum frequency	Hz		x
P13.01	Output frequency (before compensation)	0.00 ~ upper-limit frequency	Hz		x
P13.02	Output frequency (after compensation)	0.00 ~ upper-limit frequency	Hz		x
P13.03	Output voltage	0 ~ 660	V		x
P13.04	Output current	0.0 ~ 3000.0	A		x
P13.05	Load speed	0 ~ 30000	rpm		x
P13.06	Output power	0.0 ~ 50.0	kW		x
P13.07	Busbar voltage	0 ~ 1200	V		x
P13.08	Radiator temperature	0 ~ 200	°C		
P13.09	PID given	0 ~ full scale			x
P13.10	PID feedback	0 ~ full scale			x

P13.11	Program operation stage number	1 ~ 7			×
P13.12	Program operation time	0 ~ 60000	S		×
P13.13	DI terminal status	**** X4 X3 X2 X1			×
P13.14	DO terminal status	***** R1 Y1			×
P13.15	Keyboard potentiometer	0.00 ~ 100.00	%		×
P13.16	AI	0.00 ~ 100.00	%		×

Group P14 Failure Parameters

Function Code	Name	Setting Range	Unit	Default	Property
P14.00	Recent first failure record	ERR00: no failure ERR01: invert unit failure ERR02: over-current failure ERR03: over-voltage failure ERR04: undervoltage failure ERR05: input default phase failure ERR06: output default phase failure ERR07: inverter overload ERR08: motor overload ERR09: overheat failure ERR10: PTC broken conductor failure ERR11: soft boot failure ERR12: external failure ERR13: communication timeout failure ERR14: PID feedback broken conductor failure		00	×
P14.01	Recent second failure record	ERR15: storage failure ERR16: motor tuning cancel			
P14.02	Recent third failure record	ERR17: stator resistance abnormal failure ERR18: no-load current failure ERR19: timed lock			
P14.03	Output frequency in recent first failure	0.00 ~ 300.00	Hz	0.00	×
P14.04	Output current in recent first failure	0.0 ~ 300.0	A	0.0	×
P14.05	Busbar voltage in recent first failure	0 ~ 1200	V	0	×



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