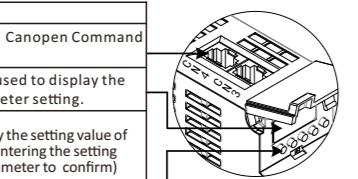


User Manual for E6 Series Servo Driver

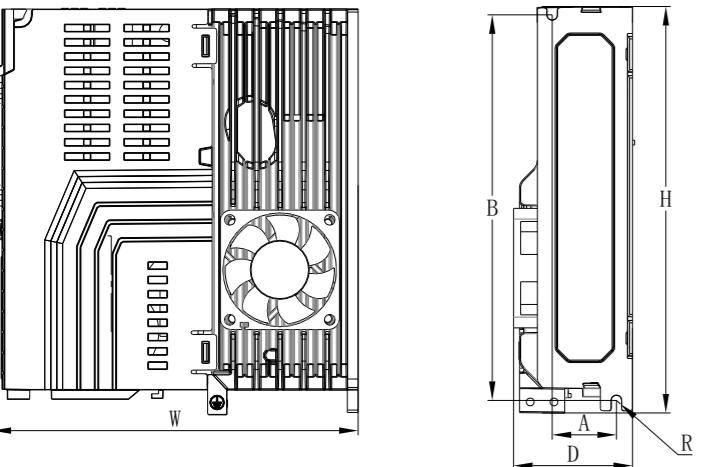
Driver Parts Name

	Specification
CN3, CN4	Internal parallel, with RS-232, RS-485, Canopen Command Device connected.
Digital Tube Display	5-digit 7-segment LED digital tube is used to display the operation condition and parameter setting.
key operator	<p>Press the button to display the setting value of each parameter, namely entering the setting mode (long press the parameter to confirm) Shift the current blinking bit to the left The set value can be reduced to act as a reverse start button during JOG operation in auxiliary function mode . The set value can be increased to act as a forward rotation start button during JOG operation in auxiliary function mode . Switch basic mode: conditions display, auxiliary function, parameter setting and monitoring</p> 
CN1 I/O terminal	Ports for command input signals and other input signals.
Cn2 Motor encod terminal	Connected to the motor encoder terminals.
L1, L2 Main power terminal	Simple x AC200V-240V, -15%~10%, 50/60Hz.
CHARGE Bus voltage indicator	Used to indicate bus capacitor is in a charge d state.when light on, even if the main circuit power is turned off, the servo units may still have electric charges. So do not touch the power terminals when the light is on to avoid electric shock.
B1+, B2, B3 Braking resistor terminal	When using an external braking resistor, you should connect a resistor between B1+B2. When using an internal braking resistor, B2 and B3 should be short- circuited.(B2 and B3 have been short-circuited before leaving factor).
U, V, W, PE Motor power terminal and ground terminal	It must be in correspondence with the UVW terminals of the motor one by one.

Braking resistor related specifications

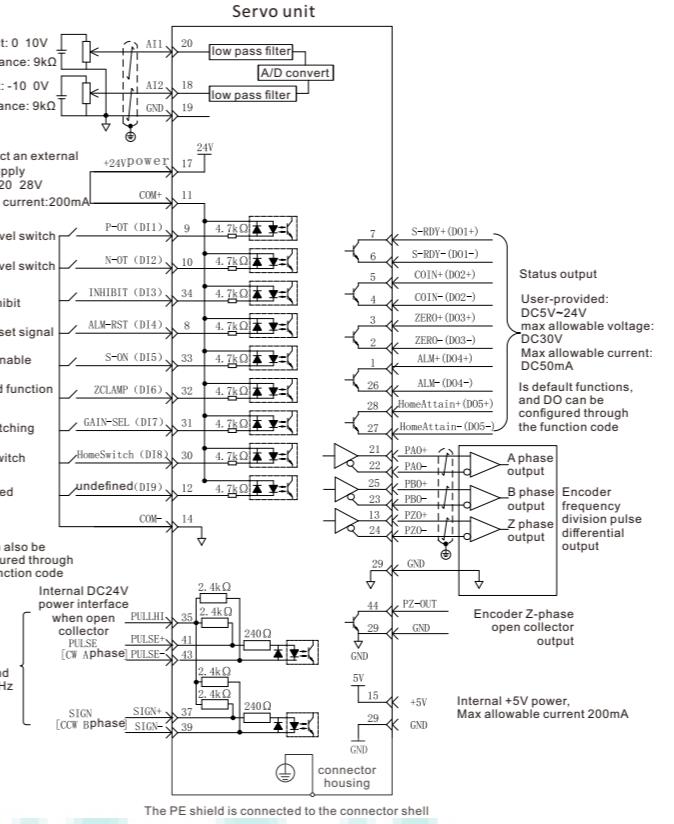
Model Type	Built-in braking resistor specifications		Min. Allowed Resistance (Ω)	Max. Braking Energy Absorbed by Capacitor (J)
	Resistance (Ω)	Power(W)		
E6-200RS	-	-	50	9
E6-400RS	-	-	45	18
E6-750RS	50	50	40	26
E6-1000RS	50	50	40	26

Product Specification

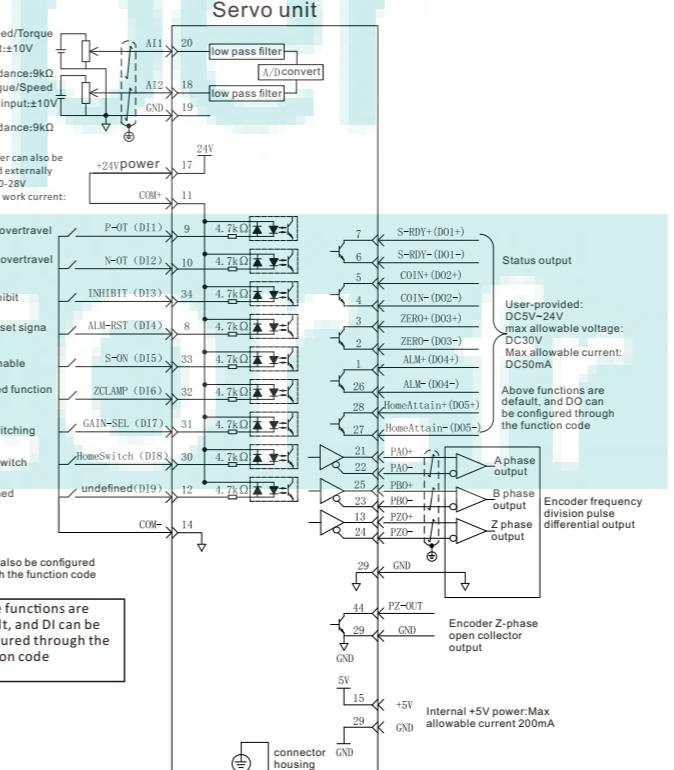


Item	Specification
E6 Series	200RS 400RS 750RS 1000RS
A(mm)	27
B(mm)	162
W(mm)	154
H(mm)	171
D(mm)	51
R(mm)	2
W(kg)	0.9
Input Power	Single phase AC200V-240V, -15%~10%, 50/60Hz
Dimension	Ambient Temperature 0+55°C (from 45°C~to 55°C, keep average load rate within 80%) no freezing
Environmental Specifications	<p>Preservation of Ambient Temperature -20~65°C</p> <p>Ambient Humidity below 20~85%RH (no condensation)</p> <p>Preservation of Ambient Humidity below 20~85%RH (no condensation)</p> <p>Use and Preservation of Ambient Air indoor (no direct sunlight), no corrosive gas, flammable gas, oil mist, dust</p> <p>Altitude below 1000m</p> <p>Vibration below 5.8m/s² (0.6G) 10~60Hz (do not use continuously at resonance frequency)</p>
Basic Specifications	<p>Dielectric Withstand Voltage AC1500V between primary and FG for 1 minute</p> <p>Control Method three-phase PWM converter sine wave drive</p> <p>Encoder Feedback 17bit, 23bit (functions as a multi-turn absolute encoder after adding a battery)</p> <p>Input 9-way input (DC24V optocoupler isolation) function switching according to the control mode</p> <p>Output 5-way output (DC24V optocoupler isolation, open collector output) switching according to the control mode function</p>
Signal	<p>Pulse position command Max 2MHz</p> <p>Communication RS232, RS-485, CAN</p>
Control	Regenerative Functions Connect regenerative resistor internally or externally pay attention to modifying internal parameters
Position Control	<p>Control Modes 6 control modes: speed control, position control, torque control, torque/speed control, speed/position control, torque/position, torque/speed/position mixed control</p> <p>Control Input Alarm reset, proportional action switching, zero fixed function enabling, forward drive prohibited, reverse drive prohibited, external torque limit for forward rotation, external torque limit for reverse rotation, forward jog, reverse jog, forward reset switch, reverse reset switch, origin switch, emergency stop, servo enabling, gain switching</p> <p>Control Output Servo ready, motor rotating, zero speed signal, speed arrival, position arrival, positioning approach signal, torque limit, speed limit, brake output, warning, servo failure, alarm code (3-digit output)</p>
Functions	<p>Maximum command pulse frequency The maximum low speed is 500Kpps, and the pulse width cannot be lower than 1μs; Open collector: maximum 200Kpps, pulse width not less than 2.5μs</p> <p>Input pulse signal form Differential input; open collector</p> <p>Input pulse signal mode pulse+direction, right angle phase difference (phase A+phase B), CW+CCW pulse</p> <p>Command pulse frequency division and multiplication (Electronic gear ratio setting) 0.1048576 < B/A < 419430.4</p> <p>Command filter Smooth filter, FIR filter</p> <p>Output pulse form Phase A and B: differential output Z-phase: differential output or open collector output</p> <p>Frequency division ratio Arbitrary frequency division</p> <p>Output pulse function Encoder position pulse and position pulse command (settable)</p>
Speed Control	<p>Control Input Servo ON, alarm reset, reverse speed command, zero speed clamping, internal command selection input 1, internal command selection input 2, internal command selection input 3, internal command selection input 4, forward external torque limit input, reverse external torque limit input, emergency stop</p> <p>Control Output Alarm status, servo ready, brake release, output during torque limit, output during speed limit, speed reached, speed coincidence, motor rotation output, zero speed signal output</p>
Torque Control	<p>Control Input Servo ON, alarm reset, torque command reverse, zero speed clamp</p> <p>Control Output Alarm status, servo preparation, brake release, torque limit, speed limit output, emergency stop</p> <p>Torque Command Input (Factory default setting, range can be set by function code)</p> <p>Speed Limit Function Positive and negative internal speed limit P03.27, P03.28</p>
Similarities	<p>Speed Observer Function Yes</p> <p>Vibration Control function Yes</p> <p>Adaptive Notch Filter Yes</p> <p>Auto adjustment function Yes</p> <p>Encoder output frequency division and multiplication Yes</p> <p>Internal location planning function Yes</p> <p>Adjustment/Function Setting Use the upper computer to set the software "Servostudio" to adjust</p> <p>Protective function Over voltage, abnormal power supply, over current, overload, abnormal encoder, overspeed, excessive position deviation, abnormal parameters, etc.</p>

Location Mode Wiring



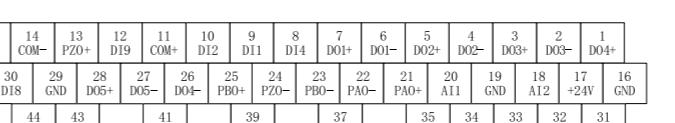
Speed/Torque Control Mode Block Diagram



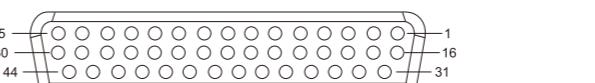
Indicates twisted pair

Note: ■ Signal cables and power cables must be routed separately, with an interval of at least 30 cm.
 ■ When the signal cable is not long enough to connect the cable, the shielding layer must be connected reliably to ensure reliable shielding and grounding.
 ■ With a reference to GND, when you use +5V, do not exceed the maximum allowable current, otherwise the driver will not work properly.

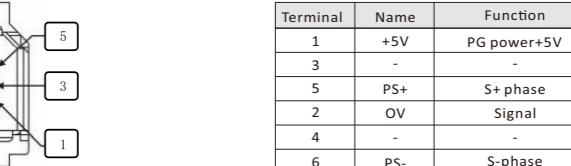
CN1 Terminal arrangement description



Model type show



CN2 Illustration of the terminal arrangement of the absolute encoder

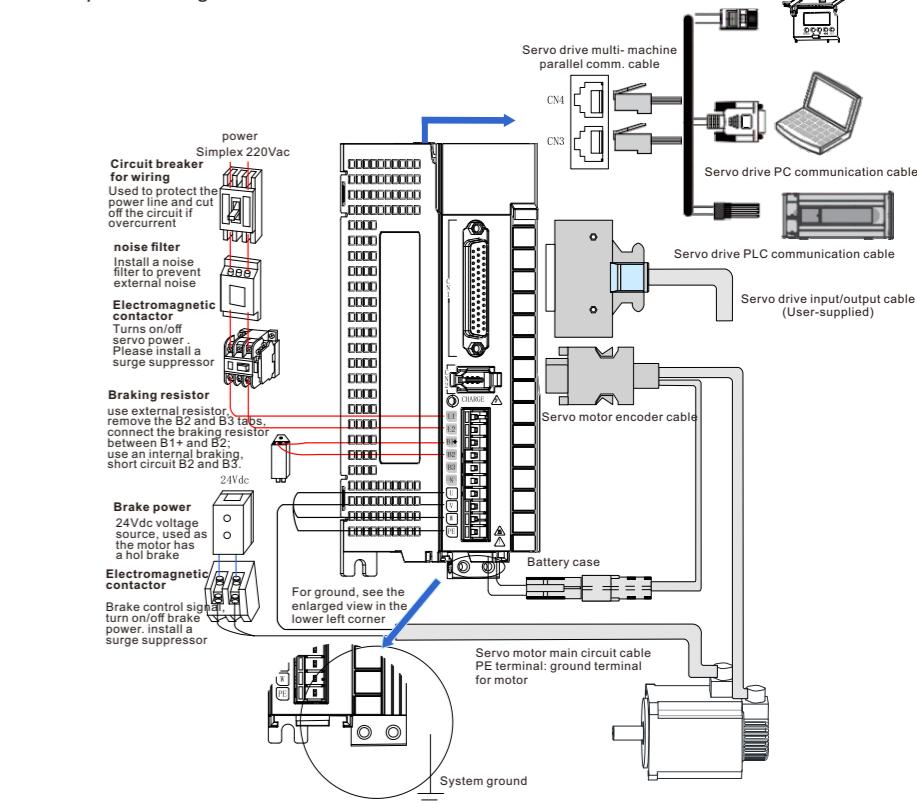


Terminal	Name	Function
1	+5V	PG power+5V
3	-	-
5	PS+	S+ phase
2	OV	Signal
4	-	-
6	PS-	S-phase

CN3, CN4 Illustration of terminal arrangement

Pin	Definition	Description	Terminal Pinout
1	CANH	CAN comm. port	8
2	CANL	CAN comm. port	7
3	CGND	RS485 comm. port	6
4	RS485+	RS485 comm. port	5
5	RS485-	RS485 comm. port	4
6	RS232-TXD	RS232 Sending end, connected with the receiving end of the host computer	3
7	RS232-RXD	RS232 The receiver is connected to the transmitter of the host computer	2
8	GND	Ground	1
9	Shell	shield	

Servo System Wiring



Please pay attention to the power supply capacity when connecting external control power supply or 24Vdc power supply, especially when supplying power to several drives or multiple brakes at the same time, insufficient power supply capacity will lead to insufficient supply current and failure of the drive or the brake. The braking power supply is a 24V DC voltage source. The power should refer to the motor model and meet the braking power requirements.

System wiring precautions:
 1. When connecting an external braking resistor, please remove the short-circuit wire between terminals B2 and B3 of the servo drive before connecting. Pay attention to modify the internal parameters.
 2. CN3 and CN4 define exactly the same communication interface for the two pins, which can be used arbitrarily between the two.
 3. In single-phase 220V wiring, the main circuit terminals are L1 and L2, and the reserved terminals should not be connected.

P02 Group Basic control parameters

Function code	Name	Unit	Factory setting	Effective way	Setting way	Related patterns
P02_00	Control Mode Selection	-	1	Effective immediately	Stop setting	-
P02_01	Absolute value system selection	-	0	Power up again	Stop setting	ALL
P02_02	rotating direction selection	-	0	Power up again	Stop setting	PST
P02_03	Output pulse phase	-	0	Power up again	Stop setting	PST
P02_05	stop model at S-ON off	-	0	Effective immediately	Stop setting	PST
P02_06	Fault No.2 Stop Mode Selection	-	0	Effective immediately	Stop setting	PST
P02_07	Choice of Overhaul Mode	-	1	Effective immediately	Stop setting	PST
P02_08	Fault No.1 Stop Mode Selection	-	0	Effective immediately	Stop setting	PST
P02_09	delay from brake output ON to command received	ms	250	Effective immediately	Run settings	PS
P02_10	delay from brake output OFF to motor de-energized in static state	ms	150	Effective immediately	Run settings	PS
P02_11	motor speed threshold at brake output OFF in rotating state	rpm	30	Effective immediately	Run settings	PS
P02_12	Rotate state, motor does not power to lock output OFF delay	ms	500	Effective immediately	Run settings	PS
P02_15	LED Warning Display Select	-	0	Effective immediately	Run settings	PST
P02_18	Servo Enable (S-ON) Filter time constant	ms	0	Effective immediately	Run settings	PST
P02_21	Brake resistance minimum allowed by driver	Ω	-	-	Display	PST
P02_22	Built-in Brake Resistance Power	W	-	-	Display	PST
P02_23	Built-in brake resistance	Ω	-	-	Display	PST

Function code	Name	Unit	Factory setting	Effective way	Setting way	Related patterns
P02_24	Resistance heat dissipation factor	%	30	Effective immediately	Stop setting	PST
P02_25	Brake resistance settings	-	0	Effective immediately	Stop setting	PST
P02_26	External brake resistance power	W	-	Effective immediately	Stop setting	PST
P02_27	External brake resistance resistance	Ω	-	Effective immediately	Stop setting	PST
P02_30	User password	-	0	Power up again	Stop setting	PST
P02_31	System parameter initialization	-	0	Effective immediately	Stop setting	PST
P02_32	Panel Default Display	-	50	Effective immediately	Run settings	-
P02_38	Fault short circuit braking time	ms	5000	Effective immediately	Run settings	PST

P05 Group Position control parameters

Function code	Name	Unit	Factory setting	Effective way	Setting method	Related patterns
P05_00	Location instruction source	-	0	Effective immediately	Stop setting	P
P05_01	Pulse instruction input terminal selection	-	0	Effective immediately	Stop setting	P
P05_02	Number of position instructions per rotation of motor	P/r	0	Power up again	Stop setting	P
P05_04	First-order low-pass filter time constant	ms	0.0	Effective immediately	Stop setting	P
P05_05	Step by step	unit	50	Effective immediately	Stop setting	P
P05_06	Average filter time constant	ms	0.0	Effective immediately	Stop setting	P
P05_07	Electronic tooth ratio 1 (Molecules)	-	131072	Effective immediately	Run settings	P
P05_09	Electronic tooth ratio 1 (denominator)	-	10000	Effective immediately	Run settings	P
P05_11	Electronic tooth ratio 2 (Molecules)	-	131072	Effective immediately	Run settings	P
P05_13	Electronic tooth ratio 2 (denominator)	-	10000	Effective immediately	Run settings	P
P05_15	Pulse instruction pattern	-	0	Power up again	Stop setting	P
P05_16	Clear action selection	-	0	Effective immediately	Stop setting	P
P05_17	Number of frequency division pulses	P/r	2500	Power up again	Stop setting	-
P05_19	Speed feedforward control selection	-	1	Effective immediately	Stop setting	P
P05_20	Location Complete Output Condition	-	0	Effective immediately	Run settings	P
P05_21	Location completion threshold	Encoder / Instruction Unit	734	Effective immediately	Run settings	P
P05_22	Positioning proximity threshold	Encoder / Instruction Unit	65535	Effective immediately	Run settings	P
P05_30	Origin Reversion Enable Control	-	0	Effective immediately	Run settings	P
P05_31	Origin Recovery Mode	-	0	Effective immediately	Stop setting	P
P05_32	Speed of high-speed search for origin switch signal	rpm	100	Effective immediately	Run settings	P
P05_33	Speed of low speed search for origin switch signal	rpm	10	Effective immediately	Run settings	P
P05_34	Time of acceleration and deceleration when searching origin	ms	1000	Effective immediately	Stop setting	P
P05_35	Limit the time to find the origin	ms	10000	Effective immediately	Stop setting	P
P05_36	Mechanical origin offset	Instruction unit	0	Effective immediately	Stop setting	P
P05_38	Servo Pulse Output Source Selection	-	0	Power up again	Stop setting	P
P05_39	Electronic gear ratio switching conditions	-	0	Effective immediately	Stop setting	P
P05_40	Mechanical Origin Offset and Limit Treatment	-	0	Effective immediately	Stop setting	P
P05_41	Z Pulse Output Polarity Selection	-	1	Power up again	Stop setting	P
P05_43	Position pulse along selection	1	0	Power up again	Run settings	PST
P05_46	Absolute position linear mode position bias (low 32 bits)	Encoder unit	0	Effective immediately	Stop setting	ALL
P05_48	Absolute position linear mode position bias (high 32 bits)	Encoder unit	0	Effective immediately	Stop setting	ALL
P05_50	Absolute position rotation mode mechanical gear ratio (molecule)	-	65535	Effective immediately	Stop setting	ALL
P05_51	Absolute position rotation mode mechanical gear ratio (denominator)	-	1	Effective immediately	Stop setting	ALL
P05_52	Absolute position rotation mode load rotation cycle number of pulses (low 32 bits)	Encoder unit	0	Effective immediately	Stop setting	ALL
P05_54	Absolute position rotation mode load rotation cycle number of pulses (32 bits high)	Encoder unit	0	Effective immediately	Stop setting	ALL
P05_56	Threshold of zero velocity judgment	rpm	2	Effective immediately	Run settings	P
P05_58	Contact Stop Zero Torque Limit	%	100.0%	Effective immediately	Run settings	P
P05_59	Location Completion Window Time	ms	1	Effective immediately	Run settings	P
P05_60	Positioning completion retention time	ms	0	Effective immediately	Run settings	P
P05_61	Number of divider pulses (32 bits)	P/r	0	Power up again	Stop setting	-
P05_63	Collector Z signal width	*	0..15	Power up again	Stop setting	P

P06 Group Speed control parameters

Function code	Name	Unit	Factory setting	Effective way	Setting way	Related patterns
P06_00	A Source of Main Speed Instruction	-	0	Effective immediately	Stop setting	S
P06_01	Auxiliary Speed Instruction B Source	-	1	Effective immediately	Stop setting	S
P06_02	Speed Instruction Selection	-	0	Effective immediately	Stop setting	S
P06_03	Speed command keyboard setting	rpm	200	Effective immediately	Run settings	S
P06_04	Set point speed	rpm	100	Effective immediately	Run settings	S
P06_05	Speed command acceleration ramp time constant	ms	0	Effective immediately	Run settings	S
P06_06	Speed command acceleration ramp time constant	ms	0	Effective immediately	Run settings	S
P06_07	Maximum Speed Threshold	rpm	6000	Effective immediately	Run settings	S
P06_08	Forward velocity threshold	rpm	6000	Effective immediately	Run settings	S
P06_09	Reverse velocity threshold	rpm	6000	Effective immediately	Run settings	S
P06_11	Torque Feedforward Control Selection	-	1	Effective immediately	Run settings	S
P06_15	Zero fixed speed threshold	rpm	10	Effective immediately	Run settings	S
P06_16	Motor rotation speed threshold	rpm	20	Effective immediately	Run settings	S
P06_17	Speed consistent signal threshold	rpm	10	Effective immediately	Run settings	S
P06_18	Speed reaches signal threshold	rpm	1000	Effective immediately	Run settings	S
P06_19	Zero speed output signal threshold	rpm	10	Effective immediately	Run settings	S

P07 Group Torque control parameters

Torque instruction 100% corresponding to motor rated torque.						
Function code	Name	Unit	Factory setting	Effective way	Setting way	Related patterns
P07_00	A source of master torque instruction	-	0	Effective immediately	Stop setting	T
P07_01	Auxiliary torque instruction B source	-	1	Effective immediately	Stop setting	T
P07_02	Torque Directive Selection	-	0	Effective immediately	Stop setting	T
P07_03	Torque instruction keyboard setting	%	0	Effective immediately	Run settings	T
P07_05	Torque instruction filter time constant	ms	0.79	Effective immediately	Run settings	PST
P07_06	Second torque instruction filtering time constant	ms	0.79	Effective immediately	Run settings	PST
P07_07	Torque limitation sources	-	0	Effective immediately	Stop setting	PST
P07_08	T-LMT selection	-	2	Effective immediately	Stop setting	PST
P07_09	Positive internal torque limit	%	300.0	Effective immediately	Run settings	PST
P07_10	Negative internal torque limit	%	300.0	Effective immediately	Run settings	PST
P07_11	Positive external torque limit	%	300.0	Effective immediately	Run settings	PST
P07_12	Negative External Torque Limit	%	300.	Effective immediately	Run settings	PST
P07_17	Selection of speed limit sources	-	0	Effective immediately	Run settings	T
P07_18	V-LMT Selection	-	1	Effective immediately	Run settings	T
P07_19	Torque control forward speed limit value / torque control speed limit value 1	rpm	3000	Effective immediately	Run settings	T
P07_20	Negative Speed Limit for Torque Control / Speed Limit for Torque Control 2	rpm	3000	Effective immediately	Run settings	T
P07_21	Torque reaches reference value	%	0.0	Effective immediately	Run settings	PST
P07_22	Torque reaches effective value	%	20.0	Effective immediately	Run settings	PST
P07_23	Torque arrives invalid	%	10.0	Effective immediately	Run settings	PST
P07_40	Speed restricted window in torque mode	ms	1.0	Effective immediately	Run settings	T

P08 Group Monitoring parameters

Function code	Name	Unit	Factory setting	Effective way	Setting method	Related patterns
P0B_00	Actual motor speed	rpm	-	-	Display	PST
P0B_01	Speed instruction	rpm	-	-	Display	PS
P0B_02	Internal torque instruction (relative to rated torque)	%	-	-	Display	PST
P0B_03	Input signal (DI signal) monitoring	-	-	-	Display	PST
P0B_05	Output signal (DO signal) monitoring	-	-	-	Display	PST
P0B_07	Absolute position counter (32-bit decimal display)	Instruction Unit	-	-	Display	PST
P0B_09	Mechanical angle (number of pulses starting at origin)	Encoder Unit	-	-	Display	P
P0B_10	Electrical angle	*	-	-	Display	PST
P0B_11	Input position instruction corresponding speed information	rpm	-	-	Display	P
P0B_12	Average load rate	%	-	-	Display	PST
P0B_17	Input instruction pulse counter (32-bit decimal display)	Instruction Unit	-	-	Display	P
P0B_15	Encoder position deviation counter (32-bit decimal display)	Encoder Unit	-	-	Display	P
P0B_17	Feedback pulse counter (32-bit decimal display)	Encoder Unit	-	-	Display	PST
P0B_19	Total power-up time (32-bit decimal display)	s	-	-	Display	PST
P0B_21	Ai1 Sampling 21voltage values	V	-	-	Display	PST
P0B_22	Ai2 Sampling voltage values	V	-	-	Display	PST
P0B_24	Phase current RMS	A	-	-	Display	PST
P0B_26	Bus voltage	V	-	-	Display	PST
P0B_27	Module temperature values	°C	-	-	Display	PST
P0B_33	Failure logging	-	0	Effective	Run	PST
P0B_34	Number of failures selected	-	-	-		