

STANSON

گروه اتوماسیون صنعتی استنسون

User's Manual

راهنمای کاربری

STARK-G1100S0004
STARK-G1100S0007
STARK-G1100S0015
STARK-G1100S0022
STARK-G1100T0007
STARK-G1100T0015
STARK-G1100T0022

Description of control terminal

The terminal layout of control circuit is as follows:

ROA	ROC	+24V	DI1	DI2	DI3	DI4	DI5	DI6	DO	GND	GND	AI	AO	10V	485+	485-
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ROA ROC:Relay output (normally open)

+24V GND:+24V power supply

+10V GND:+10V power supply

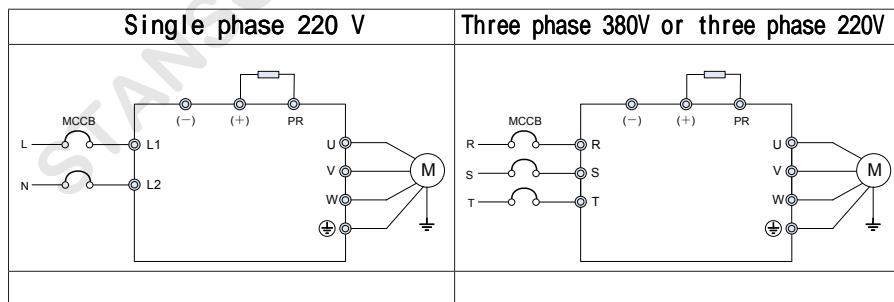
AI:Analog input

AO:Analog output

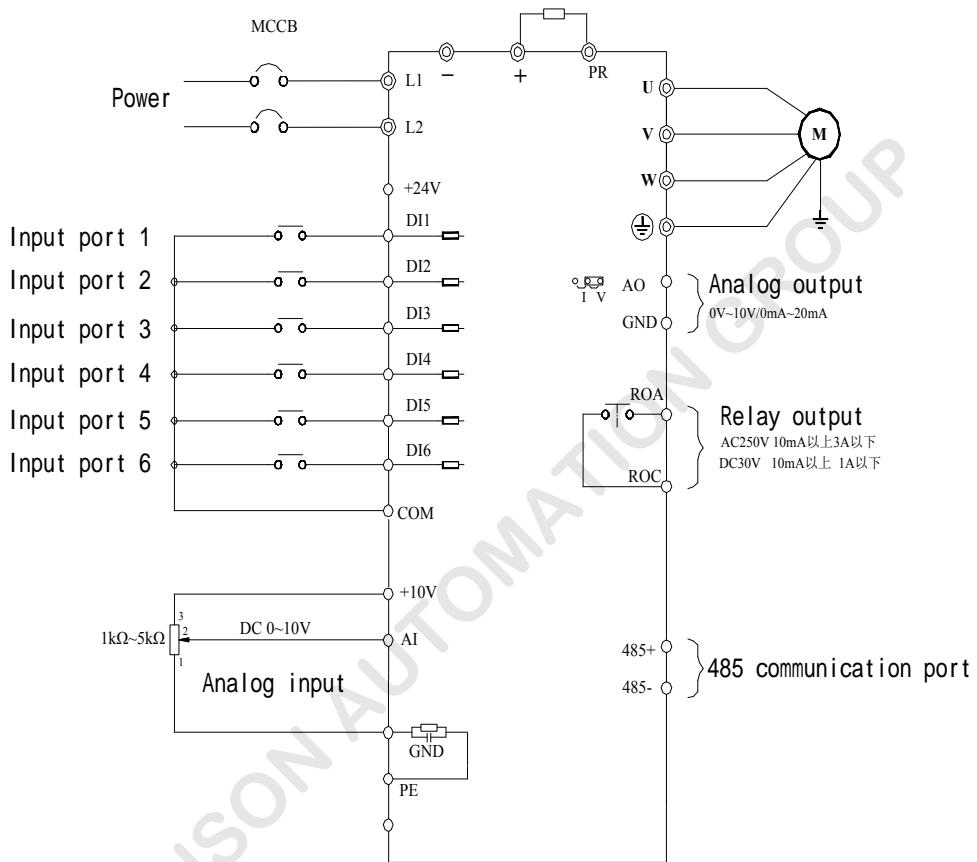
485+ 485-:485 standard communication interface

DI1-DI6:Port input function, its di5 supports high speed pulse input

Connection mode of main circuit of frequency converter



Port description



Function Code Table

If PP-00 is set to a non-zero number, parameter protection is enabled. You must enter the correct user password to enter the menu.

To cancel the password protection function, enter with password and set PP-00 to 0.

Group P and Group A are standard function parameters. Group U includes the monitoring function parameters.

The symbols in the function code table are described as follows:

" \star ": The parameter can be modified when the AC drive is in either stop or running state.

" $\star\star$ ": The parameter cannot be modified when the AC drive is in the running state.

" \bullet ": The parameter is the actually measured value and cannot be modified.

" $\ast\ast$ ": The parameter is factory parameter and can be set only by the manufacturer.

Standard Function Parameters

Function Code	Parameter Name	Setting Range	Default	Property
Group P0: Standard Function Parameters				
P0-00	G/P type display	1: G type (constant torque load) 2: P type (variable torque load e.g. fan and pump)	Model dependent	\bullet
P0-01	Motor 1 control mode	0: Sensorless flux vector control (SFVC) 1: Closed-loop vector control (CLVC) 2: Voltage/Frequency (V/F) control	0	\star
P0-02	Command source selection	0: Operation panel control (LED off) 1: Terminal control (LED on) 2: Communication control (LED blinking)	0	\star
P0-03	Main frequency source X selection	0: Digital setting (non-retentive at power failure) 1: Digital setting (retentive at power failure) 2: AI	0	\star

Function Code	Parameter Name	Setting Range	Default	Property
P0-03	Main frequency source X selection	5: Pulse setting (DI5) 6: Multi-reference 7: Simple PLC 8: PID 9: Communication setting	0	★
P0-04	Auxiliary frequency source Y selection	The same as P0-03 (Main frequency source X selection)	0	★
P0-05	Range of auxiliary frequency Y for X and Y operation	0: Relative to maximum frequency 1: Relative to main frequency X	0	☆
P0-06	Range of auxiliary frequency Y for X and Y operation	0%~150%	100%	☆
P0-07	Frequency source selection	Unit's digit (Frequency source selection)	00	☆
		0: Main frequency source X 1: X and Y operation (operation relationship determined by ten's digit) 2: Switchover between X and Y 3: Switchover between X and "X and Y operation" 4: Switchover between Y and "X and Y operation"		
		Ten's digit (X and Y operation relationship)		
		0: X+Y 1: X-Y 2: Maximum 3: Minimum		
P0-08	Preset frequency	0.00 to maximum frequency (valid when frequency source is digital setting)	50.00 Hz	☆
P0-09	Rotation direction	0: Same direction 1: Reverse direction	0	☆
P0-10	Maximum frequency	50.00~320.00 Hz	50.00 Hz	★
P0-11	Source of frequency upper limit	0: Set by P0-12 1: AI 4: Pulse setting (DI5) 5: Communication setting	0	★

Function Code	Parameter Name	Setting Range	Default	Property
P0-12	Frequency upper limit	Frequency lower limit (P0-14) to maximum frequency (P0-10)	50.00 Hz	☆
P0-13	Frequency upper limit offset	0.00 Hz to maximum frequency (P0-10)	0.00 Hz	☆
P0-14	Frequency lower limit	0.00 Hz to frequency upper limit (P0-12)	0.00 Hz	☆
P0-15	Carrier frequency	0.5–16.0 kHz	Model dependent	☆
P0-16	Carrier frequency adjustment with temperature	0: No 1: Yes	1	☆
P0-17	Acceleration time 1	0.00–650.00s (P0-19 = 2) 0.0–6500.0s (P0-19 = 1) 0–65000s (P0-19 = 0)	Model dependent	☆
P0-18	Deceleration time 1	0.00–650.00s (P0-19 = 2) 0.0–6500.0s (P0-19 = 1) 0–65000s (P0-19 = 0)	Model dependent	☆
P0-19	Acceleration/Deceleration time unit	0:1s 1: 0.1s 2: 0.01s	1	★
P0-21	Frequency offset of auxiliary frequency source for X and Y operation	0.00 Hz to maximum frequency (P0-10)	0.00 Hz	☆
P0-22	Frequency reference resolution	1: 0.1 Hz 2: 0.01 Hz	2	★
P0-23	Retentive of digital setting frequency upon power failure	0: Not retentive 1: Retentive	2	☆
P0-24	Motor parameter group selection	0: Motor parameter group 1 1: Motor parameter group 2 2: Motor parameter group 3 3: Motor parameter group 4	0	★
P0-25	Acceleration/Deceleration time base frequency	0: Maximum frequency (P0-10) 1: Set frequency 2: 100 Hz	0	★
P0-26	Base frequency for UP/DOWN modification during running	0: Running frequency 1: Set frequency	0	★

Function Code	Parameter Name	Setting Range	Default	Property
P0-27	Binding command source to frequency source	Unit's digit (Binding operation panel command to frequency source) 0: No binding 1: Frequency source by digital setting 2: AI 5: Pulse setting (DI5) 6: Multi-reference 7: Simple PLC 8: PID 9: Communication setting Ten's digit (Binding terminal command to frequency source) 0–9, same as unit's digit Hundred's digit (Binding communication command to frequency source) 0–9, same as unit's digit	000	☆
P0-28	Serial communication protocol	0: Modbus protocol	0	☆
Group P1: Motor 1 Parameters				
P1-00	Motor type selection	0: Common asynchronous motor 1: Variable frequency asynchronous motor 2: Permanent magnetic synchronous motor	1	★
P1-01	Rated motor power	0.1–1000.0 kW	Model dependent	★
P1-02	Rated motor voltage	1–2000 V	Model dependent	★
P1-03	Rated motor current	0.01–655.35 A (AC drive power ≤ 55 kW) 0.1–6553.5 A (AC drive power > 55 kW)	Model dependent	★
P1-04	Rated motor frequency	0.01 Hz to maximum frequency	Model dependent	★
P1-05	Rated motor rotational speed	1–65535 RPM	Model dependent	★

Function Code	Parameter Name	Setting Range	Default	Property
P1-06	Stator resistance (asynchronous motor)	0.001–65.535 Ω (AC drive power ≤ 55 kW) 0.0001–6.5535 Ω (AC drive power > 55 kW)	Model dependent	★
P1-07	Rotor resistance (asynchronous motor)	0.001–65.535 Ω (AC drive power ≤ 55 kW) 0.0001–6.5535 Ω (AC drive power > 55 kW)	Model dependent	★
P1-08	Leakage inductive reactance (asynchronous motor)	0.01–655.35 mH (AC drive power ≤ 55 kW) 0.001–65.535 mH (AC drive power > 55 kW)	Model dependent	★
P1-09	Mutual inductive reactance (asynchronous motor)	0.1–6553.5 mH (AC drive power ≤ 55 kW) 0.01–655.35 mH (AC drive power > 55 kW)	Model dependent	★
P1-10	No-load current (asynchronous motor)	0.01 to P1-03 (AC drive power ≤ 55 kW) 0.1 to P1-03 (AC drive power > 55 kW)	Model dependent	★
P1-16	Stator resistance (synchronous motor)	0.001–65.535 Ω (AC drive power ≤ 55 kW) 0.0001–6.5535 Ω (AC drive power > 55 kW)	Model dependent	★
P1-17	Shaft D inductance (synchronous motor)	0.01–655.35 mH (AC drive power ≤ 55 kW) 0.001–65.535 mH (AC drive power > 55 kW)	Model dependent	★
P1-18	Shaft Q inductance (synchronous motor)	0.01–655.35 mH (AC drive power ≤ 55 kW) 0.001–65.535 mH (AC drive power > 55 kW)	Model dependent	★
P1-20	Back EMF (synchronous motor)	0.1–6553.5 V	Model dependent	★
P1-27	Encoder pulses per revolution	1–65535	1024	★
P1-28	Encoder type	0: ABZ incremental encoder 1: UVW incremental encoder 2: Resolver 3: SIN/COS encoder 4: Wire-saving UVW encoder	0	★
P1-30	A/B phase sequence of ABZ incremental encoder	0: Forward 1: Reserve	0	★

Function Code	Parameter Name	Setting Range	Default	Property
P1-31	Encoder installation angle	0.0°–359.9°	0.0°	★
P1-32	U, V, W phase sequence of UVW encoder	0: Forward 1: Reverse	0	★
P1-33	UVW encoder angle offset	0.0°–359.9°	0.0°	★
P1-34	Number of pole pairs of resolver	1–65535	1	★
P1-36	Encoder wire-break fault detection time	0.0s: No action 0.1–10.0s	0.0s	★
P1-37	Auto-tuning selection	0: No auto-tuning 1: Asynchronous motor static auto-tuning 2: Asynchronous motor complete auto-tuning 11: Synchronous motor with-load auto-tuning 12: Synchronous motor no-load auto-tuning	0	★
Group P2: Vector Control Parameters				
P2-00	Speed loop proportional gain 1	0–100	30	☆
P2-01	Speed loop integral time 1	0.01–10.00s	0.50s	☆
P2-02	Switchover frequency 1	0.00 to P2-05	5.00 Hz	☆
P2-03	Speed loop proportional gain 2	0–100	20	☆
P2-04	Speed loop integral time 2	0.01–10.00s	1.00s	☆
P2-05	Switchover frequency 2	P2-02 to maximum output frequency	10.00 Hz	☆
P2-06	Vector control slip gain	50%–200%	100%	☆
P2-07	Time constant of speed loop filter	0.000–0.100s	0.000s	☆
P2-08	Vector control over-excitation gain	0–200	64	☆
P2-09	Torque upper limit source in speed control mode	0: P2-10 1: AI 4: Pulse setting (DI5) 5: Communication setting	0	☆
P2-10	Digital setting of torque upper limit in speed control mode	0.0%–200.0%	150.0%	☆

Function Code	Parameter Name	Setting Range	Default	Property
P2-13	Excitation adjustment proportional gain	0~20000	2000	☆
P2-14	Excitation adjustment integral gain	0~20000	1300	☆
P2-15	Torque adjustment proportional gain	0~20000	2000	☆
P2-16	Torque adjustment integral gain	0~20000	1300	☆
P2-17	Speed loop integral property	Unit's digit: integral separation 0: Disabled 1: Enabled	0	☆
P2-18	Field weakening mode of synchronous motor	0: No field weakening 1: Direct calculation 2: Automatic adjustment	1	☆
P2-19	Field weakening depth of synchronous motor	50%~500%	100%	☆
P2-20	Maximum field weakening current	1%~300%	50%	☆
P2-21	Field weakening automatic adjustment gain	10%~500%	100%	☆
P2-22	Field weakening integral multiple	2~10	2	☆

Group P3: V/F Control Parameters

P3-00	V/F curve setting	0: Linear V/F 1: Multi-point V/F 2: Square V/F 3: 1.2-power V/F 4: 1.4-power V/F 6: 1.6-power V/F 8: 1.8-power V/F 9: Reserved 10: V/F complete separation 11: V/F half separation	0	★
P3-01	Torque boost	0.0% (fixed torque boost) 0.1%~30.0%	Model dependent	☆
P3-02	Cut-off frequency of torque boost	0.00 Hz to maximum output frequency	50.00 Hz	★
P3-03	Multi-point V/F frequency 1 (F1)	0.00 Hz to P3-05	0.00 Hz	★
P3-04	Multi-point V/F voltage 1 (V1)	0.0%~100.0%	0.0%	

Function Code	Parameter Name	Setting Range	Default	Property
P3-05	Multi-point V/F frequency 2 (F2)	P3-03 to P3-07	0.00 Hz	★
P3-06	Multi-point V/F voltage 2 (V2)	0.0%–100.0%	0.0%	★
P3-07	Multi-point V/F frequency 3 (F3)	P3-05 to rated motor frequency (P1-04) Note: The rated frequencies of motors 2, 3, and 4 are respectively set in A2-04, A3-04, and A4-04.	0.00 Hz	★
P3-08	Multi-point V/F voltage 3 (V3)	0.0%–100.0%	0.0%	★
P3-09	V/F slip compensation gain	0%–200.0%	0.0%	☆
P3-10	V/F over-excitation gain	0–200	64	☆
P3-11	V/F oscillation suppression gain	0–100	Model dependent	☆
P3-13	Voltage source for V/F separation	0: Digital setting (P3-14) 1: AI 4: Pulse setting (DI5) 5: Multi-reference 6: Simple PLC 7: PID 8: Communication setting 100.0% corresponds to the rated motor voltage (P1-02, A4-02, A5-02, A6-02).	0	☆
P3-14	Voltage digital setting for V/F separation	0 V to rated motor voltage	0 V	☆
P3-15	Voltage rise time of V/F separation	0.0–1000.0s	0.0s	☆
P3-16	Voltage decline time of V/F separation	0.0–1000.0s	0.0s	☆
P3-17	Stop mode selection upon V/F separation	0: Frequency and voltage declining to 0 independently 1: Frequency declining after voltage declines to 0	0	☆

Function Code	Parameter Name	Setting Range	Default	Property
Group P4: Input Terminals				
P4-00	DI1 function selection	0: No function 1: Forward RUN (FWD) 2: Reverse RUN (REV) 3: Three-line control 4: Forward JOG (FJOG) 5: Reverse JOG (RJOG) 6: Terminal UP 7: Terminal DOWN 8: Coast to stop 9: Fault reset (RESET) 10: RUN pause 11: Normally open (NO) input of external fault 12: Multi-reference terminal 1 13: Multi-reference terminal 2 14: Multi-reference terminal 3 15: Multi-reference terminal 4 16: Terminal 1 for acceleration/deceleration time selection 17: Terminal 2 for acceleration/deceleration time selection	1	★
P4-01	DI2 function selection		4	★
P4-02	DI3 function selection		9	★
P4-03	DI4 function selection	18: Frequency source switchover 19: UP and DOWN setting clear (terminal, operation panel) 20: Command source switchover terminal 1 21: Acceleration/Deceleration prohibited 22: PID pause 23: PLC status reset 24: Swing pause 25: Counter input 26: Counter reset 27: Length count input 28: Length reset 29: Torque control prohibited	12	★
P4-04	DI5 function selection		13	★

Function Code	Parameter Name	Setting Range	Default	Property
P4-05	DI6 function selection	30: Pulse input (enabled only for DI5) 31: Reserved 32: Immediate DC braking 33: Normally closed (NC) input of external fault 34: Frequency modification forbidden 35: Reverse PID action direction 36: External STOP terminal 1 37: Command source switchover terminal 2 38: PID integral pause 39: Switchover between main frequency source X and preset frequency 40: Switchover between auxiliary frequency source Y and preset frequency 41: Motor selection terminal 1 42: Motor selection terminal 2 43: PID parameter switchover 44: User-defined fault 1 45: User-defined fault 2 46: Speed control/Torque control switchover 47: Emergency stop 48: External STOP terminal 2 49: Deceleration DC braking 50: Clear the current running time 51: Switchover between two-line mode and three-line mode 52–59: Reserved	0	★
P4-10	DI filter time	0.000–1.000s	0.010s	☆
P4-11	Terminal command mode	0: Two-line mode 1 1: Two-line mode 2 2: Three-line mode 1 3: Three-line mode 2	0	★
P4-12	Terminal UP/DOWN rate	0.01–65.535 Hz/s	1.00 Hz/s	☆
P4-13	AI curve 1 minimum input	0.00 V to P4-15	0.00 V	☆

Function Code	Parameter Name	Setting Range	Default	Property
P4-14	Corresponding setting of AI curve 1 minimum input	-100.00%–100.0%	0.0%	☆
P4-15	AI curve 1 maximum input	P4-13 to 10.00 V	10.00 V	☆
P4-16	Corresponding setting of AI curve 1 maximum input	-100.00%–100.0%	100.0%	☆
P4-17	AI1 filter time	0.00–10.00s	0.10s	☆
P4-18	AI curve 2 minimum input	0.00 V to P4-20	0.00 V	☆
P4-19	Corresponding setting of AI curve 2 minimum input	-100.00%–100.0%	0.0%	☆
P4-20	AI curve 2 maximum input	P4-18 to 10.00 V	10.00 V	☆
P4-21	Corresponding setting of AI curve 2 maximum input	-100.00%–100.0%	100.0%	☆
P4-22	AI2 filter time	0.00–10.00s	0.10s	☆
P4-23	AI curve 3 minimum input	0.00 V to P4-25	0.00 V	☆
P4-24	Corresponding setting of AI curve 3 minimum input	-100.00%–100.0%	0.0%	☆
P4-25	AI curve 3 maximum input	P4-23 to 10.00 V	10.00 V	☆
P4-26	Corresponding setting of AI curve 3 maximum input	-100.00%–100.0%	100.0%	☆
P4-27	AI3 filter time	0.00–10.00s	0.10s	☆
P4-28	Pulse minimum input	0.00 kHz to P4-30	0.00 kHz	☆
P4-29	Corresponding setting of pulse minimum input	-100.00%–100.0%	0.0%	☆
P4-30	Pulse maximum input	P4-28 to 50.00 kHz	50.00 kHz	☆
P4-31	Corresponding setting of pulse maximum input	-100.00%–100.0%	100.0%	☆
P4-32	Pulse filter time	0.00–10.00s	0.10s	☆

Function Code	Parameter Name	Setting Range	Default	Property
P4-33	AI curve selection	Unit's digit (AI1 curve selection) Curve 1 (2 points, see P4-13 to P4-16) Curve 2 (2 points, see P4-18 to P4-21) Curve 3 (2 points, see P4-23 to P4-26) Curve 4 (4 points, see A6-00 to A6-07) Curve 5 (4 points, see A6-08 to A6-15)	321	☆
P4-34	Setting for AI less than minimum input	Unit's digit (Setting for AI less than minimum input) 0: Minimum value 1: 0.0%	000	☆
P4-35	DI1 delay time	0.0~3600.0s	0.0s	★
P4-36	DI2 delay time	0.0~3600.0s	0.0s	★
P4-37	DI3 delay time	0.0~3600.0s	0.0s	★
P4-38	DI valid mode selection 1	Unit's digit (DI1 valid mode) 0: High level valid 1: Low level valid Ten's digit (DI2 valid mode) 0, 1 (same as DI1) Hundred's digit (DI3 valid mode) 0, 1 (same as DI1)	00000	★

Function Code	Parameter Name	Setting Range	Default	Property
P4-38	DI valid mode selection 1	Thousand's digit (DI4 valid mode)	00000	★
		0, 1 (same as DI1)		
		Ten thousand's digit (DI5 valid mode)		
		0, 1 (same as DI1)		
P4-39	DI valid mode selection 2	Unit's digit (DI6 valid mode)	00000	★
Group P5: Output Terminals				
P5-02	Relay function (ROC ROA)	1: AC drive running	2	☆
		2: Fault output (stop) 3: Frequency-level detection FDT1 output 4: Frequency reached 5: Zero-speed running (no output at stop) 6: Motor overload pre-warning 7: AC drive overload pre-warning 8: Set count value reached 9: Designated count value reached 10: Length reached 11: PLC cycle complete 12: Accumulative running time reached 13: Frequency limited		

Function Code	Parameter Name	Setting Range	Default	Property
P5-04	DO function selection (open-collector output terminal)	14: Torque limited 15: Ready for RUN 16: AI1 larger than AI2 17: Frequency upper limit reached 18: Frequency lower limit reached (no output at stop) 19: Undervoltage state output 20: Communication setting 21: Reserved 22: Reserved 23: Zero-speed running 2 (having output at stop) 24: Accumulative power-on time reached 25: Frequency level detection FDT2 output 26: Frequency 1 reached 27: Frequency 2 reached 28: Current 1 reached 29: Current 2 reached 30: Timing reached 31: AI1 input limit exceeded 32: Load becoming 0 33: Reverse running 34: Zero current state 35: Module temperature reached 36: Software current limit exceeded 37: Frequency lower limit reached (having output at stop) 38: Alarm output 39: Motor overheat warning 40: Current running time reached 41: Fault output (There is no output if it is the coast to stop fault and undervoltage occurs.)	1	

Function Code	Parameter Name	Setting Range	Default	Property
P5-07	AO function selection	0: Running frequency 1: Set frequency 2: Output current 3: Output torque (absolute value) 4: Output power 5: Output voltage 6: Pulse input 7: AI1 10: Length 11: Count value 12: Communication setting 13: Motor rotational speed 14: Output current 15: Output voltage 16: Output torque (actual value)	0	☆
P5-10	AO offset coefficient	-100.0%~100.0%	0.0%	☆
P5-11	AO gain	-10.00~10.00	1.00	☆

Function Code	Parameter Name	Setting Range	Default	Property
Group P6: Start/Stop Control				
P6-00	Start mode	0: Direct start 1: Rotational speed tracking restart 2: Pre-excited start (asynchronous motor)	0	☆
P6-01	Rotational speed tracking mode	0: From frequency at stop 1: From zero speed 2: From maximum frequency	0	★
P6-02	Rotational speed tracking speed	1–100	20	☆
P6-03	Startup frequency	0.00–10.00 Hz	0.00 Hz	☆
P6-04	Startup frequency holding time	0.0–100.0s	0.0s	★
P6-05	Startup DC braking current/ Pre-excited current	0%–100%	0%	★
P6-06	Startup DC braking time/ Pre-excited time	0.0–100.0s	0.0s	★
P6-07	Acceleration/Deceleration mode	0: Linear acceleration/ deceleration 1: S-curve acceleration/ deceleration A 2: S-curve acceleration/ deceleration B	0	★

Function Code	Parameter Name	Setting Range	Default	Property
P6-08	Time proportion of S-curve start segment	0.0% to (100.0% – P6-09)	30.0%	★
P6-09	Time proportion of S-curve end segment	0.0% to (100.0% – P6-08)	30.0%	★
P6-10	Stop mode	0: Decelerate to stop 1: Coast to stop	0	☆
P6-11	Initial frequency of stop DC braking	0.00 Hz to maximum frequency	0.00 Hz	☆
P6-12	Waiting time of stop DC braking	0.0–36.0s	0.0s	☆
P6-13	Stop DC braking current	0%–100%	0%	☆
P6-14	Stop DC braking time	0.0–36.0s	0.0s	☆
P6-15	Brake use ratio	0%–100%	100%	☆

Group P7: Operation Panel and Display

P7-02	STOP/RESET key function	0: STOP/RESET key enabled only in operation panel control 1: STOP/RESET key enabled in any operation mode	1	☆
P7-03	LED display running parameters 1	0000–FFFF Bit00: Running frequency 1 (Hz) Bit01: Set frequency (Hz) Bit02: Bus voltage (V) Bit03: Output voltage (V) Bit04: Output current (A) Bit05: Output power (kW) Bit06: Output torque (%) Bit07: DI input status	1F	☆

Function Code	Parameter Name	Setting Range	Default	Property
P7-03	LED display running parameters 1	Bit08: DO output status Bit09: AI1 voltage (V) Bit10: Bit11: Bit12: Count value Bit13: Length value Bit14: Load speed display Bit15: PID setting	1F	☆
P7-04	LED display running parameters 2	0000-FFFF Bit00: PID feedback Bit01: PLC stage Bit02: Pulse setting frequency (kHz) Bit03: Running frequency 2 (Hz) Bit04: Remaining running time Bit05: AI1 voltage before correction (V) Bit06: Bit07: Bit08: Linear speed Bit09: Current power-on time (Hour) Bit10: Current running time (Min) Bit11: Pulse setting frequency (Hz) Bit12: Communication setting value Bit13: Encoder feedback speed (Hz) Bit14: Main frequency X display (Hz) Bit15: Auxiliary frequency Y display (Hz)	0	☆

Function Code	Parameter Name	Setting Range	Default	Property
P7-05	LED display stop parameters	0000–FFFF Bit00: Set frequency (Hz) Bit01: Bus voltage (V) Bit02: DI input status Bit03: DO output status Bit04: Bit05: Bit06: Bit07: Count value Bit08: Length value Bit09: PLC stage Bit10: Load speed Bit11: PID setting Bit12: Pulse setting frequency (kHz)	33	☆
P7-06	Load speed display coefficient	0.0001–6.5000	1.0000	☆
P7-07	Heatsink temperature of inverter module	0.0–100.0 °C	-	●
P7-08	Temporary software version	-	-	●
P7-09	Accumulative running time	0–65535 h	-	●
P7-10	Product number	-	-	●
P7-11	Software version	-	-	●
P7-12	Number of decimal places for load speed display	0: 0 decimal place 1: 1 decimal place 2: 2 decimal places 3: 3 decimal places	1	☆
P7-13	Accumulative power-on time	0–65535 h	0 h	●
P7-14	Accumulative power consumption	0–65535 kWh	-	●
Group P8: Auxiliary Functions				
P8-00	JOG running frequency	0.00 Hz to maximum frequency	2.00 Hz	☆
P8-01	JOG acceleration time	0.0–6500.0s	20.0s	☆
P8-02	JOG deceleration time	0.0–6500.0s	20.0s	☆
P8-03	Acceleration time 2	0.0–6500.0s	Model dependent	☆
P8-04	Deceleration time 2	0.0–6500.0s	Model dependent	☆

Function Code	Parameter Name	Setting Range	Default	Property
P8-05	Acceleration time 3	0.0–6500.0s	Model dependent	☆
P8-06	Deceleration time 3	0.0–6500.0s	Model dependent	☆
P8-07	Acceleration time 4	0.0–500.0s	Model dependent	☆
P8-08	Deceleration time 4	0.0–6500.0s	Model dependent	☆
P8-09	Jump frequency 1	0.00 Hz to maximum frequency	0.00 Hz	☆
P8-10	Jump frequency 2	0.00 Hz to maximum frequency	0.00 Hz	☆
P8-11	Frequency jump amplitude	0.00 Hz to maximum frequency	0.00 Hz	☆
P8-12	Forward/Reverse rotation dead-zone time	0.0–3000.0s	0.0s	☆
P8-13	Reverse control	0: Enabled 1: Disabled	0	☆
P8-14	Running mode when set frequency lower than frequency lower limit	0: Run at frequency lower limit 1: Stop 2: Run at zero speed	0	☆
P8-15	Droop control	0.00–10.00 Hz	0.00 Hz	☆
P8-16	Accumulative power-on time threshold	0–65000 h	0 h	☆
P8-17	Accumulative running time threshold	0–65000 h	0 h	☆
P8-18	Startup protection	0: No 1: Yes	0	☆
P8-19	Frequency detection value (FDT1)	0.00 Hz to maximum frequency	50.00 Hz	☆
P8-20	Frequency detection hysteresis (FDT hysteresis 1)	0.0%–100.0% (FDT1 level)	5.0%	☆
P8-21	Detection range of frequency reached	0.00–100% (maximum frequency)	0.0%	☆
P8-22	Jump frequency during acceleration/deceleration	0: Disabled 1: Enabled	0	☆
P8-25	Frequency switchover point between acceleration time 1 and acceleration time 2	0.00 Hz to maximum frequency	0.00 Hz	☆
P8-26	Frequency switchover point between deceleration time 1 and deceleration time 2	0.00 to maximum frequency	0.00 Hz	☆
P8-27	Terminal JOG preferred	0: Disabled 1: Enabled	0	☆

Function Code	Parameter Name	Setting Range	Default	Property
P8-28	Frequency detection value (FDT2)	0.00 to maximum frequency	50.00 Hz	☆
P8-29	Frequency detection hysteresis (FDT hysteresis 2)	0.0%–100.0% (FDT2 level)	5.0%	☆
P8-30	Any frequency reaching detection value 1	0.00 Hz to maximum frequency	50.00 Hz	☆
P8-31	Any frequency reaching detection amplitude 1	0.0%–100.0% (maximum frequency)	0.0%	☆
P8-32	Any frequency reaching detection value 2	0.00 Hz to maximum frequency	50.00 Hz	☆
P8-33	Any frequency reaching detection amplitude 2	0.0%–100.0% (maximum frequency)	0.0%	☆
P8-34	Zero current detection level	0.0%–300.0% (rated motor current)	5.0%	☆
P8-35	Zero current detection delay time	0.00–600.00s	0.10s	☆
P8-36	Output overcurrent threshold	0.0% (no detection) 0.1%–300.0% (rated motor current)	200.0%	☆
P8-37	Output overcurrent detection delay time	0.00–600.00s	0.00s	☆
P8-38	Any current reaching 1	0.0%–300.0% (rated motor current)	100.0%	☆
P8-39	Any current reaching 1 amplitude	0.0%–300.0% (rated motor current)	0.0%	☆
P8-40	Any current reaching 2	0.0%–300.0% (rated motor current)	100.0%	☆
P8-41	Any current reaching 2 amplitude	0.0%–300.0% (rated motor current)	0.0%	☆
P8-42	Timing function	0: Disabled 1: Enabled	0	☆
P8-43	Timing duration source	0: P8-44 1: AI1 (100% of analog input corresponds to the value of P8-44)	0	☆
P8-44	Timing duration	0.0–6500.0 min	0.0 min	☆
P8-45	AI1 input voltage lower limit	0.00 V to P8-46	3.10 V	☆
P8-46	AI1 input voltage upper limit	P8-45 to 10.00 V	6.80 V	☆

Function Code	Parameter Name	Setting Range	Default	Property
P8-47	Module temperature threshold	0~100°C	75°C	☆
P8-48	Cooling fan control	0: Fan working during running 1: Fan working continuously	0	☆
P8-49	Wakeup frequency	Dormant frequency (P8-51) to maximum frequency (P0-10)	0.00 Hz	☆
P8-50	Wakeup delay time	0.0~6500.0s	0.0s	☆
P8-51	Dormant frequency	0.00 Hz to wakeup frequency (P8-49)	0.00 Hz	☆
P8-52	Dormant delay time	0.0~6500.0s	0.0s	☆
P8-53	Current running time reached	0.0~6500.0 min	0.0 min	☆
P8-54	Output power correction coefficient	0.00%~200 .0%	100.0%	☆
Group P9: Fault and Protection				
P9-00	Motor overload protection selection	0: Disabled 1: Enabled	1	☆
P9-01	Motor overload protection gain	0.20~10.00	1.00	☆
P9-02	Motor overload warning coefficient	50%~100%	80%	☆
P9-03	Overspeed stall gain	0 (no stall overspeed)~100	0	☆
P9-04	Overspeed stall protective voltage	120%~150%	130%	☆
P9-05	Overspeed stall gain	0~100	20	☆
P9-06	Overspeed stall protective current	100%~200%	150%	☆
P9-07	Short-circuit to ground upon power-on	0: Disabled 1: Enabled	1	☆
P9-09	Fault auto reset times	0~20	0	☆
P9-10	DO action during fault auto reset	0: Not act 1: Act	0	☆
P9-11	Time interval of fault auto reset	0.1s~100.0s	1.0s	☆
P9-12	Input phase loss protection/contactor energizing protection selection	Unit's digit: Input phase loss protection Ten's digit: Contactor energizing protection 0: Disabled 1: Enabled	11	☆

Function Code	Parameter Name	Setting Range	Default	Property
P9-13	Output phase loss protection selection	0: Disabled 1: Enabled	1	☆
P9-14	1st fault type	0: No fault 1: Reserved 2: Overcurrent during acceleration 3: Overcurrent during deceleration 4: Overcurrent at constant speed 5: Overvoltage during acceleration 6: Overvoltage during deceleration 7: Overvoltage at constant speed 8: Buffer resistance overload 9: Undervoltage 10: AC drive overload 11: Motor overload 12: Power input phase loss 13: Power output phase loss 14: Module overheat 15: External equipment fault 16: Communication fault 17: Contactor fault 18: Current detection fault 19: Motor auto-tuning fault 20: Encoder/PG card fault 21: EEPROM read-write fault 22: AC drive hardware fault 23: Short circuit to ground 24: Reserved 25: Reserved 26: Accumulative running time reached 27: User-defined fault 1 28: User-defined fault 2 29: Accumulative power-on time reached 30: Load becoming 0 31: PID feedback lost during running	-	●
P9-15	2nd fault type		-	●

Function Code	Parameter Name	Setting Range	Default	Property
P9-16	3rd (latest) fault type	40: With-wave current limit fault 41: Motor switchover fault during running 42: Too large speed deviation 43: Motor over-speed 45: Motor overheat 51: Initial position fault	-	●
P9-17	Frequency upon 3rd fault	-	-	●
P9-18	Current upon 3rd fault	-	-	●
P9-19	Bus voltage upon 3rd fault	-	-	●
P9-20	DI status upon 3rd fault	-	-	●
P9-21	Output terminal status upon 3rd fault	-	-	●
P9-22	AC drive status upon 3rd fault	-	-	●
P9-23	Power-on time upon 3rd fault	-	-	●
P9-24	Running time upon 3rd fault	-	-	●
P9-27	Frequency upon 2nd fault	-	-	●
P9-28	Current upon 2nd fault	-	-	●
P9-29	Bus voltage upon 2nd fault	-	-	●
P9-30	DI status upon 2nd fault	-	-	●
P9-31	Output terminal status upon 2nd fault	-	-	●
P9-32	Frequency upon 2nd fault	-	-	●
P9-33	Current upon 2nd fault	-	-	●
P9-34	Bus voltage upon 2nd fault	-	-	●
P9-37	DI status upon 1st fault	-	-	●
P9-38	Output terminal status upon 1st fault	-	-	●
P9-39	Frequency upon 1st fault	-	-	●
P9-40	Current upon 1st fault	-	-	●
P9-41	Bus voltage upon 3rd fault	-	-	●
P9-42	DI status upon 1st fault	-	-	●
P9-43	Output terminal status upon 1st fault	-	-	●
P9-44	Frequency upon 1st fault	-	-	●

Function Code	Parameter Name	Setting Range	Default	Property
P9-47	Fault protection action selection 1	Unit's digit (Motor overload, Err11)	00000	☆
		0: Coast to stop		
		1: Stop according to the stop mode		
		2: Continue to run		
		Ten's digit (Power input phase loss, Err12)		
		Same as unit's digit		
		Hundred's digit (Power output phase loss, Err13)		
		Same as unit's digit		
		Thousand's digit (External equipment fault, Err15)		
		Same as unit's digit		
P9-48	Fault protection action selection 2	Ten thousand's digit (Communication fault, Err16)	00000	☆
		Same as unit's digit		
		Unit's digit (Encoder fault, Err20)		
		0: Coast to stop		
		1: Switch over to V/F control, stop according to the stop mode		
		2: Switch over to V/F control, continue to run		
P9-48	Fault protection action selection 2	Ten's digit (EEPROM read-write fault, Err21)	00000	☆
		0: Coast to stop		
		1: Stop according to the stop mode		
		Hundred's digit: reserved		
		Thousand's digit (Motor overheat, Err25)		
		Same as unit's digit in P9-47	00000	☆
		Ten thousand's digit (Accumulative running time reached)		
		Same as unit's digit in P9-47		

Function Code	Parameter Name	Setting Range	Default	Property
P9-49	Fault protection action selection 3	Unit's digit (User-defined fault 1, Err27)	00000	☆
		Same as unit's digit in P9-47		
		Ten's digit (User-defined fault 2, Err28)		
		Same as unit's digit in P9-47		
		Hundred's digit (Accumulative power-on time reached, Err29)		
		Same as unit's digit in P9-47		
		Thousand's digit (Load becoming 0, Err30)		
		0: Coast to stop 1: Stop according to the stop mode 2: Continue to run at 7% of rated motor frequency and resume to the set frequency if the load recovers		
		Ten thousand's digit (PID feedback lost during running, Err31)		
		Same as unit's digit in P9-47		
P9-50	Fault protection action selection 4	Unit's digit (Too large speed deviation, Err42)	00000	☆
		Same as unit's digit in P9-47		
		Ten's digit (Motor over-speed, Err43)		
		Same as unit's digit in P9-47		
		Hundred's digit (Initial position fault, Err51)		
		Same as unit's digit in P9-47		
		Thousand's digit (Speed feedback fault, Err52)		
		Same as unit's digit in P9-47		
		Ten thousand's digit: Reserved		
P9-54	Frequency selection for continuing to run upon fault	0: Current running frequency 1: Set frequency 2: Frequency upper limit 3: Frequency lower limit 4: Backup frequency upon abnormality	0	☆

Function Code	Parameter Name	Setting Range	Default	Property
P9-55	Backup frequency upon abnormality	0.0%–100.0% (maximum frequency)	100.0%	☆
P9-56	Type of motor temperature sensor	0: No temperature sensor 1: PT100 2: PT1000	1	☆
P9-57	Motor overheat protection threshold	0–200°C	110°C	☆
P9-58	Motor overheat warning threshold	0–200°C	90°C	☆
P9-59	Action selection at instantaneous power failure	0: Invalid 1: Decelerate 2: Decelerate to stop	0	☆
P9-60	Action pause judging voltage at instantaneous power failure	80.0%–100.0%	90.0%	☆
P9-61	Voltage rally judging time at instantaneous power failure	0.00–100.00s	0.50s	☆
P9-62	Action judging voltage at instantaneous power failure	60.0%–100.0% (standard bus voltage)	80.0%	☆
P9-63	Protection upon load becoming 0	0: Disabled 1: Enabled	0	☆
P9-64	Detection level of load becoming 0	0.0%–100.0% (rated motor current)	10.0%	☆
P9-65	Detection time of load becoming 0	0.0–60.0s	1.0s	☆
P9-67	Over-speed detection value	0.0%–50.0% (maximum frequency)	20.0%	☆
P9-68	Over-speed detection time	0.0–60.0s	1.0s	☆
P9-69	Detection value of too large speed deviation	0.0%–50.0% (maximum frequency)	20.0%	☆
P9-70	Detection time of too large speed deviation	0.0–60.0s	5.0s	☆
Group PA: Process Control PID Function				
PA-00	PID setting source	0: PA-01 1: AI1 4: Pulse setting (DI5) 5: Communication setting 6: Multi-reference	0	☆
PA-01	PID digital setting	0.0%–100.0%	50.0%	☆

Function Code	Parameter Name	Setting Range	Default	Property
PA-02	PID feedback source	0: AI1 4: Pulse setting (DI5) 5: Communication setting	0	☆
PA-03	PID action direction	0: Forward action 1: Reverse action	0	☆
PA-04	PID setting feedback range	0–65535	1000	☆
PA-05	Proportional gain Kp1	0.0–100.0	20.0	☆
PA-06	Integral time Ti1	0.01–10.00s	2.00s	☆
PA-07	Differential time Td1	0.00–10.000	0.000s	☆
PA-08	Cut-off frequency of PID reverse rotation	0.00 to maximum frequency	2.00 Hz	☆
PA-09	PID deviation limit	0.0%–100.0%	0.0%	☆
PA-10	PID differential limit	0.00%–100.00%	0.10%	☆
PA-11	PID setting change time	0.00–650.00s	0.00s	☆
PA-12	PID feedback filter time	0.00–60.00s	0.00s	☆
PA-13	PID output filter time	0.00–60.00s	0.00s	☆
PA-14	Reserved	-	-	☆
PA-15	Proportional gain Kp2	0.0–100.0	20.0	☆
PA-16	Integral time Ti2	0.01–10.00s	2.00s	☆
PA-17	Differential time Td2	0.000–10.000s	0.000s	☆
PA-18	PID parameter switchover condition	0: No switchover 1: Switchover via DI 2: Automatic switchover based on deviation	0	☆
PA-19	PID parameter switchover deviation 1	0.0% to PA-20	20.0%	☆
PA-20	PID parameter switchover deviation 2	PA-19 to 100.0%	80.0%	☆
PA-21	PID initial value	0.0%–100.0%	0.0%	☆
PA-22	PID initial value holding time	0.00–650.00s	0.00s	☆
PA-23	Maximum deviation between two PID outputs in forward direction	0.00%–100.00%	1.00%	☆

Function Code	Parameter Name	Setting Range	Default	Property
PA-24	Maximum deviation between two PID outputs in reverse direction	0.00%–100.00%	1.00%	☆
PA-25	PID integral property	Unit's digit (Integral separated)	00	☆
		0: Invalid 1: Valid		
		Ten's digit (Whether to stop integral operation when the output reaches the limit)		
		0: Continue integral operation 1: Stop integral operation		
PA-26	Detection value of PID feedback loss	0.0%: Not judging feedback loss 0.1%–100.0%	0.0%	☆
PA-27	Detection time of PID feedback loss	0.0–20.0s	0.0s	☆
PA-28	PID operation at stop	0: No PID operation at stop 1: PID operation at stop	0	☆

Group PB: Swing Frequency, Fixed Length and Count

PB-00	Swing frequency setting mode	0: Relative to the central frequency 1: Relative to the maximum frequency	0	☆
PB-01	Swing frequency amplitude	0.0%–100.0%	0.0%	☆
PB-02	Jump frequency amplitude	0.0%–50.0%	0.0%	☆
PB-03	Swing frequency cycle	0.0–3000.0s	10.0s	☆
PB-04	Triangular wave rising time coefficient	0.0%–100.0%	50.0%	☆
PB-05	Set length	0–65535 m	1000 m	☆
PB-06	Actual length	0–65535 m	0 m	☆
PB-07	Number of pulses per meter	0.1–6553.5	100.0	☆
PB-08	Set count value	1–65535	1000	☆
PB-09	Designated count value	1–65535	1000	☆

Group PC: Multi-Reference and Simple PLC Function

PC-00	Reference 0	-100.0%–100.0%	0.0%	☆
PC-01	Reference 1	-100.0%–100.0%	0.0%	☆
PC-02	Reference 2	-100.0%–100.0%	0.0%	☆
PC-03	Reference 3	-100.0%–100.0%	0.0%	☆
PC-04	Reference 4	-100.0%–100.0%	0.0%	☆

Function Code	Parameter Name	Setting Range	Default	Property
PC-05	Reference 5	-100.0%~100.0%	0.0%	☆
PC-06	Reference 6	-100.0%~100.0%	0.0%	☆
PC-07	Reference 7	-100.0%~100.0%	0.0%	☆
PC-08	Reference 8	-100.0%~100.0%	0.0%	☆
PC-09	Reference 9	-100.0%~100.0%	0.0%	☆
PC-10	Reference 10	-100.0%~100.0%	0.0%	☆
PC-11	Reference 11	-100.0%~100.0%	0.0%	☆
PC-12	Reference 12	-100.0%~100.0%	0.0%	☆
PC-13	Reference 13	-100.0%~100.0%	0.0%	☆
PC-14	Reference 14	-100.0%~100.0%	0.0%	☆
PC-15	Reference 15	-100.0%~100.0%	0.0%	☆
PC-16	Simple PLC running mode	0: Stop after the AC drive runs one cycle 1: Keep final values after the AC drive runs one cycle 2: Repeat after the AC drive runs one cycle	0	☆
PC-17	Simple PLC retentive selection	Unit's digit (Retentive upon power failure)	00	☆
		0: No 1: Yes		
		Ten's digit (Retentive upon stop)		
		0: No 1: Yes		
PC-18	Running time of simple PLC reference 0	0.0~6553.5s (h)	0.0s (h)	☆
PC-19	Acceleration/deceleration time of simple PLC reference 0	0~3	0	☆
PC-20	Running time of simple PLC reference 1	0.0~6553.5s (h)	0.0s (h)	☆
PC-21	Acceleration/deceleration time of simple PLC reference 1	0~3	0	☆
PC-22	Running time of simple PLC reference 2	0.0~6553.5s (h)	0.0s (h)	☆
PC-23	Acceleration/deceleration time of simple PLC reference 2	0~3	0	☆
PC-24	Running time of simple PLC reference 3	0.0~6553.5s (h)	0.0s (h)	☆
PC-25	Acceleration/deceleration time of simple PLC reference 3	0~3	0	☆

Function Code	Parameter Name	Setting Range	Default	Property
PC-26	Running time of simple PLC reference 4	0.0–6553.5s (h)	0.0s (h)	☆
PC-27	Acceleration/deceleration time of simple PLC reference 4	0–3	0	☆
PC-28	Running time of simple PLC reference 5	0.0–6553.5s (h)	0.0s (h)	☆
PC-29	Acceleration/deceleration time of simple PLC reference 5	0–3	0	☆
PC-30	Running time of simple PLC reference 6	0.0–6553.5s (h)	0.0s (h)	☆
PC-31	Acceleration/deceleration time of simple PLC reference 6	0–3	0	☆
PC-32	Running time of simple PLC reference 7	0.0–6553.5s (h)	0.0s (h)	☆
PC-33	Acceleration/deceleration time of simple PLC reference 7	0–3	0	☆
PC-34	Running time of simple PLC reference 8	0.0–6553.5s (h)	0.0s (h)	☆
PC-35	Acceleration/deceleration time of simple PLC reference 8	0–3	0	☆
PC-36	Running time of simple PLC reference 9	0.0–6553.5s (h)	0.0s (h)	☆
PC-37	Acceleration/deceleration time of simple PLC reference 9	0–3	0	☆
PC-38	Running time of simple PLC reference 10	0.0–6553.5s (h)	0.0s (h)	☆
PC-39	Acceleration/deceleration time of simple PLC reference 10	0–3	0	☆
PC-40	Running time of simple PLC reference 11	0.0–6553.5s (h)	0.0s (h)	☆
PC-41	Acceleration/deceleration time of simple PLC reference 11	0–3	0	☆
PC-42	Running time of simple PLC reference 12	0.0–6553.5s (h)	0.0s (h)	☆
PC-43	Acceleration/deceleration time of simple PLC reference 12	0–3	0	☆
PC-44	Running time of simple PLC reference 13	0.0–6553.5s (h)	0.0s (h)	☆
PC-45	Acceleration/deceleration time of simple PLC reference 13	0–3	0	☆
PC-46	Running time of simple PLC reference 14	0.0–6553.5s (h)	0.0s (h)	☆

Function Code	Parameter Name	Setting Range	Default	Property
PC-47	Acceleration/deceleration time of simple PLC reference 14	0–3	0	☆
PC-48	Running time of simple PLC reference 15	0.0–6553.5s (h)	0.0s (h)	☆
PC-49	Acceleration/deceleration time of simple PLC reference 15	0–3	0	☆
PC-50	Time unit of simple PLC running	0: s (second)1:h (hour)	0	☆
PC-51	Reference 0 source	0: Set by FC-00 1: AI1 4: Pulse setting 5: PID	0	☆

Function Code	Parameter Name	Setting Range	Default	Property
Group PD: Communication Parameters				
PD-00	Baud rate	Unit's digit (Modbus baud rate) 0: 300 BPs 1: 600 BPs 2: 1200 BPs 3: 2400 BPs 4: 4800 BPs 5: 9600 BPs 6: 19200 BPs 7: 38400 BPs 8: 57600 BPs 9: 115200 BPs Ten's digit (PROFIBUS-DP baud rate) 0: 115200 BPs 1: 208300 BPs 2: 256000 BPs 3: 512000 Bps Hundred's digit (reserved) Thousand's digit (CANlink baud rate) 0: 20 1: 50 2: 100 3: 125 4: 250 5: 500 6: 1 M	6005	☆
PD-01	Data format	0: No check, data format <8,N,2> 1: Even parity check, data format <8,E,1> 2: Odd Parity check, data format <8,O,1> 3: No check, data format <8,N,1> Valid for Modbus	0	☆
PD-02	Local address	0: Broadcast address 1-247 Valid for Modbus, PROFIBUS-DP and CANlink	1	☆

Function Code	Parameter Name	Setting Range	Default	Property
PD-03	Response delay	0–20 ms Valid for Modbus	2 ms	☆
PD-04	Communication timeout	0.0s (invalid) 0.1–60.0s Valid for Modbus, PROFIBUS-DP and CANopen	0.0s	☆
PD-05	Modbus protocol selection and PROFIBUS-DP data format	Unit's digit: Modbus protocol 0: Non-standard Modbus protocol 1: Standard Modbus protocol Ten's digit: PROFIBUS-DP data format 0: PPO1 format 1: PPO2 format 2: PPO3 format 3: PPO5 format	30	☆
PD-06	Communication reading current resolution	0: 0.01A 1: 0.1A	0	☆
PD-08	CANlink communication timeout time	0.0s: Invalid 0.1–60.0s	0	☆
Group PP: Function Code Management				
PP-00	User password	0–65535	0	☆
PP-01	Restore default settings	0: No operation 01: Restore factory settings except motor parameters 02: Clear records 04: Restore user backup parameters 501: Back up current user parameters	0	★
PP-02	AC drive parameter display property	Unit's digit (Group U display selection) 0: Not display 1: Display Ten's digit (Group A display selection) 0: Not display 1: Display	11	★

Function Code	Parameter Name	Setting Range	Default	Property
Group PP: Function Code Management				
PP-00	User password	0–65535	0	☆
PP-01	Restore default settings	0: No operation 01: Restore factory settings except motor parameters 02: Clear records 04: Restore user backup parameters 501: Back up current user parameters	0	★
PP-02	AC drive parameter display property	Unit's digit (Group U display selection) 0: Not display 1: Display Ten's digit (Group A display selection) 0: Not display 1: Display	11	★

Function Code	Parameter Name	Setting Range	Default	Property
PP-03	Individualized parameter display property	Unit's digit (User-defined parameter display selection)	00	☆
		0: Not display 1: Display		
		Ten's digit (User-modified parameter display selection)		
		0: Not display 1: Display		
PP-04	Parameter modification property	0: Modifiable 1: Not modifiable	0	☆
Group A5: Control Optimization Parameters				
A5-00	DPWM switchover frequency upper limit	0.00–15.00 Hz	12.00 Hz	☆
A5-01	PWM modulation mode	0: Asynchronous modulation 1: Synchronous modulation	0	☆
A5-02	Dead zone compensation mode selection	0: No compensation 1: Compensation mode 1 2: Compensation mode 2	1	☆
A5-03	Random PWM depth	0: Random PWM invalid 1–10	0	☆
A5-04	Rapid current limit	0: Disabled 1: Enabled	1	☆
A5-05	Current detection compensation	0–100	5	☆
A5-06	Undervoltage threshold	60.0%–140.0%	100.0%	☆
A5-07	SFVC optimization mode selection	0: No optimization 1: Optimization mode 1 2: Optimization mode 2	1	☆
A5-08	Dead-zone time adjustment	100%–200%	150%	☆
A5-09	Oversupply threshold	200.0–2500.0 V	2000.0 V	☆

Function Code	Parameter Name	Setting Range	Default	Property
Group A5: Control Optimization Parameters				
A5-00	DPWM switchover frequency upper limit	0.00–15.00 Hz	12.00 Hz	☆
A5-01	PWM modulation mode	0: Asynchronous modulation 1: Synchronous modulation	0	☆
A5-02	Dead zone compensation mode selection	0: No compensation 1: Compensation mode 1 2: Compensation mode 2	1	☆
A5-03	Random PWM depth	0: Random PWM invalid 1–10	0	☆
A5-04	Rapid current limit	0: Disabled 1: Enabled	1	☆
A5-05	Current detection compensation	0–100	5	☆
A5-06	Undervoltage threshold	60.0%–140.0%	100.0%	☆
A5-07	SFVC optimization mode selection	0: No optimization 1: Optimization mode 1 2: Optimization mode 2	1	☆
A5-08	Dead-zone time adjustment	100%–200%	150%	☆
A5-09	Overshoot threshold	200.0–2500.0 V	2000.0 V	☆

Troubleshooting

. Faults and Solutions

The STARK-G1100 provides a total of 24 pieces of fault information and protective functions. After a fault occurs, the AC drive implements the protection function, and displays the fault code on the operation panel (if the operation panel is available).

Err22 is the AC drive hardware overcurrent or overvoltage signal. In most situations, hardware overvoltage fault causes Err22.

Fault Name	Display	Possible Causes	Solutions
Inverter unit protection	Err01	1: The output circuit is grounded or short circuited. 2: The connecting cable of the motor is too long. 3: The module overheats. 4: The internal connections become loose. 5: The main control board is faulty. 6: The drive board is faulty. 7: The inverter module is faulty.	1: Eliminate external faults. 2: Install a reactor or an output filter. 3: Check the air filter and the cooling fan. 4: Connect all cables properly.
Overcurrent during acceleration	Err02	1: The output circuit is grounded or short circuited. 2: Motor auto-tuning is not performed. 3: The acceleration time is too short. 4: Manual torque boost or V/F curve is not appropriate. 5: The voltage is too low. 6: The startup operation is performed on the rotating motor. 7: A sudden load is added during acceleration. 8: The AC drive model is of too small power class.	1: Eliminate external faults. 2: Perform the motor auto-tuning. 3: Increase the acceleration time. 4: Adjust the manual torque boost or V/F curve. 5: Adjust the voltage to normal range. 6: Select rotational speed tracking restart or start the motor after it stops. 7: Remove the added load. 8: Select an AC drive of higher power class.
Overcurrent during deceleration	Err03	1: The output circuit is grounded or short circuited. 2: Motor auto-tuning is not performed. 3: The deceleration time is too short. 4: The voltage is too low. 5: A sudden load is added during deceleration. 6: The braking unit and braking resistor are not installed.	1: Eliminate external faults. 2: Perform the motor auto-tuning. 3: Increase the deceleration time. 4: Adjust the voltage to normal range. 5: Remove the added load. 6: Install the braking unit and braking resistor.

Fault Name	Display	Possible Causes	Solutions
Overcurrent at constant speed	Err04	1: The output circuit is grounded or short circuited. 2: Motor auto-tuning is not performed. 3: The voltage is too low. 4: A sudden load is added during operation. 5: The AC drive model is of too small power class.	1: Eliminate external faults. 2: Perform the motor auto-tuning. 3: Adjust the voltage to normal range. 4: Remove the added load. 5: Select an AC drive of higher power class.
Overvoltage during acceleration	Err05	1: The input voltage is too high. 2: An external force drives the motor during acceleration. 3: The acceleration time is too short. 4: The braking unit and braking resistor are not installed.	1: Adjust the voltage to normal range. 2: Cancel the external force or install a braking resistor. 3: Increase the acceleration time. 4: Install the braking unit and braking resistor.
Overvoltage during deceleration	Err06	1: The input voltage is too high. 2: An external force drives the motor during deceleration. 3: The deceleration time is too short. 4: The braking unit and braking resistor are not installed.	1: Adjust the voltage to normal range. 2: Cancel the external force or install the braking resistor. 3: Increase the deceleration time. 4: Install the braking unit and braking resistor.
Overvoltage at constant speed	Err07	1: The input voltage is too high. 2: An external force drives the motor during deceleration.	1: Adjust the voltage to normal range. 2: Cancel the external force or install the braking resistor.
Control power supply fault	Err08	The input voltage is not within the allowable range.	Adjust the input voltage to the allowable range.
Undervoltage	Err09	1: Instantaneous power failure occurs on the input power supply. 2: The AC drive's input voltage is not within the allowable range. 3: The bus voltage is abnormal. 4: The rectifier bridge and buffer resistor are faulty. 5: The drive board is faulty. 6: The main control board is faulty.	1: Reset the fault. 2: Adjust the voltage to normal range.
AC drive overload	Err10	1: The load is too heavy or locked-rotor occurs on the motor. 2: The AC drive model is of too small power class.	1: Reduce the load and check the motor and mechanical condition. 2: Select an AC drive of higher power class.

Fault Name	Display	Possible Causes	Solutions
Motor overload	Err11	1: P9-01 is set improperly. 2: The load is too heavy or locked-rotor occurs on the motor. 3: The AC drive model is of too small power class.	1: Set F9-01 correctly. 2: Reduce the load and check the motor and the mechanical condition. 3: Select an AC drive of higher power class.
Power input phase loss	Err12	1: The three-phase power input is abnormal. 2: The drive board is faulty. 3: The lightening board is faulty. 4: The main control board is faulty.	1: Eliminate external faults.
Power output phase loss	Err13	1: The cable connecting the AC drive and the motor is faulty. 2: The AC drive's three-phase outputs are unbalanced when the motor is running. 3: The drive board is faulty. 4: The module is faulty.	1: Eliminate external faults. 2: Check whether the motor three-phase winding is normal.
Module overheat	Err14	1: The ambient temperature is too high. 2: The air filter is blocked. 3: The fan is damaged. 4: The thermally sensitive resistor of the module is damaged. 5: The inverter module is damaged.	1: Lower the ambient temperature. 2: Clean the air filter. 3: Replace the damaged fan. 4: Replace the damaged thermally sensitive resistor. 5: Replace the inverter module.
External equipment fault	Err15	1: External fault signal is input via DI. 2: External fault signal is input via virtual I/O.	Reset the operation.
Communication fault	Err16	1: The host computer is in abnormal state. 2: The communication cable is faulty. 3: P0-28 is set improperly. 4: The communication parameters in group PD are set improperly.	1: Check the cabling of host computer. 2: Check the communication cabling. 3: Set P0-28 correctly. 4: Set the communication parameters properly.
Contactactor fault	Err17	1: The drive board and power supply are faulty. 2: The contactactor is faulty.	1: Replace the faulty drive board or power supply board. 2: Replace the faulty contactactor.

Fault Name	Display	Possible Causes	Solutions
Current detection fault	Err18	1: The HALL device is faulty. 2: The drive board is faulty.	1: Replace the faulty HALL device. 2: Replace the faulty drive board.
Motor auto-tuning fault	Err19	1: The motor parameters are not set according to the nameplate. 2: The motor auto-tuning times out.	1: Set the motor parameters according to the nameplate properly. 2: Check the cable connecting the AC drive and the motor.
Encoder fault	Err20	1: The encoder type is incorrect. 2: The cable connection of the encoder is incorrect. 3: The encoder is damaged. 4: The PG card is faulty.	1: Set the encoder type correctly based on the actual situation. 2: Eliminate external faults. 3: Replace the damaged encoder. 4: Replace the faulty PG card.
EEPROM read-write fault	Err21	The EEPROM chip is damaged.	Replace the main control board.
AC drive hardware fault	Err22	1: Overvoltage exists. 2: Overcurrent exists.	1: Handle based on overvoltage. 2: Handle based on overcurrent.
Short circuit to ground	Err23	The motor is short circuited to the ground.	Replace the cable or motor.
Accumulative running time reached	Err26	The accumulative running time reaches the setting value.	Clear the record through the parameter initialization function.
User-defined fault 1	Err27	1: The user-defined fault 1 signal is input via DI. 2: User-defined fault 1 signal is input via virtual I/O.	Reset the operation.
User-defined fault 2	Err28	1: The user-defined fault 2 signal is input via DI. 2: The user-defined fault 2 signal is input via virtual I/O.	Reset the operation.
Accumulative power-on time reached	Err29	The accumulative power-on time reaches the setting value.	Clear the record through the parameter initialization function.
Load becoming 0	Err30	The AC drive running current is lower than P9-64.	Check that the load is disconnected or the setting of P9-64 and P9-65 is correct.
PID feedback lost during running	Err31	The PID feedback is lower than the setting of PA-26.	Check the PID feedback signal or set PA-26 to a proper value.

Fault Name	Display	Possible Causes	Solutions
Pulse-by-pulse current limit fault	Err40	1: The load is too heavy or locked-rotor occurs on the motor. 2: The AC drive model is of too small power class.	1: Reduce the load and check the motor and mechanical condition. 2: Select an AC drive of higher power class.
Motor switchover fault during running	Err41	Change the selection of the motor via terminal during running of the AC drive.	Perform motor switchover after the AC drive stops.
Too large speed deviation	Err42	1: The encoder parameters are set incorrectly. 2: The motor auto-tuning is not performed. 3: P9-69 and P9-70 are set incorrectly.	1: Set the encoder parameters properly. 2: Perform the motor auto-tuning. 3: Set P9-69 and P9-70 correctly based on the actual situation.
Motor over-speed	Err43	1: The encoder parameters are set incorrectly. 2: The motor auto-tuning is not performed. 3: P9-69 and P9-70 are set incorrectly.	1: Set the encoder parameters properly. 2: Perform the motor auto-tuning. 3: Set P9-69 and P9-70 correctly based on the actual situation.
Motor overheat	Err45	1: The cabling of the temperature sensor becomes loose. 2: The motor temperature is too high.	1: Check the temperature sensor cabling and eliminate the cabling fault. 2: Lower the carrier frequency or adopt other heat radiation measures.
Initial position fault	Err51	The motor parameters are not set based on the actual situation.	Check that the motor parameters are set correctly and whether the setting of rated current is too small.

Common Faults and Solutions

You may come across the following faults during the use of the STARK AC drive. Refer to the following table for simple fault analysis.

SN	Fault	Possible Causes	Solutions
1	There is no display at power-on.	1: There is no power supply to the AC drive or the power input to the AC drive is too low. 2: The power supply of the switch on the drive board of the AC drive is faulty. 3: The rectifier bridge is damaged. 4: The control board or the operation panel is faulty. 5: The cable connecting the control board and the drive board and the operation panel breaks.	1: Check the power supply. 2: Check the bus voltage. 3: Re-connect the 8-core and 28-core cables.
2	“88” is displayed at power-on.	1: The cable between the drive board and the control board is in poor contact. 2: Related components on the control board are damaged. 3: The motor or the motor cable is short circuited to the ground. 4: The HALL device is faulty. 5: The power input to the AC drive is too low.	1: Re-connect the 8-core and 28-core cables.
3	“Err23” is displayed at power-on.	1: The motor or the motor output cable is short-circuited to the ground. 2: The AC drive is damaged.	1: Measure the insulation of the motor and the output cable with a megger.
4	The AC drive display is normal upon power-on. But “88” is displayed after running and stops immediately.	1: The cooling fan is damaged or locked-rotor occurs. 2: The external control terminal cable is short circuited.	1: Replace the damaged fan. 2: Eliminate external fault.
5	Err14 (module overheating) fault is reported frequently.	1: The setting of carrier frequency is too high. 2: The cooling fan is damaged, or the air filter is blocked. 3: Components inside the AC drive are damaged (thermal coupler or others).	1: Reduce the carrier frequency (P0-15). 2: Replace the fan and clean the air filter.

SN	Fault	Possible Causes	Solutions
6	The motor does not rotate after the AC drive runs.	1: Check the motor and the motor cables. 2: The AC drive parameters are set improperly (motor parameters). 3: The cable between the drive board and the control board is in poor contact. 4: The drive board is faulty.	1: Ensure the cable between the AC drive and the motor is normal. 2: Replace the motor or clear mechanical faults. 3: Check and re-set motor parameters.
7	The DI terminals are disabled.	1: The parameters are set incorrectly. 2: The external signal is incorrect. 3: The jumper bar across OP and +24 V becomes loose. 4: The control board is faulty.	1: Check and reset the parameters in group P4. 2: Re-connect the external signal cables. 3: Re-confirm the jumper bar across OP and +24 V.
8	The motor speed is always low in CLVC mode.	1: The encoder is faulty. 2: The encoder cable is connected incorrectly or in poor contact. 3: The PG card is faulty. 4: The drive board is faulty.	1: Replace the encoder and ensure the cabling is proper. 2: Replace the PG card.
9	The AC drive reports overcurrent and overvoltage frequently.	1: The motor parameters are set improperly. 2: The acceleration/deceleration time is improper. 3: The load fluctuates.	1: Re-set motor parameters or re-perform the motor auto-tuning. 2: Set proper acceleration/deceleration time.
10	Err17 is reported upon power-on or running.	The soft startup contactor is not picked up.	1: Check whether the contactor cable is loose. 2: Check whether the contactor is faulty. 3: Check whether 24 V power supply of the contactor is faulty.
11	BBBBB is displayed upon power-on.	Related component on the control board is damaged.	Replace the control board.