Compressor Drive Quick Guide

133R6015 V2019-01

1.Basic information

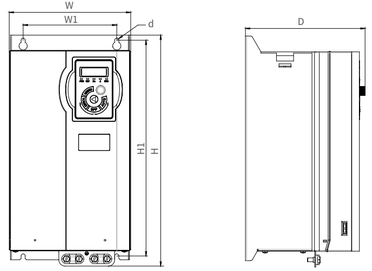
This document will guide the customer to complete the basic installation, wiring and functional debugging. For detailed instructions, please contact your supplier. All products are strictly tested and packaged before leaving the factory. If the drive is found damaged, wrong model, lack of additional accessories or other abnormal conditions, please contact the supplier.

⚠ Danger

Please read and understand this manual before installing or operating the drive. Please install, debug, overhaul and maintain the drive by professionals.

- Be sure to cut off the power supply before wiring.
- Before touching any potentially live parts of the drive, please wait at least 4 minutes for the drives of less than 22kW (including 22kW), and wait at least 15 minutes for the drives of more than 30kW (including 30kW), when it is cut off. Otherwise, it may expose you to a risk of electrical shock.
- Do not plug the connectors of the drive during the power up to avoid any surge into the main control board due to plugging, which might cause the damage of the drive.
- R.S.T terminals are power input terminals, never mixed with U.V.W terminals. Be sure that the wiring of the main circuit is correct. Otherwise it will cause damages of the drive when the power is applied to it.
- The ground terminal must be grounded separately and never connected to N-line.
- Failure to follow instructions could result in serious casualties.

2. Installation Dimensions



Model	Frame	Voltage & Power		Dimensions（mm）					
		3x200-240V	3x380-440V	W	H	D	W1	H1	d
SK190	F1	-	4.0-5.5kW	145	250	167	124	230	4.5
	F2	-	7.5 kW	155	263	177	133	243	4.5
	F3	7.5kW	11-15kW	192	365	189	150	340	6.5
	F4	11kW	18.5-22kW	216	420	194	150	340	6.5
	F5-1	15-18.5kW	30-37kW	292	517	229	240	492	9
	F5-2	22-30kW	45-55kW	292	562	249	240	537	9
	F6	37kW	75kW	292	665	277	240	640	9
	F7	-	90-132kW	350	799	375	220	765	10.5
	F8	-	160-220kW	486	900	390	345	863	10.5
	F9	-	250-415kW	600	1568	509	524	1578	15
SK200	F2	-	7.5kW	158	340	178	133	330	4.5
	F3	-	11–15kW	194	440	190	150	426	6.5
	F4	-	18.5–22kW	234	509	210	150	491	7
	F5	-	30–37kW	292	599	230	240	574	9
	F6	-	45–55kW	292	650	249	240	625	9
	F7	-	75–90kW	292	742	278	240	717	9
SK300	F2	-	7.5kW	176	310	179	126	300	5.5
	F3	-	11–15kW	210	360	188	166	350	5.5
	F4	-	18.5–22kW	265	427	219	221	405	9
	F5	-	30–37kW	320	457	219	240	436	9

3. Specification and Wiring

3.1 Rating of Motor

Drive Power(kW)	Host Power(kW)	Cooling Power(kW)
7.5	7.5	0.5
11	11	0.5
15	15	0.8
18.5	18.5	1.5
22	22	1.5
30	30	1.5
37	37	1.5
45	45	2.2
55	55	2.2
75	75	5.5
90	90	5.5

Note: Other models only support host motor.

3.2 Main Circuit

Symbol	Function	Description
R、S、T	Power input	3x380~440V -20%~+10%；
U、V、W	Host output	IM/PM Motor
U1、V1、W1	Cooling output (Fan 1)	IM/PM Motor； Host power≤15kw, controlled by contactor； Host power≥18.5kw, controlled by drive；
U2、V2、W2 (optional)	Motor Fan (Fan 2)	Fan for motor, controlled by contactor.

Note: SK190 Series(380V Class) support up to 528V input voltage.

3.3 Control Terminals

SK190 Series:

SK200 F2~F3 Series:

SK200 F4~F7 Series:

SK300 Series:

Terminals' specification:

Symbol	Function	Description
VDD	24V Power Supply	SK300：600mA； SK200 F2~F3：270mA SK200 F4~F7：500mA
FOR、REV、DI1、DI2、DI3、DI4	Digital input	1. Logic: >DC 19V Logic: 0; <DC 14V Logic: 1; 2. Voltage: DC 0-24V; 3. Input resistance: 5kΩ; 4. Input voltage Rang: Max ±30V; 5. DI2, DI3, DI4 support PTC sensor;
VI、AI	Analog input	Both VI and AI can be configurated to 0-20mA or 0-10V by parameters: VI default: voltage input; AI default: current input; 1. Input Impedance: about 10kΩ; 2. Input Impedance: ≤500Ω;
RI1、RI2、RI3	Pt100 input	PT100 range: 0-200Ω
COM	Control ground	Digital ground for SK190
GND	Control ground	Analog and communication ground for SK190; Digital, analog and communication ground for SK200/SK300;
DO1、DO2	Digital output	1. Open collector output; 2. Output current range: 0-50mA; 3. Max voltage 30V;
FA-FB-FC KA-KB	Relay output	1. Resistive Load: 250VAC 3A/30VDC 3A; 2. Inductive Load: 250VAC 0.2A/24VDC 0.1A (cosφ=0.4);
F-N、D-N	Relay output (220V)	With 220V power supply, it is necessary to pay attention to safety when using, and the D-N is fixed as the function of the loading valve.
RS+、RS-RS2+、RS2-	RS485 Communication	Max baud rate: 115200bit/s;

3.4 LED Specifications of SK300

Indicator Light	Status	Description
Power (PWR)	Dark	No power
	Blink	Internal fault
	Light	Power on
Run (RUN)	Dark	Stopping
	Blink	AMA
	Light	Running
Error (ERR)	Dark	No fault
	Blink	Warning
	Light	Alarm

4. Fault Codes

Warning	Alarm	Error	Fault Description	Reason analysis
A.02	E.02	-	Live Zero Error	Please refer to C06.0 Live Zero Timeout Time.
A.03	E.03	-	Motor Loss	1. Motor cable connection problems; 2. The drive power is greater than the motor power;
A.04	E.04	-	Mains Phase Loss	1. Missing phase on supply side; 2. Too high voltage imbalance;
A.07	E.07	-	Over Voltage	1. The input voltage is too high; 2. An external force drives the motor during acceleration or deceleration; 3. The deceleration time is too short; 4. The braking unit and braking resistor are not installed.
A.08	E.08	-	Under Voltage	1. Instantaneous power failure occurs on the input power supply; 2. The drive's input voltage is not within the allowable range; 3. The rectifier bridge and buffer resistor are faulty.
A.09	E.09	-	Drive Overload	1. The load is too heavy or locked rotor occurs on the motor; 2. The drive model is of too small power class; 3. C01.** is set improperly.
A.10	E.10	-	Motor Overload	1. C01.24 is set improperly; 2. The load is too heavy or locked rotor occurs on the motor; 3. The drive model is of too small power class; 4. C01.** is set improperly.
-	E.11	-	Motor Over Temperature	Thermistor damage, incorrectly installed or motor cooling equipment fails.
A.12	E.12	-	Torque Limit	Torque exceeds the max. torque limit.
A.13	E.13	-	Over Current	1. The acceleration time is too short; 2. Manual torque boost or V/F curve is not appropriate; 3. The input voltage is too low; 4. The startup operation is performed on the rotating motor; 5. A sudden load is added during acceleration/deceleration; 6. The drive model is of too small power class.
A.13	E.14	-	Earth fault	Discharge from output phases to ground (22kW and below)
-	E.16*	-	Short Circuit	Short circuit in motor or on motor terminals.
A.17	E.17	-	Control Word Timeout	Drive communication timeout, this alarm occurs when C08.04 is set to 1 or 5.
A.20	E.20	-	Low AC Voltage	AC voltage lower than C14.70 value, and over 50% C14.71, LCP display A.20; when over 100% C14.71, LCP display E.20.
-	E.21	-	Over Current caused by Low Voltage	Over current when DC voltage is lower than 384V(380V Model) or 202V(220V Model),
A.24	E.24	-	Fan Fault	Too much dust on the fan or the fan is aged.
-	E.25*	-	Brake resistor short-circuit	Brake resistor is short circuit, leading the brake function invalid.
-	E.27	-	Brake transistor short-circuit	Brake transistor is short circuit leading brake function invalid.
-	E.28	-	Brake Detect	Brake resistor is not connected or working.
-	E.30*	-	Motor phase U missing	Check the phase and motor.
-	E.31*	-	Motor phase V missing	Check the phase and motor.
-	E.32*	-	Motor phase W missing	Check the phase and motor.
A.33	E.33	-	Communication timeout with host and fan	1.Check fan inverter's power 2.Check communication cable 3.Communication jamming
A.36	E.36	-	Instantaneous power cut	Power supply is unstable
-	E.38*	-	Internal Fault	Contact the local distributor or Holip Company.
-	E.44*	-	Earth fault	1.Motor cable leakage 2.Motor leakage
-	E.46	-	IGBT driving voltage fault	Normal IGBT driving voltage is-9~+15V, the current voltage is abnormal.
-	E.47*	-	Power board voltage fault	Power board broken
-	E.48*	-	Power board voltage fault	1.24V is overloaded 2.24V output part damage
-	E.50	-	AMA Fault	-
-	E.51	-	AMA check Unom and Inom	Motor voltage and motor current error setting.
-	E.52	-	AMA Low Inom	Motor current is too low, check the settings.
-	E.53	-	AMA Motor is too large	Motor configuration is too large to perform AMA.
-	E.54	-	AMA Motor is too small	Motor configuration is too small, unable to perform AMA.
-	E.55	-	AMA Parameter Error	Motor parameter is out of the range
-	E.56	-	AMA Interrupt	Interrupted by the user when running AMA.
-	E.57	-	AMA Time-out	AMA takes too long to run.
-	E.58	-	AMA Internal Error	Contact Local distributor or Holip Company.
A.59	E.59	-	Current Limit	Current exceeds value set in C04.18.
-	E.63	-	Mechanical Brake Current Low	Actual motor current cannot exceed release brake current set in C02.20 within start delay time.
A.69	E.69	-	IGBT Over Temperature	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 IGBT is damaged; 5. The drive IGBT is damaged.
A.74	E.74	-	Rectifier Temperature Sensor Error	Rectifier Temperature Sensor Error
A.75	E.75	-	Rectifier Temperature High	1. The ambient temperature is too high; 2. The air filter is blocked; 3. The fan is damaged.
A.76	E.76	-	IGBT Temperature Sensor Error U	IGBT Temperature Sensor Error U
A.77	E.77	-	IGBT Temperature Sensor Error V	IGBT Temperature Sensor Error V
A.78	E.78	-	IGBT Temperature Sensor Error W	IGBT Temperature Sensor Error W
-	E.80	-	Parameter Initialization	Make parameter initialized.
A.83	E.83	-	Power Board Over Temperature	1. The ambient temperature is too high; 2. The air filter is blocked; 3. The fan is damaged.
-	E.88*	-	Power Board 24V Fault	1. Cooling fan of drive is broken 2. Power for drive's fan failed
A.96	-	-	Drive disabled	Using time of drive reach the maximum value
A.101	-	-	Low Voltage Frequency Limit	See C04.28/C04.29 for more information.
A.102	E.102	-	External Fault 43	External Fault, some terminal DI is set to 43
A.104	-	-	Reach the Setting Power	See C04.23/C04.24 for more information.
A.116	-	-	User 1 is Locked	Please contact the manufacturer
A.117	-	-	User 2 is Locked	Please contact the manufacturer
A.124	-	-	Internal Fan Fault	Internal cooling fan short circuit or not running
-	E.126	-	AMA Fault	-
-	E.148	-	Low Voltage of 24V DC on IO Board	1.24V is overloaded 2.24V output part damage
A.160	E.160	-	High Exhaust Pressure	The exhaust pressure reaches the warning/alarm value
A.161	E.161	-	High Exhaust Temperature	The exhaust temperature reaches the warning/alarm value
A.162	E.162	-	Motor Over Temperature	The motor temperature reaches the warning/alarm value
A.163	E.163	-	Oil Filter need Maintaining	The using time of oil filter reaches the warning/alarm value
A.164	E.164	-	Oil Separator need Maintaining	The using time of oil separator reaches the warning/alarm value
A.165	E.165	-	Air Filter need Maintaining	The using time of air filter reaches the warning/alarm value
A.166	-	-	Oil Filter Clogging	Please replace the oil filter
A.167	E.167	-	Oil Separator Clogging	Please replace the oil separator
A.168	-	-	Air Filter Clogging	Please replace the air filter
-	E.168	-	Phase Sequence Detection Timeout	Three times of phase sequence detecting are inconsistent
A.169	E.177	-	Grease need replacing	Please replace the grease
-	E.169	-	Transformer Short Circuit	External 220V devices short circuit
A.170	E.178	-	Lube need replacing	Please replace the lube
-	E.170	-	Cooling Fan cannot start	Host send a command to start cooling fan, but fan's current can't be detected.
-	E.171	-	Temperature sensor Fault	Temperature sensor is broken or disconnected
-	E.172	-	Pressure sensor Fault	Pressure sensor is broken or disconnected
A.173	E.173	-	Cooling Fan Overload	1. Fan is blocked 2. Check the rated current
-	E.174	-	External Fault 168	External Fault, some terminal DI is set to 168
-	E.175	-	Phase Sequence Fault	Check the phase sequence
A.176	E.176	-	Max Using Time Limit	Total running time reach the maximum time
-	E.179	-	Low Temperature of Oil	Actual temperature is below the minimum allowable value
A.180	E.180	-	Motor Fan Overload	1. Fan is blocked 2. Check the rated current
-	E.181	-	Motor Fan cannot Run	Host send a command to start motor fan, but fan's current can't be detected.
A.182	E.182	-	RI Over Temperature	RI1's temperature is over the maximum allowable value
A.183	E.183	-	VI Over Pressure	VI's pressure is over the maximum allowable value
-	E.184	-	RI1 Sensor Fault	Temperature sensor is broken or disconnected
-	E.185	-	RI3 Sensor Fault	Temperature sensor is broken or disconnected
-	E.186	-	VI Sensor Fault	VI value < 3mA
-	E.189	-	Low Pressure of Oil Pump	Pressure of oil pump is still low, after a start command given by host for a long time
-	E.190	-	Oil Pump cannot Run	Host send a command to start oil pump, but can't detect a signal from terminal DI.
-	-	Er.84	LCP Connection with the drive failed	No communication between LCP and the drive.
-	-	Er.85	Button is disabled	Refer to parameter group C00.4*.
-	-	Er.89	Parameter read-only	Try to write read-only parameter.
-	-	Er.91	Parameter value is invalid in this mode	Invalid parameter value to write.
-	-	Err	Unchangeable	Parameter is freezed or can't be changed during running.
-	-	-	Dormancy 31# Overload	Host goes to dormancy, due to drive overload
-	-	-	Dormancy 32# Drive over Temperature	Host goes to dormancy, due to drive over temperature
-	-	-	Dormancy 33# Higher Pressure	Host goes to dormancy, due to the overpressure of exhaust pressure
-	-	-	Dormancy 34# Higher Temperature	Host goes to dormancy, due to the overtemperature of exhaust temperature
-	-	-	Dormancy 35#Motor over Temperature	Host goes to dormancy, due to the overpressure of motor
-	A.F01	-	Cooling Fan - Internal Fault	Contact the local distributor or Holip Company.
-	A.F02	-	Cooling Fan - Over Current	The description is same as E.13
-	A.F03	-	Cooling Fan – Earth Fault	The description is same as E.14
-	A.F04	-	Cooling Fan - Short Circuit	The description is same as E.14
-	A.F05	-	Cooling Fan - IGBT Over Temperature	The description is same as E.16
-	A.F06	-	Cooling Fan – Drive Overload	The description is same as E.09
-	A.F07	-	Cooling Fan -Motor Overload	The description is same as E.11
-	A.F08	-	Cooling Fan – Other Faults	See detail by connecting LCP to Fan drive

Note: FE.xxx means error code for fan drive, the meaning of xxx is same as host.

5.Parameter Overview:

Par. No.	Name	Range	Unit	Default
Par. Group 00: Operati-on/Display				
C00.03	Regional Settings	0: 50 Hz； 1: 60 Hz；	-	0
C00.06	Grid Type	0-132	-	*
C01.01	Motor Control Principle	0: V/F； 1: VCC+； 2: Vector control 1；	-	1
C01.07	Application Configuration Mode	0：Disable； 5：Compressor mode；	-	0
C01.10	Motor structure	0: ASYNCHRON 1: SPMSM 2: IPMSM_NON_SAT 3: IPMSM_SAT	-	0
C01.20	Motor Power	Motor dependant	kW	*
C01.22	Motor Voltage	50~1000	V	*
C01.23	Motor Frequency	20~400	Hz	*
C01.24	Motor Current	Motor dependant	A	*
C01.25	Motor Speed	100~9999	rpm	*
C01.26	Motor Torque	0.1~6553.5	NM	*
C01.29	Automatic Motor Adaption (AMA)	0: No function 1: Static complete AMA 2: Static easy AMA 3: Static complete AMA + Back-EMF 4: Static complete AMA + System inertial 5: Static complete AMA + Back-EMF+System inertial	-	0
C01.30	Stator Resistance (Rs)	Motor dependant	Ω	*
C01.31	Rotor Resistance(Rr)	Motor dependant	Ω	*
C01.33	Stator Leakage Reactance (X1)	Motor dependant	Ω	*
C01.35	Main Reactance (Xh)	Motor dependant	Ω	*
C01.37	Synchronous motor D axis reactance	Motor dependant	mH	*
C01.38	Synchronous motor Q axis reactance	Motor dependant	mH	*
C01.39	Motor holes	2~100	P	4
C01.40	BackEMF in 1000rpm	0~9000	V	*
C01.42	Motor Cable Length	0~150	m	2
C01.44	D-axis saturable inductor	C01.37min~C01.37*0.95	Ω	*
C01.45	Q-axis saturable inductor	C01.37min~C01.37*0.95	Ω	*
C01.47	Rs Calibration Mode	0: Disable 1: Enable	-	0
C01.48	Current at min Inductance d-Axis	20~200	%	100
C01.49	Current at min Inductance q-Axis	20~200	%	100
C01.55	V/F Characteristic-V	0.0~999.0	V	*
C01.56	V/F Characteristic-F	0.0~400.0	Hz	*
C01.60	Low Speed Load Compensation	0~199	%	75
C01.61	High Speed Load Compensation	0~199	%	100
C01.62	Slip Compensation	-400~399	%	0
C01.63	Slip Compensation Time Constant	0.05~5.00	s	0.50
C01.64	Resonance Dampening	0~3000	%	*
C01.65	Resonance Dampening Time constant	0.005~0.050	s	0.005
C01.66	Min. Current at Low Speed	0~120	%	80
C01.69	System inertia	0~10000.0000	kg/m2	*

Par. No.	Name	Range	Unit	Default
C01.70	PM start mode	0: with IPD； 1: without IPD；	-	0
C01.71	Start Delay	0.0~10.0	s	0.0
C01.76	Jump Frequency	0.0~20.0	Hz	0
C01.80	Function at Stop	0: Coast 1: DC hold	-	0
C01.82	Min Speed for Function at Stop	0.0~400.0	Hz	*
C01.91	Motor overload protection time	1~60	min	2
C01.92	Motor overload factor	100~160	%	150
Par. Group02: Brake Function				
C02.06	PM parking current	0~150	%	80
C02.07	PM parking time	0.1~60.0	s	3.0
Par. Group03: Reference/Ramps				
C03.03	Maximum Reference	0.0~6553.5	-	50.0
C03.10	Preset Reference	-100.00~100.00	%	0.00
C03.11	Jog speed	0.0~400.0	Hz	5.0
C03.15	Reference Source 1	0: No function 1: Terminal VI 2: Terminal AI 8: Pulse input DI4 10: Preset reference [0] 11: Local bus 21: LCP potentiometer	-	0
C03.16	Reference Source 2		-	2
C03.17	Reference Source 3		-	0
C03.41	Ramp 1 Ramp Up Time	0.05~655.35	s	*
C03.42	Ramp 1 Ramp Down Time	0.05~655.35	s	*
C03.51	Ramp 2 Ramp Up Time	0.05~655.35	s	*
C03.52	Ramp 2 Ramp Down Time	0.05~655.35	s	*
Par. Group04: Limits/Warnings				
C04.12	Motor Speed Low Limit	0.0~400.0	Hz	*
C04.14	Motor Speed High Limit	0.0~400.0	Hz	65.0
C04.16	Torque Limit Motor Mode	0~1000	%	*
C04.17	Torque Limit Generator Mode	0~1000	%	*
C04.18	Current Limit	0~300	%	200
C04.19	Max Output Frequency	0.0~400.0	Hz	65.0
C04.23	Power Limit Motor Mode	0~400	%	400
C04.24	Power Limit Generator Mode	0~400	%	400
C04.28	Low Voltage Overload Limit	5~100	%	100
C04.29	Low Voltage Udc Limit	50~1000	V	220/380
C04.61	Bypass Speed From	0.0~400.0	Hz	0.0
C04.63	Bypass Speed to	0.0~400.0	Hz	0.0
Par. Group05: Digital In/Out				
C05.04	DI Filter Time	0~32	ms	16
C05.05	DI Terminal Logic Selection	0~255	-	4
C05.10	Terminal FOR	0: No operation 1: Reset 2: Coast inverse 34: Ramp bit0 35: Ramp bit1 43: External alarm input 110: PID pause； 160: Compressor run； 161: Oil filter plugging； 162: Oil separator plugging 163: Air filter plugging； 164: Loading valve control； 165: Fan overload； 166: Motor over temperature； 167: Emergency stop； 168: External fault 169: Phase sequence error 170: External sleep signal 171: Oil pump run detection 172: Cooling Fan Control 173: Pulse Stop 174: Pulse Start	-	8
C05.11	Terminal REV		-	0
C05.12	Terminal DI1		-	0
C05.13	Terminal DI2		-	0
C05.14	Terminal DI3		-	0
C05.15	Terminal DI4		-	0

Par. No.	Name	Range	Unit	Default
C05.40	Relay Function	0: No operation 1: Drive ready 5: Drive running 9: Alarm 10: Alarm or warning 38: Control by Communication 39: Control by DI Terminal 160: Loading valve； 161: Cooling fan； 162: Fan overload； 163: Pressure sensor error； 164: Temperature sensor error； 165: External error 1； 166: External dormancy function open； 167: External error 2； 168: Drain valve； 171: Oil pump control； 172: Error or maintain timeout 173: Dryer Control	-	0
Par. Group06: Analog In/Out				
C06.12	Terminal VI Low Current	0.00~19.99	mA	4.00
C06.13	Terminal VI High Current	0.01~20.00	mA	20.00
C06.14	Terminal VI Low Ref./ Feedb. Value	-200.00~200.00	%	0.00
C06.15	Terminal VI High Ref./ Feedb. Value	-200.00~200.00	%	100.00
C06.16	Terminal VI Filter Time	0.001~10.000	s	0.010
C06.22	Terminal AI Low Current	0.00~19.99	mA	4.00
C06.23	Terminal AI High Current	0.01~20.00	mA	20.00
C06.24	Terminal AI Low Ref./ Feedb. Value	-200.00~200.00	%	0.00
C06.25	Terminal AI High Ref./ Feedb. Value	-200.00~200.00	%	100.00
C06.26	Terminal AI Filter Time	0.001~10.000	s	0.010
Par. Group07: Controllers				
C07.20	Process PID Feedback Source	0: No function 1: Terminal VI 2: Terminal AI 8: Pulse input DI4 11: Local bus	-	0
C07.30	Process PID Normal/ Inverse	0: Normal 1: Inverse	-	0
C07.33	Process PID Proportional Gain	0.00~10.00	-	10.00
C07.34	Process PID Integral Time	0.01~655.35	s	12.00
C07.35	Process PID Differentiation Time	0.00~10.00	s	0.00
C07.36	Process PID Diff Gain Time	1.0~50.0	-	5.0
C07.38	Process PID Feed Forward Factor	0~400	%	0
C07.39	On Reference Bandwidth	0.0~200.0	%	0.0
C07.48	PID Max. Ref Coefficient	0.00~100.00	%	100.00
Par. Group08: Communication				
C08.01	Control Site	0: Digital and communication 1: Digital only 2: Communication only	-	0
C08.03	Communication Timeout Function	0: Off 1: Freeze output 2: Stop 3: Jogging 4: Max. speed 5: Stop and trip 6: Warning	s	10.00
C08.04	Reset Communication Timeout	0: Do not reset 1: Do reset 2: Stop and warning	-	2
C08.30	Protocol	0: FC； 2: MODBUS RTU；	-	2
C08.31	Address	1~247；	-	1
C08.32	Baud Rate	2: 9600； 3: 19200；	-	2

Par. No.	Name	Range	Unit	Default
C08.33	Parity/Stop Bits	0: 8E1； 1: 8O1； 2: 8N1； 3: 7N2；	-	2
Par. Group14: Special Functions				
C14.01	Switching Frequency	2~6: 2kHz~6kHz; 7: 8kHz; 8: 10 kHz; 9: 12kHz; 10: 16kHz;	-	*
C14.10	Action at Mains Failure	0: No function 1: Ctrl ramp-down 2: Ctrl ramp-down, trip 3: Coasting 4: Kinetic back-up 5: Kinetic back-up, trip 6: Alarm 8: Warning	-	8
C14.11	Mains Voltage at Mains Failure	100~Rated Voltage	V	*
C14.12	Function at Mains Imbalance	0: Trip (Low sensitivity) 1: Warning (Low sensitivity) 2: Disabled 4: Warning (Middle sensitivity) 5: Trip (Middle sensitivity) 6: Trip (High sensitivity)	-	0
C14.14	Kinetic Backup Gain	0~500	%	100
C14.16	Low Voltage Mode	0: Disable; 1: Enable	-	1
C14.21	Automatic Restart Time	0~600	s	10
C14.22	Operation Mode	0: Normal operation 2: Initialization 3: Backup user settings 4: Recover user settings	-	0
C14.44	D-axis Current Optimization For IPM	-400~400	%	10
C14.49	Motor Current coeff	0.6~1.4	%	1.0
C14.82	Customer Define	0. No function 1. Reference 2. Output Voltage 3. Output Torque 4. IGBT Temperature 5. DI Status 6. DO Status 7. Relay Status 8. VI Value 9. AI Value 10. VO Value 11. AO Value 12. DI4 Pulse Value 13. DO1Pulse Value 30.Exhaust Pressure 31.VI Source Pressure 40.Exhaust Temperature 41.RI1 Temperature 42.RI3 Temperature	-	*
Par. Group15: Communication				
C15.30	Alarm Code	0~255	-	0
C15.31	Internal Fault Reason	-32767~32767	-	0
C15.32	Frequency at Alarm	0.0~6553.5	Hz	0.0
C15.33	Current at Alarm	0.01~655.35	A	0.00
C15.34	DC Voltage at Alarm	0~65535	V	0
C15.35	Runtime at Alarm	0.0~6553.5	min	0.0
C15.36	Custom defined value 1 at Alarm	0~65535	-	0
C15.37	Custom defined value 2 at Alarm	0~65535	-	0
C15.38	Warning Code	0~255	-	0
*C15.43	Software Version	-	-	-
Par. Group16: Data Readouts				
C16.00	Control Word	0~65535	-	0
C16.01	Reference	-4999.0~4999.0	Hz	0
C16.02	Reference	-200.0~200.0	%	0
C16.03	Status Word	0~65535	-	0
C16.05	Motor Speed	0~9999	rpm	0
C16.10	Output Power	0.00~655.35	kW	0.00
C16.12	Motor Voltage	0~65535	V	0
C16.13	Output Frequency	0.0~400.0	Hz	0.0

Par. No.	Name	Range	Unit	Default
C16.14	Output Current	0.00~655.35	A	0.00
C16.30	DC Link Voltage	0~65535	V	0
C16.34	IGBT Temperature	-128~127	°C	0
C16.48	Power Board Temperature	-128~127	°C	0
C16.49	Rectifier Temperature	-128~127	°C	0
C16.57	RI1 Temperature	-60~260	°C	0
C16.58	RI2 Temperature	-60~260	°C	0
C16.59	RI3 Temperature	-60~260	°C	0
C16.60	Digital Input	0~65535	-	0
C16.62	Analog Input VI	0.00~20.00	V/mA	0.00
C16.64	Analog Input AI	0.00~20.00	V/mA	0.00
C16.65	Analog Output VO	0.00~20.00	V/mA	0.00
C16.66	Digital Output	0~255	-	0
C16.71	Relay Output	0~65535	-	0
C16.78	Analog Output AO	0.00~20.00	V/mA	0
Par. Group19: Cooling Fan				
C19.00	Cooling Fan structure	0: ASYNCHRON 1: SPMSM 2: IPMSM_NON_SAT 3: IPMSM_SAT	-	0
C19.02	Cooling Fan Rated Power	Motor dependant	kW	*
C19.03	Cooling Fan Rated Frequency	0.0~400.0	Hz	50
C19.04[0]	Cooling Fan Rated Current	Motor dependant	A	*
C19.04[1]	Motor Fan Rated Current	Motor dependant	A	*
C19.05	Cooling Fan Rated Speed	0~9999	rpm	*
C19.06	Cooling Fan Speed Lower Limit	0.0~400.0	Hz	0.0
C19.07	Cooling Fan Speed Upper Limit	0.0~400.0	Hz	50.0
C19.08	Cooling Fan Max Frequency	0.0~400.0	Hz	50.0
C19.09	Cooling Fan Jog Frequency	0.0~50.0	Hz	5.0
C19.10	Cooling Fan Max Reference	0.0~6553.5	Hz	50.0
C19.11	Cooling Fan Ramp Up Time	0.05~3600.00	s	*
C19.12	Cooling Fan Ramp Down Time	0.05~3600.00	s	*
C19.15	Cooling Fan VF-U	*	V	*
C19.16	Cooling Fan VF-F	*	Hz	*
C19.17	Min Speed for Function at Stop	0.0~400.0	Hz	*
C19.18	Cooling Fan Rated Torque	0.1~6553.5	NM	*
C19.19	Cooling Fan Motor Poles	2~100	P	4
C19.20	Cooling Fan EMF in 1000 rpm	0~9000	V	*
C19.21	Cooling Fan AMA	0: No function 1: Static complete AMA	-	0
C19.22	Cooling Fan Stator Resistance	Motor dependant	Ω	*
C19.23	Cooling Fan Rotor Resistance	Motor dependant	Ω	*
C19.24	Cooling Fan Stator Leakage Reactance	Motor dependant	Ω	*
C19.25	Cooling Fan Main Reactance	Motor dependant	Ω	*
C19.26	Cooling Fan D-axis Inductance	Motor dependant	mH	0
C19.27	Cooling Fan Q-axis Inductance	Motor dependant	mH	0
C19.28	D-axis Inductance Sat.	Motor dependant	Ω	*
C19.29	Q-axis Inductance Sat.	Motor dependant	Ω	*
C19.30	Current at Min Inductance for D-axis	20~200	%	100
C19.31	Current at Min Inductance for Q-axis	20~200	%	100
C19.36	Min. Current at Low Speed	0~120	%	80
C19.37	Parking Current	0~150	%	80
C19.38	Parking Time	0.1~60.0	s	3.0

Par. No.	Name	Range	Unit	Default
C19.60	Cooling Fan Control Word	See C16.00	-	0
C19.61	Cooling Fan Reference	0.0~400.0	Hz	0.0
C19.63[0]	Cooling Fan Status Word	*	*	0
C19.63[1]	Cooling Fan Alarm Code	*	*	0
C19.64	Cooling Fan Output Frequency	0.0~400.0	Hz	0
C19.65[0]	Cooling Fan Output Current	0~655.35	A	0
C19.65[1]	Motor Fan Output Current	0~655.35	A	0
C19.66	Fan Output Speed	0~9999	rpm	0
C19.68	Phase Detection Result	0: Fault 1: Normal 2: Phase loss 3: Timeout	-	*
Par. Group28: Compressor Parameters				
C28.00[0]	Load-unload Mode	0: Manual 1: Auto	-	1
C28.00[1]	Run Mode	0: Single 1: Slave 2: Linkage Mode	-	0
C28.00[2]	Compact Mode	0: Single Host 1: Double Host	-	0
C28.00[3]	Oil Pump Mode	0: Pump - Host 1: Host – Pump	-	0
C28.00[4]	Cooling Fan Control Mode	0: Synchronize with host 1: Synchronize with system	-	0
C28.01	Load Delay	0~300	S	20
C28.02	Stop Delay	0~300	S	10
C28.03	Restart Delay	0~300	S	80
C28.04	Pre-run Frequency	0~C04.14	Hz	30.0
C28.05	Dormancy Delay	0~10000(10000=Disable)	s	10000
C28.06	Min Dormant Time	1~3600	s	5
C28.07	Idle Frequency	0.0~C28.04	Hz	25.0
C28.09	Host Jog Freq.	C04.12~C28.04	Hz	30.0
C28.10	Lower Limit of Pressure Sensor	0.00~C28.12	MPa	0.00
C28.11	Upper Limit of Pressure Sensor	C28.43~10.00	MPa	1.60
C28.12	Loading Pressure	0.00~C28.14	MPa	0.50
C28.13	Unloading Pressure	C28.14~28.43	MPa	0.80
C28.14	Target Pressure	C28.12~C28.13	MPa	0.70
C28.15	Linkage Loading Pressure	0.00~C28.16	MPa	0.63
C28.16	Linkage Unloading Pressure	C28.15~10.00	MPa	0.78
C28.20	Cooling Fan Starting Temperature	C28.21~C28.42	℃	85
C28.21	Cooling Fan Stopping Temperature	0~C28.20	℃	75
C28.22	Cooling Fan Target Temperature	0~250	℃	80
C28.23[0]	Cooling Fan PID -I	0.10~16.00	s	10.00
C28.23[1]	Cooling Fan PID – Kp	0.01~10.00	-	4.00
C28.23[2]	Cooling Fan PID -Deviation Limit	0.00~100.00	%	0.10
C28.27[0]	Cooling Fan Current Protection Factor	1~100	%	10
C28.27[1]	Motor Fan Current Protection Factor	1~100	%	10
C28.36	Min. Oil Pressure	0.00~0.60	MPa	0.15
C28.37	Oil Pump Start Delay	0~60	s	0
C28.38	Oil Pump Fault Delay	0~60	s	5
C28.42[0]	Warning Temp. - Exhaust	C28.20~C28.43	℃	105
C28.42[1]	Warning Temp. – RI1	0~250	℃	105
C28.42[2]	Warning Temp. – Motor	0~250	℃	125
C28.43[0]	Alarm Temp. - Exhaust	C28.42~250	℃	110
C28.43[1]	Alarm Temp. – RI1	0~150	℃	110
C28.43[2]	Alarm Temp. – Motor	0~250	℃	130
C28.44[0]	Warning Pressure - Exhaust	C28.13~C28.45	MPa	0.84
C28.44[1]	Warning Pressure - VI	0~10.00	MPa	0.88

Par. No.	Name	Range	Unit	Default
C28.45[0]	Alarm Pressure - Exhaust	C28.44~10.00	MPa	0.86
C28.45[1]	Alarm Pressure - VI	0~10.00	MPa	0.92
C28.46	Oil Filter Time Limit	0~60000	h	500
C28.47	Oil Filter Service Time	0~60000	h	*
C28.48	Oil Separator Time Limit	0~60000	h	4000
C28.49	Oil Separator Service Time	0~60000	h	*
C28.50	Air Filter Time Limit	0~60000	h	4000
C28.51	Air Filter Service Time	0~60000	h	*
C28.52	Grease Time Limit	0~60000	h	2000
C28.53	Grease Service Time	0~60000	h	*
C28.54	Lube Time Limit	0~60000	h	2000
C28.55	Lube Service Time	0~60000	h	*
C28.56	Max Limit Run Time	0~10000	h	0
C28.57	Run Time	0~60000	h	*
C28.58		0~59	min	*
C28.59	Load Time	0~60000	h	*
C28.60		0~59	min	*
C28.61	Min. Oil Temperature	-50~100	℃	-50
C28.62	Starting Value for Detecting Pressure Diff.	0.00~10.00	MPa	0.00
C28.63	Pressure Diff. Warning Value	0.00~0.60	MPa	0.15
C28.64	Pressure Diff. Alarm Value	0.00~0.60	MPa	0.20
C28.70	PTC Function	0~1	-	1
C28.71	Speed Correction	0~1000	rpm	0
C28.72	Power Correction	0~200	%	100
C28.74[0]	Terminal VI Configuration	0: Disable 1: First Stage Pressure 2: Second Stage/Output Pressure 3: Oil separator pressure 4: Oil Pump Pressure	-	2
C28.74[1]	Terminal AI Configuration		-	0
C28.75[0]	Terminal RI2 Configuration	0: No Function 1: First Stage Temp. 2: Exhaust Temp. 3: Motor Temp.	-	2
C28.75[1]	Terminal RI1 Configuration		-	0
C28.75[1]	Terminal RI3 Configuration		-	0
C28.86	Signal Run Time - H	0~65535	h	0
C28.87	Signal Run Time - M	0~59	min	0
C28.88	Signal Power Consumption	0.0~99999999.9	kWh	0.0
C28.89	Total Power Consumption	0.0~99999999.9	kWh	0.0
C28.99	Emergency Dormancy Function	*	-	63

Note: The "*" in the parameter number column means the parameter cannot be modified during the motor running.