






■ Braking Resistor Specification

Product(kW)		Resistance(Ω)	Rated Capacity(W)	Product(kW)		Resistance(Ω)	Rated Capacity(W)
3-Phase 200V	0.4	300	100	3-Phase 400V	0.4	1,200	100
	0.75	150	150		0.75	600	150
	1.5	60	300		1.5	300	300
	2.2	50	400		2.2	200	400
	3.7	33	600		3.7	130	600
	4	33	600		4	130	600
	5.5	20	800		5.5	85	1,000
	7.5	15	1,200		7.5	60	1,200
	11	10	2,400		11	40	2,000
	15	8	2,400		15	30	2,400
	18.5	5	3,600		18.5	20	3,600
	22	5	3,600		22	20	3,600

• The standard for braking torque is 150 % and the working rate (%ED) is 5 %. If the working rate is 10 %, the rated capacity for braking resistance must be calculated at twice the standard.

3.4 Power Terminal Labels and Descriptions

Terminal Labels	Name	Description
	Ground Terminal	Connect earth grounding.
R(L1)/S(L2)/T(L3)	AC power input terminal	Mains supply AC power connections.
B1/B2	Brake resistor terminals	Brake resistor wiring connection.
U/V/W	Motor output terminals	3-phase induction motor wiring connections.

Note

- Do not use 3 core cables to connect a remotely located motor with the inverter.
- When you operating Brake resistor, the motor may vibrate under the Flux braking operation. In this case, please turn off the Flux braking (Pr50).
- Make sure that the total cable length does not exceed 665 ft (202 m). For inverters < = 4.0 kW capacity, ensure that the total cable length does not exceed 165 ft (50 m).
- Long cable runs can cause reduced motor torque in low frequency applications due to voltage drop. Long cable runs also increase a circuit's susceptibility to stray capacitance and may trigger over-current protection devices or result in malfunction of equipment connected to the inverter. Voltage drop is calculated by using the following formula:  
Voltage Drop (V) = [√3 X cable resistance (mΩ/m) X cable length (m) X current (A)] / 1000
- Use cables with the largest possible cross-sectional area to ensure that voltage drop is minimized over long cable runs. Lowering the carrier frequency and installing a micro surge filter may also help to reduce voltage drop.

Distance	< 165 ft (50 m)	< 330 ft (100 m)	> 330 ft (100 m)
Allowed Carrier Frequency	< 15 kHz	< 5 kHz	< 2.5 kHz

⚠ Warning:

- Do not connect power to the inverter until installation has been fully completed and the inverter is ready to be operated. Otherwise, it may cause an electrical shock and result in personal injury or even death.

⚠ Caution:

- Power supply cables must be connected to the R, S, and T terminals. Connecting power cables to other terminals will damage the inverter.
- Use insulated ring lugs when connecting cables to R/S/T and U/V/W terminals
- The inverter's power terminal connections can cause harmonics that may interfere with other communication devices located near to the inverter. To reduce interference the installation of noise filters or line filters may be required.
- Are advanced-phase capacitors, surge protection and electromagnetic interference filters installed correctly?
- To avoid circuit interruption or damaging connected equipment, do not install magnetic contactors on the output side of the inverter. Metal debris in the inverter may cause inverter failure.

3.5 Control Terminal Labels and Descriptions

■ Control Board Switches and Connector

Switch	Description
SW1	NPN/PNP mode selection switch
SW2	Terminating Resistor selection switch
SW3	I2/PTC selection switch
RJ-45 Connector	Connect to Remote I/O or smart copier, connect with RS-485 communication.

■ Input Terminal Labels and Descriptions

Function	Label	Name	Description
Multi-function terminal configuration	P1-P5	Multi-function Input 1-5	Configurable for multi-function input terminals. Factory default terminals and setup are as follows: <ul style="list-style-type: none"><li>• P1: Fx, P2: Rx, P3: Bx, P4: RST, P5: Speed-L</li><li>• P6: Speed-M, P7: Speed-H, P8: None</li></ul>
	P1-P8 (Safety Type)	Multi-function Input 1-8	
	CM	Common Sequence	Common terminal for analog terminal inputs and outputs.
Analog input	VR	Potentiometer frequency reference input	Used to setup or modify a frequency reference via analog voltage or current input. <ul style="list-style-type: none"><li>• Maximum Voltage Output: 12V (G100C: 20mA)</li><li>• Maximum Current Output: 100mA,</li><li>• Potentiometer: 1-5kΩ</li></ul>
	V1	Voltage input for frequency reference input	Used to setup or modify a frequency reference via analog voltage input terminal. <ul style="list-style-type: none"><li>• Unipolar: 0-10V (12V Max)</li><li>• Bipolar: -10-10V (±12V Max)</li></ul>
	V2 (Safety Type)	Voltage input for frequency reference input	
	I2*	Current input for frequency reference input	Used to setup or modify a frequency reference via current input terminal. V Mode: <ul style="list-style-type: none"><li>• Input current: 4-20 mA, Maximum Input current: 24mA</li><li>• Input resistance: 249 Ω</li></ul>
		PTC input (Safety Type)	PTC or PT1000 sensor is used

\* For Safety Type, SW3 operates as I2 when set to the right and as PTC when set to the left

■ Output/Communication Terminal Labels and Descriptions

Function	Label	Name	Description
Analog Output	AO	Voltage Output terminal	Used to send inverter output information to external devices: output frequency, output current, output voltage, or a DC voltage. <ul style="list-style-type: none"><li>• Output voltage: 0-10 V</li><li>• Maximum output voltage/current: 12V, 10 mA</li><li>• Factory default output: Output frequency</li></ul>
		Current Output terminal	Used to send inverter output information to external devices: output frequency, output current, output voltage, or a DC voltage. <ul style="list-style-type: none"><li>• Output current: 0-20 mA</li><li>• Maximum output current: 24 mA</li><li>• Factory default output: Output frequency</li></ul>
Digital Output	24	External 24 V power source	Maximum output current: 100 mA*
	A1/C1/B1	Fault signal output 1	Sends out alarm signals when the inverter's safety features are activated (AC 250V <1A, DC 30V < 1A). <ul style="list-style-type: none"><li>• Fault condition: A1 and C1 contacts are connected (B1 and C1 open connection)</li><li>• Normal operation: B1 and C1 contacts are connected (A1 and C1 open connection)</li></ul>
	A2/C2	Fault signal output 2	Sends out alarm signals when the inverter's safety features are activated (AC 250V <1A, DC 30V < 1A). <ul style="list-style-type: none"><li>• Fault condition: A2 and C2 contacts are open connection</li><li>• Normal operation: A2 and C2 contacts are connected</li></ul>
	Q1/EG (G100C)	Open Collector	<ul style="list-style-type: none"><li>• The G100C provides an open-collector output terminal (Q1/EG) instead of a fault signal output2 terminal(A2/C2).</li><li>• DC 24V, 100mA or less</li></ul>
RS-485 Communication	S+/-	RS-485 signal line	Used to send or receive RS-485 signals.

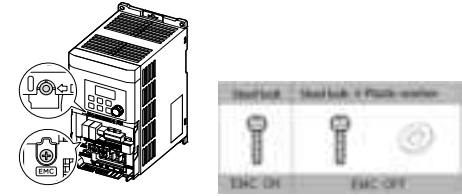
\* When terminals SA and SB are connected to SC, the maximum output current of terminal 24 is 90mA.

■ Safety Function Input Terminal Labels and Descriptions

Function	Label	Name	Description
Safety Function	SA	Safety input A	In case of an emergency, the output is cut off based on the incoming input signal. <ul style="list-style-type: none"><li>• SA and SB connected to SC : Normal operation</li><li>• SA or SB disconnected to SC : Output cut-off</li></ul>
	SB	Safety input B	
	SC	Safety input power	DC 24V, 10mA or less

3.6 Disabling the EMC Filter for Power Sources with Asymmetrical Grounding







- Before using the inverter, confirm the power supply's grounding system. Disable the EMC filter if the power source has an asymmetrical grounding connection. Check the location of the EMC filter on/off screw and attach the plastic washer to the screw under the control terminal block.



4. Learning to Perform Basic Operations

4.1 Operation Keys

- The following table lists the names and functions of the keypad's operation keys.

Key	Name	Description
	[RUN] key	Used to run the inverter (inputs a RUN command).
	[STOP/RESET] key	STOP: Stops the inverter. RESET: Resets the inverter if a fault or failure occurs
	[▲] key, [▼] key	Switch between codes, or to increase or decrease parameter values.
	[MODE/SHIFT] key	Moves between groups or moves to the digit on the left when setting the parameter. Press the MODE/SHIFT key once again on the maximum number of digits to move to the minimum number of digits.
	[ENTER] key	Switches from the selected state of parameter to the input state. Edits parameter and apply change. Accesses the operation information screen during failure on the failure screen.
	[Volume]	Used to set the operation frequency.

- \* Operates as ESC key if two keys out of [MODE/SHIFT] key, [▲] key and [▼] key are entered at the same time.
- Press ESC in the group navigation mode to go to the initial screen (the frequency display screen).
- Press ESC in the mode to change parameter to go to group navigation mode without saving.

4.2 Control Menu

- The control menu uses the following groups.

Group	Display	Description
Operation	-	Configures basic parameters for inverter operation.
Drive (Drive)	<i>dr</i>	Configures parameters for basic operations. These include jog operation, motor capacity evaluation, torque boost, and other keypad related parameters.
Basic (Basic)	<i>bB</i>	Configures basic operation parameters. These parameters include motor parameters and multi-step frequency parameters.
Advanced (Advanced)	<i>Ad</i>	Configures acceleration or deceleration patterns, frequency limits, etc.

Group	Display	Description
Control (Control)	<i>cn</i>	Configures sensorless vector-related features.
Input Terminal (Input)	<i>in</i>	Configures input terminal-related features, including digital multi-functional inputs and analog inputs.
Output Terminal (Output)	<i>ou</i>	Configures output terminal-related features such as relays and analog outputs.
Communication (Communication)	<i>cn</i>	Configures communication features for RS-485 or other communication options.
Application (Application)	<i>AP</i>	Configures functions related to PID control.
Protection (Protection)	<i>Pr</i>	Configures motor and inverter protection features.
Secondary Motor (2 <sup>nd</sup> Motor)	<i>m2</i>	Configures secondary motor related features. The secondary motor (M2) group appears on the keypad only when one of the multi-function input terminals (In.65–In.72) has been set to 26 (Secondary motor).
User Sequence (User Sequence)	<i>US</i>	Implement a simple sequence using a combination of different Function Blocks.
User Sequence Function (User Sequence Function)	<i>UF</i>	

\*The User Sequence feature can only be used with the G100 drive that has main firmware V3.2 and later.

4.3 Table of Functions in operation group

Code	Comm Address	Name	Keypad Display	Setting Range	Initial Value	Property	V/F	SL
-	0h1D00	Target frequency	<i>0.00</i>	0-Maximum frequency (Hz)	0.00	O	O	O
-	0h1D01	Acceleration time	<i>Pr1</i>	0.0–600.0(s)	5.0	O	O	O
-	0h1D02	Deceleration time	<i>Pr2</i>	0.0–600.0(s)	10.0	O	O	O
-	0h1D03	Command Source	<i>dr</i>	0 Keypad	1: Fx/Rx-1	X	O	O
				1 Fx/Rx-1				
				2 Fx/Rx-2				
				3 Int 485				
				4 Fieldbus <sup>1</sup>				
-	0h1D04	Frequency reference source	<i>Frq</i>	5 UserSeqLink	0: Keypad-1	X	O	O
				0 Keypad-1				
				1 Keypad-2				
				2 V1				
				3 V2				
-	0h1D05	Multi-step speed frequency 1	<i>St1</i>	4 V0,Built-in Volume	0: Keypad-1	X	O	O
				5 I2				
				6 Int 485				
				8 Fieldbus <sup>1</sup>				
				9 UserSeqLink				
-	0h1D06	Multi-step speed frequency 2	<i>St2</i>	0.00-Maximum frequency (Hz)	10.00	O/7	O	O
-	0h1D07	Multi-step speed frequency 3	<i>St3</i>	0.00-Maximum frequency (Hz)	20.00	O/7	O	O
-	0h1D08	Multi-step speed frequency 4	<i>St4</i>	0.00-Maximum frequency (Hz)	30.00	O/7	O	O
-	0h1D09	Motor revolutions per minute	<i>rPr</i>			-/7	O	O
-	0h1D0A	Inverter DC voltage	<i>dCv</i>	-	-	-/7	O	O
-	0h1D0B	Inverter output voltage	<i>oVt</i>			-/7	O	O
-	0h1D0C	Out of order signal	<i>oOn</i>			-/7	O	O
-	0h1D0D	Select rotation direction	<i>drL</i>	F Forward run	F	O/7	O	O
				r Reverse run				

<sup>1</sup> Table of options are provided separately in the option manual.

5. Technical Specification

5.1 Input and Output Specification

- 3-phase 200V (0.4–22kW)

Model □□□□G100-2□□□□			0004	0008	0015	0022	0040	0055	0075	0110	0150	0185	0220	
Applied motor	Heavy load	HP	0.5	1.0	2.0	3.0	5.0	7.5	10	15	20	25	30	
		kW	0.4	0.75	1.5	2.2	4.0	5.5	7.5	11	15	18.5	22	
	Normal load	HP	1.0	2.0	3.0	5.0	7.5	10	15	20	25	30	-	
		kW	0.75	1.5	2.2	4.0	5.5	7.5	11	15	18.5	22	-	
Rated output	Rated capacity (kVA)	Heavy load	1.0	1.9	3.0	4.2	6.5	9.1	12.2	17.9	22.9	28.6	33.5	
		Normal load	1.2	2.3	3.7	4.6	6.9	11.4	15.2	21.3	26.7	31.2	-	
	Rated current(A) [3-Phase input]	Heavy load	2.5	5.0	8.0	11.0	17.0	24.0	32.0	47	60	75	88	
		Normal load	3.1	6.0	9.6	12.0	18.0	30.0	40.0	56	70	85	-	
	Rated current(A) [60Hz, 1-Phase input]	Heavy load	1.5	2.8	4.6	6.1	9.3	12.8	17.4	26.8	34	41	48	
		Normal load	2.0	3.6	5.9	6.7	9.8	16.3	22.0	31	38	45	-	
	Rated current(A) [50Hz, 1-Phase input]	Heavy load	1.5	2.7	4.5	5.9	9.1	12.4	16.9	26	33.1	39.9	46.7	
		Normal load	1.9	3.5	5.7	6.5	9.5	15.8	21.3	30	36.9	43.7	-	
	Output frequency		0-400Hz(1M Sensorless: 0-120Hz)											
	Output voltage (V)		3-phase 200-240 V											
Rated input	Working voltage (V)		3-phase 200-240 VAC (-15% to +10%) / 1-phase 240 VAC (-5% to +10%)											
	Input frequency		50-60Hz(±5%)											
	Rated current	Heavy load	2.2	4.9	8.4	11.8	18.5	25.8	34.9	53.2	68.4	85.5	101.6	
[3-Phase input] (A)		Normal load	3.0	6.3	10.8	13.1	19.4	32.7	44.2	63.8	79.8	94.6	-	
Weight (kg)														
*(G100C)		104	106	136	14	189	308	321	484	76	111	1118		
		*0.81	*0.83	*1.11	*1.13	*1.78								

- 3-phase 400V (0.4–22kW)

Model	□□□□G100-4□□□□	0004	0008	0015	0022	0040	0055	0075	0110	0150	0185	0220
Applied motor	Heavy load	HP	0.5	1.0	2.0	3.0	5.0	7.5	10	15	20	30
		kW	0.4	0.75	1.5	2.2	4.0	5.5	7.5	11	15	18.5
	Normal load	HP	1.0	2.0	3.0	5.0	7.5	10	15	20	25	30

Rated output	Rated capacity (kVA)	kW	0.75	1.5	2.2	4.0	5.5	7.5	11	15	18.5	22	30
		Heavy load	1.0	1.9	3.0	4.2	6.5	9.1	12.2	18.3	23.6	29.7	34.3
		Normal load	1.5	2.4	3.9	5.3	7.6	12.2	17.5	23.6	29.0	34.3	46.5
	Rated current(A) [3-Phase input]	Heavy load	1.3	2.5	4.0	5.5	9.0	12.0	16.0	24	31	39	45
		Normal load	2.0	3.1	5.1	6.9	10.0	16.0	23.0	31	38	45	61
	Rated current(A) [50Hz, 1-Phase input]	Heavy load	0.7	1.4	2.1	2.8	4.9	6.4	8.7	15	18	23	27
		Normal load	1.3	1.9	2.8	3.6	5.4	8.7	12.6	18	23	27	35
	Rated current(A) [50Hz, 1-Phase input]	Heavy load	0.7	1.4	2.0	2.7	4.8	6.2	8.5	14.6	17.4	22.3	26.2
		Normal load	1.3	1.8	2.7	3.5	5.2	8.4	12.2	17.4	22.2	26.1	33.8
		Output frequency	0-400Hz(1M Sensorless: 0-120Hz)										
Rated input	Output voltage (V)	3-phase 380-480 V											
	Working voltage (V)	3-phase 380-480 VAC (-15% to +10%) / 1-phase 480 VAC (-5% to +10%)											
	Input frequency	50-60Hz(±5%)											
	Rated current(A) [3-Phase input]	Heavy load	1.1	2.4	4.2	5.9	9.8	12.9	17.5	27.2	35.3	44.5	51.9
		Normal load	2.0	3.3	5.5	7.5	10.8	17.5	25.4	35.3	43.3	51.9	70.8
Weight (kg) (Built-in EMC filter)		102 (104)	106 (118)	14 (144)	142 (146)	192 (198)	308 (324)	312 (328)	489 (504)	491 (509)	763 (796)	765 (798)	
*(G100C)			(0.82)	(0.85)	(1.14)	(1.14)	(1.77)						