

CIMR-G7C

Varispeed G7

World first three level inverter architecture

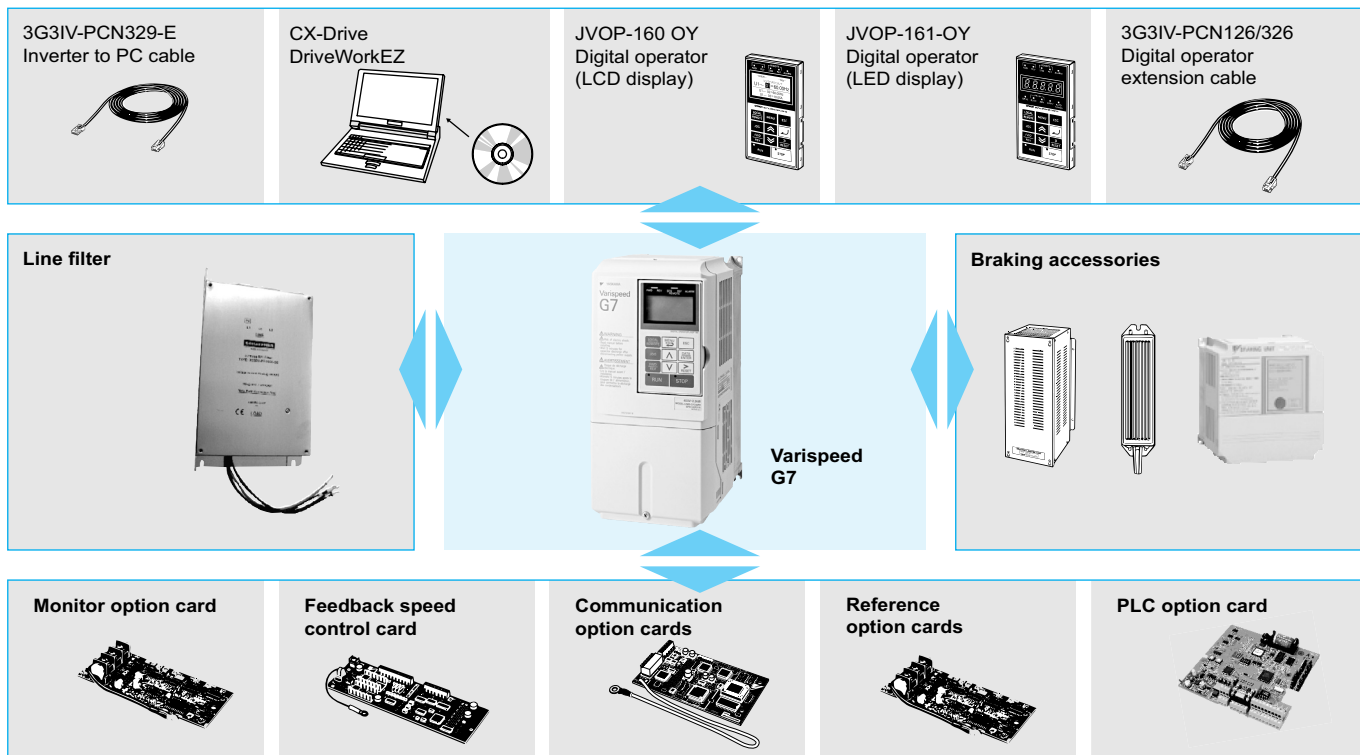
- 3 level control (400 V class)
- Current vector control and V/F with or without PG
- Torque control (closed loop and open loop)
- Silent operation
- Rotary and stationary autotuning
- High slip braking function
- Energy saving function standard
- LCD operator
- Embedded OMRON PLC functionality with PLC option card
- Standard RS-485 communications - Modbus
- Fieldbus options: DeviceNet, PROFIBUS, CANOpen, LONworks, ethernet
- PC configuration tool CX-drive and DriveWorksEZ.
- CE, UL, and cUL marking
- Customised application software

Ratings

- 200 V Class three-phase 0.4 to 110 kW
- 400 V Class three-phase 0.4 to 300 kW

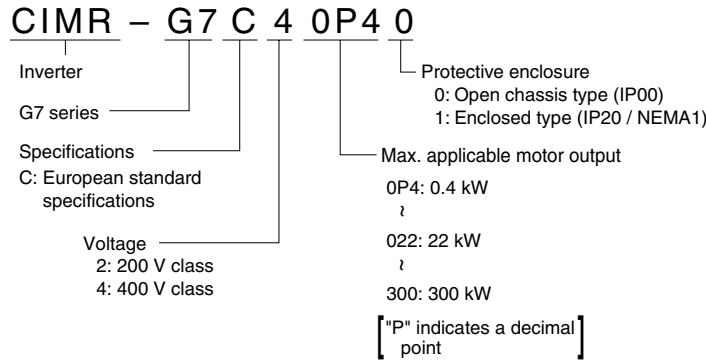


System configuration



Specifications

Type designation



200 V class¹

Model CIMR-G7C□		20P4	20P7	21P5	22P2	23P7	25P5	27P5	2011	2015	2018	2022	2030	2037	2045	2055	2075	2090	2110	
Max. applicable motor output ²		kW																		
Inverter capacity		kVA																		
Rated current		A																		
Max. voltage		3-phase, 200/208/220/230/240 V (proportional to input voltage)																		
Max. output frequency		400 Hz (programmable)																		
Rated input voltage and frequency		3-phase 200/208/220/230/240 V, 50/60 Hz ³																		
Allowable voltage fluctuation		+10%, -15%																		
Allowable frequency fluctuation		±5%																		
Harmonic wave prevention	DC reactor	Option									Provided									
	12-pulse input	Not available									Available ⁴									

- The main circuit of 200 V class inverters uses 2-level control method.
- Standard 4-pole motors are used for max. applicable motor output. Choose the inverter model whose rated current is allowable within the motor rated current range.
- When using the inverter of 200 V class 30 kW or more with a cooling fan of three-phase 230 V 50 Hz or 240 V 50/60 Hz power supply, a transformer for the cooling fan is required.
- A 3-wired transformer is required at 12-pulse input.

400 V class¹

Model CIMR-G7C□		40P4	40P7	41P5	42P2	43P7	45P5	47P5	4011	4015	4018	4022	4030	4037	4045	4055	4075	4090	4110	4132	4160	4185	4220	4300	
Max. applicable motor output ²		kW																							
Inverter capacity		kVA																							
Rated current		A																							
Max. voltage		3-phase, 380/400/415/440/460/480 V (proportional to input voltage)																							
Max. output frequency		400 Hz (programmable)																							
Rated input voltage and frequency		3-phase 380/400/415/440/460/480 V, 50/60 Hz																							
Allowable voltage fluctuation		+10%, -15%																							
Allowable frequency fluctuation		±5%																							
Harmonic wave prevention	DC reactor	Option												Provided											
	12-pulse input	Not available												Available ³											

- The main circuit of 400 V class inverters uses 3-level control method.
- Standard 4-pole motors are used for max. applicable motor output. Choose the inverter model whose rated current is allowable within the motor rated current range.
- A 3-wired transformer is required at 12-pulse input.

Enclosures

	Model CIMR-G7C□	20P4	20P7	21P5	22P2	23P7	25P5	27P5	2011	2015	2018	2022	2030	2037	2045	2055	2075	2090	2110										
200 V class	Enclosed type (IEC IP20)	Available as standard										Available for option										Not available							
	Open chassis type (IEC IP00)	Available by removing the upper and lower cover of enclosed type										Available as standard																	
400 V class	Model CIMR-G7C□	40P4	40P7	41P5	42P2	43P7	45P5	47P5	4011	4015	4018	4022	4030	4037	4045	4055	4075	4090	4110	4132	4160	4185	4220	4300					
	Enclosed type (IEC IP20)	Available as standard										Available for option										Not available							
	Open chassis type (IEC IP00)	Available by removing the upper and lower cover of enclosed type										Available as standard																	

Common specifications

Model number CIMR-G7C□		Specification
Control characteristics	Control method	Sine wave PWM Closed loop vector control, open loop vector control 1&2, V/f control, V/f with PG control
	Torque characteristics	150% at 0.3 Hz (open loop vector control 2) 150% at 0rpm (closed vector control)
	Speed control range	1:200 (open loop vector control 2) 1:1000 (closed loop vector control)
	Speed control accuracy	± 0.2% (open loop vector control) ± 0.02% (closed loop vector control) (25 °C ± 10 °C)
	Speed control response	10 Hz (open loop vector control 2) 30 Hz (control with PG)
	Torque limits	Provided (4 quadrant steps can be changed by constant settings.) (Vector control)
	Torque accuracy	± 5%
	Frequency range	0.01 to 400 Hz
	Frequency accuracy (temperature characteristics)	Digital references: ± 0.01% (-10 °C to +40 °C)
		Analog references: ± 0.1% (25 °C ± 10 °C)
	Frequency setting resolution	Digital references: 0.01 Hz
		Analog references: 0.025/50 Hz (11 bits plus sign)
	Output frequency resolution	0.001 Hz
	Overload capacity and maximum current	150% of rated output current for 1 minute 200% of rated output current for 0.5 second
	Frequency setting signal	0 to +10 V, -10 to +10 V, 4 to 20 mA, pulse train
Accel/decel time	0.01 to 6000.0 s (4 selectable combinations of independent acceleration and deceleration time settings)	
Braking torque	Approximately 20% (Approximately 125% with braking resistor option, braking transistor built into Inverters of 15 kW or less)	
Main control functions	Restarting after momentary power loss, speed search, overtorque/undertorque detection, torque limits, 17-speed control (maximum), 4 acceleration and deceleration times, S-curve acceleration/deceleration, 3-wire control, auto-tuning (rotational or stationary), dwell function, cooling fan ON/OFF control, slip compensation, torque compensation, auto-restart after fault, jump frequencies, upper and lower limits for frequency references, DC braking for starting and stopping, high-slip braking, advanced PID control, energy-saving control, MEMOBUS communications (RS-485/422, 19.2 kbps maximum), 2 motor parameter sets, fault reset and parameter copy function.	
Protective functions	Motor protection	Protection by electronic thermal overload relay.
	Instantaneous overcurrent protection	Stops at approx. 200% of rated output current.
	Fuse blown protection	Stops for fuse blown.
	Overload protection	150% of rated current for 1 minute 200% of rated current for 0.5 second
	Overvoltage protection	200 Class Inverter: stops when main-circuit DC voltage is above 410 V. 400 Class Inverter: stops when main-circuit DC voltage is above 820 V.
	Undervoltage protection	200 Class Inverter: stops when main-circuit DC voltage is below 190 V. 400 Class Inverter: stops when main-circuit DC voltage is below 380 V.
	Momentary power loss ride through	By selecting the momentary power loss method, operation can be continued if power is restored within 2 s.
	Cooling fin overheating	Protection by thermistor.
	Stall prevention	Stall prevention during acceleration, deceleration and running independently.
Grounding protection	Protection by electronic circuits.	
Charge indicator	Illuminates when the main circuit DC voltage is approx. 10 VDC or more.	
Environment	Ambient operating temperature	-10 °C to 40 °C (enclosed wall-mounted type) -10 °C to 45 °C (open chassis type)
	Ambient operating humidity	95% max. (with no condensation)
	Storage temperature	- 20 °C to + 60 °C (short-term temperature during transportation)
	Application site	Indoor (no corrosive gas, dust, etc.)
	Altitude	1000 m max.
Vibration	10 to 20 Hz, 9.8 m/s ² max.; 20 to 50 Hz, 2 m/s ² max	

Dimensions

Open chassis type (IEC IP00)

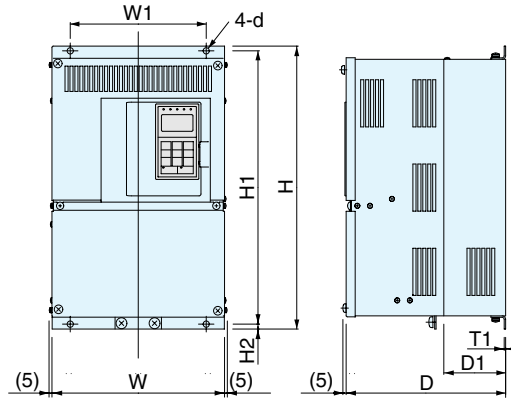


Fig 1

Voltage	Max. applicable motor output kW	Inverter CIMR-G7C□	Fig	Dimensions in mm									Approx. weight kg	Cooling method
				W	H	D	W1	H1	H2	D1	T1	d		
200 V class (3-phase)	0.4	-----	1	Not available please use the IP20 type removing the upper and lower cover									Fan cooled	
	0.75	-----												
	1.5	-----												
	2.2	-----												
	3.7	-----												
	5.5	-----												
	7.5	-----												
	11	2011												
	15	2015												
	18.5	2018		250	400	258	195	385	7.5	100	2.3	M6		21
	22	2022		275	450	258	220	435						24
	30	2030		375	600	298	250	575	12.5	130	3.2	M10		57
	37	2037				328								63
	45	2045		450	725	348	325	700	15	140	4.5	M12		86
55	2055	87												
75	2075	500	850	358	370	820	15	140	4.5	M12	108			
90	2090										150			
110	2110	575	885	378	445	855	15	140	4.5	M12	150			
400 V class (3-phase)	0.4	-----	1	Not available please use the IP20 type removing the upper and lower cover									Fan cooled	
	0.75	-----												
	1.5	-----												
	2.2	-----												
	4.0	-----												
	5.5	-----												
	7.5	-----												
	11	4011												
	15	4015												
	18.5	4018		275	450	258	220	435	7.5	100	2.3	M6		26
	22	4022												37
	30	4030		325	550	283	260	535	12.5	130	3.2	M10		90
	37	4037												91
	45	4045		450	725	348	325	700	15	140	4.5	M12		109
	55	4055												127
	75	4075		500	850	358	370	820	15	140	4.5	M12		165
	90	4090												175
	110	4110		575	916	378	445	855	45.8	140	4.5	M12		263
	132	4132												280
160	4160	710	1305	415	540	1270	15	126	4.5	M12	415			
185	4185										280			
220	4220	916	1475	415	540	1270	15	126	4.5	M12	415			
300	4300										415			

Enclosed type (IEC IP20)

G7C20P41 to G7C25P51
G7C40P41 to G7C45P51

G7C27P51 to G7C20181
G7C47P51 to G7C40181

G7C20221 to G7C20751
G7C40221 to G7C41601

G7C4185 to G7C4300

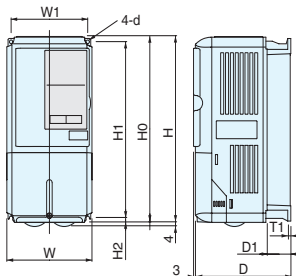


Fig 1

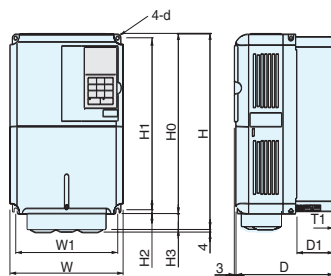


Fig 2

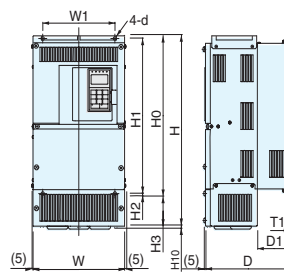


Fig 3

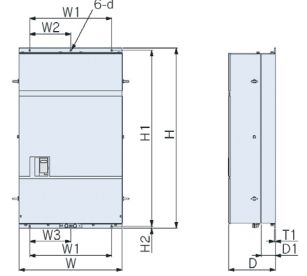
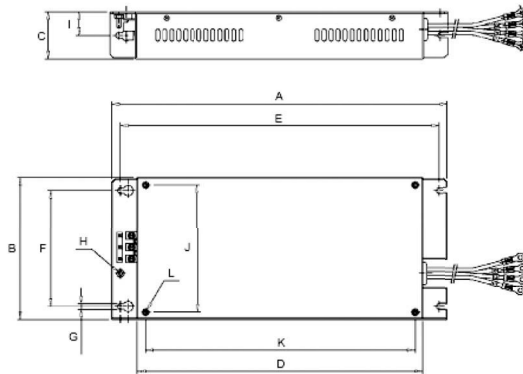


Fig 4

Voltage	Max. applicable motor output kW	Inverter CIMR-G7C□	Fig	Dimensions in mm									Approx. weight kg	Cooling method											
				W	H	D	W1	H1	H2	D1	T1	d													
200 V class (3-phase)	0.4	20P4	1	140	280	157	126	266	7	39	5	M5	3	Self cooled											
	0.75	20P7				177																			
	1.5	21P5																							
	2.2	22P2																							
	3.7	23P7	2	200	300	197	186	285	8	65.5	2.3	M6	6	Fan cooled											
	5.5	25P5				7.5																			
	7.5	27P5																							
	11	2011																							
	15	2015	3	240	350	207	216	335	7.5	78	3.2	M10	11	Fan cooled											
	18.5	2018				258																			
	22	2022																							
	30	2030																							
	37	2037	3	375	600	298	250	575	12.5	130	4.5	M12	108	Fan cooled											
	45	2045				328																			
	55	2055																							
	75	2075																							
90	2090	3	500	850	358	370	820	15	140	4.5	M12	150	Fan cooled												
110	2110				378																				
0.4	40P4													1	140	280	157	126	266	7	39	5	M5	3.5	Self cooled
0.75	40P7																177								
1.5	41P5																								
2.2	42P2																								
3.7	43P7	2	200	300	197	186	285	8	65.5	2.3	M6	7	Fan cooled												
5.5	45P5				7.5																				
7.5	47P5																								
11	4011																								
15	4015	3	240	350	207	216	335	7.5	78	3.2	M10	10	Fan cooled												
18.5	4018				258																				
22	4022																								
30	4030																								
37	4037	3	325	550	283	260	535	12.5	105	4.5	M12	26	Fan cooled												
45	4045				328																				
55	4055																								
75	4075																								
90	4090	3	450	725	348	325	700	12.5	130	3.2	M10	90	Fan cooled												
110	4110				378																				
132	4132																								
160	4160																								
185	4185	4	710	1305	415	540	1270	15	126	4.5	M12	109	Fan cooled												
220	4220				378																				
280	4280																								
300	4300																								
300	4300	4	916	1475	415	730	1440	15	126	4.5	M12	127	Fan cooled												
165	4165				378																				
175	4175																								
263	4263																								

Filters

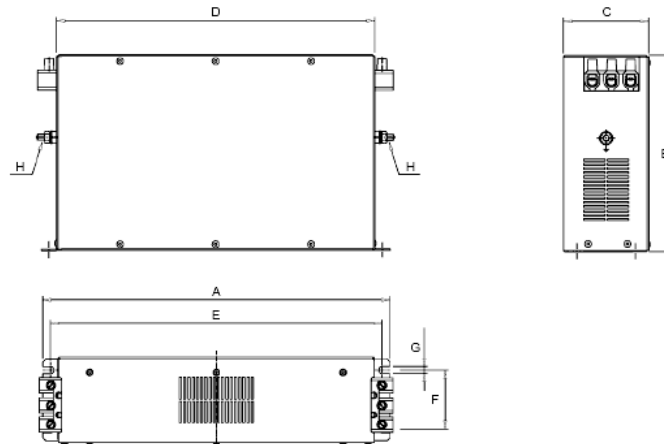
Footprint / Flat filters



Model		Dimensions											
		A	B	C	D	E	F	G	H	I	J	K	L
200 V	3G3RV-PFI2035-SE	330	141	46	281	313	115	5.5	M5	23	126	266	M5
	3G3RV-PFI2060-SE	355	206	60	302	336	175	6.5	M6	30	186	285	M6
	3G3RV-PFI2100-SE	408	236	80	355	390	205	6.5	M6	40	216	335	M6
400 V	3G3RV-PFI3010-SE	330	141	46	281	313	115	5.5	M5	23	126	266	M5
	3G3RV-PFI3018-SE	330	141	46	281	313	115	5.5	M5	23	126	266	M5
	3G3RV-PFI3021-SE	355	206	50	302	336	175	6.5	M4	25	186	285	M5
	3G3RV-PFI3035-SE	355	206	50	302	336	175	6.5	M5	25	186	285	M6
	3G3RV-PFI3060-SE	408	236	65	355	390	205	6.5	M6	32.5	216	335	M6
	3G3RV-PFI3410-SE ¹	386	115	260	306	240	235	12.0	M12	-	-	-	-
	3G3RV-PFI3600-SE ¹	386	135	260	306	240	235	12.0	M12	-	-	-	-
	3G3RV-PFI3800-SE ¹	564	160	300	516	420	275	9.0	M12	-	-	-	-

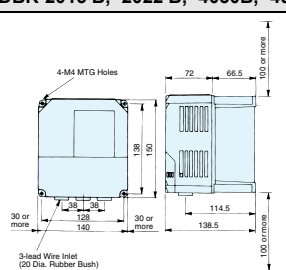
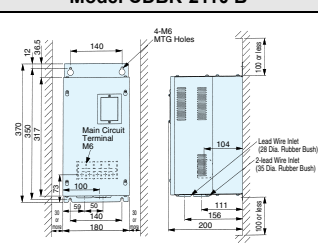
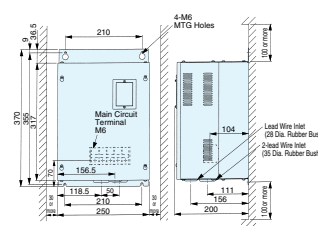
1. Flat filters are not possible to be mounted as footprint filters.

Bookform filters



Model		Dimensions							
		A	B	C	D	E	F	G	H
200 V	3G3RV-PFI2130-SE	366	180	90	280	310	65	6.5	M10
	3G3RV-PFI2160-SE	451	170	120	350	380	102	6.5	M10
	3G3RV-PFI2200-SE	610	240	130	480	518	90	8.2	M10
400 V	3G3RV-PFI3070-SE	331	185	80	300	329	55	6.5	M6
	3G3RV-PFI3100-SE	326	150	90	240	270	65	6.5	M10
	3G3RV-PFI3130-SE	370	180	90	280	310	65	6.5	M10
	3G3RV-PFI3170-SE	451	170	120	350	380	102	6.5	M10
	3G3RV-PFI3200-SE	610	240	130	480	518	90	8.3	M10

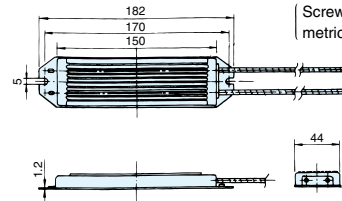
Braking unit

Model CDBR-2015 B, -2022 B, -4030B, -4045 B	Model CDBR-2110 B
 <p>Weight 1.8 Kg</p>	 <p>Weight 8.5 Kg</p>
Model CDBR-4220 B	
 <p>Weight 12 Kg</p>	

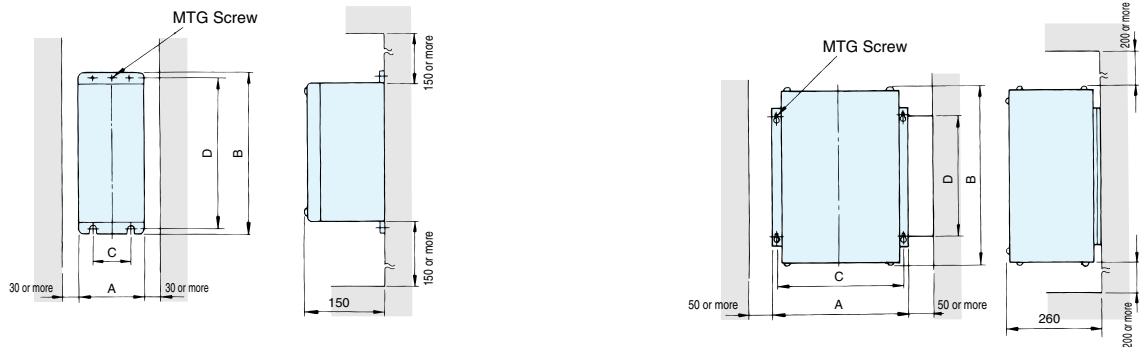
Braking resistor unit (inverter-mounted type)

Weight: 0.2 kg
Model ERF-150WJ_

Note: Prepare mounting screws
(2-M4x8 tapped screws).
(Screws 8mm or more and general metric screws cannot be used.)



Braking resistor unit (separately-installed type)



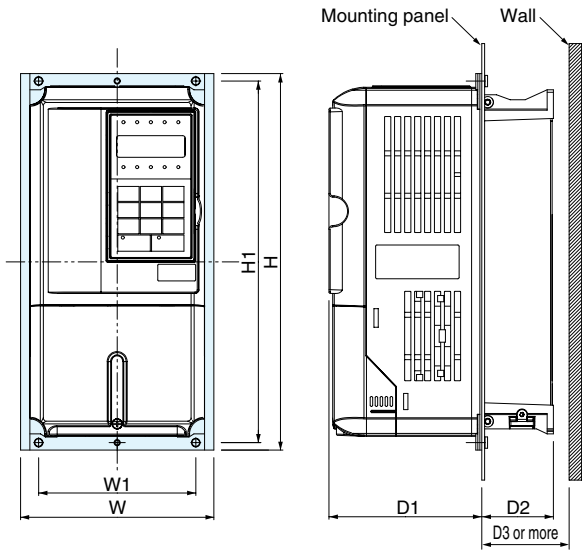
Voltage	Model LKEB- <u> </u>	Dimensions in mm					Weight kg
		A	B	C	D	MTG Screw	
220 V class	20P7	105	275	50	260	M5 x 3	3.0
	21P5	130	350	75	335	M5 x 4	4.5
	22P2	130	350	75	335	M5 x 4	4.5
	23P7	130	350	75	335	M5 x 4	5.0
	25P5	250	350	200	335	M6 x 4	7.5
	25P5	250	350	200	335	M6 x 4	8.5
400 V class	40P7	105	275	50	260	M5 x 3	3.0
	41P5	130	350	75	335	M5 x 4	4.5
	42P2	130	350	75	335	M5 x 4	4.5
	43P7	130	350	75	335	M5 x 4	5.0
	45P5	250	350	200	332	M6 x 4	7.5
	47P5	250	350	200	332	M6 x 4	8.5

Voltage	Model LKEB- <u> </u>	Dimensions in mm					Weight kg
		A	B	C	D	MTG Screw	
220 V class	2011	266	543	246	340	M8 x 4	10
	2015	356	543	336	340	M8 x 4	15
	2018	446	543	426	340	M8 x 4	19
	2022	446	543	426	340	M8 x 4	19
	4011	350	412	330	325	M6 x 4	16
400 V class	4015	350	412	330	325	M6 x 4	18
	4018	446	543	426	340	M8 x 4	19
	4022	446	543	426	340	M8 x 4	19
	4030	356	956	336	740	M8 x 4	25
	4037	446	956	426	740	M8 x 4	33
	4045	446	956	426	740	M8 x 4	33

Attachments

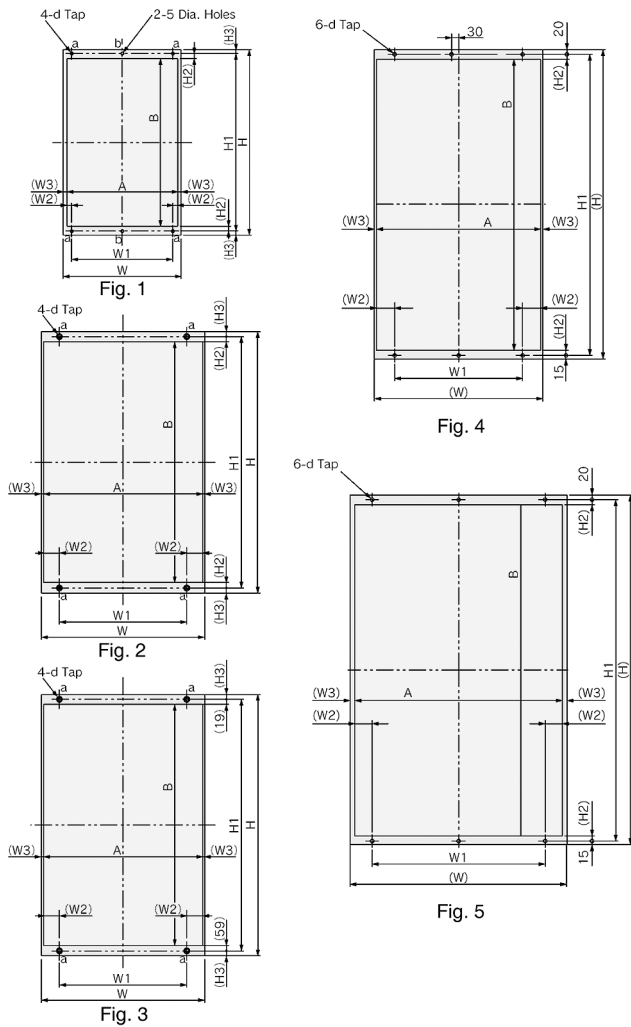
Heatsink external mounting attachment

The Varispeed G7 inverters under the 200/400 V class 15 kW or less need this attachment for mounting the heatsink externally. This attachment expands the outer dimensions of the width and height of the inverter. (Attachment is not required for inverters of 18.5 kW or more.)



CIMR-G7C□	Attachment order code	Dimensions in mm														
		W	H	W1	H1	D1	D2	D3								
20P4	72616 -EZZ08676A	155	302	126	290	122.6	37.4	40								
20P7																
21P5							57.4	60								
22P2																
23P7	72616-EZZ08676B	210	330	180	316	136.1	63.4	70								
25P5																
27P5																
2011									72616-EZZ08676C	250	392	216	372	133.6	76.4	85
2015																
40P4	72616-EZZ08676A	155	302	126	290	122.6	37.4	40								
40P7																
41P5							57.4	60								
42P2																
43P7	72616-EZZ08676B	210	330	180	316	136.1	63.4	70								
45P5																
47P5																
4011									72616-EZZ08676C	250	392	216	372	133.6	76.4	85
4015																

Panel cut for external mounting of cooling fin (heatsink)

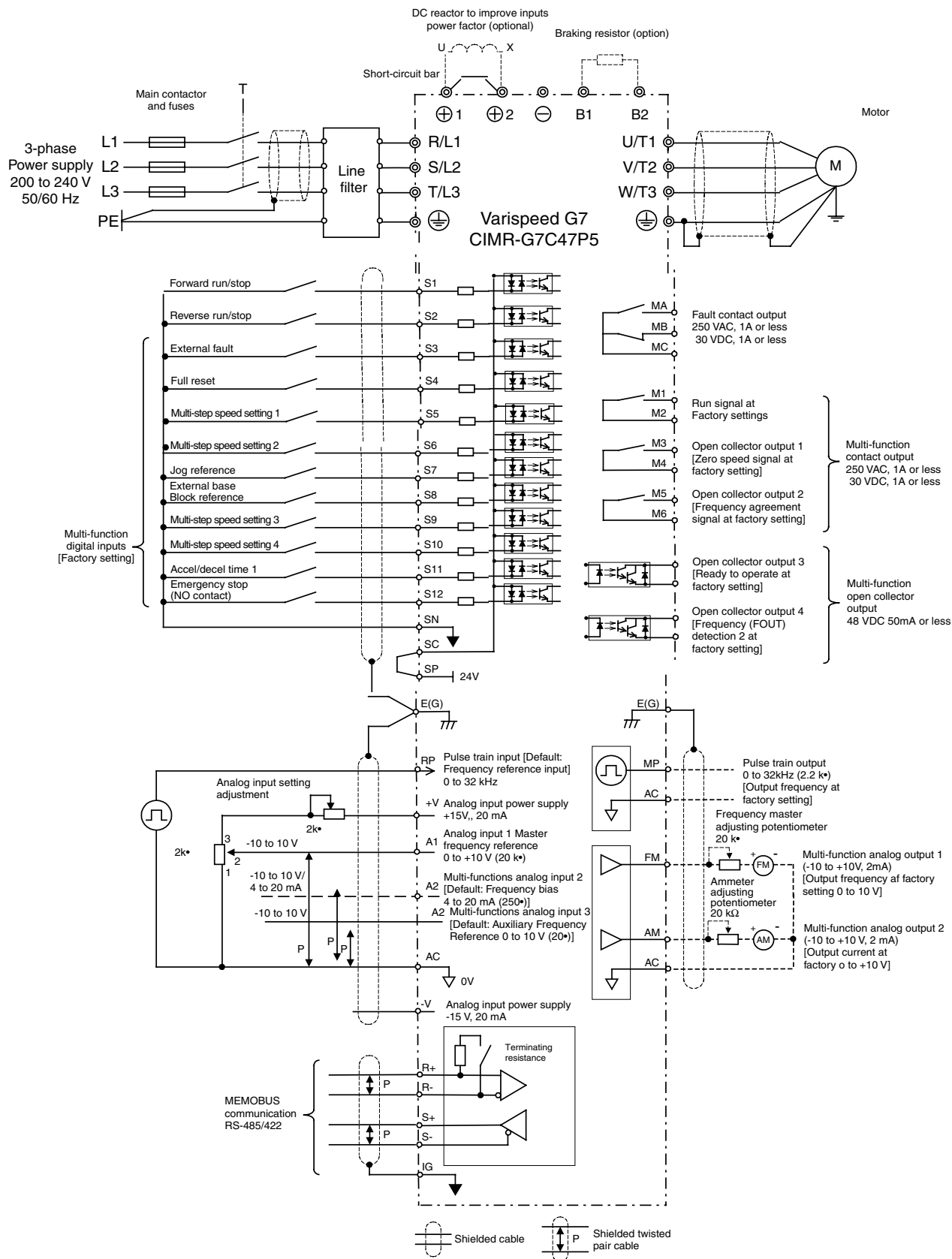


CIMR-G7C□	Fig	Dimensions in mm																						
		W	H	W1	(W2)	(W3)	H1	(H2)	(H3)	A	B	d												
20P4	1	155	302	126	6	8.5	290	9.5	6	138	271	M5												
20P7																								
21P5																								
22P2																								
23P7																								
25P5													8.5	6.5	316	9	7	197	298					
27P5																								
2011													250	392	216	8.5	372	9.5	10	233	353	M6		
2015																								
2018													2	275	450	220	24.5	3	385	8	7.5	244	369	M10
2022																								
2030	375	600	250	54.5	8	575	15	12.5	359	545														
2037																								
2045	450	725	325	8	700	13.5	434	673																
2055																								
2075	500	850	370	57	8	820	19	15	484	782														
2090																								
2090	575	885	445	55	10	855	19	15	555	817														
2100																								
40P4	1	155	302	126	6	8.5	290	9.5	6	138	271	M5												
40P7																								
41P5																								
42P2																								
43P7																								
45P5													8.5	6.5	316	9	7	197	298					
47P5																								
4011													250	392	216	8.5	372	9.5	10	233	353			
4015																								
4018													2	275	450	220	24.5	3	435	8	7.5	269	419	M6
4022																								
4030	325	550	260	8	535	309	519																	
4037																								
4045	450	725	325	54.5	8	700	13.5	12.5	434	673														
4055																								
4075	500	850	370	57	820	19	15	484	782															
4090																								
4110	3	575	925	445	55	10	895	see ¹	15	555	817	M12												
4132																								
4160																								
4185	4	710	1305	540	76.5	8.5	1270	21.5	see ¹	693	1227													
4220																								
4300	5	916	1475	730	72.5	20.5	1440	21.5	see ¹	875	1397													

1. The sizes are different between the top and the bottom. Refer to figs. 3 to 5

Installation

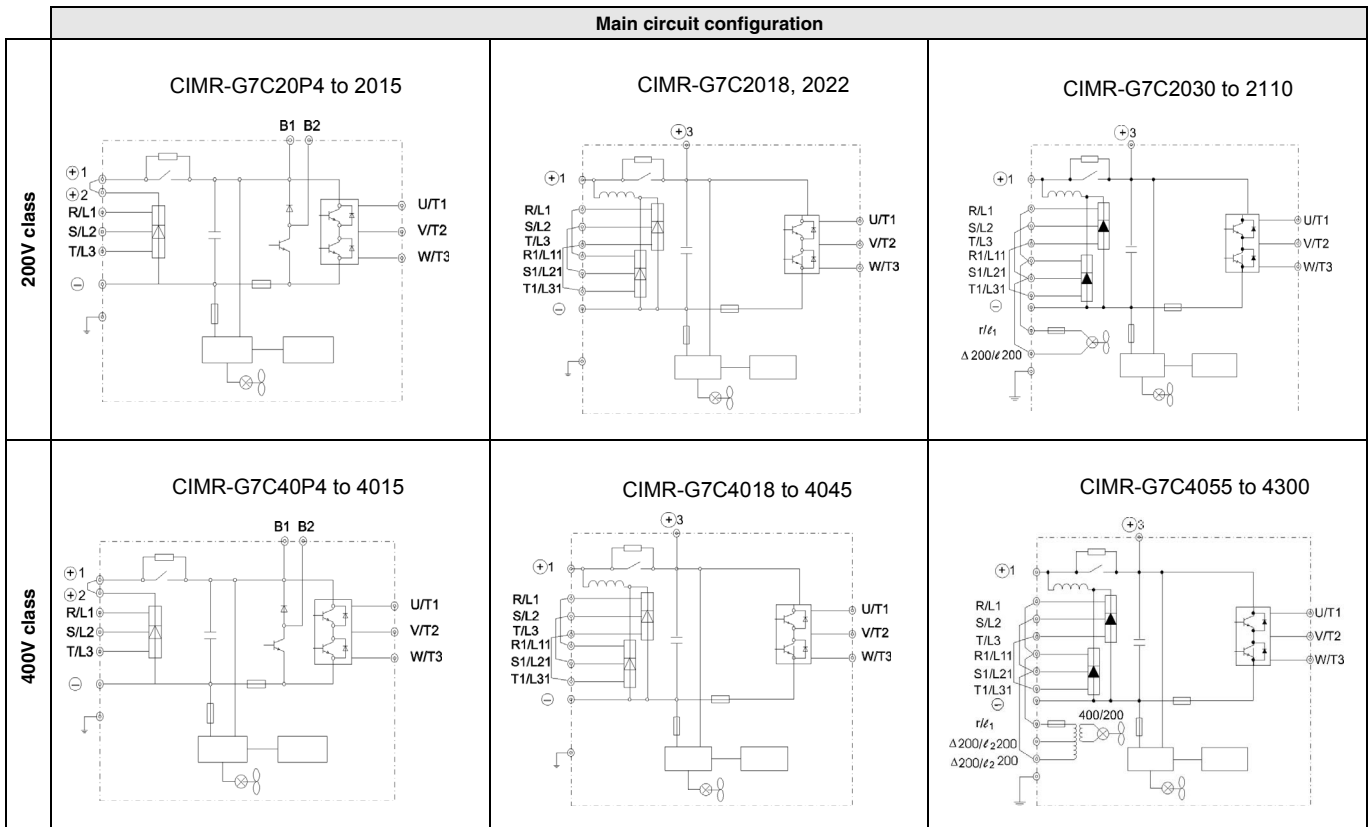
Standard connections



Main circuit

Voltage	200 V			400 V			
	Model CIMR-G7C□	20P4 to 2015	2018, 2022	2030 to 2110	40P4 to 4015	4018 to 4045	4055 to 4300
Max. applicable motor output		0.4 to 15 kW	18.5 to 22 kW	30 to 110 kW	0.4 to 15 kW	18.5 to 45 kW	55 to 300 kW
R/L1	Main circuit input power supply	---	Main circuit input power supply R-R1, S-S1 and T-T1 have been wired before shipment (see P59).		Main circuit input power supply	---	Main circuit input power supply R-R1, S-S1 and T-T1 have been wired before shipment
S/L2							
T/L3							
R1/L11							
S1/L21							
T1/L31							
U/T1	Inverter output			Inverter output			
V/T2							
W/T3							
B1	Braking resistor unit	-----	-----		Braking resistor unit	-----	-----
B2							
⊖	•DC reactor (⊕ 1 - ⊕ 2) •DC power supply ¹ (⊕ 1 - ⊖)	---	•DC power supply (⊕ 1 - ⊕ 2) ¹ •Braking unit (⊕ 3 - ⊖)		•DC reactor (⊕ 1 - ⊕ 2) •DC power supply ¹ (⊕ 1 - ⊖)	---	•DC power supply (⊕ 1 - ⊕ 2) ¹ •Braking unit (⊕ 3 - ⊖)
⊕ 1							
⊕ 2							
⊕ 3							
↘ / I ₂		-----	Cooling fan power supply ²			---	
r/I ₁							
↘ 200 / I ₂ 200						---	Cooling fan power supply ³
↘ 400 / I ₂ 400							
⊕	Ground terminal (100 Ω or less)			Ground terminal (10 Ω or less)			

1. ⊕ 1 - ⊖ DC power input does not conform to UL/c-UL listed standard.
2. Cooling fan power supply r/I₁-↘ / I₂: 200 to 220 VAC 50 Hz, 200 to 230 VAC 60 Hz (A transformer is required for 230 V 50 Hz or 240 V 50/60 Hz power supply.)
3. Cooling fan power supply r/I₁ - ↘ 200 / I₂ 200: 200 to 220 VAC 50 Hz, 200 to 230 VAC 60 Hz, r/I₁ - ↘ 400 / I₂ 400: 380 to 480 VAC 50/60 Hz



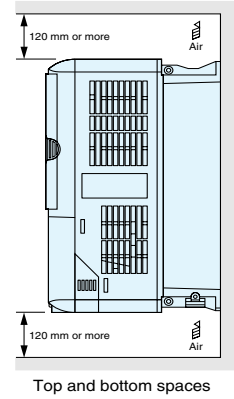
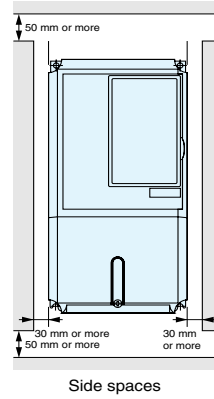
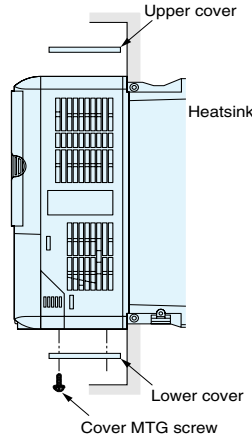
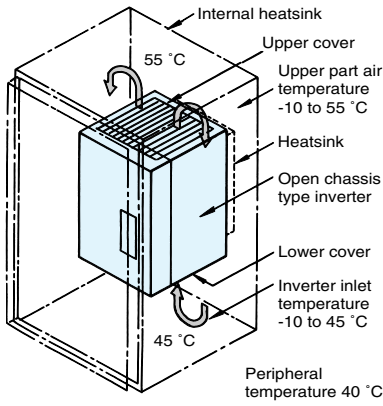
1. For 200 V class filters, consult with standard OMRON supplier.

Control circuit

Type	No.	Signal name	Function	Signal level
Sequence input	S1	Forward run/stop signal	Forward run at "closed", stop at "open"	Photo-coupler input +24 VDC 8 mA isolation
	S2	Reverse run/stop signal	Reverse run at "closed", stop at "open"	
	S3	Multi-function input selection 1	Factory setting: external fault at "closed"	
	S4	Multi-function input selection 2	Factory setting: fault reset at "closed"	
	S5	Multi-function input selection 3	Factory setting: multi-step speed setting 1 is valid at "closed"	
	S6	Multi-function input selection 4	Factory setting: multi-step speed setting 2 is valid at "closed"	
	S7	Multi-function input selection 5	Factory setting: JOG run at "closed"	
	S8	Multi-function input selection 6	Factory setting: external baseblock at "closed"	
	S9	Multi-function input selection 7	Factory setting: multi-step speed setting 3 is valid at "closed"	
	S10	Multi-function input selection 8	Factory setting: multi-step speed setting 4 is valid at "closed"	
	S11	Multi-function input selection 9	Factory setting: accel/decel time setting 1 is valid at "closed"	
	S12	Multi-function input selection 10	Factory setting: emergency stop (NO contact) is valid at "closed"	
	SC	Sequence control input common	-	
Analog input	+V	+15 V power supply output	For analog reference +15 V power supply	+15 V (allowable current 20 mA max.)
	-V	-15 V power supply output	For analog reference -15 V power supply	-15 V (allowable current 20 mA max.)
	A1	Master speed frequency reference	-10 to +10 V/ -100 to +100%, 0 to +10 V/ 100%	-10 to +10 V, 0 to +10V (input impedance 20 k)
	A2	Multi-function analog input	4 to 20 mA/100%, -10 to +10 V/ -100 to +100%, 0 to +10 V/ 100% Factory setting: added to the terminal A1 (H3-09=0)	4 to 20 mA (input impedance 250 Ω)
	A3	Master speed frequency reference	-10 to +10 V/ -100 to +100%, 0 to +10 V/ 100% Factory setting: preset frequency reference	0 to +10 V (input impedance 20 kΩ)
	AC	Analog common	0 V	-
	E(G)	Connection to shield wire and option ground wire	-	-
Photo-coupler output	P1	Multi-function PHC output 1	Factory setting: zero speed signal "Closed" at or below zero speed level (b2-01)	+48 VDC 50 mA or less
	P2	Multi-function PHC output 2	Factory setting: frequency agreement "Closed" within ±2Hz of setting frequency	
	PC	Photo-coupler output common	-	
	P3	Multi-function PHC output 3	Factory setting: ready to operate (READY).	
	C3			
	P4	Multi-function PHC output 4	Factory setting: frequency (FOUT) detection 2	
Relay output	MA	Fault output (NO contact)	Fault at "closed" between terminals MA and MC	Dry contact, contact capacity 250 VAC 1 A or less 30 VDC 1 A or less
	MB	Fault output (NC contact)	Fault at "open" between terminals MB and MC	
	MC	Rely contact output common	-	
	M1	Multi-function contact output	Factory setting: run signal	
	M2	Multi-function contact output (NO contact)	Running at "closed" between terminals M1 and M2	
Analog monitor output	FM	Multi-function analog monitor 1	Factory setting: output frequency 0 to 10 V/100% freq.	0 to +10 VDC ±5% 2 mA or less
	AM	Multi-function analog monitor 2	Factory setting: current monitor 5 V / inverter rated current	
	AC	Analog common	-	
Pulse I/O	RP	Multi-function pulse input	Factory setting: frequency reference input (H6-01=0)	0 to 32 kHz (3 kΩ)
	MP	Multi-function pulse monitor	Factory setting: output frequency (H6-06=2)	0 to 32 kHz (2.2 kΩ)
RS-485/422	R+	MEMOBUS communications input	For 2-wire RS-485, short R+ and S+ as well as R- and S-.	Differential input, photocoupler isolation
	R-			
	S+	MEMOBUS communications output		Differential input, photocoupler isolation
	S-			
IG	Signal common	-	-	

Remove the upper and lower covers for the models of 15 kW or less in 200 V and 400 V classes.

When using open chassis type inverters of 200 V/400 V 22 kW or more, secure spaces for eyebolts and wiring of the main circuit.



Inverter heat loss

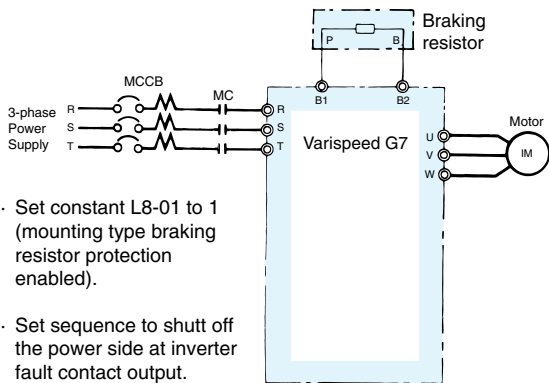
200 V class

Model CIMR-G7□□	20P4	20P7	21P5	22P2	23P7	25P5	27P5	2011	2015	2018	2022	2030	2037	2045	2055	2075	2090	2110		
Inverter capacity	kVA	1.2	2.3	3.0	4.6	6.9	10	13	19	25	30	37	50	61	70	85	110	140	160	
Rated current	A	3.2	6	8	12	18	27	34	49	66	80	96	130	160	183	224	300	358	415	
Heat loss W	Fin	W	21	43	58	83	122	187	263	357	473	599	679	878	1080	1291	1474	2009	1660	2389
	Inside unit	W	36	42	47	53	64	87	112	136	174	242	257	362	434	510	607	823	871	1194
	Total heat loss	W	57	85	105	136	186	274	375	493	647	839	936	1240	1514	1801	2081	2832	2531	3583
Fin coding		Self cooled						Fan cooled												

400 V class

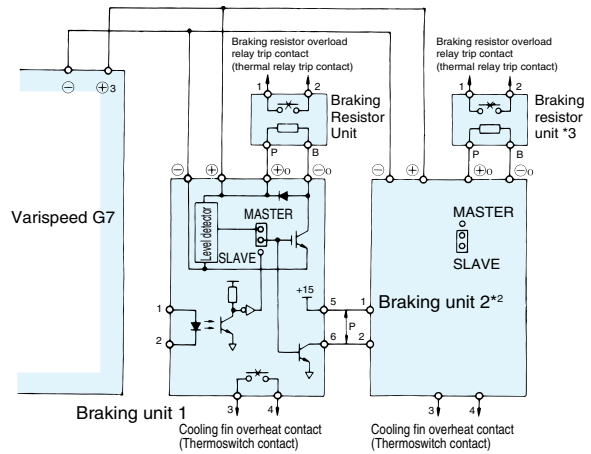
Model CIMR-G7□□	40P4	40P7	41P5	42P2	43P7	45P5	47P5	4011	4015	4018	4022	4030	4037	4045	4055	4075	4090	4110	4132	4160	4185	4220	4300		
Inverter capacity	kVA	1.4	2.6	3.7	4.7	6.9	11	16	21	26	32	40	50	61	74	98	130	150	180	194	230	280	340	460	
Rated current	A	1.8	3.4	4.8	6.2	9	15	21	27	34	42	52	65	80	97	128	165	195	240	255	302	370	450	605	
Heat loss W	Fin	W	10	21	33	41	76	132	198	246	311	354	516	633	737	929	1239	1554	1928	2299	2612	3614	4436	5329	6749
	Inside unit	W	39	44	46	49	64	79	106	116	135	174	210	246	285	340	488	596	762	928	1105	1501	1994	2205	2941
	Total heat loss	W	49	65	79	90	140	211	304	362	446	528	726	879	1022	1269	1727	2150	2690	3227	3717	5115	6430	7534	9690
Fin coding		Self cooled			Fan cooled																				

Connections for braking units



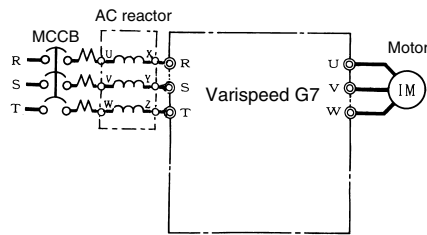
- Set constant L8-01 to 1 (mounting type braking resistor protection enabled).
- Set sequence to shut off the power side at inverter fault contact output.

Connections for braking resistors

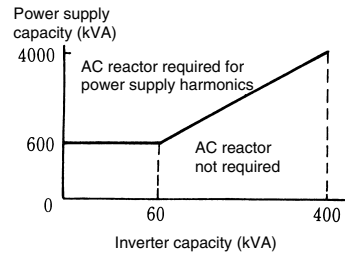


AC reactor

Connection example

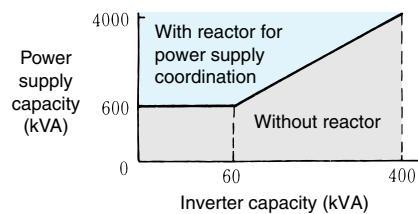
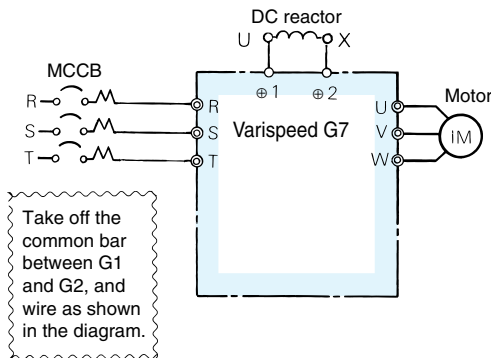


Application example



200 V Class			400 V class		
Max. applicable motor output kW	Current value A	Inductance mH	Max. applicable motor output kW	Current value A	Inductance mH
0.4	2.5	4.2	0.4	1.3	18.0
0.75	5	2.1	0.75	2.5	8.4
1.5	10	1.1	1.5	5	4.2
2.2	15	0.71	2.2	7.5	3.6
3.7	20	0.53	3.7	10	2.2
5.5	30	0.35	5.5	15	1.42
7.5	40	0.265	7.5	20	1.06
11	60	0.18	11	30	0.7
15	80	0.13	15	40	0.53
18.5	90	0.12	18.5	50	0.42
22	120	0.09	22	60	0.36
30	160	0.07	30	80	0.26
37	200	0.05	37	90	0.24
45	240	0.044	45	120	0.18
55	280	0.038	55	150	0.15
75	360	0.026	75	200	0.11
90	500	0.02	90/110	250	0.09
110	500	0.02	132/160	330	0.06
			185		
			220	490	0.04
			300	660	0.03

DC reactor



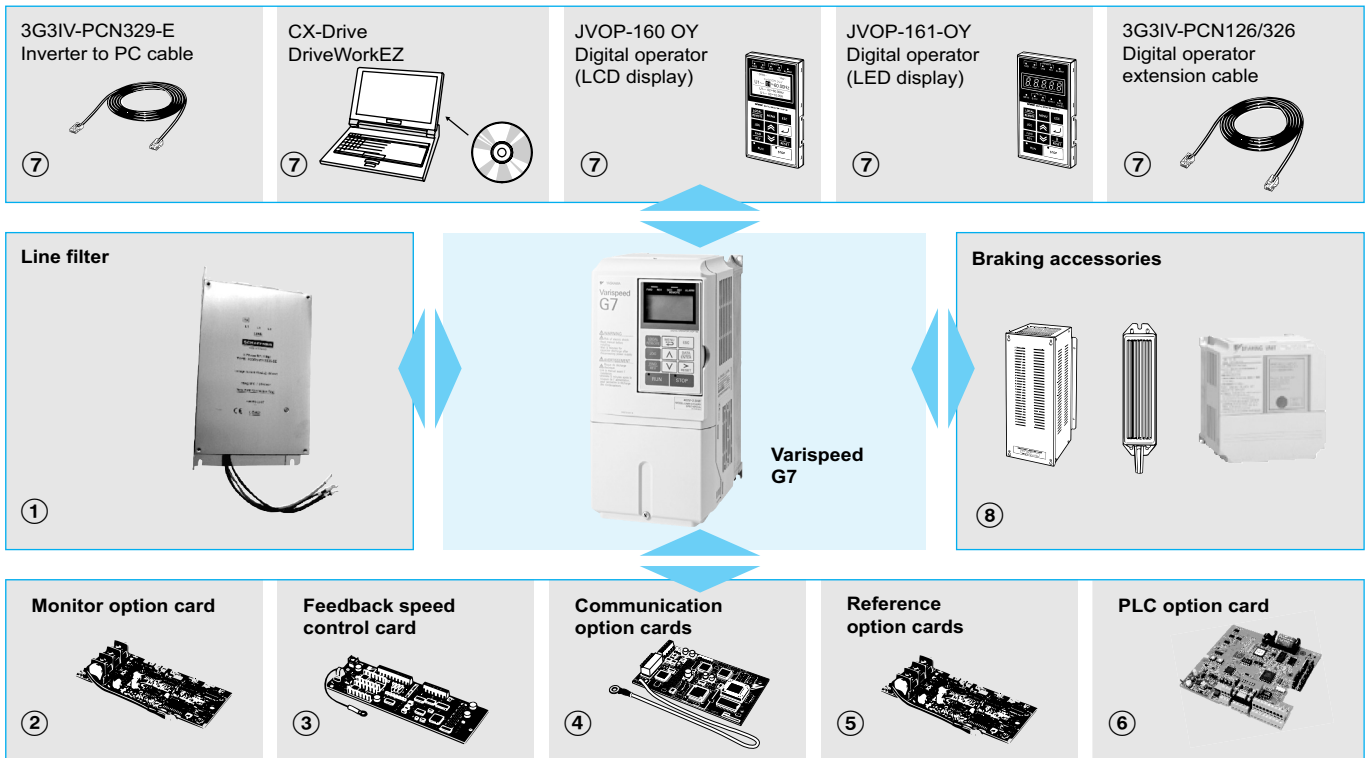
200 V class			400 V class		
Max. applicable motor output kW	Current value A	Inductance mH	Max. applicable motor output kW	Current value A	Inductance mH
0.4	5.4	8	0.4	3.2	28
0.75					
1.5	18	3	1.5	5.7	11
2.2					
3.7					
5.5	36	1	5.5	23	3.6
7.5					
11	72	0.5	11	33	1.9
15					
18.5	90	0.4	18.5	47	1.3
22 to 110			Built-in		

Fuse installation

To protect the inverter, it is recommended to use semiconductor fuses as shown in the table below

Inverter type	FUSE		
	Voltage (V)	Current (A)	I ² t (A ² s)
20P4	240	10	12~25
20P7	240	15	23~55
21P5	240	20	34~98
22P2	240	30	82~220
23P7	240	40	220~610
25P5	240	60	290~1300
27P5	240	80	450~5000
2011	240	100	1200~7200
2015	240	130	1800~7200
2018	240	150	870~16200
2022	240	180	1500~23000
2030	240	240	2100~19000
2037	240	300	2700~55000
2045	240	350	4000~55000
2055	240	450	7100~64000
2075	240	550	11000~64000
2090	240	600	13000~83000
2110	240	700	13000~83000
40P4	480	5	16~660
40P7	480	10	19~660
41P5	480	10	46~660
42P2	480	15	78~660
43P7	480	20	110~660
44P0	480	25	220~660
45P5	480	30	240~900
47P5	480	40	320~900
4011	480	50	1000~18000
4015	480	60	1500~4100
4018	480	70	530~5800
4022	480	90	1130~5800
4030	480	110	1700~5800
4037	480	140	2000~13000
4045	480	160	3000~13000
4055	480	220	6800~55000
4075	480	300	3800~55000
4090	480	330	12000~23000
4110	480	400	18000~64000
4132	480	450	28000~25000
4160	480	540	40000~250000
4185	480	750	63000~400000
4220	480	750	63000~400000
4300	480	1000	94000~920000

Ordering information



Varispeed G7



200 V

Inverter Model	Line Filters			
	Varispeed G7	Type	EN55011 Class	Current (A)
CIMR-G7C20P4	3G3RV-PFI3010-SE	B, 25 m	10	1.2
CIMR-G7C20P7		A, 100 m		
CIMR-G7C21P5	3G3RV-PFI3018-SE	B, 25 m	18	1.3
CIMR-G7C22P2	3G3RV-PFI2035-SE	B, 25 m	35	1.4
CIMR-G7C23P7		A, 100 m		
CIMR-G7C25P5	3G3RV-PFI2060-SE	B, 25 m	60	3
CIMR-G7C27P5		A, 100 m		
CIMR-G7C2011	3G3RV-PFI2100-SE	B, 25 m	100	4.9
CIMR-G7C2015		A, 100 m		
CIMR-G7C2018				
CIMR-G7C2022				
CIMR-G7C2030	3G3RV-PFI2160-SE	A, 100 m	160	6.0
CIMR-G7C2037	3G3RV-PFI2200-SE	A, 100 m	200	11.0
CIMR-G7C2045	3G3RV-PFI3410-SE	A, 100 m	400	8.6
CIMR-G7C2055				
CIMR-G7C2075				
CIMR-G7C2090				
CIMR-G7C2110	3G3RV-PFI3600-SE	A, 100 m	600	11.0

400 V

Inverter Model	Line Filters			
	Varispeed G7	Type	EN55011 Class	Current (A)
CIMR-G7C40P4	3G3RV-PFI3010-SE	B, 25 m	10	1.2
CIMR-G7C40P7		A, 100 m		
CIMR-G7C41P5	3G3RV-PFI3018-SE	B, 25 m	18	1.3
CIMR-G7C42P2		A, 100 m		
CIMR-G7C43P7				
CIMR-G7C44P0				
CIMR-G7C45P5	3G3RV-PFI3021-SE	B, 25 m	21	1.8
CIMR-G7C47P5	3G3RV-PFI3035-SE	B, 25 m	35	2.2
CIMR-G7C4011		A, 100 m		
CIMR-G7C4015	3G3RV-PFI3060-SE	B, 25 m	60	4.0
CIMR-G7C4018	3G3RV-PFI3070-SE	B, 25 m	70	3.4
CIMR-G7C4022		A, 100 m		
CIMR-G7C4030	3G3RV-PFI3100-SE	A, 100 m	100	4.5
CIMR-G7C4037				
CIMR-G7C4045	3G3RV-PFI3130-SE	A, 100 m	130	4.7
CIMR-G7C4055	3G3RV-PFI3170-SE	A, 100 m	170	6.0
CIMR-G7C4075	3G3RV-PFI3200-SE	A, 100 m	250	11
CIMR-G7C4090	3G3RV-PFI3410-SE	A, 100 m	400	8.6
CIMR-G7C4110				
CIMR-G7C4132				
CIMR-G7C4160				
CIMR-G7C4185	3G3RV-PFI3600-SE	A, 100 m	600	11
CIMR-G7C4220	3G3RV-PFI3800-SE	A, 100 m	800	31.0
CIMR-G7C4300				

① Line filters



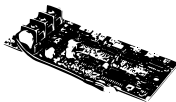
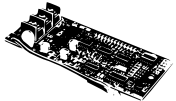
200 V

Inverter model	Line filters			
Varispeed G7	Type	EN55011 class	Current (A)	Weight (kg)
CIMR-G7C20P4 CIMR-G7C20P7	3G3RV-PFI3010-SE	B, 25 m A, 100 m	10	1.2
CIMR-G7C21P5	3G3RV-PFI3018-SE	B, 25 m A, 100 m	18	1.3
CIMR-G7C22P2 CIMR-G7C23P7	3G3RV-PFI2035-SE	B, 25 m A, 100 m	35	1.4
CIMR-G7C25P5 CIMR-G7C27P5	3G3RV-PFI2060-SE	B, 25 m A, 100 m	60	3
CIMR-G7C2011 CIMR-G7C2015 CIMR-G7C2018	3G3RV-PFI2100-SE	B, 25 m A, 100 m	100	4.9
CIMR-G7C2022	3G3RV-PFI2130-SE	A, 100 m	130	4.3
CIMR-G7C2030	3G3RV-PFI2160-SE	A, 100 m	160	6.0
CIMR-G7C2037 CIMR-G7C2045	3G3RV-PFI2200-SE	A, 100 m	200	11.0
CIMR-G7C2055 CIMR-G7C2075 CIMR-G7C2090	3G3RV-PFI3410-SE	A, 100 m	400	8.6
CIMR-G7C2110	3G3RV-PFI3600-SE	A, 100 m	600	11.0

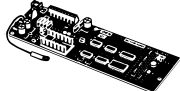

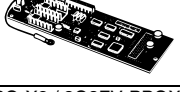
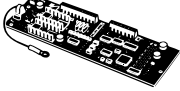
400 V

Inverter model	Line filters			
Varispeed G7	Model	EN 55011 class	Current (A)	Weight (kg)
CIMR-G7C40P4 CIMR-G7C40P7 CIMR-G7C41P5 CIMR-G7C42P2	3G3RV-PFI3010-SE	B, 25 m A, 100 m	10	1.2
CIMR-G7C43P7 CIMR-G7C44P0	3G3RV-PFI3018-SE	B, 25 m A, 100 m	18	1.3
CIMR-G7C45P5	3G3RV-PFI3021-SE	B, 25 m A, 100 m	21	1.8
CIMR-G7C47P5	3G3RV-PFI3035-SE	B, 25 m A, 100 m	35	2.2
CIMR-G7C4011 CIMR-G7C4015	3G3RV-PFI3060-SE	B, 25 m A, 100 m	60	4.0
CIMR-G7C4018 CIMR-G7C4022	3G3RV-PFI3070-SE	B, 25 m A, 100 m	70	3.4
CIMR-G7C4030 CIMR-G7C4037	3G3RV-PFI3100-SE	A, 100 m	100	4.5
CIMR-G7C4045 CIMR-G7C4055	3G3RV-PFI3130-SE	A, 100 m	130	4.7
CIMR-G7C4055 CIMR-G7C4075	3G3RV-PFI3170-SE	A, 100 m	170	6.0
CIMR-G7C4075 CIMR-G7C4090 CIMR-G7C4110 CIMR-G7C4132 CIMR-G7C4160	3G3RV-PFI3200-SE	A, 100 m	250	11
CIMR-G7C4185	3G3RV-PFI3410-SE	A, 100 m	400	8.6
CIMR-G7C4220 CIMR-G7C4300	3G3RV-PFI3600-SE	A, 100 m	600	11.0
	3G3RV-PFI3800-SE	A, 100 m	800	31.0

② Monitor option cards

Type	Model	Description	Function
Monitor option card	AO-08 / 3G3IV-PAO08 	Analog monitor card	<ul style="list-style-type: none"> Outputs analog signal for monitoring inverter output state (output freq., output current etc.) after absolute value conversion. Output resolution: 8 bits (1/256) Output voltage: 0 to {10 V (non isolated) EOutput channel: 2 channels
	AO-12 / 3G3IV-PAO12 		<ul style="list-style-type: none"> Outputs analog signal for monitoring inverter output state (output freq., output current etc.) Output resolution: 11 bits (1/2048) + code Output voltage: 110 to {10 V (non isolated) EOutput channel: 2 channels
	DO-08 / 3G3IV-PDO08	Digital output card	<ul style="list-style-type: none"> Outputs isolated type digital signal for monitoring inverter run state (alarm signal, zero speed detection etc.) . Output channel: photo coupler 6 channels (48 V, 50 mA or less) Relay contact output 2 channels (250 VAC, 1 A or less 30 VDC, 1 A or less)
	DO-02C / 3G3IV-PDO02C	2C-relay output card	<ul style="list-style-type: none"> Two multi-function contact outputs (2C-relay) can be used other than those of the inverter proper unit.

③ Feedback speed control cards

Type	Model	Description	Function
Feedback speed control card	PG-A2 / 3G3FV-PPGA2 	PG speed controller card (used for V/f control with PG or flux vector)	<ul style="list-style-type: none"> Phase A pulse (single pulse) inputs (voltage, complementary, open collector input) PG frequency range: Approx. 30 kHz max. [Power supply output for PG: +12 V, max. current 200 mA] Pulse monitor output: +12 V, 20 mA
	PG-B2 / 3G3FV-PPGB2 		<ul style="list-style-type: none"> Phase A and B pulse inputs (exclusively for complementary input) PG frequency range: Approx. 30 kHz max. [Power supply output for PG: +12 V, Max. current 200 mA] Pulse monitor output: Open collector, +24 V, Max. current 30 mA
	PG-D2 / 3G3FV-PPGD2 		<ul style="list-style-type: none"> Phase A pulse (differential pulse) input for V/f control (RS-422 input) PG frequency range: Approx. 300 kHz max. [Power supply output for PG: +5 V or +12 V, Max. current 200 mA] Pulse monitor output: RS-422
	PG-X2 / 3G3FV-PPGX2 		<ul style="list-style-type: none"> Phase A, B and Z pulse (differential pulse) inputs (RS-422 input) PG frequency range: Approx. 300 kHz max. [Power supply output for PG: +5 V or +12 V, Max. current 200 mA] Pulse monitor output: RS-422

④ Communication option cards


Type	Model	Description	Function
Communication option card	SI-N1	DeviceNet option card	<ul style="list-style-type: none"> Used for running or stopping the inverter, setting or referencing parameters, and monitoring output frequency, output current, or similar items through DeviceNet communication with the host controller.
	SI-P1	PROFIBUS-DP option card	<ul style="list-style-type: none"> Used for running or stopping the inverter, setting or referencing parameters, and monitoring output frequency, output current, or similar items through PROFIBUS-DP communication with the host controller.
	SI-S1	CANopen option card	<ul style="list-style-type: none"> Used for running or stopping the inverter, setting or referencing parameters, and monitoring output frequency, output current, or similar items through CANopen communication with the host controller.
	SI-J	LONWORKS option card	<ul style="list-style-type: none"> Used for HVAC control, running or stopping the inverter, setting or referencing parameters, and monitoring output current, watt-hours, or similar items through LONWORKS communications with peripheral devices.
	SI-T	MECHATROLINK-II option board	<ul style="list-style-type: none"> High speed motion bus Used for running or stopping the inverter, setting or referencing parameters, and monitoring output frequency, output current, or similar items through MECHATROLINK-II communication with the host controller. Host controller: Trajexia, MCH and MP series ¹
	CM090	Ethernet option card	<ul style="list-style-type: none"> Modbus TCP/IP ethernet interface unit

1. Please refer to Trajexia, MCH or MP series for host controllers detailed information.


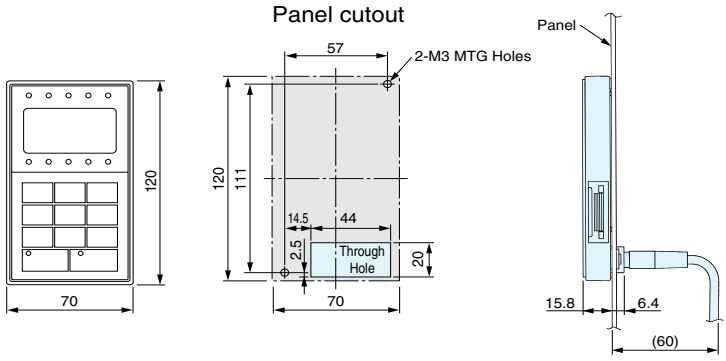

⑤ Reference option cards

Type	Model	Description	Function
Reference option card	AI-14U / 3G3IV-PAI14U	Analog input card	<ul style="list-style-type: none"> 2 channel high resolution analog input card Channel 1: 0 to 10 V (20 KΩ) Channel 2: 4 to 20 mA (250 Ω) Resolution 14 bit
	AI-14B / 3G3IV-PAI14B		<ul style="list-style-type: none"> 3 Channel high resolution analog input card Signal level: -10 to +10 V (20 KΩ) 4 to 20 mA (250 Ω) Resolution: 13 bit + sign
	DI-08 / 3G3IV-PDI08	Digital reference card	<ul style="list-style-type: none"> 8 bit digital speed reference input card
	DI-16H2 / 3G3IV-PDI16H2		<ul style="list-style-type: none"> 16 bit digital speed reference input card

⑥ PLC option boards

Type	Model	Description	Function
PLC option	3G3RV-P10ST8-E 	PLC option	<ul style="list-style-type: none"> Full PLC features, wireless installation and seamless access to the inverter parameters and analogue/digital inputs and outputs. Embedded Compubus/S fieldbus Standard OMRON tools can be used for programming
	3G3RV-P10ST8-DRT-E	PLC option with DeviceNet	<ul style="list-style-type: none"> Same features as standard models with DeviceNet support.




⑦ Accessories

Type	Model	Description	Installation
Digital operator	JVOP-160-OY 	5 lines LCD digital operator 7 language support	 <p>Panel cutout</p> <p>Panel cutout installation</p>
	JVOP-161-OY 	7 segment LED digital operator	
Accessories	3G3IV-PCN126 3G3IV-PCN326	Digital operator extension cable 1 meter 3 meters	-----
	3G3IV-PCN329-E	PC configuration cable	-----

⑦ Accessories

Type	Model	Description	Function
Software	CX-drive 1.1	Computer software	Configuration and monitoring software tool for drives (Version 1.1 or higher)
	DriveWorksEZ	Computer software	Programming special functionality software tool for drives
	CX-One	Computer software	Complete automation software including CX-drive.

⑧ Braking unit, braking resistor unit

Inverter			Braking unit 		Braking resistor unit ¹								
					Inverter-mounted type (3 %ED, 10 sec max) ² 				Separately-installed type (10 %ED, 10 sec. max.) ³ 				
Voltage	Max. applicable motor output kW	Model CIMR-G7C_	Model CDBR_	No. of used	Model ERF-150WJ_	Resistance	No. of Used	Braking torque %	Model LKEB_	Specifications of resistor	No. of Used	Braking torque %	Connectable min resistance value Ω
200 V class	0.4	20P4	Built-in		201	200 Ω	1	220	20P7	70 W 200 Ω	1	220	48
	0.75	20P7			201	200 Ω	1	125	20P7	70 W 200 Ω	1	125	48
	1.5	21P5			101	100 Ω	1	125	21P5	260 W 100 Ω	1	125	48
	2.2	22P2			700	70 Ω	1	120	22P2	260 W 70 Ω	1	120	16
	3.7	23P7			620	62 Ω	1	100	23P7	390 W 40 Ω	1	125	16
	5.5	25P5			25P5	520 W 30 Ω	1	115	16				
	7.5	27P5			27P5	780 W 20 Ω	1	125	9.6				
	11	2011			2011	2400 W 13.6 Ω	1	125	9.6				
	15	2015			2015	3000 W 10 Ω	1	125	9.6				
	18.5	2018			2015	3000 W 10 Ω	1	125	9.6				
	22	2022			2022	4800 W 6.8 Ω	1	125	6.4				
	30	2030			2015B	2	---	---	2015	3000 W 10 Ω	2	125	9.6
	37	2037			2015B	2	---	---	2015	3000 W 10 Ω	2	100	9.6
	45	2045			2022B	2	---	---	2022	4800 W 6.8 Ω	2	120	6.4
	55	2055			2022B	2	---	---	2022	4800 W 6.8 Ω	2	100	6.4
	75	2075	2110B	1	---	---	2022	4800 W 6.8 Ω	3	110	1.6		
90	2090	2110B	1	---	---	2022	4800 W 6.8 Ω	4	120	1.6			
110	2110	2110B	1	---	---	2018	4800 W 8 Ω	5	100	1.6			
400 V class	0.4	40P4	Built in		751	750 Ω	1	230	40P7	70 W 750 Ω	1	230	96
	0.75	40P7			751	750 Ω	1	130	40P7	70 W 750 Ω	1	130	96
	1.5	41P5			401	400 Ω	1	125	41P5	260 W 400 Ω	1	125	64
	2.2	42P2			301	300 Ω	1	115	42P2	260 W 250 Ω	1	135	64
	3.7	43P7			201	200 Ω	1	110	43P7	390 W 150 Ω	1	135	32
	4.0	44P0			---	---	---	---	45P5	520 W 100 Ω	1	135	32
	5.5	45P5			---	---	---	---	47P5	780 W 75 Ω	1	130	32
	7.5	47P5			---	---	---	---	4011	1040 W 50 Ω	1	135	20
	11	4011			---	---	---	---	4015	1560 W 40 Ω	1	125	20
	15	4015			---	---	---	---	4018	4800 W 32 Ω	1	125	19.2
	18.5	4018			---	---	---	---	4022	4800 W 27.2 Ω	1	125	19.2
	22	4022			4030B	1	---	---	4030	6000 W 20 Ω	1	125	19.2
	30	4030			4030B	1	---	---	4037	9600 W 16 Ω	1	125	12.8
	37	4037			4045B	1	---	---	4045	9600 W 13.6 Ω	1	125	12.8
	45	4045			4045B	1	---	---	4030	6000 W 20 Ω	2	135	19.2
	55	4055	4030B	2	---	---	4045	9600 W 13.6 Ω	2	145	12.8		
	75	4075	4045B	2	---	---	4030	6000 W 20 Ω	3	100	3.2		
	90	4090	4220B	1	---	---	4030	6000 W 20 Ω	3	100	3.2		
	110	4110	4220B	1	---	---	4045	9600 W 13.6 Ω	4	140	3.2		
	132	4132	4220B	1	---	---	4045	9600 W 13.6 Ω	4	120	3.2		
160	4160	4220B	1	---	---	4045	9600 W 13.6 Ω	4	140	3.2			
185	4185	4220B	1	---	---	4045	9600 W 13.6 Ω	4	120	3.2			
220	4220	4220B	1	---	---	4037	9600 W 16 Ω	5	110	3.2			
300	4300	4220B	2	---	---	4045	9600 W 13.6 Ω	6	110	3.2			

- When connecting a mounting type resistor or braking resistor unit, set system constant L3-04 to 0 (stall prevention disabled during deceleration). If operating without changing the constant, motor does not stop at set deceleration time.
- When connecting mounting type braking resistor, set system constant L8-01 to 1 (braking resistor protection enabled).
- Load factor during deceleration to stop a load with constant torque. With constant output or continuous regenerative braking, the load factor is smaller than the specified value.
- Resistance value per one braking unit. Select a resistance value that is larger than connectable minimum resistance value to obtain enough braking torque.
- For an application with large regenerative power such as hoisting, the braking torque or other items may exceed the capacity of a braking unit with a braking resistor in a standard combination (can result in capacity overload). Contact your OMRON representatives when the braking torque or any other item exceeds the values in the table.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.