

CIMR-F7Z

Varispeed F7

The industrial workhorse

- Flux Vector Control with or without PG
- Silent operation. No current de-rating in silent mode.
- Torque Control
- PID Control
- Powerful application oriented functionality
- Stand still Autotuning
- High slip braking
- Standard LCD operator
- Fieldbus options: DeviceNet, Profibus, CANOpen
- PLC Option card
- Energy saving function
- Standard RS485 communications - Modbus
- PC Configuration tool: CX-Drive.
- CE, UL, and cUL marking
- Safety embedded, EN954-1 safety cat. 3 (optional)

Customised software *

- The inverter software can be customised to meet specific application.
- Examples :
- Electronic line shaft (S-8169)
- Crane software (S-7071)

*For detailed information please have a look to CASE software section.

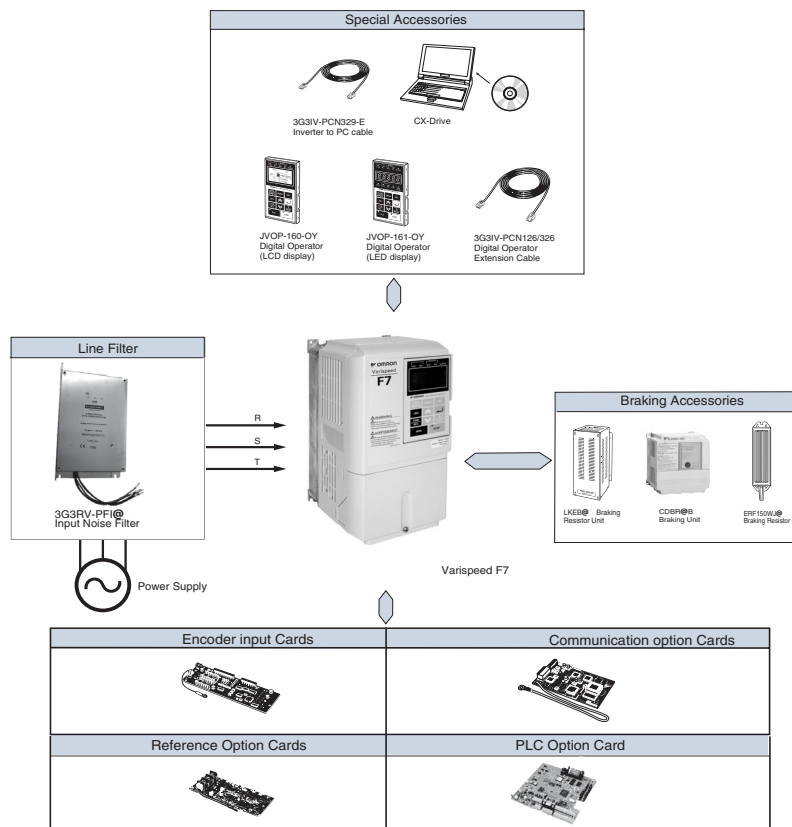
Ratings

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



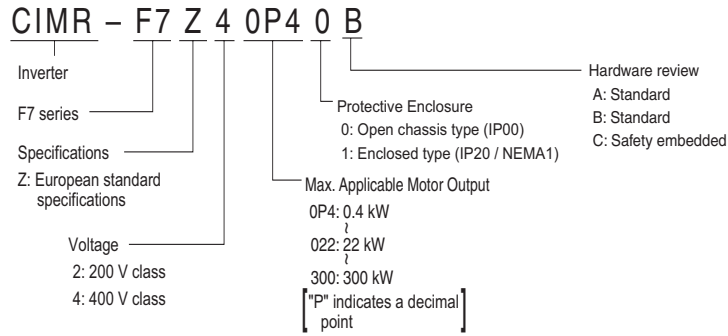
Frequency Inverters

System Configuration



Specifications

Type Designation



200 V Class

Model CIMR-F7Zo		20P4	20P7	21P5	22P2	23P7	25P5	27P5	2011	2015	2018	2022	2030	2037	2045	2055	2075	2090	2110
Max. applicable motor output ¹ kW		0.55	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110
Output characteristics	Inverter Capacity kVA	1.2	1.6	2.7	3.7	5.7	8.8	12	17	22	27	32	44	55	69	82	110	130	160
	Rated Current A	3.2	4.1	7.0	9.6	15	23	31	45	58	71	85	115	145	180	215	283	346	415 ²
	Max. Voltage	3-phase, 200/208/220/230/240 V (Proportional to input voltage)																	
	Max. output Frequency	Heavy Duty (low carrier, constant torque applications): 150 Hz max Normal Duty 1 or 2 (High/reduced carrier, variable torque applications): 400 Hz max																	
Power Supply	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							

- Our 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.
- 322 A in case of Heavy duty mode
- When using the inverter of 200 V class 37 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 Class

Model CIMR-F7Zo		40P4	40P7	41P5	42P2	43P7	44P0	45P5	47P5	4011	4015	4018	4022	4030	4037	4045	4055	4075	4090	4110	4132	4160	4185	4220	4300
Max. applicable motor output ¹ kW		0.55	0.75	1.5	2.2	3.7	4.0	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	185	220	300
Output characteristics	Inverter Capacity kVA	1.4	1.6	2.8	4.0	5.8	6.6	9.5	13	18	24	30	34	46	57	69	85	110	140	160	200	230	280	390	510
	Rated Current A	1.8	2.1	3.7	5.3	7.6	8.7	12.5	17	24	31	39	45	60	75	91	112	150	180	216	260	304	370	506 ²	675 ³
	Max. Voltage	3-phase, 380/400/415/440/460/480 V (Proportional to input voltage)																							
	Max. output Frequency	Heavy Duty (low carrier, constant torque applications): 150 Hz max Normal Duty 1 or 2 (High/reduced carrier, variable torque applications): 400 Hz max																							
Power Supply	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 ⁴													

- Our 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.
- 405 A in case of Heavy duty mode
- 540 A in case of Heavy duty mode
- A 3-wired transformer is required at 12-pulse input.

Common Specifications

Enclosures

Class	Model CIMR-F7Z□	20P4	20P7	21P5	22P2	23P7	25P5	27P5	2011	2015	2018	2022	2030	2037	2045	2055	2075	2090	2110				
	400V Class	Enclosed Type - IP20)	Available as standard										Available for option						N/A				
Open Chassis Type -IP00		Available by removing the upper and lower cover of enclosed type										Available as standard											
Model CIMR-F7Z□		40P4	40P7	41P5	42P2	43P7	45P5	47P5	4011	4015	4018	4022	4030	4037	4045	4055	4075	4090	4110	4132	4160	4185	4220
400V Class	Enclosed Type - IP20	Available as standard										Available for option						N/A					
	Open Chassis Type - IP00	Available by removing the upper and lower cover of enclosed type										Available as standard											
	Model CIMR-F7Z□																						

Common Specifications

Model Number CIMR-F7Z□	Specification		
Control characteristics	Control method	Sine wave PWM Closed Loop Vector control, Open Loop Vector control, V/f control, V/f with PG control	
	Torque characteristics	Heavy Duty (low carrier, constant torque applications): 2 kHz carrier frequency, 150% overload for 1 minute, higher carrier frequency possible with current derating. Normal Duty 1 (high carrier, variable torque applications): maximum carrier frequency, depending on inverter capacity, 120% overload for 1 minute. Normal Duty 2 (variable torque applications): carrier frequency reduced, continuous overload capability increased	
	Speed control range	1:40 (V/f control) 1:100 (Open Loop Vector control) 1:1000 (Closed Loop Vector control)	
	Speed control accuracy	± 3% (V/f control) ± 0.03% (V/f control with PG) ± 0.2% (Open Loop Vector control) ± 0.02% (Closed Loop Vector control) (25°C ± 10°C)	
	Speed control response	5 Hz (control without PG) 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 150 Hz (Heavy Duty), 0.01 to 400 Hz (Normal Duty 1 or 2)	
	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	0.01 Hz	
	Overload capacity and maximum current	Heavy Duty (low carrier, constant torque applications): 150% of rated output current for 1 minute Normal Duty 1 or 2 (high/reduced carrier, variable torque applications): 120% of rated output current for 1 minute	
	Frequency setting signal	0 to +10V, -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 18.5 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		Heavy Duty (low carrier, constant torque applications): 150% of rated output current for 1 minute Normal Duty 1 (high carrier, variable torque applications): 120% of rated output current for 1 minute Normal Duty 2 (high carrier, variable torque applications): 120% of rated output current for 1 minute, increased continuous output current.	
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.	
Environment	Charge indicator	Glow when the main circuit DC voltage is approx. 10 VDC or more.	
	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	

Frequency Inverters

Dimensions

Open Chassis Type (IEC IP00)

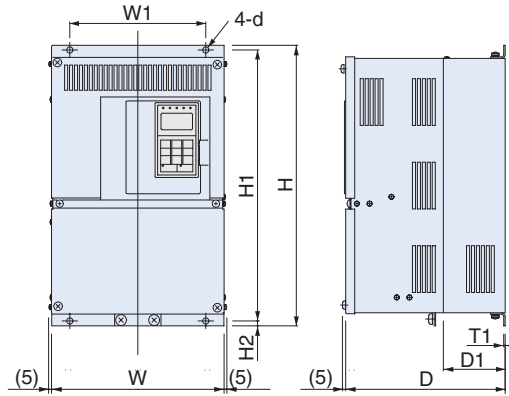


Fig 1

Voltage	Max. Applicable Motor Output kW	Inverter CIMR-F7Z□	Fig	Dimensions in mm										Approx. Mass 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	-----													
	15	-----													
	18.5	-----													
	22	2022 0			250	400	258	195	385	7.5	100	2.3	M6		21
30	2030 0	275	450	220	435	24									
37	2037 0	375	600	298	250	575	12.5	100	3.2	M10	57				
45	2045 0			328							63				
55	2055 0	450	725	348	325	700	130	4.5	M12	86					
75	2075 0									87					
90	2090 0	500	850	358	370	820	15	140	4.5	M12	108				
110	2110 0										575	885	378	445	855
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	-----													
	15	-----													
	18.5	-----													
	22	4022 0		275	450	258	220	435	7.5	100	2.3	M6	21		
	30	4030 0											36		
	37	4037 0		325	550	283	260	535	105	130	3.2	M10	88		
	45	4045 0											89		
	55	4055 0		450	725	348	325	700	12.5	130	4.5	M12	102		
	75	4075 0											120		
90	4090 0	500	850	358	370	820	15	140	4.5	M12	160				
132	4132 0										260				
160	4160 0	575	916	378	445	855	45.8	140	4.5	M12	280				
185	4185 0										280				
220	4220 0	710	1305	413	540	1270	15	125.5	4.5	M12	405				
300	4300 0										916	1475	413	730	1440

Enclosed Type (IEC IP20)

F7Z 20P41 to F7Z25P51
F7Z40P41 to F7Z45P51

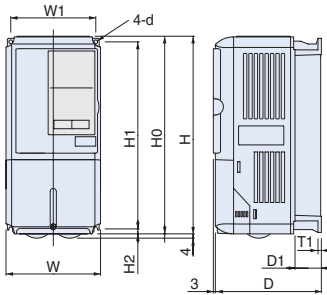


Fig 1

F7Z 27P51 to F7Z20181
F7Z47P51 to F7Z40181

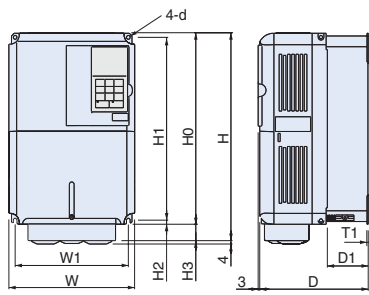


Fig 2

F7Z 20221 to F7Z20751
F7Z40221 to F7Z41601

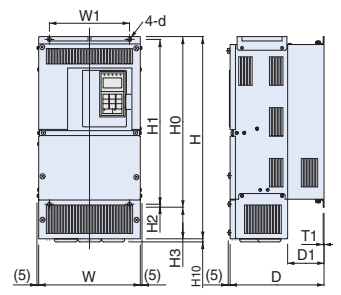


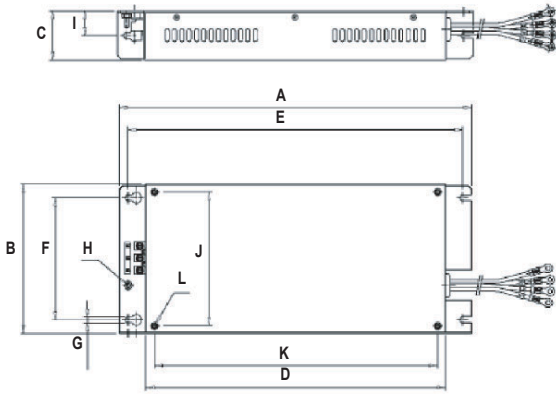
Fig 3

Voltage	Max. Applicable Motor Output kW	Inverter CIMR-F7Z□	Fig	Dimensions in mm											Approx. Mass kg	Cooling Method	
				W	H	D	W1	H0	H1	H2	H3	D1	T1	d			
200 V Class (3-phase)	0.4	20P4 1	1	140	280	157	126	280	266	7	---	39	5	M5	3	Self cooled	
	0.75	20P7 1															
	1.5	21P5 1															
	2.2	22P2 1															
	3.7	23P7 1															
	5.5	25P5 1	2	200	300	197	186	300	285	8	0	65.5	2.3	M6	6	Fan cooled	
	7.5	27P5 1															
	11	2011 1	3	240	350	207	216	350	335	7.5	0	78	100	3.2	M10	11	Fan cooled
	15	2015 1															
	18.5	2018 1															
	22	2022 1	3	254	535	258	195	400	385	7.5	135	165	100	3.2	M10	24	Fan cooled
	30	2030 1															
	37	2037 1															
	45	2045 1															
55	2055 1																
75	2075 1	3	453	1027	348	325	725	700	12.5	302	130	3.2	M10	94	Fan cooled		
75	2075 1																
400 V Class (3-phase)	0.4	40P4 1	1	140	280	157	126	280	266	7	---	39	5	M5	3	Self Cooled	
	0.75	40P7 1															
	1.5	41P5 1															
	2.2	42P2 1															
	3.7	43P7 1															
	4.0	44P0 1	2	200	300	197	186	300	285	8	---	65.5	2.3	M6	6	Fan cooled	
	5.5	45P5 1															
	7.5	47P5 1	3	240	350	207	216	350	335	7.5	0	78	100	3.2	M6	10	Fan cooled
	11	4011 1															
	15	4015 1															
	18.5	4018 1	3	275	535	258	220	450	435	7.5	85	100	2.3	M6	24	Fan cooled	
	22	4022 1															
	30	4030 1															
	37	4037 1															
	45	4045 1															
	55	4055 1	3	325	715	283	260	550	535	7.5	105	105	3.2	M10	40	Fan cooled	
	75	4075 1															
	90	4090 1	3	453	1027	348	325	725	700	12.5	302	130	3.2	M10	96	Fan cooled	
90	4090 1																
110	4110 1																
132	4132 1																
160	4160 1	3	579	1324	378	445	918	855	45.8	408	140	4.5	M12	122	Fan cooled		
160	4160 1																
160	4160 1	3	579	1324	378	445	918	855	45.8	408	140	4.5	M12	130	Fan cooled		
160	4160 1																

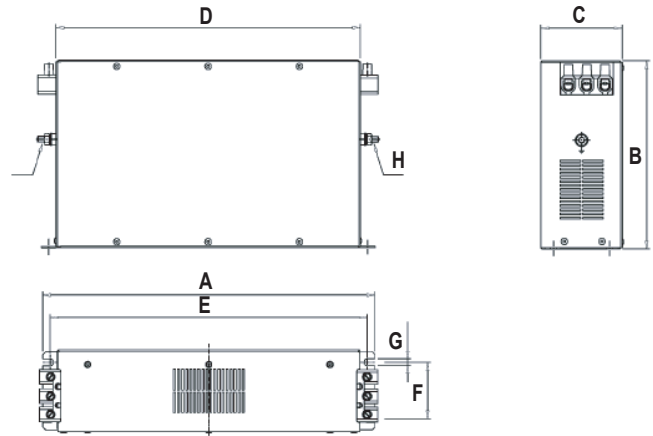
Frequency Inverters

Filters

Footprint / Flat filters



Bookform filters



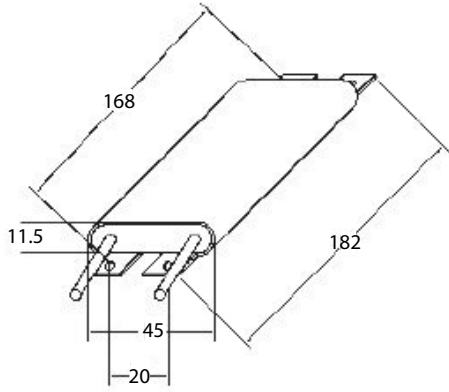
Foot print Model		Dimensions											
		A	B	C	D	E	F	G	H	I	J	K	L
200V	3G3RV-PFI2035-SE	330	141	46	281	313	115	5.5	M5	23	126	266	M5
	3G3RV-PFI2060-SE	355	206	60	302	336	175	6.5	M6	30	186	285	M6
	3G3RV-PFI2100-SE	408	236	80	355	390	205	6.5	M6	40	216	335	M6
400V	3G3RV-PFI3010-SE	330	141	46	281	313	115	5.5	M4	23	126	266	M5
	3G3RV-PFI3018-SE	330	141	46	281	313	115	5.5	M4	23	126	266	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

Bookform Model		Dimensions								
		A	B	C	D	E	F	G	H	
200V	3G3RV-PFI2130-SE	310	180	90	280	295	65	6.5	M10	
	3G3RV-PFI2160-SE	380	170	120	350	365	102	6.5	M10	
	3G3RV-PFI2200-SE	518	240	130	480	498	90	8.2	M10	
400V	3G3RV-PFI3070-SE	329	185	80	300	314	55	6.5	M6	
	3G3RV-PFI3130-SE	310	180	90	280	295	65	6.5	M10	
	3G3RV-PFI3170-SE	380	170	120	350	365	102	6.5	M10	
	3G3RV-PFI3200-SE	518	240	130	480	498	90	8.3	M10	
	3G3RV-PFI3400-SE	386	115	260	306	240	235	12.0	M12	
	3G3RV-PFI3600-SE	386	135	260	306	240	235	12.0	M12	
	3G3RV-PFI3800-SE	564	160	300	516	420	275	9.0	M12	

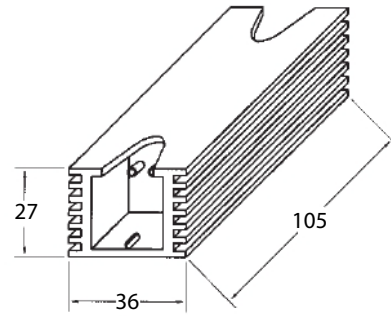
Braking Unit

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

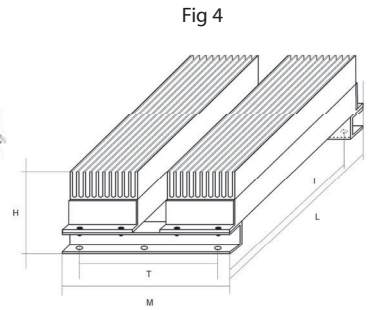
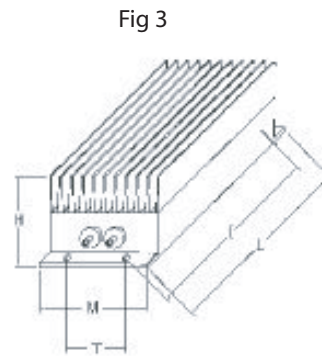
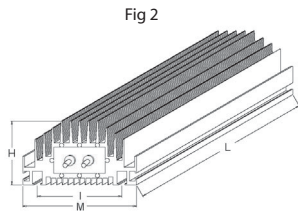
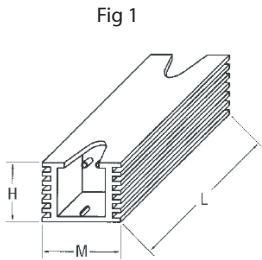
A1000-REJ0K15



A1000-REJ0K10

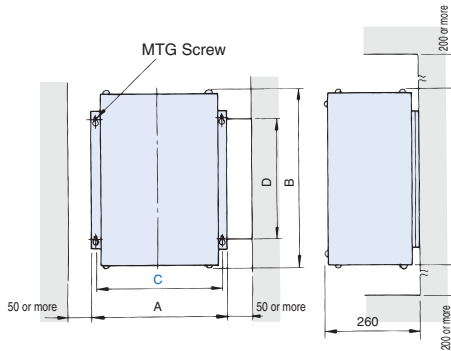


A1000-REV _____r



Type	Fig.	Dimensions					Weight KG
		L	H	M	I	T	
A1000-REV00k4100-IE	1	200	27	36	189	-	0.425
A1000-REV00k4020-IE							
A1000-REV00k4030-IE							
A1000-REV00k5075-IE	1	260	27	36	249	-	0.58
A1000-REV00k6050-IE	1	320	27	36	309	-	0.73
A1000-REV00k6013-IE							
A1000-REV00k9040-IE							
A1000-REV00k9010-IE	2	200	62	100	74	-	1.41
A1000-REV02k0008-IE	3	365	75	100	350	70	4.7
A1000-REV04k0032-IE	4	365	105	204	350	210	9,5

Braking Resistor Unit

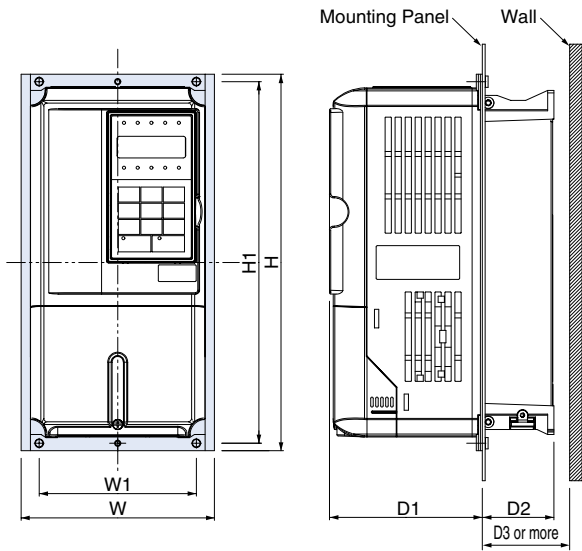


Voltage	Model LKEB-__	Dimensions in mm					MTG Screw	Mass kg
		A	B	C	D			
220 V Class	2015	356	543	336	340	M8 x 4	15	
	2018	446	543	426	340	M8 x 4	19	
	2022	446	543	426	340	M8 x 4	19	
400 V Class	4022	446	543	426	340	M8 x 4	19	
	4030	356	956	336	740	M8 x 4	25	
	4037	446	956	426	740	M8 x 4	33	
	4045	446	956	426	740	M8 x 4	33	

Attachments

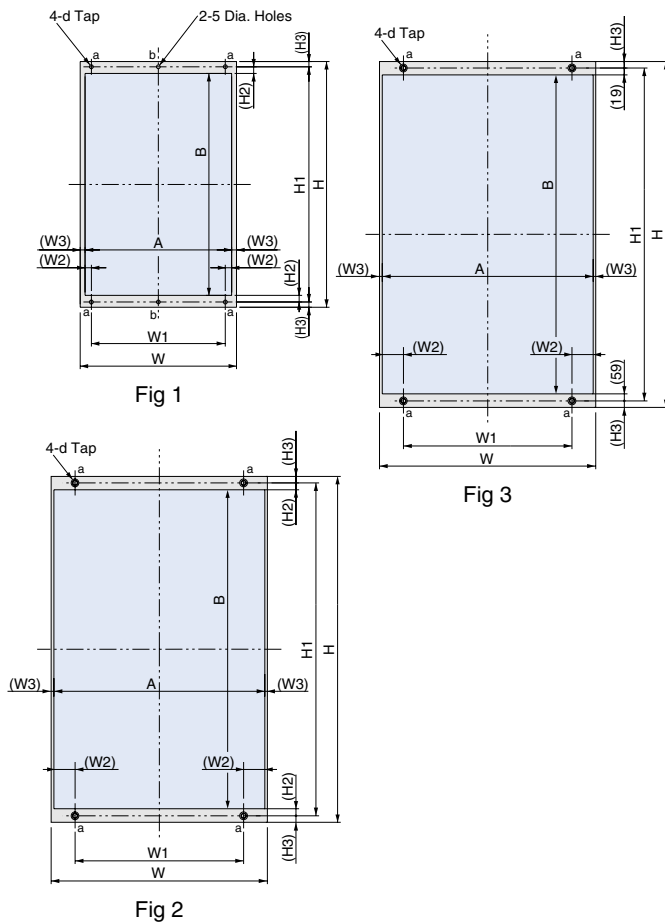
Heatsink External Mounting Attachment

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	EZZ08676A	155	302	126	290	122.6	37.4	40
20P7								
21P5							57.4	60
22P2								
23P7								
25P5	EZZ08676B	210	330	180	316	136.1	63.4	70
27P5								
2011	EZZ08676C	250	392	216	372	133.6	76.4	85
2015								
40P4	EZZ08676A	155	302	126	290	122.6	37.4	40
40P7								
41P5							57.4	60
42P2								
43P7								
45P5	EZZ08676B	210	330	180	316	136.1	63.4	70
47P5								
4011	EZZ08676C	250	392	216	372	133.6	76.4	85
4015								

Panel Cut for External Mounting of Cooling Fin (Heatsink)

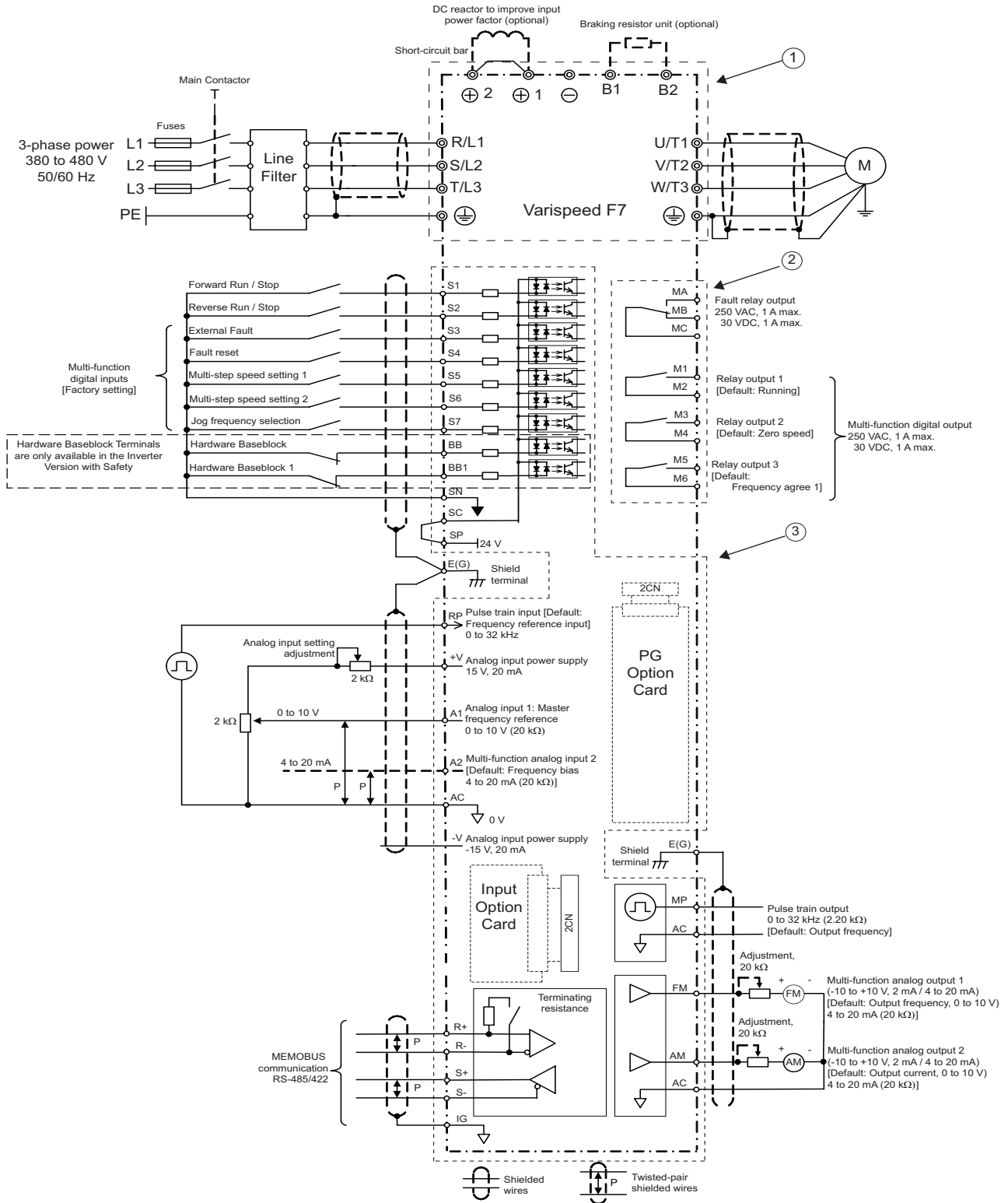


CIMR-F7Z□	Fig	Dimensions in mm																				
		W	H	W1	(W2)	(W3)	H1	(H2)	(H3)	A	B	d										
20P4	1	155	302	126	6	8.5	290	9.5	6	138	271	M5										
20P7																						
21P5																						
22P2																						
23P7																						
25P5																						
27P5													8.5	6.5	316	9	7	197	298			
2011																						
2015													250	392	216	8.5	372	9.5	10	233	353	M6
2018																						
2022	275	450	220	24.5	3	385	8	7.5	244	369												
2030																						
2037	2	375	600	250	54.5	8	575	15	12.5	359	545	M10										
2045																						
2055																						
2075																						
2090																						
2110	500	850	370	57	8	820	19	15	484	782												
2110																						
40P4	1	155	302	126	6	8.5	290	9.5	6	138	271	M5										
40P7																						
41P5																						
42P2																						
43P7																						
44P0																						
45P5																						
47P5													210	330	180	8.5	6.5	316	9	7	197	298
4011																						
4015													250	392	216	8.5	372	9.5	10	233	353	M6
4018																						
4022	275	450	220	24.5	3	435	8	7.5	269	419												
4030																						
4037	325	550	260	8	535	8	7.5	309	519													
4045																						
4055	450	725	325	54.5	8	700	13.5	12.5	434	673	M10											
4075																						
4090	500	850	370	57	8	820	19	15	484	782												
4110																						
4132	575	925	445	55	10	895	15	15	555	817	M12											
4160																						

1. The sizes are different between the top and the bottom. Refer Fig 3

Installation

Standard Connections

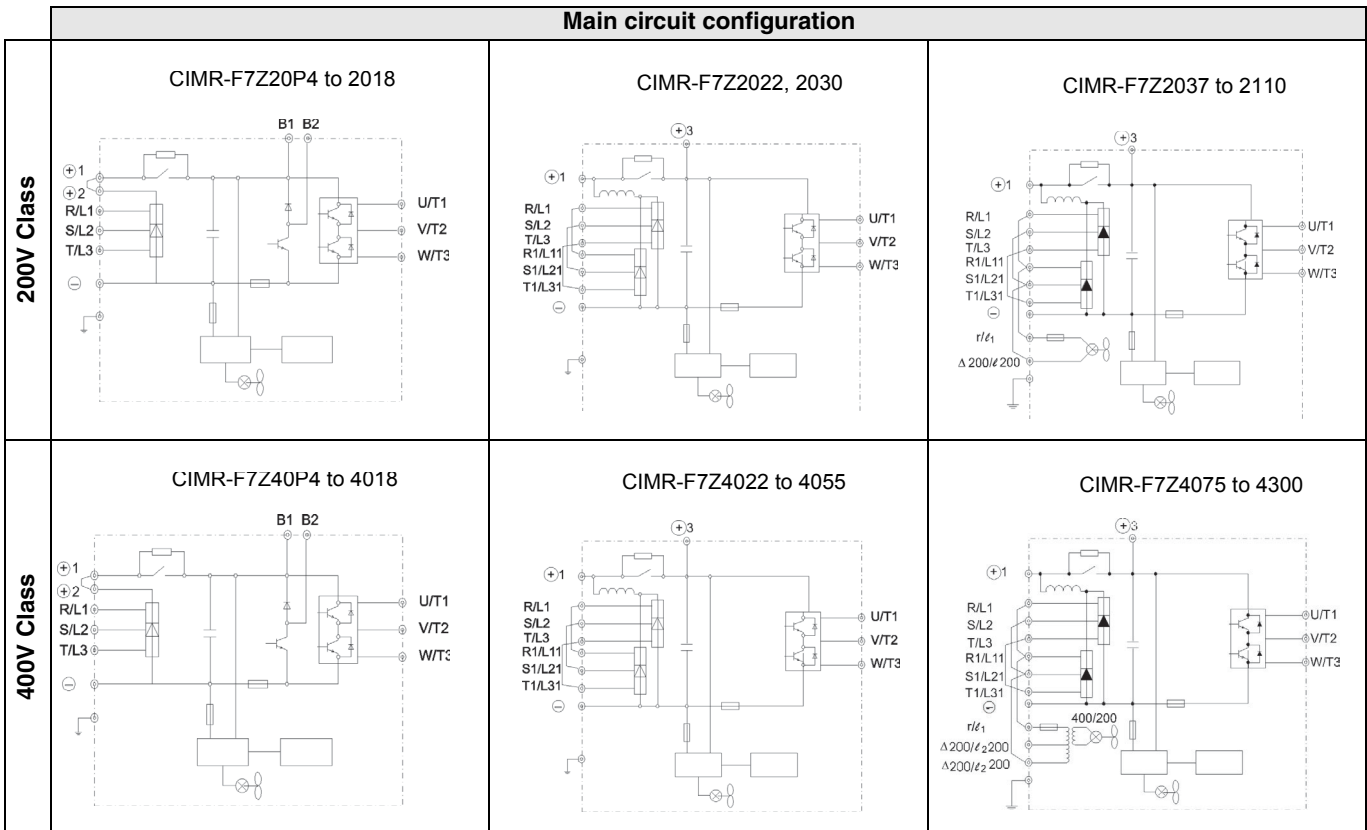


Frequency Inverters

Main Circuit

Voltage	200 V			400 V			
	Model CIMR-F7Z□	20P4 to 2018	2022, 2030	2037 to 2110	40P4 to 4018	4022 to 4055	4075 to 4300
Max. Applicable Motor Output		0.4 to 18.5 kW	22 to 30 kW	37 to 110 kW	0.4 to 18.5 kW	22 to 55 kW	75 to 300 kW
R/L1	Main circuit input power supply	Main circuit input power supply			Main circuit input power supply	Main circuit input power supply	
S/L2							
T/L3							
R1/L11	---	R-R1, S-S1 and T-T1 have been wired before shipment (See P59).			---	R-R1, S-S1 and T-T1 have been wired before shipment	
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					Cooling fan power supply ³		
↓ 200 / I ₂ 200	-----			---			
↓ 400 / I ₂ 400				Cooling fan power supply ³			
⊕	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



Control Circuit

Type	No.	Signal Name	Function	Signal Level	
Digital input signals	S1	Forward run/stop command	Forward run when ON; stopped when OFF.	24 VDC, 8 mA Photocoupler	
	S2	Reverse run/stop command	Reverse run when ON; stopped when OFF.		
	S3	External fault input ¹	Fault when ON.		Functions are selected by setting H1-01 to H1-05.
	S4	Fault reset ¹	Reset when ON		
	S5	Multi-step speed reference 1 ¹ (Master/auxiliary switch)	Auxiliary frequency reference when ON.		
	S6	Multi-step speed reference 2 ¹	Multi-step setting 2 when ON.		
	S7	Jog frequency reference*1	Jog frequency when ON.		
	SC	Digital input common	-		-
	SN	Digital Input Neutral	-		-
SP	Digital Input Power Supply	+24VDC power supply for digital inputs	24 VDC, 250 mA max. ²		
Fast Stop Cmd	BB	Hardware baseblock ³	-	24 VDC, 8 mA Photocoupler	
	BB1	Hardware baseblock 1 ³	-	-	
Analog input signals	+V	15 V power output	15 V power supply for analog references	15 V (Max. current: 20 mA)	
	-V	-15 V power output	-15 V power supply for analog references	-15 V (Max. current: 20 mA)	
	A1	Frequency reference	-10 to +10 V/100%	-10 to +10 V(20 kΩ)	
	A2	Multi-function analog input	4 to 20 mA/100% -10 V to +10 V/100%	Function is selected by setting H3-09. 4 to 20 mA(250Ω) -10 V to +10 V(20kΩ)	
	AC	Analog reference common	-	-	
	E(G)	Shield wire, optional ground line connection point	-	-	
Sequence output signals	M1	Running signal (1NO contact)	Operating when ON.	Multi-function contact outputs Relay contacts Contact capacity: 1 A max. at 250 VAC 1 A max. at 30 VDC ⁴	
	M2				
	M3	Zero speed	Zero level (b2-01) or below when ON		
	M4				
	M5	Speed agreement detection	Within ±2 Hz of set frequency when ON.		
	M6				
	MA	Fault output signal	Fault when CLOSED across MA and MC Fault when OPEN across MB and MC	Relay contacts Contact capacity: 1 A max. at 250 VAC 1 A max. at 30 VDC ³	
	MB				
MC					
Analog output signals	FM	Multi-function analog output (frequency output)	0 to 10 V, 10V=100% output frequency	Multi-function analog output 1 -10 to +10 V max. ±5% 2 mA max.	
	AC	Analog common	-	4 to 20 mA current output	
	AM	Multi-function analog output (current monitor)	0 to 10 V, 10V=200% Inverter's rated current	Multi-function analog output 2	
Pulse I/O	RP	Pulse input ⁵	H6-01 (Frequency reference input)	0 to 32 kHz (3 kΩ) High level voltage 3.5 to 13.2V	
	MP	Pulse monitor	H6-06 (Output frequency)	0 to 32 kHz +15 V output (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		Differential input, Photocoupler isolation	
	S-	output			
IG	Signal common	-	-		

- * 1. The default settings are given for terminals S3 to S7. For a 3-wire sequence, the default settings are a 3-wire sequence for S5, multi-step speed setting 1 for S6 and multi-step speed setting 2 for S7.
- * 2. Do not use this power supply for supplying any external equipment.
- * 3. Terminals BB and BB1 are only available in the inverter version with safety

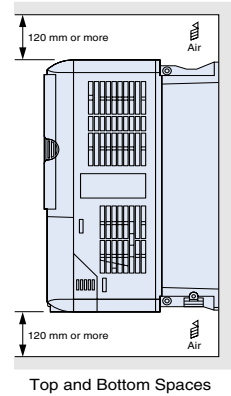
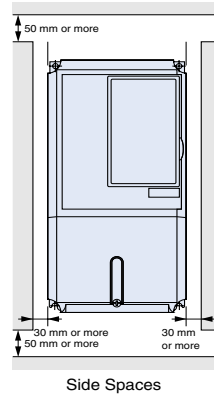
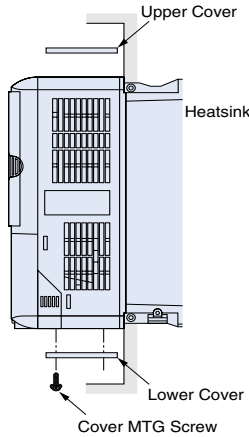
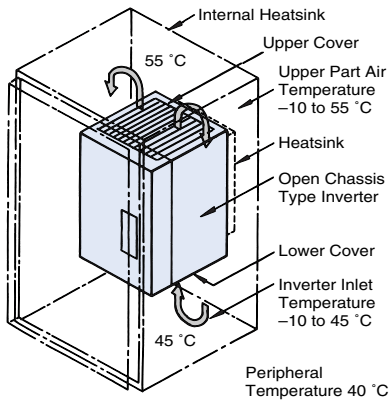
- * 4. When driving a reactive load, such as a relay coil with DC power supply, always insert a flywheel diode
- * 5. Pulse input specifications are given in the following table

Low level voltage	0.0 to 0.8 V
High level voltage	3.5 to 13.2 V
H duty	30% to 70%
Pulse frequency	0 to 32 kHz

Frequency Inverters

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

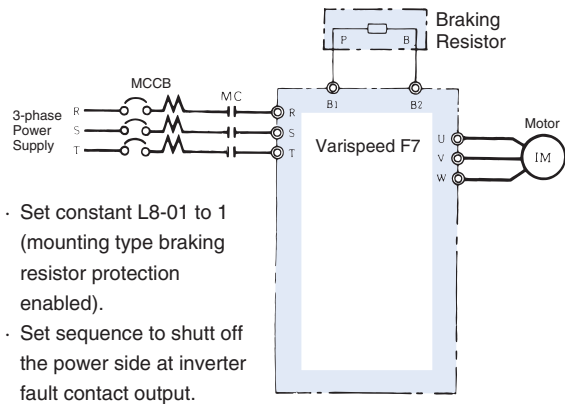
200 V Class

Model CIMR-F7Z□	20P4	20P7	21P5	22P2	23P7	25P5	27P5	2011	2015	2018	2022	2030	2037	2045	2055	2075	2090	2110		
Inverter Capacity	kVA	1.2	1.6	2.7	3.7	5.7	8.8	12	17	22	27	32	44	55	69	82	110	130	160	
Rated Current	A	3.2	4.1	7.0	9.6	15	23	31	45	58	71	85	115	145	180	215	283	346	415	
Heat Loss W	Fin	W	20	27	50	70	112	164	219	374	429	501	586	865	1015	1266	1588	2019	2437	2733
	Inside Unit	W	39	42	50	59	74	84	113	170	183	211	274	352	411	505	619	838	997	1242
	Total Heat Loss	W	59	69	100	129	186	248	332	544	612	712	860	1217	1426	1771	2207	2857	3434	3975
Fin Coding		Self cooled							Fan cooled											

400 V Class

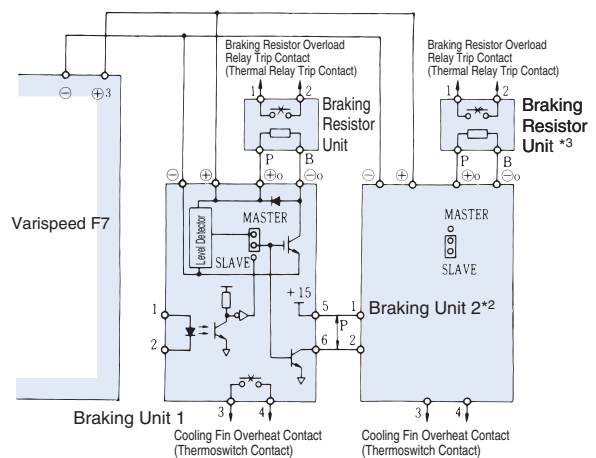
Model CIMR-F7Z□	40P4	40P7	41P5	42P2	43P7	44P0	45P5	47P5	4011	4015	4018	4022	4030	4037	4045	4055	4075	4090	4110	4132	4160	4185	4220	4300		
Inverter Capacity	kVA	1.4	1.6	2.8	4.0	5.8	6.0	9.5	13	18	24	30	34	46	57	69	85	110	140	160	200	230	280	390	510	
Rated Current	A	1.8	2.1	3.7	5.3	7.6	8.0	12.5	17	24	31	39	45	60	75	91	112	150	180	216	260	304	370	506	675	
Heat Loss W	Fin	W	14	17	36	59	80	91	127	193	252	326	426	466	678	784	901	1203	1399	1614	2097	2388	2791	3237	3740	5838
	Inside Unit	W	39	41	48	56	68	70	82	114	158	172	208	259	317	360	415	495	575	671	853	1002	1147	1372	1537	2320
	Total Heat Loss	W	53	58	84	115	148	161	209	307	410	498	634	725	995	1144	1316	1698	1974	2285	2950	3390	3938	4609	5277	8158
Fin Coding		Self cooled							Fan cooled																	

Connections for braking units



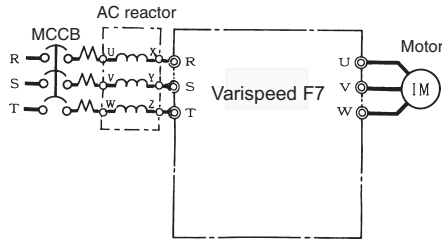
- Set constant L8-01 to 1 (mounting type braking resistor protection enabled).
- Set sequence to shut off the power side at inverter fault contact output.

Connections for braking resistors

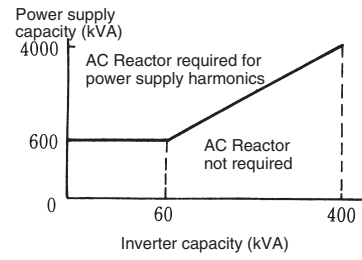


AC Reactor

Connection Example

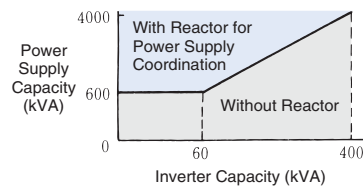
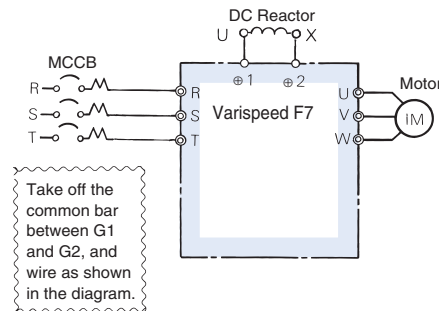


Application Example



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		
				490	0.04
			220		
			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					
18.5	90	0.4	18.5	47	1.3
22 to 110	Built-in		22 to 300	Built-in	

Fuse installation

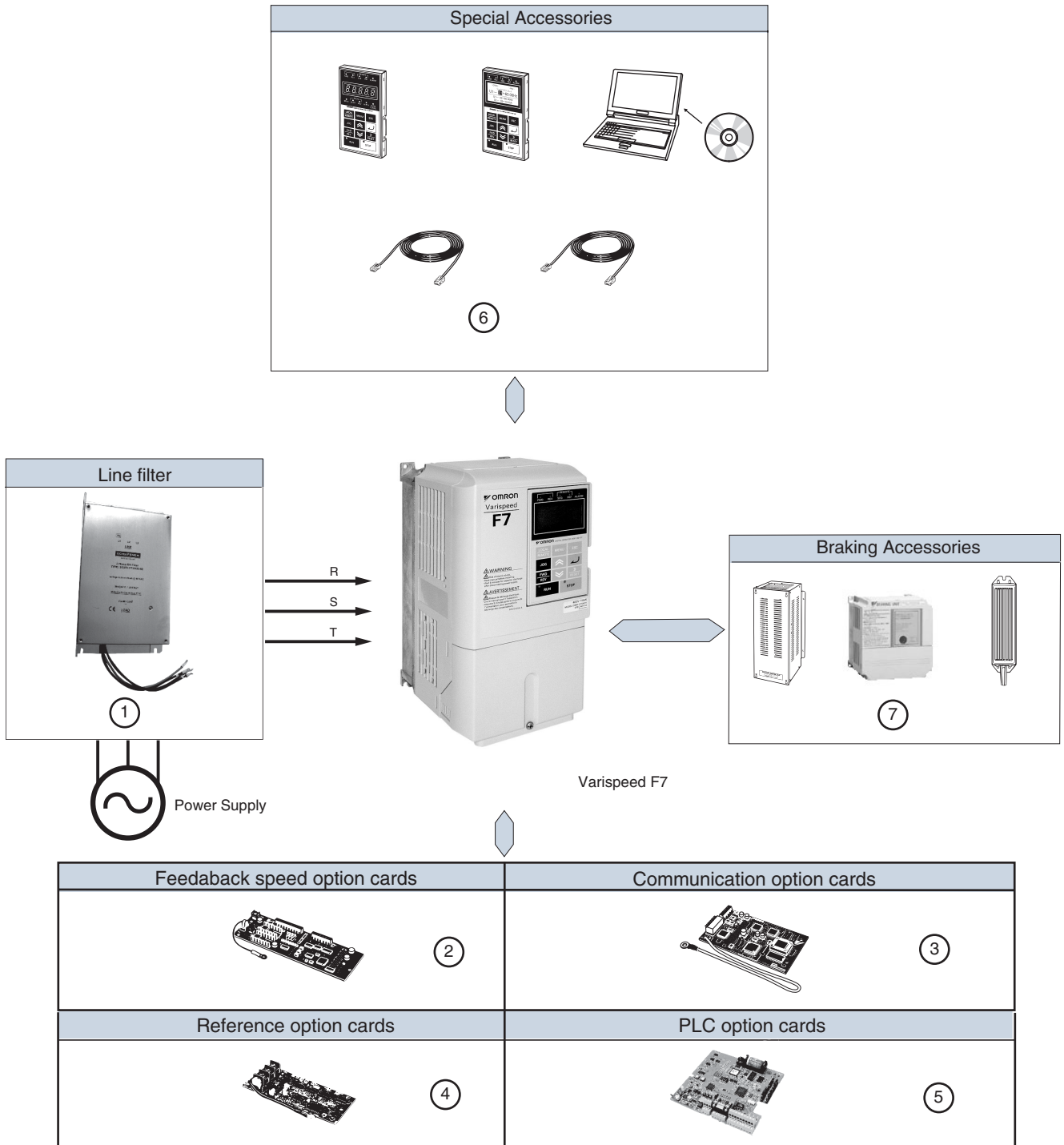
To protect the inverter, it is recommended to use semiconductor fuses like they are shown in the table below

Inverter Type	FUSE		
	Voltage (V)	Current (A)	I^2t (A ² s)
20P4	240	10	12~25
20P7	240	10	12~25
21P5	240	15	23~55
22P2	240	20	34~98
23P7	240	30	82~220
25P5	240	40	220~610
27P5	240	60	290~1300
2011	240	80	450~5000
2015	240	100	1200~7200
2018	240	130	1800~7200
2022	240	150	870~16200
2030	240	180	1500~23000
2037	240	240	2100~19000
2045	240	300	2700~55000
2055	240	350	4000~55000
2075	240	450	7100~64000
2090	240	550	11000~64000
2110	240	600	13000~83000

Inverter Type	FUSE		
	Voltage (V)	Current (A)	I^2t (A ² s)
40P4	480	5	6~55
40P7	480	5	6~55
41P5	480	10	10~55
42P2	480	10	18~55
43P7	480	15	34~72
44P0	480	20	50~570
45P5	480	25	100~570
47P5	480	30	100~640
4011	480	50	150~1300
4015	480	60	400~1800
4018	480	70	700~4100
4022	480	80	240~5800
4030	480	100	500~5800
4037	480	125	750~5800
4045	480	150	920~13000
4055	480	150	1500~13000
4075	480	250	3000~55000
4090	480	300	3800~55000
4110	480	350	5400~23000
4132	480	400	7900~64000
4160	480	450	14000~250000
4185	480	600	20000~250000
4220	480	700	34000~400000
4300	480	900	52000~920000

Ordering Information

System Configuration



Varispeed F7



200 V

Specifications			Model
IP20	0.55 Kw	3.2 A	CIMR-F7Z20P41
	0.75 Kw	4.1 A	CIMR-F7Z20P71
	1.5 Kw	7.0 A	CIMR-F7Z21P51
	2.2 Kw	9.6 A	CIMR-F7Z22P21
	3.7 Kw	15 A	CIMR-F7Z23P71
	5.5 Kw	23 A	CIMR-F7Z25P51
	7.5 Kw	31 A	CIMR-F7Z27P51
	11 Kw	45 A	CIMR-F7Z20111
	15 Kw	58 A	CIMR-F7Z20151
	18.5 Kw	71 A	CIMR-F7Z20181
IP00	22 Kw	85 A	CIMR-F7Z20220
	30 Kw	115 A	CIMR-F7Z20300
	37 Kw	145 A	CIMR-F7Z20370
	45 Kw	180 A	CIMR-F7Z20450
	55 Kw	215 A	CIMR-F7Z20550
	75 Kw	283 A	CIMR-F7Z20750
	90 Kw	346 A	CIMR-F7Z20900
	110 Kw	415 A	CIMR-F7Z21100

400 V

Specifications			Model	
IP20	0.55 Kw	1.8 A	CIMR-F7Z40P41	
	0.75 Kw	2.1 A	CIMR-F7Z40P71	
	1.5 Kw	3.7 A	CIMR-F7Z41P51	
	2.2 Kw	5.3 A	CIMR-F7Z42P21	
	3.7 Kw	7.6 A	CIMR-F7Z43P71	
	4.0 Kw	8.7 A	CIMR-F7Z44P01	
	5.5 Kw	12.5 A	CIMR-F7Z45P51	
	7.5 Kw	17 A	CIMR-F7Z47P51	
	11 Kw	24 A	CIMR-F7Z40111	
	15 Kw	31 A	CIMR-F7Z40151	
	18.5 Kw	39 A	CIMR-F7Z40181	
	IP00	22 Kw	45 A	CIMR-F7Z40220
		30 Kw	60 A	CIMR-F7Z40300
		37 Kw	75 A	CIMR-F7Z40370
45 Kw		91 A	CIMR-F7Z40450	
55 Kw		112 A	CIMR-F7Z40550	
75 Kw		150 A	CIMR-F7Z40750	
90 Kw		180 A	CIMR-F7Z40900	
110 Kw		216 A	CIMR-F7Z41100	
132 Kw		260 A	CIMR-F7Z41320	
160 Kw		304 A	CIMR-F7Z41600	
185 Kw		370 A	CIMR-F7Z41850	
220 Kw		506 A	CIMR-F7Z42200	
300 Kw		675 A	CIMR-F7Z43000	

For the safety version add a "C" at the end of item name

① Line Filters



200 V

Inverter Model	Line Filters			
	Type	EN55011 Class	Current (A)	Weight (kg)
CIMR-F7Z20P4	3G3RV-PFI3010-SE	B, 25 m	10	1.1
CIMR-F7Z20P7		A, 100 m		
CIMR-F7Z21P5				
CIMR-F7Z22P2	3G3RV-PFI3018-SE	B, 25 m A, 100 m	18	1.3
CIMR-F7Z23P7	3G3RV-PFI2035-SE	B, 25 m	35	1.4
CIMR-F7Z25P5		A, 100 m		
CIMR-F7Z27P5	3G3RV-PFI2060-SE	B, 25 m	60	3
CIMR-F7Z2011		A, 100 m		
CIMR-F7Z2015	3G3RV-PFI2100-SE	B, 25 m	100	4.9
CIMR-F7Z2018		A, 100 m		
CIMR-F7Z2022	3G3RV-PFI2130-SE	A, 100 m	130	4.3
CIMR-F7Z2030				
CIMR-F7Z2037	3G3RV-PFI2160-SE	A, 100 m	160	6.0
CIMR-F7Z2045	3G3RV-PFI2200-SE	A, 100 m	200	11.0
CIMR-F7Z2055				
CIMR-F7Z2075	3G3RV-PFI3400-SE	A, 100 m	400	18.5
CIMR-F7Z2090				
CIMR-F7Z2110	3G3RV-PFI3600-SE	A, 100 m	600	11.0

400 V

Inverter Model	Line Filter			
	Model	EN 55011 Class*	Current (A)	Weight (kg)
CIMR-F7Z40P4	3G3RV-PFI3010-SE	B, 25 m A, 100 m	10	1.1
CIMR-F7Z40P7				
CIMR-F7Z41P5				
CIMR-F7Z42P2				
CIMR-F7Z43P7	3G3RV-PFI3018-SE	B, 25 m A, 100 m	18	1.3
CIMR-F7Z44P0				
CIMR-F7Z45P5				
CIMR-F7Z47P5	3G3RV-PFI3035-SE	B, 25 m A, 100 m	35	2.1
CIMR-F7Z4011				
CIMR-F7Z4015	3G3RV-PFI3060-SE	B, 25 m A, 100 m	60	4.0
CIMR-F7Z4018				
CIMR-F7Z4022	3G3RV-PFI3070-SE	A, 100 m	70	3.4
CIMR-F7Z4030				
CIMR-F7Z4037	3G3RV-PFI3130-SE	A, 100 m	130	4.7
CIMR-F7Z4045				
CIMR-F7Z4055				
CIMR-F7Z4075	3G3RV-PFI3170-SE	A, 100 m	170	6.0
CIMR-F7Z4090	3G3RV-PFI3200-SE	A, 100 m	250	11
CIMR-F7Z4110				
CIMR-F7Z4132	3G3RV-PFI3400-SE	A, 100 m	400	18.5
CIMR-F7Z4160				
CIMR-F7Z4185	3G3RV-PFI3600-SE	A, 100 m	600	11.0
CIMR-F7Z4220				
CIMR-F7Z4300	3G3RV-PFI3800-SE	A, 100 m	800	31.0

② 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
	PG-Z2		<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 Dual Channel encoder: 1st Channel A, B, Z / 2nd Channel A, B, Z or Open collector.

③ Communication option Cards

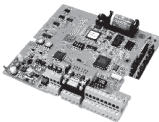
Type	Model	Description	Function
Communication option card	3G3RV-PDRT2	DeviceNet option card	<ul style="list-style-type: none"> Used for running or stopping the inverter, setting or referencing parameters, and monitoring output frequency, output current, or similar items through DeviceNet communication 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.
	CM090	Ethernet option card	<ul style="list-style-type: none"> MODBUS TCP/IP Ethernet interface unit.
	SI-T	MECHATROLINK - II optio 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 or MP Series¹

1. Please refer to TrajeXia, MCH or MP Series section for host controllers detailed information.t


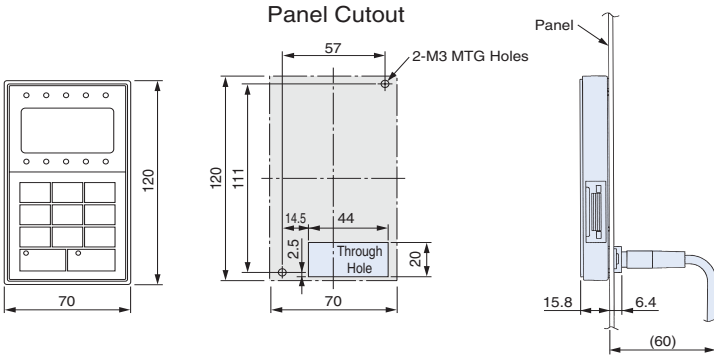

④ Reference option Cards

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 (20KΩ) Channel 2: 4 to 20 mA (250Ω) Resolution 14 bit
	AI-14B / 3G3IV-PAI14B		<ul style="list-style-type: none"> 3 Channel high resolution analog input card Signal level: -10 to +10V (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

⑤ PLC option cards

Type	Model	Description	Function
PLC option	 3G3RV-P10ST8-E	PLC option	<ul style="list-style-type: none"> Full PLC featrues, 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
		PLC option with DeviceNet	<ul style="list-style-type: none"> Same features than standard model with DeviceNet support.

⑥ Accessories

Type	Model	Description	Function
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 meters 3 meters	Extension cable to connect inverter and digital operator.
	3G3IV-PCN329-E	PC configuration cable	Cable to connect the inverter to PC.

⑥ Computer Software

Type	Model	Description	Function
Software	CX-Drive	Computer software	Configuration and monitoring software tool for Drives.
	CX-One	Computer software	Complete OMRON Automation Software including CX-Drive

⑦ Braking Unit, Braking Resistor Uni

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Inverter			Braking unit		Braking Resistor ¹								
Voltage	Max. Applicable Motor output kW	Model CIMR-F7Z_	Model CDBR_	No. of used	Type								
					Model	Specifications of Resistor	No. of used	Braking torque %	Connectable Min Resistance Value Ω				
200 V Class	0.4	20P4	Built-in		A1000-REJ0K15200-IE	150W	200 Ω	1	220	48			
	0.75	20P7				150 W	200 Ω	1	125	48			
	1.5	21P5				A1000-REJ0K15100-IE	150 W	100 Ω	1	125	48		
	2.2	22P2				A1000-REJ0K15070-IE	150 W	70 Ω	1	120	16		
	3.7	23P7				A1000-REJ0K15262-IE	150 W	62 Ω	1	100	16		
	5.5	25P5				A1000-REV00K4030-IE	400 W	30 Ω	1	-	16		
	7.5	27P5				A1000-REV00K4020-IE	400 W	20 Ω	1	-	9.6		
	11	2011				A1000-REV00K6013-IE	600 W	13 Ω	1	-	9.6		
	15	2015				A1000-REV00K9010-IE	900 W	10 Ω	1	-	9.6		
	18.5	2018				A1000-REV02K0010-IE	2000 W	10 Ω	1	-	9.6		
	22	2022				2022B	1	LKEB-2022	4800 W	6.8 Ω	1	125	6.4
	30	2030				2015B	2	LKEB-2015	3000 W	10 Ω	2	125	9.6
	37	2037				2015B	2	LKEB-2015	3000 W	10 Ω	2	100	9.6
	45	2045				2022B	2	LKEB-2022	4800 W	6.8 Ω	2	120	6.4
	55	2055				2022B	2	LKEB-2022	4800 W	6.8 Ω	2	100	6.4
	75	2075				2110B	1	LKEB-2022	4800 W	6.8 Ω	3	110	1.6
	90	2090				2110B	1	LKEB-2022	4800 W	6.8 Ω	4	120	1.6
110	2110	2110B	1	LKEB-2018	4800 W	8 Ω	5	100	1.6				
400 V Class	0.4	40P4	Built in		A1000-REJ0k10400-IE	100 W	400 Ω	1	230	96			
	0.75	40P7				1	130	96					
	1.5	41P5				A1000-REJ0k15400-IE	150 W	400 Ω	1	125	64		
	2.2	42P2				A1000-REJ0k15300-IE	150 W	300 Ω	1	115	64		
	3.7	43P7				A1000-REJ0k15400-IE	150 W	400 Ω	2	105	32		
	4.0	44P0				A1000-REV00k4100-IE	400 W	100 Ω	1	-	32		
	5.5	45P5				A1000-REV00k5075-IE	500 W	75 Ω	1	-	32		
	7.5	47P5				A1000-REV00k6050-IE	600 W	50 Ω	1	-	20		
	11	4011				A1000-REV00k9040-IE	900 W	40 Ω	1	-	20		
	15	4015				A1000-REV04K0032-IE	4000W	32 Ω	1	-	19.2		
	18.5	4018											
	22	4022				4030B	1	LKEB-4022	4800 W	27.2 Ω	1	125	19.2
	30	4030				4030B	1	LKEB-4030	6000 W	20 Ω	1	125	19.2
	37	4037				4045B	1	LKEB-4037	9600 W	16 Ω	1	125	12.8
	45	4045				4045B	1	LKEB-4045	9600 W	13.6 Ω	1	125	12.8
	55	4055				4030B	2	LKEB-4030	6000 W	20 Ω	2	135	19.2
	75	4075				4045B	2	LKEB-4045	9600 W	13.6 Ω	2	145	12.8
	90	4090				4220B	1	LKEB-4030	6000 W	20 Ω	3	100	3.2
	110	4110				4220B	1	LKEB-4030	6000 W	20 Ω	3	100	3.2
	132	4132				4220B	1	LKEB-4045	9600 W	13.6 Ω	4	140	3.2
160	4160	4220B	1	LKEB-4045	9600 W	13.6 Ω	4	140	3.2				
185	4185	4220B	1	LKEB-4045	9600 W	13.6 Ω	4	120	3.2				
220	4220	4220B	1	LKEB-4037	9600 W	16 Ω	5	110	3.2				
300	4300	4220B	2	LKEB-4045	9600 W	13.6 Ω	6	110	3.2				

1. 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.

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

Frequency Inverters

