

CIMR-E7Z

Varispeed E7

Frequency inverter for pumps and fans

- Energy saving function.
- Advanced PID controller with dedicated HVAC functions.
- 12 pulse operation for harmonics reduction.
- Speed search.
- Standard RS-485 communication - MODBUS.
- Optional network cards (DeviceNet, Profibus, CANOpen, LONWORKS).
- PLC Option card.
- PC configuration tool CX-Drive.
- CE, UL, and cUL marked and Lloyds approval.

E7 IP54

- Robust metal chassis.
- LCD operator.
- Built in RFI filter.

Customised software

- The inverter software can be customised to meet specific application.
- Examples:
- Pump Sequencer (S-8801).

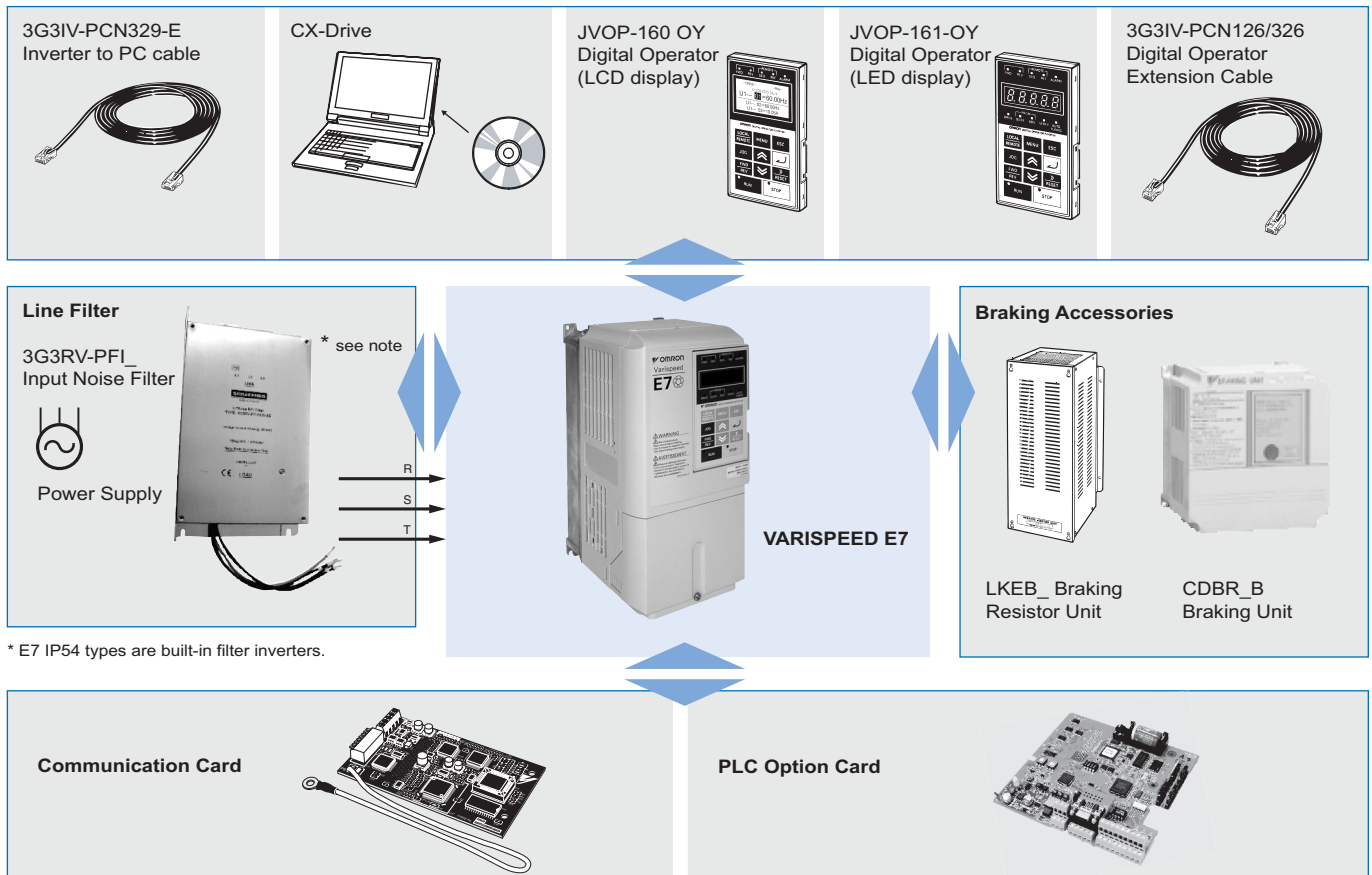
*For detailed information please refer to CASE software section.

Ratings

- 200 V Class 0.4 to 110 KW.
- 400 V Class 0.4 to 300 KW.

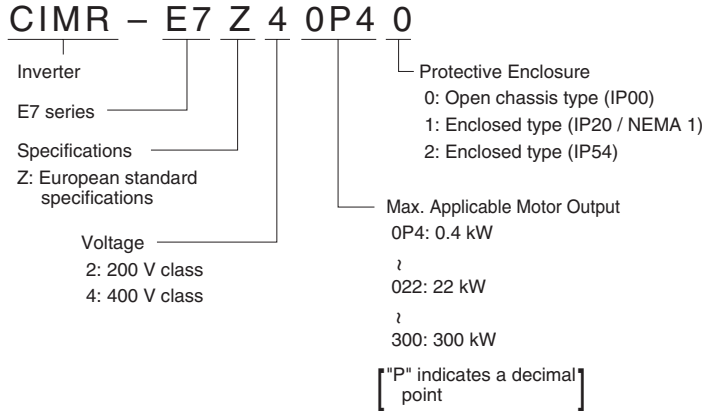


System Configuration



* E7 IP54 types are built-in filter inverters.

Type Designation



200 V Class

Model CIMR-E7Z□		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
	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
Output characteristics	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
	Max. Voltage	3-phase; 200, 220, 230, or 240 VAC (Proportional to input voltage.)																	
	Max. output Frequency	200.0																	
	Rated Input Voltage and Frequency	3-phase, 200/208/220/230/240 VAC, 50/60 Hz																	
Power Supply Harmonic	Allowable Voltage Fluctuation	+ 10%, - 15%																	
	Allowable Frequency Fluctuation	±5%																	
	DC Reactor	Optional									Built in								
Harmonic Wave Prevention	12-Pulse Input	Not possible									Possible*2								

- 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-wire transformer is required on the power supply for 12-phase rectification

400 V Class

Model CIMR-E7ZZ□		40P4	40P7	41P5	42P2	43P7	44P0	45P5	47P5	4011	4015	4018	4022	4030	4037	4045	4055	4075	4090	4110	4132	4160	4185	4220	4300
IP54 Model: CIMR-E7Z		---	---	---	---	---	---	---	47P52	40112	40152	40182	40222	40302	40372	40452	40552	---	---	---	---	---	---	---	---
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
	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
Output characteristics max.	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	675
	Max. Voltage	3-phase; 380, 400, 415, 440, 460, or 480 VAC (Proportional to input voltage.)																							
	Max. output Frequency	200.0																							
	Rated Input Voltage and Frequency	3-phase, 380, 400, 415, 440, 460 or 480 VAC, 50/60 Hz																							
Power Supply	Allowable Voltage Fluctuation	+ 10%, - 15%																							
	Allowable Frequency Fluctuation	±5%																							
	DC Reactor	Optional												Built in											
Harmonic Wave Prevention	12-Pulse Input	Not possible												Possible*2											

- 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-wire transformer is required on the power supply for 12-phase rectification
- * To agg 400V class

Enclosures

Model CIMR-E7Z□		20P4	20P7	21P5	22P2	23P7	25P5	27P5	2011	2015	2018	2022	2030	2037	2045	2055	2075	2090	2110					
200V 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													
Model CIMR-E7Z□		40P4	40P7	41P5	42P2	43P7	45P5	47P5	4011	4015	4018	4022	4030	4037	4045	4055	4075	4090	4110	4132	4160	4185	4220	4300
400V Class Enclosed	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													
	Enclosed Type (IP54)	-----									Available as standard						-----							

Common Specifications

Model Number CIMR-E7Z□	Specification	
Control characteristics	Control method	Sine wave PWM V/f control
	Speed control range	1:40
	Speed control accuracy	±3 (25°C ± 10°C)
	Frequency control range	0.0 to 200.0 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	0.01 Hz
	Frequency setting signal	0 to +10V, 4 to 20 mA
Accel/Decel time	0.01 to 6000.0 s (2 selectable combinations of independent acceleration and deceleration settings)	
Braking torque	Approximately 20%	
Main control functions	Restarting for momentary power loss, speed searches, overtorque detection, 5-speed control (maximum), acceleration/deceleration time changes, S-curve acceleration, 3-wire control, autotuning, cooling fan ON/OFF control, torque compensation, jump frequencies, upper and lower limits for frequency references, DC braking for starting and stopping, high-slip braking, PI control (with sleep function), energy-saving control, MEMOBUS communications (RS-485/422, 19.2 kbps maximum), fault reset, and 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	120% of rated output current for 1 minute
	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, or running.	
Grounding protection	Protection by electronic circuits.	
Charge indicator	Lights up when the main circuit DC voltage is approx. 50 V or more.	
Protective structure	Enclosed wall-mounted type (NEMA 1): 18.5 kW or less (same for 200 V and 400 V class Inverters) Open chassis type (IP00): 22 kW or more (same for 200 V and 400 V class Inverters) Enclosed wall-mounted type (IP54): From 7.5Kw to 55Kw (400V class Inverters)	
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)

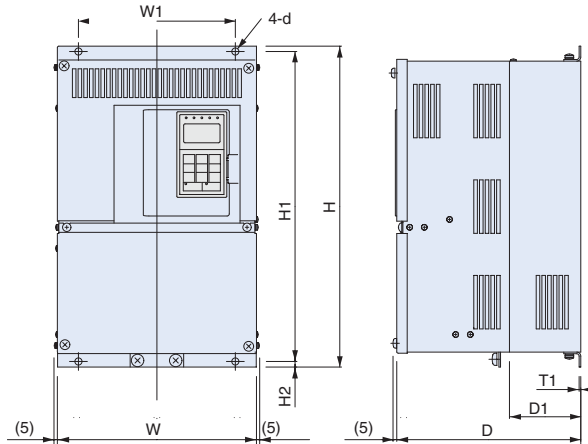


Fig 1

Voltage	Max. Applicable Motor Output kW	Inverter CIMR-E7Z□	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	----	3	Not available please use the IP20 type removing the upper and lower cover										
	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	Fan cooled
	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			86			
75	2075 0										87			
90	2090 0	500	850	358	370	820	15		4.5	M12	108			
110	2110 0	575	885	378	445	855		140			150			
400 V Class (3-phase)	0.4	----	3	Not available please use the IP20 type removing the upper and lower cover										
	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	Fan Cooled
	30	4030 0		325	550	283	260	535		105			36	
	37	4037 0												
	45	4045 0		450	725	348	325	700	12.5	130	3.2	M10	88	
	55	4055 0											89	
	75	4075 0		500	850	358	370	820	15		4.5	M12	102	
	90	4090 0											120	
110	4110 0	575	916	378	445	855	45.8	140			160			
132	4132 0										260			
160	4160 0	710	1305	413	540	1270	15	125.5			280			
185	4185 0										280			
220	4220 0	916	1475	413	730	1440					405			
300	4300 0													

Enclosed Type (IEC IP20)

E7Z 20P41 to E7Z25P51
E7Z40P41 to E7Z45P51

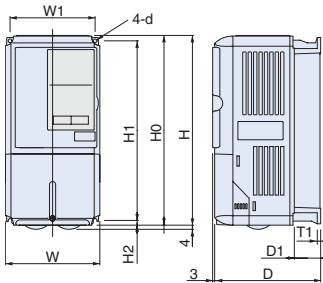


Fig 1

E7Z 27P51 to E7Z20181
E7Z47P51 to E7Z40181

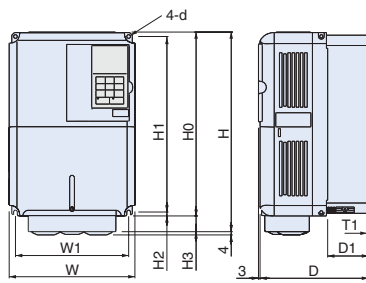


Fig 2

E7Z 20221 to E7Z20751
E7Z40221 to E7Z41601

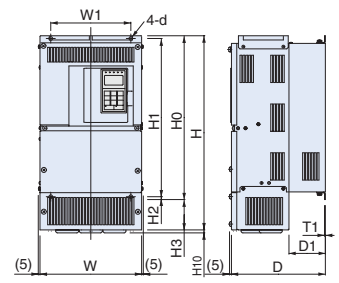
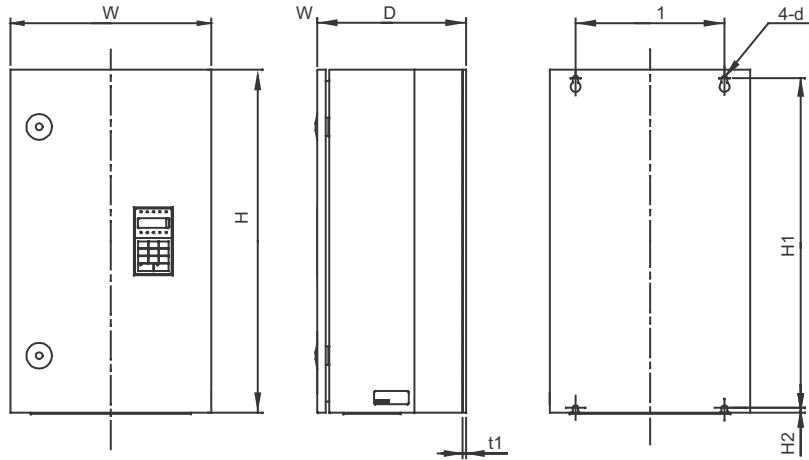


Fig 3

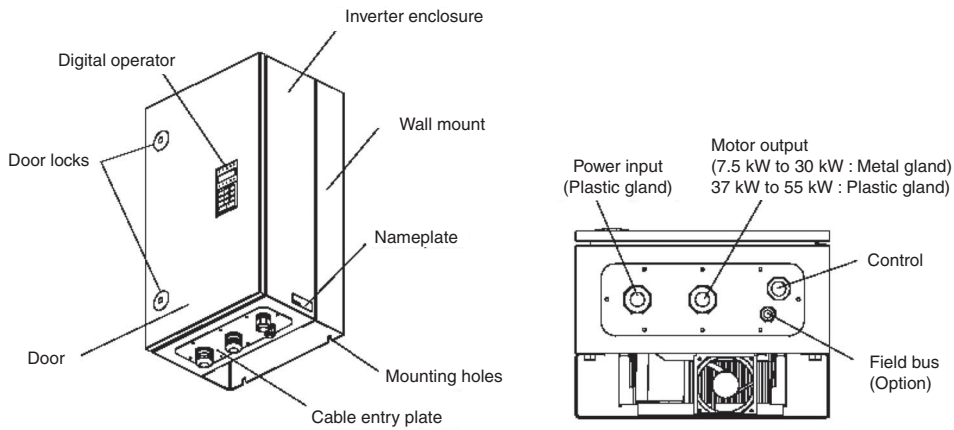
Voltage	Max. Applicable Motor Output kW	Inverter CIMR-E7Z□	Fig	Dimensions in mm											Approx. Mass kg	Cooling Method
				W	H	D	W1	H0	H1	H2	H3	D1	T1	d		
200 V Class (3-phase)	0.4	20P4 1	1	140	280	157	126	280	266	7	---	39	5	M5	3	Self cooled
	0.75	20P7 1														
	1.5	21P5 1														
	2.2	22P2 1														
	3.7	23P7 1	177	59	4	Fan cooled										
	5.5	25P5 1														
	7.5	27P5 1	2	200	300	197	186	300	285	8	0	65.5	2.3	M6	6	Fan cooled
	11	2011 1														
	15	2015 1	240	350	207	216	350	335	7.5	0	78	11				
	18.5	2018 1											380	30	24	
	22	2022 1	3	254	535	258	195	400	385	---	135	100	27			
	30	2030 1												279	615	220
	37	2037 1	380	809	298	250	600	575	12.5	209	130	62				
	45	2045 1											328	68		
55	2055 1	453	1027	348	325	725	700	---	302	94						
75	2075 1										95					
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	177	59	4	Fan cooled										
	4.0	44P0 1														
	5.5	45P5 1	2	200	300	197	186	300	285	8	---	65.5	2.3	M6	6	Fan cooled
	7.5	47P5 1														
	11	4011 1	240	350	207	216	350	335	7.5	0	78	10				
	15	4015 1											380	30	24	
	18.5	4018 1	275	535	258	220	450	435	---	85	100	24				
	22	4022 1											85	100		
	30	4030 1	325	715	283	260	550	535	---	105	105	40				
	37	4037 1											105	105		
	45	4045 1	453	1027	348	325	725	700	12.5	302	130	96				
	55	4055 1											97			
	75	4075 1	504	1243	358	370	850	820	15	393	4.5	M12	122			
	90	4090 1												130		
	110	4110 1	579	1324	378	445	918	855	45.8	408	140	170				
	132	4132 1														
160	4160 1															

Enclosed Wall-mounted Inverters (IP54 Type)



Voltage	Max. Applicable Motor Output kW	Inverter CIMR-E7Z□	Dimensions in mm									Heat loss (W)	Cooling Method
			W	H	D	W1	H1	H2	T1	d	Approx. Mass (kg)		
400 V Class (3-phase)	7.5	47P52	350	600	240	260	576	9	2.5	M8	25	304	Fan
	11	40112			260							427	
	15	40152									536		
	18.5	40182	410	650	300	370	620	12	2.5	M10	662		
	22	40222									754		
	30	40302									989		
	37	40372									1145		
	45	40452	580	750	330	410	714	11	2.5	M14	1317		
55	40552	1701											

Componentes names



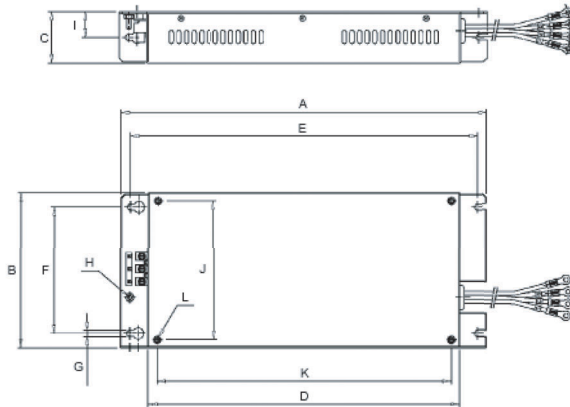
Accessories

Following parts are delivered in the package wiht the inverter.

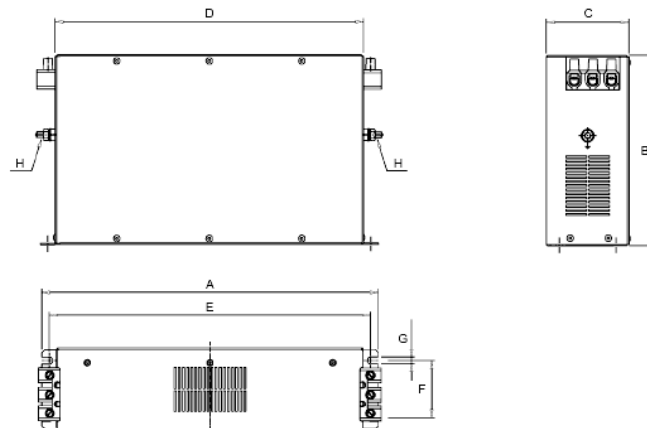
Part Name ¹	Qty
Cable Gland (For input)	240
Cable Gland (For input)	240
Cable Gland (For input)	240
Cable Gland (For input)	240
Cable Gland (For input)	240
Cable Gland (For input)	240
Cable Gland (For input)	240

1. Locknuts for each cable grand are also supplied.

Filters

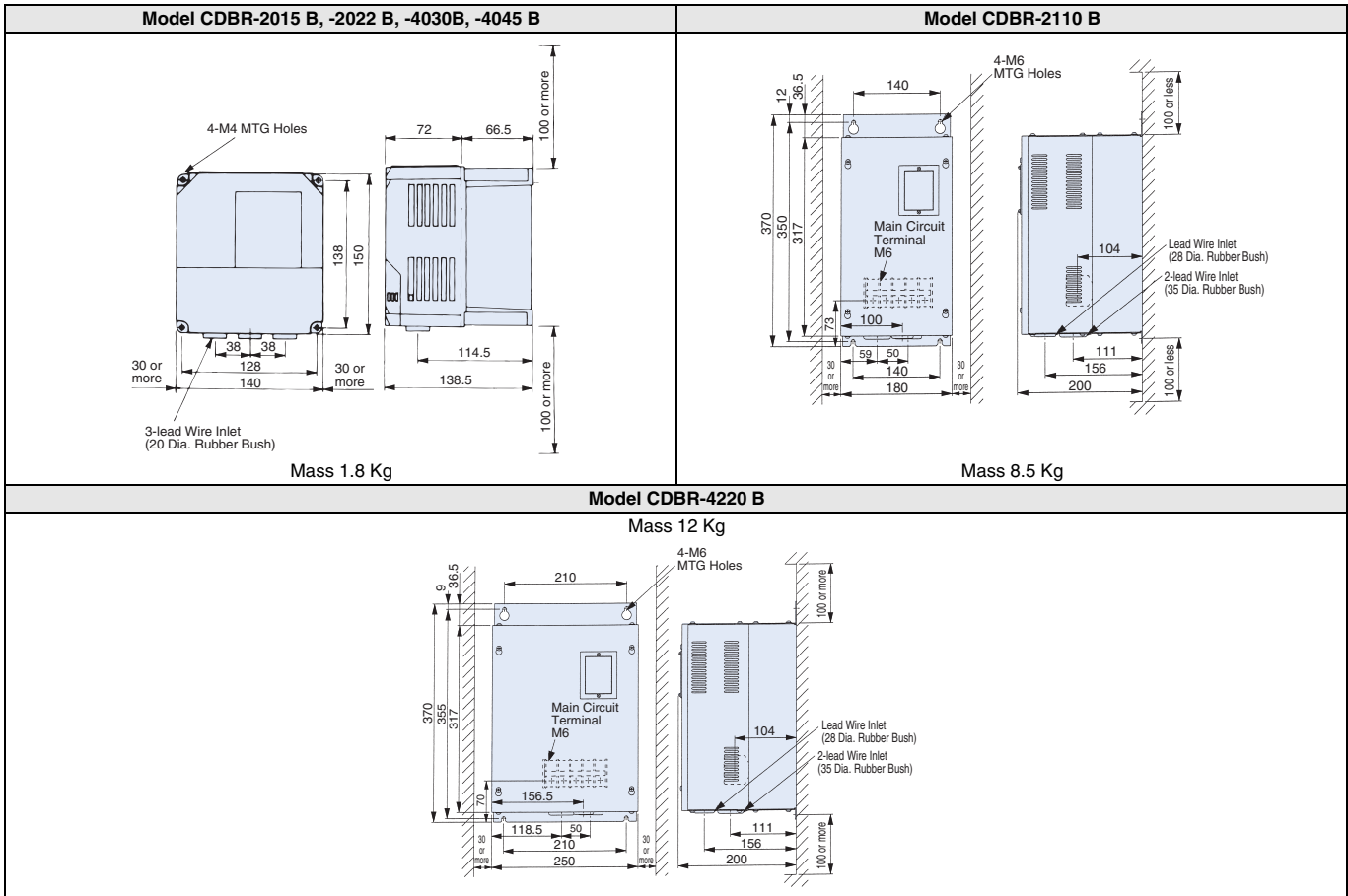


Model		Dimensions											
		A	B	C	D	E	F	G	H	I	J	K	L
200V	3G3RV-PFI2035-SE	330	141	46	281	313	115	5.5	M5	23	126	266	M5
	3G3RV-PFI2060-SE	355	206	60	302	336	175	6.5	M6	30	186	285	M6
	3G3RV-PFI2100-SE	408	236	80	355	390	205	6.5	M6	40	216	335	M6
400V	3G3RV-PFI3010-SE	330	141	46	281	313	115	5.5	M4	23	126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

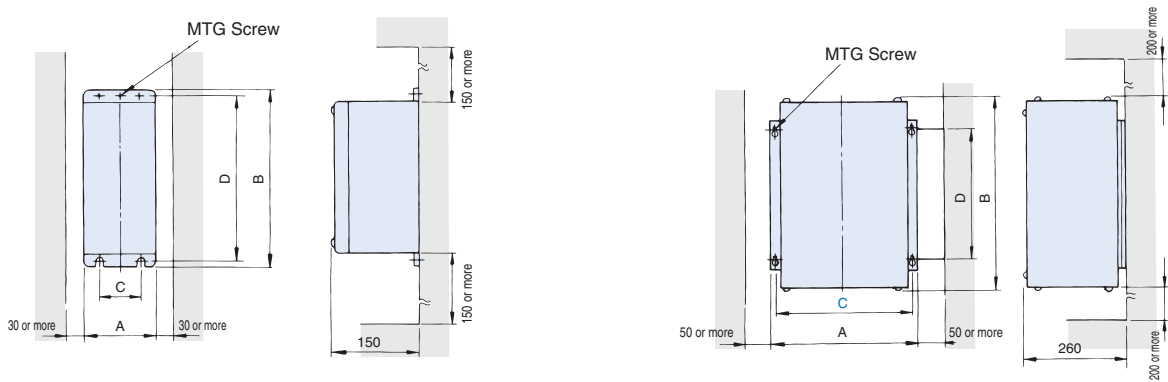


Model		Dimensions							
		A	B	C	D	E	F	G	H
200V	3G3RV-PFI2130-SE	310	180	90	280	295	65	6.5	M10
	3G3RV-PFI2160-SE	380	170	120	350	365	102	6.5	M10
	3G3RV-PFI2200-SE	518	240	130	480	498	90	8.2	M10
400V	3G3RV-PFI3070-SE	329	185	80	300	314	55	6.5	M6
	3G3RV-PFI3130-SE	310	180	90	280	295	65	6.5	M10
	3G3RV-PFI3170-SE	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 Dimensions



Braking Resistor Unit (Separately-installed Type) Dimensions



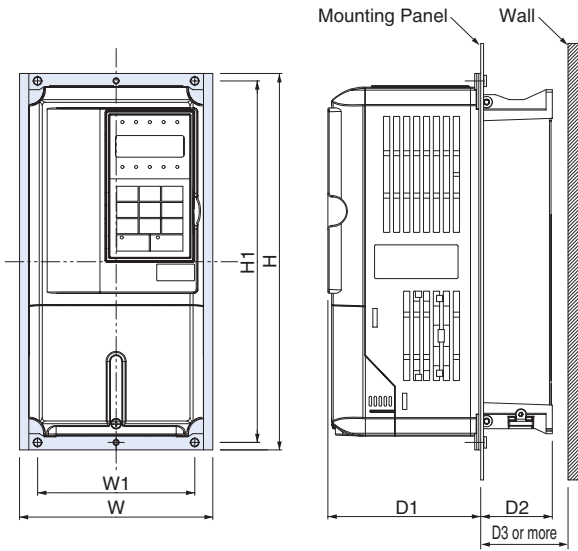
Voltage	Model LKEB-	Dimensions in mm					Mass kg
		A	B	C	D	MTG Screw	
220 V Class	20P7	105	275	50	260	M5 x 3	3.0
	21P5	130	350	75	335	M5 x 4	4.5
	22P2	130	350	75	335	M5 x 4	4.5
	23P7	130	350	75	335	M5 x 4	5.0
	25P5	250	350	200	335	M6 x 4	7.5
	25P5	250	350	200	335	M6 x 4	8.5
400 V Class	40P7	105	275	50	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□	Dimensions in mm					Mass 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

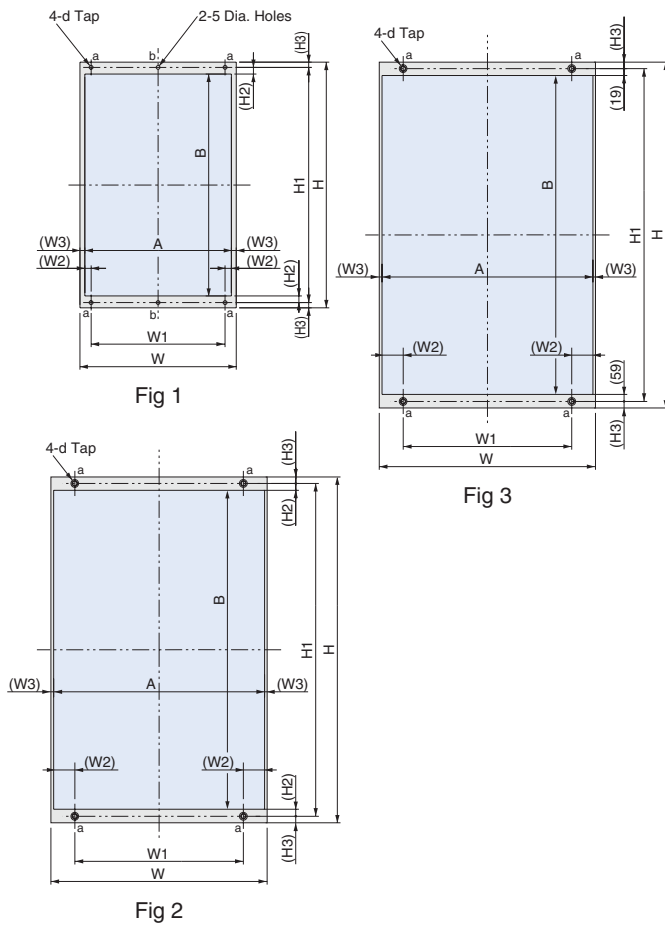
Heatsink External Mounting Attachment

The Varispeed E7 inverters under the 200/400 V class 18.5 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 22 kW or more.)



Model CIMR- E7□	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								
22P2								
23P7								
25P5	57.4	60						
27P5	EZZ08676B	210	330	180	316	136.1	63.4	70
2011								
2015	EZZ08676C	250	392	216	372	133.6	76.4	85
2018								
40P4								
40P7	EZZ08676A	155	302	126	290	122.6	37.4	40
41P5								
42P2								
43P7								
45P5								
47P5	EZZ08676B	210	330	180	316	136.1	63.4	70
4011								
4015	EZZ08676C	250	392	216	372	133.6	76.4	85
4018								

Panel Cut for External Mounting of Cooling Fin (Heatsink)

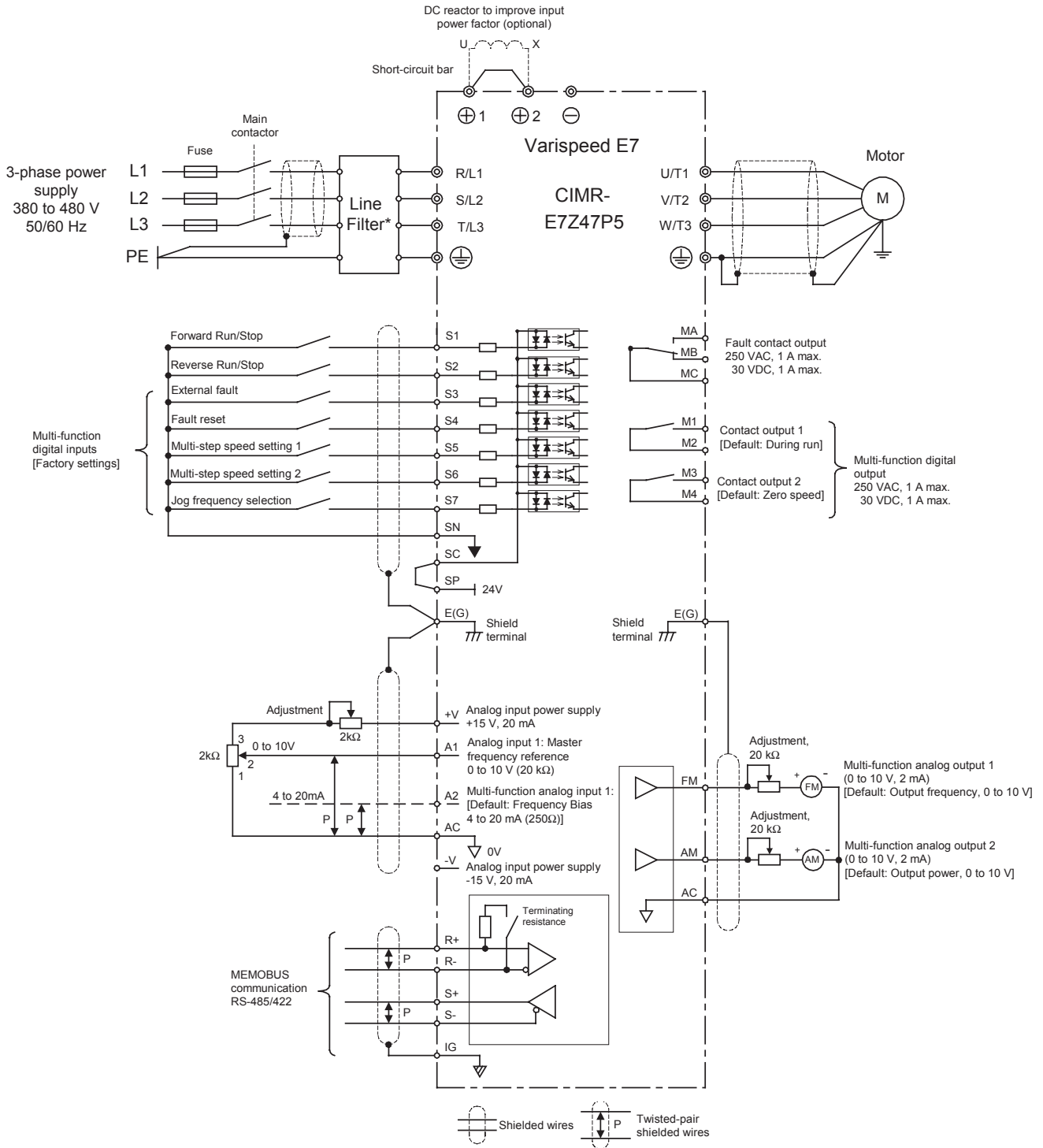


Model CIMR- E7□	Drawing	Dimensions in mm										
		W	H	W1	(W2)	(W3)	H1	(H2)	(H3)	A	B	d
20P4	1	155	302	126	6	8.5	290	9.5	6	138	271	M5
20P7												
21P5												
22P2												
23P7												
25P5												
27P5		210	330	180	8.5	6.5	316	9	7	197	298	M6
2011												
2015		250	392	216		8.5	372	9.5	10	233	353	
2018												
2022	2	250	400	195	24.5	3	385	8	7.5	244	369	
2030		275	450	220			435			269	419	
2037		375	600	250	54.5	8	575	15	12.5	359	545	M10
2045												
2055		450	725	325			700	13.5		434	673	
2075												
2090		500	850	370	57	8	820	19	15	484	782	M12
2110		575	885	445	55	10	855			555	817	
40P4	1	155	302	126	6	8.5	290	9.5	6	138	271	M5
40P7												
41P5												
42P2												
43P7												
45P5												
47P5		210	330	180	8.5	6.5	316	9	7	197	298	M6
4011												
4015		250	392	216		8.5	372	9.5	10	233	353	
4018												
4022	2	275	450	220	24.5	3	435	8	7.5	269	419	
4030												
4037		325	550	260		8	535			309	519	
4045												
4055												
4075		450	725	325	54.5	8	700	13.5	12.5	434	673	M10
4090		500	850	370	57	8	820	19	15	484	782	M12
4132												
4160	3	575	925	445	55	10	895		15	555	817	

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

Installation

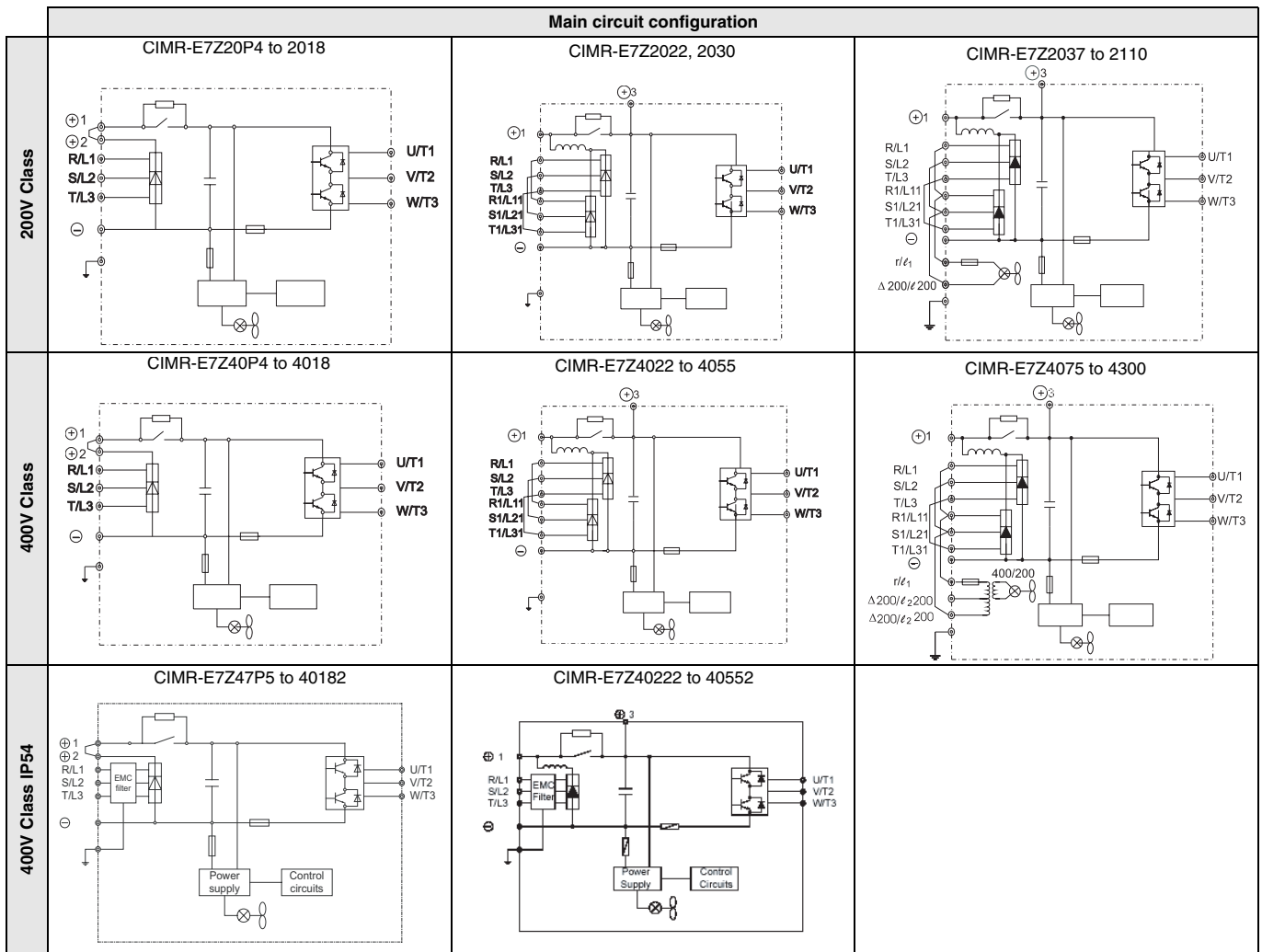
Standard connections



Main Circuit

Voltage	200 V			400 V		
	Model CIMR-E7Z□	20P4 to 2018	2022, 2030	2037 to 2110	40P4 to 4018	4022 to 4055
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						
S1/L21	---	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	
T1/L31						
U/T1	Inverter output			Inverter output		
V/T2						
W/T3						
⊖	DC reactor (⊕1 - ⊕2) DC power supply ¹ (⊕1 - ⊖)	DC power supply (⊕1 - ⊕2) Braking unit (⊕3 - ⊖)		DC reactor (⊕1 - ⊕2) DC power supply ¹ (⊕1 - ⊖)	DC power supply (⊕1 - ⊕2) Braking unit (⊕3 - ⊖)	
⊕1						
⊕2	---			---		
⊕3						
s/l2	-----		Cooling fan power supply ²	---		Cooling fan power supply ³
r/l1	-----					
Δ 200 / I2 200	-----			---		
Δ 400 / I2 400	-----			---		
PE (⊖)	Ground terminal (100 Ω or less)			Ground terminal (10 Ω or less)		

- ⊕1 - ⊖ DC power input does not conform to UL/c-UL listed standard.
- Cooling fan power supply r/l1 - s /l2: 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.)
- Cooling fan power supply r/l1 - s 200 / I2 200: 200 to 220 VAC 50 Hz, 200 to 230 VAC 60 Hz, r/l1 - s 400 / I2 400: 380 to 480 VAC 50/60 Hz



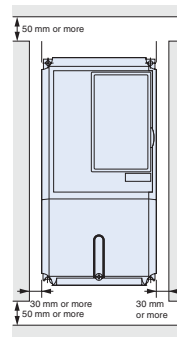
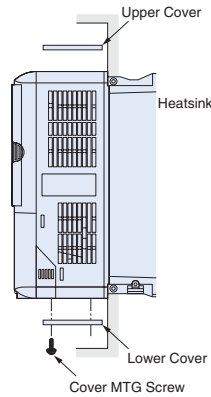
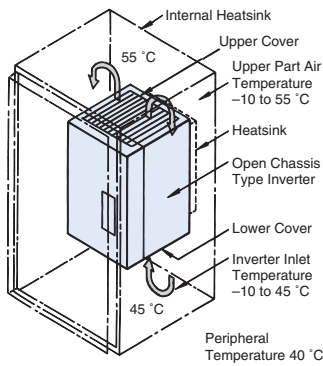
Control Circuit

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 isolation	
	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
Analog input signals	+V	15 V power output	15 V power supply for analog references		15 V (Max. current: 20 mA)	
	A1	Frequency reference	0 to +10 V/100%		0 to +10 V (20 kΩ)	
	A2	Multi-function analog input	4 to 20 mA/100% 0 V to +10 V/100% 0 to 20 mA/100%	Function is selected by setting H3-09.	4 to 20 mA (250Ω) 0 V to +10 V (20kΩ) 0 to 20 mA (250Ω)	
	AC	Analog reference common	-		-	
	E(G)	Shield wire, optional ground line connection point	-		-	
Digital 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 ³	
	M2					
	M3	Zero speed	Zero level (b2-01) or below when ON			
	M4					
	MA	Fault output signal	Fault when CLOSED across MA and MC			
	MB		Fault when OPEN across MB and MC			
	MC					
Analog output signals	FM	Multi-function analog output (frequency output)	0 to 10 V, 10V=100% output frequency	Multi-function analog output 1	0 to +10 V max. ±5% 2 mA max.	
	AC	Analog common	-			
	AM	Multi-function analog output (current monitor)	0 to 10 V, 10V = 200% of the Inverter rated current	Multi-function analog output 2		
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	-		-		

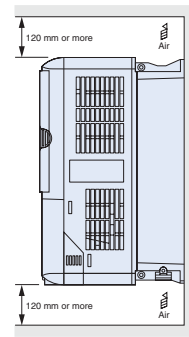
- Note:**
- The default settings are given for terminals S3 to S7. For a 3-wire sequence, the default settings are a 3-wire sequence for S5, multi-step speed setting 1 for S6 and multi-step speed setting 2 for S7.
 - Do not use this power supply for supplying any external equipment.
 - When driving a reactive load, such as a relay coil with DC power supply, always insert a flywheel diode

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.



Side Spaces



Top and Bottom Spaces

Inverter Heat Loss

200 V Class

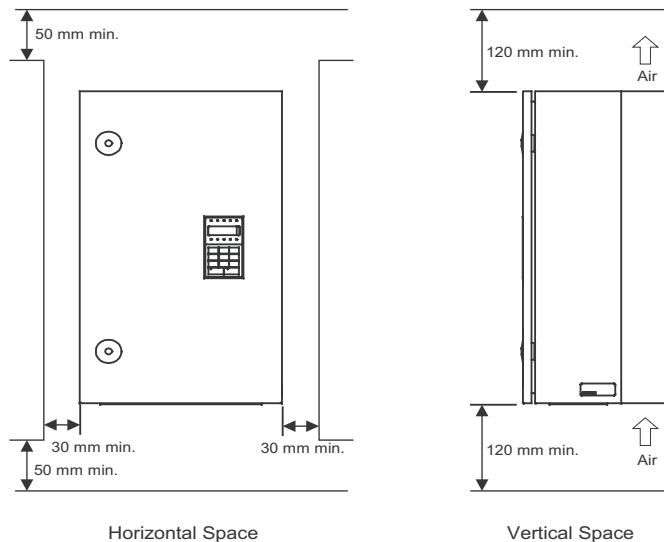
Model CIMR-E7Z□	20P4	20P7	21P5	22P2	23P7	25P5	27P5	2011	2015	2018	2022	2030	2037	2045	2055	2075	2090	2110	
Inverter Capacity kVA	1.2	1.6	2.7	3.7	5.7	8.8	12	17	22	27	32	44	55	69	82	110	130	160	
Rated Current A	3.2	4.1	7.0	9.6	15	23	31	45	58	71	85	115	145	180	215	283	346	415	
Heat Loss W	Fin	20	27	50	70	112	164	219	374	429	501	586	865	1015	1266	1588	2019	2437	2733
	Inside Unit	39	42	50	59	74	84	113	170	183	211	274	352	411	505	619	838	997	1242
	Total Heat Loss	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-E7Z□	40P4	40P7	41P5	42P2	43P7	44P0	45P5	47P5	4011	4015	4018	4022	4030	4037	4045	4055	4075	4090	4110	4132	4160	4185	4220	
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	
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	
Heat Loss W	Fin	14	17	36	59	80	91	127	193	252	326	426	466	678	784	901	1203	1399	1614	2097	2388	2791	3237	3740
	Inside Unit	39	41	48	56	68	70	82	114	158	172	208	259	317	360	415	495	575	671	853	1002	1147	1372	1537
	Total Heat Loss	53	58	84	115	148	161	209	307	410	498	634	725	995	1144	1316	1698	1974	2285	2950	3390	3938	4609	5277
Fin Coding	Self cooled							Fan cooled																

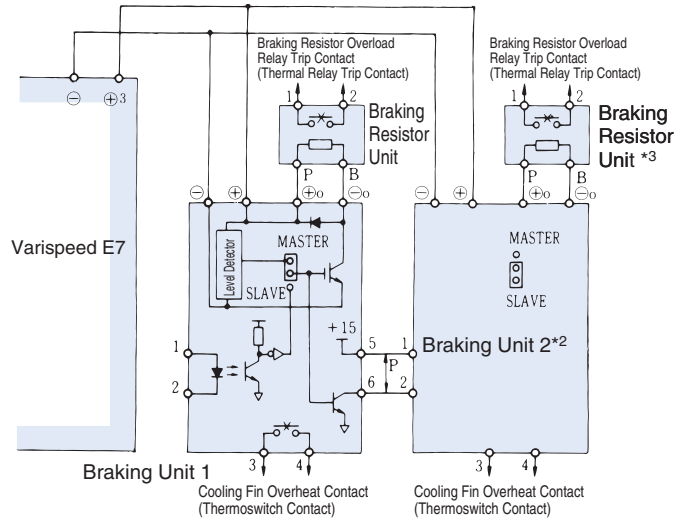
Installation conditions for IP54

Install the Inverter vertically in order to ensure a proper cooling. When installing the Inverter, always provide the following minimum installation space to allow normal heat dissipation.



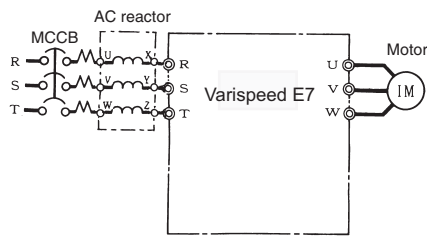
1. Always provide enough space for the main circuit or control lines including cable gland.
2. If installing inverters next to one another provide a minimum spacing of 60mm.

Connections for braking units

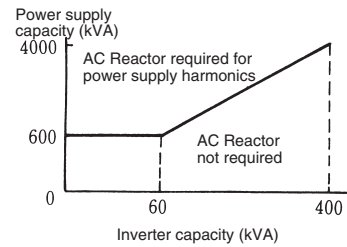


AC Reactor

Connection Example

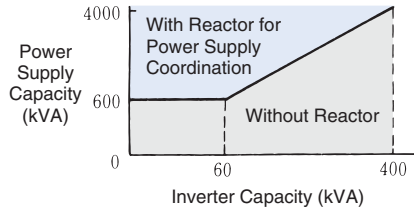
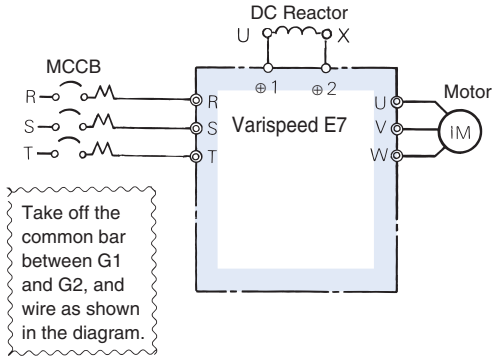


Application Example



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 Fuse installation



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			0.75		
1.5	18	3	1.5	5.7	11
2.2			2.2		
3.7			3.7		
5.5	36	1	5.5	23	3.6
7.5			7.5		
11	72	0.5	11	33	1.9
15			15		
18.5	90	0.4	18.5	47	1.3
22 to 110	Built-in		22 to 300	Built-in	

Fuse installation

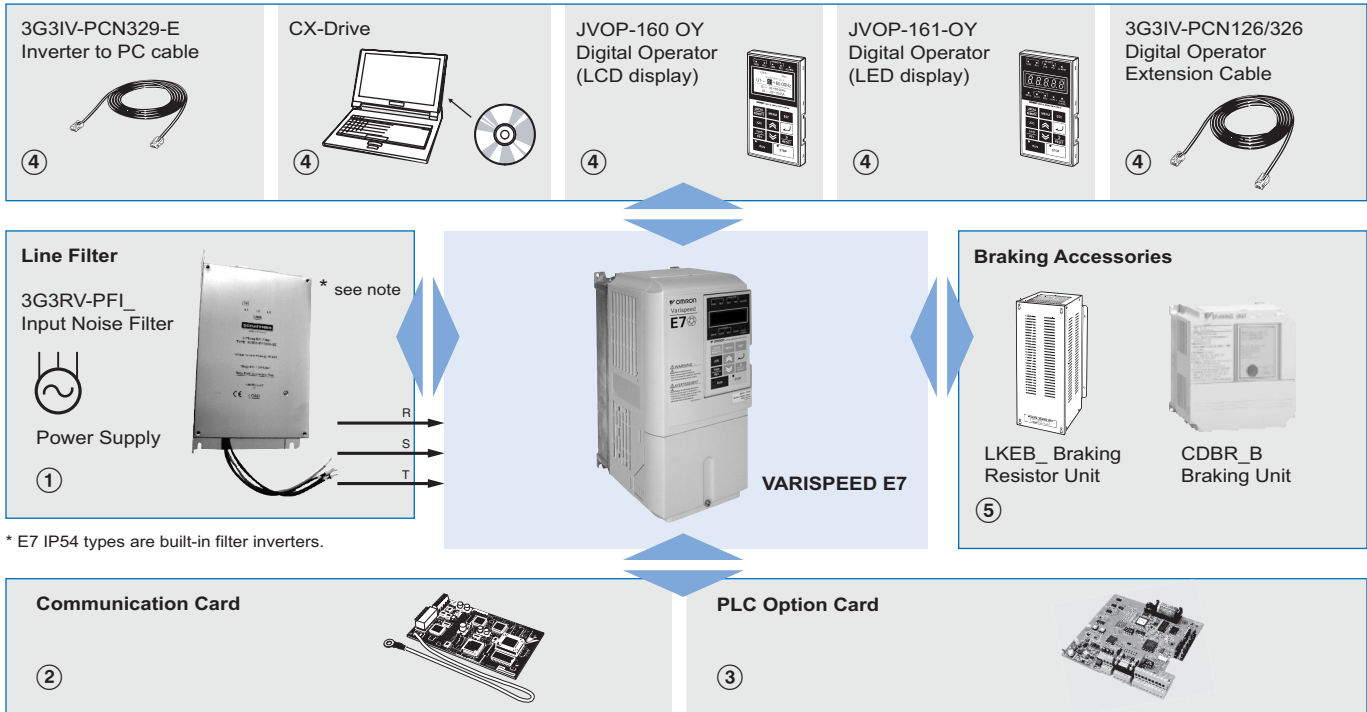
To protect the inverter, it is recommended to use semiconductor fuses as shown in the table below

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 E7



200 V

Specifications			Model
IP20	0.55 Kw	3.2 A	CIMR-E7Z20P41
	0.75 Kw	4.1 A	CIMR-E7Z20P71
	1.5 Kw	7.0 A	CIMR-E7Z21P51
	2.2 Kw	9.6 A	CIMR-E7Z22P21
	3.7 Kw	15 A	CIMR-E7Z23P71
	5.5 Kw	23 A	CIMR-E7Z25P51
	7.5 Kw	31 A	CIMR-E7Z27P51
	11 Kw	45 A	CIMR-E7Z20111
	15 Kw	58 A	CIMR-E7Z20151
18.5 Kw	71 A	CIMR-E7Z20181	
IP00	22 Kw	85 A	CIMR-E7Z20220
	30 Kw	115 A	CIMR-E7Z20300
	37 Kw	145 A	CIMR-E7Z20370
	45 Kw	180 A	CIMR-E7Z20450
	55 Kw	215 A	CIMR-E7Z20550
	75 Kw	283 A	CIMR-E7Z20750
	90 Kw	345 A	CIMR-E7Z20900
	110 Kw	415 A	CIMR-E7Z21100

400 V

Specifications			Model
IP20	0.55 Kw	1.8 A	CIMR-E7Z40P41
	0.75 Kw	2.1 A	CIMR-E7Z40P71
	1.5 Kw	3.7 A	CIMR-E7Z41P51
	2.2 Kw	5.3 A	CIMR-E7Z42P21
	3.7 Kw	7.6 A	CIMR-E7Z43P71
	4.0 Kw	8.7 A	CIMR-E7Z44P01
	5.5 Kw	12.5 A	CIMR-E7Z45P51
	7.5 Kw	17 A	CIMR-E7Z47P51
	11 Kw	24 A	CIMR-E7Z40111
	15 Kw	31 A	CIMR-E7Z40151
	18.5 Kw	39 A	CIMR-E7Z40181
	IP00	22 Kw	45 A
30 Kw		60 A	CIMR-E7Z40300
37 Kw		75 A	CIMR-E7Z40370
45 Kw		91 A	CIMR-E7Z40450
55 Kw		112 A	CIMR-E7Z40550
75 Kw		150 A	CIMR-E7Z40750
90 Kw		180 A	CIMR-E7Z40900
110 Kw		216 A	CIMR-E7Z41100
132 Kw		260 A	CIMR-E7Z41320
160 Kw		304 A	CIMR-E7Z41600
185 Kw		370 A	CIMR-E7Z41850
220 Kw		506 A	CIMR-E7Z42200
300 Kw	675 A	CIMR-E7Z43000	

Varispeed E7 IP54



400 V

Specifications			Model
IP54	7.5 Kw	17 A	CIMR-E7Z47P52
	11 Kw	24 A	CIMR-E7Z40112
	15 Kw	31 A	CIMR-E7Z40152
	18.5 Kw	39 A	CIMR-E7Z40182
	22 Kw	45 A	CIMR-E7Z40222
	30 Kw	60 A	CIMR-E7Z40302
	37 Kw	75 A	CIMR-E7Z40372
	45 Kw	91 A	CIMR-E7Z40452
	55 Kw	112 A	CIMR-E7Z40552

① Input Filters



200 V

Inverter Model	Line Filters 1*			
	Type	EN55011 Class	Current (A)	Weight (kg)
CIMR-E7Z20P4	3G3RV-PFI3010-SE	B, 25 m A, 100 m	10	1.1
CIMR-E7Z20P7				
CIMR-E7Z21P5				
CIMR-E7Z22P2	3G3RV-PFI3018-SE	B, 25 m A, 100 m	18	1.3
CIMR-E7Z23P7				
CIMR-E7Z25P5	3G3RV-PFI2035-SE	B, 25 m A, 100 m	35	1.4
CIMR-E7Z27P5				
CIMR-E7Z2011	3G3RV-PFI2060-SE	B, 25 m A, 100 m	60	3
CIMR-E7Z2015				
CIMR-E7Z2018	3G3RV-PFI2100-SE	B, 25 m A, 100 m	100	4.9
CIMR-E7Z2022				
CIMR-E7Z2030	3G3RV-PFI2130-SE	A, 100 m	130	4.3
CIMR-E7Z2037				
CIMR-E7Z2045	3G3RV-PFI2160-SE	A, 100 m	160	6.0
CIMR-E7Z2055				
CIMR-E7Z2075	3G3RV-PFI2200-SE	A, 100 m	200	11.0
CIMR-E7Z2090				
CIMR-E7Z2110	3G3RV-PFI3400-SE	A, 100 m	400	18.5
	3G3RV-PFI3600-SE	A, 100 m	600	11.0

400 V


Inverter Model	Line Filter 1*			
	Model	EN 55011 Class*	Current (A)	Weight (kg)
CIMR-E7Z40P4	3G3RV-PFI3010-SE	B, 25 m A, 100 m	10	1.1
CIMR-E7Z40P7				
CIMR-E7Z41P5				
CIMR-E7Z42P2	3G3RV-PFI3018-SE	B, 25 m A, 100 m	18	1.3
CIMR-E7Z43P7				
CIMR-E7Z44P0	3G3RV-PFI3035-SE	B, 25 m A, 100 m	35	2.1
CIMR-E7Z45P5				
CIMR-E7Z4015	3G3RV-PFI3060-SE	B, 25 m A, 100 m	60	4.0
CIMR-E7Z4018				
CIMR-E7Z4022	3G3RV-PFI3070-SE	A, 100 m	70	3.4
CIMR-E7Z4030				
CIMR-E7Z4037	3G3RV-PFI3130-SE	A, 100 m	130	4.7
CIMR-E7Z4045				
CIMR-E7Z4055	3G3RV-PFI3170-SE	A, 100 m	170	6.0
CIMR-E7Z4075				
CIMR-E7Z4090	3G3RV-PFI3200-SE	A, 100 m	250	11
CIMR-E7Z4110				
CIMR-E7Z4132	3G3RV-PFI3400-SE	A, 100 m	400	18.5
CIMR-E7Z4160				
CIMR-E7Z4185	3G3RV-PFI3600-SE	A, 100 m	600	11.0
CIMR-E7Z4220				
CIMR-E7Z4300	3G3RV-PFI3800-SE	A, 100 m	800	31.0

Note: 1. E7 IP54 types are built-in filter inverters.


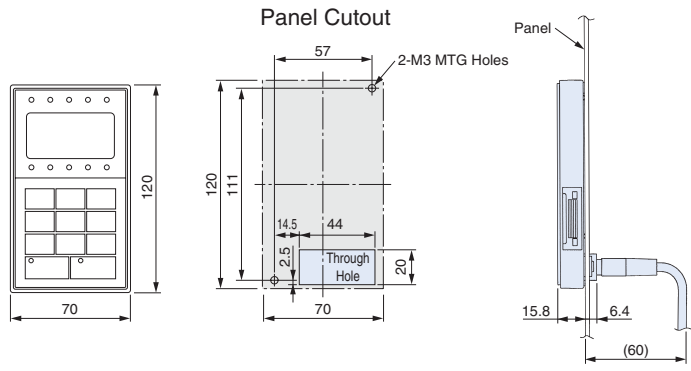

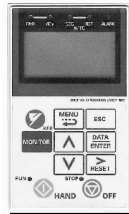
② Communication Cards

Type	Model	Description	Function
Communication option cards	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.
	CM090	Ethernet option card	<ul style="list-style-type: none"> MODBUS TCP/IP Ethernet interface unit.
	SI-J1	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.

③ PLC Option Card

Type	Model	Description	Function
PLC option cards	 3G3RV-P10CDT-E-DRT	PLC option	<ul style="list-style-type: none"> Full features, wireless installation and seamless access to the inverter parameters and analogue/digital inputs and outputs Embedded Compobus/S fieldbus Standard Omron tools can be used for programming
		PLC option with DeviceNet	<ul style="list-style-type: none"> Same features than standard models with DeviceNet support

④ Accessories


Type	Model	Description	Installation
Digital operators	 JVOP-160-OY	5 lines LCD digital operator ¹	 <p>Panel Cutout</p> <p>Panel Cutout installation</p>
	 JVOP-161-OY	7 segment LED digital operator	
	 JVOP-162	Hand-Off auto operator	
Accessories	3G3IV-PCN126 3G3IV-PCN326	Digital operator extension cable 1 meter 3 meters	----
	3G3IV-PCN329-E	PC configuration cable	----

1. LCD digital operator is the Standard in IP54 Types

④ Computer Software

Type	Model	Description	Function
Software	CX-Drive	Computer software	Configuration and monitoring software tool
	CX-One	Computer software	Configuration and monitoring software tool

⑤ Braking Unit, Braking Resistor Unit

Inverter			Braking unit		Braking Resistor Unit					
					Separately-installed Type (10 %ED, 10 sec. max.) ¹					
Voltage	Max. Applicable Motor output kW	Model CIMR-E7Z□	Model CDBR□	No. of used	Model LKEB□	Specifications of Resistor		No. of used	Braking torque %	Connectable Min Resistance Value Ω
200 V Class	0.4	20P4	2015B	1	20P7	70 W	200 Ω	1	220	48
	0.75	20P7			20P7	70 W	200 Ω	1	125	48
	1.5	21P5			21P5	260 W	100 Ω	1	125	48
	2.2	22P2			22P2	260 W	70 Ω	1	120	16
	3.7	23P7			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	2022B	1	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
	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	4030B	1	40P7	70 W	750 Ω	1	230	96
	0.75	40P7			40P7	70 W	750 Ω	1	130	96
	1.5	41P5			41P5	260 W	400 Ω	1	125	64
	2.2	42P2			42P2	260 W	250 Ω	1	135	64
	3.7	43P7			43P7	390 W	150 Ω	1	135	32
	5.5	45P5			45P5	520 W	100 Ω	1	135	32
	7.5	47P5			47P5	780 W	75 Ω	1	130	32
	11	4011			4011	1040 W	50 Ω	1	135	20
	15	4015			4015	1560 W	40 Ω	1	125	20
	18.5	4018			4018	4800 W	32 Ω	1	125	19.2
	22	4022			4022	4800 W	27.2 Ω	1	125	19.2
	30	4030			4030	6000 W	20 Ω	1	125	19.2
	37	4037	4045B	1	4037	9600 W	16 Ω	1	125	12.8
	45	4045	4045B	1	4045	9600 W	13.6 Ω	1	125	12.8
	55	4055	4030B	2	4030	6000 W	20 Ω	2	135	19.2
	75	4075	4045B	2	4045	9600 W	13.6 Ω	2	145	12.8
	90	4090	4220B	1	4030	6000 W	20 Ω	3	100	3.2
	110	4110	4220B	1	4030	6000 W	20 Ω	3	100	3.2
	132	4132	4220B	1	4045	9600 W	13.6 Ω	4	140	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	

1. 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.
2. Resistance value per one braking unit. Select a resistance value that is larger than connectable minimum resistance value to obtain enough braking torque.
3. 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 (an result in capacity overload). Contact your Omron representatives when the braking torque or any other item exceeds the values in the table.

Cat. No. I21E-EN-02

In the interest of product improvement, specifications are subject to change without notice.

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