Type number key

VFD 185 CP 63 A -21

- 00=IP20
  (≥Frame D: except terminal access)
- 21=IP20/NEMA1
  (≥Frame D: with conduit box)

Version number

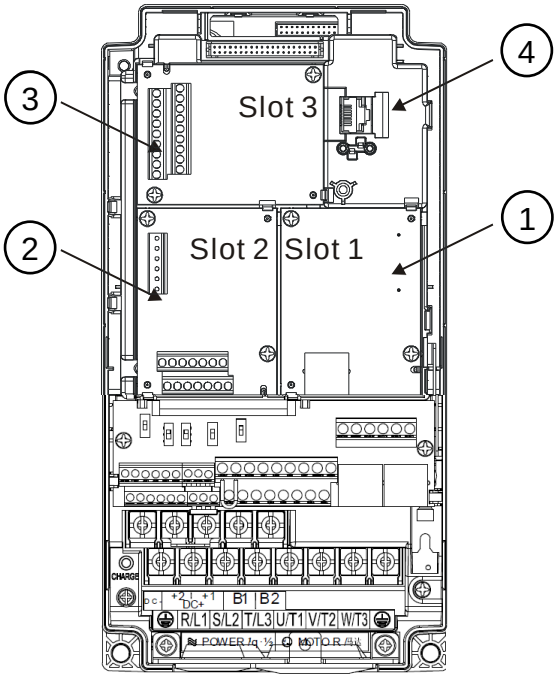
Input voltage
53=575VAC
63=690VAC

CP2000 series

Power
015=1.5kW 022=2.2kW
185=18.5kW 370=37kW etc

Delta **V**ariable **F**requency **D**rive

Option cards



Slot 1: Communication cards
CMC-MOD01 Modbus TCP/IP
CMC-PD01 Profibus
CMC-DN01 DeviceNet
EMC-COP01 CANopen
CMC-EIP01 Ethernet IP

Slot 2: No function

Slot 3: I/O & Relay cards
EMC-D42A 4MI, 2MO
EMC-R6AA 6 Relays (NO/NC)
EMC-D611A 6MI (120VAC)
EMC-BPS01 24VDC Back-up Power Supply card

4: RJ45(female) for digital keypad
KPC-CC01 Standard LCD
KPC-CE01 Option LED

575V 1.5 ~ 3.7kW

Type number		VFD□□□□□□□-21	015CP53A	022CP53A	037CP53A
LD	Rated output power	kW	1.5	2.2	3.7
	Rated output current	A_{RMS}	3	4.3	6.7
	Rated output capacity	kVA	3	4.3	6.7
	Overload	%	120% 60s (5min)		
	Rated input current	A_{RMS}	3.8	5.4	10.4
ND	Rated output power	kW	0.75	1.5	2.2
	Rated output current	A_{RMS}	2.5	3.6	5.5
	Rated output capacity	kVA	2.5	3.6	5.5
	Overload	%	120% 60s (5min) 160% 3s (25s)		
	Rated input current	A_{RMS}	3.1	4.5	7.2
Fundamental Power Factor			>0.98		
Efficiency		%	97		
Mains fuse (for UL: Littlefuse)			KLKD007.T	KLKD010.T	KLKD015.T
Non-fuse current breaker		A	5	10	15
Dimensions HxWxD		mm	250x130x170		
Frame *			A		
Weight		kg	3 ±0.3		
Power cable entry		∅mm	1x 34 2x 28		
Signal cable entry		∅mm	2x 22.2		
Section of power cables (stranded)		mm^2	2.1~8.4		
Cooling			Convection		Fan
Cooling air flow rate		m^3/hr	-		13.6
Carrier frequency (ND/LD)		kHz	2~9		
EMC-Filter			External option		
DC-Choke			Option **		
DC-Bus connection			Yes		
Brake chopper			Built-in		
Recommended brake resistor		Ω/W	750/80	360/200	400/300
Minimum brake resistor value		Ω	280	186.7	160

* See dimensional drawing on Page 12~15.
** Connection for external DC-Choke.

575V 5.5 ~ 15kW

Type number		VFD□□□□□□□-21	055CP53A	075CP53A	110CP53A	150CP53A
LD	Rated output power	kW	5.5	7.5	11	15
	Rated output current	A_{RMS}	9.9	12.1	18.7	24.2
	Rated output capacity	kVA	9.9	12.1	18.6	24.1
	Overload	%	120% 60s (5min)			
	Rated input current	A_{RMS}	14.9	16.9	21.3	26.3
ND	Rated output power	kW	3.7	5.5	7.5	11
	Rated output current	A_{RMS}	8.2	10	15.5	20
	Rated output capacity	kVA	8.2	10	15.5	19.9
	Overload	%	120% 60s (5min) 160% 3s (25s)			
	Rated input current	A_{RMS}	12.3	15	18	22.8
Fundamental Power Factor			>0.98			
Efficiency		%	98			
Mains fuse (for UL: Bussmann)			25ET	32ET	50FE	63FE
Non-fuse current breaker		A	25	32	50	63
Dimensions HxWxD		mm	320x190x190			
Frame *			B			
Weight		kg	4.8 ±1			
Power cable entry		∅mm	1x 34 2x 43.8			
Signal cable entry		∅mm	3x 22.2			
Section of power cables (stranded)		mm^2	5.3~21.2		8.4~21.2	
Cooling			Fan			
Cooling air flow rate		m^3/hr	54.5			
Carrier frequency (ND/LD)		kHz	2~9			
EMC-Filter			External option			
DC-Choke			Option **			
DC-Bus connection			Yes			
Brake chopper			Built-in			
Recommended brake resistor		Ω/W	100/500	140/750	75/1000	91/1100
Minimum brake resistor value		Ω	93.3	80	70	62.2

* See dimensional drawing on Page 12~15.

** Connection for external DC-Choke.

690V 18.5 ~ 37kW

Type number		VFD□□□□□□□-21	185CP63A	220CP63A	300CP63A	370C63A
Rated power 690V (LD/ND) 575V (LD/ND)		kW	18.5/15 15/11	22/18.5 18.5/15	30/22 22/18.5	37/30 30/22
LD	Rated output current	A_{RMS}	24	30	36	45
	Rated output capacity	kVA	29	36	43	54
	Overload	%	120% 60s (5min)			
	Rated input current	A_{RMS}	29	36	43	54
ND	Rated output current	A_{RMS}	20	24	30	36
	Rated output capacity	kVA	24	29	36	43
	Overload	%	120% 60s (5min) 160% 3s (25s)			
	Rated input current	A_{RMS}	24	29	36	43
Fundamental Power Factor			>0.98			
Efficiency		%	97			
Mains fuse (for UL: Bussmann)			JJS-60	JJS-70	JJS-80	JJS-100
Non-fuse current breaker		A	60	70	80	100
Dimensions HxWxD		mm	400x250x210			
Frame *			C			
Weight		kg	10 ±1.5			
Power cable entry		∅mm	1x 34 2x 50			
Signal cable entry		∅mm	4x 22.2			
Section of power cables (stranded)		mm^2	8.4~53.5	13.3~53.5	21.2~53.5	26.7~53.5
Cooling			Fan			
Cooling air flow rate		m^3/hr	189.2			187.5
Carrier frequency (LD/ND)		kHz	2~9			
EMC-Filter			External option			
DC-Choke			Option **			
DC-Bus connection			Yes			
Brake chopper			Built-in			
Recommended brake resistor		Ω/W	78/2000	66/2400	54/3000	45/3600
Minimum brake resistor value		Ω	58.9		43.1	

* See dimensional drawing on Page 12~15.

** Connection for external DC-Choke.

690V 45 ~ 55kW

Type number		VFD□□□□□□□-00 -21	450CP63B	550CP63B
Rated power 690V (LD/ND) 575V (LD/ND)		kW	45/37 37/30	55/45 45/37
LD	Rated output current	A_{RMS}	54	67
	Rated output capacity	kVA	65	80
	Overload	%	120% 60s (5min)	
	Rated input current	A_{RMS}	65	81
ND	Rated output current	A_{RMS}	45	54
	Rated output capacity	kVA	54	65
	Overload	%	120% 60s (5min)	160% 3s (25s)
	Rated input current	A_{RMS}	54	65
Fundamental Power Factor			>0.98	
Efficiency		%	97	
Mains fuse (for UL: Bussmann)			JJS-100	JJS-125
Non-fuse current breaker		A	100	125
Dimensions HxWxD		mm	-00: 550x330x275	-21: 688.3x330x275
Frame *			-00: D1	-21: D2
Weight		kg	39 ±1.5	
Power cable entry		∅mm	-00: n.a	-21: 2x 34 2x 76.2
Signal cable entry		∅mm	-00: n.a	-21: 2x 22
Section of power cables (stranded)		mm^2	26.7~107	33.6~107
Cooling			Fan	
Cooling air flow rate		m^3/hr	360.6	
Carrier frequency (LD/ND)		kHz	2~9	
EMC-Filter			External option	
DC-Choke			Built-in	
DC-Bus connection			Yes	
Brake chopper			External option	
Recommended brake resistor		Ω/W	33/4800	27/6000
Minimum brake resistor value		Ω	24.3	

* See dimensional drawing on Page 12~15.

** Connection for external DC-Choke.

690V 75 ~ 132kW

Type number		VFD□□□□□□□-00 -21	750CP63A	900CP63A	1100CP63A	1320CP63A
Rated power 690V (LD/ND) 575V (LD/ND)		kW	75/55 55/45	90/75 75/55	110/90 90/75	132/110 110/90
LD	Rated output current	A_{RMS}	86	104	125	150
	Rated output capacity	kVA	103	124	149	179
	Overload	%	120% 60s (5min)			
	Rated input current	A_{RMS}	84	102	122	147
ND	Rated output current	A_{RMS}	67	86	104	125
	Rated output capacity	kVA	80	103	124	149
	Overload	%	120% 60s (5min) 160% 3s (25s)			
	Rated input current	A_{RMS}	66	84	102	122
Fundamental Power Factor			>0.98			
Efficiency		%	97			
Mains fuse (for UL: Bussmann)			JJS-175	JJS-200	JJS-250	JJS-300
Non-fuse current breaker		A	175	200	225	300
Dimensions HxWxD		mm	-00: 589x370x300		-21: 715.8x370x300	
Frame *			-00: E1		-21: E2	
Weight		kg	61 ±1.5			
Power cable entry		∅mm	-00: n.a.		-21: 2x 92 4x 34	
Signal cable entry		∅mm	-00: n.a.		-21: 2x 22	
Section of power cables (stranded)		mm^2	2*21.2 ~ 2*107	2*26.7 ~ 2*107	2*33.6 ~ 2*107	2*42.4 ~ 2*107
Cooling			Fan			
Cooling air flow rate		m^3/hr	603.5			
Carrier frequency (LD/ND)		kHz	2~9			
EMC-Filter			External option			
DC-Choke			Option **			
DC-Bus connection			Yes			
Brake chopper			Built-in			
Recommended brake resistor		Ω/W	22/7200	18/9000	13.5/12000	11.3/14400
Minimum brake resistor value		Ω	12.2			8.2

* See dimensional drawing on Page 12~15.

** Connection for external DC-Choke.

690V 160 ~ 200kW

Type number		VFD□□□□□□□-00 -21	1600CP63A	2000CP63A
Rated power 690V (LD/ND) 575V (LD/ND)		kW	160/132	200/160
LD	Rated output current	A_{RMS}	180	220
	Rated output capacity	kVA	215	263
	Overload	%	120% 60s (5min)	
	Rated input current	A_{RMS}	178	217
ND	Rated output current	A_{RMS}	150	180
	Rated output capacity	kVA	179	215
	Overload	%	120% 60s (5min)	160% 3s (25s)
	Rated input current	A_{RMS}	148	178
Fundamental Power Factor			>0.98	
Efficiency		%	97	
Mains fuse (for UL: Bussmann)			JJS-350	JJS-400
Non-fuse current breaker		A	350	400
Dimensions HxWxD		mm	-00: 800x420x300	-21: 940x420x300
Frame *			-00: F1	-21: F2
Weight		kg	88 ±1.5	
Power cable entry		∅mm	-00: n.a	-21: 4x 35 2x 92
Signal cable entry		∅mm	-00: n.a	-21: 2x 22
Section of power cables (stranded)		mm^2	2*67.4 ~ 2*107	2*85 ~ 2*107
Cooling			Fan	
Cooling air flow rate		m^3/hr	651.4	
Carrier frequency (LD/ND)		kHz	2~9	
EMC-Filter			External option	
DC-Choke			Built-in	
DC-Bus connection			Yes	
Brake chopper			External option	
Recommended brake resistor		Ω/W	10.8/15000	9/18000
Minimum brake resistor value		Ω	8.2	6.9

* See dimensional drawing on Page 12~15.

** Connection for external DC-Choke.

690V 250 ~ 315kW

Type number		VFD□□□□□□□-00 -21	2500CP63A	3150CP63A
Rated power 690V (LD/ND) 575V (LD/ND)		kW	250/200 200/150	315/250 250/180
LD	Rated output current	A_{RMS}	290	350
	Rated output capacity	kVA	347	418
	Overload	%	120% 60s (5min)	
	Rated input current	A_{RMS}	292	353
ND	Rated output current	A_{RMS}	220	290
	Rated output capacity	kVA	239	347
	Overload	%	120% 60s (5min)	160% 3s (25s)
	Rated input current	A_{RMS}	222	292
Fundamental Power Factor			>0.98	
Efficiency		%	98	
Mains fuse (for UL: Bussmann)			170M4063	170M6058
Non-fuse current breaker		A	450	500
Dimensions HxWxD		mm	-00: 1000x500x397	-21: 1240.2x500x397
Frame *			-00: G1	-21: G2
Weight		kg	135 ±4	
Power cable entry		∅mm	-00: n.a	-21: 2x 34 3x 117.5
Signal cable entry		∅mm	-00: n.a	-21: 2x 22
Section of power cables (stranded)		mm^2	2*127 ~ 2*253	2*177 ~ 2*253
Cooling			Fan	
Cooling air flow rate		m^3/hr	696	
Carrier frequency (LD/ND)		kHz	2~9	
EMC-Filter			External option	
DC-Choke			Built-in	
DC-Bus connection			Yes	
Brake chopper			External option	
Recommended brake resistor		Ω/W	6.8/24000	5.4/30000
Minimum brake resistor value		Ω	6.1	4.1

* See dimensional drawing on Page 12~15.

** Connection for external DC-Choke.

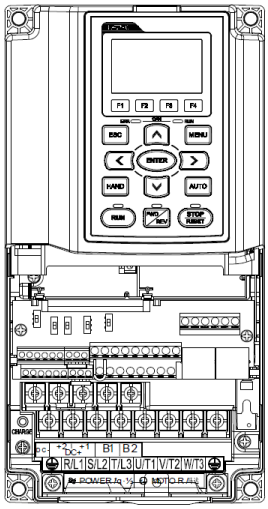
690V 400 ~ 630kW

Type number		VFD□□□□□□□-00 -21	4000CP63A	4500CP63A	5600CP63A	6300CP63A
Rated power 690V (LD/ND) 575V (LD/ND)		kW	400	450	560	630
LD	Rated output current	A_{RMS}	430	465	590	675
	Rated output capacity	kVA	495	535	679	776
	Overload	%	120% 60s (5min)			
	Rated input current	A_{RMS}	454	469	595	681
ND	Rated output current	A_{RMS}	350	400	450	500
	Rated output capacity	kVA	403	443	535	776
	Overload	%	120% 60s (5min) 160% 3s (25s)			
	Rated input current	A_{RMS}	353	388	504	681
Fundamental Power Factor			>0.98			
Efficiency		%	98			
Mains fuse (for UL: Bussmann)			170M6061	170M6062	170M6066	170M6067
Non-fuse current breaker		A	700	800	1250	1400
Dimensions HxWxD		mm	-00: 1435x700x404		-21: 1745x700x404	
Frame *			-00: H1		-21: H2	
Weight		kg	243 ± 5			
Power cable entry		∅mm	-00: n.a.		-21: 2x 34 4x 117.5	
Signal cable entry		∅mm	-00: n.a.		-21: 4x 22	
Section of power cables (stranded)		mm^2	4*85 ~ 4*152		4*127 ~ 4*152	4*152
Cooling			Fan			
Cooling air flow rate		m^3/hr	956.4	1618.9		
Carrier frequency (LD/ND)		kHz	2~9			
EMC-Filter			External option			
DC-Choke			Built-in			
DC-Bus connection			Yes			
Brake chopper			External option			
Recommended brake resistor		Ω/W	4.5/36000	3.9/42000	3/54000	2.3/72000
Minimum brake resistor value		Ω	3.5		2.3	1.7

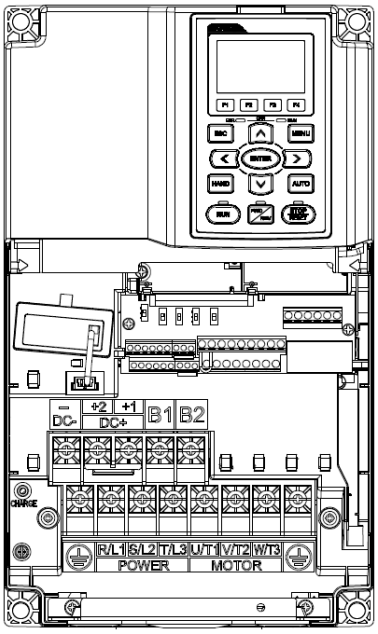
* See dimensional drawing on Page 12~15.

** Connection for external DC-Choke.

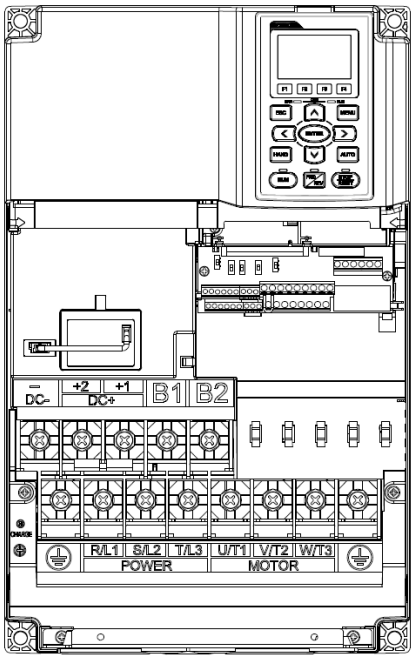
Main circuit wiring Frame A



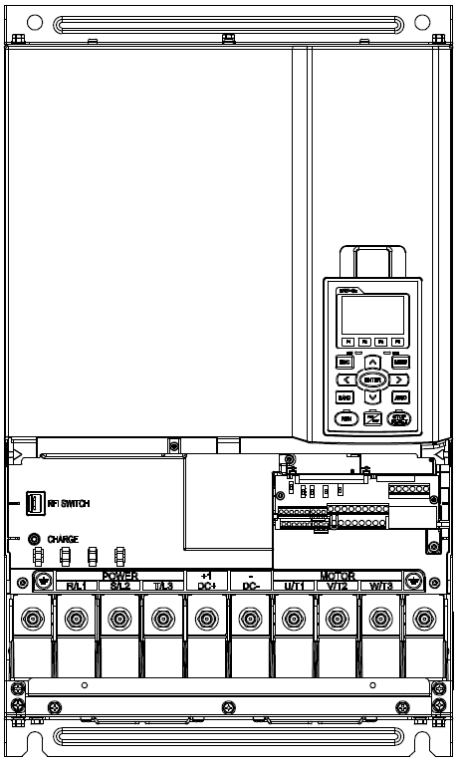
Main circuit wiring Frame B



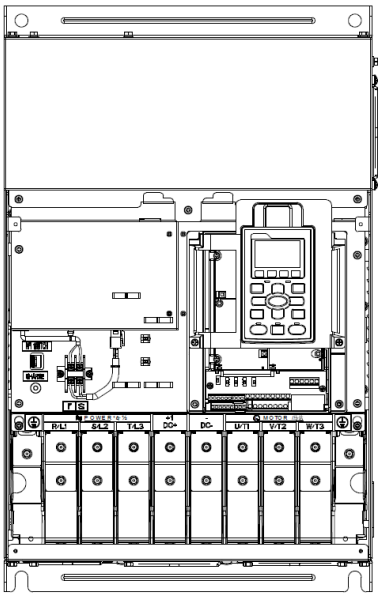
Main circuit wiring Frame C



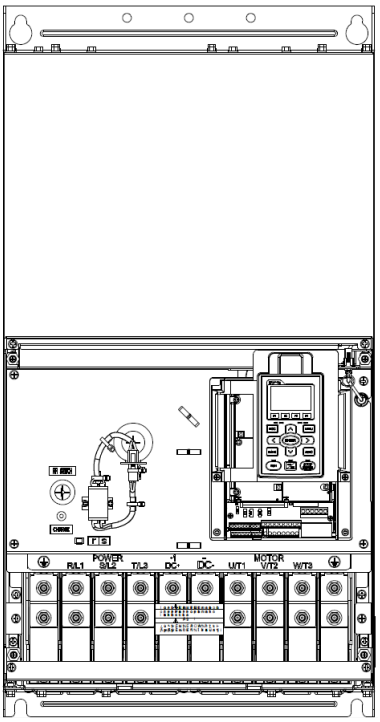
Main circuit wiring Frame D



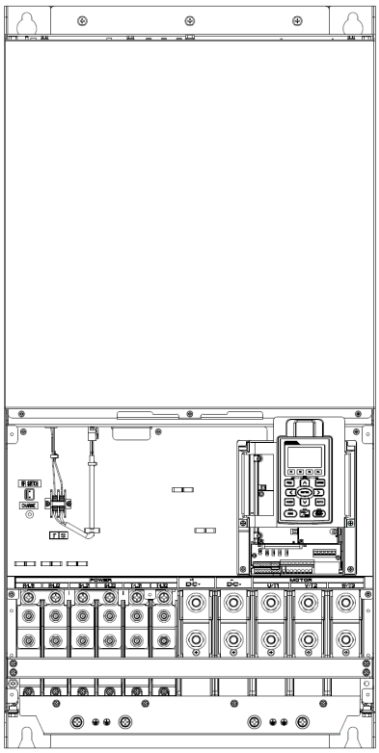
Main circuit wiring Frame E



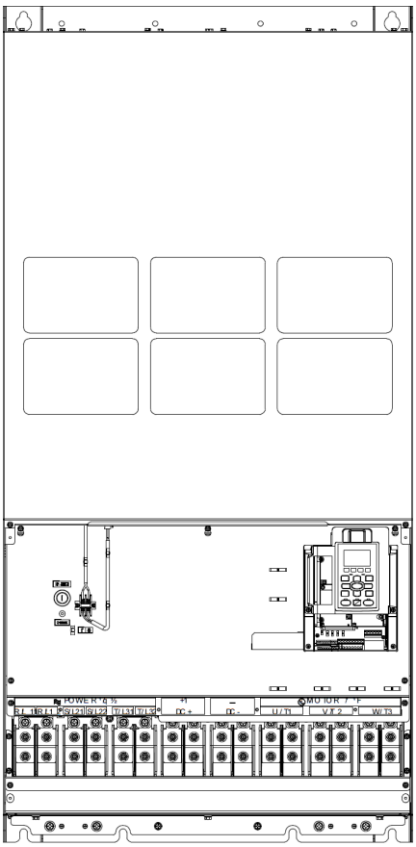
Main circuit wiring Frame F



Main circuit wiring Frame G

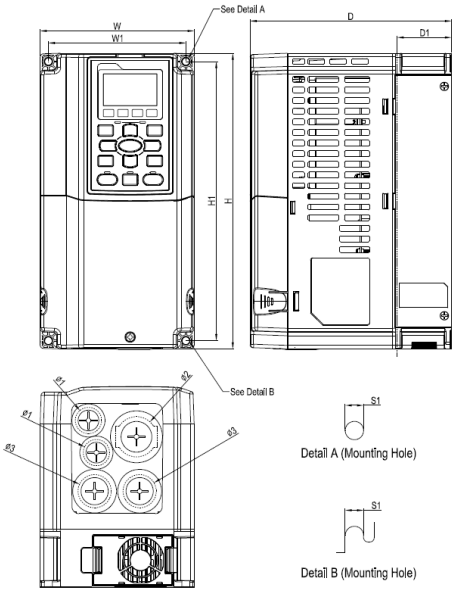


Main circuit wiring Frame H



Frame sizes and dimensions in mm [inches]

Frame A

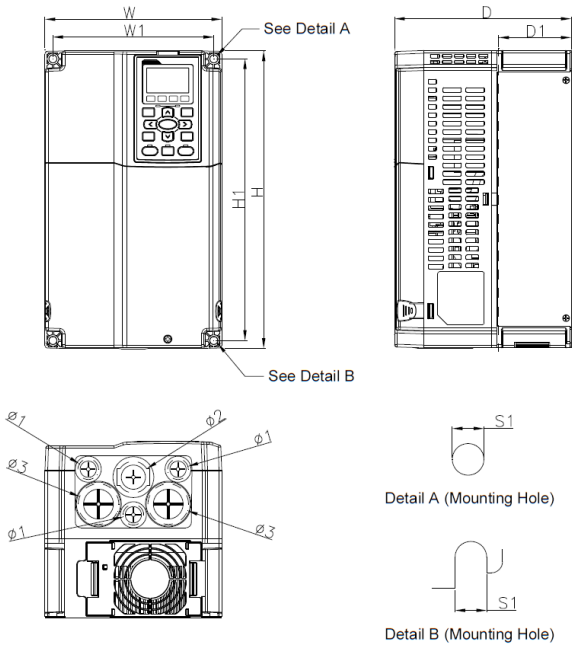


Unit: mm [inch]

Frame	W	H	D	W1	H1	D1*	S1	Φ1	Φ2	Φ3
A1	130.0 [5.12]	250.0 [9.84]	170.0 [6.69]	116.0 [4.57]	236.0 [9.29]	45.8 [1.80]	6.2 [0.24]	22.2 [0.87]	34.0 [1.34]	28.0 [1.10]

D1*: Flange mounting

Frame B

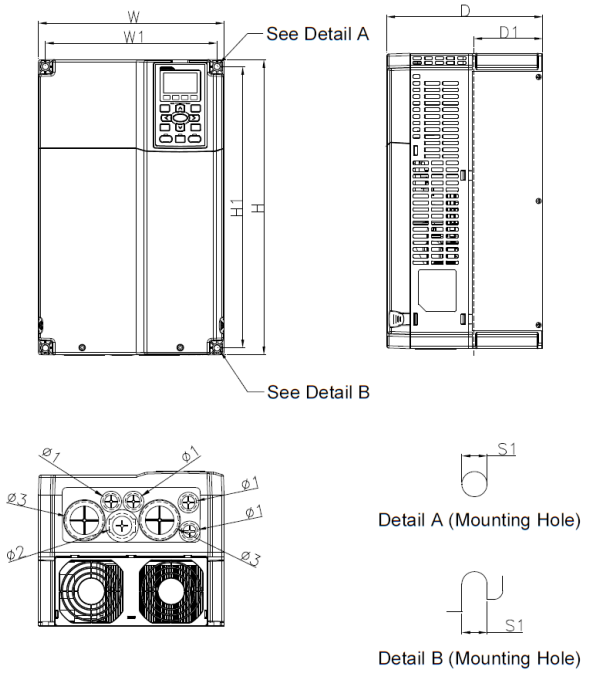


Unit: mm [inch]

Frame	W	H	D	W1	H1	D1*	S1	Φ1	Φ2	Φ3
B1	190.0 [7.48]	320.0 [12.60]	190.0 [7.48]	173.0 [6.81]	303.0 [11.93]	77.9 [3.07]	8.5 [0.33]	22.2 [0.87]	34.0 [1.34]	43.8 [1.72]

D1*: Flange mounting

Frame C



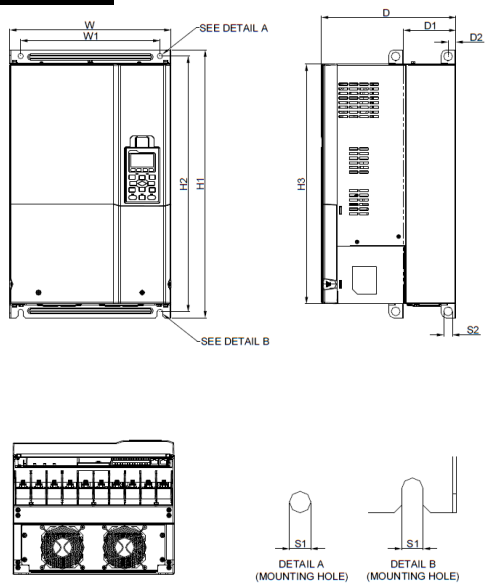
Unit: mm [inch]

Frame	W	H	D	W1	H1	D1*	S1	Φ1	Φ2	Φ3
C1	250.0 [9.84]	400.0 [15.75]	210.0 [8.27]	231.0 [9.09]	381.0 [15.00]	92.9 [3.66]	8.5 [0.33]	22.2 [0.87]	34.0 [1.34]	50.0 [1.97]

D1*: Flange mounting

Frame sizes and dimensions in mm [inches] (cont'd)

Frame D1

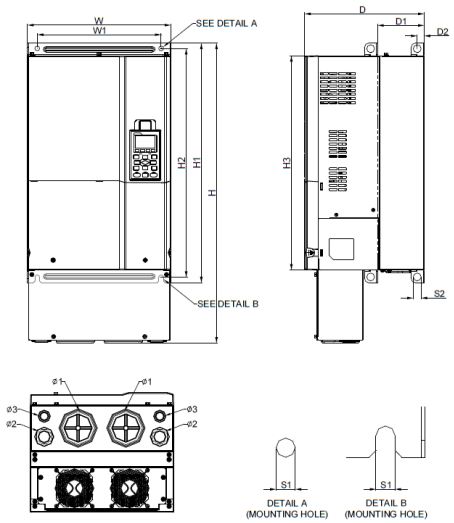


Unit: mm [inch]

Frame	W	H	D	W1	H1	H2	H3	D1*	D2	S1	S2	Φ1	Φ2	Φ3
D1	330.0 [12.99]	-	275.0 [10.83]	285.0 [11.22]	550.0 [21.65]	525.0 [20.67]	492.0 [19.37]	107.2 [4.22]	16.0 [0.63]	11.0 [0.43]	18.0 [0.71]	-	-	-

D1*: Flange mounting

Frame D2

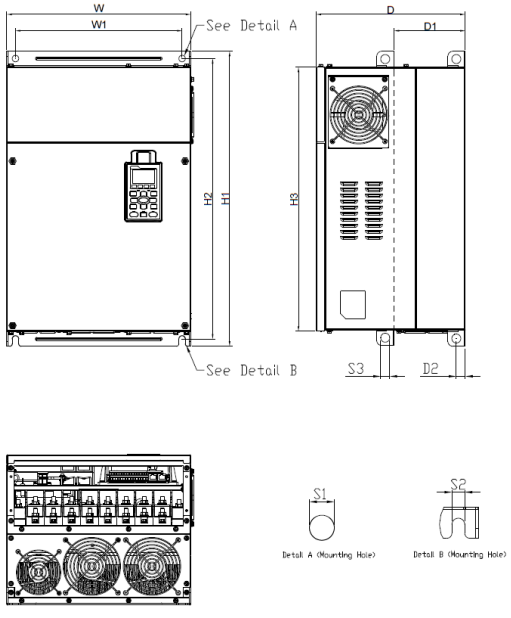


Unit: mm [inch]

Frame	W	H	D	W1	H1	H2	H3	D1*	D2	S1	S2	Φ1	Φ2	Φ3
D2	330.0 [12.99]	688.3 [27.10]	275.0 [10.83]	285.0 [11.22]	550.0 [21.65]	525.0 [20.67]	492.0 [19.37]	107.2 [4.22]	16.0 [0.63]	11.0 [0.43]	18.0 [0.71]	76.2 [3.00]	34.0 [1.34]	22.0 [0.87]

D1*: Flange mounting

Frame E1

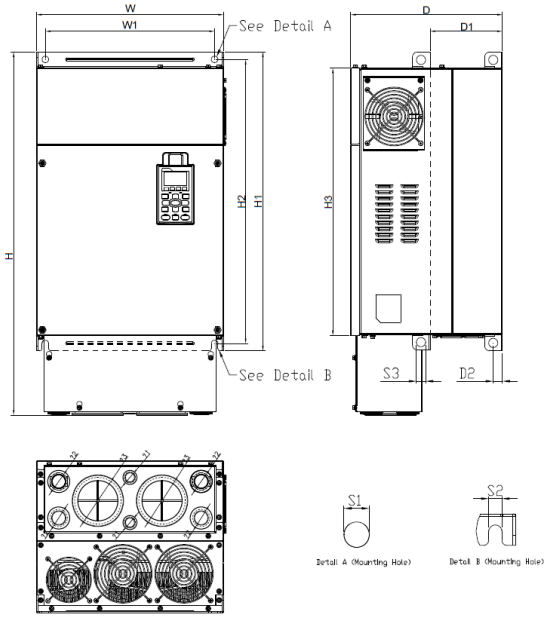


Unit: mm [inch]

Frame	W	H	D	W1	H1	H2	H3	D1*	D2	S1, S2	S3	Φ1	Φ2	Φ3
E1	370.0 [14.57]	-	300.0 [11.81]	335.0 [13.19]	589 [23.19]	560.0 [22.05]	528.0 [20.80]	143.0 [5.63]	18.0 [0.71]	13.0 [0.51]	18.0 [0.71]	-	-	-

D1*: Flange mounting

Frame E2



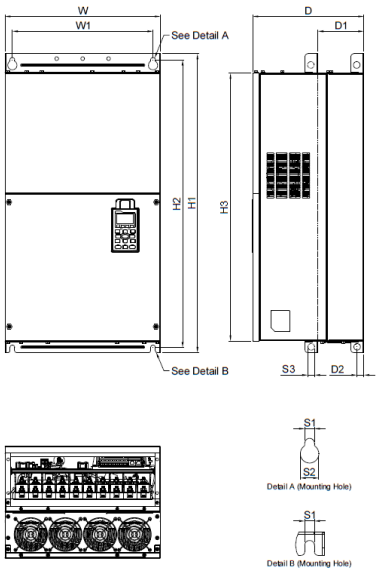
Unit: mm [inch]

Frame	W	H	D	W1	H1	H2	H3	D1*	D2	S1, S2	S3	Φ1	Φ2	Φ3
E2	370.0 [14.57]	715.8 [28.18]	300.0 [11.81]	335.0 [13.19]	589 [23.19]	560.0 [22.05]	528.0 [20.80]	143.0 [5.63]	18.0 [0.71]	13.0 [0.51]	18.0 [0.71]	22.0 [0.87]	34.0 [1.34]	92.0 [3.62]

D1*: Flange mounting

Frame sizes and dimensions in mm [inches] (cont'd)

Frame F1

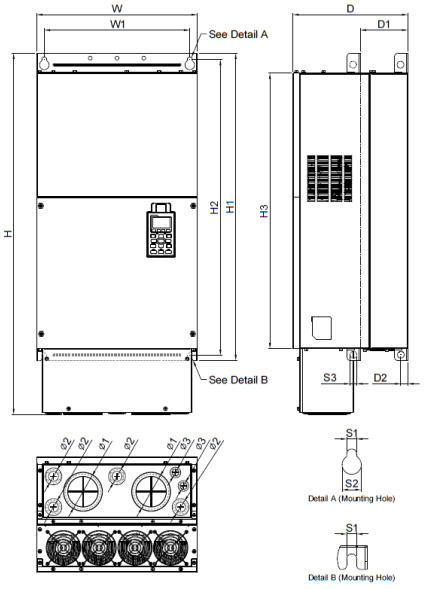


Unit: mm [inch]

Frame	W	H	D	W1	H1	H2	H3	D1*	D2	S1	S2	S3
F1	420.0 [16.54]	-	300.0 [11.81]	380.0 [14.96]	800.0 [31.50]	770.0 [30.32]	717.0 [28.23]	124.0 [4.88]	18.0 [0.71]	13.0 [0.51]	25.0 [0.98]	18.0 [0.71]

D1*: Flange mounting

Frame F2



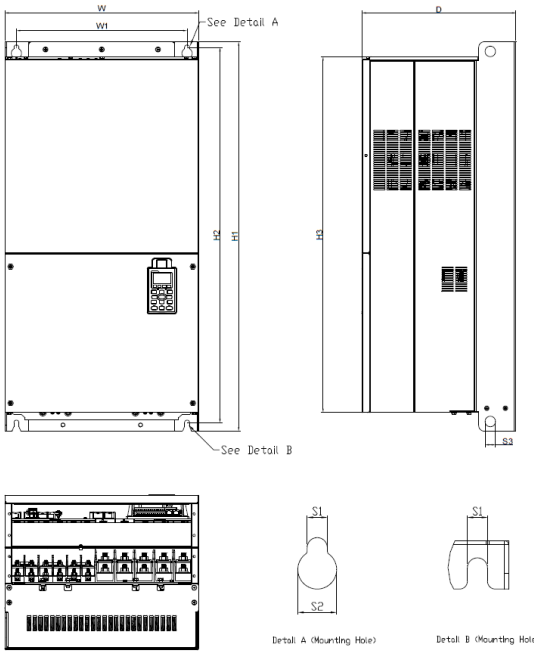
Unit: mm [inch]

Frame	W	H	D	W1	H1	H2	H3	D1*	D2	S1	S2	S3
F2	420.0 [16.54]	940.0 [37.00]	300.0 [11.81]	380.0 [14.96]	800.0 [31.50]	770.0 [30.32]	717.0 [28.23]	124.0 [4.88]	18.0 [0.71]	13.0 [0.51]	25.0 [0.98]	18.0 [0.71]

Frame	Φ1	Φ2	Φ3
F2	92.0 [3.62]	35.0 [1.38]	22.0 [0.87]

D1*: Flange mounting

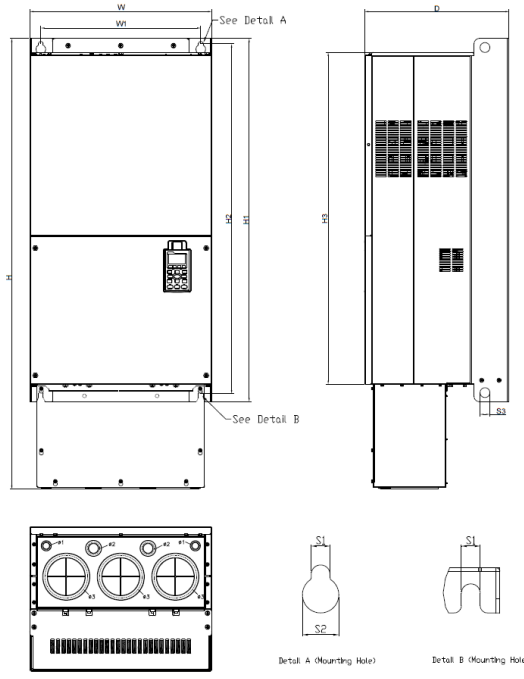
Frame G1



Unit: mm [inch]

Frame	W	H	D	W1	H1	H2	H3	S1	S2	S3	Φ1	Φ2	Φ3
G1	500.0 [19.69]	-	397.0 [15.63]	440.0 [217.32]	1000.0 [39.37]	963.0 [37.91]	913.6 [35.97]	13.0 [0.51]	26.5 [1.04]	27.0 [1.06]	-	-	-

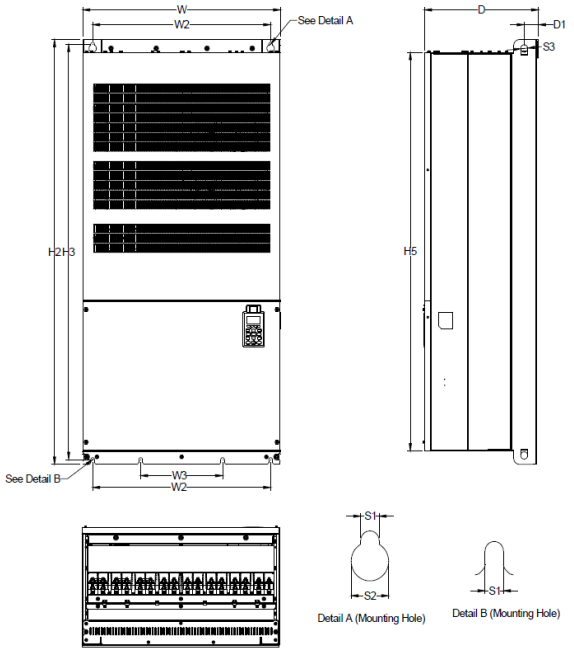
Frame G2



Unit: mm [inch]

Frame	W	H	D	W1	H1	H2	H3	S1	S2	S3	Φ1	Φ2	Φ3
G2	500.0 [19.69]	1240.2 [48.83]	397.0 [15.63]	440.0 [217.32]	1000.0 [39.37]	963.0 [37.91]	913.6 [35.97]	13.0 [0.51]	26.5 [1.04]	27.0 [1.06]	22.0 [0.87]	34.0 [1.34]	117.5 [4.63]

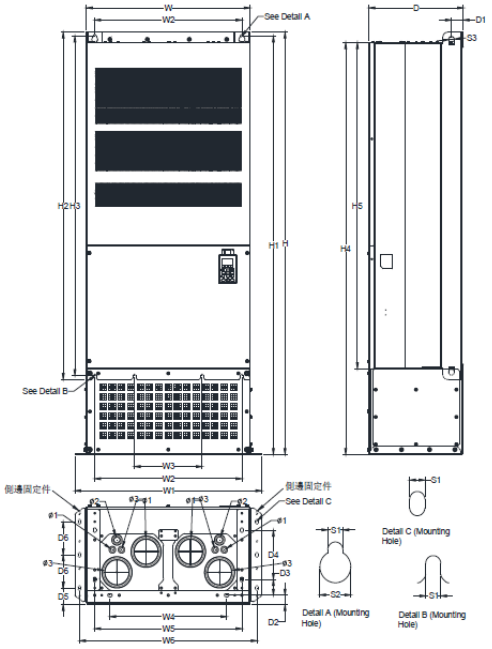
Frame H1



Unit: mm [inch]

Frame	W	W2	W3	H2	H3	H5	D	D1	S1	S2	S3
H1	700.0 [27.56]	630.0 [24.80]	290.0 [11.42]	1435.2 [56.50]	1403.0 [55.24]	1346.6 [53.02]	404.0 [15.91]	51.0 [2.01]	13.0 [0.51]	26.5 [1.04]	25.0 [0.98]

Frame H2



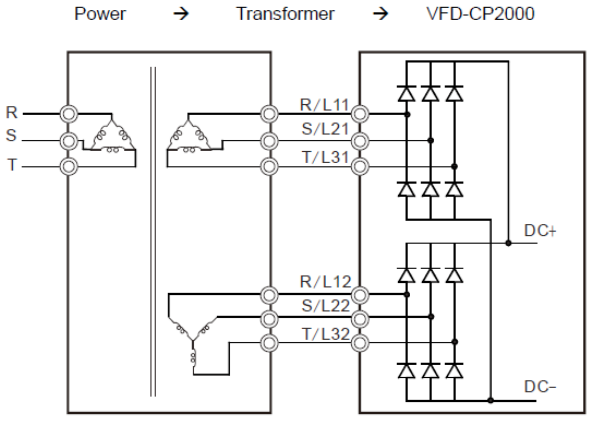
Unit: mm [inch]

Frame	W	H	D	W1	W2	W3	W4	W5	W6	H1	H2	H3	H4
H2	700.0 [27.56]	1745.0 [68.70]	404.0 [15.91]	800.0 [31.50]	-	-	500.0 [19.69]	630.0 [24.80]	760.0 [29.92]	1729.0 [68.07]	-	-	1701.6 [66.99]
Frame	H5	D1	D2	D3	D4	D5	D6	S1	S2	S3	Φ1	Φ2	Φ3
H2	1346.6 [53.02]	51.0 [2.00]	38.0 [1.50]	65.0 [2.56]	204.0 [8.03]	68.0 [2.68]	137.0 [5.40]	13.0 [0.51]	26.5 [1.04]	25.0 [0.98]	22.0 [0.87]	34.0 [1.34]	117.5 [4.63]

Power terminals (general)

Terminal symbol	Terminal function
R/L1, S/L2, T/L3 L11,L12,L13/L21,L22,L23	Mains input
U/T1, V/T2, W/T3	Motor output
+1 ~ +2	Connection DC-choke (external option)
B1 ~ B2	Brake resistor (external option)
+/DC+ ~ -/DC-	VFDB series Brake unit (external option) or DC-bus connection
⏚	Ground

Mains input wiring for Frame G, H



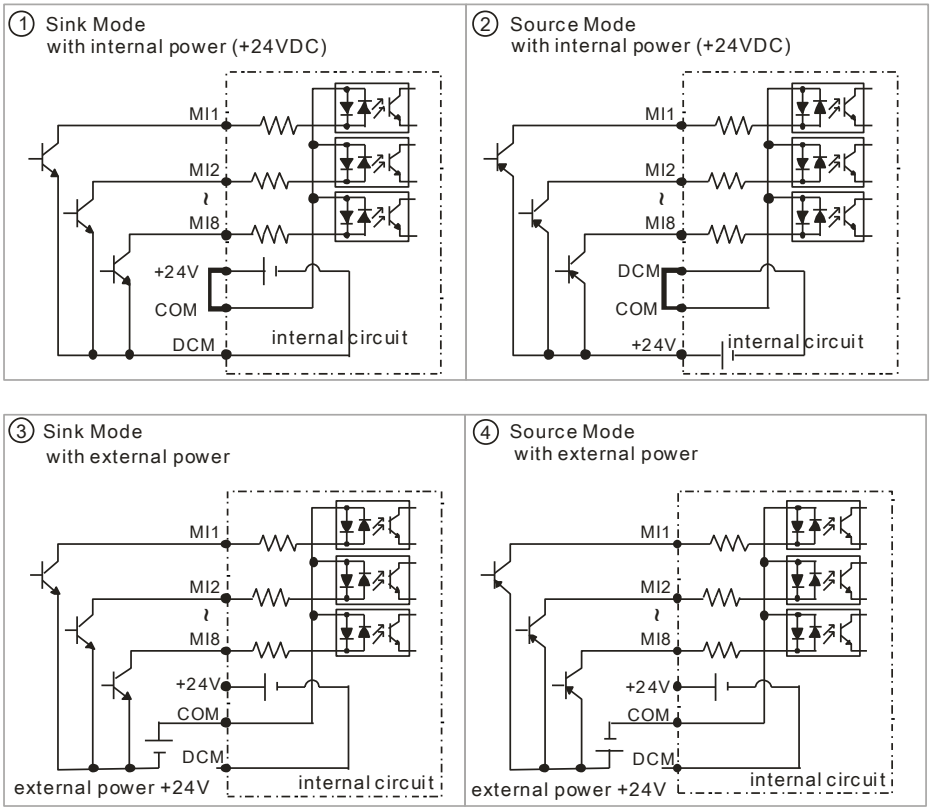
By supplying L11,L21,L31 and L11,L12,L13 from transformer windings that have a 30° phase angle difference, it is possible to reduce the 5th and 7th harmonics.

Common data C2000 690V

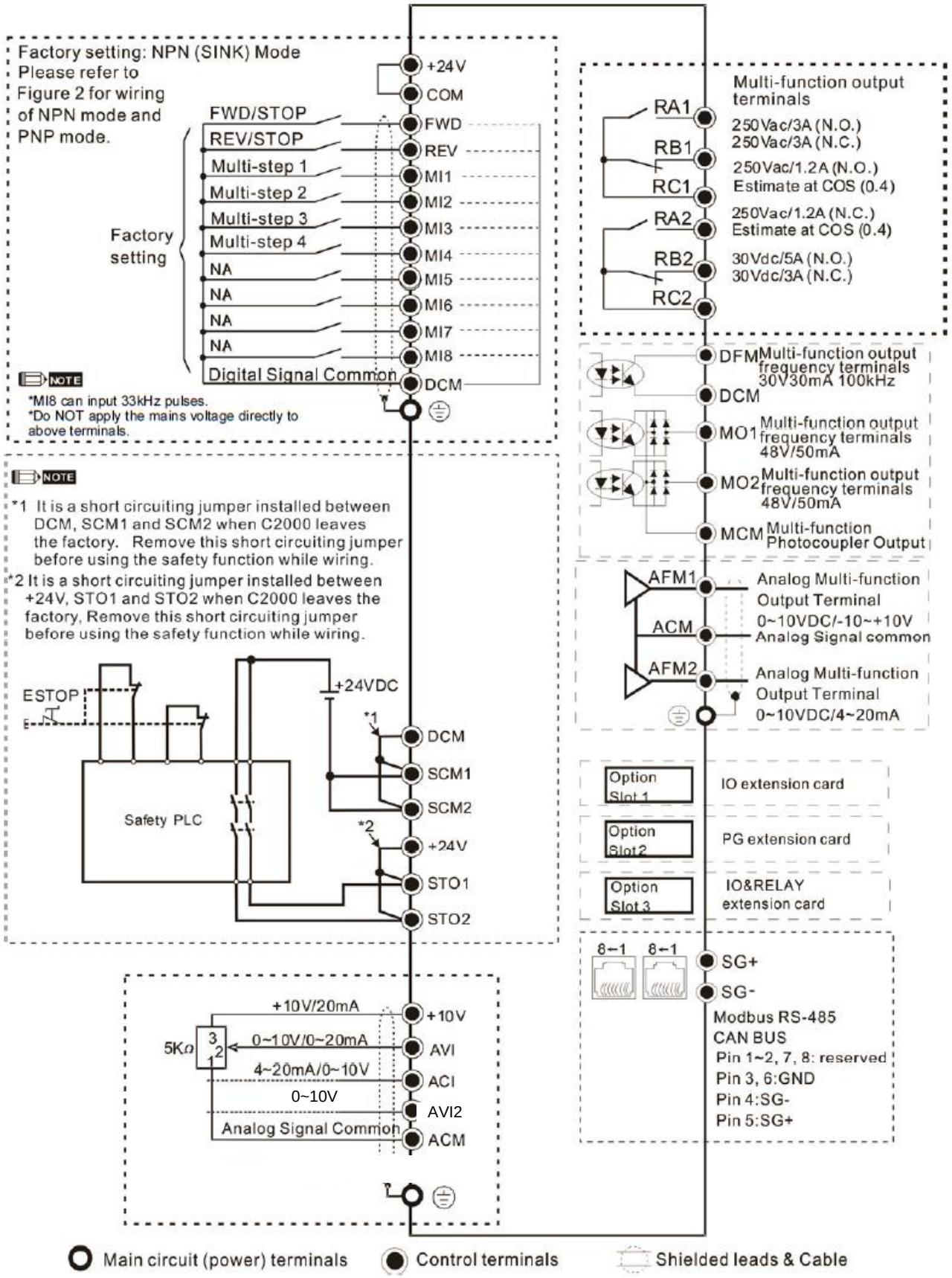
Mains voltage range		VAC	575VAC: 446 ~ 660 690VAC: 446 ~ 759
Mains frequency		Hz	47 ~ 63
Output frequency range		Hz	LD/ND: 0 ~ 599
Output voltage range		V	0 ~ Mains
Operating			
	Temperature	°C	-10 ~ +40 (-10 ~ +50 for Frame A~C without top cover and Frame D~H without conduit box) Derate 2%/°C up to 60°C
	Atmospheric pressure	kPa	86 ~ 106
	Relative humidity	%	≤90 (non condensing, non frozen)
	Installation location		IEC60364-1/60664-1: Pollution degree 2, Indoor use only
	Installation position		±10° to vertical axis
	Pollution level		IEC721-3-3: 3C2, 3S2
Storage			
	Temperature	°C	-25 ~ +70
	Atmospheric pressure	kPa	86 ~ 106
	Relative humidity	%	≤95 (non condensing, non frozen)
	Pollution level		IEC721-3-3: 1C2, 1S2
Transportation			
	Temperature	°C	-25 ~ +70
	Atmospheric pressure	kPa	70 ~ 106
	Relative humidity	%	≤95 (non condensing, non frozen)
	Pollution level		IEC721-3-3: 2C2, 2S2
Vibration			IEC680068-2-6: 2~13.2Hz 1mm 13.2~55Hz 0.7~1.0G 55-512Hz 1G
Shock			IEC680068-2-27: 15G 11ms
Package drop			IEC680068-2-31 ISTA 1A (acc. to weight)
Degree of protection			-00: IP20 (IP00 at power entry) -21: IP20/NEMA1
Altitude		m	≤1000 derate 1% rated current or 0.5°C per 100m up to 3000m
Keypad			Detachable
Signal cable section		mm^2	0.13~1.3 and 0.05~2
Digital inputs		8x MIx	SINK or SOURCE: Via jumper Range: 24VDC Scan time: 0~30s Pull-up (internal): ca. 3kΩ Current (ON): 3.3mA MI8: 100kHz max.
STO inputs		STO1-SCM1 STO2-SCM2	Range: 24VDC Current (ON): 6.7mA
Analogue inputs			Accuracy: 12 bits Delay: 0~2s
		1x AVI1	Range: 0~10VDC / 0/4~20mA Impedance: 20kΩ / 250Ω
		1x ACI	Range: 0/4~20mA / 0~10VDC Impedance: 250Ω / 20kΩ
		1x AVI2	Range: 0~10VDC Impedance: 20kΩ
Digital outputs		2x MOx	Optocoupler OC (common + or -) 48VDC/50mA
Frequency outputs		1x DFM	Optocoupler OC: 30VDC/30mA Duty-cycle: 50% Range: 1~40x Output frequency

Analogue outputs	AFM1	Accuracy Range Impedance	10 bits 0~10VDC/-10~+10VDC (switch) 100Ω (max 2mA)
	AFM2	Accuracy Range Impedance	10 bits 0~10VDC/4~20mA (switch) 100Ω (max 2mA)/100kΩ
Relays	2x	2x Change-over NO: R_A~R_C NC: R_B~R_C	 Resistive 3A/250VAC - 5A/30VDC Inductive 1.2A/250VAC - 2A/30VDC Resistive 3A/250VAC - 3A/30VDC Inductive 1.2A/250VAC - 1.2A/30VDC
Signal supply	1x	+24VDC/200mA	
Potentiometer supply	2x	+10VDC/20mA	
Trip memory		Last 6 errors	
Acc/Dec Times	s	0.0 ~ 6000	
Serial communication	2x RJ45 SG+/SG-	Modbus RS485 COM1 Baudrate Address Mode ASCII Modbus RTU	 4800 ~ 115200 1 ~ 254 7,N,1 / 7,N,2 / 7,E,1 / 7,O,1 / 7,E,2 / 7,O,2 / 8,N,1 / 8,N,2 / 8,E,1 / 8,O,1 / 8,E,2 / 8,O,2 8,N,1 / 8,N,2 / 8,E,1 / 8,O,1 / 8,E,2 / 8,O,2
	2x RJ45	CANopen	Option EMC-COP01 needed

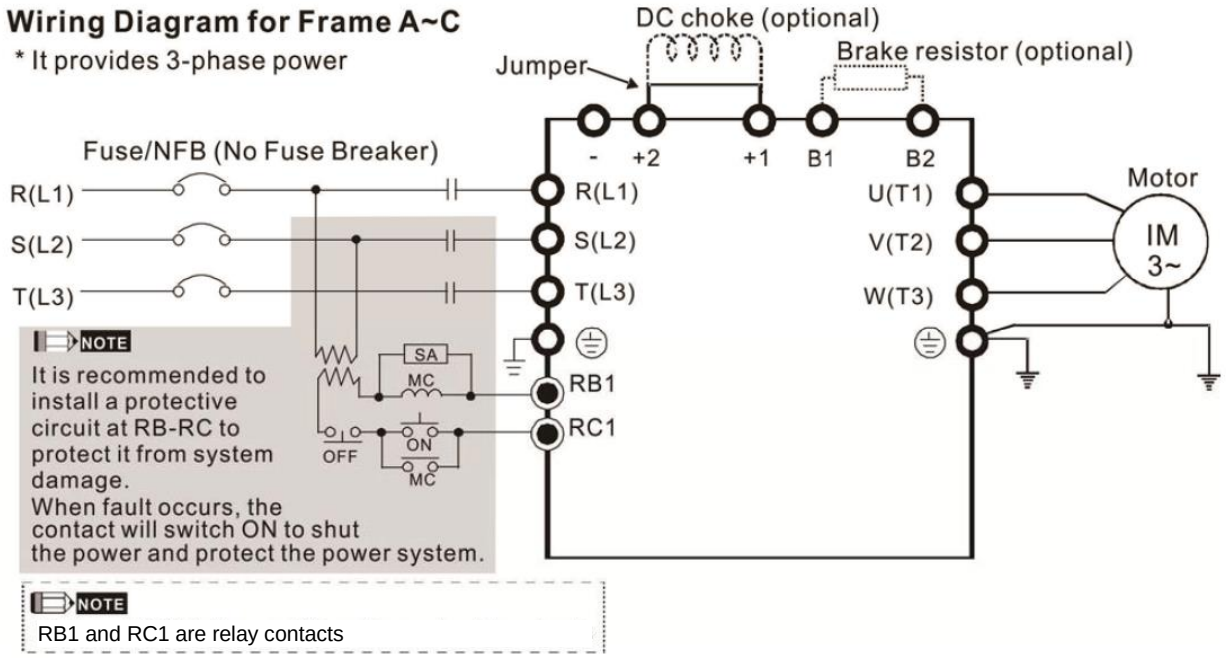
NPN/PNP wiring for MIx



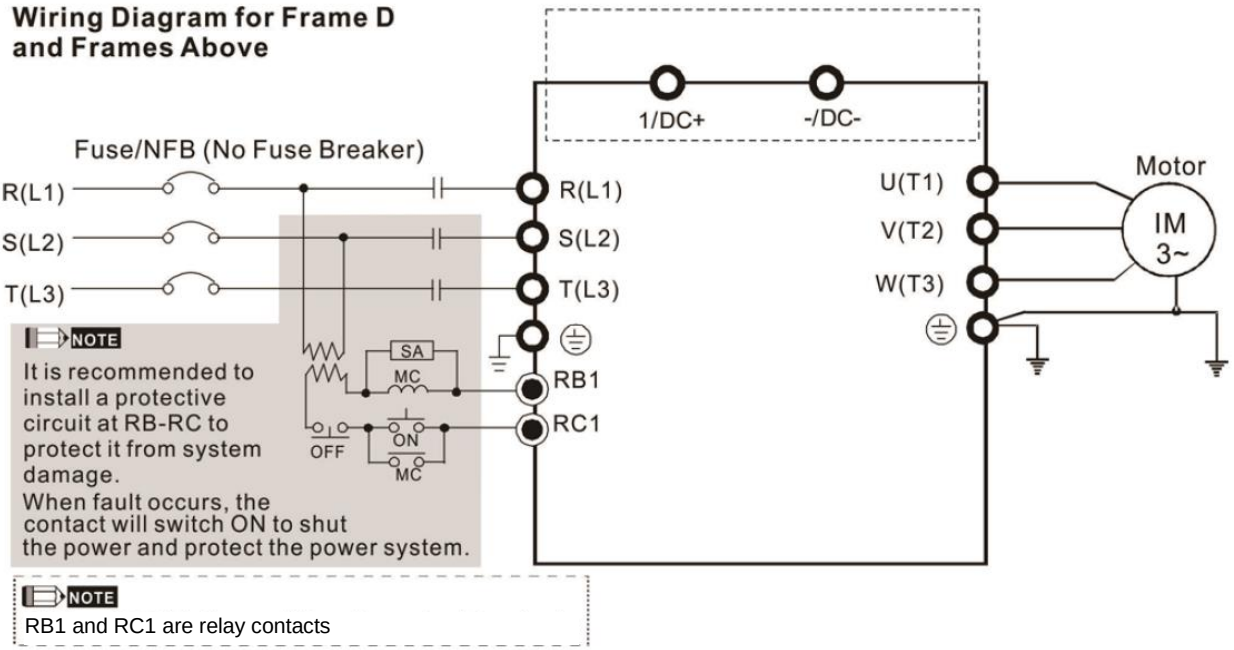
Basic wiring diagram



Basic wiring diagram Frame A, B, C



Basic wiring diagram Frame D and above



Options

EMC Filters

Model	Input Current (A)	Applicable EMC Filter	Zero Phase* Reactor (See statements below the table)	CE Cable Length		Radiation Emission
				default carrier frequency		
				EN61800-3 C1	EN61800-3 C2	EN61800-3 C2
VFD022CP53A-21	5.4	EMF008A63A	RF008X00A	50m	100m	Pass
VFD037CP53A-21	10.4	EMF014A63A		50m	100m	Pass
VFD055CP53A-21	14.9	EMF027A63A		50m	100m	Pass
VFD075CP53A-21	16.9			50m	100m	Pass
VFD110CP53A-21	21.3			50m	100m	Pass
VFD150CP53A-21	26.3			50m	100m	Pass
VFD185CP63A-21	29	B84143A0050R021	RF002X00A	50m	100m	Pass
VFD220CP63A-21	36			50m	100m	Pass
VFD300CP63A-21	43			50m	100m	Pass
VFD370CP63A-21	54			50m	100m	Pass
VFD450CP63A-00 VFD450CP63A-21	54			50m	100m	Pass
VFD550CP63A-00 VFD550CP63A-21	67			50m	100m	Pass
VFD750CP63A-00 VFD750CP63A-21	84	B84143A0120R021	RF300X00A	50m	100m	Pass
VFD900CP63A-00 VFD900CP63A-21	102			50m	100m	Pass
VFD1100CP63A-00 VFD1100CP63A-21	122	B84143B0150S021		50m	100m	Pass
VFD1320CP63A-00 VFD1320CP63A-21	147			50m	100m	Pass
VFD1600CP63A-00 VFD1600CP63A-21	178	B84143B0250S021		50m	100m	Pass
VFD2000CP63A-00 VFD2000CP63A-21	217			50m	100m	Pass
VFD2500CP63A-00 VFD2500CP63A-21	292	B84143B0400S021		50m	100m	Pass
VFD3150CP63A-00 VFD3150CP63A-21	353			50m	100m	Pass
VFD4000CP63A-00 VFD4000CP63A-21	454	B84143B1000S021		50m	100m	Pass
VFD4500CP63A-00 VFD4500CP63A-21	469			50m	100m	Pass
VFD5600CP63A-00 VFD5600CP63A-21	595			50m	100m	Pass

Braking Brake resistors and VFDB brake units.

Keypad&Cables A standard CAT5 cable (no cross) can be used to connect the keypad to the drive. The standard keypad KPC-CC01 is IP56 when mounted on a flat surface.

Communication IFD6500/IFD6530 USB-RS485 converter, Splitters, Cables.

Fieldbus

CMC-DN01	Devicenet
CMC-PD01	Profibus
EMC-COP01	CANopen
CMC-MOD01	Modbus over TCP/IP
CMC-EIP01	Ethernet

Option cards

EMC-R6AA	6 programmable relays (A-C, make).
EMC-D42A	4 prog. Digital Inputs (PNP/NPN), 2 prog. Digital Outputs.
EMC-D611A	6 prog. Digital Inputs 115VAC.
EMC-BPS01	24VDC back up power supply card

Software To read, save, copy, change parameters. Download VFDSoft 1.50 or higher from www.delta-emea.com.

Programming

Group 00-xx **Drive Parameters**
Drive ID, Software version, Password, Parameter reset, Control Mode, HD/ND/LD selection, User-defined display, Carrier frequency, Source of frequency/operation, Stop method, Motor direction inhibit, etc.

Group 01-xx **Basic Parameters**
V/f-curve (2), Max/Min Voltage and frequency, Acc/Dec times, Jogging, S-curve, 3 Skip frequencies, etc.

Group 02-xx **Digital Input/Output Parameters**
2-3 Wire operation, Function and setting of digital inputs, outputs and relay, Count values, Debounce time, Brake delay, etc.

Group 03-xx **Analogue Input/Output Parameters**
Function, Gain, Bias, Filtering of analogue inputs and outputs.

Group 04-xx **Multi-step Speed and Position**
15 Speed steps and positions.

Group 05-xx **Motor Parameters**
Setting of motor parameters (2 motors), Auto-tuning, Slip compensation, Torque boost, Y-Δ switch-over, Motor operation time, etc.

Group 06-xx **Protection Parameters**
Protection settings, Fault memory and conditions, PTC, etc.

Group 07-xx **Special Parameters**
Brake level, DC-Braking, Power loss override, DEB, Speed search, Auto reset, Fan control, Emergency stop, Auto Energy Saving, AVR, Slip compensation, Autorestart, etc.

Group 08-xx **PID Control Parameters**
PID settings, Sleep function, etc.

Group 09-xx **Communication Parameters**
Protocol, Address, Transmission speed, Block Transfer, CANopen, Fieldbus settings, etc.

Group 10-xx **PM motor settings**
Current command, Observer, Angle, etc.

Group 12-xx **Pump parameters: Circulative control**
Settings for circulative control (cascading).

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