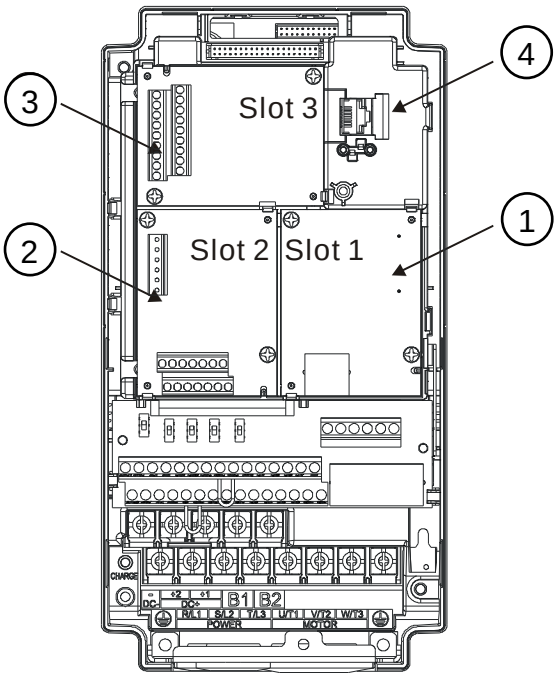
Type number key

VFD 007 CP 43 A/C -XY

- Y=0: UL open
  1: NEMA1
  X=0: IP00
  2: IP20
- Version number:
  A=Wall mount
  C=Cabinet
- Input voltage
  23=230VAC 3ϕ
  43=400VAC
  4E=400VAC with filter
- VFD-CP2000 series
- **Power**
  007=0.75kW 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, 2MO

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

400V 0.75 ~ 7.5kW with built-in filter

Type number VFD□□□□□□□□-21		007CP4EA	015CP4EA	022CP4EA	037CP4EA	040CP4EA	055CP4EA	075CP4EA
Rated power	kW	0.75	1.5	2.2	3.7	4.0	5.5	7.5
Rated output current (ND/LD)	A RMS	2.8/3	3/3.7	4/5	6/7.5	9/10.5	10.5/12	12/14
Overload (ND/LD)	%	120% 60s;160% 3s / 120% 60s						
Rated output capacity (ND/LD)	kVA	2.3/2.4	2.4/2.9	3.2/4	4.8/6	7.2/8.4	8.4/9.6	10/11.2
Rated input current (ND/LD)	A RMS	3.5/4.3	4.3/5.4	5.9/7.4	8.7/11	14/16	15.5/18	17/20
Mains fuse (for UL: Bussmann)		JJS-10		JJS-15	JJS-20		JJS-30	JJS-40
Non-fuse current breaker	A	5	10	15	20		30	40
Dimensions HxWxD	mm	250x130x170						
Frame *		A1						
Weight	kg	2.6 ±0.3						
Power cable entry	∅mm	2x 28 1x 34						
Signal cable entry	∅mm	2x 22.2						
Section of power cables (stranded)	mm^2	2.1~8.4				3.3~8.4	5.3~8.4	
Cooling		Convection			Fan			
Cooling air flow rate	m^3/hr	none			24	17		
Carrier frequency	kHz	2~15						
EMC-Filter		Built-in						
DC-Choke		Option **						
DC-Bus connection		Yes						
Brake chopper		Built-in						
Recommended brake resistor	Ω/W	750/80		360/200	250/300	150/400	75/1000	
Minimum brake resistor value	Ω	190		126.7	108.6	84.4	54.3	

400V 11 ~ 18.5kW with built-in filter

Type number VFD□□□□□□□□-21		110CP4EA	150CP4EA	185CP4EA
Rated power	kW	11	15	18.5
Rated output current (ND/LD)	A RMS	18/22.5	24/30	32/36
Overload (ND/LD)	%	120% 60s;160% 3s / 120% 60s		
Rated output capacity (ND/LD)	kVA	14/18	19/24	25/29
Rated input current (ND/LD)	A RMS	20/25	26/33	35/39
Mains fuse (for UL: Bussmann)		JJS-50	JJS-60	JJS-75
Non-fuse current breaker	A	50	60	75
Dimensions HxWxD	mm	320x190x190		
Frame *		B		
Weight	kg	5.4 ±1		
Power cable entry	∅mm	1x 34 2x 43.8		
Signal cable entry	∅mm	3x 22.2		
Section of power cables (stranded)	mm^2	8.4~21.2		13.3~21.2
Cooling		Fan		
Cooling air flow rate	m^3/hr	92	136	124
Carrier frequency	kHz	2~15		
EMC-Filter		Built-in		
DC-Choke		Option **		
DC-Bus connection		Yes		
Brake chopper		Built-in		
Recommended brake resistor	Ω/W	75/1000	43/1500	32/2000
Minimum brake resistor value	Ω	47.5	42.2	23

* See dimensional drawing on Page 10~13.

** Connection for external DC-Choke.

400V 22 ~ 37kW with built-in filter

Type number VFD□□□□□□□□-21		220CP4EA	300CP4EA	370CP4EA
Rated power	kW	22	30	37
Rated output current (ND/LD)	A RMS	38/45	45/56	60/72
Overload (ND/LD)	%	120% 60s;160% 3s / 120% 60s		
Rated output capacity (ND/LD)	kVA	30/36	36/45	48/57
Rated input current (ND/LD)	A RMS	40/47	47/58	63/76
Mains fuse (for UL: Bussmann)		JJS-100	JJS-125	JJS-150
Non-fuse current breaker	A	100	125	150
Dimensions HxWxD	mm	400x250x210		
Frame *		C		
Weight	kg	9.8 ±1.5		
Power cable entry	∅mm	1x 34 2x 50		
Signal cable entry	∅mm	4x 22.2		
Section of power cables (stranded)	mm^2	21.2~53.5	26.7~53.5	33.6~53.5
Cooling		Fan		
Cooling air flow rate	m^3/hr	204		250
Carrier frequency	kHz	2~10		
EMC-Filter		Built-in		
DC-Choke		Option **		
DC-Bus connection		Yes		
Brake chopper		Built-in		
Recommended brake resistor	Ω/W	32/2000	26/3000	16/4000
Minimum brake resistor value	Ω	23		14.1

400V 45 ~ 90kW with conduit box

Type number VFD□□□□□□□□-21		450CP43A	550CP43A	750CP43A	900CP43A
Rated power	kW	450	550	750	900
Rated output current (ND/LD)	A RMS	73/91	91/110	110/144	150/180
Overload (ND/LD)	%	120% 60s;160% 3s / 120% 60s			
Rated output capacity (ND/LD)	kVA	58/73	73/88	88/115	120/143
Rated input current (ND/LD)	A RMS	74/91	101/110	114/144	157/180
Mains fuse (for UL: Bussmann)		JJS-175	JJS-250	JJS-300	
Non-fuse current breaker	A	175	250	300	
Dimensions HxWxD	mm	688.3x330x275			
Frame *		D2			
Weight	kg	40			
Power cable entry	∅mm	2x 76.2 2x 34			
Signal cable entry	∅mm	2x 22			
Section of power cables, stranded (with ring)	mm^2	53.5~107	67.4~107	85~107	107
Cooling		Fan			
Cooling air flow rate	m^3/hr	355			367
Carrier frequency	kHz	2~10			2~9
EMC-Filter		No			
DC-Choke		Built-in			
DC-Bus connection		Yes			
Brake chopper		External option			
Recommended brake resistor ***	Ω/W	15/4800	13/6000	10.2/8000	7.5/9600
Minimum brake resistor value ***	Ω	12.7		9.5	6.3

* See dimensional drawing on Page 10~13.

** Connection for external DC-Choke.

400V 110 ~ 185kW with conduit box

Type number VFD□□□□□□□□-21		1100CP43A	1320CP43A	1600CP43A	1850CP43A
Rated power	kW	110	132	160	185
Rated output current (ND/LD)	A RMS	180/220	220/246	260/310	310/343
Overload (ND/LD)	%	120% 60s;160% 3s / 120% 60s			
Rated output capacity (ND/LD)	kVA	143/175	175/196	207/247	247/343
Rated input current (ND/LD)	A RMS	167/220	207/246	240/310	300/343
Mains fuse (for UL: Bussmann)		JJS-400	JJS-500	JJS-600	
Non-fuse current breaker	A	400	500	600	
Dimensions HxWxD	mm	715.8x370x300		940x420x300	
Frame *		E2		F2	
Weight	kg	66		88	
Power cable entry	∅mm	2x 92 4x 34		2x 92 4x 35	
Signal cable entry	∅mm	2x 22		2x 22	
Section of power cables, stranded (with ring)	mm^2	67.4~107 (2x)		107 (2x)	
Cooling		Fan			
Cooling air flow rate	m^3/hr	561	503	571	681
Carrier frequency (ND/LD)	kHz	2~9			
EMC-Filter		No			
DC-Choke		Built-in			
DC-Bus connection		Yes			
Brake chopper		External option			
Recommended brake resistor ***	Ω/W	6.5/12000	6/12000	4/18000	
Minimum brake resistor value ***	Ω	6.5	6	4	

* See dimensional drawing on Page 10~13.
*** With external brake unit.

400V 220 ~ 280kW with conduit box / 315 ~ 400kW cabinet

Type number VFD□□□□□□□□□-21			2200CP43A	2800CP43A	3150CP43C	3550CP43C	4000CP43C
Rated power		kW	220	280	315	355	400
Rated output current (ND/LD)		A RMS	370/460	460/530	550/616	616/683	683/770
Overload (ND/LD)		%	120% 60s;160% 3s / 120% 60s				
Rated output capacity (ND/LD)		kVA	295/367	367/422	438/491	491/544	544/613
Rated input current (ND/LD)		A RMS	380/460	400/530	494/616	555/683	625/770
Mains fuse (for UL: Bussmann)			JJS-800	KTU-1000	KTU-1200	KTU-1350	KTU1500
Non-fuse current breaker		A	800	1000	1200	1350	1500
Dimensions HxWxD		mm	1240.2x500x397		1745x700x404		
Frame *			G2		H3		
Weight		kg	138		263		
Power cable entry		∅mm	2x 34 3x 117.5		2x 34 4x 117.5		
Signal cable entry		∅mm	2x 22		4x 22		
Section of power cables, stranded (with ring)	Input	mm^2	67.4~152 (4x)	85~152 (4x)	107~152 (4x)	127~152 (4x)	152 (4x)
	Output		203~253 (2x)	253 (2x)			
Cooling			Fan				
Cooling air flow rate		m^3/hr	771		1307		
Carrier frequency (ND/LD)		kHz	2~9				
EMC-Filter			No				
DC-Choke			Built-in				
DC-Bus connection			Yes				
Brake chopper			External option				
Recommended brake resistor ***		Ω/W	3.4/21000	3/24000	2/36000		1.7/42000
Minimum brake resistor value ***		Ω	3.4	3	2		1.7

* See dimensional drawing on Page 10~13.
*** With external brake unit.

400V 0.75 ~ 7.5kW no filter

Type number VFD□□□□□□□□-21		007CP43A	015CP43A	022CP43A	037CP43A	040CP43A	055CP43A	075CP43A
Rated power	kW	0.75	1.5	2.2	3.7	4.0	5.5	7.5
Rated output current (ND/LD)	A RMS	2.8/3	3/3.7	4/5	6/7.5	9/10.5	10.5/12	12/14
Overload (ND/LD)	%	120% 60s;160% 3s / 120% 60s						
Rated output capacity (ND/LD)	kVA	2.3/2.4	2.4/2.9	3.2/4	4.8/6	7.2/8.4	8.4/9.6	10/11.2
Rated input current (ND/LD)	A RMS	3.5/4.3	4.3/5.4	5.9/7.4	8.7/11	14/16	15.5/18	17/20
Mains fuse (for UL: Bussmann)		JJS-10		JJS-15	JJS-20		JJS-30	JJS-40
Non-fuse current breaker	A	5	10	15	20		30	40
Dimensions HxWxD	mm	250x130x170						
Frame *		A1						
Weight	kg	2.6 ±0.3						
Power cable entry	∅mm	2x 28 1x 34						
Signal cable entry	∅mm	2x 22.2						
Section of power cables (stranded)	mm^2	2.1~8.4				3.3~8.4	5.3~8.4	
Cooling		Convection			Fan			
Cooling air flow rate	m^3/hr	none			24	17		
Carrier frequency	kHz	2~15						
EMC-Filter		No						
DC-Choke		Option **						
DC-Bus connection		Yes						
Brake chopper		Built-in						
Recommended brake resistor	Ω/W	750/80		360/200	250/300	150/400	75/1000	
Minimum brake resistor value	Ω	190		126.7	108.6	84.4	54.3	

400V 11 ~ 18.5kW no filter

Type number VFD□□□□□□□□-21		110CP43A	150CP43A	185CP43A
Rated power	kW	11	15	18.5
Rated output current (ND/LD)	A RMS	18/22.5	24/30	32/36
Overload (ND/LD)	%	120% 60s;160% 3s / 120% 60s		
Rated output capacity (ND/LD)	kVA	14/18	19/24	25/29
Rated input current (ND/LD)	A RMS	20/25	26/33	35/39
Mains fuse (for UL: Bussmann)		JJS-50	JJS-60	JJS-75
Non-fuse current breaker	A	50	60	75
Dimensions HxWxD	mm	320x190x190		
Frame *		B		
Weight	kg	5.4 ±1		
Power cable entry	∅mm	1x 34 2x 43.8		
Signal cable entry	∅mm	3x 22.2		
Section of power cables (stranded)	mm^2	8.4~21.2		13.3~21.2
Cooling		Fan		
Cooling air flow rate	m^3/hr	92	136	124
Carrier frequency	kHz	2~15		
EMC-Filter		No		
DC-Choke		Option **		
DC-Bus connection		Yes		
Brake chopper		Built-in		
Recommended brake resistor	Ω/W	75/1000	43/1500	32/2000
Minimum brake resistor value	Ω	47.5	42.2	23

* See dimensional drawing on Page 10~13.

** Connection for external DC-Choke.

400V 22 ~ 37kW no filter

Type number VFD□□□□□□□-21		220CP4EA	300CP4EA	370CP4EA
Rated power	kW	22	30	37
Rated output current (ND/LD)	A RMS	38/45	45/56	60/72
Overload (ND/LD)	%	120% 60s;160% 3s / 120% 60s		
Rated output capacity (ND/LD)	kVA	30/36	36/45	48/57
Rated input current (ND/LD)	A RMS	40/47	47/58	63/76
Mains fuse (for UL: Bussmann)		JJS-100	JJS-125	JJS-150
Non-fuse current breaker	A	100	125	150
Dimensions HxWxD	mm	400x250x210		
Frame *		C		
Weight	kg	9.8 ±1.5		
Power cable entry	∅mm	1x 34 2x 50		
Signal cable entry	∅mm	4x 22.2		
Section of power cables (stranded)	mm^2	21.2~53.5	26.7~53.5	33.6~53.5
Cooling		Fan		
Cooling air flow rate	m^3/hr	204		250
Carrier frequency	kHz	2~10		
EMC-Filter		No		
DC-Choke		Option **		
DC-Bus connection		Yes		
Brake chopper		Built-in		
Recommended brake resistor	Ω/W	32/2000	26/3000	16/4000
Minimum brake resistor value	Ω	23		14.1

400V 37 ~ 75kW no conduit box

Type number VFD□□□□□□□-00		450CP43A	550CP43A	750CP43A	900CP43A
Rated power	kW	450	550	750	900
Rated output current (ND/LD)	A RMS	73/91	91/110	110/144	150/180
Overload (ND/LD)	%	120% 60s;160% 3s / 120% 60s			
Rated output capacity (ND/LD)	kVA	58/73	73/88	88/115	120/143
Rated input current (ND/LD)	A RMS	74/91	101/110	114/144	157/180
Mains fuse (for UL: Bussmann)		JJS-175	JJS-250	JJS-300	
Non-fuse current breaker	A	175	250	300	
Dimensions HxWxD	mm	550x330x275			
Frame *		D1			
Weight	kg	37.6			
Power cable entry	∅mm	open			
Signal cable entry	∅mm	open			
Section of power cables, stranded (with ring)	mm^2	53.5~107	67.4~107	85~107	107
Cooling		Fan			
Cooling air flow rate	m^3/hr	355			367
Carrier frequency	kHz	2~10			2~9
EMC-Filter		No			
DC-Choke		Built-in			
DC-Bus connection		Yes			
Brake chopper		External option			
Recommended brake resistor ***	Ω/W	15/4800	13/6000	10.2/8000	7.5/9600
Minimum brake resistor value ***	Ω	12.7		6.3	6.3

* See dimensional drawing on Page 10~13.

** Connection for external DC-Choke.

400V 110 ~ 185kW no conduit box

Type number VFD□□□□□□□□-00		1100CP43A	1320CP43A	1600CP43A	1850CP43A
Rated power	kW	110	132	160	185
Rated output current (ND/LD)	A RMS	180/220	220/246	260/310	310/343
Overload (ND/LD)	%	120% 60s;160% 3s / 120% 60s			
Rated output capacity (ND/LD)	kVA	143/175	175/196	207/247	247/343
Rated input current (ND/LD)	A RMS	167/220	207/246	240/310	300/343
Mains fuse (for UL: Bussmann)		JJS-400	JJS-500	JJS-600	
Non-fuse current breaker	A	400	500	600	
Dimensions HxWxD	mm	589x370x300		800x420x300	
Frame *		E1		F1	
Weight	kg	63.6		85	
Power cable entry	∅mm	open			
Signal cable entry	∅mm	open			
Section of power cables, stranded (with ring)	mm^2	67.4~107 (2x)		107~152 (2x)	152 (2x)
Cooling		Fan			
Cooling air flow rate	m^3/hr	561	503	571	681
Carrier frequency (ND/LD)	kHz	2~9			
EMC-Filter		No			
DC-Choke		Built-in			
DC-Bus connection		Yes			
Brake chopper		External option			
Recommended brake resistor ***	Ω/W	6.5/12000	6/12000	4/18000	
Minimum brake resistor value ***	Ω	6.5	6	4	

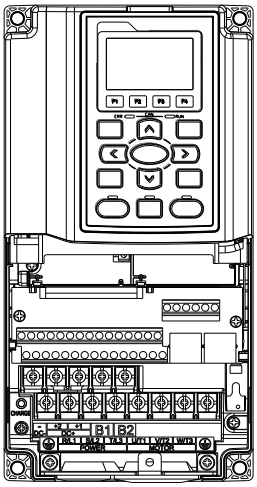
* See dimensional drawing on Page 10~13.
*** With external brake unit.

400V 220 ~ 400kW no conduit box

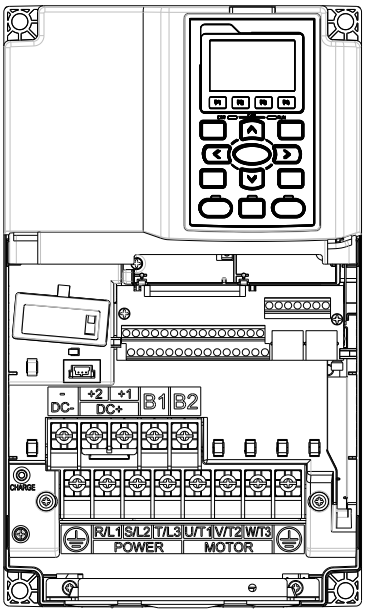
Type number VFD□□□□□□□□□-00		2200CP43A	2800CP43A	3150CP43A	3550CP43A	4000CP43A
Rated power	kW	220	280	315	355	400
Rated output current (ND/LD)	A RMS	370/460	460/530	550/616	616/683	683/770
Overload (ND/LD)	%	120% 60s;160% 3s / 120% 60s				
Rated output capacity (ND/LD)	kVA	295/367	367/422	438/491	491/544	544/613
Rated input current (ND/LD)	A RMS	380/460	400/530	494/616	555/683	625/770
Mains fuse (for UL: Bussmann)		JJS-800	KTU-1000	KTU-1200	KTU-1350	KTU1500
Non-fuse current breaker	A	800	1000	1200	1350	1500
Dimensions HxWxD	mm	1000x500x397		1435x700x398		
Frame *		G1		H1		
Weight	kg	130		235		
Power cable entry	∅mm	open				
Signal cable entry	∅mm	open				
Section of power cables, stranded (with ring)	Input	67.4~152 (4x)	85~152 (4x)	107~152 (4x)	127~152 (4x)	152 (4x)
	Output mm^2	203~253 (2x)	253 (2x)			
Cooling		Fan				
Cooling air flow rate	m^3/hr	771		1307		
Carrier frequency (ND/LD)	kHz	2~9				
EMC-Filter		No				
DC-Choke		Built-in				
DC-Bus connection		Yes				
Brake chopper		External option				
Recommended brake resistor ***	Ω/W	3.4/21000	3/24000	2/36000		1.7/42000
Minimum brake resistor value ***	Ω	3.4	3	2		1.7

* See dimensional drawing on Page 10~13.
*** With external brake unit.

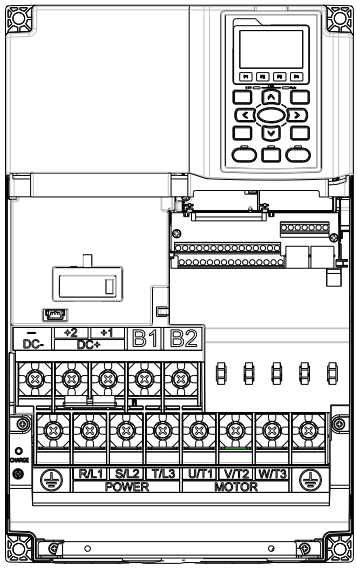
Main circuit wiring Frame A



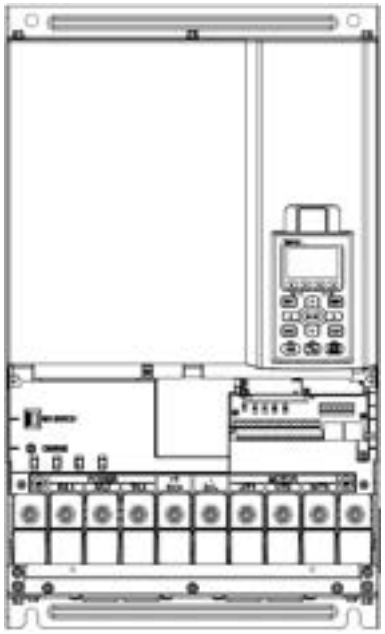
Main circuit wiring Frame B



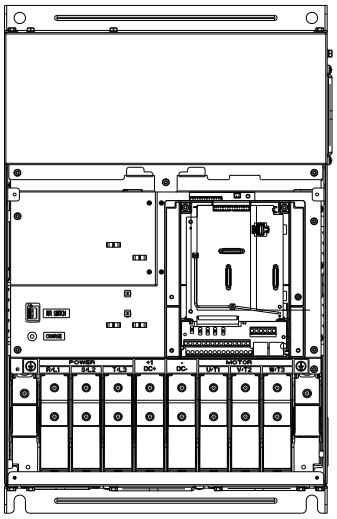
Main circuit wiring Frame C



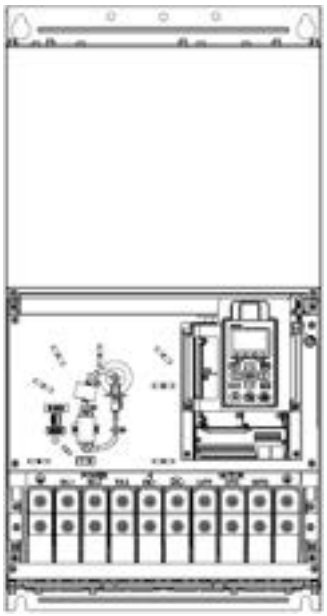
Main circuit wiring Frame D



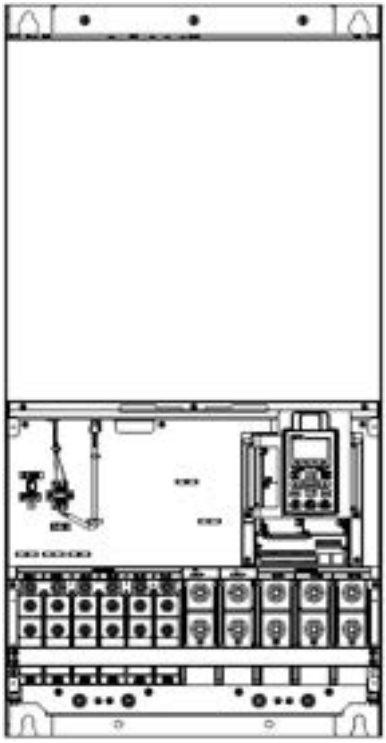
Main circuit wiring Frame E



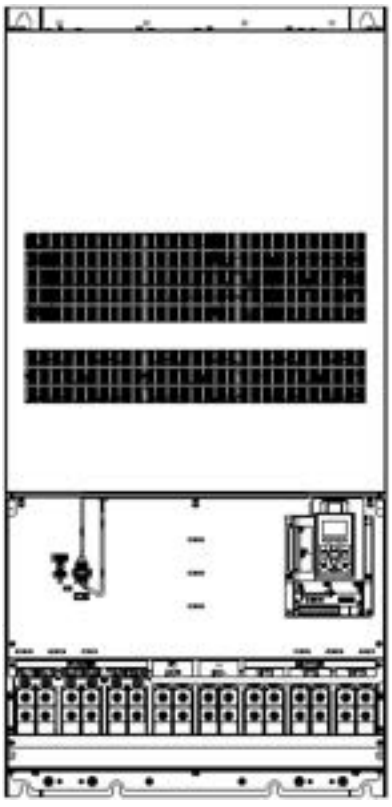
Main circuit wiring Frame F



Main circuit wiring Frame G

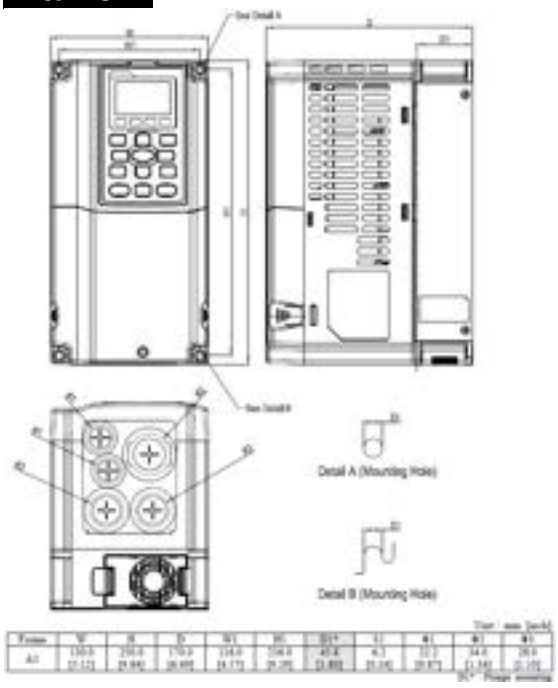


Main circuit wiring Frame H

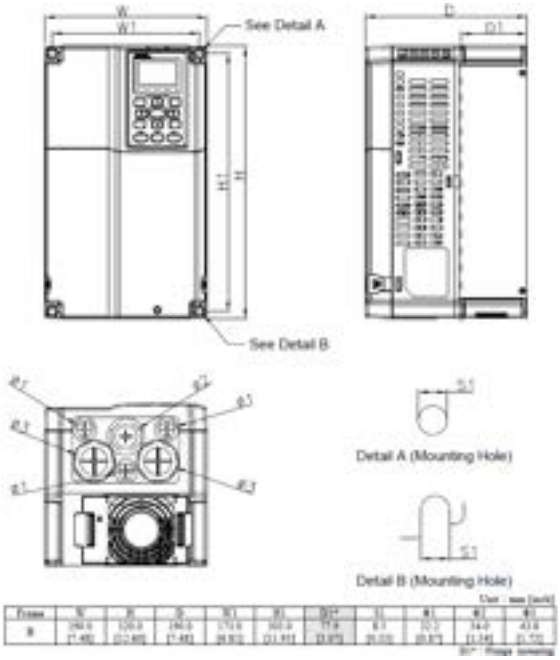


Frame sizes and dimensions in mm [inches]

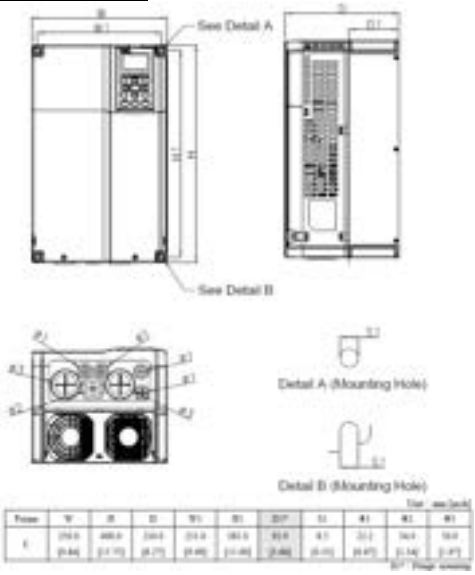
Frame A



Frame B

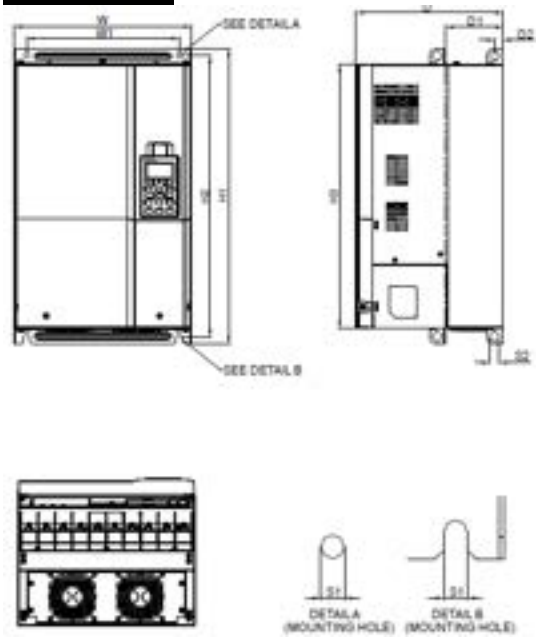


Frame C

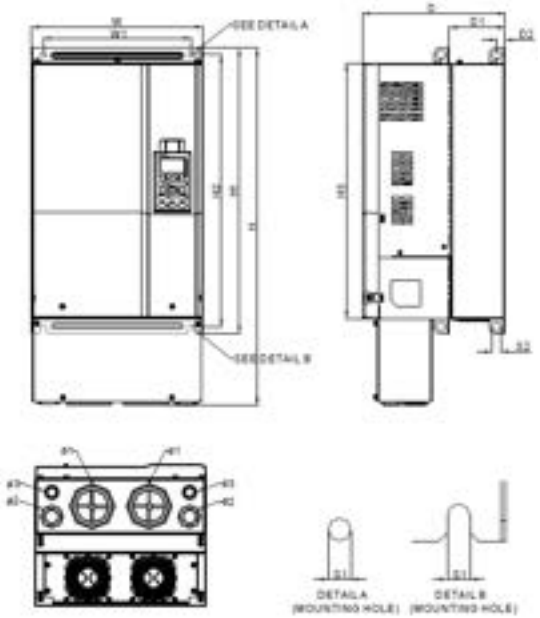


Frame sizes and dimensions in mm [inches] (cont'd)

Frame D1



Frame D2

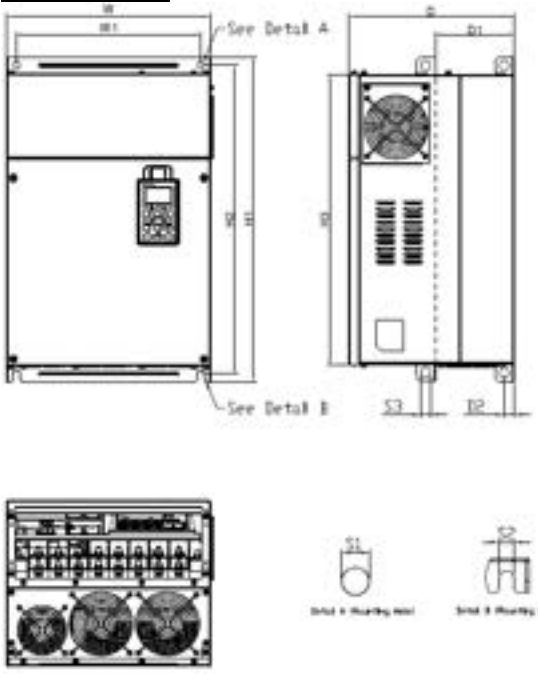


Unit : mm[inch]

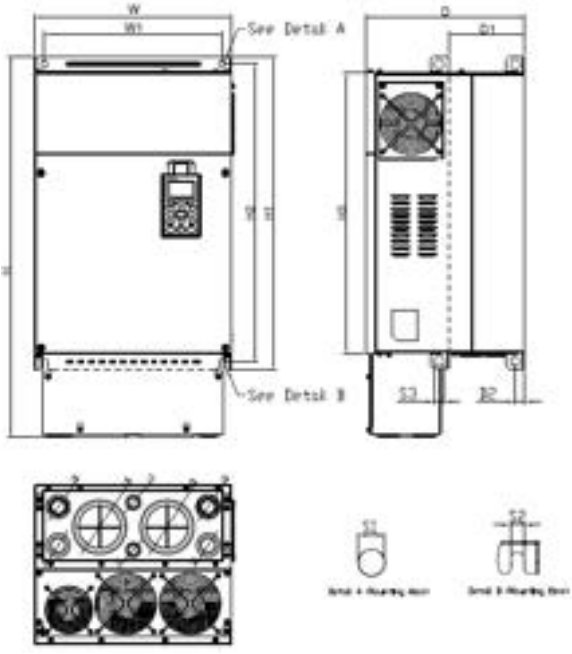
Frame	W	H	D	W1	H1	H2	H3	D1*	D2	S1	S2	Φ1	Φ2	Φ3
D1	330.0 [12.99]	-	275.0 [10.83]	285.0 [11.22]	550.0 [21.65]	525.0 [20.67]	492.0 [19.37]	107.2 [4.22]	16.0 [0.63]	11.0 [0.43]	18.0 [0.71]	-	-	-
D2	330.0 [12.99]	688.3 [27.10]	275.0 [10.83]	285.0 [11.22]	550.0 [21.65]	525.0 [20.67]	492.0 [19.37]	107.2 [4.22]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



Frame E2

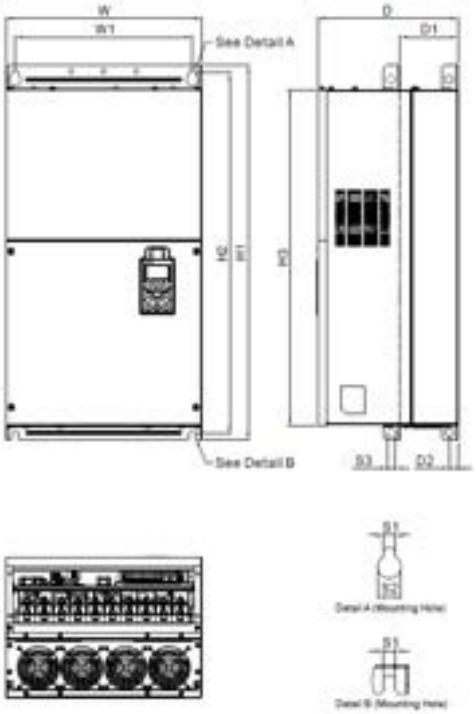


Unit : mm [inch]

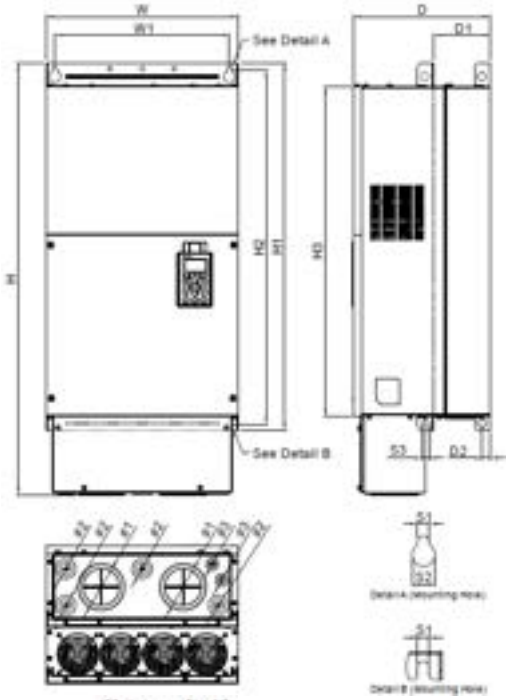
Frame	W	H	D	W1	H1	H2	H3	D1*	D2	S1, S2	S3	Φ1	Φ2	Φ3
E1	370.0 [14.57]	-	300.0 [11.81]	335.0 [13.19]	589 [23.19]	560.0 [22.05]	528.0 [20.80]	143.0 [5.63]	18.0 [0.71]	13.0 [0.51]	18.0 [0.71]	-	-	-
E2	370.0 [14.57]	715.8 [28.18]	300.0 [11.81]	335.0 [13.19]	589 [23.19]	560.0 [22.05]	528.0 [20.80]	143.0 [5.63]	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 F1



Frame F2

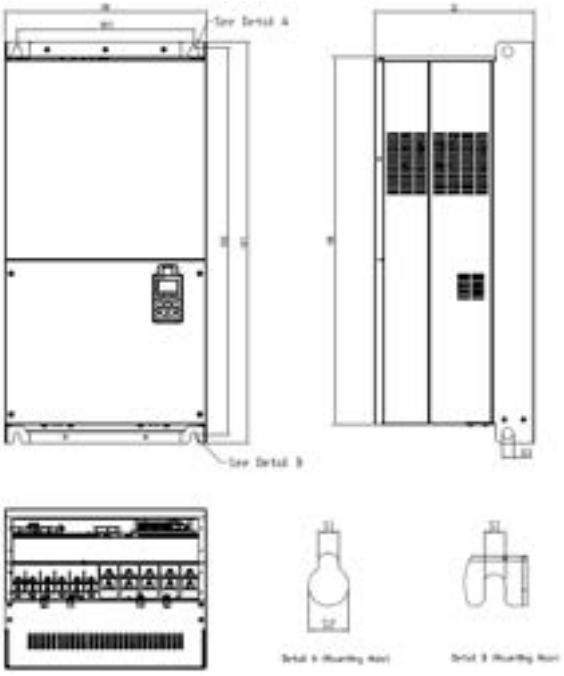


Unit : mm [inch]

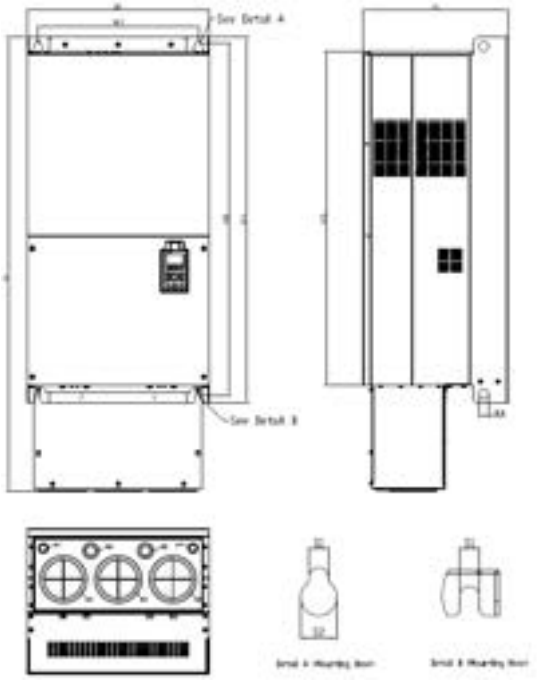
Frame	W	H	D	W1	H1	H2	H3	D1*	D2	S1	S2	S3
F1	420.0 [16.54]	-	300.0 [11.81]	380.0 [14.96]	800.0 [31.50]	770.0 [30.32]	717.0 [28.23]	124.0 [4.88]	18.0 [0.71]	13.0 [0.51]	25.0 [0.98]	18.0 [0.71]
F2	420.0 [16.54]	940.0 [37.00]	300.0 [11.81]	380.0 [14.96]	800.0 [31.50]	770.0 [30.32]	717.0 [28.23]	124.0 [4.88]	18.0 [0.71]	13.0 [0.51]	25.0 [0.98]	18.0 [0.71]

Frame	Φ1	Φ2	Φ3
F1	-	-	-
F2	92.0 [3.62]	35.0 [1.38]	22.0 [0.87]

Frame G1



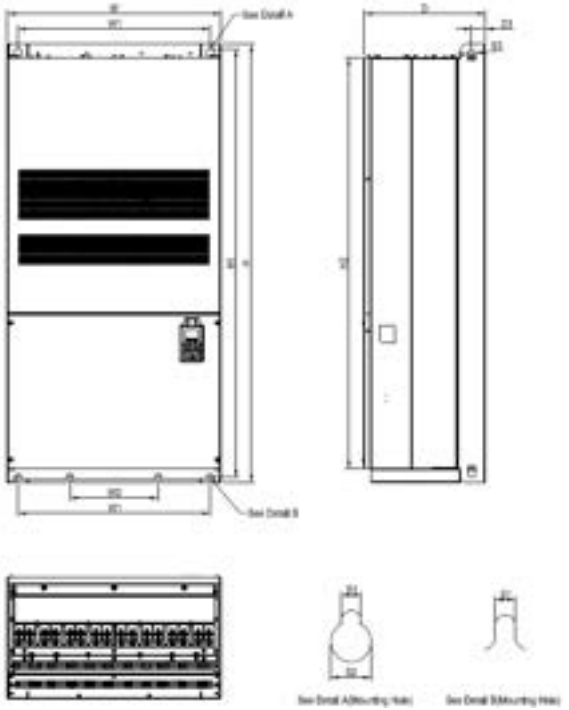
Frame G2



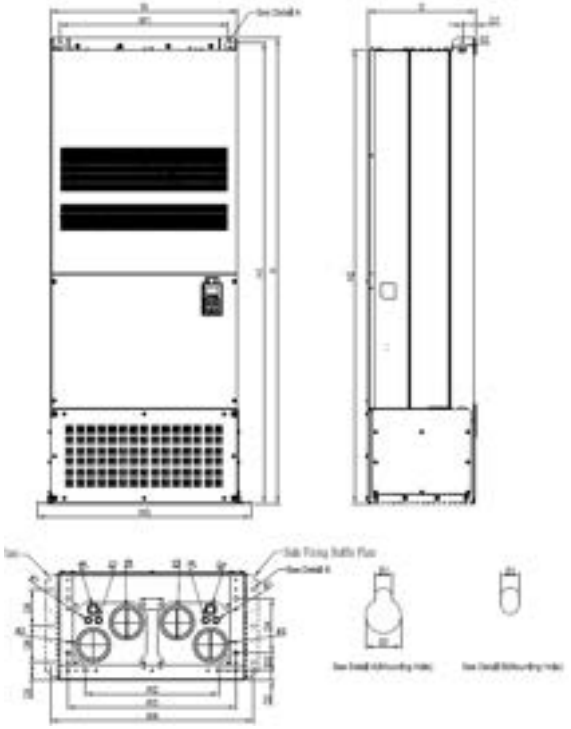
Unit : mm [inch]

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]	-	-	-
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



Frame H3



Unit : mm [inch]

Frame	W	H	D	W1	W2	W3	W4	W5	W6	H1	H2	H3	H4
H1	700.0 [27.56]	1435.0 [56.5]	398.0 [15.67]	630.0 [24.8]	290.0 [11.42]	-	-	-	-	1403.0 [55.24]	1346.6 [53.02]	-	-
H2	700.0 [27.56]	1745.0 [68.70]	404.0 [15.90]	630.0 [24.8]	500.0 [19.69]	630.0 [24.80]	760.0 [29.92]	800.0 [31.5]	-	1729.0 [68.07]	1701.6 [66.99]	-	-
H3	700.0 [27.56]	1745.0 [68.70]	404.0 [15.91]	630.0 [24.80]	500.0 [19.69]	630.0 [24.80]	760.0 [29.92]	800.0 [31.5]	-	1729.0 [68.07]	1701.6 [66.99]	-	-

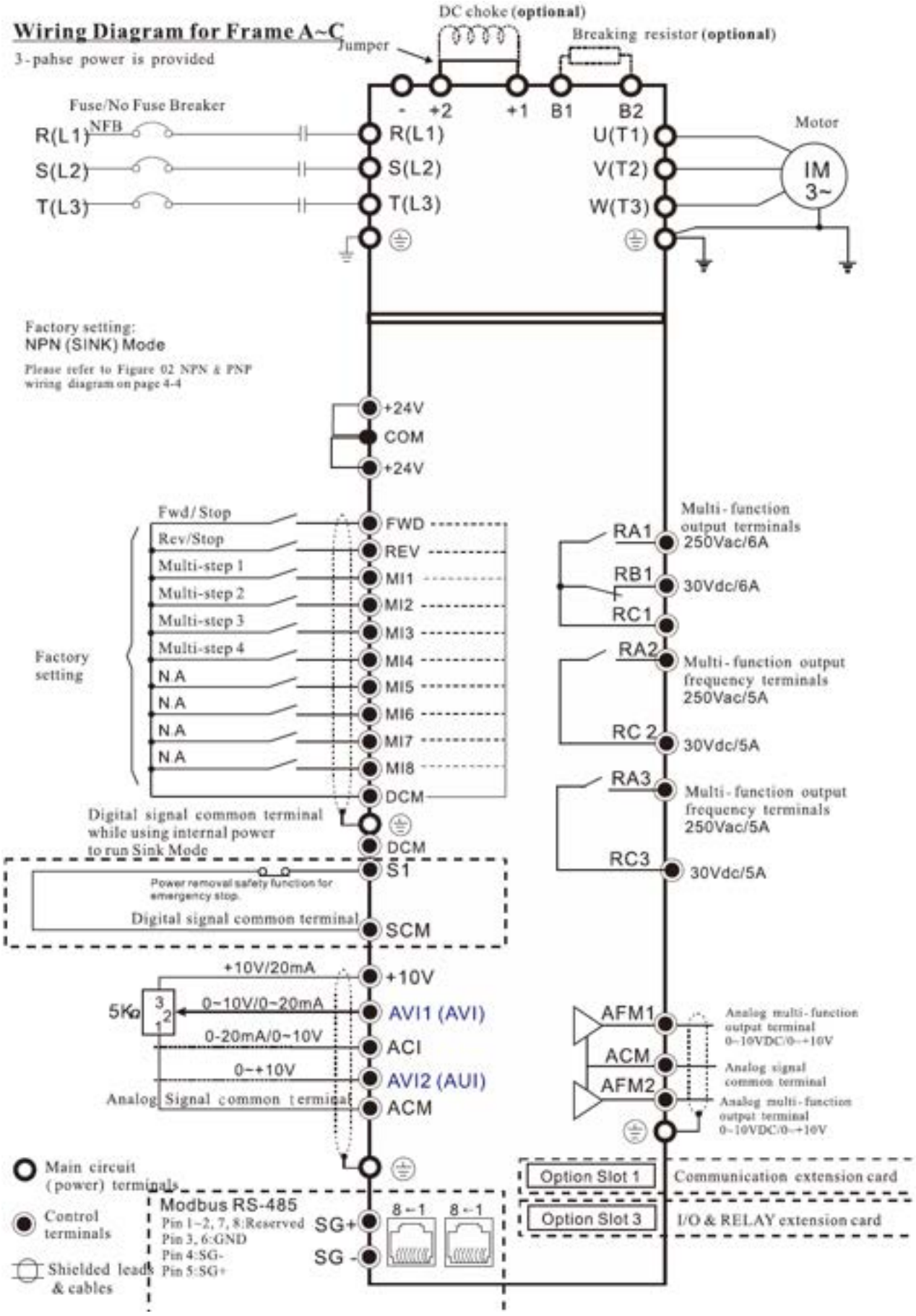
Frame	H5	D1	D2	D3	D4	D5	D6	S1	S2	S3	Φ1	Φ2	Φ3
H1		45.0 [1.77]	-	-	-	-	-	13.0 [0.51]	26.5 [1.04]	25.0 [0.98]	-	-	-
H2		51.0 [2.00]	38.0 [1.50]	65.0 [2.56]	204.0 [8.03]	68.0 [2.68]	137.0 [5.40]	13.0 [0.51]	26.5 [1.04]	25.0 [0.98]	-	-	-
H3		51.0 [2.00]	38.0 [1.50]	65.0 [2.56]	204.0 [8.03]	68.0 [2.68]	137.0 [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]

Common data VFD-CP

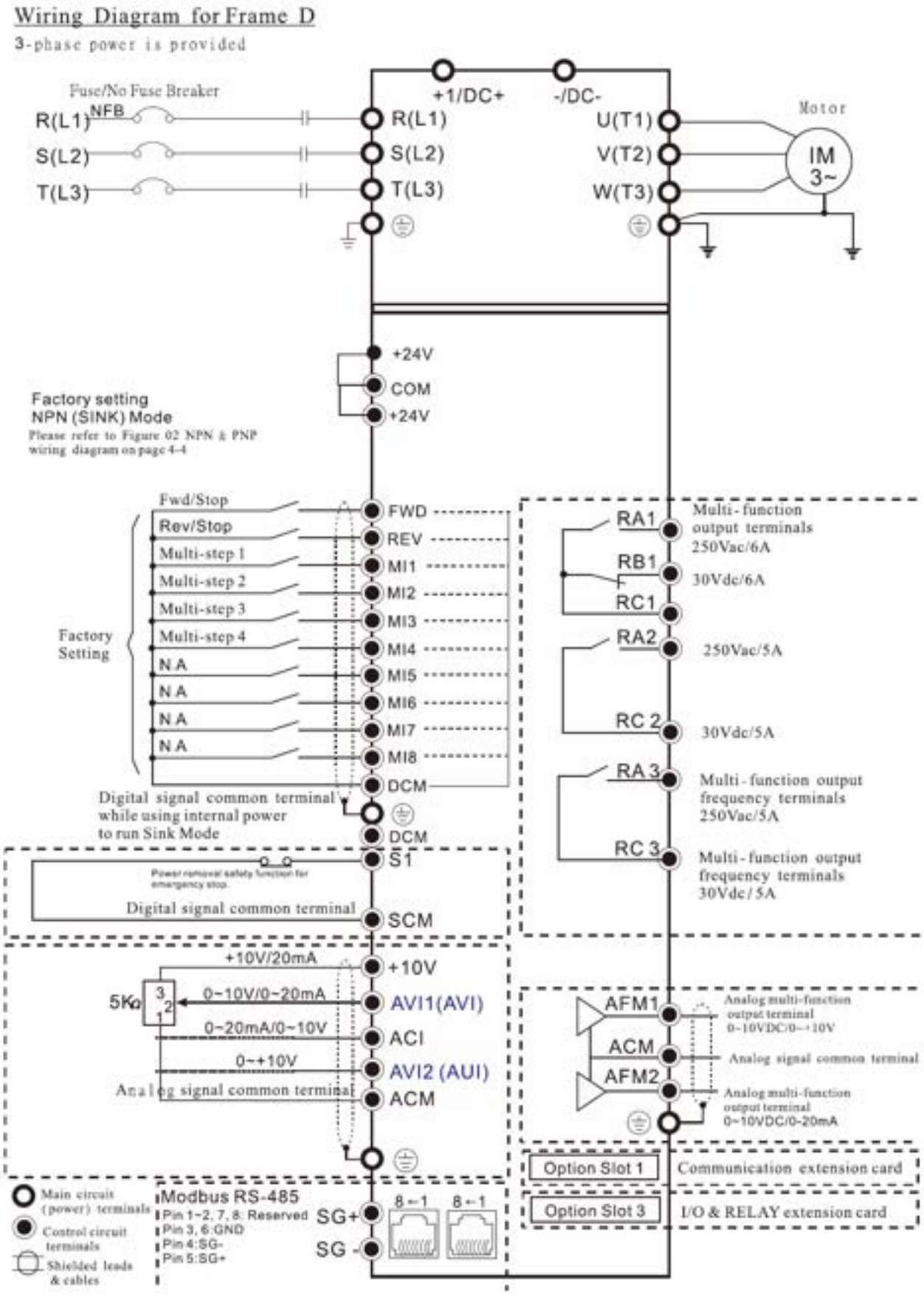
Mains voltage range		VAC	400VAC: 342 ~ 528
Mains frequency		Hz	47 ~ 63
Output frequency range		Hz	0 ~ 600 (≥90kW: 0 ~ 400
Output voltage range		V	0 ~ Mains
Operating	Temperature	°C	-10 ~ +40 Type -21 : (-10 ~ +50 for ≤37kW in ND without top cover)
	Atmospheric pressure	kPa	86 ~ 106
	Relative humidity	%	≤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: 2C2, 2S2
Transportation	Temperature	°C	-25 ~ +70
	Atmospheric pressure	kPa	70 ~ 106
	Relative humidity	%	≤95 (non condensing, non frozen)
	Pollution level		IEC721-3-3: 1C2, 1S2
Vibration			IEC680068-2-6: 2~13.2Hz 1mm 13.2~55Hz 0.7~1.0G 55-512Hz 1G
Shock			IEC680068-2-27: ≤100kg: 15G 11ms >100kg: 10G 11ms
Package drop			IEC680068-2-31 ISTA 1A (acc. to weight)
Degree of protection			IP20 (Type -00 >37kW IP00 at power entry w/o conduit box)
Altitude		m	≤1000 derate 2% rated current or 0.5°C per 100m up to 3000m
Keypad			Detachable
Signal cable section		mm^2	0.13~1.3
Digital inputs		8x MIx	SINK or SOURCE: Via jumper Range: 24VDC Scan time: 0~30s Pull-up (internal): ca. 3kΩ Current (ON): 6.5mA (11VDC switching)
Analogue inputs			Accuracy: 12 bits Delay: 0~20s
	AVI1 AVI2		Range: 0~10VDC / 0/4~20mA Impedance: 20kΩ / 250Ω
	1x ACI		Range: 0/4~20mA / 0~10VDC Impedance: 250Ω / 20kΩ
Analogue outputs	AFM1		Accuracy: 10 bits Range: 0~10VDC / 0/4~20mA (switch) Impedance: 100Ω/100kΩ
	AFM2		Accuracy: 10 bits Range: 0~10VDC / 0/4~20mA (switch) Impedance: 100Ω/100kΩ

Relays	3x	1x Change-over		
			NO: R_A~R_C	Resistive 5A/250VAC-30VDC Inductive 2A/250VAC-30VDC
			NC: R_B~R_C	Resistive 3A/250VAC-30VDC Inductive 1.2A/250VAC-30VDC
		2x Make		
			NO: RA~RC	Resistive 5A/250VAC-30VDC Inductive 2A/250VAC-30VDC
Safe stop	S1	EN61800-5-2 STO/SS1		
Signal supply	1x	+24VDC/200mA		
Potentiometer supply	2x	+10VDC/20mA		
Trip memory		Last 6 errors		
Acc/Dec Times	s	0.0 ~ 6000		
Serial communication	1x RJ45 SG+/SG-	Modbus RS485 COM1		
		Baudrate		4800 ~ 115200
		Address		1 ~ 254
		Mode	ASCII	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
			Modbus RTU	8,N,1 / 8,N,2 / 8,E,1 / 8,O,1 / 8,E,2 / 8,O,2
		BACnet COM1		
		Baudrate		9600 ~ 38400
		Address		1 ~ 127

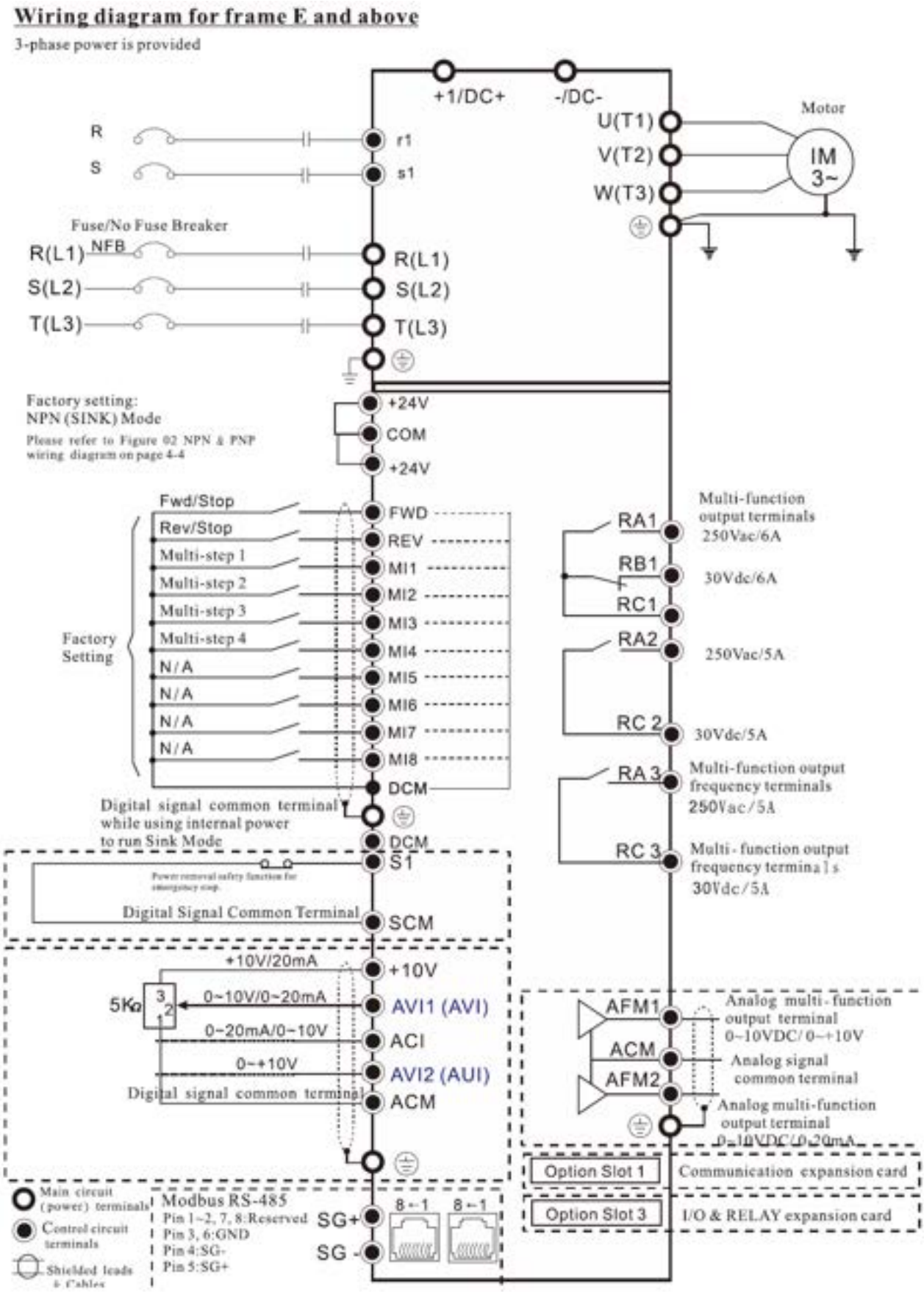
Basic wiring diagram Frame A, B, C



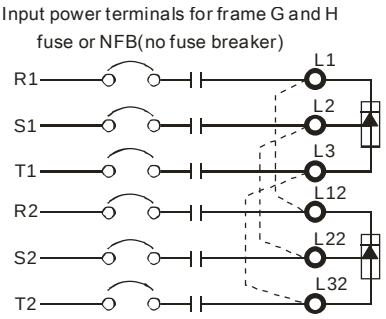
Basic wiring diagram Frame D



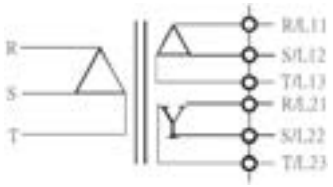
Basic wiring diagram Frame D, E, F, G, H



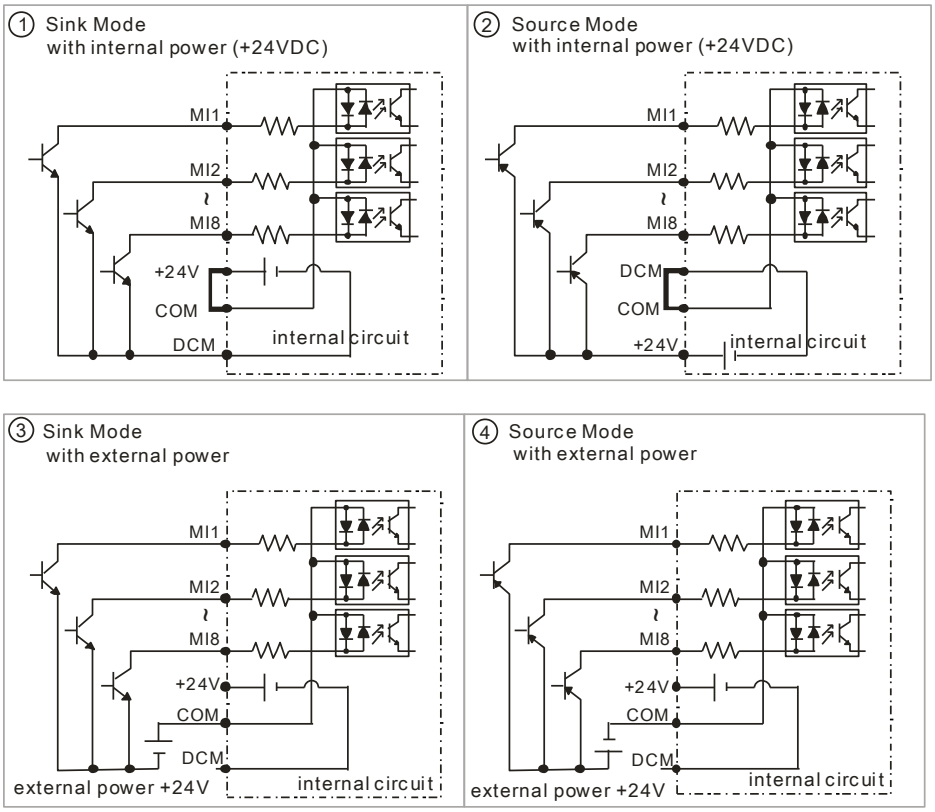
Mains input wiring for Frame G, H



By supplying L1,L2,L3 and L11,L12,L13 from transformer windings that have a 30° phase angle difference, it is possible to reduce the 5th and 7th harmonics.



NPN/PNP wiring for MIx



Power terminals (general)

Terminal symbol	Terminal function
R/L1, S/L2, T/L3 L1,L2,L3/L11,L12,L13	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

Options

EMC Filters

Acc. to EN61800-3 (2004)

Built-in (version 4E only up to 37kW):

400V	0.75~37kW	≤8kHz C3 50m

External option filter (see manual):

400V	1~15kHz C2 50m

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
CMC-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.

Software

To read, save, copy, change parameters. Download VFDSoft 1.46 or higher from www.delta.com.tw [Products] [Industrial Automation] [AC Motor Drive] [Download] [Software].

Programming

Group 00-xx **Drive Parameters**
Drive ID, Software version, Password, Parameter reset, Control Mode, Duty selection, User-defined display, Carrier frequency, Source of frequency/operation, Stop method, Motor direction inhibit, ND/LD selection, 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, Fire mode, 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**
Modbus Protocol&Address, BACnet station, Transmission speed, Block Transfer, CANopen, Fieldbus settings, etc.

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

www.delta.com.tw