Type number key

VFD	4A8	ME	43	A	N	N	A	A		
									Version	Version letter
									Installation type	A=Standard
									STO	N=No S=Built-in
									EMC	F=Built-in filter N=No filter
									Protection	A=IP20
									Mains input voltage	11=110V 1-phase 21=230V 1-phase 23=230V 3-phase 43=460V 3-phase
									Series	ME300
									Rated current	1A6=1.6Amp 4A2=4.2Amp 11A=11Amp
									VFD	**V**ariable **F**requency **D**rive



230V 1phase 0.2 ~ 2.2kW with built-in filter

Type number VFD□□□MS21AFNAA VFD□□□MS21AFSAA		0A8	1A6	2A8	4A8	7A5	11A
Rated power	kW	0.1	0.2	0.4	0.75	1.5	2.2
Rated output current (HD/ND)	A RMS	0.8/1	1.6/1.8	2.8/3.2	4.8/5	7.5/8.5	11/12.5
Overload (HD/ND)	%	150% 60s 200% 3s / 120% 60s 150% 3s					
Rated output capacity (HD/ND)	kVA	0.3/0.4	0.6/0.7	1.1/1.2	1.8/1.9	2.9/3.2	4.2/4.8
Rated input current (HD/ND)	A RMS	2.2/2.8	3.4/3.8	5.9/6.7	10.1/10.5	15.8/17.9	23.1/26.3
Mains fuse (for UL: Bussmann)		JJS-10		JJS-15	JJS20	JJS-35	JJS-50
Non-fuse current breaker	A	15		20	30	45	70
Dimensions HxWxD	mm	142x72x143				157x87x163	
Frame *		B3				C2	
Weight	kg	0.9				1.5	
Protection **		IP20					
Power cable entry (with option conduit box)	∅mm	2x 22.5				2x 27.8	
Signal cable entry (with option conduit box)	∅mm	2x 22.5					
Section of power cables, stranded (with ring)	mm^2	0.75~2.5	1.5~2.5	2.5	4	10	
Cooling		Convection		Fan			
Cooling air flow rate	m^3/hr	n.a.		16.99		27.2	
Carrier frequency (HD/ND)	kHz	2~15					
EMC-Filter		Built-in: C2 20m					
DC-Choke		Connection for option					
DC-Bus connection		Yes					
Brake chopper		Built-in					
Recommended brake resistor	Ω/W	750/80		200/80		91/200	70/300
Minimum brake resistor value	Ω	380	190	95	63.3	47.5	38

230V 1phase 0.2 ~ 2.2kW no filter

Type number VFD□□□MS21ANNAA VFD□□□MS21ANSAA		0A8	1A6	2A8	4A8	7A5	11A
Rated power	kW	0.1	0.2	0.4	0.75	1.5	2.2
Rated output current (HD/ND)	A RMS	0.8/1	1.6/1.8	2.8/3.2	4.8/5	7.5/8.5	11/12.5
Overload (HD/ND)	%	150% 60s 200% 3s / 120% 60s 150% 3s					
Rated output capacity (HD/ND)	kVA	0.3/0.4	0.6/0.7	1.1/1.2	1.8/1.9	2.9/3.2	4.2/4.8
Rated input current (HD/ND)	A RMS	2.2/2.8	3.4/3.8	5.9/6.7	10.1/10.5	15.8/17.9	23.1/26.3
Mains fuse (for UL: Bussmann)		JJS-10		JJS-15	JJS20	JJS-35	JJS-50
Non-fuse current breaker	A	15		20	30	45	70
Dimensions HxWxD	mm	128x68x78		128x68x107	142x72x127	157x87x136	
Frame *		A1		A3	B2	C1	
Weight	kg	0.4		0.5	0.8	1	
Protection **		IP20					
Power cable entry (with option conduit box)	∅mm	2x 22.5				2x 27.8	
Signal cable entry (with option conduit box)	∅mm	2x 22.5					
Section of power cables, stranded (with ring)	mm^2	0.75~2.5	1.5~2.5	2.5	4	10	
Cooling		Convection		Fan			
Cooling air flow rate	m^3/hr	n.a.		16.99		27.2	
Carrier frequency (HD/ND)	kHz	2~15					
EMC-Filter		External option					
DC-Choke		Connection for option					
DC-Bus connection		Yes					
Brake chopper		Built-in					
Recommended brake resistor	Ω/W	750/80		200/80		91/200	70/300
Minimum brake resistor value	Ω	380	190	95	63.3	47.5	38

* See dimensional drawing on Page 5.
** See User Manual

400V 0.4 ~ 1.5kW with built-in filter

Type number VFD□□□ME43AFNAA VFD□□□ME43AFSAA		1A5	2A7	4A2
Rated power	kW	0.4	0.75	1.5
Rated output current (HD/ND)	A RMS	1.5/1.8	2.7/3	4.2/4.6
Overload (HD/ND)	%	150% 60s 200% 3s / 120% 60s 150% 3s		
Rated output capacity (HD/ND)	kVA	1.1/1.4	2.1/2.3	3.2/3.5
Rated input current (HD/ND)	A RMS	1.7/2	3/3.3	4.6/5.1
Mains fuse (for UL: Bussmann)		JJS-10	JJS-15	JJS20
Non-fuse current breaker	A	15		
Dimensions HxWxD	mm	142x72x143		
Frame *		B3		
Weight	kg	0.9		
Protection **		IP20		
Power cable entry (with option conduit box)	∅mm	2x 22.5		
Signal cable entry (with option conduit box)	∅mm	2x 22.5		
Section of power cables, stranded (with ring)	mm^2	0.75~4		2.5~4
Cooling		Fan		
Cooling air flow rate	m^3/hr	16.99		
Carrier frequency (HD/ND)	kHz	2~15		
EMC-Filter		Built-in: C3 30m		
DC-Choke		Connection for option		
DC-Bus connection		Yes		
Brake chopper		Built-in		
Recommended brake resistor	Ω/W	750/80		360/200
Minimum brake resistor value	Ω	380	190	95

400V 0.4 ~ 1.5kW no filter

Type number VFD□□□ME43ANNAA VFD□□□ME43ANSAA		1A5	2A7	4A2
Rated power	kW	0.4	0.75	1.5
Rated output current (HD/ND)	A RMS	1.5/1.8	2.7/3	4.2/4.6
Overload (HD/ND)	%	150% 60s 200% 3s / 120% 60s 150% 3s		
Rated output capacity (HD/ND)	kVA	1.1/1.4	2.1/2.3	3.2/3.5
Rated input current (HD/ND)	A RMS	1.7/2	3/3.3	4.6/5.1
Mains fuse (for UL: Bussmann)		JJS-10	JJS-15	JJS20
Non-fuse current breaker	A	15		
Dimensions HxWxD	mm	128x68x113	128x68x127	142x72x127
Frame *		A4	A6	B1
Weight	kg	0.55	0.7	0.8
Protection **		IP20		
Power cable entry (with option conduit box)	∅mm	2x 22.5		
Signal cable entry (with option conduit box)	∅mm	2x 22.5		
Section of power cables, stranded (with ring)	mm^2	0.75~4		2.5~4
Cooling		Fan		
Cooling air flow rate	m^3/hr	16.99		
Carrier frequency (HD/ND)	kHz	2~15		
EMC-Filter		External option		
DC-Choke		Connection for option		
DC-Bus connection		Yes		
Brake chopper		Built-in		
Recommended brake resistor	Ω/W	750/80		360/200
Minimum brake resistor value	Ω	380	190	95

* See dimensional drawing on Page 5.
** See User Manual

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400V 2.2 ~ 7.5kW with built-in filter

Type number VFD□□□MS43AFNAA VFD□□□MS43AFSAA		5A5	9A0	13A	17A
Rated power	kW	2.2	3.7/4	5.5	7.5
Rated output current (HD/ND)	A RMS	5.5/6.5	9/10.5	13/15.7	17/20.5
Overload (HD/ND)	%	150% 60s 200% 3s / 120% 60s 150% 3s			
Rated output capacity (HD/ND)	kVA	4.2/5	6.9/8	12/14.3	15.6/18.7
Rated input current (HD/ND)	A RMS	601/7.2	9.9/11.6	14.3/17.3	18.7/22.6
Mains fuse (for UL: Bussmann)		JJS-25	JJS-45	JJS-35	JJS-45
Non-fuse current breaker	A	20	30	32	45
Dimensions HxWxD	mm	157x87x163		207x109x171	
Frame *		C2		D2	
Weight	kg	1.5		2.7	
Protection **		IP20			
Power cable entry (with option conduit box)	∅mm	2x 27.8			
Signal cable entry (with option conduit box)	∅mm	2x 22.5			
Section of power cables (stranded)	mm^2	2.5~10	4~10	6~10	10
Cooling		Fan			
Cooling air flow rate	m^3/hr	27.2		39.7	
Carrier frequency (HD/ND)	kHz	2~15			
EMC-Filter		Built-in: C3 30m			
DC-Choke		Connection for option			
DC-Bus connection		Yes			
Brake chopper		Built-in			
Recommended brake resistor	Ω/W	250/300	150/400	75/1000	
Minimum brake resistor value	Ω	108.6	84.4	50.7	40

400V 5.5 ~ 22kW no filter

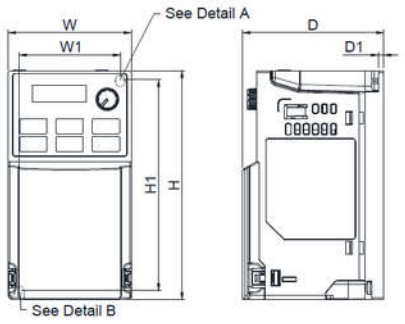
Type number VFD□□□MS43ANNAA VFD□□□MS43ANSAA		5A5	9A0	13A	17A
Rated power	kW	2.2	3.7/4	5.5	7.5
Rated output current (HD/ND)	A RMS	5.5/6.5	9/10.5	13/15.7	17/20.5
Overload (HD/ND)	%	150% 60s 200% 3s / 120% 60s 150% 3s			
Rated output capacity (HD/ND)	kVA	4.2/5	6.9/8	12/14.3	15.6/18.7
Rated input current (HD/ND)	A RMS	601/7.2	9.9/11.6	14.3/17.3	18.7/22.6
Mains fuse (for UL: Bussmann)		JJS-25	JJS-45	JJS-35	JJS-45
Non-fuse current breaker	A	20	30	32	45
Dimensions HxWxD	mm	157x87x136		207x109x138	
Frame *		C1		D1	
Weight	kg	1		2	
Protection **		IP20			
Power cable entry (with option conduit box)	∅mm	2x 27.8			
Signal cable entry (with option conduit box)	∅mm	2x 22.5			
Section of power cables (stranded)	mm^2	2.5~10	4~10	6~10	10
Cooling		Fan			
Cooling air flow rate	m^3/hr	27.2		39.7	
Carrier frequency (HD/ND)	kHz	2~15			
EMC-Filter		External option			
DC-Choke		Connection for option			
DC-Bus connection		Yes			
Brake chopper		Built-in			
Recommended brake resistor	Ω/W	250/300	150/400	75/1000	
Minimum brake resistor value	Ω	108.6	84.4	50.7	40

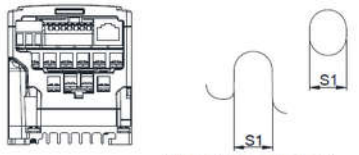
* See dimensional drawing on Page 5.
** See User Manual

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Frame sizes and dimensions in mm [inches]

Frame A





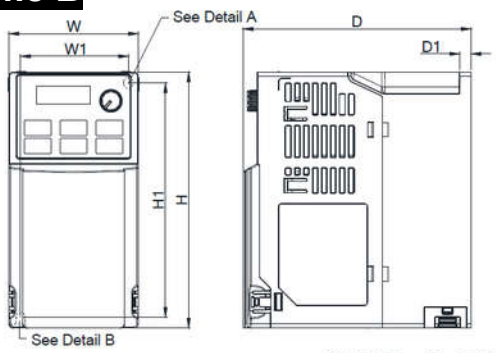
Detail A (Mounting Hole)

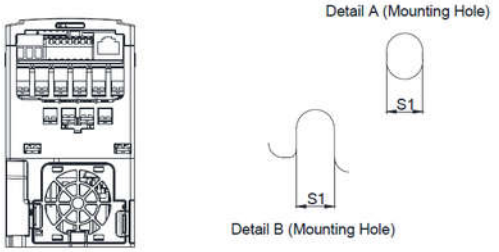
Detail B (Mounting Hole)

Unit: mm [inch]

Frame	W	H	D	W1	H1	D1	S1
A1	68.0 [2.68]	128.0 [5.04]	78.0 [3.07]	56.0 [2.20]	118.0 [4.65]	3.0 [0.12]	5.2 [0.20]
A2	68.0 [2.68]	128.0 [5.04]	92.0 [3.62]	56.0 [2.20]	118.0 [4.65]	3.0 [0.12]	5.2 [0.20]
A3	68.0 [2.68]	128.0 [5.04]	107.0 [4.21]	56.0 [2.20]	118.0 [4.65]	3.0 [0.12]	5.2 [0.20]
A4	68.0 [2.68]	128.0 [5.04]	113.0 [4.45]	56.0 [2.20]	118.0 [4.65]	3.0 [0.12]	5.2 [0.20]
A5	68.0 [2.68]	128.0 [5.04]	125.0 [4.92]	56.0 [2.20]	118.0 [4.65]	3.0 [0.12]	5.2 [0.20]
A6	68.0 [2.68]	128.0 [5.04]	127.0 [5.00]	56.0 [2.20]	118.0 [4.65]	3.0 [0.12]	5.2 [0.20]

Frame B





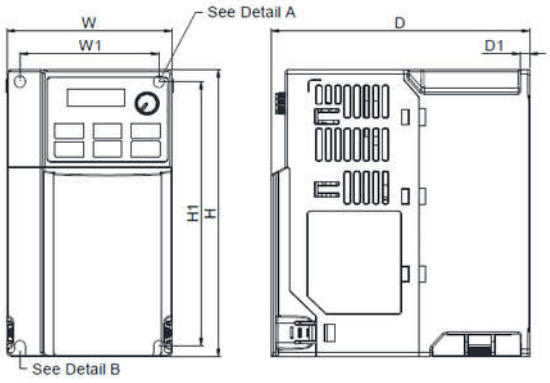
Detail A (Mounting Hole)

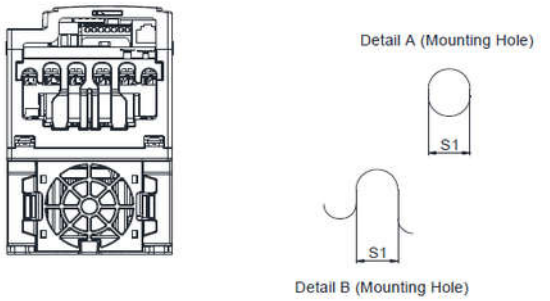
Detail B (Mounting Hole)

Unit: mm [inch]

Frame	W	H	D	W1	H1	D1	S1
B1	72.0 [2.83]	142.0 [5.59]	127.0 [5.00]	60.0 [2.36]	130.0 [5.12]	6.4 [0.25]	5.2 [0.20]
B2	72.0 [2.83]	142.0 [5.59]	127.0 [5.00]	60.0 [2.36]	130.0 [5.12]	3.0 [0.12]	5.2 [0.20]
B3	72.0 [2.83]	142.0 [5.59]	143.0 [5.63]	60.0 [2.36]	130.0 [5.12]	4.3 [0.17]	5.2 [0.20]

Frame C





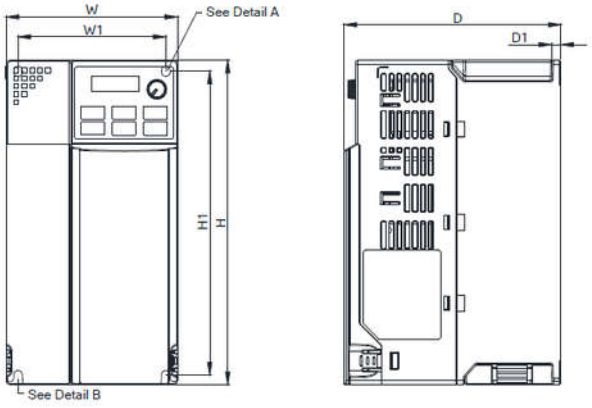
Detail A (Mounting Hole)

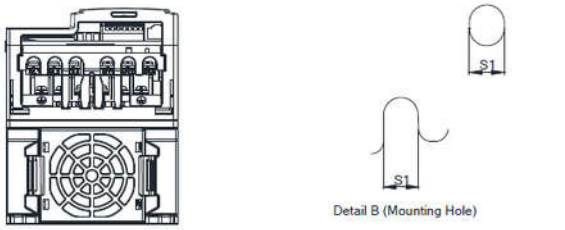
Detail B (Mounting Hole)

Unit: mm [inch]

Frame	W	H	D	W1	H1	D1	S1
C1	87.0 [3.43]	157.0 [6.18]	136.0 [5.35]	73.0 [2.87]	144.5 [5.69]	5.0 [0.20]	5.5 [0.22]
C2	87.0 [3.43]	157.0 [6.18]	163.0 [6.42]	73.0 [2.87]	144.5 [5.69]	5.0 [0.20]	5.5 [0.22]

Frame D





Detail A (Mounting Hole)

Detail B (Mounting Hole)

Unit: mm [inch]

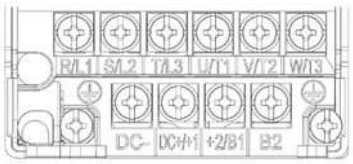
Frame	W	H	D	W1	H1	D1	S1
D1	109.0 [4.29]	207.0 [8.15]	138.0 [5.43]	94.0 [3.70]	193.8 [7.63]	6.0 [0.24]	5.5 [0.22]
D2	109.0 [4.29]	207.0 [8.15]	171.0 [6.73]	94.0 [3.70]	193.8 [7.63]	6.0 [0.24]	5.5 [0.22]

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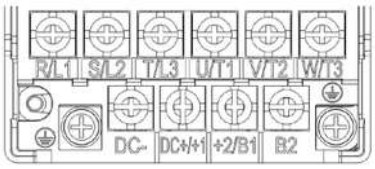
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Main circuit wiring

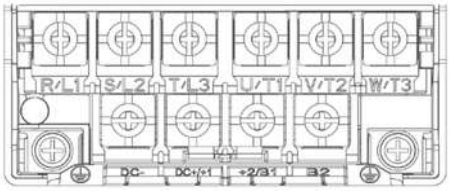
Main circuit wiring Frame A



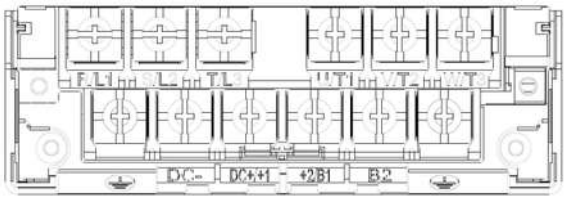
Main circuit wiring Frame B



Main circuit wiring Frame C



Main circuit wiring Frame D



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Common data MS300

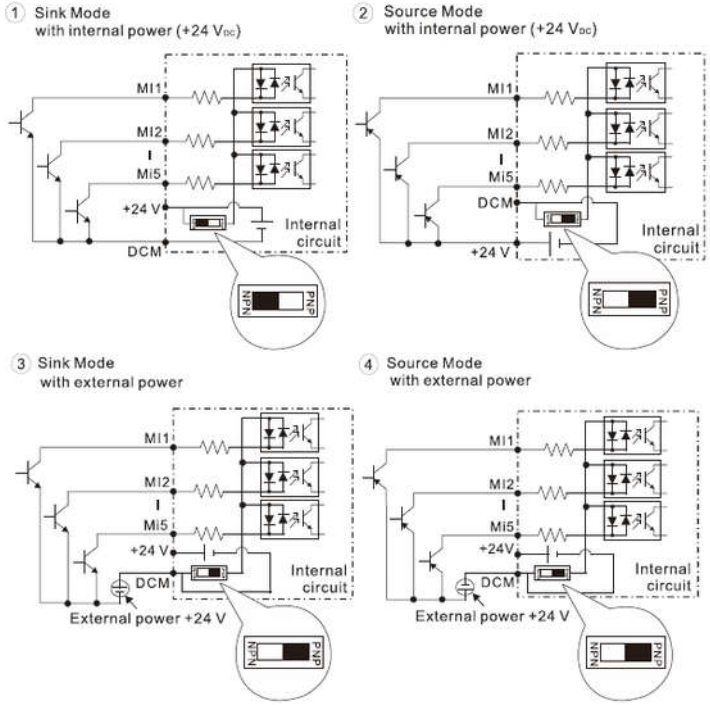
Mains voltage range		VAC	230VAC: 170 ~ 265 400VAC: 323 ~ 528
Mains frequency		Hz	47 ~ 63
Output frequency range		Hz	0 ~ 599
Output voltage range		V	0 ~ Mains
Operating			
	Temperature	°C	IP20: -20 ~ +50 (+60 with derating) Side-by-side: -20 ~ +40 (+55 with derating)
	Atmospheric pressure	kPa	86 ~ 106
	Relative humidity	%	≤90 (non condensing, non frozen)
	Installation location		IEC60364-1/60664-1: Pollution degree 2, Indoor use only
	PCB conformal coating & Pollution level		IEC721-3-3: 3C2, 3S2
Storage			
	Temperature	°C	-40 ~ +85
	Atmospheric pressure	kPa	70 ~ 106
	Relative humidity	%	≤95 (non condensing, non frozen)
	Pollution level		IEC721-3-3: 2C2, 2S2
Transportation			
	Temperature	°C	-20 ~ +70
	Atmospheric pressure	kPa	70 ~ 106
	Relative humidity	%	≤95 (non condensing, non frozen)
	Pollution level		IEC721-3-3: 1C2, 1S2
Vibration	Operating		IEC60068-2-6: 2~13.2Hz 1mm 13.2~55Hz 0.7~1.0G 55-512Hz 1G
	Non operating		IEC60068-2-6: 5~2000Hz 0.381mm max 2.5G peak
Shock			IEC60068-2-27: 15G 11ms operating 30G 11ms non-operating
Package drop			IEC60068-2-31 ISTA 1A (acc. to weight)
Degree of protection			IP20
Altitude		m	≤1000 derate 1% rated current or 0.5°C per 100m up to 2000m
Keypad			Integrated
Signal cable section		mm^2	0.25~0.5 (Relay 0.2~1.5)
Digital inputs (programmable)		5x MIx	SINK or SOURCE: Via switch Range: 24VDC Scan time: 0~30s Pull-up (internal): ca. 4kΩ Current (ON): 3.3mA MI5: 10kHz max. pulse input 1kHz max. PWM
STO inputs (option)		S1-DCM S2-DCM	Range: 24VDC (30VDCmax) Current (ON): 6.67mA (11VDC switching)
Analogue inputs (programmable)			Resolution: 9 bits Delay: 0~20s
		1x AVI/ACI by switch	Range: 0~10VDC / 0/4~20mA Impedance: 20kΩ
Digital outputs		1x MOx	Optocoupler OC (common + or -) 48VDC/50mA
Analogue output		AFM	Resolution: 9 bits Range: 0~10VDC) Max load: 2mAΩ
Relays		1x	Change-over NO: R_A~R_C: Resistive 3A/250VAC - 5A/30VDC Inductive 1.2A/250VAC - 2A/30VDC NC: R_B~R_C: Resistive 3A/250VAC - 3A/30VDC Inductive 1.2A/250VAC - 1.2A/30VDC
Signal supply		2x	+24VDC±10%/100mA (both together)

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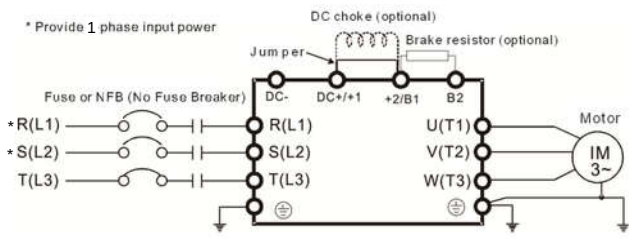
Potentiometer supply	1x	+10.5±0.5VDC/20mA	
Trip memory		Last 6 errors	
Acc/Dec Times	s	0.0 ~ 6000	
Serial communication	RJ45	Modbus RS485 COM1	
		Baudrate	4800 ~ 38400bps
		Address	1 ~ 254
		Mode ASCII	7,N,2 / 7,E,1 / 7,O,1 / 7,E,2 / 7,O,2 / 8,N,1 / 8,N,2 / 8,E,1 / 8,O,1 / 8,E,2 / 8,O,2
		Modbus RTU	8,N,1 / 8,N,2 / 8,E,1 / 8,O,1 / 8,E,2 / 8,O,2

NPN/PNP wiring for MIx



Power terminals (general)

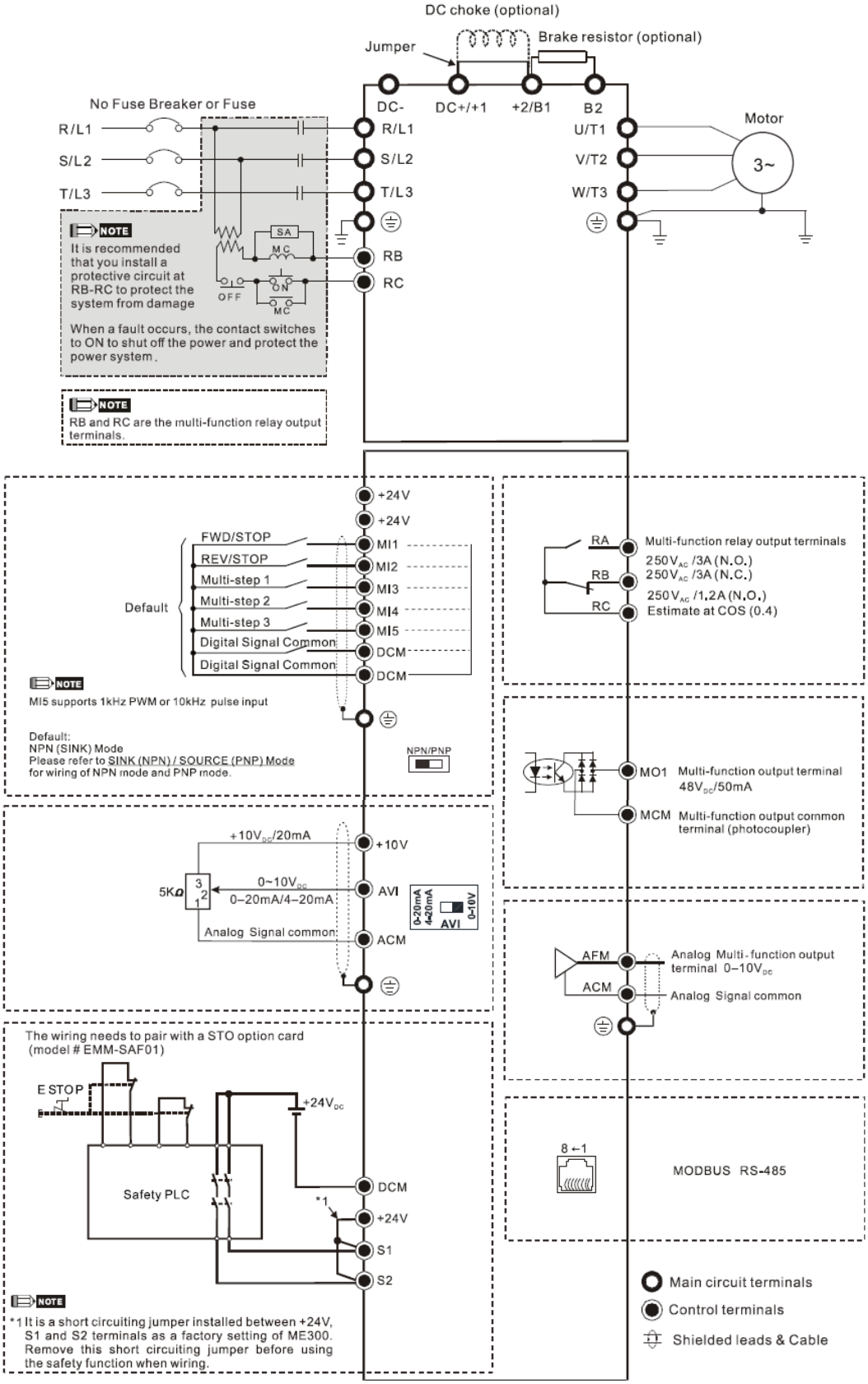
Terminal symbol	Terminal function
R/L1, S/L2, T/L3	Mains input
U/T1, V/T2, W/T3	Motor output
+1/DC+ ~ +2/B1	Connection DC-choke (external option)
+2/B1 ~ B2	Brake resistor (external option)
DC+/+1 ~ DC-	DC-bus connection
⏚	Ground



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Basic wiring diagram



Options

Filters	Built-in filter: 400V: C3, motor cable ≤30m, carrier frequency 2~15kHz 230V1-phase: C3, motor cable ≤30m, carrier frequency 2~15kHz C2, motor cable ≤20m, carrier frequency 2~15kHz Option EMC filters Capacitive filter
Braking	Brake resistors.
Keypad&Cables	The option keypad KPC-CC01 or KPC-CE01 can be connected to the RS485 port.
Reactors	AC input reactors AC output reactors DC-chokes Zero-phase reactors
Mechanical options	Earth plates (EMC shield plate) Conduit boxes (NEMA 1 / UL Type 1) Fan kits DIN-rail adapters (up to Frame C) Mounting adapters (feed-through installation up to Frame C)
Communication	IFD6500/IFD6530 USB-RS485 converter, Splitters, Cables.
Software	To read, save, copy, change parameters. Download VFDSoft 1.58 or higher from www.delta-emea.com.

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Programming

Group 00-xx **Drive Parameters**
Drive ID, Software version, Password, Parameter reset, Control Mode, Duty HD/ND 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, output and relay, Count values, Debounce time, Brake delay, etc.

Group 03-xx **Analogue Input/Output Parameters**
Function, Gain, Bias, Filtering of analogue input and output, 3-Point setting of analogue inputs.

Group 04-xx **Multi-step Speed**
15 Speed steps.

Group 05-xx **Motor Parameters**
Setting of motor parameters (4 motors), Auto-tuning, Slip compensation, Torque boost, Y-Δ switch-over, Motor operation time, IM/PM selection, etc.

Group 06-xx **Protection Parameters**
Protection settings, Fault memory and conditions, PTC, Pt100, Derating, STO Latch, 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, Dwell time, etc.

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

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

Group 10-xx **PG (Encoder) Parameters**
Settings for encoder feedback operation, Auto Speed Regulation, Mechanical gear ratio, Electrical gear ratio, PM Speed estimator, etc.

Group 11-xx **Advanced Parameters**
PWM Mode, etc.

Group 12-xx **Advanced Parameters**
ASR Settings, Simple positioning, Speed-Time operation, etc.

Group 13-xx **Macro**
Application Macro settings.

Group 14-xx **Read-out Values at Fault Condition**
Several fault condition read-out values.

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