

MD520 AC Drive

High performance universal AC drive



- Unified AC asynchronous, PM synchronous and synchronous reluctance motors control
- Wide operating voltage and product range:
 - 3 ph 380-480 Vac: 0.4 to 500 kW
 - 3 ph 200-240 Vac: 0.4 to 75 kW
 - 1 ph 200-240 Vac: 0.4 to 2.2 kW
- STO SIL 3 PL e
- Built-in DC reactor (400 V: 18.5 kW and above; 200 V: 11 kW and above) complying to IEC 61000-3-12
- Enhanced reliability: conformal coated PCBs compliant to 3S2 and 3C3 environments
- Complies to efficiency level IE2 as defined in IEC 61800-9-2
- Through-hole mounting options (0.4 to 160 kW)

IE2

CE

UL US
LISTED
E467465
IND. CONT. EQ.

STO
SIL3



MD520 - features & functions

- AC asynchronous, PM synchronous and synchronous reluctance motors control:
 - Open loop V/F (induction motors only) and SVC
 - Closed loop FVC
- Dual rated: heavy duty (overload: 150%/ 1 min) and normal duty (overload: 110%/ 1 min)
- Starting torque
 - 150% at 0.25 Hz for SVC
 - 180% at 0 Hz for FVC
- Communication options:
 - Modbus-RTU
 - Modbus-TCP
 - PROFIBUS-DP
 - CANopen
 - CANlink
 - PROFINET
 - EtherCAT
 - Ethernet/IP
- Category C2 compliance with external RFI filter. Ratings with built-in filter comply with Category C3*¹
- Built-in dynamic braking unit, up to/including 75 kW (400 V) or 37 kW (200 V)
- Operation in ambient temperature of up to 50°C (with de-rating above 40°C)*²
- Bipolar analog input as standard (-10 to +10 V)
- PTC input as standard
- Simplified parameters for easy start up
- 4 independent S-ramps
- Flexible programmable I/Os
- User programmable logic
- Variable DC-injection braking
- Comprehensive trip diagnostics
- Output frequency: 599 Hz
- Application dedicated functions:
 - Master-slave function (torque, speed)
 - Textile wobble control
- Brake control logic
- 4 motor parameter sets
- Automatic torque boost
- PC-based software: simplified start up & backup*³

*1 For detailed EMC compliance information, consult your local Inovance representative
 *2 For operation in higher ambient temperatures, consult your local Inovance representative
 *3 USB to RS485 adapter required. MDKE-10 or SOP-20 keypads can be used for this purpose



NEW: built-in colour LED keypad

- The clearest possible information display
- Displays multiple pieces of information simultaneously (e.g. drive status and operating information)
- User friendly with additional keys

Product ordering code

MD520 - 4T 220 B S -L -INT

① ② ③ ④ ⑤ ⑥ ⑦

- ① **Drive series:**
MD520 series
- ② **Voltage level:**
4T: three phase 380 V - 480 V
2T: three phase 200 V - 240 V
2S: single phase 200 V - 240 V
- ③ **Power rating for heavy duty (kW):**
0.4: 0.4
400: 400
- ④ **Braking unit:**
None: without braking unit
B: with braking unit
- ⑤ **STO:**
None: STO not supported
S: STO supported
- ⑥ **Reactor:**
None: without reactor
-T: with DC reactor; applicable to T5 models
-L: with AC output reactor; applicable to T10 to T12 models
- ⑦ **Version:**
INT: International variant

General specifications

Voltage class		1 Phase 200 - 240Vac			
Drive model: MD520-2SxxxB(S)-INT		0.4	0.7	1.5	2.2
Frame size		T2			
Drive Input	Rated input voltage	1 Phase 200 to 240Vac, -15% to +10%			
	Rated input current (A)	5.4	8.2	14	20
	Power capacity (kVA)	1.4	2.2	3.7	6
	Rated input frequency	50/60 Hz, ±5%			
Drive Output	Applicable motor (kW)	0.4	0.7	1.5	2.2
	Output current (A) ²	2.3	4.0	7.0	9.6
	Default carrier frequency (kHz)	6	6	6	6
	Overload capacity	150% for 60 s			
Braking Resistor	Max. output voltage	Three Phase 200Vac to 240Vac (Proportional to input voltage)			
	Max. output frequency	599 Hz			
	Recommended power (W)	80	80	100	100
Braking Resistor	Minimum resistance (Ω)	64	64	32	32
	Braking unit	Built-in			
Enclosure		IP 20			

² Rated output current at default carrier frequency.

General specifications

Heavy duty ratings , 150% overload

Voltage class		Three Phase 380 - 480Vac																												
Drive model: MD520-4Txxx(B)(S)(-T)(-L)-INT ^{*3*5}		0.4B(S)	0.7B(S)	1.1B(S)	1.5B(S)	2.2B(S)	3.0B(S)	3.7B(S)	5.5B(S)	7.5B(S)	11B(S)	15B(S)	18.5(B)(S)(-T)	22(B)(S)(-T)	30(B)(S)	37(B)(S)	45(B)(S)	55(B)(S)	75(B)(S)	90(S)	110(S)	132(S)	160(S)	200(S)(-L)	220(S)(-L)	250(S)(-L)	280(S)(-L)	315(S)(-L)	355(S)(-L)	400(S)(-L)
Frame size		T1 ^{*1}				T2		T3		T4	T5		T6		T7		T8		T9		T10		T11		T12					
Drive Input	Rated input voltage	Three Phase 380 to 480Vac, -15% to +10%																												
	Rated input current (A)	1.8	2.4	3.7	4.6	6.3	9.0	11.4	16.7	21.9	32.2	41.3	43.4	51.3	57	69	89	106	139	164	196	240	287	365	410	441	495	565	617	687
	Power capacity (kVA)	2	2.8	4.1	5.0	6.7	9.5	12	17.5	22.8	33.4	42.8	45	54	52	63	81	97	127	150	179	220	263	334	375	404	453	517	565	629
	Rated input frequency	50/60 Hz, ±5%																												
Drive Output	Applicable motor (kW)	0.4	0.7	1.1	1.5	2.2	3.0	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200	220	250	280	315	355	400
	Output current (A) ^{*2}	1.5	2.1	3.1	3.8	5.1	7.2	9.0	13.0	17.0	25.0	32.0	37	45	60	75	91	112	150	176	210	253	304	377	426	465	520	585	650	725
	Default carrier frequency (kHz)	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	4	3	3	3	3	3	3	3	3	3	3	3	3
	Overload capacity	150% for 60 s																												
	Max. output voltage	Three Phase 380Vac to 480Vac (Proportional to input voltage)																												
Braking Resistor	Max. output frequency	599 Hz																												
	Recommended power (W)	0.08	0.14	0.22	0.3	0.44	0.6	0.74	1.1	1.5	2.2	3	4	4.5	6	7	9	11	15	18	22	26	32	38	42	48	54	60	69	78
Braking Resistor	Minimum resistance (Ω)	96	96	96	96	64	64	32	32	32	24	24	24	24	19.2	14.8	12.8	9.6	6.8	11.4 x2 ^{*4}	7.7 x2 ^{*4}	7.7 x2 ^{*4}	7.7 x2 ^{*4}	2.8 x2 ^{*4}	2.8 x2 ^{*4}	2.8 x3 ^{*4}	2.8 x3 ^{*4}	2.8 x3 ^{*4}	2.8 x3 ^{*4}	2.8 x3 ^{*4}
	Braking unit	Built-in																		MDBUN-60-5T x2		MDBUN-90-5T x2		MDBUN-200-5T x2		MDBUN-200-5T x3				
Enclosure	IP20																		IP00											

Normal duty ratings, 110% overload

Voltage class		Three Phase 380 - 480Vac																												
Drive model: MD520-4Txxx(B)(S)(-T)(-L)-INT ^{*3*5}		0.4B(S)	0.7B(S)	1.1B(S)	1.5B(S)	2.2B(S)	3.0B(S)	3.7B(S)	5.5B(S)	7.5B(S)	11B(S)	15B(S)	18.5(B)(S)(-T)	22(B)(S)(-T)	30(B)(S)	37(B)(S)	45(B)(S)	55(B)(S)	75(B)(S)	90(S)	110(S)	132(S)	160(S)	200(S)(-L)	220(S)(-L)	250(S)(-L)	280(S)(-L)	315(S)(-L)	355(S)(-L)	400(S)(-L)
Frame size		T1 ^{*1}				T2		T3		T4	T5		T6		T7		T8		T9		T10		T11		T12					
Drive Input	Rated input voltage	Three Phase 380 to 480Vac, -15% to +10%																												
	Rated input current (A)	2.5	3.7	4.6	6.4	9.1	11.3	15.9	22.4	32.9	39.7	44.0	51.3	65.8	71	86	111	143	167	198	239	295	359	456	507	559	624	708	782	840
	Power capacity (kVA)	2.3	3.4	4.2	5.9	8.3	10.4	15.5	20.5	30.2	38.2	44.4	54	60	65	79	102	131	153	181	219	270	328	417	464	511	571	647	715	768
	Rated input frequency	50/60 Hz, ±5%																												
Drive Output	Applicable motor (kW)	0.75	1.1	1.5	2.2	3.7	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200	250	280	315	355	400	450	500
	Output current (A) ^{*2}	2.1	3.1	3.8	5.1	7.2	9.0	13.0	17.0	25.0	32.0	37.0	45	60	75	91	112	150	176	210	253	304	377	465	520	585	650	725	820	880
	Default carrier frequency (kHz)	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	4	3	3	3	3	3	3	3	3	3	3	3	3
	Overload capacity	110% for 60 s																												
	Max. output voltage	Three Phase 380Vac to 480Vac (Proportional to input voltage)																												
Braking Resistor	Max. output frequency	599 Hz																												
	Recommended power (W)	0.08	0.14	0.22	0.3	0.44	0.6	0.74	1.1	1.5	2.2	3	4	4.5	6	7	9	11	15	18	22	26	32	38	42	48	54	60	69	78
Braking Resistor	Minimum resistance (Ω)	96	96	96	96	64	64	32	32	32	24	24	24	24	19.2	14.8	12.8	9.6	6.8	11.4 x2 ^{*4}	7.7 x2 ^{*4}	7.7 x2 ^{*4}	2.8 x2 ^{*4}	2.8 x2 ^{*4}	2.8 x2 ^{*4}	2.8 x3 ^{*4}	2.8 x3 ^{*4}	2.8 x3 ^{*4}	2.8 x3 ^{*4}	
	Braking unit	Built-in																		MDBUN-60-5T x2		MDBUN-90-5T x2		MDBUN-200-5T x2		MDBUN-200-5T x3				
Enclosure	IP20																		IP00											

*1 0.75/1.5/2.2 kW are the preferred stocking ratings. To learn more, please get in touch with your local Inovance representative.

*2 Rated output current at default carrier frequency.

*3 -T in the type code of 18.5B and 22B models indicates built-in DC reactor.

*4 Minimum value of the resistance for each braking unit.

*5 For the standard AC drive, we recommend motor cable lengths to be <100 m. Where your installation exceeds 100 m, the "L" version is an option with a built-in AC output reactor (1% voltage drop) which can help to overcome the effects of long cable installations. To discuss your application, contact your local Inovance representative.

*6 If bigger ratings than 400 kW (HD)/500 kW (ND) are required, please get in touch with your local Inovance representative.

General specifications

Heavy duty ratings , 150% overload

Voltage class		Three Phase 200 - 240Vac																					
Drive model: MD520-2Txxx(B)(S)-INT		0.4B(S)	0.7B(S)	1.1B(S)	1.5B(S)	2.2B(S)	3.7B(S)	5.5B(S)	7.5B(S)	11(B)(S)	15(B)(S)	18.5(B)(S)	22(B)(S)	30(B)(S)	37(B)(S)	45(S)	55(S)	75(S)	90(S)	110(S)	132(S)	160(S)	200(S)
Frame size		T1 ¹			T2		T3	T4	T5	T6		T7		T8			T9	T10		T11	T12		
Drive Input	Rated input voltage	Three Phase 200 to 240Vac, -15% to +10%																					
	Rated input current (A)	2.4	4.6	6.3	9.0	11.4	16.7	32.2	41.3	51.3	57	69/86	89	106	139	164	196	287	365	410	441	565	687
	Power capacity (kVA)	1.1	2.1	2.9	4.1	5.2	7.6	14.7	18.9	27	26.1	31.6	40.7	48.5	63.6	75	89.6	1.1	2.1	2.9	4.1	5.2	7.6
	Rated input frequency	50/60 Hz, ±5%																					
Drive Output	Applicable motor (kW)	0.4	0.75	1.1	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200
	Output current (A) ²	2.1	3.8	5.1	7.2	9.0	13	25	32	45	60	75	91	112	150	176	210	304	377	426	465	585	725
	Default carrier frequency (kHz)	6	6	6	6	6	6	6	6	6	6	5	5	4	3	3	3	3	3	3	3	3	3
	Overload capacity	150% for 60 s																					
	Max. output voltage	Three Phase 200Vac to 240Vac (Proportional to input voltage)																					
Braking Resistor	Max. output frequency	599 Hz																					
	Recommended power (W)	0.09	0.16	0.25	0.34	0.5	0.8	1.3	1.7	2.3	3.0	3.9	4.6	5.5	6.8	5.0 x2	6.0 x2	7.5 x2	6 x3	7.5 x3	7.0 x4	6.5 x5	7.0 x6
Braking Resistor	Minimum resistance (Ω)	48	48	0.26	32	16	16	12	12	12	9	7	6	5	4	5.5 x2 ³	3.7 x2 ³	3.7 x2 ³	3.7 x3 ³	3.7 x3 ³	3.7 x4 ³	3.7 x5 ³	3.7 x6 ³
	Braking unit	Built-in														MDBUN-60-2T x2	MDBUN-90-2T x2	MDBUN-90-2T x2	MDBUN-90-2T x3	MDBUN-90-2T x3	MDBUN-90-2T x4	MDBUN-90-2T x5	MDBUN-90-2T x6
Enclosure		IP20														IP00							

Normal duty ratings, 110% overload

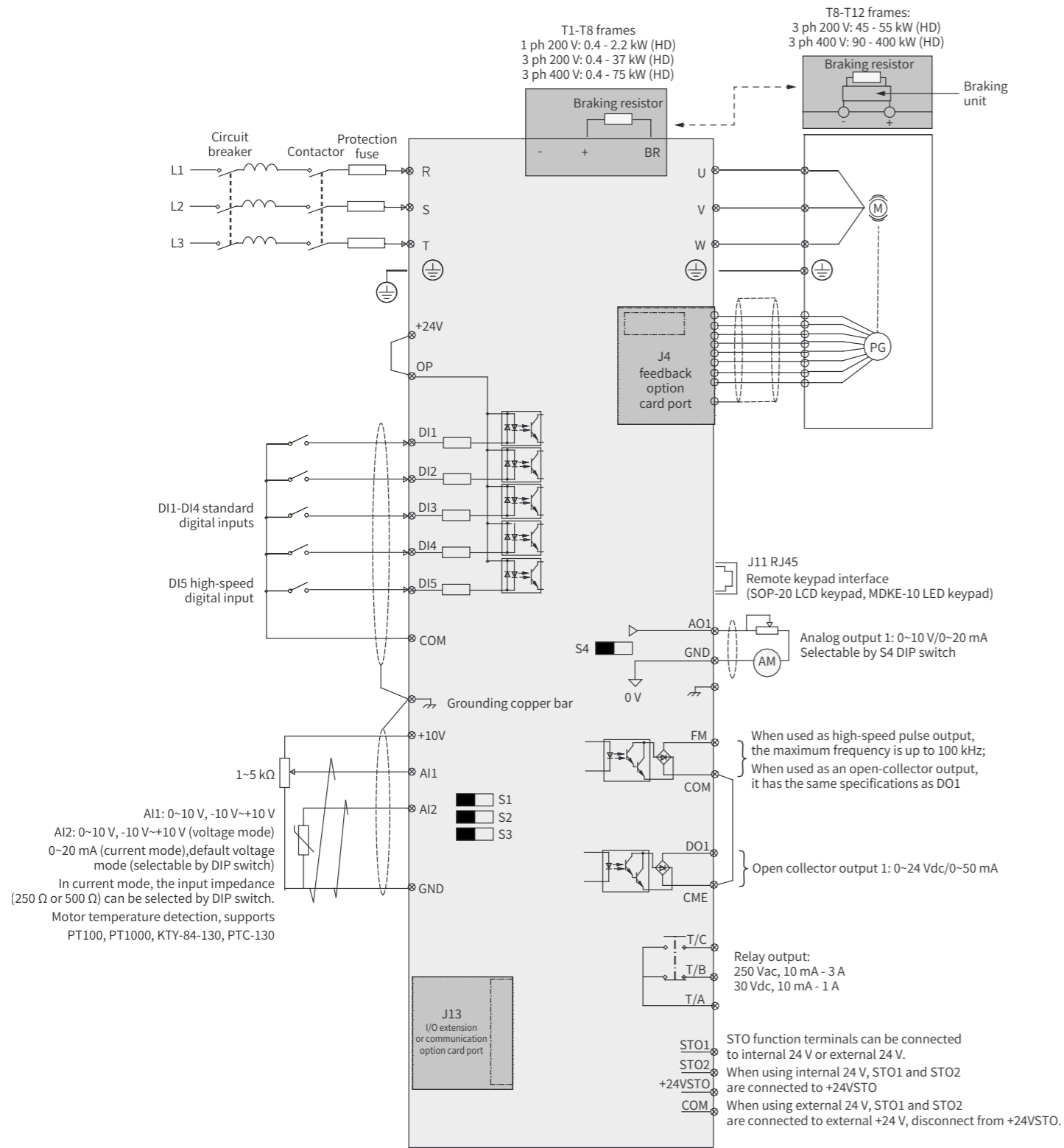
Voltage class		Three Phase 200 - 240Vac																					
Drive model: MD520-2Txxx(B)(S)-INT		0.4B(S)	0.7B(S)	1.1B(S)	1.5B(S)	2.2B(S)	3.7B(S)	5.5B(S)	7.5B(S)	11(B)(S)	15(B)(S)	18.5(B)(S)	22(B)(S)	30(B)(S)	37(B)(S)	45(S)	55(S)	75(S)	90(S)	110(S)	132(S)	160(S)	200(S)
Frame size		T1 ¹			T2		T3	T4	T5	T6		T7		T8			T9	T10		T11	T12		
Drive Input	Rated input voltage	Three Phase 200 to 240Vac, -15% to +10%																					
	Rated input current (A)	3.7	6.4	9.1	11.3	15.9	22.4	39.7	44	65.8	71	86	111	143	167	198	239	359	456	507	559	708	840
	Power capacity (kVA)	1.7	2.9	4.2	5.2	7.3	10.2	18.2	20.1	30.1	32.5	39.3	50.8	65.4	76.4	90.5	109.3	1.7	2.9	4.2	5.2	7.3	10.2
	Rated input frequency	50/60 Hz, ±5%																					
Drive Output	Applicable motor (kW)	0.75	1.1	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200	220
	Output current (A) ²	3.1	5.1	7.2	9.0	13	17	32	37	60	75	91	112	150	176	210	253	377	465	520	585	725	880
	Default carrier frequency (kHz)	6	6	6	6	6	6	6	6	6	6	5	5	4	3	3	3	3	3	3	3	3	3
	Overload capacity	110% for 60 s																					
	Max. output voltage	Three Phase 200Vac to 240Vac (Proportional to input voltage)																					
Braking Resistor	Max. output frequency	599 Hz																					
	Recommended power (W)	0.09	0.16	0.25	0.34	0.5	0.8	1.3	1.7	2.3	3.0	3.9	4.6	5.5	6.8	5.0 x2	6.0 x2	6 x3	7.5 x3	7.0 x4	6.5 x5	7.0 x6	7.0 x7
Braking Resistor	Minimum resistance (Ω)	48	48	32	32	16	16	12	12	12	9	7	6	5	4	5.5 x2 ³	3.7 x2 ³	3.7 x3 ³	3.7 x3 ³	3.7 x4 ³	3.7 x5 ³	3.7 x6 ³	3.7 x7 ³
	Braking unit	Built-in														MDBUN-60-2T x2	MDBUN-90-2T x2	MDBUN-90-2T x3	MDBUN-90-2T x3	MDBUN-90-2T x4	MDBUN-90-2T x5	MDBUN-90-2T x6	MDBUN-90-2T x7
Enclosure		IP20														IP00							

*1 0.75/1.5/2.2 kW are the preferred stocking ratings. To learn more, please get in touch with your local Inovance representative.

*2 Rated output current at default carrier frequency.

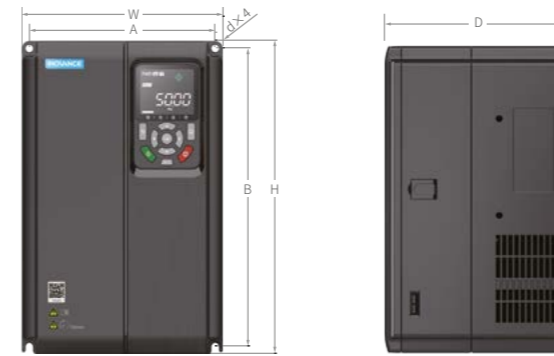
*3 Minimum value of the resistance for each braking unit.

General wiring diagram

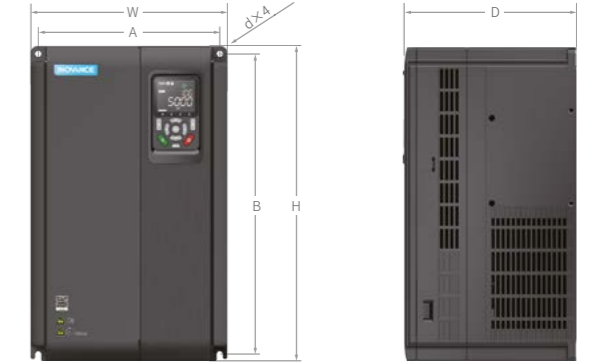


Dimensions

MD520-4T0.4B(S)-INT to MD520-4T15B(S)-INT
 MD520-2T0.4B(S)-INT to MD520-2T7.5B(S)-INT
 MD520-2S0.4B(S)-INT to MD520-2S2.2B(S)-INT



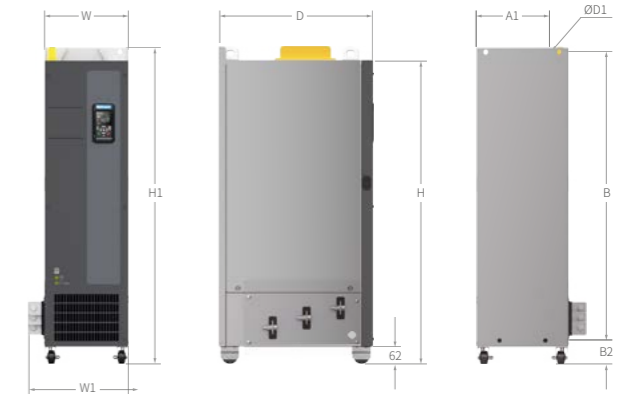
MD520-4T18.5B(S)-INT to MD520-4T37B(S)-INT
 MD520-2T11B(S)-INT to MD520-2T18.5B(S)-INT



MD520-4T45B(S)-INT to MD520-4T160(S)-INT
 MD520-2T22B(S)-INT to MD520-2T55(S)-INT



MD520-4T200(S)-INT to MD520-4T400(S)-INT



MD520-4T200(S)-L-INT to MD520-4T400(S)-L-INT



MD520 Model	Frame size	Dimensions (mm)										Mass (kg)
		A	A1	B	B2	H	H1	W	W1	D	D1	
MD520-4T0.4B(S)-INT, MD520-4T0.7B(S)-INT, MD520-4T1.1B(S)-INT MD520-4T1.5B(S)-INT, MD520-4T2.2B(S)-INT, MD520-4T3.0B(S)-INT, MD520-2T0.4B(S)-INT, MD520-2T0.7B(S)-INT MD520-2T1.1B(S)-INT, MD520-2T1.5B(S)-INT	T1	119	/	189	/	200	/	130	/	152	Ø5	1.6
MD520-4T3.7B(S)-INT, MD520-4T5.5B(S)-INT MD520-2S0.4B(S)-INT to MD520-2S2.2B(S)-INT MD520-2T2.2B(S)-INT, MD520-2T3.7B(S)-INT	T2	119	/	189	/	200	/	130	/	162	Ø5	2.0
MD520-4T7.5B(S)-INT, MD520-4T11B(S)-INT, MD520-2T5.5B(S)-INT	T3	128	/	238	/	250	/	140	/	170	Ø6	3.3
MD520-4T15B(S)-INT, MD520-2T7.5B(S)-INT	T4	166	/	266	/	280	/	180	/	170	Ø6	4.3
MD520-4T18.5B(S)-INT, MD520-4T22B(S)-INT, MD520-2T11B(S)-INT	T5	195	/	335	/	350	/	210	/	192	Ø6	10
MD520-4T30B(S)-INT, MD520-4T37B(S)-INT MD520-2T15B(S)-INT, MD520-2T18.5B(S)-INT	T6	230	/	380	/	400	/	250	/	220	Ø7	17.5
MD520-4T45B(S)-INT, MD520-4T55B(S)-INT MD520-2T22B(S)-INT, MD520-2T30B(S)-INT	T7	245	/	523	/	542	/	300	/	275	Ø10	35
MD520-4T75B(S)-INT, MD520-4T90(S)-INT, MD520-4T110(S)-INT MD520-2T37B(S)-INT, MD520-2T45(S)-INT, MD520-2T55(S)-INT	T8	270	/	560	/	580	/	338	/	315	Ø10	51.5
MD520-4T132(S)-INT, MD520-4T160(S)-INT	T9	320	/	890	/	915	/	400	/	320	Ø10	85
MD520-4T200(S)-INT MD520-4T220(S)-INT MD520-4T200(S)-L-INT MD520-4T220(S)-L-INT	T10	240	150	1,035	86	1,086	1,134	300	360	500	Ø13	110
MD520-4T250(S)-INT, MD520-4T280(S)-INT MD520-4T250(S)-L-INT MD520-4T280(S)-L-INT	T11	225	185	1,175	97	1,248	1,284	330	390	545	Ø13	155
MD520-4T315(S)-INT, MD520-4T355(S)-INT, MD520-4T400(S)-INT MD520-4T315(S)-L-INT, MD520-4T355(S)-L-INT MD520-4T400(S)-L-INT	T12	240	200	1,280	101	1,355	1,405	340	400	545	Ø16	185

Option cards and mounting position

Feedback option cards

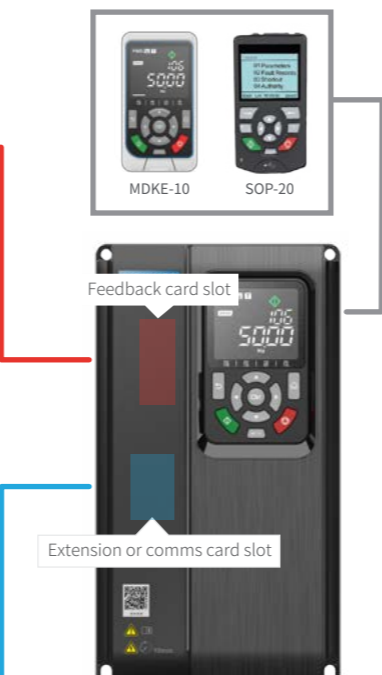
MD38PGMD: TTL differential or HTL (A/B/Z) encoder
 MD38PG4D: Resolver
 MD38PG4: Resolver
 ES510-PG-CT1: Serial encoder
 MD520-PG-S1: Sin/Cos encoder

I/O extension option cards

MD38IO1: I/O card 1
 MD38IO2: I/O card 2
 MD38IO3: I/O card 3
 MD38DW1: I/O card 4
 MD38DW2: I/O card 5
 MD520IO1: I/O card 6

Communication option cards

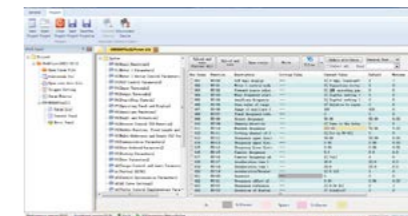
MD38CAN1: CANlink / CANopen
 MD38TX1: Modbus RTU
 MD38DP2: PROFIBUS-DP
 MD-SI-DP2: PROFIBUS-DP
 MD500-PN1: PROFINET
 MD500-ECAT: EtherCAT
 MD500-EN1: Ethernet/IP
 MD500-EM1: Modbus TCP



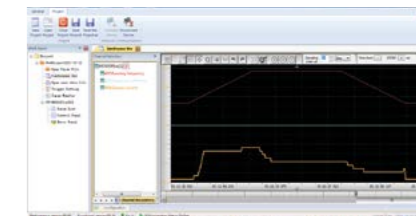
PC software tools

InoDriverShop

InoDriverShop is Inovance's free of charge PC-based software offering. It is based on a familiar Windows interface. InoDriverShop can upload and download drive parameters, and features a variety of other functions, such as a real-time oscilloscope. For the connection with the PC a standard USB to RS485 adapter can be used. MDKE-10 or SOP-20 keypads can also be used for this purpose.



Parameter uploading/downloading



Multi channel oscilloscope

Accessories list

Category	Model	Function description	Suitable for	
External braking units	MDBUN-60-5T	External braking unit, rated current 60 A, for supply input voltage 380 to 480 Vac AC drives.	4T models: 90G	
	MDBUN-90-5T	External braking unit, rated current 90 A, for supply input voltage 380 to 480 Vac AC drives.	4T models: 110G - 132G	
	MDBUN-200-5T	External braking unit, rated current 200 A, for supply input voltage 380 to 480 Vac AC drives.	4T models: 160G -450G	
	MDBUN-60-2T	External braking unit, rated current 60 A, for supply input voltage 200 to 240 Vac AC drives.	2T models: 45G	
Keypads	MDBUN-90-2T	External braking unit, rated current 90 A, for supply input voltage 200 to 240 VAC AC drives.	2T models: 55G	
	MDKE-10	Remote LED keypad. Can be used as USB to RS485 adapter for the connection to the PC. Includes MDCAB cable.	All	
	SOP-20	Remote multi-language LCD keypad. For parameter programming and monitoring, data copy. Keypad can be used as USB to RS485 adapter for the connection to the PC. Includes MDCAB cable.	All	
	MDCAB	3 meter connection cable for remote keypad.	All	
	MDCAB-1.5	1.5 meter connection cable for remote keypad.	All	
	CP600-BASE1	Panel mounting base (only) for SOP-20 keypad. IP20 rating.	All	
	SOP20-MP-IP20	Panel mounting base for SOP-20 keypad, including adapting metal plate and PCB protection plate. IP20 rating.	All	
	SOP20-MP-IP54	Panel mounting base for SOP-20 keypad, including PCB protection plate and rubber seals. IP54 rating.	All	
I/O extension cards	MD580-AZJ1	Panel mounting base for MDKE-10. IP20 rating.	All	
	MD38IO1	I/O extension card 1, provides: 5x DI, 1x AI, 1x relay output, 1x DO, 1x AO, RS485 (Modbus-RTU) and CAN (CANlink) ports.	Frame sizes T4-T12	
	MD38IO2	I/O extension card 2, provides 3x extra DI terminals.	All	
	MD38IO3	I/O extension card 3, provides 3x DI, 1x relay output, Modbus-RTU interface.	All	
	MD38DW1	I/O extension card 4, provides 5x DI, 1x AI, 1x AO, 1x DO, 1x relay output, RS485 (Modbus-RTU) and CAN (CANlink) ports, TTL differential encoder input.	Frame sizes T4-T12	
	MD38DW2	I/O extension card 5, provides RS485 (Modbus-RTU) port and TTL differential encoder input.	All	
Fieldbus cards	MD520IO1	I/O extension card 6, provides 3x DI, 1x relay output, 1x AO, Modbus-RTU interface.	All	
	MD38CAN1	CANlink/CANopen option card.	All	
	MD38TX1	Modbus RTU option card.	All	
	MD38DP2	PROFIBUS DP option card.	Frame sizes T4-T12	
	MD-SI-DP2	PROFIBUS DP option card (designed to cover small frames).	All	
	MD500-PN1	PROFINET option card.	All	
	MD500-ECAT	EtherCAT option card.	All	
	MD500-EN1	Ethernet/IP option card.	All	
	MD500-EM1	Modbus TCP option card.	All	
	MD38PGMD	Multifunctional encoder option card, compatible with differential, open-collector and push-pull encoder types. Supports differential output and open-collector output.	All	
PG cards	MD38PG4D	Option card for resolver (10 kHz excitation) with selectable ratio simulated encoder output (TTL differential).	Frame sizes T4, T7-T12	
	MD38PG4	Option card for resolver (10 kHz excitation).	All	
	ES510-PG-CT1	23-bit serial encoder card.	All	
Mounting brackets	MD520-PG-S1	Sin/Cos encoder option card with selectable ratio simulated encoder output (TTL differential and HTL).	All	
	MD500-AZJ-A1T1	Through hole mounting bracket for frame T1.	Frame size T1	
	MD500-AZJ-A1T2	Through hole mounting bracket for frame T2.	Frame size T2	
	MD500-AZJ-A1T3	Through hole mounting bracket for frame T3.	Frame size T3	
	MD500-AZJ-A1T4	Through hole mounting bracket for frame T4.	Frame size T4	
	MD500-AZJ-A1T5	Through hole mounting bracket for frame T5.	Frame size T5	
	MD500-AZJ-A1T6	Through hole mounting bracket for frame T6.	Frame size T6	
	MD500-AZJ-A1T7	Through hole mounting bracket for frame T7.	Frame size T7	
	MD500-AZJ-A1T8	Through hole mounting bracket for frame T8.	Frame size T8	
	MD500-AZJ-A1T9	Through hole mounting bracket for frame T9.	Frame size T9	
	MD500-AZJ-A2T1	Cable shield grounding bracket for frame T1.	Frame size T1	
	MD500-AZJ-A2T2	Cable shield grounding bracket for frame T2.	Frame size T2	
Cable brackets	MD500-AZJ-A2T3	Cable shield grounding bracket for frame T3.	Frame size T3	
	MD500-AZJ-A2T4	Cable shield grounding bracket for frame T4.	Frame size T4	
	MD500-AZJ-A2T5	Cable shield grounding bracket for frame T5.	Frame size T5	
	MD500-AZJ-A2T6	Cable shield grounding bracket for frame T6.	Frame size T6	
	MD500-AZJ-A2T7	Cable shield grounding bracket for frame T7.	Frame size T7	
	MD500-AZJ-A2T8	Cable shield grounding bracket for frame T8.	Frame size T8	
	MD500-AZJ-A2T9	Cable shield grounding bracket for frame T9.	Frame size T9	
	Guide rails	MD500-AZJ-A3T10	Guide rails for inserting in/extracting from the cabinet for frame sizes T10 to T12.	Frame sizes T10-T12

Driven by technology

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