

## MD520 AC Drive

### High performance universal AC drive

- Unified AC asynchronous and PM synchronous motor 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)
- Enhanced reliability: conformal coated PCBs compliant to 3S2 and 3C3 environments
- Complies to efficiency level IE2 as defined in IEC 61800-9-2
- PC-based software: simplified start up & backup<sup>\*2</sup>
- Through-hole mounting options (0.4 to 160 kW)

IE2

CE



STO  
SIL3

LISTED  
E467465

IND. CONT. EQ.<sup>\*3</sup>



\*1 If operating above 40°C, derating is required.

\*2 USB to RS485 adapter required. MDKE-10 or SOP-20 keypads can be used for this purpose.

\*3 cUL is available for 380-480 Vac models. For other voltages, please consult with your local Inovance representative.

## MD500-PLUS - features & functions

- Induction motor and PM synchronous motor 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
- Simplified parameters for easy start up
- 4 independent S-ramps
- Flexible programmable I/Os
- User programmable functions
- Variable DC-injection braking
- Comprehensive trip diagnostics
- Output frequency: 599 Hz
- Built-in dynamic braking unit
- Bipolar analog input as standard (-10 to +10 V)
- PTC input as standard
- Application dedicated functions:
  - Master-slave function (torque, speed)
  - Textile wobble control
- Brake control logic
- 4 motor parameter sets
- Automatic torque boost



### 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

## General specifications

### Heavy duty ratings, 150% overload

Voltage class		Three phase 380 to 480 Vac										
Drive model: MD520-4TxxxB(S)-INT		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)
Frame size		T1 <sup>*1</sup>					T2		T3		T4	
Drive input	Rated input voltage	Three phase 380 to 480 Vac -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
	Power capacity [kVA]	2	2.8	4.1	5.0	6.7	9.5	12	17.5	22.8	33.4	42.8
Rated input frequency		50/60 Hz ±5%										
Drive output	Applicable motor [kW]	0.4	0.75	1.1	1.5	2.2	3.0	3.7	5.5	7.5	11	15
	Output current [A] <sup>*2</sup>	1.5	2.1	3.1	3.8	5.1	7.2	9.0	13.0	17.0	25.0	32.0
	Default carrier frequency [kHz]	6	6	6	6	6	6	6	6	6	6	6
	Overload capacity	150% for 60 s										
	Max. output voltage	Three phase 380 to 480 Vac (proportional to input voltage)										
Max. output frequency		599 Hz										
Braking resistor	Recommended power [kW]	0.08	0.14	0.22	0.3	0.44	0.6	0.74	1.1	1.5	2.2	3
	Minimum resistance [Ω]	96	96	96	96	64	64	32	32	32	24	24
Braking unit		Built-in										
Enclosure		IP 20										

### Normal duty ratings, 110% overload



Voltage class		Three phase 380 to 480 Vac										
Drive model: MD520-4TxxxB(S)-INT		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)
Frame size		T1 <sup>*1</sup>					T2		T3		T4	
Drive input	Rated input voltage	Three phase 380 to 480 Vac -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
	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
Rated input frequency		50/60 Hz ±5%										
Drive output	Applicable motor [kW]	0.75	1.1	1.5	2.2	3.0	3.7	5.5	7.5	11	15	18.5
	Output current [A] <sup>*2</sup>	2.1	3.1	3.8	5.1	7.2	9.0	13.0	17.0	25.0	32.0	37.0
	Default carrier frequency [kHz]	6	6	6	6	6	6	6	6	6	6	6
	Overload capacity	110% for 60 s										
	Max. output voltage	Three phase 380 to 480 Vac (proportional to input voltage)										
Max. output frequency		599 Hz										
Braking resistor	Recommended power [kW]	0.08	0.14	0.22	0.3	0.44	0.6	0.74	1.1	1.5	2.2	3
	Minimum resistance [Ω]	96	96	96	96	64	64	32	32	32	24	24
Braking unit		Built-in										
Enclosure		IP 20										

\*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.

## General specifications

### Heavy duty ratings, 150% overload

Voltage class  		Three phase 380 to 480 Vac										
Drive model: MD520-4Txxx(B)(S)-INT		18.5B(S)	22B(S)	30B(S)	37B(S)	45B(S)	55B(S)	75B(S)	90(S)	110(S)	132(S)	160(S)
Frame size		T5		T6		T7		T8		T9		
Drive input	Rated input voltage	Three phase 380 to 480 Vac -15% to +10%										
	Rated input current [A]	43.4	51.3	57	69	89	106	139	164	196	240	287
	Power capacity [kVA]	45	54	52	63	81	97	127	150	179	220	263
Drive output	Rated input frequency	50/60 Hz $\pm$ 5%										
	Applicable motor [kW]	18.5	22	30	37	45	55	75	90	110	132	160
	Output current [A] <sup>*2</sup>	37	45	60	75	91	112	150	176	210	253	304
	Default carrier frequency [kHz]	6	6	6	5	5	4	3	3	3	3	3
	Overload capacity	150% for 60 s										
	Max. output voltage	Three phase 380 to 480 Vac (proportional to input voltage)										
Braking resistor	Max. output frequency	599 Hz										
	Recommended power [kW]	4.5	4.5	6	7	9	11	15	18	22	26	32
Braking resistor	Minimum resistance [ $\Omega$ ]	24	24	19.2	14.8	12.8	9.6	6.8	11.4x2 <sup>*3</sup>	7.7 x2 <sup>*3</sup>	7.7 x2 <sup>*3</sup>	2.8 x2 <sup>*3</sup>
	Braking unit	Built-in						MDBUN-60-5T x2	MDBUN-90-5T x2		MDBUN-200-5T x2	
Enclosure		IP 20										

### Normal duty ratings, 110% overload

Voltage class  		Three phase 380 to 480 Vac										
Drive model: MD520-4Txxx(B)(S)		18.5B(S)	22B(S)	30B(S)	37B(S)	45B(S)	55B(S)	75B(S)	90(S)	110(S)	132(S)	160(S)
Frame size		T5		T6		T7		T8		T9		
Drive input	Rated input voltage	Three phase 380 to 480 Vac -15% to +10%										
	Rated input current [A]	51.3	65.8	71	86	111	143	167	198	239	295	359
	Power capacity [kVA]	54	60	65	79	102	131	153	181	219	270	328
Drive output	Rated input frequency	50/60 Hz $\pm$ 5%										
	Applicable motor [kW]	22	30	37	45	55	75	90	110	132	160	200
	Output current [A] <sup>*2</sup>	45	60	75	91	112	150	176	210	253	304	377
	Default carrier frequency [kHz]	6	6	6	5	5	4	3	3	3	3	3
	Overload capacity	110% for 60 s										
	Max. output voltage	Three phase 380 to 480 Vac (proportional to input voltage)										
Braking resistor	Max. output frequency	599 Hz										
	Recommended power [kW]	4.5	4.5	6	7	9	11	15	18	22	26	32
Braking resistor	Minimum resistance [ $\Omega$ ]	24	24	19.2	14.8	12.8	9.6	6.8	11.4 x2 <sup>*3</sup>	7.7 x2 <sup>*3</sup>	7.7 x2 <sup>*3</sup>	2.8 x2 <sup>*3</sup>
	Braking unit	Built-in						MDBUN-60-5T x2	MDBUN-90-5T x2		MDBUN-200-5T x2	
Enclosure		IP 20										

\*2 Rated output current at default carrier frequency.

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

## General specifications

### Heavy duty ratings, 150% overload

Voltage class $\text{CE} \text{ (UL)}$		Three phase 380 to 480 Vac						
Drive model: MD520-4Txxx(S)-INT <sup>*4</sup>		200(S)	220(S)	250(S)	280(S)	315(S)	355(S)	400(S)
Frame size		T10		T11		T12		
Drive input	Rated input voltage	Three phase 380 to 480 Vac -15% to +10%						
	Rated input current [A]	365	410	441	495	565	617	687
	Power capacity [kVA]	334	375	404	453	517	565	629
	Rated input frequency	50/60 Hz $\pm 5\%$						
Drive output	Applicable motor [kW]	200	220	250	280	315	355	400
	Output current [A] <sup>*2</sup>	377	426	465	520	585	650	725
	Default carrier frequency [kHz]	3	3	3	3	3	3	3
	Overload capacity	150% for 60 s						
	Max. output voltage	Three phase 380 to 480 Vac (proportional to input voltage)						
Max. output frequency	599 Hz							
Braking resistor	Recommended power [kW]	42	54	60	69	78	87	87
	Minimum resistance [ $\Omega$ ]	$2.8 \times 2^3$	$2.8 \times 2^3$	$2.8 \times 3^3$	$2.8 \times 3^3$	$2.8 \times 3^3$	$2.8 \times 3^3$	$2.8 \times 3^3$
Braking unit		MDBUN-200-5T x2		MDBUN-200-5T x3				
Enclosure		IP 00						

### Normal duty ratings, 110% overload

Voltage class $\text{CE} \text{ (UL)}$		Three phase 380 to 480 Vac						
Drive model: MD520-4Txxx(S)-INT <sup>*4</sup>		200(S)	220(S)	250(S)	280(S)	315(S)	355(S)	400(S)
Frame size		T10		T11		T12		
Drive input	Rated input voltage	Three phase 380 to 480 Vac -15% to +10%						
	Rated input current [A]	456	507	559	624	708	782	840
	Power capacity [kVA]	417	464	511	571	647	715	768
	Rated input frequency	50/60 Hz $\pm 5\%$						
Drive output	Applicable motor [kW]	250	280	315	355	400	450	500
	Output current [A] <sup>*2</sup>	465	520	585	650	725	820	880
	Default carrier frequency [kHz]	3	3	3	3	3	3	3
	Overload capacity	110% for 60 s						
	Max. output voltage	Three phase 380 to 480 Vac (proportional to input voltage)						
Max. output frequency	599 Hz							
Braking resistor	Recommended power [kW]	42	54	60	69	78	87	87
	Minimum resistance [ $\Omega$ ]	$2.8 \times 2^3$	$2.8 \times 2^3$	$2.8 \times 3^3$	$2.8 \times 3^3$	$2.8 \times 3^3$	$2.8 \times 3^3$	$2.8 \times 3^3$
Braking unit		MDBUN-200-5T x2		MDBUN-200-5T x3				
Enclosure		IP 00						


\*2 Rated output current at default carrier frequency.

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


\*4 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.

## General specifications

### Heavy duty ratings, 150% overload

Voltage class 		Three phase 200 - 240 Vac															
Drive model: MD520-2Txxx(B)(S)-INT		0.4 B(S)	0.7 B(S)	1.1 B(S)	1.5 B(S)	2.2 B(S)	3.7 B(S)	5.5 B(S)	7.5 B(S)	11 B(S)	15 B(S)	18.5 B(S)	22 B(S)	30 B(S)	37 B(S)	45(S)	55(S)
Frame size		T1				T2		T3	T4	T5	T6		T7		T8		
Drive input	Rated input voltage	Three phase 200 to 240 Vac -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	89	106	139	164	196
	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
	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
	Output current [A] <sup>2</sup>	2.1	3.8	5.1	7.2	9.0	13	25	32	45	60	75	91	112	150	176	210
	Default carrier frequency [kHz]	6	6	6	6	6	6	6	6	6	6	5	5	4	3	3	3
	Overload capacity	150% for 60 s															
	Max. output voltage	Three phase 200 to 240 Vac (proportional to input voltage)															
	Max. output frequency	599 Hz															
Braking resistor	Recommended power [kW]	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
	Minimum resistance [Ω]	48	48	32	32	16	16	12	12	12	9	7	6	5	4	5.5 x2 <sup>3</sup>	3.7 x2 <sup>3</sup>
Braking unit		Built-in														MDBUN-60-2T x2	MDBUN-90-2T x2
Enclosure		IP 20															

### Normal duty ratings, 110% overload

Voltage class 		Three phase 200 - 240 Vac															
Drive model: MD520-2Txxx(B)(S)-INT		0.4 B(S)	0.7 B(S)	1.1 B(S)	1.5 B(S)	2.2 B(S)	3.7 B(S)	5.5 B(S)	7.5 B(S)	11 B(S)	15 B(S)	18.5 B(S)	22 B(S)	30 B(S)	37 B(S)	45(S)	55(S)
Frame size		T1				T2		T3	T4	T5	T6		T7		T8		
Drive input	Rated input voltage	Three phase 200 to 240 Vac -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
	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
	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
	Output current [A] <sup>2</sup>	3.1	5.1	7.2	9.0	13	17	32	37	60	75	91	112	150	176	210	253
	Default carrier frequency [kHz]	6	6	6	6	6	6	6	6	6	6	5	5	4	3	3	3
	Overload capacity	110% for 60 s															
	Max. output voltage	Three phase 200 to 240 Vac (proportional to input voltage)															
	Max. output frequency	599 Hz															
Braking resistor	Recommended power [kW]	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
	Minimum resistance [Ω]	48	48	32	32	16	16	12	12	12	9	7	6	5	4	5.5 x2 <sup>3</sup>	3.7 x2 <sup>3</sup>
Braking unit		Built-in														MDBUN-60-2T x2	MDBUN-90-2T x2
Enclosure		IP 20															



<sup>2</sup> Rated output current at default carrier frequency.

<sup>3</sup> Minimum value of the resistance for each braking unit.



## General specifications

### Heavy duty ratings , 150% overload

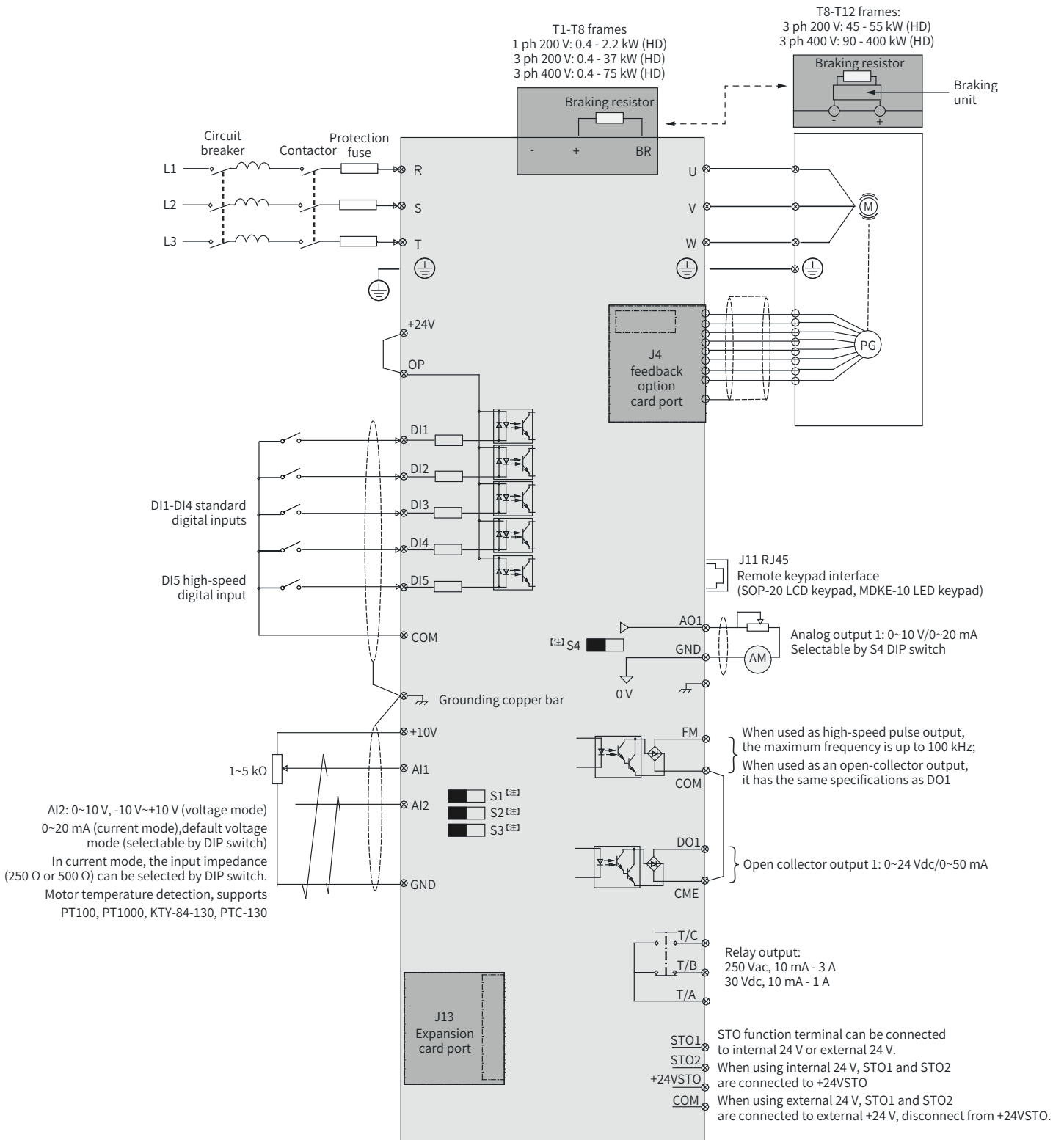
Voltage class  		One phase 200 - 240 Vac			
Drive model: MD520-2SxxxB(S)-INT		0.4B(S)	0.7B(S)	1.5B(S)	2.2B(S)
Frame size		T2			
Drive input	Rated input voltage	One phase 200 to 240 Vac -15% to +10%			
	Rated input current [A]	5.4	8.2	14	20
	Power capacity [kVA]	1.4	2.2	3.7	6
	Rated input frequency	50/60 Hz $\pm$ 5%			
Drive output	Applicable motor [kW]	0.4	0.75	1.5	2.2
	Output current [A] <sup>*2</sup>	2.3	4.0	7.0	9.6
	Default carrier frequency [kHz]	6	6	6	6
	Overload capacity	150% for 60 s			
	Max. output voltage	Three phase 200 to 240 Vac (proportional to input voltage)			
Max. output frequency	599 Hz				
Braking resistor	Recommended power [kW]	0.08	0.08	0.1	0.1
	Minimum resistance [ $\Omega$ ]	64	64	32	32
Braking unit		Built-in			
Enclosure		IP 20			

\*2 Rated output current at default carrier frequency.



Suitable for compressors requiring 150% overload and/or vector control

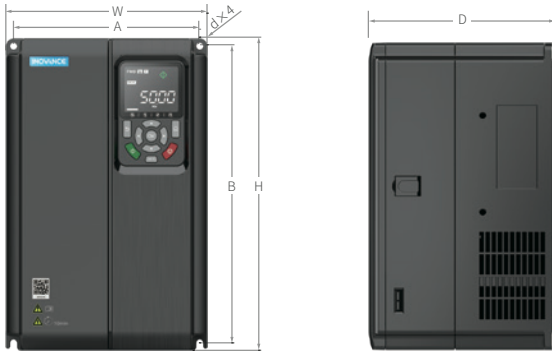
## General wiring diagram



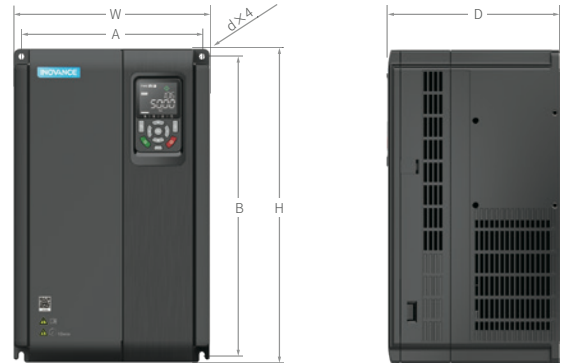


## Dimensions

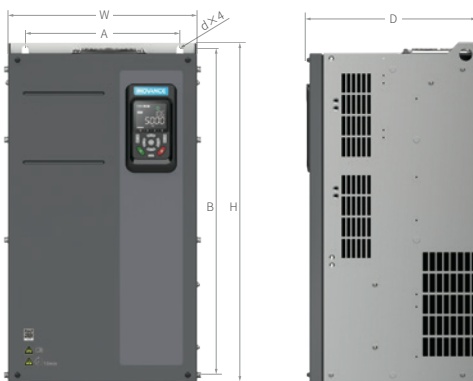
MD520-4T0.4B(S)-INT to MD520-4T15B(S)-INT  
 MD520-2T0.4B(S)-INT to MD520-2T7.5B(S)-INT  
 MD520-2S0.4B(S)-INT to MD520-2S2.2B(S)-INT



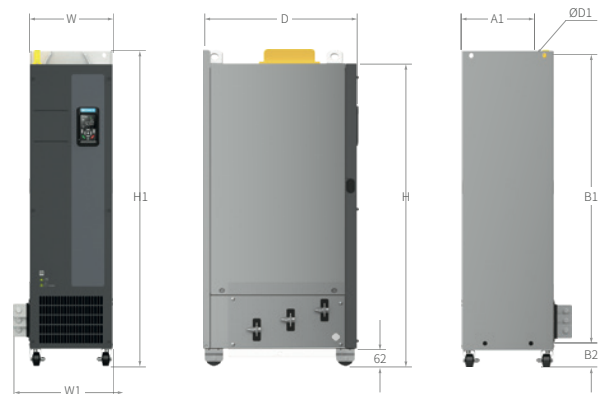
MD520-4T18.5B(S)-INT to MD520-4T37B(S)-INT  
 MD520-2T11B(S)-INT to MD520-2T18.5B(S)-INT



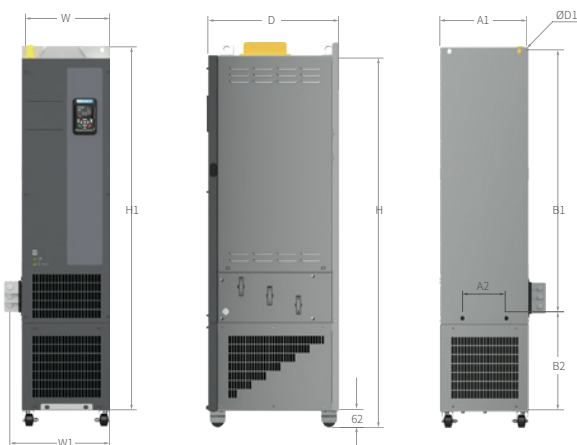
MD520-4T45B(S)-INT to MD520-4T160(S)-INT  
 MD520-2T22B(S)-INT to MD520-2T55(S)-INT



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

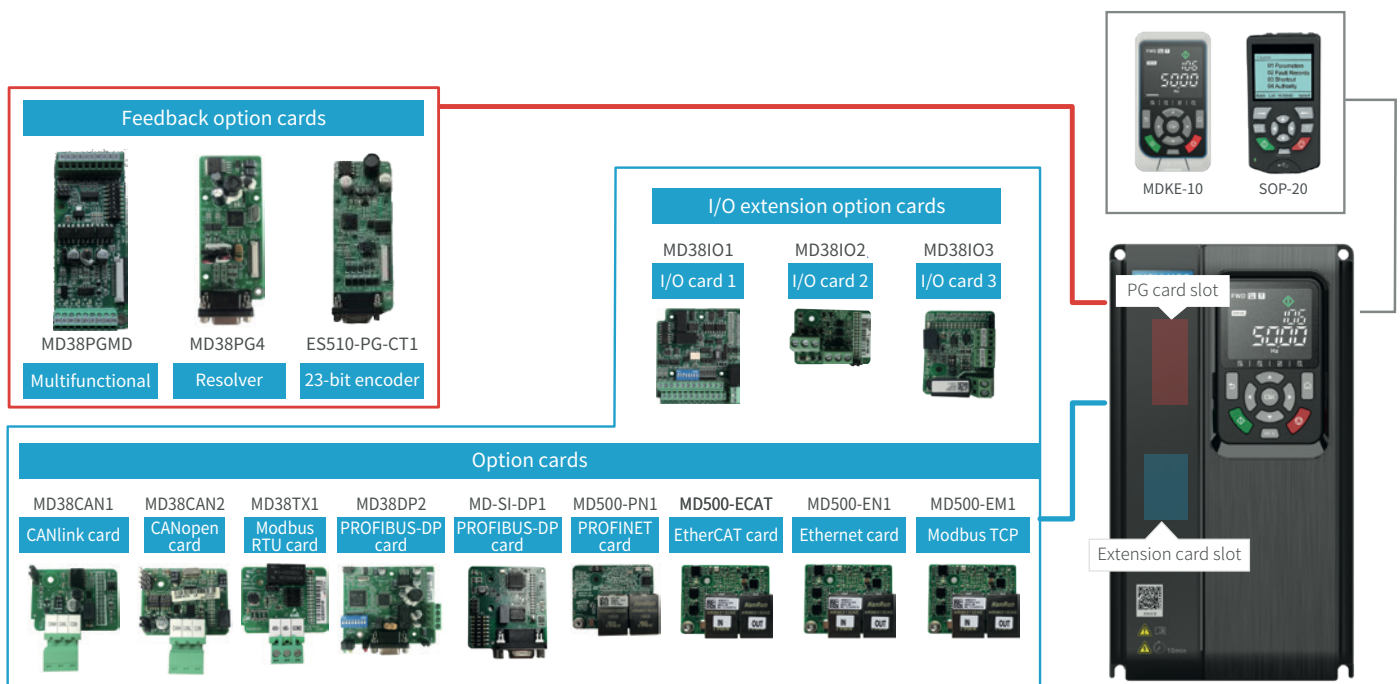


MD520-4T200(S)-L-INT to MD520-4T400(S)-L-INT



MD520-PLUS Model	Frame size	Dimensions (mm)										Mass (kg)
		A	A1	B	B1	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 MD520-4T3.7B(S)-INT, MD520-4T5.5B(S)-INT	T1	119	/	189	/	200	/	130	/	152	Ø5	1.6
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	/	525	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	/	554	580	338	/	315	Ø10	51.5
MD520-4T132(S)-INT, MD520-4T160(S)-INT	T9	320	/	890	/	874	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
		240	200	1,280	432	1,683	1,733	340	400	545	Ø16	245

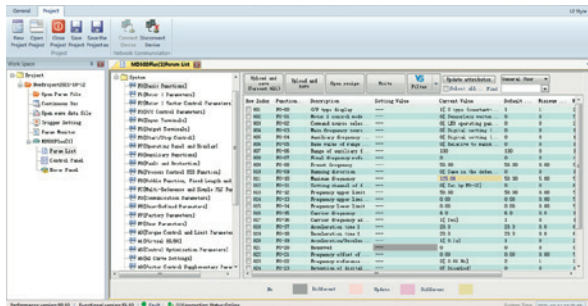
## Option cards and mounting position



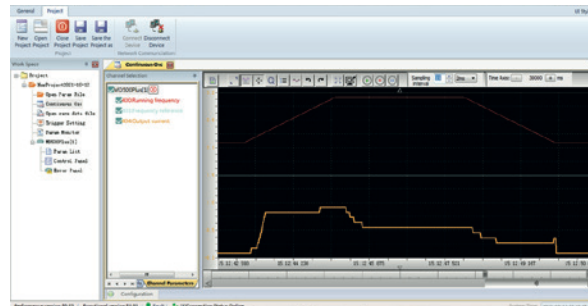
## PC software tools

### 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.	T models: 90G
	MDBUN-90-5T	External braking unit, rated current 90 A, for supply input voltage 380 to 480 Vac AC drives.	T models: 110G - 132G
	MDBUN-200-5T	External braking unit, rated current 200 A, for supply input voltage 380 to 480 Vac AC drives.	T 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
	MDBUN-90-2T	External braking unit, rated current 90 A, for supply input voltage 200 to 240 VAC AC drives.	2T models: 55G
Keypads	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
I/O extension cards	MD38IO1	I/O extension card 1, provides: 5x DI, 1x AI, 1x relay output, 1x DO, 1x AO, Modbus-RTU and CANlink.	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
Fieldbus cards	MD500-ECAT	EtherCAT option card.	All
	MD500-EN1	Ethernet option card.	All
	MD38CAN1	CANlink option card, supports only CANlink.	All
	MD38CAN2	CANopen option card, supports only CANopen.	All
	MD38TX1	Modbus-RTU option card.	All
	MD38DP2	PROFIBUS-DP option card.	Frame sizes T4-T12
	MD500-EM1	Modbus TCP option card.	All
	MD-SI-DP1	PROFIBUS-DP option card (designed for smaller frames).	All
PG cards	MD500-PN1	PROFINET option card.	All
	MD38PG4	Option card for resolver (10 kHz excitation) with DB9 connector.	All
	MD38PGMD	Multifunctional encoder option card, compatible with differential, open-collector and push-pull encoder types. Supports differential output and open-collector output.	All
Mounting brackets	ES510-PG-CT1	23-bit encoder card.	All
	MD500-AZJ-A1T1	Through hole mounting bracket - MD290/MD500 for frame T1.	Frame size T1
	MD500-AZJ-A1T2	Through hole mounting bracket - MD290/MD500 for frame T2.	Frame size T2
	MD500-AZJ-A1T3	Through hole mounting bracket - MD290/MD500 for frame T3.	Frame size T3
	MD500-AZJ-A1T4	Through hole mounting bracket - MD290/MD500 for frame T4.	Frame size T4
	MD500-AZJ-A1T5	Through hole mounting bracket - MD290/MD500 for frame T5.	Frame size T5
	MD500-AZJ-A1T6	Through hole mounting bracket - MD290/MD500 for frame T6.	Frame size T6
	MD500-AZJ-A1T7	Through hole mounting bracket - MD290/MD500 for frame T7.	Frame size T7
	MD500-AZJ-A1T8	Through hole mounting bracket - MD290/MD500 for frame T8.	Frame size T8
MD500-AZJ-A1T9	Through hole mounting bracket - MD290/MD500 for frame T9.	Frame size T9	
Guide rails	MD500-AZJ-A3T10	Guide rails for inserting in/ extracting from the cabinet - frame sizes T10 to T12.	Frame sizes T10-T12

# Driven by technology

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AC MultiDrives



MV drives



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Multi-Axis servos



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PLCs & HMIs



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