

INOVANCE

MD500 AC Drive

Open & closed loop general purpose drive

Wide operating voltage
Three-phase 380 to 480 Vac
0.4 to 450 kW
Three phase 200 to 240 Vac

Operation in high ambient
temperature  50°C
Please note: If operating above
40°C derating is required

Built-in DC reactor
(400 V: 18.5 kW and above;
200 V: 11 kW and above)

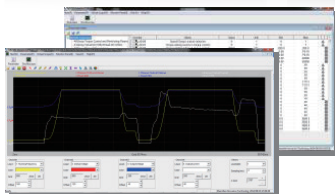
CE  US
LISTED
E467465
IND. CONT. EQ.*1

Enhanced reliability

Conformally coated PCBs
suitable for 3S2 and 3C3
environments
(acc. to IEC 60721-3-3)

Features & functions

- Open loop V/F & SVC control
- Closed loop FVC control
- Starting torque
 - 150% at 0.25 Hz for SVC
 - 180% at 0 Hz for FVC
- Communication options:
 - Modbus-RTU
 - PROFIBUS-DP
 - CANopen
 - CANlink
 - PROFINET
 - EtherCAT
- Automatic torque boost
- Slip compensation
- 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: 500 Hz
- Built-in dynamic braking unit



PC-based
software: simplified
start up & backup*2

Through-hole mounting
options (0.4 to 160 kW)

*1 cUL is available for 380-480 Vac models. For other voltages, please consult with your local Inovance representative.
*2 PC comms kit is required (optional accessory)

General specifications

Voltage class  		Three-phase 380 to 480 Vac										
MD500TxxxGB-INT		0.4	0.7	1.1	1.5	2.2	3.0	3.7	5.5	7.5	11	15
Frame size		T1 ^{*1}						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
	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] ^{*2}	1.5	2.1	3.1	3.8	5.1	7.2	9.0	13	17	25	32
	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	500 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	3.0
	Minimum resistance [Ω]	96	96	96	96	64	64	32	32	32	24	24
Braking unit		Built-in										
Enclosure		IP20										

Voltage class  		Three-phase 380 to 480 Vac										
MD500TxxxG(B)-INT		18.5GB	22GB	30GB	37GB	45GB	55GB	75GB	90G	110G	132G	160G
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
	Rated input frequency	50/60 Hz ±5%										
Drive output	Applicable motor [kW]	18.5	22	30	37	45	55	75	90	110	132	160
	Output current [A] ²	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)										
	Max. output frequency	500 Hz										
Braking resistor	Recommended power [kW]	4	4.5	6	7	9	11	15	18	22	26	32
	Minimum resistance [Ω]	24	24	19.2	14.8	12.8	9.6	6.8	11.4 x2 ³	7.7 x2 ³	7.7 x2 ³	7.7 x2 ³
Braking unit		Built-in							MDBUN-60-5T x2	MDBUN-90-5T x2		
Enclosure		IP20										

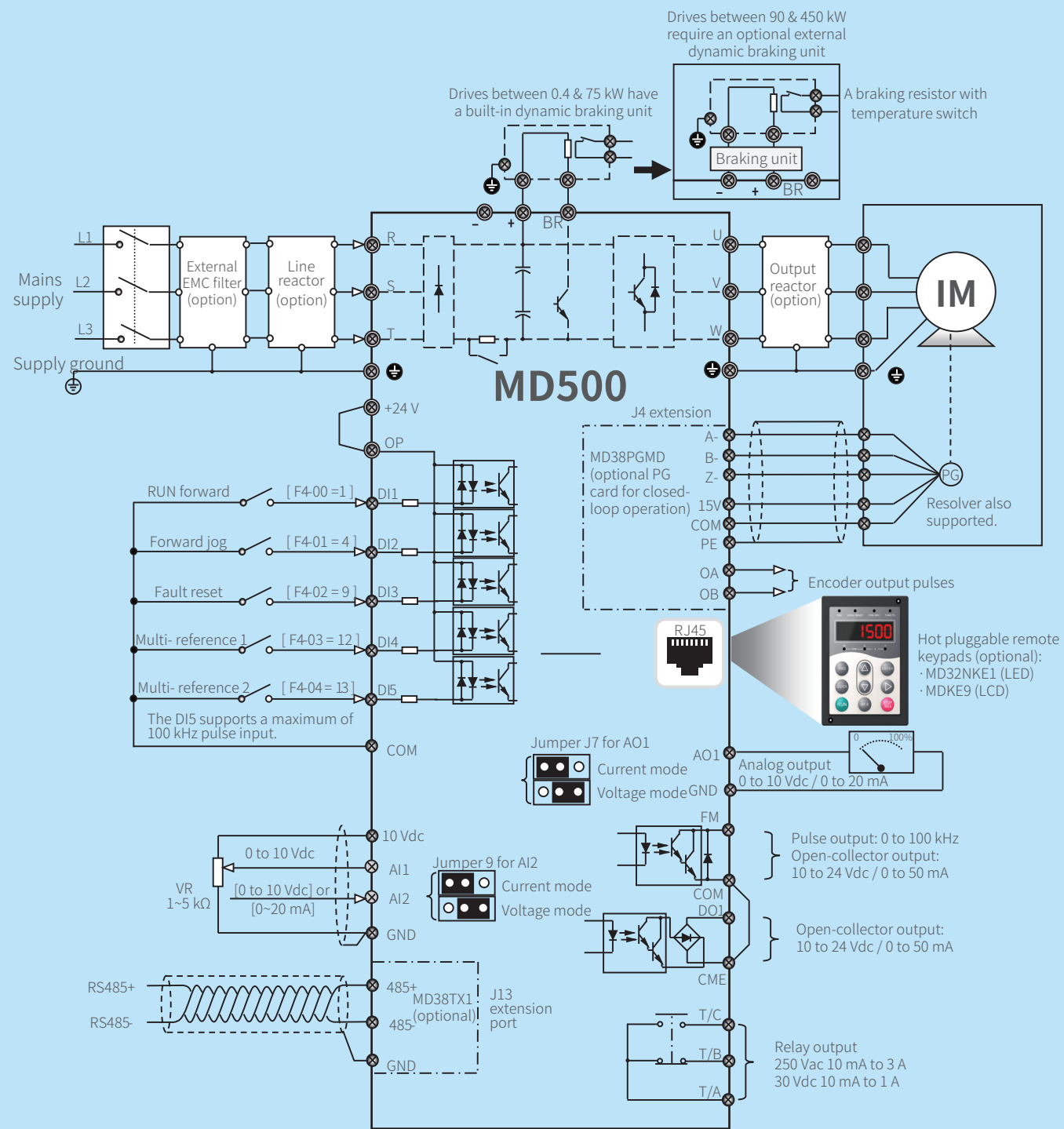
*1 0.75/1.5/2.2 kW are the preferred stocking ratings. To learn more, please get in touch with your local Inovance representative.
*2 Rated output current at default carrier frequency.
*3 Minimum value of the resistance for each braking unit.

Voltage class  		Three-phase 380 to 480 Vac							
MD500TxxxG-INT ^{*4}		200	220	250	280	315	355	400	450
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	782
	Power capacity [kVA]	334	375	404	453	517	565	629	716
	Rated input frequency	50/60 Hz ±5%							
Drive output	Applicable motor [kW]	200	220	250	280	315	355	400	450
	Output current [A] ^{*2}	377	426	465	520	585	650	725	820
	Default carrier frequency [kHz]	3	3	3	3	3	3	3	3
	Overload capacity	150% for 60 s							130% for 60 s
	Max. output voltage	Three-phase 380 to 480 Vac (proportional to input voltage)							
	Max. output frequency	500 Hz							
Braking resistor	Recommended power [kW]	38	42	48	54	60	69	78	87
	Minimum resistance [Ω]	2.8 x2 ^{*3}	2.8 x2 ^{*3}	2.8 x3 ^{*3}	2.8 x3 ^{*3}	2.8 x3 ^{*3}	2.8 x3 ^{*3}	2.8 x3 ^{*3}	2.8 x3 ^{*3}
Braking unit		MDBUN-200-5T x2		MDBUN-200-5T x3					
Enclosure		IP00							

Voltage class 		Three-phase 200 to 240 Vac																
MD500-2TxxxG(B)-INT		0.4GB	0.7GB	1.1GB	1.5GB	2.2GB	3.7GB	5.5GB	7.5GB	11GB	15GB	18.5GB	22GB	30GB	37GB	45G	55G	
Frame size		T1 ¹				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	11.4	16.7	32.2	41.3	51.3	57	69	89	106	139	164	196	
	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] ²	2.1	3.8	5.1	7.2	9	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	500 Hz																
Braking resistor	Recommended power [kW]	90	160	250	340	500	800	1300	1700	2300	3000	3900	4600	5500	6800	5000x2	6000x2	
	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	
Braking unit		Built-in														MDBUN-60-2T x2		MDBUN-90-2T x2
Enclosure		IP20																

*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.
*4 For the standard AC drive, motor cable length should be <100m. Where it is >100m, we recommend the “L” option with 1% voltage drop output reactors to overcome the effects of voltage reflections on the motor windings (e.g. drive model MD500T200G-L-INT). To discuss your application, consult your local Inovance representative.

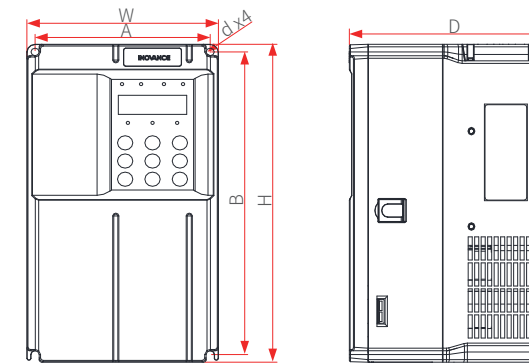
General wiring diagram



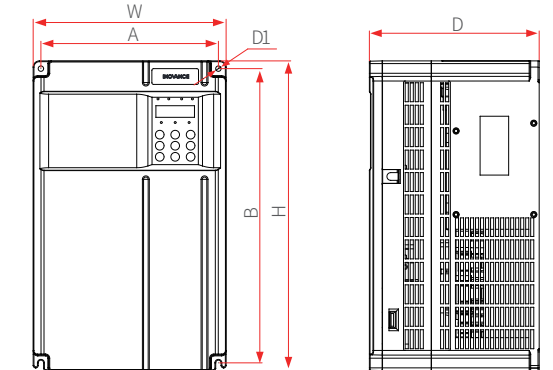
Note: This wiring diagram shows the digital inputs used in NPN (SINK) configuration. They can be used also as PNP (SOURCE) configuration.

Dimensions

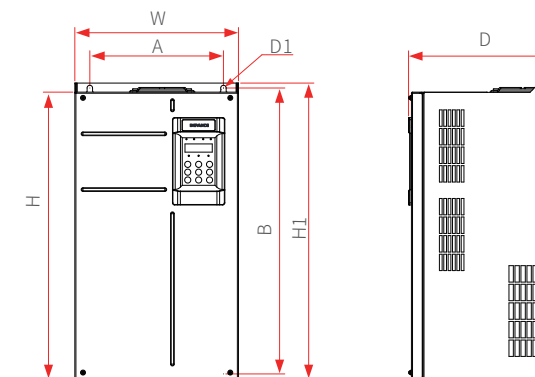
MD500T0.4GB-INT to MD500T15GB-INT
MD500-2T0.4GB-INT to MD500-2T7.5GB-INT



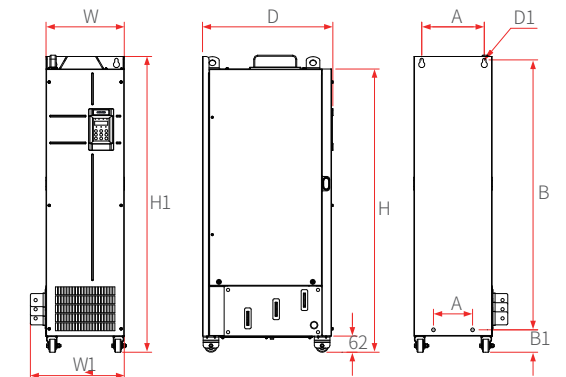
MD500T18.5GB-INT to MD500T37GB-INT
MD500-2T11GB-INT to MD500-2T18.5GB-INT



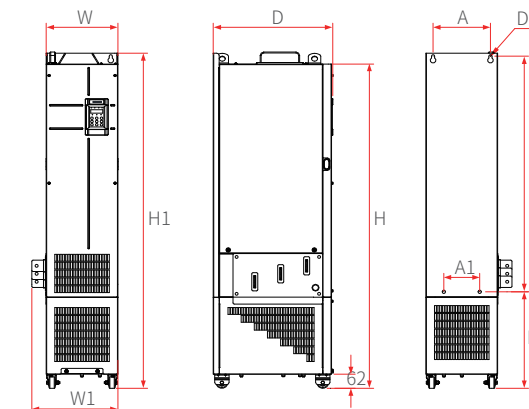
MD500T45GB-INT to MD500T160G-INT
MD500-2T22GB-INT to MD500-2T55G-INT



MD500T200G-INT to MD500T450G-INT



MD500T200G-L-INT to MD500T450G-L-INT



MD500 model	Frame size	Dimensions (mm)										Mass (kg)
		A	A1	B	B1	H	H1	W	W1	D	D1	
MD500T0.4GB-INT, MD500T0.7GB-INT, MD500T1.1GB-INT MD500T1.5GB-INT, MD500T2.2GB-INT, MD500T3.0GB-INT MD500-2T0.4GB-INT, MD500-2T0.7GB-INT, MD500-2T1.1GB-INT, MD500-2T1.5GB-INT	T1	119	/	189	/	200	/	130	/	152	Ø5	1.6
MD500T3.7GB-INT, MD500T5.5GB-INT, MD500T2.2GB-INT, MD500-2T3.7GB-INT	T2	119	/	189	/	200	/	130	/	162	Ø5	2.0
MD500T7.5GB-INT, MD500T11GB-INT, MD500-2T5.5GB-INT	T3	128	/	238	/	250	/	140	/	170	Ø6	3.3
MD500T15GB-INT, MD500-2T7.5GB-INT	T4	166	/	266	/	280	/	180	/	170	Ø6	4.3
MD500T18.5GB-INT, MD500T22GB-INT, MD500-2T11GB-INT	T5	195	/	335	/	350	/	210	/	192	Ø6	10
MD500T30GB-INT, MD500T37GB-INT, MD500-2T15GB-INT, MD500-2T18.5GB-INT	T6	230	/	380	/	400	/	250	/	220	Ø7	17.5
MD500T45GB-INT, MD500T55GB-INT, MD500-2T22GB-INT, MD500-2T30GB-INT	T7	245	/	523	/	525	542	300	/	275	Ø10	35
MD500T75GB-INT, MD500T90G-INT, MD500T110G-INT MD500-2T37GB-INT, MD500-2T45G-INT, MD500-2T55G-INT	T8	270	/	560	/	554	580	338	/	315	Ø10	51.5
MD500T132G-INT, MD500T160G-INT	T9	320	/	890	/	874	915	400	/	320	Ø10	85
MD500T200G-INT, MD500T220G-INT	T10	240	150	1,035	86	1,086	1,134	300	360	500	Ø13	110
MD500T200G-L-INT, MD500T220G-L-INT		240	150	1,035	424	1,424	1,472	300	360	500	Ø13	160
MD500T250G-INT, MD500T280G-INT	T11	225	185	1,175	97	1,248	1,284	330	390	545	Ø13	155
MD500T250G-L-INT, MD500T280G-L-INT		225	185	1,175	435	1,586	1,622	330	390	545	Ø13	215
MD500T315G-INT, MD500T355G-INT, MD500T400G-INT, MD500T450G-INT	T12	240	200	1,280	101	1,355	1,405	340	400	545	Ø16	185
MD500T315G-L-INT, MD500T355G-L-INT, MD500T400G-L-INT, MD500T450G-L-INT		240	200	1,280	432	1,683	1,733	340	400	545	Ø16	245

Extension cards and mounting position

PG cards



MD38PGMD
Multifunction

MD38PG4
Resolver

I/O cards



MD38IO1
I/O card 1

MD38IO2
I/O card 2

MD38IO3
I/O card 3

MD38PC1
PLC card

Fieldbus cards



MD38CAN1
CANlink card

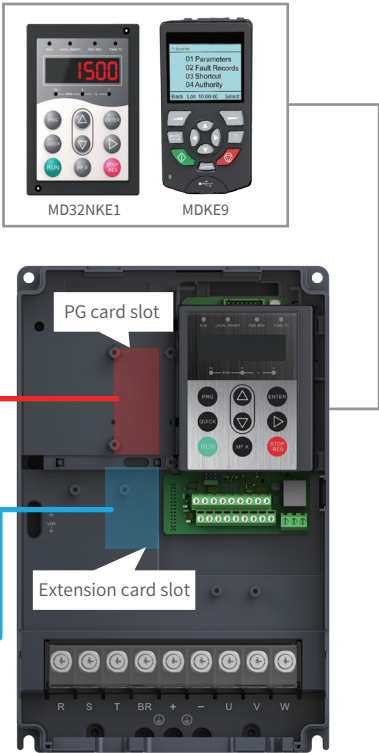
MD38CAN2
CANopen card

MD38TX1
Modbus RTU card

MD38DP2
PROFIBUS-DP card

MD500-PN1
PROFINET card

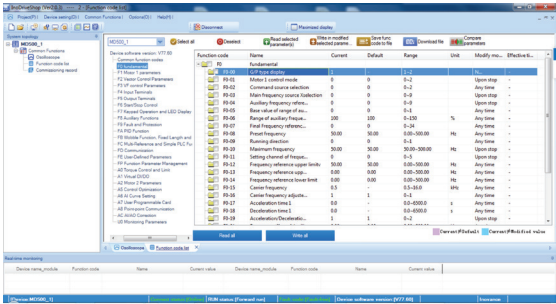
MD500-ECAT
EtherCAT card



PC software tools

InoDriveShop

InoDriveShop is Inovance's PC-based software offering. It is based on a familiar Windows interface. InoDriveShop can upload and download drive parameters, and features a variety of other functions, such as a real-time oscilloscope



Parameter uploading/downloading



Multi-drive, multi-channel oscilloscope

Accessories list

Category	Model	Function description	Suitable for
External braking units	MDBUN-60-2T	External braking unit, rated current 60 A, for supply input voltage 200 to 240 Vac AC drives.	2T models: 45 G - 55 G
	MDBUN-200-5T	External braking unit, rated current 200 A, for supply input voltage 380 to 480 Vac AC drives.	T models: 200 G - 450 G
	MDBUN-60-5T	External braking unit, rated current 60 A, for supply input voltage 380 to 480 Vac AC drives.	T models: 90 G - 110 G
	MDBUN-90-5T	External braking unit, rated current 90 A, for supply input voltage 380 to 480 Vac AC drives.	T models: 132 G - 160 G
Keypads	MD32NKE1	Remote LED keypad. Includes MDCAB cable.	All
	MDKE9	Remote LCD keypad. For parameter programming and monitoring, data copy (for various MD series). 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 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
PLC cards	MD38PC1	PLC card, compatible with Inovance PLC.	Frame sizes T4-T12
Fieldbus cards	MD500-ECAT	EtherCAT communication card.	All
	MD38CAN1	CANlink communication card, supports only CANlink.	All
	MD38CAN2	CANopen communication card, supports only CANopen.	All
	MD38TX1	Modbus-RTU communication card.	All
	MD38DP2	PROFIBUS-DP communication card.	Frame sizes T4-T12
	MD500-PN1	PROFINET communication card.	All
PG cards	MD38PG4	Interface card for resolver (10 kHz excitation) with DB9 connector.	All
	MD38PGMD	Multifunctional encoder card, compatible with differential, open-collector and push-pull encoder types. Supports differential output and open-collector output.	All
PC comms kit	MDPCKIT02	Kit for connection with a personal computer, to be used with PC software tools.	All
Mounting brackets	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
	MD500-AZJ-A3T10	Guide rails for inserting in/ extracting from the cabinet - frame sizes T10 to T12.	Frame sizes T10-T12

Driven by technology

AC drives



AC MultiDrives



MV drives



Single-Axis servos



Multi-Axis servos



Robotics & motion controllers



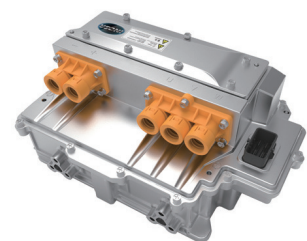
PLCs & HMIs



CNC machine tool solutions



Electric vehicle inverters



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