INOVANCE

MD500 AC Drive

Open & closed loop general purpose drive

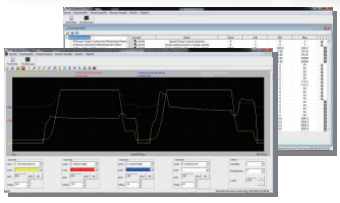
Wide operating voltage
Three-phase 380 to 480 Vac
0.4 to 450 kW
Three phase 200 to 240 Vac

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

Built-in DC reactor
(400V: 18.5 kW and above;
200V: 15 kW and above)

Enhanced reliability

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



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

Through-hole mounting options (0.4 to 160 kW)

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
- 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

*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										
Drive model: MD500T**xxxGx**-INT		0.4GB	0.7GB	1.1GB	1.5GB	2.2GB	3.0GB	3.7GB	5.5GB	7.5GB	11GB	15GB
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
	Recommended resistance [Ω]	1450	800	500	380	260	190	150	100	75	50	38
Braking unit		Built-in										
Enclosure		IP20										

Voltage Class		Three-phase 380 to 480 Vac										
Drive model: MD500T**xxxGx**-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]	49.5	59	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
	Recommended resistance [Ω]	32	27	20	16	13	10.5	7.7	6.4	5.3	4.4	3.6
Braking unit		Built-in							MDBUN-60-5T		MDBUN-90-5T	
Enclosure		IP20										

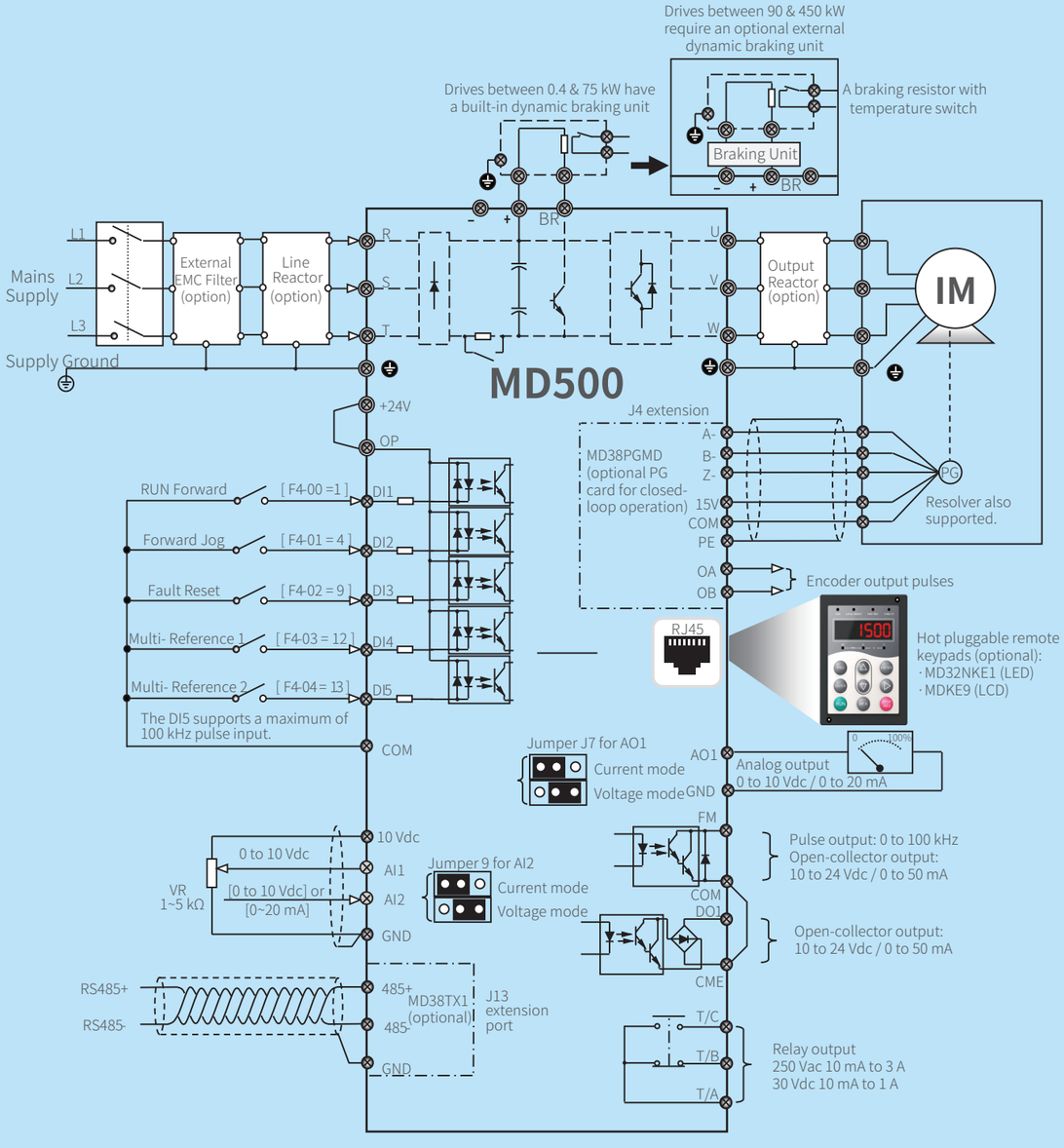
*1 0.75/1.5/2.2 kW are the preferred stocking ratings. To learn more, please get in touch with your local Inovance representative.
*2 Rated output current at default carrier frequency.

Voltage Class		Three-phase 380 to 480 Vac							
Drive model: MD500TxxxG (-L)*3-INT		200G (-L)	220G (-L)	250G (-L)	280G (-L)	315G (-L)	355G (-L)	400G (-L)	450G (-L)
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
	Recommended resistance [Ω]	2.9	2.7	2.3	2.1	1.9	1.7	1.5	1.3
Braking unit		MDBUN-200-5T x2				MDBUN-200-5T x3			
Enclosure		IP00							

Voltage Class		Three-phase 200 to 240 Vac														
Drive model: MD500-2TxxGx-INT		0.4 GB	0.7 GB	1.1 GB	1.5 GB	2.2 GB	3.7 GB	5.5 GB	7.5 GB	11 GB	15 GB	18.5 GB	22 GB	30 GB	37 GB	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	59	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	10	10	12	9	7	6	5	4	4.9x2	4x2
Braking unit		Built-in														MDBUN-60-2T 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 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 Wiring Diagram



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

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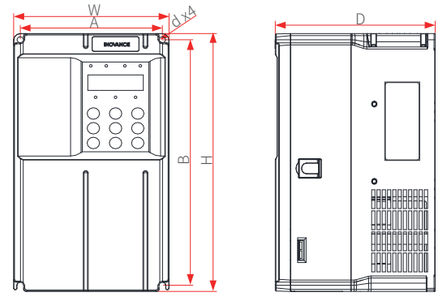
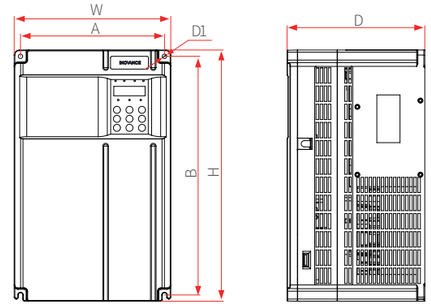
Dimensions

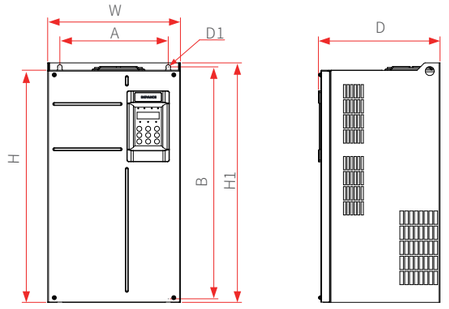
MD500T0.4GB-INT to MD500T15GB-INT
MD500- 2T0.4GB-INT to MD500-2T7.5GB-INT



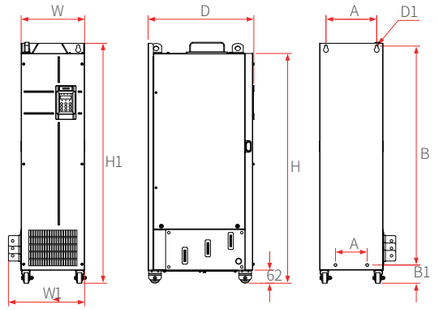
MD500T18.5GB-INT to MD500T37GB-INT
MD500-2T11GB-INT to MD500-2T18.5GB-INT



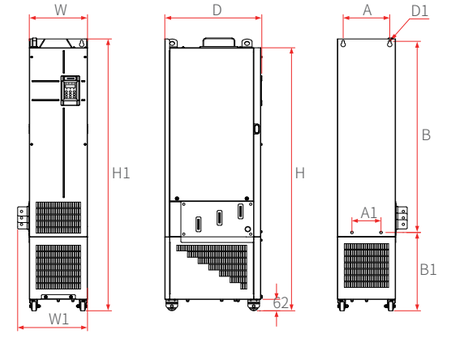
MD500T45GB-INT to MD500T160G-INT
MD500-2T22GB-INT to MD500-2T55G-INT



MD500T200G-INT to MD500T450G-INT

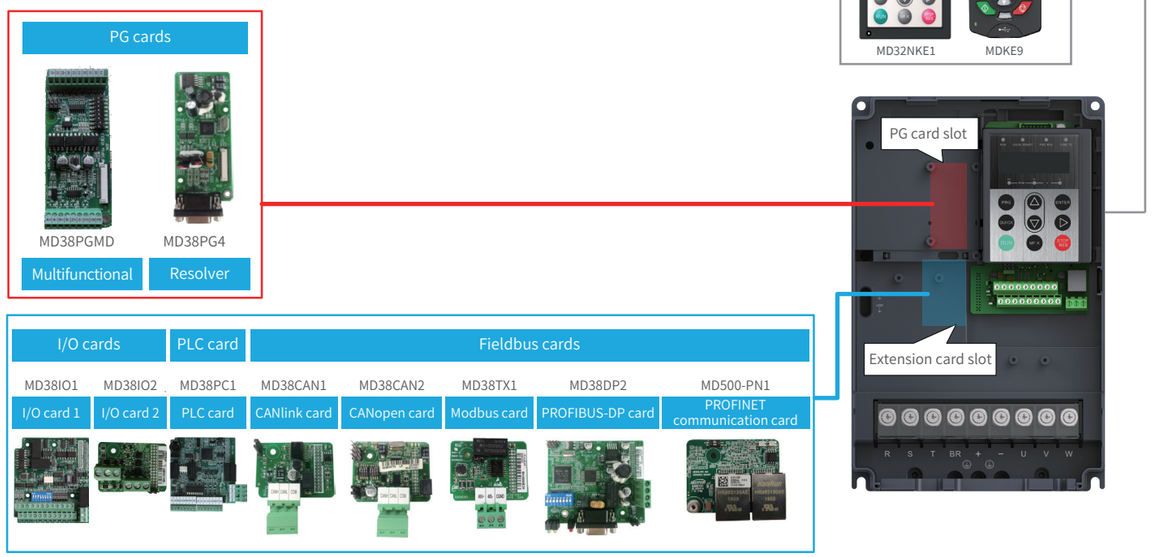


MD500T200G-L-INT to MD500T450G-L-INT



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, MD5002T2.2GB-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

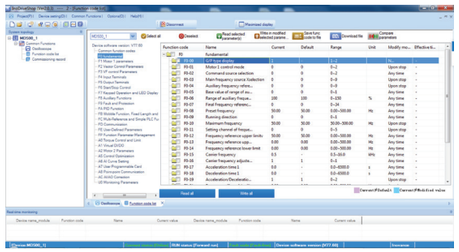
Extension Cards and Mounting Position



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: 45G - 55G
	MDBUN-200-5T	External braking unit, rated current 200 A, for supply input voltage 380 to 480 Vac AC drives.	T models: 200G - 450G
	MDBUN-60-5T	External braking unit, rated current 60 A, for supply input voltage 380 to 480 Vac AC drives.	T models: 90G - 110G
	MDBUN-90-5T	External braking unit, rated current 90 A, for supply input voltage 380 to 480 Vac AC drives.	T models: 132G - 160G
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	MD38CAN1	CANlink bus card, supports only CANlink.	All
	MD38CAN2	CANopen bus 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
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

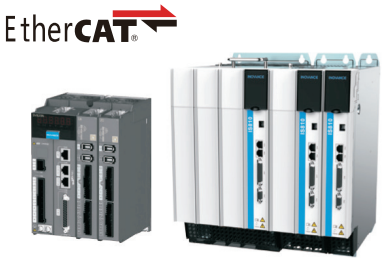
AC Drives

AC Multidrives

MV Drives

Single-Axis Servos

Multi-Axis Servos

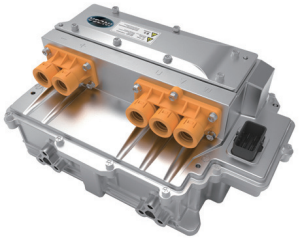


Robotics & Motion Controllers

PLCs & HMIs

CNC Machine Tool Solutions

Electric Vehicle Inverters



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