


INOVANCE

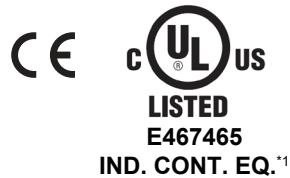
MD290 AC Drive

Open 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: 11 kW and above)



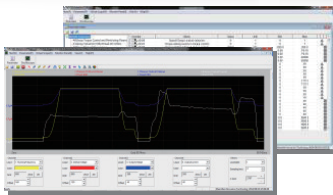
Enhanced reliability

Dual rated
(G type and P type)

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

Features & functions

- Open loop control
- 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										
MD290TxxxG/yyyyPB-INT		0.4G/0.7PB	0.7G/1.1PB	1.1G/1.5PB	1.5G/2.2PB	2.2G/3.0PB	3.0G/3.7PB	3.7G/5.5PB	5.5G/7.5PB	7.5G/11PB	11G/15PB	15G/18.5PB
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]	1.8/2.5	2.4/3.7	3.7/4.6	4.6/6.4	6.3/9.1	9.0/11.3	11.4/15.9	16.7/22.4	21.9/32.9	32.2/39.7	41.3/44
	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]	0.4/0.7	0.7/1.1	1.1/1.5	1.5/2.2	2.2/3.0	3.0/3.7	3.7/5.5	5.5/7.5	7.5/11	11/15	15/18.5
	Output current [A] ^{*2}	1.5/2.1	2.1/3.1	3.1/3.8	3.8/5.1	5.1/7.2	7.2/9.0	9.0/13	13/17	17/25	25/32	32/37
	Default carrier frequency [kHz]	6	6	6	6	6	6	6	6	6	6	6
	Overload capacity	150% for G type and 110% for P type 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
	Minimum resistance [Ω]	96	96	96	96	64	64	32	32	32	24	24
Braking unit		Built-in										
Enclosure		IP 20										

Voltage class  		Three-phase 380 to 480 Vac										
MD290TxxxG/xxxP-INT		18.5G/22P	22G/30P	30G/37P	37G/45P	45G/55P	55G/75P	75G/90P	90G/110P	110G/132P	132G/160P	160G/200P
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	51.3/65.8	57/71	69/86	89/111	106/143	139/167	164/198	196/239	240/295	287/359
	Power capacity [kVA]	54	60	65	79	102	131	153	181	219	270	328
	Rated input frequency	50/60 Hz ±5%										
Drive output	Applicable motor [kW]	18.5/22	22/30	30/37	37/45	45/55	55/75	75/90	90/110	110/132	132/160	160/200
	Output current [A] ^{*2}	37/45	45/60	60/75	75/91	91/112	112/150	150/176	176/210	210/253	253/304	304/377
	Default carrier frequency [kHz]	6	6	6	5	5	4	3	3	3	3	3
	Overload capacity	150% for G type and 110% for P type 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	11.4x2 ^{*3}	7.7x2 ^{*3}	7.7x2 ^{*3}	7.7x2 ^{*3}
Braking unit		Built-in as option (for models MD290TxxxG/yyyyPB-INT)							MDBUN-60-5T x2		MDBUN-90-5T x2	
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.

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

Voltage class  		Three-phase 380 to 480 Vac															
MD290Txxxx-INT ^{*4}		200G	220P	220G	250P	280P	250G	280G	315P	355P	315G	355G	400P	400G	450P	450G	500P
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	410	456	507	441	495	559	624	565	617	708	687	782	782	840
	Power capacity [kVA]	334	375	375	417	464	404	453	511	571	517	565	647	629	715	716	768
	Rated input frequency	50/60 Hz ±5%															
Drive output	Applicable motor [kW]	200	220	220	250	280	250	280	315	355	315	355	400	400	450	450	500
	Output current [A] ^{*2}	377	426	426	465	520	465	520	585	650	585	650	725	725	820	820	880
	Default carrier frequency [kHz]	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	Overload capacity	150% for G type and 110% for P type for 60 s (130% for MD290T450G (-L))															
	Max. output voltage	Three-phase 380 to 480 Vac (proportional to input voltage)															
	Max. output frequency	500 Hz															
Braking resistor	Recommended power [kW]	38	38	42	42	48	48	54	54	60	60	69	69	78	78	87	87
	Minimum resistance [Ω]	2.8 x 2 ⁻³	2.8 x 2 ⁻³	2.8 x 2 ⁻³	2.8 x 2 ⁻³	2.8 x 2 ⁻³	2.8 x 2 ⁻³	2.8 x 3 ⁻³	2.8 x 3 ⁻³	2.8 x 3 ⁻³	2.8 x 3 ⁻³	2.8 x 3 ⁻³	2.8 x 3 ⁻³	2.8 x 3 ⁻³	2.8 x 3 ⁻³	2.8 x 3 ⁻³	2.8 x 3 ⁻³
Braking unit		MDBUN-200-5T x2					MDBUN-200-5T x3										
Enclosure		IP 00															

Voltage class CE		Three-phase 200 to 240 Vac																	
MD290-2TxxxG/yyyP(B)-INT		0.4G/ 0.7PB	0.7G/ 1.1PB	1.1G/ 1.5PB	1.5G/ 2.2PB	2.2G/ 3.7PB	3.7G/ 5.5PB	5.5G/ 7.5PB	7.5G/ 11PB	11G/ 15P	15G/ 18.5P	18.5G/ 22P	22G/ 30P	30G/ 37P	37G/ 45P	45G/ 55P	55G/ 75P		
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/ 3.7	4.6/ 6.4	6.3/ 9.1	9/ 11.3	11.4/ 15.9	16.7/ 22.4	32.2/ 39.7	41.3/ 44	51.3/ 65.8	57/ 71	69/ 86	89/ 111	106/ 143	139/ 167	164/ 198	196/ 239		
	Rated input frequency	50/60 Hz $\pm 5\%$																	
Drive output	Applicable motor [kW]	0.4/0.75	0.75/1.1	1.1/1.5	1.5/2.2	2.2/3.7	3.7/5.5	5.5/7.5	7.5/11	11/15	15/18.5	18.5/22	22/30	30/37	37/45	45/55	55/75		
	Output current [A] ²	2.1/3.1	3.8/5.1	5.1/7.2	7.2/9	9/13	13/17	25/32	32/37	45/60	60/75	75/91	91/112	112/150	150/176	176/210	210/253		
	Default carrier frequency [kHz]	6	6	6	6	6	6	6	6	6	6	5	5	5	4	3	3		
	Overload capacity	150% for G type & 110% for P type 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								Built-in as option (for models MD290-2TxxxG/yyyPB-INT)						MD290-60-2T x2		MD290-90-2T x2	
Enclosure		IP20																	

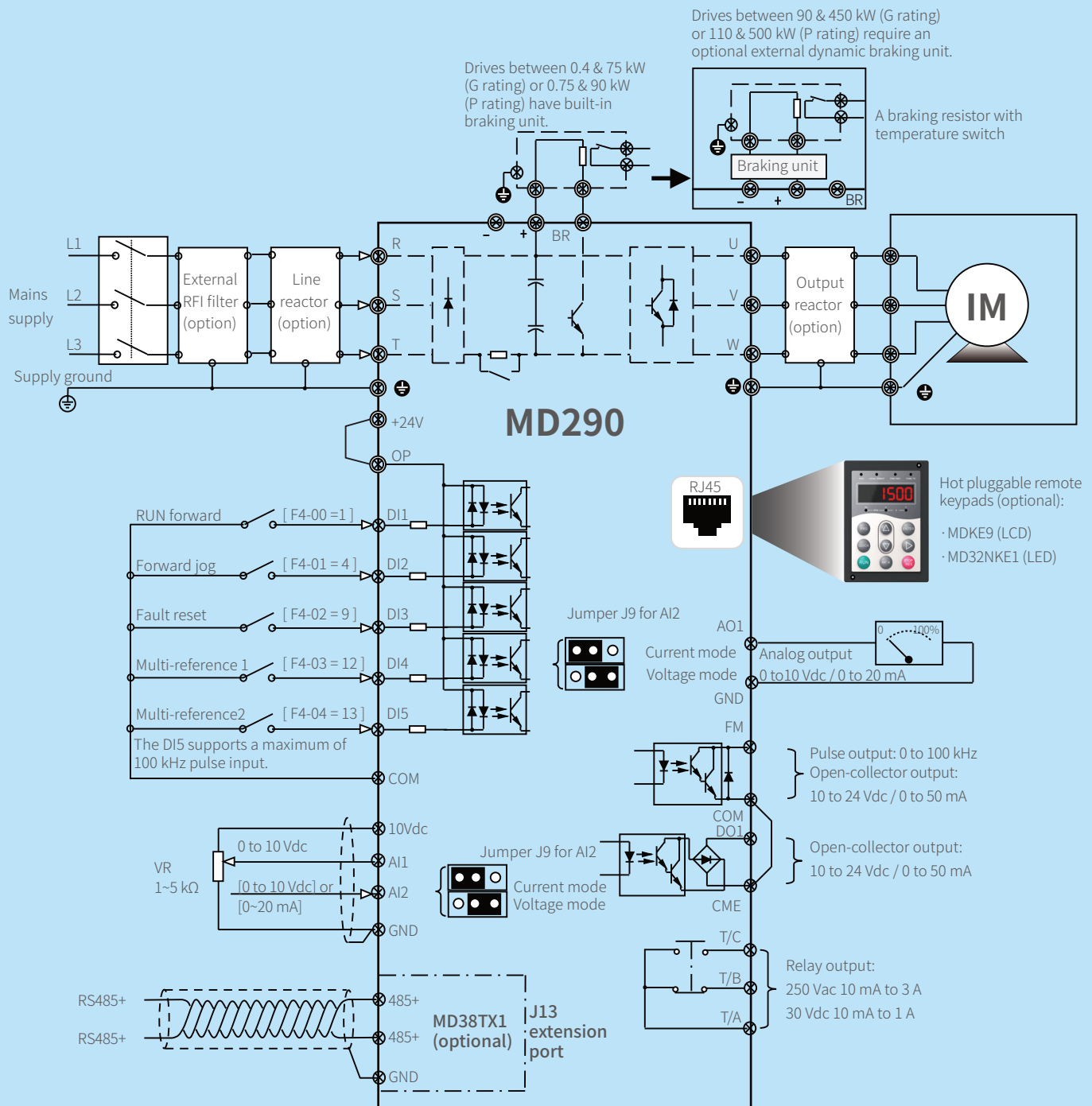
*1 0.75/1.5/2.2 kW are the preferred stocking ratings. To learn more, please get in touch with your local Inovance representative.

*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 M290T200G-L-INT). To discuss your application, consult your local Inovance representative.

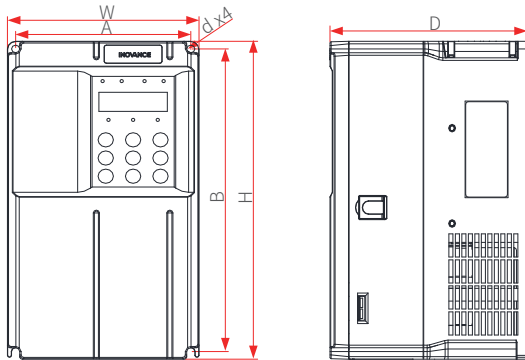
General wiring diagram



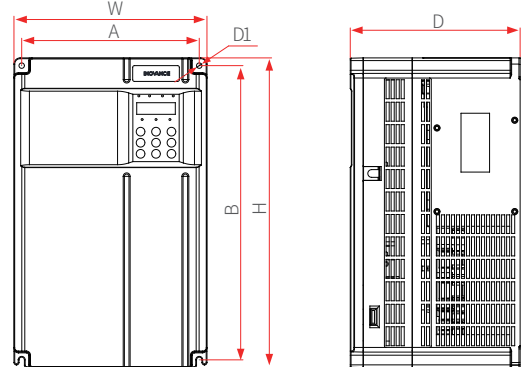
Note: This wiring diagram shows the digital inputs used in NPN (SINK) configuration. They can be used also as PNP (SOURCE) configuration.

Dimensions

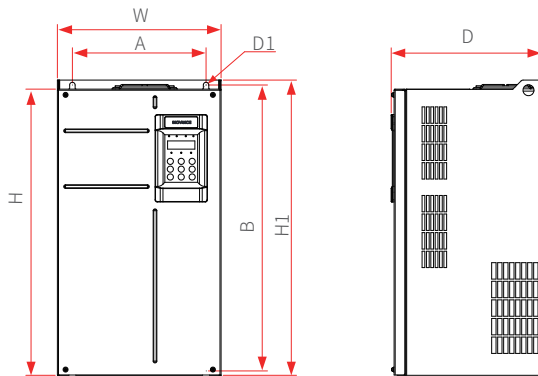
MD290T0.4G/0.7PB-INT to MD290T15G/18.5PB-INT
MD290-2T0.4G/0.7PB-INT to MD290-2T7.5G/11PB-INT



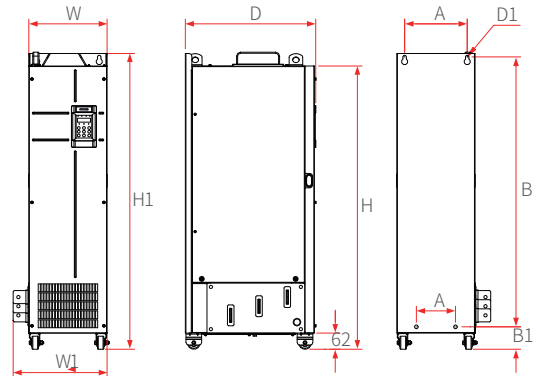
MD290T18.5G/22P(B)-INT to MD290T37G/45P(B)-INT
MD290-2T11G/15P(B)-INT to MD290-2T18.5G/22P(B)-INT



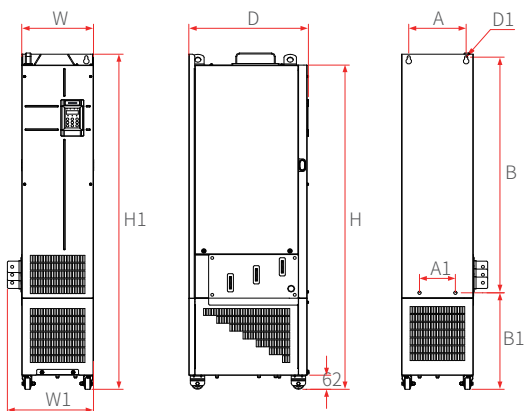
MD290T45G/55P(B)-INT to MD290T160G/200P-INT
MD290-2T22G/30P(B)-INT to MD290-2T55G/75P-INT



MD290T200G-INT to MD290T450G-INT
MD290T220P-INT to MD290T500P-INT

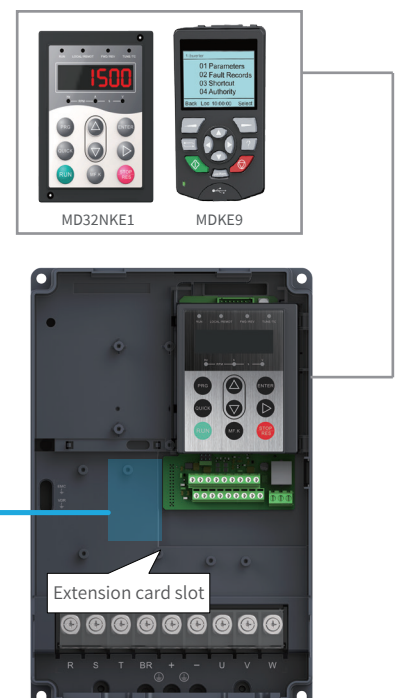
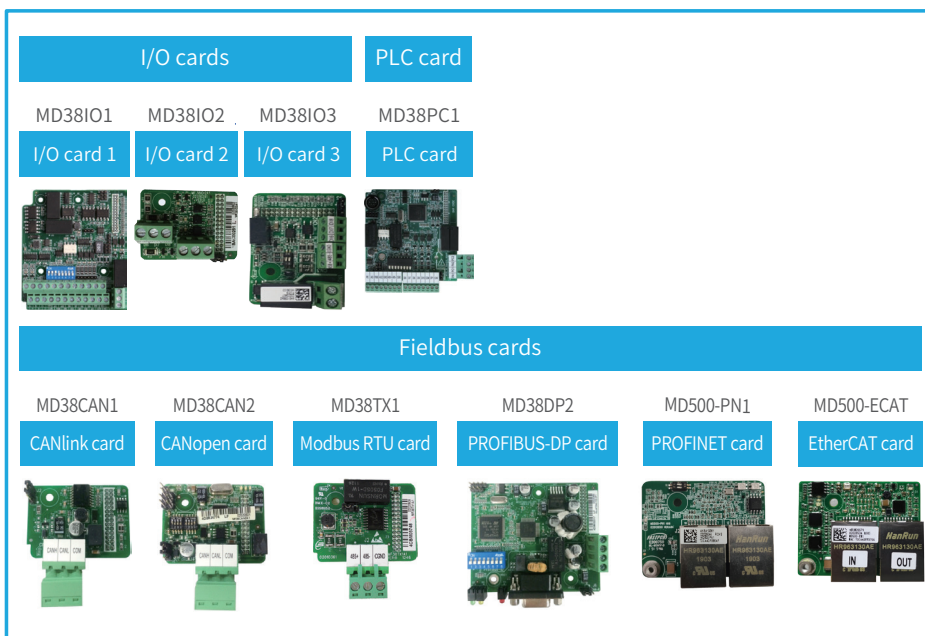


MD290T200G-L-INT to MD290T450G-L-INT
MD290T220P-L-INT to MD290T500P-L-INT



MD290 model	Frame size	Dimensions (mm)										Mass (kg)
		A	A1	B	B1	H	H1	W	W1	D	D1	
MD290T0.4G/0.7PB-INT, MD290T0.7G/1.1PB-INT, MD290T1.1G/1.5PB-INT MD290T1.5G/2.2PB-INT, MD290T2.2G/3.0PB-INT, MD290T3.0G/3.7PB-INT MD290-2T0.4G/0.7PB-INT, MD290-2T0.7G/1.1PB-INT, MD290-2T1.1G/1.5PB-INT, MD290-2T1.5G/2.2PB-INT	T1	119	/	189	/	200	/	130	/	152	Ø5	1.6
MD290T3.7G/5.5PB-INT, MD290T5.5G/7.5PB-INT MD290-2T2.2G/3.7PB-INT, MD290-2T3.7G/5.5PB-INT	T2	119	/	189	/	200	/	130	/	162	Ø5	2.0
MD290T7.5G/11PB-INT, MD290T11G/15PB-INT, MD290-2T5.5G/7.5PB-INT	T3	128	/	238	/	250	/	140	/	170	Ø6	3.3
MD290T15G/18.5PB-INT, MD290-2T7.5G/11PB-INT	T4	166	/	266	/	280	/	180	/	170	Ø6	4.3
MD290T18.5G/22P(B)-INT, MD290T22G/30P(B)-INT, MD290-2T11G/15P(B)-INT	T5	195	/	335	/	350	/	210	/	192	Ø6	10
MD290T30G/37P(B)-INT, MD290T37G/45P(B)-INT MD290-2T15G/18.5P(B)-INT, MD290-2T18.5G/22P(B)-INT	T6	230	/	380	/	400	/	250	/	220	Ø7	17.5
MD290T45G/55P(B)-INT, MD290T55G/75P(B)-INT MD290-2T22G/30P(B)-INT, MD290-2T30G/37P(B)-INT	T7	245	/	523	/	525	542	300	/	275	Ø10	35
MD290T75G/90P(B)-INT, MD290T90G/110P-INT, MD290T110G/132P-INT MD290-2T37G/45P(B)-INT, MD290-2T45G/55P-INT, MD290-2T55G/75P-INT	T8	270	/	560	/	554	580	338	/	315	Ø10	51.5
MD290T132G/160P-INT, MD290T160G/200P-INT	T9	320	/	890	/	874	915	400	/	320	Ø10	85
MD290T200G-INT, MD290T220P-INT, MD290T220G-INT, MD290T250P-INT MD290T280P-INT	T10	240	150	1,035	86	1,086	1,134	300	360	500	Ø13	110
MD290T200G-L-INT, MD290T220P-L-INT, MD290T220G-L-INT, MD290T250P-L-INT, MD290T280P-L-INT		240	150	1,035	424	1,424	1,472	300	360	500	Ø13	160
MD290T250G-INT, MD290T280G-INT, MD290T315P-INT, MD290T355P-INT MD290T250G-L-INT, MD290T280G-L-INT, MD290T315P-L-INT, MD290T355P-L-INT	T11	225	185	1,175	97	1,248	1,284	330	390	545	Ø13	155
		225	185	1,175	435	1,586	1,622	330	390	545	Ø13	215
MD290T315G-INT, MD290T355G-INT, MD290T400P-INT, MD290T400G-INT, MD290T450P-INT, MD290T450G-INT, MD290T500P-INT MD290T315G-L-INT, MD290T355G-L-INT, MD290T400P-L-INT, MD290T400G-L-INT, MD290T450P-L-INT, MD290T450G-L-INT, MD290T500P-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

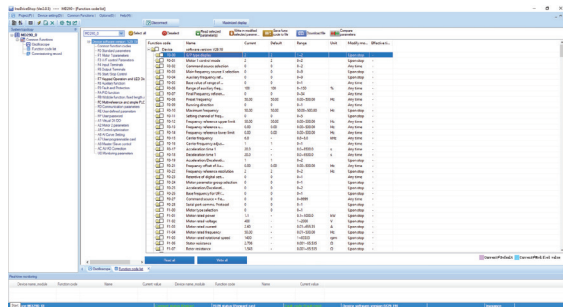
Extension cards and mounting position



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 card	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
PC comms kit	MD500-PN1	PROFINET communication card.	All
	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



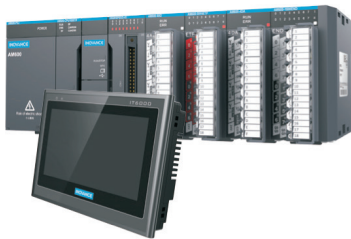
Multi-Axis Servos



Robotics & Motion Controllers



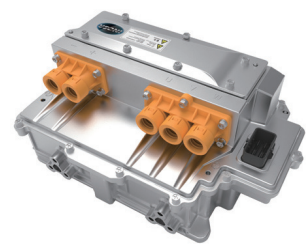
PLCs & HMIs




CNC Machine Tool Solutions





Electric Vehicle Inverters





International Offices


 **Germany-Stuttgart**
☎: +49 (0) 7144 8990
✉: sales.de@inovance.eu

 **Italy-Milano**
☎: +39 (0) 2268 22318
✉: sales.it@inovance.eu

 **France-Bordeaux**
☎: +33 (0) 5594 01050
✉: sales.fr@inovance.eu

 **Turkey-Istanbul**
☎: +90 (216) 706 17 89
✉: info@inovance.eu

 **India**
Head Office Chennai
☎: +91 (0) 44 4380 0201
Ahmedabad
☎: +91 (0) 79 4003 4274
Mumbai
☎: +91 (0) 22 4971 5883
New Delhi
☎: +91 (0) 11 4165 4524
Sales Network in Kolkata, Bengaluru,
Coimbatore, Hyderabad, Pune, Vadodara
✉: info.inovaindia@inova-automation.com

 **South Korea-Seoul**
☎: +82 (0) 10 7428 5732
✉: info@inovance.eu

 **Hong Kong SAR**
International export office
☎: +852 2751 6080
✉: info@inovance.eu

For other country distributors,
contact the Hong Kong office.

Inovance Technology Companies
Shenzhen Inovance Technology Co. Ltd.
Suzhou Inovance Technology Co. Ltd.

INOVANCE
www.inovance.eu