


## 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: 15 kW and above)

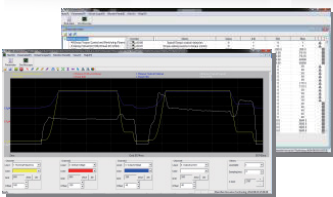


Enhanced reliability

Dual rated (G type and P type)

### Features & Functions

- Open loop control
- 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



PC-Based  
software:  
simplified  
start up &  
backup<sup>2</sup>

Through-hole mounting  
options (0.4 to 160 kW)

<sup>1</sup> cUL is available for 380-480 Vac models. For other voltages, please consult with your local Inovance representative.

<sup>2</sup> PC comms kit is required (optional accessory)

## General Specifications

Voltage Class		Three-phase 380 to 480 Vac										
Drive model: MD290TxxG/xxPB-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 <sup>1</sup>					T2	T3	T4			
Drive Input	Rated input voltage	Three-phase 380 to 480 Vac, -15% to +10%										
	Rated input current [A]	1.8/2.5	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] <sup>2</sup>	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
	Recommended resistance [Ω]	1450	800	500	380	260	190	150	100	75	50	38
Braking unit		Built-in										
Enclosure		IP 20										

Voltage Class		Three-phase 380 to 480 Vac											
Drive model: MD290TxxG/xxPx-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]	49.5/59	59/65.8	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] <sup>2</sup>	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	
	Recommended resistance [Ω]	32	27	20	16	13	10.5	7.7	6.4	5.3	4.4	3.6	
Braking unit		Built-in (For models MD290TxxG/xxPB-INT)					MDBUN-60-5T x2			MDBUN-90-5T x2			
Enclosure		IP 20											

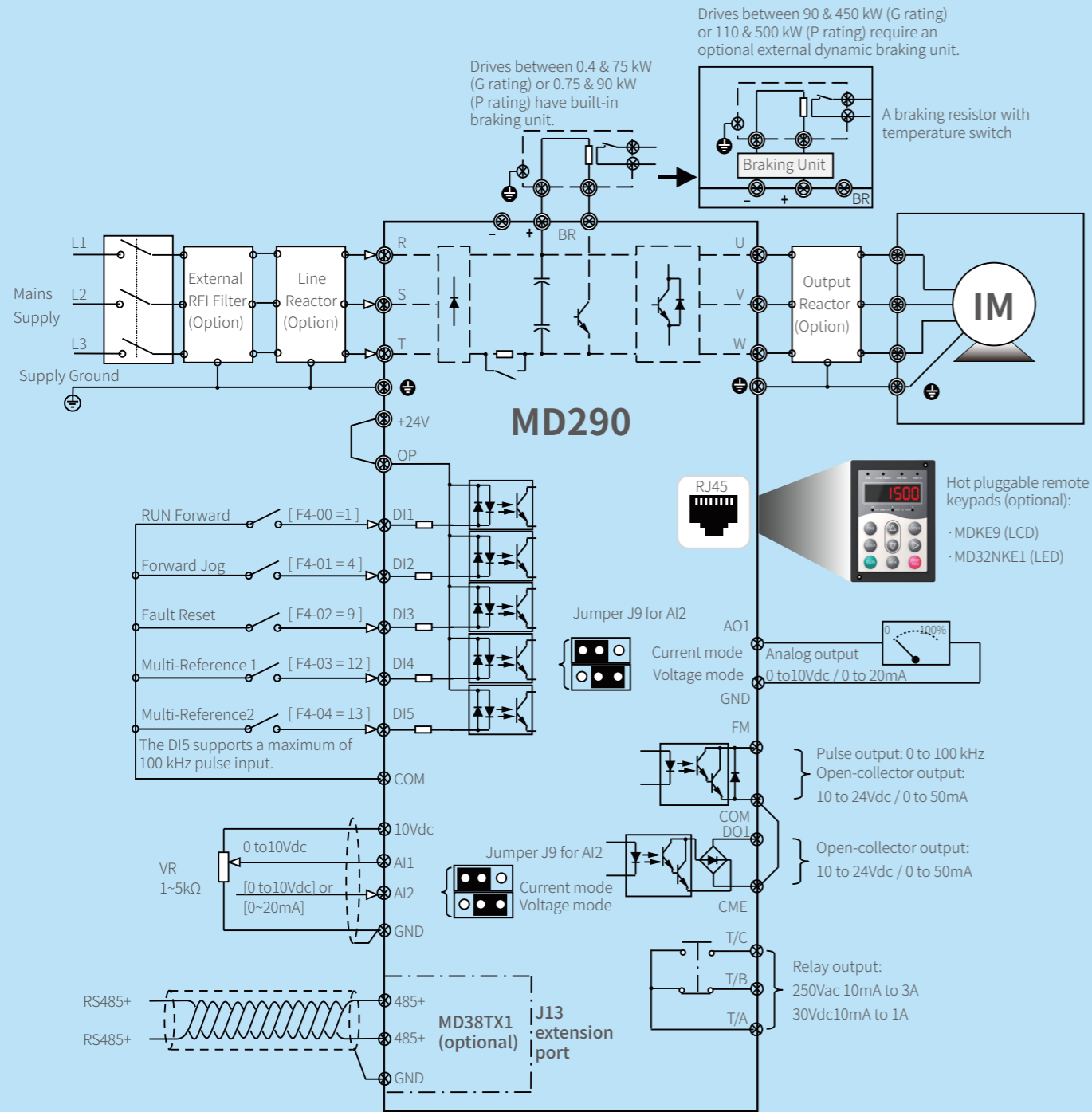
\*1 0.75/1.5/2.2 kW are the preferred stocking ratings. To learn more, please get in touch with your local Inovance representative.  
 \*2 Rated output current at default carrier frequency.

Voltage Class		Three-phase 380 to 480 Vac															
Drive Model: MD290Txxx (-L) <sup>3</sup> -INT		200G	220P	220G	250P	250G	280P	280G	315P	315G	355P	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	441	507	495	559	565	624	617	708	687	782	782	840
	Power capacity [kVA]	334	375	375	417	404	464	453	511	517	571	565	647	629	715	716	768
	Rated input frequency	50/60 Hz, ±5%															
Drive Output	Applicable motor [kW]	200	220	220	250	250	280	280	315	315	355	355	400	400	450	450	500
	Output current [A] <sup>2</sup>	377	426	426	465	465	520	520	585	585	650	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
	Recommended resistance [Ω]	2.9	2.9	2.7	2.7	2.3	2.3	2.1	2.1	1.9	1.9	1.7	1.7	1.5	1.5	1.3	1.3
Braking unit		MDBUN-200-5T x2						MDBUN-200-5T x3									
Enclosure		IP 00															

Voltage Class		Three-phase 200 to 240 Vac															
Drive model: MD290-2TxxG/xxPx-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/15PB	15G/18.5PB	18.5G/22PB	22G/30PB	30G/37PB	37G/45PB	45G/55P	55G/75P
Frame size		T1 <sup>1</sup>			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	16.7/22.4	59/71	57/71	69/86	89/111	106/143	139/167	164/198	196/239
	Rated input frequency	50/60 Hz ±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] <sup>2</sup>	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	5	5	5	4	3	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	10	10	12	9	7	6	5	4	4.9x2	4x2
Braking unit		Built-in															
Enclosure		IP20															

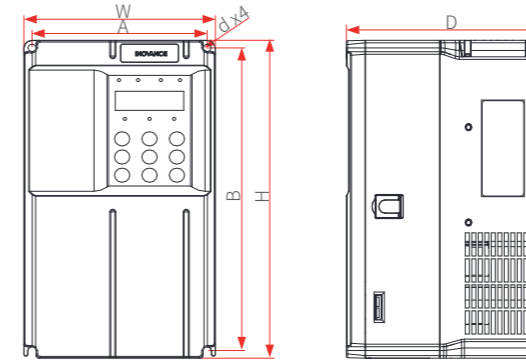
\*1 0.75/1.5/2.2 kW are the preferred stocking ratings. To learn more, please get in touch with your local Inovance representative.  
 \*2 Rated output current at default carrier frequency.  
 \*3 For the standard AC Drive, we recommend motor cable lengths to be <100 m. Where your installation exceeds 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

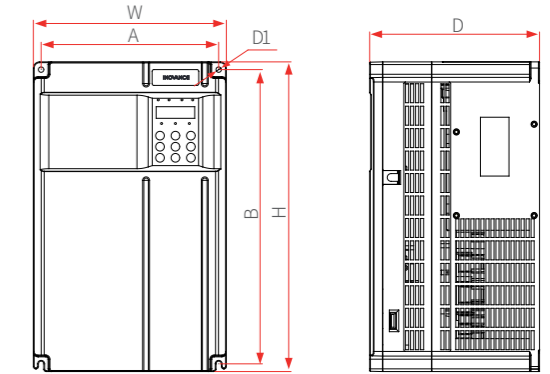


## Dimensions

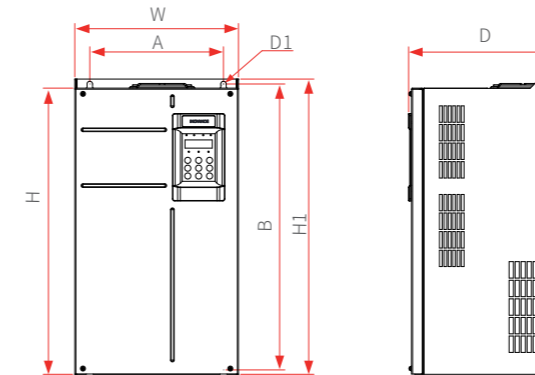
MD290T0.4G/0.7PB-INT to MD290T15G/18.5PB-INT  
MD290-2T0.4G/0.7PB-INT to MD290-2T7.5G/11PB-INT



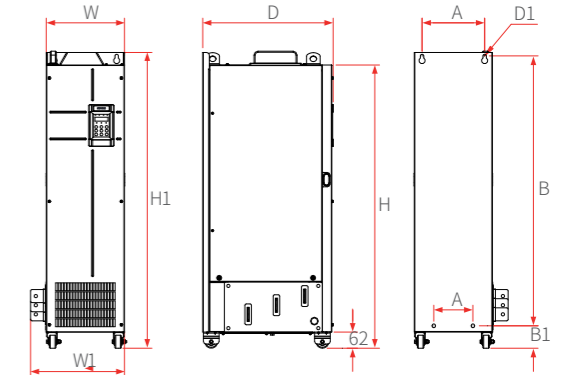
MD290T18.5G/22P(B)-INT to MD290T37G/45P(B)-INT  
MD290-2T11G/15P(B)-INT to MD290-2T18.5G/22P(B)-INT



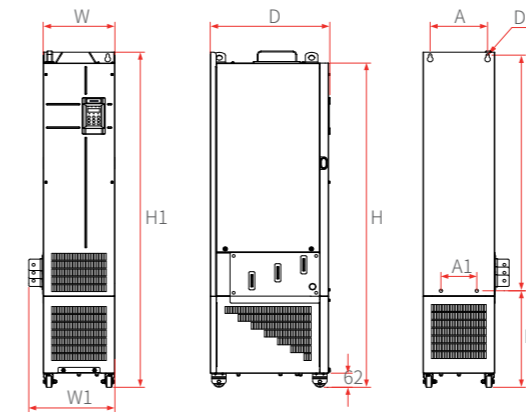
MD290T45G/55P(B)-INT to MD290T160G/200P-INT  
MD290-2T22G/30P(B)-INT to MD290-2T55G/75P-INT



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



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

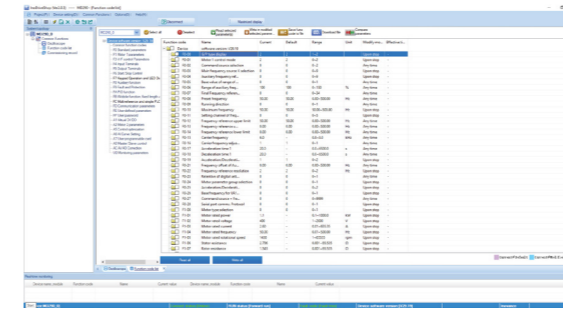


MD290 Model	Frame size	Dimensions (mm)										Mass (kg)
		A	A1	B	B1	H	H1	W	W1	D	D1	
MD290T0.4G/0.7PB-INT, MD290T0.7G/1.1PB-INT, MD290T1.1G/1.5PB-INT MD290T1.5G/2.2PB-INT, MD290T2.2G/3.0PB-INT, MD290T3.0G/3.7PB-INT MD290-2T0.4G/0.7PB-INT, MD290-2T0.7G/1.1PB-INT, MD290-2T1.1G/1.5PB-INT, MD290-2T1.5G/2.2PB-INT	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
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		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
MD290T315G-L-INT, MD290T355G-L-INT, MD290T400P-L-INT, MD290T400G-L-INT, MD290T450P-L-INT, MD290T450G-L-INT, MD290T500P-L-INT		240	200	1,280	432	1,683	1,733	340	400	545	Ø16	245

## 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

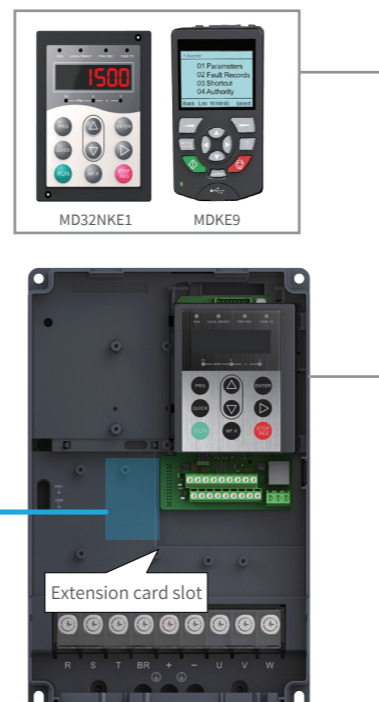
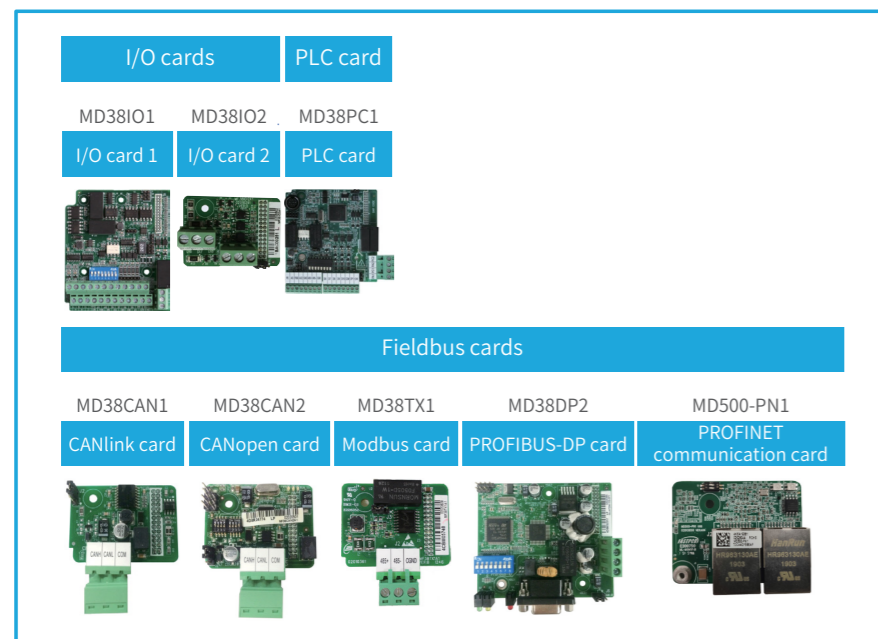


Multi-drive, multi channel oscilloscope

## 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
	MD38CAN1	CANlink bus card, supports only CANlink.	All
Fieldbus cards	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
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

## Extension Cards and Mounting Position



# Driven by Technology

## AC Drives



## AC Multidrive



## MV Drives



## Single-Axis Servos



## Multi-Axis Servos



## Robotics & Motion Controllers



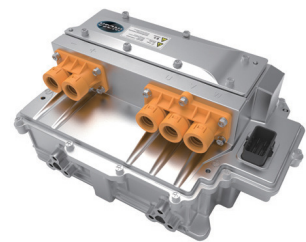
## PLCs & HMIs



## CNC Machine Tool Solutions



## Electric Vehicle Inverters



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Forward, Always Progressing

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