

INOVANCE

MD290 AC Drive

Open loop general purpose drive



Features & functions

- Open loop control
- Communication options:
 - Modbus-RTU
 - CANopen
 - PROFIBUS-DP
 - CANlink
 - PROFINET
 - EtherCAT
- Automatic torque boost
- Comprehensive trip diagnostics
- Slip compensation
- Flexible programmable I/Os
- 4 independent S-ramps
- Output frequency: 500 Hz
- Conformally coated PCBs suitable for 3S2 and 3C2 environments (acc. to IEC 60721-3-3)
- Wide operating voltage:
 - Three-phase 380 to 480V AC, 0.4 to 450 kW
 - Three-phase 200 to 240V AC
- Built-in DC reactor:
 - 400V: 18.5 kW and above;
 - 200V: 15 kW and above
- Through-hole mounting options: 0.4 to 160 kW
- PC-based software: simplified start up & backup*

*Note PC comms kit is required (optional accessory)



General specifications

Voltage class		Three-phase 380 to 480V AC										
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 ¹						T2		T3		T4
Drive input	Rated input voltage	Three-phase 380 to 480V AC -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 480V AC (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 480V AC										
Drive model: MD290TxxG/xxP-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 480V AC -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] 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 480V AC (proportional to input voltage)										
	Max. x. 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.

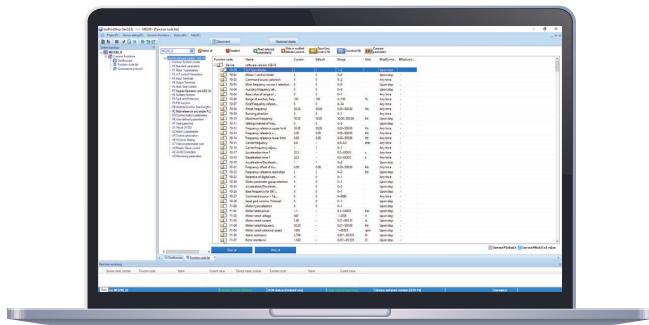
*2 Rated output current at default carrier frequency.

Accessories list

MD290 model	Frame size	Dimensions (mm)	Applicable Model	Part No.
External braking units	MDBUN-60-2T	External braking unit, rated current 60 A, for supply input voltage 200 to 240V AC	For all 3ph 200V models	01013133
	MDBUN-200-5T	External braking unit, rated current 200 A, for supply input voltage 380 to 480V AC	For all 3ph 480V models	01040160
	MDBUN-60-5T	External braking unit, rated current 60 A, for supply input voltage 380 to 480V AC	For all 3ph 480V models	0101AR57
	MDBUN-90-5T	External braking unit, rated current 90 A, for supply input voltage 380 to 480V AC	For all 3ph 480V models	0101AR58
Keypads	MD32NKE1	Remote LED keypad. Includes MDCAB cable.	All	01013061
	MDKE9	Remote LCD keypad. For parameter programming and monitoring, data copy (for various MD series). Includes MDCAB cable.	All	01040037
	MDCAB	3 meter connection cable for remote keypad.	All	01013008
	MDCAB-1.5	1.5 meter connection cable for remote keypad.	All	15048471
I/O cards	MD38IO1	I/O extension card 1, provides: 5× DI, 1× AI, 1× relay output, 1× DO, 1× AO, Modbus-RTU and CANlink.	Frame sizes T4-T12	01013098
	MD38IO2	I/O extension card 2, provides 3× extra DI terminals.	All	01013103
	MD38IO3	I/O extension card 3, provides 3× DI, 1× relay output, Modbus-RTU interface.	All	01040051
	MD520IO1	supports three DI circuits, one AO circuit, one RO circuit, and one isolated RS-485 circuit.	All	01040250
Fieldbus cards	MD38CAN1	CANlink bus card, supports only CANlink.	All	01013100
	MD38CAN2	CANopen bus card, supports only CANopen.	All	01013102
	MD38TX1	Modbus-RTU communication card.	All	01013112
	MD38DP2	PROFIBUS-DP communication card.	Frame sizes T4-T12	01013144
	MD-SI-DP1	PROFIBUS DP fieldbus adapter card.	All	01040172
	MD-SI-DP2	PROFIBUS DP fieldbus adapter card, The MD-SI-DP2 card is compatible with the MD-SI-DP1 card and can be used in the same way as the MD-SI-DP1 card.	All	01040249
	MD500-PN1	PROFINET communication card.	All	01040098
	MD500-PN2	PROFINET communication card.	All	01040198
	MD500-EM1	communication expansion cards, conform to Modbus-TCP protocol	All	01040201
	MD500-ECAT	EtherCAT communication card.	All	01040113
PC comms kit	PC Comms Kit 02	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	01040072
	MD500-AZJ-A1T2	Through hole mounting bracket - MD290/MD500 for frame T2.	Frame size T2	01040073
	MD500-AZJ-A1T3	Through hole mounting bracket - MD290/MD500 for frame T3.	Frame size T3	01040074
	MD500-AZJ-A1T4	Through hole mounting bracket - MD290/MD500 for frame T4.	Frame size T4	01040075
	MD500-AZJ-A1T5	Through hole mounting bracket - MD290/MD500 for frame T5.	Frame size T5	01040001
	MD500-AZJ-A1T6	Through hole mounting bracket - MD290/MD500 for frame T6.	Frame size T6	01040002
	MD500-AZJ-A1T7	Through hole mounting bracket - MD290/MD500 for frame T7.	Frame size T7	01040003
	MD500-AZJ-A1T8	Through hole mounting bracket - MD290/MD500 for frame T8.	Frame size T8	01040004
	MD500-AZJ-A1T9	Through hole mounting bracket - MD290/MD500 for frame T9.	Frame size T9	01040005
Guide Rails	MD500-AZJ-A3T10	Guide rails for inserting in/ extracting from the cabinet - frame sizes T10 to T12.	Frame sizes T10-T12	01040009
Mounting accessory	MD500-AZJ-A2T1	The accessory is used for re-fixing the power cable and stable grounding of the shield in 360°. It is applicable only to T1 to T9 models.	Frame size T1	01040085
	MD500-AZJ-A2T2		Frame size T2	01040088
	MD500-AZJ-A2T3		Frame size T3	01040083
	MD500-AZJ-A2T4		Frame size T4	01040082
	MD500-AZJ-A2T5		Frame size T5	01040081
	MD500-AZJ-A2T6		Frame size T6	01040086
	MD500-AZJ-A2T7		Frame size T7	01040087
	MD500-AZJ-A2T8		Frame size T8	01040084
	MD500-AZJ-A2T9		Frame size T9	01040089
	MD500-NEMA1-T1	Models requiring UL Type 1 enclosures are equipped with conduit boxes. The conduit box is optional and needs to be purchased (applicable to T6 models and models below T6).	T1 to T2	01040108
	MD500-NEMA1-T3		Frame size T3	01040109
	MD500-NEMA1-T4		Frame size T4	01040110
	MD500-NEMA1-T5		Frame size T5	01040111
	MD500-NEMA1-T6		Frame size T6	01040112

PC software tools

InoDriveShop

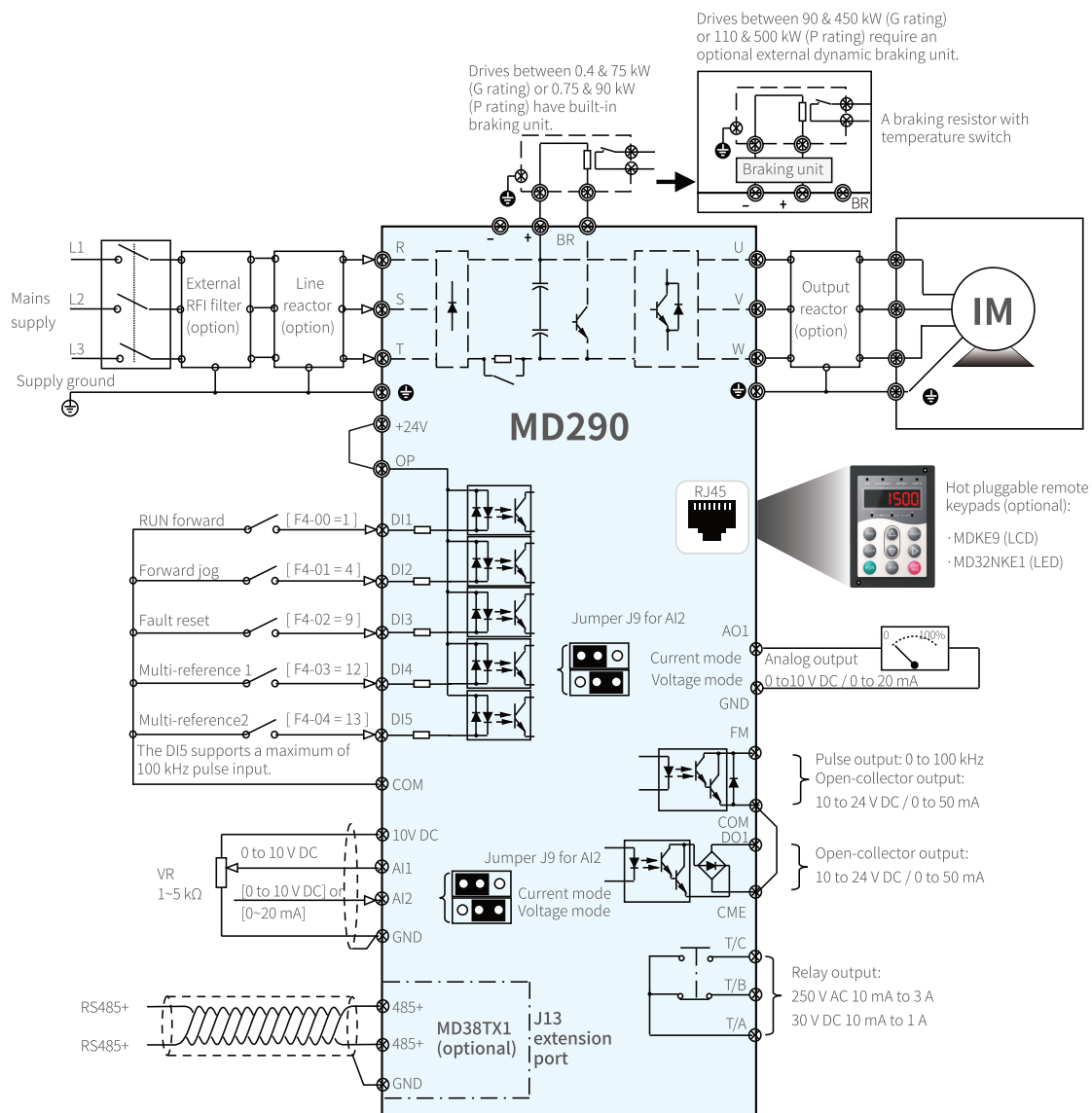


Parameter uploading/downloading



Multi-drive, multi-channel oscilloscope

General wiring diagram

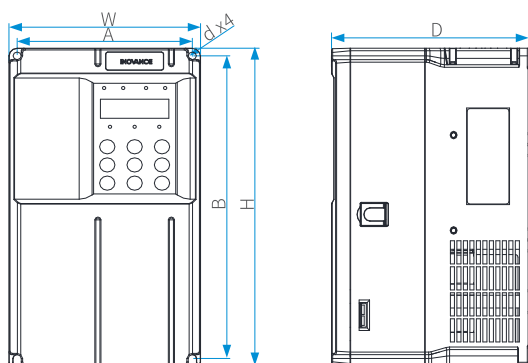


Note: This wiring diagram shows the digital inputs used in NPN (SINK) configuration. They can be used also as PNP (SOURCE) configuration.

Dimensions

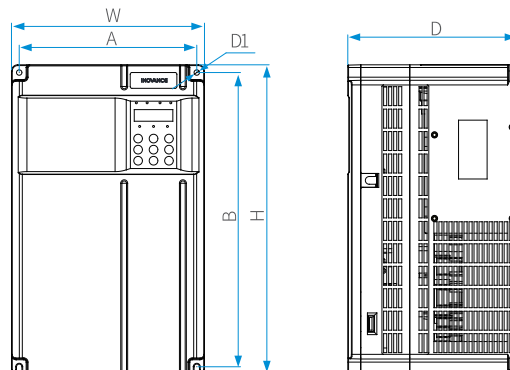
T1~T4

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



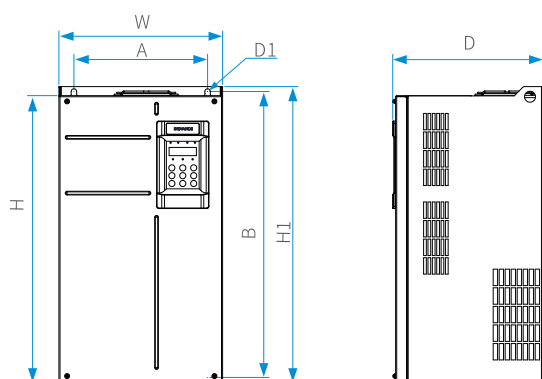
T5~T6

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



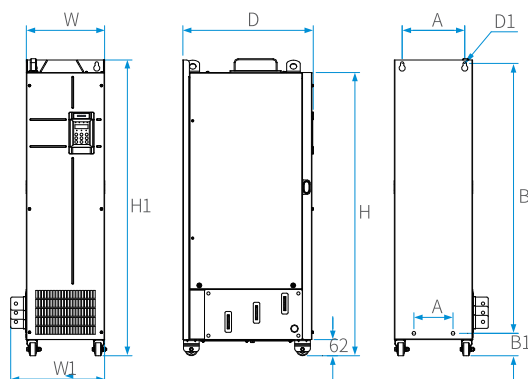
T7~T9

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



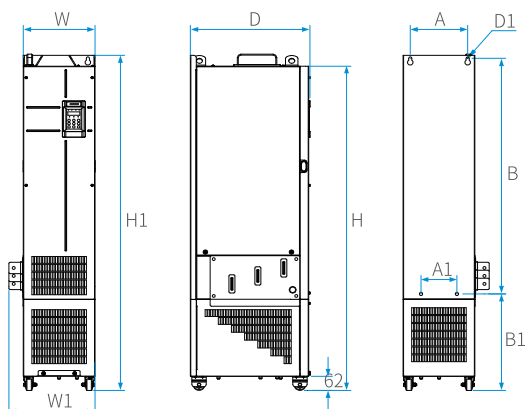
T10~T12 (without AC Output Reactor)

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



T10~T12 (with AC Output Reactor)

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



Dimensions

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
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, MD290T200G-L-INT, MD290T220P-L-INT, MD290T220G-L-INT, MD290T250P-L-INT, MD290T280P-L-INT	T10	240	150	1,035	86	1,086	1,134	300	360	500	Ø13	110
		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

Accessories

Name		Option Model	Description	Applicable Model
Operating Panel	External LED operating panel	MD32NKE1	External LED operating panel	All models
	External LCD operating panel	MDKE9	The external LCD operating panel supports parameter copying and English or Chinese display.	All models
	MDKE9 mounting base	CP600-BASE1		All models
	Extension cable	MDCAB	It is the standard eight-conductor, three-meter network cable for the external operating panel, which can be connected to the MD32NKE1.	All models
		MDCAB-1.5	External operating panel cable with the length of 1.5 meters	All models

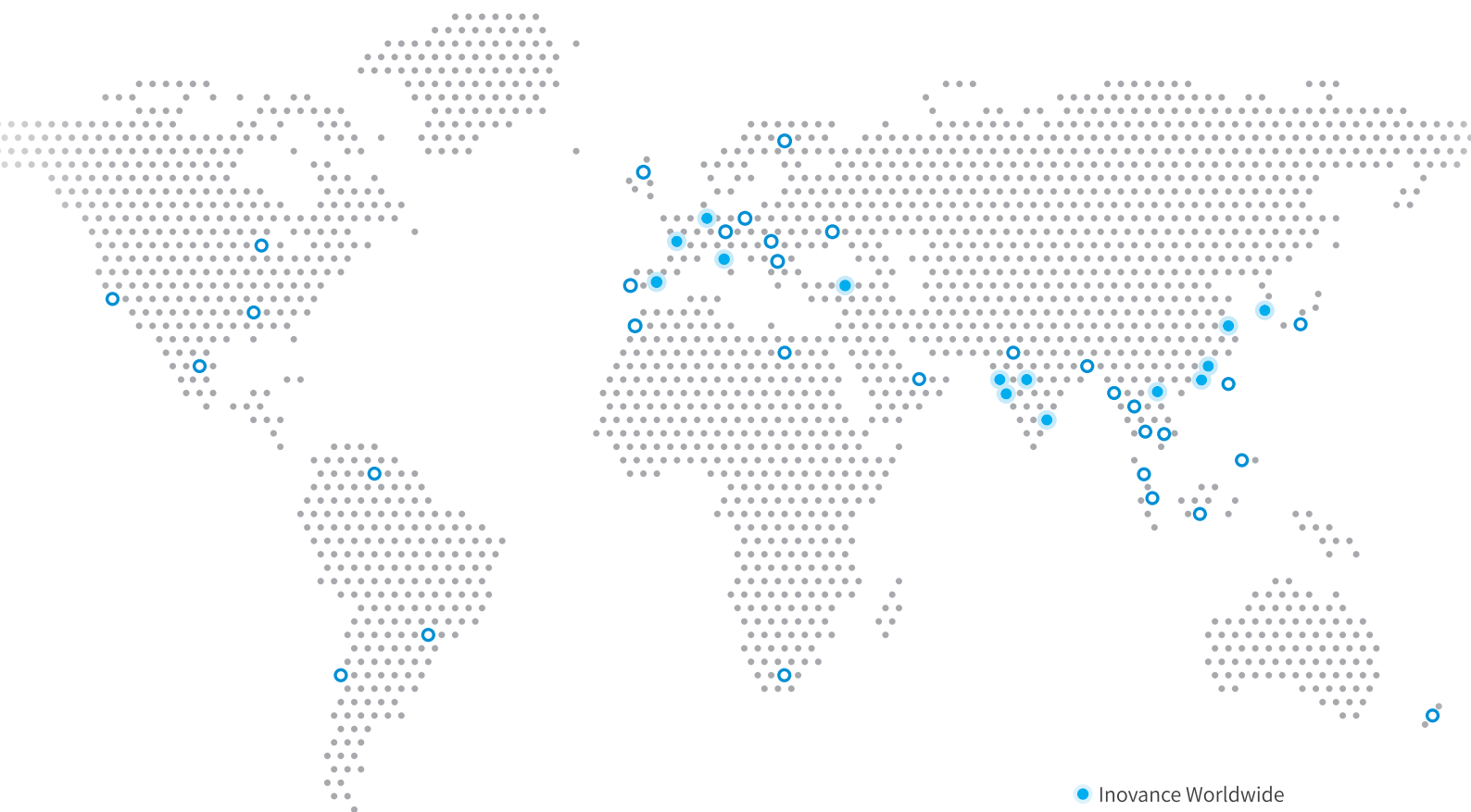
Voltage class		Three-phase 380 to 480V AC															
Drive model: MD290Txxx (-L)*3-INT		200G	220P	220G	250P	250G	280P	280G	315P	315G	355P	355G	400P	400G	450P	450G	500P
Frame size		T10				T11				T12							
Drive input	Rated input voltage	Three-phase 380 to 480V AC -15% to +10%															
	Rated 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] ²	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 480V AC (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 240V AC															
Drive model: MD290-2TxG/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 ¹				T2		T3	T4	T5	T6		T7		T8		
Drive input	Rated input voltage	Three-phase 200 to 240V AC -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	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] 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 240V AC (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.



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