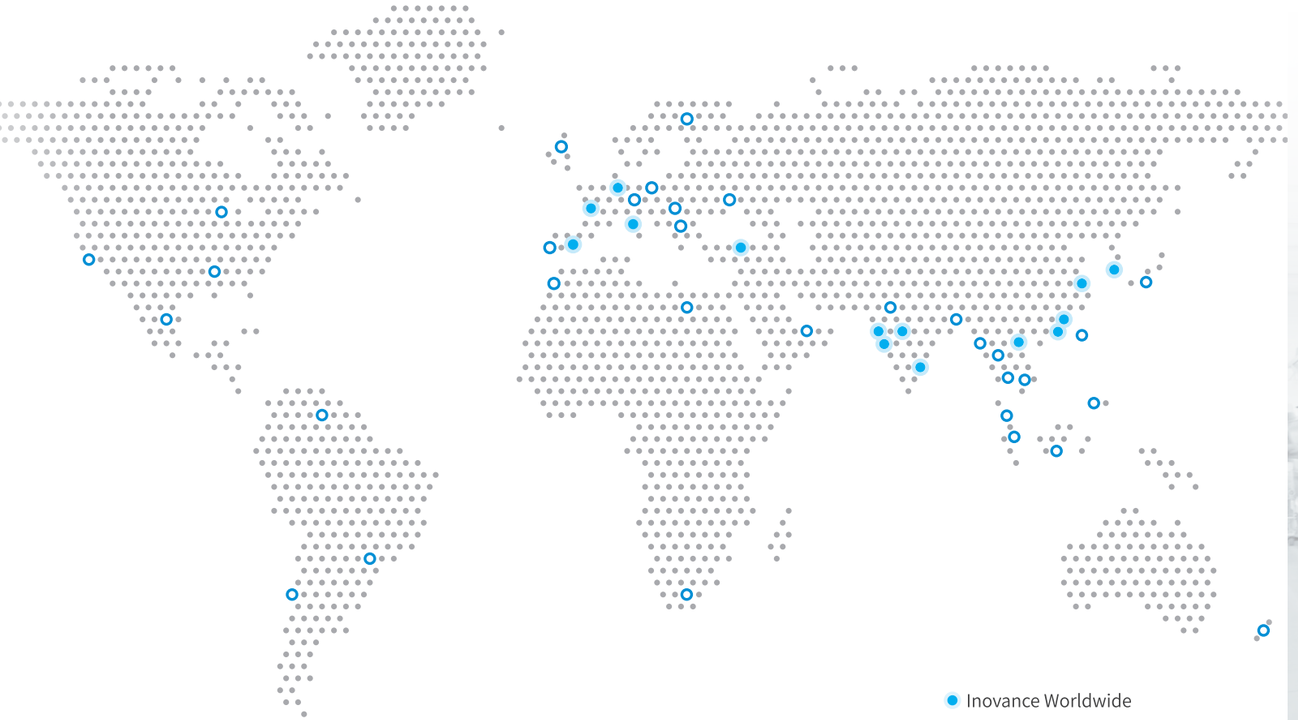


Inovance Worldwide
Distribution & Service Partners

Advancing industrial technology, for a better world

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INOVANCE

MD520
Universal AC Drive

High Performance for Wide-Range Application



- Unified AC asynchronous and PM synchronous motor control
- Wide operating voltage and product range:
  - 3 ph 380V AC~480V AC: 0.4 to 630 kW
  - 3 ph 200V AC~240V AC: 0.4 to 200 kW
  - 1 ph 200V AC~240V AC: 0.4 to 2.2 kW
- Built-in DC reactor
  (400 V: 18.5 kW and above; 200 V: 11 kW aand above)
- Enhanced reliability: conformal coated PCBs compliant to 3S2 and 3C3 environments
- Complies to efficiency level IE2 as defined in IEC 61800-9-2
- Through-hole mounting options (0.4 to 160 kW)
- STO SIL 3 PL e

CE cULus LISTED TÜV SÜD KC RoHS COMPLIANT IE2 STO SIL3

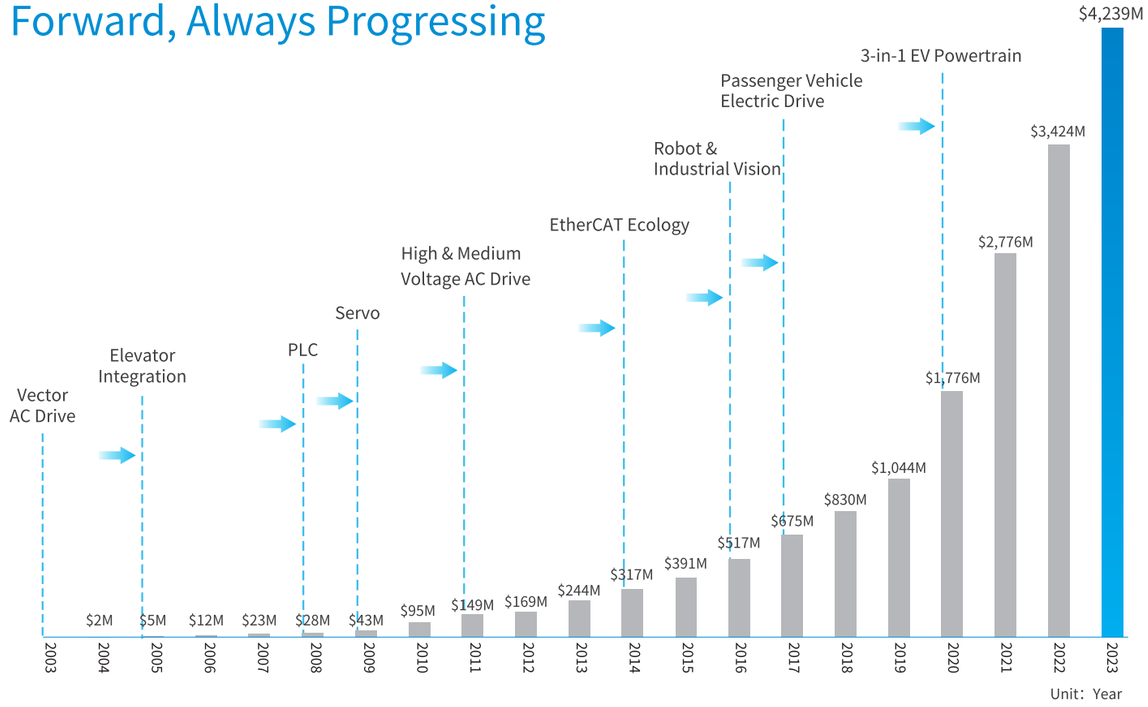


About Inovance

The Inovance Group, founded in 2003, is a rising star in the global industrial automation business and has revenues of $4.2 in 2023. Inovance is headquartered in Shenzhen, China, and has built a global operation with offices and facilities in Germany, France, Italy, Spain, Turkey, India, and South Korea. Additionally, the company has a strong network of distribution partners around the world.

The company 's flexible production techniques and expert understanding of all industry sectors - from plastics to printing to packaging to iron & steel production - have allowed it to establish globally leading industry-specific business units. Over the years, Inovance has built an engineering team with specialist expertise in industrial automation. This knowledge allows it to form strong partnerships with OEMs and end users, providing ongoing advice about how to get the most out of their automation solutions today, and how to stay prepared for the market and technology changes that are coming in future.

Forward, Always Progressing



2003
founded

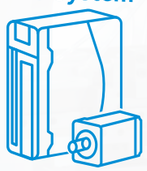
IPO:2010
Shenzhen, China

20,000
employees

Global
network of offices and distributors

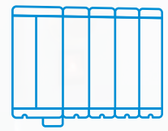
$4.2+bn
revenues in 2023

Servo System



4,500,000+
sets delivered in 2023

AC Drive



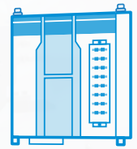
2,20,000+
sets delivered in 2023

Industrial Robot



22,000+
sets delivered in 2023

Controller



3,400,000+
sets delivered in 2023

Global Factories

Inovance has built digital factories around the world, including one in India that has been in operation for a decade. In 2022,we started to build the Hungary factory for localized manufacturing in Europe.















Founded in: Apr. 1992
Area covered: 3,800 m²



Founded in: Mar. 1998
Area covered: 35,753 m²



Founded in: Dec. 2003
Area covered: 7,500 m²



Put into operation in: May 2019
Area covered: 66,000 m²



Founded in: June 2002
Area covered: 10,000 m²



Founded in: Dec. 2003
Area covered: 18,000 m²

Factory in India

Founded in: 2012



Factory in Hungary

Founded in: 2022



Subsidiary：SBC, Korea

Acquisition: 2023



Automated Line for EV Powertrain



Production Line of Automation Products

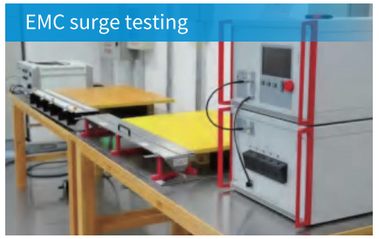


Worldwide R&D network



Inovance invests heavily in R&D, enabling the company to continuously releease a steady stream of new and innovative products. To ensure that all products meet all key global standards wherever possilble, Inovance's R&D teams in Europe, India, and China, all work together seamlessly and virtually on engineering projects. Inovance calls this co-development, and the practice ensures that the best technology knowledge and solutions can be gathered from all around the business; and that they are always implemented and adapted in a way that meets the needs of local markets. The company's commitment to innovation is demonstrated through its headcount: over 20% of Inovance's entire global workforce is in R&D.

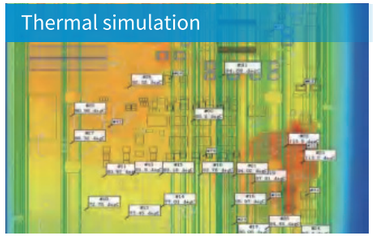












6 R&D Centers
Shenzhen, Suzhou, Xi'an,Nanjing, Milan (Italy), Stuttgart (Germany)

3297 Patents and software copyrights
Invention479 / Utility model 1850 / Industrial design 523 / Software copyright 445

5400+ R&D Employees
Account for 23% of total employees

USD 320+ Million
Account for 8.6% of revenue 2023



MD520- FEATURES & FUNCTIONS

- Induction motor and PM synchronous motor control:
  - Open loop V/F (induction motors only) and SVC
  - Closed loop FVC
- Dual rated: heavy load (150% overload for 1 minute per 5 minutes at 40° C)
  light load (110% overload for 1 minute per 5 minutes at 40° C)
- Starting torque
  - 200% at 0 Hz for SVC
  - 200% at 0 Hz for FVC
- Communication options:
  - Modbus-RTU
  - Modbus-TCP
  - PROFIBUS-DP
  - CANopen
  - CANlink
  - PROFINET
  - EtherCAT
  - Ethernet/IP
- Category C2 compliance with external RFI filter. Ratings with built-in filter comply with Category C3*1 (except T5-T8)
- Built-in dynamic braking unit, up to/including 75 kW (400 V) or 37kW (200 V)
- Bipolar analog input as standard (-10 V to +10 V)
  PTC input as standard
- Flexible programmable I/Os
- User programmable logic
- Variable DC-injection braking
- Comprehensive trip diagnostics
- Output frequency: 599 Hz
- Application dedicated functions:
  - Master-slave function (torque, speed)
  - Textile wobble control
- Brake control logic
- 4 motor parameter sets
- Automatic torque boost
- PC-based software: simplified start up & backup*2
- Simplified parameters for easy start up
- 4 independent S-ramps

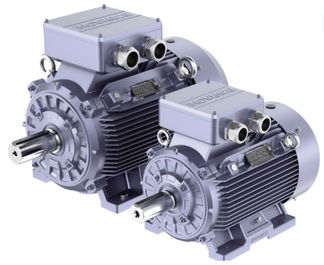
*1 For detailed EMC compliance information, consult your local Inovance representative can be used for this purpose
*2 USB to RS485 adapter required. MDKE-10 or SOP-20 keypads





NEW: built-in colour LED keypad

The clearest possible information display
Displays multiple pieces of information
simultaneously (e.g. drive status and operating information)

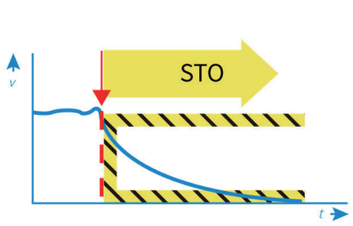


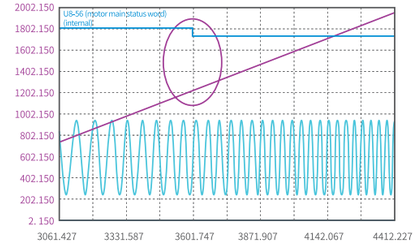
Energy-Saving

- The drive supports drive algorithms for high energy efficient motors, including surface-mounted permanent magnet synchronous motors, built-in permanent magnet synchronous motors, and reluctance motors.
- With the minimum current algorithm, the drive can be more energy-efficient under the same load.

Safe and Stable

- Versatile fault detection functions, including IGBT self-check, encoder self-check, and load harmonic analysis are integrated to fully protect the drive and system.
- The drive supports self-check upon power-on to identify system risks in advance.
- You can customize shutdown modes and limp modes when a fault occurs. If theencoder fails, the system can seamlessly switch to the encoder-free operation state to ensure continuous running.
- The optional STO function complies with the SIL3-level security certification.





MD520 - 4T 220 B S - L -INT
① ② ③ ④ ⑤ ⑥ ⑦

① **Drive series:** MD520 series	④ **Braking unit:** None: without braking unit B: with braking unit	⑥ **Reactor:** None: without reactor -T: with DC reactor; applicable to T5 models -L: With AC output reactor; applicable to T10 to T12 models -A: With the auxiliary power distribution box; applicable to the T13 models
② **Voltage level:** 4T: three phase 380 V ~ 480 V 2T: three phase 200V ~ 240 V 2S: single phase 200V ~ 240 V	⑤ **STO:** None: STO not supported S: STO supported	⑦ **Version:** INT: International variant
③ **Power rating (kW):** 0.4: 0.4 400: 400		

[1] For three-phase 380 V to 480 V drives, T1 to T4 models support external AC reactors and do not support DC reactors. DC reactors are optional for T5 models and standard for T6 and above models.
[2] For three-phase 380 V to 480 V drives, braking units are standard for T1 to T4 models, some T5~T8 models support an optional braking unit, and T9~T13 are equipped with an optional external braking resistor MDBUN.

Electrical Specifications

Model	Frame Size	Heavy Load				Light Load			
		Power Supply Capacity	Input Current	Rated Power	Output Current	Power Supply Capacity	Input Current	Rated Power	Output Current
		(kVA)	(A)	(kW)	(A)	(kVA)	(A)	(kW)	(A)
Three-phase 380V AC to 480V AC, 50/60 Hz									
MD520-4T0.4B(S)-INT	T1	2	1.8	0.4	1.5	2.8	2.5	0.75	2.1
MD520-4T0.7B(S)-INT	T1	2.8	2.4	0.75	2.1	4.1	3.7	1.1	3.1
MD520-4T1.1B(S)-INT	T1	4.1	3.7	1.1	3.1	5	4.6	1.5	3.8
MD520-4T1.5B(S)-INT	T1	5	4.6	1.5	3.8	6.7	6.4	2.2	5.1
MD520-4T2.2B(S)-INT	T1	6.7	6.3	2.2	5.1	9.5	9.1	3	7.2
MD520-4T3.0B(S)-INT	T1	9.5	9	3	7.2	12	11.3	3.7	9
MD520-4T3.7B(S)-INT	T2	12	11.4	3.7	9	17.5	15.9	5.5	13
MD520-4T5.5B(S)-INT	T2	17.5	16.7	5.5	13	22.8	22.4	7.5	17
MD520-4T7.5B(S)-INT	T3	22.8	21.9	7.5	17	33.4	32.9	11	25
MD520-4T11B(S)-INT	T3	33.4	32.2	11	25	42.8	39.7	15	32
MD520-4T15B(S)-INT	T4	42.8	41.3	15	32	45	44	18.5	37
MD520-4T18.5(B)(S)-INT	T5	36	49.5	18.5	37	44	59	22	45
MD520-4T18.5(B)(S)-T-INT	T5	33	37.2	18.5	37	39	43.4	22	45
MD520-4T22(B)(S)-INT	T5	44	59	22	45	59	79	30	60
MD520-4T22(B)(S)-T-INT	T5	39	43.4	22	45	52	55.3	30	60
MD520-4T30(B)(S)-INT	T6	52	57	30	60	65	71	37	75
MD520-4T37(B)(S)-INT	T6	63	69	37	75	79	86	45	91
MD520-4T45(B)(S)-INT	T7	81	89	45	91	97	111	55	112
MD520-4T55(B)(S)-INT	T7	97	106	55	112	127	143	75	150
MD520-4T75(B)(S)-INT	T8	127	139	75	150	150	167	90	176
MD520-4T90(S)-INT	T8	150	164	90	176	179	198	110	210
MD520-4T110(S)-INT	T8	179	196	110	210	220	239	132	253
MD520-4T132(S)-INT	T9	220	240	132	253	263	295	160	304
MD520-4T160(S)-INT	T9	263	287	160	304	334	359	200	377
MD520-4T200(S)(-L)-INT	T10	334	365	200	377	404	456	250	465
MD520-4T220(S)(-L)-INT	T10	375	410	220	426	453	507	280	520
MD520-4T250(S)(-L)-INT	T11	404	441	250	465	517	559	315	585
MD520-4T280(S)(-L)-INT	T11	453	495	280	520	565	624	355	650
MD520-4T315(S)(-L)-INT	T12	517	565	315	585	629	708	400	725
MD520-4T355(S)(-L)-INT	T12	565	617	355	650	716	782	450	820
MD520-4T400(S)(-L)-INT	T12	629	687	400	725	952	840	500	880
MD520-4T500(S)(-A)-INT	T13	766	838.1	500	900	952	1041	630	1120
MD520-4T560(S)(-A)-INT	T13	868	949.6	560	1020	1070	1170.9	710	1260
MD520-4T630(S)(-A)-INT	T13	957	1043.5	630	1120	1194	1301.5	800	1460

Model	Frame Size	Heavy Load				Light Load			
		Power Supply Capacity	Input Current	Rated Power	Output Current	Power Supply Capacity	Input Current	Rated Power	Output Current
		(kVA)	(A)	(kW)	(A)	(kVA)	(A)	(kW)	(A)
Three-phase 200V AC to 240V AC, 50/60 Hz									
MD520-2T0.4B(S)-INT	T1	1.1	2.4	0.4	2.1	2.1	3.7	0.75	3.8
MD520-2T0.7B(S)-INT	T1	2.1	4.6	0.75	3.8	2.9	6.4	1.1	5.1
MD520-2T1.1B(S)-INT	T1	2.9	6.3	1.1	5.1	4.1	9.1	1.5	7.2
MD520-2T1.5B(S)-INT	T1	4.1	9	1.5	7.2	5.2	11.3	2.2	9
MD520-2T2.2B(S)-INT	T2	5.2	11.4	2.2	9	7.6	15.9	3.7	13
MD520-2T3.7B(S)-INT	T2	7.6	16.7	3.7	13	14.7	22.4	5.5	17
MD520-2T5.5B(S)-INT	T3	14.7	32.2	5.5	25	18.9	39.7	7.5	32
MD520-2T7.5B(S)-INT	T4	18.9	41.3	7.5	32	27	44	11	45
MD520-2T11(B)(S)-INT	T5	27	59	11	45	26.1	65.8	15	60
MD520-2T15(B)(S)-INT	T6	26.1	57	15	60	31.6	71	18.5	75
MD520-2T18.5(B)(S)-INT	T6	31.6	69	18.5	75	40.7	86	22	91
MD520-2T22(B)(S) -INT	T7	40.7	89	22	91	48.5	111	30	112
MD520-2T30(B)(S)-INT	T7	48.5	106	30	112	63.6	153	37	150
MD520-2T37(B)(S)-INT	T8	63.6	139	37	150	75	167	45	176
MD520-2T45(S) -INT	T8	75	164	45	176	89.6	198	55	210
MD520-2T55(S)-INT	T8	89.6	196	55	210	109	239	75	253
MD520-2T75(S)-INT	T9	131	287	75	304	164	359	90	377
MD520-2T90(S)-INT	T10	167	365	90	377	209	465	110	426
MD520-2T110(S)-INT	T10	187	410	110	426	232	507	132	465
MD520-2T132(S)-INT	T11	202	441	132	465	256	559	160	585
MD520-2T160(S)-INT	T12	258	565	160	585	324	708	200	725
MD520-2T200(S)-INT	T12	314	687	200	725	384	840	220	880
Single-phase 200V AC to 240V AC, 50/60 Hz									
MD520-2S0.4B(S)-INT	T2	1.4	5.4	0.4	2.3	/	/	/	/
MD520-2S0.7B(S)-INT	T2	2.2	8.2	0.75	4	/	/	/	/
MD520-2S1.5B(S)-INT	T2	3.7	14	1.5	7	/	/	/	/
MD520-2S2.2B(S)-INT	T2	6	20	2.2	9.6	/	/	/	/

Derating Coefficient of MD520 Series AC Drive

Power		Rated output current		Carrier frequency													
heavy load	light load	heavy load	light load														
(kW)	(kW)	(A)	(A)	3kHz	4kHz	5kHz	6kHz	7kHz	8kHz	9kHz	10kHz	11kHz	12kHz	13kHz	14kHz	15kHz	16kHz
Three-phase 400 V (SVPWM_DPWM1)																	
0.4	0.7	1.5	2.1	100.0%	100.0%	100.0%	100.0%	90.6%	82.0%	75.0%	69.1%	64.1%	59.4%	55.9%	52.3%	49.6%	46.9%
0.8	1.1	2.1	3.1	100.0%	100.0%	100.0%	100.0%	90.6%	82.4%	75.8%	69.5%	64.5%	60.2%	56.3%	52.7%	49.6%	47.1%
1.1	1.5	3.1	3.8	100.0%	100.0%	100.0%	100.0%	90.8%	82.8%	75.8%	69.9%	64.8%	60.4%	56.4%	52.9%	50.0%	47.2%
1.5	2.2	3.8	5.1	100.0%	100.0%	100.0%	100.0%	91.8%	84.4%	77.5%	71.5%	66.0%	61.5%	57.4%	53.9%	50.7%	47.9%
2.2	3	5.1	7.2	100.0%	100.0%	100.0%	100.0%	92.8%	86.2%	80.5%	75.6%	71.1%	67.2%	63.7%	60.4%	57.5%	54.9%
3	3.7	7.2	9	100.0%	100.0%	100.0%	100.0%	93.8%	88.0%	82.7%	77.7%	73.3%	69.2%	65.5%	62.2%	59.1%	56.3%
3.7	5.5	9	13	100.0%	100.0%	100.0%	100.0%	92.9%	86.5%	80.9%	75.7%	71.2%	67.1%	63.5%	60.3%	57.3%	54.6%
5.5	7.5	13	17	100.0%	100.0%	100.0%	100.0%	92.5%	85.9%	80.2%	75.0%	70.4%	66.3%	62.6%	59.3%	56.4%	53.8%
7.5	11	17	25	100.0%	100.0%	100.0%	100.0%	93.0%	86.7%	81.2%	76.1%	71.6%	67.6%	64.0%	60.7%	57.7%	55.0%
11	15	25	32	100.0%	100.0%	100.0%	100.0%	93.9%	88.4%	83.3%	78.6%	74.2%	70.3%	66.7%	63.4%	60.3%	57.6%
15	18.5	32	37	100.0%	100.0%	100.0%	100.0%	93.8%	88.2%	83.0%	78.1%	73.8%	69.8%	66.1%	62.8%	59.8%	57.0%
18.5	22	37	45	100.0%	100.0%	100.0%	100.0%	95.7%	91.6%	87.9%	84.3%	81.0%	77.9%	74.9%	72.1%	69.4%	66.9%
22	30	45	60	100.0%	100.0%	100.0%	100.0%	95.5%	91.4%	87.6%	83.9%	80.5%	77.3%	74.2%	71.3%	68.6%	66.0%
22	30	45	60	100.0%	100.0%	100.0%	100.0%	93.5%	87.7%	82.4%	77.2%	72.5%	68.3%	64.1%	60.3%	56.8%	53.6%
30	37	60	75	100.0%	100.0%	100.0%	94.4%	89.0%	84.0%	79.4%	74.9%	70.8%	67.1%	63.4%	60.1%	56.9%	54.0%
37	45	75	91	100.0%	100.0%	100.0%	94.0%	88.6%	83.7%	79.2%	75.2%	71.5%	68.1%	65.0%	62.2%	59.6%	57.1%
45	55	91	112	100.0%	100.0%	94.1%	88.9%	84.0%	79.5%	75.5%	71.7%	68.3%	65.2%	62.3%	59.7%	57.2%	55.0%
55	75	112	150	100.0%	91.8%	84.2%	77.5%	70.9%	65.2%	60.1%	55.1%	50.6%	46.7%	42.8%	39.4%	36.2%	33.3%
75	90	150	176	100.0%	90.8%	82.3%	74.9%	67.7%	61.5%	56.0%	50.8%	46.2%	42.3%	38.5%	35.1%	32.0%	29.4%
90	110	176	210	100.0%	91.9%	84.4%	77.7%	71.3%	65.5%	60.4%	55.4%	51.1%	47.2%	43.5%	40.2%	37.1%	34.4%
110	132	210	253	100.0%	93.1%	86.7%	80.8%	75.1%	70.0%	65.3%	60.7%	56.6%	52.9%	49.2%	46.0%	42.9%	40.2%
132	160	253	304	100.0%	92.6%	85.7%	79.7%	73.9%	68.8%	64.2%	59.8%	55.8%	52.3%	48.9%	45.8%	42.9%	40.3%
160	200	304	377	100.0%	90.0%	81.0%	73.1%	65.7%	59.2%	53.6%	48.3%	43.7%	39.8%	36.0%	32.7%	29.7%	27.1%
200	250	377	465	100.0%	90.8%	82.5%	75.1%	68.2%	62.0%	56.6%	51.5%	47.0%	43.1%	39.3%	36.0%	33.0%	30.4%
220	250	426	520	100.0%	91.2%	83.2%	76.2%	69.6%	63.8%	58.7%	53.8%	49.4%	45.6%	41.9%	38.6%	35.5%	32.8%
250	280	465	585	100.0%	91.8%	84.3%	77.8%	71.6%	66.0%	61.2%	56.5%	52.3%	48.6%	45.0%	41.8%	38.8%	36.1%
280	315	520	650	100.0%	91.7%	83.9%	77.0%	70.3%	64.4%	59.2%	54.1%	49.6%	45.7%	41.8%	38.4%	35.2%	32.4%
315	355	585	725	100.0%	92.3%	85.2%	78.7%	72.5%	66.9%	61.9%	57.0%	52.7%	48.9%	45.1%	41.8%	38.6%	35.8%
355	400	650	820	100.0%	91.4%	83.6%	76.8%	70.4%	64.7%	59.7%	54.8%	50.6%	46.8%	43.1%	39.8%	36.8%	34.1%
400	450	725	880	100.0%	93.6%	87.3%	81.6%	75.8%	70.5%	65.7%	60.7%	56.3%	52.2%	48.1%	44.3%	40.7%	37.5%
500	500	900	1120	100.0%	93.7%	87.9%	82.6%	77.2%	72.3%	67.8%	63.1%	58.9%	55.1%	51.29%	47.73%	44.30%	41.20%
560	630	1020	1260	100.0%	92.9%	86.4%	80.6%	74.7%	69.4%	64.6%	59.7%	55.2%	51.2%	49.95%	46.94%	44.18%	41.63%
630	710	1120	1460	100.0%	93.5%	87.4%	82.0%	76.5%	71.5%	67.0%	62.4%	58.2%	54.4%	52.64%	49.65%	46.88%	44.30%

Derating Coefficient of MD520 Series AC Drive

Power		Rated output current		Carrier frequency									
heavy load	light load	heavy load	light load										
(kW)	(kW)	(A)	(A)	3kHz	4kHz	5kHz	6kHz	7kHz	8kHz	9kHz	10kHz	11kHz	12kHz
Three-phase 220 V (SVPWM_DPWM1)													
0.4	0.75	2.1	3.8	100.0%	100.0%	100.0%	100.0%	90.6%	82.4%	75.8%	69.5%	64.5%	60.2%
0.75	1.1	3.8	5.1	100.0%	100.0%	100.0%	100.0%	91.8%	84.4%	77.5%	71.5%	66.0%	61.5%
1.1	1.5	5.1	7.2	100.0%	100.0%	100.0%	100.0%	92.8%	86.2%	80.5%	75.6%	71.1%	67.2%
1.5	2.2	7.2	9	100.0%	100.0%	100.0%	100.0%	93.8%	88.0%	82.7%	77.7%	73.3%	69.2%
2.2	3.7	9	13	100.0%	100.0%	100.0%	100.0%	92.9%	86.5%	80.9%	75.7%	71.2%	67.1%
3.7	5.5	13	17	100.0%	100.0%	100.0%	100.0%	92.5%	85.9%	80.2%	75.0%	70.4%	66.3%
5.5	7.5	25	32	100.0%	100.0%	100.0%	100.0%	93.9%	88.4%	83.3%	78.6%	74.2%	70.3%
7.5	11	32	45	100.0%	100.0%	100.0%	100.0%	93.8%	88.2%	83.0%	78.1%	73.8%	69.8%
11	15	45	60	100.0%	100.0%	100.0%	100.0%	95.5%	91.4%	87.6%	83.9%	80.5%	77.3%
15	18.5	60	75	100.0%	100.0%	100.0%	100.0%	93.5%	87.7%	82.4%	77.2%	72.5%	68.3%
18.5	22	75	91	100.0%	100.0%	100.0%	94.4%	89.0%	84.0%	79.4%	74.9%	70.8%	67.1%
22	30	91	112	100.0%	100.0%	100.0%	94.0%	88.6%	83.7%	79.2%	75.2%	71.5%	68.1%
30	37	112	150	100.0%	100.0%	94.1%	88.9%	84.0%	79.5%	82.4%	77.2%	72.5%	68.3%
37	45	150	176	100.0%	91.8%	84.2%	77.5%	70.9%	65.2%	79.4%	74.9%	70.8%	67.1%
45	55	176	210	100.0%	90.8%	82.3%	74.9%	67.7%	61.5%	79.2%	75.2%	71.5%	68.1%
55	75	210	253	100.0%	91.9%	84.4%	77.7%	71.3%	65.5%	75.5%	71.7%	68.3%	65.2%
75	90	304	377	100.0%	92.6%	85.7%	79.7%	73.9%	68.8%	-	-	-	-
90	110	377	426	100.0%	90.8%	82.5%	75.1%	73.9%	68.8%	-	-	-	-
110	132	426	465	100.0%	91.2%	83.2%	76.2%	73.9%	68.8%	-	-	-	-
132	160	465	585	100.0%	91.2%	83.2%	76.2%	73.9%	68.8%	-	-	-	-
160	200	585	725	100.0%	91.2%	83.2%	76.2%	73.9%	68.8%	-	-	-	-
200	250	725	880	100.0%	91.7%	83.9%	77.0%	73.9%	68.8%	-	-	-	-
Single-phase 220V (SVPWM_DPWM1)													
0.4	-	2.3	-	100.0%	100.0%	100.0%	100.0%	92.6%	86.4%	80.8%	75.7%	71.1%	67.2%
0.75	-	4	-	100.0%	100.0%	100.0%	100.0%	92.6%	86.4%	80.8%	75.7%	71.1%	67.2%
1.5	-	7	-	100.0%	100.0%	100.0%	100.0%	92.6%	86.4%	80.8%	75.7%	71.1%	67.2%
2.2	-	9.6	-	100.0%	100.0%	100.0%	100.0%	92.6%	86.0%	80.4%	75.2%	70.6%	66.5%

Note:

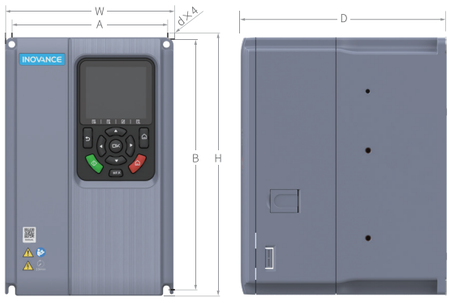
1. When selecting models for applications with high-speed motors, ensure that the carrier ratio (the ratio between carrier frequency and maximum running frequency) is greater than or equal to 18.

2. As shown in the above table, for the models with power ratings of 75 kW and above, the derating coefficients correspond to carrier frequencies ranging from 3 kHz to 8 kHz; for models with power ratings below 75 kW, the derating coefficients correspond to carrier frequencies ranging from 3 kHz to 12 kHz.If the actual carrier frequency exceeds the specified limits, a carrier frequency-based derating evaluation is required. For assistance, contact Inovance or consider replacing with the MD520 high-speed product.

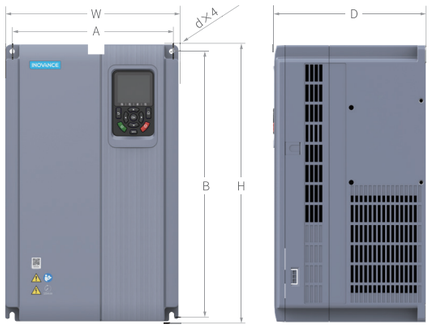
3. The derating data provided in the table for high carrier frequencies are based on the 5-segment pulsing mode. For the 7-segment pulsing mode, select the model based on the derating data of its carrier frequency multiplied by 1.5.

Dimensions

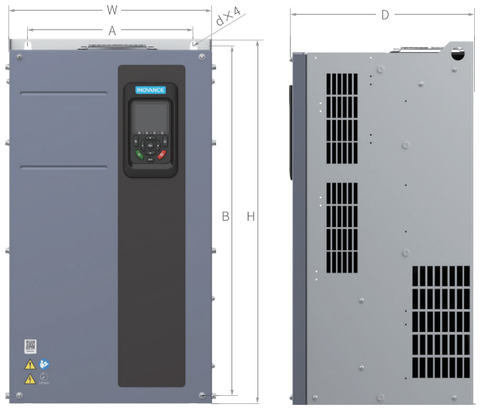
T1~T4



T5~T6



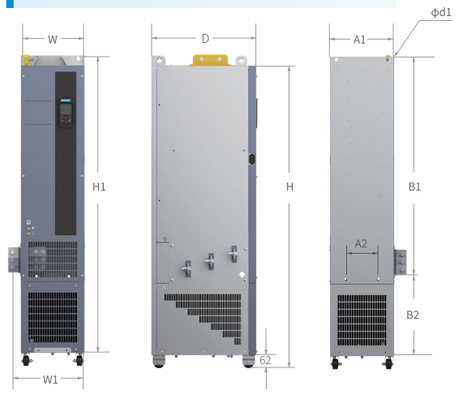
T7~T9



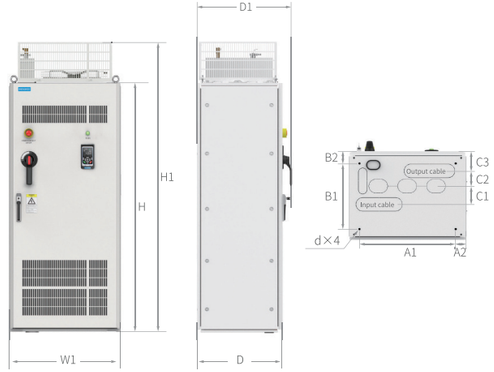
T10~T12 (Without AC Output Reactors)



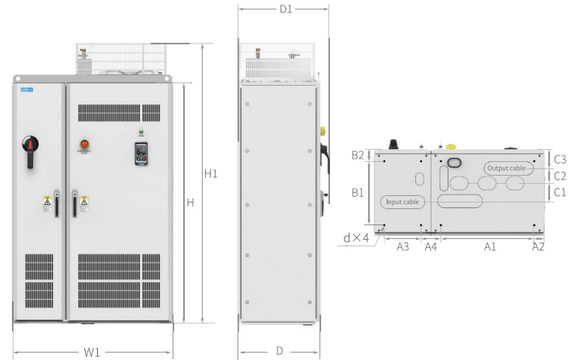
T10~T12 (with AC Output Reactors)



T13 (Without Auxiliary Power Distribution Cabinets)



T13 (With Auxiliary Power Distribution Cabinets)



Frame Size	Mounting Hole mm (in.)		Outline Dimension mm (in.)				Mounting Hole mm (in.)	Weight kg (lb)
	A	B	H	H1	W	D	d×4	
T1	119 (4.7)	189 (7.5)	200 (7.9)	-	130 (5.1)	150 (6.0)	Φ5 (0.2)	1.6 (3.5)
T2	119 (4.7)	189 (7.5)	200 (7.9)	-	130 (5.1)	160 (6.4)	Φ5 (0.2)	2.0 (4.4)
T3	128 (5.0)	238 (9.4)	250 (9.9)	-	140 (5.5)	168.3 (6.7)	Φ6 (0.2)	3.3 (7.3)
T4	166 (6.5)	266 (10.5)	280 (11.0)		180 (7.1)	169 (6.7)	Φ6 (0.2)	4.3 (9.5)
T5 (without the DC reactor)	195 (7.7)	335 (13.2)	335 (13.8)	-	210 (8.3)	193.4 (7.6)	Φ6 (0.2)	7.6 (16.8)
T5 (with the DC reactor)	195 (7.7)	335 (13.2)	350 (13.8)	-	210 (8.3)	193.4 (7.6)	Φ6 (0.2)	10.0 (22.0)
T6	230 (9.1)	380 (15.0)	400 (15.8)	-	250 (9.9)	220.8 (8.7)	Φ7 (0.3)	17.5 (38.6)
T7	245 (9.7)	523 (20.6)	525 (20.7)	542 (21.4)	300 (11.8)	275 (10.8)	Φ10 (0.4)	35 (77.2)
T8	270 (10.6)	560 (22.1)	554 (21.8)	580 (22.9)	338 (13.3)	315 (12.4)	Φ10 (0.4)	51.5 (113.5)
T9	320 (12.6)	890 (35.1)	874 (34.4)	915 (36.1)	400 (15.8)	320 (12.6)	Φ10 (0.4)	85 (187.4)

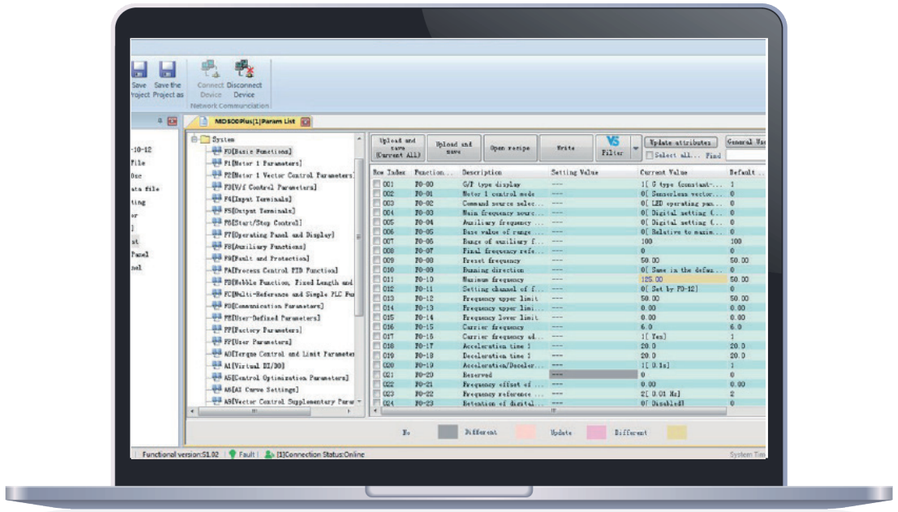
Frame Size	Mounting Hole mm (in.)									Outline Dimension mm (in.)						Mounting Hole mm (in.)	Weight kg (lb)
	A1	A2	A3	A4	B1	B2	C1	C2	C3	H	H1	W	W1	D	D1	d	
T10 (Without AC Output Reactors)	240 (9.5)	150 (5.9)	/	/	1035 (40.8)	86 (3.4)	/	/	/	1086 (42.8)	1134 (44.7)	300 (11.8)	360 (14.2)	500 (19.7)	/	Φ13 (0.5)	110 (242.5)
T11 (Without AC Output Reactors)	225 (8.9)	185 (7.3)	/	/	1175 (46.3)	97 (3.8)	/	/	/	1248 (49.2)	1284 (50.6)	330 (13)	390 (15.4)	545 (21.5)	/	Φ13 (0.5)	155 (341.7)
T12 (Without AC Output Reactors)	240 (9.5)	200 (7.9)	/	/	1280 (50.4)	101 (4.0)	/	/	/	1355 (53.4)	1405 (55.4)	340 (13.4)	400 (15.8)	545 (21.5)	/	Φ16 (0.6)	185 (407.9)
T10 (with AC Output Reactors)	240 (9.5)	150 (5.9)	/	/	1035 (40.8)	424 (16.7)	/	/	/	1424 (56.1)	1472 (58.0)	300 (11.8)	360 (14.2)	500 (19.7)	/	Φ13 (0.5)	160 (352.7)
T11 (with AC Output Reactors)	225 (8.9)	185 (7.3)	/	/	1175 (46.3)	435 (17.1)	/	/	/	1586 (62.5)	1622 (63.9)	330 (13.0)	390 (15.4)	545 (21.5)	/	Φ13 (0.5)	215 (474.0)
T12 (with AC Output Reactors)	240 (9.5)	200 (7.9)	/	/	1280 (50.4)	432 (17.0)	/	/	/	1683 (66.3)	1733 (68.3)	340 (13.4)	400 (15.8)	545 (21.5)	/	Φ16 (0.6)	245 (540.1)
T13 (Without Auxiliary Power Distribution Cabinets)	660 (26)	73.5 (2.9)	/	/	450 (17.7)	85 (3.3)	125 (4.9)	104 (4.1)	136 (5.4)	1800 (70.9)	2100 (82.7)	/	805 (31.7)	610 (24.0)	680 (26.8)	Φ15 (0.6)	530 (1168.4)
T13 (with Auxiliary Power Distribution Cabinets)	660 (26)	73.5 (2.9)	260 (10.2)	140 (5.5)	450 (17.7)	85 (3.3)	132 (5.2)	104 (4.1)	136 (5.4)	1800 (70.9)	2100 (82.7)	/	1205 (47.5)	610 (24)	680 (26.8)	Φ15 (0.6)	730 (1609.4)

PC SOFTWARE TOOLS

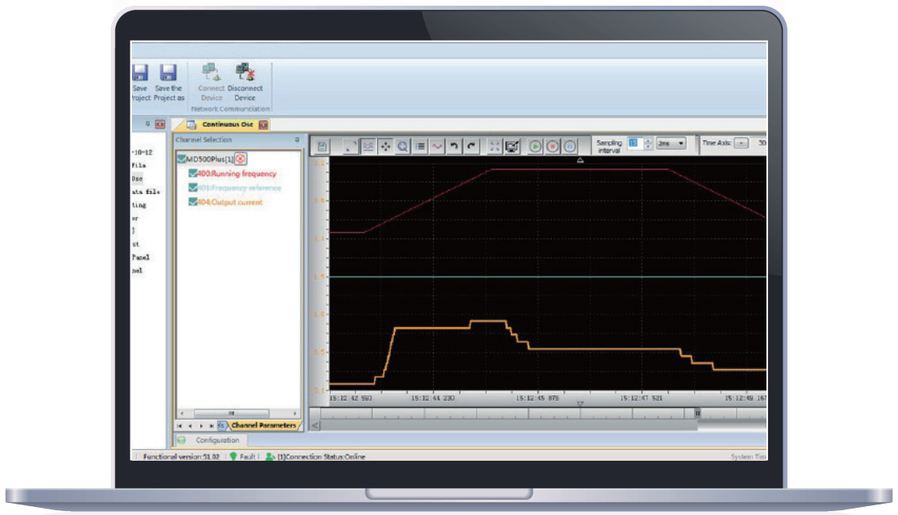
InoDriverShop

InoDriverShop is Inovance’s free of charge PC-based software offering. It is based on a familiar Windows interface. InoDriverShop can upload anddownload drive parameters, and features a variety of other functions, such as a real-time oscilloscope.
For the connection with the PC a standard USB to RS485 adapter can be used.
MDKE-10 or SOP-20 keypads can also be used for this purpose.

Parameter uploading/downloading

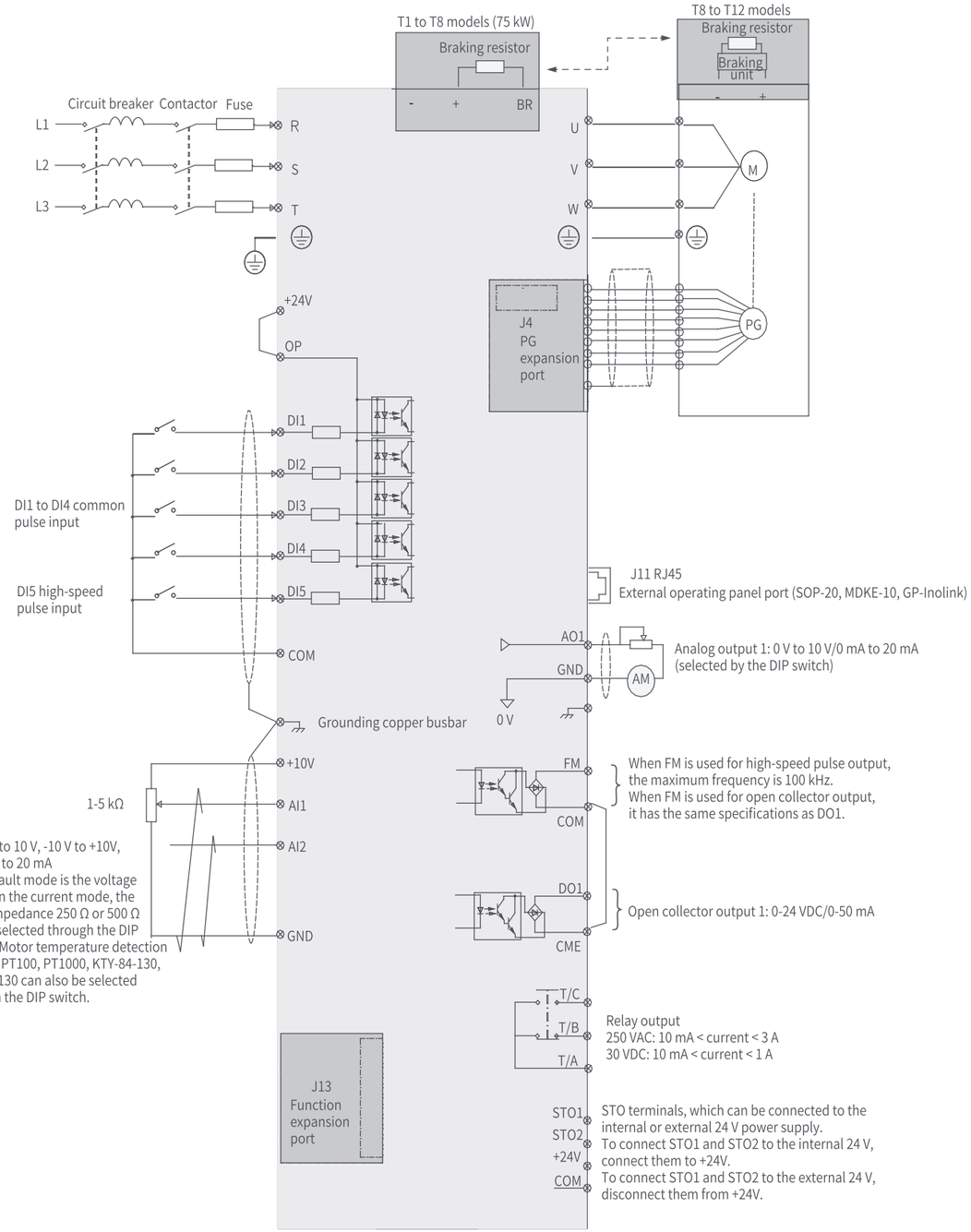


Multi channel oscilloscope

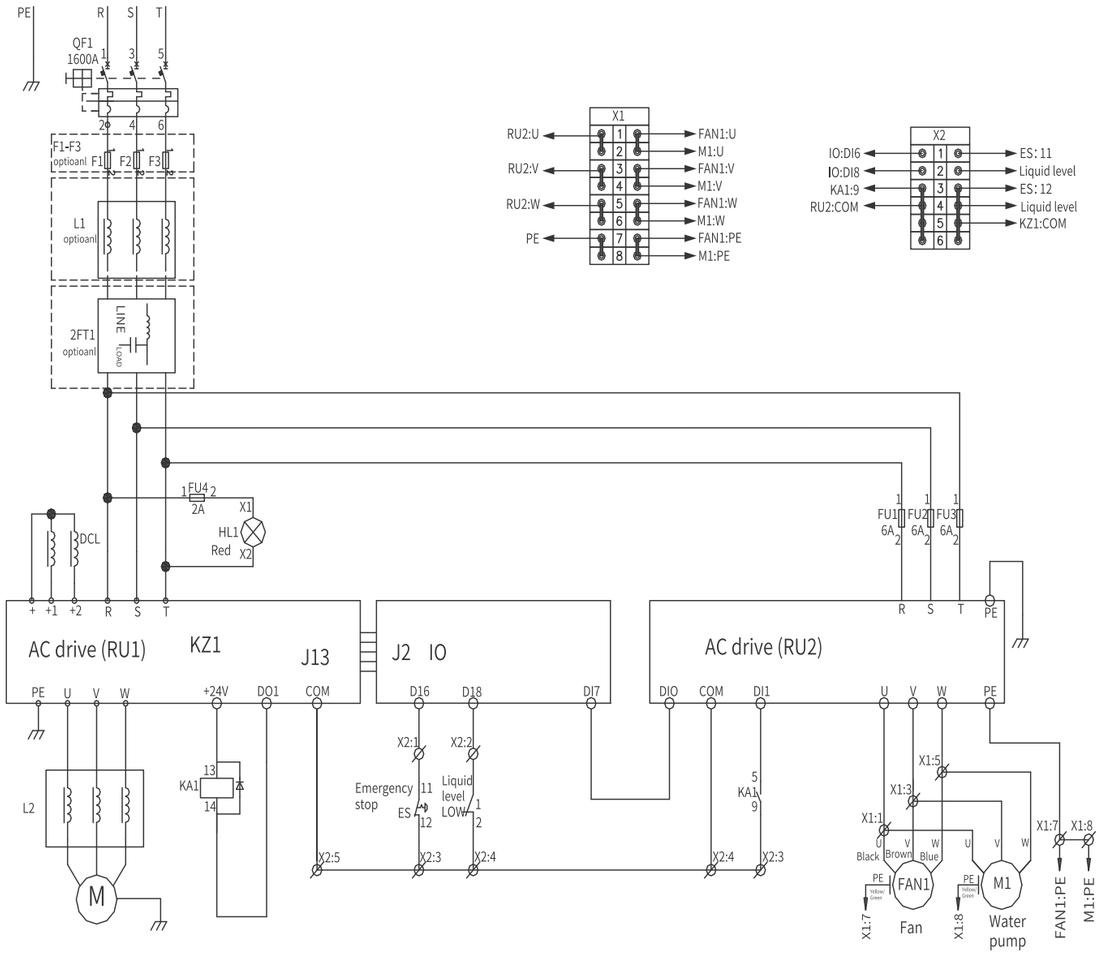


Electrical wiring diagram of T1 to T2 models

Three-phase 380 V models



Electrical Wiring Diagram of T13 Models



Accessories list

Category	Model	Function description	Suitable for
External braking device	MDBUN-60-T	Extranal braking unit, rated current 60A, for supply input voltage 380V AC AC drive.	All models
	MDBUN-60-5T	Extranal braking unit, rated current 60A, for supply input voltage 480V AC AC drive.	All models
	MDBUN-90-T	Extranal braking unit, rated current 90A, for supply input voltage 380V AC AC drive.	All models
	MDBUN-90-5T	Extranal braking unit, rated current 90A, for supply input voltage 480V AC AC drive.	All models
	MDBUN-200-T	Extranal braking unit, rated current 200A, for supply input voltage 380V AC AC drive.	All models
	MDBUN-200-5T	Extranal braking unit, rated current 200A, for supply input voltage 480V AC AC drive.	All models
I/O expansion cards	MD38IO1	I/O extension card 1, provides: 5×DI, 1×DO, 1×relay output, 1×AI (PT100/PT1000), 1×AO, 1×Modbus-RTU/ CANlink terminal.	Frame size T4-T13
	MD38IO2	I/O extension card 2, provides: 3×DI terminals.	All models
	MD38IO3	I/O extension card 3, provides: 3×DI, 1×relay output, 1×Modbus-RTU terminal.	All models
	MD520IO1	I/O extension card 4, provides: 3×DI, 1×relay output (normally open), 1×AO, 1×Modbus-RTU terminal.	All models
	MD38DW1	5×DI, 1×DO, 1×relay output, 1×AI, 1×AO, 1×RS485 or CAN communication signal isolation input, 1 differential ABZ.	Frame size T4-T13
	MD38DW2	Mini pulse input expansion card: 1×RS485, 1×differential ABZ (positioning).	All models
Keypads	MDKE-10	Remote LED keypad. Can be used as USB to RS485 adapter for the connection to the PC.	All models
	SOP-20	Remote LCD keypad. For parameter programrming and monitoring, data copy. Can be used as USB to RS485 adapter for the coninection to the PC.	All models
	CP600-BASE1	Panel mounting base for SOP-20 with IP20 rating.	All models
	MD580-AZJ1	Panel mounting base for MDKE-10 with IP20 rating.	All models
	MDCAB	Connection cable for remote keypad with length 3m and standard 8pin core, which supports MDKE-10 LED keypad and SOP-20 LCD keypad.	All models
	MDCAB-1.5	Connection cable for remote keypad with length 1.5m.	All models
Fieldbus cards	MD38TX1	Modbus-RTU option card.	All models
	MD38CAN1	CANlink/CANopen option card.	All models
	MD-SI-DP2	PROFIBUS-DP option card.	All models
	MD38DP2	PROFIBUS-DP option card.	Frame size T4-T13
	MD500-PN1	PROFINET option card, with power-on time 3s, cycle network support.	All models
	MD500-PN2	PROFINET option card, with power-on time 30s, cycle network unsupport.	All models
	MD500-ECAT	EtherCAT option card.	All models
	MD500-EN1	EtherNet/IP option card.	All models
	MD500-EM1	Modbus TCP option card.	All models
	MD520-CClink	CC-Link option card.	All models
PG cards	MD38PG4	Applicable to the resolver with the excitation frequency of 10 kHz and with the DB9 interface.	All models
	MD38PG4D	Option card for resolver (10 kHz excitation) with selectable ratio simulated encoder output (TTL differential).	All models
	MD38PGMD	Multifunctional encoder option card, compatible with differential, open-collector and push-pull encoder types. Supports differential output and open-collector output.	All models
	ES510-PG-CT1	23-bit encoder card.	All models
	MD520-PG-S1	PG card that decodes sin-cos encoders.	All models
Mounting brackets	MD500-AZJ-A1T1	Through hole mounting bracket for frame T1.	Frame size T1
	MD500-AZJ-A1T2	Through hole mounting bracket for frame T2.	Frame size T2
	MD500-AZJ-A1T3	Through hole mounting bracket for frame T3.	Frame size T3
	MD500-AZJ-A1T4	Through hole mounting bracket for frame T4.	Frame size T4
	MD500-AZJ-A1T5	Through hole mounting bracket for frame T5.	Frame size T5
	MD500-AZJ-A1T6	Through hole mounting bracket for frame T6.	Frame size T6
	MD500-AZJ-A1T7	Through hole mounting bracket for frame T7.	Frame size T7
	MD500-AZJ-A1T8	Through hole mounting bracket for frame T8.	Frame size T8
	MD500-AZJ-A1T9	Through hole mounting bracket for frame T9.	Frame size T9
Cable brackets	MD500-AZJ-A2T1	Cable shield grounding bracket for frame T1.	Frame size T1
	MD500-AZJ-A2T2	Cable shield grounding bracket for frame T2.	Frame size T2
	MD500-AZJ-A2T3	Cable shield grounding bracket for frame T3.	Frame size T3
	MD500-AZJ-A2T4	Cable shield grounding bracket for frame T4.	Frame size T4
	MD500-AZJ-A2T5	Cable shield grounding bracket for frame T5.	Frame size T5
	MD500-AZJ-A2T6	Cable shield grounding bracket for frame T6.	Frame size T6
	MD500-AZJ-A2T7	Cable shield grounding bracket for frame T7.	Frame size T7
	MD500-AZJ-A2T8	Cable shield grounding bracket for frame T8.	Frame size T8
	MD500-AZJ-A2T9	Cable shield grounding bracket 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
U/V/W output copper busbar	MD500-TP-T10	U/V/W output copper busbar for frame T10.	Frame size T10
	MD500-TP-T11	U/V/W output copper busbar for frame T11.	Frame size T11
	MD500-TP-T12	U/V/W output copper busbar for frame T12.	Frame size T12