Digitized Automation for a Changing World

Delta Compact Multi-Drive MX300 Series

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DELTA

Compact Multi-Drive MX300 Series

Bilateral Installation & Compact Size: The Winning Combination

Industries are pursuing smart manufacturing and high efficiency production, which makes space and time utilization the key to smart factory upgrades.

To meet the rapid changes of the market, Delta has newly introduced its Compact Multi-Drive MX300 Series. Inheriting the outstanding performance, diverse applications, high quality, and energy saving advantages of Delta's AC motor drives, the MX300 Series features a multi-axis control by a modular structure. The multi-axis modular structure with one rectifier module and single / double / triple-axis inverter modules significantly saves cabinet space, accessories, and peripheral devices, reducing commissioning and maintenance time as well as Total Cost of Ownership (TCO). Compared with the traditional single drive structure, the Compact Multi-Drive MX300 Series has the advantages of optimal space, quick mounting, simple commissioning, and easy networking, which efficiently utilize limited space and enhance production efficiency, helping customers stay competitive in this ever-changing market.

Delta has been continuously dedicated to research, development, and innovation as well as providing high quality products and excellent aftersales maintenance service to establish smart production lines and embrace "Digitized Automation for a Changing World" with global customers.

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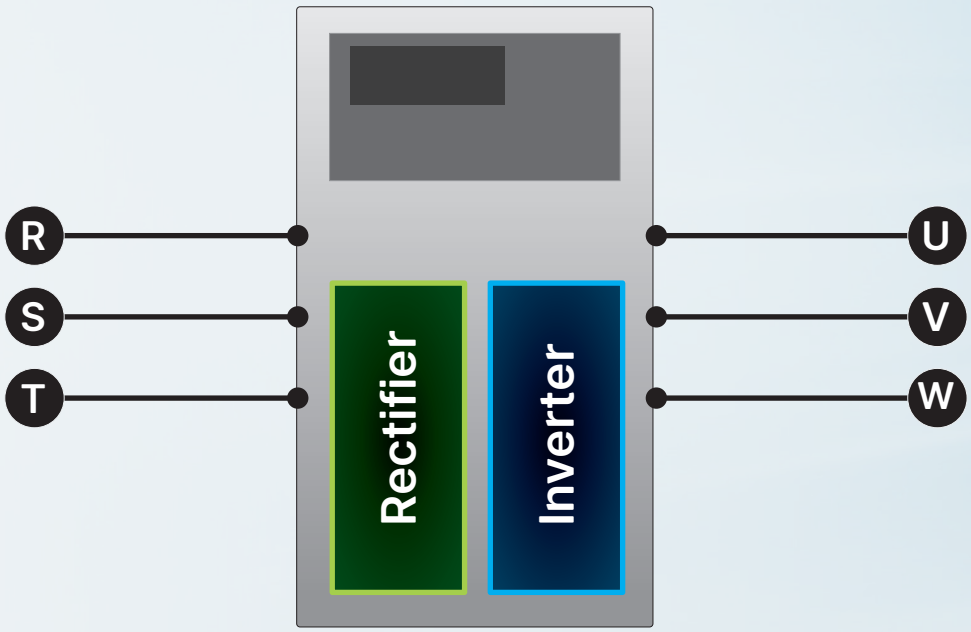
Multi-Axis Modular Structure

How does a drive work?

Single Drive Structure

Step 1 A rectifier converts AC to DC → Step 2 An inverter converts DC to AC to control motor

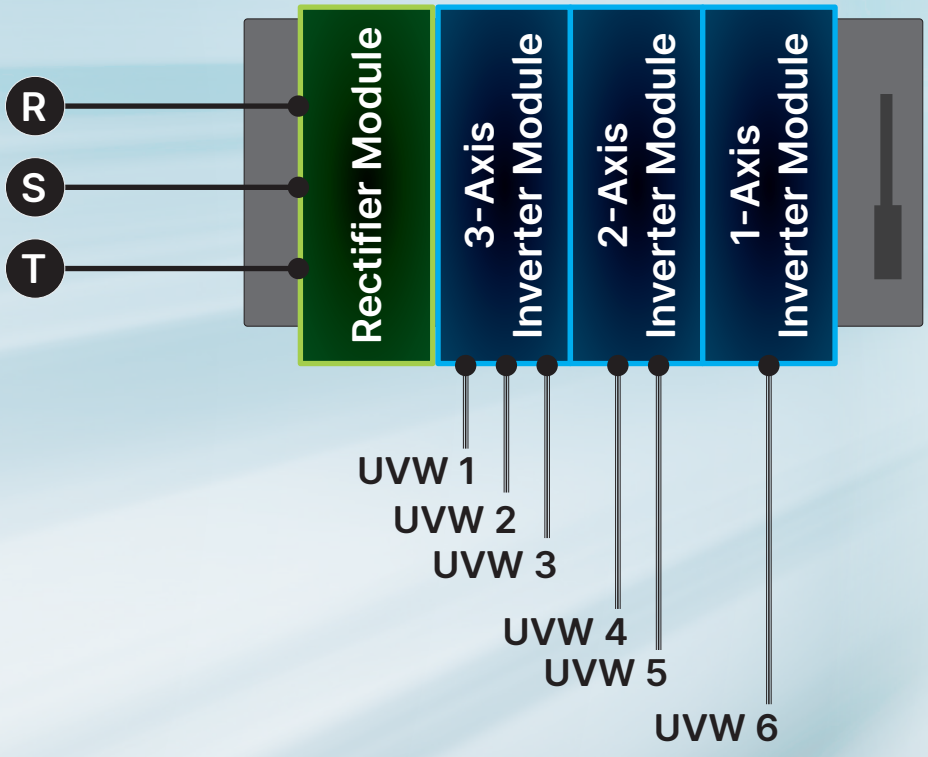
Single Input, Single Output



Multi-Axis Modular Structure

In the multi-axis modular structure, one rectifier module supports multiple inverter modules to control motors.

Single Input, Multiple Output



Compact Multi-Drive MX300 Series

Rectifier module; Single / Double / Triple-Axis Inverter Module; Transmission Module

Rectifier Module

- Input voltage: 230 V 1-phase, 460 V 3-phase
- Max. output power: 230 V 3.7 kW, 460 V 18.5 kW
- Supports up to 6 inverter modules
- Supports up to 15 axes
- Two built-in RJ45 ports for various industrial communication protocols

+

Inverter Module

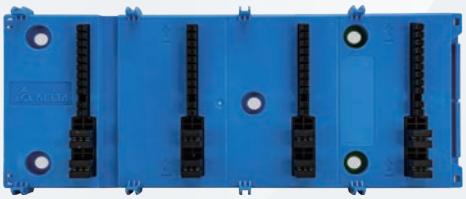
- Max. output power: 230 V 2.2 kW, 460 V 7.5 kW
- Max. output: 3-axis inverter module supports 3 outputs
- Wiring: Detachable terminal for simple wiring

1-Axis 2-Axis 3-Axis

+

Transmission Module

Connects rectifier and inverter modules, establishing a common DC bus structure



Modular structure, flexible configuration

Users can choose different inverter module configurations based on requirements

Bilateral Installation

(6-axis output as an example)

Option 1

1-Axis Inverter Module **×2**

+

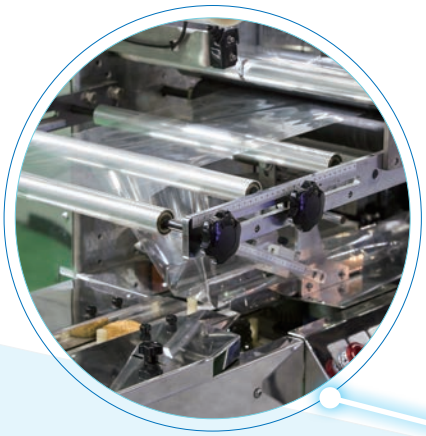
2-Axis Inverter Module **×2**

Option 2: left / right side

3-Axis Inverter Module **×2**

Option 3: left / right side

2-Axis Inverter Module **×3**



Compact Multi-Drive MX300 Series

Open-loop control applications with multiple low-power axes

Suitable for machines with multiple low-power motors such as glass edging machines, woodworking machines, car wash machines, and more. Also applicable to production lines such as conveyor, packaging machine, material sorting machine, and more.

Multi-axis modular structure

Greatly saves on cabinet space, wiring, and accessories for cost efficiency. Common DC bus design reduces energy consumption and carbon emissions.

User Demands

Cost Efficiency	User Friendly	Communication & Networking

Compact Multi-Drive MX300 Series

Compact Size

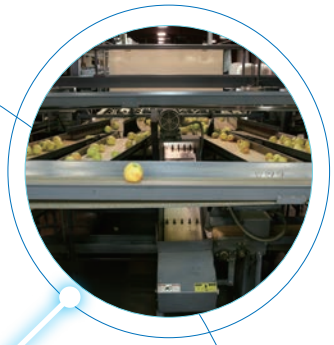
- Saves cabinet space / wiring / accessories

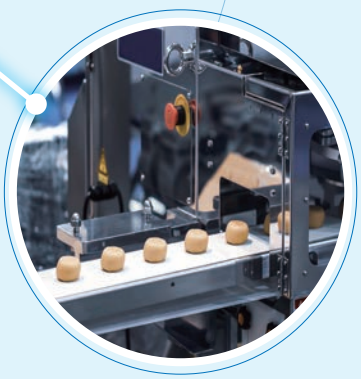
Friendly Mounting

- Simple mounting & replacement
- Detachable terminals for easy wiring

Smooth Networking

- Two built-in RJ45 ports
- Supports various industrial communication protocols





Reduce Carbon Emissions | **Outstanding Capability** | **Long-Term Stability**

Compact Multi-Drive MX300 Series

Energy Saving

- Common DC bus for energy efficiency

High Performance

- Max. 200% starting torque
- 150% 60 sec. overload capacity
- Supports IM/PM motors

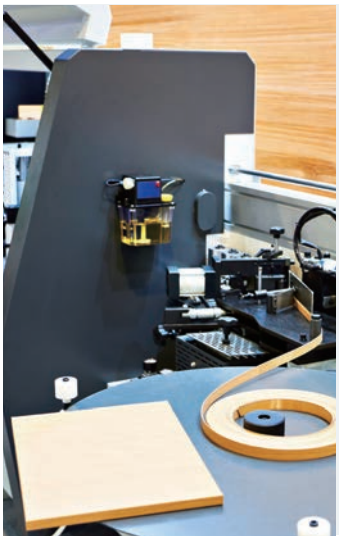
High Reliability

- Safe Torque Off (STO) SIL3
- High vibration suppression
- Enhanced PCB coating
- Circuit protection

Applications

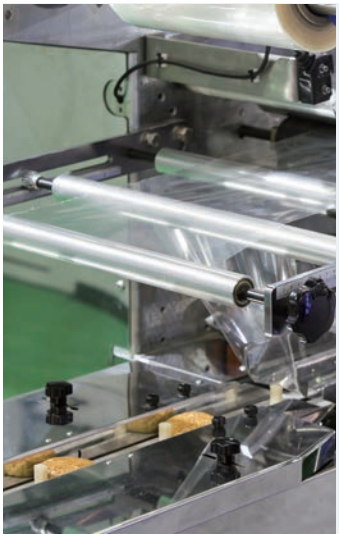
Conveyor

- Multi-axis modular structure saves cabinet space
- Max. 200% starting torque to prevent stalled motors
- Supports jog function for commissioning
- Parameters duplication function reduces effort needed when replacing inverter modules
- Supports PM motor open-loop operation for energy efficiency
- Long motor cable up to 100 meters without additional components



Woodworking Machine

- Multi-axis modular structure saves cabinet space
- Common DC bus for energy saving
- Detachable terminals make the assembly underneath the machine more convenient
- Duplicates whole system parameters once through an extensional keypad to enhance commission efficiency
- Optional braking chopper optimizes space utilization and cost efficiency
- Built-in CANopen enhances communication quality
- Side rib fasten design achieves high vibration suppression
- IP40 with individual flow path design prevents foreign material from entering the mainboard

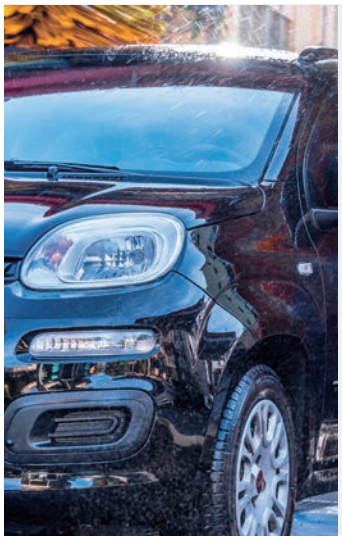


Packaging Machine

- Multi-axis modular structure saves cabinet space
- Common DC bus for energy saving
- Built-in CANopen enhances communication quality
- Side rib fasten design achieves high vibration suppression
- Rectifier module with optional braking chopper optimizes space utilization and cost efficiency

Material Sorting Machine

- Multi-axis modular structure saves cabinet space
- Built-in CANopen enhances communication quality
- Supports IM/PM motors
- Side rib fasten design achieves high vibration suppression
- Rectifier module with optional braking chopper optimizes space utilization and cost efficiency
- Momentary power loss speed tracking function ensures stable operation, enhancing production efficiency



Car Wash Machine

- Multi-axis modular structure saves cabinet space
- Common DC bus for energy saving
- Built-in CANopen enhances communication quality
- Side rib fasten design achieves high vibration suppression
- 100% PCB coating strengthens moisture resistance capacity

Encrusting Machine

- Multi-axis modular structure saves cabinet space
- Common DC bus for energy saving
- Built-in CANopen enhances communication quality
- Side rib fasten design achieves high vibration suppression
- Rectifier module with optional braking chopper optimizes space utilization and cost efficiency

Features

Compact Size

- Controls up to 6 inverter modules, 15 axes
- Modular structure saves cabinet space
- 3-axis inverter module achieves high power density

High Reliability

- Safe Torque Off (STO) SIL3
- High vibration suppression
- 100% PCB coating for moisture, corrosion, dust resistance
- Circuit protection extends module life

Friendly Mounting

- Bilateral installation
- Plug-in installation for fast setup
- One interface commissions multi-axis parameters

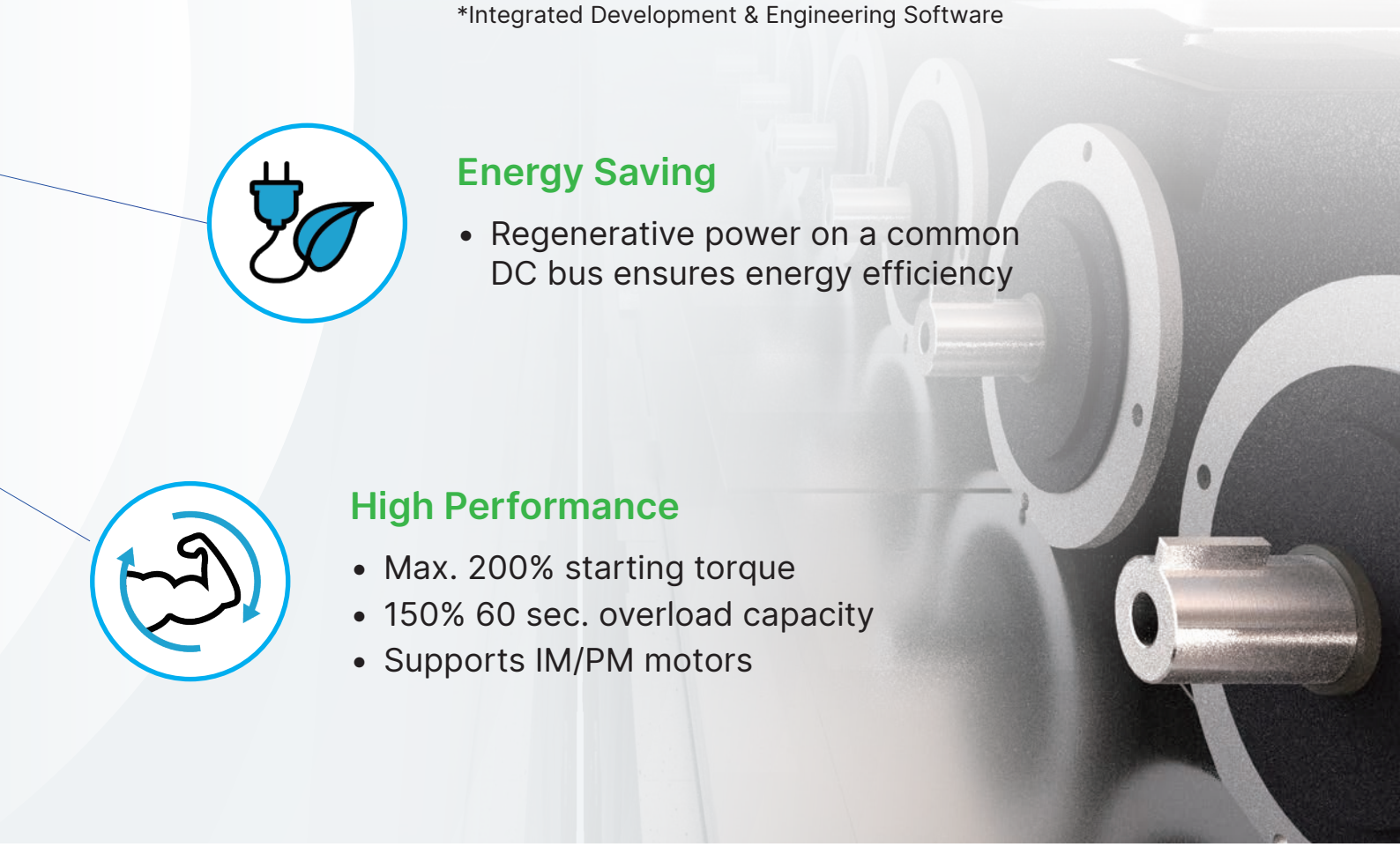
Smooth Networking

- Supports EtherCAT, PROFINET, EtherNet/IP, and CANopen
- Connects and controls up to 15 axes
- USB Type-C with DIADesigner*

*Integrated Development & Engineering Software

Energy Saving

- Regenerative power on a common DC bus ensures energy efficiency



High Performance

- Max. 200% starting torque
- 150% 60 sec. overload capacity
- Supports IM/PM motors

Compact Size

Book shape with equal height and depth is ideal for space utilization

- Rectifier Module (W × D × H = 98 × 160 × 160 mm)
- Inverter Module (W × D × H = 49 × 160 × 160 mm)

High power density

Under 3-axis operation condition, users have the following options

Option 1: Three 1-axis inverter modules

Option 2: One 1-axis and one 2-axis inverter modules save space by 33%, compared with Option 1

Option 3: One 3-axis inverter module saves space by 66%, compared with Option 1

Option 1

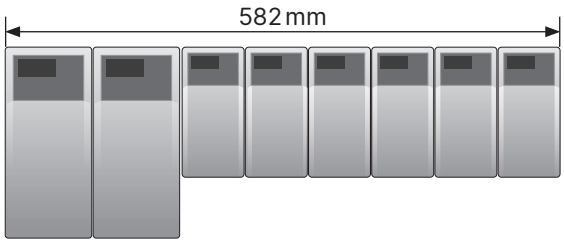
Option 2

Option 3

Saves cabinet space + wiring + accessories = cost efficiency

- Multi-drive saves cabinet space and cables
- Unifies screw hole location between modules for simple installation

Single Drive



Power Cable + Motor Cable
× 48

MX300
(Supports 2-axis module)

Saves Space by
49%

Saves Wiring by
43%

MX300
(Supports 3-axis module)

Saves Space by
58%

Power Cable + Motor Cable
× 27

Note: Two 3.7 kW drives with six 0.75 kW drives as an example

Friendly Mounting

Plug-in installation saves set-up effort

- Saves installation time by 30%
- Single-/Dual-sided installation optimizes space utilization

Single-Sided Installation Steps

1 Fasten one transmission module

2 Screw on the rectifier module

3 Mount the inverter module one by one

4 Fasten inverter modules

Dual-Sided Installation Steps

1 Fasten two pieces of transmission modules

2 Screw on the rectifier module across the middle of two transmission modules

3 Mount the inverter module one by one

4 Fasten inverter modules

Quick replacement

For maintenance, modules can be replaced separately

Replacement Steps

1 **Power off. Remove motor terminals**

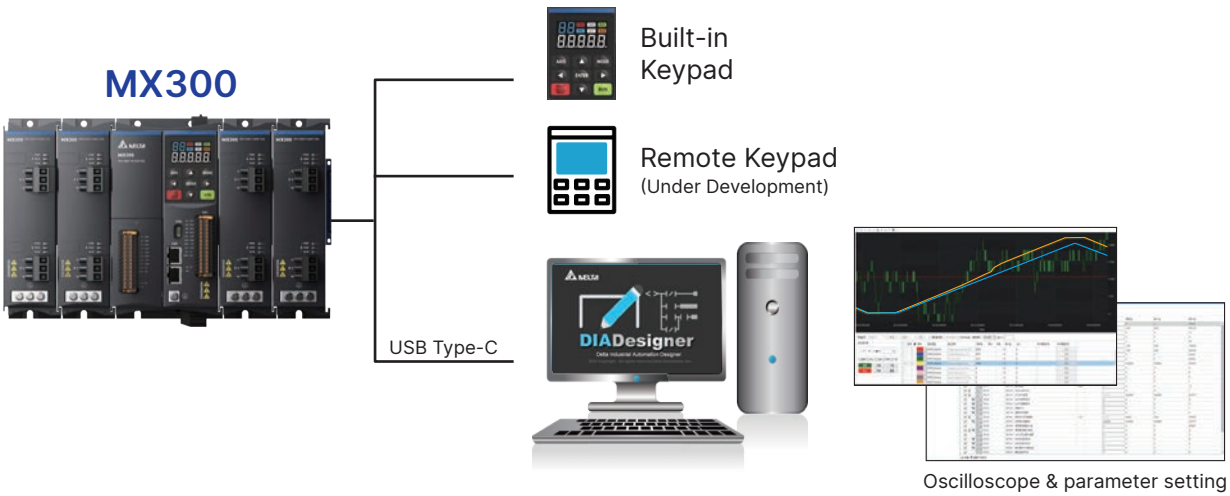
2 **Unfasten screws fixed on inverter modules**

3 **Remove the inverter module and mount the new module**

4 **Plug in motor terminals. Power on. Restore parameters through the rectifier module**

One interface commissions multi-axis parameters

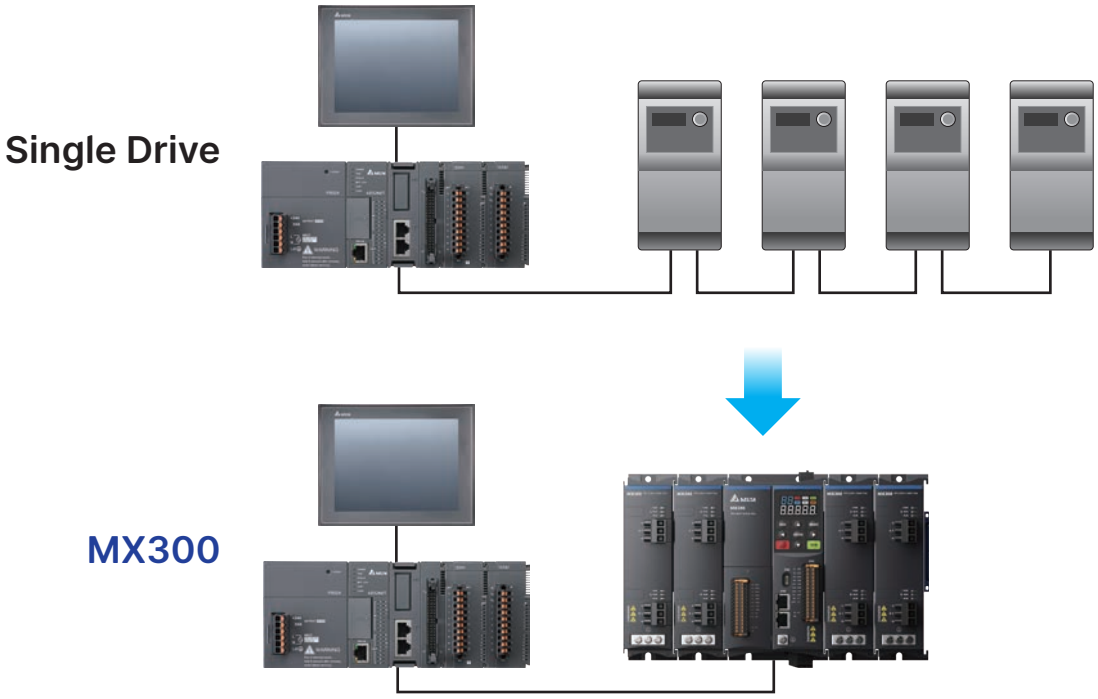
- Parameters of each axis can be stored and duplicated
- Connects with the DIADesigner (Integrated Development & Engineering Software) via built-in USB Type-C port to build a network topology and commission parameters



Smooth Networking

One cable connects multiple axes

Only one cable is needed for cable saving



Built-in DC 24 V input power

- When main power fails, the error code and parameters can be checked
- Smooth communication between drive and controller

Easy connection on multiple drives

- Dual RJ45 ports for easy connection on multiple drives
- Built-in various industrial protocols, save communication card

- Built-in various industrial communication protocols

CANopen EtherCAT PROFINET EtherNet/IP

Model		CANopen	EtherCAT	PROFINET	EtherNet/IP
MX300-C	VFD***MX***CA	O	-	-	-
MX300-E*	VFD***MX***EA	-	O	O	O (Under developing)

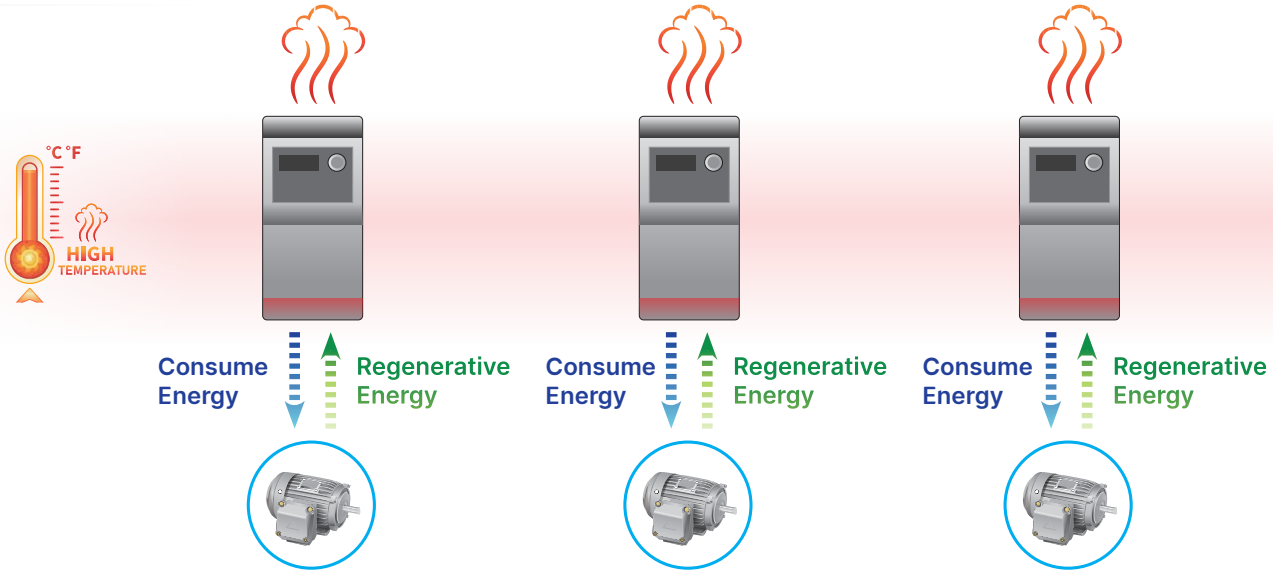
*Selected by parameter

Energy Saving

Regenerative power on a common DC bus ensures energy efficiency

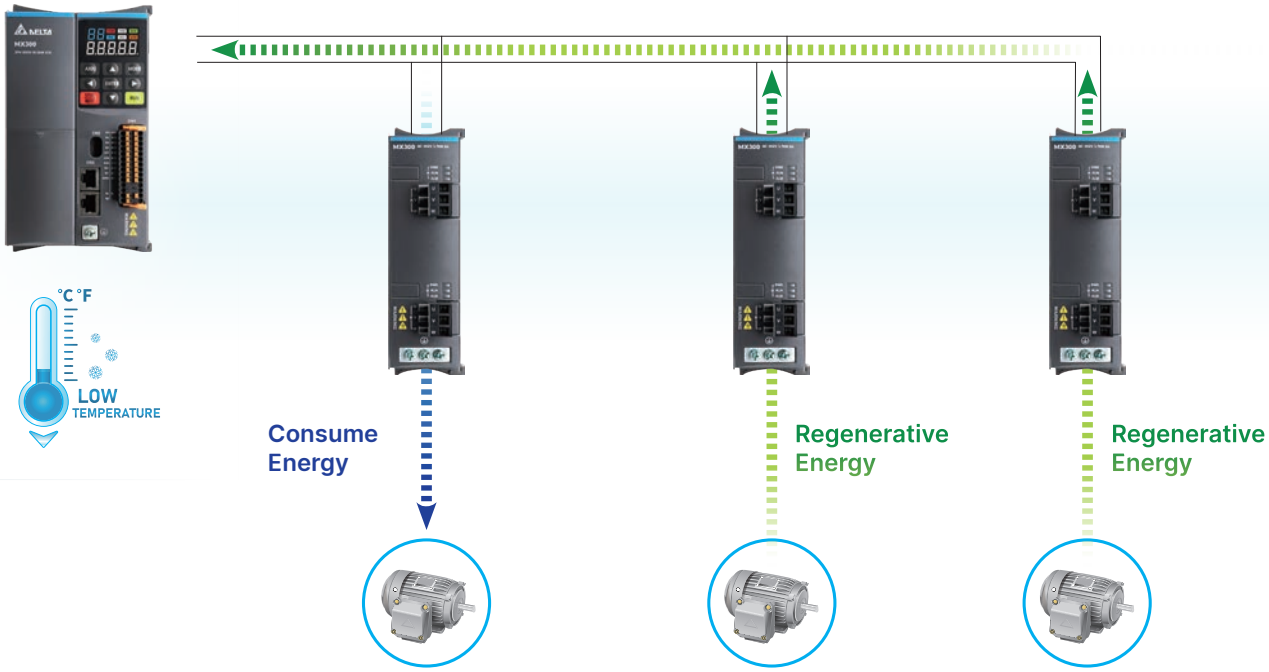
Single Drive

The drive's braking unit dissipates the regenerative energy as heat



Multi-Axis Modular

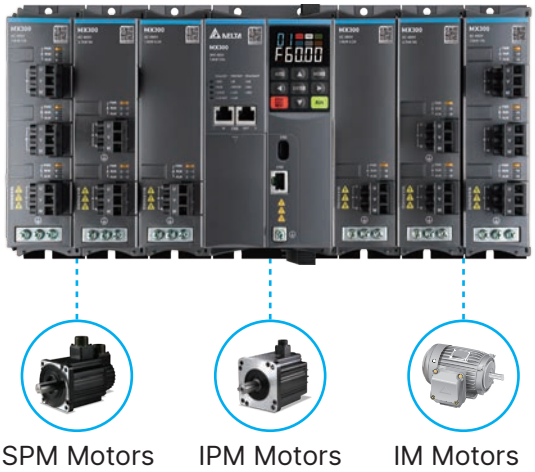
- Axes are in a common DC bus configuration
- Regenerative power is fed back to the common DC bus and can be reused
- Less brake resistor needed for energy saving



High Performance

Supports IM/PM motors

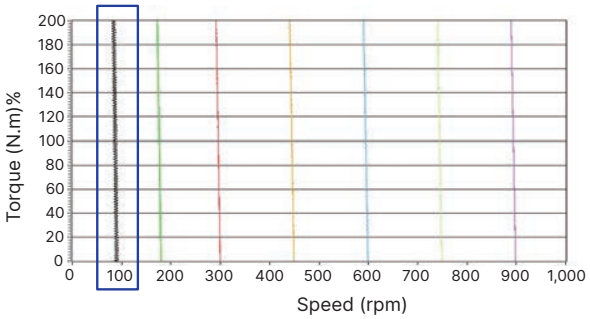
Equipped with 2 independent IM control parameter sets



SPM Motors IPM Motors IM Motors

High starting torque

Delivers 200% high starting torque with a low speed control of 3Hz and provides outstanding machine stability. Suitable for dynamic loading applications



Torque below 200% remains the preset speed

High overload capacity

Heavy duty: rated current 150% for 60 seconds; 200% for 3 seconds
Normal duty: rated current 110% for 60 seconds; 130% for 3 seconds

Built-in braking chopper

Larger braking torque capability is provided by using an additional braking resistor

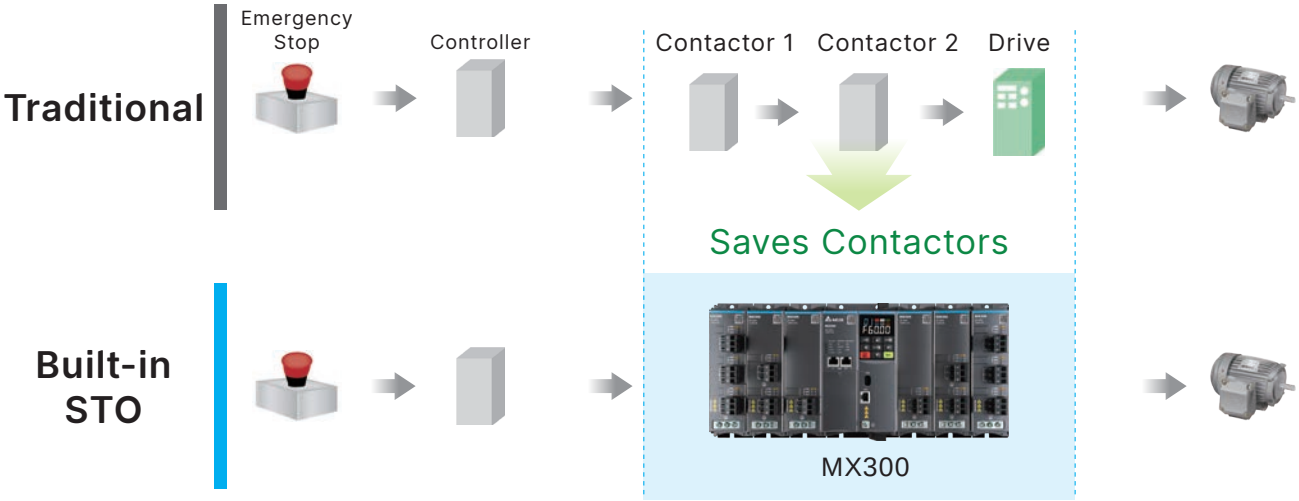
Long motor cable

Long motor cable up to 100 meters without additional component

High Reliability

Built-in Safe Torque Off (STO) Complies with International Standards

- Built-in STO SIL3
- Standards:
  ISO 13849-1:2015 Category 3 PL e
  EN 60204-1 Category 0
  EN 61508 SIL3
  EN 62061 SIL CL 3

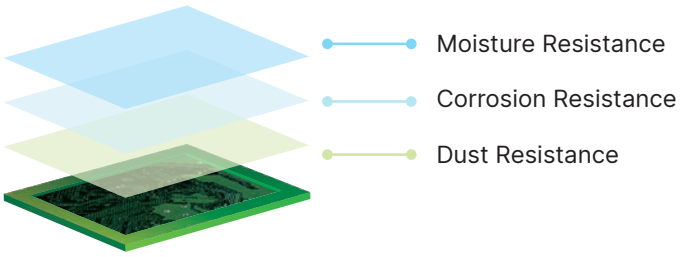


MX300-S STO Inverter module

- MX300-S can match with two type of Rectifier module
- STO function for each axis
- Activated by a 24V safety DC power

Enhanced PCB coating

100% PCB coating extends the lifespan of the drive operating in harsh environments or under corrosive gas exposure (e.g., salt mist, SO_2, O_3, H_2S, and more). Compliant with the IEC 60721-3-3 Class 3C3 standard



EMC Filter

- Fit IEC61800-3 C2-100m
- Fit MX300 book shape and size

Vibration suppression

Side rib fasten design to achieve high vibration suppression

Circuit protection

Breakdown on single module does not affect other modules, which extends module life

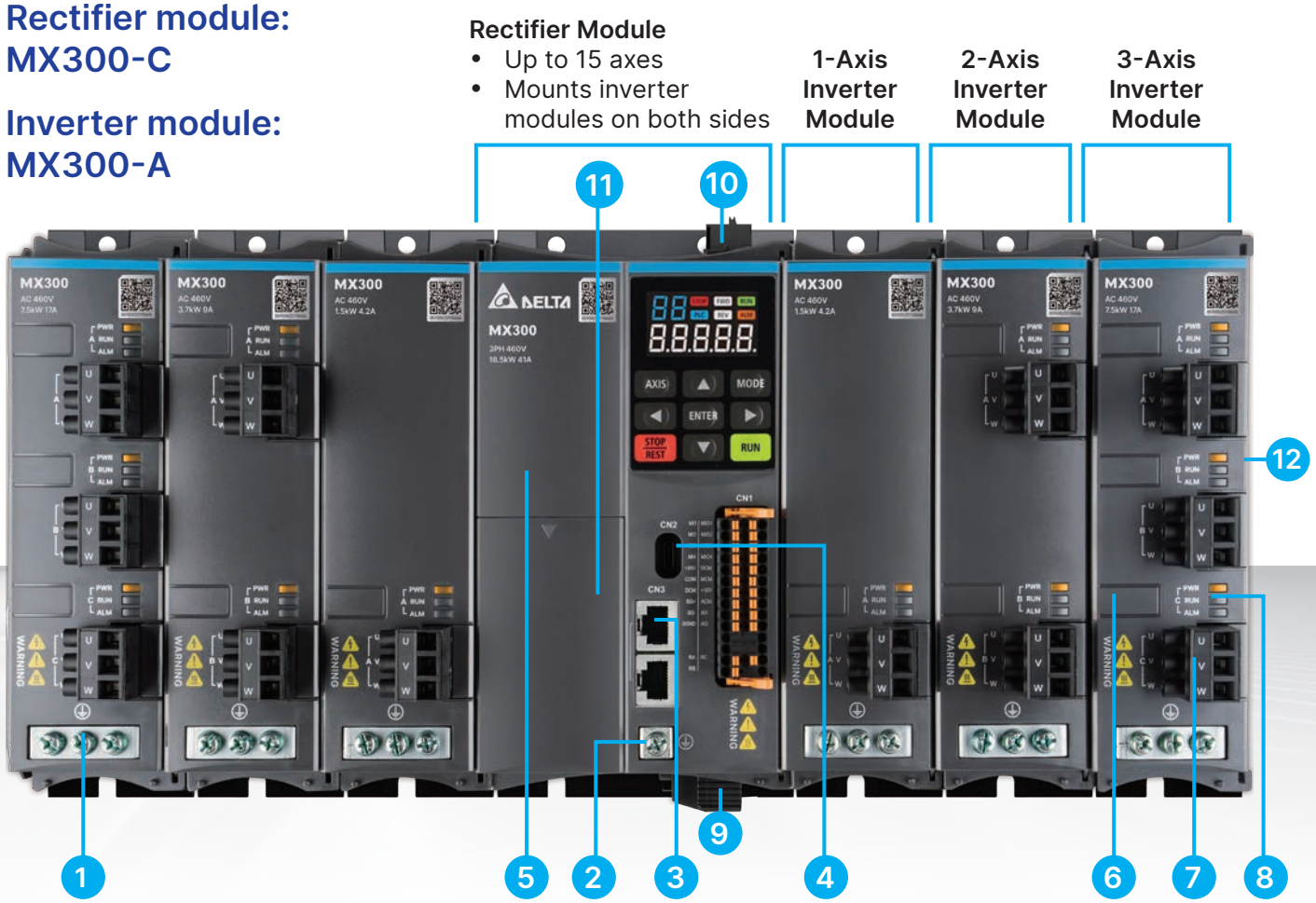
IP40 rated

Individual flow path design to prevent foreign material from entering mainboard

Appearance

Rectifier module: MX300-C

Inverter module: MX300-A



1. **Ground terminal (UVW)**
2. **Ground terminal (RST)**
3. **RS-485 / CANopen connector (CN3)**
   - Supports Modbus and CANopen
4. **USB Type-C connector (CN2)**
   - Connects to PC and Integrated Development & Engineering Software DIADesigner
5. **I/O signal connector (CN1)**
   - Digital input: 4 channels
   - Digital input / output: 4 channels
   - Relay: 1 channel, RA / RB / RC
   - Analog input: 2 channels, 0 ~ 10 V / 0 ~ 20 mA / 4 ~ 20 mA
6. **Machine information label area**
7. **Motor terminals (U, V, W)**
   - Supports IM/PM
8. **Status indicator (PWR, RUN, ALM)**
9. **Main circuit input power (R, S, T)**

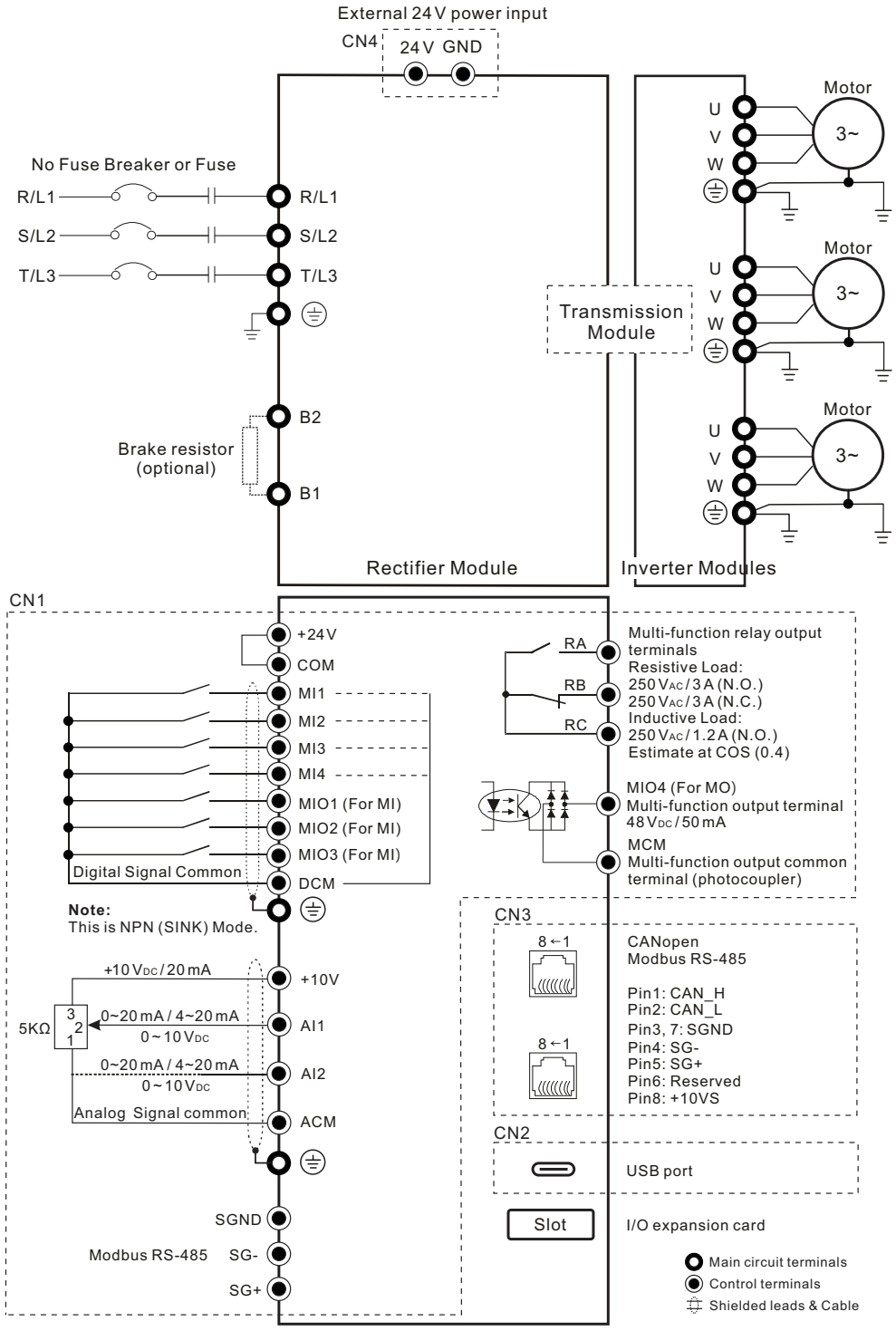
   Brake resistor interface (B1, B2)
   - Models with built-in brake unit
10. **DC 24 V input power supply (24 V, GND)**
    - Continuous power supply when main power is abnormal, ensuring smooth communication
11. **I/O extension card (optional)**
12. **Transmission module**
    - Connects rectifier and inverter modules
    - Supports 2 ~ 3 inverter modules

Wiring

Rectifier module: MX300-C
Inverter module: MX300-A

Input: 1-phase / 3-phase power

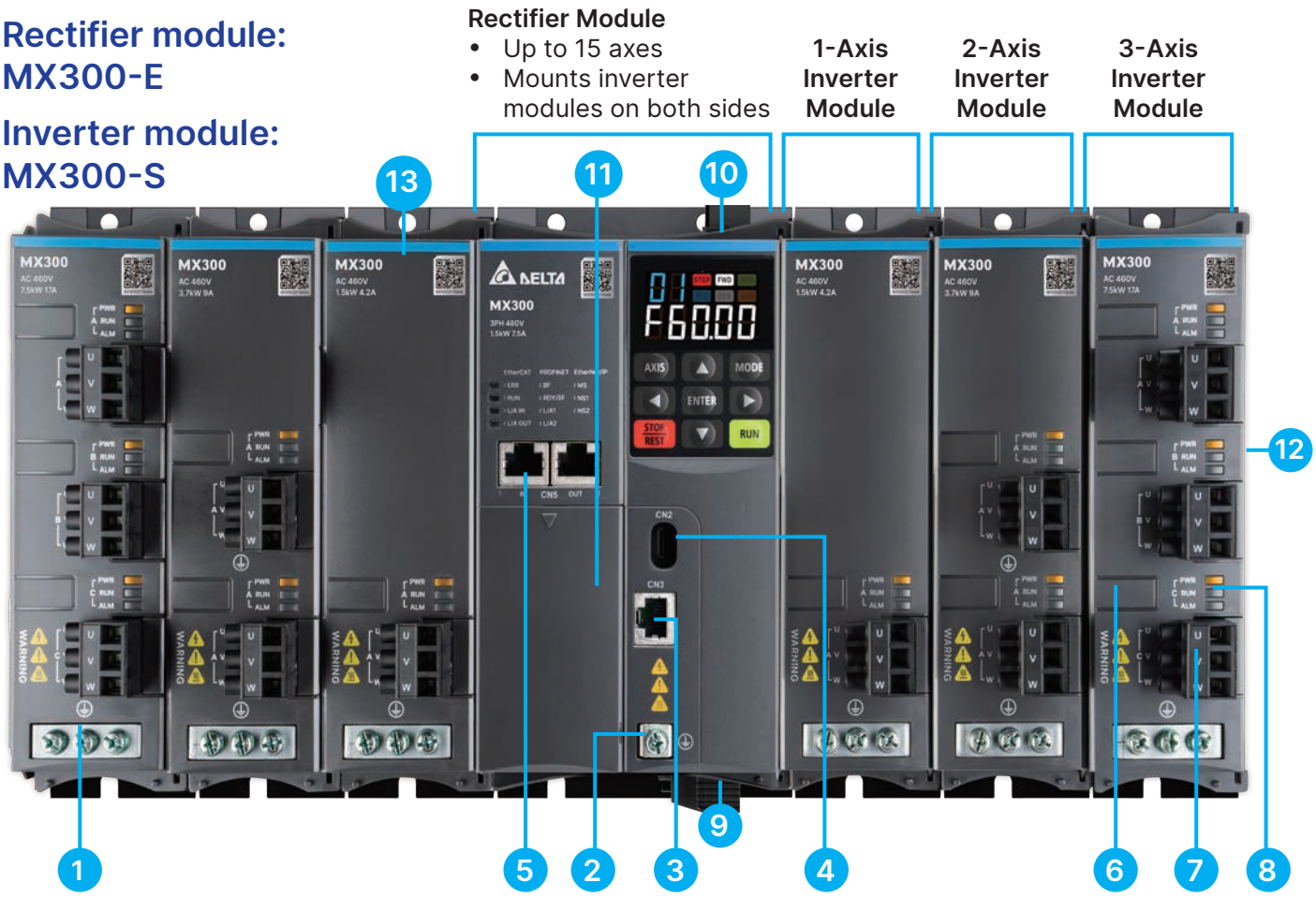
*** Rectifier moule MX300-C can match with standard inverter module MX300-A, or with STO inverter module MX300-S**



Appearance

Rectifier module: MX300-E

Inverter module: MX300-S



1. **Ground terminal (UVW)**
2. **Ground terminal (RST)**
3. **RS-485 connector (CN3)**
   - Supports Modbus
4. **USB Type-C connector (CN2)**
   - Connects to PC and Integrated Development & Engineering Software DIADesigner
5. **EtherCAT / Profinet / EtherNet IP Communication port connector (CN5)**
6. **Machine information label area**
7. **Motor terminals (U, V, W)**
   - Supports IM/PM
8. **Status indicator (PWR, RUN, ALM)**
9. **Main circuit input power (R, S, T)**

   Brake resistor interface (B1, B2)
   - Models with built-in brake unit
10. **DC 24 V input power supply (24 V, GND)**
    - Continuous power supply when main power is abnormal, ensuring smooth communication
11. **I/O extension card (optional)**
12. **Transmission module**
    - Connects rectifier and inverter modules
    - Supports 2 ~ 3 inverter modules
13. **STO terminal (STO1, STO2, GND1, GND2)**

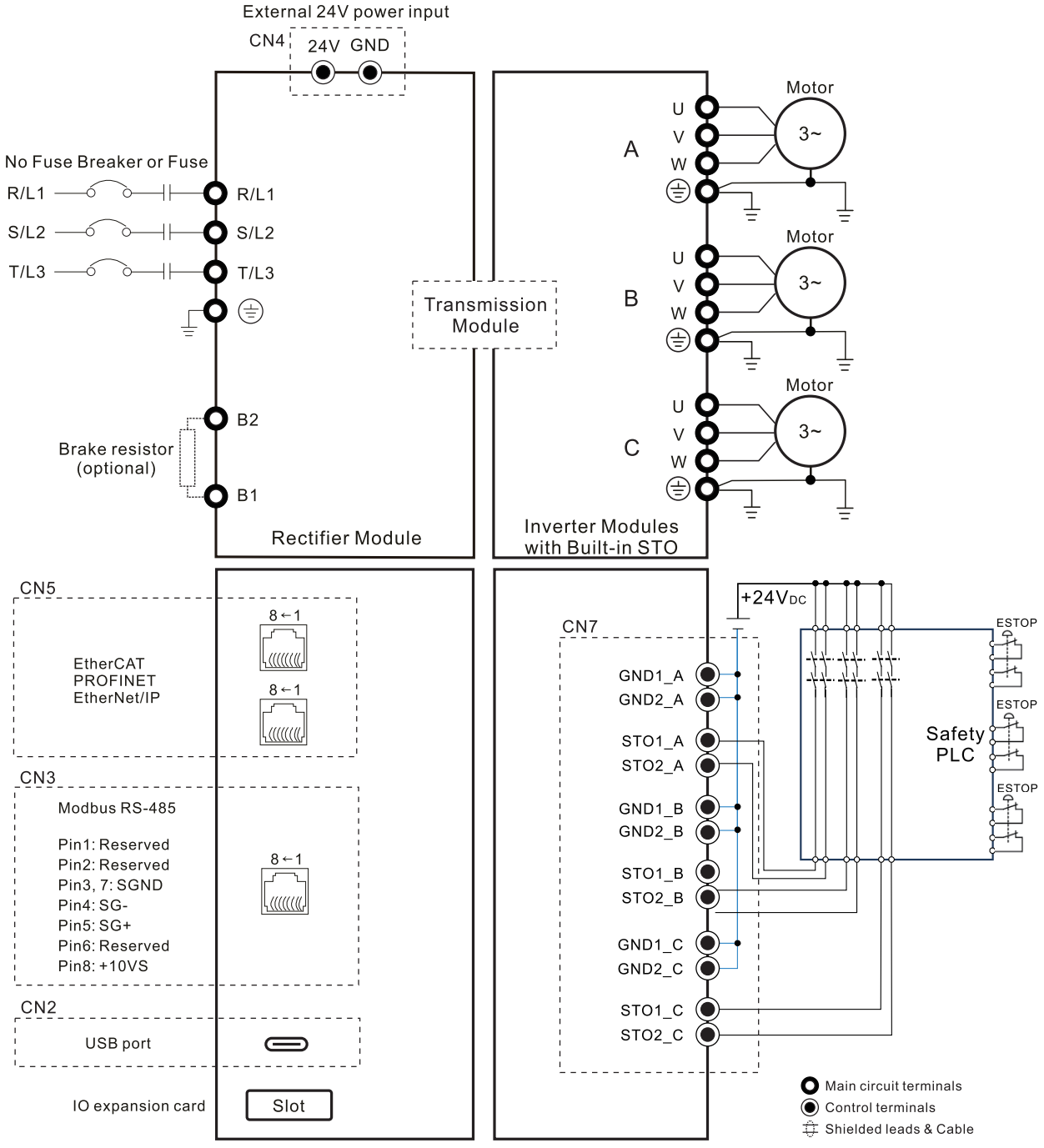
Wiring

Rectifier module: MX300-E
Inverter module: MX300-S

Input: 1-phase / 3-phase power

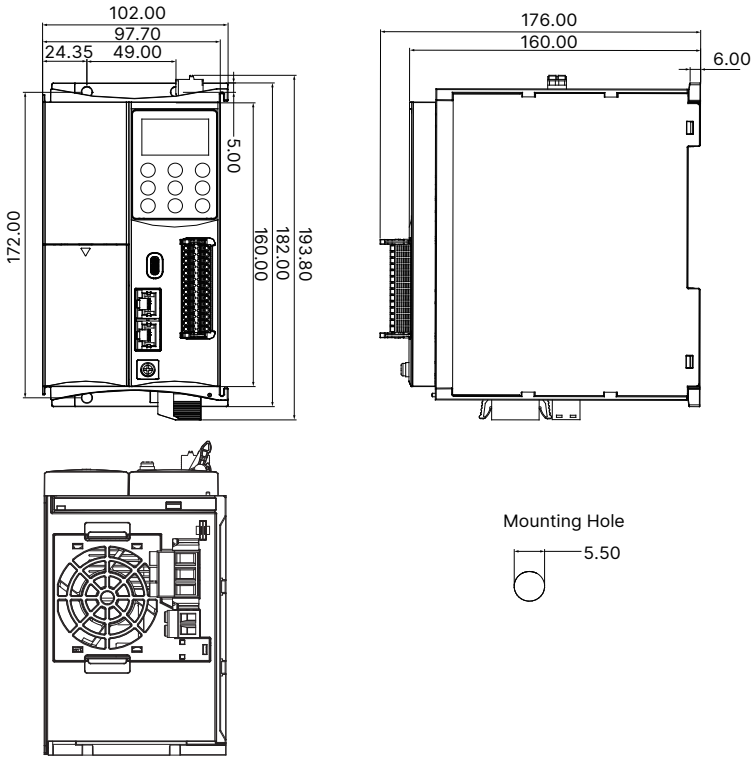
*** Rectifier moule MX300-E can match with standard inverter module MX300-A, or with STO inverter module MX300-S**

Input: one-phase / three-phase power
-Take rectifier module with triple-axis inverter module as an example

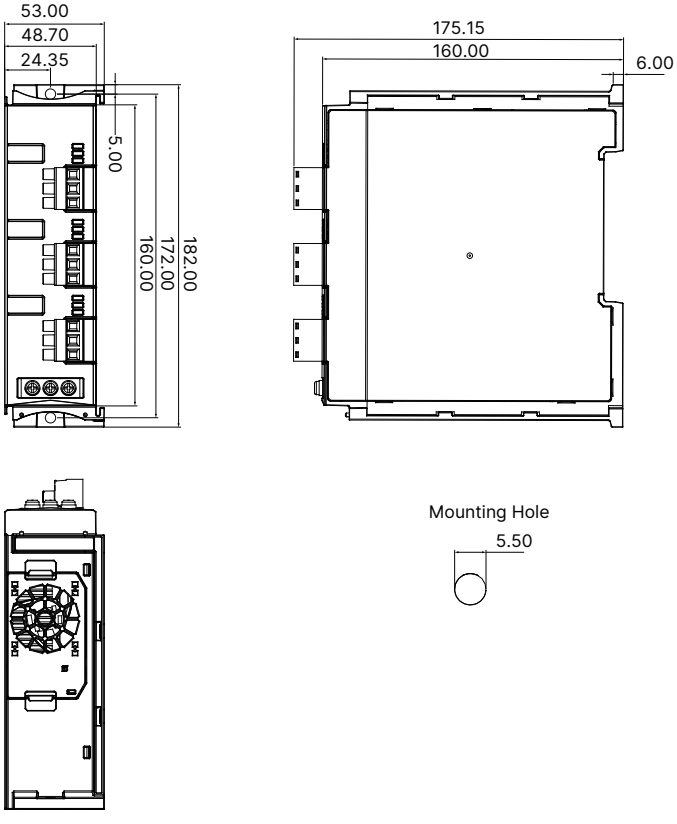


Dimensions Unit: mm

Rectifier Module

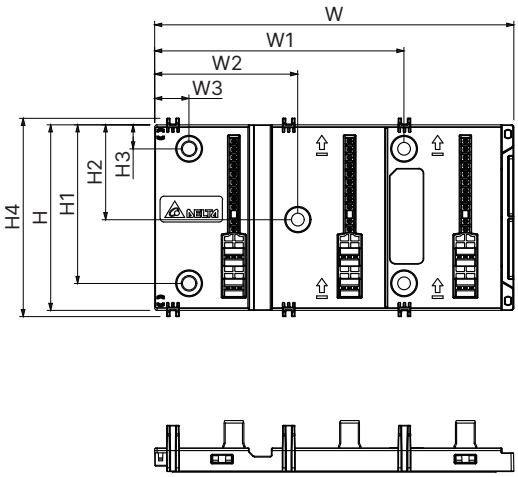


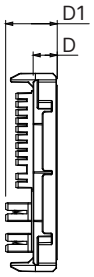
Inverter Module

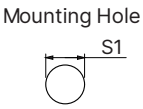


Transmission Module

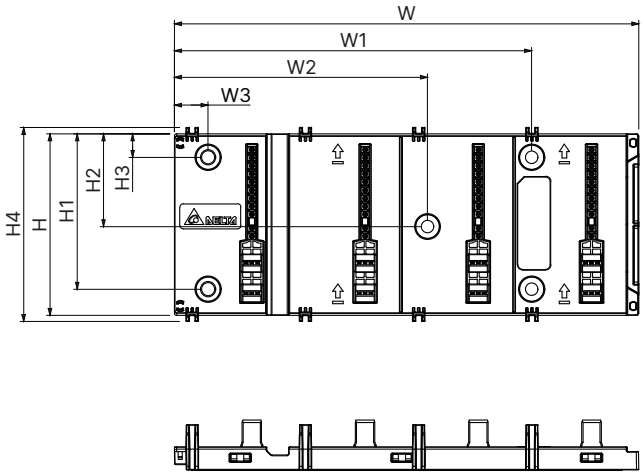
Supports 2 inverter modules MKM-DR2M

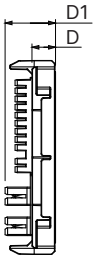


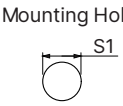




Supports 3 inverter modules MKM-DR3M







Unit: mm

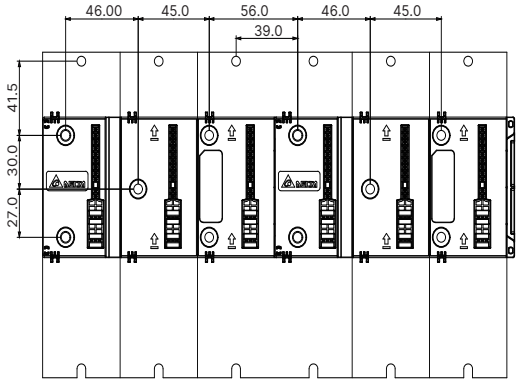
Model	W	W1	W2	W3	H	H1	H2	H3	H4	D	D1	S1
MKM-DR2M	151.95	105.5	60.5	14.5	78.6	67.25	40.25	10.25	84	10.2	21.8	5.5
MKM-DR3M	200.95	154.5	109.5									

Mounting Please lock screws by following mounting size

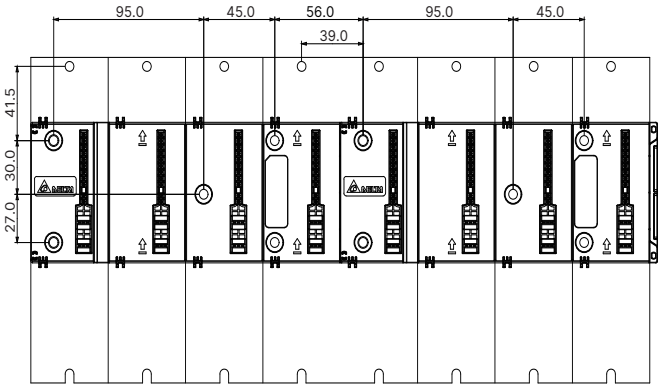
Unit: mm

Transmission Module

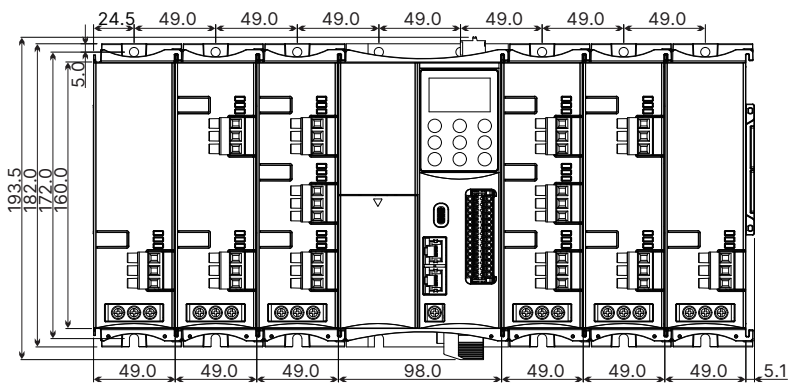
MKM-DR2M

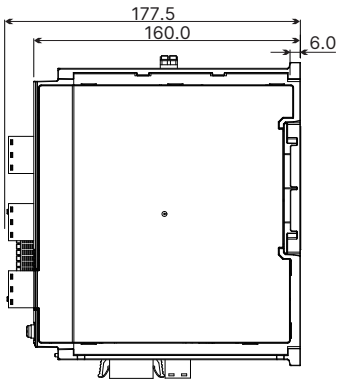


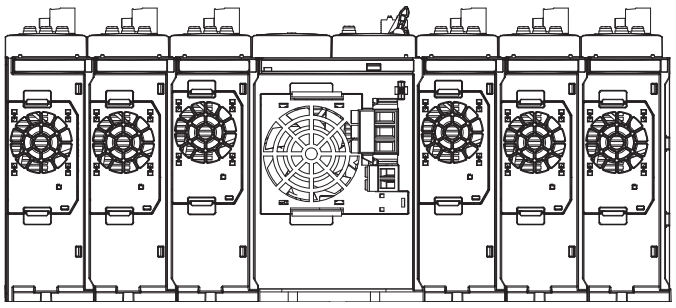
MKM-DR3M

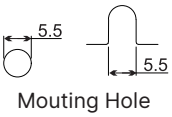


Rectifier & Inverter Modules









Models Overview

	Power Range (kW)										
	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22
230 V 1-Phase Rectifier											
230 V 1-Axis Inverter											
230 V 2-Axis Inverter											
230 V 3-Axis Inverter			Under Development								
460 V 3-Phase Rectifier											
460 V 1-Axis Inverter											
460 V 2-Axis Inverter											
460 V 3-Axis Inverter				Under Development							

Model Name Explanation

Rectifier Module

VFD 41A MX R 43 C A

Variable Frequency Drive

Rated Output Current

Product Series
MX: Multi-Drive MX300

Modules
R: Rectifier
B: Rectifier with Brake Chopper

System Voltage / Phase
21: 230 V 1-Phase
43: 460 V 3-Phase

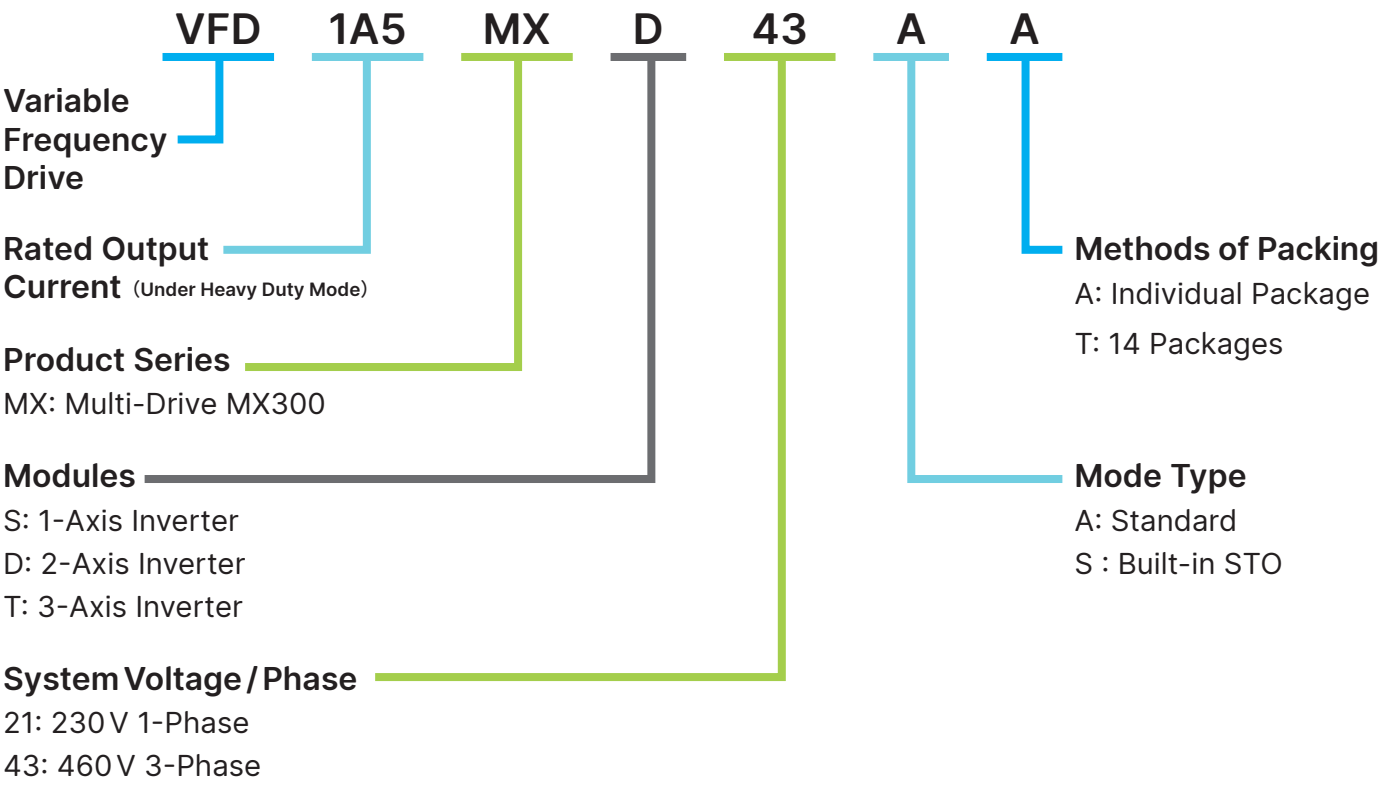
Mode Type
C : MX300-C
Built-in CANopen, Modbus

E : MX300-E
Built-in EtherCAT, PROFINET, EtherNet/IP, Modbus

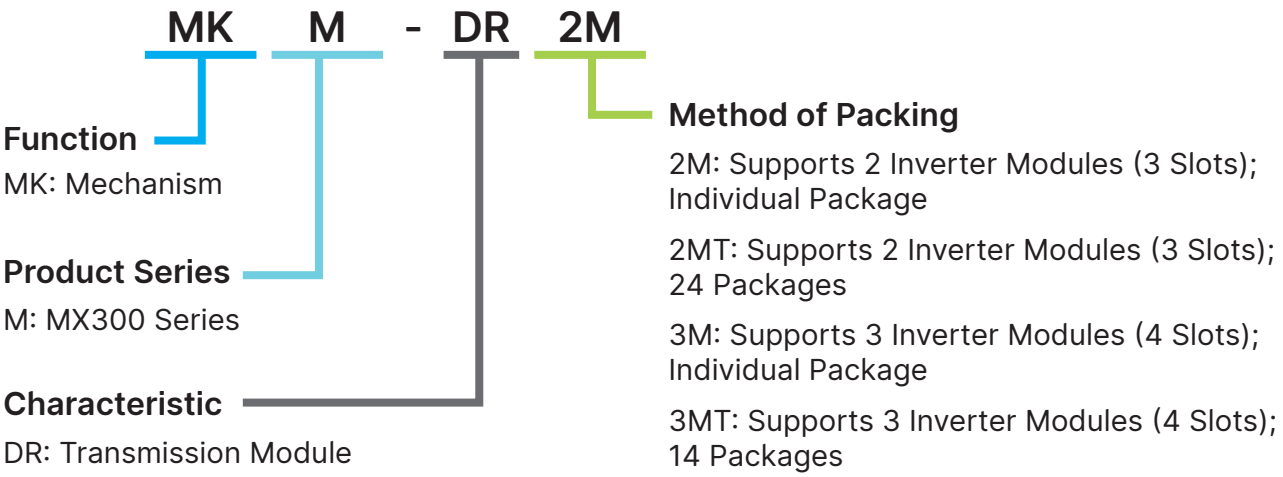
Methods of Packing
A: Individual Package
T: 8 Packages

Model Name Explanation

Inverter Module



Transmission Module



Specifications

230 V 1-Phase

Rectifier Module

Model		Unit	Specifications			
MX300-C: VFD_ _ _ MX_21CA MX300-E: VFD_ _ _ MX_21EA			15A R	15A B	25A R	25A B
Power		kW	2.2	2.2	3.7	3.7
Input	Rated Current	A	30	30	50	50
	Rated Voltage / Frequency	-	1-phase AC 200 ~ 240 V, 50 / 60 Hz			
	Operating Voltage Range	-	-15 ~ +10%, actual range 170 ~ 265 V			
	Frequency Tolerance	Hz	47 ~ 63			
Output	Equivalent AC Current	A	15	15	25	25
Braking Chopper		-	N/A	Built-in	N/A	Built-in
Power Loss		W	53.6	53.6	96.0	96.0
Dissipation Airflow		CFM	24.6	24.6	35.2	35.2
Cooling Method		-	Fan cooling			
Noise		dB	45.2	45.2	52.4	52.4
Net Weight		kg	2	2	2	2

Single-Axis Inverter Module

Model		Unit	Specifications			
MX300-A: VFD___MXS21AA MX300-S: VFD___MXS21SA			2A8	4A8	7A5	11A
Output	Heavy Duty Rated Output Current	A	2.8	4.8	7.5	11
	Normal Duty Rated Output Current	A	3.5	8	11	17.6
	Applicable Motor Output	kW	0.4	0.75	1.5	2.2
		Hp	0.5	1	2	3
Input	Voltage	V_{DC}	270 ~ 360			
Carrier Frequency		kHz	2 ~ 15 (Default:HD 6; ND 2)			
Power Loss (HD)		W	13.5	25.0	39.0	56.5
Power Loss (ND)			22.8	40.6	56.3	88.3
Dissipation Airflow		CFM	0	7.56	10.92	16.8
Cooling Method		-	Natural air cooling	Fan cooling		
Motor Cable	Shielded	m	50			
	Unshielded	m	75			
Noise		dB	0	29.4	38.2	48.4
Net Weight		kg	1	1	1	1

Specifications

230 V 1-Phase

Double-Axis Inverter Module

Model		Unit	Specifications			
MX300-A: VFD___MXD21AA MX300-S: VFD___MXD21SA			2A8	4A8	7A5	11A
Output	Heavy Duty Rated Output Current	A	2 × 2.8	2 × 4.8	2 × 7.5	2 × 11
	Normal Duty Rated Output Current	A	2 × 3.5	2 × 8	2 × 11	2 × 17.6
	Applicable Motor Output	kW	2 × 0.4	2 × 0.75	2 × 1.5	2 × 2.2
		Hp	2 × 0.5	2 × 1	2 × 2	2 × 3
Input	Voltage	V_{DC}	270 ~ 360			
Carrier Frequency		kHz	2 ~ 15 (Default: HD 6; ND 2)			
Power Loss (HD)		W	28.3	49.3	76.5	110.2
Power Loss (ND)			46.8	80.5	111	173.9
Dissipation Airflow		CFM	7.6	10.9	12.6	16.8
Cooling Method		-	Fan cooling			
Motor Cable	Shielded	m	50			
	Unshielded	m	75			
Noise		dB	29.4	38.2	42.1	48.4
Net Weight		kg	1	1	1	1

Triple-Axis Inverter Module

Model		Unit	Specifications		
MX300-A: VFD___MXT21AA MX300-S: VFD___MXT21SA			2A8	4A8	7A5 (under developing)
Output	Heavy Duty Rated Output Current	A	3 × 2.8	3 × 4.8	3 × 7.5
	Normal Duty Rated Output Current	A	3 × 4.8	3 × 8	3 × 11
	Applicable Motor Output	kW	3 × 0.4	3 × 0.75	3 × 1.5
		Hp	3 × 0.5	3 × 1	3 × 2
Input	Voltage	V_{DC}	270 ~ 360		
Carrier Frequency		kHz	2 ~ 15 (Default: HD 6; ND 2)		
Power Loss (HD)		W	42.4	73.4	114.4
Power Loss (ND)			70.2	120.2	166.2
Dissipation Airflow		CFM	10.9	12.6	16.8
Cooling Method		-	Fan cooling		
Motor Cable	Shielded	m	50		
	Unshielded		75		
Noise		dB	38.2	42.1	48.4
Net Weight		kg	1	1	1

460 V 3-Phase

Rectifier Module

Model		Unit	Specifications					
MX300-C: VFD_ _ _ MX_43CA MX300-E: VFD_ _ _ MX_43EA			22A R	22A B	33A R	33A B	41A R	41A B
Power		kW	7.5	7.5	11	11	18.5	18.5
Input	Rated Current	A	24.2	24.2	36.3	36.3	45	45
	Rated Voltage / Frequency	-	3-phase AC 380 ~ 480 V, 50 / 60 Hz					
	Operating Voltage Range	-	-15 ~ +10%, actual range 323 ~ 528 V					
	Frequency Tolerance	Hz	47 ~ 63 Hz					
Output	Equivalent AC Current	A	22	22	33	33	41	41
Braking Chopper		-	N/A	Built-in	N/A	Built-in	N/A	Built-in
Power Loss		W	90.7	90.7	148.3	136.3	170.7	170.7
Dissipation Airflow		CFM	24.6	24.6	35.2	35.2	35.2	35.2
Cooling Method		-	Fan cooling					
Noise		dB	45.2	45.2	53.4	53.4	53.4	53.4
Net Weight		kg	2	2	2	2	2	2

Single-Axis Inverter Module

Model		Unit	Specifications						
MX300-A: VFD___MXS43AA MX300-S: VFD___MXS43SA			1A5	2A7	4A2	5A5	9A0	13A	17A
Output	Heavy Duty Rated Output Current	A	1.5	2.7	4.2	5.5	9	13	17
	Normal Duty Rated Output Current	A	2.3	4.2	5.5	9	13	17	18.5
	Applicable Motor Output	kW	0.4	0.75	1.5	2.2	3.7	5.5	7.5
	Applicable Motor Output	Hp	0.5	1	2	3	5	7.5	10
Input	Voltage	V_{DC}	510 ~ 720						
Carrier Frequency		kHz	2 ~ 15 (Default: HD 6; ND 2)						
Power Loss (HD)		W	16.0	24.0	35.9	48.6	95.4	139.0	160.8
Power Loss (ND)			12.3	24.7	34.6	69.0	102.8	126.7	133.7
Dissipation Airflow		CFM	0	7.6	7.6	7.6	10.9	16.8	16.8
Cooling Method		-	Natural air cooling	Fan cooling					
Motor Cable	Shielded	m	50				100		
	Unshielded	m	75				150		
Noise		dB	0	29.4	29.4	29.4	38.2	48.4	48.4
Net Weight		kg	1	1	1	1	1	1	1

Specifications

460 V 3-Phase

Double-Axis Inverter Module

Model		Unit	Specifications				
MX300-A: VFD___MXD43AA MX300-S: VFD___MXD43SA			1A5	2A7	4A2	5A5	9A0
Output	Heavy Duty Rated Output Current	A	2 × 1.5	2 × 2.7	2 × 4.2	2 × 5.5	2 × 9
	Normal Duty Rated Output Current	A	2 × 2.7	2 × 4.2	2 × 5.5	2 × 9	2 × 13
	Applicable Motor Output	kW	2 × 0.4	2 × 0.75	2 × 1.5	2 × 2.2	2 × 3.7
	Applicable Motor Output	Hp	2 × 0.5	2 × 1	2 × 2	2 × 3	2 × 5
Input	Voltage	V_{DC}	510 ~ 720				
Carrier Frequency		kHz	2 ~ 15 (Default: HD 6; ND 2)				
Power Loss (HD)		W	33.3	46.9	70.6	97.5	190
Power Loss (ND)			29.9	48.2	67.9	138.4	204.8
Dissipation Airflow		CFM	7.6	7.6	7.6	16.8	16.8
Cooling Method		-	Fan cooling				
Motor Cable	Shielded	m	50				100
	Unshielded	m	75				150
Noise		dB	29.4	29.4	29.4	48.4	48.4
Net Weight		kg	1	1	1	1	1

Triple-Axis Inverter Module

Model		Unit	Specifications			
MX300-A: VFD___MXT43AA MX300-S: VFD___MXT43SA			1A5	2A7	4A2	5A5 (Under developing)
Output	Heavy Duty Rated Output Current	A	3 × 1.5	3 × 2.7	3 × 4.2	3 × 5.5
	Normal Duty Rated Output Current	A	3 × 2.7	3 × 4.2	3 x 5.5	3 × 9
	Applicable Motor Output	kW	3 × 0.4	3 × 0.75	3 × 1.5	3 × 2.2
	Applicable Motor Output	Hp	3 × 0.5	3 × 1	3 × 2	3 × 3
Input	Voltage	V_{DC}	510 ~ 720			
Carrier Frequency		kHz	2 ~ 15 (Default: HD 6; ND 2)			
Power Loss (HD)		W	49.4	69.7	105.9	130.6
Power Loss (ND)			44.2	71.7	101.8	206.1
Dissipation Airflow		CFM	7.6	7.6	10.9	16.8
Cooling Method		-	Fan cooling			
Motor Cable	Shielded	m	50			
	Unshielded	m	75			
Noise		dB	29.4	29.4	38.2	54.1
Net Weight		kg	1	1	1	1

General Specifications

Control Characteristics	Control Method and Applied Motor	Induction Motor (IM): V/F, SVC PM Motor (PM): SVC	
	Output Frequency	0.00 ~ 599.00 Hz	
	Starting Torque	200% / 3 Hz (V/F, SVC control for IM) 100% / (1/20 of motor rated frequency) (SVC control for PM)	
	Speed Control Range	1:50 (V/F, SVC control for IM) 1:20 (SVC control for PM)	
	Frequency Setting Signal	a. Digital keypad b. RS-485 c. Analog input	d. CANopen (MX300-C support only) e. PID f. EtherCAT / Profinet / EtherNet IP (MX300-E support only)
	Operation Instruction	a. Digital keypad b. External terminals c. RS-485	d. CANopen (MX300-C support only) e. EtherCAT / Profinet / EtherNet IP (MX300-E support only)
	Overload Capability	• Normal Duty (ND): 110% of rated output current for 60 seconds. 130% of rated output current for 3 seconds. If the temperature is above 50°C, decrease 2.5% of the rated current for every 1°C increase in temperature. The maximum allowable temperature is 60°C • Heavy Duty (HD): 150% of rated output current for 60 seconds. 200% of rated output current for 3 seconds. If the temperature is above 50°C, decrease 2.5% of the rated current for every 1°C increase in temperature. The maximum allowable temperature is 60°C	
Protection Characteristics	Rectifier Module	Overload, low voltage, overvoltage, overtemperature, output, input phase loss, communication failure	
	Inverter Module	Overload, overcurrent, overvoltage, overtemperature, output, ground detection protection, stall prevention	
Product Compliance		CE, UL, KC	
Ingress Protection Rating		IP40 (Except for marked positions, which refer to Chapter 2 of the User Manual)	
Operating Environment	Installation Location	IEC60364-1 / IEC60664-1 Pollution degree 2, indoor use only	
Ambient Temperature	Operation	-20 ~ +60°C Derating required when temperature is above 50° C	
	Storage	-40 ~ 85°C	
	Transportation	-20 ~ 70°C	
Rated Humidity	Operation	Max. 90%	
	Storage / Transportation	Max. 95%	
Air Pressure	Operation	86 ~ 106 kPa	
	Storage / Transportation	70 ~ 106 kPa	
Pollution Level		IEC60721-3-3 Class 3C3	
Altitude		Operable at altitude below 1,000 m (Derating if operated over 1,000 m)	
Vibration		IEC 60721-3-3 Class 3M5	
Shock		IEC 60721-3-3 Class 3M5	
Safety Functions		Safe Torque Off (STO per EN 61800-5-2) TUV Rheinland certification ISO 13849-1, Cat.3 / PL e EN 60204-1 Cat.0 EN 61508 SIL 3 EN 62061 Maximum SIL 3	

Model Selection

Start

Inverter Module Selection
Select inverter module according to the rated current and quantity of motors

Sum Up the Current of All Axes
Output current x Max. load of motors

Rectifier Module Selection
Sum of inverter current should not exceed the rectifier output current

End

Delta Smart Selection Tool
DIASelector

A user-friendly and complete selection for users to filter the current and quantity of the motor or inverter module, providing compatible suggestions

Supports 1.3.1. version and higher

Recommended selection

Example

8-Axis

- **Input voltage: 460 V 3-phase**
- **Motor: 7.5 kW*1, 1.5 kW*2, 0.75 kW*5 with Max. load 100%. Built-in brake unit is required**

Step 1 Select inverter module by the motor current and number. Sum up the current of all axes

Inverter Module	Model	Sum of Motor Current = 38.9 A
7.5 kW 1-Axis Inverter Module	VFD17AMXS43AA	17 A × 1 × 100% = 17 A
1.5 kW 2-Axis Inverter Module	VFD4A2MXD43AA	4.2 A × 2 × 100% = 8.4 A
0.75 kW 3-Axis Inverter Module	VFD2A7MXT43AA	2.7 A × 3 × 100% = 8.1 A
0.75 kW 2-Axis Inverter Module	VFD2A7MXD43AA	2.7 A × 2 × 100% = 5.4 A

Step 2 Select rectifier module by the sum of motor current and built-in brake unit

The rectifier module output current should be higher than the sum of motor current of the inverter module. Select the rectifier module with output current 41A and built-in brake unit. The model is VFD41AMXB43CA

Step 3 Select the transmission module by the quantity of inverter modules

For 4 inverter modules, please select 2 transmission modules MKM-DR2M

Ordering Information

Rectifier Module

MX300-C

Input Voltage	Rated		Model	Built-in		Multi-packaging
	Power (kW)	Output Current (A)		Brake Unit	CANopen	
230 V 1-phase	2.2	15.1	VFD15AMXR21CA	-	◉	-
	2.2	15.1	VFD15AMXR21CT	-	◉	◉
	2.2	15.1	VFD15AMXB21CA	◉	◉	-
	2.2	15.1	VFD15AMXB21CT	◉	◉	◉
	3.7	25	VFD25AMXR21CA	-	◉	-
	3.7	25	VFD25AMXR21CT	-	◉	◉
	3.7	25	VFD25AMXB21CA	◉	◉	-
	3.7	25	VFD25AMXB21CT	◉	◉	◉
460 V 3-Phase	7.5	22	VFD22AMXR43CA	-	◉	-
	7.5	22	VFD22AMXR43CT	-	◉	◉
	7.5	22	VFD22AMXB43CA	◉	◉	-
	7.5	22	VFD22AMXB43CT	◉	◉	◉
	11	33	VFD33AMXR43CA	-	◉	-
	11	33	VFD33AMXR43CT	-	◉	◉
	11	33	VFD33AMXB43CA	◉	◉	-
	11	33	VFD33AMXB43CT	◉	◉	◉
	18.5	41	VFD41AMXR43CA	-	◉	-
	18.5	41	VFD41AMXR43CT	-	◉	◉
	18.5	41	VFD41AMXB43CA	◉	◉	-
	18.5	41	VFD41AMXB43CT	◉	◉	◉

MX300-E

Input Voltage	Rated		Model	Built-in		Multi-packaging
	Power (kW)	Output Current (A)		Brake Unit	EtherCAT、PROFINET、EtherNet/IP	
230 V 1-phase	2.2	15.1	VFD15AMXR21EA	-	◉	-
	2.2	15.1	VFD15AMXR21ET	-	◉	◉
	2.2	15.1	VFD15AMXB21EA	◉	◉	-
	2.2	15.1	VFD15AMXB21ET	◉	◉	◉
	3.7	25	VFD25AMXR21EA	-	◉	-
	3.7	25	VFD25AMXR21ET	-	◉	◉
	3.7	25	VFD25AMXB21EA	◉	◉	-
	3.7	25	VFD25AMXB21ET	◉	◉	◉
460 V 3-Phase	7.5	22	VFD22AMXR43EA	-	◉	-
	7.5	22	VFD22AMXR43ET	-	◉	◉
	7.5	22	VFD22AMXB43EA	◉	◉	-
	7.5	22	VFD22AMXB43ET	◉	◉	◉
	11	33	VFD33AMXR43EA	-	◉	-
	11	33	VFD33AMXR43ET	-	◉	◉
	11	33	VFD33AMXB43EA	◉	◉	-
	11	33	VFD33AMXB43ET	◉	◉	◉
	18.5	41	VFD41AMXR43EA	-	◉	-
	18.5	41	VFD41AMXR43ET	-	◉	◉
	18.5	41	VFD41AMXB43EA	◉	◉	-
	18.5	41	VFD41AMXB43ET	◉	◉	◉

Ordering Information

Inverter Module

MX300-A

Voltage	Rated			Model	1-Axis	2-Axis	3-Axis	14 Packages
	Output Horsepower (HP)	Output Power (kW)	Output Current (A)					
270 ~ 360 VDC	0.5	0.4	2.8	VFD2A8MXS21AA	◉	-	-	-
	0.5	0.4	2.8	VFD2A8MXS21AT	◉	-	-	◉
	0.5	0.4	2.8	VFD2A8MXD21AA	-	◉	-	-
	0.5	0.4	2.8	VFD2A8MXD21AT	-	◉	-	◉
	0.5	0.4	2.8	VFD2A8MXT21AA	-	-	◉	-
	0.5	0.4	2.8	VFD2A8MXT21AT	-	-	◉	◉
	1	0.75	4.8	VFD4A8MXD21AA	◉	-	-	-
	1	0.75	4.8	VFD4A8MXD21AT	◉	-	-	◉
	1	0.75	4.8	VFD4A8MXT21AA	-	◉	-	-
	1	0.75	4.8	VFD4A8MXT21AT	-	◉	-	◉
	1	0.75	4.8	VFD4A8MXT21AA	-	-	◉	-
	1	0.75	4.8	VFD4A8MXT21AT	-	-	◉	◉
	2	1.5	7.5	VFD7A5MXS21AA	◉	-	-	-
	2	1.5	7.5	VFD7A5MXS21AT	◉	-	-	◉
	2	1.5	7.5	VFD7A5MXD21AA (Under developing)	-	◉	-	-
	2	1.5	7.5	VFD7A5MXD21AT (Under developing)	-	◉	-	◉
	2	1.5	7.5	VFD7A5MXT21AA	-	-	◉	-
	2	1.5	7.5	VFD7A5MXT21AT	-	-	◉	◉
	3	2.2	11	VFD11AMXS21AA	◉	-	-	-
	3	2.2	11	VFD11AMXS21AT	◉	-	-	◉
	3	2.2	11	VFD11AMXD21AA	-	◉	-	-
	3	2.2	11	VFD11AMXD21AT	-	◉	-	◉
510 ~ 720 VDC	0.5	0.4	1.5	VFD1A5MXS43AA	◉	-	-	-
	0.5	0.4	1.5	VFD1A5MXS43AT	◉	-	-	◉
	0.5	0.4	1.5	VFD1A5MXD43AA	-	◉	-	-
	0.5	0.4	1.5	VFD1A5MXD43AT	-	◉	-	◉
	0.5	0.4	1.5	VFD1A5MXT43AA	-	-	◉	-
	0.5	0.4	1.5	VFD1A5MXT43AT	-	-	◉	◉
	1	0.75	2.7	VFD2A7MXS43AA	◉	-	-	-
	1	0.75	2.7	VFD2A7MXS43AT	◉	-	-	◉
	1	0.75	2.7	VFD2A7MXD43AA	-	◉	-	-
	1	0.75	2.7	VFD2A7MXD43AT	-	◉	-	◉
	1	0.75	2.7	VFD2A7MXT43AA	-	-	◉	-
	1	0.75	2.7	VFD2A7MXT43AT	-	-	◉	◉
	2	1.5	4.2	VFD4A2MXS43AA	◉	-	-	-
	2	1.5	4.2	VFD4A2MXS43AT	◉	-	-	◉
	2	1.5	4.2	VFD4A2MXD43AA	-	◉	-	-
	2	1.5	4.2	VFD4A2MXD43AT	-	◉	-	◉

Transmission Module

Model	Inverter Module Supported	Multi-Package
MKM-DR2M	2	-
MKM-DR2MT	2	24
MKM-DR3M	3	-
MKM-DR3MT	3	14

Inverter Module

MX300-A

Voltage	Rated			Model	1-Axis	2-Axis	3-Axis	14 Packages
	Output Horsepower (HP)	Output Power (kW)	Output Current (A)					
510 ~ 720 VDC	2	1.5	4.2	VFD4A2MXT43AA	-	-	◉	-
	2	1.5	4.2	VFD4A2MXT43AT	-	-	◉	◉
	3	2.2	5.5	VFD5A5MXS43AA	◉	-	-	-
	3	2.2	5.5	VFD5A5MXS43AT	◉	-	-	◉
	3	2.2	5.5	VFD5A5MXD43AA	-	◉	-	-
	3	2.2	5.5	VFD5A5MXD43AT	-	◉	-	◉
	3	2.2	5.5	VFD5A5MXT43AA (Under Development)	-	-	◉	-
	3	2.2	5.5	VFD5A5MXT43AT (Under Development)	-	-	◉	◉
	5	3.7	9	VFD9A0MXS43AA	◉	-	-	-
	5	3.7	9	VFD9A0MXS43AT	◉		-	◉
	5	3.7	9	VFD9A0MXD43AA	-	◉	-	-
	5	3.7	9	VFD9A0MXD43AT	-	◉	-	◉
	7.5	5.5	13	VFD13AMXS43AA	◉	-	-	-
	7.5	5.5	13	VFD13AMXS43AT	◉	-	-	◉
	10	7.5	17	VFD17AMXS43AA	◉	-	-	-
	10	7.5	17	VFD17AMXS43AT	◉	-	-	◉

MX300-S

Voltage	Rated			Model	1-Axis	2-Axis	3-Axis
	Output Horsepower (HP)	Output Power (kW)	Output Current (A)				
270 ~ 360 VDC	0.5	0.4	2.8	VFD2A8MXS21SA	◉	-	-
	0.5	0.4	2.8	VFD2A8MXD21SA	-	◉	-
	0.5	0.4	2.8	VFD2A8MXT21SA	-	-	◉
	1	0.75	4.8	VFD4A8MXS21SA	◉	-	-
	1	0.75	4.8	VFD4A8MXD21SA	-	◉	-
	1	0.75	4.8	VFD4A8MXT21SA	-	-	◉
	2	1.5	7.5	VFD7A5MXS21SA	◉	-	-
	2	1.5	7.5	VFD7A5MXD21SA	-	◉	-
	3	2.2	11.0	VFD11AMXS21SA	◉	-	-
	3	2.2	11.0	VFD11AMXD21SA	-	◉	-
510 ~ 720 VDC	0.5	0.4	1.5	VFD1A5MXS43SA	◉	-	-
	0.5	0.4	1.5	VFD1A5MXD43SA	-	◉	-
	0.5	0.4	1.5	VFD1A5MXT43SA	-	-	◉
	1	0.75	2.7	VFD2A7MXS43SA	◉	-	-
	1	0.75	2.7	VFD2A7MXD43SA	-	◉	-
	1	0.75	2.7	VFD2A7MXT43SA	-	-	◉
	2	1.5	4.2	VFD4A2MXS43SA	◉	-	-
	2	1.5	4.2	VFD4A2MXD43SA	-	◉	-
	2	1.5	4.2	VFD4A2MXT43SA	-	-	◉
	3	2.2	5.5	VFD5A5MXS43SA	◉	-	-
	3	2.2	5.5	VFD5A5MXD43SA	-	◉	-
	5	3.7	9.0	VFD9A0MXS43SA	◉	-	-
	5	3.7	9.0	VFD9A0MXD43SA	-	◉	-
	7.5	5.5	13.0	VFD13AMXS43SA	◉	-	-
	10	7.5	17.0	VFD17AMXS43SA	◉	-	-

Accessories

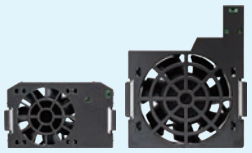
I/O Card

	Terminals	Description
EMM-D88A	+24 V, DCM	Output power: +24 V (+20V~+30V)
	MI9~MI16	Refer to Pr. 02-26 ~ Pr. 02-33 to program the multi-function Choose SINK (NPN) / SOURCE (PNP) from SJ1 COM Pin Internal power is supplied by terminal +24 V: +24 V (+20 V ~ +30 V) If external power is +24 V_{DC}, the Max. voltage is 30 V_{DC}, Min. voltage is 19 V_{DC} ON: the activation current is 6.5 mA OFF: leakage current tolerance is 10 μA
	MO9~MO16	Refer to Pr. 02-36 ~ Pr. 02-43 to program the multi-function The drive releases various monitor signals, such as drive in operation, frequency attained and overload indication, via transistor (open collector) Add a pull-up resistor to the MO output signals to avoid signal interference, external power Max. 48 V_{DC} / 50 mA
	MCM	Common for multi-function output terminals MO9~MO16 (photocoupler)
	PE	Earthing terminal to reduce noise; this terminal should also be grounded

EMC Filter

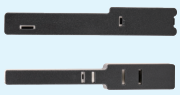
Model	Specifications	
	Input Voltage	Output current(A)
EMF15AM21RA	1-phase AC 200V~240V	15
EMF25AM21RA		25
EMF22AM43RA	3-phase AC 380V~480V	22
EMF33AM43RA		33
EMF41AM43RA		41

Fan Kit



Model	Description
MKM-FKMRC	Rectifier module fan
MKM-FKMDR	Inverter module fan

Connection Port Protection Cover



Model	Description
MKM-COVRC	Rectifier module protection cover (10 pcs in 1 package)
MKM-COVBP	Transmission module protection cover (10 pcs in 1 package)

EMC Plate

Model	Description
MKM-EPRD	EMC plate

Delta Standard Fieldbus Cable

Delta Cables	Model	Description	Length
CANopen Cable / Digital Keypad RJ45 Extension Cable	UC-CMC003-01A	CANopen cable, RJ45 connector	0.3 m
	UC-CMC005-01A		0.5 m
	UC-CMC010-01A		1 m
	UC-CMC015-01A		1.5 m
	UC-CMC020-01A		2 m
	UC-CMC030-01A		3 m
	UC-CMC050-01A		5 m
	UC-CMC100-01A		10 m
	UC-CMC200-01A		20 m

Detachable Terminals

Model		Description
	MKM-TBLTRC1	Rectifier module 460 V power terminal block
	MKM-TBLTRC2	Rectifier module 230 V power terminal block
	MKM-TB24RC	Rectifier module 24 V power terminal block
	MKM-TBIORC	Rectifier module I/O terminal block
	MKM-TBIORC1	Rectifier module I/O terminal block
	MKM-TBRYRC	Rectifier module Relay terminal block

Model		Description
	MKM-TBBKRC	Rectifier module brake terminal block
	MKM-TBMTDR	Inverter module output terminal block
	MKM-TBSTODR1	1-Axis STO terminal
	MKM-TBSTODR2	2-Axis STO terminal
	MKM-TBSTODR3	3-Axis STO terminal

Smarter. Greener. Together.

Industrial Automation Headquarters

Taiwan: Delta Electronics, Inc.
Taoyuan Technology Center
No.18, Xinglong Rd., Taoyuan District,
Taoyuan City 330477, Taiwan
TEL: +886-3-362-6301 / FAX: +886-3-371-6301

Asia

China: Delta Electronics (Shanghai) Co., Ltd.
No.182 Minyu Rd., Pudong Shanghai, P.R.C.
Post code : 201209
TEL: +86-21-6872-3988 / FAX: +86-21-6872-3996
Customer Service: 400-820-9595

Japan: Delta Electronics (Japan), Inc.
Industrial Automation Sales Department
4-11-25, Shibaura, Minato-ku, Tokyo 108-0023, Japan
TEL: +81-3-6811-5470 / FAX: +81-3-6811-5802

Korea: Delta Electronics (Korea), Inc.
1511, 219, Gasan Digital 1-Ro., Geumcheon-gu,
Seoul, 08501 South Korea
TEL: +82-2-515-5305 / FAX: +82-2-515-5302

Singapore: Delta Energy Systems (Singapore) Pte Ltd.
4 Kaki Bukit Avenue 1, #05-04, Singapore 417939
TEL: +65-6747-5155 / FAX: +65-6744-9228

India: Delta Electronics (India) Pvt. Ltd.
Plot No.43, Sector 35, HSIIDC Gurgaon,
PIN 122001, Haryana, India
TEL: +91-124-4874900 / FAX: +91-124-4874945

Thailand: Delta Electronics (Thailand) PCL.
909 Soi 9, Moo 4, Bangpoo Industrial Estate (E.P.Z),
Pattana 1 Rd., T.Phraksa, A.Muang,
Samutprakarn 10280, Thailand
TEL: +66-2709-2800 / FAX: +66-2709-2827

Australia: Delta Electronics (Australia) Pty Ltd.
Unit 2, Building A, 18-24 Ricketts Road,
Mount Waverley, Victoria 3149 Australia
Mail: IA.au@deltaww.com
TEL: +61-1300-335-823 / +61-3-9543-3720

Americas

USA: Delta Electronics (Americas) Ltd.
5101 Davis Drive, Research Triangle Park, NC 27709, U.S.A.
TEL: +1-919-767-3813

Brazil: Delta Electronics Brazil Ltd.
Estrada Velha Rio-São Paulo, 5300 Eugênio de
Melo - São José dos Campos CEP: 12247-004 - SP - Brazil
TEL: +55-12-3932-2300 / FAX: +55-12-3932-237

Mexico: Delta Electronics International Mexico S.A. de C.V.
Gustavo Baz No. 309 Edificio E PB 103
Colonia La Loma, CP 54060
Tlalnepantla, Estado de México
TEL: +52-55-3603-9200

EMEA

EMEA Headquarters: Delta Electronics (Netherlands) B.V.
Sales: Sales.IA.EMEA@deltaww.com
Marketing: Marketing.IA.EMEA@deltaww.com
Technical Support: iatechnicalsupport@deltaww.com
Customer Support: Customer-Support@deltaww.com
Service: Service.IA.emea@deltaww.com
TEL: +31(0)40 800 3900

BENELUX: Delta Electronics (Netherlands) B.V.
Automotive Campus 260, 5708 JZ Helmond, The Netherlands
Mail: Sales.IA.Benelux@deltaww.com
TEL: +31(0)40 800 3900

DACH: Delta Electronics (Netherlands) B.V.
Coesterweg 45,D-59494 Soest,Germany
Mail: Sales.IA.DACH@deltaww.com
TEL: +49 2921 987 238

France: Delta Electronics (France) S.A.
ZI du bois Challand 2,15 rue des Pyrénées,
Lisses, 91090 Evry Cedex, France
Mail: Sales.IA.FR@deltaww.com
TEL: +33(0)1 69 77 82 60

Iberia: Delta Electronics Solutions (Spain) S.L.U
Ctra. De Villaverde a Vallecas, 265 1º Dcha Ed.
Hormigueras – P.I. de Vallecas 28031 Madrid
TEL: +34(0)91 223 74 20

Carrer Llacuna 166, 08018 Barcelona, Spain
Mail: Sales.IA.Iberia@deltaww.com

Italy: Delta Electronics (Italy) S.r.l.
Via Meda 2–22060 Novedrate(CO)
Piazza Grazioli 18 00186 Roma Italy
Mail: Sales.IA.Italy@deltaww.com
TEL: +39 039 8900365

Turkey: Delta Greentech Elektronik San. Ltd. Sti. (Turkey)
Şerifali Mah. Hendem Cad. Kule Sok. No:16-A
34775 Ümraniye – İstanbul
Mail: Sales.IA.Turkey@deltaww.com
TEL: + 90 216 499 9910

MEA: Eltek Dubai (Eltek MEA DMCC)
OFFICE 2504, 25th Floor, Saba Tower 1,
Jumeirah Lakes Towers, Dubai, UAE
Mail: Sales.IA.MEA@deltaww.com
TEL: +971(0)4 2690148

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