



Automation for a Changing World

Delta High Performance / Standard Compact Drive MH300 Series/MS300 Series



www.deltaww.com

 **DELTA**
Smarter. Greener. Together.

Compact and Intelligent the new standard for Micro drives

The automation industry today continues to face challenges such as increasing competition and rising costs. In addition to improving productivity and reducing labor, the driving force for automation is shifting to higher efficiency, optimal quality, and most importantly, flexibility and compatibility for a wide range of applications.

Delta's MH300 and MS300 series are the new generation high performance and standard compact vector control drives that inherit Delta's superior drive technology—all in a compact drive that reduced 40% in size.

A variety of essential functions are built-in as standard, including: PLC capacity for simple programming needs, a communication slot for various communication cards, and a USB port to make data uploads and downloads fast and easy. This saves the need for additional hardware, while providing more installation space for the power cabinet. Other key features include: Support for both IM and PM motor control for application flexibility, an STO function to ensure worry-free operation while protecting facilities from damage, and a simplified wiring process with a new screwless wiring design of terminal blocks for quick installation.

Saving space, reducing setup and wiring time, and providing high efficiency and stability system, the MH300 and MS300 are your key to improving market competitiveness and ensuring success.

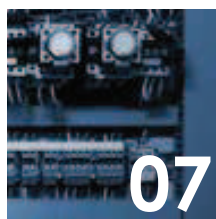




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Models Overview

Standard Models
High Speed Models
Exterior Design and Interfaces
Optional Cards



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Optimized Space Utilization

Compact Design
Side-by-Side Installation



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Outstanding Drive Performance

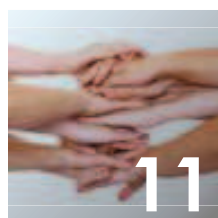
Support IM and PM Motors
High Starting Torque
Enhanced Braking Capability
Fast Response to Load Changes
Deceleration Energy Backup (DEB)



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Strong System Support

Multi-motor Control
Pulse Control
Built-in PLC
High Speed Applications
24 VDC Power Supply
High Overload Capability
Built-in Brake Chopper
Closed Loop Control
Supports Various Communications



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Stable, Safe and Reliable

Safety Standards Compliance
Enhanced Conformal Coating
Built-in EMC Filter
IP40 Models



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Easy to Install

Application Parameter Settings
Built-in USB port
Screwless Wiring of Control Terminal



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Wide Range of Applications

Machine Tools
Woodworking Machines
Automatic Tool Changers (ATC)
Water Pumps
Packaging Machines
Textile Machines



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Specifications

Product Specifications
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Ordering Information

Optimized Space Utilization

Compact Design

MH300 and MS300 Series feature powerful functions but come in smaller sizes.

Compared with current models, the MH300 and MS300 Series feature up to a 40% size reduction to effectively optimize installation spaces.



Side-by-Side Installation

Supports side-by-side installation with operating temperatures of $-20^{\circ}\text{C} \sim 40^{\circ}\text{C}$. Enables highly flexible and highly efficient installation.

Substantial savings in space!



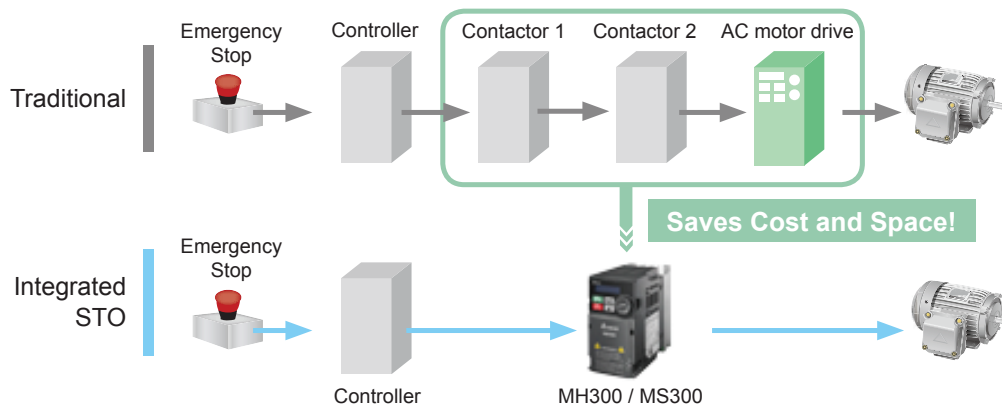
Stable, Safe and Reliable



Safety Standard

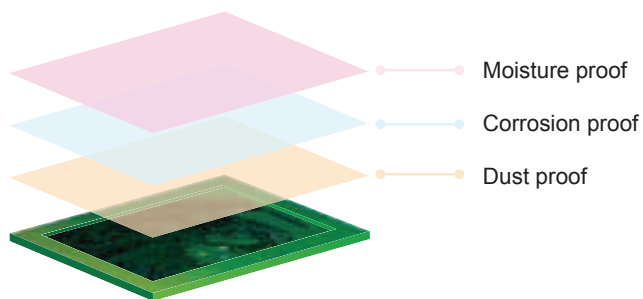
Integrated Safe Torque Off (STO), compliance with:

- ▶ EN ISO 13849-1 Cat3/PLd
- ▶ EN 61508 SIL2
- ▶ EN 60204-1 Category 0
- ▶ EN 62061 SIL CL 2



PCB Coating

100% PCB coating (IEC 60721-3-3 class 3C2 standard) ensures drive operation stability and safety in critical environments.



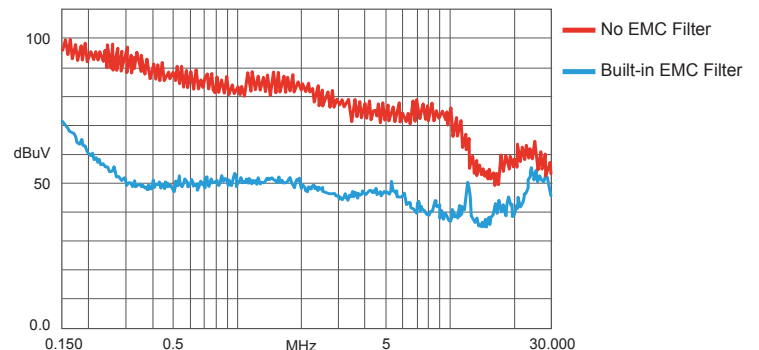
IP 40 Models

Strengthened fan coating and concealed air vent prevent dust and other particles from entering the drive, suitable for critical environment applications.



Built-in EMC Filter

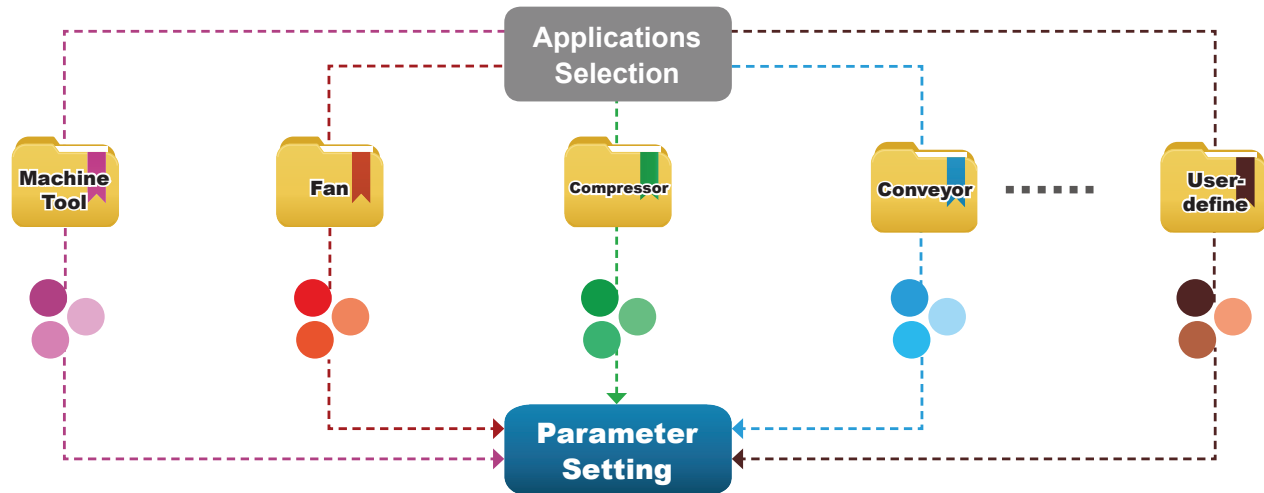
Built-in Class A (C2) standard EMC filter; saves on additional procurement cost and wiring time, and provides more cabinet space for other devices to use.



Quick to Install

Application Groups (Macro)

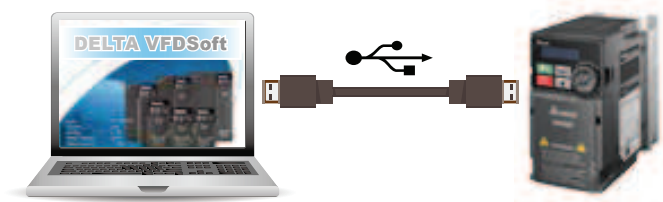
Simplifies the parameter setting process by grouping the parameters for different applications to use.



Built-in USB Port

Built-in USB port facilitates the drive setting, updating, real-time monitoring and system tuning process.

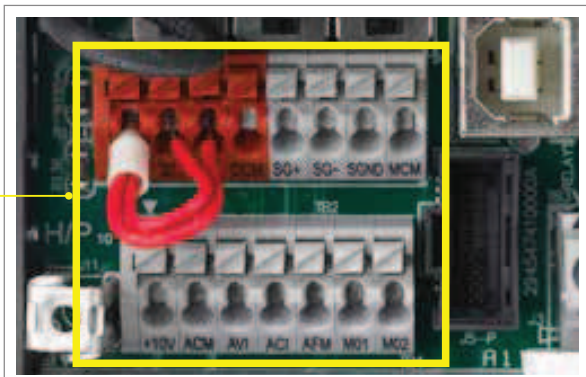
- No need of USB or RS-485 connectors
- Supports offline (drive power off) parameter setting/copying and system update



Screwless Wiring of Control Terminal

Press on the cap to plug in the wire; easy to install and remove.

Saves wiring time



MS300 Product Specifications

1-phase
115V

Models without built-in EMC filter					
Frame			A		C
Applicable Motor Output (kW)			0.2	0.4	0.75
Applicable Motor Output (HP)			1/4	1/2	1
Inverter Output	Heavy Duty	Rated Output Current (A)	1.6	2.5	4.8
	Normal Duty	Rated Output Current (A)	1.8	2.7	5.5
Carrier Frequency (kHz)			2~15kHz (default 4 kHz)		
Brake Chopper			Built-in		
DC Reactor			Optional		
AC Reactor			Optional		
Cooling Method			Natural air cooling		Fan cooling
Size: W×H (mm)			68×128		87×157
Size: D (mm)			96	125	152

1-phase
230V

30V

Models with built-in EMC filter							
Frame			B		C		
Applicable Motor Output (kW)			0.2	0.4	0.75	1.5	2.2
Applicable Motor Output (HP)			1/4	1/2	1	2	3
Inverter Output	Heavy Duty	Rated Output Current (A)	1.6	2.8	4.8	7.5	11
	Normal Duty	Rated Output Current (A)	1.8	3.2	5	8.5	12.5
Carrier Frequency (kHz)			2 ~ 15kHz (default 4 kHz)				
Brake Chopper			Built-in				
DC Reactor			Optional				
AC Reactor			Optional				
Cooling Method			Natural air cooling	Fan cooling			
Size: WxH (mm)			72x142			87x157	
Size: D (mm)			159			179	
Models without an EMC filter							
Frame			A		B	C	
Cooling Method			Natural air cooling			Fan cooling	
Size: W×H (mm)			68×128	68×128	72×142	87×157	
Size: D (mm)			96	125	143	152	

MS300 Product Specifications

3-phase
230 V

230 V

Models without built-in EMC filter												
Frame			A			B	C		D	E		F
Applicable Motor Output (kW)			0.2	0.4	0.75	1.5	2.2	3.7/4	5.5	7.5	11	15
Applicable Motor Output (HP)			1/4	1/2	1	2	3	5	7.5	10	15	20
Inverter Output	Heavy Duty	Rated Output Current (A)	1.6	2.8	4.8	7.5	11	17	25	33	49	65
	Normal Duty	Rated Output Current (A)	1.8	3.2	5	8	12.5	19.5	27	36	51	69
Carrier Frequency (kHz)			2 ~ 15kHz (default 4 kHz)									
Brake Chopper			Built-in									
DC Reactor			Optional									
AC Reactor			Optional									
Cooling Method			Natural air cooling			Fan cooling						
Size: W×H (mm)			68×128			72×142	87×157		109×207	130×250		175×300
Size: D (mm)			96	110	143	143	152		154	185		192

3-phase
460 V

60 V

Models with built-in EMC filter													
Frame			B			C		D		E		F	
Applicable Motor Output (kW)			0.4	0.75	1.5	2.2	3.7/4	5.5	7.5	11	15	18.5	22
Applicable Motor Output (HP)			1/2	1	2	3	5	7.5	10	15	20	25	30
Inverter Output	Heavy Duty	Rated Output Current (A)	1.5	2.7	4.2	5.5	9	13	17	25	32	38	45
	Normal Duty	Rated Output Current (A)	1.8	3	4.6	6.5	10.5	15.7	20.5	28	36	41.5	49
Carrier Frequency (kHz)			2~15kHz (default 4 kHz)										
Brake Chopper			Built-in										
DC Reactor			Optional										
AC Reactor			Optional										
Cooling Method			Fan cooling										
Size: W×H (mm)			72×142			87×157		109×207		130×250		175×300	
Size: D (mm)			159			179		187		219		244	
Models without an EMC filter													
Frame			A		B	C		D		E		F	
Cooling Method			Natural air cooling		Fan cooling								
Size: W×H (mm)			68×128		72×142	87×157		109×207		130×250		175×300	
Size: D (mm)			129	143	143	152		154		185		192	

MS300 General Specifications and Accessories

Control Functions	Control Methods	V/F, SVC
	Applicant Motors	Induction Motor (IM), Interior Permanent Magnet (IPM) Motor, Surface Permanent Magnet (SPM) Motor
	Max. Output Frequency	Standard model: 599.00Hz ; High speed model: 1500.0Hz (with derating, V/F control only)
	Starting Torque*	150% / 3 Hz (V/f, SVC control for IM, Heavy duty) 100% / (1/20 of motor rated frequency) (SVC control for PM, Heavy duty)
	Speed Control Range*	1 : 50 (V/f, SVC control for IM · Heavy duty) 1 : 20 (SVC control for PM · Heavy duty)
	Overload Tolerance	Normal Duty (ND): 120% of rated output current for 60 seconds; 150% of rated output current for 3 seconds Heavy Duty (HD): 150% of rated output current for 60 seconds; 200% of rated output current for 3 seconds
	Frequency Setting Signal	0~+10V/-10V~+10V, 4~20mA/0~+10V, 1 Pulse input (33KHz), 1 Pulse output (33KHz)
Protection Functions	Main Control Functions	Multiple motor switches (max. 4 independent motor parameter settings), Fast run, Deceleration Energy Back (DEB) function, Wobble frequency function, Fast deceleration function, Master and Auxiliary frequency source selectable, Momentary power loss ride thru, Speed search, Over-torque detection, 16-step speed (max.), Accel/decel time switch, S-curve accel/decel, 3-wire sequence, JOG frequency, Upper/lower limits for frequency reference, DC injection braking at start and stop, PID control, Built-in PLC (2K steps), Simple positioning function, MODBUS is integrated as standard
	Motor Protection	Overcurrent protection, overvoltage protection, over-temperature protection, Phase failure protection
Accessories	Stall Prevention	Stall prevention during acceleration, deceleration and running independently
	Communication cards	PROFIBUS DP, DeviceNet, MODBUS TCP, EtherNet/IP, CANopen
Digital Controller	External DC power supply	EMM-BPS01 (DC 24V power supply card)
		A removable keypad as standard
Certifications		UL, CE, RoHS, RCM, TUV, REACH

*Control accuracy may vary depending on the environment, application conditions, different motors or encoder. For details, please contact our company or your local distributor.

Applications

MH300

Machine tools, textile machines, woodworking machines, rubber & plastic machines, cranes

MS300

Machine tools, textile machines, woodworking machines, packaging machines, electronics, fans, pumps, air compressors

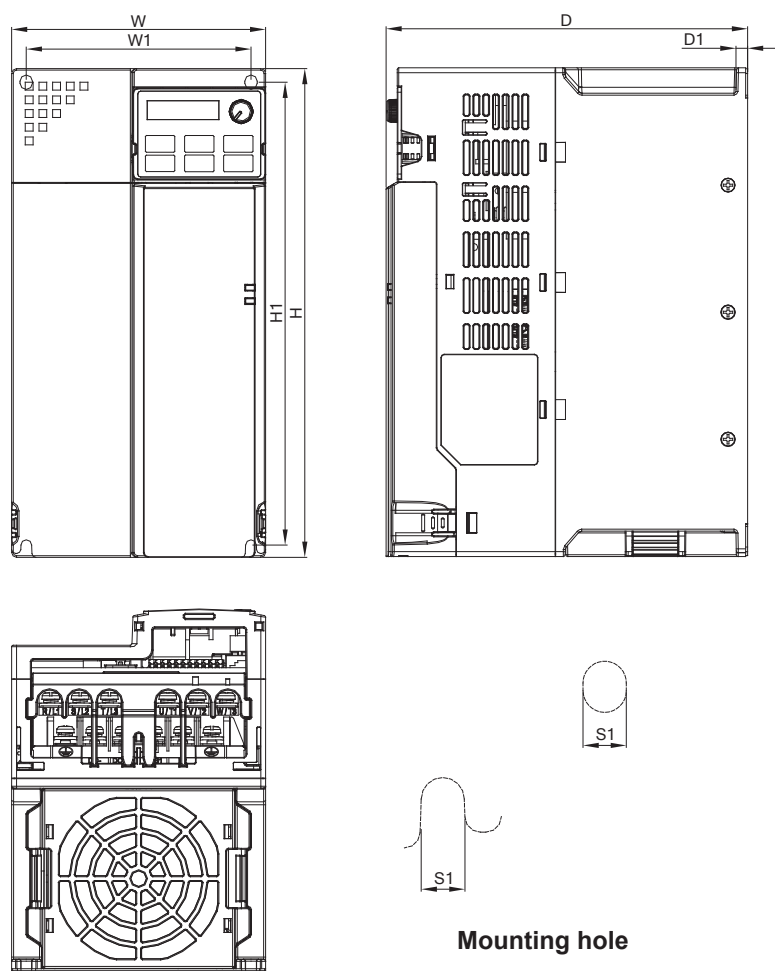


Provides 1-phase / 3-phase power



MS300 Dimensions

Frame E



MODEL

FRAME E1

Standard Models :
VFD33AMS23ANSAA
VFD33AMS23ENSAA
VFD49AMS23ANSAA
VFD49AMS23ENSAA
VFD25AMS43ANSAA
VFD25AMS43ENSAA
VFD32AMS43ANSAA
VFD32AMS43ENSAA

High Speed Models :
VFD33AMS23ANSHA
VFD33AMS23ENSHA
VFD49AMS23ANSHA
VFD49AMS23ENSHA
VFD25AMS43ANSHA
VFD25AMS43ENSHA
VFD32AMS43ANSHA
VFD32AMS43ENSHA

FRAME E2

Standard Models :
VFD25AMS43AFSAA
VFD32AMS43AFSAA

High Speed Models :
VFD25AMS43AFSHA
VFD32AMS43AFSHA

Frame		W	H	D	W1	H1	D1	S1
E1	mm	130.0	250.0	185.0	115.0	236.8	6.0	5.5
	inch	5.12	9.84	7.83	4.53	9.32	0.24	0.22
Frame		W	H	D	W1	H1	D1	S1
E2	mm	130.0	250.0	219.0	115.0	236.8	6.0	5.5
	inch	5.12	9.84	8.62	4.53	9.32	0.24	0.22

Ordering Information

MS300 Standard Models (0~599 Hz)

Power Range			Frame Size	Model Name	Standard Models (0~599 Hz)	
Max. Applicable Motor Capacity		Drive Rated Output Current			Built-in EMC Filter	IP40 Models
[HP]	[kW]	[A]				
115V / 1-phase						
0.25	0.2	1.6	A	VFD1A6MS11ANSAA	-	-
				VFD1A6MS11ENSAA	-	V
0.5	0.4	2.5	A	VFD2A5MS11ANSAA	-	-
				VFD2A5MS11ENSAA	-	V
1	0.75	4.8	C	VFD4A8MS11ANSAA	-	-
				VFD4A8MS11ENSAA	-	V
230V / 1-phase						
1/4	0.2	1.6	A	VFD1A6MS21ANSAA	-	-
			A	VFD1A6MS21ENSAA	-	V
			B	VFD1A6MS21AFSAA	V	-
0.5	0.4	2.8	A	VFD2A8MS21ANSAA	-	-
			A	VFD2A8MS21ENSAA	-	V
			B	VFD2A8MS21AFSAA	V	-
1	0.75	4.8	B	VFD4A8MS21ANSAA	-	-
				VFD4A8MS21AFSAA	V	-
				VFD4A8MS21ENSAA	-	V
2	1.5	7.5	C	VFD7A5MS21ANSAA	-	-
				VFD7A5MS21AFSAA	V	-
				VFD7A5MS21ENSAA	-	V
3	2.2	11.0	C	VFD11AMS21ANSAA	-	-
				VFD11AMS21AFSAA	V	-
				VFD11AMS21ENSAA	-	V
230V / 3-phase						
0.25	0.2	1.6	A	VFD1A6MS23ANSAA	-	-
				VFD1A6MS23ENSAA	-	V
0.5	0.4	2.8	A	VFD2A8MS23ANSAA	-	-
				VFD2A8MS23ENSAA	-	V
1	0.75	4.8	A	VFD4A8MS23ANSAA	-	-
				VFD4A8MS23ENSAA	-	V
2	1.5	7.5	B	VFD7A5MS23ANSAA	-	-
				VFD7A5MS23ENSAA	-	V
3	2.2	11.0	C	VFD11AMS23ANSAA	-	-
				VFD11AMS23ENSAA	-	V
5	3.7/4	17.0	C	VFD17AMS23ANSAA	-	-
				VFD17AMS23ENSAA	-	V
7.5	5.5	25.0	D	VFD25AMS23ANSAA	-	-
				VFD25AMS23ENSAA	-	V
10	7.5	33.0	E	VFD33AMS23ANSAA	-	-
				VFD33AMS23ENSAA	-	V
15	11	49.0	E	VFD49AMS23ANSAA	-	-
				VFD49AMS23ENSAA	-	V
20	15	65.0	F	VFD65AMS23ANSAA	-	-
				VFD65AMS23ENSAA	-	V