Environment for Operation, Storage and Transportation

ATTENTION!

Enclosure should avoid direct contact with chemicals and solvents, and exposure to direct sunlight at high temperature

	Installation Location	IEC 60364-1/ IEC 60664-1 Pollution degree 2 for PCB design Dust-tight enclosure (IP6x) for indoor use only						
	Ambient Temperature	Operation	IP66 NEMA 4X UL Type 4X	-20 ~ +40°C -20 ~ +50°C with derating				
		Storage	-40 ~ +85°C					
		Transportation	-20~+70°C					
		No condensation, non-froz	zen					
		Operation	0 ~ 100%					
Operating Environment	Rated Humidity	Storage / Transportation	Max. 95%					
		No condense water						
		Operation	86~106 kPa					
	Air Pressure	Storage / Transportation	70 ~ 106 kPa					
	Pollution Level (IEC60721-3)	Operation	Class 3C2; Class 3S2					
		Storage	Class 2C2; Class 2S2					
		Transportation	ransportation Class 1C2; Class 1S2					
		Concentrate prohibited						
	Altitude	<1000m (>1000m with derating)						
Package Drop	Storage	ISTA procedure 14 (cooperding to weight), compliant to IEC 00000 0.04						
	Transportation	ISTA procedure 1A (according to weight); compliant to IEC 60068-2-31						
Vibration	Operating	EC60068-2-6: 2Hz ~ 13.2Hz: 1mm, peak-peak 13.2Hz ~ 55Hz: 0.7G ~ 2.0G 55Hz ~ 512Hz: 2.0G						
	Non-operating	2.5G peak 5Hz~2kHz: 2.5G, max. amplitude 0.015″						
lucionation	Operating	IEC/EN60068-2-27: 15G,	11ms					
Impact	Non-operating	30G						

Applications

Food, beverage, pumps manufacturing and other humid and dusty operating environments







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* We reserve the right to change the information in this flyer without prior notice.



DELTA_IA-MDS_MS300-IP66_Flyer_EN_20180525



Automation for a Changing World

Delta IP66 Compact Drive MS300 IP66/NEMA 4X



Compact Design with IP66/NEMA 4X Enclosure Protection

Reliable and durable performance in harsh environments

Easy Installation

No need for electrical cabinet, saving cost and space

High Safety and Stability

Built-in STO (Safe Torque Off) SIL2 safety function and mains switch (optional)

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Built-in PLC Function

Built-in PLC capacity (2K steps): distributed control and independent operation via network connection

Outstanding Drive Performance

Supports IM and PM motors, open-loop control

Various Communication Protocols



Product Specifications

230V 1-phase (without built-in filter) Model Name VFDMNSAA 2A8MS21 4A8MS21 7A5MS21 11AMS21 Dimensions W x H (mm) 160 x 230 160 x 230 160 x 230 175 x 280 Dimensions D (mm) 132 144 160 183 Cooling Method Natural air cooling Fan cooling VT-phase (with built-in filter) Model Name VFDMFSAA 2A8MS21 4A8MS21 7A5MS21 11AMS21 Model Name VFDMFSAA 2A8MS21 4A8MS21 7A5MS21 11AMS21 Dimensions W x H (mm) 160 x 230 160 x 230 175 x 280 175 x 280 Dimensions W x H (mm) 160 x 230 160 x 230 175 x 280 175 x 280 Dimensions W x H (mm) 160 x 230 160 x 230 175 x 280 175 x 280 Dimensions W x H (mm) 160 x 230 160 x 230 175 x 280 175 x 280 Dimensions D (mm) 132 144 183 183 Cooling Method	-phase									
VFD			23	BOV 1-phase (v	vithout built-i	n filter)				
Dimensions D (mm)132144160183Cooling MethodFan coolingCooling MethodFan coolingCooling MethodCooling Cooling MethodFan coolingModel Name VFD MFSAA2A8MS214A8MS217A5MS2111AMS21Model Name VFD MFSAA2A8MS214A8MS217A5MS2111AMS21Dime Name VFD MFSAA160 x 230160 x 230160 x 230175 x 280Dime Name VFD MFSAA0 Natural ic coolingFan coolingDime Name VFD MFSAA2A8MS214A8MS217A5MS2111AMS21Dime Name VFD MFSAA160 x 230160 x 230175 x 280Dime Name VFD MFSAA0Natural ic coolingApplicable Motro Output (kW)0.40.751.5Applicable Motro Output (A)0.51Dime Name Put With Matter Cooling2.84.87.5DIT2.2Output Current (A)3.258.512.5 <td< td=""><td>VFD.</td><td colspan="2"></td><td>2A8MS21</td><td>4A8MS21</td><td>7A5MS21</td><td colspan="2">11AMS21</td></td<>	VFD.			2A8MS21	4A8MS21	7A5MS21	11AMS21			
$\begin{tabular}{ c c c c } \hline \begin{tabular}{ c c c c } \hline \begin{tabular}{ c c c c } \hline \begin{tabular}{ c c } \hline \$	Dimo	noiona	W x H (mm)	160 x 230	160 x 230	160 x 230	175 x 280			
230V 1-phase (with built-in filter) Model Name VFD MFSAA 2A8MS21 4A8MS21 7A5MS21 11AMS21 Dimensions W x H (mm) D (mm) 160 x 230 160 x 230 175 x 280 175 x 280 Dimensions W x H (mm) D (mm) 132 144 183 183 Cooling Method Natural air cooling Fan cooling Applicable Motor Output (kW) 0.4 0.75 1.5 2.2 Applicable Motor Output (hp) 0.5 1 2 3 Utput Rated Output Duty 2.8 4.8 7.5 11 Normal Duty Rated Output Current (A) 3.2 5 8.5 12.5 Carrier Frequency (kHz) 2 2~15 DC Reactor Optional (external) Disconnect Switch Optional (external) Optional (external) Built-in Breaking Chopper Built-in Built-in Built-in	Dimer	1510115	D (mm)	132	144	160	183			
$\begin{tabular}{ c c c c c } \hline Model Name & ABMS21 & ABMS21 & ABMS21 & ABMS21 & ABMS21 & ABMS21 & AABMS21 & AABMS2$		Cooling	Method		Fan cooling					
VFD				230V 1-phase	(with built-in	filter)				
$\begin{array}{c c c c c c c } \hline \begin{tabular}{ c c c c } \hline \begin{tabular}{ c c c c c } \hline \begin{tabular}{ c c c c c } \hline \begin{tabular}{ c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	VFD			2A8MS21	4A8MS21	7A5MS21	11AMS21			
Image: Image	Dimo	W x H (mm)		160 x 230	160 x 230	175 x 280	175 x 280			
Applicable Motor Output (kW) 0.4 0.75 1.5 2.2 Applicable Motor Output (hp) 0.5 1 2 3 Applicable Motor Output (hp) 0.5 1 2 3 Mate Output	Dimer	ISIONS	D (mm)	132	144	183	183			
Applicable Motor Output (hp)0.5123Heavy DutyRated Output Current (A)2.84.87.511Normal DutyRated Output Current (A)3.258.512.5O Carrer Frequency (kHz)3.258.512.5Optional (external)DC ReactorOptional (external)Disconnect SwitchOptional (external)Built-inKeypadBuilt-in		Cooling Method		Natural a	ir cooling	Fan cooling				
Heavy DutyRated Output Current (A)2.84.87.511Normal DutyRated Output Current (A)3.258.512.5Carrier Frequency (kHz)3.258.512.5DC ReactorOptional (external)Disconnect SwitchOptional (external)Breaking ChopperBuilt-inKeypadOptional (external)	Applic	able Moto	or Output (kW)	0.4	0.75	1.5	2.2			
DutyCurrent (Å)2.84.87.511Normal DutyRated Output Current (Å)3.258.512.5Carrier Frequency (kHz)Corrent (A)DC ReactorOptional (external)Disconnect SwitchBreaking ChopperBuilt-inKeypad	Applie	Applicable Motor Output (hp)		0.5	1	2	3			
Normal DutyRated Output Current (A)3.258.512.5Carrier Frequency (kHz)3.22 ~ 15 </td <td>Output</td> <td></td> <td></td> <td>2.8</td> <td>4.8</td> <td>7.5</td> <td>11</td>	Output			2.8	4.8	7.5	11			
DC Reactor Optional (external) Disconnect Switch Optional (external) Breaking Chopper Built-in Keypad Built-in	Output			3.2	5	8.5	12.5			
Disconnect SwitchOptional (external)Breaking ChopperBuilt-inKeypadBuilt-in	Ca	Carrier Frequency (kHz)		2~15						
Breaking Chopper Built-in Keypad Built-in		DC Reactor		Optional (external)						
Keypad Built-in		Disconnect Switch		Optional (external)						
		Breaking Chopper		Built-in						
Degree of Protection IP66/NEMA 4X		Keypad		Built-in						
	D	egree of	Protection		IP66/N	EMA 4X				

230V 230V 3-phase (without built-in filter)									
Model Name VFDMNSAA		2A8MS23	4A8MS23	7A5MS23	11AMS23	17AMS23	25AMS23		
Dimo	Dimensions	W x H (mm)	160 x 230	160 x 230	160 x 230	175 x 280	175 x 280	195 x 300	
Dimensions	D (mm)	132	144	160	183	183	183		
Cooling Method		N	atural air coolir	ng	Fan cooling				
Applicable Motor Output (kW)		0.4	0.75	1.5	2.2	3.7	5.5		
Applicable Motor Output (hp)		0.5	1	2	3	5	7.5		
Output	Heavy Duty	Rated Output Current (A)	2.8	4.8	7.5	11	17	25	
Output	Normal Duty	Rated Output Current (A)	3.2	5	8	12.5	19.5	27	
Carrier Frequency (kHz)		2~15							
DC Reactor		Optional (external)							
Disconnect Switch		Optional (external)							
Breaking Chopper		Built-in							
Keypad		Built-in							
D	egree of	Protection	IP66/NEMA 4X						

ohase 50 V		460\	/ 3-phase (w	/ithout bu	uilt-in filte	er)				
Мо	del Name	1A5MS			5A5MS43	9A0MS43	13AMS43	17AMS43		
VFD	MNSAA W x H (mm)	160 x 2		160 x 230	160 x 230	175 x 280	195 x 300	195 x 300		
Dimensions	D (mm)	132		160 x 230	183	183	183	183		
Cool	ling Method		Natural a	ir cooling			Fan cooling			
		46	0V 3-phase ((with buil	t-in filter)				
Model Name VFDMFSAA		1A5MS		4A2MS43	5A5MS43	9A0MS43	13AMS43	17AMS4		
Dimensions W x H (mm)		160 x 2 132		160 x 230	175 x 280	175 x 280 183	195 x 300 183	195 x 30 183		
Coo	D (mm) Iing Method	132	32 144 160 183 Natural air cooling			Fan c		103		
	Motor Output (kW)	0.4	0.75	1.5	2.2	3.7	5.5	7.5		
	Motor Output (hp)	0.5	1	2	3	5	7.5	10		
Hear Dut		1.5	2.7	4.2	5.5	9	13	17		
Output Norn		1 0	2	4.6	C E	10 E	15 7	20 F		
Dut	, , ,	1.8	3	4.6	6.5	10.5	15.7	20.5		
	Carrier Frequency (kHz) DC Reactor			Or	2 ~ 15 otional (extern	al)				
	nnect Switch				otional (extern	-				
	ing Chopper			с г	Built-in					
Keypad					Built-in					
Degree	e of Protection			I	P66/NEMA 4>	<				
neral			General S	necificat	ions					
pec.	Control Methods		V/F, VFPG ^{Note1} , SVC	-						
	Applied Motors		IM (Induction Motor), PM (IPM and SPM) motor control							
	Max. Output Frequence	су	0.00~599.00 Hz							
	Starting Torque ^{Note2}	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 Response Ab	lity ^{Note2}	1:50 (V/f, SVC control for IM, heavy duty), 1:20 (SVC control for PM, heavy duty)							
Control Functions	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 Sig	Ingi	0~+10V / +10V~-10V, 4~20 mA / 0~+10V 1 channel pulse input (33kHz), 1 channel pulse output (33 KHz)							
	Main Control Functions		Multi-motor switches (up to 4 independent motor parameters), fast run, DEB function, wobbl frequency function, rapid deceleration function, main and auxiliary frequency function, momentary power loss ride thru, speed search, over-torque detection, 16-step speed (including main speed), accel/decel time switch, s-curve accel/decal, 3-wire sequence, JOG frequency, frequency upper/lower limit settings, DC injection braking at start/stop, PID control Built-in PLC (2000 steps) and simple positioning function							
			Built-in application parameter groups (selected by industry) and user-defined application parameter groups							
	Application			ter groups						
Protection	Application Motor Protection		Over-current, over-	• .	-temperature a	and phase los	s protection			
Protection Functions				-voltage, over-	•	•	•	nt settings)		
Functions	Motor Protection		Over-current, over-	-voltage, over- iring acceleration	ion, decelerati	ion and runnin	ıg (independer	nt settings)		
	Motor Protection Stall Prevention	ds	Over-current, over Stall prevention du	-voltage, over- iring accelerati et/IP, Profibus	ion, decelerati DP, Modbus ⁻	ion and runnin	ıg (independer	nt settings)		

Note1. Pulse input (terminal MI7) as speed feedback Note2. Control accuracy may vary due to different environments, application conditions, and motors. Please contact Delta or your local distributor for details.