

# ACCEL 500 OPEN LOOP CRANE APPLICATION

## QUICKSTART REFERENCE

### ⚠ WARNING

Motor control equipment and electronic controllers are connected to hazardous line voltages. When servicing drives and electronic controllers, there may be exposed components with housings or protrusions at or above line potential. Extreme care should be taken to protect against shock.

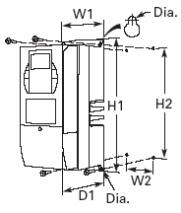
Stand on an insulating pad and make it a habit to use only one hand when checking components. Always work with another person in case an emergency occurs. Disconnect power before checking controllers or performing maintenance. Be sure equipment is properly grounded. Wear safety glasses whenever working on electronic controllers or rotating machinery.

### 2 MOUNTING

ACM	HP	Approximate Dimensions in inches (mm)		
		H2	W2	Dia.
MF4	1 – 5	12.3 (313)	3.9 (100)	0.3 (7)
MF5	7.5 – 15	16.0 (406)	3.9 (100)	0.3 (7)
MF6	20 – 30	21.3 (541)	5.8 (148)	0.4 (9)

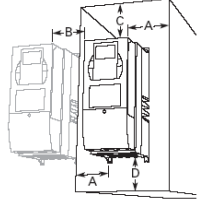
ACM	HP	Approximate Dimensions in inches (mm)		
		H1	W1	D1
MF4	1 – 5	12.9 (327)	5.0 (128)	7.5 (190)
MF5	7.5 – 15	16.5 (419)	5.6 (143)	8.4 (214)
MF6	20 – 30	22.0 (558)	7.6 (195)	9.3 (237)



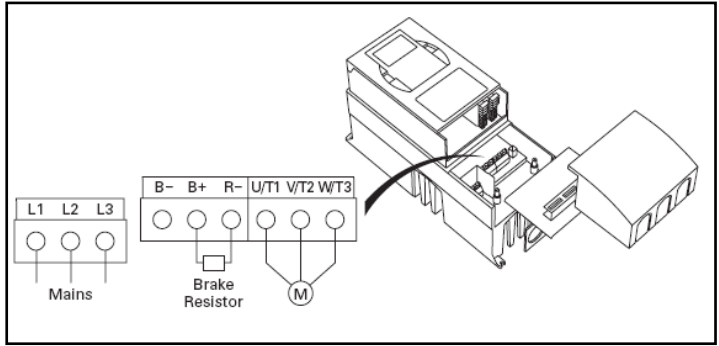
### 1 COOLING

A = Clearance around the unit  
 B = Distance from the unit to another unit  
 C = Free space above the unit  
 D = Free space underneath the unit

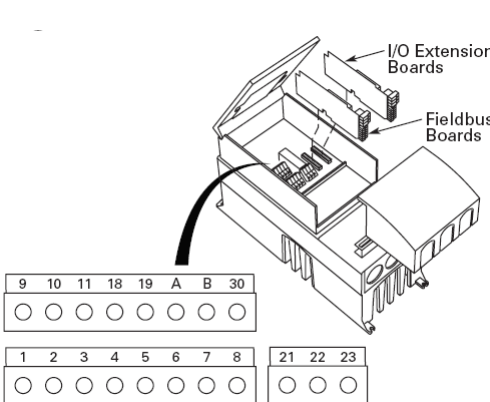
ACM	HP	Approximate Dimensions in inches (mm)			
		A	B	C	D
MF4	1 – 5	0.79 (20)	0.79 (20)	3.94 (100)	1.97 (50)
MF5	7.5 – 15	0.79 (20)	0.79 (20)	4.72 (120)	2.36 (60)
MF6	20 – 30	1.18 (30)	0.79 (20)	6.30 (160)	3.15 (80)



### 3 POWER CONNECTIONS



### 4 CONTROL CONNECTIONS



CONTROL I/O Standard		CONTROL I/O (Option B9)	
Terminal	Signal	Terminal	Signal
1	+10 V <sub>ref</sub> Reference voltage	1	42 – 240 VAC Digital In 5
2	AI1+ Analog In 1	2	42 – 240 VAC Digital In 6
3	AI1- Analog In common	3	42 – 240 VAC Digital In 7
4	AI2+ Analog In 2/Digital In 4	4	42 – 240 VAC Digital In 8
5	AI2- Analog In common	5	42 – 240 VAC Digital In 9
6	24 V <sub>out</sub> 24V auxiliary voltage	6	COM A Digital In COM
7	GND I/O ground	7	RO Digital Out 2
8	DIN1 Digital In 1	8	RO Digital Out 2
9	DIN2 Digital In 2		
10	DIN3 Digital In 3		
11	GND I/O ground		
18	AO1+ Analog Out 1		
19	AO1- Analog Out common		
A	RS-485 Serial bus (Modbus RTU)		
B	RS-485 Serial bus		
30	+24V External control voltage supply		
21	RO1		
22	RO1		
23	RO1		

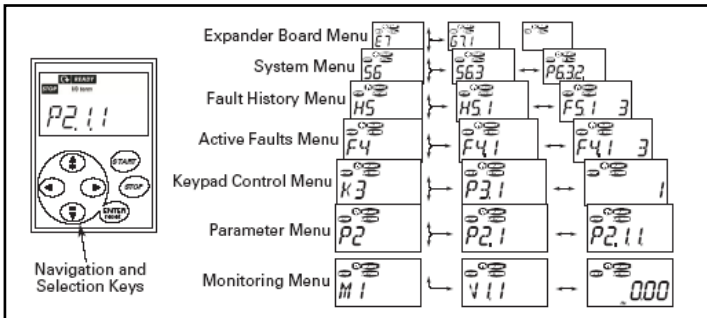
## 5 REF MODE

		Ref Mode = 1 3 Step	Ref Mode = 2 4 Step	Ref Mode = 3 2 Step Infinite Variable	Ref Mode = 4 Stepless
<b>Standard</b>	<b>Digital In</b> DIN1 DIN2 DIN3 AIN1/DIN4	Raise 1 Lower 1 2 <sup>nd</sup> Speed 3 <sup>rd</sup> Speed	Raise 1 Lower 1 2 <sup>nd</sup> Speed 3 <sup>rd</sup> Speed	Raise 1 Lower 1 Accelerate	Raise 1 Lower 1
<b>Optional</b>	<b>Digital In B9</b> DIN5 DIN6 DIN7 DIN8 DIN9	Raise 1 Lower 1 2 <sup>nd</sup> Speed 3 <sup>rd</sup> Speed	Raise 1 Lower 1 2 <sup>nd</sup> Speed 3 <sup>rd</sup> Speed 4 <sup>th</sup> Speed	Raise 1 Lower 1 Accelerate	Raise 1 Lower 1
<b>Standard</b>	<b>Digital Out</b> RO1	Fault	Fault	Fault	Fault
<b>Optional</b>	<b>Digital Out B9</b> RO2	Brake Contactor	Brake Contactor	Brake Contactor	Brake Contactor
<b>Standard</b>	<b>Analog In</b> AIN1				Speed Reference

## 7 MONITORING MENU

<b>1.1</b>	<b>Digital</b>
1.1.1	MC Run
1.1.2	MC Ready
1.1.3	MC Fault
1.1.4	MC Reverse
1.1.5	MC At Speed
1.1.6	EndSt Perm
1.1.7	Slow Down Cmd
1.1.8	Brk Hld Bit
1.1.9	Rel Brakes
1.1.10	At Zero Spd
1.1.11	Command
1.1.12	StopSlow
<b>1.2</b>	<b>Analog</b>
1.2.1	Motor Speed (rpm)
1.2.2	DC-link Voltage (V)
1.2.3	Motor Current (A)
1.2.4	Motor Torque (%)
1.2.5	Motor Voltage (V)
1.2.6	Unit Temperature (C)
1.2.7	Run Time Cntr (H,M, S)
1.2.8	Output Frequency (Hz)
<b>1.3</b>	<b>IO</b>
1.3.1	DIN 1
1.3.2	DIN 2
1.3.3	DIN 3
1.3.4	DIN 4
1.3.5	DIN 5
1.3.6	DIN 6
1.3.7	DIN 7
1.3.8	DIN 8
1.3.9	DIN 9
1.3.10	AIN 1
1.3.11	AIN 2
1.3.12	AOUT1 Val
1.3.13	AOUT2 Val

## 6 MENU STRUCTURE



## 8 BASIC PARAMETERS

2.1	Quick Menu	Menu Name
2.1.1	Speed 1	First digital speed. Default to 20% speed.
2.1.2	Speed 2	Second digital input speed. Default to 40% speed.
2.1.3	Speed 3	Third digital input speed. Default to 60% speed.
2.1.4	Speed 4	Fourth digital input speed. Default to 80% speed.
2.1.5	SD Speed	Digital slow down speed. Default 50%
2.1.6	Rel Rmp Dly	Delay to release ramp until brakes can be picked up. Default is .1 seconds
2.1.7	Brk Opn Dly	Delay for setting the brakes after the drive is below zero speed. Default to no delay.
2.2	Startup	Menu Name
2.2.1	Ref Mode	Section reference type for wizard.
2.2.2	Motor Nom Voltg	Motor nominal voltage in Volts
2.2.3	Motor Nom Currnt	Motor nominal current, I[A]
2.2.4	Motor Nom Speed	Motor nominal speed in rpm
2.2.5	Motor Nom Freq	Motor nominal frequency
2.2.6	Min Frequency	Min output frequency
2.2.7	Max Frequency	Max output frequency
2.2.8	Accel Time 1	Acceleration time from Min Frequency to Max Frequency
2.2.9	Decel Time 1	Deceleration time from Max Frequency to Min Frequency
2.2.10	Self Tune Motor	Activates Identification without run at next start. Measures RsVoltageDrop and tunes the U/f Curve.//0 = No Action//1 = Identification without run. Give start order within 20 seconds.

## 9 KEYPAD CONTROL MENU

Parameters	Selections
P3.1 Remote Control	0 = Keypad 1 = I/O Terminals
R3.2 Keypad Reference	(Hz)
P3.3 Keypad Direction	0 = Forward 1 = Reverse

## 10 FAULT CODES

1	Overcurrent	17	MotorUnderld	53	FBCommunicat
2	Overvoltage	22/23	Chksum Flt	54	Slot Communic
3	Earth Fault	24	Changed data warning	57	Identification
6	Emergency Stop	25	Micro Watchdog	60	Com Watchdog
7	Saturation	31	IGBT Temp	61	User Fault 1
8	System Fault	32	Fan cooling	62	User Fault 2
9	Undervoltage	37	Device Change	65	Overspeed Flt
11	Output Phase	38	Device Added	71	Brake Open
12	Brk Chopper Supr	39	Device Removed	76	Run Off Flt
13	Undertemp	40	Device Unknown	77	Dir Fault
14	Overtemp	41	IGBT Temp	78	Joystick Flt
15	Motor Stall	50	Anlg In Flt	80	Loc Stop Flt
16	Mot.Overtemp	52	Keypad Comm		