Quick Reference MDrive® AccuStep 23 **Motion Control**







Notes and Warnings

Installation, configuration and maintenance must be carried out by qualified technicians only. You must have detailed information to be able to carry out this work. This information can be found in the user manuals.

- Unexpected dangers may be encountered when working with this product!
 Incorrect use may destroy this product and connected components!

The user manuals are not included, but may be obtained from the Internet at: http://www.imshome.com/downloads/manuals.html.

Required for Setup*

- PC running Microsoft® Windows XP Service Pack 2 or greater.
- IMS Terminal integrated program editor and terminal emulator (available
- +12 to +60 VDC unregulated linear or switching power supply.
- RS-422/485 communications interface (recommended: MD-CC402-001 communication converter).

You may also need:

- Power interface to 2-pin wire crimp connector (recommended: PD02-2300-FL3 prototype development cable).
- I/O interface to 14-pin wire crimp connector (recommended: PD14-2334-FL3 prototype development cable).
- * If you purchased your MDrive AccuStep with a QuickStart Kit, you have received all of the connecting cables needed for initial functional setup and system testing.

Getting Started

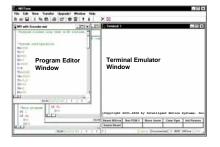
All documentation, software and resources are available online at: http://www.imshome.com/products/mdrive_motor_driver.html.

Connecting Power and I/O

Please refer to the opposite side of this document for connecting details and available connectivity options including prototype development cables and mating connector kits.

Connecting Communications — RS-422/485

- Connect RS-422/485 communications converter to MDrive AccuStep and PC.
- 2. Install the communication converter drivers onto PC (available online).
- 3. Install and open IMS Terminal.
- 4. Apply power to the device.
- Within IMS Terminal, Click into the Terminal Window (shown below).
- Key in CTRL+C. The sign-on message: "Copyright 2001-2009 by Intelligent Motion Systems, Inc." should appear, verifying that communications is active.



General Specifications

Electrical Specifications	
Input Voltage (+V) Range*	+12 to +60 VDC
Max Power Supply Current (Per MDrive)*	2 A
Aux-Logic Input Voltage**	+12 to +24 VDC
Aux-Logic Input Current**	194 mA Max

^{*}Actual Power Supply Current will depend on voltage and load

**Used to power I	ogic circuitry in	the absence	of +V
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Environmental Specifications		
Operating Temperature	Heat Sink	-40°C to +85°C
(non-condensing)	Motor	-40°C to +100°C

I/O Specifications	
General Purpose I/O - Number and Type	
I/O Points 1-4, 9-12	8 I/O programmable as inputs or outputs (sinking or sourcing)
General Purpose I/O - Electrical	·
Inputs	TTL up to +24 VDC
Sinking Outputs	Up to +24 VDC
Sourcing Outputs	+12 to +24 VDC
Output Sink Current	up to 600 mA (One Channel in each I/O Bank)
Logic Threshold (Logic 0)	< 0.8 VDC
Logic Threshold (Logic 1)	> 2.2 VDC
Protection (Sinking)	Over Temp, Short Circuit
Protection (Sourcing)	Transient Over Voltage, Inductive Clamp
Analog Input	
Resolution	10 Bit
Range (Voltage Mode)	0 to +5 VDC, 0 to +10 VDC
Range (Current Mode)	4 to 20 mA, 0 to 20mA
Trip Output/Capture Input	
Logic Threshold	+5V TTL Input, TTL Output (with 2 kΩ Load to Ground)

Communications Specifications	
Protocol	RS-422/RS-485
BAUD Rate	4.8k, 9.6k, 19.2k, 38.4k, 115.2 kbps

Motion Specifications	
Microstep Resolution - Open Loop	
Number of Resolutions	20

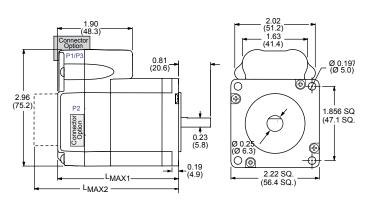
I				Availa	able Micro	steps Per F	Revolution			
ſ	200	400	800	1000	1600	2000	3200	5000	6400	10000
ſ	12800	20000	25000	25600	40000	50000	51200	36000 ¹	21600 ²	25400 ³

^{1=0.01} deg/µstep 2=1 arc minute/µstep 3=0.001 mm/µstep

Software Specifications	
Program Storage Type/Size	Flash/6384 Bytes
User Program Labels and Variables	192
Party Mode Addresses	62

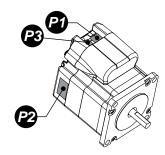
Mechanical Specifications

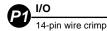
NOTE: For linear actuator products, see manual for screw specifications

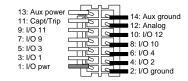


		Dimensions in inches (mm)		
Motor Length		(Single Shaft ernal Encoder)	LMAX2 (Control Knob)	
Single	2	.65 (67.31)	3.36 (85.34)	
Double	3	.02 (76.71)	3.73 (94.74)	
Triple	3	.88 (98.55)	4.59 (116.59)	
Quad	5	.28 (135.15)	5.99 (152.19)	

MDrive AccuStep 23 Motion Control Connectivity Options

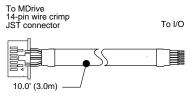






Prototype Development Cable p/n: PD14-2334-FL3

Speed test and development with pre-wired mating connector.



Pair	wire Colors	Function		
4	White	Aux Power		
'	Black	Aux Ground		
2	Green	Capt/Trip		
	Black	Analog In		
3	Blue	I/O11		
3	Black	I/O12		
4	Yellow	1/09		
4	Black	I/O10		
5	Brown	I/O3		
	Black	1/04		
6	Orange	I/O1		
0	Black	I/O2		
7	Red	I/O Power		
- /	Black	I/O Ground		

Mating Connector Kit p/n: CK-09

Use to make your own cables, kit contains 5 mating connector shells with crimp pins. JST crimp tool recommended.

Shell: PADP-14V-1-S JST Parts

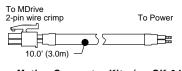
Pins: SPH-001T-P0.5L





Prototype Development Cable p/n: PD02-2300-FL3

Function: Power Interface



Wire Colors	Function	
Black	Power Ground	
Red	+V	

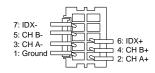
Mating Connector Kit p/n: CK-04

Use to make your own cables, kit contains 5 mating connector shells with crimp pins. Tyco crimp tool recommended.

Shell: 794617-2 Pins: 794610-1 Tyco Parts

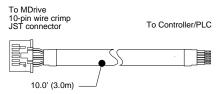


10-pin wire crimp



Prototype Development Cable p/n: ED-CABLE-JST10

Function: Encoder Interface

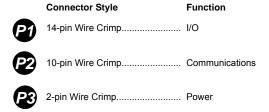


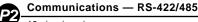
Pair	Wire Colors	Function		
1	White/Blue	IDX+		
l '	Blue/White	IDX-		
2	White/Orange	CH B+		
	Orange/White	CH B-		
3	White/Green	CH A+		
٦	Green/White	CH A-		
4	White/Brown	Ground		
"	Brown/White	N/C		

Mating Connector Kit p/n: CK-13

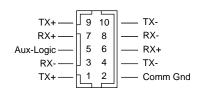
Use to make your own cables, kit contains 5 mating connector shells with crimp pins. JST crimp tool recommended.

Shell: PADP-10V-1-S Pins: SPH-001T-P0.5L JST Parts



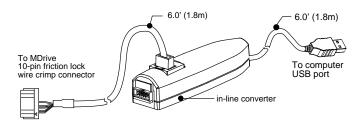


10-pin wire crimp



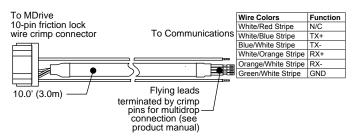
Communications Converter p/n: MD-CC402-001

Electrically isolated in-line USB to RS-422/485 converter pre-wired with mating connector to conveniently program and set configuration parameters.



Prototype Development Cable p/n: PD10-1434-FL3

Speed test and development with pre-wired mating connector. Recommended for multi-drop systems, can be used in conjunction with the MD-CC402-001.



Mating Connector Kit p/n: CK-02

Use to make your own cables, kit contains 5 mating connector shells with crimp pins. Hirose crimp tool recommended.

Hirose Parts Shell: DF11-10DS-2C Pins: DF11-2428SC