

MDrive42AC Plus<sup>2</sup>-65  
Motion Control



IMS™ INTELLIGENT MOTION  
SYSTEMS, INC.

by Schneider Electric

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. You can obtain them from the Internet at: [http://www.imshome.com/mdrive42acplus\\_mdi.html](http://www.imshome.com/mdrive42acplus_mdi.html).

Required for Setup\*

- PC running Microsoft® Windows XP Service Pack 2 or greater.
- IMS Terminal integrated program editor and terminal emulator. (Available online)
- IMS MD-CS200-000 or equivalent Lumberg Euro AC cable for AC line. (Required for UL)
- RS-422/485 communications interface. (Recommended: IMS MD-CC401-001 Communication Converter) or CANopen communications converter. (Recommend MD-CC500-000)

Depending on your MDrivePlus connectors configuration, you may also need:

- I/O and Power interface to 19-pin M23 circularp connector. (Recommended: IMS MD-CS100-000 or MD-CS101-000 Prototype Development Cordset)
- \* If you purchased your MDrivePlus with a QuickStart Kit, you have received all of the connecting cables needed for initial functional setup and system testing.

Getting Started

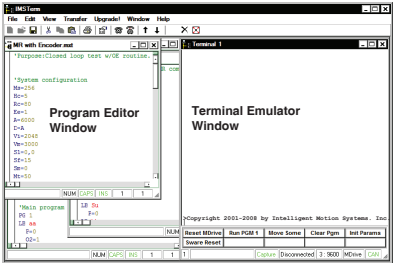
All documentation, software and resources are available online at: [http://www.imshome.com/mdrive42acplus\\_mdi.html](http://www.imshome.com/mdrive42acplus_mdi.html)

Connecting Power and I/O

Your MDrivePlus may be configured with power and I/O combined on separate connectors. Please refer to the opposite side of this document for connecting details and available IMS connectivity options including Prototype Development Cables and Mating Connector Kits.

Connecting Communications — RS-422/485

1. Connect IMS RS-422/485 communications converter to MDrivePlus and PC.
2. Install the communication converter drivers onto PC (available online).
3. Install and open IMS Terminal.
4. Apply power to MDrivePlus.
5. Within IMS Terminal, Click into the Terminal Window (shown below).



6. Key in CTRL+C. The MDrivePlus sign-on message: "Copyright 2001-2008 by Intelligent Motion Systems, Inc." should appear, verifying that communications is active.

Connecting Communications — CANopen

A "Getting Started" tutorial using the IMS CANopen Tester GUI with the MD-CC500-000 USB to CANopen dongle is available online at: [http://www.imshome.com/canopen\\_gs.html](http://www.imshome.com/canopen_gs.html).

General Specifications

Electrical Specifications	
Input Voltage Range (120 VAC MDrive)	95 to 132 VAC @ 50/60 Hz
Input Current (120 VAC MDrive)	4.2 Amps
Input Voltage Range (240 VAC MDrive)	95 to 264 VAC @ 50/60 Hz
Input Current (240 VAC MDrive)	2.1 Amps
Aux-Logic Input Voltage	+12 to +24 VDC
Aux-Logic Input Current	230 mA Max

Environmental Specifications		
Operating Temperature (non-condensing)	Heat Sink	-40°C to +75°C
	Motor	-40°C to +90°C
Sealing (Plus <sup>2</sup> -65 Only)		IP-65 Compliant

I/O Specifications	
General Purpose I/O - Number and Type	
I/O Points 1-4, 9-12	8 programmable I/O Points - sinking or sourcing inputs or outputs.
General Purpose I/O - Electrical	
Inputs	TTL, +5 to +24 VDC
Sinking Outputs	+5 to +24 VDC
Sourcing Outputs	+12 to +24 VDC
Output Sink Current	up to 600 mA
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
Clock I/O	
Types	Step/Direction, Up/Down, Quadrature
Logic Threshold	TTL Input, TTL Output (with 2 kΩ Load to Ground)
Trip Output/Capture Input	
Logic Threshold	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
CANopen Option	
Protocol	CAN 2.0B Active
Communications Profile	CIA DS-301
BAUD Rate	10, 20, 50, 125, 250, 500, 800
Note: 800 kbps not supported by the MD-CC500-000	kBit/s, 1MBit/s (default)
USB to CANopen dongle.	

Protection Specifications	
Thermal	
Internal Fuse (Line-Neutral Systems Only, Line-Line Systems Require External Fusing)	

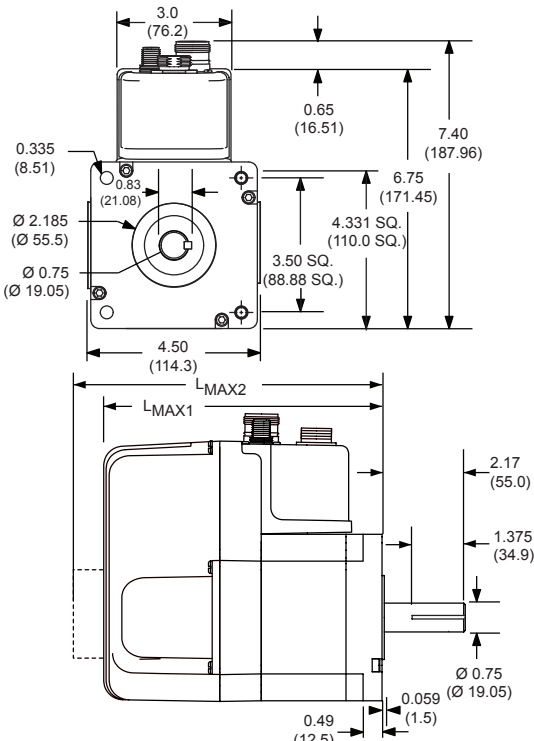
Motion Specifications	
Microstep Resolution - Open Loop	
Number of Resolutions	20

Available Microsteps Per Revolution									
200	400	800	1000	1600	2000	3200	5000	6400	10000
12800	20000	25000	25600	40000	50000	51200	36000 <sup>1</sup>	21600 <sup>2</sup>	25400 <sup>3</sup>

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

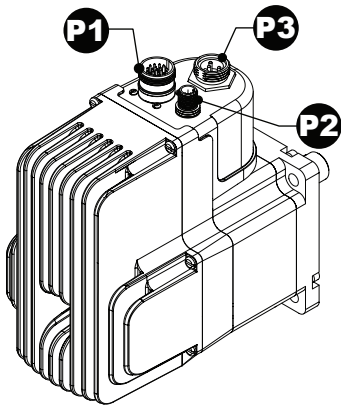
Software Specifications	
Program Storage Type/Size	Flash/6384 Bytes
User Program Labels and Variables	192
Party Mode Addresses	62

Mechanical Specifications

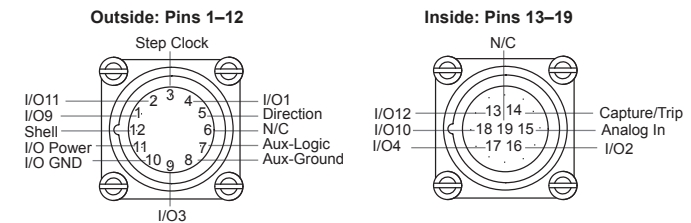


Motor Length	Dimensions in inches (mm)	
	LMAX1 (Single Shaft or Internal Encoder)	LMAX2 (Control Knob)
Single	7.4 (187.96)	9.4 (238.76)
Double	9.4 (238.76)	11.4 (289.56)

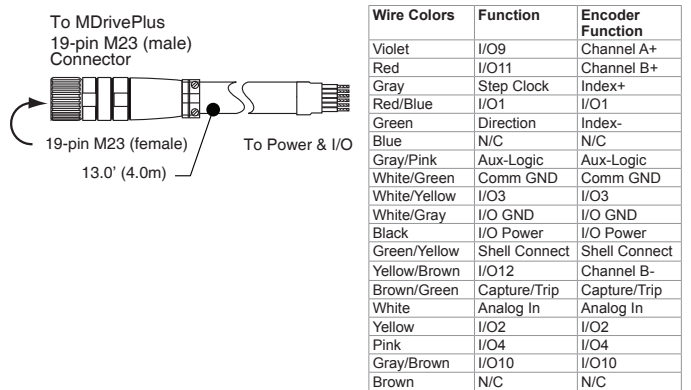
MDrive42AC Plus<sup>2</sup>-65  
Motion Control  
Connectivity Options



**P1** I/O  
19-pin M23 circular connector (male)

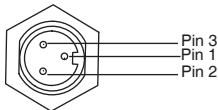


**Prototype Development Cordset**  
p/n (straight connector): MD-CS100-000  
p/n (right-angle connector): MD-CS101-000  
Pre-wired mating connector interfaces to an MDrive's 19-pin M23 circular connector, with flying leads other end, for quick test/development.



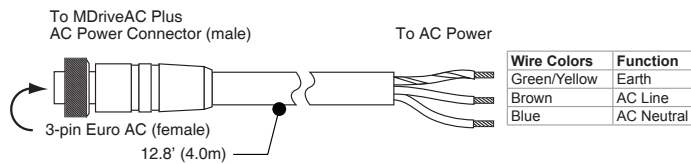
**Mating Connector Recommendations**  
IMS cable MD-CS100-000 recommended with: 19-pin M23 connector.  
For comparable connector only shop:  
Vendors: [Lumberg](#)  
[Phoenix](#)  
[Turck](#)  
[RDE Connectors](#)

**P3** AC Power  
3-pin Euro AC connector (male)



**Prototype Development Cordset**  
p/n (straight connector): MD-CS200-000  
p/n (right-angle connector): MD-CS201-000  
Pre-wired mating connector interfaces to an MDrive's 3-pin circular EuroAC connector, with flying leads other end, for quick test/development.

Note that this cable or equivalent Lumberg mating connector/cable must be used to meet UL conditions of acceptability.

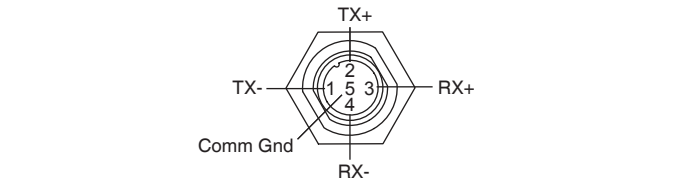


**Mating Connector Recommendations**  
The following field-solderable mating connector is recommended for use with the MDriveAC Plus. Use of this connector meets UL Acceptability requirements.  
Lumberg: [RKC 30/11](#)

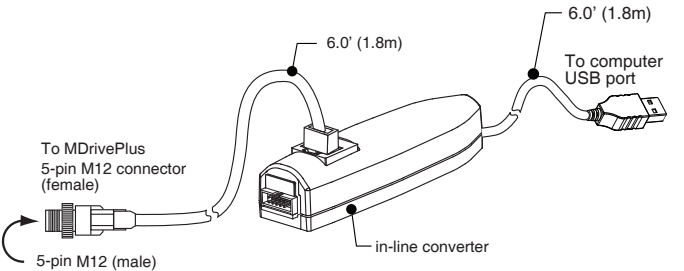
**UL Conditions of Acceptability**  
For full description of the UL Conditions of Acceptability please visit [http://www.imshome.com/CE\\_conformity.html](http://www.imshome.com/CE_conformity.html)

Connector Style	Function
<b>P1</b> 19-pin M23 Circular (male).....	I/O
<b>P2</b> 5-Pin M12 Circular (female).....	Communications
5-Pin M12 Circular (male).....	Communications (CANopen Version)
<b>P3</b> 3-pin Euro AC (male).....	AC Power

**P2** Communications — RS-422/485  
5-pin M12 circular connector (female)



**Communications Converter p/n: MD-CC401-001**  
Electrically isolated in-line USB to RS-422/485 converter pre-wired with mating connector to conveniently program and set configuration parameters.



**Mating Connector Recommendations**  
IMS converter MD-CC401-001 recommended with: 5-pin M12 connector.  
For comparable connector only shop:  
Vendors: [Lumberg](#)  
[Phoenix](#)  
[Turck](#)  
[RDE Connectors](#)

**P2** Communications — CANopen Option  
5-pin M12 circular connector (male)

**Communications Converter p/n: MD-CC500-000**  
Electrically isolated in-line USB to CANopen converter. USB "A" Type connector to DB-9 (Male). An Interface cable must be constructed by the user to Interface to the MDrivePlus.

**Mating Cable Requirements**  
The following diagram illustrates the parts and connections for an interface cable connecting the MD-CC500-000 to the MDrivePlus.  
Parts Required Connectors: (1) DB-9 (female), (1) 5-pin M12 (female)  
Power Supply: +7 to +30 VDC  
Terminating Resistor: 120 Ω 1%

