IMC-D Hardware Manual

GE Fanuc Automation

Programmable Control Products

Independent Motion Controllers Hardware Manual

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Warnings, Cautions, and Notes as Used in this Publication

Warning

Warning notices are used in this publication to emphasize that hazardous voltages, currents, temperatures, or other conditions that could cause personal injury exist in this equipment or may be associated with its use.

In situations where inattention could cause either personal injury or damage to equipment, a Warning notice is used.

Caution

Caution notices are used where equipment might be damaged if care is not taken.

Note

Notes merely call attention to information that is especially significant to understanding and operating the equipment.

This document is based on information available at the time of its publication. While efforts have been made to be accurate, the information contained herein does not purport to cover all details or variations in hardware or software, nor to provide for every possible contingency in connection with installation, operation, or maintenance. Features may be described herein which are not present in all hardware and software systems. GE Fanuc Automation assumes no obligation of notice to holders of this document with respect to changes subsequently made.

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Content of this Manual

The figures and examples in this manual are designed to demonstrate general concepts for the installation and maintenance of the Independent Motion Controllers (IMCs). You should always verify interconnection requirements to and for other equipment as well as confirm installation and maintenance requirements for the specific application.

This manual applies to the following products:

IMC-105X-1-D	IMC-105D-1-D
IMC-105E-1-D	IMC-105P-1-D
IMC-200X-X-D	IMC-200D-X-D
IMC-200E-X-D	IMC-200P-X-D
IMC-303X-X-D	IMC-303D-X-D
IMC-306X-X-D	IMC-306D-X-D
IMC-303E-X-D	IMC-303P-X-D
IMC-306E-X-D	IMC-306P-X-D
IMC-313X-X-D	IMC-313D-X-D
IMC-316X-X-D	IMC-316D-X-D
IMC-313E-X-D	IMC-313P-X-D
IMC-316E-X-D	IMC-316P-X-D

Related Publications

The following publication is available at http://www.gefanuc.com/support/plc/m-MotionSolutions.htm.

Generation D RTOS Programming Manual, GFK-2205

Contents

Chapter 1 Product Overview

General Description

The *D-version* family of Independent Motion Controllers provides state-of-the-art motion control for many types of machinery requiring the control of one or more independent axes of servo and/or stepping motors. The *D-version* provides the all digital, real-time response needed for today's automation applications. In addition, the self-contained and compact packaging results in a unit that is cost-effective for machine builders and users alike by minimizing costly point-to-point wiring and panel space. Like other GE Fanuc stand-alone motion controllers, the *D-version* is programmed using an easy-to-understand, mnemonic command set. Once programmed, the unit and associated mechanical system will stand-alone as an "island of automation," supervising and executing all motion control activities.

System Configuration

Key design features have been incorporated into the new *D-version* Independent Motion Controllers to provide the flexibility, performance, and serviceability demanded by the industrial user. These features include:

- common capabilities and programming language for servo and stepping motors
- complete software configuration of critical drive parameters such as peak and continuous current
- optional plug and play operator interface
- industrially hardened discrete input and outputs rated up to 24VDC
- quick disconnect terminals for ease of installation and replacement
- elimination of switch settings wherever possible
- common mechanical specifications among all units

Each Independent Motion Controller contains its own application program. This program also contains all the programming required for the optional operator interface. The operator interface can communicate with multiple motor controllers over the serial-data link.

The *D-version* Independent Motion Controllers will easily accommodate a variety of installations.

Peripheral to Programmable Logic Controller via Discrete I/O

The *D-version* Independent Motion Controllers include dedicated inputs and outputs ideally suited to execute predefined motions in response to a discrete input. The controller is equipped with edge-sensitive inputs which, if programmed to operate accordingly, cause the controller to execute the associated set of commands when the input is activated. The unit can be programmed to turn on an output when the execution of the sequence is complete and the controller is ready for the next sequence. Up to 1000 such sequences can be stored in the controller for subsequent execution.

Peripheral to a Host Controller via Serial Communication

The *D-version* Independent Motion Controllers do not require that their programs be compiled prior to execution. This means that commands, parameters, and status information can be sent back and forth interactively between the motion controller and a host controller. This configuration is ideal for in-process and test applications in which motion parameters can change. The *D-version* Independent Motion Controllers come standard with a serial port compatible with RS-232 and RS-422. Multiple units can be addressed over this serial-data link. This mode of operation is not precluded by use of the optional operator interface. The link is fault tolerant to controller node failure and will continue operation if power to a particular unit is lost.

Stand Alone System

The *D-version* Independent Motion Controllers include a comprehensive command set capable of conditional logic, fault handling, and power-up routines. It is possible for the *D-version* Independent Motion Controllers to provide complete stand-alone machine control in applications requiring a limited amount of discrete inputs and outputs.

Chapter 2

Drive Specifications

Input Power

IMC-1

The IMC-1/D is suitable for use on a circuit capable of delivering not more than 5000 rms symmetrical amperes, 130 volts maximum when protected by RK5 class fuses. Table 1.1 summarizes the IMC-1/D's ***maximum continuous*** input power requirements. The actual input power and current is a function of the motor's operating point and the duty cycle.

Table 1.1 Maximum Continuous Input Current and KVA

Voltage range	90 - 130 VAC, 1 phase
Frequency range	50 - 440 Hz
Current, max. continuous	10 A rms
Power, max. continuous	1.3 KVA @ 130 VAC
Fuses	Internally fused with 10 A , 250 volt fuse (Littelfuse 326010 or equivalent) on line input only. The neutral input is not fused. Use 10 A time delay branch circuit fuse.
Isolation transformer	None required. If the supply voltage is above 130 VAC, the voltage must be dropped to 120 VAC. The transformer should be sized to provide adequate power under all operating conditions. Choose a transformer rated for a minimum of 125% of the drive maximum continuous input KVA.

IMC-2

The IMC-2/D is suitable for use on a circuit capable of delivering not more than 5000 rms symmetrical amperes, 250 volts maximum when protected by RK5 class fuses. Table 1.2 summarizes the IMC-2/D's ***maximum continuous*** input power requirements.

Table 1.2 Maximum Continuous Input Current and KVA

Voltage range	90 - 250 VAC, 1 phase
Frequency range	50 - 440 Hz
Current, max. continuous	0.5 A @ 115V 0.25 A @ 230 V
Power, max. continuous	60 VA
Fuses	Internally fused with 2 A , 250 volt fuse (Littelfuse 224002 or equivalent) on L1 input only. The L2 input is not fused. Use 1 A time delay branch circuit fuse.
Isolation transformer	None required. If the supply voltage is above 250 VAC, the voltage must be dropped to 230 VAC. The transformer should be sized to provide adequate power under all operating conditions. Choose a transformer rated for a minimum of 125% of the drive maximum continuous input KVA.

IMC-3

The IMC-3/D is suitable for use on a circuit capable of delivering not more than 5000 rms symmetrical amperes, 250 volts maximum when protected by RK5 class 15 A fuses. Table 1.3 summarizes the IMC-3/D's ***maximum continuous*** input power requirements. The actual input power and current is a function of the motor's operating point and the duty cycle.

Table 1.3 Maximum Continuous Input Current and KVA

Voltage range	90 - 250 VAC, 1 or 3 phase
Frequency range	50 - 440 Hz
Current, max. continuous	See Table 1.1 below
Power, max. continuous	See Table 1.1 below
Fuses	No internal fuses in motor power section. Logic power supply fused internally with 2A, 250 volt fuse (Littelfuse 224002 or equivalent) on L1 input only. The L2 input is not fused. See Table 1.1 below for recommended branch circuit fuse current ratings.
Isolation transformer	None required. If the supply voltage is above 250 VAC, the voltage must be dropped to 230 VAC. The transformer should be sized to provide adequate power under all operating conditions. For single phase operation, choose a transformer rated for a minimum of 125% of the drive maximum continuous input KVA. For three phase operation, choose a transformer rated for a minimum of 100% of the drive maximum continuous input KVA.

Model	1 phase or 3 phase	Maximum Continuous Input Current	Maximum Continuous Input KVA @ 230 VAC	Recommended Branch Circuit Fuse Current Ratings RK5 Class Fuses
IMC-3 _3 _	1	7 A rms	1.6 KVA	10A time delay
IMC-3 _3 _	3	4 A rms	1.6 KVA	5A time delay
IMC-3 _6 _	1	14 A rms	3.2 KVA	15A time delay
IMC-3 _6 _	3	7 A rms	3.2 KVA	10A time delay
All: Logic Supply	1	0.5 A @ 115 V 0.25 A @ 230 V	60 VA	1 A time delay

Output Power

IMC-1

Voltage range	90-130 Vrms 2 phase
Frequency	0 - 8 KHz fundamental (20 KHz PWM)
Current	5 A rms per phase

IMC-3

Voltage range	90-250V rms 3 phase
Frequency	0 - 1000 Hz fundamental (19.2 KHz PWM)
Current	IMC-3_3_: 3A rms continuous per phase, 6A rms peak IMC-3_6_: 6A rms continuous per phase, 12A rms peak

Environmental

Operating temperature [a]	32 to 122 degrees F (0 to 50 degrees C)
Storage and shipping temperature [b]	-40 to 176 degrees F (-40 to 80 degrees C)
Relative humidity	0 to 95%, non-condensing
(a) assumes heatsink orientation is vertical (b) contents of user-programmed BBRAM may be lost if temperature drops below 0 degrees C	

Communication

Format	RS-232	RS-422	DeviceNet
Maximum Addressable Units	32[a]	31[b]	64[b]
Maximum Distance from Host to Unit	50 feet	1000 feet	N/A
Maximum Length of Serial Data Link	1000 feet	1000 feet	500 meters[c]
Baud Rate	1200, 9600, 19200 or 38400		125000, 250000, 500000
(a) Operator Interface counts as a unit (b) Operator Interface does not count as a unit (c) 500 meters @ 125 kbaud with 100% thick cable			

DeviceNet is a trademark of the Open DeviceNet Vendor Association, Inc.

Discrete Inputs and Outputs

Inputs	
Operating Range	12-24 VDC, 30 VDC maximum
Maximum Off Input Voltage	4 VDC
Minimum On input Voltage	10 VDC
Load	2K Ohms
Interface Format	source/sink user configurable

Outputs	
Operating Range	12-24 VDC, 30 VDC maximum
Maximum On Resistance	35 Ohms
Maximum Load Current	100 mA
Maximum Off Leakage Current	200 nA
Interface Format	source/sink user configurable

Analog Inputs and Outputs

Inputs		
Model	IMC-105X-1-D IMC-105D-1-D IMC-200X-X-D IMC-200D-X-D IMC-3_ _X-X-D IMC-3_ _D-X-D	IMC-105E-1-D IMC-105P-1-D IMC-200E-X-D IMC-200P-X-D IMC-3_ _E-X-D IMC-3_ _P-X-D
Number	0	1
Operating Range	n.a.	+/- 10 VDC
Resolution	n.a.	12 bits
Input Impedance	n.a.	50K Ohms

Outputs		
Model	IMC-105_-1-D IMC-3_ _ _-X-D	IMC-200_-X-D
Number	1	1
Parameter	user programmable, or velocity, current, or following error	control output to external servo amplifier
Operating Range	+/- 10 VDC	
Resolution	12 bits	
Current	5 mA	

Position Feedback

Incremental Encoder	
Model	IMC-105 _-1-D IMC-200 _-1-D
Number	1
Input Voltage	5, 12, or 15 VDC
Input Format	single-ended or differential, quadrature, square or sine wave
Maximum line count frequency	2 MHz

Incremental Encoder	
Model	IMC-30_ _-X-D
Number	1
Resolution	65,536 pulses per revolution
Maximum Speed	14,500 rpm
Input Voltage	1 volt peak-to-peak
Input Format; channels A+, A-, B+, B-	differential sine wave, 1024 cycles/rev
Input Format; Sine+, Sine-, Cos+, Cos-	differential sine wave, 1 cycle/rev
Input Format; Index+, Index-	differential sine or square wave

Resolver	
Model	IMC-31_ _-X-D
Number	1
Resolution	4096 pulses per revolution
Maximum Speed	15,000 rpm
Type	control transmitter
Phase Shift	+/- 5.0 degrees @ 5 kHz
Null Voltage	< 20 mV @ 5 kHz
Transformation Ratio	0.50 to 2.0

DC Power Supplies

Model	IMC-105_-1-D IMC-200_-X-D IMC-30_ _-X-D IMC-31_E-X-D IMC-31_P-X-D	IMC-31_X-X-D IMC-31_D-X-D
+5 volts	0.5 Amps	n.a.
+12 volts	0.5 Amps	0.5 Amps

Auxiliary Position Feedback

Incremental Encoder

Model	IMC-105E-1-D IMC-105P-1-D IMC-200E-X-D IMC-200P-X-D IMC-3_ _E-X-D IMC-3_ _P-X-D
Number	1
Input Voltage	5, 12, or 15 VDC
Input Format	single-ended or differential, quadrature, square or sine wave
Maximum Line Count Frequency	2 MHz

Chapter 3

Installation

Physical Installation

Location

Location of the IMC is important to achieve proper performance and operating life. The IMC is designed with "open" construction. The unit must be installed in an enclosure that protects personnel from contact with wiring terminals and protects the IMC from:

- Corrosive gases or liquids
- Vibration
- Conductive pollution including extreme or condensing humidity and airborne metallic particles
- Accidental contact by persons using the equipment
- Temperature extremes beyond the equipment ratings

Panel Layout

The mounting dimensions appear in Appendix B. The location in the equipment panel must be chosen to meet panel electrical safety, electrical signal integrity, and temperature specifications.

Heat Load and Cooling

The heat load of the IMC-1/D is approximately 25 watts + (0.4 * current setting in percent), 65 watts maximum. The IMC-1/D is designed to operate at full rated output with only natural convection cooling at ambient temperatures up to 50 degrees C.

The heat load of the IMC-2/D is approximately 20 watts. The IMC-2/D is designed to operate at full rated output with only natural convection cooling at ambient temperatures up to 50 degrees C.

The heat load of the IMC-3/D is approximately 35 watts + (45 * duty_cycle) watts, 80 watts maximum. The IMC-3/D is designed to operate up to 50% of full rated output with only natural convection cooling at ambient temperatures up to 50 degrees C. For duty cycles exceeding 50%, fan cooling is required.

For effective cooling the IMC must be installed vertically. There must be a minimum clearance of 3 inches above and below the IMC. A minimum of 2 to 3 inches clearance is also recommended on the right and left sides of the IMC.

Wiring

Wiring diagrams for all models are included in Appendix A. See "Input Power" in chapter 1 for branch circuit power requirements and fuse and isolation transformer ratings.

General Wiring Considerations

Attach wiring connections for the main circuit according to Table 2.1, 2.2, or 2.3 while observing the following **cautions:**

- Use vinyl-sheathed or equivalent wire rated at 250 VAC or greater. Wire size should be determined considering ampacity and codes.
- Never connect AC main power to output terminals.
- Never allow wire leads to contact the enclosure.

Table 2.1 IMC-1/D Power Terminal Connections and Wire Sizing

Terminal Symbol	Description	Connect to	Wire Size (AWG)	Notes
⏚	Ground	Power system ground	18-16	1
N	Neutral input power	90 - 130 VAC	18-16	1
L	Line input power	90 - 130 VAC	18-16	1
⏚	Ground	Motor shield ground	18-16	1,2
⏚	Ground	Motor ground terminal	18-16	1,2
B-	Output coil B-	Motor coil B-	18-16	1,2
B+	Output coil B+	Motor coil B+	18-16	1,2
A-	Output coil A-	Motor coil A-	18-16	1,2
A+	Output coil A+	Motor coil A+	18-16	1,2

Notes for table 2.1:

1. AWG size for stranded copper wire. Minimum wire size required will depend on motor and load. Consult applicable electrical code ampacities tables for proper wire size.
2. Use cable with overall shield for motor connections. Cable is available from GE Fanuc as part number CBL-13-MP-xx for standard or CBL-14-MP-xx for splashproof, where xx is the cable length in feet. xx = 10, 20, and 30 are available.

Table 2.2 IMC-2/D Power Terminal Connections and Wire Sizing

Terminal Symbol	Description	Connect to	Wire Size (AWG)
⏚	Ground	Power system ground	18
L2	Input Power	90 - 250 VAC	18
L1	Input Power	90 - 250 VAC	18
NC	No Connection		

Table 2.3 IMC-3/D Power Terminal Connections and Wire Sizing

Terminal Symbol	Description	Connect to	Wire Size (AWG)	Notes
⏚	Ground	Power system ground	18-14	1
2L2	Logic supply input power	90 - 250 VAC	18-14	1
2L1	Logic supply input power	90 - 250 VAC	18-14	1
1L3	Drive input power - do not connect for 1 phase input	90 - 250 VAC	18-14	1
1L2	Drive input power	90 - 250 VAC	18-14	1
1L1	Drive input power	90 - 250 VAC	18-14	1
DC-	High voltage DC bus	No connection (3)	18-14	1,3
CLP	Clamp resistor	No connection (4)	18-14	1,4
DC+	High voltage DC bus	No connection (3)	18-14	1,3
⏚	Ground	Motor ground terminal	18-14	1,2
T	Output phase T	Motor phase T	18-14	1,2
S	Output phase S	Motor phase S	18-14	1,2
R	Output phase R	Motor phase R	18-14	1,2

Notes for table 2.3:

1. AWG size for stranded copper wire. Minimum wire size required will depend on motor and load. Consult applicable electrical code ampacities tables for proper wire size.

2. Use cable with overall shield for motor connections. Cable is available from GE Fanuc as part number CBL-34-MP-xx where xx is the cable length in feet. xx = 10, 20, and 30 are available.

3. DC+ and DC- make direct connection to the internal DC bus. These terminals can connect the high voltage DC bus between two or more IMC-3/D's to allow one drive to use the power another drive produces during regeneration.

4. The IMC-3/D's dissipate regenerated energy in an internal clamp resistor. If the application produces more regenerated power than the rating of the internal clamp resistor, the IMC will report "Motor Power Clamp Excessive Duty Cycle - Under-voltage". Contact GE Fanuc to determine if an external clamp resistor is required and the recommended value and procedure for connecting an external clamp resistor.

Input Power Wiring and Grounding

The input and motor output power connections are made to the connector located on the bottom of the IMC. The IMC-1/D is designed to operate with input voltages from 90 to 130 VAC and the IMC-2/D and IMC-3/D are designed to operate with input voltages from 90 to 250 VAC. No isolation transformer is required. If the supply voltage is above the maximum rated value, the voltage must be dropped to a value in the operating range. See "Input Power" in chapter 2 for the required transformer rating if a transformer is necessary. For the IMC-3/D the maximum achievable motor speed is directly related to the input voltage. For best performance, connect terminals 1L1, 1L2, and 1L3 to 3 phase 230 VAC.

For the IMC-3/D there are separate inputs for the motor power and for the (low power) logic supply which supplies power to the control section. The logic power input is also designed for 90 to 250 VAC. There is no performance penalty for wiring the logic supply to any voltage in this range. The logic power can be wired to a circuit which is separate from the motor power circuit. This allows the IMC-3/D to continue to track the motor position and execute all program functions except motor control while the motor power is removed.

All of the terminals marked with the symbol ⏚ are connected to the chassis ground. Connect the ⏚ terminal at the power input end of the connector to the panel earth ground. Connect the ⏚ terminal near the motor output terminals to the motor frame ground wire in the motor power cable.

Warning

Do not operate the IMC unit without an earth ground.

Motor Power Wiring and Grounding

Motor power cables are available from GE Fanuc for the IMC-1/D series controllers as part number CBL-13-MP-XX for standard or CBL-14-MP for splashproof and for the IMC-3/D series controllers as part number CBL-34-MP-xx, where xx is the length in feet. xx = 10, 20, and 30 are available. The motor cable must have a motor ground wire and a cable shield wire. The motor ground wire must connect a frame ground terminal on the controller to the frame ground pin on the motor connector. The cable shield should connect to a frame ground terminal on the controller and to the connector at the motor end.

Position Feedback Wiring

Position feedback cables are available from GE Fanuc for the IMC-1/D series controllers as part number CBL-13-ED-xx for standard or CBL-14-ED-xx for splashproof and for the IMC-3/D series controllers as part number CBL-3C-RD-xx for resolver feedback or CBL-3C-ED-xx for encoder feedback where xx is the cable length in feet. Plug the motor end of the feedback cable into the connector on the motor and the DB-type end of the cable into the DB-15 socket on the front of the controller. The best system reliability is achieved when the feedback cable is returned in a separate conduit from that housing the motor power cable. The feedback cable must be shielded. Resolver

feedback cables must contain individually shielded pairs for the feedback signals. The shields must be terminated to the isolated ground pins on the DB-15 connector.

I/O Connector Wiring

The discrete inputs and outputs may be wired for either sinking or sourcing operation. The operational voltage range is 12 to 24 volts DC. The output can sink or source 100ma maximum. The wiring to this connector should be of appropriate size and insulation quality for the application. For wiring diagrams, see Appendix A, "User Connections".

Motors

The IMC-1/D controllers are designed for use with stepping motors rated for 1 to 5 amperes per phase with 3 mH per phase minimum inductance. The motors must be designed to run from a 170 VDC bus.

The IMC-3/D controllers are designed for use with ac brushless servo motors rated for 0.75 to 6 amperes per phase with 2 mH per phase minimum inductance. In general, the best system performance is achieved by choosing a motor with a continuous current rating approximately equal to or less than the continuous current rating of the IMC-3/D.

The IMC-3/D controllers are designed to be used with motors which include a thermal switch or positive-temperature-coefficient (PTC) thermistor. The switch should be closed at acceptable motor operating temperatures and open at temperatures which exceed the motor's thermal rating. If a PTC is employed, it should exhibit a resistance less than 1000 ohms at acceptable motor temperatures and above 10,000 ohms at temperatures which exceed the motor's thermal rating. All GE Fanuc MTR-Series brushless AC servo motors include a PTC.

Chapter 4

Setup

Serial Communications Link

This section describes how to set up the communications link between the IMC controller and the terminal. Ensure proper communication between the controller and the terminal by completing the following items in order:

1. Set address of the unit.
2. Set serial baud rate, data bits, etc.
3. Properly wire data link connectors and attach them to the controller(s).

Serial Port Address

The serial port address of the IMC is set by the DIP switch. Ensure IMC power is **off**. Using switch positions 1 through 5, located on the bottom of the unit, to set the IMC to an address from 0 through 31. Table 4.1 indicates the DIP switch settings you must use for each address. The letters A through V are used as the address characters for addresses 10 through 31. Switch 9 must be set to the right for any serial port address setting to take effect.

Table 4.1: DIP Switch Settings for Serial Port Addresses

Address	Switch Locations					Address	Switch Locations				
	1	2	3	4	5		1	2	3	4	5
0	R	R	R	R	R	16 (G)	R	R	R	R	L
1	L	R	R	R	R	17 (H)	L	R	R	R	L
2	R	L	R	R	R	18 (I)	R	L	R	R	L
3	L	L	R	R	R	19 (J)	L	L	R	R	L
4	R	R	L	R	R	20 (K)	R	R	L	R	L
5	L	R	L	R	R	21 (L)	L	R	L	R	L
6	R	L	L	R	R	22 (M)	R	L	L	R	L
7	L	L	L	R	R	23 (N)	L	L	L	R	L
8	R	R	R	L	R	24 (O)	R	R	R	L	L
9	L	R	R	L	R	25 (P)	L	R	R	L	L
10 (A)	R	L	R	L	R	26 (Q)	R	L	R	L	L
11 (B)	L	L	R	L	R	27 (R)	L	L	R	L	L
12 (C)	R	R	L	L	R	28 (S)	R	R	L	L	L
13 (D)	L	R	L	L	R	29 (T)	L	R	L	L	L
14 (E)	R	L	L	L	R	30 (U)	R	L	L	L	L
15 (F)	L	L	L	L	R	31 (V)	L	L	L	L	L

Serial Baud Rate and Other Settings

Use DIP switches 6 and 7, located on the bottom of the IMC, to set the serial baud rate to 1,200; 9,600, 19,200; or 38,400. Switch 9 must be set to the right for serial port setting. Figure 4.2 shows which DIP switch settings provide each possible baud rate.

When using the display, set switches 1 and 2 to one of the baud rates provided in Figure 4.2.

Figure 4.2: DIP Switch Settings for Baud Rate of IMC and Baud Rate of Display

Baud Rate of IMC	6	7
1200	R	R
9600	L	R
19200	R	L
38400	L	L

Baud Rate of Display	1	2
1200	U	U
9600	D	U
19200	U	D
38400	D	D

Note that the baud rate can also be set via the BAUD register after the controller is powered up. The DIP switch setting, therefore, gives the default value for BAUD.

If you are not using GE Fanuc's Motion Developer or CCS for Windows software, you will need to change the settings for the COM port that you are using to ensure that the controller communicates properly with the terminal. In Windows, select *Control Panel* > *System* > *Device Manager* > *Ports* and select the COM port you are using. Then click *Properties* > *Port Settings*. Set **Data Bits to 7**, **Parity to Odd**, and **Stop Bits to 1**. Click OK and close the Control Panel window.

RS-232 Serial Communication

IMCs are compatible with RS-232 and RS-422 serial communication standards. To wire the connectors properly, refer to the diagram entitled *Serial Data Link* in Appendix A, *User Connections*. If you wish to daisy-chain other IMCs, attach the cable from the *Link* port to the *Host* port of the next IMC, and so on. The last IMC should have no cable attached to the *Link* port. Note that when using RS-232 protocol, you can have up to 32 units without the display or 31 units with the display. When using RS-422 protocol, you can have only 31 units whether you are using the display or not.

GE Fanuc provides RS-232 serial communication cable IC800SKCS030 with each CCS for Windows software purchase. The cable end labeled "IMC or OIP" connects to the serial port on the front of the IMC. The end labeled "RS232 Port" connects to the RS-232 serial communication port on your computer. Tighten screws to fasten the connectors.

DeviceNet Communication Link

This section describes how to configure IMC-316P controllers for network communication over DeviceNet.

Set Network Node Address

Use the DIP switches to set the node address to a network address indicated in Figure 4.3.

Figure 3.3: IMC DIP Switch Node Address (MAC ID) Settings (for Products Equipped with 9 DIP Switches)

Node Addr	*Switch Locations*							Node Addr	*Switch Locations*							Node Addr	*Switch Locations*						
	1	2	3	4	5	6	9		1	2	3	4	5	6	9		1	2	3	4	5	6	9
0	R	R	R	R	R	R	L	22	R	L	L	R	L	R	L	43	L	L	R	L	R	L	L
1	L	R	R	R	R	R	L	23	L	L	L	R	L	R	L	44	R	R	L	L	R	L	L
2	R	L	R	R	R	R	L	24	R	R	R	L	L	R	L	45	L	R	L	L	R	L	L
3	L	L	R	R	R	R	L	25	L	R	R	L	L	R	L	46	R	L	L	L	R	L	L
4	R	R	L	R	R	R	L	26	R	L	R	L	L	R	L	47	L	L	L	L	R	L	L
5	L	R	L	R	R	R	L	27	L	L	R	L	L	R	L	48	R	R	R	R	L	L	L
6	R	L	L	R	R	R	L	28	R	R	L	L	L	R	L	49	L	R	R	R	L	L	L
7	L	L	L	R	R	R	L	29	L	R	L	L	L	R	L	50	R	L	R	R	L	L	L
8	R	R	R	L	R	R	L	30	R	L	L	L	L	R	L	51	L	L	R	R	L	L	L
9	L	R	R	L	R	R	L	31	L	L	L	L	L	R	L	52	R	R	L	R	L	L	L
10	R	L	R	L	R	R	L	32	R	R	R	R	R	L	L	53	L	R	L	R	L	L	L
11	L	L	R	L	R	R	L	33	L	R	R	R	R	L	L	54	R	L	L	R	L	L	L
12	R	R	L	L	R	R	L	34	R	L	R	R	R	L	L	55	L	L	L	R	L	L	L
13	L	R	L	L	R	R	L	35	L	L	R	R	R	L	L	56	R	R	R	L	L	L	L
14	R	L	L	L	R	R	L	36	R	R	L	R	R	L	L	57	L	R	R	L	L	L	L
15	L	L	L	L	R	R	L	37	L	R	L	R	R	L	L	58	R	L	R	L	L	L	L
16	R	R	R	R	L	R	L	38	R	L	L	R	R	L	L	59	L	L	R	L	L	L	L
17	L	R	R	R	L	R	L	39	L	L	L	R	R	L	L	60	R	R	L	L	L	L	L
18	R	L	R	R	L	R	L	40	R	R	R	L	R	L	L	61	L	R	L	L	L	L	L
19	L	L	R	R	L	R	L	41	L	R	R	L	R	L	L	62	R	L	L	L	L	L	L
20	R	R	L	R	L	R	L	42	R	L	R	L	R	L	L	63	L	L	L	L	L	L	L
21	L	R	L	R	L	R	L																

Set Network Data Rate

DeviceNet can run at 125, 250 or 500 Kbaud. To change the network data rate (i.e., baud rate), ensure IMC power is off. Then set the DIP switches as indicated in Figure 4.4.

Figure 4.4: IMC DIP Switch Settings for Network Data Rate
(Models Equipped with 9 DIP Switches)

Network Data Rate	7	8
125K	R	R
250K	L	R
500K	R	L

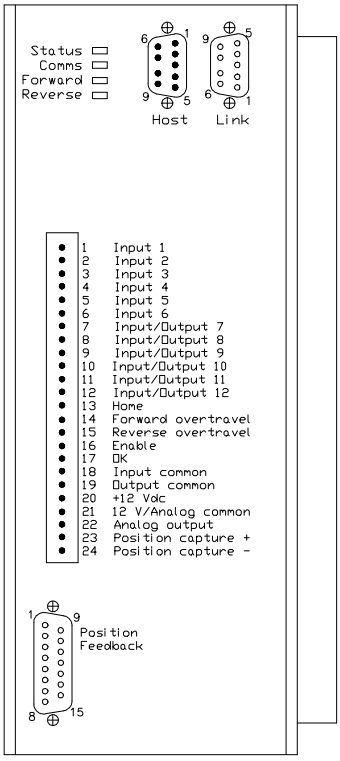
Note that the *serial port baud rate* defaults to 9600 when these DIP switches are used to set the network data rate.

Appendix A

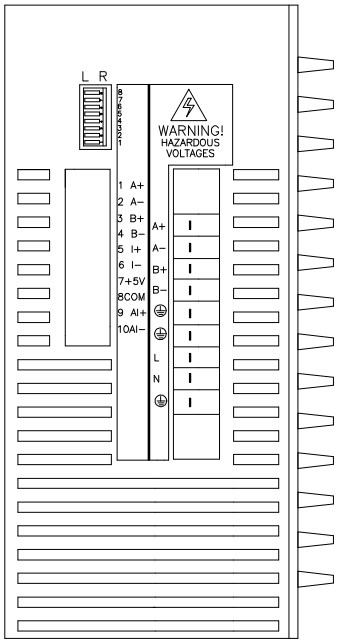
User Connections

IMC-105X-1-D

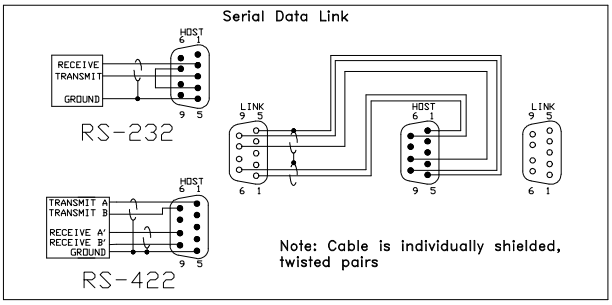
USER CONNECTIONS AND SWITCH SETTINGS

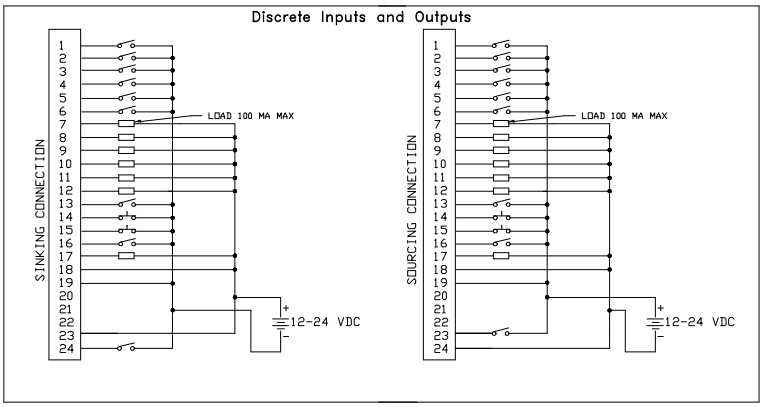


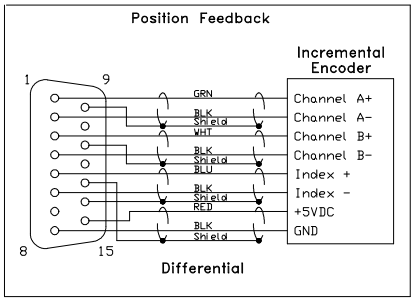
FRONT VIEW

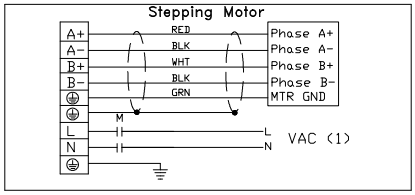


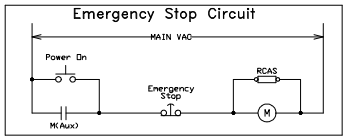
BOTTOM VIEW











DIP Switch Positions (2)

Unit Address	1	2	3	4	5
0	R	R	R	R	R
1	L	R	R	R	R
2	R	L	R	R	R
3	L	L	R	R	R
4	R	R	L	R	R
5	L	R	L	R	R
6	R	L	L	R	R
7	L	L	L	R	R
8	R	R	R	L	R
9	L	R	R	L	R
A	R	L	R	L	R
B	L	L	R	L	R
C	R	R	L	L	R
D	L	R	L	L	R
E	R	L	L	L	R
F	L	L	L	L	R
G	R	R	R	R	L
H	L	R	R	R	L
I	R	L	R	R	L
J	L	L	R	R	L
K	R	R	L	R	L
L	L	R	L	R	L
M	R	L	L	R	L
N	L	L	L	R	L
O	R	R	R	L	L
P	L	R	R	L	L
Q	R	L	R	L	L
R	L	L	R	L	L
S	R	R	L	L	L
T	L	R	L	L	L
U	R	L	L	L	L
V	L	L	L	L	L

Serial Baud Rate	6	7
1200	R	R
9600	L	R
19200	R	L
38400	L	L

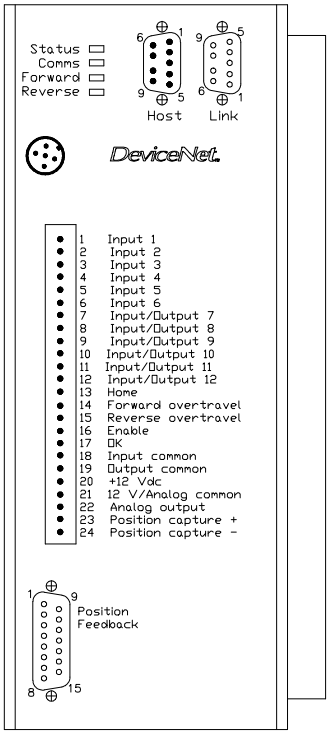
Switch 8 is Reserved

REMARKS:

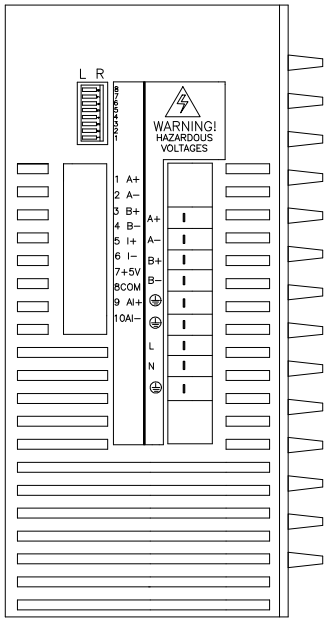
(1) Input power 90 to 130 VAC
1 phase 50-440 Hz @ 10 Amps
(2) Must turn off power before changing settings,
R= right (closed)
L= left (open)

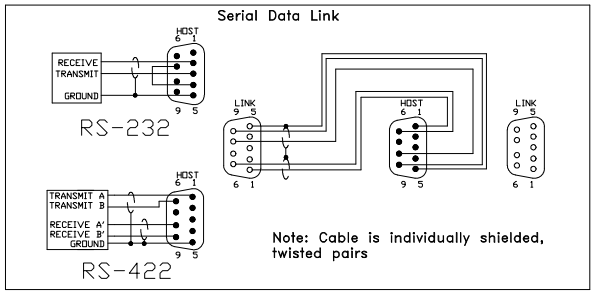
IMC-105D-1-D

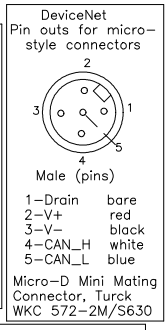
USER CONNECTIONS AND SWITCH SETTINGS

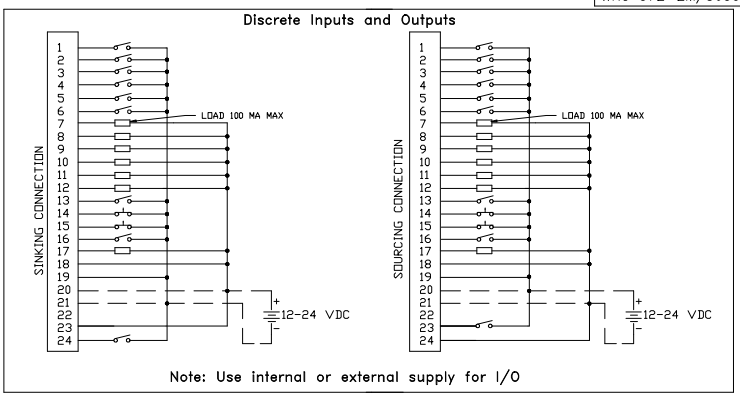


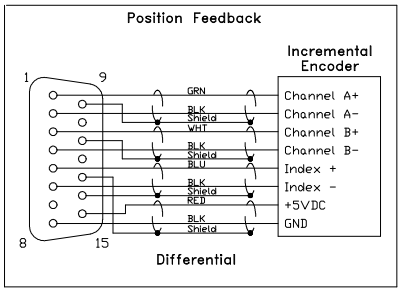
FRONT VIEW

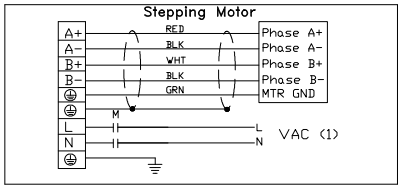


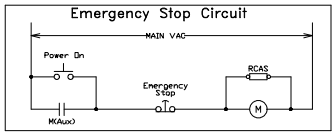












DIP Switch Positions (2)

Unit Address	1	2	3	4	5
0	R	R	R	R	R
1	L	R	R	R	R
2	R	L	R	R	R
3	L	L	R	R	R
4	R	R	L	R	R
5	L	R	L	R	R
6	R	L	L	R	R
7	L	L	L	R	R
8	R	R	R	L	R
9	L	R	R	L	R
A	R	L	R	L	R
B	L	L	R	L	R
C	R	R	L	L	R
D	L	R	L	L	R
E	R	L	L	L	R
F	L	L	L	L	R
G	R	R	R	R	L
H	L	R	R	R	L
I	R	L	R	R	L
J	L	L	R	R	L
K	R	R	L	R	L
L	L	R	L	R	L
M	R	L	L	R	L
N	L	L	L	R	L
O	R	R	R	L	L
P	L	R	R	L	L
Q	R	L	R	L	L
R	L	L	R	L	L
S	R	R	L	L	L
T	L	R	L	L	L
U	R	L	L	L	L
V	L	L	L	L	L

Serial Baud Rate	6	7
1200	R	R
9600	L	R
19200	R	L
38400	L	L

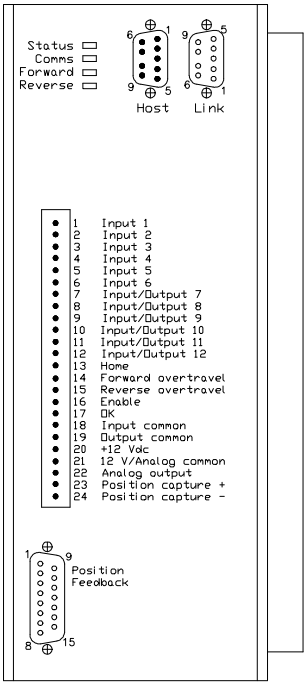
Switch 8 is Reserved

REMARKS:

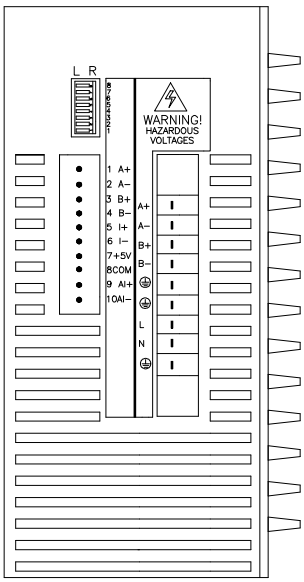
(1) Input power 90 to 130 VAC

IMC - 105E-1-D

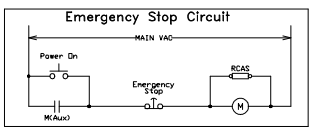
USER CONNECTIONS AND SWITCH SETTINGS

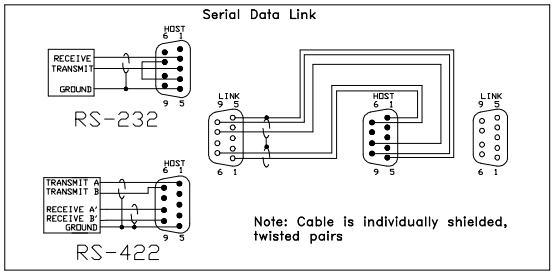


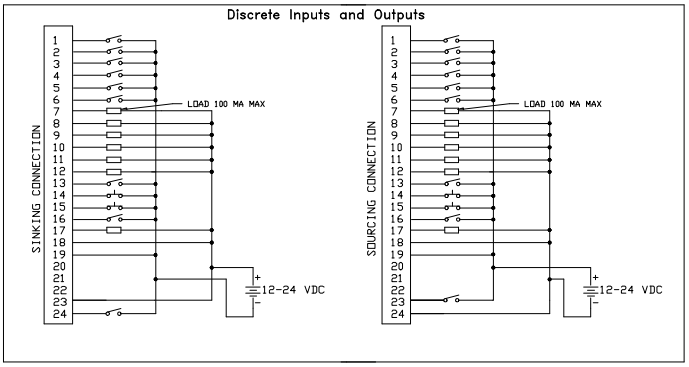
FRONT VIEW

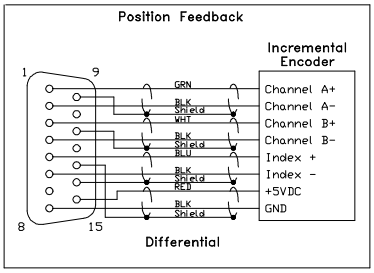


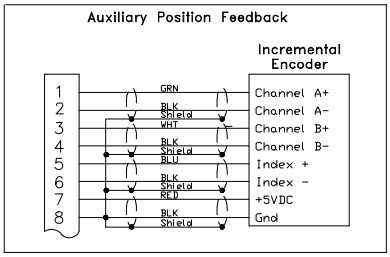
BOTTOM VIEW

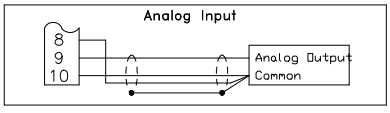


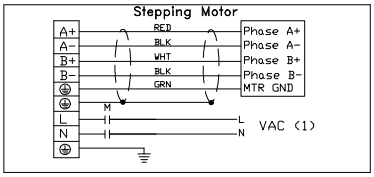












DIP Switch Positions (2)

Unit Address	1	2	3	4	5
0	R	R	R	R	R
1	L	R	R	R	R
2	R	L	R	R	R
3	L	L	R	R	R
4	R	R	L	R	R
5	L	R	L	R	R
6	R	L	L	R	R
7	L	L	L	R	R
8	R	R	R	L	R
9	L	R	R	L	R
A	R	L	R	L	R
B	L	L	R	L	R
C	R	R	L	L	R
D	L	R	L	L	R
E	R	L	L	L	R
F	L	L	L	L	R
G	R	R	R	R	L
H	L	R	R	R	L
I	R	L	R	R	L
J	L	L	R	R	L
K	R	R	L	R	L
L	L	R	L	R	L
M	R	L	L	R	L
N	L	L	L	R	L
O	R	R	R	L	L
P	L	R	R	L	L
Q	R	L	R	L	L
R	L	L	R	L	L
S	R	R	L	L	L
T	L	R	L	L	L
U	R	L	L	L	L
V	L	L	L	L	L

Serial Baud Rate	6	7
1200	R	R
9600	L	R
19200	R	L
38400	L	L

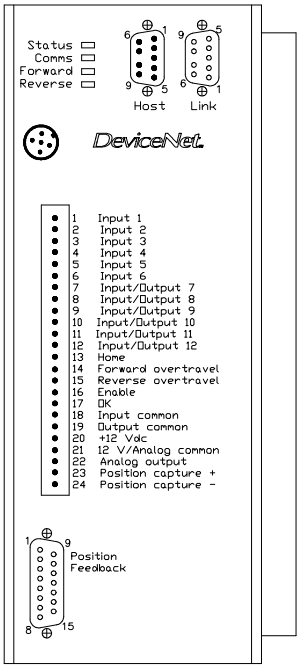
Switch 8 is Reserved

REMARKS:

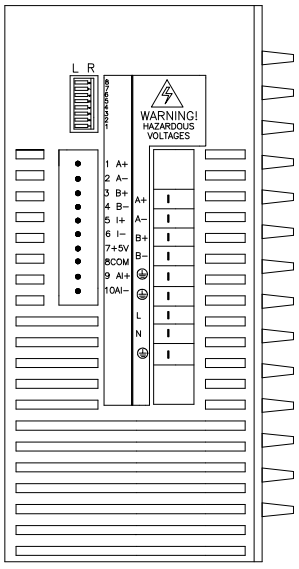
(1) Input power 90 to 130 VAC
1 phase 50-440 Hz @ 10 Amps
(2) Must turn off power before changing settings,
R= right (closed)
L= left (open)

IMC-105P-1-D

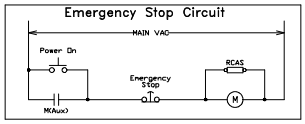
USER CONNECTIONS AND SWITCH SETTINGS

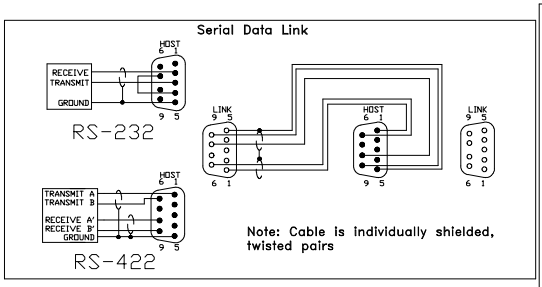


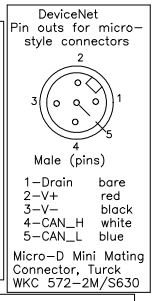
FRONT VIEW

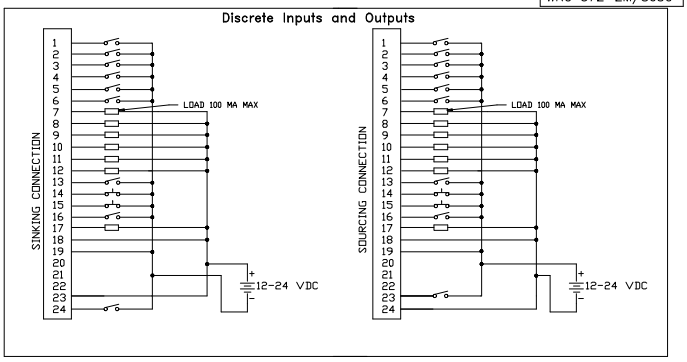


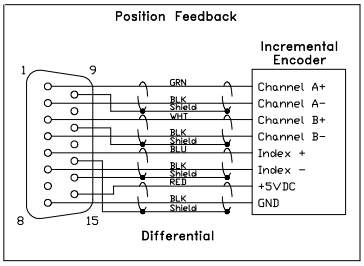
BOTTOM VIEW

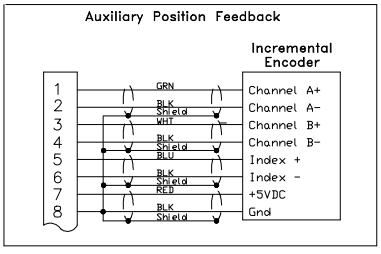


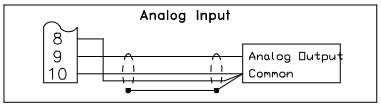


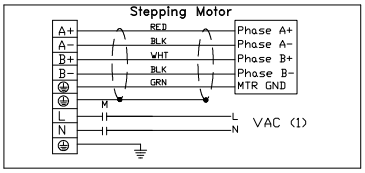












DIP Switch Positions (2)

Unit Address	1	2	3	4	5
0	R	R	R	R	R
1	L	R	R	R	R
2	R	L	R	R	R
3	L	L	R	R	R
4	R	R	L	R	R
5	L	R	L	R	R
6	R	L	L	R	R
7	L	L	L	R	R
8	R	R	R	L	R
9	L	R	R	L	R
A	R	L	R	L	R
B	L	L	R	L	R
C	R	R	L	L	R
D	L	R	L	L	R
E	R	L	L	L	R
F	L	L	L	L	R
G	R	R	R	R	L
H	L	R	R	R	L
I	R	L	R	R	L
J	L	L	R	R	L
K	R	R	L	R	L
L	L	R	L	R	L
M	R	L	L	R	L
N	L	L	L	R	L
O	R	R	R	L	L
P	L	R	R	L	L
Q	R	L	R	L	L
R	L	L	R	L	L
S	R	R	L	L	L
T	L	R	L	L	L
U	R	L	L	L	L
V	L	L	L	L	L

Serial Baud Rate	6	7
1200	R	R
9600	L	R
19200	R	L
38400	L	L

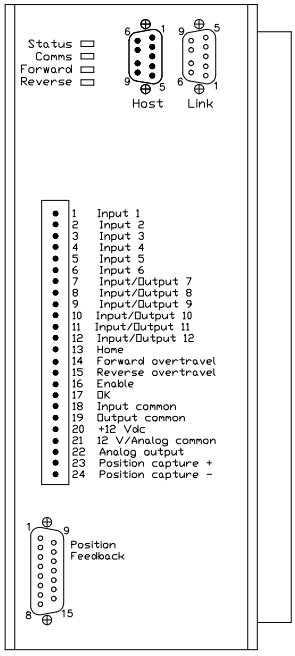
Switch 8 is Reserved

REMARKS:

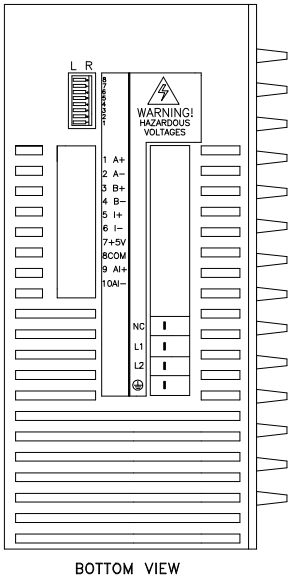
(1) Input power 90 to 130 VAC
1 phase 50-440 Hz @ 10 Amps
(2) Must turn off power before changing settings,
R= right (closed)
L= left (open)

IMC - 200X-X-D

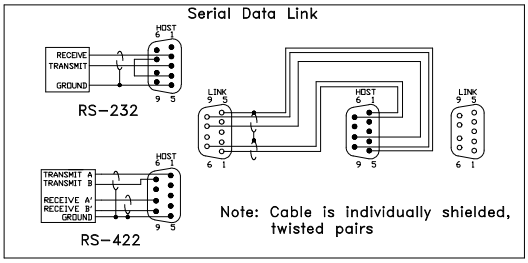
USER CONNECTIONS AND SWITCH SETTINGS

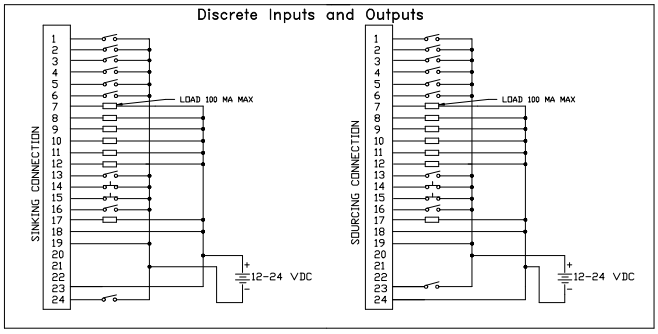


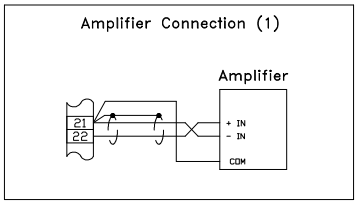
FRONT VIEW

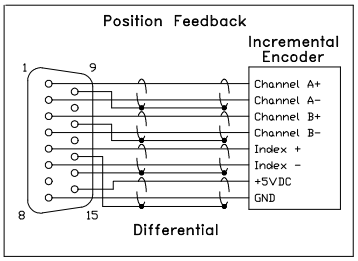


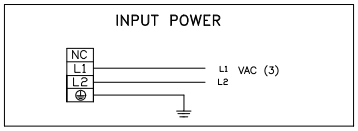
BOTTOM VIEW











DIP Switch Positions (2)

Unit Address	1	2	3	4	5
0	R	R	R	R	R
1	L	R	R	R	R
2	R	L	R	R	R
3	L	L	R	R	R
4	R	R	L	R	R
5	L	R	L	R	R
6	R	L	L	R	R
7	L	L	L	R	R
8	R	R	R	L	R
9	L	R	R	L	R
A	R	L	R	L	R
B	L	L	R	L	R
C	R	R	L	L	R
D	L	R	L	L	R
E	R	L	L	L	R
F	L	L	L	L	R
G	R	R	R	R	L
H	L	R	R	R	L
I	R	L	R	R	L
J	L	L	R	R	L
K	R	R	L	R	L
L	L	R	L	R	L
M	R	L	L	R	L
N	L	L	L	R	L
O	R	R	R	L	L
P	L	R	R	L	L
Q	R	L	R	L	L
R	L	L	R	L	L
S	R	R	L	L	L
T	L	R	L	L	L
U	R	L	L	L	L
V	L	L	L	L	L

Serial Baud Rate	6	7
1200	R	R
9600	L	R
19200	R	L
38400	L	L

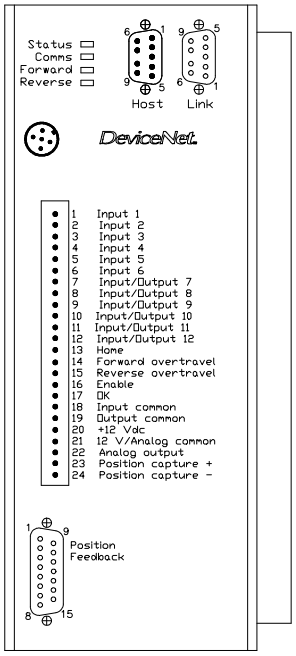
Switch 8 is Reserved

REMARKS:

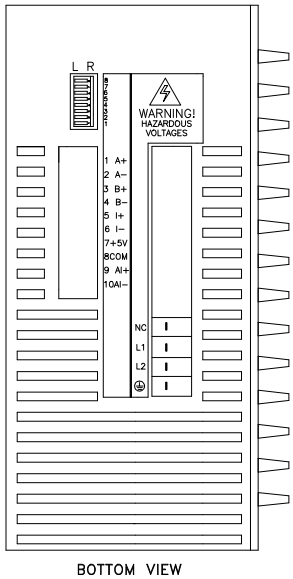
(1) Connections may depend on the type of amplifier, consult amplifier manufacturer for more information.
(2) Must turn off power before changing settings.
R= right (closed)
L= left (open)
(3) Input power 90 to 250 VAC
1 phase 50-440 Hz @ 1 Amp

IMC-200D-X-D

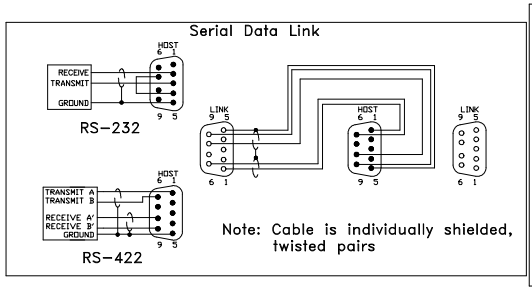
USER CONNECTIONS AND SWITCH SETTINGS

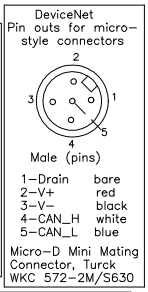


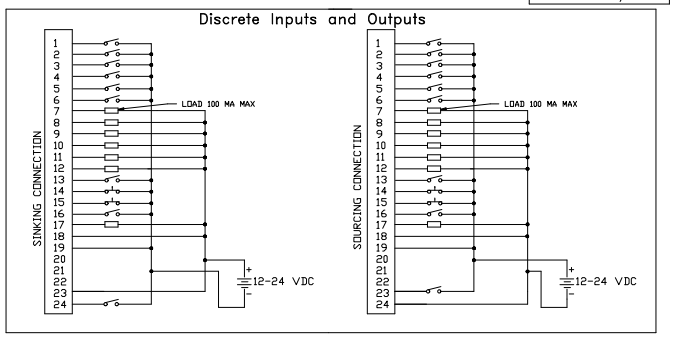
FRONT VIEW

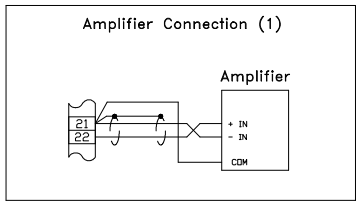


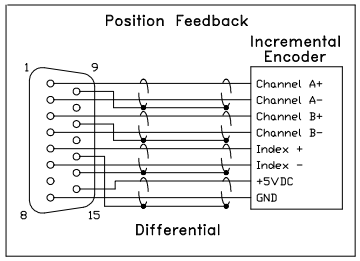
BOTTOM VIEW

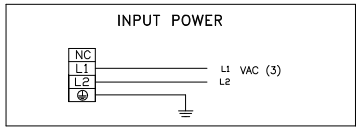












DIP Switch Positions (2)

Unit Address	1	2	3	4	5
0	R	R	R	R	R
1	L	R	R	R	R
2	R	L	R	R	R
3	L	L	R	R	R
4	R	R	L	R	R
5	L	R	L	R	R
6	R	L	L	R	R
7	L	L	L	R	R
8	R	R	R	L	R
9	L	R	R	L	R
A	R	L	R	L	R
B	L	L	R	L	R
C	R	R	L	L	R
D	L	R	L	L	R
E	R	L	L	L	R
F	L	L	L	L	R
G	R	R	R	R	L
H	L	R	R	R	L
I	R	L	R	R	L
J	L	L	R	R	L
K	R	R	L	R	L
L	L	R	L	R	L
M	R	L	L	R	L
N	L	L	L	R	L
O	R	R	R	L	L
P	L	R	R	L	L
Q	R	L	R	L	L
R	L	L	R	L	L
S	R	R	L	L	L
T	L	R	L	L	L
U	R	L	L	L	L
V	L	L	L	L	L

Serial Baud Rate	6	7
1200	R	R
9600	L	R
19200	R	L
38400	L	L

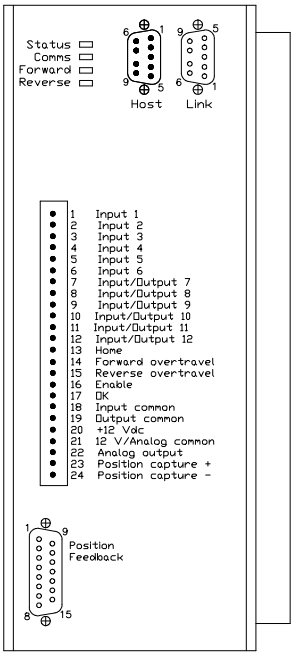
Switch 8 is Reserved

REMARKS:

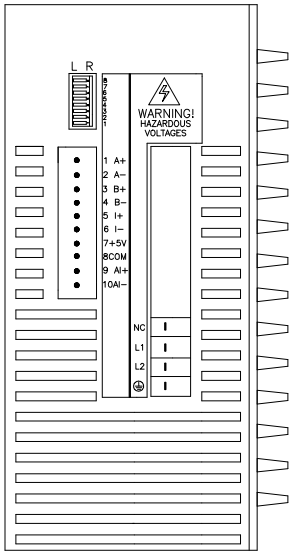
(1) Connections may depend on the type of amplifier, consult amplifier manufacturer for more information.
(2) Must turn off power before changing settings,
R= right (closed)
L= left (open)
(3) Input power 90 to 250 VAC
1 phase 50-440 Hz @ 1 Amp

IMC - 200E-X-D

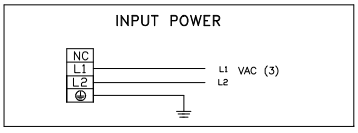
USER CONNECTIONS AND SWITCH SETTINGS

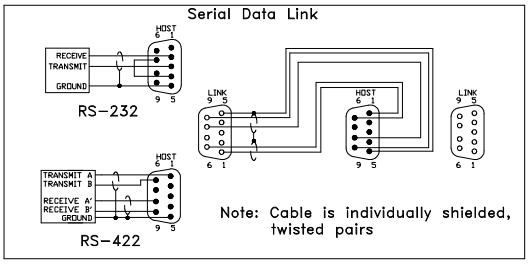


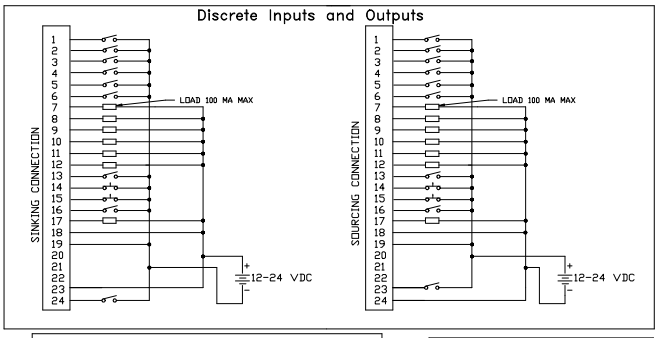
FRONT VIEW

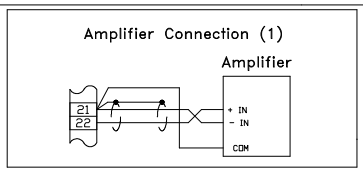


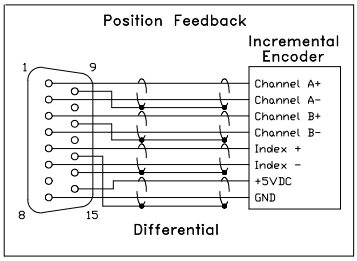
BOTTOM VIEW

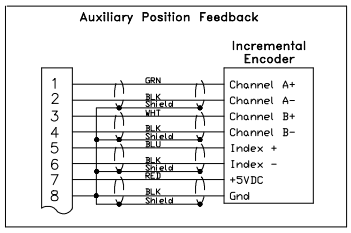


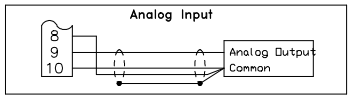












DIP Switch Positions (2)

Unit Address	1	2	3	4	5
0	R	R	R	R	R
1	L	R	R	R	R
2	R	L	R	R	R
3	L	L	R	R	R
4	R	R	L	R	R
5	L	R	L	R	R
6	R	L	L	R	R
7	L	L	L	R	R
8	R	R	R	L	R
9	L	R	R	L	R
A	R	L	R	L	R
B	L	L	R	L	R
C	R	R	L	L	R
D	L	R	L	L	R
E	R	L	L	L	R
F	L	L	L	L	R
G	R	R	R	R	L
H	L	R	R	R	L
I	R	L	R	R	L
J	L	L	R	R	L
K	R	R	L	R	L
L	L	R	L	R	L
M	R	L	L	R	L
N	L	L	L	R	L
O	R	R	R	L	L
P	L	R	R	L	L
Q	R	L	R	L	L
R	L	L	R	L	L
S	R	R	L	L	L
T	L	R	L	L	L
U	R	L	L	L	L
V	L	L	L	L	L

Serial Baud Rate	6	7
1200	R	R
9600	L	R
19200	R	L
38400	L	L

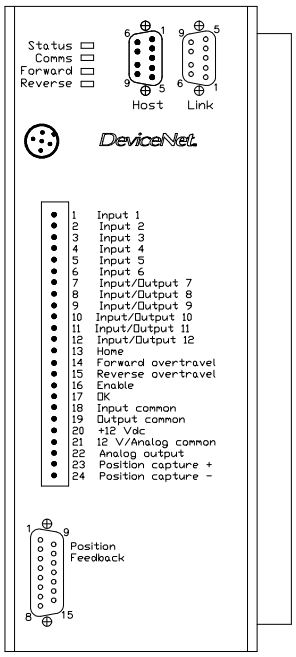
Switch 8 is Reserved

REMARKS:

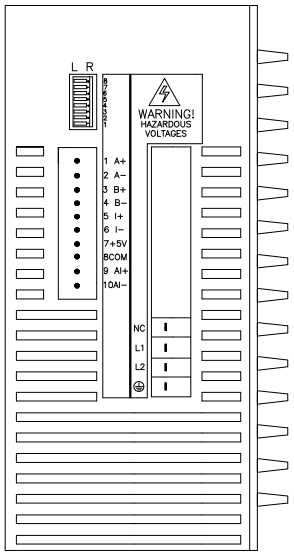
(1) Connections may depend on the type of amplifier, consult amplifier manufacturer for more information.
(2) Must turn off power before changing settings,
R= right (closed)
L= left (open)
(3) Input power 90 to 250 VAC
1 phase 50-440 Hz @ 1 Amp

IMC-200P-X-D

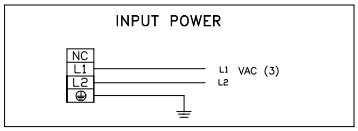
USER CONNECTIONS AND SWITCH SETTINGS

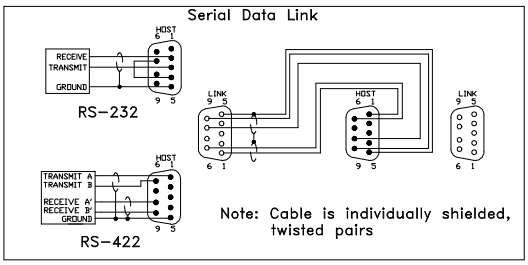


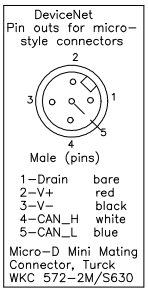
FRONT VIEW

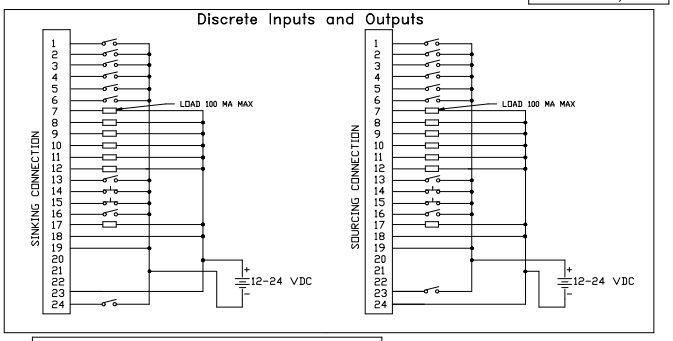


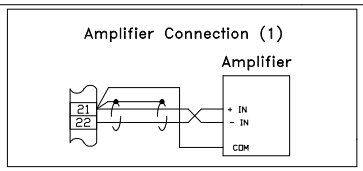
BOTTOM VIEW

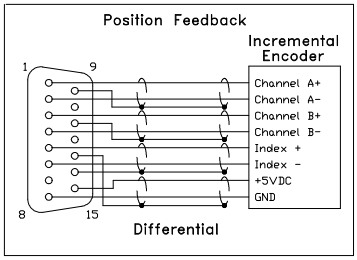


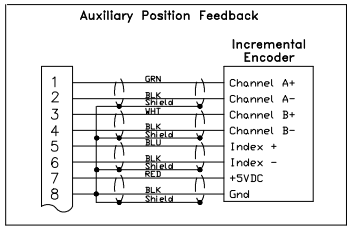


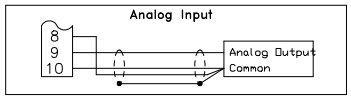












DIP Switch Positions (2)

Unit Address	1	2	3	4	5
0	R	R	R	R	R
1	L	R	R	R	R
2	R	L	R	R	R
3	L	L	R	R	R
4	R	R	L	R	R
5	L	R	L	R	R
6	R	L	L	R	R
7	L	L	L	R	R
8	R	R	R	L	R
9	L	R	R	L	R
A	R	L	R	L	R
B	L	L	R	L	R
C	R	R	L	L	R
D	L	R	L	L	R
E	R	L	L	L	R
F	L	L	L	L	R
G	R	R	R	R	L
H	L	R	R	R	L
I	R	L	R	R	L
J	L	L	R	R	L
K	R	R	L	R	L
L	L	R	L	R	L
M	R	L	L	R	L
N	L	L	L	R	L
O	R	R	R	L	L
P	L	R	R	L	L
Q	R	L	R	L	L
R	L	L	R	L	L
S	R	R	L	L	L
T	L	R	L	L	L
U	R	L	L	L	L
V	L	L	L	L	L

Serial Baud Rate	6	7
1200	R	R
9600	L	R
19200	R	L
38400	L	L

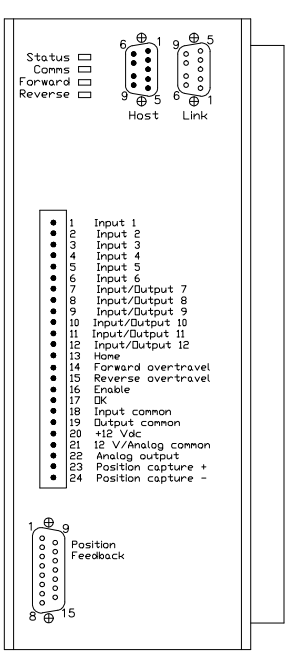
Switch 8 is Reserved

REMARKS:

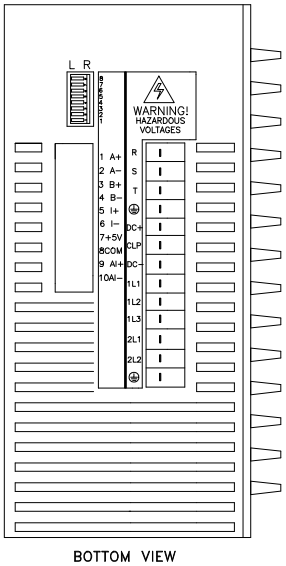
(1) Connections may depend on the type of amplifier, consult amplifier manufacturer for more information.
(2) Must turn off power before changing settings,
R= right (closed)
L= left (open)
(3) Input power 90 to 250 VAC
1 phase 50-440 Hz @ 1 Amp

IMC-303X-X-D
IMC-306X-X-D

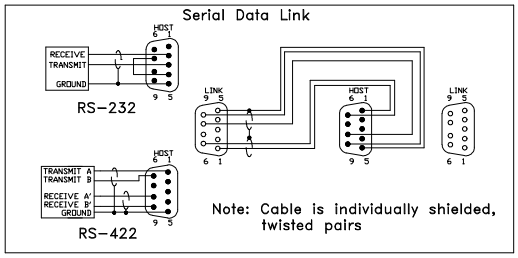
USER CONNECTIONS AND SWITCH SETTINGS

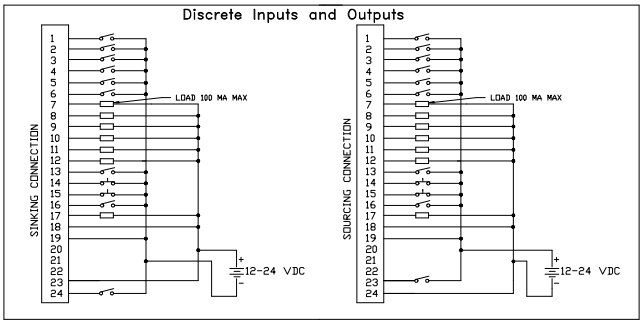


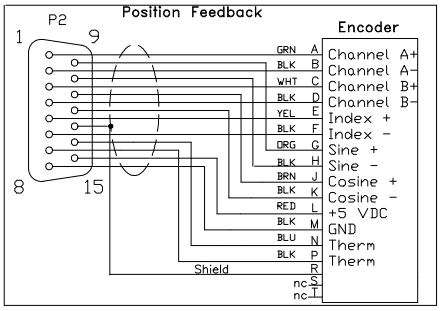
FRONT VIEW

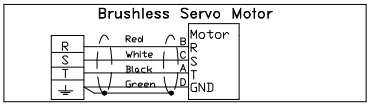


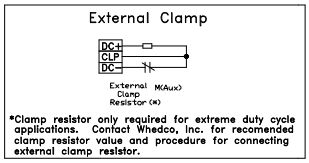
BOTTOM VIEW

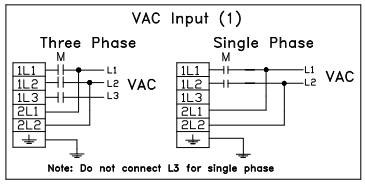


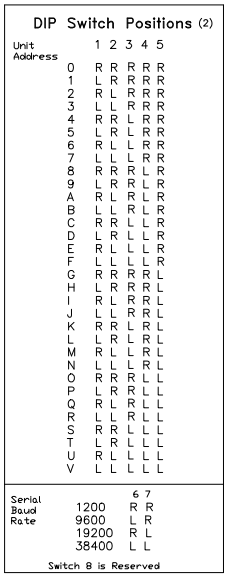


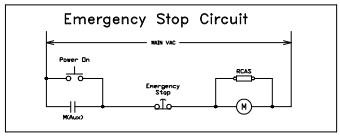








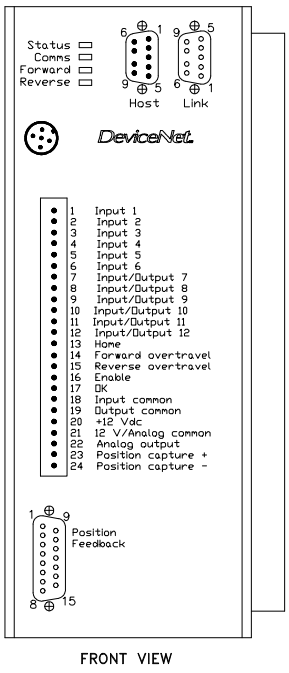




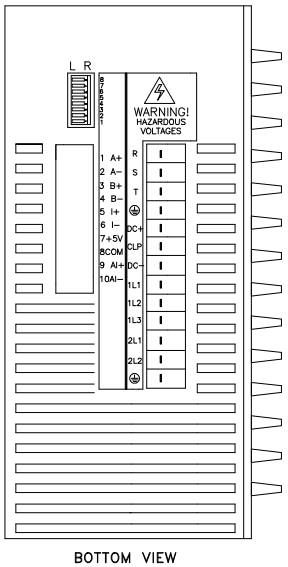
REMARKS:
(1) Input power 90 to 250 VAC
1 or 3 phase 50-440 Hz @ 15 Amps
(2) Must turn off power before changing settings,
R= right (closed)
L= left (open)

IMC-303D-X-D
IMC-306D-X-D

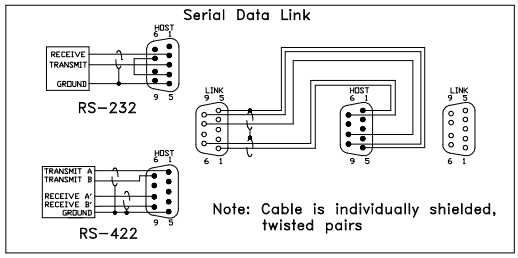
USER CONNECTIONS AND SWITCH SETTINGS

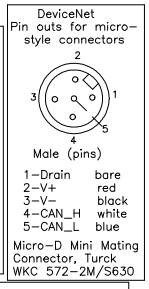


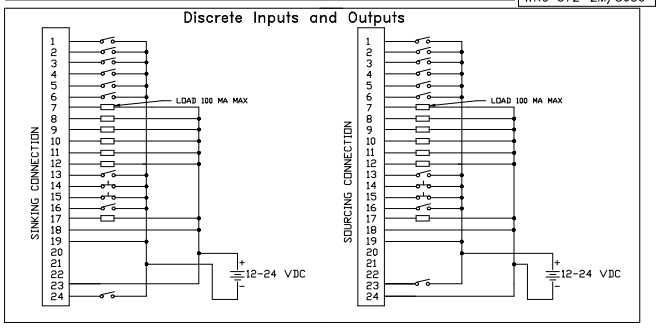
FRONT VIEW

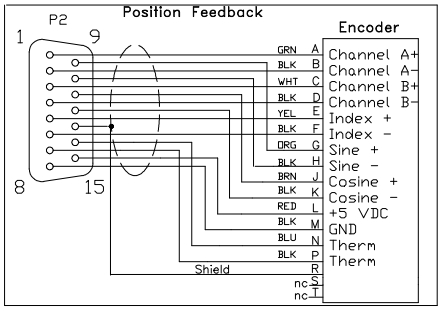


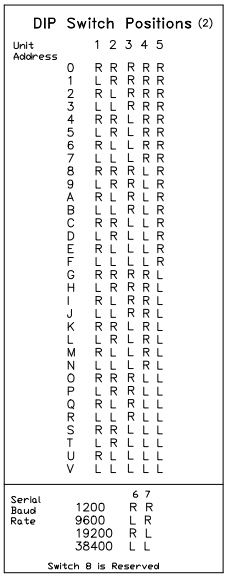
BOTTOM VIEW

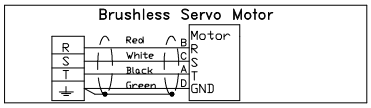


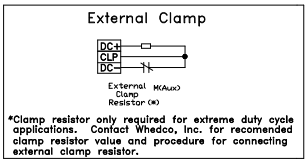


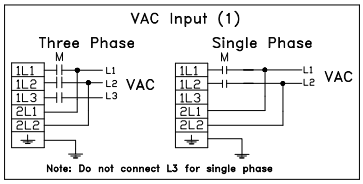


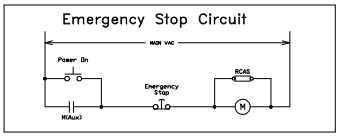








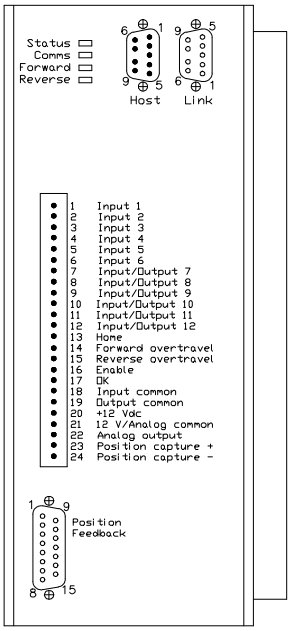




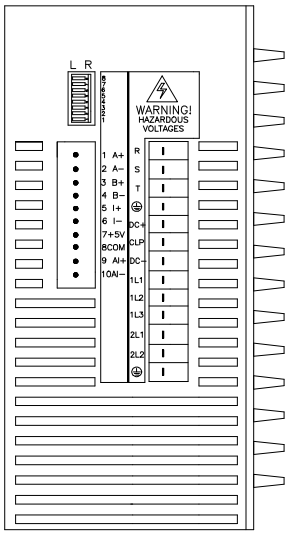
REMARKS:
(1) Input power 90 to 250 VAC
1 or 3 phase 50-440 Hz @ 15 Amps
(2) Must turn off power before changing settings,
R= right (closed)
L= left (open)

IMC-303E-X-D
IMC-306E-X-D

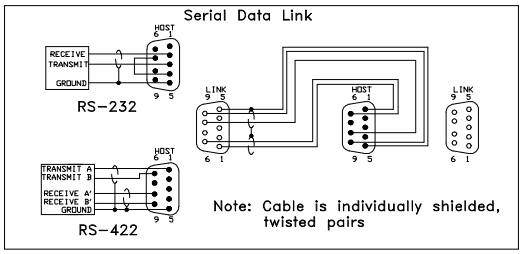
USER CONNECTIONS AND SWITCH SETTINGS

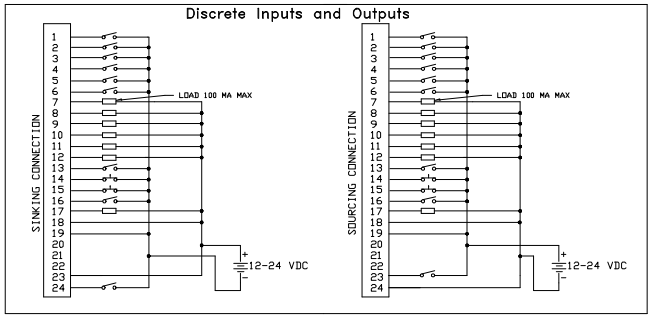


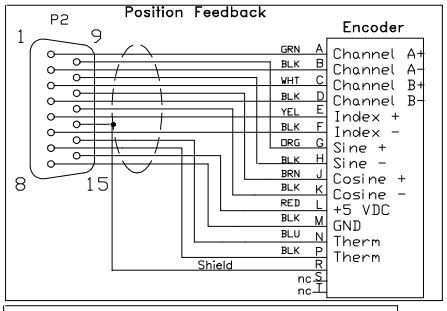
FRONT VIEW

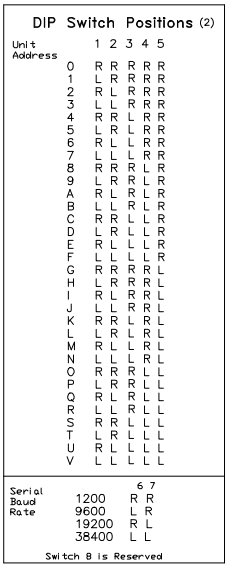


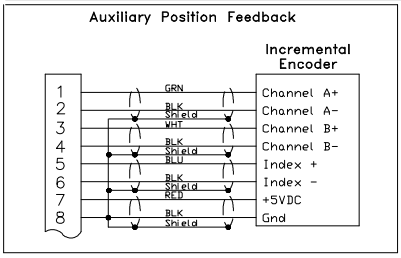
BOTTOM VIEW

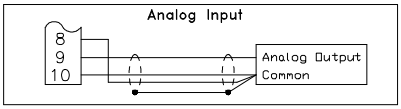


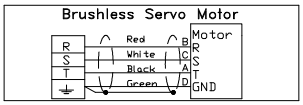


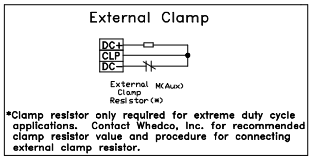


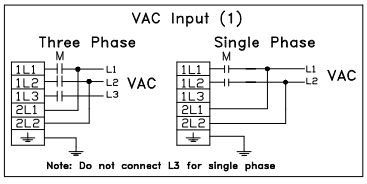


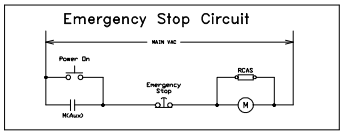












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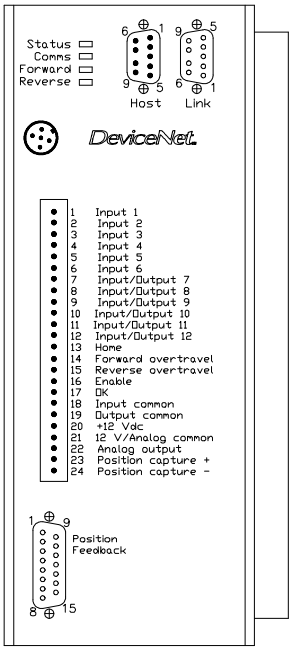
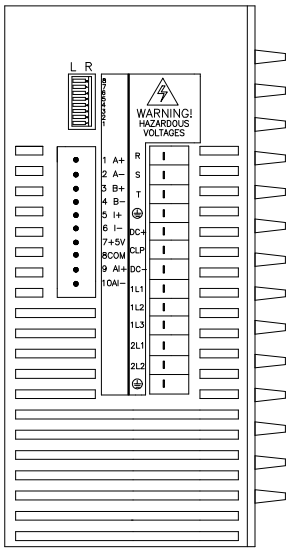
IMC-303P-X-D
IMC-306P-X-D

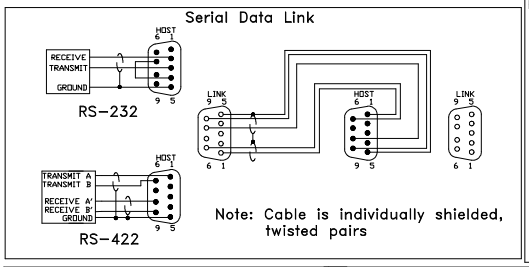
USER CONNECTIONS AND SWITCH SETTINGS

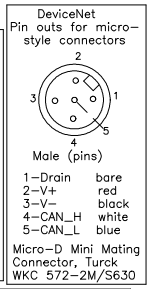


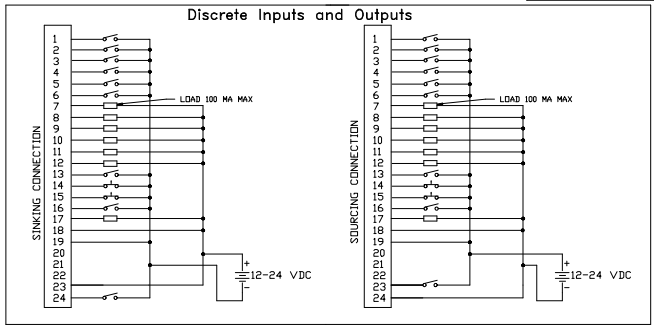
FRONT VIEW

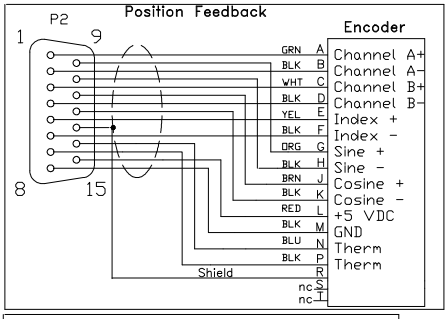


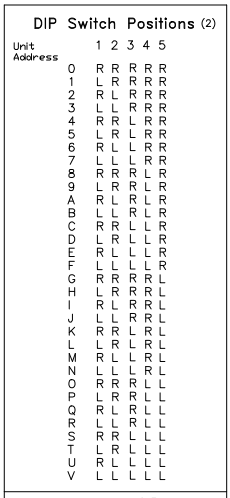
BOTTOM VIEW

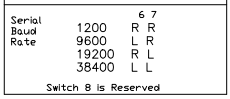


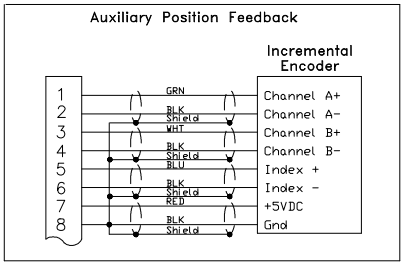


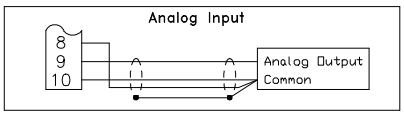


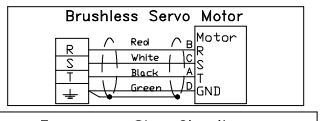


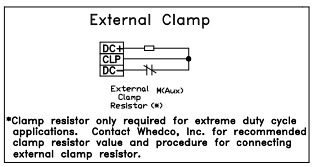


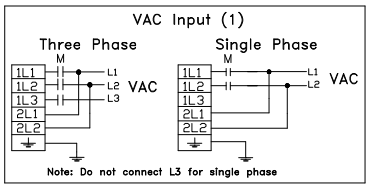


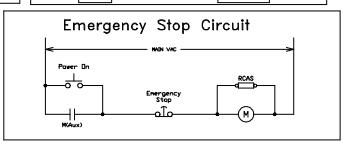












REMARKS:
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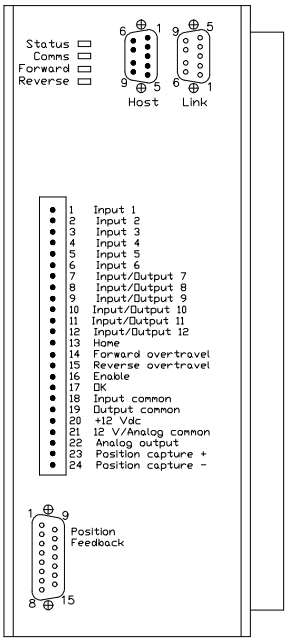
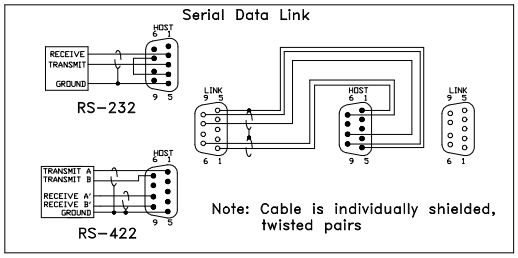
R= right (closed)

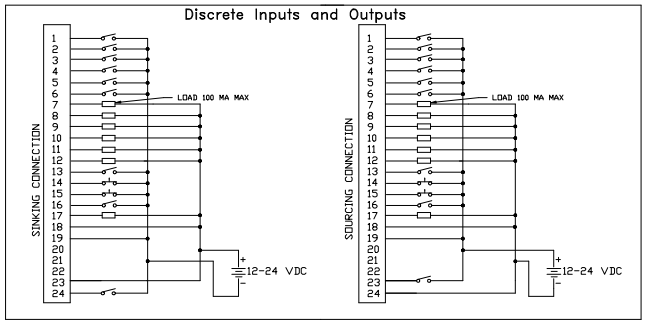
IMC-313X-X-D
IMC-316X-X-D

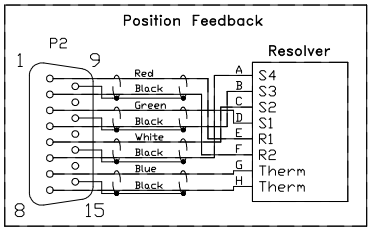
USER CONNECTIONS AND SWITCH SETTINGS

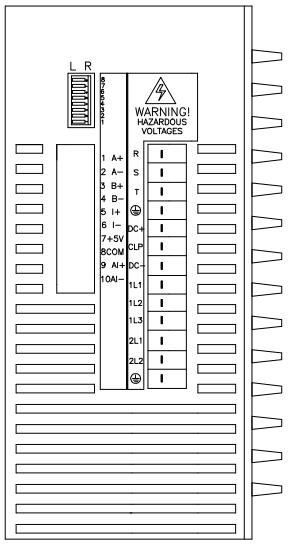


FRONT VIEW

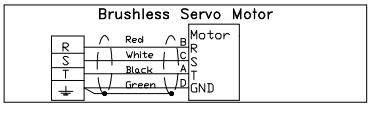


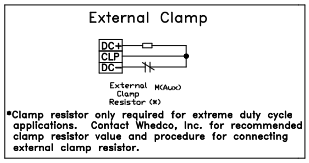


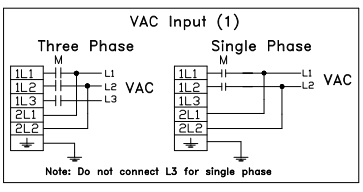


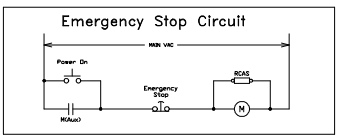


BOTTOM VIEW









DIP Switch Positions (2)

Unit Address	1	2	3	4	5
0	R	R	R	R	R
1	L	R	R	R	R
2	R	L	R	R	R
3	L	L	R	R	R
4	R	R	L	R	R
5	L	R	L	R	R
6	R	L	L	R	R
7	L	L	L	R	R
8	R	R	R	L	R
9	L	R	R	L	R
A	R	L	R	L	R
B	L	L	R	L	R
C	R	R	L	L	R
D	L	R	L	L	R
E	R	L	L	L	R
F	L	L	L	L	R
G	R	R	R	R	L
H	L	R	R	R	L
I	R	L	R	R	L
J	L	L	R	R	L
K	R	R	L	R	L
L	L	R	L	R	L
M	R	L	L	R	L
N	L	L	L	R	L
O	R	R	R	L	L
P	L	R	R	L	L
Q	R	L	R	L	L
R	L	L	R	L	L
S	R	R	L	L	L
T	L	R	L	L	L
U	R	L	L	L	L
V	L	L	L	L	L

Serial Baud Rate	6	7
1200	R	R
9600	L	R
19200	R	L
38400	L	L

Switch 8 is Reserved

REMARKS:
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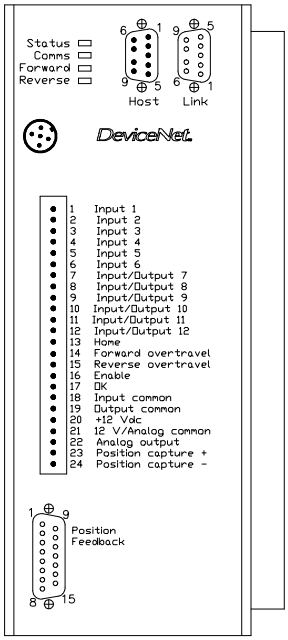
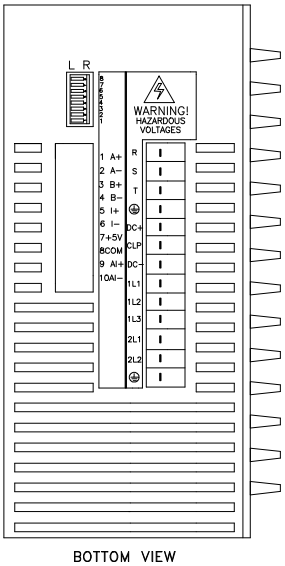
IMC-313D-X-D
IMC-316D-X-D

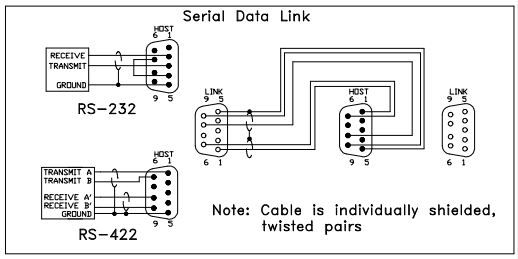
USER CONNECTIONS AND SWITCH SETTINGS

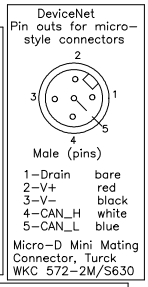


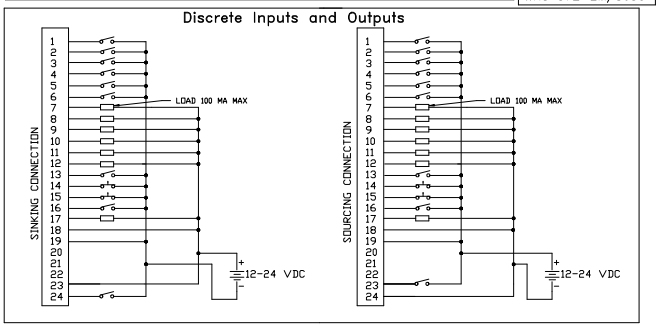
FRONT VIEW

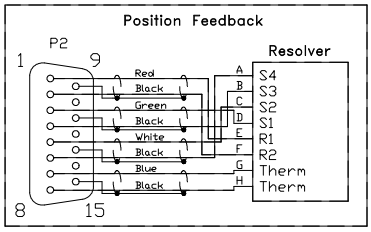


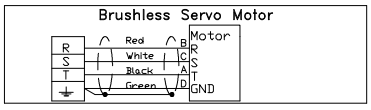
BOTTOM VIEW

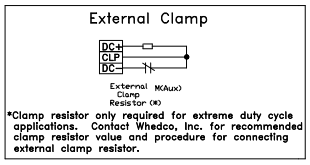


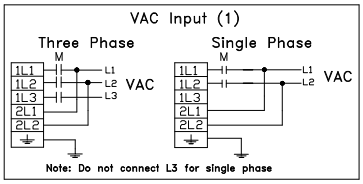


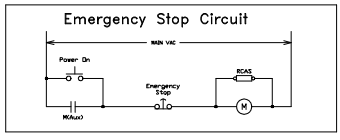


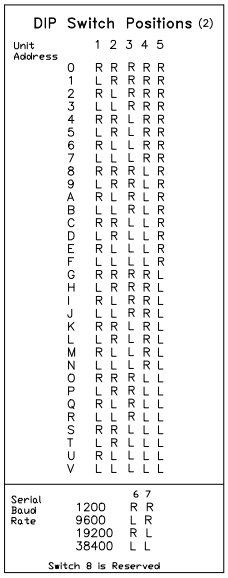












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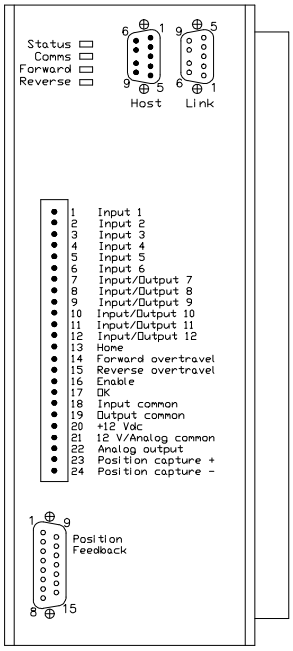
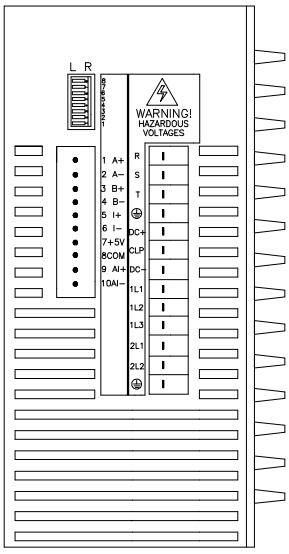
IMC-313E-X-D
IMC-316E-X-D

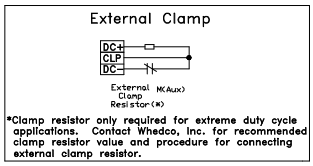
USER CONNECTIONS AND SWITCH SETTINGS



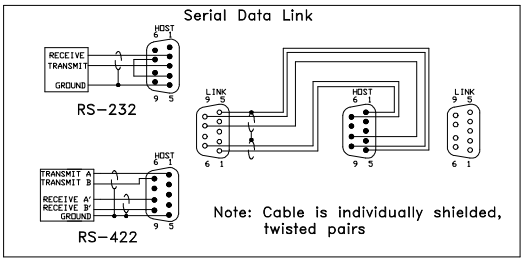
FRONT VIEW

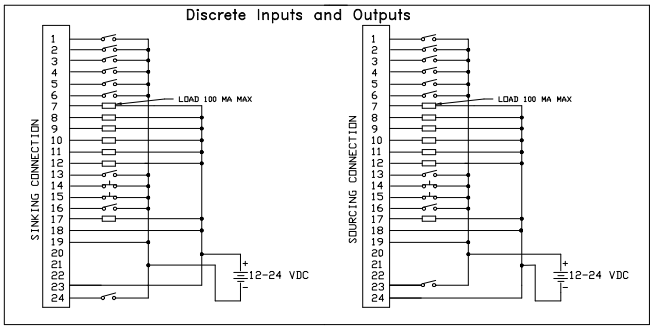


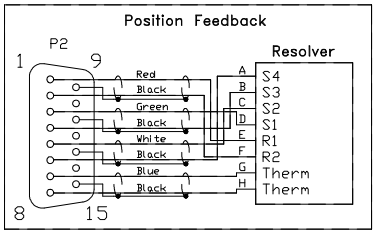
BOTTOM VIEW

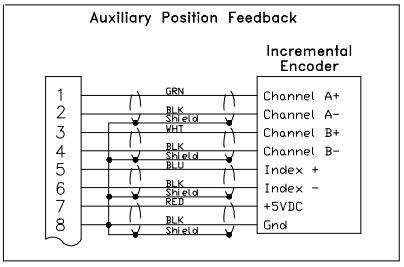


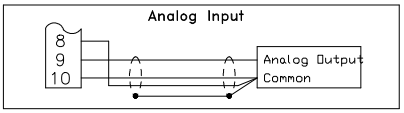
*Clamp resistor only required for extreme duty cycle applications. Contact Whedco, Inc. for recommended clamp resistor value and procedure for connecting external clamp resistor.

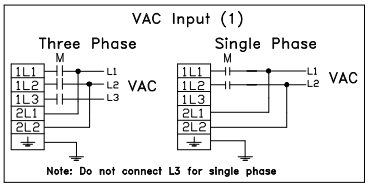


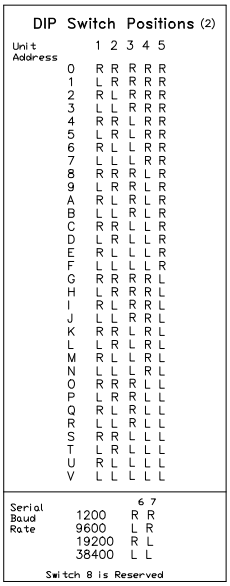


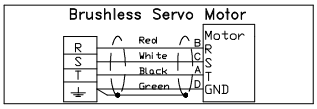


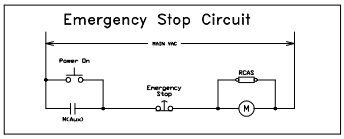








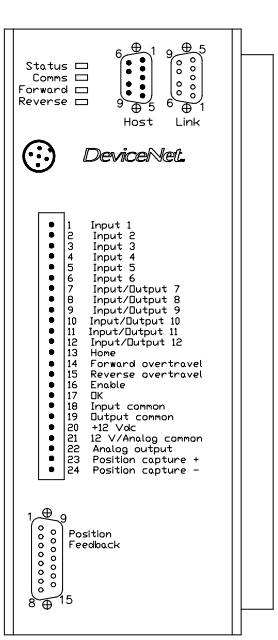




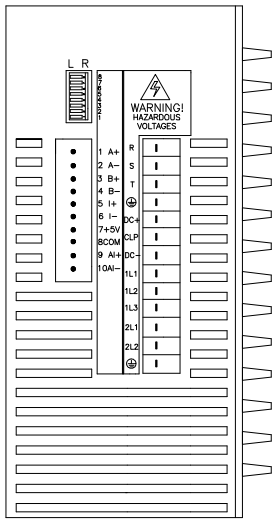
REMARKS:
(1) Input power 90 to 250 VAC
1 or 3 phase 50-440 Hz @ 15 Amps
(2) Must turn off power before changing settings,
R= right (closed)
L= left (open)

IMC-313P-X-D
IMC-316P-X-D (P/N 78005568)

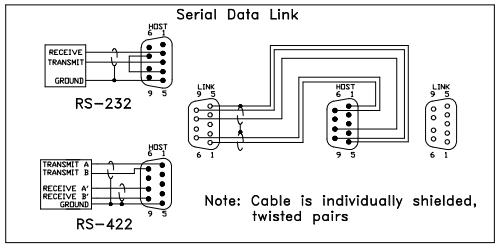
USER CONNECTIONS AND SWITCH SETTINGS

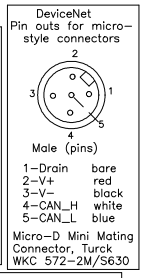


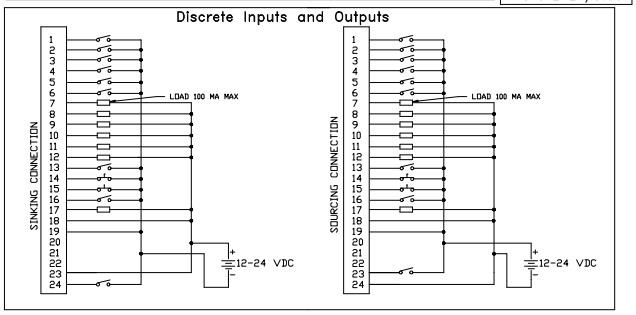
FRONT VIEW

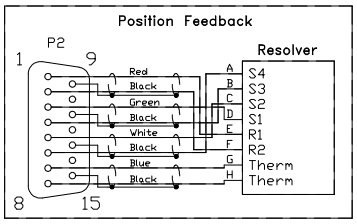


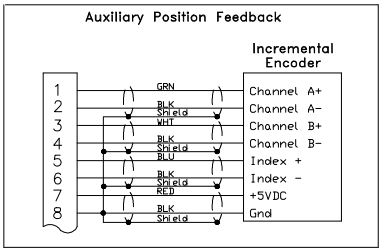
BOTTOM VIEW

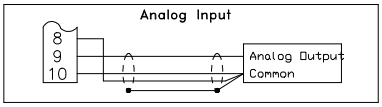


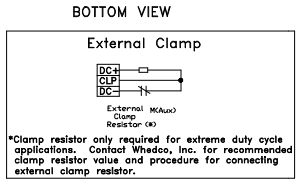


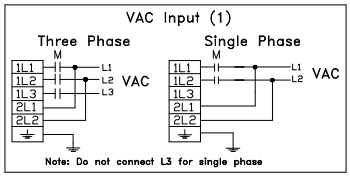


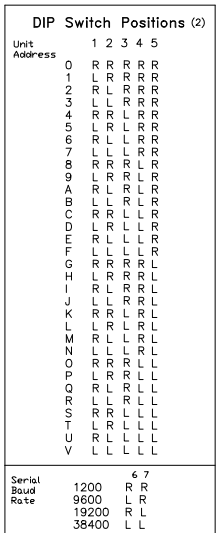


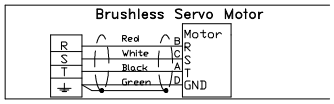


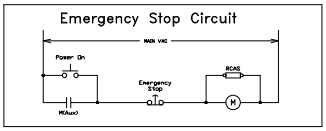












REMARKS:
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1 or 3 phase 50-440 Hz @ 15 Amps
(2) Must turn off power before changing settings,
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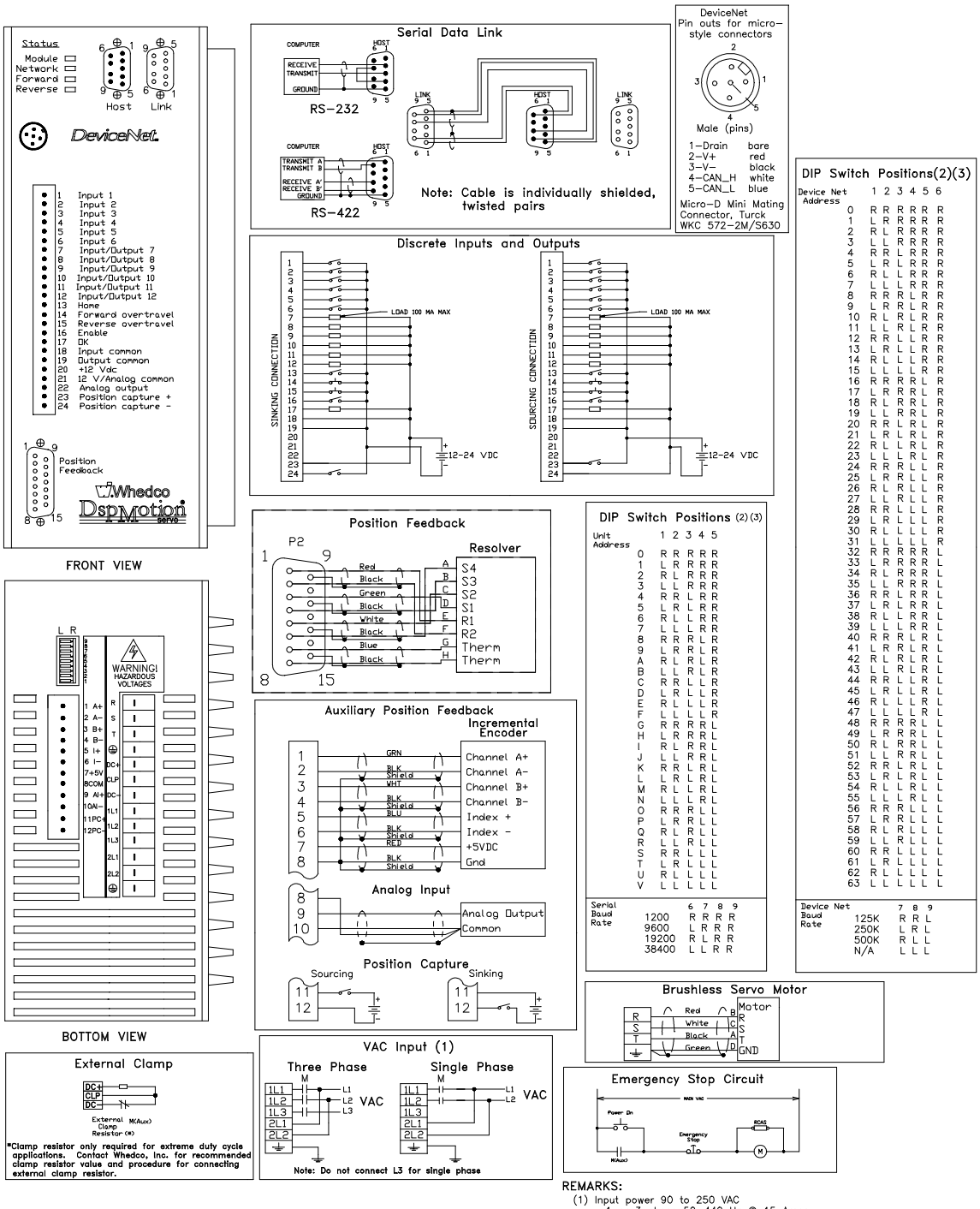
IMC-313P-X-D
IMC-316P-X-D (P/N 78005971)
(Models equipped with 9 DIP switches)

USER CONNECTIONS AND SWITCH SETTINGS



REMARKS:

(1) Input power 90 to 250 VAC
1 or 3 phase 50–440 Hz @ 15 Amps

(2) Must turn off power before changing settings,
R= right (closed)
L= left (open)

(3) When SW9 is left, Serial Port baud rate is 9600 and address is 1. When SW9 is right, Device Net address and baud rate are set by registers ADDN and BAUDN

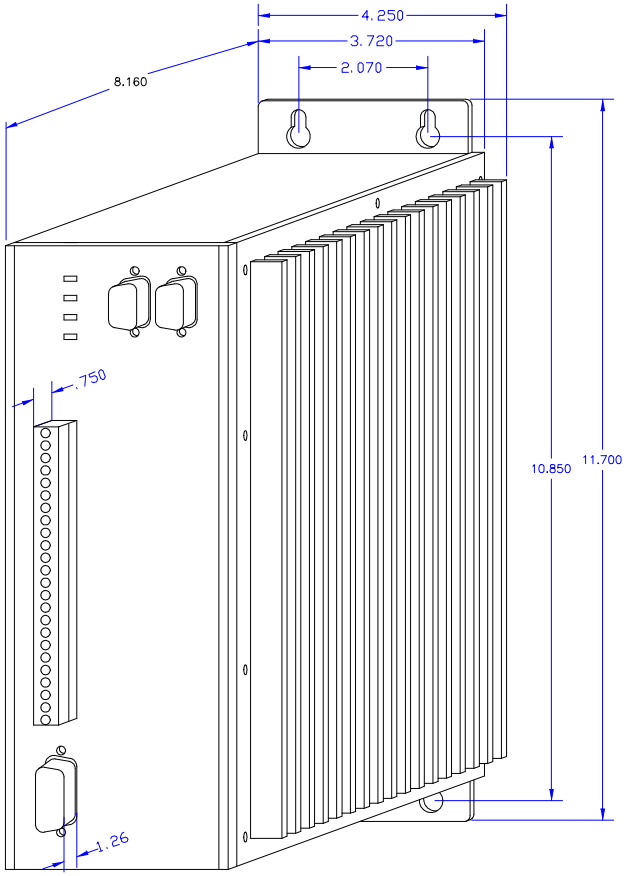
Appendix B

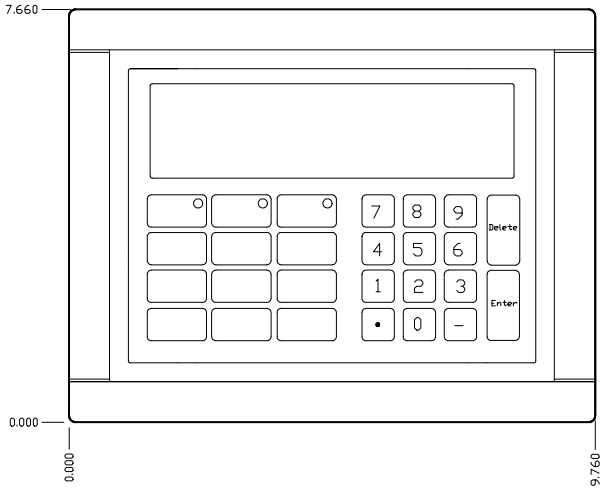
Mechanical Drawings

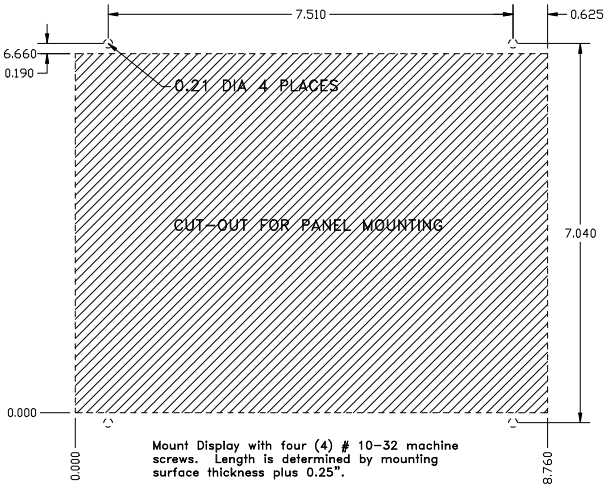
Mechanical

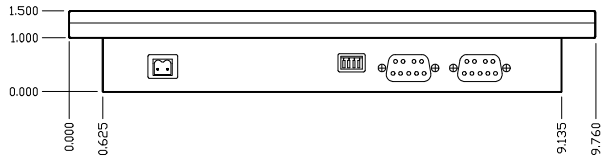
Dimensions are shown in inches, weight in pounds

Model	Weight
IMC-105**x**-1-D	8
IMC-200**x**-X-D	7
IMC-3_ _X-X-D	8









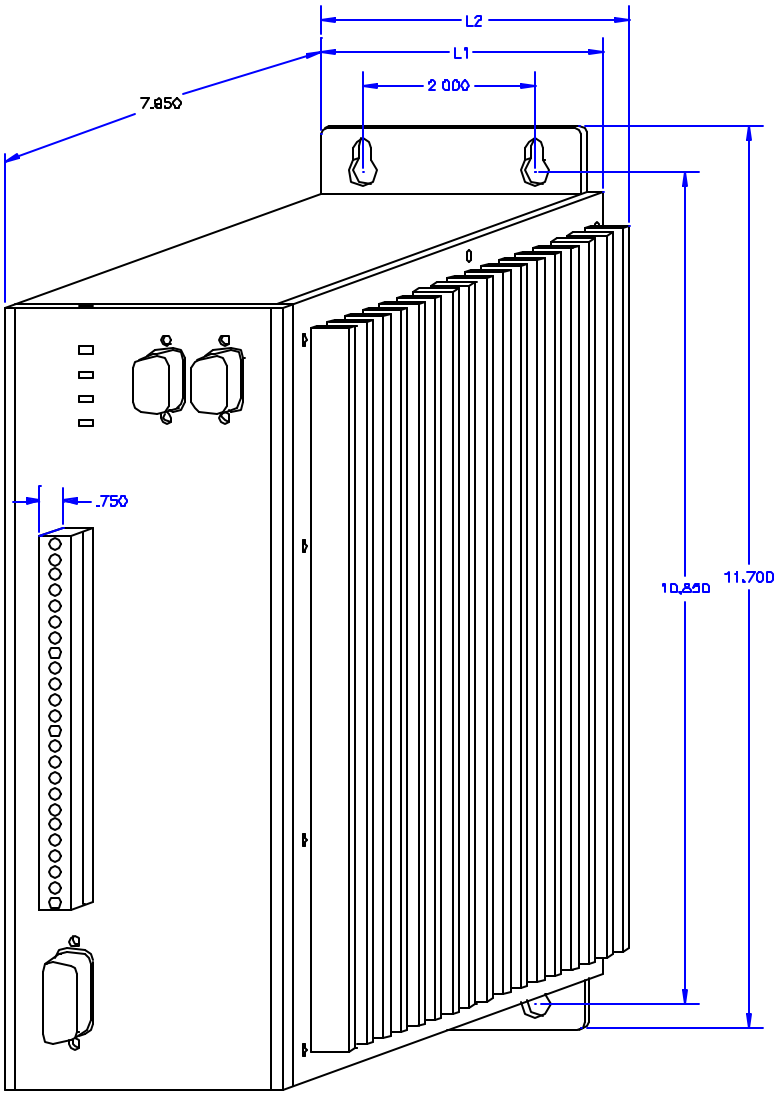
Appendix B

Mechanical Drawing

Mechanical Specifications

IMC-316P-X-D (Whedco P/N 78005791)

Mechanical Dimensions	
Weight	8 lbs
Depth	7.950"
Total width	L2 = 4.20"
Height	11.700"



Appendix C Maintenance and Troubleshooting

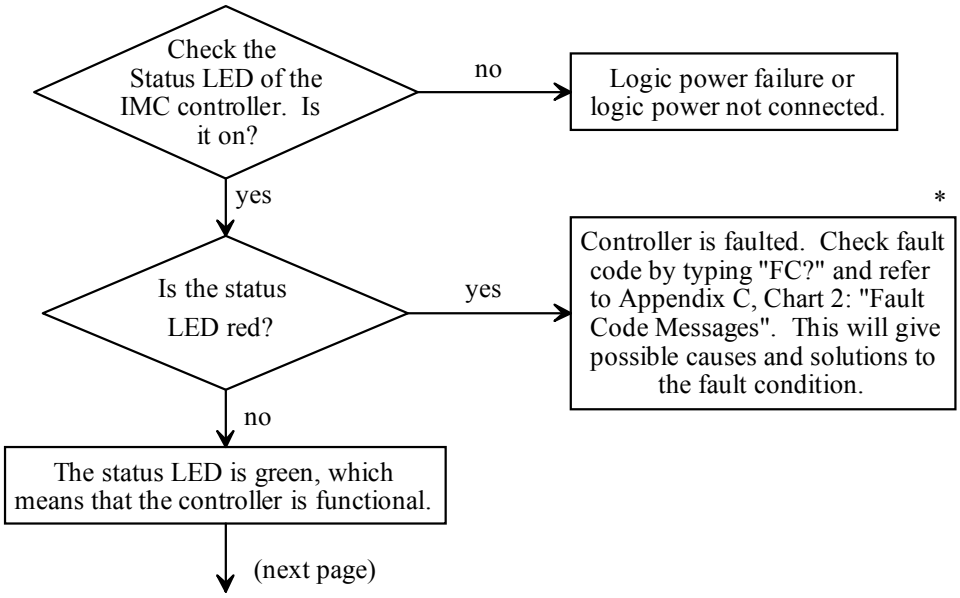
Troubleshooting Approach

1. Check hardware and wiring.
2. If the problem is not resolved, connect a computer with CCS. Connect serial cable to IMC Program Port.
3. Examine system fault code (FC?) and system status (SRS?)
4. Identify and correct problem.

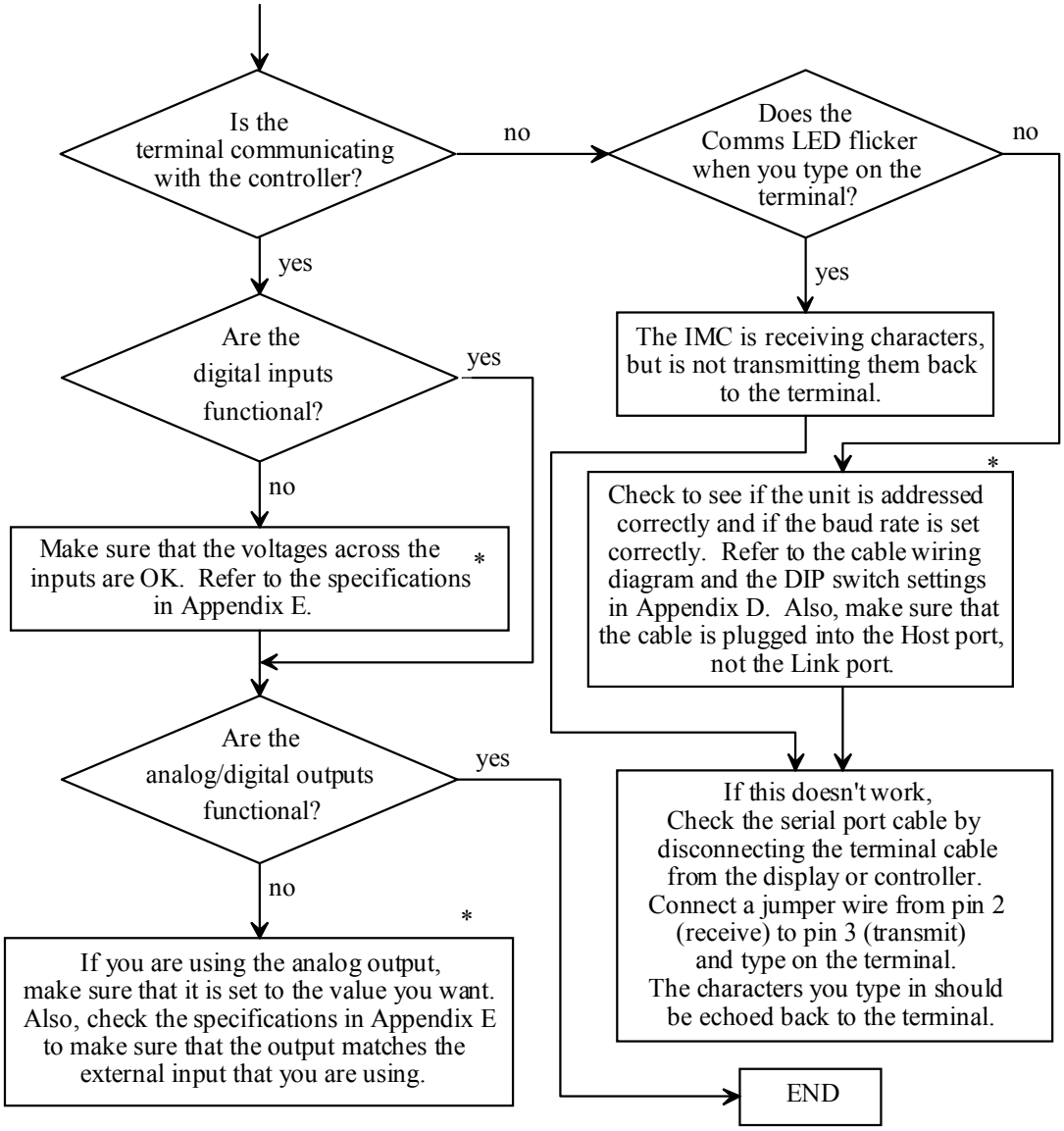
Fault and Status Registers

Register	Name
FC	Fault Code
FI	Fault Input Register
SRA	Axis Status Register
SRP	Program Status Register
SRS	System Status Register

Diagnostics/Troubleshooting



***Note:** Registers, commands, and fault codes are documented in the *Generation D RTOS Programming Manual*, GFK-2205. Wiring diagrams are provided in Appendix A of this document.



***Note:** Registers, commands, and fault codes are documented in the *Generation D RTOS Programming Manual*, GFK-2205. Wiring diagrams are provided in Appendix A of this document.

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