

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Contrex / Fenner M-Track* at our website: *Click HERE*

INTRODUCTION

The M-Track is a digital control device used to synchronize the position of a Slave process relative to the Master process. The Slave and Master items used to synchronize the continuous moving process can be either two parts of a final product (e.g., bottles and bottle caps) or two parts of a machine (e.g., gear keyway to conveyor flight). Some of the advanced capabilities of the M-Track include 8 preset setpoints, "Learn Mode" self-scaling, trending, high sync rate and control bandwidth, and the capability to provide accurate digital control for virtually any AC, DC, Servo or Clutch drive.

Although the M-Track contains many advanced features, it has also been designed to be easy to use. The sealed keypad is divided into two panels: a panel for day-to-day operations, and a panel behind a separate door containing programming functions. Dedicated keys are provided for SET SPEED, TACH, BATCH COUNT, and STATUS information. Also, the M-Track contains an RS-422 communications port, thereby allowing communications between the M-Track and a host computer.

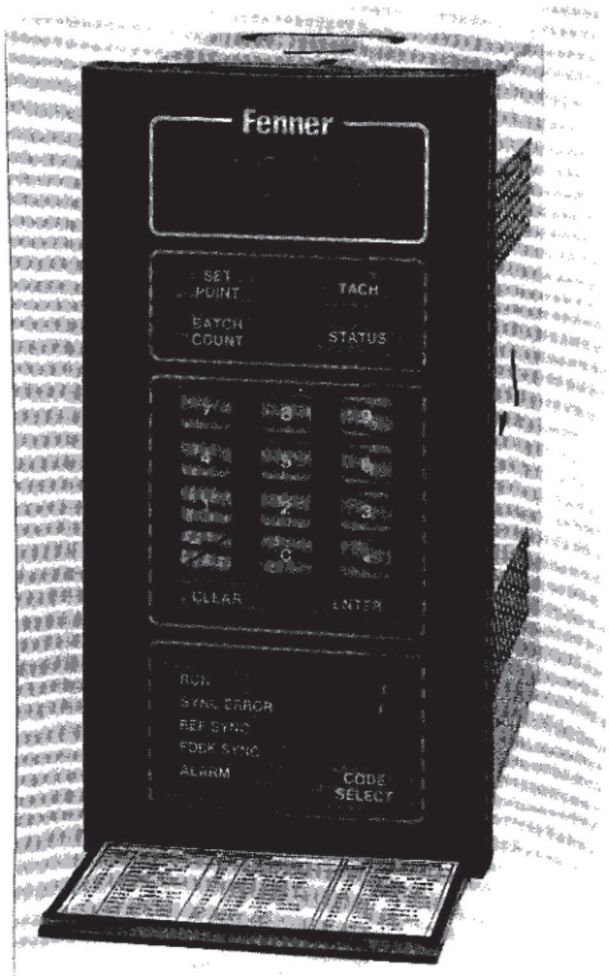


Figure 1-1: M-Track

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

EXAMPLE IMPLEMENTATION

The M-Track is used in motor control applications requiring one part of a process to "follow" or be "paced" by another part of the process. Many of these problems can be solved by the addition of the M-Track together with suitable feedback and external reference sensors interfaced to the original motor drive.

In a basic M-Track implementation, the M-Track is inserted in place of the original speed POT of the motor drive. The required digital feedback is typically provided by quadrature encoders or ring kits for the external reference and feedback position information and proximity or optical switches for the product sync information.

Figure 1-2 below illustrates this basic M-Track implementation.

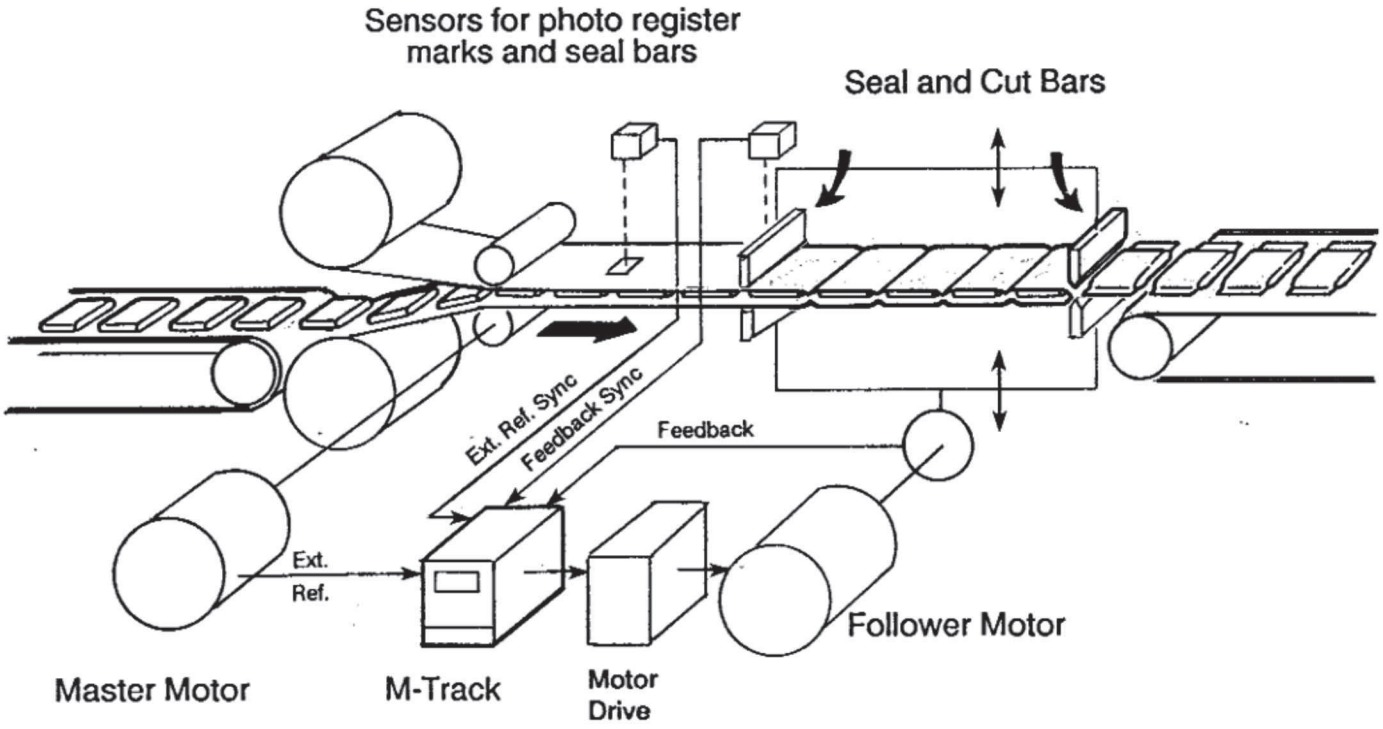


Figure 1-2: Simplified Functional Diagram

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

M-TRACK FORMATS

INTRODUCTION

Selecting an M-Track Format determines the type of speed control used by the M-Track. There are two different formats which are explained below.

MASTER FORMAT

Master Format is the most straight forward closed-loop implementation of the M-Track. In Master Format, the setpoint value (in RPMs) is entered by the operator via the front keypad. The M-Track compares this setpoint to the actual motor speed (provided by the motor feedback) to determine the error or deviation. The control algorithm then adjusts the Speed command analog output (connected to the motor drive) to reduce the error to zero. The M-Track is in Master Format whenever J4 Pin 2 is not shorted to common.

The Master Format is typically used for machine setup operations. The M-Track ignores the External Reference frequency, External Reference Sync and Feedback Sync inputs while in Master Format.

Detailed examples of using Master Format are provided in Chapter 5 of this manual (Programming).

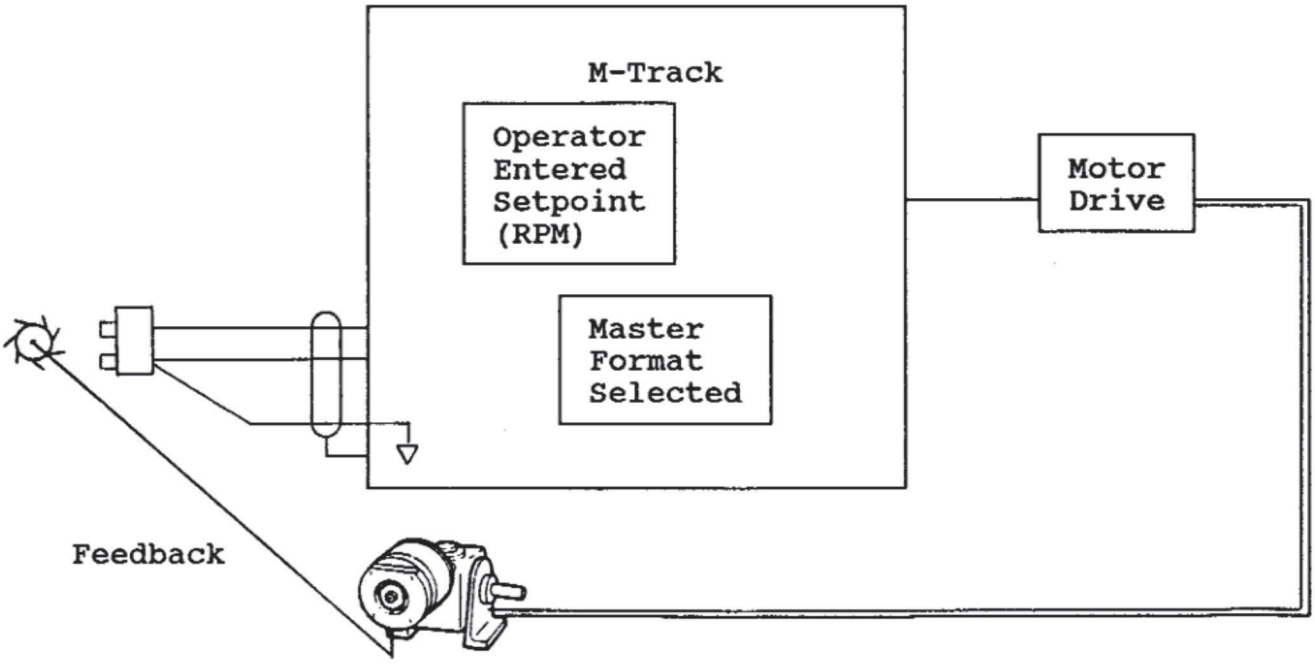


Figure 1-3: Master Format Functional Diagram

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

FOLLOWER (SYNC) FORMAT

Follower Format is the most commonly used speed control format, and differs from the Master Format in the manner in which the speed command is determined. In Master, the speed command is entered directly by the operator. In Follower, the speed command is continuously adjusted to keep the external reference sync and feedback sync inputs synchronized (aligned).

During the control process, a feature called "trending" continuously adjusts the ratio between the external reference and feedback frequencies to adjust for variances in product spacing, web stretch, etc.

When shipped from the factory, the M-Track is in Follower Format whenever J4 Pin 2 is shorted to common (J4 Pin 1).

Detailed examples of using Follower Format are provided in Chapter 5 of this manual (Programming).

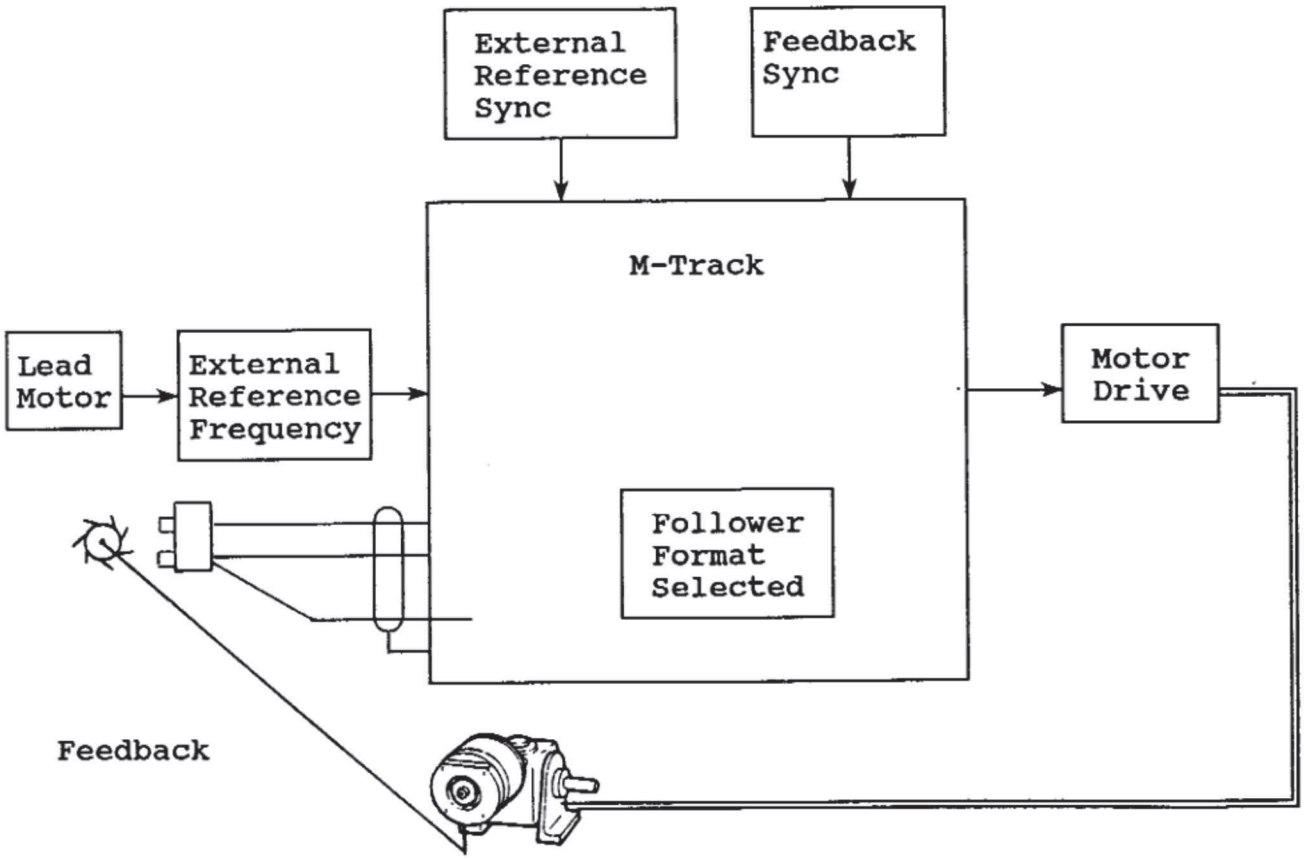


Figure 1-4: Follower Format Functional Diagram

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

M-TRACK STATES

The M-Track States refer to the operation characteristics of the M-Track--e.g., is the M-Track running? There are only five operating states for the M-Track: RUN, R-STOP, F-STOP, JOG and ALIGN. The M-Track is always in one and only one of these five operating states.

$\overline{\text{RUN}}$

In the $\overline{\text{RUN}}$ state, the M-Track rotates the subject motor at the RPM called for by the relevant setpoints in conjunction with the operative scaling format. Note that RUN can be entered only from R-STOP or F-Stop (not directly from JOG or ALIGN).

Five conditions must be true to put the M-Track into the RUN State:

- o Short J4 pin 9 to common (Inhibits F-STOP)
- o Short J4 pin 8 to common (Inhibits R-STOP)
- o Ensure J4 pin 17 is not connected (Inhibits JOG)
- o Ensure J4 pin 15 is not connected (Inhibits ALIGN)
- o Short J4 pin 6 to common (Initiates RUN)

Note: If the above conditions are all met, there would still be a zero speed command until a non-zero setpoint is entered. If in Follower Format, a non-zero external reference is also required.

JOG

In the JOG state, the M-Track increases the speed of the subject motor (using the specified ACCEL rate) until the subject motor is rotating at the RPM entered for by the Jog Setpoint.

Five conditions must be true to put the M-Track into the JOG State:

- o Short J4 pin 9 to common (Inhibits F-STOP)
- o Short J4 pin 8 to common (Inhibits R-STOP)
- o Short J4 pin 17 to common (Initiates JOG)
- o Ensure J4 pin 6 is not connected (Inhibits RUN)
- o Ensure J4 pin 15 is not connected (Inhibits ALIGN)

When the JOG state is terminated, the M-Track ignores the DECEL rate and brings the speed command immediately to zero. In this manner, the operator can "jog" the motor into position. The JOG state updates the alignment memory to a new value upon completion.

Note that JOG can be entered only from R-Stop or F-Stop (not directly from RUN or ALIGN).

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

ALIGN

In the ALIGN state, the M-Track rotates the Slave Motor speed to recover alignment in accordance with the alignment memory and sync logic.

Five conditions must be true to put the M-Track in the ALIGN state:

- o Short J4 pin 9 to common (Inhibits F-STOP)
- o Short J4 pin 8 to common (Inhibits R-STOP)
- o Ensure J4 pin 17 is not connected (Inhibits JOG)
- o Ensure J4 pin 6 is not connected (Inhibits RUN)
- o Short J4 pin 15 to common (Initiates ALIGN)

R-STOP (RAMP STOP)

In the R-STOP state, the M-Track decreases the speed command to zero RPM using the specified DECEL rate. The alignment memory is active and continues to monitor the position of the Master process, thereby enabling the Slave process to restore alignment when the RUN state is invoked.

Two conditions must be true to put the M-Track into the R-STOP State:

- o Short J4 pin 9 to common (Inhibits F-STOP)
- o Ensure J4 pin 8 is not connected (Enables R-STOP)

F-STOP (FAST STOP)

In the F-STOP state, the M-Track ignores the specified DECEL rate and immediately brings the speed command to zero.

One condition must be true to put the M-Track into the F-STOP State:

- o Ensure J4 pin 8 is not connected (Enables F-STOP)

As in the R-Stop state, the alignment memory is active and maintained in the F-Stop state.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

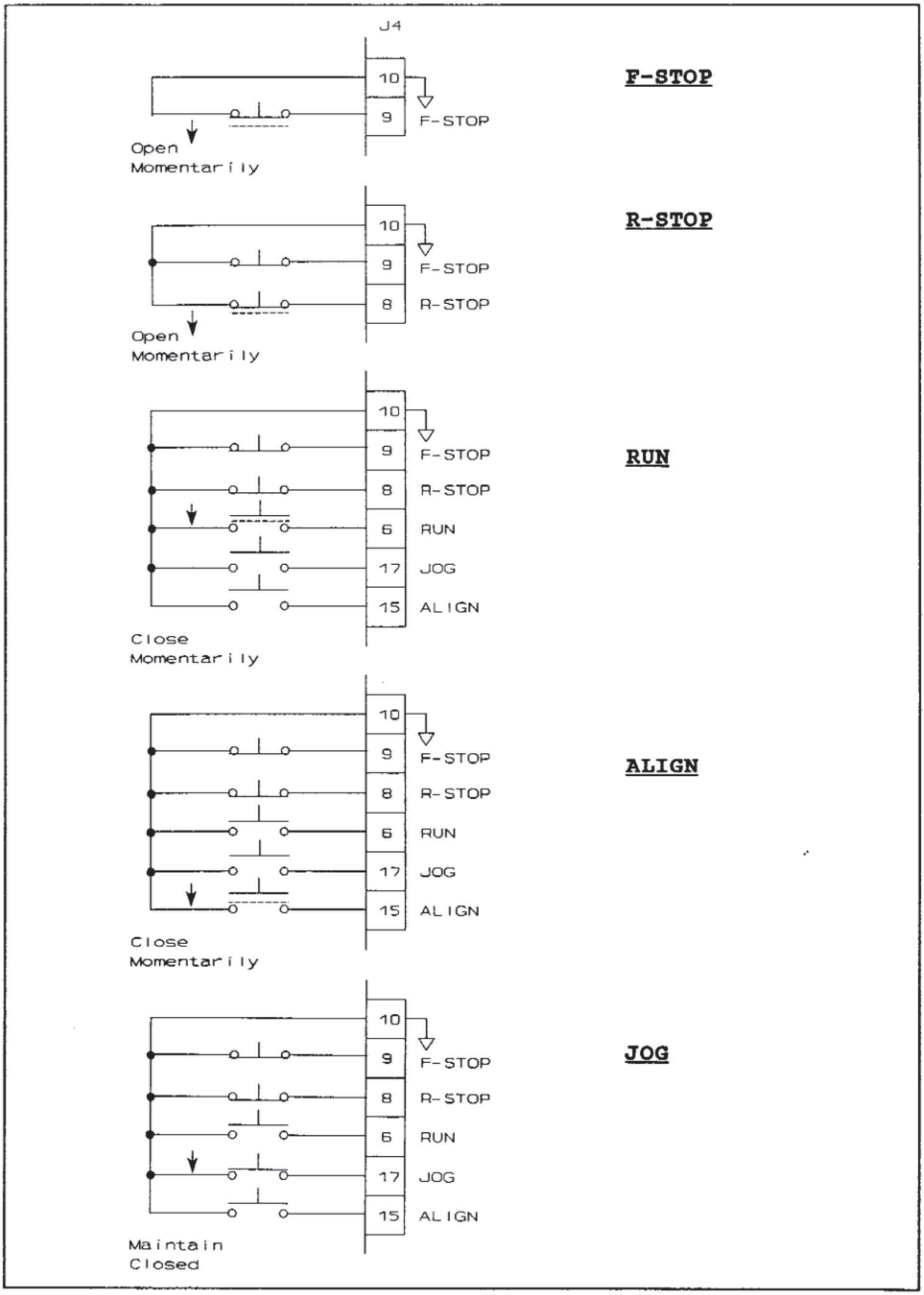


Figure 1-7: Run/Stop Logic

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

RUN/STOP LOGIC

The RUN/STOP/JOG/ALIGN state is determined by five logic inputs at J4 pins 6, 8, 9, 15 and 17. Pins 8 and 9 control the F-Stop and R-Stop conditions respectively and both must be shorted to common to allow the M-Track to enter the Jog, Align or Run States. Specifically, if pin 9 is open, the M-Track is in the F-Stop state regardless of the state of the other pins. If pin 8 is held low while pin 9 is open, the M-Track is in the R-Stop State.

Pins 6, 15 and 17 control Run, Align and Jog respectively. If pins 8 and 9 are held low, a momentary closure of pin 6 puts the M-Track in the Run state. Alternatively, if pins 8 and 9 are held low and pin 17 is shorted to common, the M-Track is put in the Jog State. A momentary closure of pin 15, while pins 8 and 9 are held low, will cause the M-Track to enter the Align state.

Recall that the M-Track cannot be taken directly from either Jog or Align to Run. In addition, the M-Track cannot be taken directly from Run to Jog or Align. Also note that to enter RUN or ALIGN a momentary closure is sufficient but that the JOG state is invoked only while the closure of J4 pin 17 to common is maintained. Figure 1-7 summarizes the pin status for these 5 Operation States.

POWER UP

When power is first applied to the M-Track, the M-Track enters into a default "R-STOP" state. Some features of this default state are:

- The Speed Command Output is adjusted to maintain zero RPM.
- All Programming parameters and setpoints that were entered before power was removed were stored in memory, and are recovered on Power Up.

OPERATOR KEYPAD

The Operator Keypad refers to the upper section of the front M-Track keypad that is exposed with the lower front door closed. Four dedicated function keys (SET POINT, TACH, BATCH COUNT AND STATUS) provide ready access to these parameters. After the SET POINT key is pressed, the numeric part of the keypad is enabled for set point entry.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

FACTORY DEFAULT SCALING

When shipped from the factory, the M-Track is scaled for the following settings:

Follower and Master Motor:	60 tooth gears 2000 RPM maximum speed
Master Format:	Speed setpoint and Tach are scaled in RPM.
Follower Format:	All 8 presets are clear, ready for "Learn Mode" scaling.

For details concerning rescaling the M-Track, refer to the Programming chapter in this manual.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

NOTES

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

CONFIGURATION 2

INTRODUCTION

This chapter contains the information required to hardware configure the M-Track for purposes of electrical compatibility. The procedures within this chapter should be completed prior to installing the M-Track. Note that these procedures do not require power to complete.

Before proceeding with the configuration procedure, read the information below to determine if the factory default configuration is appropriate for your application. In most cases, it will not be necessary to reconfigure the M-Track.

This chapter is divided into 4 sections: Frequency Inputs, Sync Input Filters, Isolator Voltage Reference and Power Voltage Select. Figure 2-1 below illustrates the location for the CPU board and the Power Supply/Isolator board.

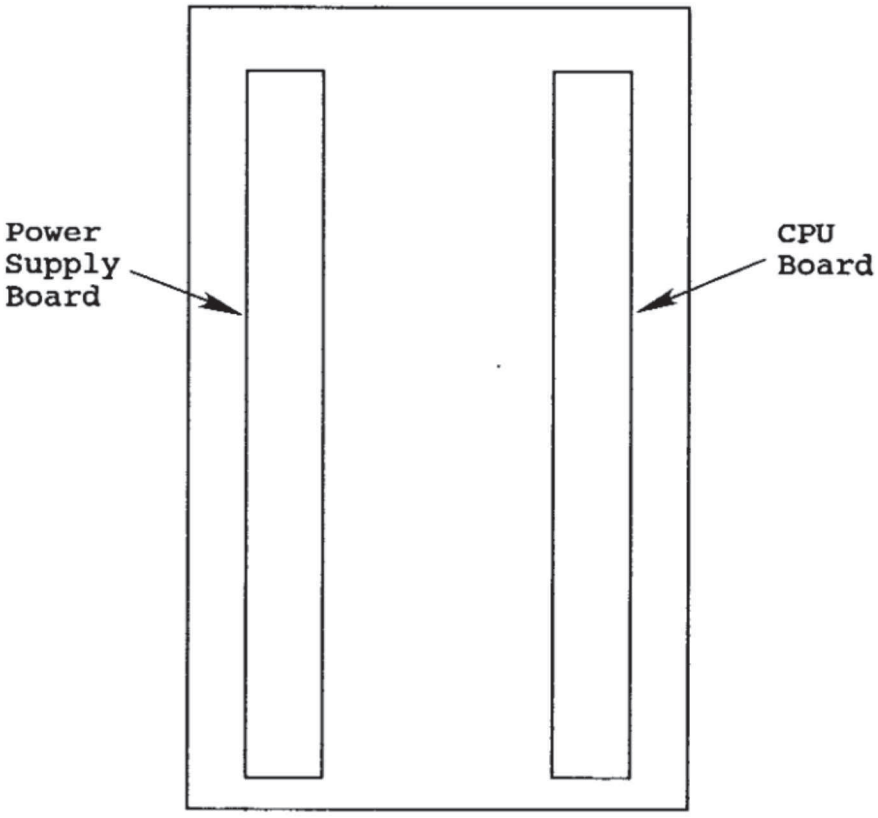


Figure 2-1: M-Track Board Location (Rear View)

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

FREQUENCY INPUTS

The Frequency Input select jumpers are located on the M-Track CPU board. To gain access to this board, remove (pull off) the screw headers from the rear terminal connecters. Next, remove the four mounting screws and backplate. The CPU board is the right-hand board when viewing the M-Track from the rear (Figure 2-1). Pull this board out approximately 1 inch to expose the Frequency Input select jumpers in the middle component side of the board (marked J2).

Note: Make sure the board assemblies are properly seated in the pin connectors when reassembling the unit.

The Frequency Input select jumper configures the External Reference and Feedback Frequency Inputs for either quadrature encoder or incremental signal compatibility.

If incremental encoder inputs are selected, the M-Track will not permit bipolar (forward/reverse) output format. Torque mode control will also not be operational without quadrature inputs.

Figure 2-2 below illustrates the 2 possible configurations for the Frequency Input select jumpers: Figure 2-2a illustrates the inputs configured for quadrature (default), while Figure 2-2b illustrates the inputs configured for incremental.

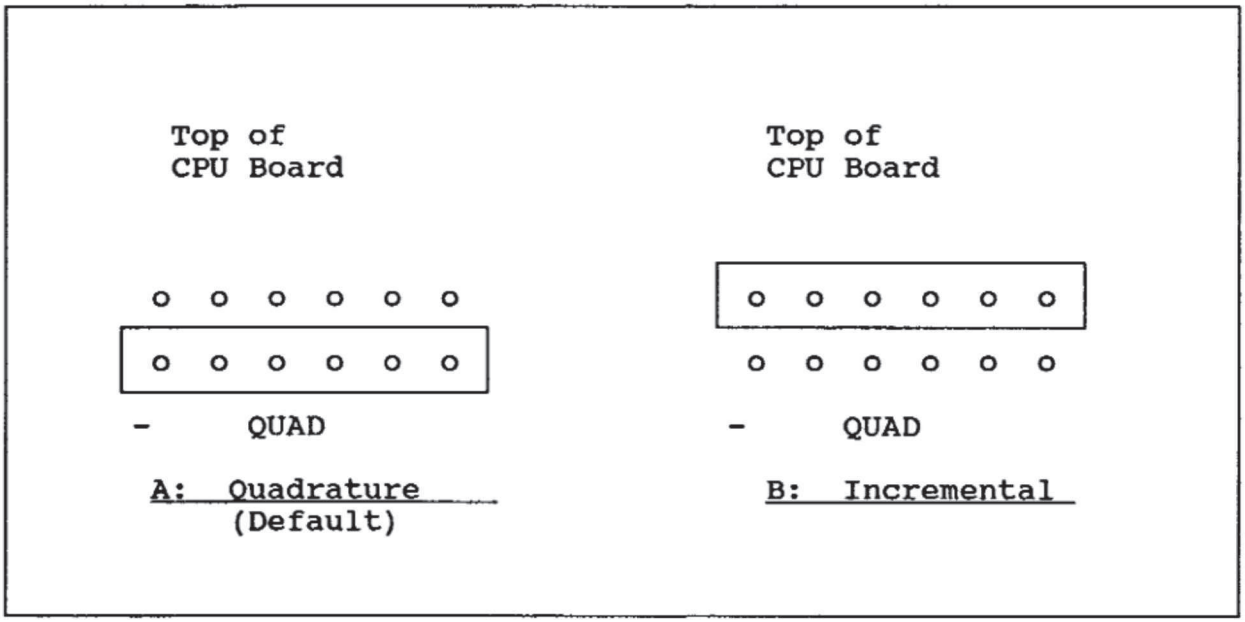


Figure 2-2: Frequency Input Options

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

SYNC INPUT FILTERS

The External Reference and Feedback Sync Inputs are supplied with signal filters to help prevent false syncing from spurious EMI noise. It may be necessary to disable these filters if the duration of the actual sync pulse is less than 2 milliseconds, such as from an encoder index mark.

The Sync Input Filter select jumpers are located on the M-Track CPU board. To gain access to the board, remove (pull off) the screw headers from the rear terminal connectors. Next, remove the four mounting screws and backplate. The CPU is the right-hand board when viewing the M-Track from the rear (Figure 2-1). Pull this board out approximately two inches to expose the Sync Input Filter select jumpers in the middle component side of the board (marked J5).

Note: Make sure the board assemblies are properly seated in the pin connector when reassembling the unit.

The M-Track is shipped with jumpers enabling both External Reference and Feedback Sync input filtering. To disable External Reference sync input filtering, remove the shunt between positions 3 and 4 (see Figure 2-3). To disable Feedback Sync input filtering, remove the shunt between positions 1 and 2.

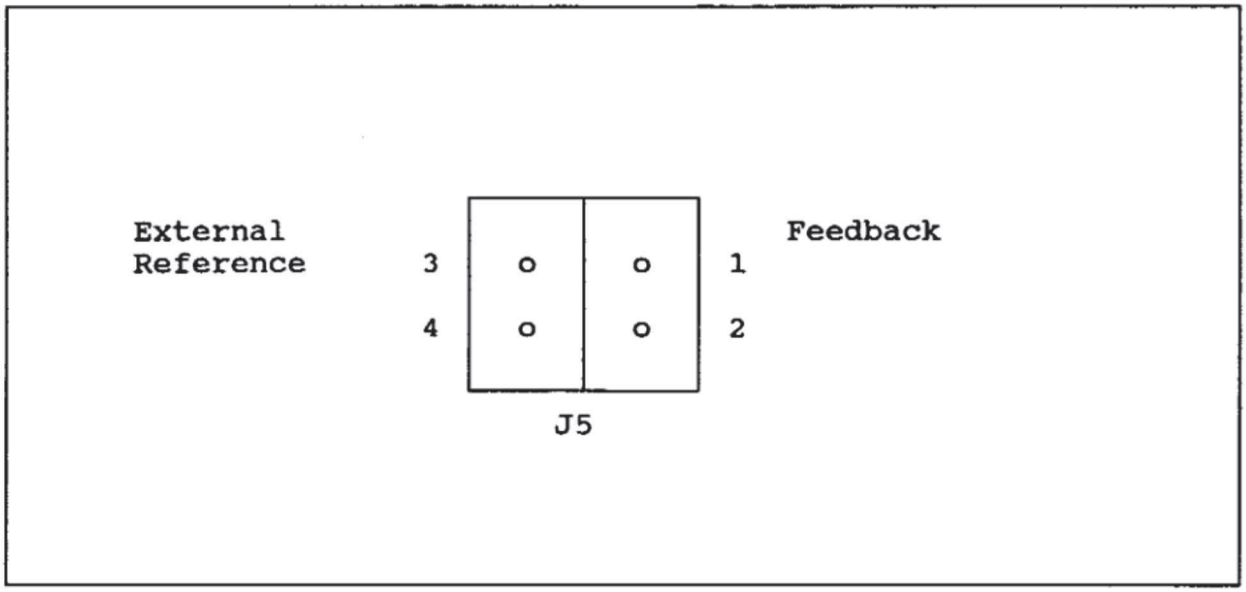


Figure 2-3: Sync Input Filter Option

Note: If Sync Input Filtering is disabled to permit the use of shorter sync pulses, extra precautions regarding EMI noise must be exercised. Shielded twisted pair cable for the sync inputs should be used with the shield grounded at the M-Track end only. Additionally, sync input wiring should be kept physically separated from any AC or other power wiring.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

ISOLATOR VOLTAGE REFERENCE

The Isolator Voltage Reference select jumper (J3) is located near the top of the Power Supply/Isolator Board. The Power Supply/ Isolator board is the left-hand board when viewing the back of the M-Track. It is easily identified by the fuse at the bottom.

The Isolator Voltage Reference selector jumper configures the isolated analog output to either be voltage ranged by an internal 15 volt reference or to be auto-ranged by the voltage level of the motor drive potentiometer input.

When the select jumper is between pins 2 and 4, the internal +15 volt reference is selected. When the shunt is between pins 1 and 3, the auto-range voltage reference is selected (default). In general, the default selection is used except when the motor drive does not have a reference voltage. Figure 2-4 indicates these jumper positions.

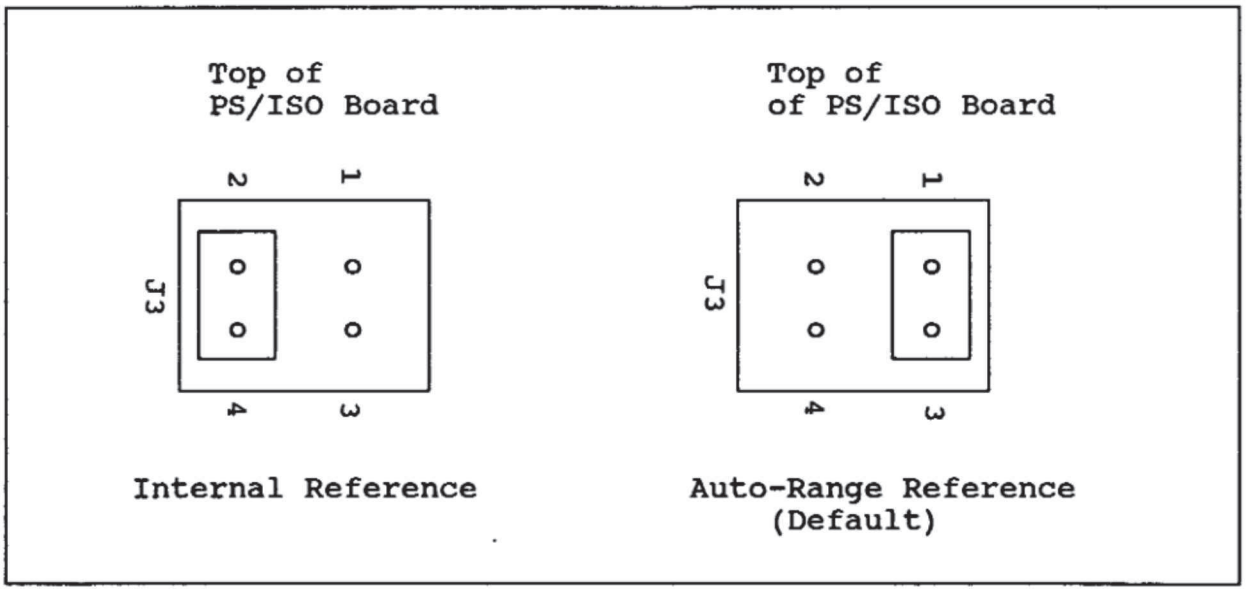


Figure 2-4: Isolator Voltage Reference Options

POWER VOLTAGE SELECT

The Power Voltage Select switch is located on the bottom of the Power Supply/Isolator board, just above the fuse.

This switch selects for either 115 VAC (Default) or 230 VAC power.

The switch is clearly marked for the two available positions.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

INTRODUCTION

This chapter contains the information and procedures required to complete the initial installation and wiring for the M-Track. All pages within this chapter must be read to ensure that the appropriate decisions are made prior to the final wiring of the M-Track.

Note to Electricians installing the M-Track:

The installation of this motor control must conform to area and local electrical codes. For information, refer to the National Electrical Code (NEC) Article 430 published by the National Fire Protection Association, or the Canadian Electrical Code (CEC). Refer to local codes as applicable.

WARNING

Hazardous voltages are present during certain installation procedures. Therefore, the M-Track should only be installed by qualified electrical maintenance personnel.

This chapter is organized into 2 distinct sections:

MOUNTING

WIRING

The Mounting section provides drawings and instructions for mounting the M-Track in an enclosure. The wiring section summarizes the wiring connections for the M-Track.

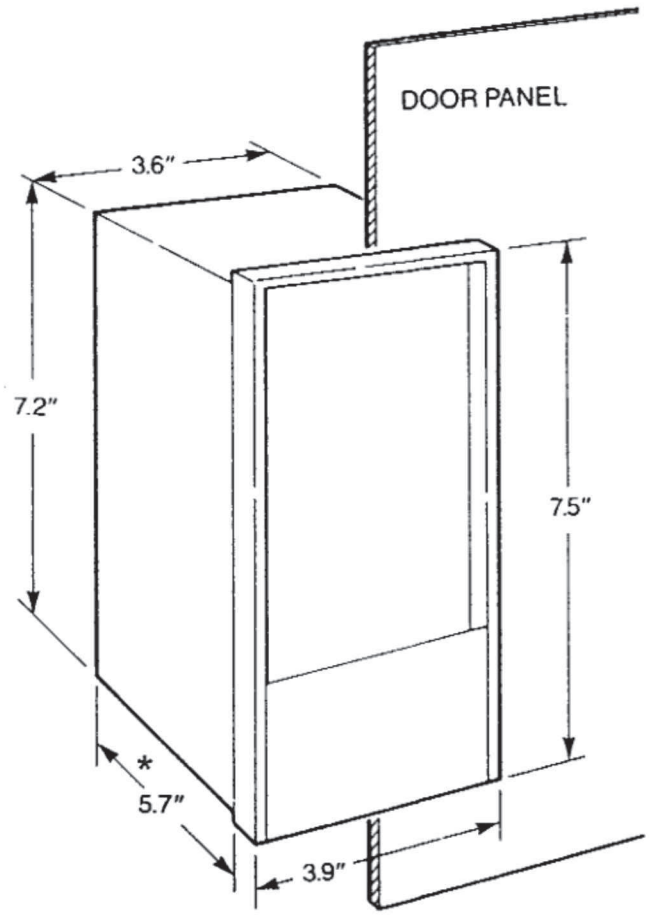
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

MOUNTING

INTRODUCTION

The M-Track is packaged in a 1/2 DIN Vertical instrument enclosure intended for door mounting in a NEMA enclosure. Figure 3-1 illustrates an installed M-Track with dimensions.

Note: Prior to mounting the M-Track in your enclosure, complete the Configuration Procedures outlined in Chapter 2. The configuration shunts and switches may be less accessible after the device is installed in the enclosure.



* To Rear of Connectors from Front Panel

Figure 3-1: M-Track Dimensions

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

MOUNTING PROCEDURE

Mount the M-Track into your enclosure according to the following procedure:

1. Ensure the mounting location meets the environmental conditions for the M-Track:

Temperature:	0 - 50 degrees C
Humidity:	0 - 90% RH non-condensing

2. Determine the appropriate door or panel location and make the panel cutout per Figure 3-2 below.

3. Insert the M-Track from the panel front up to the bezel or gasket.

4. Connect the two mounting brackets from the rear of the M-Track on either the sides or the top and bottom.

5. Drive the mounting bracket screws onto the rear of the door or panel until the M-Track is securely mounted.

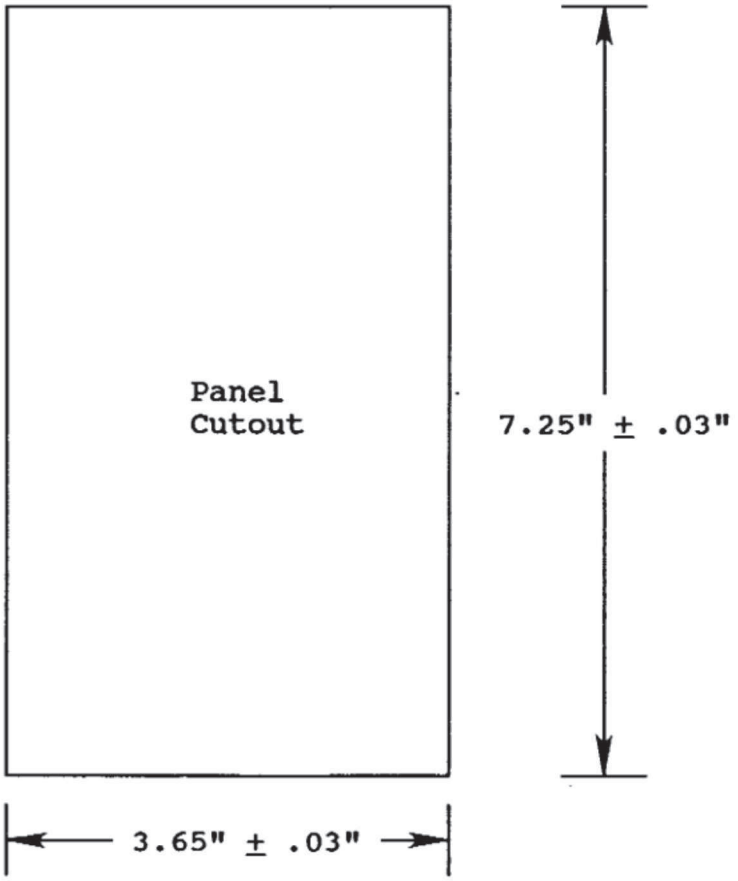


Figure 3-2: Panel Cutout Dimensions

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

WIRING

INTRODUCTION

The wiring portion of this chapter is divided into five sections:

1. Required Inputs
2. Required Outputs
3. Elective Inputs
4. Elective Outputs
5. Serial Communications

As the titles indicate, the decisions made during the Required sections are mandatory to obtain a properly installed M-Track. The elective sections are completed at the discretion of the User.

The Serial Communications connections are discussed as a separate item in the fifth and final wiring section.

MINIMUM WIRE GAUGE REQUIREMENTS

Note that for the following wiring connections, the recommended minimum wire gauge is 18 AWG.

CAUTION

Where indicated, it is important to use shielded cable to minimize equipment malfunctions due to electrical noise. It is assumed throughout this manual that shields are terminated at the receiving end only.

Proper earth grounding of all electronic equipment is required for successful operation. It is recommended that all shield and chassis ground connections (J2 pin 1) be made to an earth ground to provide proper noise immunity and grounding protection. Do **NOT** connect the internal signal common of the M-Track (J3 pin 4) to the chassis ground (J2 pin 1).

AC power wiring (J2) should be kept physically separated from other wiring on the M-Track. Failure to do so could result in coupled electrical noise and subsequent M-Track malfunction.

Inductive coils from relay, contactors, solenoids, etc. on the same AC power line or in the same enclosure should be suppressed with an RC network across the coil. Best results occur with resistance (r) values of 50 ohms and capacitance (c) values of 0.1 microfarads.

If excessive EMI noise exists on the AC power line, such as line notches or spikes, it may be required to install an AC line filter or isolation transformer to ensure proper operation.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

M-TRACK WIRING DRAWING

Figure 3-3 below illustrates the control installation wiring for the M-Track. It is divided into Required Inputs and Outputs, Optional Inputs and Outputs and Serial Communications.

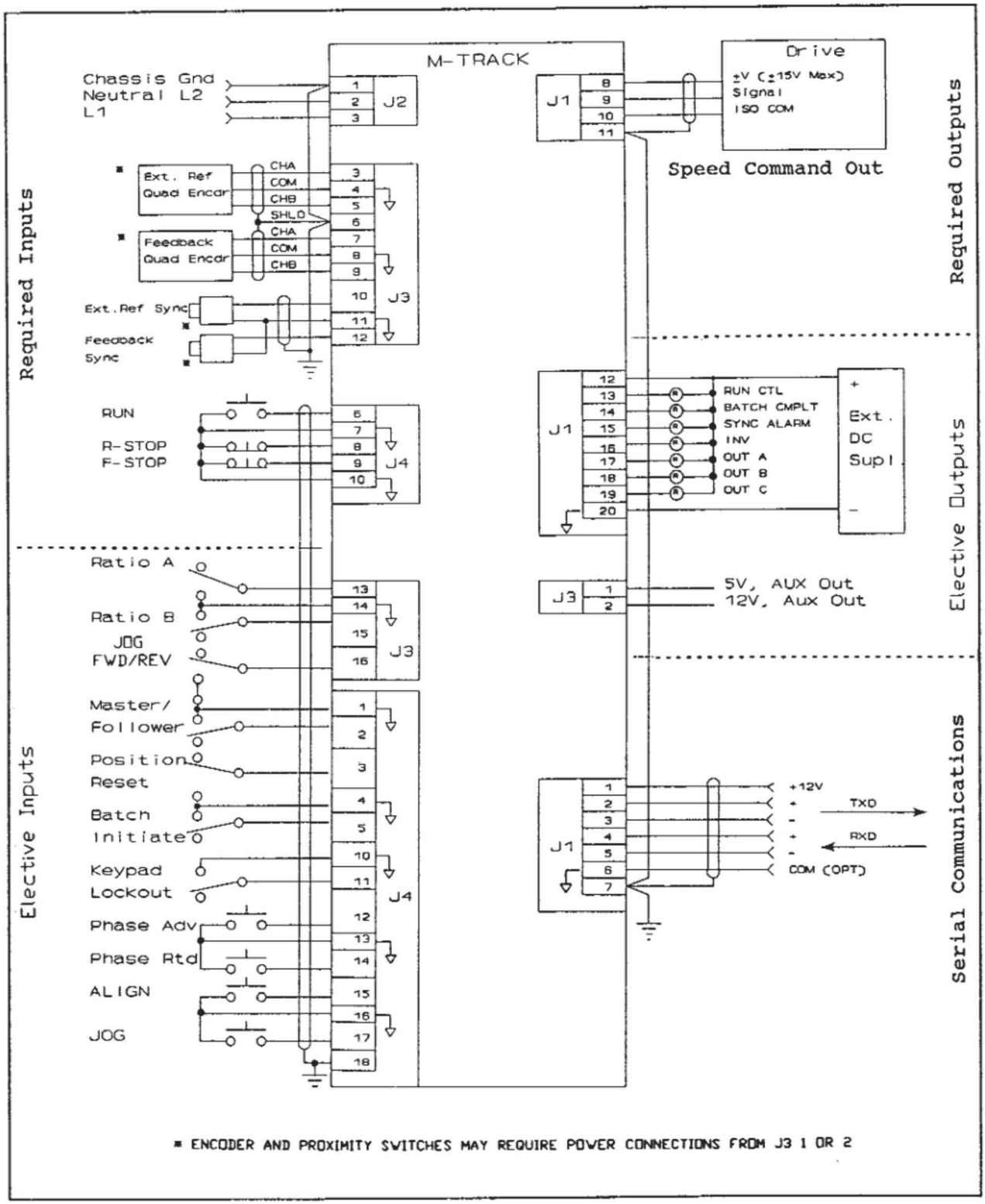


Figure 3-3: M-Track General Wiring Drawing

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

M-TRACK CONNECTOR LOCATIONS

Figure 3-4 below illustrates the location and numbering of the wiring connectors as viewed from the rear of the M-Track.

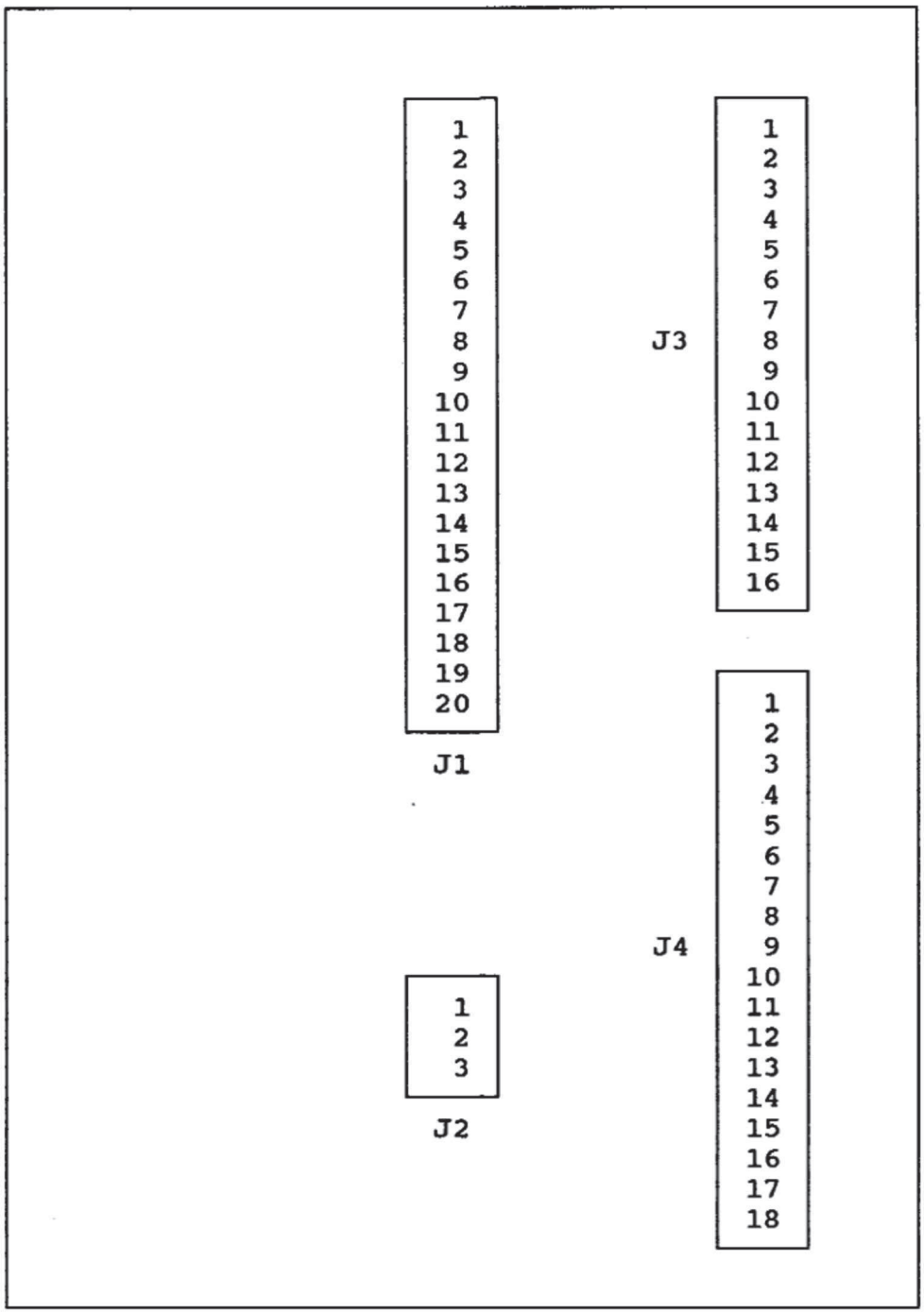


Figure 3-4: Wiring Connector Locations

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

1) REQUIRED INPUTS

INPUT POWER

The M-Track operates on either 115 VAC or 230 VAC. A separate 3 pin connector (J2) is allocated for the power connection.

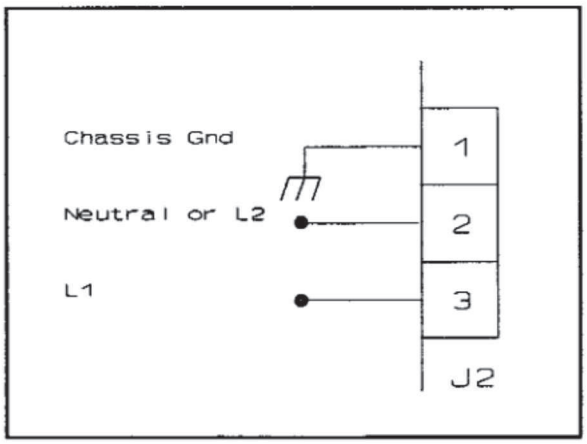


Figure 3-5: Input Power

EXTERNAL REFERENCE FREQUENCY INPUT

The External Reference Frequency Input is a pulse train input used by the M-Track to ascertain lead motor speed.

The specific External Reference input connections to the M-Track depend on whether quadrature or incremental encoders* are utilized. Omit the J3 pin 3 (CHA) connection for incremental format encoders.

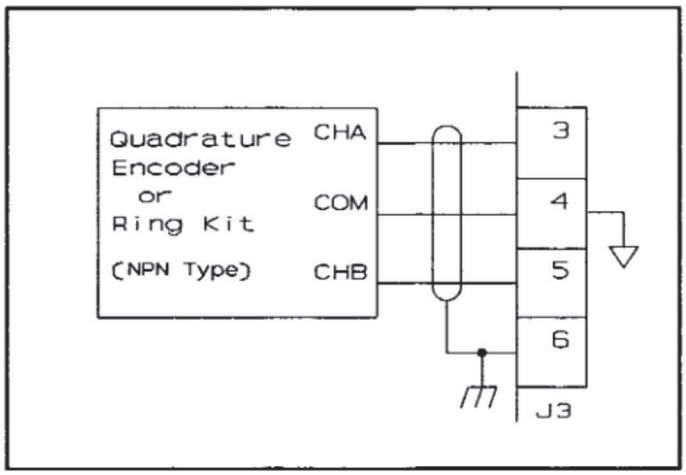


Figure 3-6: External Reference Input Connections

* If incremental encoders are utilized, the M-Track will not permit bipolar (forward/reverse) output control. Torque mode control will also not be operational unless quadrature format encoders are utilized.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

FEEDBACK FREQUENCY INPUT

Feedback Frequency Input is a pulse train input used by the M-Track to ascertain slave motor speed.

The specific Feedback Input connections to the M-Track depend on whether quadrature or incremental encoders* are utilized. Omit the J3 pin 7 (CHA) connection for incremental format encoders.

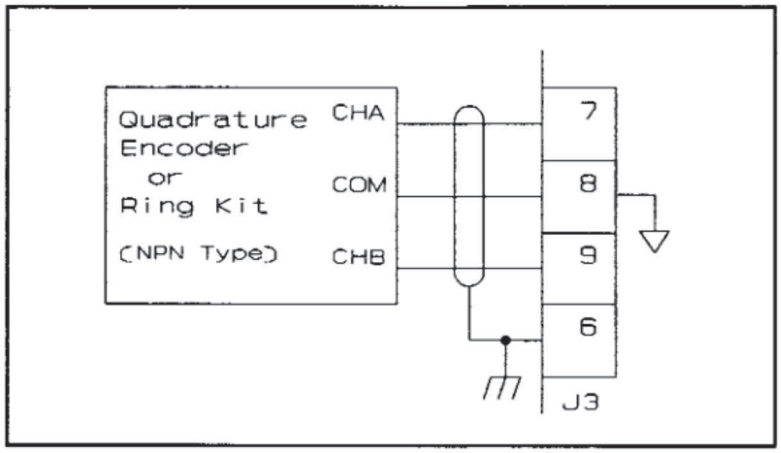


Figure 3-7: Feedback Input Connections

* If incremental encoders are utilized, the M-Track will not permit bipolar (forward/reverse) output control. Torque mode control will also not be operational unless quadrature format encoders are utilized.

EXTERNAL REFERENCE SYNC INPUT

The External Reference Sync input is a frequency input used to indicate the position of the master product or machine part. This input is usually generated by a proximity switch or optical sensor switch (NPN output type).

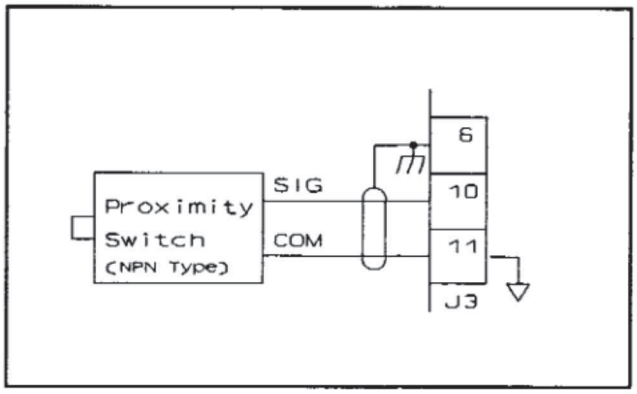


Figure 3-8: External Reference Sync Input

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

FEEDBACK SYNC INPUT

The Feedback Sync Input is a frequency input used to indicate the position of the slave product or machine part. This input is usually operated by a proximity switch or optical sensor switch (NPN output type).

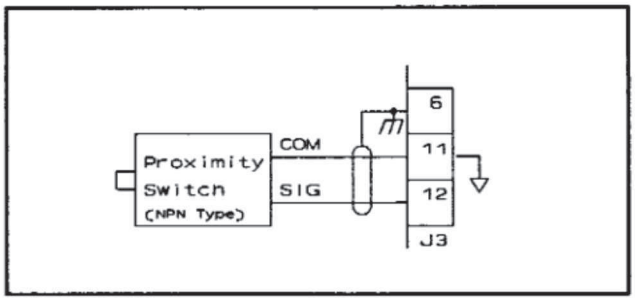


Figure 3-9: Feedback Sync Input

$\overline{\text{RUN}}$

$\overline{\text{RUN}}$ is a momentary input which when closed allows the M-Track to run normally. As a momentary input, the RUN state is internally latched and need not be maintained by the operator device.

CAUTION

The M-Track maintains lead and follower position information during the R-Stop and F-Stop states. When entering the Run state from either R-Stop or F-Stop, the M-Track will attempt to resolve any position error (MV-49) that accumulated during the R-Stop or F-Stop states. The dynamics of this correction will depend on the magnitude of the error and the tuning of the control loop. The Position Reset Input can be used to clear the position error to zero before entering Run.

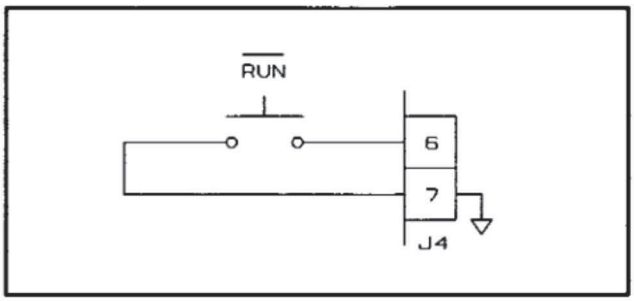


Figure 3-10: Run Input

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

R-STOP

R-STOP is a momentary input which when opened commands the M-Track to ramp to a zero RPM command at the specified deceleration rate. As a momentary input, the R-STOP state is internally latched and need not be maintained by the operator device. The M-Track maintains position information in the R-Stop state.

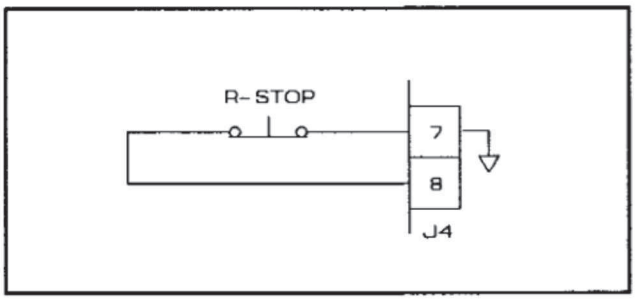


Figure 3-11: R-Stop Input

F-STOP

F-STOP is a momentary input which when opened commands the M-Track to come to an immediate zero RPM command ignoring the specified deceleration rate. As a momentary input, the F-STOP state is internally latched and need not be maintained by the operator device. The M-Track maintains position information in the F-Stop state.

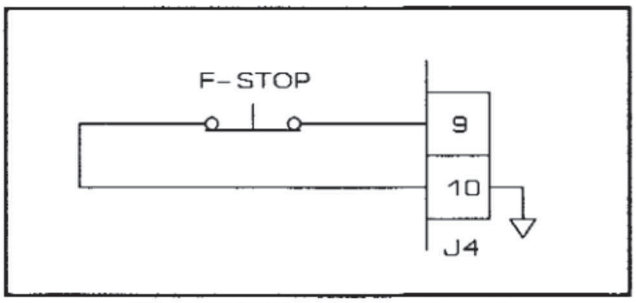


Figure 3-12: F-Stop Input

NOTE

Both the R-STOP and F-STOP inputs must be closed prior to entering the RUN state. If only one of the Stop inputs is used, the other needs to be wire shorted for proper M-Track operation.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

2) REQUIRED OUTPUTS

SPEED COMMAND OUT

Speed Command Out is an isolated analog output signal sent to the subject drive which then controls the speed of the motor. It is typically wired into the speed pot input of the drive. Figure 3-13 below illustrates the SPEED COMMAND OUTPUT connections.

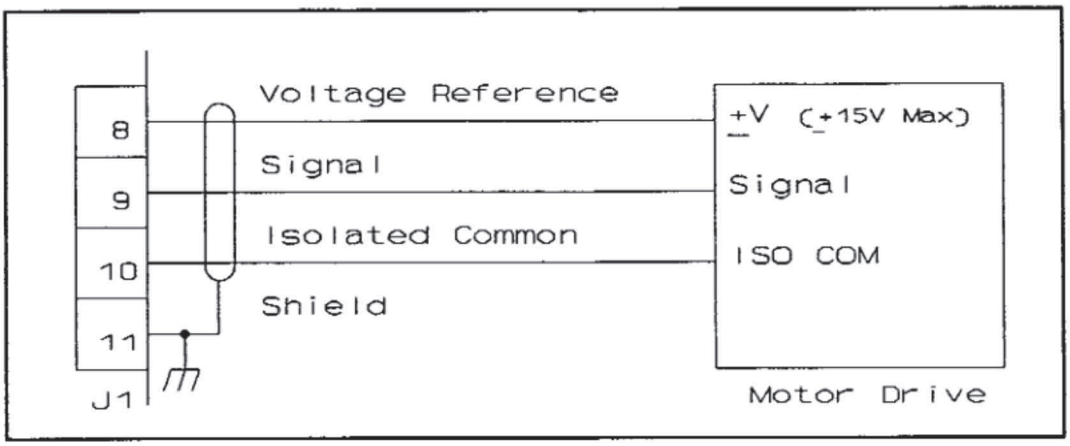


Figure 3-13: Speed Command Output

* Remove Drive Speed Potentiometer

3) ELECTIVE INPUTS

RATIO A (SETPOINT SELECT)

The Ratio A input is used in conjunction with the Ratio B input to select up to three preset setpoints in the follower mode. A detailed discussion of the M-Track setpoint operation is provided in the Programming chapters of this manual.

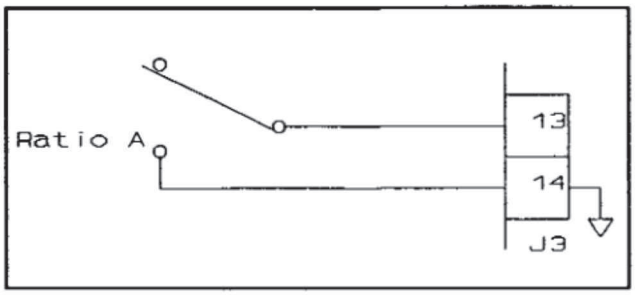


Figure 3-14: Ratio A Setpoint Select

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

RATIO B (SETPOINT SELECT)

The Ratio B input is used in conjunction with the Ratio A input to select up to three preset setpoints.

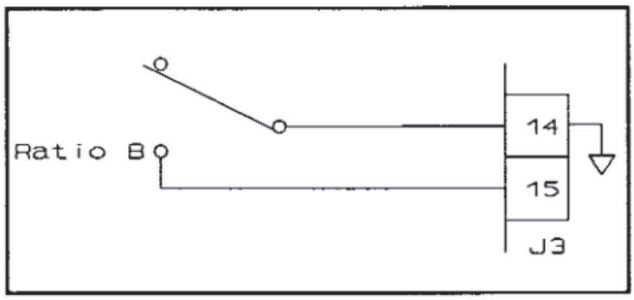


Figure 3-15: Ratio B Setpoint Select

FORWARD/$\overline{\text{REVERSE}}$ (JOG STATE ONLY)

The Forward/$\overline{\text{Reverse}}$ control input controls the voltage polarity of the Speed Command analog output (J1 pin 9) in the Jog state only. This output is sent to the motor drive and subsequently determines the direction of the motor. For this feature to operate correctly, the motor drive must have a bipolar speed setpoint input.

In the Forward (Open) position, the M-Track adjusts the Speed Command analog output to the same voltage polarity present at the Voltage Reference input (J1 pin 8) from the drive. The Reverse (closed) position adjusts the Speed Command to the opposite voltage polarity of that present at the Voltage Reference input.

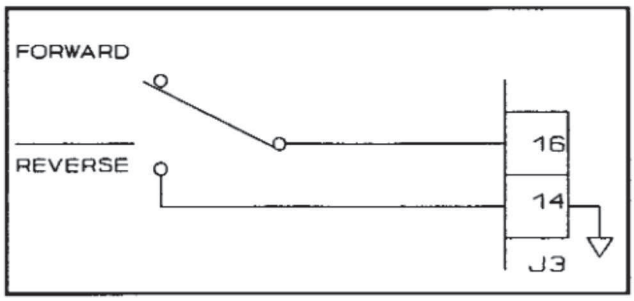


Figure 3-16: Forward/$\overline{\text{Reverse}}$ Input

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

MASTER/$\overline{\text{FOLLOWER}}$

The Master/$\overline{\text{Follower}}$ input selects the scaling format used by the control algorithm. A detailed discussion of the scaling modes is provided in the Programming chapters of this manual.

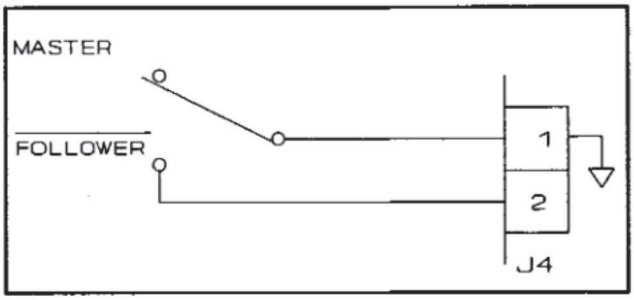


Figure 3-17: Master/$\overline{\text{Follower}}$ Input

POSITION RESET

The Position Reset input is used to reset the alignment (position error) memory to zero. The M-Track maintains position information in the RUN, R-STOP and F-STOP states (resets in JOG). It may be necessary to use the position reset input to clear the alignment memory after stopping the M-Track and manually realigning the machine or product. The position is reset on the high to low transition of this input (edge triggered).

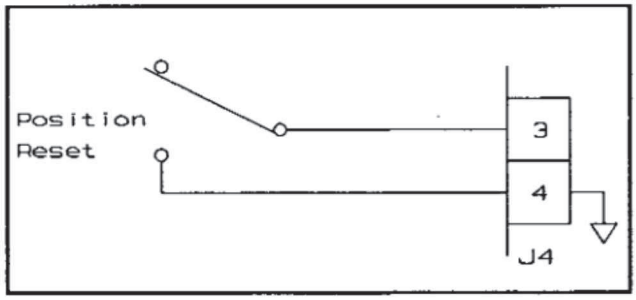


Figure 3-18: Position Reset

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP