



# **Sure-Trak<sup>2</sup>**

DIE CASTING SHOT CONTROL SYSTEM **2**<sup>TM</sup>

Software Installation and computer Setup

April 2017

## Introduction

The following describes how to install the True-Trak 2020™ software on your computer and connect the computer to the FasTrak2™ Portable through the computer's Ethernet port. It is assumed that you are installing this on a computer of your own. If you purchased a computer from Visi-Trak Worldwide these steps will have already been done.

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## Obtaining Your True-Trak 2020™ Software

You should have received an Installation USB Drive with your shipment.

The drive contains the latest version of the Visi-Trak software (Example v8.14.exe).

Double click this file which will create a directory on your computer named

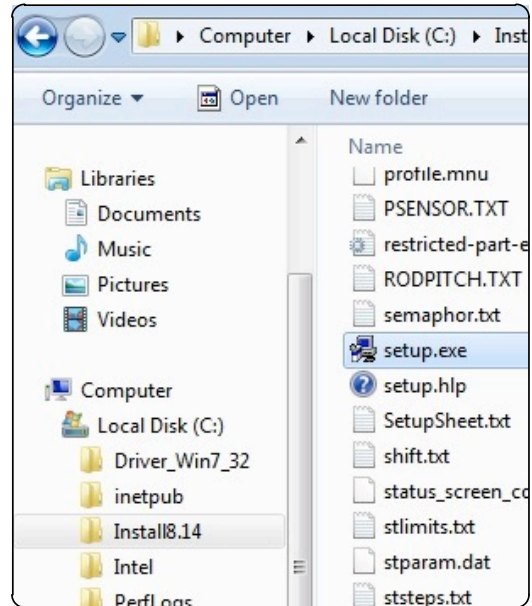
C:\Installx.xx (where x.xx is the number of the latest software version. Example

C:\Install8.14).

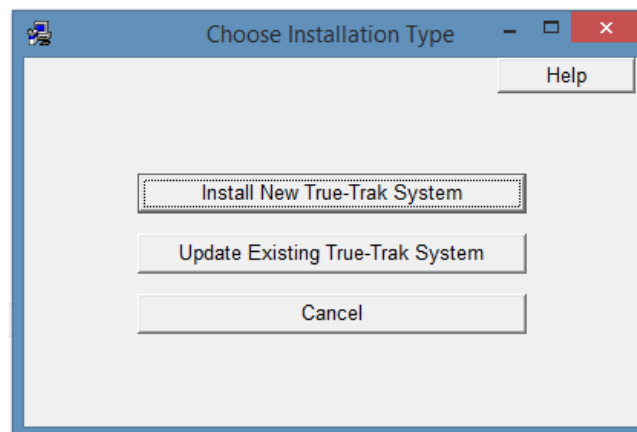


## Installing Your True-Trak 2020™ Software

Open [C:\Install8.14](#) directory and run the "setup.exe" file.

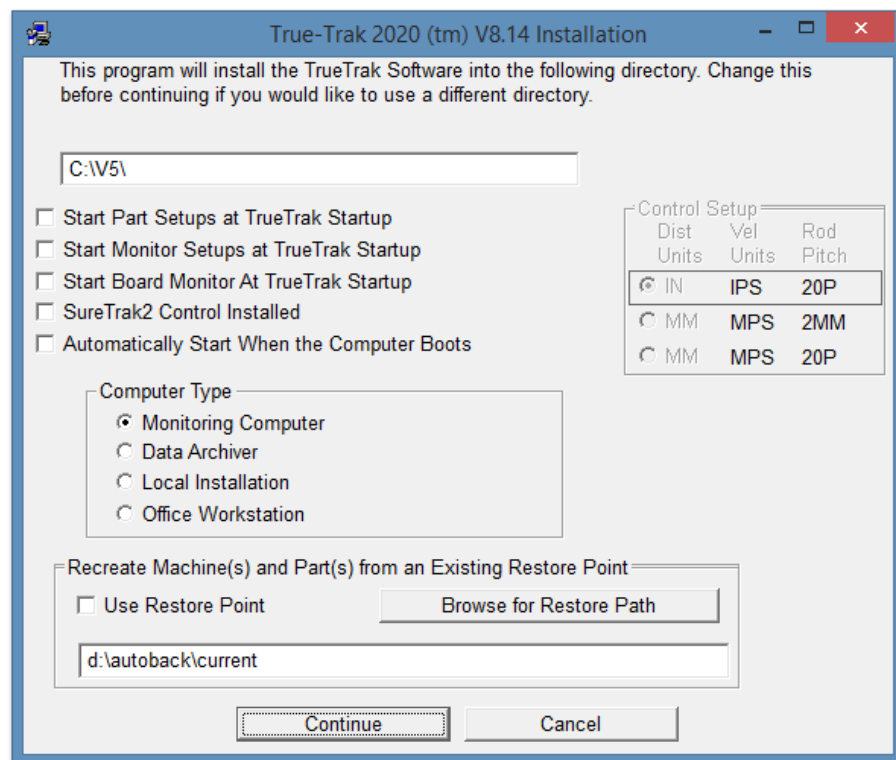


Press the "Install New TrueTrak System" button.



The installation screen gives you a number of options. The first section allows you to choose which programs, if any, are started along with the main "Plot" program.

- The "Start Part Editor at TrueTrak Startup" will run the Part Setup program when you start the TrueTrak software.
- The "Start Board Monitor at TrueTrak Startup" will run the Board Monitor program, the program that communicates with the FasTrak2™ and records the shot data, when you start the TrueTrak software.
- The "Automatically Start When the Computer Boots" option will run the TrueTrak software automatically when the computer is turned ON.



If this is a FasTrak2™ Portable system you may not want any of these checked. In any case you can rerun this setup program again later and change the start-up programs (you must choose "Update Existing TrueTrak System" on the first screen if you are updating an existing installation).



## Sure-Trak2™ Control System

If this is a Sure-Trak2™ Control System you should check the "SureTrak Control Installed" and then choose the configuration, under "Control Setup", that most closely matches your die cast machine.

<input checked="" type="checkbox"/> Start Part Setups at TrueTrak Startup	<b>Control Setup</b> <table border="1"><thead><tr><th>Dist Units</th><th>Vel Units</th><th>Rod Pitch</th></tr></thead><tbody><tr><td><input checked="" type="radio"/> IN</td><td>IPS</td><td>20P</td></tr><tr><td><input type="radio"/> MM</td><td>MPS</td><td>2MM</td></tr><tr><td><input type="radio"/> MM</td><td>MPS</td><td>20P</td></tr></tbody></table>	Dist Units	Vel Units	Rod Pitch	<input checked="" type="radio"/> IN	IPS	20P	<input type="radio"/> MM	MPS	2MM	<input type="radio"/> MM	MPS	20P
Dist Units		Vel Units	Rod Pitch										
<input checked="" type="radio"/> IN		IPS	20P										
<input type="radio"/> MM		MPS	2MM										
<input type="radio"/> MM		MPS	20P										
<input type="checkbox"/> Start Monitor Setups at TrueTrak Startup													
<input checked="" type="checkbox"/> Start Board Monitor At TrueTrak Startup													
<input checked="" type="checkbox"/> SureTrak2 Control Installed													
<input checked="" type="checkbox"/> Automatically Start When the Computer Boots													

The remaining options should remain as they are.

Press the "Continue" button to begin the installation.

<b>Computer Type</b> <ul style="list-style-type: none"><li><input checked="" type="radio"/> Monitoring Computer</li><li><input type="radio"/> Data Archiver</li><li><input type="radio"/> Local Installation</li><li><input type="radio"/> Office Workstation</li></ul>
<b>Recreate Machine(s) and Part(s) from an Existing Restore Point</b> <ul style="list-style-type: none"><li><input type="checkbox"/> Use Restore Point <input type="button" value="Browse for Restore Path"/></li></ul> <div>d:\autoback\current</div>
<div>Continue</div> <div>Cancel</div>

When the installation is complete, you will see the following icon on your screen. Double clicking on this will start the main plot program.

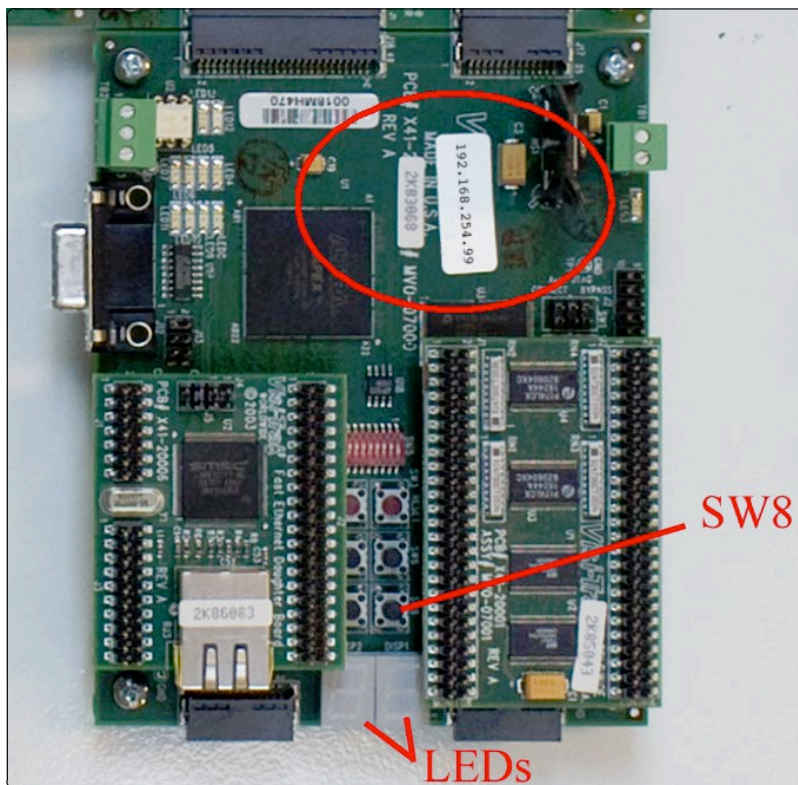
If you chose to have any of the optional programs start at TrueTrak start-up these will also be started at this time.



## Determining the TCP/IP Address of the FasTrak2™ Board

The original IP Address, the address of the board when it is shipped from Visi-Trak Worldwide, is marked on a label on the main FasTrak2™ board. It is shown here with a red oval.

Also shown here are the locations of switch SW8 and the two seven segment leds located on this board.



Pressing SW8 causes the ip address to scroll across the leds.

The following pictures show the sequence of changes to the leds as they would appear if you tilted your head to the right, which makes it easier to decipher the address as it scrolls. 192.168.254.99.

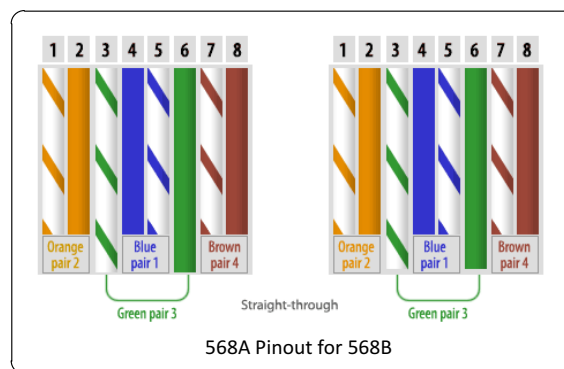


## Setting Up the Ethernet Port on the Computer

The following is a description of how to connect a FasTrak2™ Portable to a separate computer.

If you have an integrated monitoring computer then the computer and the FasTrak2™ board are located inside the same cabinet and are normally connected by an orange cat5 crossover cable that goes directly from the FasTrak2™ board to the "FasTrak2 Direct Connection" Ethernet port on the computer. Otherwise, the steps shown here are the same that are performed by Visi-Trak Worldwide personnel before an integrated system is shipped.

Plug a normal Cat5 Ethernet patch cable into the Ethernet port on the computer.



On the computer, open the Network Connections dialog. Right click on the Network icon and select Open Network and Sharing Center.



Click Local Area Connection

View your active networks

[Connect or disconnect](#)



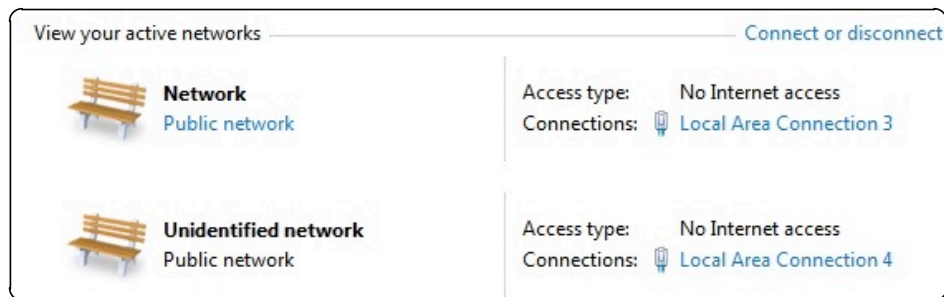
**Unidentified network**  
Public network

Access type: No Internet access

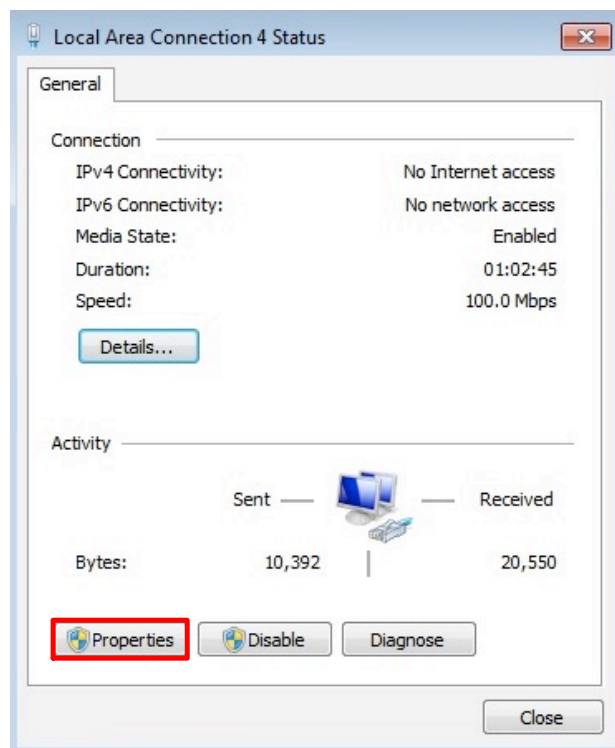
Connections:  Local Area Connection 4

If you have more than one port and don't know which you are going to use, try plugging and unplugging the Ethernet cable from the port on the Visitrak Board.

You should see which Network disappears and reappears, that means that in this case Local Area Connection 4 is the one connected to the Visitrak Board.



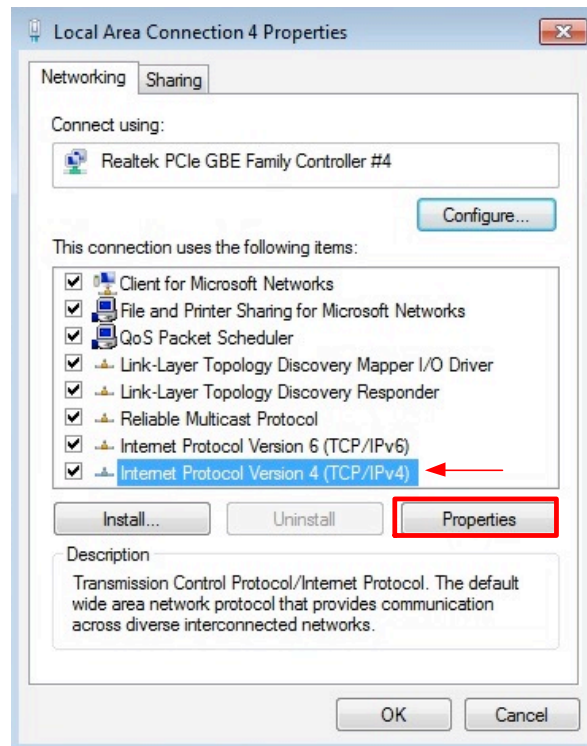
When you double click on the icon for the Ethernet port the properties dialog for that port will appear.





If you are connecting directly to the FT2 Portable uncheck all but the "Internet Protocol (TCP/IP)".

Click once on the "Internet Protocol (TCP/IP)" to highlight it and then press the "Properties" button.



The Internet Protocol Properties dialog will appear. It will probably be set to obtain an IP address automatically.

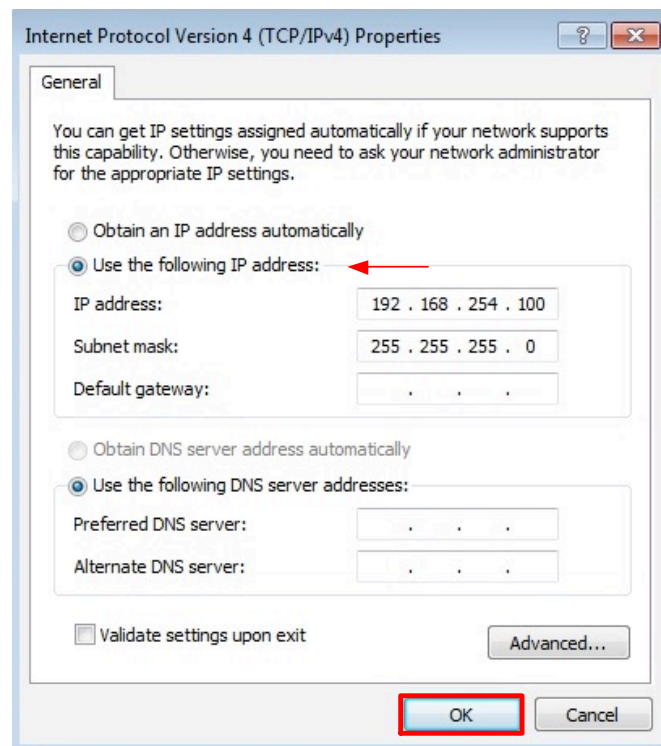
Click the "Use the Following IP Address" button.

Enter an IP address for the computer.

The first three numbers of this address, "192.168.254" in this example, must be the same as those of the FasTrak2 board. The last number must be different. In this example the FasTrak2 board has an address of 192.168.254.99.

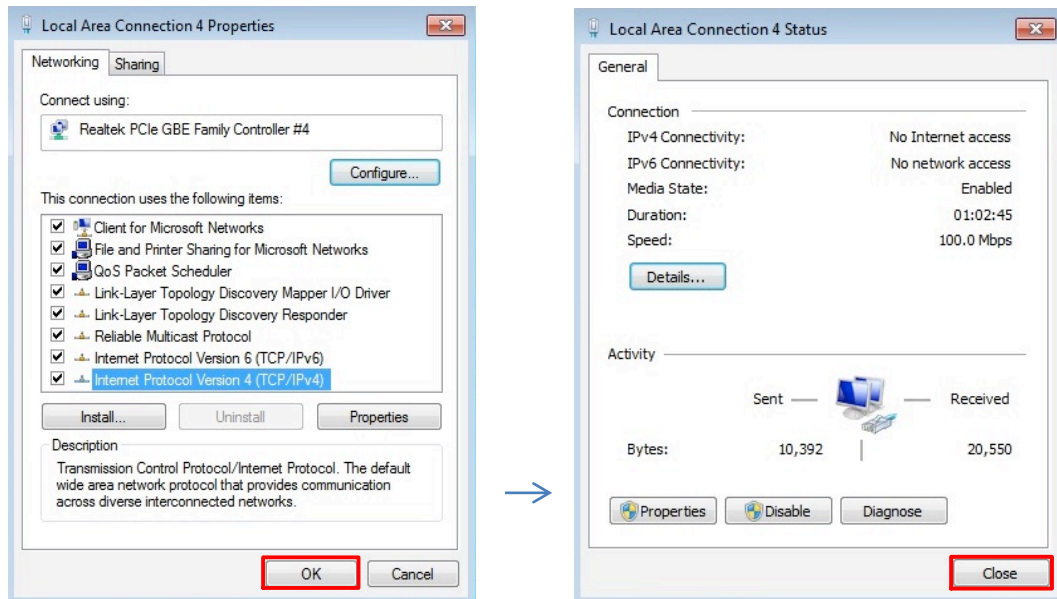
For the computer the last number can be any number except 99 (in the range 1 to 255).

For this example 192.168.254.100 for the address.



Press the "OK" button to close the Internet Protocol Properties dialog.

Press the "Close" button to close the Local Area Connection Properties.

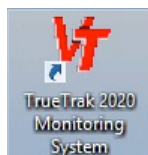


## Getting the Program to Talk to the FasTrak2 Board

Make sure the Ethernet cable connects the computer to the FT2 Portable and that the FT2

Portable is turned on.

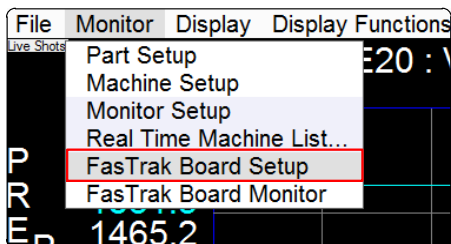
Start the True-Trak program on the computer.



If the "FasTrak2" program is running, pull down the "File" menu and choose "Exit and STOP Monitoring" to shut the program down.



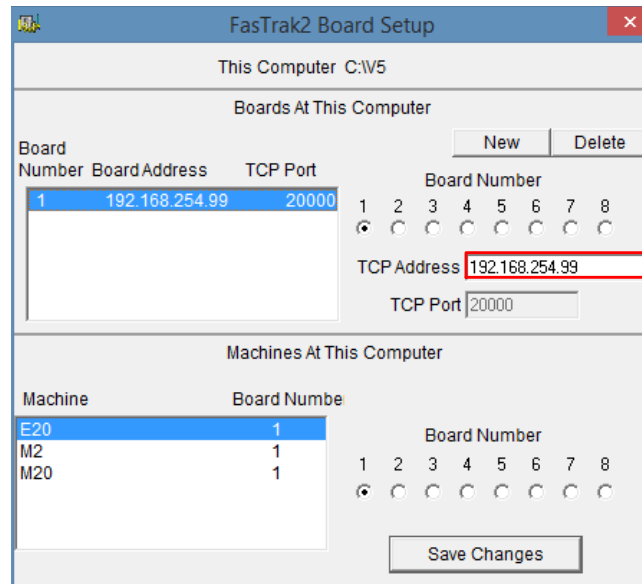
Pull down the "Monitor" menu and choose "FasTrak Board Setup".



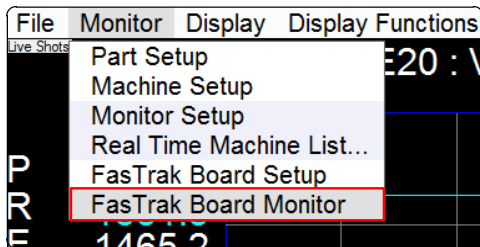


When the FasTrak Board Setup dialog appears, check the "Address" of the FasTrak2 board, pointed to on the picture below, and make sure it is the same as the actual address of the FasTrak2 board that you are trying to connect to.

Press the "Save Changes" button at the bottom of the dialog and then close the dialog.



Pull down the "Monitor" menu and choose "FasTrak Board Monitor".

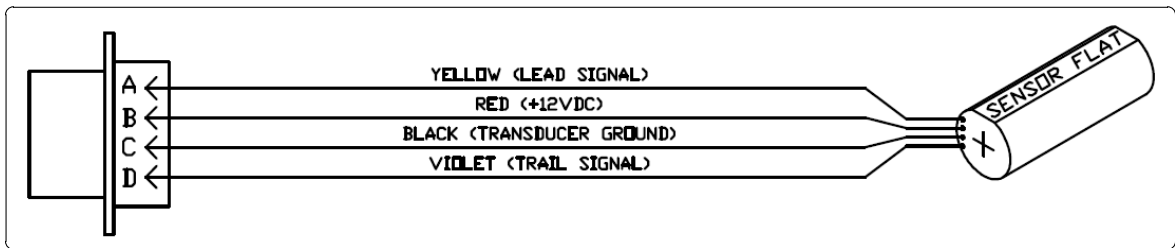
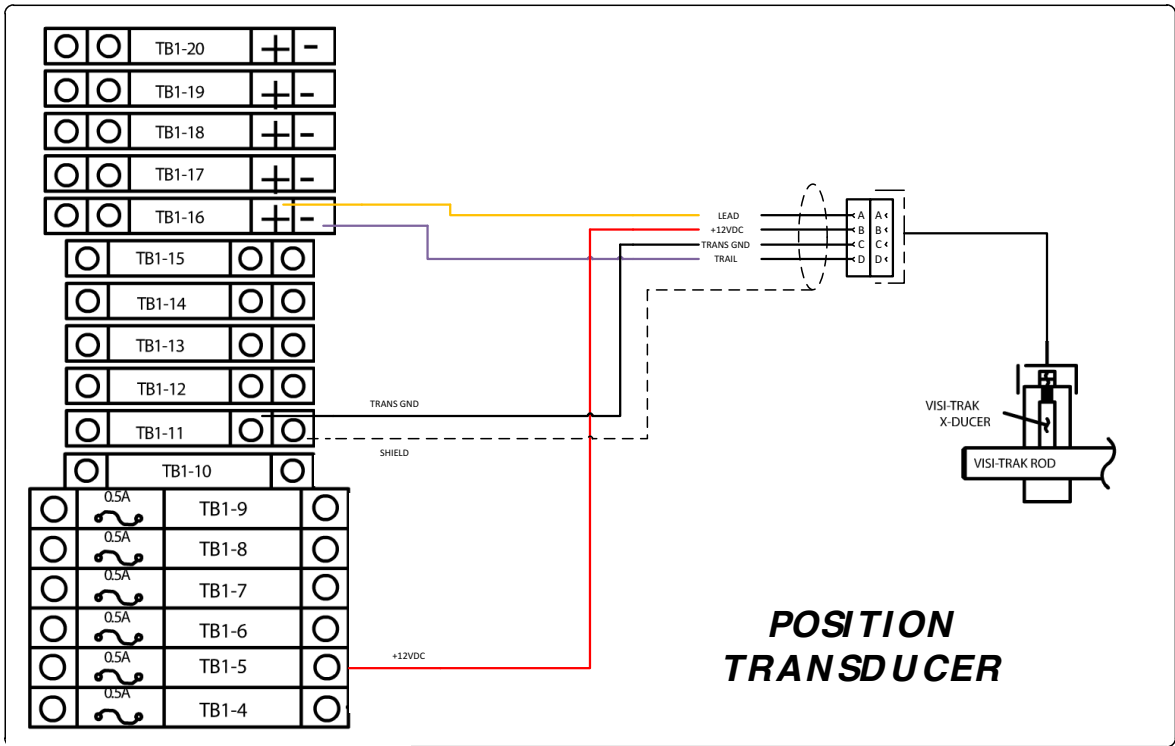


The FasTrak Board Monitor program will appear and should immediately connect with the FasTrak2 Board. This is indicated by the word "Connected" under the "Comm Status".



If this is the first time you have connected to this FasTrak2 board you will see the "Monitor Status" display "Uploading..." for a second or two and then it will display "Upload Complete".

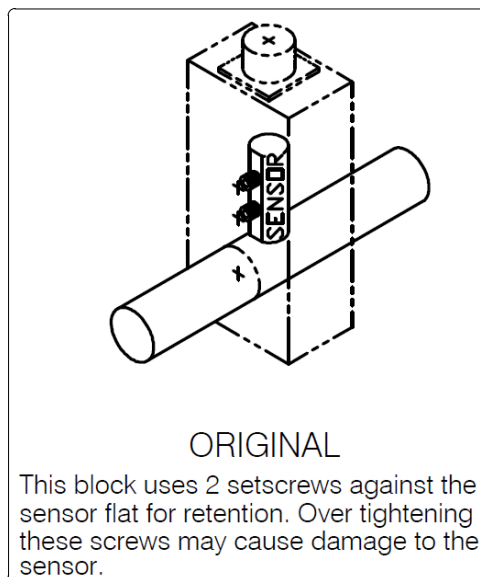
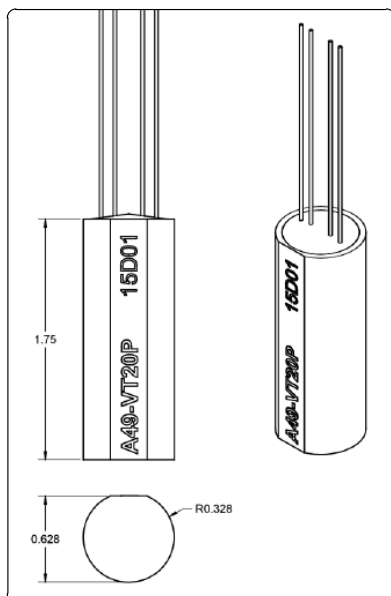
# Connecting the Cable to the Visi-Trak® Position Transducer



## Installation Instructions for Position Transducer

The Transducer has already been pre-tested at the factory and a small sticker should be located on the face. This sticker provides the recommended gapping distance between the rod and the transducer. Any tape located on the sides of the transducer body may prevent proper insertion of the transducer into the transducer mounting block due to the close tolerances that exist.

Carefully insert the sensor into the proper hole of the transducer mounting block and rotate until the flat edge of the sensor lines up with the permanent alignment key and inset the sensor until it touches the rod. Once in place and tighten the nylon tip set screw as shown in the image bellow.



Model	Pitch	Resolution	Max Gapping
A49-VT20P	0.05"	0.0125"	0.020" (0.51mm)
A49-VT10P	0.1"	0.025"	0.040" (1.02mm)
A49-VT1MM	1mm	0.25mm	0.015" (0.38mm)
A49-VT2MM	2mm	0.5mm	0.035" (0.89mm)

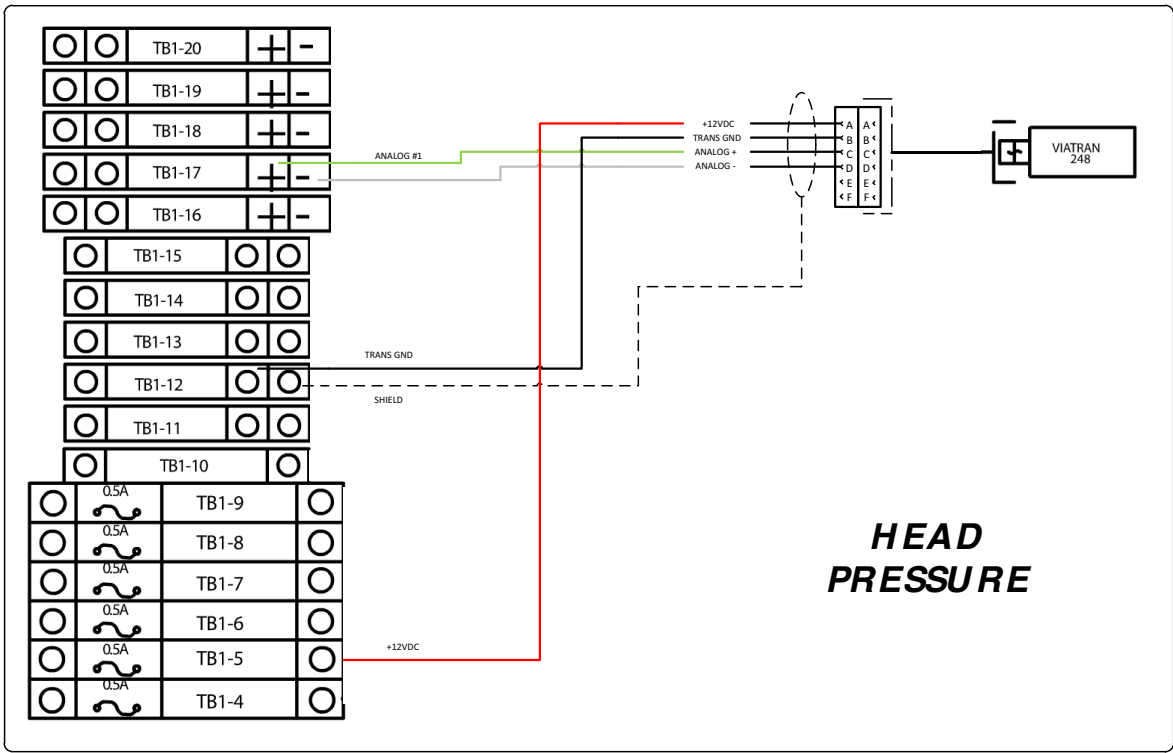
pitch

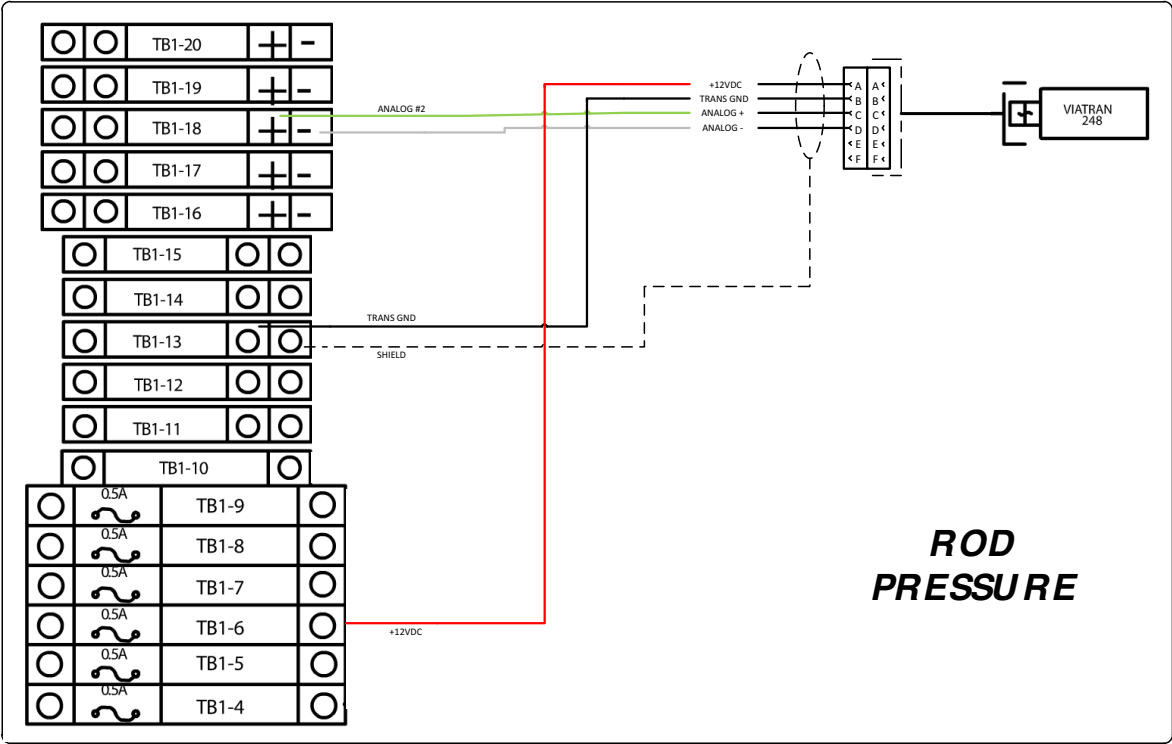
12V  
Leading Channel  
0V

12V  
Trailing Channel  
0V

Sensor Specifications	
Supply Voltage	12V $\pm$ 10%
Supply Current	28mA Typ. (50mA Max)
Linear Speed	500 IPS Max
Operating Temp.	-40°C to 85°C
Output Waveform	50% Duty Quadrature
Red Wire	Supply Voltage
Black Wire	Ground
Yellow Wire	Leading Channel
Purple Wire	Trailing Channel

# Connecting the Cable to a Viatran Pressure Transducer



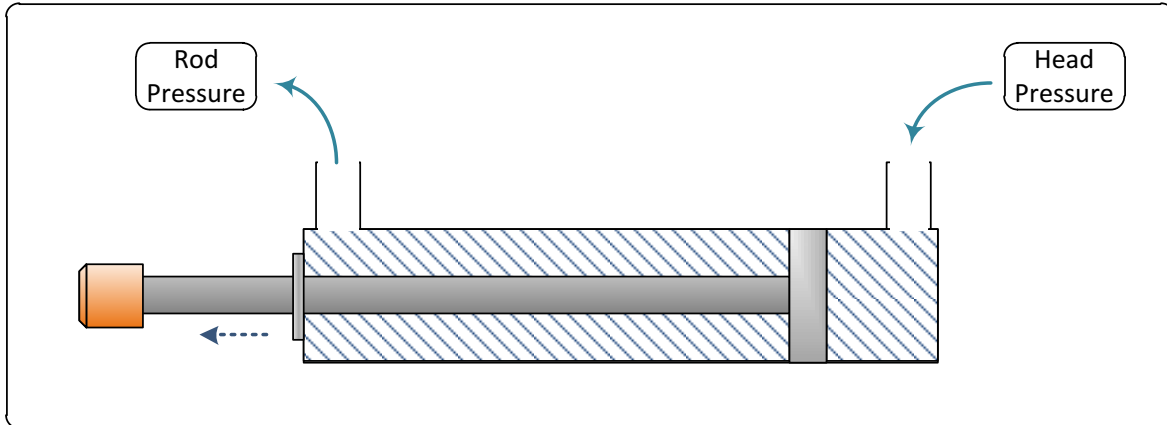


## Cylinder Head

The main function of the head is to enclose the pressure chamber from the other end.

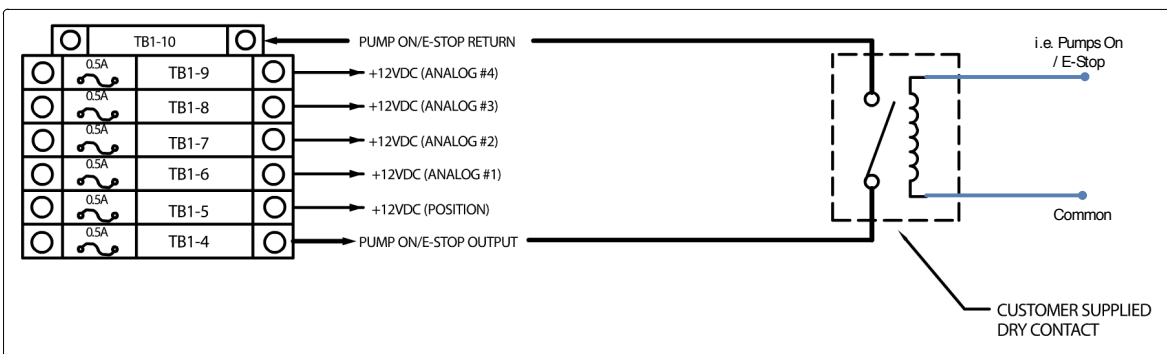
## Piston Rod

The piston rod is typically a hard chrome-plated piece of cold-rolled steel which attaches to the piston and extends from the cylinder through the rod-end head.



## Connecting Master Enable

A signal from the DCM has to trigger an input in Visitrak to Enable the Master control.

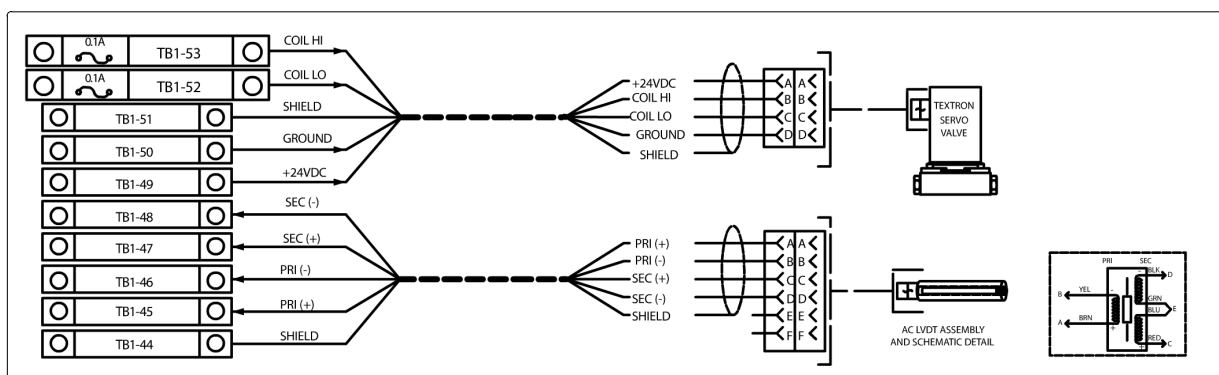




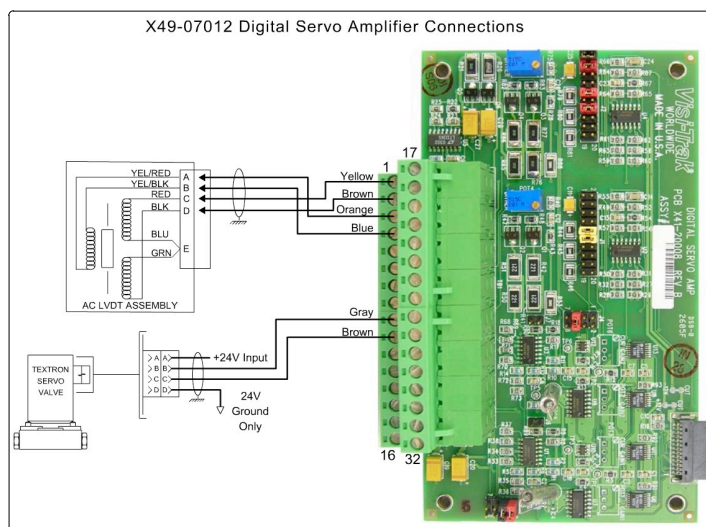
# Shot Control Wiring

## Textron Valve and LVDT

Wire the Textron servo Valve and LVDT to the following terminals strip.

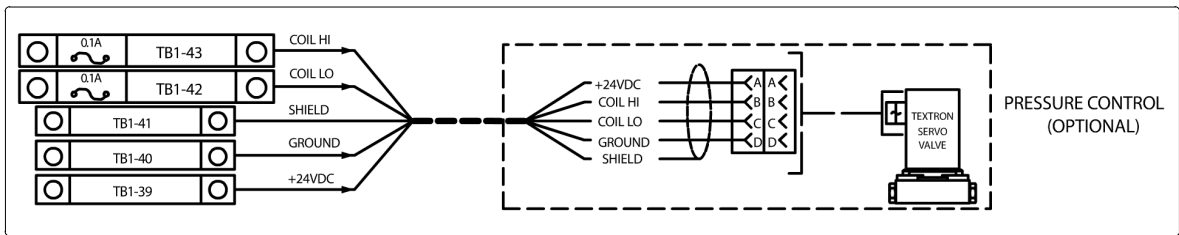


Verify connections to the Digital Servo Amplifier Board.



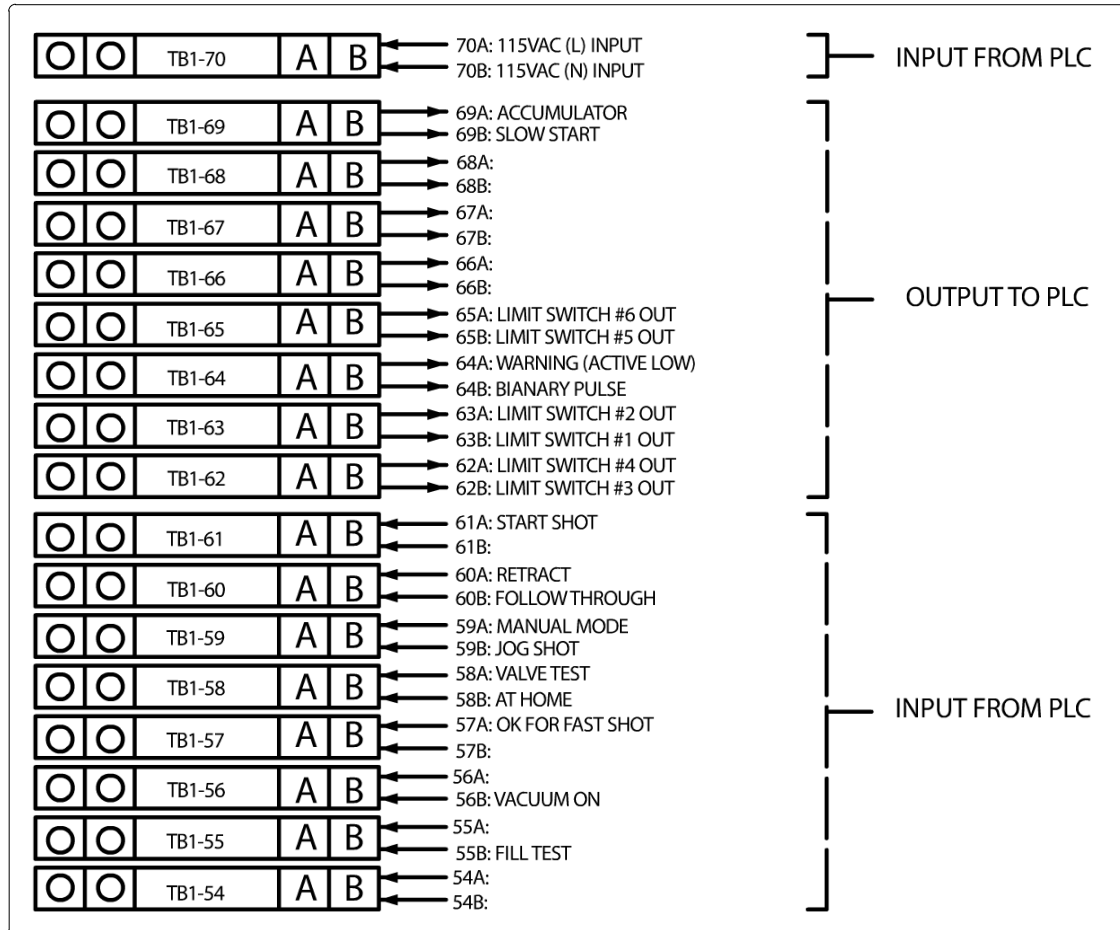
## Pressure Control

Wire the Textron Valve for pressure to the corresponding terminals.



## PLC Interface signals

### Input/Output wiring (control system)



PLC inputs are needed for the shot control to move or initialize a shot.

70A and 70B are needed to power the OPTO Relays

70A 115VAC (L) INPUT

70B 115VAC (N) INPUT

Note: if you have the VDC Version, 70A will be 24VDC and 70B will be the common,  
AC and DC Opto relays are different.

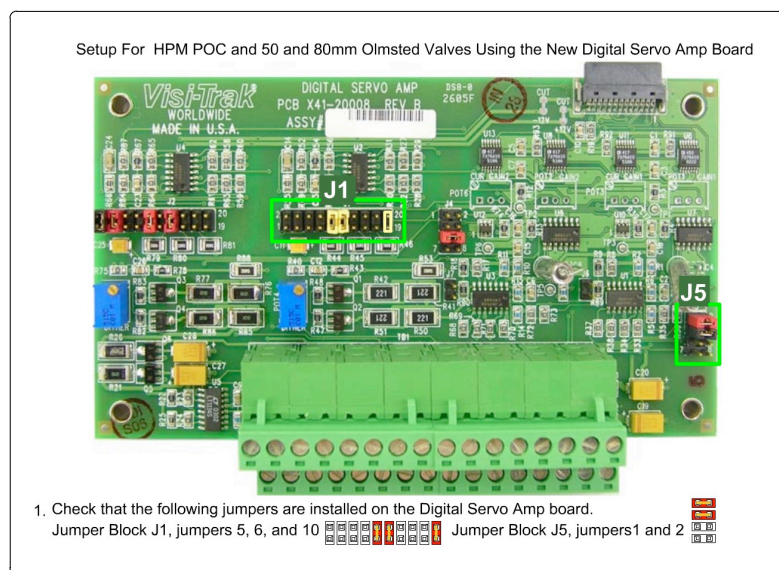
61A START SHOT	to start the shot
60A RETRACT	to retract the shot
60B FOLLOW THROUGH	to follow through after die opens

59A MANUAL MODE	shot control is set to manual mode
59B JOG SHOT	while in manual mode shot can be jogged
58B AT HOME	limit switch that indicates that the shot is fully retracted
57A OK FOR FAST SHOT	condition for vacuum indicating that the vacuum valve has closed
56B VACUUM ON	turn vacuum ON

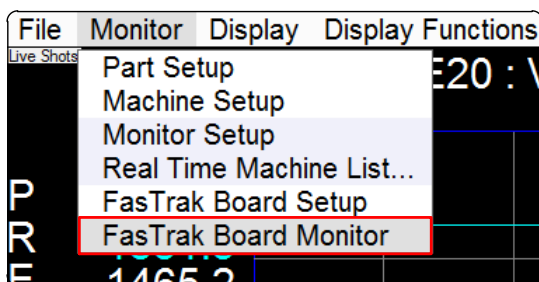
# Sure-Trak2™ Control System

## Calibration for Servo Valve (50mm, 80mm) w/ Digital Servo Amp

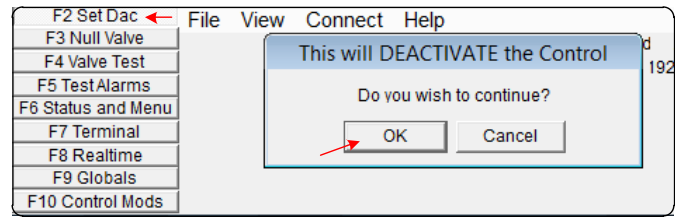
Check for your pin connectors in your Servo Amp Board as the following image.



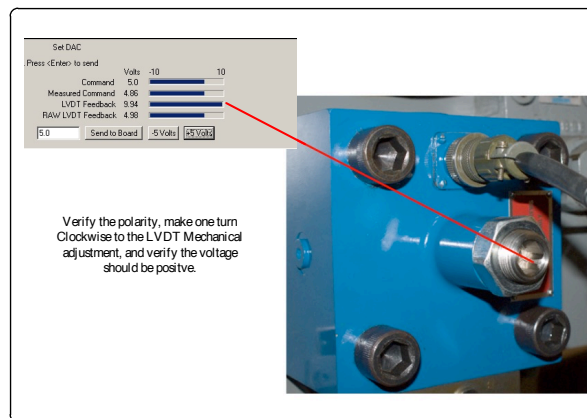
Go to the “Monitor” Menu, and select “FasTrak Board Monitor”.



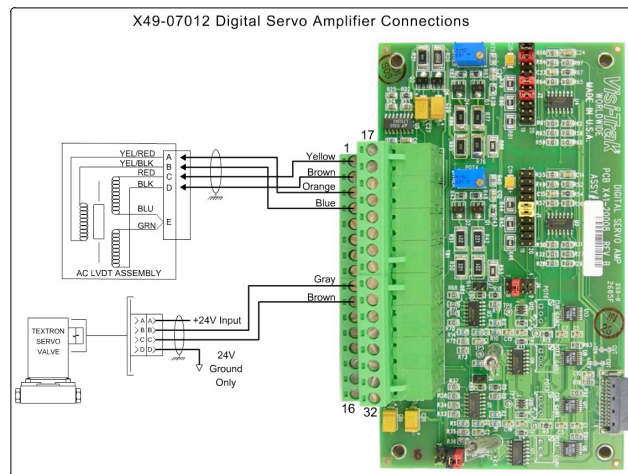
Click on the “F2 Set Dac”, when the system asks to deactivate the control click “OK”.



Check for LVDT Polarity, while in the **Set Dac** Screen, move the LVDT mechanical adjustment  
Clockwise a turn, The **LVDT Feedback** voltage should increase positive.



If the LVDT Feedback does not increase, swap the secondary leads to the LVDT Amplifier Board at TB1-1 and TB1-2. See Diagram.



Click the +5 Volts button, a positive voltage should be displayed on the Raw LVDT Feedback. If the polarity is wrong swap the high and low servo coil drive signals on the Amplifier Board TB1-9 and TB1-10 (See diagram Digital Amplifier Connections above).

Balance the movement. Send out +5v and -5v commands. By clicking the +5 Volts and -5 Volts buttons. The valve poppet should be moving from stop to stop.

Set DAC

Press <Enter> to send

Volts

-10

10

Command

5.0

Measured Command

4.86

LVDT Feedback

9.94

RAW LVDT Feedback

4.98

5.0

Send to Board

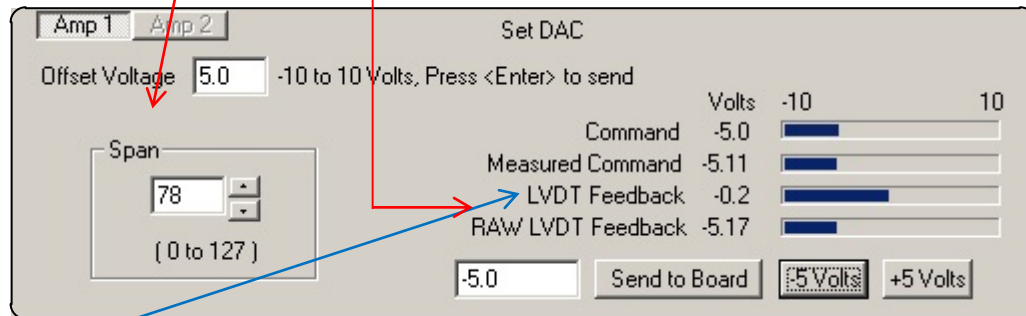
-5 Volts

5 Volts



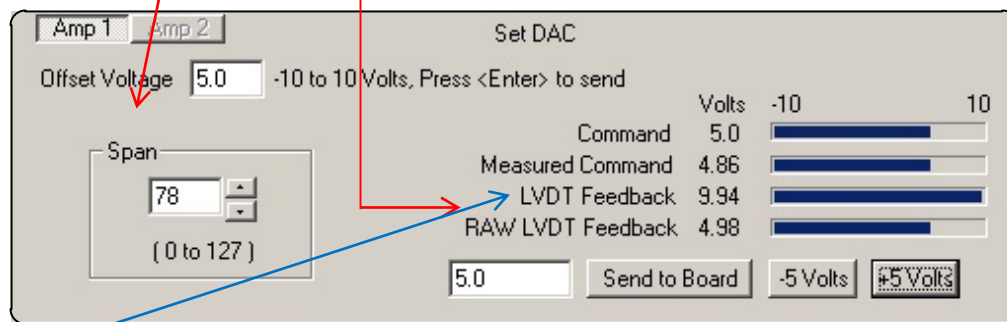
Verify the proper LVDT Voltages as follows:

- A. Set the Offset Voltage to 5 and then press enter.
- B. Force the poppet fully closed by pressing the **-5 Volts** button.
- C. Increase the **Span** until the **Raw LVDT Feedback** displays -5 (negative 5).

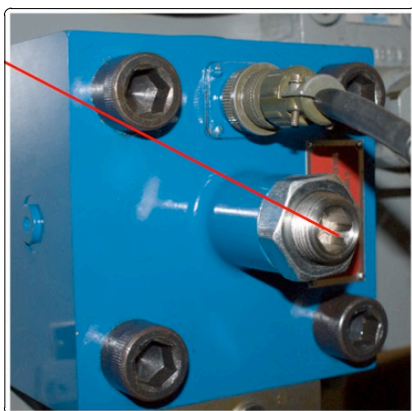


- D. **LVDT Feedback** should be the closest to **-0.15v**.

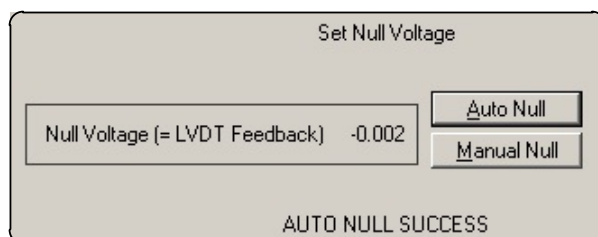
- E. Force the poppet fully open by pressing the **+5 Volts** button.
- F. Adjust the **Span** until the **Raw LVDT Feedback** displays +5 (positive 5).



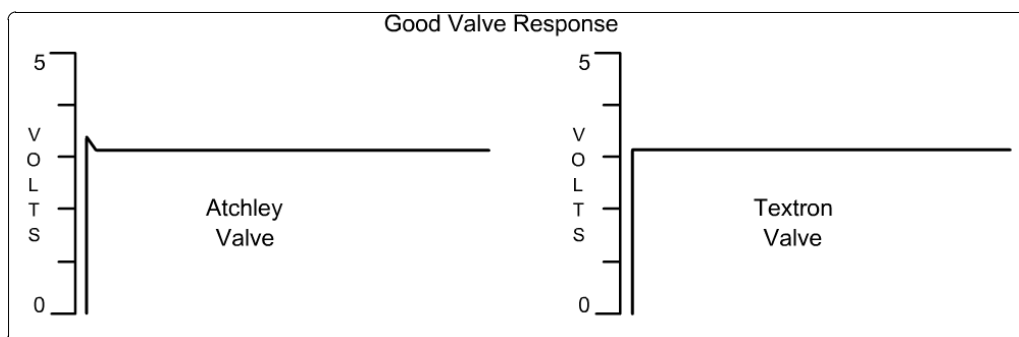
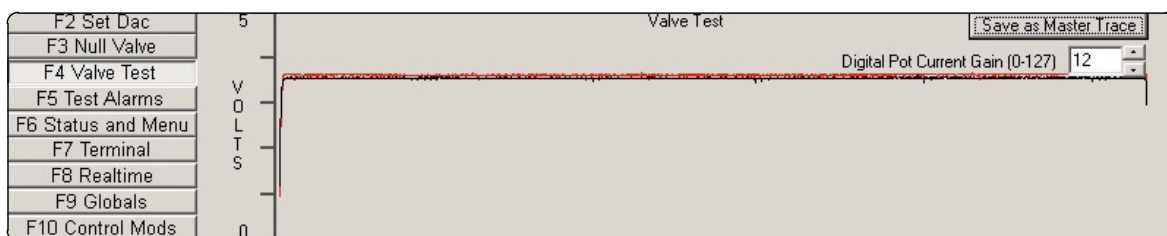
- G. **LVDT Feedback** should be the closest to **+9.98v**.
- H. If LVDT voltage does not adjust, adjust the LVDT Mechanical adjustment screw and repeat steps "B to G".



Check Null Voltage, after calibrating the Valve click on the **F3 Null Voltage**. The Null Voltage should be about 0 Volts +/- 100mV.



Press **F4 Valve Test** to maximize the valve response, increase or decrease the Digital Pot Gain setting until you have a good valve response as shown in the illustrations at the bottom of the page.



## 8 IPS (0.2 M/sec) Test Shot

Setup a shot profile to run the piston at 3%, save the changes, and then click the Monitor This Part button to make this the current part.

Part Setup

Create New Part Delete This Part Copy to Existing Parts Copy to Other Machine Save All Parts Calculator

Machine: E20

Basic Advanced Parameters Positions

Marks Channels Shot Control Setup

Part: VISITRAK

8ips

	Accel	Velocity	Ending Pos	Vacuum Wait	Low Impact	Low Impact From Input
1		3%				
2						
3						
4						
5						
6						
7						
8						

Follow Through Stop Pos: 100

F10: Change Focus

Limit Switches

Description	Pos	Wire	Switch
Limit Switch 1	29		
Limit Switch 2	30		
Limit Switch 3	31		
Limit Switch 4	32		
Limit Switch 5	25		
Limit Switch 6	26		

Vac Loop Gain: 300.0

Break Settings

Velocity Gain: 1 300 1.0

Warmup Shot

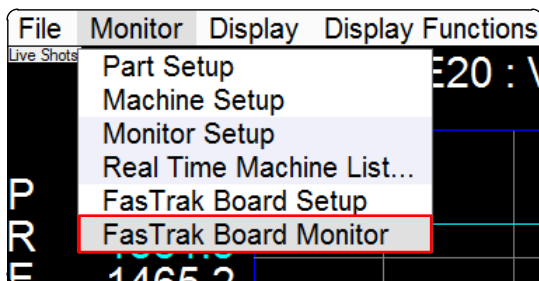
Enable ☒ if Wire is Off

Monitor This Part Save Changes Reload Saved Setup Print

Velocity vs Position IN

Position IN: 0.00 to 30.00

Go to the "Monitor" Menu, and select "FasTrak Board Monitor".



Go to F9 Globals, in the Globals parameter screen set the LVDT Dac Compensation (mv) to 500 in the edit box and click Save Changes.

F2 Set Dac	Null DAC Compensation (mv)	0	
F3 Null Valve	→ LVDT DAC Compensation (mv)	500	← FT Valve Setting (%) 12.0
F4 Valve Test	Jog Shot Valve Setting (%)	12.0	Min Low Impact Setting (%) 12
F5 Test Alarms	Retract Valve Setting (%)	-100.0	Zero Speed Check Pos 10.0 IN
F6 Status and Menu	Dither Frequency	175	Max Velocity (Estimated) 100.0
F7 Terminal	Dither Amplitude	0	
F8 Realtime			
F9 Globals			
F10 Control Mods			
		Save Changes	Revert to Saved Values

While monitoring the shot speed adjust the LDVT Dac Compensation value negative or positive until the shot speed reaches 8IPS (0.2 M/Sec).

