Track Drive Control Panel

Installation and Operation Instructions

IMPORTANT INSTALLATION NOTE

BE SURE TO PERFORM THE INSTRUCTIONS ON PAGE 5 DURING INSTALLATION!

Control Panel Operation

Normal Operation Settings:

CONTROL: Select LOCAL (this control panel) or PLC for remote control

FWD MANUAL/AUTO: AUTO

AUTO REV: OFF for the first portion. When enough grain has be cleared to allow room to reverse change switch to ON

DRIVE REV/OFF/FOR: FOR

AUGER ON-OFF: ON

Controls Description:

Main disconnect switch: Switch has door lock in ON position and lock-off provision in OFF position. To use lock-off, turn switch to OFF position and push in on the white center part of the switch knob. Place padlock through exposed slot in red knob. The switch knob cannot be rotated with padlock in place.

Control LOCAL/PLC Switch: Select LOCAL to control the sweep from this control panel. Select PLC if the system is wired to run from a PLC or other control from a remote location.

FWD Manual/Auto Switch: Normal operation is in the AUTO setting. Only use the Manual setting to run the sweep when no grain is present. To run the sweep around the track without running the Auger use the MANUAL setting.

Auto REV ON/OFF Switch: Allows the sweep to reverse automatically if the Auger amps increase too much. Set this switch to OFF until enough space has been cleared to allow the sweep to run in reverse. The Auto Reverse Timer sets the maximum time that the sweep will run backwards.

Auger On/Off Switch: Turn clockwise to ON, counterclockwise to OFF.

Drive Reverse/Off/Forward Switch: Turn clockwise to Forward, center position is Off, counterclockwise to Reverse.

Auto-Drive Feature: With the FWD switch set to AUTO and the Drive switch to FOR the sweep will move forward into the grain pile. When the Track Drive Motor nears full load amps, with a 1 second delay to allow for a momentary spike in current, the Track Drive will stop. After a 30 second delay (can be changed as needed) the Track Drive will again run forward until the amps climbs to near full load. It will repeat this cycle as long as the Auger switch is ON and the Drive switch is to FOR. If the Auger amps nears full load the Track Drive will stop and reverse for the amount of time set on the Auto-Reverse timer in the panel. The Track Drive will then start moving forward again provided the Auger Motor amps have dropped to an acceptable level. The Reverse function is not interrupted by the current load on the Auger Motor so the sweep can be run in reverse at any time. (To change these settings see the “Programming” section on the following pages.)

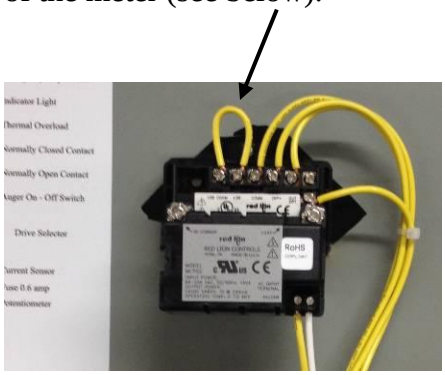
The panel also has Auger undercurrent protection. If Auger amps drop too low the drive will stop pushing forward. This to prevent damage to the equipment should the Auger belts break.

Auger & Drive Overload Tripped Indicator Lights: When one of these lights is on, the overload for that motor has tripped and needs to be reset (blue button labeled “R”). If the overload trips repeatedly further troubleshooting is needed. Check that the current setting is correct on the motor overload (see Step 3 on page 11).

Emergency Stop Button: Stops all motors immediately. Push to Stop, Pull to Reset.

Auto-Drive Feature Programming

There is a “Program Lock” in place to avoid accidental changes to the ammeter programming. If the parameters are incorrect for your application the meter can be reprogrammed. In order to do this you will need to remove the wire jumper on the back of the meter (see below).



Auger Motor High Amps Set Point:

1. To begin programming press and hold the “SEL” button for 3 seconds.
2. Press the “RST” button repeatedly to step through the menus until the display reads “4-SPt”.
3. Press “SEL” to select this option.
4. Press “RST” once to display “SP-1”. Press “SEL” twice to display “SPt-1”. This set point is the highest you want the Auger amps to be before the drive will stop and activate the Auto-Reverse feature. Do not program this for more than the full load amps of the auger motor.
5. To change this set point press the “SEL” button and use the “RST” button to change the number. Pressing “SEL” will take you to the next digit.
6. Press and hold “SEL” to finish this setting.
7. The next set point is the “HYS-1”. This setting is for how much you want the amps to drop before the drive begins moving forward again.
8. Press “SEL” to change this setting. Press “RST” to change the numbers and “SEL” to move to the next digit.
9. Press and hold “SEL” to finish this setting.
10. The next set point is the time delay “tON-1”. This is the number of seconds the Auger Motor amps can be above the stop set point (Steps 4 & 5) before the drive will stop. If you want to change this setting use “SEL” to select this item and “RST” to change the number. Again press and hold “SEL” when finished.
11. The next menu item “tOF-1” is the delay before the sweep will start moving forward again after the amps have dropped. To change this setting press “SEL” to select it and use “RST” to change the numbers.
12. Press “SEL” repeatedly until the display reads “Pro” and “NO”. Press “SEL” twice to end programming mode.

Auger Motor Low Amps Set Point Programming:
This set point is to stop the Drive if the Auger belts break, causing Auger amps to drop significantly.

IMPORTANT INSTALLATION NOTE

BE SURE TO PERFORM THESE INSTRUCTIONS DURING INSTALLATION!

Programming for Auger No-Load Stop Point:
On original installation remove the belts from the Auger pulley, switch the Auger on and take note of the no-load amps on the Auger ammeter. Add 0.5 amps to this amount and use this as the no-load amps setting.

1. To begin programming press and hold the “SEL” button for 3 seconds.
2. Press the “RST” button repeatedly to step through the menus until the display shows “4-SPt”.
3. Press “SEL” to select this option.
4. Press “RST” twice to display “SP-2”. Press “SEL” three times to display “SPt-2”. Program this to 0.5 amps more than the measured amps with no belts on the Auger motor pulley.
5. To change this set point press the “SEL” button and use the “RST” button to change the number. Pressing “SEL” will take you to the next digit.
6. Press and hold “SEL” to finish this setting.

Press “SEL” repeatedly until the display reads “Pro” and “NO”. Press “SEL” twice to end programming mode

Those are the only parameters that should be changed in the field. Remember to reinstall the wire jumper to protect the program from accidental changes.

Pre-programmed Auger Ammeter Settings:

RANGE:	10v (DO NOT CHANGE THIS SETTING)
DECPT:	0.0
OFSET:	0
FILTR:	1
BAND:	10
STYLE:	KEY
INP 1:	0
DSP 1:	0
INP 2:	10
DSP 2:	100
USR IN:	P-LOC
U-ASN:	DSP
HI-EN:	NO
LO-EN:	NO
DSP-T:	1
SEL:	YES
RST:	DSP
ZERO:	NO
SCROL:	NO
UNITS:	NO
CODE:	000
SPSEL:	SP-1
ENB-2:	YES
ACT-1:	HI-UB
SPT-1:	(see Table 1 below)
HYS-1:	3
TON-1:	2
TOF-1:	2
RST-1:	AUTO
REN-1:	YES
STB-1:	NO
ACT-2:	HI-UB
SPT-2:	(see Note 1 below)
HYS-2:	1.5
TON-2:	1
TOF-2:	0
RST-2:	AUTO
REN-2:	YES
STB-2:	NO

Table 1: SPT-1 Setting on Auger Ammeter:

These settings are "best for most installations" and may need to be adjusted for specific situations.

Volts	Auger HP	SPT-1
240	5	11.4
240	7.5	16.8
240	10	22.4
240	15	34
240	20	46
240	25	59
240	30	70
240	40	94
240	50	114
380	5	6
380	7.5	9.3
380	10	12.4
380	15	20
380	20	27.5
380	25	35
380	30	43
380	40	55
380	50	68
480	5	5.7
480	7.5	8.4
480	10	11.2
480	15	17
480	20	23
480	25	29.5
480	30	35
480	40	47
480	50	57
575	5	4.3
575	7.5	6.6
575	10	8.8
575	15	13.8
575	20	18.2
575	25	23.5
575	30	28
575	40	38
575	50	46

NOTE 1: SPT-2 Setting:
This setting is for "broken belts" detection. Remove the belts from the Auger pulley and check the no-load amps on the Auger ammeter. Program this set point to the no-load amps plus 0.5.

Pre-programmed Track Ammeter Settings:

RANGE:	10v (DO NOT CHANGE THIS SETTING)
DECPT:	0.0
OFSET:	0
FILTR:	1
BAND:	10
STYLE:	KEY
INP 1:	0
DSP 1:	0
INP 2:	10
DSP 2:	20
USR IN:	P-LOC
U-ASN:	DSP
HI-EN:	NO
LO-EN:	NO
DSP-T:	1
SEL:	YES
RST:	DSP
ZERO:	NO
SCROL:	NO
UNITS:	NO
CODE:	000
SPSEL:	SP-1
ENB-2:	NO
ACT-1:	HI-UB
SPT-1:	(see Table 2 below)
HYS-1:	0.5
TON-1:	1
TOF-1:	30
RST-1:	AUTO
REN-1:	YES
STB-1:	NO

Table 2: SPT-1 Setting on Tack Ammeter:

These settings are “best for most installations” and may need to be adjusted for specific situations. Use the HP and voltage of the Track Drive Motor to determine which setting to use.

Volts	SPT-1 1 HP Track Motor	SPT-1 1.5 HP Track Motor
240	2.9	4.2
380	1.8	3.1
480	1.4	2.1
575	1	1.7

Control Panel Installation Instructions

All electrical connections must be done according to local electrical codes. These instructions are provided as a guideline but local inspection authorities may have other requirements that the installer must adhere to.

IMPORTANT NOTE: Make sure all electrical connections in the panel are secure. Due to vibration during shipment screw clamps may become loose and need to be retightened before applying power to the panel.

Panel Location:

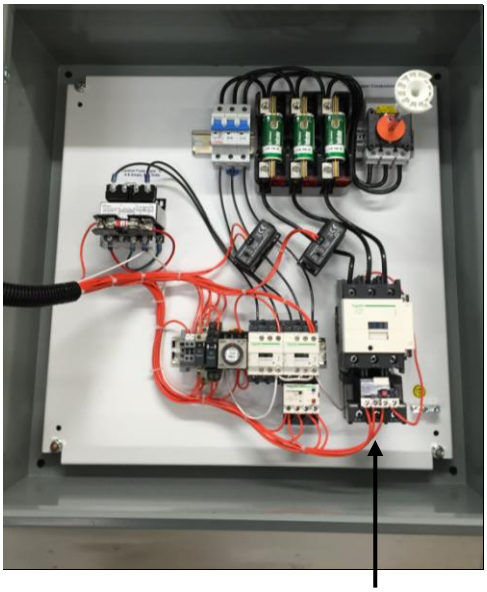
The control panel needs to be mounted on the outside of the grain storage space (bin or silo). This panel is NOT APPROVED FOR INSTALLATION IN A HAZARDOUS LOCATION. We recommend it be mounted next to the bin access door. The operator should be able to see the bin sweep during operation while standing at the control panel.

Electrical Connection:

Table 3 (page 12) provides amperages for calculating wire size and fuse or breaker size. FOLLOW LOCAL CODES WHEN SELECTING WIRE AND FUSE/BREAKER SIZES. Always do a voltage drop calculation to determine appropriate wire sizes.

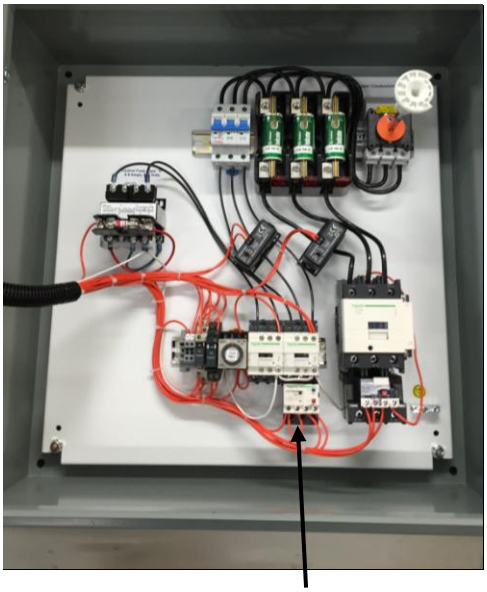
Note: Your panel may not be identical to the one in the following steps. However, location of the various connection points remains the same.

Step 1:



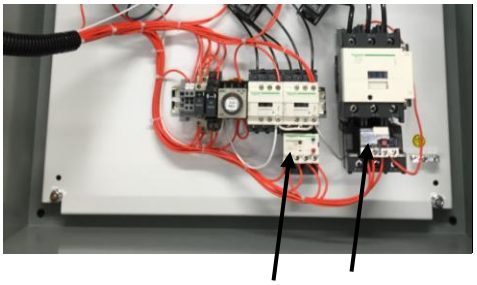
Connect Auger Motor to terminals

Step 2:



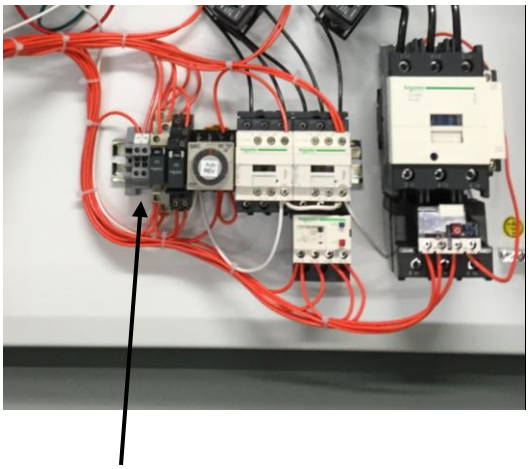
Connect Drive Motor to terminals

Step 3: VERY IMPORTANT!



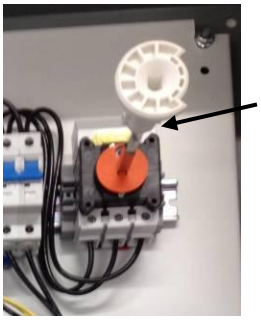
Ensure that the current setting on the overload blocks matches the Full Load Amps (FLA) on the auger and drive motor nameplates. **Failure to do this could cause permanent damage to the motor.**

Step 4:



If applicable, wire remote control (PLC, Remote On-Off, level control switches, etc.) to Terminals 1 & 2. **NOTE: This is a 120 volt control circuit with power supplied from this control panel. Remote control needs to be via dry contacts rated for 120 volts, 0.6 amps.**

Step 5:

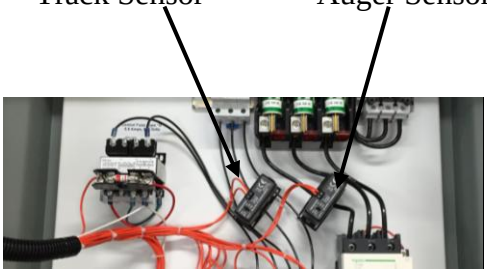


Remove protective cover over supply terminals and connect main power leads. Replace protective cover after connection is completed.

Step 6:

Check settings on Current Transducers:

Track Sensor Auger Sensor



Left sensor (Track Current) needs to be set to 20. Right sensor (Auger Current) needs to be set to 100.

Step 7:

Check motors for correct rotation.

Electrical Schematic

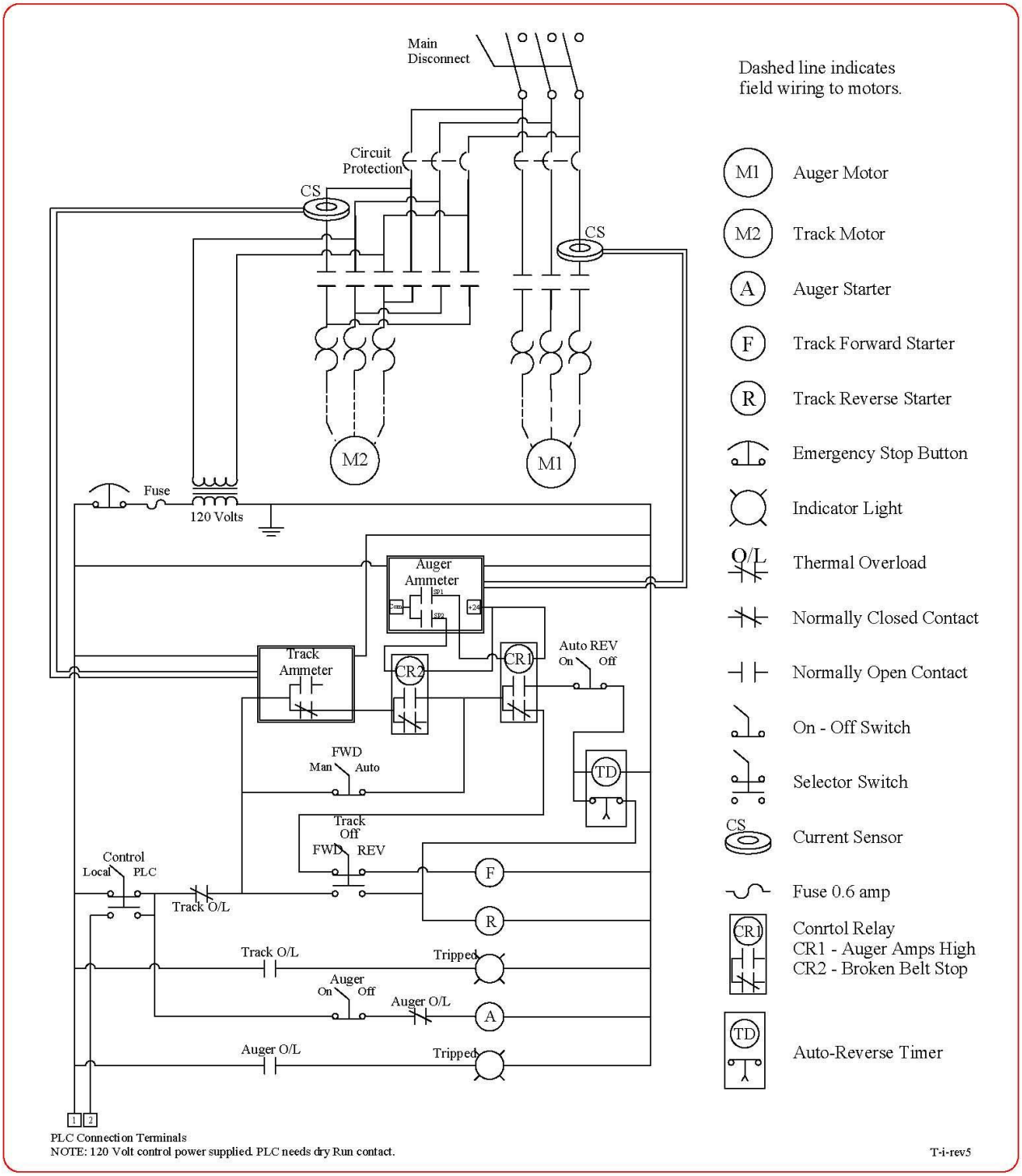


Table 3:

Calculate wire and fuse sizes for the supply circuit based on the motor amps and voltage listed below. Wire sizing needs to take voltage drop calculations into consideration.

Volts	Auger HP	Auger Amps	1 HP Track	1.5 HP Track	Total Amps	
					1 HP Track	1.5 HP Track
240	5	13.4	3.85	-	17.25	-
240	7.5	18.8	3.85	-	22.65	-
240	10	24.4	3.85	5.4	28.25	29.8
240	15	36	3.85	5.4	39.85	41.4
240	20	48	3.85	5.4	51.85	53.4
240	25	61	3.85	5.4	64.85	66.4
240	30	72	3.85	5.4	75.85	77.4
240	40	96	-	5.4	-	101.4
240	50	116	-	5.4	-	121.4
380	5	8	2.9	-	10.9	-
380	7.5	11.3	2.9	-	14.2	-
380	10	14.4	2.9	4.1	17.3	18.5
380	15	22	2.9	4.1	24.9	26.1
380	20	29.5	2.9	4.1	32.4	33.6
380	25	37	2.9	4.1	39.9	41.1
380	30	45	2.9	4.1	47.9	49.1
380	40	57	-	4.1	-	61.1
380	50	70	-	4.1	-	74.1
480	5	6.7	1.9	-	8.6	-
480	7.5	9.4	1.9	-	11.3	-
480	10	12.2	1.9	2.7	14.1	14.9
480	15	18	1.9	2.7	19.9	20.7
480	20	24	1.9	2.7	25.9	26.7
480	25	30.5	1.9	2.7	32.4	33.2
480	30	36	1.9	2.7	37.9	38.7
480	40	48	-	2.7	-	50.7
480	50	58	-	2.7	-	60.7
575	5	5.3	1.4	-	6.7	-
575	7.5	7.6	1.4	-	9	-
575	10	9.8	1.4	2.2	11.2	12
575	15	14.8	1.4	2.2	16.2	17
575	20	19.2	1.4	2.2	20.6	21.4
575	25	24.5	1.4	2.2	25.9	26.7
575	30	29	1.4	2.2	30.4	31.2
575	40	39	-	2.2	-	41.2
575	50	47	-	2.2	-	49.2