Stir Sentinel Controls

Installation and Operation Manual -
Original Instructions

PNEG-2334

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PNEG-2334

All information, illustrations, photos, and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

Contents

Safety Guidelines

Safety guidelines are general-to-specific safety rules that must be followed at all times. This manual is written to help you understand safe operating procedures and problems that can be encountered by the operator and other personnel when using this equipment. Read and save these instructions.

As owner or operator, you are responsible for understanding the requirements, hazards, and precautions that exist and to inform others as required. Unqualified persons must stay out of the work area at all times.

Alterations must not be made to the equipment. Alterations can produce dangerous situations resulting in SERIOUS INJURY or DEATH.

This equipment must be installed in accordance with the current installation codes and applicable regulations, which must be carefully followed in all cases. Authorities having jurisdiction must be consulted before installations are made.

When necessary, you must consider the installation location relative to electrical, fuel and water utilities.

Personnel operating or working around equipment must read this manual. This manual must be delivered with equipment to its owner. Failure to read this manual and its safety instructions is a misuse of the equipment.

ST-0001-4

Cautionary Symbols Definitions

Cautionary symbols appear in this manual and on product decals. The symbols alert the user of potential safety hazards, prohibited activities and mandatory actions. To help you recognize this information, we use the symbols that are defined below.

DANGER — This symbol indicates an imminently hazardous situation which, if not avoided, **will result in serious injury or death.**

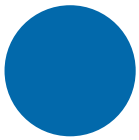
WARNING — This symbol indicates a potentially hazardous situation which, if not avoided, **can result in serious injury or death.**

CAUTION — This symbol indicates a potentially hazardous situation which, if not avoided, **can result in minor or moderate injury.**

NOTICE — This symbol is used to address practices not related to personal injury.

This symbol indicates a general hazard.

This symbol indicates a prohibited activity.



This symbol indicates a mandatory action.

ST-0005-2

Safety Cautions

Use Personal Protective Equipment

- Use appropriate personal protective equipment:

Eye Protection

Respiratory Protection

Foot Protection

Hearing Protection

Head Protection

Fall Protection

Hand Protection

- Wear clothing appropriate to the job.
- Remove all jewelry.
- Tie long hair up and back.

ST-0004-1

Follow Safety Instructions

- Carefully read all safety messages in this manual and safety signs on your machine. Keep signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from the manufacturer.
- Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.
- If you do not understand any part of this manual or need assistance, contact your dealer.

ST-0002-1

Follow Safe Operating Procedures

- Do not operate Stir-Ator unless shut off chain has been properly installed and adjusted.
- Exercise care when starting Stir-Ator in a full bin of grain. Augers can be stuck in the grain causing damage to the Stir-Ator or bin.
- Operating the Stir-Ator during bin unloading can be beneficial to the unloading process as well as prevent auger damage.
- Do not bury the Stir-Ator. Burying the Stir-Ator will damage the bin and will void the warranty.
- Do not operate the Stir-Ator in an empty bin. Damage to the Stir-Ator and bin can result.
- When not operating the Stir-Ator for extended periods of time or in some cases while emptying the bin, it is best to position the trolley at the bin wall to eliminate possible damage to the Stir-Ator or bin.

ST-0011-2

Stay Clear of Rotating Parts

- Do not enter the bin while the equipment is in operation.
- Entanglement in rotating augers will cause serious injury or death.
- Keep all guards and covers in place at all times.
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.

ST-0008-2

Operate Motor Properly

- All electrical connections must be made in accordance with applicable local codes (National Electric Code for the US, Canadian Electrical Code or EN60204 along with applicable European Directives for Europe). Make sure equipment and bins are properly grounded.
- Lock-out power before resetting motor overloads.
- Do not repetitively stop and start the drive in order to free a plugged condition. Jogging the drive in this manner can damage the equipment and drive components.

ST-0009-3

Maintain Equipment and Work Area

- Understand service procedures before doing work. Keep area clean and dry.
- Never service equipment while it is operating. Keep hands, feet, and clothing away from moving parts.
- Keep your equipment in proper working condition. Replace worn or broken parts immediately.

ST-0003-1

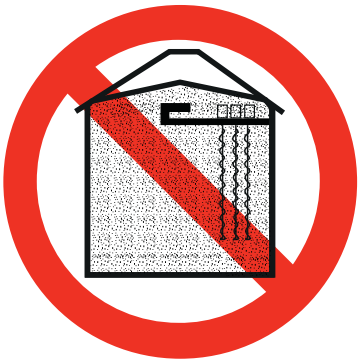
Avoid Falls During Service and Installation

- Use proper fall protection equipment.
- Anchor the bottom of any ladder being used in a bin or silo to prevent it from slipping.
- Use rubber pads or other anti-slip devices to prevent the ladder from slipping on the bin floor.
- Exercise caution when using a ladder to perform work in a partially filled grain bin. The ladder may sink into the grain and cause a fall.
- Because the equipment is suspended from chains in the center, be cautious of positioning the ladder against the equipment. The equipment can move or swing from the weight of a person climbing on the ladder.
- When setting a ladder against the equipment, a vise grip or other type of tie down must be used in the front and back of the track drive unit. This keeps the equipment from rolling or sliding around the bin while service work is being performed.
- During heavy service work, such as removing the auger drive, electric motors, or replacing electrical swivel, tying the ladder to the main frame or other solid component is advised.
- Never climb out on the main beam or augers from the ladder or roof manhole. The equipment can swing, causing a fall.
- Do not climb Stir-Ator down augers to make adjustments or repairs. Slipping can cause falling, bodily injury or both.
- If an unusual amount of service work needs to be performed, consider lowering the unit onto sawhorses.

ST-0010-2

Use Stir-Ator Equipment Properly

- Exercise care when starting the Stir-Ator in a full bin. Augers can be stuck in the grain which can cause damage to the Stir-Ator or the bin.
- Burying the unit will damage the bin and will void the warranty.
- Do not operate the Stir-Ator in an empty bin.
- To test the unit in an empty bin:
  - — Make sure no one is inside the bin.
  - — Turn power “on” and “off” immediately.
- Letting the Stir-Ator operate in an empty bin will cause damage to the unit and the bin.



ST-0054-1

Stay Clear of Hoisted Equipment

- Always use proper lifting or hoisting equipment when assembling or disassembling equipment.
- Do not walk or stand under hoisted equipment.
- Always use sturdy and stable supports when needed for installation. Not following these safety precautions creates the risk of falling equipment, which can crush personnel and cause serious injury or death.

ST-0047-1

Sharp Edge Hazard

- This product has sharp edges, which can cause serious injury.
- To avoid injury, handle sharp edges with caution and always use proper protective clothing and equipment.

ST-0036-2

Safety Sign-Off Sheet

Below is a sign-off sheet that can be used to verify that all personnel have read and understood the safety instructions. This sign-off sheet is provided for your convenience and personal record keeping.

Date	*Employee Name*	*Supervisor Name*

ST-0007

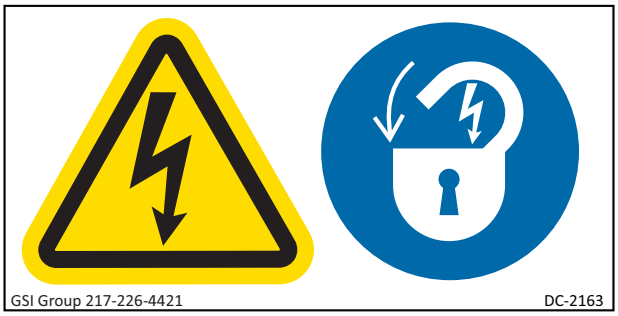
Correct Use

1. Stir Sentinel Controls shall be used solely for the monitoring of grain silo and Stir-Ator safety switches and control of a GSI CEX Stir-Ator.
2. For the direct motor control versions (contactor output), with model number ending -C, motor power shall be limited to that stated on the control rating plate.
    a. Output from the redundant safety contactor may be used to interlock to control for other equipment operating on or in the same silo, though the safety Performance Level (PL), in accordance with ISO 13849, must be assessed separately, according to the equipment under control.
3. For the relay output versions, with model number ending -R, volt free safety relay outputs are provided for the control of motor and redundant safety contactors in external Stir-Ator controls.
    a. The relay outputs shall be used only for switching control outputs, up to the maximum, resistive current stated on the control rating plate.
    b. Inductive loads or loads with high inrush currents shall not be switched through the relay outputs.
4. Safety inputs to the Sentinel control shall be using those switches provided by GSI or switches of equivalent or higher safety integration level (SIL). These shall be as follows:
    a. External emergency stop push button to SIL3. This to be located on or adjacent to the silo, in a readily accessible position in the event of an dangerous occurrence requiring emergency stopping of the equipment under control.
    b. Door safety switch to the silo lower door to SIL3.
    c. Door safety switch to the silo upper/eave door to SIL3.
    d. Stir-Ator safety switch to SIL3 and ATEX 22D (minimum). This to be installed inside the silo, in accordance with the Stir-Ator installation manual, such that, in the event the Stir-Ator suspension bar and chains twist, the switch is actuated and the Stir-Ator and other equipment under control are brought to an immediate stop.
5. No safety device shall be removed, bypassed or in any way rendered non-operational or functional.
6. All motors under control of the Sentinel Controls shall be fitted with an overcurrent relay/circuit breaker, interconnected to the controls as per the connection diagrams in this manual and set to the correct current, which will not exceed the full load current of the motor under control.
7. Use of these controls does not preclude the need to provide and use safety lock out switches for all equipment in or on the silo. This shall include:
    a. Main, lockable isolator, providing complete disconnection of all lines to the control and equipment.
    b. Lockable service disconnect switches for each motor or group of motors, providing complete disconnection of all lines to the motor(s) and under permanent, supervision of the person carrying out servicing work on the equipment or motor.
    c. Any other controls as required by local codes, standards, laws and directives.

2. Safety Decals

The decals must be displayed as shown.

1. The decals are not shown in the actual size.
2. Keep decals wiped clean at all times.
3. Decals must be replaced if they are destroyed, missing, painted over or can no longer be read.

<table>
<tr><th>Location</th><th>Decal #</th><th>Decals</th><th>Description</th></tr>
<tr><td>Located on the outside of the control enclosure door.</td><td>DC-2163</td><td> 
</td><td>Decal, Danger High Voltage and Electrical Lock out Warning</td></tr>
<tr><td>Located on the Inside of the Control Enclosure Door</td><td>N/A</td><td>
<table>
<tr><th>GSI</th><th colspan="2">Stir Sentinel</th></tr>
<tr><td>SN #</td><td colspan="2">abcdefghi</td></tr>
<tr><td>Model</td><td colspan="2">SSC-3A-C</td></tr>
<tr><td colspan="3"></td></tr>
<tr><td></td><td colspan="2"></td></tr>
<tr><td>Auger 1</td><td>1.5 kW</td><td>2.9 A</td></tr>
<tr><td>Auger 2</td><td>1.5 kW</td><td>2.9 A</td></tr>
<tr><td>Auger 3</td><td>1.5 kW</td><td>2.9 A</td></tr>
<tr><td>Track</td><td>0.12 kW</td><td>0.2 A</td></tr>
<tr><td>Power Supply</td><td colspan="2">400V AC 3 PH</td></tr>
<tr><td rowspan="5">CE</td><td colspan="2">50 Hz</td></tr>
<tr><td colspan="2">FLA 9 A</td></tr>
<tr><td colspan="2">Control 24 VDC</td></tr>
<tr><td colspan="2">SCCR 12 kA</td></tr>
<tr><td colspan="2">20 October 2020</td></tr>
</table>
</td><td>Rating Plate for Controls with Contactor Output for Direct Stir-Ator Motor Control</td></tr>
<tr><td>Located on the Inside of the Control Enclosure Door</td><td>N/A</td><td>
<table>
<tr><th>GSI</th><th colspan="2">Stir Sentinel</th></tr>
<tr><td>SN #</td><td colspan="2">abcdefghi</td></tr>
<tr><td>Model</td><td colspan="2">SSC-3A-R</td></tr>
<tr><td colspan="3"></td></tr>
<tr><td></td><td colspan="2"></td></tr>
<tr><td>Relay 1</td><td></td><td>6 A</td></tr>
<tr><td>Relay 2</td><td></td><td>6 A</td></tr>
<tr><td>Relay 3</td><td></td><td>6 A</td></tr>
<tr><td>Relay 4</td><td></td><td>6 A</td></tr>
<tr><td>Power Supply</td><td colspan="2">110-230V AC 1 PH</td></tr>
<tr><td rowspan="5">CE</td><td colspan="2">50 Hz</td></tr>
<tr><td colspan="2">0.91 A</td></tr>
<tr><td colspan="2">Control 24 VDC</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td colspan="2">20 October 2020</td></tr>
</table>
</td><td>Rating Plate for Controls with Volt Free Relay Output for Indirect Stir-Ator Motor Control</td></tr>
</table>

1. The Stir Sentinel Controls shall be installed inside and out of contact with water and high levels of dust.
2. The controls shall not be installed in a hazardous/potentially explosive area.
3. Install the control panel on a solid wall, partition or stand, such that the control switches are readily accessible from the floor level. *(See Figure 3A.)*

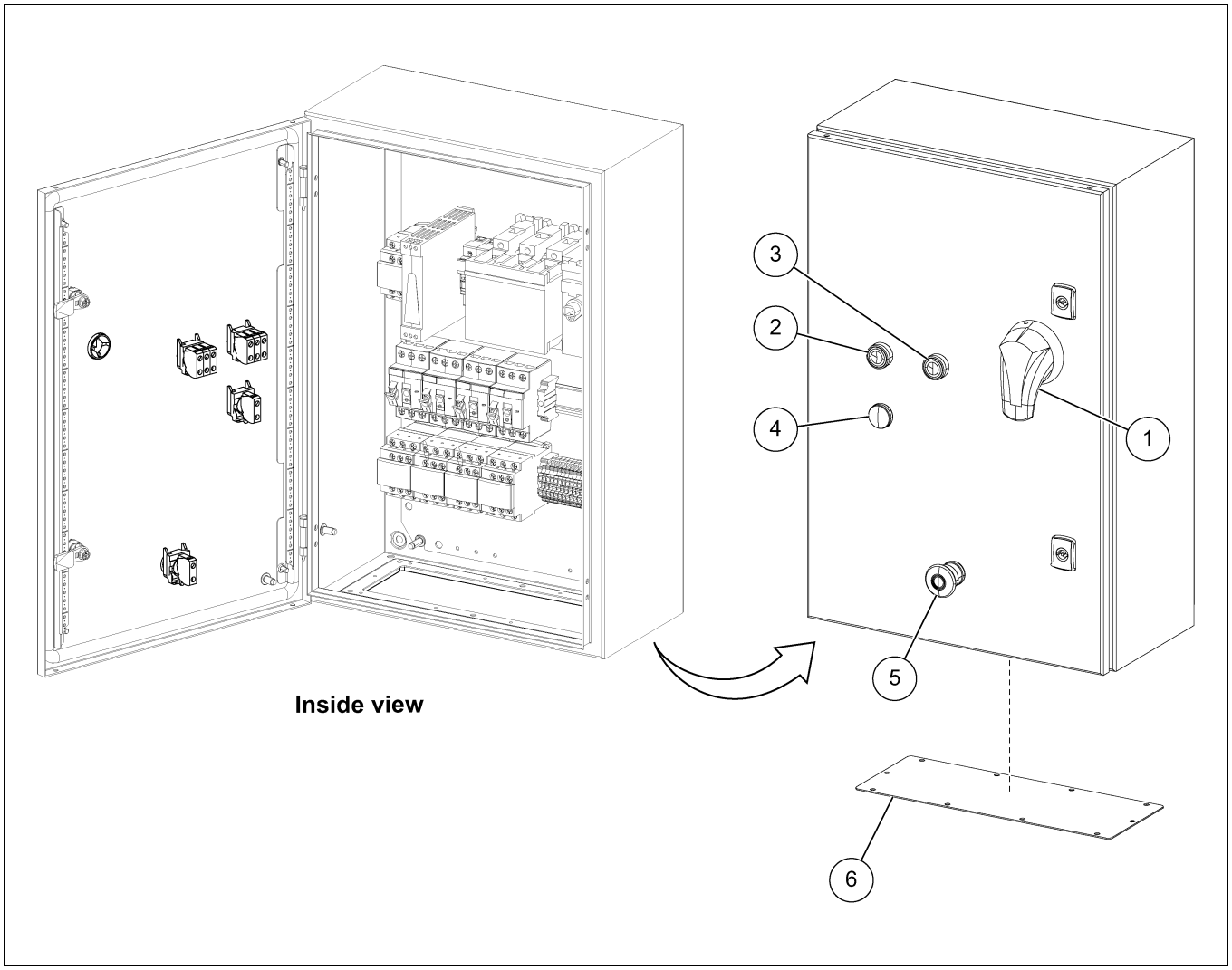


Figure 3A *Stir Sentinel Controls*

Ref #	Description
1	Lock Out Switch
2	Illuminated Re-Set Push Button
3	Illuminated Start/Stop Push Button
4	Fault Light
5	Emergency Stop Push Button
6	Gland Plate

4. Remove the gland plate (6) and cut openings to accommodate cables glands for:
    a. Multicore (minimum 11 plus PE) for auger motors, track motor and tilt switch.
    b. Remote emergency stop (2 plus PE)
    c. Lower door switch (2 plus PE)
    d. Upper door switch (2 plus PE)
    e. Stirrer safety switch (2 plus PE)
    f. Three phase, plus neutral, plus PE power supply.
5. Make connections are as shown on the wiring diagrams *on Pages 19-24*.

Connections for Direct Motor Control

Connections for Controls with Direct Motor Control, with Contactor Output

Equipment Connections for Direct Motor Control (Contactor Output) Controls

Terminal Numbers	Connected Equipment
Disconnect Switch, L1 - L3	400V AC, L1 - L3
Terminal N (Blue)	Neutral
PE	Earth
Contactor K2, T1 - T3	Auger Motor 1, L1 - L3
Contactor K3, T1 - T3	Auger Motor 2, L1 - L3
Contactor K4, T1 - T3	Auger Motor 3, L1 - L3
Contactor K5, T1 - T3	Track Motor, L1 - L3
1 and 2	Remote Emergency Stop N.C.
3 and 4	Lower Door Switch N.C.
5 and 6	Upper Door Switch N.C.
7 and 8	Stirrer Safety Switch N.C.
9 and 10	Spare (Link Out if Not Used)
11	Tilt Start Switch Com (Brown)*
12	Tilt Switch Start (Grey)*
13	Tilt Switch Stop (Black)*

* Colours refer to the wires on the tilt switch enclosure, located on the stirrer trolley. Refer to wiring diagrams *on Pages 19-21*.

Connections for Indirect Motor Control

Connections for Controls with Indirect Motor Control, with Relay Output

Where the Sentinel control is being used for indirect motor control, via volt free relay outputs, the safety performance level and correct functioning of the control can only be achieved by connection to a motor control centre, including:

1. A redundant safety contactor wired in series with the motor contactors.
2. Three auger contactors.
3. A track motor contactor.
4. Normally closed auxiliary contacts on each of the safety and auger contactors.
5. Normally open auxiliary contact on the track motor contactor.
6. Over current relay/circuit breaker for each of the auger motors and the track motor.

Equipment Connections for Indirect Motor Control (Relay Output) Controls

Terminal Strip	Terminal Numbers	Connected Equipment
X1	1 and 2	230V AC, L and N
PE	PE	Earth
X2	1 and 2	Safety Contactor Control
X2	3 and 4	Auger 1 Contactor Control
X2	5 and 6	Auger 2 Contactor Control
X2	7 and 8	Auger 3 Contactor Control
X2	9 and 10	Track Motor Contactor Control
X3	1 and 2	Remote Emergency Stop N.C.
X3	3 and 4	Lower Door Switch N.C.
X3	5 and 6	Upper Door Switch N.C.
X3	7 and 8	Stirrer Safety Switch N.C.
X3	9 and 10	Spare (Link Out if Not Used)
X3	11	Tilt Start Switch Com (Brown)*
X3	12	Tilt Switch Start (Grey)*
X3	13	Tilt Switch Stop (Black)*
X3	14 and 15	Safety Contactor N.C. Aux
X3	16 and 17	Auger 1 Contactor N.C. Aux
X3	18 and 19	Auger 2 Contactor N.C. Aux
X3	20 and 21	Auger 3 Contactor N.C. Aux
X3	22 and 23	Track Motor Contactor N.O. Aux
X3	24 and 25	Auger 1 Over Current N.C.
X3	26 and 27	Auger 2 Over Current N.C.
X3	28 and 29	Auger 3 Over Current N.C.
X3	30 and 31	Track Motor Over Current N.C.

* Colours refer to the wires on the tilt switch enclosure, located on the stirrer trolley. Refer to wiring diagrams *on Pages 22-24*.

1. Check that all doors are shut, emergency stops pulled out and the stirrer safety switch closed.
2. With power applied to the control, the re-set light should flash.
3. To enable the control, press the re-set button, causing the safety contactor to close and the re-set light to stay lit.
4. To start the stirrer, press and hold the start/stop button for 1 second.
5. The run light should illuminate and the augers start in sequence, with a 10 second delay between each auger.
6. 10 seconds after the third auger starts, the track motor should start, causing the run light to flash steadily.
7. The track motor will now alternate between running and waiting, according to the time set at the track run/wait DIP switches. (See DIP switch settings on *on Page 18*.) The default times are 20 seconds run followed by 90 seconds wait.
8. To stop the Stir-Ator, press start/stop.
9. Lights on the control will indicate running or safety shut down conditions as follows. For detail of status and action required, refer to the section identified in column 1 of the table *below*.

Control Indicator Light Status

Indicator Light Codes

Section	Re-Set	Run	Fault	Control Status
Normal Operation				
A	OFF	OFF	OFF	No Power
B	FLASH	OFF	OFF	Awaiting Re-Set
C	ON	OFF	OFF	Stand-By
D	ON	ON	OFF	Augers Running with Track Waiting
E	ON	FLASH	OFF	Augers Running with Track Running
F	ON	ON 5 Seconds OFF 0.5 Seconds	OFF	Augers Running with Track Stopped by Tilt Switch
Safety Shut Down Conditions				
G	OFF	ON	X1	Auger 1 Over Current Fault
	OFF	ON	X2	Auger 2 Over Current Fault
	OFF	ON	X3	Auger 3 Over Current Fault
H	OFF	ON	X4	Track Motor Over Current Fault
I	OFF	OFF	X1	Stirguard Fault - Track motor exceeded maximum wait or maximum run time
J	OFF	OFF	X2	Panel emergency stop has been pressed
K	OFF	OFF	X3	External emergency stop has been pressed
L	OFF	OFF	X4	Lower door has been opened
M	OFF	OFF	X5	Upper door has been opened
N	OFF	OFF	X6	Stirrer safety switch has been actuated
O	OFF	OFF	X7	User Safety Actuated
P	OFF	FLASH	FLASH	Tilt Switch Fault (Contact Cross Over)
Q	FAST FLASH	OFF	OFF	Contactor or Relay Fault

A. Power is disconnected or fuse has blown in control. Connect power or replace fuse after correcting fault.

B. All safety inputs are satisfied and control can be enabled by pressing the re-set switch.

C. Control is enabled and Stir-Ator can be started by pressing and holding the start/stop button for 1 second.

D. Augers are starting or running and the track motor is in it's waiting phase.

E. Augers are all running and the track motor is in it's run phase.

F. Augers are running and the track motor has been stopped by the tilt switch. Awaiting re-start of the track motor when the augers return to vertical and the tilt start switch closes.

G. Auger 1, 2 or 3 over current relay has tripped due to excessive current being drawn by auger motor.

a. Check the auger spreader plate is not running continually in grain.

b. Reduce the depth of grain in the silo.

c. Auger may have become rusty following a period of non-use. Wait and re-start the auger to allow it to polish.

d. Check auger is not bent.

e. Check motor over current setting is correct compared to the full load amps for the motor.

f. Check for a faulty or damaged motor.

H. The track motor over current relay has tripped due to excessive current being drawn by the track motor.

a. Check the track drive has not become stuck in place due to a misaligned or damaged track.

b. Check the Stir-Ator is clear of grain against the beams or trolley.

c. Reduce grain depth if necessary.

d. Check the chain on the track drive is not excessively tight or too slack.

e. Monitor the number of times the track motor starts. Excessive and rapid re-starts can cause over heating in the over current relay. The track motor should not be starting more than 1 time in 2 minutes or approximately 30 times in one hour.

f. If necessary, increase the track wait time. (See DIP switch settings on *on Page 18*.)

g. Check motor over current setting is correct compared to the full load amps for the motor.

h. Check for a faulty or damaged motor.

I. Stirguard default settings are maximum 90 seconds running and maximum 30 minutes waiting. This means that if these times are exceeded by the track motor, the control assumes there is a problem and shuts the system down to prevent excessive running and potential grain damage.

a. Check the Stir-Ator is free to move.

b. Check for very dense or packed grain preventing normal tracking.

c. If necessary reduce the level of grain in the silo.

d. Check the tilt switch has not gone out of adjustment and is stuck in a permanently OFF position.

J. Re-set the panel emergency stop when it is safe to do so.

K. Re-set the remote emergency stop when safe to do so.

L. The lower silo door has been opened.

a. It is essential to check that no-one is inside the silo before the Stir-Ator or any other equipment is re-started.

b. Silo door switches can only be re-set by closing the door, re-opening it and then re-closing within 3 seconds.

M. As for lower door, though re-set must be done at the upper door.

N. The stirrer safety switch detects if the “T” bar and suspension chains are twisting as the Stir-Ator tracks. This can result from a problem with the centre bearing or slip ring.

a. Check the alignment of the Stir-Ator in the silo and in particular that the centre yoke is not impeded from rotating.

b. If necessary, reposition the Stir-Ator by lift and adjusting the suspension chains.

c. Check that the centre pulley remains able to rotate independent of the centre yoke.

O. The spare safety input has opened.

P. The internal switches in the tilt switch have drifted out of synchronisation. This requires correcting by a GSI technician.

Q. One of the contactors has failed to close or re-open. Identify the faulty contactor and replace.

DIP Switch Settings

Eight DIP switches are provided to enable adjustment of the track operating times. Settings are as follows:

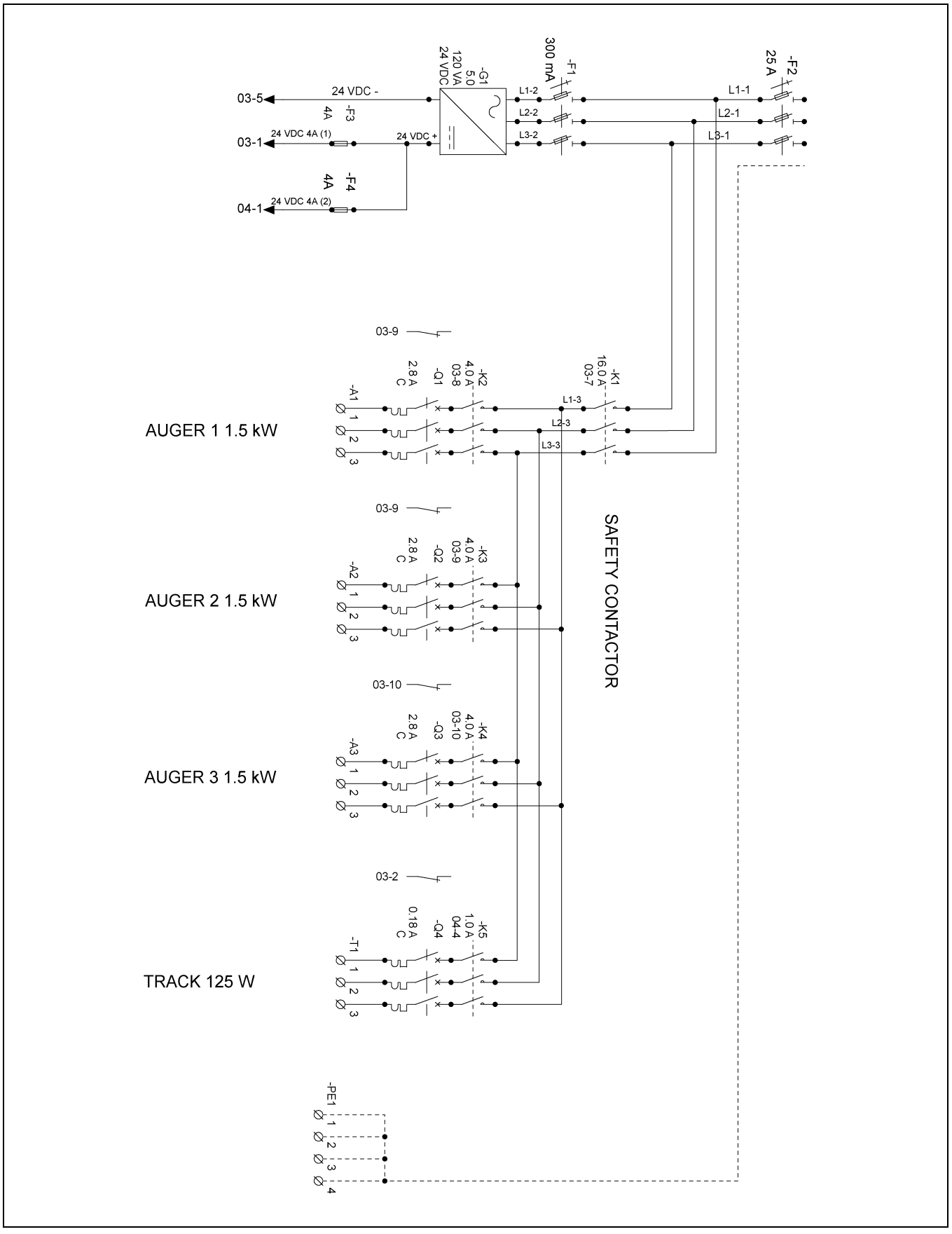
Track Run Time DIP Switch Settings

DIP 1	DIP 2	DIP 3	DIP 4	Track Run Time
OFF	OFF	OFF	OFF	20 Seconds
ON	OFF	OFF	OFF	25 Seconds
OFF	ON	OFF	OFF	30 Seconds
OFF	OFF	ON	OFF	35 Seconds
OFF	OFF	OFF	ON	40 Seconds
ON	OFF	OFF	ON	45 Seconds
OFF	ON	OFF	ON	50 Seconds
OFF	OFF	ON	ON	55 Seconds
ON	OFF	ON	ON	60 Seconds
OFF	ON	ON	ON	65 Seconds
ON	ON	ON	ON	70 Seconds

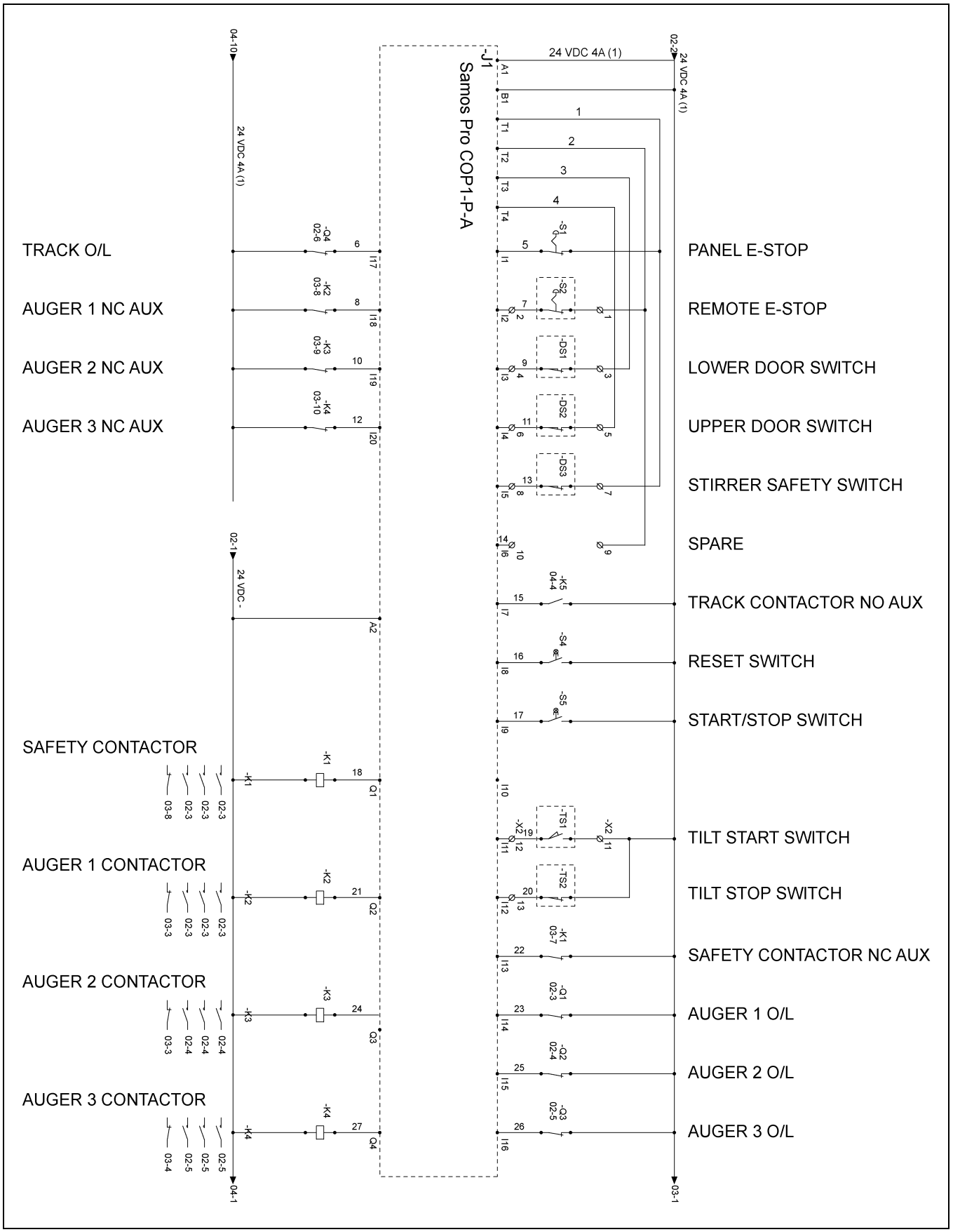
Track Wait Time DIP Switch Settings

DIP 5	DIP 6	DIP 7	DIP 8	Track Wait Time
OFF	OFF	OFF	OFF	90 Seconds
ON	OFF	OFF	OFF	100 Seconds
OFF	ON	OFF	OFF	110 Seconds
OFF	OFF	ON	OFF	120 Seconds
OFF	OFF	OFF	ON	130 Seconds
ON	OFF	OFF	ON	140 Seconds
OFF	ON	OFF	ON	150 Seconds
OFF	OFF	ON	ON	160 Seconds
ON	OFF	ON	ON	170 Seconds
OFF	ON	ON	ON	180 Seconds
ON	ON	ON	ON	190 Seconds

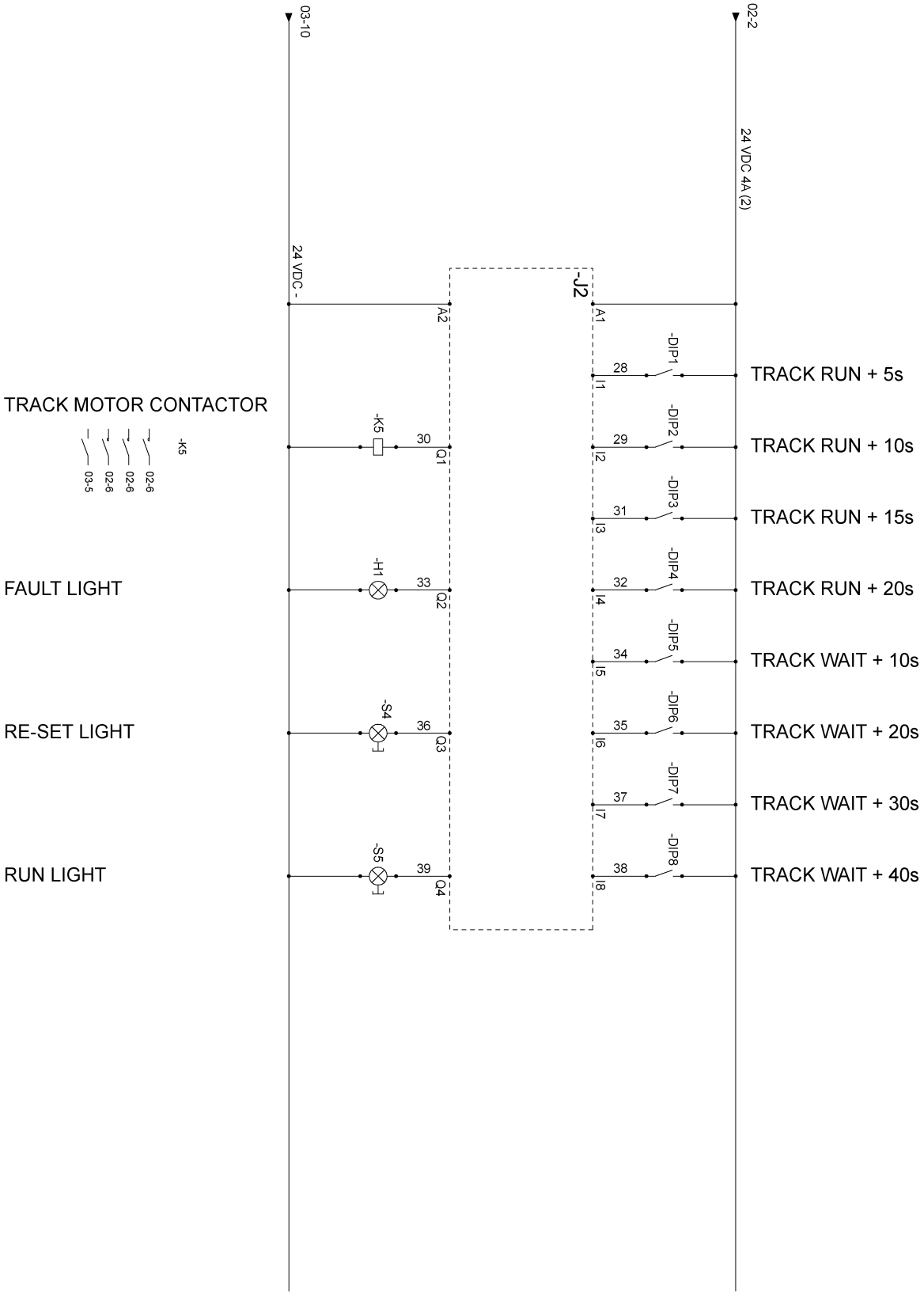
Power Connections for Direct Motor Control, Type C



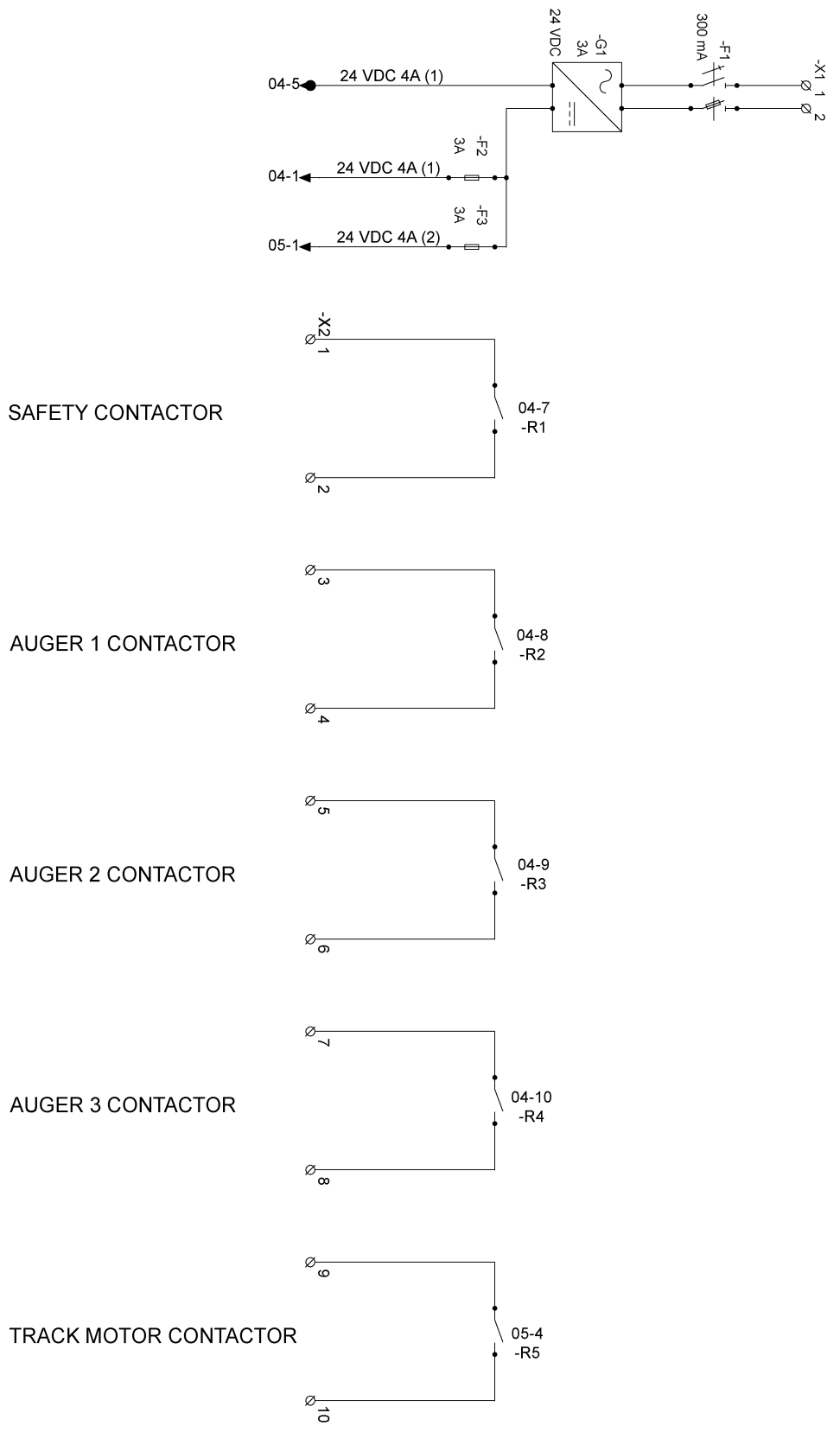
Control Connections for Direct Motor Control, Type C



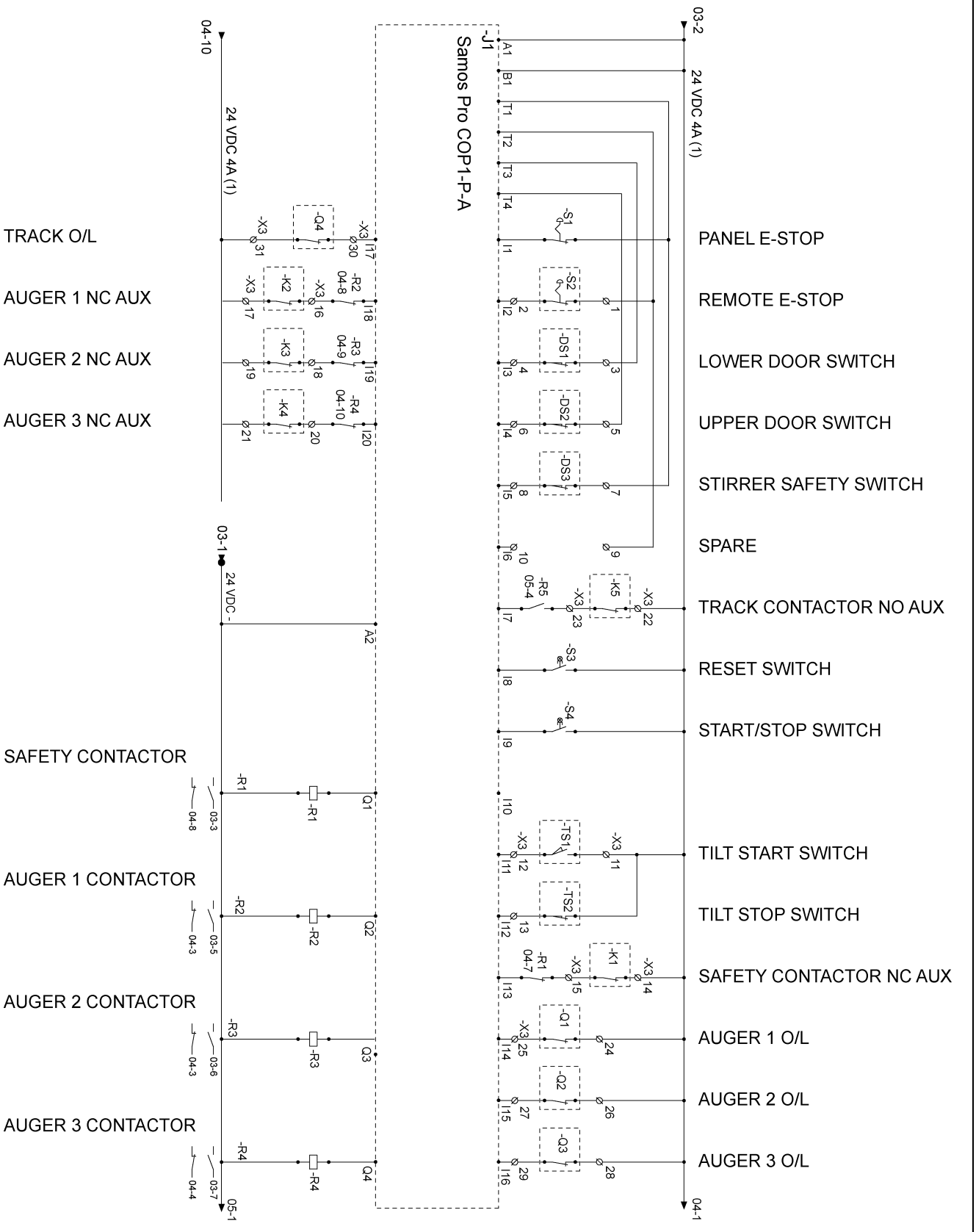
Control Connections for Direct Motor Control, Type C (Continued)



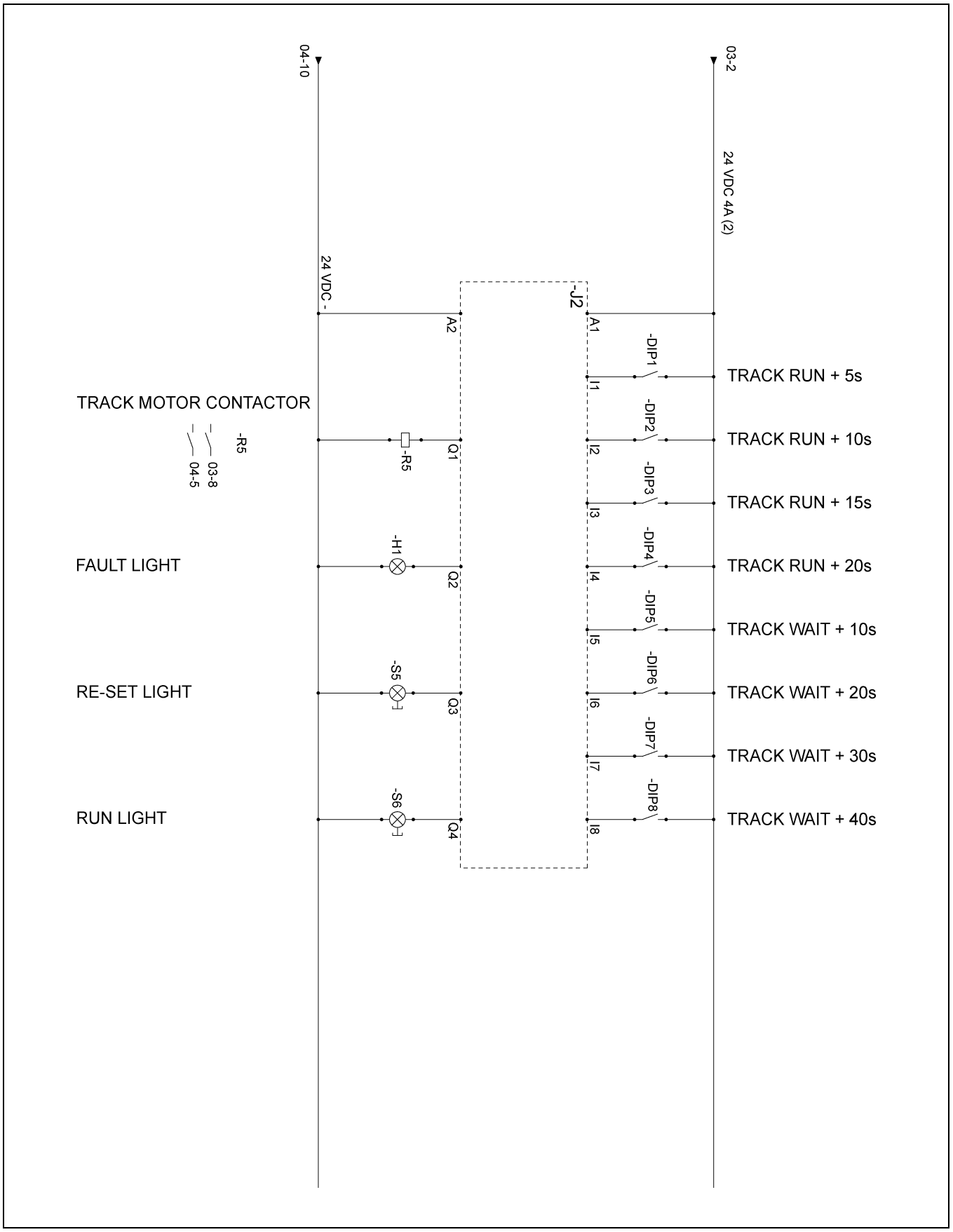
Relay Output to Motor Control Contactors, Type R



Control Connections for Relay Output Control, Type R



Control Connections for Relay Output Control, Type R (Continued)



Limited Warranty - EME Grain Products

The GSI Group, LLC. (“GSI”) warrants products which it manufactures, to be free of defects in materials and workmanship under normal usage and conditions for a period of 12 months from the date of shipment (or, if shipped by vessel, 14 months from the date of arrival at the port of discharge). If, in GSI’s sole judgment, a product is found to have a defect in materials and/or workmanship, GSI will, at its own option and expense, repair or replace the product or refund the purchase price. This Limited Warranty is subject to extension and other terms as set forth below.

Warranty Enhancements:

The warranty period for the following products is enhanced as shown below and is in lieu of (and not in addition to) the above stated warranty period. (Warranty Period is from date of shipment.)

	Product	Warranty Period
Storage	Grain Bin Structural Design • Sidewall, roof, doors, platforms and walkarounds • Flooring (when installed using GSI specified floor support system for that floor) • Hopper tanks (BFT, GHT, NCHT, and FCHT)	5 Years
Conditioning	Dryer Structural Design - (Tower, Portable and TopDry) • Includes (frame, portable dryer screens, ladders, access doors and platforms)	5 Years
	All other Dryer parts including: • Electrical (controls, sensors, switches and internal wiring)	2 Years
	All Non-PTO Driven Centrifugal and Axial Fans	3 Years
	Bullseye Controllers	2 Years
Material Handling	Bucket Elevators Structural Design	5 Years
	Towers Structural Design	5 Years
	Catwalks Structural Design	5 Years
	Accessories (stairs, ladders and platforms) Structural Design	5 Years

Conditions and Limitations:

THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED WARRANTY DESCRIPTION SET FORTH HEREIN; SPECIFICALLY, GSI DISCLAIMS ANY AND ALL OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE IN CONNECTION WITH: (I) ANY PRODUCT MANUFACTURED OR SOLD BY GSI, OR (II) ANY ADVICE, INSTRUCTION, RECOMMENDATION OR SUGGESTION PROVIDED BY AN AGENT, REPRESENTATIVE OR EMPLOYEE OF GSI REGARDING OR RELATED TO THE CONFIGURATION, INSTALLATION, LAYOUT, SUITABILITY FOR A PARTICULAR PURPOSE, OR DESIGN OF SUCH PRODUCTS.

The sole and exclusive remedy for any claimant is set forth in this Limited Warranty and shall not exceed the amount paid for the product purchased. This Warranty only covers the value of the warranted parts and equipment, and does not cover labor charges for removing or installing defective parts, shipping charges with respect to such parts, any applicable sales or other taxes, or any other charges or expenses not specified in this Warranty. GSI shall not be liable for any other direct, indirect, incidental or consequential damages, including, without limitation, loss of anticipated profits or benefits. Expenses incurred by or on behalf of a claimant without prior written authorization from the GSI warranty department shall not be reimbursed. This warranty is not transferable and applies only to the original end-user. GSI shall have no obligation or responsibility for any representations or warranties made by or on behalf of any dealer, agent or distributor. Prior to installation, the end-user bears all responsibility to comply with federal, state and local codes which apply to the location and installation of the products.

This Limited Warranty extends solely to products sold by GSI and does not cover any parts, components or materials used in conjunction with the product, that are not sold by GSI. GSI assumes no responsibility for claims resulting from construction defects, unauthorized modifications, corrosion or other cosmetic issues caused by storage, application or environmental conditions. Modifications to products not specifically delineated in the manual accompanying the product at initial sale will void all warranties. This Limited Warranty shall not extend to products or parts which have been damaged by negligent use, misuse, alteration, accident or which have been improperly/inadequately maintained.

Notice Procedure:

In order to make a valid warranty claim a written notice of the claim must be submitted, using the RMA form, within 60 days of discovery of a warrantable nonconformance. The RMA form is found on the OneGSI portal.

Service Parts:

GSI warrants, subject to all other conditions described in this Warranty, Service Parts which it manufactures for a period of 12 months from the date of purchase unless specified in Enhancements above.

(Limited Warranty - EME Grain Products_ revised 01 October 2020)

This equipment shall be installed in accordance with the current installation codes and applicable regulations, which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.

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