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NOTICE TO USER

Thank you for choosing the Gortite® VF Automated Machine Safety Door from Dynatect®. The Gortite VF Automated Machine Safety Door is a high-speed fabric roll-up with unique safety features intended for automation and safe machine access.

Thoroughly read and understand this installation manual before proceeding with installation, operation, or maintenance of this door. Dynatect recommends storing this manual in close proximity to the door for future reference, adjustments, or maintenance. The content in this manual will help facilitate smooth operation, maximize safety in operation, and increase the life of the door.

Dynatect reserves the right to modify the contents of this installation manual as well as the components used on this product, which may be different than shown in this installation manual. Due to customizations, separate prints may be included with the door. The reader is expressly warned to consider and adopt all safety precautions and activities presented herein to avoid potential hazards and liabilities. By following the instructions and guidelines contained herein, the reader willingly assumes all risks in connection with these instructions and guidelines.

The door part number and date of manufacture is identified on a label on the front of one side column.

If any questions arise, please contact Dynatect directly at 262-786-1500 (toll-free: 800-298-2066) or sales@dynatect.com. We appreciate your business and the confidence you have placed in us.

APPLICATION OVERVIEW

The following descriptions represent the typical installation and function, not necessarily the only application.

This high-speed fabric roll-up door is intended for automation and safe machine access to minimize cycle time and maximize production time. The door separates machines with hazardous operations from other processes, material handling equipment, and people. The door does not perfectly seal but contains typical machine/process-generated hazards, including light debris, fluid splatter/mist, and weld smoke/sparks/flash. The door is installed in conjunction with existing machine guard panels on each side of the door to further enhance the separation of environments.

The door is intended for use in a temperature-controlled environment where the ambient temperature is the same on both sides. The door does not provide the level of sealing required for external building entries or cold-rooms. The door is not designed for insulative performance.

The door is designed to minimize interference with adjacent equipment and structures. The combination of side columns and base plates makes the unit self-supporting and free-standing. If mounting the door flush with a wall is desired, Dynatect can provide custom adapter plates that fill the gap between the door and wall, while maintaining the free-standing feature. Similarly, the motor is designed to be mounted in multiple configurations, specified at the time of order, to minimize interference. Finally, the door columns feature multiple surfaces with standard T-slots to help attach accessories or guarding directly to the door.
Assembly of the door typically does not require any drilling, tapping, or welding.

The door actuation is triggered by the automation controlling the protected machine. The standard door comes without field-mounting cables or a control box. Options are available for cables and control boxes, including a manual pushbutton control system. Pushbutton controls are located on one side of the door; intended for operation control external to the machine operating area.

The door comes standard with proximity switches that sense the end-travel for the door (opening and closing). Dynatect offers many additional safety features, including a traveling photo-eye to sense obstruction to door travel. This can include a door auto-reverse feature. Dynatect also offers a safety interlock option, which helps meet PLe/Cat-4 safety requirements when combined with appropriate logic and conformance with risk assessment. Ensure that the door, its controls, and any safety devices conform to applicable safety standards.

If a person accidentally falls into the closed door shade, the shade resists releasing (conforming to OSHA guardrail standards) and reduces the risk of exposure to machinery hazards. In the rare case that the shade does detach from the columns, it is not designed to automatically re-align into the frame columns. In this circumstance, a door may require manual re-feeding, minor-disassembly, repair, or replacement.
The words DANGER, WARNING, CAUTION and NOTICE are used throughout this manual to highlight important information. Be certain that the meanings of these alerts are known to all who work on or near the door.

This safety alert symbol appears with most safety statements. It means attention, become alert, your safety is involved! Please read and abide by the message that follows the safety alert symbol.

**DANGER**
Indicates a hazardous situation that, if not avoided, will result in death or serious injury.

**WARNING**
Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

**CAUTION**
Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

**NOTICE**
Indicates a hazardous situation that can cause damage to the door, personal property, and/or the environment, or cause the door to operate improperly.

**NOTE:** Indicates a procedure, practice, or condition that should be followed in order for the door to function in the manner intended.
3 INSTALLATION

OVERVIEW

See Figure 1 for the major assemblies of the door.

Figure 1

1. Left Leg Assembly
2. Motor
3. Canister Header
4. Right Leg Assembly
5. Right base plate
6. Left base plate
7. Pin Extension (see Pin Extension Installation)

TYPICAL TOOLS FOR INSTALLATION:

- Metric hex key set
- Metric combination wrenches
- 9/16” open end wrench
- 17mm open end wrench
- Some accessories may require cable tie holders and mountings
FEET AND LEG ASSEMBLY
INSTALLATION

1. Position one base plate on the door reference lines with the inside positioning arrow facing inward and the front positioning arrow facing the front of the door.

   Figure 2

2. Drill four holes into the floor using the base plate to determine the positions.

   Figure 3

3. Secure the base plate to the floor using installer-supplied hardware. Dynatect recommends using a 3/8” concrete anchor fastener that has an embedded depth and concrete strength to meet or exceed a 2000 pound pullout force.

   Figure 4

4. Measure and mark the distance for the second base plate according to the required door opening width.

   Figure 5
5. Verify that the base plates are square. Measure the corner-to-corner distance between the base plates. If the distances are equal, the base plates are square.

![Figure 6](image1)

6. Drill the necessary holes, and then secure the second base plate to the floor using installer-supplied hardware.

![Figure 7](image2)

7. Remove all M8 button-head machine screws from both legs. Remove the leg covers from the leg assemblies.

![Figure 8](image3)
8. Position the appropriate leg assembly onto the base with the opening for the edge guide facing inward. Lower the leg assembly onto the base plate pin. To ease leg installation, the machine screws that attach the leg supports to the base plate may be loosened. Be sure to retighten the leg support screws once the leg is in contact with the base plate and prior to step 9.

NOTE: Verify the leg assembly is contacting the base plate.

9. Install and tighten the eight machine screws securing the base plate to the leg assembly.

10. Install the opposite leg assembly in the same manner described in steps 8 and 9.
11. Verify both leg assemblies are square and plumb using a 6’ (183 cm) carpenter’s level.

![Figure 11](image1)

12. If adjustment is required, loosen the base plate mounting screws and turn the leveling screws until the leg assemblies are square and plumb. When adjustment is complete, tighten the base plate mounting screws.

NOTE: Excessive adjustment – over 1/4” (6 mm) – will require shims.

![Figure 12](image2)

1. Leveling Screws
2. Customer-supplied anchors
PIN EXTENSION INSTALLATION

Installation of the extension pins ensures stability of the canister while mounted. Failure to install the extension pin may affect performance. **IMPORTANT:** Remove red shipping caps and install extension pins (2 places).

CANISTER HEADER INSTALLATION

**NOTE:** A fork truck or overhead crane is required to lift the canister header into place.

**NOTICE**

*Do not attempt to lift the canister header using only one framing bar. Damage to the canister header may result.*

1. Attach lifting strap(s) around the two canister header framing bars that are adjacent to the center framing bar. (see Figure 12).
2. Slowly lift the canister header until the canister header rolls upright (see Figures 14a & 14b).

![Figure 14a](image)

**Figure 14a**

![Figure 14b](image)

**Figure 14b**

**NOTE:** An alternate lifting method is to lift the canister header and place it onto the truck's forks (see Figure 15).

![Figure 15 - Alternate Lifting Method](image)

**WARNING**

<table>
<thead>
<tr>
<th>Crush Hazard:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always use the aid of an assistant when lifting the door shade. The door shade weighs between 250 and 550 lb (114 and 250 kg), depending on width.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Crush Hazard:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use proper lifting and securing methods to prevent canister header from sliding or rotating on forks.</td>
</tr>
</tbody>
</table>

**NOTICE**

| Make sure the door shade does not contact the truck's forks when lifting the canister header using the alternate lifting method. |

**NOTICE**

| Do not place forks under any fastener heads. |

**WARNING**

<table>
<thead>
<tr>
<th>Crush Hazard:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never allow anyone to stand under the truck's forks when the canister header is elevated.</td>
</tr>
</tbody>
</table>
CAUTION

Crush Hazard:
Never allow hands in the area where the pin enters the square tubing.

Figure 16

4. Lower the canister header so the pins enter the square tubing of each leg assembly at the same time to avoid binding.

NOTICE

Use caution while lowering the canister header onto the legs to avoid damaging the door.

Figure 17

5. Continue to lower the canister header until it sets fully on top of each leg assembly.
6. Remove the lifting strap(s), if used, from the canister header.
MOTOR INSTALLATION

BEFORE MOUNTING MOTOR TO GEARBOX

The motor is shipped separate from the gearbox. The motor may be installed in any of several possible orientations, specified at the time of the order. Before connecting the motor to the gearbox, make sure the wire phasing to the motor provides the required rotation direction. Please Note: This step will need to be repeated if reinstalled in a new facility or power distribution location to ensure proper motor phasing. The motor is factory-marked with an arrow showing the direction the motor should turn to open the door (door up).

- If the Dynatect-supplied ICB or OCU are used, reversing contactors have been pre-installed.
- If motor controls are not provided by Dynatect, use a reversing contactor set. Make sure wire phasing for the motor-contactor-up and motor-contactor-down are reverse-wired.

1. Connect POWER to the motor using a 7/8”-16 4-pin cable.
2. Connect the BRAKE M12 4-pin, 2-conductor cable.

![Figure 18](image)

If motor controls are not provided by Dynatect, the brake will not release but the motor direction will be visible. Once the direction has been determined remove power from the motor to prevent excess current draw as the motor attempts to continue turning with the brake applied.

- If the Dynatect-supplied Integrator Control Box (ICB) or Operator Control Unit (OCU) is used, the brake will release normally upon activation of the motor.
- If a customer-provided Variable Frequency Drive (VFD) is used to control the motor, contact Dynatect for motor brake wiring modifications.

Motor direction testing will verify the following:

- Power to the control box
- Cable from the control box to the motor power
- Cable from the control box to the motor brake
- Proper motor direction

3. Connect upper and lower travel end sensors to passive block (ref. Figure 32). Ensure no other safety sensors are connected to passive block.
4. Connect M23 19-pin connector from passive block to Dynatect control box, if supplied.
5. Activate the Door-Up signal, and make sure the rotation of the motor coupling matches the factory-marked arrow. Adjust the wire phasing as appropriate to achieve the required results. Clearly mark the correct phasing of the wires.
- Disconnect all safety sensors prior to testing. Test as needed before mounting the motor to the gearbox.
6. Disconnect the 7/8”-16 4-pin motor power cable.
7. Disconnect the BRAKE M12 4-pin, 2-conductor cable.

NOTICE

Failure to confirm proper motor direction will result in damage to components.
RIGHT-ANGLE-DRIVE MOTOR INSTALLATION

The right-angle-drive motor is standard. It may be installed in any of four possible orientations. The orientation is specified at the time of the order.

NOTE: Before connecting the motor to the gearbox, make sure the wire phasing to the motor provides the required rotation direction. See BEFORE MOUNTING MOTOR TO GEARBOX on page “BEFORE MOUNTING MOTOR TO GEARBOX” on page 14.

To change the orientation of the right-angle gear box:

1. Remove the shaft collar.
2. Remove the screws retaining the gearbox to the canister header.
3. Rotate the gearbox to the desired position.
4. Reinstall shaft collar and tighten set screw.
5. Install and torque the gearbox retaining nuts to 30 ft-lb.
6. Install the motor. Install and torque the four 3/8"-16 hex head motor retaining screws to 30 ft-lb.
7. Connect POWER to the motor using a 7/8"-16 4-pin cable.
8. Connect the BRAKE M12 4-pin, 2-conductor cable.
INLINE-DRIVE MOTOR INSTALLATION (OPTIONAL)

The inline-drive motor is optional. It may be installed in any of three possible orientations. The orientation is specified at the time of the order.

**NOTE:** Before connecting the motor to the gearbox, make sure the wire phasing to the motor provides the required rotation direction. See BEFORE MOUNTING MOTOR TO GEARBOX on page 14.

To change the orientation of the inline drive assembly:

1. Remove the screws retaining the drive chain cover.
2. Remove the drive chain cover.
3. Remove the screws retaining the drive mounting plate to the canister header.
4. Rotate the drive mounting plate to the desired position.
5. Install and torque the drive mounting plate screws to 30 ft-lb.

**WARNING**

**Sever Hazard:**
Never operate the motor without the drive chain cover installed.

6. Install the drive chain cover.
7. Install the motor. Install and torque the four 3/8"-16 hex head motor retaining screws to 30 ft-lb.
8. Connect POWER to the motor using a 7/8"-16 4-pin cable.
9. Connect the BRAKE M12 4-pin, 2-conductor cable.
ADAPT TO WALL MOUNTING INSTRUCTIONS

Set the top the Wall Mount Cover onto the Header Assembly, Flange to the wall.

Tighten Screws and Post-Assembly Nuts to the appropriate **T-Slot locations.

Dimension of flange with Top Cover installed.

** See T-Slot Instructions in the User Manual Appendix
SIDE WALL MOUNT COVERS

Set the Side Wall Mount Covers (both left and right) onto the Leg Assemblies. Flange with horizontal slots positioned onto the Leg Assembly.

If not already in place, install T-Slot nuts in the extrusion slots. Tighten Screws and Post-Assembly Nuts to the appropriate T-Slot locations. (See T-Slot Instructions in the Appendix)
DOOR SHADE INSTALLATION

1. Verify that the legs are straight and plumb. If adjustment is required, see FEET AND LEG ASSEMBLY INSTALLATION on page 7.

NOTICE
If the legs or header are out of alignment, damage may occur to any door component and sensors may not function properly.

2. Remove the velcro shipping straps from shade roller.

3. Activate the brake release lever and pull the leading edge of the door shade until a comfortable working height is obtained. Release the brake lever.

---

HEADER BOTTOM PLATE

When the door is shipped with the header bottom plate feature:

1. The unit is shipped with the front and back bottom-plate pre-installed. The plate on the back of the door is temporarily and intentionally reverse mounted to increase door shade clearance during installation.

2. Once the door shade has been installed, installers should remove the back plate and re-mount 180 degrees so that the gap is minimized to the shade.

3. There is a temporary custom notation label on each door with this instruction which can be removed after re-mounting:

![Header Bottom Plate](image)
4. Cut cable zip ties that are used to protect carriages from movement during shipping and installation. Be sure to secure carriage prior to cutting to prevent free fall damage to carriage.

5. Attach the leading edge mounting bracket to the carriage assembly using the supplied two M5 screws and washers installed in carriage. Tighten the screws. Repeat the process for the opposite side leg assembly.

**NOTICE**
To ensure smooth operation, center the bottom bar between leg guides (Figure 25).

**INCORRECT ALIGNMENT**
Incorrect alignment between the leading edge mounting bracket and the carriage assembly can lead to traveling photo eye and travel end sensor problems upon commissioning (See Figure 26).
DOOR STOP (HARD STOP KIT)

The AMSD-VF door comes with a field installed Hard Stop Kit (PN0343394-327). This Hard Stop is designed for to reduce/eliminate damage to components if commissioning instructions are not strictly followed. The Hard Stop is in no way to be used to shortcut the AMSD-VF Product Guide instructions, nor as a repetitive contact stop. The intent is to provide a level of product resilience for electrical phase discrepancies and possible commissioning mishaps.

The primary reason this hard stop was added is to prevent damage from commissioning errors, which can happen when motor phasing is not checked during commissioning and/or is not checked when the product is re-located and motor-wires are re-connected. Per this Product Guide, INSTALLERS MUST CHECK PHASING prior to mounting the motor or re-connecting power supply.

- See video at DYNATECT.COM/INSTALL-AMSD

The Door Hard Stop Kit (see page 22) consists of two (2) Door Stop Fingers, two (2) Door Stop Hooks, and mounting hardware.

The Door Stop Hook is factory installed (see image, item 6, p. 22).

The Door Stop Fingers (see image, item 5, p. 22) must be field installed after the Header Assembly and Door Shade are mounted.

Mount the Door Stop Fingers to the Header Extrusion T-slot with the provided hardware.

Mount directly in-line with the Door Stop Hooks, one on each side of the door.

NOTE: The Door Stop is to be mounted back side of the door, typically the machine side of door, away from operators to minimize any pinch points!

Engagement of the Door Stop is an indication that a commissioning error has occurred including but not limited to incorrect motor rotation (phase), improper sensor positioning, wiring problems, or issues with control logic. If the Door Stop engagement is ignored and used repeatedly, it will ultimately result in cascading failures of other critical components. The Door Stop is a backup mechanism to compensate for limited human error in commissioning.
DOOR STOP (CONTINUED)

Door Hard Stop Kit Detail:
1) Screw, M6x25 FHS
2) Screw, M6 20mm, BHCS, Locking
3) Nut, M6
4) Warning label (pinch point)
5) Door Stop Finger
6) Door Stop Hook
LEG COVER INSTALLATION

NOTE: Perform all electrical and sensor connections prior to installing leg covers.

1. Perform all electrical and sensor connections prior to installing leg covers.

   - Figure 27 - Position the inside leg profile edge inside the bottom bar
   - Figure 28 - Secure the cover using the front edge column notch

NOTE: When installing leg cover screws into the leg cover bracket, do not tighten until all screws are properly threaded.

TOP COVER INSTALLATION

Drop each piece of the top cover into place.

   - Figure 29

ELECTRICAL CONNECTIONS

1. Factory-mounted extension cables in the legs and header are supplied for some options. During assembly, connect any of the Dynatect-installed extension cables along the cable routing through the legs and the header. Header cable routing holes and twist lock guides are provided (See Figure 30).

   NOTE: The cables that must be connected are factory-labeled for easy identification.

2. Install the remaining sensors and options according to the specific installation instructions. See ELECTRICAL SENSORS, SWITCHES, AND RELAYS on page 29 for instructions.

   - Figure 30
STANDARD OFFERING – NO DYNATECT-SUPPLIED CONTROL BOX

The standard offering does not include an Integrator Control Box option or Operator Control Unit option.

DOOR-MOUNTED MOTOR WITH QUICK-DISCONNECT INTERFACE

For the standard motor/brake combination, there are two quick-disconnect interfaces:

- Connect POWER to the motor using a 7/8”-16 4-pin cable – Cable provided optionally by Dynatect. This connection would have been made already per instructions on page 14 for determining motor direction.

- Connect the BRAKE M12 4-pin, 2-conductor cable – Cable provided optionally by Dynatect (see Figure 18)

- When customer provides controls, refer to the notices at the end of this section, and/or the trouble shooting section titled *Inconsistent Passive Block Function (No Dynatect Control Package Provided)*

DOOR-MOUNTED PASSIVE TERMINAL BLOCK WITH QUICK-DISCONNECT INTERFACE

In the standard offering, all sensor and switch wiring is field-connected on a passive block. The passive block contains the M23 19-pin connector and the M12 female connectors (see Figure 31).

If a Dynatect control box is provided, a 19-pin connector cable between the passive block and control box is a required connection for operation.

- 19-Pin connector cable is provided optionally by Dynatect.

- 19-Pin connector cable may be also provided by other manufacturers. Wiring/switch detail is provided separately (see Door-Mounted Sensors and Switches Wiring Detail Figures 31-37.)
DOOR-MOUNTED SENSORS AND SWITCHES

CONNECTIONS

The door-mounted sensors and switches (see Figure 33) are:

• Travel-End Sensors (Standard):
  – PRX1 DOOR UP (Terminal 1)
  – PRX2 DOOR DOWN (Terminal 2)

• Traveling Photo-Eye (Option):
  – TPE-REC (Terminal 3 Splitter Gold)
  – TPE-EM (Terminal 3 Splitter Silver)

• Fixed Photo-Eye (Option):
  – FIXPE-REC (Terminal 5 Splitter Gold)
  – FIXPE-EM (Terminal 5 Splitter Silver)

• Photo-Eye Strip (Option):
  – PESTRIP-REC (Terminal 6)
  – PESTRIP-SEND (Terminal 7)

• Door Closed Safety Interlock Switch (Option):
  SAFETY SWITCH

---

NOTICE

Passive block connection may be bypassed and connection made directly to customer’s safety circuit.

---

NOTICE

The 19-pin passive block does distribute 24v power to sensors connected to the passive block, but any of the Photo Eye options will require separate 24v supply to the 19-pin cable pin #8 for proper function. Please reference the electrical and logic schematics within the Appendix Section of the Gortite® VF Door Product Guide to become familiar with the power, logic, and connections of standard and optional components.
Figure 33
DOOR-MOUNTED SENSOR AND SWITCHES

WIRING DETAIL

Figure 34 – Passive Terminal Block Pin Detail

Figure 35 – Splitter Pin Detail
INTEGRATOR CONTROL BOX (OPTIONAL)

The Integrator Control Box (ICB) is an upgrade from the standard offering that includes a NEMA 4X (IP66) control box with contactors and motor starter. It is pre-wired to accept UP signal, DOWN signal, and Standard Travel-End sensors. It is the customer’s responsibility to provide box mounting, field wiring, pushbuttons, field wiring of sensor options and control logic.

**Integrator control box:**
- **230V:** LSIS Manual Motor Protector MMS-32H-4 (4A Max) wired with 14AWG supporting a 1HP motor with 3.14FLA.
- **460V:** LSIS Manual Motor Protector MMS-32H-2.5 (2.5A Max) wired with 14AWG supporting a 1HP motor with 1.57FLA.

OPERATOR CONTROL UNIT (OPTIONAL)

The Operator Control Unit (OCU) is an upgrade from the Integrator Control Box offering with added pushbuttons (UP, DOWN, and E-STOP) and 24VDC power supply. It includes single-point termination to accommodate the Traveling Photo-Eye, Fixed Photo-Eye, Photo-Eye Strip, Door Closed Safety Interlock Switch (DCSIS), and in-box safety relay options. **Operator Control Unit: 230V:** LSIS Manual Motor Protector MMS-32H-4 (4A Max) wired with 14AWG supporting a 1HP motor with 3.14FLA and a DC Power Supply. **460V:** LSIS Manual Motor Protector MMS-32H-2.5 (2.5A Max) wired with 14AWG supporting a 1HP motor with 1.57FLA and a 3A DC Power Supply.

REMOVAL/DECOMMISSIONING

To remove the unit, follow the installation process in reverse.
4 ELECTRICAL SENSORS, SWITCHES, AND RELAYS

The travel-end sensors are standard equipment.

The following sensors are available as options:

- Traveling Photo-Eye
- Fixed Photo-Eye
- Photo-Eye Strip

The following safety options are available:

- Door Closed Safety Interlock Switch (DCSIS)
- Safety Relay
- Door Hold-down Switch

TRAVEL-END SENSOR INSTALLATION (STANDARD)

TRAVEL-END SENSOR INSTALLATION VERIFICATION

1. The top travel-end sensor is factory pre-positioned with an M12 4-pin extension cable labeled “Door Up” extending out the leg for field connection. Connect the “Door Up” extension cable to the passive block position 1.

2. The bottom travel-end sensor is factory pre-positioned with an M12 4-pin extension cable labeled “Door Down” extending out the leg for field connection. Connect the “Door Down” extension cable to the passive block position 2.

TRAVEL-END SENSOR FUNCTION VERIFICATION

The door is shipped with the extension cables disconnected from the passive block. Test the travel-end sensors before connecting any other sensor option (traveling photo-eye, fixed photo-eye, or photo-eye strip), DCSIS, or door hold-down switch cables to the passive block.

If the Dynatect-supplied Operator Control Unit (OCU) option is being used, it is shipped with jumpers across the terminals controlling the other sensor options. Ensure that the jumpers are still in place in the OCU from 24V to terminals 15, 16, and 17.

WARNING

Sever Hazard:
Always use caution when operating the motor without the leg covers installed.

Pinch Point Hazard:
Always use caution to help keep your fingers, toes, hair, clothing, and jewelry from becoming pinched when operating the door without the leg covers installed.
**IMPORTANT-STOPPING MECHANISM:** Due to the high-speed operation and associated braking distances, the bottom of the door does not stop at the precise position of the travel-end sensors. A metal target (see Figure 38) is attached to the bottom of the door inside the same leg as the travel-end sensors. The bottom edge of the door may travel:

- Up to 8” (20 cm) above the top travel-end sensor
- Up to 8” (20 cm) below the bottom travel-end sensor

**IMPORTANT:** Before applying any power:

- Ensure that the bottom edge of the door is positioned so that the metal target is not above the top travel-end sensor or below the bottom travel-end sensor.

**Figure 38** – Target

**Figure 39**

- Ensure that all cables inside the leg are retained properly within the profile to eliminate interference with moving door parts.
- Ensure that the cable-carrier plastic retaining films on both legs are in place.
- Ensure there are no obstructions to the travel of the door (conveyors, ladders, boxes, etc.).

**IMPORTANT:** Do not install the door hold-down switch option until all sensor options have been installed. If the door hold-down switch option has been installed prior to installation of the sensors, apply continuous 24VDC to the door hold-down switch to retract the pin at the bottom travel of the door. See “DOOR HOLD-DOWN SWITCH INSTALLATION (OPTIONAL)” on page 43 for additional power details. The door will travel completely down only after the pin is retracted. The door hold-down switch mechanism may also be temporarily removed in order to lower the door completely.
1. Apply power to the controls.

**WARNING**

**Sever Hazard:**
Always use caution when operating the motor without the leg covers installed.

**Pinch Point Hazard:**
Always use caution to help keep your fingers, toes, hair, clothing, and jewelry from becoming pinched when operating the door without the leg covers installed.

2. Check the diagnostic lights on the passive block:
   - Verify that there is a green light in the center, indicating power to the passive block. If the green light does not illuminate, check the wiring and ensure the E-Stop is not depressed.
   - Verify that either a white or yellow light is visible on each of position 1 and position 2. If neither light is visible, ensure the travel-end sensors are connected and powered.
   - A yellow light will illuminate when either travel-end switch senses the metal target (at the full-open or full-closed position).

**NOTICE**

Use metal object to verify yellow light illumination.

3. Trigger the door to travel down and verify that it stops, as triggered by the bottom travel-end sensor. Be prepared to initiate a stop override command if over-travel occurs. Verify that passive block position 2 illuminates yellow, and confirm the metal target is in alignment with the bottom travel-end sensor.

If the door stops or reverses during downward travel, ensure the other sensor options are not connected, which may prevent travel or cause auto-reverse.

4. Trigger the door to travel upward and verify that it stops, as triggered by the top travel-end sensor. Be prepared to initiate a stop override command if over-travel occurs. Verify that passive block position 1 illuminates yellow, and confirm the metal target is in alignment with the top travel-end sensor.

5. Refer to leg cover installation if sensor and switch installations are complete.

### ADJUSTING THE TRAVEL-END SENSOR POSITION

Although the travel-end sensors do not typically require any field modification, follow this procedure if adjustments are needed:

1. Remove power to the controls and motor in accordance with facility safety procedures.

**WARNING**

**Electrical Hazard:**
Always shut off electrical power to the door before performing service or adjustments.

2. Mark the current position of the travel-end sensors on the door.
3. Remove both mounting screws from the travel-end sensor being moved.
4. Refer to the STOPPING MECHANISM text (top of page 30) regarding moving the travel-end sensor positions. This will ensure:
   - The door will stop before excessive impact with floor.
   - The door will stop at least 8” (20 cm) below the header.

Note the top and bottom sensor position limit indicator marked on the leg.

To avoid over-travel, move the travel-end sensor conservatively and then make small adjustments if necessary.

5. Replace both mounting screws on the travel-end sensor.

   NOTICE
   Torque the screws no tighter than 65 in.-lb (7.3 N·m). Excessive torque may damage the mounting thread chase.

6. Verify end sensor stop beginning at Step 1, page 31.
   If adjustments are required, refer to Adjusting the Travel-End Sensor Position on page 31.

TRAVELING PHOTO-EYE INSTALLATION (OPTIONAL)

The traveling photo-eye consists of two sensor components – an “emitter” and a “receiver” – forming a complete sensor system. It is mounted to the bottom edge of the door and travels about 6” (15 cm) ahead of the door to sense obstructions. Breaking the beam triggers a door stop or reverse to avoid or minimize any impact force.

NOTE: Test the travel-end sensors before connecting the traveling photo-eye. See TRAVEL-END SENSOR INSTALLATION (STANDARD) on page 29.
TRAVELING PHOTO-EYE INSTALLATION
VERIFICATION

The emitter and receiver are factory-connected to the extension cables in the cable carrier.

The emitter is typically factory-mounted on the same side as the passive block. The emitter is connected to an M8 3-pin extension cable, which routes through the cable carrier and extends out the leg for field connection. Connect the “TPE-EM” extension cable to the passive block splitter silver connector on position 3.

The receiver is typically mounted on the opposite side as the passive block. The receiver is connected to an M8 3-pin extension cable, which routes through the cable carrier and extends out the leg to make two to three field connections.

- Connect the “TPE-REC” extension cables where the header and non-passive block leg meet. Dynatect recommends making these connections during door assembly.
- Dependent on door opening width, connect the “TPE-REC” extension cables where the header and passive block leg meet. If no extension cable is located in the passive block leg, route the header cable down the leg and through the exit hole. Dynatect recommends making these connections during door assembly.
- Connect the “TPE-REC” extension cable from where it extends out the leg to the passive block splitter gold connector on position 3.

The traveling photo-eyes are mounted on slide mechanisms, allowing for proper retraction when the door stops at the floor. Ensure both sliding mechanisms travel freely up and down and are not bound or bent. If damage has occurred, please contact Dynatect.

If the Dynatect-supplied Operator Control Unit (OCU) option is being used, it is shipped with jumpers across the terminals bypassing the traveling photo-eye option. Remove the traveling photo-eye jumper in the OCU from terminal 24V to terminal 16.

TRAVELING PHOTO-EYE ALIGNMENT
VERIFICATION

IMPORTANT: Before applying any power:

- Ensure that the bottom edge of the door is positioned so that the metal target is not above the top travel-end sensor or below the bottom travel-end sensor.
- Ensure that all cables inside the leg are retained properly within the profile to eliminate interference with moving door parts.
- Ensure that the cable-carrier plastic retaining films on both legs are in place.
- Ensure there are no obstructions to the travel of the door (conveyors, ladders, boxes, etc.).

Install leg covers per installation instruction.

1. Apply power to the controls.

   ![WARNING]

   **Sever Hazard:**
   Always use caution when operating the motor without the leg covers installed.

   **Pinch Point Hazard:**
   Always use caution to help keep your fingers, toes, hair, clothing, and jewelry from becoming pinched when operating the door without the leg covers installed.

2. Check the diagnostic lights on the passive block:

   - Verify that there is a green light in the center, indicating power to the passive block. If the green light does not illuminate, check the wiring and ensure the E-Stop is not depressed.
   - Verify that either a white or yellow light is visible on each of position 1 and position 2. If neither light is visible, ensure that the
travel-end sensors are connected and powered.

- A yellow light on position 3 will illuminate when the traveling photo-eye is in alignment and the beam is not broken.

The traveling photo-eye red beam will be visible on the door leg on the same side as the traveling photo-eye receiver. Depending on door width, this circle of light may vary in size and may even be wider than the leg.

3. The emitter alignment is pre-set and pre-tested at the factory but must be validated after installation by means of cycling the door across the entire travel distance.

Due to variations during installation, the red circle may center differently at the extremes of travel but may still have sufficient coverage for the receiver.

- Ensure that some of the red emitter light is always overlapping the opposite leg slot at the receiver.
- Verify that the passive block position 3 has a continuous yellow light, which confirms alignment and that the beam is not broken.

**NOTE:** The yellow light may turn off when the door reaches the floor and the traveling photo-eye retracts.

By rare exception, the traveling photo-eye emitter alignment may require modification due to variations in field installation. See TRAVELING PHOTO-EYE ALIGNMENT MODIFICATION on page 53.

**TRAVELING PHOTO-EYE FUNCTION VERIFICATION**

Until the traveling photo-eye function is verified, the door could continue to travel down and a solid object could cause the door shade to misalign and require re-installation.

1. Prepare to block the photo-eye with a piece of letter-sized paper, notebook, or manual. Do not use a solid object, immovable object, or body part to test.

2. Hold the test paper at arm’s length and several feet above the floor perpendicular to the travel path of the door/traveling photo-eye beam. The paper will break the traveling photo-eye beam.

3. Trigger the door to travel down. When the traveling photo-eye reaches the paper, the door should stop, and, depending on installed logic, may auto-reverse.

4. If the door does not stop, allow the test paper to move out of the way, verify the jumper was removed (retest), and consult Dynatect for any additional troubleshooting as needed.

If the Dynatect-supplied OCU option is being used, the door will stop within 6” (15 cm) of the beam break with a slight delay (about 0.5 second), then auto-reverse. The auto-reverse function executes only if the obstruction remains in the beam path for the duration of the delay. Otherwise, the door remains stopped and does not auto-reverse.

**NOTE:** The traveling photo-eye is designed for consistent operation across the full length of travel. Additional tests at other heights are not required.
FIXED PHOTO-EYE INSTALLATION (OPTIONAL)

The fixed photo-eye consists of two sensor components – an “emitter” and a “receiver” – forming a complete sensor system. It can be mounted to the legs at the front or back of the door, based on customer requirement, at a fixed position where potential interference may occur. Breaking the beam triggers a door stop or auto-reverse to avoid or minimize any impact force.

**NOTE:** Test the travel-end sensors before connecting the fixed photo-eye. See “TRAVEL-END SENSOR INSTALLATION (STANDARD)” on page 29.

---

**FIXED PHOTO-EYE INSTALLATION**

The emitter and receiver components are shipped loose and must be mounted at the time of installation.

1. Ensure the leg covers are installed and that mounting of the fixed photo-eye does not interfere with future removal of leg covers.

   **WARNING**
   
   *Sever Hazard:*
   - Always use caution when operating the motor without the leg covers installed.
   
   *Pinch Point Hazard:*
   - Always use caution when operating the motor without the leg covers installed. Use caution to help keep your fingers, toes, hair, clothing, and jewelry from becoming pinched.

2. Use the Dynatect-provided brackets and mounting hardware to mount the emitter and receiver to the T-slots located on a door legs at the desired height. The emitter is typically mounted on the same side as the passive block.

3. The emitter and receiver use M8 extension cables. Connect each extension cable to the emitter and receiver.

4. The extension cables are typically run along the outside of the legs and header to terminate at the passive block. Mount the extension cables to the T-slots using appropriate hardware.

   **NOTICE**
   
   Excess cable length is provided to accommodate a variety of mounting locations. Coil up any excess cable and secure it to an available surface to minimize the risk of it damaging the door or interfering with its movement.

5. Connect the fixed photo-eye emitter cable to the passive block splitter silver connector on position 5.
6. Connect the fixed photo-eye receiver cable to the passive block splitter gold connector on position 5.

7. If the Dynatect-supplied Operator Control Unit (OCU) option is being used, it is shipped with jumpers across the terminals bypassing the fixed photo-eye option. Remove the fixed photo-eye jumper in the OCU from terminal 24V to terminal 15.

**FIXED PHOTO-EYE ALIGNMENT VERIFICATION**

**IMPORTANT:** Before applying any power:

- Ensure that the leg covers are installed.

<table>
<thead>
<tr>
<th>WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sever Hazard:</strong></td>
</tr>
<tr>
<td>Always use caution when operating the motor without the leg covers installed.</td>
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<tr>
<td><strong>Pinch Point Hazard:</strong></td>
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<tr>
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</tr>
</tbody>
</table>

- Ensure there are no obstructions to the travel of the door or light beam path (conveyors, ladders, boxes, etc.).

1. Apply power to the controls.

2. Check the diagnostic lights on the passive block:
   - Verify that there is a green light in the center, indicating power to the passive block. If the green light does not illuminate, check the wiring and ensure the E-Stop is not depressed.
   - Verify that either a white or yellow light is visible on each of position 1 and position 2. If neither light is visible, ensure that the travel-end sensors are connected and powered.
   - A yellow light on position 5 will illuminate when the fixed photo-eye is in alignment and the beam is not broken.

3. Evaluate the alignment:
   - Ensure that some of the red emitter light is always overlapping the receiver. Paper or another surface can be used near the receiver to validate where the emitter light is landing.
   - Verify that the passive block position 5 has a continuous yellow light, which confirms alignment and that the beam is not broken.
   - Check the diagnostic lights on the fixed photo-eyes:
     - A green light on the emitter and receiver will illuminate, indicating power.
     - A yellow light on the receiver will illuminate when the fixed photo-eye is in alignment and the beam is not broken.

Adjust the emitter, receiver, or brackets as needed.
FIXED PHOTO-EYE FUNCTION VERIFICATION

Until the fixed photo-eye function is verified, the door could continue to travel down and a solid object could cause the door shade to misalign and require re-installation.

1. Prepare to block the fixed photo-eye with a piece of letter-sized paper, notebook, or manual. Do not use a solid object, immovable object, or body part for testing. Prepare to block only the photo-eye, not the traveling door. During the test, use the paper to break the fixed photo-eye beam.

   ! WARNING

   Crush Hazard:

   Never move hands or other body parts into the path of the door when testing its function.

2. Trigger the door to travel down. Break the beam with the paper. The door should stop, and, depending on installed logic, may auto-reverse.

   If the door does not stop, verify the jumper was removed (retest) and consult Dynatect for any additional troubleshooting as needed.

   If the Dynatect-supplied OCU option is being used, the door will stop within 6" (15 cm) of the beam break with a slight delay (about 0.5 second), then auto-reverse. The auto-reverse function executes only if the obstruction remains in the beam path for the duration of the delay. Otherwise, the door remains stopped and does not auto-reverse.

PHOTO-EYE STRIP INSTALLATION (OPTIONAL)

The photo-eye strip consists of two sensor components – an “emitter” and a “receiver” – forming a complete sensor system. It is mounted to the legs at the front or back of the door, based on customer requirement, at a fixed position where potential interference may occur. Breaking the beam triggers a door stop or reverse to avoid or minimize any impact force.

![Figure 44]

NOTE: Test the travel-end sensors before connecting the photo-eye strip. See “TRAVEL-END SENSOR INSTALLATION (STANDARD)” on page 29.
PHOTO-EYE STRIP KIT INSTALLATION

The emitter and receiver components are shipped loose and mounted at time of installation.

1. Ensure the leg covers are installed and that mounting of the photo-eye strip does not interfere with future removal of leg covers.

2. Use the supplied brackets and mounting hardware to mount the emitter and receiver to the T-slot located on a door leg at the desired height. The emitter is typically mounted on the same side as the passive block.

3. The emitter and receiver use M8 4-pin extension cables. Connect each extension cable to the emitter and receiver.

4. The extension cables are typically run along the outside of the legs and header to terminate at the passive block. Mount the extension cables to the T-slots using appropriate hardware.

5. Connect the photo-eye strip emitter cable to the passive block on position 7.

6. Connect the photo-eye strip receiver cable to the passive block on position 6.

7. If the Dynatect-supplied Operator Control Unit (OCU) option is being used, it is shipped with jumpers across the terminals bypassing the photo-eye strip option. Remove the photo-eye strip jumper in the OCU from terminal 24V to terminal 17.

PHOTO-EYE STRIP ALIGNMENT VERIFICATION

IMPORTANT: Before applying any power:

- Ensure that the leg covers are installed.

1. Apply power to the controls.

2. Check the diagnostic lights on the passive block:
   - Verify that there is a green light in the center, indicating power to the passive block. If the green light does not illuminate, check the wiring and ensure the E-Stop is not depressed.
   - Verify that either a white or yellow light is visible on each of position 1 and position 2. If neither light is visible, ensure that the travel-end sensors are connected and powered.
   - A yellow light on position 6 will illuminate when the photo-eye strip is in alignment and the beam is not broken.
3. Evaluate the alignment:
   - Verify that the passive block position 6 has a continuous yellow light, which confirms alignment and that the beam is not broken.
   - Check the diagnostic lights on the receiver:
     - A green light will illuminate, indicating power.
     - A red light will illuminate when the photo-eye strip is in alignment and the beam is not broken.

Adjust the emitter, receiver, or brackets as needed.

PHOTO-EYE STRIP FUNCTION VERIFICATION

Until the photo-eye strip function is verified, the door could continue to travel down and a solid object could cause the door shade to misalign and require re-installation.

1. Prepare to block the photo-eye strip with a piece of letter-sized paper, notebook, or manual. Do not use a solid object, immovable object, or body part to test. Prepare to block only the photo-eye strip, not the traveling door. During the test, use the paper to break the photo-eye strip beam.

2. Trigger the door to travel down. Break the beam with the paper. The door should stop, and, depending on installed logic, may auto-reverse.

   If the door does not stop, verify that the jumper was removed (retest), and consult Dynatect for additional troubleshooting as needed.

   If the Dynatect-supplied Operator Control Unit (OCU) option is being used, the door should stop within 6” (15 cm) of the beam break with a slight delay (about 0.5 second), then auto-reverse. The auto-reverse function executes only if the obstruction remains in the beam path for the duration of the delay. Otherwise, the door remains stopped and does not auto-reverse.

DOOR CLOSED SAFETY INTERLOCK SWITCH (DCSIS) INSTALLATION (OPTIONAL)

The DCSIS (Figure 45) consists of two switch components, a cabled “switch” and an “actuator,” which are Radio Frequency Identification (RFID) paired to eliminate false-sensing or bypass with a standard metal target. Together, the switch and actuator form a complete sensor system providing a normally open dry contact for interfacing with the protected machine, either:

- Confirming that the door is completely down, protecting the machine for subsequent operation
- Confirming that the door is not completely down, preventing machine operation

NOTE: See the APPENDIX page 61 for more detailed diagrams on Photo-Eye Strip installation.
**NOTE**: Test the travel-end sensors before connecting the DCSIS. See *TRAVEL-END SENSOR INSTALLATION (STANDARD)* on page 29.

The DCSIS is complement to the standard-offering bottom travel-end sensor.

- The bottom travel-end sensor is dedicated to the stopping/braking of the shade.
- The DCSIS is dedicated to the protected-machine safety logic.

SICK brand switches are the standard option. The switches are factory-tested mechanically and electrically.

**NOTE**: RFID non-contact safety interlock allows PLe/Cat-4 requirements to be met with a single combination switch/actuator when combined with appropriate logic and conformance to risk assessment.

**DCSIS INSTALLATION VERIFICATION**

The DCSIS is factory pre-installed at the bottom travel position on the same side of the door as the motor and passive block.

The DCSIS has an M12 5-pin connection, with factory-provided extension cables running through and extending out through the leg (see item 3 in *Figure 46*). Connect the SAFETY extension cable to the passive block position 4 unless connecting directly to the safety circuit.

**OPERATOR CONTROL UNIT**

If the Dynatect-supplied Operator Control Unit (OCU) option is being used, it includes:

- M23 19-pin connector for field connectivity to the passive block
- Power supply with 24VDC to provide power to all logic, pushbuttons, and sensors as well as the safety interlock switch
• Dedicated terminal block positions 18 and 19 – for access to the DCSIS normally open contact signals. This may require field wiring from the OCU to the protected-machine control logic through the OCU gland and appropriate field cable clamps and/or strain relief.

DCSIS ALIGNMENT VERIFICATION

IMPORTANT: Before applying any power:

• Ensure that the bottom edge of the door is positioned so that the metal target is not above the top travel-end sensor or below the bottom travel-end sensor.
• Ensure that all cables inside the leg are retained properly within the profile to eliminate interference with moving door parts.
• Ensure that the cable-carrier plastic retaining films on both legs are in place.
• Ensure there are no obstructions to the travel of the door (conveyors, ladders, boxes, etc.).

1. Apply power to the controls.

2. Check the diagnostic lights on the passive block:
   • Verify that there is a green light in the center, indicating power to the passive block. If the green light does not illuminate, check the wiring and ensure the E-Stop is not depressed.
   • Verify that either a white or yellow light is visible on each of position 1 and position 2. If neither light is visible, ensure that the travel-end sensors are connected and powered.

3. The DCSIS alignment is pre-set and pre-tested at the factory but must be validated after installation:
   a. Trigger the door to travel down and stop.
   b. Evaluate the alignment:
      - The passive block position 4 has a continuous yellow and white light when the door is completely closed.
      - Check the diagnostic lights on the DCSIS actuator:
         • A red light will illuminate, indicating power.
         • A green light will illuminate when the target is in alignment.

By rare exception, the DCSIS switch or actuator alignment may require modification due to variations in field installation. Move the switch to align with the actuator as needed.
SAFETY RELAY INSTALLATION (OPTIONAL)

The safety relay option is typically selected to be paired with the Door Closed Safety Interlock Switch (DCSIS). See “DOOR CLOSED SAFETY INTERLOCK SWITCH (DCSIS) INSTALLATION (OPTIONAL)” on page 39. The safety relay and DCSIS can be used independently, but Dynatect recommends pairing them to help meet PLe/Cat-4 safety requirements when combined with appropriate logic and conformance to risk assessment.

The safety relay can be shipped loose or pre-mounted and pre-wired in the Dynatect Operator Control Unit (OCU) option as reques

SAFETY WIRING CONFIGURATION

When pre-mounted and pre-wired in the Operator Control Unit (OCU), the wiring is configured as shown in the Appendix.

DEDICATED TERMINALS

Dedicated terminals at block positions K1 and K2 require the installer to connect the safety relay outputs to the protected-machine control logic through the OCU gland and appropriate field cable clamps and/or strain relief.
DOOR HOLD-DOWN SWITCH INSTALLATION (OPTIONAL)

The door hold-down switch system consists of three components:

- An “actuator” that moves a 10 mm locking pin
- A mounting “bracket” (factory-connected to the actuator, shipped loose, field-installed)
- A “tab” factory-mounted on the shade carriage

Together, the three parts form a locking system to keep the door held in the DOWN position. The door hold-down option is for interfacing with the protected machine, confirming that the door is completely down and locked. This prevents the door from opening until the proper safety signal is received.

NOTE: Test the travel-end sensors before connecting the door hold-down switch. See TRAVEL-ENDING SENSOR INSTALLATION (STANDARD) on page 27.

DOOR HOLD-DOWN SWITCH MOUNTING

1. Select mechanical fasteners appropriate to the site safety requirements for minimizing tampering. The included bracket and actuator hardware is not tamper-proof.

2. Mount the actuator and bracket assembly outside the leg at the bottom travel position so the actuator pin extends through the factory-drilled hole and actuates above the tab on the shade carriage. The alignment of the actuator, hole, and tab are all factory-positioned.

NOTE: The door hold-down switch will prevent the door from opening manually but it is not intended to be the door closed safety feature. An interlock switch must be used for this purpose.

3. Trigger the door hold-down switch to unlock by applying 0VDC and 24VDC from the logic of the machine being protected.

4. Verify that the actuator pin has cleared the tab mounted on the shade carriage. Verify that the actuator pin is fully retracted as confirmed by illumination of the green diagnostic light on the door hold-down switch.

5. Cycle the door up and down. Repeat the door hold-down switch lock and unlock several times to ensure repeatable performance.
DOOR HOLD-DOWN LOGIC
See Appendix for door hold-down logic schematic.

The actuator has a two-wire input at pins 1 and 3. Either polarity is satisfactory. When the actuator is energized, the switch is not locked. Applying 24VDC unlocks the door. Removing 24VDC locks the door. To maximize safety, the 24VDC signal is intended to come from the logic of the machine being protected.

The actuator has a two-wire normally open dry contact output at pins 2 and 4. This contact is open when door is locked and is closed when the door is unlocked. This output prevents opening the door through control logic.

DOOR HOLD-DOWN SWITCH CONNECTION
The actuator and bracket are pre-assembled at the factory. They are shipped loose as an assembly and must be mounted at the time of installation.

NOTE: By rare exception, if positioning needs adjustment, another 0.59” (15 mm) hole may need to be drilled.

1. The door hold-down switch actuator has an M12 4-pin connection, with one or more factory-provided extension cables.
   a. Connect the extension cable to the actuator.
   b. During field installation, the extension cable is typically run along the outside of the leg. Mount the extension cables to the T-slots using appropriate field hardware.

NOTICE

NOTE: The door hold-down switch option is not pre-wired to the passive block.

1. Terminate the cable(s) at either:
   a. The customer’s controls for the machine being protected
   b. The optional Operator Control Unit (OCU)
      - The following components can be replaced on or retrofitted to fit an existing VF Automated Machine Safety Door.
      - The OCU includes dedicated terminals at block positions E1 and E2 for which the installer provides 24VDC from the logic of the machine being protected – not from the 24VDC of the OCU. This requires field wiring from the protected-machine control logic through the OCU gland and appropriate field cable clamps and/or strain relief.
      - The OCU includes dedicated terminal 002 and 003, which use the normally open output to inhibit the OCU logic.
      - The OCU is shipped with jumpers across the terminals, bypassing the door hold down switch option. Remove the hold-down switch jumper in the OCU terminal block from terminal 002 to terminal 003.
DOOR HOLD-DOWN SWITCH VERIFICATION

Although the door hold-down switch alignment is pre-set and pre-tested at the factory, it must be validated after installation.

IMPORTANT: Before applying any power:

• Ensure that the bottom edge of the door is positioned so that the metal target is above the bottom travel-end sensor.
• Ensure that all cables inside the leg are retained properly within the profile to eliminate interference with moving door parts.
• Ensure that the cable-carrier plastic retaining films on both legs are in place.
• Ensure there are no obstructions to the travel of the door (conveyors, ladders, boxes, etc.).

1. Apply power to the controls.

2. Trigger the door hold-down switch to unlock by applying 0VDC and 24VDC to pins 1 and 3 (terminals E1 and E2) from the logic of the machine being protected. Verify that the actuator pin is fully retracted as confirmed by illumination of the green diagnostic light on the door hold-down switch.

3. Trigger the door to travel down and stop.

4. Trigger the door hold-down switch to lock by removing 0VDC and 24VDC to pins 1 and 3 (terminals E1 and E2) from the logic of the machine being protected.

IMPORTANT: The door hold-down switch output and logic must prevent the motor from attempting to open the door. Verify the logic to ensure that the motor is electrically inhibited from operation when the pin is extended prior to physically mounting the hold-down switch.

5. Verify that the actuator pin has passed through the hole and above the tab mounted on the shade carriage. The alignment of the actuator, hole, and tab are all factory-positioned.

NOTE: By rare exception, if positioning needs adjustment, another 0.59” (15 mm) hole may need to be drilled.

6. With the door hold-down switch locked, trigger the door to travel up.
Note: Page intentionally blank.
Before any attempt at operation:

• Carefully read and review all wiring and installation instructions.
• Ensure that the bottom edge of the door is between the travel-end sensors.
• Ensure that leg covers are installed prior to initiation of operating mode.

⚠️ WARNING

Sever Hazard:
Always use caution when operating the motor without the leg covers installed.

Pinch Point Hazard:
Always use caution when operating the motor without the leg covers installed. Use caution to help keep your fingers, toes, hair, clothing, and jewelry from becoming pinched.

NOTICE

Do not use the door for anything other than its intended purpose. In the event of damage, including to cables, immediately stop using the door, secure the area around the door, and begin to make repairs.

STANDARD OFFERING – NO DYNATECT-SUPPLIED CONTROL BOX

The door is controlled via external dry contact signals from the customer’s controls for the machine being protected.

In the standard offering, all sensor wiring is field-connected on a passive block typically on the same side of the door as the motor. This passive block consolidates all wiring into an M23 19-pin connector. This 19-pin connector cable between the passive block and control enclosure is the recommended connection for operation.

The door has an electric motor and can be operated using the customer’s controls for the machine being protected. With appropriate customer-supplied logic:

• The door travel is governed by travel-end sensors and optional safety sensors.
• The door will automatically stop at the top or bottom travel-end sensors.
• If the traveling photo-eye, fixed photo-eye, or photo-eye strip options are installed, they will sense an obstruction while the door is closing and the door may auto-reverse to the full open position.
• Controlling the DC brake in conjunction with the power contactors shortens braking distances. This requires connecting the M12 4-pin, 2-conductor cable from the customer’s control to the motor junction box. This is required connection for designed stop distances.

See ELECTRICAL SENSORS, SWITCHES, AND RELAYS on page 29 for the functions of the options.
CLOSING THE DOOR

1. Release the DC brake (contact closed).
2. Enable close (down) power to the motor.
3. Trigger the door to travel down until the bottom travel sensor is reached.
4. Remove power from the motor (contact open).
5. Apply the DC brake (contact open).

If the traveling photo-eye, fixed photo-eye, or photo-eye strip options are installed, add appropriate logic to stop and/or reverse door travel when an obstruction is sensed.

An E-Stop or stop signal may be integrated for stopping the door mid-position if desired.

If the Door Hold-Down Switch option is installed, it is 24VDC controlled by the customer’s controls for the machine being protected. This should be engaged when the door is closed (reference Door Hold-Down Switch Installation section).

OPENING THE DOOR

1. If the Door Hold-Down Switch option is installed, it is 24VDC controlled by the customer’s controls for the machine being protected. This must be released before the door can open.
2. Release the DC brake (contact closed).
3. Enable open (up) power to the motor.
4. Trigger the door to travel up until the top travel sensor is reached.
5. Remove power from the motor.
6. Apply the DC brake (contact open).

An E-Stop or stop signal may be integrated for stopping the door mid-position if desired.

OVERCURRENT PROTECTION AND STANDARD MOTOR LOADING

For the Integrator Control Box option or Operator Control Unit Option, listed below is the overcurrent protection and standard motor loading. While local electrical codes always dictate the breaker and wire size feeding these options, 20A breaker and 14AWG wire is typically sufficient.

Integrator Control Box:

- 460V: LSIS MMS-32H-2.5 Manual Motor Protector (2.5A Max) wired with 14AWG supporting a 1HP motor with 1.57FLA

Operator Control Unit:

- 460V: LSIS MMS-32H-2.5 Manual Motor Protector (2.5A Max) wired with 14AWG supporting a 1HP motor with 1.57FLA and a DC Power Supply

DYNATECT-SUPPLIED INTEGRATOR CONTROL BOX (ICB) OPTION

The door is controlled via external dry contact signals from the customer’s controls for the machine being protected.

As described under the standard offering, all sensor wiring is field-connected on a passive block typically on the same side of the door as the motor. This passive block consolidates all wiring into an M23 19-pin connector. This 19-pin connector cable between the passive block and control enclosure is a required connection for operation.

Ensure that appropriate 24VDC, 3A power is supplied to the ICB terminals labeled 24V and 0V on Terminal Block.
The door has an electric motor and can only be operated via contacts from the customer’s controls for the machine being protected. The door travel is governed by travel-end sensors and optional safety sensors.

- With provided ICB logic, the door will automatically stop at the top or bottom travel-end sensors.
- The customer must provide any logic associated with the traveling photo-eye, fixed photo-eye, or photo-eye strip options installed and apply that logic to the open and close signals.

The ICB option includes logic for automatically controlling the DC brake. This requires connecting the M12 4-pin cable from the ICB to the motor junction box. This is a required connection for designed stop distances.

See ELECTRICAL SENSORS, SWITCHES, AND RELAYS on page 29 for the functions of the options.

CLOSING THE DOOR

Using a dry contact, close terminals 006 and 007 on Terminal Block.

If the traveling photo-eye, fixed photo-eye, or photo-eye strip options are installed, the customer must integrate the desired logic into the customer’s controls for the machine being protected, which govern the dry contact.

If the Door Hold-Down Switch option is installed, it is 24VDC controlled by the customer’s controls for the machine being protected. This must be activated after the door reaches the closed position.

OPENING THE DOOR

Using a dry contact, close terminals 001 and 002 on Terminal Block. Actuation may take up to 1 second to initiate.

If the Door Hold-Down Switch option is installed, it is 24VDC controlled by the customer’s controls for the machine being protected. This must be released before the door can open.

STOPPING THE DOOR

An external Emergency-Stop may be customer-wired to override the previously listed Open or Close dry contacts. Remove the jumper from terminal L24V and 24.1V or terminal 24.1V and 24.2V – wiring a customer-supplied E-Stop in series.

DYNATECT-SUPPLIED OPERATOR CONTROL UNIT (OCU) OPTION

In automated operation, the door is controlled via external dry contact signals from the customer’s controls for the machine being protected.

As described under the standard offering, all sensor wiring is field-connected on a passive block typically on the same side of the door as the motor.

This passive block consolidates all wiring into an M23 19-pin connector. This 19-pin connector cable between the passive block and control enclosure is a required connection for operation.

Ensure that appropriate AC power is supplied to the OCU. The OCU contains a DC power supply, which provides 24VDC to the OCU control logic.
The door has an electric motor and can be operated using the button on the OCU or via contacts from the customer’s controls for the machine being protected. The door travel is governed by travel-end sensors and optional safety sensors.

- The door will automatically stop at the top or bottom travel-end sensors.
- If the traveling photo-eye, fixed photo-eye, or photo-eye strip options are installed, they will sense an obstruction while the door is closing and the door will auto-reverse to the full open position.

Generally, the Open, Close, and Emergency-Stop (E-Stop) buttons on the door control system should be used during setup, maintenance, and repair of the door.

The OCU option includes logic for automatically controlling the DC brake. This requires connecting the M12 4-pin cable from the OCU to the motor junction box. This is a required connection for designed stop distances.

See ELECTRICAL SENSORS, SWITCHES, AND RELAYS on page 29 for the functions of the options.

### CLOSING THE DOOR

The door can be closed by doing either of the following:

- Pressing the down-arrow button
- Using a dry contact to close terminals 006 and 007 on Terminal Block

**NOTE:**

- The door will automatically stop at the bottom travel-end sensor.
- If the traveling photo-eye, fixed photo-eye, or photo-eye strip options are installed, they will sense an obstruction while the door is closing and the door will auto-reverse to the full open position.
- If the Door Hold-Down Switch option is installed, it is 24VDC controlled by the customer’s controls for the machine being protected. This must be activated after the door reaches the closed position.

### OPENING THE DOOR

The door can be opened by doing either of the following:

- Pressing and hold the up-arrow button up to 1 second.
- Using a dry contact to close terminals 001 and 002 on Terminal Block. Actuation may take up to 1 second to initiate.

**NOTE:**

- Door Open has a <1 second delay to accommodate sensor options.
- The door will automatically stop at the top travel-end sensor.
- If the Door Hold-Down Switch option is installed, it is 24VDC controlled by the customer’s controls for the machine being protected. This must be released before the door can open.

### STOPPING THE DOOR

To stop the door, press the red E-Stop button.

### EXTERNAL E-STOP

An external E-Stop may be wired in series with the integrated E-Stop:

1. Remove the jumper on terminal L24V and 24.1V or terminal 24.1V and 24.2V.
2. Using an E-Stop, close the above terminals.
6 PREVENTIVE MAINTENANCE

ROUTINE MAINTENANCE

<table>
<thead>
<tr>
<th>TASK</th>
<th>DAILY</th>
<th>EVERY 6 MONTHS</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Door operation</td>
<td>X</td>
<td></td>
<td>Check for proper operation.</td>
</tr>
<tr>
<td>Brake</td>
<td>X</td>
<td></td>
<td>Verify the door stops at open, closed, and middle of travel.</td>
</tr>
<tr>
<td>Curtain</td>
<td>X</td>
<td></td>
<td>Inspect for damage. Repair if necessary.</td>
</tr>
<tr>
<td>Travel-end switch</td>
<td></td>
<td>X</td>
<td>Check for proper operation. Adjust if necessary.</td>
</tr>
<tr>
<td>Motor</td>
<td></td>
<td>X</td>
<td>Verify motor retaining screws are tightened to 30 ft-lb.</td>
</tr>
<tr>
<td>Controls/wiring</td>
<td></td>
<td>X</td>
<td>Check connections for tightness.</td>
</tr>
</tbody>
</table>

Table 1

CLEANING

The door is designed to contain typical machine/process-generated hazards including light debris, fluid splatter/mist, and weld sparks. The rugged curtain material is resistant to punctures and resilient to abrasion. The reinforced double-yarn scrim pattern helps stop tears and maximize service life.

Process-generated byproducts may periodically adhere to the door and become compressed when the door is rolled open. Dynatect recommends regularly removing the byproducts from the door. Removal can be done manually with a brush, wiper, or squeegee. Use clean, warm, non-abrasive soapy water if needed.

If the cleaning is unsatisfactory, the compressed byproducts may create imperfections in the fabric or window. Any such imperfections are usually only cosmetic, but exceptional damage should be patched.

In rare instances, byproducts may enter the legs and potentially interfere with operation. With the power disconnected, remove the leg covers for additional inspection/cleaning.

For Item Wear Guidelines, see page 52.

WARNING

Electrical Hazard:
Always shut off electrical power to the door before performing service or adjustments.

- Use an air hose to remove debris as needed.
- Remove any debris from the wheeled carriage, which rides in the side-column extrusion. Debris in the wheeled carriage could cause inconsistent curtain travel.
- Remove any debris from the interior of the leg bases.
- Remove any metal chips around the top and bottom travel-end sensors. Ensure that all cables inside the leg are retained properly within the profile to eliminate interference with moving door parts.

To further reduce the amount of manual cleaning, Dynatect offers a header curtain brush option. It can be supplied at the time of order or post-installation.
RETURN PROCEDURES
Commercial responsibilities for returning the door to Dynatect for repair/replacement are subject to the terms and conditions of sale. To initiate the return process, please complete a Dynatect Return Authorization Request form and email it to sales@dynatect.com or fax it to 262-786-3280. The form can be secured by contacting a sales representative or Dynatect directly at: 262-786-1500 / 800-298-2066
Email: sales@dynatect.com

An RA number will be provided promptly after receipt of this form.

REPLACEMENT PARTS
To minimize exceptional downtime, the recommended customer-stock replacement parts include:

- Replacement Carriage Assembly (3-wheeled carriage can be applied to either leg)
- Travel-End Sensor (can be applied to top or bottom position)

The following components can be replaced on or retrofitted to fit an existing VF Automated Machine Safety Door. Dynatect typically stocks these components:

- SICK brand travel-end sensors (proximity limit switches)
- NORD Flexbloc worm gearbox and 1HP NORD motor with integrated brake (230/460V, 3PH, 60Hz)
- Cables for wiring sensors/switches from the door to the control box (3, 5, 10, 15 meter lengths are available)
- Photo-Eye Strip
- Fixed Photo-Eye System
- Traveling Photo-Eye System (NOTE: Requires proper carriage modification)
- SICK brand RFID safety interlock
- Euchner brand Door Hold-Down Switch (NOTE: Requires a hole to be drilled in the side leg and a modified carriage assembly)
- Replacement Carriage Assembly (Recommended if adding Traveling Photo-Eye System)
- Integrator Control Box

ITEM WEAR GUIDELINES

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>REPLACEMENT PART #</th>
<th>TYPICAL WEAR LIFE</th>
<th>REFERENCE DOCUMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carriage Wheel Assembly</td>
<td>PN0343394-204</td>
<td>1M cycles (more cycles for smaller doors)</td>
<td>PB0000002 Supplement 4</td>
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<tr>
<td>Traveling Photo-Eye Bumper</td>
<td>PN0343394-309 KIT</td>
<td>3M cycles</td>
<td>PN0343394-309</td>
</tr>
<tr>
<td>Brake Gap</td>
<td>NORD BRE10</td>
<td>Reset at 1M cycle intervals or as needed</td>
<td>NORD U35000-Motor Brake</td>
</tr>
<tr>
<td>Cable Carrier</td>
<td>PN0343394-306 KIT (DH&lt; 72&quot;)</td>
<td>4M+ cycles</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PN0343394-305 KIT (DH=72”-144&quot;)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PN0343394-307 KIT (DH&gt;144&quot;)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shade Retainer</td>
<td>PN0343394-304 KIT</td>
<td>4M+ cycles</td>
<td>PN0343394-304</td>
</tr>
<tr>
<td>Interlock Actuator Bumper</td>
<td>AA07023</td>
<td>3M cycles</td>
<td>PN0343394-217A</td>
</tr>
<tr>
<td>Shade Guide</td>
<td>PN0343394-308 KIT</td>
<td>4M+ cycles</td>
<td>PN0343394-308</td>
</tr>
</tbody>
</table>
TRAVELING PHOTO-EYE ALIGNMENT MODIFICATION

Note
Traveling photo-eye emitter is typically on the motor side leg

Per this example, this is the receiver side leg

** FRONT
** REAR

Shade removed to show detail

Invisible infrared beam: A red circle is visible on the receiver-side leg

** FRONT SCREW
** REAR SCREW

2mm L-shaped hex key (required)

Note A) The emitter beam (red light circle) is required to be centered on the leg’s vertical opening

Note B) The emitter beam may be adjusted by gently tightening the screws on the back side of the emitter bracket

Leg cover removed & cutout added to show detail

Per this example, this is the emitter side leg
TRAVELING PHOTO-EYE ALIGNMENT MODIFICATION

The emitter alignment is pre-set and pre-tested at the factory, but it must be validated after installation by means of cycling the door across the entire travel distance. It is possible that the traveling photo-eye emitter alignment may require modification due to variations in field installation.

NOTE: Move the door to a position between both the upper and lower end stop proximity sensors.

WARNING: The following three (3) steps are performed while the door is energized.

1. EVALUATE ALIGNMENT.
   There are three ways to evaluate alignment:
   - Ensure that some of the red emitter light is always overlapping the opposite leg slot at the receiver.
   - Verify that the passive block position 3 has a continuous yellow light. The continuous yellow light confirms proper alignment and that the beam is not broken.

   NOTE: The yellow light will turn off when the door reaches the floor and the traveling photo-eye retracts.

   - Evaluate the diagnostic lights on the emitter and receiver:
     - A green light will illuminate on the emitter and receiver, indicating power.
     - A yellow light will illuminate on the receiver when the traveling photo-eye is in alignment and the beam is not broken.

2. REMOVE THE MOTOR SIDE LEG COVERS.
   Leave the leg covers off for function testing.

3. RED-CIRCLE ALIGNMENT.
   Note the red-circle alignment offset position to subsequently re-aim the emitter.

4. ACTIVATE THE E-STOP

5. RE-AIM THE EMITTER.
   Anytime the emitter is adjusted, the e-stop must be in E-STOP condition. Only re-energize the system to view the red circle alignment. This practice must be followed to avoid injury.

   Example:
   - Evaluate.
   - Deactivate the system (E-Stop).
   - Make an adjustment.
   - Re-activate (E-Stop).
   - Repeat as required to center the beam.

   A. If the round light beam is focused to the front side of the vertical leg opening.
      a. Gently turn the rear screw (Note B) on the emitter to move the round light beam to the rear of the door. Progress with 1/8 turns until centered.

   B. If the round light beam is focused to the rear of the vertical leg opening.
      a. Gently turn the front screw (Note B) on the emitter to move the round light beam to the front of the door. Progress with 1/8 turns until centered.

WARNING

Sever Hazard:
Always use caution when operating the motor without the leg covers installed.

Pinch Point Hazard:
Always use caution to help keep your fingers, toes, hair, clothing, and jewelry from becoming pinched when operating the door without the leg covers installed.
INCONSISTENT CLOSING MOTION

The Door Closing is dictated by the motor rotation to release the fabric door, and the pull of gravity on the door bottom bar sliding freely down the legs. If there is wear or obstruction, then the door closing speed may be slower than desired. There could be several causes of the fabric unwinding faster than the bottom bar is traveling:

Cause 1:
The wear could be that the rollers inside the legs are worn or damaged. Inspect/replace those components.

Cause 2:
The obstruction could be that the gap the fabric curtain is sliding through has become too narrow (due to improper mounting position or significant impact). The clearance hole of the leg cover allows for the possibility of the leg cover to be rotated slightly toward the rear of the door. This effectively narrows the curtain gap that the bottom bar black guide rides in. The remedy is to loosen the leg cover screws, rotate the leg covers toward the front of the door, and then tightening the leg covers in that position. This will open the curtain gap width in the leg and allow the bottom bar guide to slide freely.

See illustration (Figure 49) on Page 56.

INCONSISTENT PASSIVE BLOCK FUNCTION (NO DYNATECT CONTROL PACKAGE PROVIDED)

Observation: Inconsistent light signals coming from passive block

Solution: The 19-pin passive block does distribute 24v power to sensors connected to the passive block, but any of the Photo Eye options will require separate 24v supply to the 19-pin cable pin #8 for proper function. Please reference the electrical and logic schematics within the appendix section of this guide to become familiar with the power, logic, and connections of standard and optional components.
LEG COVER ADJUSTMENT
Adjustment may be required for interference between the Leg Assemblies and Shade Bar Assembly

CURTAIN GAP OPENING MAY BE RESTRICTED BY THE LEG COVER.
Restriction may cause Guide to bind and travel slower than the speed of the drum.

A) Loosen the M8 Button Head Screws that secure the Leg Covers.

B) Pull the Leg Cover outward (see arrow) to increase the curtain gap. Retighten the M8 Button Head Screws.

TOP VIEW LOOKING INTO THE LEG ASSEMBLY
Both the left and right (shown) Leg Assemblies (mirrored) may be adjusted per above.
APPENDIX

COMPANY INFORMATION

Dynatect Manufacturing, formerly known as A&A Manufacturing®, has over 65 years of experience in dynamic equipment protection manufacturing. Headquartered in New Berlin, Wisconsin, Dynatect designs and manufactures a complete line of components to protect equipment and people. Products can be manufactured from metals, elastomer-coated fabric, rubber, polyurethane and engineered plastics. Our products include protective covers, cable and hose carriers, elastomer components, mechanical motion control. With tens of thousands of worldwide clients, and a library of more than 500,000 customized products, Dynatect has the broadest product offering to solve applications.

Our global coverage includes six manufacturing plants and two distribution locations. Our growth has been driven by our focus on manufacturing quality products and finding innovative and practical solutions that are valued by our customers. We rely on a commitment to continuous improvement, engineering innovation and manufacturing excellence to ensure a dynamic future.

Whether you need a simple off-the-shelf component, an engineered assembly, or a turnkey solution, Dynatect has the capabilities. Our knowledgeable customer service and sales people, including a network of sales representatives, can help you define how Dynatect can design and deliver exactly what you need to keep moving forward.

If you’re looking for a functional solution, you’ve found the perfect partner in Dynatect®.

WARRANTY

Dynatect’s Gortite® VF Door Warranty is outlined per Dynatect’s standard Terms and Conditions of Sale, which can be found at: [http://www.dynatect.com/uploads/files/terms_conditions.pdf](http://www.dynatect.com/uploads/files/terms_conditions.pdf)

ENCODER (OPTIONAL)

The encoder option is specified only when the customer is providing a variable speed drive (VSD) to drive the motor and desires additional door position input.

The default motor can be powered/controlled by direct AC power (via interlocking reversing contactors) or through a variable speed drive (VSD). Under direct AC power, the motor will turn at a one fixed speed, resulting in door speeds of about 44”/second (1.12 m/s).

Under VSD power, the motor can be controlled at different fixed speeds up to 80”/second (2.03 m/s) to open and 70”/second (1.78 m/s) to gravity close. A VSD cannot be applied when using the factory-supplied Integrator Control Box option or Operator Control Unit options. The standard two travel-end sensors can and should be used as part of the VSD logic. If the motor-mounted encoder is selected, the VSD uses it to calculate the absolute position of the door throughout travel. Knowing that absolute position allows the VSD to increase the speed beyond 44”/second (1.12 m/s) in the middle of travel, and then slow it back down to prepare for stopping/braking.

Since an encoder is integral to a motor, Dynatect offers the encoder option for customers planning to provide a VSD and desiring a motor-mounted encoder.

1. Connect the encoder cable to the encoder, ensuring the pins are properly aligned. Tighten, but do not overtighten (prevent pin twisting). Ensure that the shield on the encoder cable and control box are grounded. Do not splice the encoder wiring.
2. Connect the encoder cable to the VSD.
3. Program the customer-supplied VSD appropriately for varying door positions as reported by the encoder (open, close, etc.).
REFERENCES

ARCHITECTURAL DRAWINGS

Figure 50 – ISO View

Figure 51 – Front View

Figure 52 – Side View

DOOR OPENING HEIGHT:

“DH”

(3’ MIN., 16’ MAX.) OPTIONAL

WINDOW

18” (457)

5.91 [150]

13.58 [345]

5.12 [130]

19.06 [484]

3.35 [85]

12.26 [311]

22.66 [577]

9.06 [230]

10.04 [255]

2.16 [55]

1.97 [50]

5.00 [127]

10.04 [255]

FRONT

LEFT

RIGHT

DOOR OPENING WIDTH:

“DW”

(3’ MIN., 16’ MAX.)

LOWER GAP (0” STANDARD):

“LG”

WINDOW HEIGHT (54” STANDARD)

“WH”

3.91 [100]

13.58 [345]

4.04 [103]

12.26 [311]

22.70 [577]

2.16 [55]

1.97 [50]

5.00 [127]

10.04 [255]

4.96 [126]

5.00 [127]
RECOMMENDED T-SLOT FASTENERS FOR ACCESSORIES

Dynatect Recommended Post-Assembly Nuts:

**Misumi:** HNTF6, HNTFV6, HNTFZ6, and HNTFSN6

**80/20:** 13117

Each AMSD Leg Assembly Incorporates Two (2) T-Slots for Mounting External Guarding & Accessories

AMSD Header Assembly Incorporates T-Slots Front, Rear, Top & Bottom for Mounting External Guarding & Accessories
**Cut-Away View of Stand-Alone Leg**

- **Left Leg**
  - 10.039 [255.0] Front to Back
  - 9.055 [230.0] Side to Side
  - 4.927 [125.2] to T-Slot

- **Right Leg**
  - 3.943 [100.2] Leg to Base (Side)
  - 1.974 [50.2] Leg to Base (Front)

**Utilize T-Slots** for Mounting of Optional/Ancillary Accessories

**Cut-Away View of Leg & Mounting Surface**

- **Left Leg**
  - Without Floor Mounting Feet
  - Utilize the Integrated T-Slots** for Wall Mounting and Mounting of Optional/Ancillary Accessories

- **Right Leg**
  - **Optional Wall Mounting Configurations**
    - Option "A" Mounting Screw Through Wall into Steel Tubing
    - Tapped into 1/8" Wall Steel Tubing

**Note:** The Installer is Responsible for the Safe Mounting of Equipment.
PHOTO-EYE STRIP MOUNTING INFORMATION

Use the supplied brackets and mounting hardware to mount the emitter and receiver to the T-slot located on a door leg at the desired height. The emitter is typically mounted on the same side as the passive block. The emitter and receiver components are shipped loose and mounted at time of installation.

Cable Ties

The extension cables are typically run along the outside of the legs and header to terminate at the passive block. Mount the extension cables to the T-slots using appropriate hardware.

Ensure the leg covers are installed and that mounting of the photo-eye strip does not interfere with future removal of leg covers.

Post-Assembly

Nuts M6 SHCS
Use the supplied brackets and mounting hardware to mount the emitter and receiver to the T-slot located on a door leg at the desired height.

The emitter is typically mounted on the same side as the passive block.

The extension cables are typically run along the outside of the legs and header to terminate at the passive block. Mount the extension cables to the T-slots using appropriate hardware.

Ensure the leg covers are installed and that mounting of the photo-eye strip does not interfere with future removal of leg covers.

The emitter and receiver components are shipped loose and mounted at time of installation.

Ensure the leg covers are installed and that mounting of the photo-eye strip does not interfere with future removal of leg covers.

Use the supplied brackets and mounting hardware to mount the emitter and receiver to the T-slot located on a door leg at the desired height.

The emitter is typically mounted on the same side as the passive block.

The extension cables are typically run along the outside of the legs and header to terminate at the passive block. Mount the extension cables to the T-slots using appropriate hardware.

Ensure the leg covers are installed and that mounting of the photo-eye strip does not interfere with future removal of leg covers.

The emitter and receiver components are shipped loose and mounted at time of installation.
INTEGRATOR CONTROL BOX (ICB) ELECTRICAL SCHEMATIC (cont.)
EUCHNER HOLD-DOWN OPTION

When coil is energized, solenoid is not locked.

- E1 = +24VDC supplied by customer
- E2 = 0VDC supplied by customer
INTEGRATOR CONTROL BOX (ICB) PANEL LAYOUT

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY.</th>
<th>MFG./VENDOR</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1-TECH</td>
<td>DY-INT-XX-7</td>
<td>PANEL LAYOUT</td>
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<tr>
<td>2</td>
<td>1</td>
<td>Noork</td>
<td>81E105</td>
<td>Circuit Breaker, 1P, 5A, D Curve</td>
</tr>
<tr>
<td>3</td>
<td>2R</td>
<td>Wago</td>
<td>2002-1401</td>
<td>Term. Block, 4P, 22–12AWG</td>
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<tr>
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<td>1</td>
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<td>Term Block, 4P, 22–12AWG, GND</td>
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<td>5</td>
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<td>Wago</td>
<td>2002-1492</td>
<td>End Plate</td>
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<td>6</td>
<td>Wago</td>
<td>2002-402</td>
<td>Jumper, 2-way</td>
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<td>HHMS, 1/4–20 x .75</td>
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<td>14</td>
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<td>Lock Washer, 1/4&quot;</td>
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<td>UE48–200302 RELAY</td>
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NOT INSTALLED IN -XX VERSION

SAFETY RELAY OPTION

Spare Passive Block Termination (VIOLET)

Spare Passive Block Termination (GRAY/BROWN)
INTEGRATOR CONTROL BOX

BOOME VIEW

FRONT VIEW
To calibrate, roll the adjustment wheel completely down until it stops. Then apply a "thumb-roll" up. A "thumb-roll" is defined as rolling the adjustment wheel up so the graduation mark moves from the bottom of the visible window to the top. If the adjustment wheel is not recalibrated, the machine will not operate properly.

To activate, roll the adjustment wheel up until it stops. Then apply a "thumb-roll" up. A "thumb-roll" is defined as rolling the adjustment wheel up so the graduation mark moves from the bottom of the visible window to the top. If the adjustment wheel is not recalibrated, the machine will not operate properly.
INTERLOCK SAFETY RELAY OPTION

CONT. FROM P.1 24.2V

18AWG BLU

18AWG BLU

18AWG BLU

24.2V

*OPTION*

SI1 SAFETY INTERLOCK (UE48-20S,302)

A1  A2  0VDC

13  14  24

23  24.2V

S33  S34

S21  S22

S12  S31

019  018

K1  K2

CUSTOMER SAFETY INTER-LOCK CONECTION

TB1  018

TB1  019

18AWG BLU

18AWG BLU

18AWG BLU

0VDC

24.2V

CONT. FROM 0VDC
## OPERATOR CONTROL UNIT (OCU) PANEL LAYOUT

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY.</th>
<th>MFG./VENDOR</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Allied Moulded</td>
<td>P164</td>
<td>Subpanel for 16x14 enclosure, steel</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Mentor</td>
<td>NOR—120—24</td>
<td>Power Supply, 120V, 24VDC, 5A</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Noark</td>
<td>B1H203</td>
<td>Circuit Breaker, 2P, 3A, D Curve</td>
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<td>B1E10X</td>
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<td>5</td>
<td>34</td>
<td>Wago</td>
<td>2002—1401</td>
<td>Term. Block, 4P, 22—12AWG</td>
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<tr>
<td>6</td>
<td>1</td>
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<td>2002—1407</td>
<td>Term. Block, 4P, 22—12AWG, GND</td>
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<tr>
<td>7</td>
<td>1</td>
<td>Wago</td>
<td>2002—1492</td>
<td>End Plate</td>
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<tr>
<td>8</td>
<td>9</td>
<td>Wago</td>
<td>2002—402</td>
<td>Jumper, 2-way</td>
</tr>
<tr>
<td>9</td>
<td>8</td>
<td>Wago</td>
<td>249—116</td>
<td>End Stop</td>
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<tr>
<td>10</td>
<td>1</td>
<td>LSIS</td>
<td>0705000800/0705000700</td>
<td>MMS, 52H—4, (230V)/MMS—52H—2.5 (480V)</td>
</tr>
<tr>
<td>11</td>
<td>2</td>
<td>LSIS</td>
<td>1344100300</td>
<td>NC—99—DC24—115</td>
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<td>12</td>
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<td>B3411634001</td>
<td>UR—02, Interlock kit</td>
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<tr>
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<td>LSIS</td>
<td>76671636003</td>
<td>UW—22, Reversing kit</td>
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<tr>
<td>14</td>
<td>4</td>
<td>Finder</td>
<td>38.51.7.024.00050</td>
<td>Interface Relay, SPDT, 8A, 24V Coil</td>
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<tr>
<td>15</td>
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<td>Slim Timer, 24V, TRM3</td>
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<tr>
<td>16</td>
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<td>B3361634064</td>
<td>Aux Contact, 2NO, UA—2—20</td>
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<tr>
<td>17</td>
<td>2</td>
<td>Finder</td>
<td>38.52.7.024.00050</td>
<td>Interface Relay, DPDT, 8A, Sensitive 24VDC Coil</td>
</tr>
<tr>
<td>18</td>
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<td>Finder</td>
<td>1HMS, 1/4—20 x .75</td>
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<tr>
<td>19</td>
<td>1</td>
<td>Lock Washer</td>
<td>1/4”</td>
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<tr>
<td>20</td>
<td>2</td>
<td>Nut</td>
<td>1/4—20</td>
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<td>21</td>
<td>1</td>
<td>Ring Terminal</td>
<td>1/4”, 14—16AWG</td>
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<td>22</td>
<td>25.5</td>
<td>Wago</td>
<td>210—112</td>
<td>Din Rail</td>
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<tr>
<td>23</td>
<td>12.75</td>
<td>Iboca</td>
<td>TIE—15220</td>
<td>Wire Duct</td>
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<tr>
<td>24</td>
<td>1</td>
<td>SICK</td>
<td>4024916</td>
<td>UE48—30ED2 RELAY</td>
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<tr>
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<td>Finder</td>
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<td>Slim Timer, 24V, 1—1 sec, TRM1</td>
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<tr>
<td>26</td>
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<td>MURR</td>
<td>3000—18513—0200013</td>
<td>Timer, off delay/24V, 1—1 sec, TRM2</td>
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<tr>
<td>27</td>
<td>1</td>
<td>Finder</td>
<td>093.20</td>
<td>Jumper, 20—way</td>
</tr>
</tbody>
</table>

### SAFETY RELAY OPTION

- **TAP 1/4—20**
- **1.00**
- **1.00**
- **22**
- **11.00**
- **6.75**
- **3.25**
- **4.75**
- **3.00**
- **0.75**
- **18, 19**
- **20, 21**
- **25, 26**
- **15, 17**
- **24, 2**
- **3**
- **10**

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OPERATOR CONTROL UNIT (OCU)
RECORD OF PRODUCT GUIDE UPDATES

9/2017  – Updated electrical diagrams in Appendix. Updated base plate sketches and leg installation tips in Feet/Leg Assembly Installation section. Updated Motor Installation section. Updated Door Shade Installation section. Updated verbiage under heading: Door-Mounted Passive Terminal Block with Quick Disconnect Interface.

10/2017 - Replaced electrical diagrams (Integrator & Operator Control Schematics)

11/2017 - Updated electrical diagrams in Appendix

12/2017 - Corrected numbering on steps and pagination in sections: Door Installation; Header Bottom Plate Instructions

12/2017 - Corrected numbered steps and added bottom bar alignment feature and note in Header Bottom Plate instructions

12/2017 - Added the passive block port ID layout to figure 33 & 34

1/2018  - Added door opening width note and callout lines to figure 5. Updated figure 21, motor installation diagram

2/2018  - Added to appendix: Recommended T-Slot fasteners for accessories mounting

2/2018  - Replaced Door–Hold Down Logic Diagram in appendix section

3/2018  - Added diagram to appendix (T-slot mounting options of Optional/Ancillary Accessories)

3/2018  - Updated Operation Section: Added electrical breaker capacity notes under Integrator Control Box & Operator Control Unit headings

3/2018  - Replaced photo: safety interlock switch

3/2018  - Added photos: photo-eye Strip mounting

4/2018  - Added photos: installed door–hold down switch


10/2018 - Updated appendix electrical diagrams; added content to troubleshooting section

4/2019  - Updated standard safety interlock switch options

8/2019  - Updated section: Traveling Photo-eye Alignment Section

2/2020  - Updated graphic (Side Wall Mount Covers)

8/2020  - Added content to troubleshooting section; updated fig. 34

11/2020 - Added VF Door Hard Stop instructions