

Accessory Setup & Installation Guide

Standard Photo-Eye Kit, Adjustable Mount (75-31)

The Adjustable Mount Standard Photo-Eye Kit is a pre-packaged and pre-wired electronic sensing and signalling assembly that can be installed on a Dorner 2100 or 3100 Series Conveyor. Positions of both the Photo-Eye and Reflector can be adjusted vertically and laterally to improve the sensing of tall or elongated objects.

This Kit includes instructions, Photo-Eye & Reflector, Cabling, Brackets, Tools and Metric Mounting Hardware to aid in the installation and inter-connection with a Dorner *impac* Conveyor Controller.

Additional Tools Needed for Installation

- Small flat-bladed screwdriver
- Adjustable wrench
- Permanent marking pen
- Electrical tape

Photo-Eye Specifications

Manufacturer: ATC Series 7680

Type: Retro-Reflective, Polarized

Supply Voltage: 10-30 Volts DC (10-135 Volts AC)

Output Configuration: SPDT Relay Output (Dry Contact)

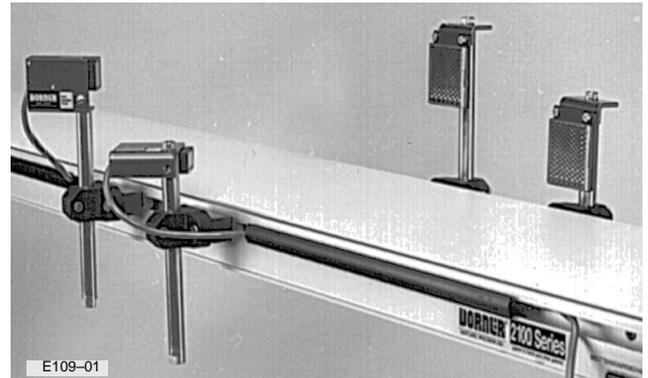


Figure 1: Photo-Eye Kit Installed (75-31)

Output Rating: 1 Ampere @ 30 Volts DC
(0.5 Amperes @ 120 Volts AC)

Output Status: LED "ON" when Photo-Eye beam is blocked

Light-emitting Element: Visible Red

Maximum Sensing Distance: 12 ft (3.7 m)

Detection Height Range: 1/4 to 6-1/2" (6 to 163 mm)
Above Belt

Housing: Non-metallic, NEMA 4/IP66

Response Time: Less than 5 milliseconds

Item	Qty.	Description
A	4	M6 x 30 mm Socket Head Screw (920630M)
B	1	Reflector (809-197*) that includes Bracket (677433M), Shaft (202027M) & Clamp (807-824)
C	2	Spacer (677435M)
D	9	Single Drop-InT-bar (639971M)
E	1	Photo-Eye (809-197*) with 30 ft (9 m) Cord, Bracket (677434M), Shaft (202027M), Clamp (807-824), Cord Grip (824-319) & Locknut (824-013)
F	5	M6 x 10 mm Button Head Screw (910610M)
G	5	Zip Tie Mount (805-608)
H	5	T-slot Cover Strip (675232)
I	5	Zip Tie (805-063)
J	1	Photo-Eye Spec Sheet (ATC 7686) (Not illustrated)
K	1	5 mm Hex Key Wrench (807-565)
L	1	4 mm Hex Key Wrench (807-564)
M	1	2.5 mm Hex Key Wrench (807-562)
N	2	Label (823-107)

Covered under patent numbers 156,260 & 174,435 and corresponding patents and patent applications in other countries.

* Part Number includes both Eye & Reflector.

Figure 2: Photo-Eye Kit (75-31) Components

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Adjustable Mount Standard Photo-Eye Installation/Testing/Operation

1. Verify all kit parts are present.

WARNING

Disconnect power to the Conveyor and to the *impac* Conveyor Controller. Due to the wide variety of setups & applications, guarding is the responsibility of the end user.

NOTE:

For shipping, the two Single Drop-in T-bars (D) and the Spacers (C) are pre-assembled to both the Photo-Eye (E) and Reflector (B) and mounting bracket assemblies with their respective M6 x 30 mm Socket Head Cap Screws (A). Detach T-bars, Spacers and Screws, before proceeding.

2. Refer to Figure 2 and select desired location and mount the Photo-Eye and Reflector.

To facilitate Cable routing, mount Photo-Eye on same side of conveyor that *impac* Conveyor Controller is mounted. Mounting positions will vary, depending on the application. The Photo-Eye Kit is designed to mount onto the T-slot channel along the side of the conveyor.

For shipping, the Photo-Eye subassembly (E) is assembled in a horizontal position. If a vertical position is required, re-mount Bracket (677437M) vertically, as shown in Figure 1.

- a. Insert two (2) Single Drop-in T-bars into conveyor T-slot by rolling Nuts into position (Figure 3).

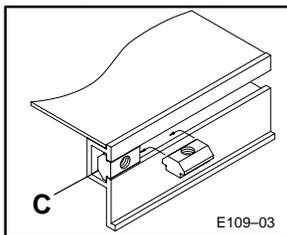


Figure 3: Drop-in T-bar Installation Detail

- b. Refer to Figure 4 and attach Photo-Eye with Mounting Bracket and Spacer to the Drop-in T-bars using two M6 x 30 mm Socket Head Cap Screws. Tighten the Screws with the 5 mm Hex Key Wrench (K) provided.

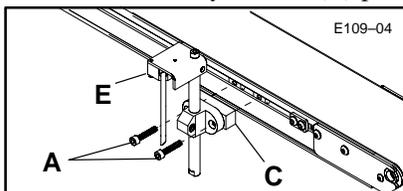


Figure 4: Photo-Eye Attachment Detail

- c. Insert two (2) Single Drop-in T-bars into the T-slot on other side of the conveyor.
- d. Refer to Figure 5 and attach Reflector with Mounting Bracket and Spacer to the Drop-in T-bars using the two M6 x 30 mm Socket Head Cap Screws. Tighten Screws with 5 mm Hex Key Wrench provided.

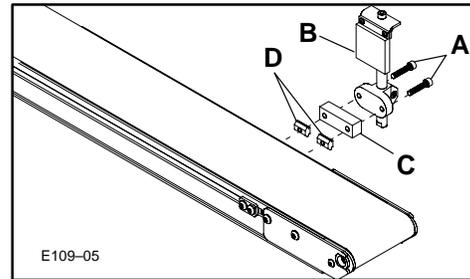


Figure 5: Reflector Attachment Detail

3. Line-up the Photo-Eye and Reflector assemblies to enable optimum sensing and signalling capabilities (Figure 6).

See the Photo-Eye specification sheet (J) for additional signal sensing information. If the Photo-Eye and Reflector are not properly aligned, the conveyor will not operate as intended.

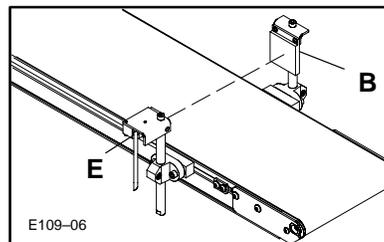


Figure 6: Photo-Eye & Reflector Alignment

4. Route the cable from the Photo-Eye to the *impac* Conveyor Controller, as follows:

- a. Cable routing should not run near any moving conveyor parts, where it could possibly be damaged or cause damage to the conveyor.
- b. The conveyor T-slots or optional 6 ft (1829 mm) or 12.5-ft (3810 mm) Wire Troughs (Dorner #75-85-6 or #75-85-12) can be used to route wiring cable. For additional Wire Trough information, refer to separate Setup & Installation Guide (not provided).
- c. To contain a long run of wiring cable in the conveyor T-slot channel, use several short lengths of T-slot Cover Strips (F) (Figure 7). Or, to completely contain a long run of cable, purchase T-slot Cover Strip (645656P) at length required.

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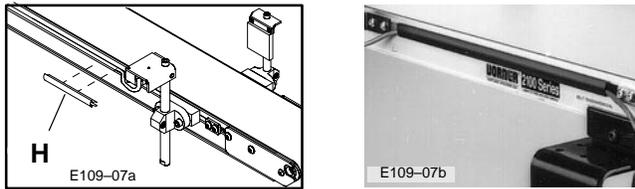


Figure 7: Cover Strip Mounting Detail

- d. To route Cable over a previously mounted component or to anchor the Cable, use the Zip Tie Mounts (G) and Single Drop-in T-bars, (Figure 8). Secure each Zip Tie Mount with an M6 x 10 mm Button Head Cap Screw (F). Tighten the Screws with the 4 mm Hex Key Wrench (L) provided.

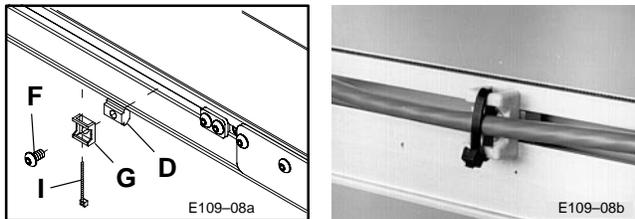


Figure 8: Zip Tie Mounting Detail

- e. Figure 9 shows a typical wire routing of a Photo-Eye connection to an *impac* Conveyor Controller using the conveyor's T-slot with both T-slot Cover Strips and Zip Ties (I).

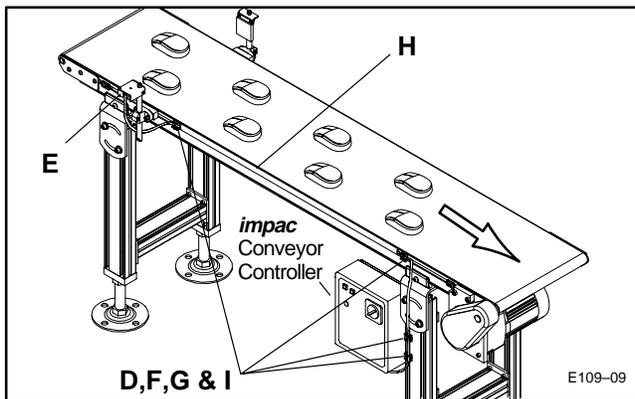


Figure 9: Photo-Eye Cable Routing to *impac* Conveyor Controller

5. Install the Cable into the *impac* Conveyor Controller:

- Using a flat-bladed screwdriver, remove the knock-out plug from bottom of *impac* Controller.
- Remove the Locknut (Figure 11), from the Cord Grip, and insert the Cord Grip through the hole at the bottom of the controller cabinet. Attach and tighten the Locknut with an adjustable wrench.
- Extra Cable should be neatly and securely coiled up behind the *impac* Conveyor Controller cabinet. Mount a Zip Tie Mount to one of the tapped holes on the mounting brackets on the rear of the *impac*

Conveyor Controller. Then, use a Wire Tie to anchor the extra Cable to the Zip Tie Mount.

6. Label both ends of the Photo-Eye Cable using blank Labels (N) provided (Figure 10), using a permanent marking pen.

The Label should be wrapped around the Cable near the Photo-Eye and inside the *impac* Conveyor Controller to identify the Cable. When multiple Kits are used, make sure all Cables are uniquely labelled. (i.e., K1 for Kit #1, K2 for Kit #2,... etc.).

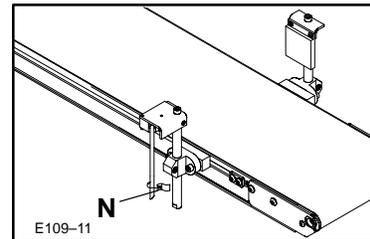


Figure 10: Cable Labeling (Detail provided only on Photo-Eye End of Cable)

NOTE:

The following connections are for a sample application that requires the conveyor to stop when a part passes in front of a Photo-Eye (End Stop application). **Refer to the *impac* Application Guide for details on other application designs and wiring connections.**

In addition, when inserting a wire into a Terminal Block termination, be sure to tightly anchor the wire by tightening the screw and double-check that wire has been fully secured by giving it a light tug.

7. Wire the Photo-Eye to the *impac* Conveyor Controller Terminal Block (Figure 11).

Use the flat-bladed screwdriver furnished with the *impac* Conveyor Controller kit. As necessary, use the wiring diagram shown in the *impac* Application Guide for your particular application.

- Remove factory jumper from between terminals PE1 and PE2.
- Insert wire #2 (Black) into the terminal COM.
- Insert wire #1 (Red) into the terminal 24V.
- Insert wire #5 (Yellow) into the terminal PE1.
- Insert wire #4 (Brown) into the terminal PE2.
- Wire #3 (Green) should be individually taped-off since it is not used in this application.

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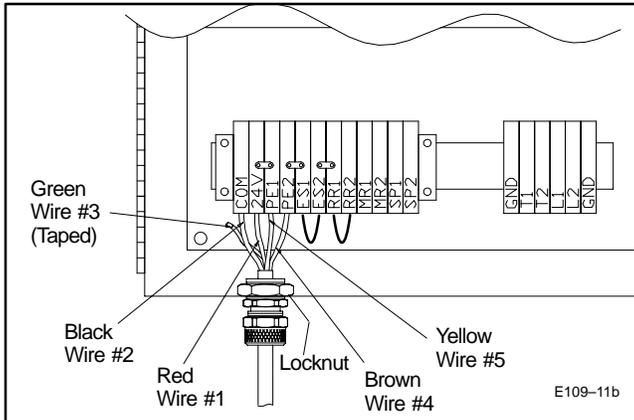
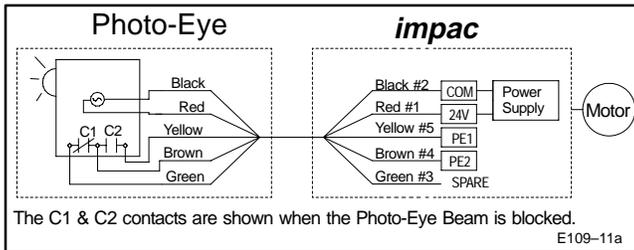


Figure 11: Sample Photo-Eye to impac Wiring Connections

8. Test operation as follows:

- Be sure the *impac* On/Off Switch is OFF and that conveyor is ready to run. Then, begin the test by re-connecting power to the *impac*. Do not, however, turn on power at this time. Keep the *impac* On/Off Switch OFF.
- Operation of the conveyor may vary depending on the chosen application. Consult the *impac* Application Guide for your particular application.

- Shown here is a sample application using a Photo-Eye to stop a normally running conveyor when a part blocks the Photo-Eye beam (Figure 12).
- When no part is present, the Photo-Eye contacts are closed which causes the conveyor to run.
- When a part is present, the Photo-Eye contacts are open which causes the conveyor to stop.
- Turn *impac* On/Off Switch to ON.
- The conveyor should run and the Photo-Eye's status LED should be OFF.
- Manually block the Photo-Eye and observe that conveyor does stop and the Photo-Eye status LED is ON.
- Test Photo-Eye on/off operation with actual parts.
- After correct operation is exhibited, normal operation processes can be continued.

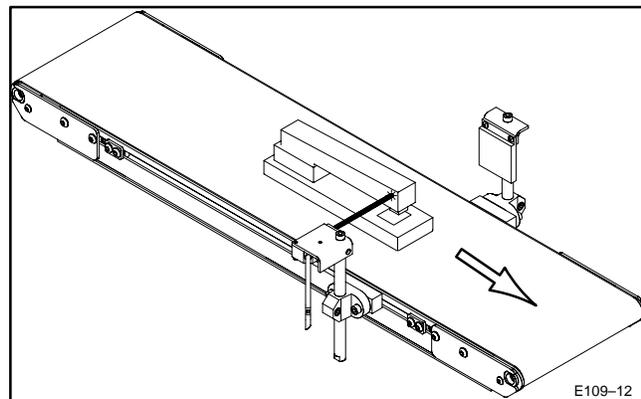


Figure 12: Sample impac & Photo-Eye Application

Standard Available IMPAC Accessory Kits

- Standard Photo-Eye Kit, Fixed Mount (75-30)
- Standard Photo-Eye Kit, Adjustable Mount (75-31)
- Timing Photo-Eye Kit, Fixed Mount (75-32)
- Timing Photo-Eye Kit, Adjustable Mount (75-33)
- Emergency Stop Kit, Illuminated (75-40)
- Emergency Stop Kit, Non-Illuminated (75-41)
- Emergency Stop Kit, Pull Cord (75-42)
- Jog Kit (75-10)
- Foot Switch Kit (75-20)
- Start/Stop Kit (75-70)
- Electric Clutch/Brake Kit (75-60)
- Controller to Controller Linking Cable Kit (75-80)
- Wire Way Trough Kits
 - 6-ft (1829 mm) (75-85-6)
 - 12.5-ft (3810 mm) (75-85-12)
- T-slot Extension Kit (307000M)
- Light Duty End Stop Kits
 - 2100 Series (215502M – 215524M)
 - 3100 Series (315504M – 315540M)
- Adjustable Stop Kits (307602M – 307640M)