



**INSTRUCTIONS**

**SWX-100-PED-PCR  
SWX-100-PED-SSD  
EXTERNAL SWITCH**



## INTRODUCTION

The Dairyland Isolation Switch, models SWX-100-PED-PCR and SWX-100-PED-SSD, are designed to be externally mounted to the cover of Dairyland pedestal models including the current MTP-36 pedestal as well as older generation MTP-36 pedestals and discontinued MTP-42 pedestals. These instructions address connection of the switch to a PCR, PCRX or SSD model installed in any of the pedestal models listed and assumed to be in service.

Each Isolation Switch is supplied with a lead kit unique to the decoupler model to which it will be connected. Lead kit model MTL-2/0-32-SWP is for use with PCR or PCRX models rated and model MTL-2-32-SWS for connection to an SSD.

## WORKER SAFETY

For worker safety during installation, it is recommended that the user obtain certain equipment; namely a pair of electrically insulated gloves, a shorting cable of approximate 3 ft length with insulated clamps on each end, and a multi-meter to measure ac voltage. (Of these items, Dairyland offers a suitable 3 ft long 1/0AWG shorting cable with insulated clamps, Model# BCL-1/0 for all decoupler ratings.) The following installation procedure assumes that these items are available. It is suggested that a grounding jumper be used as a safety precaution in the event the pipeline lead rises to an unsafe potential when it is removed from the decoupler, which is a necessary step during the installation process or if an electrical disturbance occurred while the Isolation Switch is being installed. If the voltage one is working with is not at a safe touch potential (i.e., >15Vac to ground), then insulating gloves should be used.



Dairyland model SWX-100-PED

### **⚠ WARNING**

When isolation switches are used in AC voltage mitigation applications, if multiple or all decouplers are disconnected, the pipeline voltage may rise to an unsafe level (i.e., above the 15Vac that NACE standards consider safe). Therefore, safety precautions should be taken by the user when decouplers used for AC voltage mitigation are isolated from the pipeline, particularly at any pipeline contact point. Dairyland provides suggested procedures for installing and operating the Isolation Switch, but the user must be responsible for and approve the procedures to be used by its workers when initially installing the Isolation Switch in a field retrofit installation because Dairyland cannot be familiar with each user's safety guidelines.

### **⚠ WARNING**

Measure the AC voltage at the decoupler, as outlined in step 1, before contacting any terminals or connections, and follow the described safety procedures.

### **⚠ WARNING**

Isolation Switches are not to be installed in a defined hazardous location, but rather in an "ordinary" location.

### **NOTICE**

When a decoupler is being used to provide AC grounding for electrical equipment, via installation in a code-covered grounding conductor or bond, an Isolation Switch should not be installed, because per electric codes, such equipment must always be solidly AC grounded under all conditions.



## REQUIRED TOOLS

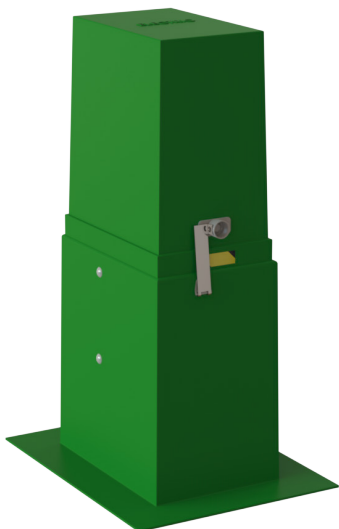
### Required user-furnished installation tools include:

- a ratchet wrench with  $\frac{1}{2}$ " and  $\frac{3}{4}$ " sockets,
- a  $\frac{1}{2}$ " and  $\frac{3}{4}$ " box end wrench,
- a battery operated drill with a  $\frac{9}{16}$ " drill bit,
- a center-punch,
- a suitable grounding jumper and electrically insulated gloves as mentioned above,
- electrical insulating tape,
- a multimeter to measure AC voltage,
- a padlock that fits a  $\frac{7}{16}$ " hole in the isolation switch latch.

## INSTALLATION PROCEDURE FOR ANY PEDESTAL OR DECOUPLER MODEL

Note: The photos used in the installation steps will show the switch being connected to a SSD in a now discontinued MTP-42 pedestal. All steps remain the same regardless of mounting pedestal model number.

- Two  $\frac{9}{16}$ " holes are required in the pedestal cover to mount the isolation switch. It is very important to install this switch to the one correct face of the cover for each pedestal model.
- The correct cover face on the standard Dairyland pedestal (MTP-36) is the face on which the head of the two pedestal cover latch pins are visible near the bottom end of the cover. Two  $\frac{9}{16}$ " holes in the cover are required for mounting the isolation switch. Use the "Hole Location Template and Drilling Instructions" furnished with each isolation switch to drill these holes and then remove the pedestal cover and lay it flat so the two holes are on the right or left side. Hole location is very important. See Appendix for template information.



Dairyland MTP-36

- Open the isolation switch cover. If ON appears above the right corner of the pull-out switch, then pull out by the handle, rotate  $180^\circ$  and plug back in so OFF appears below the left corner of the pull-out switch and close the cover. If OFF appeared when the cover was first opened, then leave as-is and close the cover.



Left: Switch On | Right: Switch Off

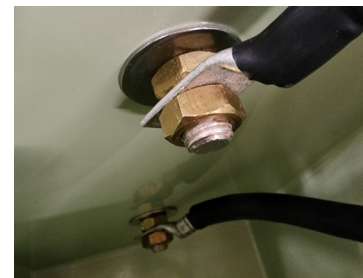
- Remove the two brass nuts and stainless washer from each stud projecting from the bottom of the enclosure, but leave the two rubber gaskets on each stud.



- Insert the two  $\frac{1}{2}$ " studs of the switch through the two holes drilled in the pedestal cover so the switch is upright (i.e., so the nameplate is readable when the cover is later reinstalled on the base). It may be necessary to slightly force the two studs closer together or further apart to insert through the two holes if they were not drilled precisely per the template hole location marks.
- On the inside of the pedestal cover, install on each stud one stainless steel washer and one hex brass nut threaded all the way on the stud hand tight. Using a  $\frac{3}{4}$ " box wrench or ratchet wrench, tighten each brass nut until the flange of the enclosure is snug against the outside wall of the pedestal cover to assure a good seal, but do not over tighten. Stop tightening when the force required to turn the nut rather abruptly increases.



while holding the terminal in position so it will not rotate. The leads should be directed toward the open end of the cover. Slightly bend the terminal near the bottom end of the cover away from the wall of the cover as illustrated which will make it easier to replace the cover on the pedestal base in a later step.



7. The lead kits provided will be for installation to either an SSD or PCR or PCRX decoupler. All leads are extra flexible #2AWG, 32" long for SSD or #2/0 AWG for PCR or PCRX. The leads for installation to a PCR or PCRX will have compression connectors on each end for 1/2" bolts. The leads for installation to a SSD will have a compression connector on one end for a 1/2" bolt and on the other end for a 5/16" bolt. Confirm you have the correct lead kit by checking the terminals on the ends of the leads as illustrated.

9. It is important to know the voltage associated with the pipeline leads to be handled during the installation process. Do not contact the decoupler terminals or existing wiring connections before determining if such action is safe. If NACE guidelines were followed for the AC mitigation design, the voltage measured should, but may not be, less than the 15Vac that NACE considers safe, which is the reason for recommending this measurement. Your company may have a different, and lower, voltage limitation for safety. It is recommended that the installer measure the AC voltage from the negative decoupler terminal (the connection to the pipeline) to an earth reference (e.g., a long shank screwdriver or a reference cell) contacting the earth where the worker will be standing to install the switch, as this will represent the worker touch potential. If the voltage measured is not considered safe, which is not expected to be the case, then use electrically insulated gloves when removing the lead from the negative decoupler terminal. The use of insulated gloves is not shown in the following steps. Their use, if required, will make the installation more difficult, but should be used whenever the touch potential is above either your company's safety guidelines or NACE guidelines.



Terminal for 5/16" bolt (left), 1/2" bolt (right)

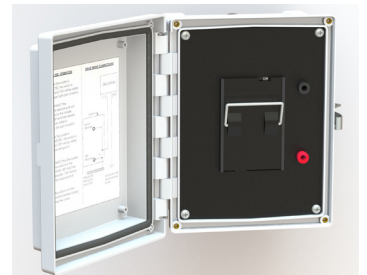
8. Apply Tef-Gel corrosion inhibitor (provided) to the threads of the studs. For connection to any pedestal version, place each lead with a terminal for a 1/2" stud over each of the two studs from the isolation switch followed by a 1/2" hex brass nut, applying Tef-Gel to the terminal faces. Tighten each nut with a 3/4" wrench to an estimated 20-25 ft-lbs of torque

10. Regardless of the voltage measured in Step 9, as a precaution connect the black clamp of the jumper cable to the positive terminal of the decoupler and connect the red clamp to the connector (not the decoupler terminal pad) on one of the conductors attached to the negative decoupler terminal (if there is more than one). The reason for this step is that the voltage on this pipeline conductor may shift higher when it is removed from the decoupler negative terminal when not grounded. In addition, transient electrical effects on the pipeline must be addressed. The following photos show shorting jumpers installed on typical decoupler terminal arrangements.



11. If the AC voltage measured in step 9 was safe, proceed without using insulated gloves but take care not to dislodge the shorting jumper. Remove the negative decoupler lead using a set of 1/2" wrenches if disconnecting from an SSD or 3/4" wrenches if disconnecting from a PCR or PCRX. Leave the grounding jumper connected to this lead as illustrated during this process.

13. Since the isolation switch was previously placed in the OFF position (i.e., switch open) in step 3, the lead to be reconnected to the decoupler negative terminal in this step is not connected to the pipeline so it can be installed by hand. Take the lead that was connected to other isolation switch stud near the bottom end of the pedestal cover, bend it over the top edge of the pedestal base and form it so the terminal on this lead comes straight up to the decoupler terminal as illustrated in the left photo below. Apply Tef-Gel to the terminal pad that will be in contact with the negative decoupler terminal. Use the hardware that was removed from this decoupler terminal in an earlier step and bolt these connections together tightening securely. After this connection is completed, open the cover on the isolation switch enclosure, pull out the switch mechanism, rotate 180° and reinsert fully. The switch is now ON with the decoupler connected to the pipeline.



12. Using the nut, bolt, and washers provided with the lead kit, splice the lead just removed from the decoupler negative terminal to the terminal of the lead installed to innermost isolation switch stud inside of the pedestal cover by bolting the terminal ends of these leads together. Apply Tef-Gel to all flat mating surfaces of the terminals and to hardware threads. Place a flat washer under the bolt head and a flat washer, lock washer, and nut on the other end of the bolt after it is inserted through both terminal holes. Tighten the nut on the bolt firmly. If there is more than one lead from the pipeline, up to three pipeline leads can be spliced together as illustrated in the photo below on the right. Alternately, the MTR-1 Terminal Extension Kit may be used to connect up to 5 leads (see the Installation Instructions for the MTR kit at [www.dairyland.com](http://www.dairyland.com)). Continue to leave the grounding jumper connected.

14. Remove the grounding jumper because the pipeline is now grounded through the decoupler and switch. As a precaution, insulate the bolted splice joint done in step 12 with a material of the users choice to prevent this pipeline lead from being touched whenever the pedestal cover is removed.



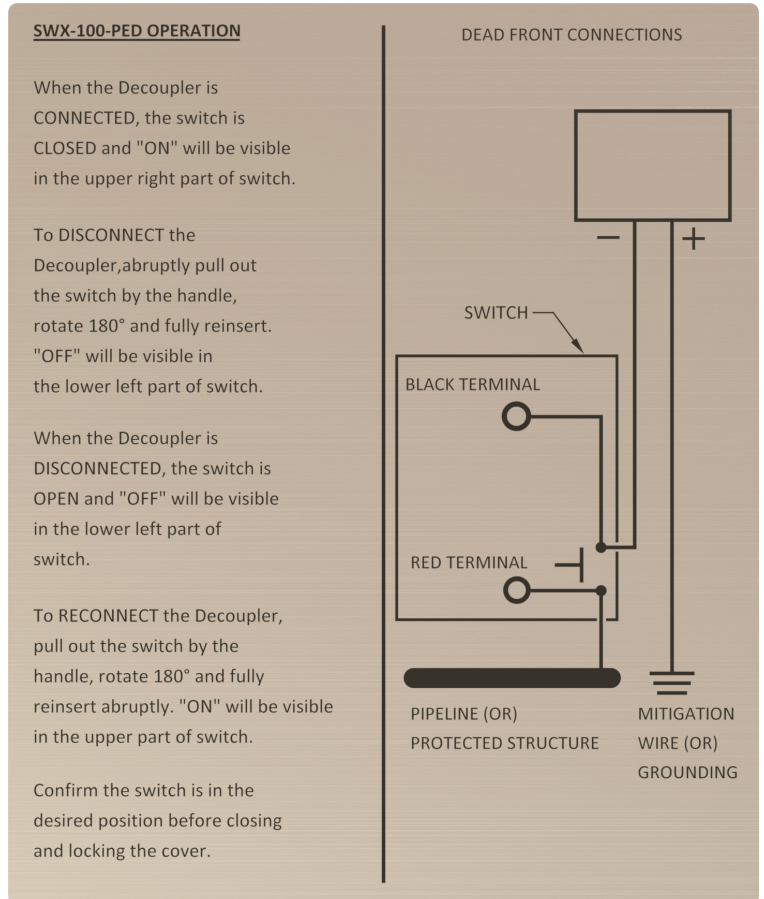


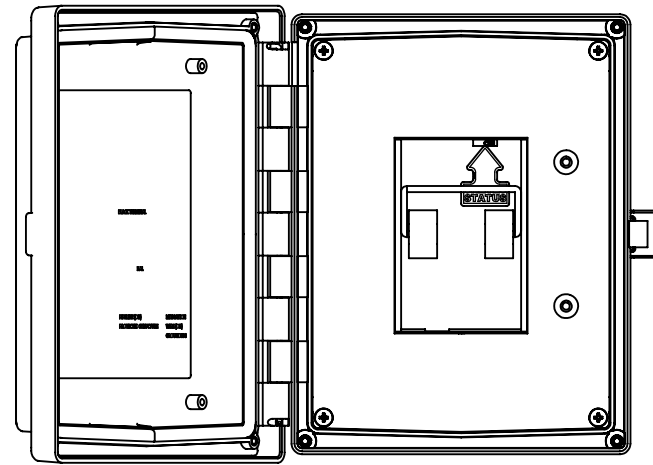
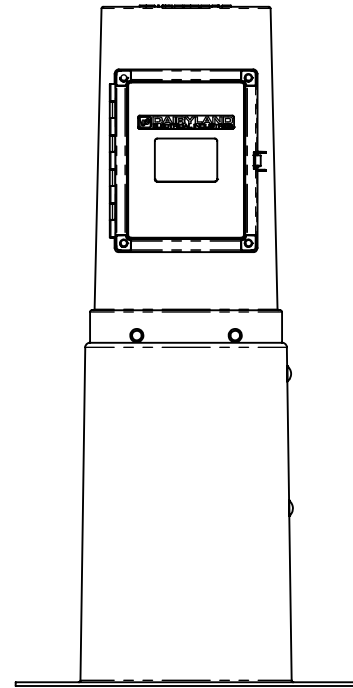
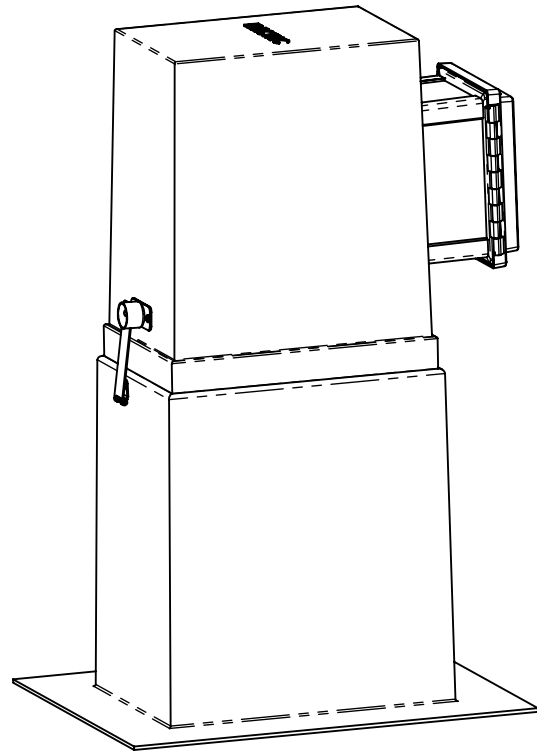
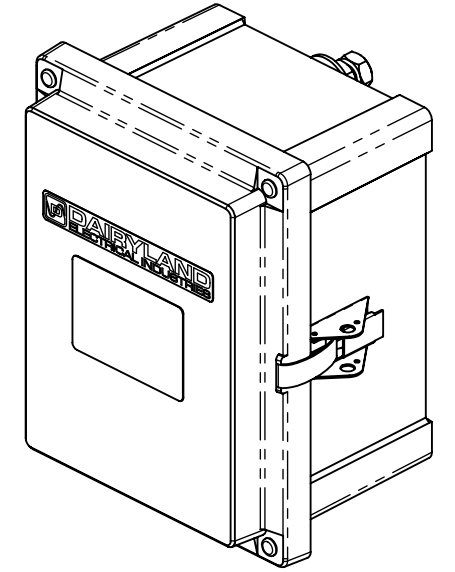
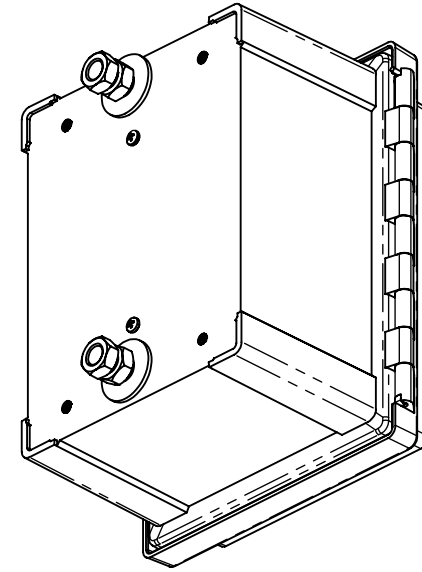
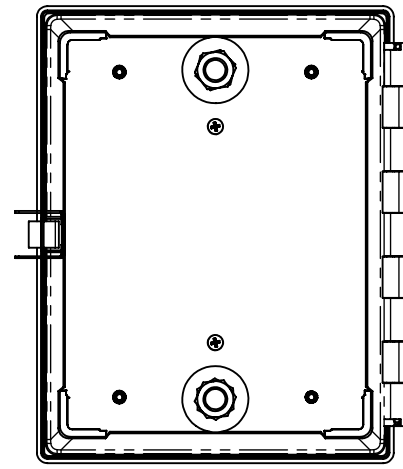
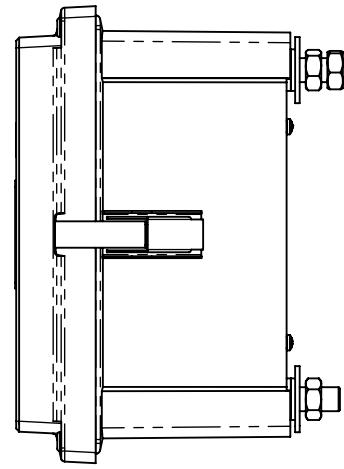
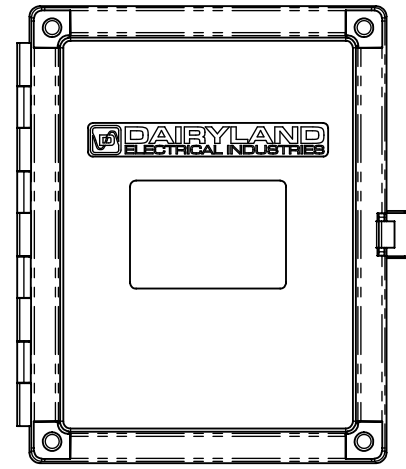
15. The pedestal cover can now be reinstalled over the pedestal base as illustrated and the pedestal cover locked.

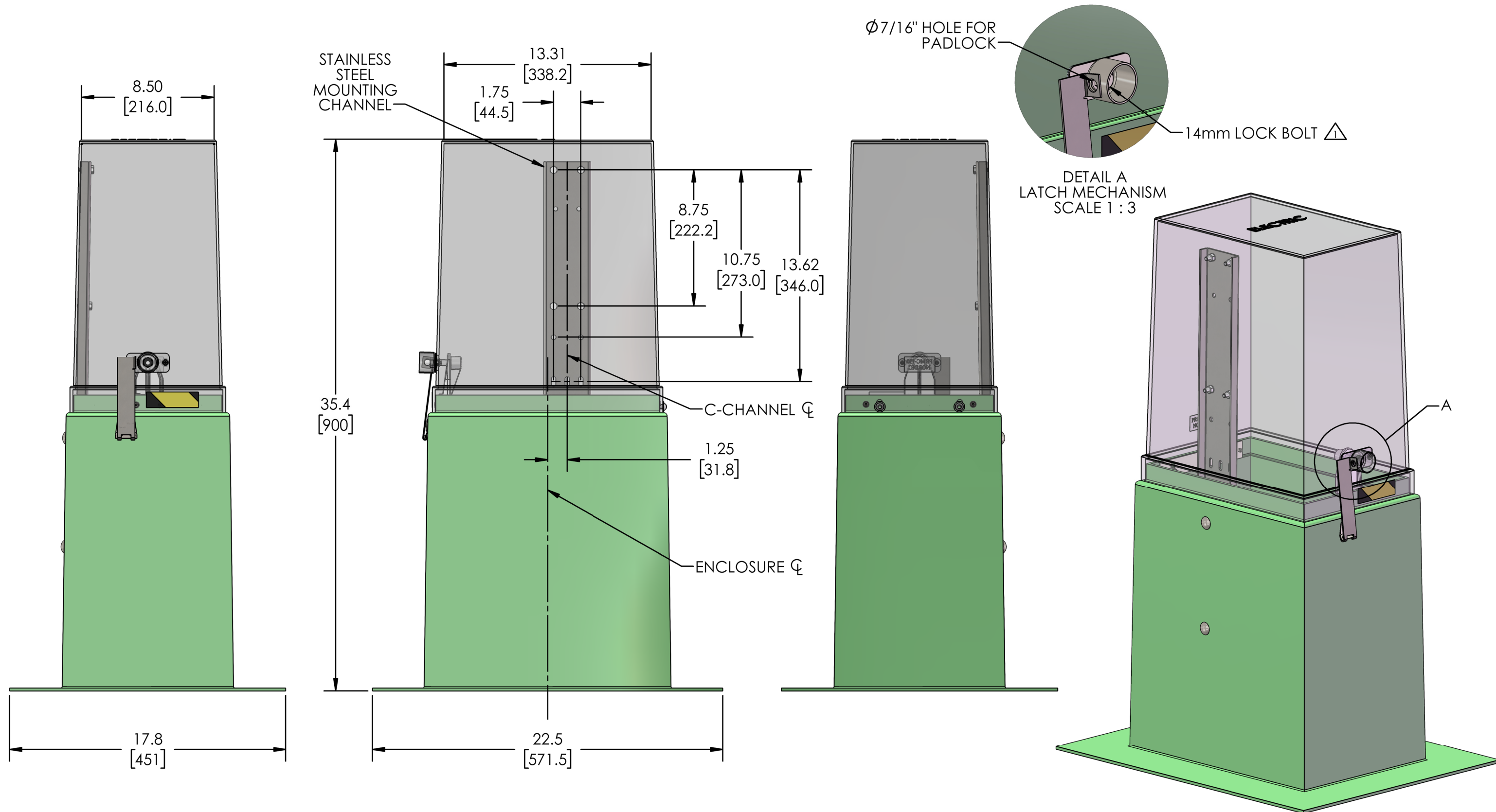
16. If the decoupler is to be left connected to the pipeline, no further action is required because the pull out switch is already ON (i.e., decoupler connected). If the decoupler is to be left disconnected, then return the switch to its OFF position. Confirm that the isolation switch is left in the desired position, then close the isolation switch enclosure cover and lock. This completes the installation instructions.

The isolation switch includes two dead front terminals allowing for convenient access to pipeline or protected structure and mitigation wire or grounding system. The black terminal provides a connection point to the grounding system or mitigation wire through the decoupler for AC signals only. The red terminal provides a connection point to the pipeline or protected structure for both DC or AC signals.

The isolation switch operating instructions are found inside the enclosure cover and shown below. Read and follow these instructions. Certain steps recommend abruptly pulling out and reinserting the switch mechanism and the reason for this is to minimize arcing time on the switch contacts.







REQUIRED TOOLS:  
 ▲ 14mm SOCKET FOR LOCK BOLT.

DEI ITEM #: 1818

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.XXX = ±.005" .XX = ±.01" .X = ±.03" ANGLES = ±1°	TITLE: <b>36" PEDESTAL (CATALOG #: MTP-36)</b>		SHEET: OF <b>1 2</b>	DWG SIZE: SCALE: REV: PART #: <b>B 1:6 E 100035</b>
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SSD

PCR

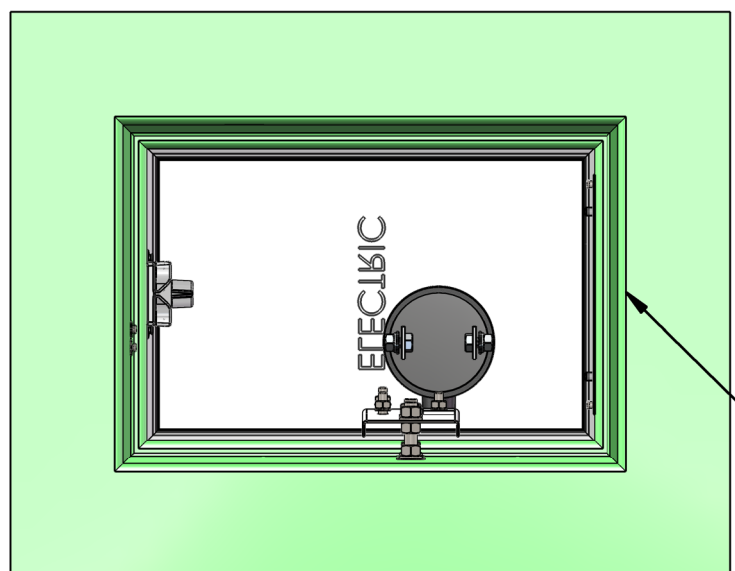
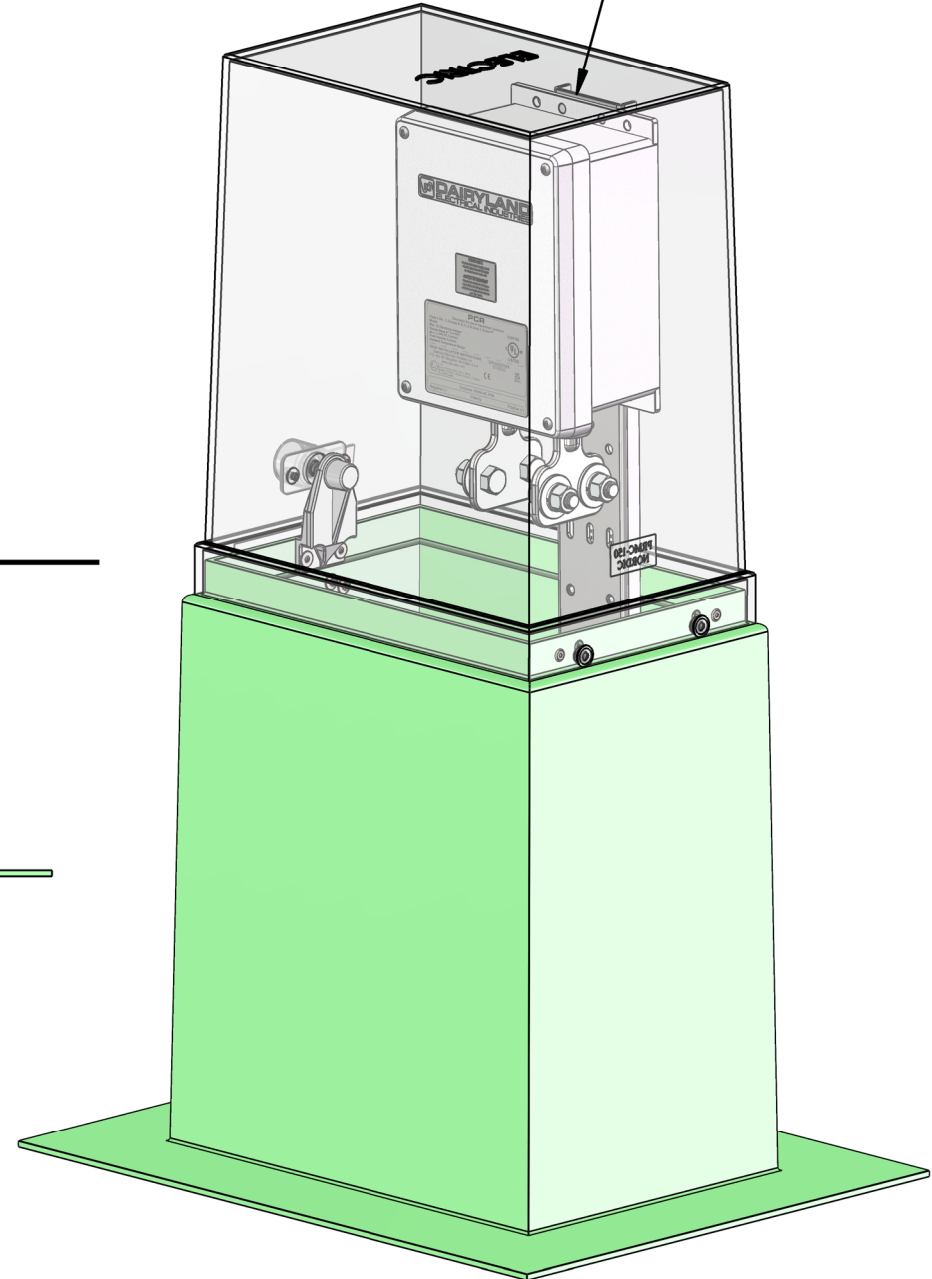
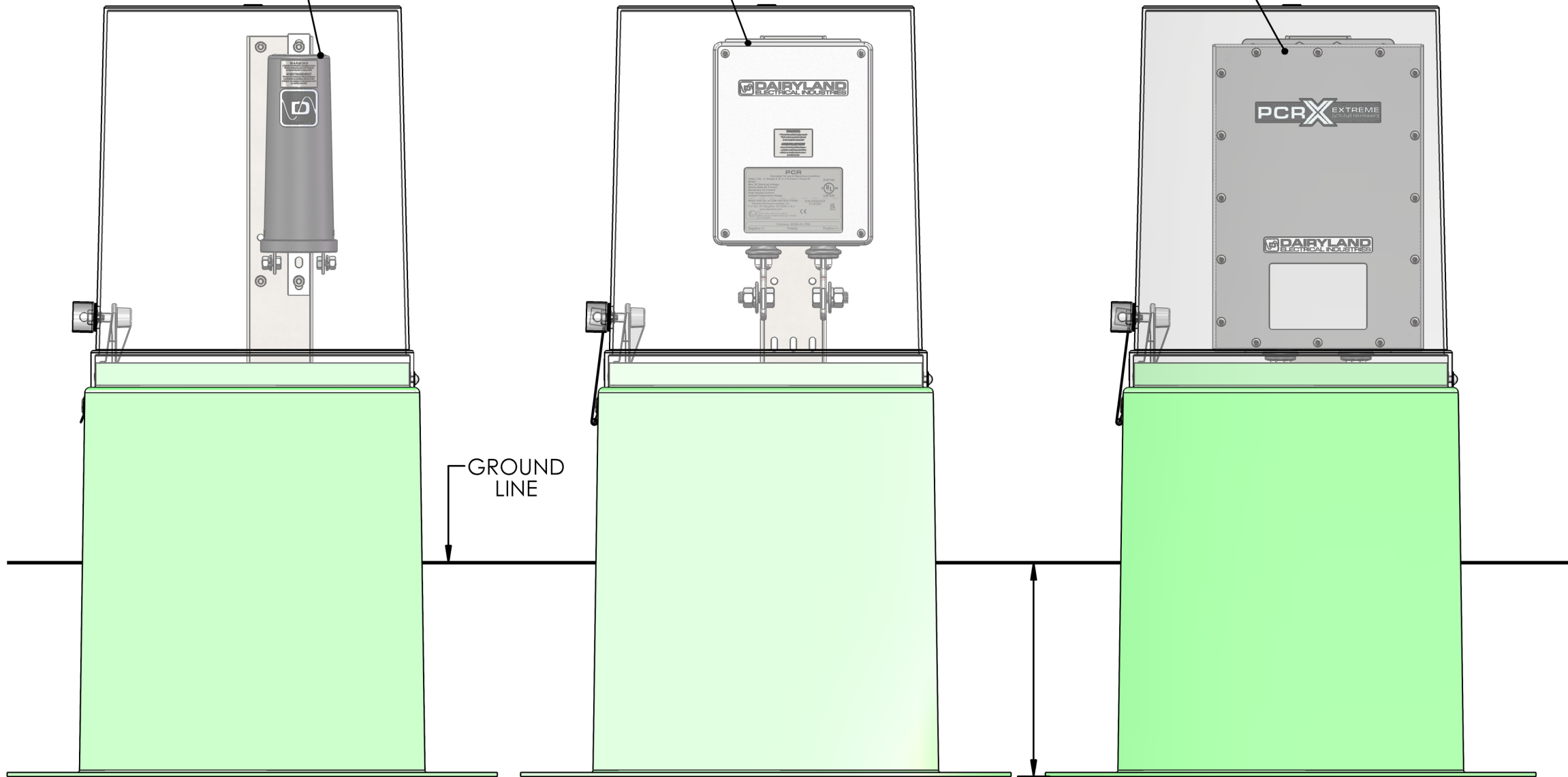
PCRX


MOUNT THE DECOUPLER TO THE C-CANNEL BRACKET USING THE HARWARE PROVIDED

GROUND LINE

TYPICAL BURIAL DEPTH  
8 - 12"  
[200 - 300mm]

INSIDE BOTTOM OF PEDESTAL  
BASE IS OPEN FOR FULL ACCESS



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		REV: <b>E</b>	PART #: <b>100035</b>	