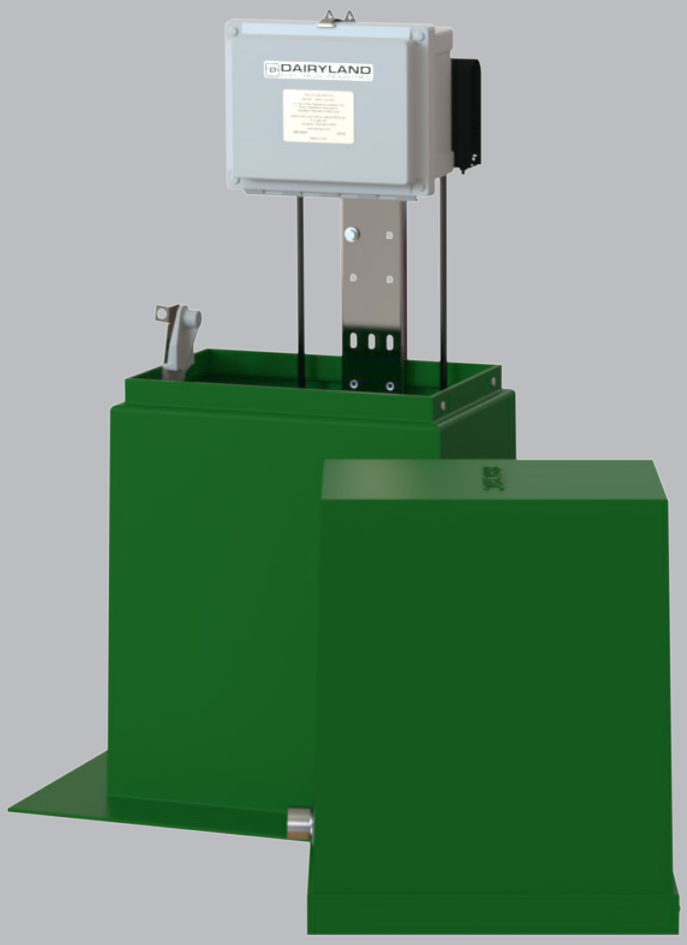



INSTRUCTIONS

# SWX-100-INT-SSD INTERNAL SWITCH

DAIRYLAND
ELECTRICAL INDUSTRIES

## INTRODUCTION

The Dairyland SWX-100-INT-SSD kit consists of the SWX-100-PED pull-style isolation switch, two #2 AWG lead assemblies and all mounting hardware needed to install the switch in an MTP-36 pedestal for use with any Dairyland SSD decoupler model. The MTP-36 and SSD decoupler are sold separately. Dairyland also provides a wide range of conductor lead kits (Model MTL) for connections to the pipeline and the grounding system.

The switch mounts inside the MTP-36 using pre-drilled holes in the mounting channel. The length of the lead assembly is designed for the decoupler to be mounted below the switch on the mounting channel.

The SWX-100-INT-SSD kit is designed to be mounted inside of the redesigned MTP-36 pedestal. The redesigned MTP-36 is identifiable by the black-yellow label located on the cover near the latch. Older generation and discontinued pedestals are not compatible with this switch kit.

These instructions outline how to install the SWX-100-INT-SSD kit inside the new MTP-36 and to connect the switch and SSD to the pipeline and grounding leads

## ⚠ 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

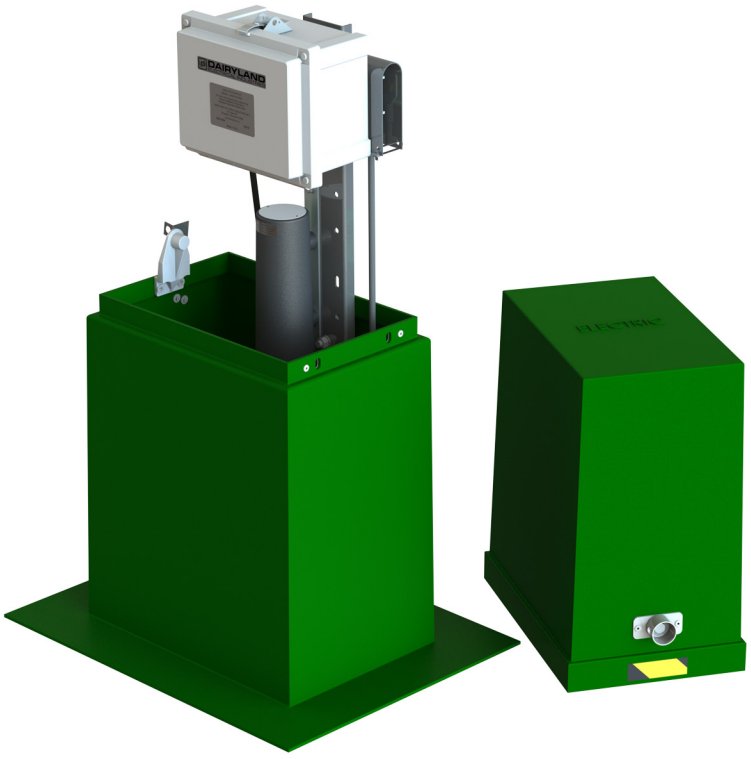
Isolation Switches are not to be installed in a defined hazardous location, but rather in an "ordinary" location.

## ⚠ 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.

## 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.




*Dairyland model SWX-100-INT-SSD*
*(shown installed with a SSD in the MTP-36 which are sold separately)*

## 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 approximately 3 ft (0.91m) long 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 voltage drop across the isolation joint rises to an unsafe potential during installation. Be sure to remove the grounding jumper after installation is complete. If the structure voltage is not at a safe touch potential (i.e.,>15VAC to ground), then insulating gloves should be used.

## REQUIRED TOOLS

**Required installation tools include:**

a) Multimeter to measure AC voltage

b) Reference cell or long shank screwdriver

c) Ratchet wrench with 7/16", ½" and ¾" sockets

d) 7/16", ½" and ¾" box end wrenches

e) Suitable grounding jumper cable and electrically insulated gloves as described under "WORKER SAFETY".

f) Electrical insulating tape

g) Phillips screwdriver

## INSTALLATION PROCEDURE

(Refer to Dairyland document 100112, attached)

1. Before beginning the installation, it is important to know the voltage associated with the pipeline leads that will be handled during the installation process. Do not contact the pipe or pipeline leads before determining if such action is safe as determined by your company's safety guidelines. It is recommended that the installer measure the AC voltage between the pipeline and 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 equipment, as this will represent the worker touch potential. If the voltage measured is not considered safe then use electrically insulated gloves when handling components connected to the pipeline.

2. Regardless of the voltage measured in Step 1, as a precaution, temporarily ground the pipeline by connecting one end of the jumper cable to the ground lead and the other end to the pipeline lead. The reason for this step is that the voltage on the pipeline conductor may shift higher when it is not grounded. In addition, transient electrical effects on the pipeline must be addressed. Leave the grounding jumper connected throughout the installation process.

3. This installation procedure is designed to be used with the redesigned MTP-36 pedestal. The mounting channel has been updated to allow installation of the isolation switch and decoupler inside the pedestal. The redesigned MTP-36 pedestal can be easily identified with a black and yellow label located on the pedestal's cover near the latch. Older pedestal designs are not compatible with this installation procedure. Contact Dairyland for further details.

*Step 3*

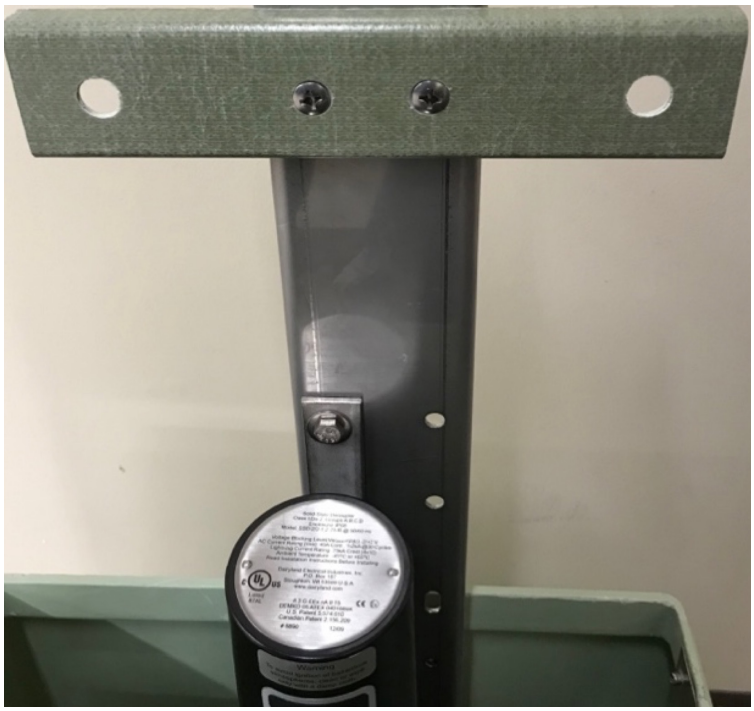
4. Open the pedestal and remove the included ¼" hardware from the mounting channel of the MTP-36 pedestal and set aside as it will be used to attach the SSD to this channel.

5. Attach the SSD to the mounting channel's left side. The top mounting hole is the third hole from the top of the mounting channel. Insert (1) ¼" hex bolt (item 9) and flat washer (item 8) then place ¼" lock washer (item 5) and nut (item 6) on the other side. The bottom mounting hole has a welded ¼" nut and aligns with the SSD's mounting bracket. Insert a ¼" hex bolt (item 9) and flat washer (item 8). Tighten firmly with 7/16" wrench.

6. Insert (2) 1/4-20x1.25" screws (item 7) through the center holes in the c-channel (item 4). Place spacers (item 12) over the screws on the back side of the c-channel. Place the c-channel over the pre-drilled holes on the pedestal's mounting channel, above the SSD decoupler. Install (2) ¼" lock washer (item 5) and ¼" nuts (item 6) onto the screws on the back side of the mounting channel. Tighten firmly with a Phillips screwdriver and 7/16" wrench.

Step 5

Step 8



Step 6

Step 9

7. Remove the two brass nuts and stainless washers from each of the projecting studs from the bottom of the switch enclosure but leave the two rubber gaskets on each stud.

8. With the switch studs facing up and the enclosure latch facing toward the top, place the switch terminal cover (item 11) over the studs. Note the orientation of the terminal cover.

9. Mount the switch enclosure (item 2) and terminal cover (item 10) to the c-channel (item 4) attached in step 6. Note the enclosure latch facing towards the top. Install a flat washer and brass nut to each of the switch studs. Tighten firmly using ¾" box wrench to assure a good seal, but do not over tighten.

10. Apply Tef-Gel corrosion inhibitor to the stud threads. Place each lead (item 13) with terminal for ½" hole over each of the switch studs and apply Tef-Gel to terminal faces, followed by a ½" brass nut. Tighten each nut with a ¾" wrench to an estimated 20-25 ft-lbs of torque while holding the terminal position so it will not rotate.

*Step 10*

11. Attach the left lead (facing front of switch enclosure) to the negative terminal of the SSD decoupler and apply Tef-Gel to all mating surfaces and secure it firmly with the 5/16'' hardware that was provided with the decoupler.


*Step 11*

12. If the AC voltage measured in step 1 was safe, proceed without using insulated gloves, but take care not to dislodge the shorting jumper. Attach the right lead (facing front of switch) to the pipeline or CP protected structure. Apply Tef-Gel to all mating surfaces and secure firmly.

13. Attach lead/leads from grounding system or mitigation wire to positive terminal of the SSD decoupler. Apply Tef-Gel to all mating surfaces and secure firmly using 5/16'' hardware.

14. Verify the isolation switch is in the "ON" position. This connects the pipeline to the grounding system/mitigation wire through the decoupler. If it is in the "OFF" position, pull out the switch mechanism, rotate it 180° and reinsert.

15. Fold the switch terminal cover (item 10) over the leads connected to the switch studs and secure it with two cable ties (item 11) at each corner of the cover. This cover prevents the switch leads from being touched whenever the switch is being operated.

*Step 15*

16. Remove grounding jumper. As a precaution, insulate the bolted spliced connection from step 11 with a material of the user's choice to prevent this lead from being touched whenever the pedestal cover is removed.

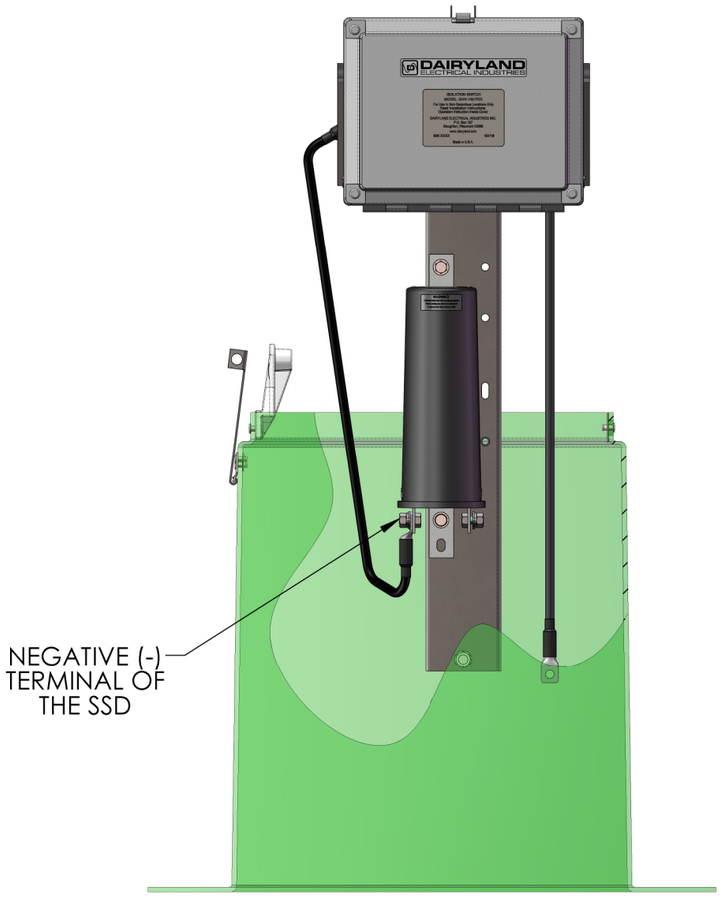
17. Confirm the isolation switch is left in the desired position, then close the isolation switch enclosure cover and reinstall the pedestal cover and lock it. This completes the installation instructions.

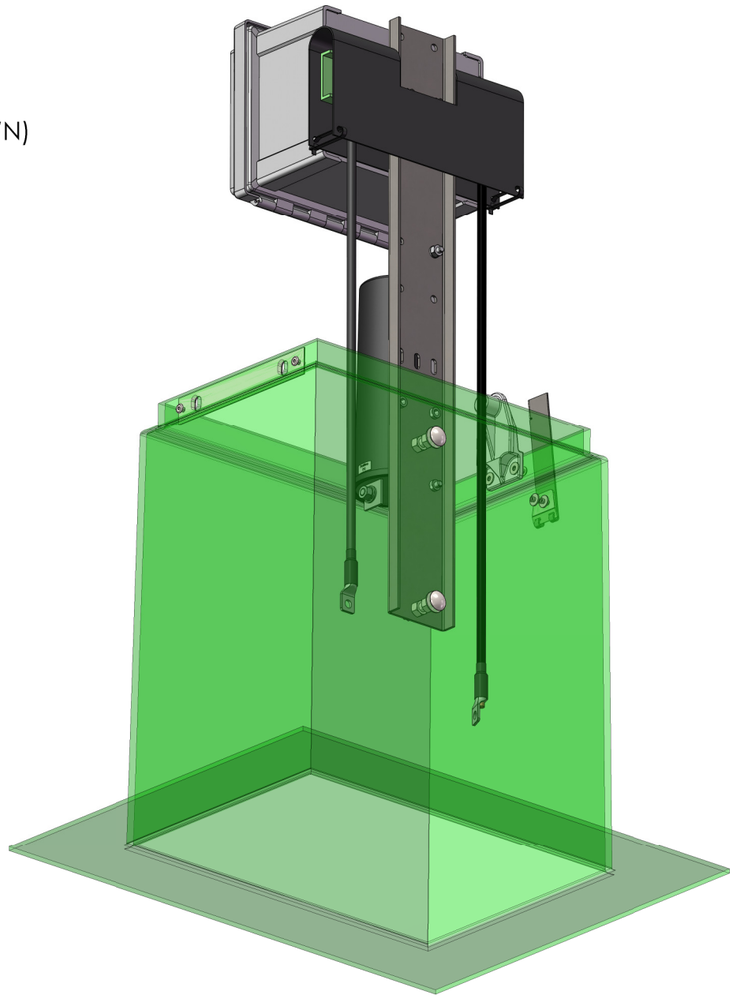
The isolation switch includes two dead-front terminals allowing convenient access to the pipeline or protected structure and mitigation wire or grounding system. These terminals are standard banana jacks. The "black" terminal provides a connection point to the mitigation wire or grounding system through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

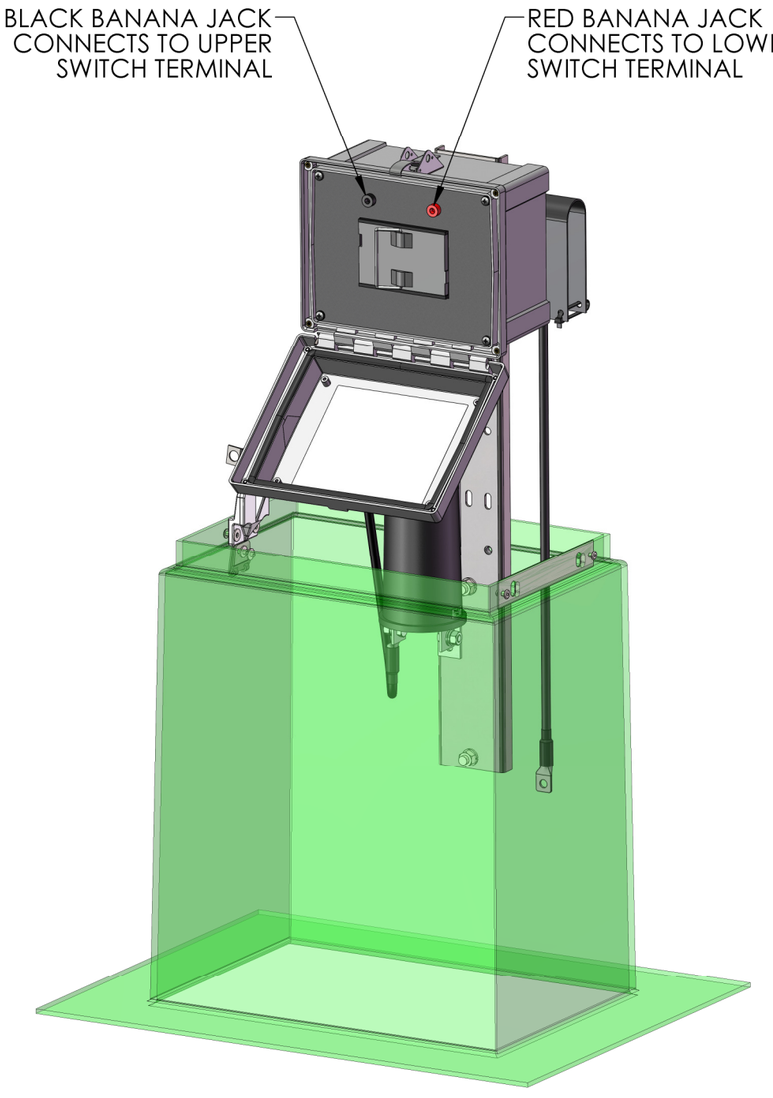
The isolation switch operating instructions are found inside the enclosure cover. Read and follow these instructions. Certain steps recommend abruptly pulling out and reinserting the switch mechanism to minimize arcing time on the switch contacts.

**ORDERING INSTRUCTIONS**

- MTP-36
- SWX-100-INT-SSD
- ANY SSD MODEL
- BCL-2 SHORTING CABLE (OPTIONAL, NOT SHOWN)






ANSI Y14.5M 1994 APPLIES

UNLESS NOTED 63
UNITS: INCHES
3-PLACE: ±.005
2-PLACE: ±.015
1-PLACE / FRAC: ±.03
ANGULAR: ±1

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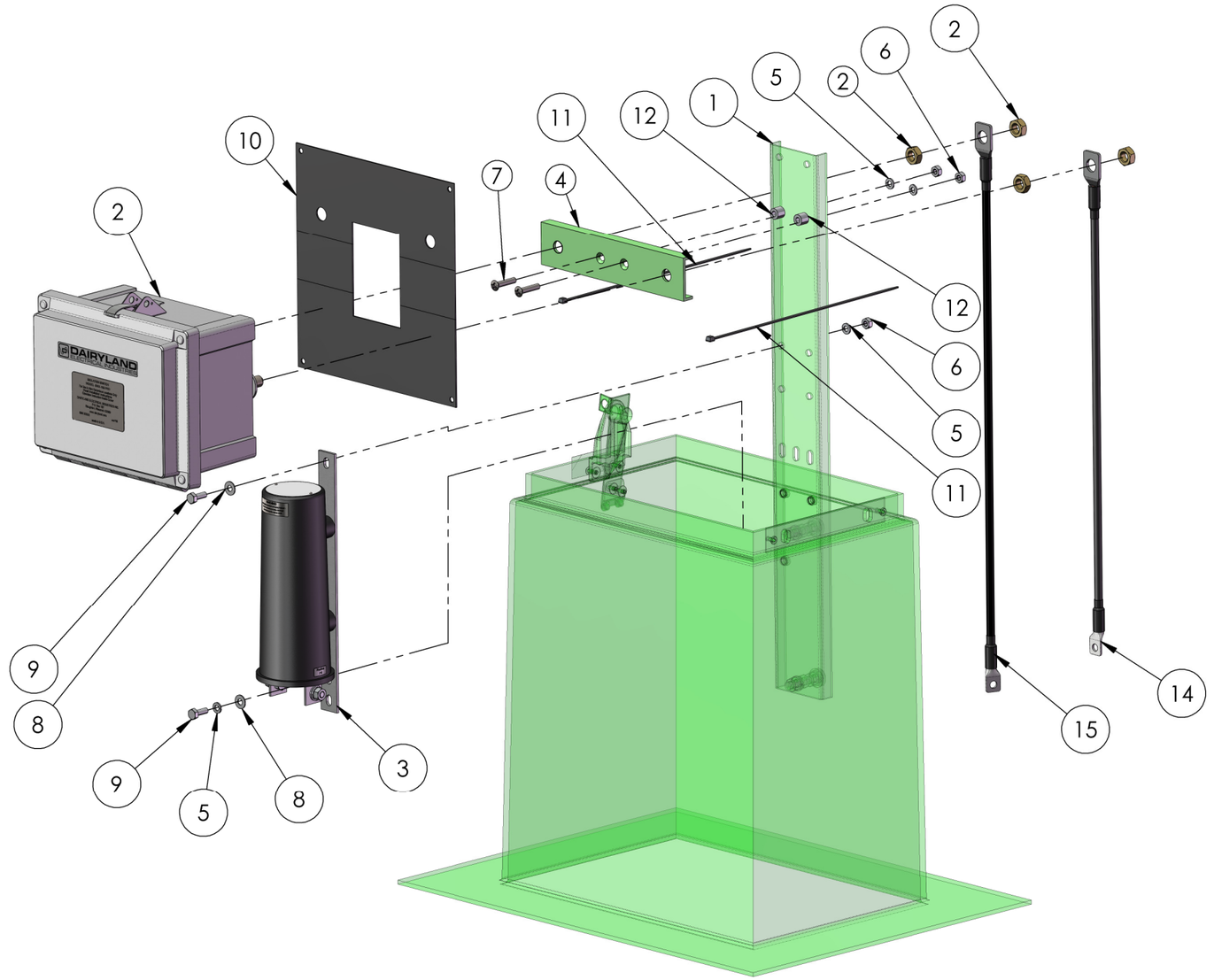
DESCRIPTION
SWX-100-INT-SSD INSTALLATION INSTRUCTIONS

| DOCUMENT # | REV | DATE DRAWN | DWG SIZE | DATE APPROVAL |
|---|---|---|---|---|
| 100112 | B | 2018-03-05 | B | 2019-03-14 |

| SCALE 1:6 | DRAWN: JPW | SHEET: 1 OF 2 | DWG APPROVAL: JVW |
|---|---|---|---|

| BILL-OF-MATERIAL (BOM) TABLE | | |
|---|---|---|
| LINE NO. | DESCRIPTION | QTY. |
| 1 | MTP-36 | 1 |
| 2 | SWX-100-PED | 1 |
| 3 | SSD | 1 |
| 4 | C-Channel 2" x 9" FRP | 1 |
| 5 | Washer Split Lock 1/4" | 4 |
| 6 | Nut Hex 1/4-20 | 3 |
| 7 | Screw Oval PH 1/4-20 x 1.25" SS | 2 |
| 8 | Washer Flat 1/4" | 2 |
| 9 | Screw Hex 1/4-20x3/4" | 2 |
| 10 | Terminal Cover Switch Buna Nitrile | 1 |
| 11 | Cable Tie Black 0.19"Wx7x.5"L UL94HB | 2 |
| 12 | Spacer 7/16"Lx1/2"ODx0.252"ID SS 18-8 | 2 |
| 13 | Tef-Gel | 1 |
| 14 | Lead Asm 23"L-2-5/16"-1/2" Compression Terminals | 2 |




NOTE:

1. ITEMS 13 AND 14 ARE NOT SHOWN.
2. ITEMS 5, 6 AND 9 PROVIDED WITH ITEM #1, MTP-36.
3. APPLY A THIN LAYER OF TEF-GEL TO ALL METAL-TO-METAL CONNECTIONS.
4. DURING INSTALLATION, USE A GROUNDING JUMPER CABLE TO GROUND THE PIPELINE BY CONNECTING ONE END OF THE JUMPER CABLE TO THE GROUND LEAD AND CONNECT THE OTHER END OF THE JUMPER CABLE TO THE PIPELINE LEAD. LEAVE THE GROUNDING JUMPER CONNECTED THROUGHOUT THE INSTALLATION PROCESS.
5. MTP-36 AND SSD SOLD SEPARATELY.

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UNLESS NOTED 63
UNITS: INCHES
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2-PLACE: ±.015
1-PLACE / FRAC: ±.03
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SCALE 1:6 | DRAWN: JPW | SHEET: 2 OF 2 | DWG APPROVAL: JVW