Low Voltage Dispenser Disconnect

Installation Guide

Schneider Electric

Hazard Categories and Special Symbols

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

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

⚠ WARNING

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

⚠ CAUTION

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

CAUTION

CAUTION, used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, **can result in** property damage.

NOTE: Provides additional information to clarify or simplify a procedure.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

UL

UL (Underwriters Laboratories) are listed by the American Federal Occupational Safety and Health Administration (OSHA) under NRTL (Nationally Recognized Testing Laboratory) program. This equipment complies with standards UL 1238 - Standard for Control Equipment for use with Flammable Liquid Dispensing Devices.

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INTRODUCTION

This bulletin contains instructions for the proper installation, operation, and maintenance of Square D® Integrated Power and Control Solutions (IPaCS™) Low Voltage Dispenser Disconnect product manufactured by Schneider Electric. The purchaser's engineering, installation, and operating staff supervisors should familiarize themselves with this bulletin and become acquainted with the appearance and characteristics of the Low Voltage Dispenser Disconnect.

The Square D IPaCS Low Voltage Dispenser Disconnect by Schneider Electric is designed to function as a disconnect for Low Voltage Dispenser wiring. This product is intended to be used at fueling sites to provide compliance to National Fire Protection Association (NFPA) 30A Section 6.7 and National Electric Code (NEC) Sections 514.11 and 514.13. The Low Voltage Dispenser Disconnect has a versatile design which allows it to be compatible with all dispenser manufacturers.

Inspection and Packaging

Every Low Voltage Dispenser Disconnect is carefully inspected and packaged at the assembly plant. Construction of the Low Voltage Dispenser Disconnect is checked, both structurally and electrically, for compliance with all specifications, codes, and standards. After a complete inspection, the Low Voltage Dispenser Disconnect is prepared for shipment.

Document Replacement

Contact your nearest Schneider Electric field office to replace lost or damaged wiring diagrams and instruction sheets. Use the Low Voltage Dispenser Disconnect Model Number as a reference.

SAFETY PRECAUTIONS

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E.
- Only qualified electrical workers should install this equipment. Such work should be performed only after reading this entire set of instructions.
- The equipment must be accessible to authorized personnel only. Equipment must be installed in areas where access can be restricted.
- NEVER work alone.
- Before performing visual inspections, tests, or maintenance of this equipment, disconnect all sources of electric power. Assume that all circuits are live until they have been completely de-energized, tested, and tagged. Pay particular attention to the design of the power system. Consider all sources of power, including the possibility of backfeeding.
- Turn off all power supplying the device and the equipment in which it is installed before working on it.
- Always use a properly rated voltage sensing device to confirm that all power is off.
- Before closing all covers and doors, carefully inspect the work area for tools and objects that may have been left inside the equipment.
- Successful equipment operation requires proper handling, installation, and operation. Neglecting fundamental installation requirements can lead to personal injury as well as damage to electrical equipment or other property.
- NEVER bypass external fusing or overcurrent protection.

Failure to follow these instructions will result in death or serious injury.

All installation and wiring must be preformed in accordance with NFPA 70 and NFPA 30A and all other applicable federal, state and local codes. All line voltage and low voltage wiring must be performed in accordance with Class 1 wiring method per NFPA 70.

RECEIVING AND STORING

Receiving

Upon receipt, immediately inspect the Low Voltage Dispenser Disconnect for any damage that may have occurred in transit. If damage is found or suspected, file a claim with the carrier immediately and notify the nearest Schneider Electric representative.

Claims for shortages or errors must be made in writing to Schneider Electric within 60 days after delivery. Failure to give such notice will constitute unqualified acceptance and a waiver of all such claims by the purchaser. Delivery of equipment to a carrier at any of the Schneider Electric plants or other shipping points constitutes delivery to the purchaser regardless of freight payment and title. All risk of loss or damage pass to the purchaser at that time.

For details concerning claims for equipment shortages and other errors, refer to Schneider Electric “Terms and Conditions of Sale.”

Storing

If the Low Voltage Dispenser Disconnect is not installed and energized immediately, store it in a clean, dry space with a consistent temperature to prevent condensation. The Low Voltage Dispenser Disconnect should be stored inside until installed. Preferably, store it in a heated building with adequate air circulation and protect it from dirt, fumes, water, and physical damage.

INSTALLATION

Correct installation of the Low Voltage Dispenser Disconnect is essential for proper operation. Study the associated instructions and all drawings carefully.

Location

Find the designated area on the building floor plan where the Low Voltage Dispenser Disconnect will be installed. The Low Voltage Dispenser Disconnect is to be mounted in a Nema 1 environment only. The location chosen for installation should provide working clearances complying with Section 110-26 of the National Electrical Code® (NEC®).

The Low Voltage Dispenser Disconnect requires field connection of dispenser power circuit, as well as Low Voltage Data circuits from the dispensers. The Low Voltage Dispenser Disconnect should be installed such that it is accessible and maintainable from the front.

General Installation

The Low Voltage Dispenser Disconnect can be mounted using the included mounting brackets, or the mounting holes that are pre-punched in the enclosure. While the brackets are the recommended mounting method, there may be some installations in which the brackets cannot be utilized. In these instances, the installer should use the mounting holes to secure the Low Voltage Dispenser Disconnect Enclosure to the building structure.

For all installations, the Low Voltage Dispenser Disconnect should be mounted to a flat surface of sufficient strength to support the weight of the Low Voltage Dispenser Disconnect. The Low Voltage Dispenser Disconnect should be installed such that the top of the enclosure is level.

The installer should use a fastener with a minimum diameter of 1/4” to secure each corner of the Low Voltage Dispenser Disconnect enclosure to the mounting surface. This fastener should be suitable for fastening to the type of material of which the mounting surface is constructed and should be of sufficient strength to support the weight of the Low Voltage Dispenser Disconnect.

General Installation

The Low Voltage Dispenser Disconnect mounting brackets can be installed in a horizontal or vertical orientation. The installer should choose the orientation that is best suited to the mounting location of the unit. The figure below shows the installation of the Low Voltage Dispenser Disconnect mounting brackets in both orientations.

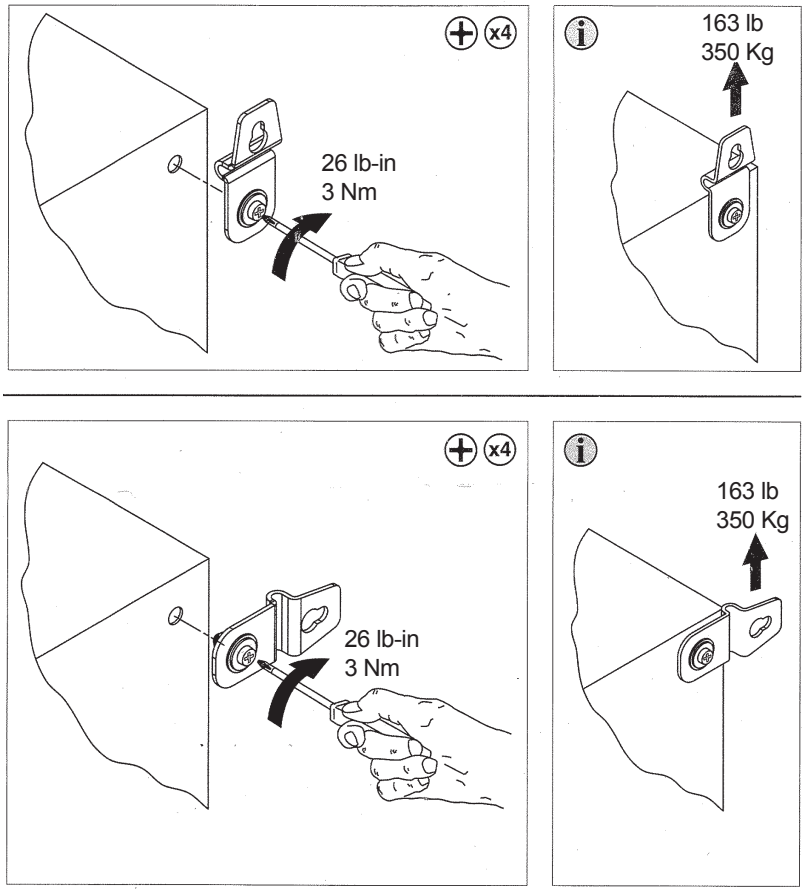

Figure 1 — Mounting Bracket Installation

General Installation

The pre-punched mounting holes are located as shown in Figure 2 below.

These holes are intended to allow the mounting brackets to fasten to the enclosure; however, they may be used to mount the enclosure to the wall, in the event that the mounting location prevents utilization of the mounting brackets.

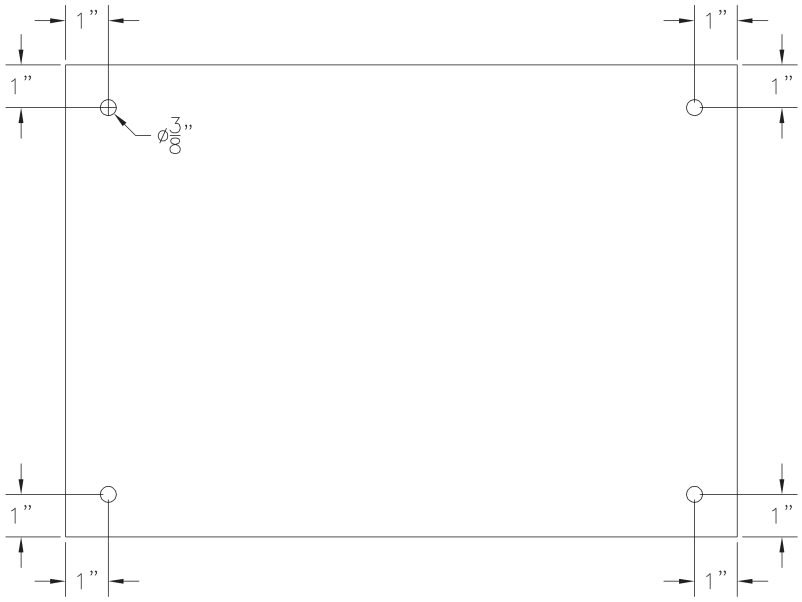

Figure 2 — Mounting Hole Locations

The installer should mount the included padlock accessory over the latch on the door of the enclosure. The mounting holes are pre-drilled in the door to make the installation as easy as possible.

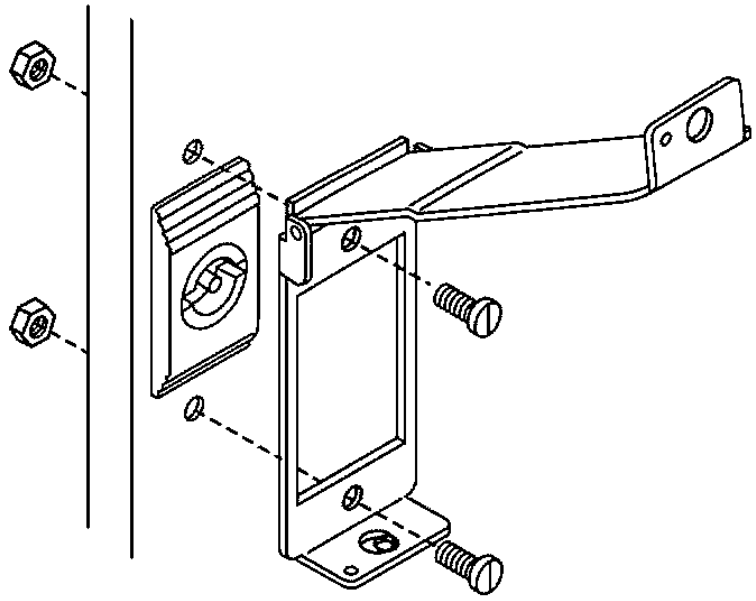

Figure 3 — Padlock Installation

Electrical Installation

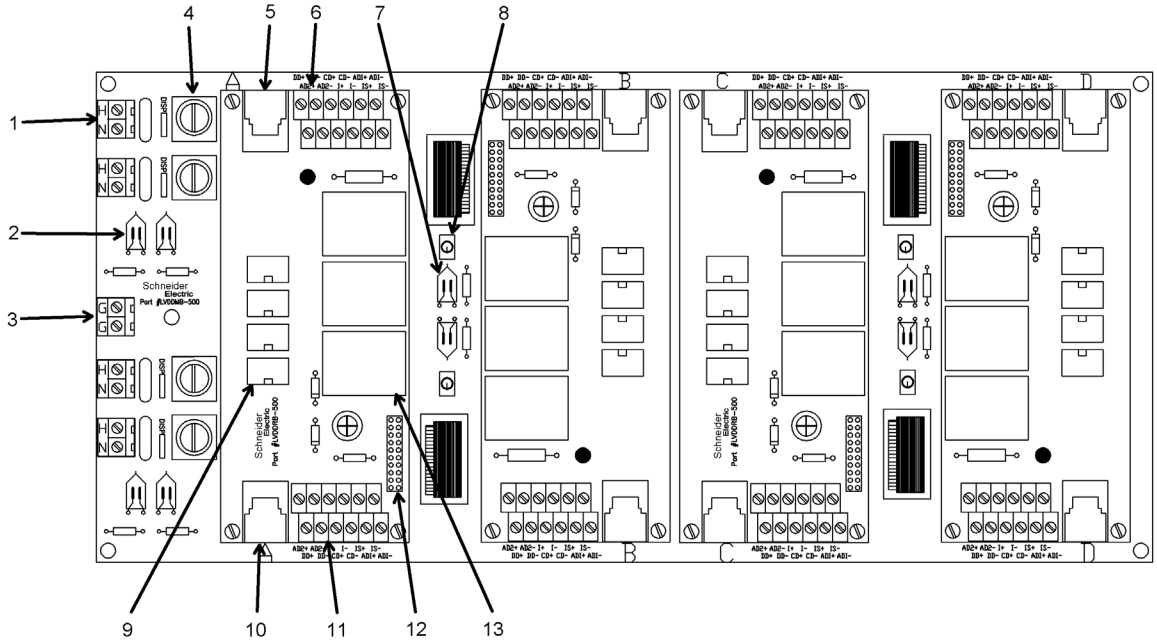

Figure 4 — Typical Terminal Diagram for LVDD-V-4

1- Dispenser AC Line Terminal
2- Blown Fuse Indicator Light
3- Ground Terminal
4- AC Control Power Fuses (replaceable 2 AMPS)
5- Input CAT 5 or CAT 6 Connection
6- Low Voltage Input Terminal Block
7- Low Voltage Dispenser Disconnect Isolation Switch Indicator Light
8- Low Voltage Dispenser Disconnect Isolation Switch
9- Dispenser Video Disconnect Relay
10- Output CAT 5 or CAT 6 Connection
11- Low Voltage Output Terminal Block
12- Ribbon Cable Connection
13- Dispenser Data Disconnect Relay

Cable Pulling

1. Install only the suitable cable sizes insuring a proper fit with the corresponding connectors.
2. Pull the proper size of line side and load side conductors according to the load served and the NEC or CEC.
3. Position the cables inside the Low Voltage Dispenser Disconnect so that they are not subject to physical damage.
4. **Be certain to run all phase conductors (for Power Circuits), including the neutral, through the same opening where cables enter or leave the Low Voltage Dispenser Disconnect, or pass through any metal that has magnetic properties. Otherwise, overheating can result. See Section 300-20(a) of NEC.**
5. Use conductors with a minimum rating of 90°C, 300V Gas and Oil resistant, consistent with dispenser manufacturer's recommendations for all Power, Data and Intercom connections.
6. All power conductors should be routed away from Low Voltage Dispenser wiring.
7. Conduit for power and low voltage conductors should only enter the enclosure in the spaces designated. (See Figure 5 for a typical layout of these areas).
8. The Low Voltage Dispenser Disconnect enclosure has a bottom plate that can be removed to allow the installer to easily punch the openings required for conduit entry. This bottom plate must be reinstalled after the required openings have been punched.

NOTE: Upon final assembly, no part of the conduit or conduit bushing should be within $^1/_2$ inch of any of the circuit boards of the device.

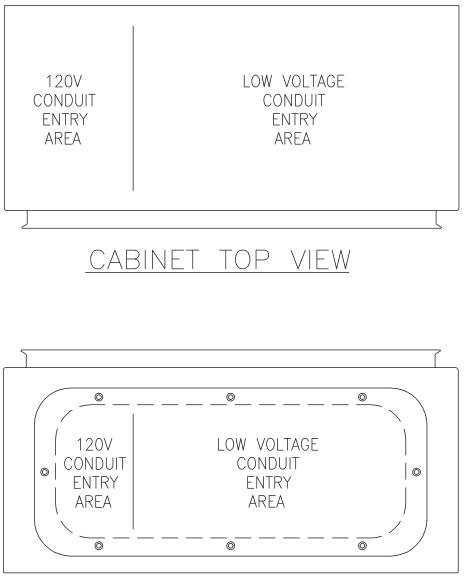

Figure 5 — Typical Conduit Entry Area

Cable Terminations

1. Use a proper insulation stripping tool to strip a length of insulation from the end of the cable sufficient to fit into the full length of the connector. Be careful not to nick or ring the strands.
2. To eliminate over tightening the mechanical connectors, refer back to the tourque label found on the inside the Low Voltage Dispenser Disconnect enclosure.
3. Connect the Dispenser AC circuit, Dispenser Data, Card Reader Data, Auxiliary and Ethernet cables (if applicable) to the Low Voltage Dispenser Disconnect board as shown in Figure 6.

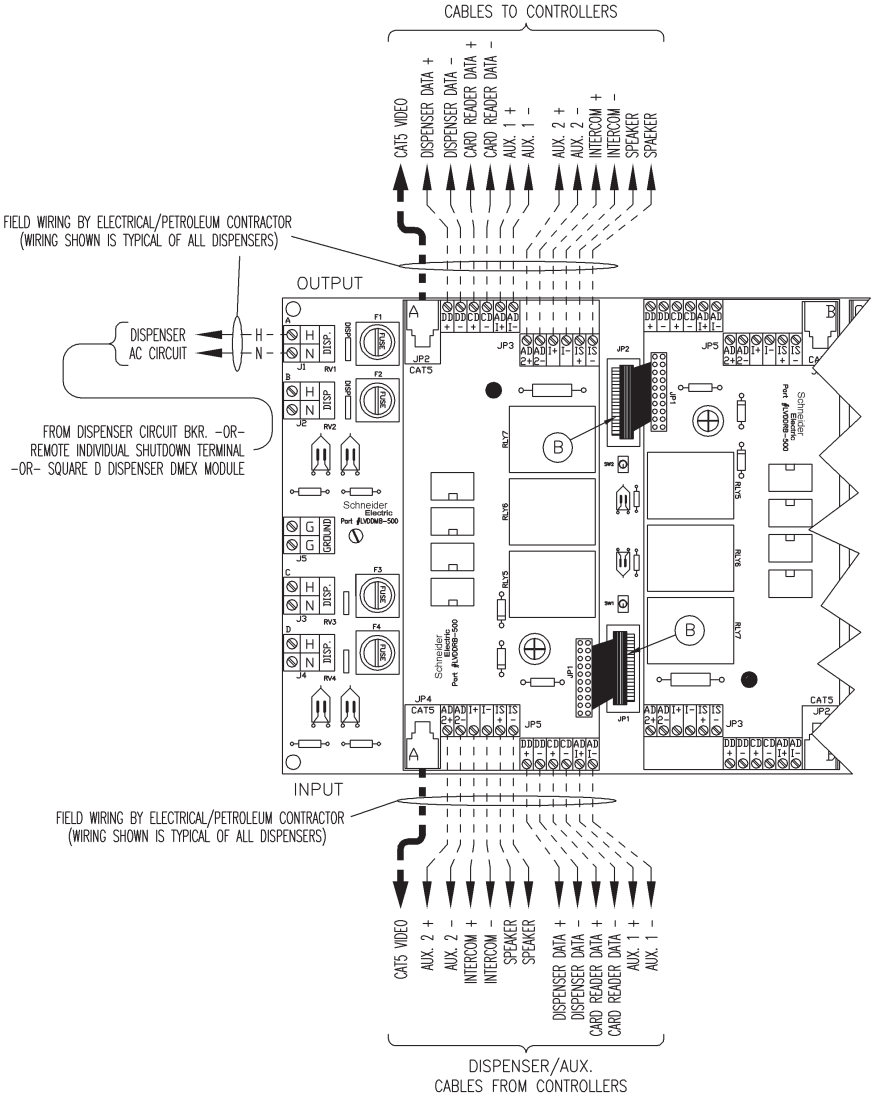

Figure 6 — Typical Wiring Diagram for Video Model

PRE-ENERGIZING CHECKOUT PROCEDURE

Conduct a complete inspection before the Low Voltage Dispenser Disconnect and related dispensing equipment is energized to ensure that all components function and operate properly. Complete every step of the checkout procedure listed before energizing the Low Voltage Dispenser Disconnect.

1. Check all accessible connections for tightness.
2. Check the Low Voltage Dispenser Disconnect enclosure for dents or other damage that reduces electrical clearances inside the Low Voltage Dispenser Disconnect.
3. Remove all temporary cushioning or retaining material, from the Low Voltage Dispenser Disconnect.
4. Manually open and close all dispenser isolation switches, checking for free operation.
5. Inspect all cables to ensure the insulation has not been damaged in any fashion.
6. Verify that all grounding connections are correctly made.
7. Verify that all proper field wiring is installed.
8. Vacuum to remove any dust, scrap wire, or other debris.

ENERGIZING THE PRODUCT

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Correct short-circuit conditions detected during the checkout procedures described in "Section 5—Pre–Energizing Checkout Procedure" .
- Qualified electrical personnel must be present when energizing this equipment for the first time.
- Follow the instructions in this section to properly energize the Low Voltage Dispenser Disconnect.

Failure to follow these instructions will result in death or serious injury.

1. Apply AC Power to the mother board for each dispenser. The AC power source will be either at the Square D IPaCS DM-EX board or at the dispenser circuit breaker (the DM-EX is a patented controller that integrates the operation of dispensers, submersible pumps, individual dispenser shutdown, and emergency shutdown of the complete fueling system).
2. Ensure each dispenser isolation switch is in the closed position (indicator light will be on).
3. Turn on other devices connected to the Low Voltage Dispenser Disconnect.

NOTE: Some systems will run a test sequence during startup. To prevent these test sequences from failing, the Low Voltage Dispenser Disconnect should be energized before activating devices associated the Low Voltage Dispenser Disconnect according to their manufacturer's instructions.

MAINTAINING THE PRODUCT

Periodic maintenance of the Low Voltage Dispenser Disconnect includes cleaning, lubrication, and exercising component parts. The interval between maintenance checks can vary depending upon the amount of usage and environmental conditions of each installation. The maximum recommended inspection interval is one year. This definition for periodic maintenance applies throughout this bulletin, unless otherwise noted.

General Inspection and Cleaning

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E.
- Always practice lock-out/tag-out procedures according to OSHA requirements.
- Inspect and perform preventive maintenance only on equipment to which power has been turned to the OFF position, disconnected, and electrically isolated (unless otherwise specified) so that no accidental contact can be made with energized parts.

Failure to follow these instructions will result in death or serious injury.

1. Turn off all power supplying this equipment before working on or inside equipment.
2. Always practice lock-out/tag-out procedures according to OSHA requirements.
3. Always use a properly rated voltage sensing device to confirm all power is off.
4. Vacuum the Low Voltage Dispenser Disconnect interior to remove any dirt or dust deposits. Wipe all components, insulators, cables, etc., with a clean, dry, lint-free cloth.
5. Check the Low Voltage Dispenser Disconnect interior carefully for moisture, condensation build-up, or signs of any previous moisture buildup. Moisture can cause insulation failures and rapid oxidation of current-carrying parts. Inspect all conduit entrances and cracks between the enclosure panels for dripping leaks. Condensation in conduits may be a source of moisture and must not be allowed to drip onto live parts or insulating material. Take the necessary steps to eliminate the moisture and seal off all leaks.
6. Inspect the Low Voltage Dispenser Disconnect for any signs of overheating. Discoloration, flaking, and cracking of insulation or metal parts are indications of overheating. **NOTE: If overheating occurs, be sure that all conditions that caused the overheating have been corrected. Loose or contaminated connections can cause overheating.**
7. Check for signs of rodent nesting in the Low Voltage Dispenser Disconnect. If required, use a good exterminating technique in the general area of the Low Voltage Dispenser Disconnect. **NOTE: Do not place or use exterminating substances and chemicals inside the Low Voltage Dispenser Disconnect. Some of these products attract rodents.**
8. Carefully inspect all devices for any visibly worn-out, cracked, or missing parts.
9. Manually open and close switches and circuit breakers several times to verify they are working properly.

ADVERSE CIRCUMSTANCES

This section includes, but is not limited to, all electrical components of the Low Voltage Dispenser Disconnect.

Water-Soaked Equipment

Do not clean or repair a Low Voltage Dispenser Disconnect product that has been exposed to large volumes of water or submerged at any time. Current-carrying parts, insulation systems, and electrical components may be damaged beyond repair. Do not energize the Low Voltage Dispenser Disconnect. Contact Square D Services, and also refer to Square D Data Bulletin 0110DB0401R07/11.

REFERENCE PUBLICATIONS

Schneider Electric publications are available through your local Schneider Electric field office. These publications include device replacement procedures and spare parts listings to make ordering and servicing of replacement parts quick and convenient.

Contact the nearest Schneider Electric field office for information in the US at 1-888-Square D (1-888-778-2733) or in Canada at 1-800-265-3374. Or, refer to the Technical Library at http://ecatalog.squared.com/techlib/ to obtain the appropriate publications.

For information about obtaining NEMA documents, write to:
National Electrical Manufacturers Association (NEMA)
Attention: Customer Service
1300 North 17th Street
Suite 1847
Rosslyn, VA 22209

Other Reference Publications	Publication Number
Electrical Equipment Maintenance	NFPA 70B

USER NOTES