Mains Disconnect Switch
480V 3-phase, (3) 1200A Class L Fuses, Service Entrance Rated
Instruction Manual

Thank you for your purchase of the Larson Electronics MPD-DS-FS-FDS-3P-4W-480V disconnect switch.

WARNING:

READ CAREFULLY BEFORE INSTALLING FIXTURE. RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE.
CRITICAL SAFETY INSTRUCTIONS:

- INSTALLATION SHOULD ONLY BE CONDUCTED BY A QUALIFIED ELECTRICIAN IN ACCORDANCE WITH NEC AND ANY RELEVANT LOCAL BUILDING CODES.
- RISK OF FIRE OR ELECTRIC SHOCK. FIXTURE INSTALLATION REQUIRES KNOWLEDGE OF FIXTURE'S ELECTRICAL SYSTEMS. IF NOT QUALIFIED, CONTACT A QUALIFIED ELECTRICIAN.
- BE CERTAIN ELECTRICAL POWER IS OFF BEFORE AND DURING INSTALLATION AND MAINTENANCE.
- MAKE SURE THE SUPPLY VOLTAGE IS THE SAME AS THE FIXTURE'S RATED VOLTAGE.
- TO PREVENT WIRING DAMAGE OR ABRASION, DO NOT EXPOSE WIRING TO EDGES OF SHEET METAL OR SHARP OBJECTS. SUITABLE FOR DAMP LOCATIONS.

The Larson Electronics MPD-DS-FS-FDS-3P-4W-480V-1200A-EF-BM-N3R Power Distribution Disconnect Switch is designed for reliable, safe and convenient power distribution at industrial work sites. This fused disconnect includes three 1200-amp 480V rated Class L fuses. Designed for floor mounting installations, the bottom feed disconnect switch is protected by a NEMA 3R rated, steel enclosure with a ventilated design.

Mounting

The MPD-DS-FS-FDS-3P-4W-480V-1200A-EF-BM-N3R can be securely mounted to any flat surface that is capable of supporting the load of the unit. This system has no existing hubs for conduit, but is setup with an open bottom configuration. **Do not stand under unit when lifting.** Secure unit to flat surface using the flanges on the bottom of the unit. Be sure all applicable local and national building and electrical codes are followed when mounting.

Power

Only a licensed and knowledgeable electrician should complete connections to this unit!

Hub placement and creation is at the discretion of the user. Open bottom configuration for feeding supply power. Be sure to consider your preferred method of bringing in the supply power when mounting.

See further information specific to the disconnect switch inside the enclosure on following pages of this manual. Refer to the wiring diagram for connection specifics.

Energizing the Switch

BEFORE ENERGIZING THE SWITCH, INSULATION RESISTANCE TESTING OF THE CIRCUIT SHOULD BE PERFORMED TO INSURE THERE ARE NO SHORT CIRCUITS OR GROUND FAULTS. If this testing is conducted with an over-voltage source, be sure to disconnect any control transformers or other voltage sensitive equipment in the system to avoid damage. Follow industry accepted practices for performing the tests and energizing the system.

Closing

Manually operated switches and switches equipped with shunt trip operators are closed by rotating the handle counter-clockwise. The upper most position is the ON position.

Break-before-make double-throw switches (“Geneva” switches) require handle rotation in the direction of the side that is being closed. The opposite side of the “Geneva” switch remains blocked in the open position.

Motor operated switches can be closed without electrical power by rotating the hexagonal operating shaft counter-clockwise with an 18 inch breaker-bar and socket.

Opening

Manually operated switches are opened by rotating the handle clockwise.

Switches equipped with shunt trip operators are opened by use of the “trip lever” or by energizing the electrical tripping means. **DO NOT USE THE HANDLE TO INITIATE OPENING. THIS WILL DAMAGE THE LATCH THAT HOLDS THE OPENING SPRINGS IN A CHARGED STATE.** If adverse conditions have prevented a switch from opening by means of the opening springs, the handle can be used to assist opening the switch blades. This should be attempted only after efforts to open the switch with the manual trip lever have been exhausted.

Position Indicator Feature

If the switch is equipped with a position indicator feature, the actual position of the switch blades can be determined by the color showing in the indicator window. The position indicator window is located above and to the right of the operator shaft.

The color code is as follows:

Green - The switch is open
Red - The switch is closed
Yellow - **WARNING, THE SWITCH IS PARTIALLY CLOSED**

IF ANY YELLOW APPEARS IN THE WINDOW, IMMEDIATE ACTION IS REQUIRED. Yellow indicates that the switch blades are not fully closed (or fully open), and the bolted pressure mechanism is not fully engaged. If the switch is left in this position, the circuit being fed may seem normal, but over time, overheating or other severe damage may occur. A thorough examination of the entire switch and installation should be made as soon as possible.

Maintenance

MAKE SURE POWER IS DISCONNECTED TO ALL SWITCH TERMINALS BEFORE ANY MAINTENANCE WORK IS PERFORMED.

Switches equipped with optional Class I ground fault components provide protection to equipment only, not personnel. **DO NOT WORK ON EQUIPMENT HOT.**

Inspection

Inspection of the BPS is recommended at least once a year. More frequent inspections are recommended if operated under severe conditions, such as frequent operation, harmonic loads, high ambient temperature, dusty environment, moisture or other unfavorable conditions. A complete inspection of the device should always be made after the BPS has interrupted a ground fault, or has been involved in an incident that caused one or more of the fuses to blow.

At regular inspection periods the BPS should be operated. Check to see that the blades close and open fully. The blades should be vertical when the switch is closed, and rotate approximately 45 degrees upon opening. Clear separation between the blades and jaw contacts should be observed when the switch is open. Also observe the rotation of the crossbar, to verify that it travels completely. On most switches, the crossbar rotates approximately 90 degrees. When the switch is closed, the crossbar should be in a vertical position, near or touching the blades. When the switch is open, the crossbar should be in a horizontal position.

If overheating is observed, a complete inspection of the BPS and the installation should be made. Verify that the switch blades and crossbar close fully, as previously discussed. Verify that the switch and the connecting bus (or cable) are properly sized for the load current. For switches requiring ventilation, verify that the vents are open and adequate in size. In some cases, overheating can be a result of severe conditions not easily observed, such as harmonics. A knowledgeable electrical professional may be needed to identify the cause of the problem and offer solutions.

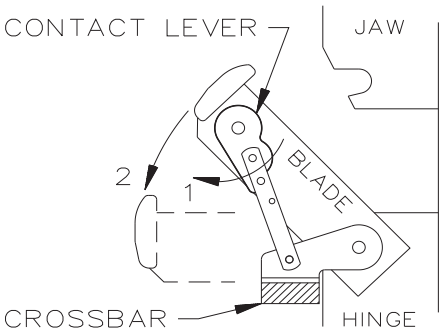
Bolted Pressure Mechanism (Clamp Nuts)

READJUSTING THE CLAMP NUTS ON BOLTED PRESSURE CONTACT MECHANISMS COULD CAUSE SWITCH FAILURE. The bolted pressure contact mechanisms are factory set and should not need to be disassembled or readjusted under most circumstances. If adjustment is needed, consult the factory.

For better access to the jaw contacts, the blades may be “dropped down” to a horizontal position, commonly referred to as the maintenance position.

To drop the blades to the maintenance position:

1. Rotate the contact lever as shown (arrow 1).
2. As it rotates, the blades will rotate down to allow improved access (arrow 2).



BE SURE TO RETURN THE BLADES TO THEIR ORIGINAL POSITION BEFORE OPERATING SWITCH. To do this, push the blades up until they click into position.

By disconnecting one end of the connecting rod (remove cotter pin and clevis pin), the crossbar and switch blades can be operated slowly either by hand or by using a crescent wrench as a lever on the crossbar. This provides an easy means of checking blade alignment, arcing contact adjustment and ease of blade closing. If the switch is equipped with arcing contacts, they should make brushing contact, should all touch simultaneously, and should make contact prior to the blades making contact. Be sure to reinstall the cotter pin when reassembling the connecting rod. Operate the switch several times without power connected.

Lubrication

In general, the BPS is adequately lubricated before shipment for initial use. If re-lubrication is required, the following procedure is recommended:

A - Remove hardened grease and dirt from bearing surfaces by using kerosene.
B - Use a fine file to smooth any pit marks on the switch blades.
C - Apply a thin film of non-conductive lubricant to contact sliding surfaces. Petroleum jelly (Vaseline) works well in many applications, and is readily available.
D - Lubricate linkages and operator joints with light machine oil.

DO NOT USE ELECTRICALLY CONDUCTIVE GREASE. THE USE OF CONDUCTIVE GREASE SUCH AS GRAPHITE GREASE OR CONDUCTOR TERMINATION COMPOUND COULD CAUSE SEVERE DAMAGE.

High temperature greases are not recommended for general use because they tend to solidify at lower temperatures.

Arc Quencher Replacement

The arc quenchers should be inspected for cracks in the molded sides and excessive erosion of the steel plates. Damaged arc quenchers should be replaced.

Arcing Contact Replacement

Some switch designs have replaceable arcing contacts. The arcing contacts should be inspected for erosion. Excessively eroded parts should be replaced.

Transparent Face Barrier

If the transparent face barrier requires cleaning, wash gently with mild soap or detergent and lukewarm water, using a soft clean cloth or sponge. Do not scrub or use brushes or squeegees. Rinse again. Dry with a soft cloth or moist cellulose sponge to prevent water spotting.

Maintenance After Interrupting a Ground Fault

The ground fault system associated with a BPS is known as “ground fault protection of equipment”. In most applications, ground fault protection of equipment is provided on the service disconnect, thus, when it functions, it will disconnect the electrical power to the entire building. In the event that this BPS trips due to a ground fault, it should be regarded as an ultimate form of electrical protection to the facility, and should not be taken lightly. Any electrical fault can escalate to other conductors very rapidly. The magnitude of the fault current interrupted by the switch may be many times the actual current rating of the switch, and may have caused damage.

IF A GROUND FAULT RELAY CAUSES THE SWITCH TO OPEN, THE FOLLOWING SHOULD BE PERFORMED BEFORE RE-ENERGIZING THE SWITCH:

1. Locate the electrical fault and remove it from the system.
2. Repair any damage caused by the fault.
3. Test the system to be certain no faults exist.
4. Check and repair any damage to the BPS. This usually requires disconnecting the power feeding the switch.
5. Re-test the ground fault system and record the results.
6. Re-energize the system in the proper manner.

Repairs to the BPS must be made before placing the switch back in service. Opening under fault conditions is among the most severe duty required by a switch in laboratory testing. Switch standards do not require an un-serviced switch to be suitable for reuse, or be capable of being closed back into a fault. Particular attention should be given to the arcing contact (both stationary and moving), blades, jaw terminals, and arc quenchers. Removal of the barriers may be necessary for inspection or repairs.

Soiled lubrication should be removed. Any weld marks, pitting or splatter on the blades or jaw terminals should be filed smooth and re-lubricated. Excessive over-flash on the barriers may warrant their replacement. Arcing contacts and arc quenchers should be examined as previously explained.

BEFORE ATTEMPTING TO PLACE THE BPS BACK IN SERVICE, BE CERTAIN THE GROUND FAULT SENSING EQUIPMENT HAS BEEN RESET. The ground fault system (including the BPS) should then be tested to assure it is functioning properly. Record the test results, and be prepared to present the records to the authority having jurisdiction upon request.

USE AND CARE

Unauthorized modification may impair the function and/or safety of this device and could affect the life of the equipment. Always check for damaged or worn out parts before using the device. Store it in a secure place out of the reach of children when not in use. Inspect for good working condition prior to storage and before re-use.

REPLACEMENT PARTS

The MPD-DS-FS-FDS-3P-4W-480V-1200A-EF-BM-N3R is designed to provide years of reliable performance. Should the need for replacement parts arise, please contact Larson Electronics.

THESE INSTRUCTIONS MAY NOT COVER ALL DETAILS OR VARIATIONS OF THIS PRODUCT FOR YOUR EQUIPMENT OR INSTALLATION REQUIREMENTS. SHOULD FURTHER INFORMATION NOT COVERED BY THESE INSTRUCTIONS BE REQUIRED, PLEASE CONTACT LARSON ELECTRONICS BY EMAIL AT SALES@LARSONELECTRONICS.COM OR BY PHONE AT 1-877-348-9680 FOR FURTHER ASSISTANCE.

PLEASE VISIT LARSONELECTRONICS.COM FOR **WARRANTY** AND **RETURN** INFORMATION.