

INSTALLATION GUIDE



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English

SUBDRIVE UTILITY F3 SYSTEM FILTER

This product is intended to reduce the occurrence of nuisance or intermittent Locked Rotor faults (fault code 3) in SubDrive Utility UT2W submersible pumping applications. Specifically, the faults manifest in applications utilizing a Franklin Electric submersible 2-wire motor in conjunction with long motor lead lengths and higher input voltage levels (245VAC and higher) where the motor, pump, and output motor cable have been confirmed to be in good working condition.

Refer to the SubDrive Utility Installation Manual for detailed setup and important safety information, refer to www.franklinwater.com.

Installation

Remove System Power

⚠ WARNING

 Risk of severe injury, property damage, or death by electrical shock.

- At least one mounting screw is to be fastened into a solid structure such as a stud or brace.
- Ensure suitable mounting hardware is used for drywall installation.
- Disconnect and lock out all power before installing or servicing equipment.
- Capacitors inside the drive and the filter can still hold a lethal voltage even after power has been removed — ALLOW FIVE MINUTES FOR DANGEROUS INTERNAL VOLTAGES TO DISCHARGE.

⚠ CAUTION

Risk of bodily injury or damage to pump or other equipment.

- This product should only be used with the Franklin Electric SubDrive Utility (UT2W) drive models 5870202003 and 5870202003XD.

Mounting

The SubDrive Utility F3 System Filter is supplied in a UL Type 3R enclosure. Appropriate cables and cable fittings must be used in the installation to maintain the UL Type 3R rating.

1. Use included #10-32 screws to install four plastic mounting tabs to the enclosure.
2. Mount the SDU F3 System Filter to a flat surface using four screws (not included). Insert one screw through each plastic tab attached in step 1. At least one screw must attach to a solid structure such as a stud or brace.
3. Remove four screws from each corner of the front cover of the SDU F3 System Filter.
4. Remove the cover from the SDU F3 System Filter.

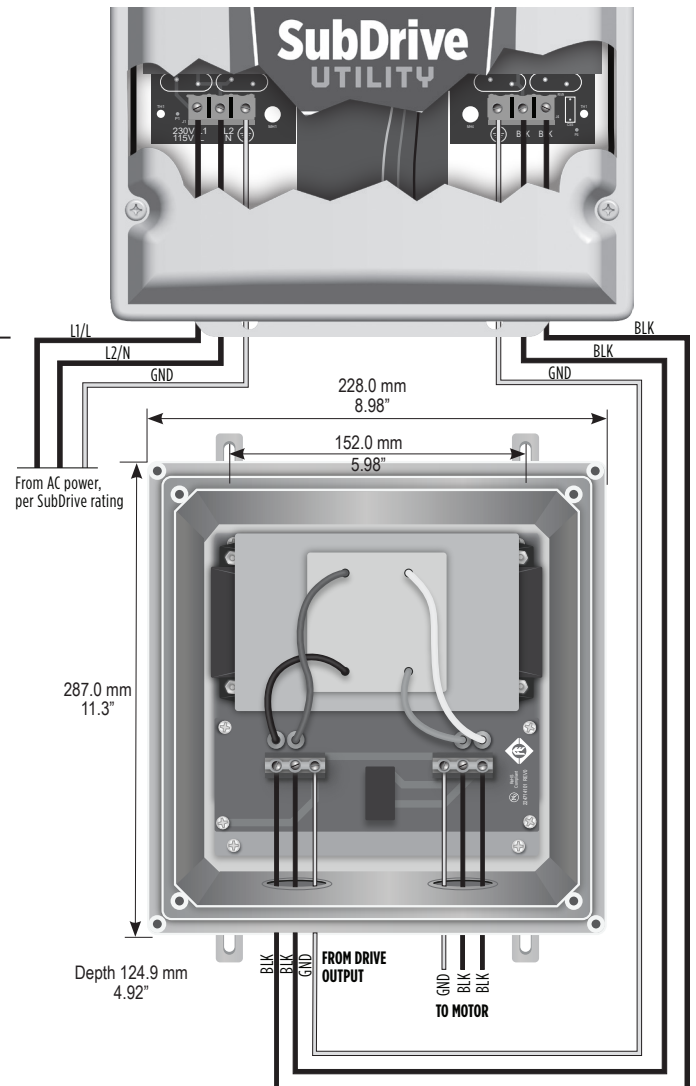
Electrical Connections

Remove System Power

1. Disconnect electrical power to the controller at the main breaker. If previously connected to the supply mains, wait five (5) minutes for dangerous internal voltages within the controller to discharge.
2. Remove the cover from the SubDrive Utility controller following instructions in the SubDrive Utility manual.

Install Wiring Tighten all terminals to 5 in-lbs (0.55 Nm). Use only UL Listed wire rated 75 °C (167 °F) minimum.

3. Route motor and ground wires from the SubDrive Utility controller output terminal block to the SDU F3 System Filter **FROM DRIVE OUTPUT** terminals **BLK** and **BLK**. The green ground wire is connected to the terminal marked **GND** (ground).
4. Route motor and ground wires from the SDU F3 System Filter **To MOTOR** terminals **BLK** and **BLK**, and the terminal marked **GND** (ground) to the pump motor. Motor connections shall be per the motor manual.



Final Installation Steps

1. Fill all open, unused conduit openings of the SDU F3 System Filter with UL Listed conduit plugs.
2. Replace and secure the SDU F3 System Filter cover and SubDrive Utility controller cover using required torque of 10 in-lbs (1.1 Nm).
3. Restore power to the system at the electrical panel.
4. Upon completion of the installation, refer to the SubDrive Utility Owner's Manual for start-up and operation procedures.

Ratings and Specifications

Electrical Ratings

The SDU F3 System Filter consists of one circuit for filtering SubDrive Utility motor outputs

"From Drive Output" and "To Motor" circuit:
115/208-230 VAC, 13.1 A, 50/60 Hz, single-phase

NOTE: The SDU F3 System Filter must be used with a single SubDrive Utility controller and a single motor. Do not use with multiple controllers or motors.

Environmental Ratings

- Type 3R
- Pollution Degree 2
- Max Ambient: 40 °C (104 °F)
- Mass: 5.85 kg, (12.9 lbs)
- Max Altitude: 2000 m (6562 ft)

The SDU F3 System Filter is UL Listed for the US and Canada per Standard UL 61800-5-1, Standard for Safety for Adjustable Speed Electrical Power Drive Systems - Part 5-1: Safety Requirements - Electrical Thermal and Energy and per Standard CSA C22.2 No. 274-13, Adjustable Speed Drives.

Special Considerations for Outdoor Use

The SDU F3 System Filter is suitable for outdoor use with a UL Type 3R rating; however, the following considerations should be made when installing the unit outdoors. The unit shall be:

- Mounted on a surface or backplate no smaller than the product's outer dimensions. Enclosures are capable of withstanding downward-directed rain only.
- Mounted vertically with the wiring end oriented downward and the cover properly secured (also applies to indoor installations).
- Protected from hose-directed or sprayed water as well as blowing rain. Failure to do so may result in product failure.
- Protected from direct sunlight or other locations subject to extreme temperatures or humidity.

Branch Circuit and Motor Protection

For details, refer to the SubDrive Utility Owner's Manual.

Maintenance

Unless noted, no adjustments or maintenance is required for this product.

WARNING

 High voltages capable of causing severe injury or death by electrical shock are present in this unit.

- To reduce risk of electrical shock, disconnect power before working on or around the system. More than one disconnect switch may be required to de-energize the equipment before servicing
- Make sure the ground terminal is connected to the motor, control enclosures, metal plumbing, and other metal near the motor or cable using wire no smaller than motor cable wires.
- Do not remove the cover for wiring or periodic inspections while power is applied, or the unit is in operation.
- Wiring and periodic inspections should be performed at least 5 minutes after disconnecting and locking out the input power.
- Operate filter and control device with dry hands.
- Do not use filter and control device if power or motor cable is damaged.
- Perform wiring after filter has been mounted. Otherwise, electric shock or bodily injury can occur.

CAUTION

Risk of fire, secondary accidents, or bodily injuries such as skin burns.

- This equipment must not be used by children or persons with reduced physical, sensory or mental abilities, or lacking in experience and expertise, unless supervised or instructed. Children may not use the equipment, nor may they play with the unit or in the immediate vicinity.
- Equipment can start automatically. Lockout-Tagout before servicing equipment.
- Permanent magnet motors need to have a check valve (reverse flow preventer) installed above the pump to prevent dangerous voltages from generating on the motor leads when the pump spins backwards. This will also limit the pump/motor from running in up thrust conditions at every startup. Operation of this equipment requires detailed installation and operation instructions provided in this manual for use with this product.