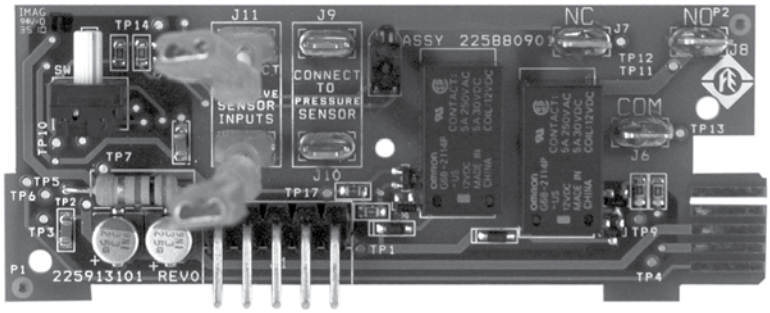
NEMA 4 Option Card

225880901 Installation Manual



Franklin Electric

⚠ WARNING

Serious or fatal electric shock may result from failure to remove electrical power from the SubDrive prior to installing the NEMA 4 Option Card. Disconnect power before working on the system. Capacitors inside the SubDrive can still hold a lethal voltage for some time after power has been removed, so allow 10 minutes after removing supply power for dangerous internal voltage to discharge.

CAUTION

This accessory should only be used with Franklin Electric SubDrive NEMA 4 controllers. This product is **not** intended to be used with the SubDrive300.

ATTENTION

This accessory is intended for installation by technically qualified personnel. Failure to install it in compliance with Federal, State and Local electrical codes and within Franklin Electric's recommendations may result in electrical shock or fire hazard, unsatisfactory performance, and equipment failure.

Tools and Hardware Required

A Phillips screwdriver is required to remove the SubDrive access panel. A crimp tool may be required for the ¼" quick connects.

Tools and Hardware Included

The kit includes the NEMA 4 Option Card, two jumper leads, underload extended off-time settings label and a potentiometer adjustment tool for adjusting the underload extended off-time setting.

Underwriters Laboratories Inc. Information

This NEMA 4 Option Card Interface is a UL-Listed accessory.
Manufacturer: Franklin Electric Co, Inc.
Model #: 225880901
Output Contacts: 5A, 250 VAC General Purpose
Suitable For Use On:

5870203114 - MonoDrive NEMA 4
5870204114 - MonoDriveXT NEMA 4
5870203384 - SubDrive75 NEMA 4
5870204104 - SubDrive100 NEMA 4
5870204154 - SubDrive150 NEMA 4

c UL us LISTED E184902

NOTE: The NEMA 4 Option Card is only compatible on SubDrives with date codes after 09J45. Please consult factory for SubDrives built prior to this date code.

Purpose

The NEMA 4 Option Card provides run-indication relay contacts and a rotary switch with which the underload extended off-time of the drive may be chosen. The option card is intended for use with the Franklin Electric NEMA 4 controllers (excluding SubDrive300) with date codes after 09J45. If the NEMA 4 Option Card is not able to communicate with the SubDrive, it will be held in an inactive state.

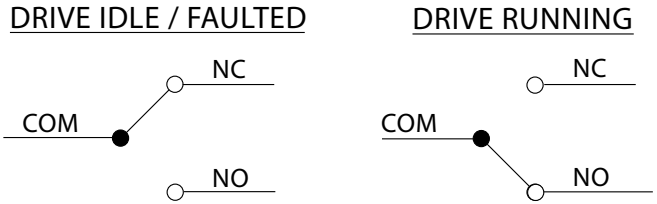
Contact Ratings	**Resistive Load** ($\cos\phi = 1$)	**Inductive Load** ($\cos\phi = 0.4$; L/R = 7 ms)
Rated Load	5A @ 250 VAC; 5A @ 30 VDC	1.5A @ 250 VAC; 1.5A @ 30 VDC
Max. Switching Power	1250 VA, 150 W	375 VA, 80 W

Run-Indication Relay Quick Connect Tabs:

J6: COM: Common — Relay Common Point

J7: NC: Normally Closed contact
- Drive Idle: NC state = closed
- Drive Running: NC state = open

J8: NO: Normally Open contact
- Drive Idle: NO state = open
- Drive Running: NO state = closed



Either or both sets of contacts can be utilized to reflect drive status.

Underload Extended Off-Time:

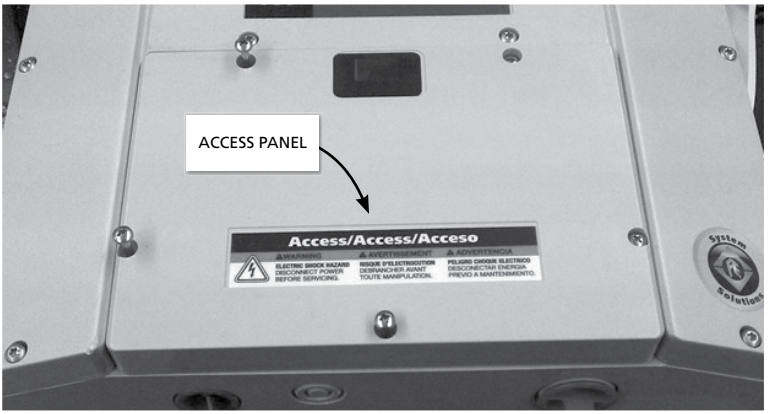
The underload extended off-time may be selected by using the 10-position knob, with the available off-times listed below.

POSITION	UNDERLOAD TIME (TOTAL)	POSITION	UNDERLOAD TIME (TOTAL)
Position 0:	Inactive*	Position 5:	120 mins
Position 1:	10 mins	Position 6:	180 mins
Position 2:	20 mins	Position 7:	240 mins
Position 3:	30 mins	Position 8:	480 mins
Position 4:	60 mins	Position 9:	Manual Reset**

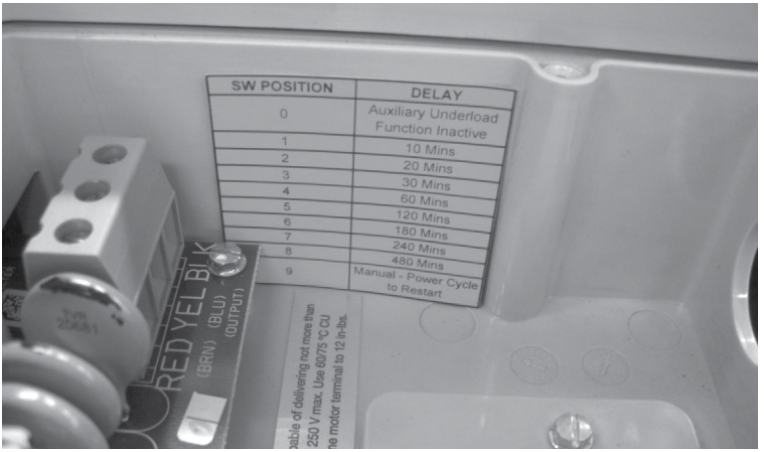
* SubDrive's 5 minute rule still addresses underload.
** Power cycle required to restore drive operation following an underload event.

Installation Procedure

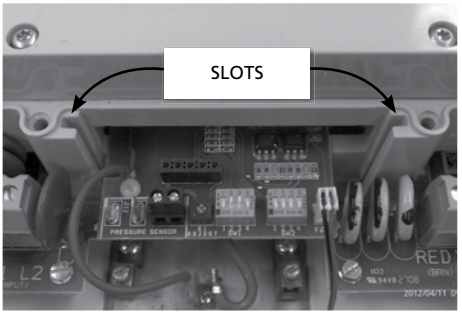
1. If the SubDrive is powered, remove power from the drive and wait at least **10 minutes** before accessing the drive to ensure that the bus voltage has been given sufficient time to dissipate.
2. Remove the access panel using a Phillips screwdriver.

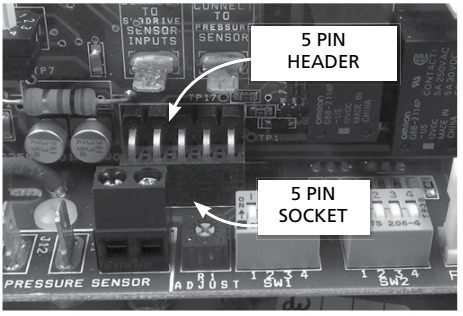


3. With the access panel removed, affix the underload extended off-time settings label in the following location.



4. Insert the option card into the accessory slot on the SubDrive, engaging the 5 pin header (J1 on the NEMA 4 Option Card) with the 5 pin socket (J1 on the SubDrive circuit board). Ensure that the option card is properly seated into the SubDrive circuit board.





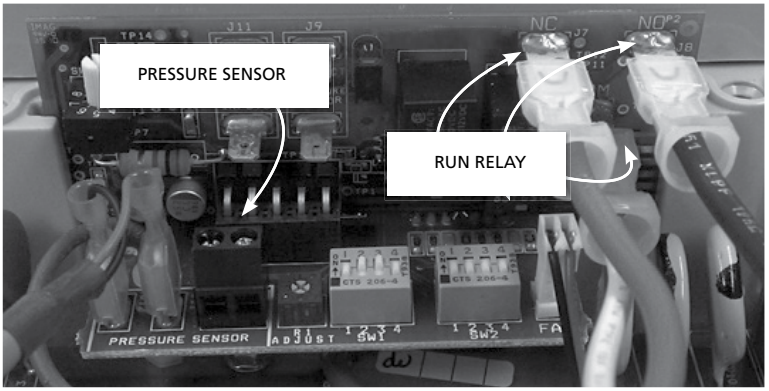
NOTE: The NEMA 4 Option Card and the SubDrive are electrically-sensitive devices. Please follow the standard anti-static precautions to protect the electronic components.

ATTENTION: Avoid contact with SubDrive DIP switches to prevent setting changes.

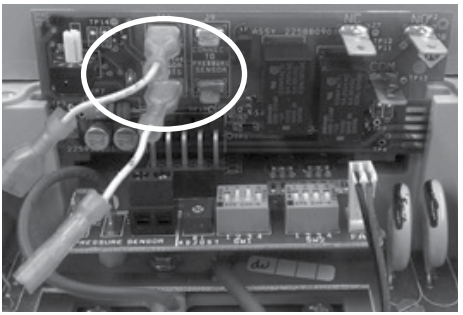
NOTE: This is a multi-function option card. Follow the remaining steps according to the function(s) required for the application.

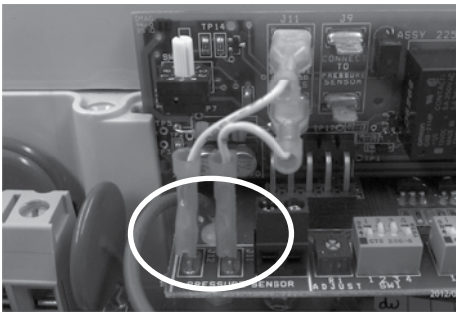
- **Set-up for Run-Indication Relay (ONLY)**
  – Complete steps 5, 10 and 11
- **Set-up for Underload Extended Off-Time (ONLY)**
  – Complete steps 6, 7, 9, 10 and 11
- **Set-up for BOTH Run-Indication Relay and Underload Extended Off-Time**
  – Complete steps 6, 7, 8, 9, 10 and 11

5. Attach the pressure sensor leads to J11 and J12 on the SubDrive circuit board and connect the run relay mechanism (not included) to the Run Relay Contacts (NO, NC and COM) on the NEMA 4 Option Card.

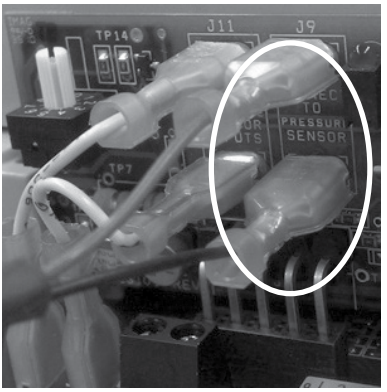


6. Connect the two jumper leads provided to the NEMA 4 Option Card and to the SubDrive circuit board, as shown.

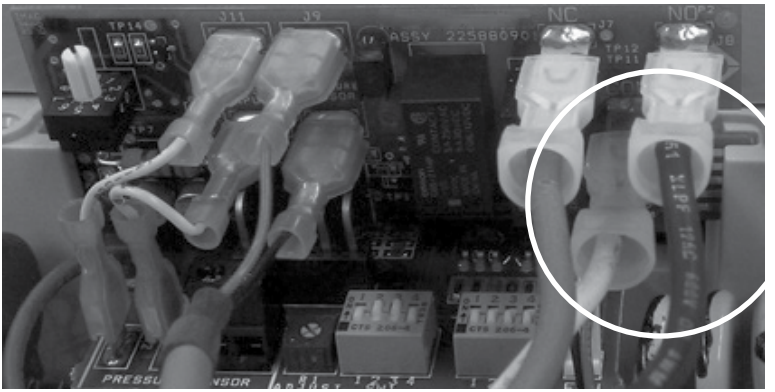




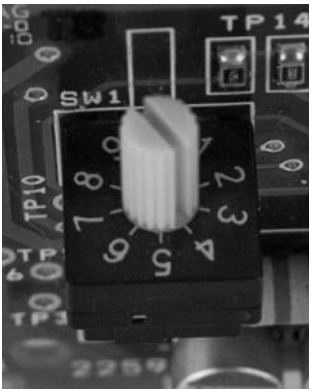
7. Attach the pressure sensor leads to J9 and J10 on the NEMA 4 Option Card.



8. Attach the run relay mechanism (not included) to the Run Relay Contacts (NO, NC and COM) on the NEMA 4 Option Card.



9. Set the underload extended off-time rotary switch to the desired off-time setting (use table on pg. 2 as reference or label supplied with the kit). The slot on the knob of the rotary switch indicates the selected position (refer to example image below).



Note: Image above shows "4" as being selected

⚠ WARNING

Never adjust the underload extended off-time rotary switch when the SubDrive is powered. (Refer to warning on pg.1)

10. Double check all wiring. When wiring is confirmed, reinstall the access panel.

11. Restore power to the drive.

System Operation Using Adjustable Underload Extended Off-Time

If the underload extended off-time function is enabled it will take effect when the SubDrive detects an underload condition. When an underload is detected the SubDrive will initially indicate a Fault Code 1 via the red fault light as expected. When the SubDrive's default underload off-time has elapsed, the NEMA 4 Option Card will take over and continue to flash the Fault Code 1 through the red, rectangular window on the top side of the access panel. The SubDrive fault light will no longer indicate the underload and the SubDrive will return to the idle mode until the off-time setting of the NEMA 4 Option Card has expired. Once the selected off-time expires, the SubDrive will return to normal operation.

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