

User Manual

THREE PHASE VOLTAGE
MONITOR RELAY
FASEALERT-3[®]
MODEL F3D



The best solutions for
automation and protection

Description

The F3D series is a family of 3-phase voltage monitors with an integrated LCD display. It continuously measures and displays the RMS voltage of each of the three phases with microcontroller accuracy and compares the value with preset trip points. It separately senses phase reversal and loss, as well as under, over and unbalanced voltages. It also includes a memory register of the last failure and the min/max voltage.

Protection is assured during periods of large voltage fluctuations or when regenerated voltages are present. Trip and restart delays are included to prevent nuisance tripping and short cycling of sensitive equipment. The isolated 10A SPDT output relay contact trips when a phase voltage exceeds the trip limit after the time established by the trip delay. The under/over voltage and unbalance limits are adjustable, as well as the restart and trip delays. Both delta and wye systems can be monitored; no connection to neutral is required.

Operation

The **FASEALERT-3 DIGITAL** protects motors against: under and over voltage, phase failure, voltage unbalance and phase sequence reversal.

The FASEALERT-3 DIGITAL has the following default values:

Setting	F3D-220	F3D-440
UNDER VOLTAGE	200 V	400V
OVER VOLTAGE	260 V	520V
VOLTAGE UNBALANCE	5%	
RESTART DELAY	10s	
TRIP DELAY	5s	
RESET	Automatic	

IN NORMAL VOLTAGES

The output relay is energized and the output contact is closed.

The green LED denominated "Relay" is ON.

The display will show the 3 line voltages, the maximum and minimum voltages.

221 225 223
Max=253 Min=213

Features

- **Protects against phase, reversal, phase loss, under, over and unbalanced voltages.**
- **Isolated 10A, relay contacts.**
- **LCD displays: Line voltages, max / min voltages, voltage failures, time delays, and a setup menu.**
- **Automatic or manual reset.**
- **3-wire connection for Delta or Wye systems.**
- **Has Datalogging capability.**

UPON A PHASE REVERSAL

When connecting the input voltage the legend of PHASE REVERSAL will appear, the output relay will not energize until the sequence is correct.

PHASE REVERSAL

Switch two input lines to obtain the correct sequence.

VOLTAGE AND FAILURE MEMORY

The maximum and minimum voltages are shown on screen and remain stored even after a power failure, to erase them press the RESET button.

Failures are stored in the internal memory. After a failure a letter "F" will appear in the first line on the right upper side of the display indicating a failure has occurred.

221 225 223 F
Max=253 Min=213

To see what failure occurred, press the LAST FAILURE button. The last failure will be shown for 3 s and then it will be erased automatically.

**LAST FAILURE:
>OVER VOLTAGE**

UPON A VOLTAGE FAILURE

The display will show >>FAILURE<< during the trip delay.

**201 225 223
>>FAILURE<<**

After the trip delay: The green LED will turn OFF, the screen will show the failure, and the output contact opens which stops the motor.

**195 202 198
>UNDER VOLTAGE**

WHEN VOLTAGES GO BACK TO NORMAL

If the RESET setting is set to automatic, the display will show the remaining time to connect and after this the output contact will close, the green LED turns ON and the motor restarts. (Whenever you press RESET this device will reconnect).

**215 222 220
Reset in: 10 s**

If the RESET setting is set to manual this device will not close the output contact until the RESET button is pressed.

**219 221 223
Press Reset**

Adjustments

To adjust the setup parameters press the SETUP button. Use the arrow buttons to select between English or Spanish:

**LANGUAGE:
ENGLISH**

Press the SETUP button and the screen will now show the under voltage adjustment. Move the arrows to adjust the desired voltage to disconnect upon an under voltage.

**SET:
UNDER VOLTAGE=200**

Press again the SETUP button and the screen will show the over voltage adjustment.

Move the arrows to adjust the desired voltage to disconnect upon an over voltage. **This setting doesn't allow a value that is less than the under voltage setting.**

**SET:
OVER VOLTAGE=240**

Once again press the SETUP button and the screen will show the restart delay adjustment.

Move the arrows to adjust the desired time of connection from 0.2 to 600 Sec.

**SET: RESET
DELAY=200 S**

Press again the SETUP button and the screen will show the trip delay adjustment. (The trip delay for phase failure is fixed at 3s)

Move the arrows to adjust the desired time of disconnection from 0.1 to 9.9 Sec.

**SET: TRIP
DELAY=5.0 S**

Press one more time the SETUP button and the screen will show the voltage unbalance adjustment.

Move the arrows to adjust the maximum allowed unbalance percentage from 3 to 9.9%.

**SET:
UNBALANCE=5.0 %**

Press again the SETUP button and the screen will show the restart adjustment.

Move the arrow to choose between automatic or manual restart after a failure.

**SET:
RESET=AUTO**

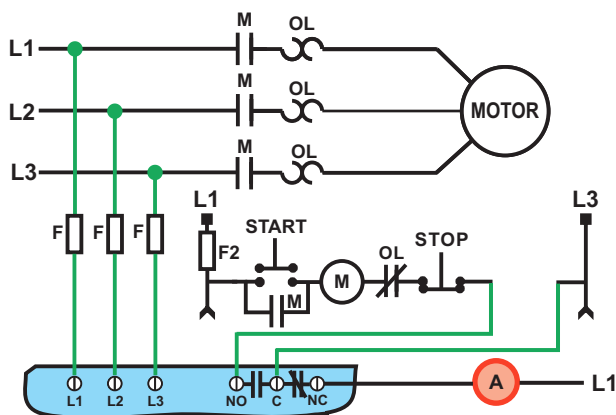
Press one last time the SETUP button to exit and the voltages will be shown on screen. Any changes made on the adjustments will be stored in memory.

**221 225 223
Max=253 Min=213**

Connections

Connect the terminals L1, L2 and L3 through the fuses to the motor contactor and the terminals C and NO with #14 gauge, 600 V wire. The FASEALERT-3 may be installed in THREE PHASE MOTORS OF ANY CAPACITY AND IN ALL TYPES OF STARTERS. This diagram shows a very common example of installation:

When the NO and C contact closes, it allows the motor to start running. When it opens, it disconnects the coil and stops the motor. An indicator lamp may be used as an alarm like the diagram indicates.



M = Contactor
OL = Overload relay
F = Fuse 2 Amp. Max.
A = Alarm indicator lamp



DANGER!



Potentially hazardous voltages are present. Electrical shock can cause death or serious injury. Installation should be done by qualified personnel following all National, State & Local Codes.

BE SURE TO REMOVE ALL POWER SUPPLYING THIS EQUIPMENT BEFORE CONNECTING OR DISCONNECTING THE WIRING.

READ THE INSTRUCTIONS BEFORE INSTALLING OR OPERATING THIS DEVICE.
KEEP THIS MANUAL FOR FUTURE REFERENCE.

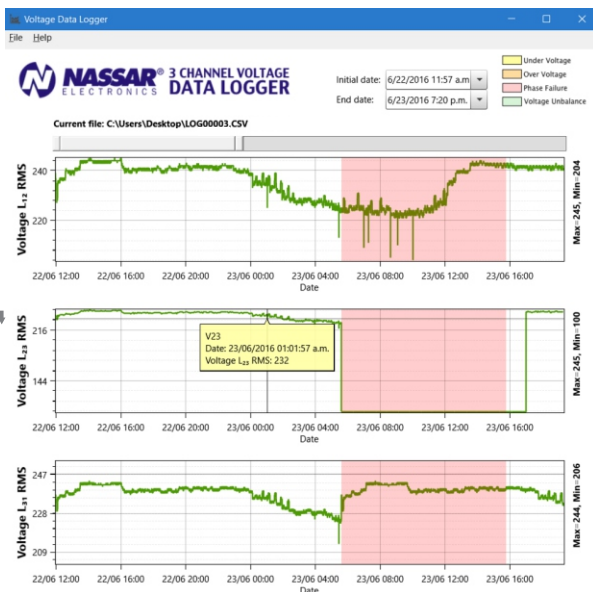
Data logging

The F3D has the ability to send information of the voltages and its faults to an external data logger. To make use of this functionality it is necessary to use the DL-100 Datalogger accessory.



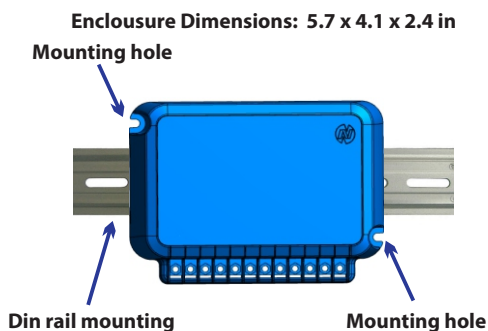
DL-100 Datalogger features

- Stores 3 line voltages for up to 40 days on a memory with a USB adapter.
- Takes 3 voltage readings every 10 seconds.
- Includes Nassar Data Viewer software to review the voltages and faults on your computer.
- The data can be displayed on any spreadsheet software.



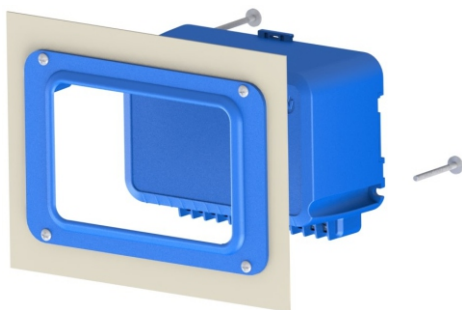
Mounting options & Dimensions

This unit can be mounted on a standard 35 mm DIN rail or screwed into a surface using the screws included in the package.



Panel mounting

Panel mounting for this equipment is available using the adapter plate model **PMF-237** (sold separately). Mounting on a panel door allows to visualize the LED indicators, it also makes setup adjustments easier. If this unit is panel mounted, the panel needs to be installed **indoors**.



Specifications	F3D-220	F3D-440
NOMINAL / MAXIMUM VOLTAGE	220/270 VAC	380-440/540 VAC
UNDER VOLTAGE ADJUSTMENT	180-220 VAC	320-440 VAC
OVER VOLTAGE ADJUSTMENT	230-270 VAC	380-540 VAC
HYSTERESIS	2 %	
DISPLAY	LCD 2 line, 16 characters display	
MOUNTING	Surface mounting (2 screws) , DIN rail, Panel mount	
PRECISION	Typical 2% with balanced voltages @ 25 °C	
SAMPLE TIME	Duration 0.2s	
VOLTAGE UNBALANCE	Adjustable from 3 to 10 %	
TRIP DELAY	Adjustable 0.1 to 10s (Phase failure fixed at 3s)	
RESTART DELAY	Adjustable 0.2 to 600s.	
OUTPUT CONTACT RATING	1PDT 10 Amp. @ 220 VAC / 3 Amp. @ 440 VAC.	
CONTACT LIFE	100,000 Operations at nominal capacity.	
FREQUENCY	50 / 60 Hz	
TRANSIENT PROTECTION	3 KV for 10ms	
OPERATION TEMPERATURE	5 to + 149 °F (-15 to + 65 °C)	
STORAGE TEMPERATURE	-4 to + 158 °F (-20 to + 70 °C)	
POWER CONSUMPTION	3W approx.	

*Specifications subject to change without notice.

WARRANTY

These products are warranted to be free from defects in workmanship or material under normal service and use for a period of five (5) years from date of manufacture. Nassar Electronics shall, at its option, repair or replace F.O.B. point of manufacture the portion of the product found by Nassar Electronics to be defective. All replacements or repairs necessitated by inadequate maintenance, normal wear and usage, unsuitable power sources or environmental conditions, accident, misuse, improper installation, modification, repair, use of unauthorized replacement parts, storage or handling, or any other cause not the fault of Nassar Electronics are not covered by this limited warranty, and shall be at the buyer's expense. All costs of dismantling, reinstallation and freight, and the time and expenses shall be borne by the buyer.

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