



D3  
53mm  
DIN rail mount



D4  
72mm  
DIN rail mount



P44  
48mmx48mm  
panel mount



P49  
48mmx96mm  
panel mount

## SINGLE PHASE FREQUENCY MONITOR 40Hz to 65Hz

**D3-SFM 0/1**  
**D4-SFM 0/1**  
**P44-SFM 0/1**  
**P49-SFM 0/1**

EXAMPLE: D3-SFM0 = 0 RELAY

Operating instructions and Guarantee Certificate  
[www.iconelectronics.co.za](http://www.iconelectronics.co.za)

### **Description:**

This device is used for OVER and / or UNDER frequency protection.  
The hysteresis value, start-up and reaction delays are programmable.  
The device will indicate an OVER or UNDER frequency condition.  
A latch facility is also incorporated.  
See description of the different functions for further details.

**Adjustable parameters:** Please note: Depending on the model of the device purchased, some of the parameters listed below may not be available

#### • **Upper limit Relay 1 (“Hi” / “Hi 1”) (default: Disabled)**

If the input frequency exceeds this value, the relay de-energises. “Hi” is displayed.  
To disable this feature, set is to maximum (65Hz). “diSA” is displayed.

#### • **Lower limit Relay 1 (“Lo” / “Lo 1”) (default: Disabled)**

If the input frequency drops below this value, the relay de-energises. “Lo” is displayed.  
To disable this feature, set is to minimum (40Hz). “diSA” is displayed.

#### • **Hysteresis Relay 1 (“Hyst” / “Hy.1”) (default: 1.0Hz)**

If the input frequency has exceeded the “Hi” setting, or dropped below the “Lo” setting, the frequency must drop, or rise above the applicable limit by this amount before the relay re-energises.  
This setting is limited to the difference between the “Hi” and “Lo” settings.

#### • **Upper limit Relay 2 (“Hi 2”) (default: Disabled)**

If the input frequency exceeds this value, the relay de-energises. “Hi” is displayed.  
To disable this feature, set is to maximum (65Hz). “diSA” is displayed.

#### • **Lower limit Relay 2 (“Lo 2”) (default: Disabled)**

If the input frequency drops below this value, the relay de-energises. “Lo” is displayed.  
To disable this feature, set is to minimum (40Hz). “diSA” is displayed.

- **Hysteresis Relay 2 (“Hy.2”) (default: 1.0Hz)**

If the input frequency has exceeded the “Hi” setting, or dropped below the “Lo” setting, the frequency must drop, or rise above the applicable limit by this amount before the relay re-energises. This setting is limited to the difference between the “Hi” and “Lo” settings.

- **Startup delay (“St d”) (default: 1 Second)**

The relay is energised upon start-up. The device does NOT monitor the frequency until the start-up delay has lapsed. This feature is used to allow for over/under frequency conditions following a power-up. During this time, the display alternates between the frequency, and whether it is Hi or Low.

- **Reaction delay (“rE d”) (Default: 0 seconds)**

This function is similar to the start-up delay. The device will tolerate over or under frequency conditions for this period of time once monitoring has commenced.

- **Reset (“rESt)**

By selecting this option, all values are reset to default.

- **Latch facility:**

If the latch pins are shorted and a fault condition has caused the relay to de-energise, the relay will not re-energise until the short is removed, even if the input frequency is within the pre-set limits.

**Notes:**

- As a power saving feature, the display dims if settings are not being made.
- We recommended that all relay connections be disconnected while making adjustments, and the unit be reset by disconnecting the power after settings have been changed.
- Certain settings are reset to default when the device is re-configured. Before commissioning, re-check all settings to ensure they are correct.
- Even though the device seems to operate correctly, the relay will not energise if the input voltage is below the minimum operating voltage.

**Specifications:**

Frequency range: 40Hz to 65Hz

Resolution: 0.1%

Accuracy:  $\pm 0.5\%$  @ 25°C ambient

Input voltage:  $\pm 15\%$  of rated input

**Menu operation (single display device):**

All adjustments are made via the three front mounted buttons.

Press the "MENU" button repeatedly until the desired setting is reached, press "SELECT" to display the current value of the selected parameter, or sub menu (if applicable).

The "+" and "-" buttons are used to change the value.

"ENTER" will return the device to the menu.

The "BACK" button will exit the menu.

**Menu operation (dual display device):**

Press the menu "⏪" button repeatedly until the desired setting is reached.

The "▲" and "▼" buttons are used to change the value.

"⏪" will display the next menu item.

To exit the menu hold "⏪" button for 3 seconds.

**Menu options:**

Exit the menu before making the following adjustments.

**Lock / unlock parameters:****(default: unlocked)**

Press "BACK" ("▼"), then "ENTER" ("⏪") and hold the 2 buttons until the desired option is displayed.

The display cycles between "Loc" (no changes allowed) & "u.Loc" (parameters may be adjusted)

**Full / reduced menu (default: Full)**

Press "SELECT" ("▲"), then "ENTER" ("⏪") and hold the 2 buttons until the desired option is displayed.

The display cycles between "rEdu" (limited menu) & "Full" (all parameters are accessible)

**Access Code: (default: no code)**

Once the above options have been set as required, Press "BACK" and "SELECT" ("▼" and "▲") simultaneously until "CODE" is displayed.

Now use the "+" & "-" ("▲" and "▼") to enter a code.

Once a code is entered, access to the options above is not permitted.

To clear the code, re-enter the same code again.

If the code is forgotten. Press and hold "+" & "-" ("▲" and "▼") until "CODE" is displayed while re-applying power to the device.

**Please Note ( for 1 and 2 relay devices ONLY):**

- As a power saving feature, the display dims if settings are not being made.
- Even though the device seems to operate correctly, the relay(s) will not energise if the input voltage is below the operating voltage.

**12 Month guarantee:**

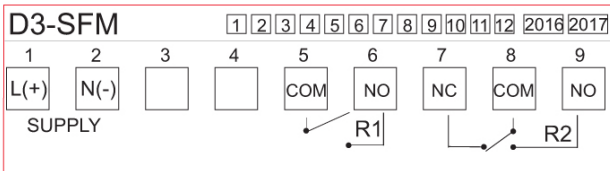
Our product is guaranteed for a 12 (twelve) month period from date of purchase. This guarantee is valid for defects arising from failure during specified conditions. This guarantee does not cover damage due to abuse, tampering or improper installation. Our company does not accept liability for any consequential damage or loss arising from product malfunction. Should this product prove to be defective, kindly return for inspection or repair.

**Relay specifications:**

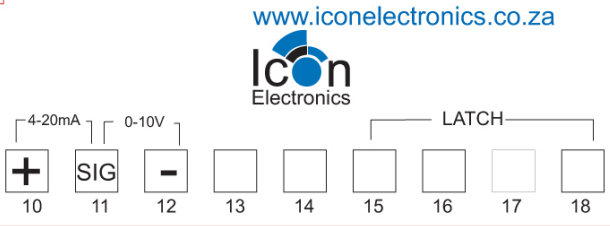
Contact rating: 10A 250 VAC 2500VA

Mechanical life: 30 million operations

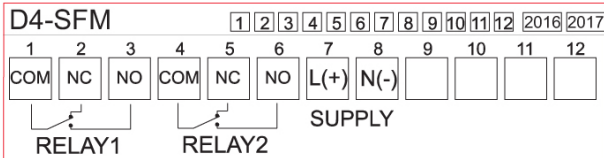
Electrical life: 250 000 operations (at maximum load)



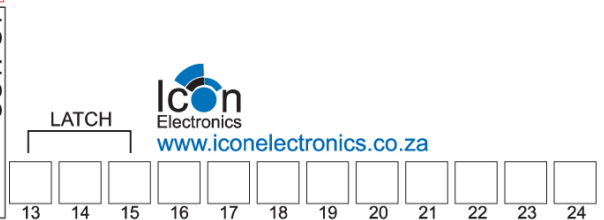
- OUTPUT**
- RELAY1
  - RELAY2
  - 4-20mA Re-tx
  - 0-10V
  - .....



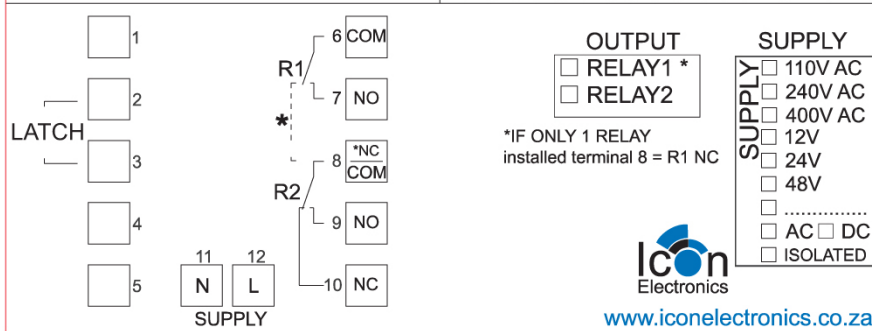
- SUPPLY**
- 110V AC
  - 240V AC
  - 400V AC
  - 12V
  - 24V
  - 48V
  - .....
  - AC  DC
  - ISOLATED



- OUTPUT**
- RELAY1
  - RELAY2
  - .....



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