

DV - 72 - 01C

DIGITAL VOLTAGE & FREQUENCY MONITORING DEVICE

► True RMS



General Informations

The device measures the True RMS value of the voltage and frequency in mono phase systems accurately.

It is possible to observe the voltage value in the upper screen and the frequency value in the bottom screen simultaneously.

The device contains many protections as follows:

- Over Voltage protection.
- Under voltage protection:
- Over frequency protection.
- Under frequency protection.

As the device is being installed it closes its output contact if the voltage and frequency values are within the adjusted ranges. In case of any previous mentioned faults the device opens its output contact at the end of delay adjusted by user. When the values return within the adjusted ranges the device closes its output contacts at the end of an adjusted delay.

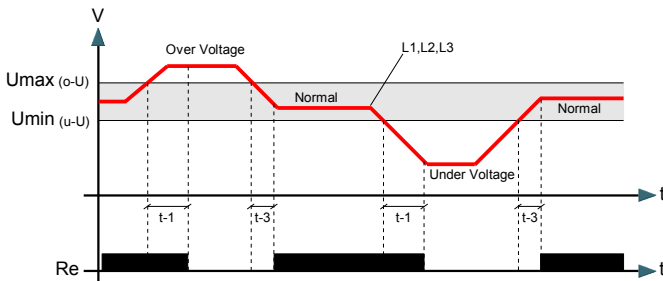
Over&Under Voltage : (o-U) (u-U)

Over voltage (o-U), it can be adjusted between $U_{max} = (230 - 290 \text{ V})$.

Under voltage (u-U), it can be adjusted between $U_{min} = (150 - 210 \text{ V})$.

- If the voltage drops below the adjusted under voltage limit then **u-U** shows on the screen and the device closes its output contact after $t-1$ delay.
- If the voltage exceeds the adjusted over voltage limit then **o-U** shows on the screen and the device closes its output contact after $t-1$ delay.

The hysteresis value is 6V.



Locking Property :

It can be controlled by two parameters; Locking Time and Locking Counter.

If the number of opening reaches the adjusted locking counter within the adjusted locking time then the device opens its output contact and locks its functions until the user pressed **Reset** button. If the locking counter is adjusted to **oto** then this function is inactive and the device never locks itself

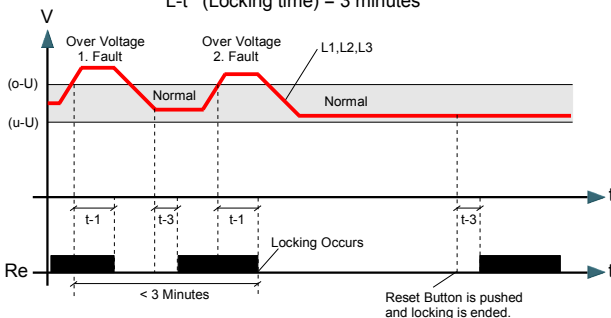
L-t : Locking Time (001 - 060 minutes)

It is well known that the frequently occurring faults may damage the system. For that the device locks itself when the number of faults reaches the adjusted locking number within this locking time. This way the system is protected and the user has the chance to investigate the problem.

L-C : Locking Counter (oto , 001 - 010)

The number of the faults allowed within the period L-t. If the number of the faults exceeds this adjusted counter value then the device locks itself. The user must press Reset button after the fault passes in order to unlock the device. If L-C is set to **oto** then this property is inactive.

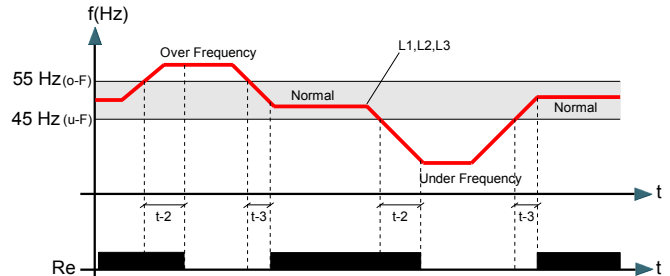
If: L-C (Locking counter) = 2
L-t (Locking time) = 3 minutes



Over and/or Under Frequency Protection : (40 - 70 Hz)

Under frequency can be adjusted between $(u-F) = 40 \text{ Hz} \dots\dots [(o-F)-0,4]$
Over frequency can be adjusted between $(o-F) = [(u-F) + 0,4] \dots\dots 70 \text{ Hz}$.
It is possible to activate one or two of these protections or deactivate them both.

- If $o-F = 55 \text{ Hz}$ and $u-F = \text{oFF}$ then the device protects from over frequency (if the frequency exceeds 55hz then the device shows **o-F** on the bottom screen and opens its output contact at the end of $t-2$ delay).
- If $o-F = \text{oFF}$ and $u-F = 45 \text{ Hz}$ then the device protects from under frequency (if frequency drops below 45Hz then the device shows **u-F** on the bottom screen and opens its output contact at the end of $t-2$ delay).
- If $o-F = \text{oFF}$ and $u-F = \text{oFF}$ then the frequency protection is disabled.



Parameters :

The menu where protection functions are adjusted. To enter this menu press set button until set is shown on the bottom screen. Parameters are as follow:

- **o-U : Over Voltage Adjustment** (230 V - 290 V)
If the phase - phase voltage exceeds the adjusted value then the device opens its output contacts at the end of $t - 1$ delay.
- **u-U : Under Voltage Adjustment** (150 V - 210 V)
If the phase - phase voltage drops below the adjusted value then the device opens its output contacts at the end of $t - 1$ delay.
- **t-1 : Opening Delay (Voltage)** (00,1 - 99,9 seconds)
If any of voltage faults occurs, and if it lasts for $t-1$ period then the device opens its output contact.
- **t-2 : Opening Delay (Frequency)** (00,1 - 99,9 seconds)
If any of frequency faults occurs, and if it lasts for $t-2$ period then the device opens its output contact.
- **t-3 : Returning Delay (Voltage and Frequency)** (00,1 - 99,9 seconds)
To close the output contact after opening because of both voltage and frequency faults, the values should return to the normal ranges and after $t-3$ delay the device closes its output contact.
- **L-t : Locking Time** (001 - 060 minutes)
The device locks itself when the number of faults reaches the adjusted locking number within this locking time. This way the system is protected and the user has the chance to investigate the problem.
- **L-C : Locking Counter** (oto , 001 - 010)
The number of the faults allowed within the period L-t. If the number of the faults exceeds this adjusted counter value then the device locks itself. The user must press Reset button after the fault passes in order to unlock the device. If L-C is set to **oto** then this property is inactive.
- **o-F : Over Frequency Adjustment**
It can be set between $(o-F) = [(u-F) + 0,4] \dots\dots 70 \text{ Hz}$.
If it is set to $o-F = \text{oFF}$ then this protection is disabled.
- **u-F : Under Frequency Adjustment**
It can be set between $(u-F) = 40 \text{ Hz} \dots\dots [(o-F) - 0,4]$.
If it is set to $u-F = \text{oFF}$ then this protection is disabled.
- **quit : Quit**
If Set button is pressed there then the device goes back to the measurement screen.

TECHNICAL DATA:

Rated Voltage (Un)	: 220Vac (L1-N)
Operating Range	: (0,8-1,1) x Un
Frequency	: 50 / 60 Hz
Supply Power Consumption	: < 4VA
Measurement Power Consumption	: < 1VA
Voltage Measurement	: 10 - 500 Vac
Frequency Measurement	: 40 / 100 Hz
Measurement Sensitivity	: %1±1 digit
Measurement Category	: CAT III
Display	: 3 Digit x 2 line LED
Contact Current	: Max. 5A / 240Vac
Protection Class	: IP 20
Connector Protection Class	: IP 00
Temperature	: - 5 °C + 50 °C
Humidity	: %15 %95 (w without condensation)
Connection Type	: To front panel tap
Dimensions	: 72x72x80 mm

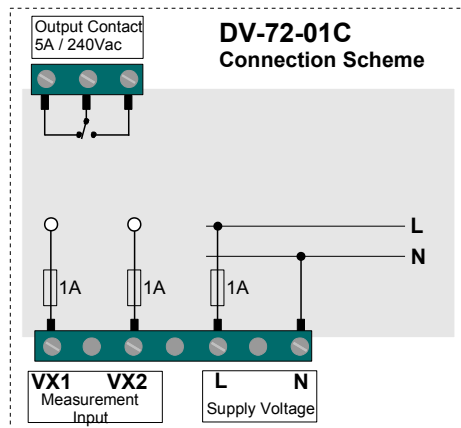
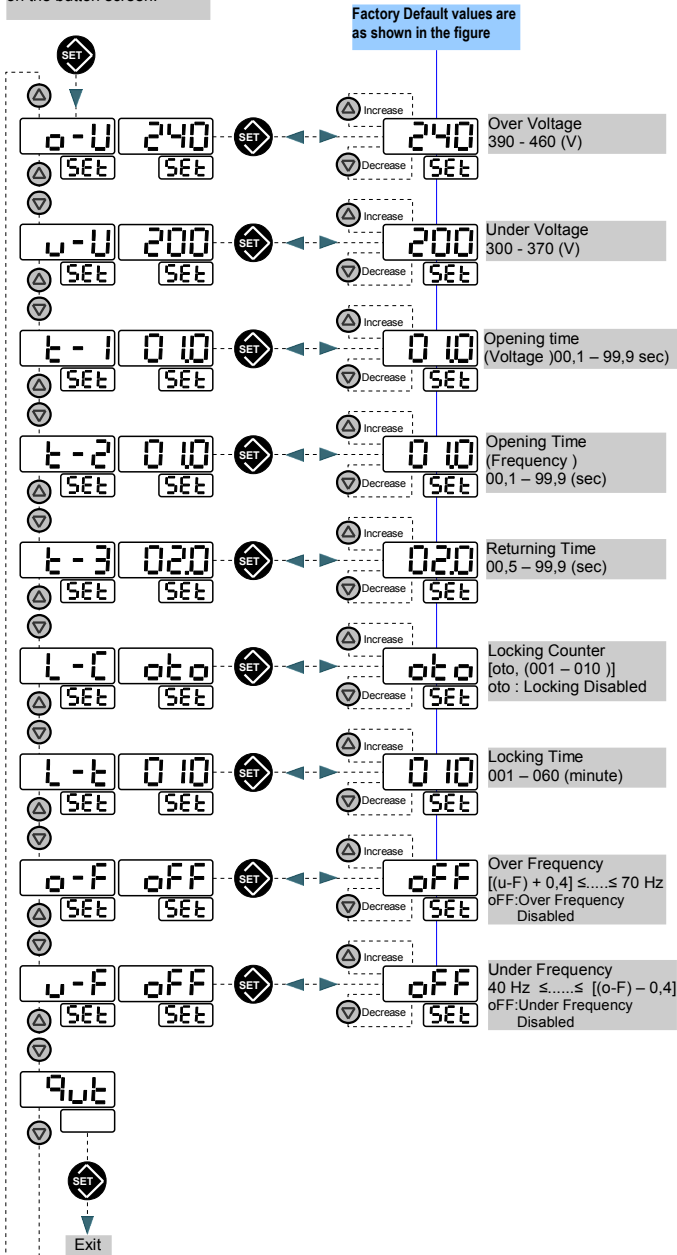
DV - 72 - 01C

DIGITAL VOLTAGE & FREQUENCY MONITORING DEVICE

► True RMS

Accessing Parameter Menu

Press Set until Set is shown on the button screen.



Dimension of hole on the panel : 68 x 68 mm

Warning !!!

- The message Er1 or Er2 on the screen means that the device has got a failure
- Clean the device using dry dust cloth after de-energizing the device
- Read and understand the instruction on this manual and attached label.