

## SSU precision voltage monitoring relays

Product information SSU



WHD: 38x72x92 mm

With these devices, Comat has set new, trendsetting standards in voltage monitoring. The high accuracy of measurement and functional reliability also permits unconventional applications and increases the operational safety of your system. Let us know your problem - we can find a solution together.

### Applications

The SSU Series was developed in close cooperation with the electricity supply companies in order to monitor emergency power supplies from batteries. It has been found in practice that chargers with their own monitoring systems are not in themselves sufficient to guarantee the necessary level of safety for operational readiness at any time in "vital" systems. This problem is also encountered in supplies for EDP and transmission systems, hospital and civil defence equipment, etc. By monitoring the correct voltage for maintaining charging and low discharge, there are special advantages as a result of the long life of the batteries. In other applications, for example, currents of motors in traction units are recorded with high accuracy. Operational and measurement voltage ranges can be set up and combined to meet particular requirements.

### Characteristics

It is therefore clear that these units meet the highest requirements for operational safety and service life. Operation is extremely simple and is performed using only 3 keys. The concept is based on a microcomputer solution, the user parameters being stored permanently without batteries and protected from power failure (EEPROM). Depending on the type, monitoring thresholds can be programmed in 20 mV or 100 mV steps and the delay times for alarm on/off can be programmed in 0.1 s steps up to a maximum of 600 s. The SSU performs a continuous self-test. An alarm is always triggered off in the event of a fault or error.

Values and operating status are displayed on an LED.

A changeover contact for 5A, 250V is available as an output. For diagnostic purposes, it is possible to simulate the alarm state and to call the self-test. A second measuring input (for example for temperature) and a second electronic output are available as options.

The SSU has a housing with an 11-pole IEC 67 plug and is also suitable for front frame mounting.

Example	Type	Nominal voltage	Measuring voltage range
<u>Voltage monitoring</u>			
In the range 1-270V DC for	<b>SSU11</b>	110-220V DC	50-270V DC
• chargers		60-125V DC	40-150V DC
• power supplies		24-48V DC	10-75V DC
• battery emergency power supplies		12-15V DC	1-35V DC
<u>Current monitoring</u>			
In the range of a few 1000A for	<b>SSU23</b> <b>SSU79</b>	60-125V DC	1...35V DC
• motors		60-127V UC	10...200mV AC/DC TRMS
• traction units			
• electroplating systems			
<u>Indication and monitoring of measured values</u>			
In the range 0 (4)...20mA for	<b>SSU79</b>	60-127V UC	10...200mV AC/DC TRMS
• pressure			
• temperature			
• current			



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Precision  
Voltage Monitoring Relays

**SSU11/ 23/ 79/ ...**

Operating Instructions

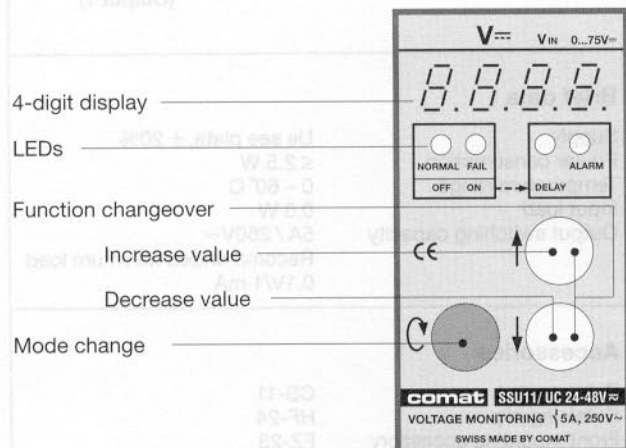
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**1. Operation**

The devices of the SSU Series are very compact precision voltage monitoring relays. They can be programmed by the user. The user data are stored in an EEPROM and are protected against mains failure. A fully enclosed universal changeover contact is available as a function of output. The self-test and diagnostic functions guarantee maximum reliability and convenience.

See the Data Sheet for a detailed description and specifications.



LED flashes

LED lights up

**1.1 Normal mode**

Basic mode after switching on or computer reset.

Display  $V_{IN}$  → XXX.X or XX.XX  
(Range according to type)  
Depending on the status, corresponding LEDs also light up, e.g. ALARM.

**1.2 Display mode**

Functions in the same way as the normal mode, except that the value called is displayed:

1. Press voltage limit for Alarm ON → XXX.X  
LED: FAIL
2. Press time delay  $t_{V_{ON}}$  for Alarm ON 0.1 – 600.0 s → XXX.X  
LED: Delay , ON
3. Press voltage limit for Alarm OFF → XXX.X  
LED: NORM
4. Press time delay  $t_{V_{OFF}}$  for Alarm OFF 0.1 – 600.0 s → XXX.X  
LED: Delay , OFF
5. Press
7. Special functions, see 1.4
8. Press until return to normal mode

**Note:**

No operation of the keys  $\geq 20$  s:  
Automatic return to normal mode (1.1)

**1.3 Programming**

Programming of the user data

– Setting of the desired value in the display mode, then:

- + Press the keys simultaneously  $\geq 2$  sec → XX.XX  
LED: W , other LED
- W: LED belonging to the value, e.g.: Alarm ON: LED FAIL , other LED
- Correct value "upwards"
- Correct value "downwards", if necessary)
- Store new value → Normal mode display

**Important**

If no button is pressed for  $\geq 20$  s, the device returns to the normal mode without storing the new value.

$U_{on}$  must be  $\neq U_{off}$ , otherwise an error code appears: – 80 – !

During the programming process, the input voltage is not monitored.

### 1.3.1 Example of programming

Normal mode

U<sub>off</sub> is to be changed from 22V to 21.8V:

Input voltage 23.5V → 23.5V

1. Press → U<sub>FAIL</sub>  
LED FAIL
2. Press → Display tv<sub>E</sub>  
LED FAIL , Delay
3. Press → Display U<sub>NORMAL</sub> 22.0V  
LED NORMAL
- Press ≥ 2 s → 22.0V  
LED NORMAL
- Other LED
1. Press briefly → 21.9V
2. Press briefly → 21.8V
- Press → 23.5V  
New value (21.8V) is stored.

The device is once again in the normal mode.  
Monitoring is once again started with the new limits.

### 1.4 Special functions

#### 1.4.1 Self-test

5. Press → 8.8.8.8. all LED
- Press ≥ 2 s  
Device tests itself all LED
- In the event of error → -XX-  
Alarm output active  
(XX = Error code, see Section 2)
- Device returns to normal mode.

Note: The "Calibration" function can be called in the self-test function (only for service).

#### 1.4.2 Basic setting

Depending on type the voltage limits and tv<sub>ON</sub> = tv<sub>OFF</sub> = 1 s are taken.

6. Press → - - - -
- Press ≥ 2 s  
Limits are accepted  
Device returns to normal mode.

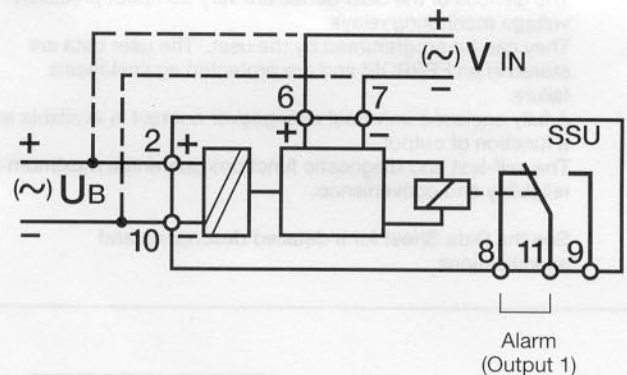
### 1.4.3 Activate alarm

7. Press → - A1 -  
Preparation for alarm output active
- Press ≥ 2 s → - A1 -  
Output 1 is switched to the active state. The LED lights up according to the monitoring result.
- Device returns to normal mode. The output is switched according to the monitoring result.

### 2. Error code

Display	Meaning	Remedy
-01-   -30-	Internal device error	Repair by manufacturer
-31-   -38-	Occurs only during calibration	Repair by manufacturer
-40-	No calibration	Repair by manufacturer
-45-	Input voltage > U <sub>max</sub>	Input voltage too high or device error
-46-	Input voltage < U <sub>min</sub>	Input voltage too low or device error
-80-	U <sub>NORMAL</sub> = U <sub>FAIL</sub>	Reprogram value

### 3. Connection



### 4. Brief data

Supply	U <sub>B</sub> see plate, ± 20%
Power consumption	≤ 2.5 W
Temperature range	0 – 60° C
Input load	0.5 W
Output switching capacity	5A / 250V~ Recommended minimum load 0.1V/1 mA

### 5. Accessories

Relay socket	CS-11
Retaining clip	HF-24
Front mounting accessory	FZ-23