



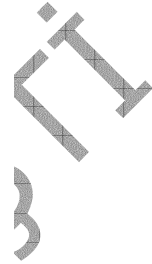
## INSTANTANEOUS AND FUNCTION RELAYS

Voltage sensor relays 2 contacts / 2481



**TEC**  
**2481**

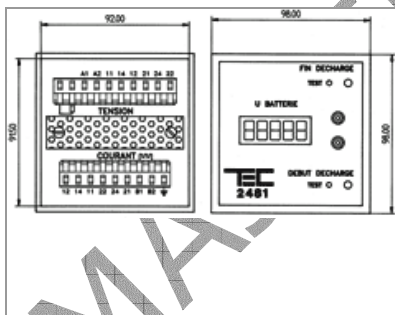
▣ embase PAR sur CI 9244



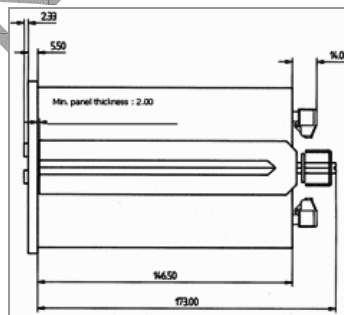
### DESCRIPTION

The relay 2481 is a measuring instrument for the direct voltage and current supplied by a battery pack. It is made to check the charge and the discharge of the batteries.

### Dimensions



### Connection



### OPERATION PRINCIPLE

**FIVE FUNCTIONS ARE PROVIDED BY THIS RELAY :**

#### **1. Measure and display of the battery voltage :**

- LCD display with 4 digits and 1/2 - 20.000 points.
- Display shape :
  - \* for 210 V : ###.#
  - \* for 24/28/110 V : ###.##
- Display accuracy :
  - \* 16 to 70 V : +/- 0,1 V
  - \* 70 to 250 V : +/- 0,2 V
  - \* 170 to 250 V : +/- 0,5 V
- The LCD display is guaranteed in the range 0 to 70°C
- the display and the voltage and current relays should not give false data in the range between the discharge end and 30% of the nominal value.

## **2. Detection of the discharge end voltage:**

- Voltage threshold relay, set by multi-revolution potentiometer with access by screwdriver from the box outside.
- Setting ranges :
  - \* 26 to 33 V : 19,5 to 30 V
  - \* 38 to 53 V : 34 to 52 V
  - \* 100 à 137 V : 84 à 131 V
  - \* 190 to 250 V : 150 to 243 V
- Output relay : 2 dry inverters
- Relay 1813 directly soldered on the PCB
- Relay OFF for voltage < threshold
- A LED on front face displays the relay state. This LED is in series with a NC contact.
- Escape rate < 1,12
- Threshold accuracy : +/- 0,5% of the setting.

## **3. Detection of the discharge beginning :**

- The discharge current detection is made with a 100 mV shunt in series with the battery. The threshold is set in factory at 10 mV.
- Detection circuit holds 2 V during 1 sec.
- Output relay : 2 dry inverters
- Relay 1813 directly soldered on the PCB.
- Relay ON for U shunt > 10 mV
- A LED in front face displays the relay state. this LED is in series with a NO contact
- Escape rate < 0,8
- Threshold accuracy : +/- 0,5% of the setting
- The relay is ON after a time delay of 120 sec. (+/- 15%). Time delay modifiable in factory.
- Time delay repetitiveness : +/- 5%.

## **4. Auto-test :**

- the relay 2481 sends a current of some mA through the shunt. Then an electronic threshold circuit permits to detect if the current checking circuit is correctly connected.
- In case of link breaking, the discharge beginning relay is ON after a time delay of 2 min. (So the discharge beginning relay has two functions : discharge current detection and checking of the link between shunt and 2481 relay).

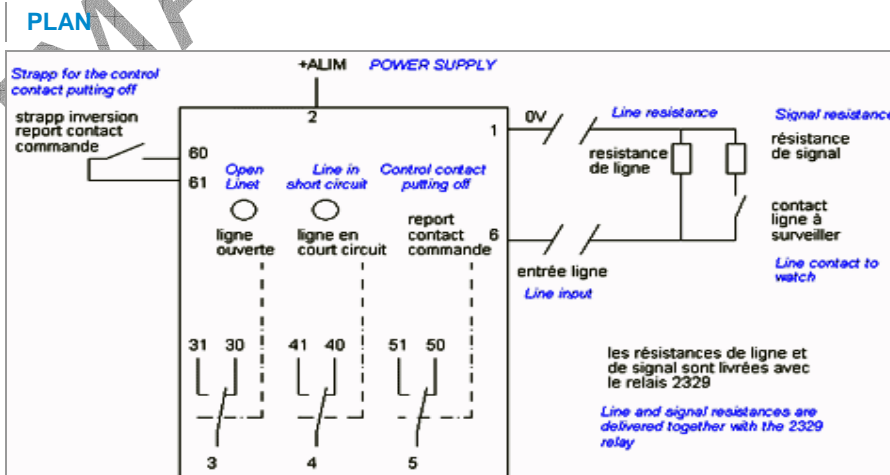
## **5. Test of the switching relays and the voltage threshold :**

### Relays test :

A push-button "discharge end" permits to de-energise the related relay. A push-button "discharge beginning" permits to energise the related relay.

### Voltage threshold test :

2 EXT + and - terminals permit to connect a power supply equal to the 2481 range (between 50 and 100% of the power supply setting). This power supply energises a relay which switches the measure circuits on this one. It permits to check the LCD display and the threshold (and, if necessary, its setting).



#### TECHNICAL FEATURES ▶

Function	measure voltage/current
Presentation	under cover
Connection	on panel
Operating temperature	+ 5 to + 60°C
Storage temperature	- 40 to + 70°C
Dielectric strength	2000 V - 1 mn
Insulation resistance	> 1000 MOhms at 500 VDC
Weight	700 g
Resistance to vibrations	10 to 55 Hz

#### COIL DATA ▶

	Direct current	Alternative current
Min. nominal voltage DC	26 V	
Min. nominal voltage AC	250 V	

#### VERSIONS ▶

Voltage ranges :

- 26 à 33 V
- 38 à 53 V
- 100 à 137 V
- 190 à 250 V

	<b>İmaj Teknik Elektrik Elektronik San. ve Tic. Ltd. Şti.</b> <b>EMEKYEMEZ MAH.TUTSAK SOK. NO: 16/13-14-15</b> <b>KARAKOY/İSTANBUL</b> <b>TURKEY</b>
Telefon : +90 212 235 9535 / 36 Fax : +90 212 235 9537	www.imajteknik.com www.imajteknik.com.tr