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### 1 GENERAL DESCRIPTION

The Voltage Relay **AC1247** is an electronic voltage monitoring relay that provides reliable monitoring of voltages into DC Traction system.

It is generally used to monitoring the Line Voltage in order to give a safety information of the voltage status of the main Line.

The main features of Voltage Relay AC1247 are:

- Wide range of voltage level setting (on site)
- Voltage level wide range (300-1800V) in compliance with the most severe International standard
- Wide range of delay level setting (on site)
- Display LCD ready to be separated by the relay box
- Self-diagnostic test and Internal Relay Failure alarm through a dedicated output contact

### 2 MAIN APPLICABLE STANDARDS

The proposed equipment is designed and manufactured according to the following main standards:

- EN 50124-1: Insulation level and recommendation
- EN 50123-1: Railway applications – Fixed installations – d.c. switchgear – Part 1: General;
- EN 50123-7: Railway applications – Fixed installations – d.c. switchgear – Part 1: General
- EN 61000-6: Railway applications – Electromagnetic compatibility

### 3 MAIN APPLICATIONS

The main applications of a Voltage Relay AC1247 are:

- To provide safety signalisation of voltage status of the line
- To avoid any incorrect operation of disconnecter
- To signalize the voltage status of the main line (LCD display ore remote application on scada)

### 4 GENERAL CHARACTERISTICS

#### 4.1 ELECTRICAL CHARACTERISTICS

The main electrical characteristics of the Voltage Relay RV01 are as follows:

- Voltage Input 1800V
- Setting range 300 - 1800 V
- Rated Voltage 1.800 V
- Rated insulation voltage 2.300 V
- Max. and min. voltage of traction system according to EN 50123
- Level of insulation: according to EN 50123
- power frequency withstand voltage level
  - to earth and between phases indoor 8,3 kV
  - level across an isolating distance if applicable indoor 10 kV
- rated impulse voltage to earth and between phases – indoor 18 kV
- Power Supply 24V – 48V - 110V dc / 230V ac
- Power consumption < 6VA
- Number of out output relay
  - Output relay (trip + delayed trip) 2
  - Diagnostic relay (failure) 1
- Electrical characteristics of contacts
  - Rating value 4A
  - Electrical expected life (0.5A 125Vac resistive load):  $1 \times 10^5$
  - Breaking capacity 2A - 30Vdc  
0.5A - 125Vac
  - Response delay: <1s (threshold)

### 4.2 MECHANICAL CHARACTERISTICS

- General dimension see figure
- Material ABS or similar
- Protection degree IP43
- Fixing box fitting points
- DC Terminal connection isolator + screws
- Auxiliary terminal board plug-in type

### 4.3 ENVIRONMENTAL CONDITIONS

- Type of installation indoor
- Maximum ambient temperature in switchboard room.  $\leq 50^{\circ}\text{C}$
- Minimum ambient temperature  $\geq -5^{\circ}\text{C}$
- Altitude  $\leq 1750$  m a.s.l
- Humidity  $\leq 90\%$
- Transport and storage temperature range  $-25^{\circ}\text{C} +70^{\circ}\text{C}$

## 5 TYPE AND ROUTINE TESTS

### 5.1 TYPE TESTS

The product has been tested at primary laboratory: certification regarding the type tests, carried out at legally recognised laboratory for apparatus, with the similar characteristics as those mentioned in this specification, are ready to be inspected

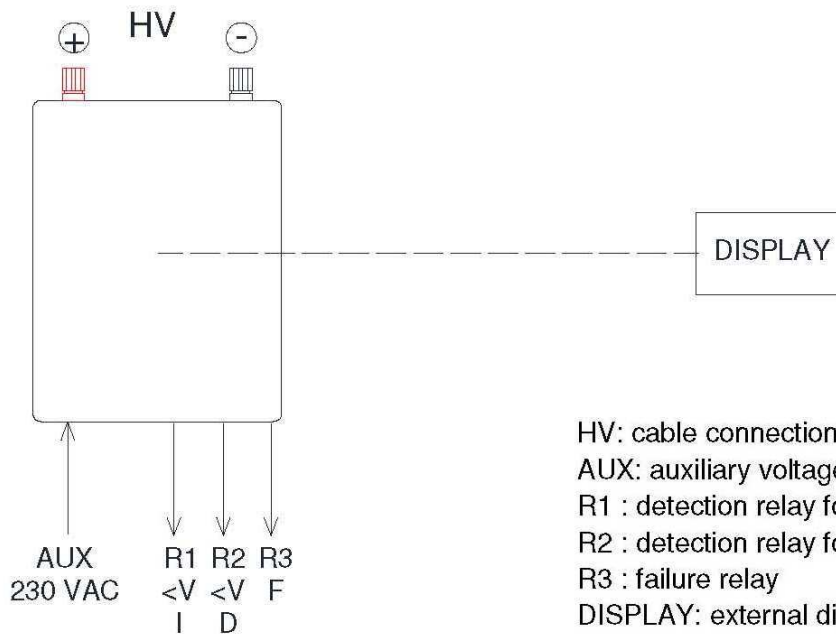
### 5.2 INDIVIDUAL TESTS (FOR ACCEPTANCE)

Individual tests provided by CEI EN 50123 standard and/or by the standards defined by the customer, are usually applied on full production.

The mechanical and electrical tests for checking correspondence of the overall and individual parts of the supply to this specification and to the standards mentioned in it, will be applied on 100% of the production.

Copy of final report is provided to customer for each delivery.

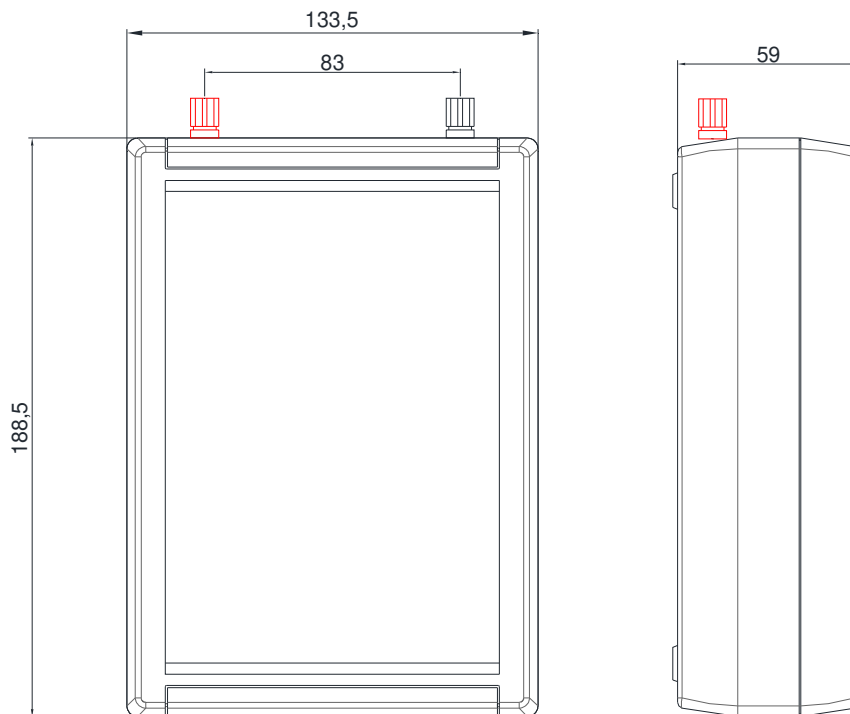
**Connection diagram**



HV: cable connection from High Voltage  
 AUX: auxiliary voltage  
 R1 : detection relay for < voltage set, immediate  
 R2 : detection relay for < voltage set, delayed  
 R3 : failure relay  
 DISPLAY: external display indicating voltage detected



**General dimensions**



**DISPLAY**

