



## DC Current or Voltage Protection

DC current protection relays continuously monitor DC currents (either directly or through a current shunt) and DC voltage protection relays continuously monitor DC voltages, tripping upon fault condition. The output relay trips when the monitored current or voltage is outside of the user adjustable limit and the LED illuminates indicating a fault condition.

The trip point on the current model is adjustable from 20% to 120% and the voltage model 70% to 130% of the nominal rating through the front control knob. The output relay is set to de-energise in the under condition ensuring the protection relays are failsafe. The voltage relay is self powered while the current relay requires an auxiliary power supply. The current protection relays are available with either a single or double pole changeover relay output and optional built-in time delay.

### Models Available

- B846-A** DC Over Current
- B846-B** DC Under Current
- F187/U** DC Under Voltage
- F187/O** DC Over Voltage

### Product Features

- Protects for:-
  - Under or over DC Current or
  - Under or over DC voltage
- LED indication
- Single or double pole output available (DC current relay only)
- Optional built-in time delay

For dimensions see page 3

## For monitoring and protection against under or over DC current or voltage

### Specification

#### B846 Nominal Current, $I_n$ :

- 50, 60 or 75mV from DC current shunt
- 0-20mA to 0-5A direct

#### F187 Nominal Voltage, $U_n$ :

- 12, 24 or 48Vdc

#### Calibrated Scale:

- 20% to 120% (B846)
- 70% to 130% (F187)

#### Setting Accuracy:

- >5%

#### Repeatability:

- Better than 0.5% of nominal

#### Differential (Hysteresis):

- Fixed 5% (B846)
- Specify >0.1  $U_n$  (F187)

#### Overload:

- 2 x  $I_n$ , 1.5 x  $U_n$  continuous
- 10 x  $I_n$ , 2 x  $U_n$  for 5 seconds

#### B846 Auxiliary Supply:

- 110, 230, 380, 400 or 415Vac ( $\pm 15\%$ )
- 24, 48Vac ( $\pm 15\%$ )
- 10-60Vdc (isolation 500V)

#### Burden:

- <0.5VA (B846), <0.6VA at  $U_n$  (F187)

#### Impedance:

- 10kohm/volt (F187)

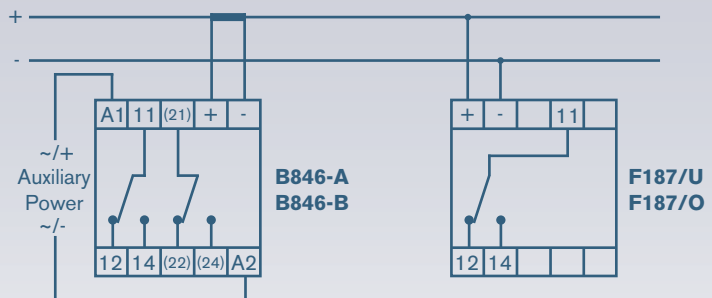
#### Operating Time:

- 200ms typically
- Built-in time delay (optional B846 only)

#### Weight:

- F187 175g, B846 275g

### Connections



### Ordering information

Code	Relay Type	Nominal Input / Aux.	Output
B846-A	DC Over Current	-	-
B846-B	DC Under Current	-	-
F187/U	DC Under Voltage	-	-
F187/O	DC Over Voltage	-	-
Specify (B846)	-	0-20mA to 0-5A direct	-
Specify (B846)	-	50, 60, 75mV from DC shunt	-
Specify (F187)	-	12, 24, 48Vdc (specify differential)	-
Specify (B846)	-	110, 230, 380, 400 or 415Vac	-
Specify (B846)	-	24, 48Vac	-
Specify (B846)	-	10-60Vdc	-
1C/O (B846)	-	1 Pole Changeover Relay Output	
2C/O (B846)	-	2 Pole Changeover Relay Output	
Time Delay (B846)	-	Time Delay - Specify on Fault or Reset and Time Range	
(Note: order code begins TA846 not B846 when time delay is included)			
<b>Examples</b>	<b>B846-A</b>	<b>5Adc / 110Vac</b>	<b>2C/O</b>
	<b>F187/U</b>	<b>12Vdc</b>	<b>(1Vdc differential)</b>

## General Specification

### Reference Standards

Performance: IEC 144 / BS 5420 / VDE/VDI 0435 / IEC 947 / EN60947

### Environmental

Calibration Temperature: 23°C

Operating Temperature: 0°C to 60°C

Storage Temperature: -10°C to 70°C

Temperature Coefficient:  $\pm 0.03\%$  / °C

Relative Humidity: 0 - 95% non-condensing

### Relay Output

Relay Type: Single pole change-over  
(Except CST-100 has single pole normally open or normally closed)  
(Double pole change-over available on some models as an option)

Contact Rating: 5A @ 250Vac (non-resistive), 1A @ 125Vdc (resistive)

Contact Life: 1,000,000 at 5A, 10,000,000 at 1A

Mechanical Life: 2,000,000 operations

Dielectric Strength: 4kV coil/contact, 1kV contact/contact

Optional Time Delay: 0.3-10 sec, 1-30 sec, 2-60 sec, 3-100 sec or 10-300 sec (delay on fault or reset)  
(Note if the voltage supply to the protection relay falls below 75% of the nominal the timer will fail to operate and the relay will trip instantaneously upon fault)

### Enclosure

Enclosure: Flame retardant black ABS plastic with screw type terminals

Enclosure Code: Case IP50, terminals IP10 to IEC529 and BS5490

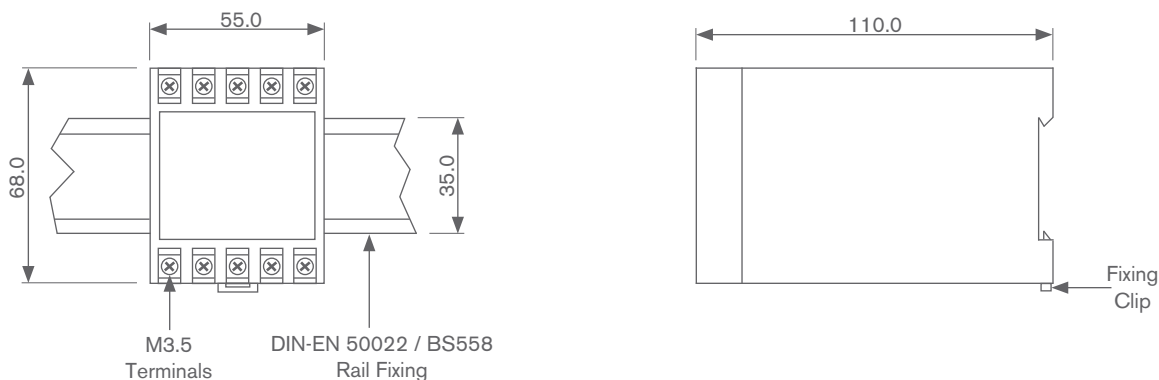
Insulation Test: 2kV rms 50Hz 1min (to IEC 414) between Input / Case / AC Auxiliary

Mounting: 35mm DIN rail (DIN-EN 50022)

Markings: CE marked

Specification subject to change without notice.

### Dimensions



All dimensions in mm