

Protection relay for DC current and voltage

High isolation voltage (10kV)

RPL34HiG

LOREME

• Voltage, current and power monitoring

Voltage measurement : +/-1500Vdc max

Current measurement : +/-150mVdc maxi on external shunt

Calculation of consumed or generated power

• 3 configurable alarms relay

Over or under voltage, over or under current

Overpowering, under load, ...

• 4-20mA output (option)

• isolation: 10kVdc,

10mm internal creepage distance

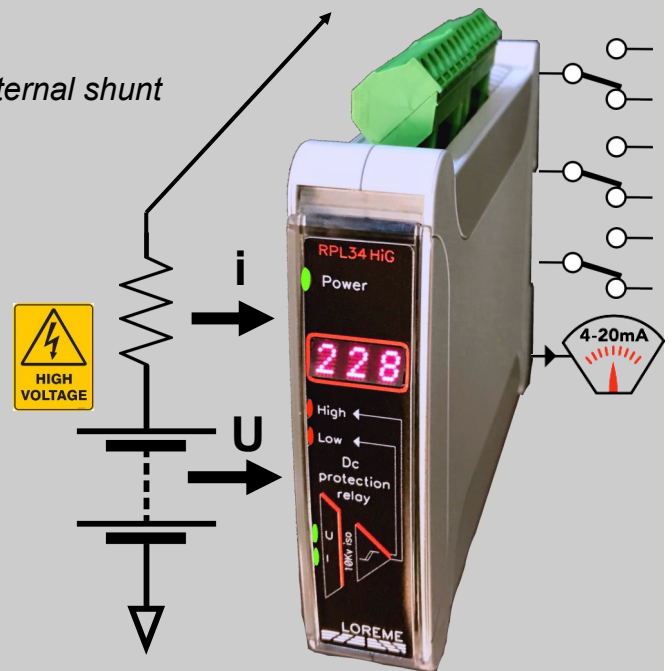
• Display Measure and default

• Configuration

user setting with front face pushbuttons

• Power supply universal 20... 265Vac-dc

• SIL2 option in accordance to IEC 61508



The relay RPL34HiG allows the monitoring of machines, plants and systems requiring a high voltage isolation. Usable in photovoltaic domain or with continuous current machine.

Functions:

Loss or failure voltage and current detection,
under-voltage and over-voltage detection,
under-current and over-current detection,
monitoring of consumed or generated power,
time delay and rearm behaviour configurable.

Relays:

Up to 3 output relays. Changeover contact, high or low alarm detection.
Shunt breaking detection for input current (mV).
- Parameters like threshold, sense, hysteresis and delay (activation and deactivation) are individually configurable on each relay.

Front face:

- Hinged front face (access to configuration buttons and serial link).
- 4 digit alphanumeric LED matrix display.
- LEDs for relay status indication.
- 2 push buttons for:
 - * The fully configuration of device
 - * Selection of displayed value (U, I, P)
 - * Setting of alarm thresholds,

Front face:

- The device is configurable by the front face or with the RS232 serial link. (USB/3.5mm jack cable provided separately)
- Firmware upgrade possible via the USB link

Feature:

- DIN rail mounting (symmetrical),
- Pluggable screw terminal block (2.5 mm²),
- Protection class (house/terminal block) : IP20, conformal coating,
- Embedded varistor for surge input protection.

Associated current shunt:

http://www.loreme.fr/fichtech/SHUNT_eng.pdf



Functional security data:

component type B , HFT = 0

λ f = 794 fit (1/MTBF)

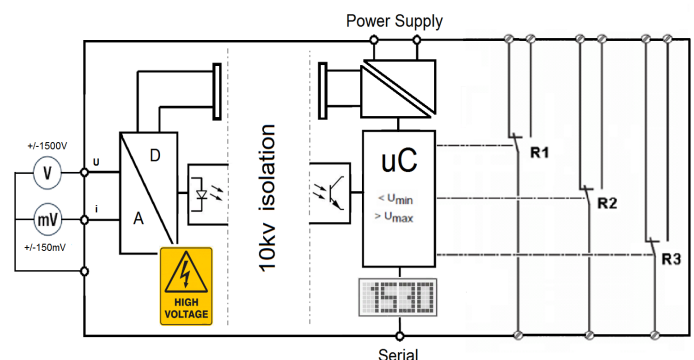
DC = 91.6 % (diagnostic coverage)

SFF = 92.4 % (Safe failure fraction)

PFH = 67 fit (probability of dangerous failure per hour)



Synoptic:



Version and order code:

Request a quote

RPL34HiG : 3 electromechanical output relays, changeover contact
auxiliary power supply 20...265Vac/dc

RPL34HiG/S : 1 analog 4-20mA output (mirror of U, I or P)
3 electromechanical output relays, changeover contact
auxiliary power supply 20...265Vac/dc

/SIL2 option : SIL2 version in accordance to IEC 61508

MEASURE INPUT

TYPE	RANGE	ACCURACY
HV input rated voltage	+/- 1000Vdc (+/- 1500Vdc max)	+/-0.15%
mV input rated voltage	+/- 100 mVdc (+/- 150 mVdc max)	+/-0.15%
Overload	10x rating voltage for 3sec	
Input impedance	> 10 Mohms for HV input > 100 Kohms for mV input (for shunt)	

METROLOGY

(accuracy are express in % of full scale)

Active or continuous power +/- 0.5 %

RELAYS

Free potential changeover contact	
impulse withstand voltage (1.2 / 50 µs)	6000 V
AC switching power	440 Vac / 6Aac, 1500VA
DC switching power	300 Vdc / 0.15 Adc
Load type	lifetime (nbr of operations)
5 A, 250 Vac, resistive	1x10 ⁵
2 A, 250 Vac, cos phi 0.4	2x10 ⁵
1 A, 24 Vdc, L / R=48 ms	2x10 ⁵
6 A, 250 Vac, resistive	7x10 ⁴
3 A, 250 Vac, cos phi 0.4	2x10 ⁵
Programmable response time :	0.3...600 s (standard version)

AUXILIARY POWER SUPPLY

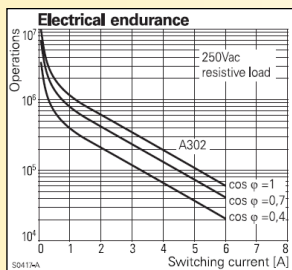
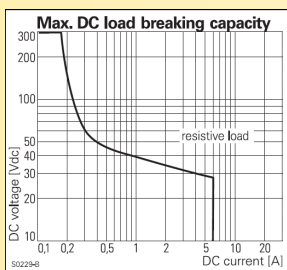
standard: 20 ... 265 Vac-dc, 2.5 VA
Low voltage: 11 ... 30 Vdc, 2.5VA

ENVIRONMENT

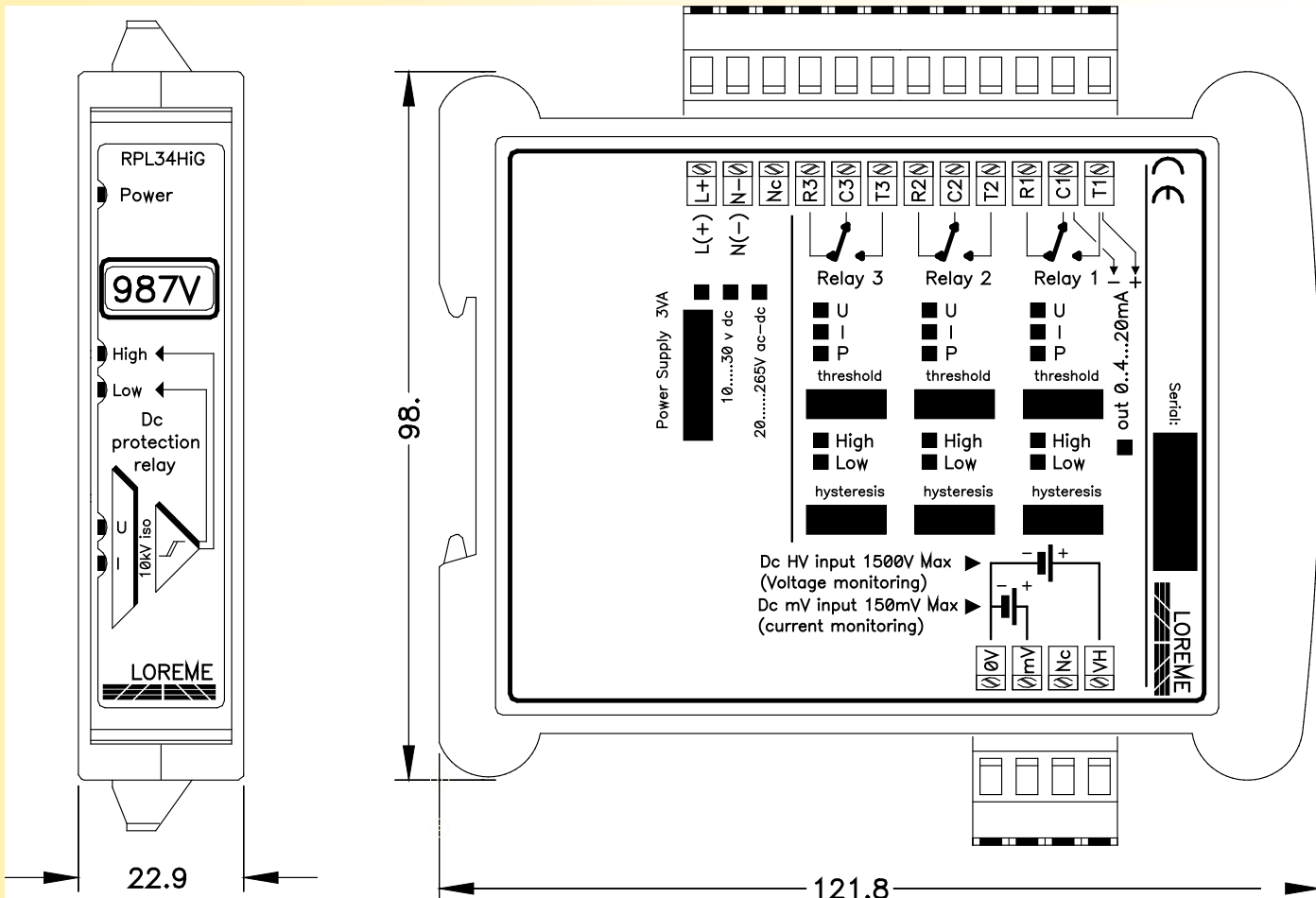
Operating temperature	-25 to 60 °C
Storage temperature	-40 to 85 °C
Humidity	85 % not condensed
Weight	160 g
Protection rating	IP 20
Dielectric strength:	
Measure input/Power supply	10KVdc (8KVac)
Measure input/Contacts	10KVdc (8KVac)
Power supply/Contacts	3KVdc (2.5KVac)
Insulation resistance	> 500 Mohms
Capacity	< 100 pF
MTBF (MIL HDBK 217F)	> 1 259 000 Hrs @ 25°C
Life time	> 200 000 Hrs @ 30°C
Shock CEI 60068-2-27 (operating)	5 G / 11 ms
Bump CEI 60068-2-29 (transportation)	30 G / 6 ms
Vibrations CEI 60068-2-6 (operating)	1 G / 10 - 150 Hz
Vibrations CEI 60068-2-6 (transportation)	2 G / 10 - 150 Hz

Electromagnetic compatibility 2014/30/UE / Low Voltage Directive 2014/35/UE

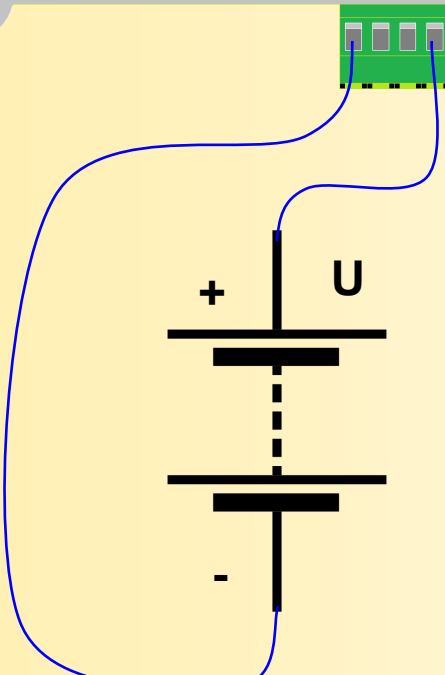
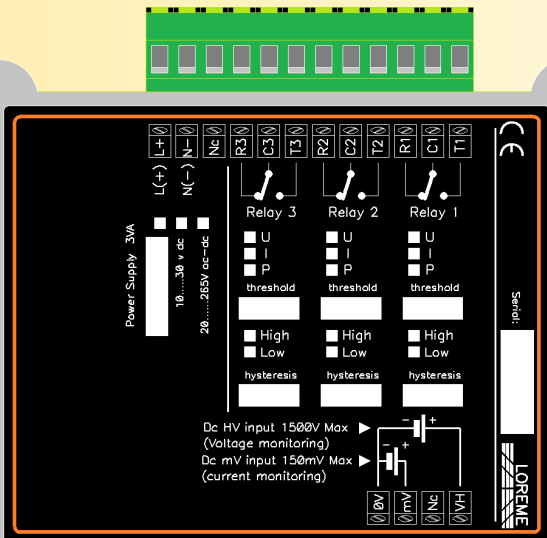
Immunity standard for industrial environments EN 61000-6-2		Emission standard for industrial environments EN 61000-6-4
EN 61000-4-2 ESD	EN 61000-4-8 AC MF	EN 55011 group 1 class A
EN 61000-4-3 RF	EN 61000-4-9 pulse MF	
EN 61000-4-4 EFT	EN 61000-4-11 AC dips	
EN 61000-4-5 CWG	EN 61000-4-12 ring wave	
EN 61000-4-6 RF	EN 61000-4-29 DC dips	



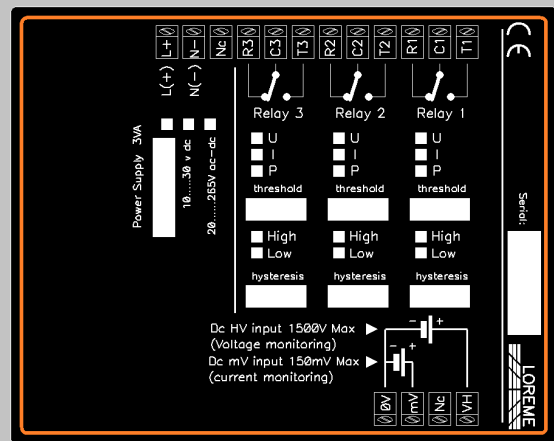
WIRING AND OUTLINE DIMENSIONS:



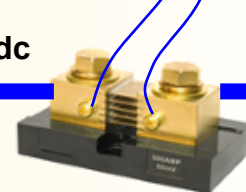
DC voltage measurement



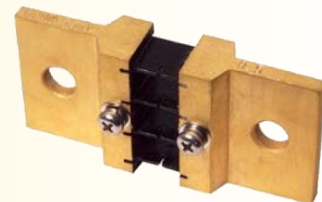
DC current measurement on external shunt



0.1 A...15 kA dc



50 mV, 60 mV
75 mV, 100 mV
150 mV



<http://www.loreme.fr/fichtech/SHUNT.pdf>

Voltage, current and power measurement with shunt on hot point

Voltage, current and power measurement with shunt on cold point

