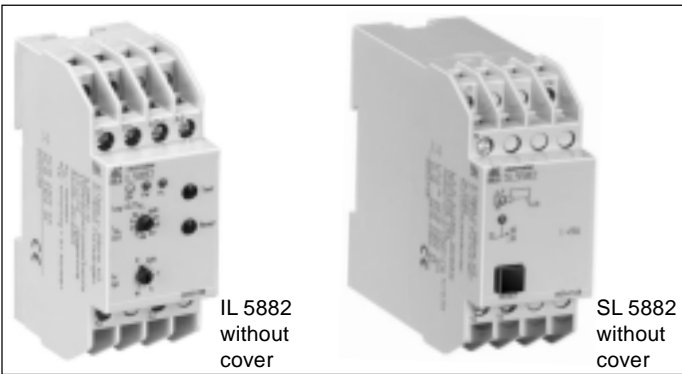


## Differential current relay IL 5882, SL 5882 varimeter

0239971



IL 5882  
without  
cover

SL 5882  
without  
cover

- According to IEC 62 020, VDE 0663
- 9 tripping values from 30 mA to 10 A
- Connected to core balance transformer, e. g. DOLD ND 5019
- Selection of manual or automatic reset
- With prewarning
- With test and reset button
- Broken wire detection
- Short reaction time
- With adjustable delay  $t_v$
- De-energised on trip
- LED indication for auxiliary supply and state of contact
- 2 x 1 changeover contact
- With sealable cover

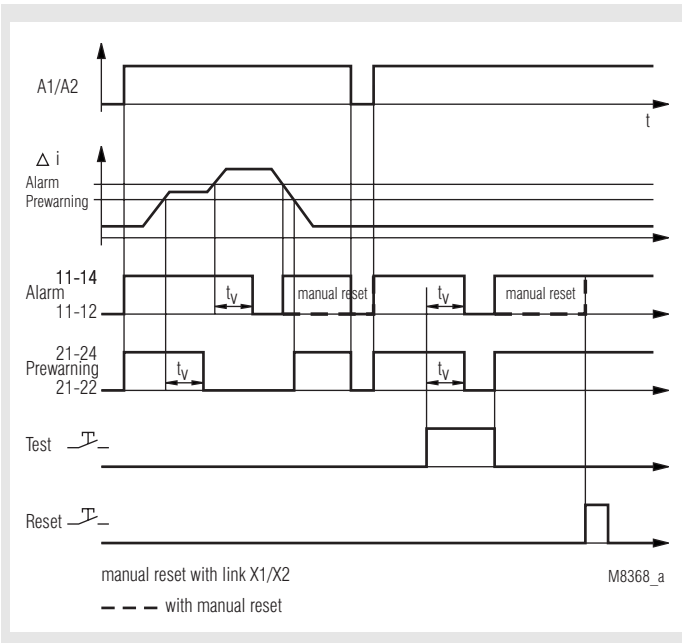
• **Devices available in 2 enclosure versions:**

**IL 5882:** 63 mm deep with terminals near to the bottom to be mounted in consumer units or industrial distribution systems according to DIN 43 880

**SL 5882:** 100 mm deep with terminals near to the top to be mounted in cabinets with mounting plate and cable ducts

- 35 mm width

### Function diagram



### Approvals and marking



### Application

Detection of insulation faults in grounded voltage systems. The differential current relay is used to maintain electrical plants before faults occur. Decrease in insulation can be detected and indicated early without interruption of operation.

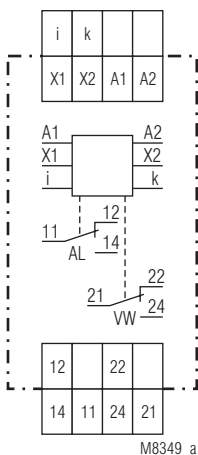
### Function

The function of the IL/SL 5882 can be compared to a fault current circuit breaker unit. It detects and indicates residual currents, but does not disconnect. The measurement is done by an external differential current transformer e. g. ND 5019 which is connected via terminals i and k to the IL/SL 5882. All conductors of the voltage system to be monitored are run through the CT except the ground wire. In a fault free voltage system the sum of all current is 0 and the CT induces no secondary voltage. If due to an insulation fault a fault current flows to ground, the current difference in the CT creates a measuring current, which is detected and measured by the IL/SL 5882. A broken wire in the sensing circuit would disable the measurement, therefore a special circuit detects broken wire and forces the unit to trip.

The unit has 2 x 1 changeover contacts. Contact 11-12-14 for alarm (AL) and 21-22-24 for prewarning (VW). Prewarning is detected at 70 % of the selected alarm value. With external bridge X1-X2 the alarm is stored and has to be reset by pressing the reset button or by disconnecting the auxiliary supply. Without bridge X1-X2 the unit works with auto-reset and the fault is not stored. With the button "Test" a fault can be simulated (Alarm). Each contact is delayed with an adjustable time delay  $t_v$  (same delay time for alarm and pre-warning).

To avoid unauthorised adjustment of the potentiometers the unit has a transparent cover that could be sealed with laquer. Two holes above the push buttons allow activation of test and reset.

### Circuit diagram



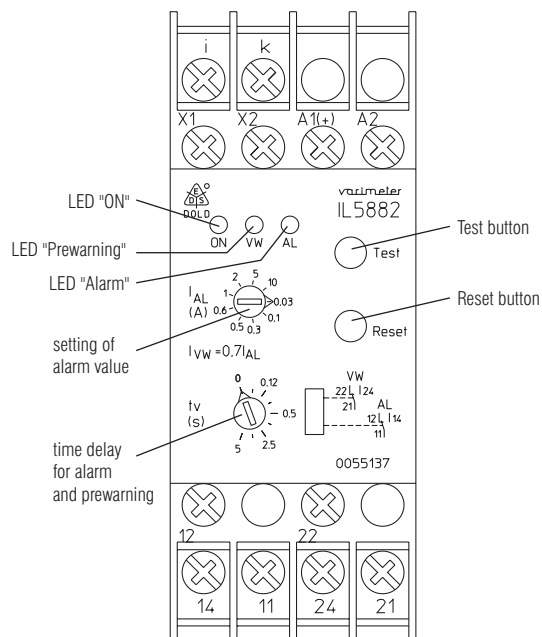
## Indication

green LED: on, when supply connected  
 2 red LEDs: on, when insulation failure (prewarning and alarm)

## Note

If time is set to 0 and a pulsating fault current is flowing (e.g. 1-way rectified) the output relay may flicker because of the short reaction time. By increasing the time delay this effect can be avoided.

## Setting and adjustment



M8369\_a

## Technical data

### Input

**Nominal voltage  $U_N$ :** AC/DC 12 V, AC/DC 24 ... 230 V

### Voltage range:

AC: 0,8 ... 1,1  $U_N$   
 DC: 0,9 ... 1,25  $U_N$

### Frequency range:

50 / 60 Hz

### Nominal consumption

AC 230 V: 4 VA  
 AC 24 V: 1,6 VA  
 DC 24 V: 1 W

### Measuring value adjustable via rotational switch:

AC 0,03 A; 0,1 A; 0,3 A; 0,5; 0,6 A  
 1 A; 2 A; 5 A; 10 A

### Nominal frequency:

50 / 60 Hz

### Hysteresis:

approx. 4% of trip value, fixed

### Accuracy:

$\leq \pm 15\%$

### Repeat accuracy:

$\leq \pm 1\%$

### Temperature drift:

$\leq \pm 0,05\% / K$

### Reaction time:

10 ... 30 ms

### Response delay $t_v$ :

0 ... 10 s adjustable (logarithmic scale in order to allow also short time delay to be adjusted without problems)

### Output

### Contacts:

IL / SL 5882.38: 1 changeover contact for Prewarning,  
 1 changeover contact for Alarm

### Thermal current $I_{th}$ :

5 A

### Switching capacity

to AC 15:

NO contact: 3 A / AC 230 V EN 60 947-5-1  
 NC contact: 1 A / AC 230 V EN 60 947-5-1

### Electrical life

to AC 15 at 1 A, AC 230 V: 3 x 10<sup>5</sup> switching cycles EN 60 947-5-1

### Short circuit strength

max. fuse rating: 4 A gL EN 60 947-5-1

### Mechanical life:

$\geq 10^8$  switching cycles

## Technical data

### General data

### Operating mode:

Continuous

### Temperature range:

- 20 ... + 60°C

### Clearance and creepage distances

overvoltage category /

contamination level

supply / contacts:

4 kV / 2

IEC 60 664-1

supply / measuring circuit:

corresponding to CT

### EMC

Surge voltages:

class 3 (5 kV / 0,5 J)

VDE 0435 T.303

HF-interference:

class 3 (2,5 kV)

VDE 0435 T.303

Electrostatic discharge:

8 kV (air)

EN 61 000-4-2

HF-irradiation:

10 V / m (class 3)

EN 61 000-4-3

Fast transients:

4 kV (class 4)

EN 61 000-4-4

Surge voltages:

2 kV (class 4)

EN 61 000-4-5

Interference suppression:

Limit value class B

EN 55 011

### Degree of protection:

Housing:

IP 40

EN 60 529

Terminals:

IP 20

EN 60 529

### Housing:

Thermoplastic with V0-behaviour

according UL subject 94

### Vibration resistance:

Climate resistance:

Terminal designation:

Wire connection:

Wire fixing:

Mounting:

Weight

IL 5882:

SL 5882:

Amplitude 0,35 mm

frequency 10 ... 55 Hz EN 60 068-2-6

20 / 060 / 03 EN 60 068-1

EN 50 005

2 x 2,5 mm<sup>2</sup> solid or

2 x 1,5 mm<sup>2</sup> stranded wire with sleeve

DIN 46 228-1/-2/-3

Flat terminals with self-lifting

clamping piece

DIN rail

EN 60 999

EN 50 022

approx. 125 g

approx. 150 g

## Dimensions

### Width x height x depth:

IL 5882: 35 x 90 x 63 mm

SL 5882: 35 x 90 x 100 mm

## Standard types

IL 5882.38 AC/DC 24 ... 230 V 50 / 60 Hz

Article number:

• De-energised on trip

• Nominal voltage  $U_N$ :

AC/DC 24 ... 230 V

• Width:

35 mm

SL 5882.38 AC/DC 24 ... 230 V 50 / 60 Hz

Article number:

• De-energised on trip

• Nominal voltage  $U_N$ :

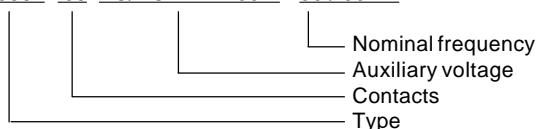
AC/DC 24 ... 230 V

• Width:

35 mm

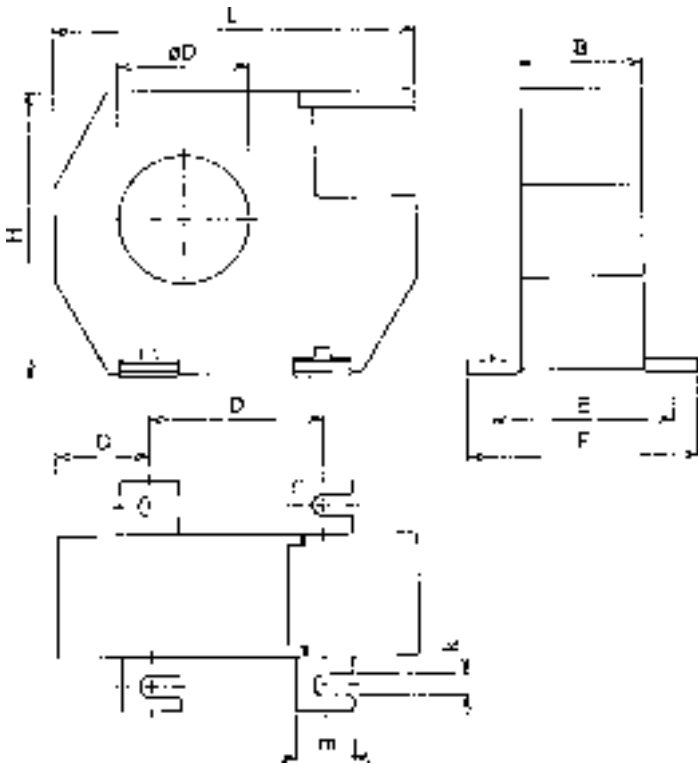
## Ordering example

IL 5882 .38 AC/DC 24 ... 230 V 50 / 60 Hz



## Accessory

### ND 5019 Differential current transformer



Dimensions in mm			
	ND 5019/035	ND5019/070	ND5019/105
ØD	35	70	105
L	100	130	170
B	33	33	33
H	79	110	146
C	26	32	38
D	48,5	66	94
E	46	46	46
F	61	61	61
k	6,5	6,5	6,5
m	16	16	16

Weight			
kg	ND 5019/035	ND5019/070	ND5019/105
	0.15	0.24	0.5

#### Technical Data

Burden:	180 Ω
Nominal primary current:	10 A
Continuous overload:	20 A
Thermals short time current for 1 sec:	100 A
Nominal load:	72 mVA
Accuracy class:	3
Ambient temperature:	- 10°C ... + 50°C / 263 K ... 323 K
Inflammability class:	V0 according to UL94

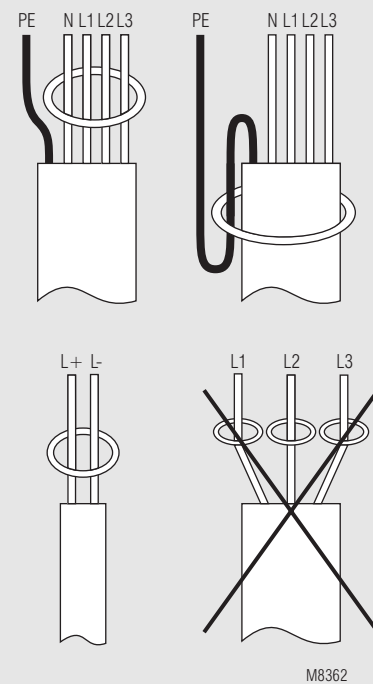
Nominal insulation voltage according to DIN VDE 0110 p. 1:	AC 630 V
Overvoltage category / contamination level:	6 kV/3
Voltage test according to DIN VDE 0435 p. 303/IEC 255:	AC 3 kV

Transformation ratio: 500 / 1

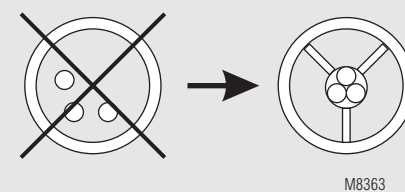
#### Length of connection wires

Type of wire:	
Single wire 0.75 mm <sup>2</sup> :	up to 1 m
Twisted pair 0.75 mm <sup>2</sup> :	up to 10 m
Screened wire 0.75 mm <sup>2</sup> screen on terminal k:	up to 25 m
Screw connection:	M 5

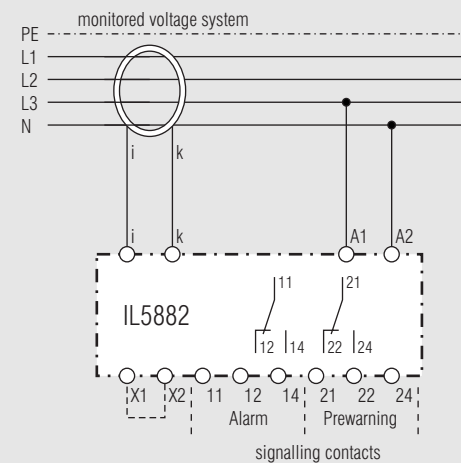
## Installation of wires



## To avoid interference with high starting currents



## Connection example



X1-X2 open : automatic reset  
X1-X2 closed : manual reset

M8370\_b