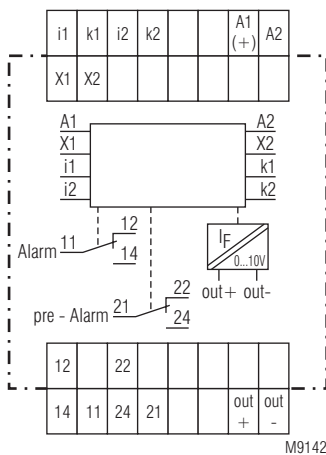


Differential current monitor IP 5883, Type B for AC and DC systems VARIMETER



- According to IEC/EN 62 020, VDE 0663
- To detect earth faults in grounded voltage systems
- For AC and DC systems Type B, according to IEC 60755 A2
- 4 setting ranges from 10 mA to 3 A
- Manual reset, with pre-warning
- As option pre warning without auto reset
- With adjustable pre-warning
- With adjustable switching delay
- Energized or de-energized on trip
- LED indicator for operation, prewarning and alarm
- LED-chain indicates fault current
- Analogue output
- With test function
- Broken wire detection
- Removable cover
- 70 mm width

Circuit diagramm



Approvals and marking



Application

The differential current monitor type B is designed to monitor DC systems and AC systems up to 250 Hz.

Indication

- Green LED "ON": On, when auxiliary supply connected
- Red LED "pre alarm": flashes during time delay, on, when pre-alarm active
- Red LED "alarm": flashes during time delay, on, when alarm active
- Both red LEDs: flashing on broken wire or extremely high input signal
- Yellow LEDs: LED chain indicates fault current in % of adjusted alarm value

Function

The function is similar to an RCD tripping device. The voltage system is monitored to detect a fault current to ground. It does not disconnect the voltage, it only indicates the fault. The measuring circuit includes an external differential current transformer. All conductors of a voltage system are fed through the transformer except the ground wire. In a healthy system the sum of all flowing currents is zero, so that no voltage is induced in the CT. If an earth fault occurs, sourcing a current flowing to ground, the current difference induces a current in the CT that is detected by the IP 5883.

On broken sensor wires and broken CT coils the unit goes into alarm state and the 2 red LEDs flash. The unit has 2 changeover output contacts. One for alarm (11, 12, 14) and one for pre-warning (21, 22, 24). The prewarning can be set to 20, 40, 60, 80 and 100 % of the alarm with or without 1 s time delay.

4 setting ranges can be selected from 10 mA to 3 A. An adjustable time delay up to 1 or 10 s is possible. The fine adjustment of the measuring value and the time delay is made via 2 potentiometers with setting ratio 1:10.

The different CT sizes require a correct adaption of the differential current monitor. 3 models are available:

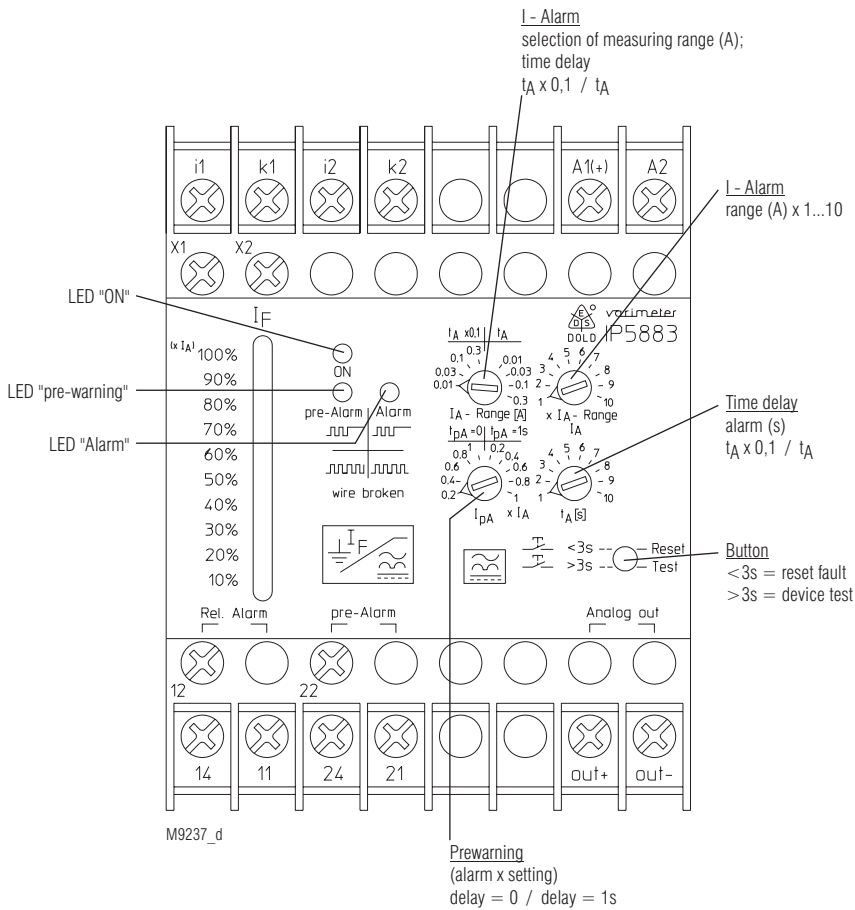
Type	Frequeny range	Suitable current transformer
IP 5883	DC + AC up to 250 Hz	ND 5018/030 ND 5018/035
IP 5883/070	DC + AC up to 180 Hz	ND 5018/070
IP 5883/140	DC + AC up to 60 Hz	ND 5018/105 ND 5018/140 ND 5018/210

An external link on X1-X2 allows the change between energized and de-energized on trip. With inserted link the unit de-energises on trip. A change of the function will only be valid after interruption of the supply voltage.

If an adjusted value is reached on the measuring input (alarm or pre-warning) the signal is stored. Reset is made by pressing the button "Test/Reset" for < 3 s or by disconnecting the auxiliary supply (approx. 30 s).

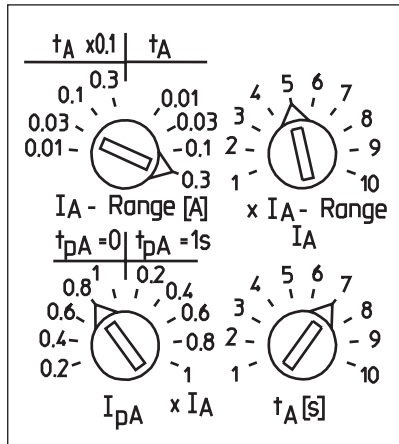
If the "Test/Reset" button is pressed for > 3 s, a test of the unit is made. The time delays run, the pre-warning and alarm is activated.

An LED chain shows the fault current between 10 and 100 % of the adjusted alarm value. An analogue output 0 - 10 V indicates also the fault current. 10 V corresponds to 100 % of the adjusted alarm value.



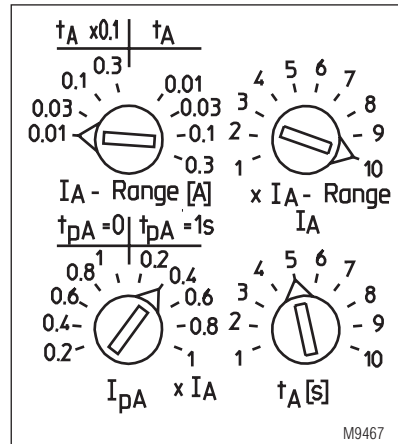
Setting examples

Front detail with potentiometers



Example 1

Alarm at 1.5 A (0.3 A \times 5)
Time delay alarm t_A : 7 s (1 \times 7 s)
Pre-warning at 80 % alarm
Time delay pre-warning = 0



Example 2

Alarm at 100 mA (0.01 A \times 10)
Time delay alarm t_A : 0.5 s (0.1 \times 5 s)
Pre-warning at 40 % alarm
Time delay pre-warning = 1 s

Technical Data

Input

Auxiliary voltage U_H : AC/DC 24 ... 80 V, AC/DC 80 ... 230 V
Voltage range: DC 19 ... 110 V, AC 19 ... 90 V,
DC 64 ... 300 V, AC 64 ... 265 V
Nominal frequency U_H : AC 50 / 60 Hz
Nominal consumption
at AC: 5 VA
at DC: 2.5 W
Measuring range: 10 ... 100 mA, 30 ... 300 mA,
100 ... 1000 mA, 300 ... 3000 mA

Measuring range fine adjustment: 1 ... 10
Max. overload: with overload protection
20, 40, 60, 80, 100 %
Pre-warning: DC und AC bis 250 Hz
Frequency range: DC und AC bis 250 Hz
Repeat accuracy: $\leq \pm 3 \%$
Temperature drift: $\leq \pm 0,1 \%$ / K
Reaction time: < 50 ms
Switching delay pre-warning: without delay or 1 s adjustable
Switching delay alarm: x 0.1, x 1, fine adjustment 1 ... 10

Output

Contacts: 1 changeover contact for pre-warning,
1 changeover contact for alarm
Thermal current I_{th} : 5 A
Switching capacity
at AC 15:
NO contact: 3 A / AC 230 V IEC/EN 60 947-5-1
NC contact: 1 A / AC 230 V IEC/EN 60 947-5-1
Electrical life
to AC 15 at 1 A, AC 230 V: 3 x 10⁶ switching cycles IEC/EN 60
947-5-1
Short circuit strength
max. fuse rating: 4 A gL IEC/EN 60 947-5-1
Mechanical life: $\geq 10^8$ switching cycles

Analogue output

Terminal out+ / out-: 0 ... 10 V; 5 mA

General Data

Operating mode: Continuous
Temperature range: - 40 ... + 60°C
Clearance and creepage distances
(with external current transformer)
auxiliary voltage / measuring circuit: 6 kV / 2 IEC 60 664-1
auxiliary voltage / analogue output: 6 kV / 2 IEC 60 664-1
auxiliary voltage / contacts: 4 kV / 2 IEC 60 664-1
analogue output / contacts: 4 kV / 2 IEC 60 664-1
EMC
Surge voltages: Class 3 (5 kV / 0,5 J) DIN VDE 0435-303
Electrostatic discharge: 8 kV (air) IEC/EN 61 000-4-2
HF-irradiation: 10 V / m (class 3) IEC/EN 61 000-4-3
HF-wire guided: 10 V (class 3) IEC/EN 61 000-4-6
Fast transients: 2 kV (class 3) IEC/EN 61 000-4-4
Surge voltages: 1 kV class 3 IEC/EN 61 000-4-5
Interference suppression: Limit value class B EN 55 011
Degree of protection
Housing: IP 40 IEC/EN 60 529
Terminals: IP 20 IEC/EN 60 529
Housing: Thermoplastic with V0-behaviour
according UL subject 94
Vibration resistance: Amplitude 0.35 mm
frequency 10 ... 55 Hz IEC/EN 60 068-2-6
20 / 60 / 03 IEC/EN 60 068-1
EN 50 005
Climate resistance:
Terminal designation: EN 50 005
Wire connection: 2 x 2.5 mm² solid or
2 x 1.5 mm² stranded wire with sleeve
DIN 46 228-1/-2/-3/-4
Wire fixing: Flat terminals with self-lifting
clamping piece
Mounting: DIN rail IEC/EN 60 715
Weight: 220 g

Dimensions

Width x height x depth: 70 x 90 x 59 mm

Standard type

IP 5883 AC/DC 80 ... 230 V 50 / 60 Hz
Article number: 0058463
• for transformer ND 5018/030 and ND 5018/035
• with pre warning and manual reset
• Energized or de-energized on trip
• Auxiliary voltage U_H : AC/DC 80 ... 230 V
• Width: 70 mm

Variants

For transformer ND5018/030, ND5018/035:
IP 5883/001: manual reset,
pre warning with auto reset

For transformer ND5018/070:
IP 5883/070: pre warning and manual reset

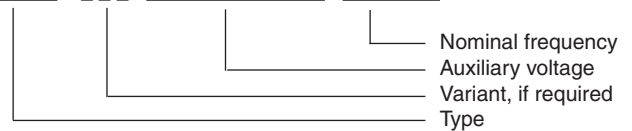
IP 5883/071: manual reset,
pre warning with auto reset

For transformer ND5018/105, ND5018/140, ND5018/210:
IP 5883/140: pre warning and manual reset

IP 5883/141: manual reset,
pre warning with auto reset

Ordering example for variants

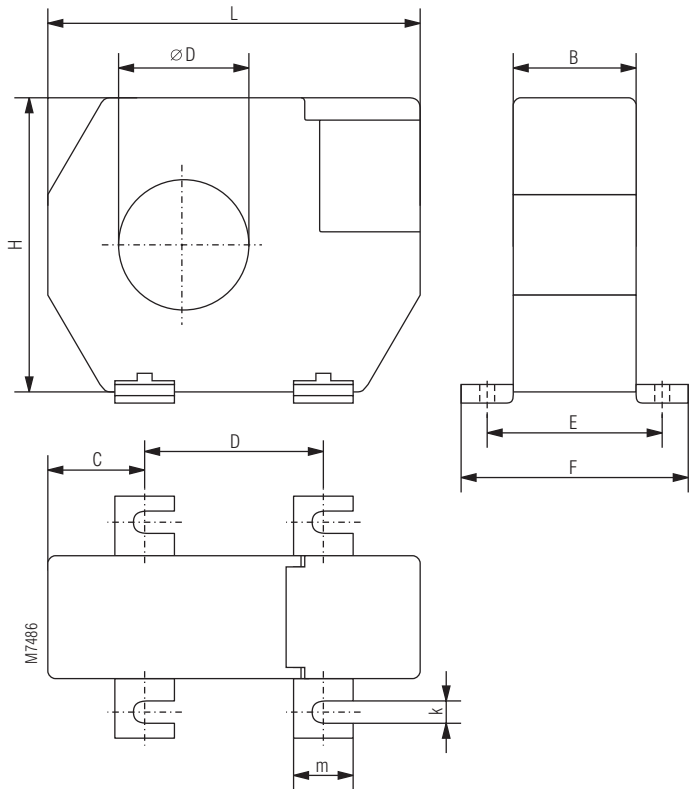
IP 5883 / _ _ _ AC/DC 80 ... 230 V 50 / 60 Hz



Accessories

Type	Frequency range	Suitable current transformer
IP 5883	DC + AC up to 250 Hz	ND 5018/030 ND 5018/035
IP 5883/070	DC + AC up to 180 Hz	ND 5018/070
IP 5883/140	DC + AC up to 60 Hz	ND 5018/105 ND 5018/140 ND 5018/210

ND 5018/035 Differential current transformer



for screw mounting

ND 5018/035	øD	L	B	H	C	D	E	F	k	m
Dimensions / mm	35	100	33	79	26	48.5	46	61	6.5	16
Weight / g	170									

ND 5018/070	øD	L	B	H	C	D	E	F	k	m
Dimensions / mm	70	130	33	110	32	66	46	61	6.5	16
Weight / g	300									

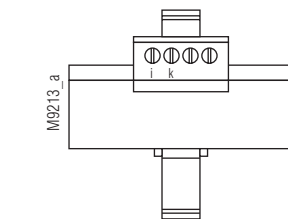
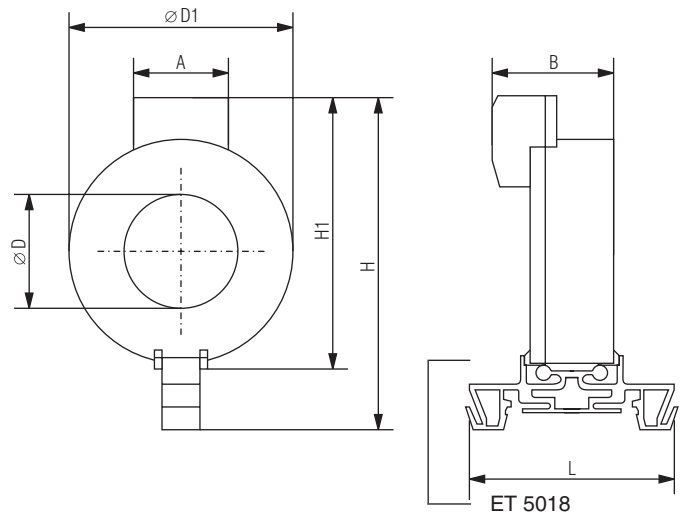
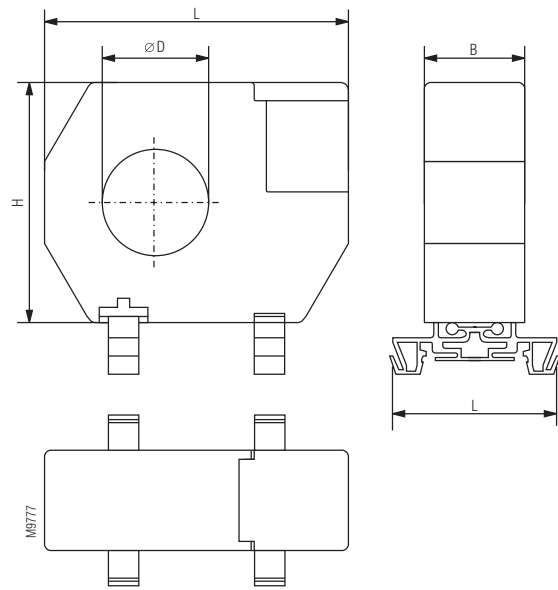
ND 5018/105	øD	L	B	H	C	D	E	F	k	m
Abmessungen/mm	105	170	33	146	38	94	46	61	6.5	16
Gewicht / g	530									

ND 5018/140	øD	L	B	H	C	D	E	F	k	m
Abmessungen/mm	140	220	33	196	48,5	123	46	61	6.5	16
Gewicht / g	1250									

ND 5018/210	øD	L	B	H	C	D	E	F	k	m
Abmessungen/mm	210	299	33	284	69	161	46	61	6.5	16
Gewicht / g	2100									

The current transformers ND 5018/035, ND 5018/070, ND 5018/105 can also be mounted on DIN-rail. To do this the metal screw fixings have to be removed and have to be replaced by 2 mounting clips (ET5018: art.no. 0058754; set with 2 pcs)

ND 5018/030 Differential current transformer



for DIN rail mounting

ND 5018/030	øD	øD1	L	B	A	H	H1
Abmessungen/mm	30	59	55	32	25	87	70
Gewicht / g	90						

Technical Data - transformer-

Ambient temperature: - 10°C ... + 50°C / 263 K ... 323 K
 Inflammability class: V0 according to UL94

Nominal insulation voltage according to IEC 60 664-1: AC 630 V
 rated impuls voltage / pollution degree: 6 kV/3
 Voltage test according to DIN VDE 0435-303 / IEC/EN 60 255: AC 3 kV

Length of connection wires

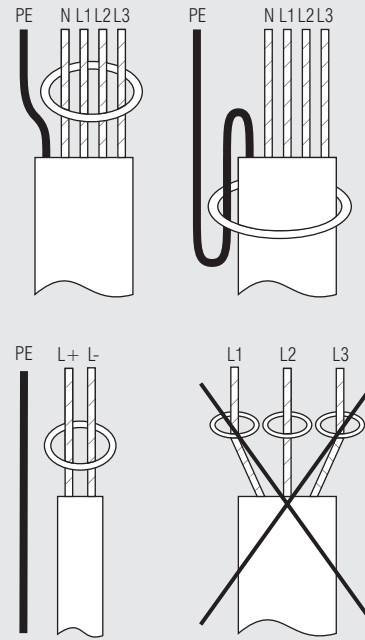
Type of wire:
 Single wire 0.75 mm², e.g. up to 1 m
 Twisted pair 0.75 mm²: up to 10 m
 (pair 1: i1 - K1; pair 2: i2 - K2)
 Screened wire 0.75 mm² screen on terminal X2: up to 25 m

With a control wire LiYY 4 x 0.14 good measuring results were reached up to 20 m.

Screw connection: (only at ND 5018/035, ND 5018/070, ND 5018/105, ND 5018/140, ND 5018/210) M 5
 DIN rail mounting: using mounting adapter ET 5018

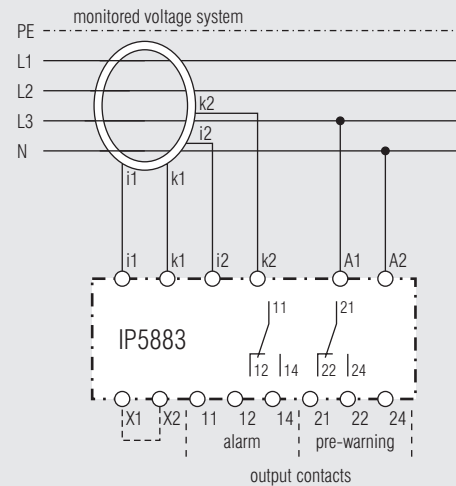
The delivery of ND 5018/030 includes the DIN rail mounting adapter ET 5018.

Installation of wires



M8362_a

Connection example



X1-X2 without bridge : energized on trip
 X1-X2 with bridge : de-energized on trip

M9238_a

