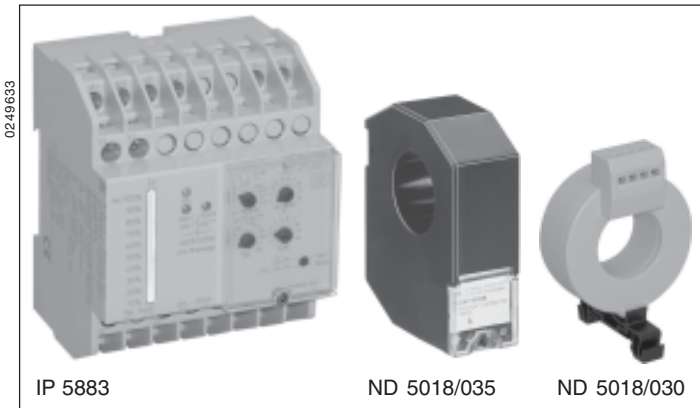
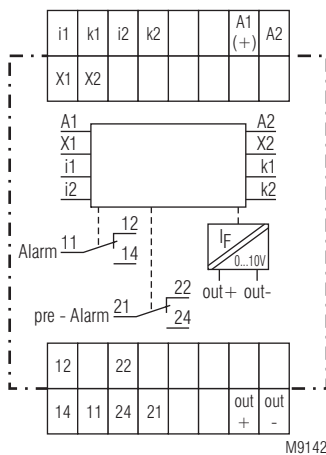


## Differential current monitor IP 5883, Type B for AC and DC systems varimeter



- 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
- Energised or de-energised on trip
- LED indicator for operation, prewarning and alarm
- LED-chain indicates fault current
- Analogue output
- With test function
- Broken wire detection
- 70 mm width

### Circuit diagram



### 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

### Approvals and marking



### Application

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

### 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.

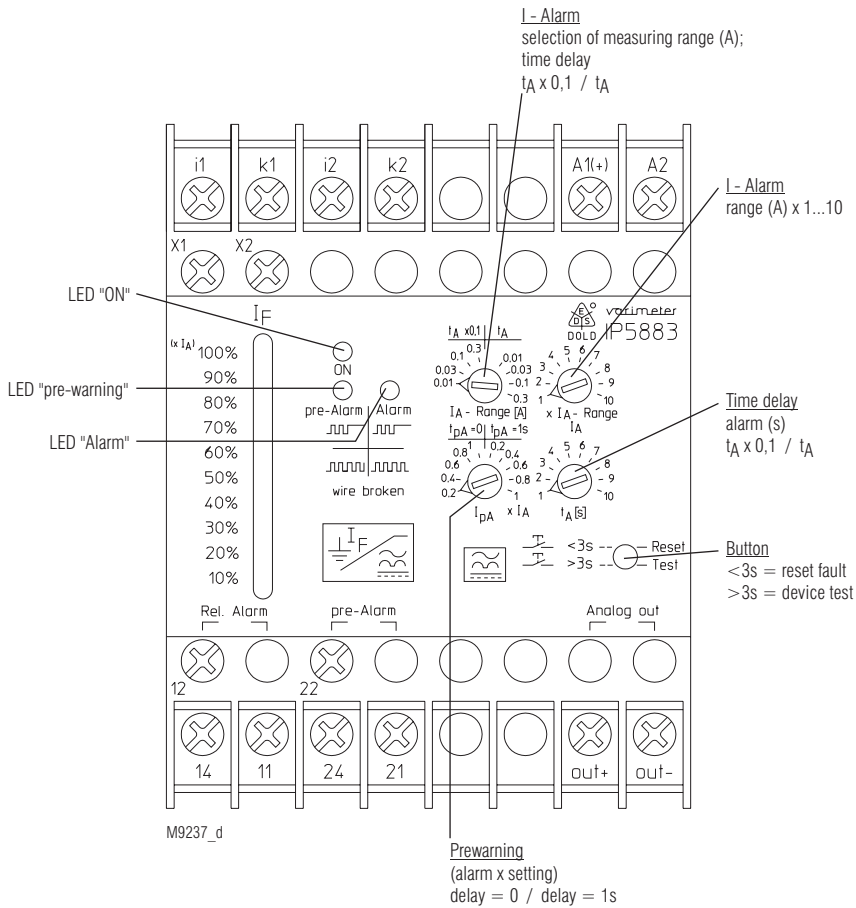
On broken sensor wires and broken CT coils the unit goes into alarm state and the 2 red LEDs flash. The unit has 2 changeover output contacts. One for alarm (11, 12, 14) and one for pre-warning (21, 22, 24). The prewarning can be set to 20, 40, 60, 80 and 100 % of the alarm with or without 1 s time delay.

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.

An external link on X1-X2 allows the change between energised and de-energised 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.

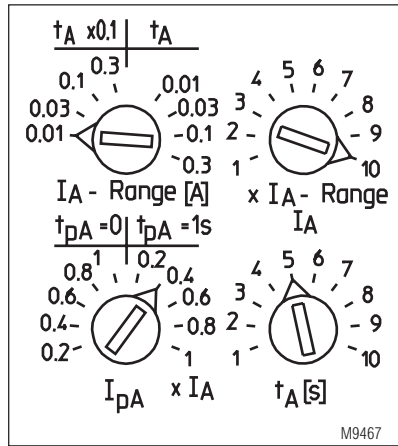
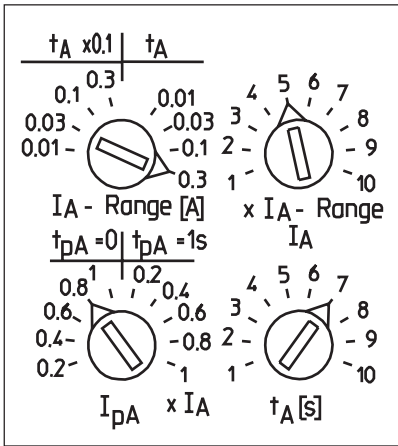
If an adjusted value is reached on the measuring input (alarm or pre-warning) the signal is stored. Reset is made by pressing the button "Test/Reset" for 1 - 2 s or by disconnecting the auxiliary supply. If the "Test/Reset" button is pressed for more than 2 s, a test of the unit is made. The time delays 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 x 5)  
 Time delay alarm  $t_A$ : 7 s (1 x 7 s)  
 Pre-warning at 80 % alarm  
 Time delay pre-warning = 0

Example 2

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

## Technical Data

### Input

<b>Auxiliary voltage <math>U_H</math>:</b>	AC/DC 24 ... 80 V, AC/DC 80 ... 230 V
<b>Voltage range:</b>	DC 19 ... 110 V, AC 19 ... 90 V, DC 64 ... 300 V, AC 64 ... 265 V AC 50 / 60 Hz
<b>Nominal frequency <math>U_H</math>:</b>	
<b>Nominal consumption</b>	
at AC:	5 VA
at DC:	2.5 W

<b>Measuring range:</b>	10 ... 100 mA, 30 ... 300 mA, 100 ... 1000 mA, 300 ... 3000 mA
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<b>Measuring range fine adjustment:</b>	1 ... 10
<b>Pre-warning:</b>	20, 40, 60, 80, 100 %
<b>Frequency range:</b>	DC und AC bis 250 Hz
<b>Repeat accuracy:</b>	$\leq \pm 3 \%$
<b>Temperature drift:</b>	$\leq \pm 0,1 \%$ / K
<b>Reaction time:</b>	< 50 ms
<b>Switching delay</b>	
<b>pre-warning:</b>	without delay or 1 s adjustable
<b>Switching delay alarm:</b>	x 0.1, x 1, fine adjustment 1 ... 10

### Output

<b>Contacts:</b>	1 changeover contact for pre-warning, 1 changeover contact for alarm
<b>Thermal current <math>I_{th}</math>:</b>	5 A
<b>Switching capacity</b>	
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
<b>Electrical life</b>	
to AC 15 at 1 A, AC 230 V:	3 x 10 <sup>5</sup> switching cycles IEC/EN 60 947-5-1
<b>Short circuit strength</b>	
<b>max. fuse rating:</b>	4 A gL IEC/EN 60 947-5-1
<b>Mechanical life:</b>	$\geq 10^8$ switching cycles

### Analogue output

<b>Terminal out+ / out-:</b>	0 ... 10 V; 5 mA
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### General Data

<b>Operating mode:</b>	Continuous
<b>Temperature range:</b>	- 40 ... + 60°C
<b>Clearance and creepage distances</b>	
(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
<b>EMC</b>	
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
<b>Degree of protection</b>	
Housing:	IP 40 IEC/EN 60 529
Terminals:	IP 20 IEC/EN 60 529
<b>Housing:</b>	Thermoplastic with V0-behaviour according UL subject 94
<b>Vibration resistance:</b>	Amplitude 0.35 mm frequency 10 ... 55 Hz IEC/EN 60 068-2-6 20 / 60 / 03 IEC/EN 60 068-1
<b>Climate resistance:</b>	
<b>Terminal designation:</b>	EN 50 005
<b>Wire connection:</b>	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/-4
<b>Wire fixing:</b>	Flat terminals with self-lifting clamping piece
<b>Mounting:</b>	DIN rail IEC/EN 60 715
<b>Weight:</b>	220 g

### Dimensions

<b>Width x height x depth:</b>	70 x 90 x 59 mm
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## Standard type

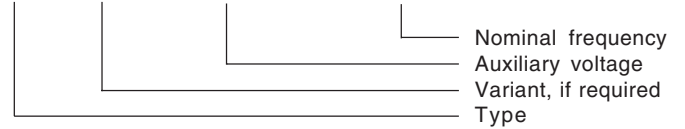
IP 5883 AC/DC 80 ... 230 V 50 / 60 Hz
Article number: 0058463
• with pre warning and manual reset
• Energised or de-energised on trip
• Auxiliary voltage $U_H$ : AC/DC 80 ... 230 V
• Width: 70 mm

## Variant

IP 5883/_ _1:	manual reset, pre warning with auto reset
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## Ordering example for variants

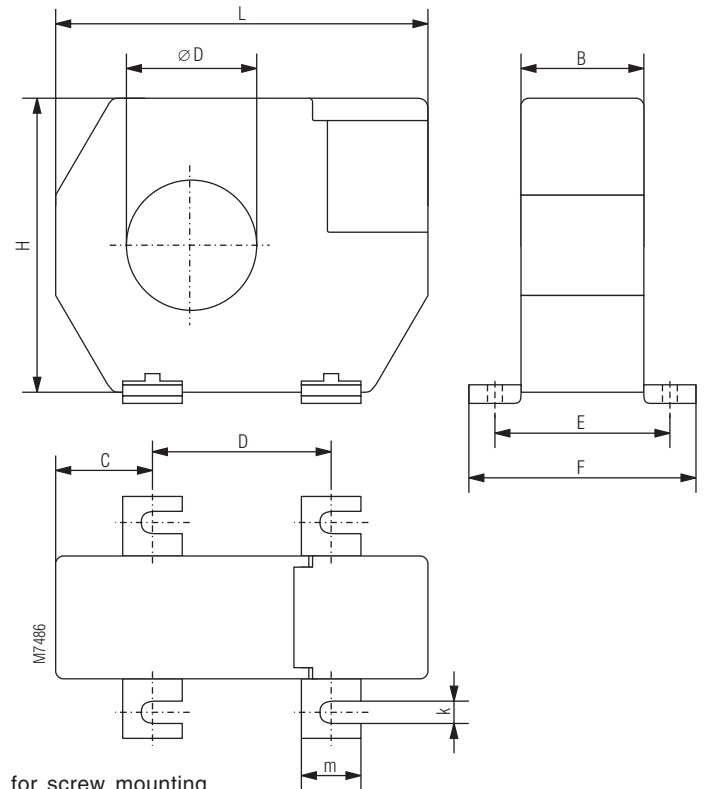
IP 5883 / \_ \_1 AC/DC 80 ... 230 V 50 / 60 Hz



## Accessories

Type	Frequency range	Suitable current transformer
IP 5883	DC + AC bis 250 Hz	ND 5018/030 ND 5018/035
IP 5883/070	DC + AC bis 180 Hz	ND 5018/070
IP 5883/140	DC + AC bis 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									

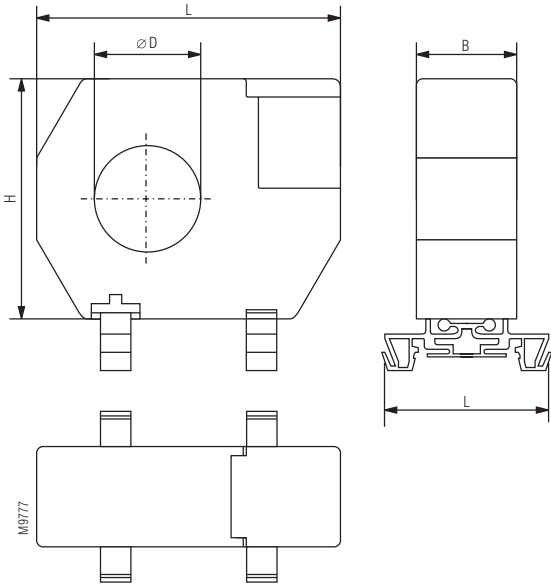
### Accessories

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

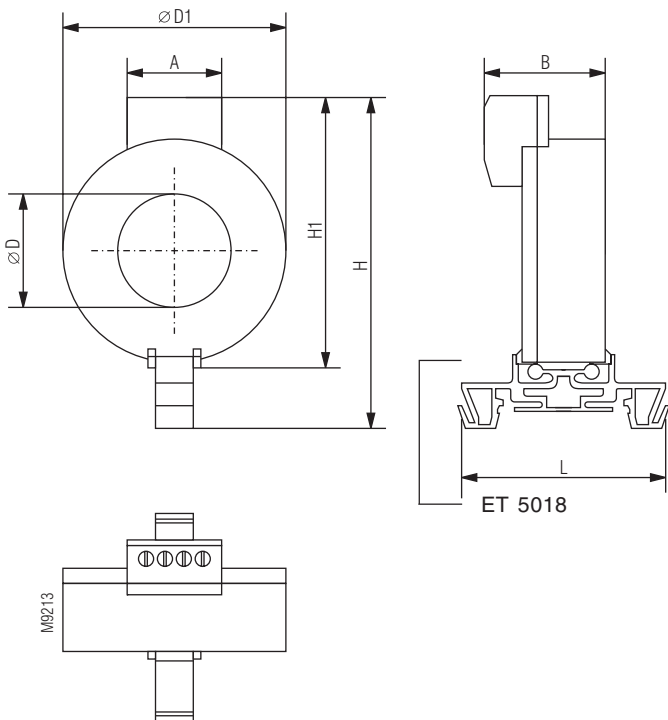
ND 5018/140	∅D	L	B	H	C	D	E	F	k	m
Dimensions/mm	140	220	33	196	48.5	123	46	61	6.5	16
Weight/g	1250									

ND 5018/210	∅D	L	B	H	C	D	E	F	k	m
Dimensions/mm	210	299	33	284	69	161	46	61	6.5	16
Weight/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	∅D	∅D1	L	B	A	H	H1
Dimensions/mm	30	59	55	32	25	87	70
Weight/g	90						

### Accessories

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

Transformation ratio: 2 x 200:1

Length of connection wires

Type of wire:

Single wire 0.75 mm<sup>2</sup>, e.g. up to 1 m

Twisted pair 0.75 mm<sup>2</sup>: up to 10 m

(pair 1: i1 - K1; pair 2: i2 - K2)

Screened wire 0.75 mm<sup>2</sup> screen on terminal X2: up to 25 m

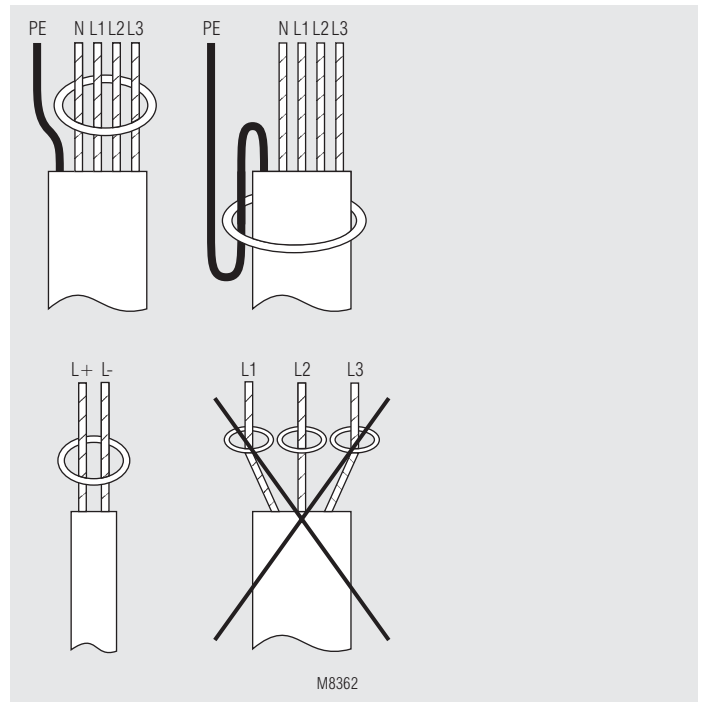
With a control wire LiYY 4 x 0.14 good measuring results were reached up to 20 m.

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



### Connection example

