ZELEC

TRILEDS® & SIGAL® RANGE

BROCHURE

A unique, innovative and ergonomic range

THE TRILEDS® RANGE

The most comprehensive range of voltage pilot light indicators for AC and DC networks on the market

Trileds® pilot lights use three separate leds to indicate the presence of voltage in a switchboard or electrical cabinet.

COMPATIBILITY
- Compatible with AC (three-phase or three phase + neutral) or DC electrical networks.
- Suitable for networks with high voltages (400 Vac, 690 Vac, 1,000 Vac and 400 Vdc).

ASSEMBLY
- Simplified installation thanks to standard Ø22.5 mm hole diameter.
- Easy to install by connecting the housing and mounting to the door.
- Easy cabling thanks to push-in terminals.
- Optional DIN rail mounting with accessory (not included). This avoids high tension on the door and the need to run a large number of wires along it.

SAFETY
- Increased safety thanks to IP2X on the rear panel (finger safe) and voltage marking on the front panel.

The Trileds® Smart version for the enhanced safety of your electrical installation

All the functions of Trileds® Smart are designed to instantly warn the user of any anomaly in relation to the operation of the installation. The malfunction is then indicated on the front panel of the product or reported to a centralised management system (CTM).

1 Rotophase

The pilot light is equipped with a system for detecting the direction of rotation of the phases. When it is switched on, the rotophase is activated for 4.5 seconds and the 3 leds indicate the direction of the current. This function safeguards the installation and assures the contractor that the network is correctly connected, with the correct direction of rotation. This function is running every 90s. In case of alarm the rotophase function is disabled.

2 Configurable temperature sensor

If the temperature is too high, the components of the electrical installation age prematurely and can also cause fires. To limit this risk, the indicator is equipped with a sensor to measure the internal temperature of the cabinet. The temperature threshold is set directly on the back of the indicator, where there is a rotary switch.

It provides quick and easy temperature adjustment in nine separate positions, covering a range from 35 to 75°C. If the threshold is reached, the 3 leds flash quickly and the alarm relay switches.
This function can be disabled.

3 Phase break

If one of the phases is cut off, the corresponding led switches off and the alarm relay switches.

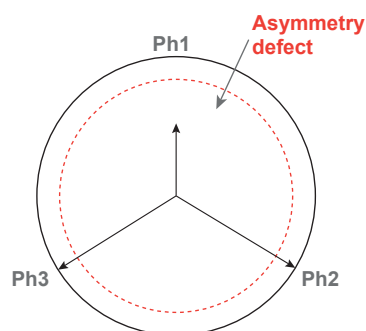## 4 Asymmetry

If a voltage drop of more than 14% of the maximum voltage is detected, the indicator will indicate the faulty phase by slowly flashing and the alarm contact will switch on.

5 Neutral disconnection

If the neutral conductor is lost or offset by more than 10%, the led indicates the fault by the 3 leds flashing slowly. The alarm contact switches.

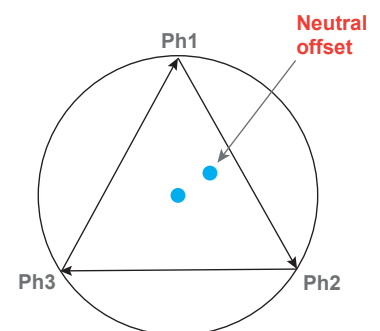Principle of asymmetry and neutral disconnection
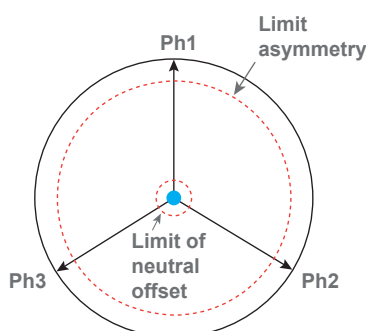
Normal situation with alarm limit

Phase 1 asymmetry situation

Offset neutral situation

THE SIGAL® RANGE

An annunciator range with innovative assembly and functions

Sigal® annunciators or indicator panels provide visual information on the status of the electrical installation. The range includes a host of features.

SIGD RANGE
Equipment operation
Check whether industrial or tertiary equipment (pump, fan, etc.) is working or faulty by means of 2 leds.

SIGA RANGE
Circuit-breaker position
Indicate the position of a circuit breaker: open, closed or tripped. Integrated test terminal.

SIGA RANGE
Operating status
Receive information on the operating status of 3 separate pieces of equipment.

SIGO RANGE
Circuit-breaker position and report
Signal the 3 positions of the circuit breaker (open, closed, fault) and benefit from remote reporting to a BMS. Integrated test terminal.

SIGC RANGE
Communication via Modbus
Signal and communicate a range of information via an RS485 Modbus RTU link with a BMS. Integrated test terminal.

SIGC RANGE
Temperature alarm
Benefit from a temperature alarm.

The Sigal® Smart version for monitoring critical installations thanks to Modbus communication

All the Sigal® Smart functions are designed to monitor critical installations within your electricity network.

1 Round cut-out
The front of the product is square, while the back is round. Drilling is therefore easy, using a Ø22.5 mm punch. This guarantees a straight sight glass, unlike with square cut-outs. This innovation considerably simplifies the mounting process on an electrical cabinet or enclosure.

2 Test function
All the products in the range have a "test" function (with the exception of SIGD). The test terminal connected to a push button allow to light on the 3 leds at the same time.

3 Custom label
The front panel is easy to open, so you can customise the led marking file (available in Excel or Word format), without affecting the product's watertightness. The ultrasonically bonded glass guarantees IP65 protection.

4 Modbus communication
During installation, dip switches are used to assign a unique Modbus address to each product. These can be accessed directly from the rear of the product without dismantling the housing and without dedicated software.

5 Monitoring of critical installations
Thanks to the Modbus link, you can monitor your installation by tracking: the number of starts, the number of faults, the operating time and the temperature progression, as well as programming a temperature alarm with flashing leds on the front panel and communicating the information to a CTM.

6 Optimised cabling
Unlike products with fault and alarm contacts, our cabling system requires only 2 wires (via the Modbus link), instead of 5. Thanks to Modbus communication, multiple products can be connected to the same bus, thus facilitating the wiring in large installations.

SIMPLIFIED ASSEMBLY & EASY CONNECTION FOR TRILEDS®
AND SIGAL® RANGES

Install your product in less than 30 seconds

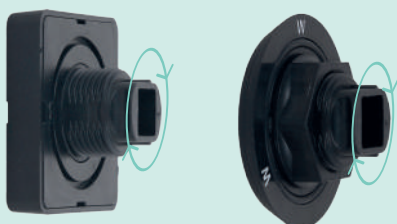Position the front of the Trileds® or Sigal® on the cabinet door

On the back of the door, screw the nut onto the product

Insert the rear housing and lower the key until it "clicks" to lock the position

Standard 22.5 mm drilling using a tool

The square or round front panel of the indicator can be easily mounted on the cabinet door, thanks to its standard of 22.5 mm hole diameter.

A product designed to simplify connection

REDUCED DIMENSIONS

The 31 mm depth, in line with standard cabinet dimensions available on the market, enables door or faceplate mounting. The width of the housing is identical to the size of the Ø30.5 mm Trileds® nut.

EASY INSTALLATION AT HEIGHT

Thanks to the offset housing, the product is wired upstream of the installation. Once connected, the housing is simply assembled by locking the key.

CONNECTION DIAGRAM

The wiring diagram is clearly visible on the rear panel for easy wiring.

31 MM*

CABLE MANAGEMENT

An opening at the bottom of the housing allows a collar to be passed through to guide the cables into the electrical cabinet.
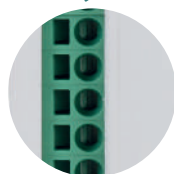
FAST WIRING

With its push-in terminal system, wiring is simple and tool-free, using either flexible or rigid cables.
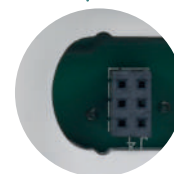
SIMPLIFIED ASSEMBLY

The coded pins ensure the error-free assembly of the product's front panel and rear housing.

* Except 1,000 Vac

Product name	Trileds®						Trileds® Smart
Application	**Industry & tertiary**	**Long distances**	**Photovoltaics**	**Aerospace**	**Automation**	**Data Centre**	**Secure industry & services**
Voltage	230-400 Vac	690 Vac	1,000 Vac	115-400 Vac 400 Hz	24-48 Vac/dc	110-400 Vdc	230-400 Vac
Features							
Voltage indication	✓	✓	✓	✓	✓	✓	✓
Front panel voltage marking	✓	✓	✓	✓	✓	✓	✓
Rotophase							✓
Temperature sensor and alarm							✓
Phase break							✓
Asymmetry							✓
Neutral disconnection							✓
SPST fault contact							✓
References	**TRILAC5**	**TRILAC6**	**TRILAC7**	**TRILAC9**	**TRILAD1**	**TRILDC5**	**TRISAC5**
Features							
Connections	Push-in terminals (rigid or flexible cable) 1.5 mm²						
Front panel IP	IP54 according to EN60529:1991 + A1:2000 + A2/2013						
Rear panel IP	IP2X according to EN60529:1991 + A1:2000 + A2/2013						
IK	IK08 according to EN62262/2008 + A1:2021						
Standards	IEC 55015:2019 + A11:2020; IEC 61000-6-2:2019, EN 61000-3-2:2014, EN 61000-3-3:2013 + A1:2019						
Operating temperature	-20°C to 60°C						Weather-sealed
Drilling diameter	Ø22.5 mm						
Front panel	Ø48 mm						
Height of housing at rear	58 mm						
Width of housing at rear	58 mm						
Depth of housing at rear	31 mm	31 mm	48 mm	31 mm	31 mm	31 mm	31 mm
Service life at rated voltage	100,000 hours						
Weight	75 g	79 g	93 g	79 g	68 g	60 g	79 g
Colours (add the letter at the end of the product reference)							
White, white, white **(W)**	✓	✓	✓	✓	✓	✓	✓
Red, green, yellow **(T)**	✓	✓	✓	✓			✓
Red, red, red **(R)**	✓	✓	✓	✓	✓	✓	
Green, green, green **(G)**	✓	✓	✓	✓	✓	✓	
Custom **(X)**	✓	✓	✓	✓	✓	✓	✓

Product name	Sigal®						Sigal® Smart
Application	CVC	CVC	Industry & tertiary	Process	Critical applications	Critical applications	Critical applications
Voltage	230 Vac	24-48 Vac/dc	230 Vac	24-48 Vac/dc	24 Vdc	48 Vdc	12-48 Vdc
Features							
Number of leds	2	2	3	3	3	3	3
Label holder	✓	✓					
Test terminal			✓	✓	✓	✓	✓
SPDT and SPST output contacts					✓	✓	
Modbus RS485 communication							✓
Temperature sensor and alarm							✓
References	SIGD1AC1D	SIGD1AD1D	SIGA1AC1	SIGA1AD1	SIGO1DC1	SIGO1DC2	SIGC1DC3
Features							
Connections	Push-in terminals (rigid or flexible cable) 1.5 mm²						
Front panel IP	IP65 according to EN60529:1991 + A1:2000 + A2/2013						
Rear panel IP	IP2X according to EN60529:1991 + A1:2000 + A2/2013						
IK	IK08 according to EN62262/2008 + A1:2021						
Standards	IEC 55015:2019 + A11:2020; IEC 61000-6-2:2019, EN 61000-3-2:2014, EN 61000-3-3:2013 + A1:2019 (except SIGC1DC3 not applicable)						
Operating temperature	-20°C to 60°C						Weather-sealed
Drilling diameter	Ø22.5 mm						
Front panel	48 x 48 mm						
Height of housing at rear	58 mm						
Width of housing at rear	58 mm						
Depth of housing at rear	31 mm						
Service life at rated voltage	100,000 hours						
Weight	83 g	61 g	84 g	80 g	88 g	90 g	92 g
Colours (add the letter at the end of the product reference)							
Red, green	✓	✓					
White, white, white **(W)**			✓	✓	✓	✓	✓
Red, green, yellow **(T)**			✓	✓	✓	✓	✓
Red, red, red **(R)**			✓	✓	✓	✓	✓
Green, green, green **(G)**			✓	✓	✓	✓	✓
Custom **(X)**			✓	✓	✓	✓	✓

ZELEC

ACCESSORIES

A full range of accessories to facilitate assembly

REMOTE DOOR FRONT PANEL

Do you have a large power supply and want to move it away from your cabinet door?

Using an accessory, the rear housing of the product to be fixed to the DIN rail inside the cabinet. A 1.5 or 3 metres cable is then used to link the housing on the DIN rail to the front of the product on the door.
This accessory is specially designed with a low voltage that runs through the door to avoid any risk to the user.

Accessories references:
TSR050: DIN rail back accessory 50 cm cable, connectors included
TSR150: DIN rail back accessory 150 cm cable, connectors included
TSR300: DIN rail back accessory 300 cm cable, connectors included

Ø22.5 ADAPTER

Do you have a cabinet with a Ø30.5 mm 3 LED indicator and would you like to replace it with the Ø22.5 mm Trileds®?

An adaptor in the form of a special washer is available. It is simply positioned between the front of the Trileds® and the cabinet door. It transforms the initial Ø30.5 mm opening into a Ø22.5 mm opening. It in no way alters the assembly or mounting of the product or its protection rating.
Compatible with 1 mm thick doors.

Accessory reference:
TVT3022: adapter for Trileds® / Sigal® range 22.5 mm diameter
SVS4822: adapter for mounting Sigal® range square cut 45 x 45 mm to round cut 22.5 mm

A range tailored to the needs of contractors and panel builders

Assembly and cabling

Flexible power braids
Distribution blocks
Earthing bars
Power and PEN terminal blocks
Hexagonal insulators
Hexagonal spacers
Lugs and sleeves

Display and signalling

Trileds® pilot light
Ø22.5 pilot lights
Alarm signalling

Control and protection

Power supplies
Type A differential relays
Type B differential relays

Energy measurement and management

Energy meters
Multifunction meters
Current transformers
Rogowski loops
Analogue and digital indicators

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