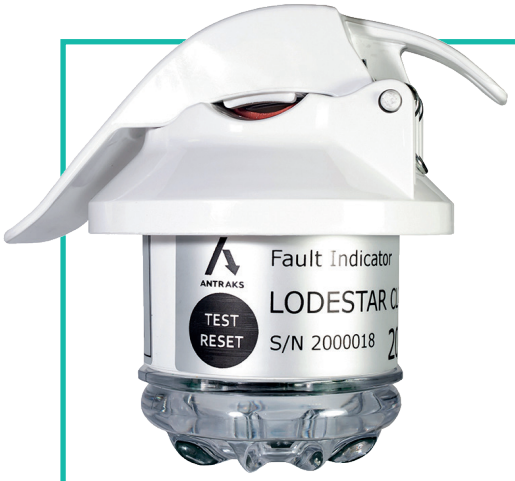
FAULT INDICATOR
LODESTAR CL4B

SIMPLE SOLUTION FOR FAST FAULT DETECTION



Connects to SCADA by communication units

EFFECTS OF IMPLEMENTATION AT ENERGY FACILITIES

ECONOMIC BENEFITS
Stable and reliable power supply attracts investments and supports economic growth

REDUCTION OF UNDER-SUPPLY OF ELECTRICITY
More consistent and steady flow of electricity to consumers, minimizing potential disruptions in power supply

REDUCTION OF COSTS FOR THE IMPLEMENTATION AND OPERATION OF EQUIPMENT

IMPROVING THE RELIABILITY OF POWER SUPPLY TO CONSUMERS
Investments in smart grid technologies, monitoring, management and diagnostics of power grids improve their reliability

Lodestar CL4 supports a range of communication options, including 3G or 4G LTE communications for a high speed data transfer**.

Installation on the line without disconnecting the voltage – using a simple hot stick tool

BENEFITS

- **Minimum fault sensing 4A**
- **Identifies** temporary and permanent faults
- **Registering and storing fault information** such as timestamp, event type and measured values
- **Battery status** control and indication
- Fault indicators **can be integrated with SCADA systems** via Communication box
  **supplies separately*
- Can be configured by **mobile App or SCADA**.

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Types of registered events	PtP, PtG, Transient faults
Short circuit current sensitivity	20 A
Automatic fault current threshold adjustment	+
Zero sequence current sensitivity	4 A
Detection of direction of zero sequence current flow	-
Voltage monitoring	+
General description of devices	
Overhead line voltage range	6-35 kV
Grid's frequency	50/60 Hz
Visual indication	· Blinking ultra-bright LEDs; · detection range up to 100 m (during the day), up to 500 m (at night); · a set of sequences, depending on the capability of the model.
LED brightness	At least 20000 mcd per LED, 360° view
Number of alarms stored in the internal non-volatile memory	Up to 20 000
Remote control (for field config)	Bluetooth BLE (2,4 GHz)
Remote communication**	Pole-mounted communication unit (GSM) is needed for transmitting information from the indicators to the data collection server.
Types of actuation control	· Visual; · by short-range radio channel (handheld remote control); · remote via Komorsan & SCADA (communication unit is needed).
Reset display	· Voltage restoration; · by timer; · magnet; · from the portable control.
Indicator health control	· Magnet; · portable remote control; · remotely (communication unit is needed).
Changing settings (setpoints)	· Changing settings (setpoints) · on the short-range radio channel using a portable remote control; · remotely using the «KOMORSAN Web-client» software (communication unit is needed).
SMS notification (communication unit is needed)	· Up to 5 phone numbers; · composition of the message: GPS coordinates, type of accident, serial number.
Reading GPS coordinates	Yes
Time to prepare the kit for repeated triggering	No more than 3 sec.
Integration with SCADA systems	Connection to any existing SCADA easily via IEC 60870-5-104 by using KOMORSAN software (communication unit is needed).
Source of power	1 removable lithium battery (19 Ah)
Total indication time	> 2000 hours
Indicator life	130000 hours
Battery life (in standby mode)	8-10 years
Thresholds	
Absolute current threshold	20÷1000 A
Differential current threshold in A	20÷500 A
Differential current threshold in %	50÷500%
Current withstand (IEEE495, 4.4.7)	25 kA/500 ms
Inrush current restraint	0-200 ms
Setting the reset timer	Arbitrarily from 1 hour to 8 days
The minimum duration of the emergency process	0,02 s
Exploitation	
Installation location	On the overhead line (conductor)
Conductor diameters	5-40 mm
Installation on live line	+
Temperature range	Operating at an ambient temperature from - 40 °C to + 85 °C
Protection class	IP 68 according IEC
Impact of climatic environmental factors	· Resistant to UV radiation; · resistant to wind load of 40 m/s without ice and 23 m/s with ice with 35 mm wall thickness.
Impact of mechanical factors	· Corresponds to exploitation group M1; · resistant to galloping.