

February 2001

Programmable FAULT CURRENT Indicator for HV-Overhead Lines 6-66 kV

- Pole mounted approx. 3-5 m below the conductors. No special tools required. Reduced mounting cost.
- Automatically adapts to load current (dI/dt).
- User settable fault sensitivity, trip and reset parameters. Extended reset time with low power LED indication.
- Supplied from built-in Lithium battery with a lifetime of up to 10 years.
- Bright omni directional Xenon tube-flash. Specially designed lens for long distance monitoring.



LineTroll 111K is suitable in electricity distribution networks with resistor earthed neutral, isolated neutral as well as compensated networks (Petersen coil). State of the art technology allowing the utilities the possibility to program the operational parameters to suit their own demands for functionality and complexity.

Established in 1977, **Nortroll** has gained considerable experience within fault finding, automation and surveillance of distribution networks.

LINETROLL 111K OVERVIEW

The LINETROLL 111K is used to locate short-circuit- and earth faults in overhead line distribution networks. LINETROLL 111K is a 3-phase unit fully covering the different fault configurations that may occur.

The indicators are placed at strategic locations along the line such as after branching points and sectionalisers.

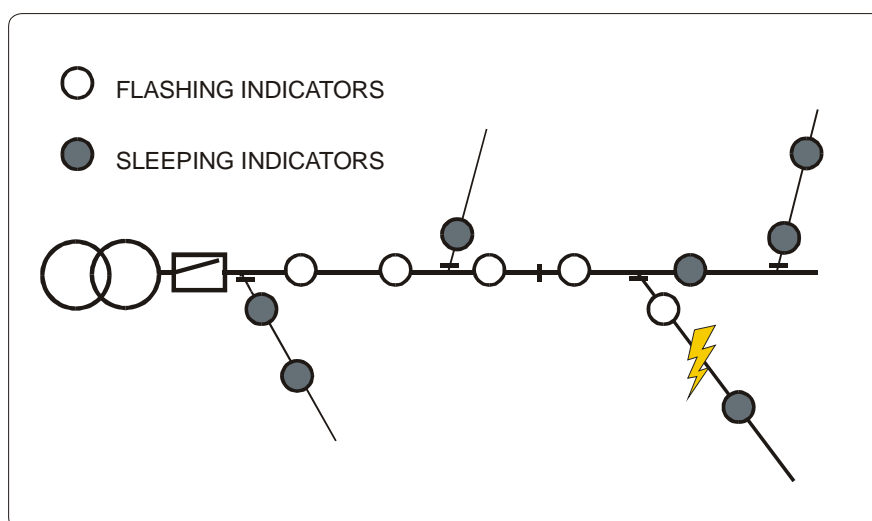
It mounts on the pole, 3-5 meters below the conductors, by means of screws or wrapping-bands. Live line mounting is done safely, easily and rapidly. Upon detecting a fault on the line, the indicator gives off an intermittent Xenon gas flash. This flash can be seen within 200-300 meters distance in bright day-light and 2-3 km at night. The lens of the indicator allows for uniform 360 degrees monitoring.

LINETROLL 111K provides fast fault location enabling reduction in outage times. This represents enhanced service to the customers thereby improving the utilities image.

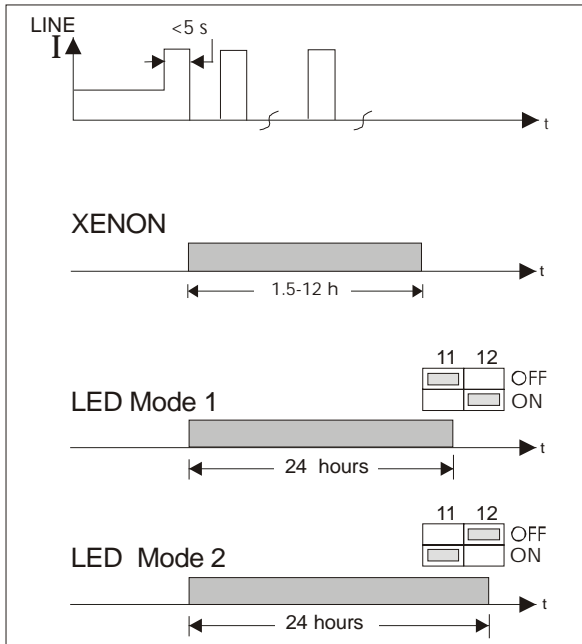
Another important aspect of using fault indicators is that unnecessary operations of circuit-breakers and sectionalisers to locate faults are avoided. This way the indicators help to reduce wear and tear as re-closing cycles causes stress to the switchgear.

Upon fault sensing, all indicators installed between the feeding substation and the fault will operate. The indicators placed behind the fault remain idle.

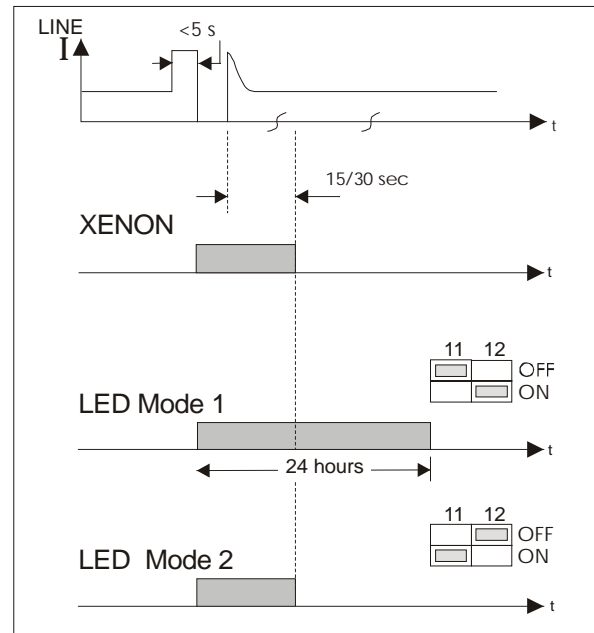
Indication during fault:



Indication of a permanent fault:



Indication of an intermittent fault:



TECHNICAL SPECIFICATIONS

MAX. SENSITIVITY FOR MAGNETIC FIELD (B-FIELD):

Iset	B-field: [mT]
4A	0.27 +/-20%
7A	0.47 ''
15A	1.00 ''
50A	3.33 ''

BLOCKING TIME FOR INRUSH: 3 seconds

INDICATION CRITERIA:

- 1) Line energised for more than 3 seconds
- followed by a
- 2) Line current increasing by at least 100% within 20 ms and reaching a level that exceeds the programmed trip level
- followed by a
- 3) Circuit Breaker tripping within 5 sec. after the fault occurrence (can be disabled).

REQUIRED FAULT DURATION: approx. 25 msec

INDICATION:

- 1) Xenon gas flashes, 0.2 Joules per flash every 5 sec., and
- 2) Indication by a high intensity LED; - two different modes:

Mode 1:

Transient indication. The LED flashes for 24 hours or until the indicator is reset manually by a magnet.

Mode 2:

Low power indication. The LED flashes for 24 hours or until the indicator is reset upon return of the line voltage. *)

*) If a new fault occurs after the timer reset of the Xenon flash but before the 24 hour LED flashing reset; both timers restart.

RESET:

- 1) Voltage reset, delayed 15 or 30 sec. or disabled.
- 2) Timer reset: Xenon flash: 1.5, 3, 6 or 12 hours. LED: 24 hours.
- 3) Manual reset by magnet.

CURRENT CONSUMPTION: Non-activated: 40 - 70 μ A
Activated: 20 - 35 mA

BATTERY:

Lithium battery: 3.6V 14.5Ah at 5mA @ 20 °C, type KBB-12.
Battery replacement: every 5-10 years or every 500 operational hours, whichever comes first

AMBIENT AND STORAGE TEMPERATURE:

-40 °C to + 74 °C

HOUSING MATERIAL:

Lens: LEXAN
Top-cap: Super-tough nylon

BRACKET MATERIAL:

Aluminum

WEIGHT:

Indicator with battery
330 grams

PACKING:

Cardboard box with indicator, bracket and screws
745 grams, Dimensions 270 x 170 x 70 mm, Volume 3,2 dm³

Note: Due to the company's continuous research programme, the information above may change at any time without prior notification. Please check that you have the most recent data on the product.