



# Line Troll® 110Eµr

Online Fault Passage Indicator for overhead lines

LineTroll® 110Eµr Fault Passage Indicator detects phase-to-phase (PTP) and phase-to-earth (PTE) faults in 6-69kV distribution networks. The online indicator independently indicate both permanent and transient (temporary) faults with bright LEDs. All alarms, status messages and load current values are transferred (RF) to a communication unit (Collector) mounted on the pole underneath. The collector (LineTroll R110CQ) can address up to 9 LineTroll 110Eµr indicators and communicates with the SCADA system through GPRS mobile link. The Collector ComTroll 118C have a Modbus output which can be connected to RTUs and modems using any media for communication.



## Some features on LineTroll® 110Eµr

Remotely configurable

- ◆ Load current monitoring
- ◆ Integrated short-range radio.
- ◆ Ultra High visibility ( 40 lumens with strobe effect) 360°
- ◆ Usable on multi circuit systems
- ◆ Configurable response time
- ◆ Voltage or current as start criteria (configurable)
- ◆ Di/dt or Threshold Trip Setting values individually configurable
- ◆ Dual indications (permanent and transient faults)
- ◆ Loss of Voltage detection
- ◆ Battery capacity monitoring

## Functional Description

LineTroll 110Eµr continuously monitors the line voltage and phase current to detect downstream faults.

The unit is fully self-contained, no external transformers or connections is required.

The indicator is looking for a specific sequence of line conditions to happen before it indicates. The general sequence is as follows:

A. The line should be energised (voltage or current present) for a minimum of 5 seconds.

B. Di/Dt: The line current should increase more than the specified di/dt trip value  
Response time is configurable

And/or

Threshold: The line current exceeding a pre-set current level

C. The line should be de-energised. (voltage or current not present)

After detected a fault, the type of alarm is transferred to SCADA together with the load current value prior to the fault.

## Technical Specifications



Application:	Online Short circuit and Earth fault indication for overhead lines.	
	System Voltage:	MV– voltage network (6-69kV)
	Grounding system:	Isolated, resistor and solidly grounded
	Frequency:	50Hz / 60 Hz
Fault-detection:	Sensitivity Di/Dt (50Hz):	6, 12, 25, 60, 90, 120A, 160 [A]
	Sensitivity thresh.(50Hz)	100, 200, 500 or 600 [A]
	Response time:	20, 50, 100, 200 [ms]
	Inrush-blocking:	5 sec
	CB-tripping:	Within 5 sec
Reset:	Automatic:	Re- energized line (Voltage or current, programmable)
	Timer:	2, 4, 8, or 16 hours
	Manual:	Handheld unit or smart-phone APP from ground
Indication:	<b>Remote</b>	3, 6 or 9 LT110Eµr's sends alarms to LineTroll R110CQ set up a GPRS connection to SCADA and transfer: Transient Fault (temporary faults) Permanent Fault Loss of voltage or load current The actual load current from each indicator [3—300A] Communication lost with indicator(s) Low Battery Warning
	<b>Locally:</b>	3 high intensity LED's Permanent faults: Ultra Bright Red Strobe Flash (40 lumens) Transient faults: 1 green LED (f = 0,2Hz) Low battery: 1 Led (f = 0,1Hz) <20% of tot capacity (16,5Ah) remaining
Built-in Radio:	Frequency:	2,4 GHz, ISM-band,
	Output Power:	1mW (0dBm)
	Data rate:	250kbit/s
	Range:	20m LOS, (margin =20dB/ Rec.sens: -90dBm)
Visibility day/night/dir.:		<500m/2km / 360°
Power supply:	1 Lithium Cell	D-size total capacity: 16,5 Ah
	Battery change:	Every 1500 flash hours, normally every 10 years, 20 year shelf life.
Mounting:	Hot-stick:	Live-line mounting with Grip-All Clamp hot-stick or KBN-4 mounting tool.
	Conductor size:	5-36 mm
Temperature range		-40° to +85°C
Housing:	Material:	Polycarbonate, UV stabilized
	Dimension:	202 x 54mm (with box 235 x 65 x 85)
	Weight:	345g incl– battery
Protection	Ingress:	EN 60529 IP 67
	Mechanical Impact:	EN 62262 IK 09 (10J)

## Ordering Information

Product nr:	04-1200-62	LineTroll110Eµr
Product nr:	17-1200-00	KBN-4 Reset/mounting tool with bolt hot-stick adaptor
Product nr:	07-1056-00	KBB-11 replacement battery
Product nr:	04-0110-03	LineTroll R110CQ collector for 3—9 indicators
Product nr:	01-0330-01	ComTroll 118C Kit collector for 3—12 indicators

## About Nortroll AS

Since the foundation in 1976, Nortroll AS has devoted its activities to the development of equipment aiming to reduce electric utilities outage times. We offers a wide range of products for fault detection and remote operation in the MV Distribution Network.

## Your Representative

LineTroll®

