



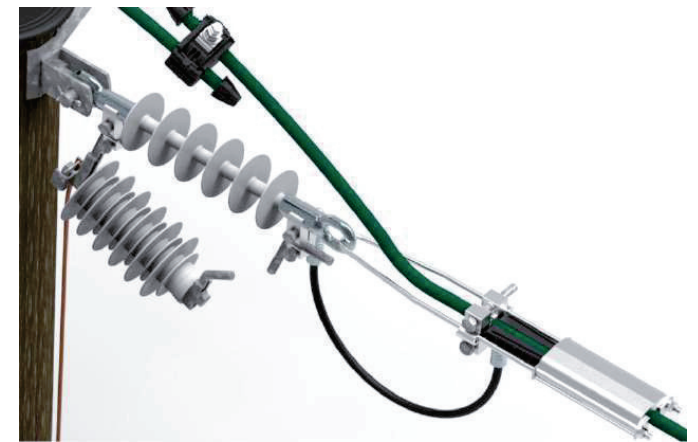
LENUSA

Ensto Fully Covered Conductor System FCCS – for Medium Voltage

Better life.
With electricity.

CLD for Tension Clamp Insulators

- Arc gap length: 40 – 110 mm ($U_n = 10 - 45$ kV)
- Includes an eye-eye tension insulator
- Includes shunt conductor with cable lugs
- Crossarm / surge arrester must be earthed



CLD for Line Post Insulators

- › Conductor range today 1/0 – 500 mcm
- › Arc gap adjustable 40 – 110 mm (Un 10 - 45kV)
- › Connector's arc horn works also as an earth parking device
- › Crossarm / surge arrester must be earthed

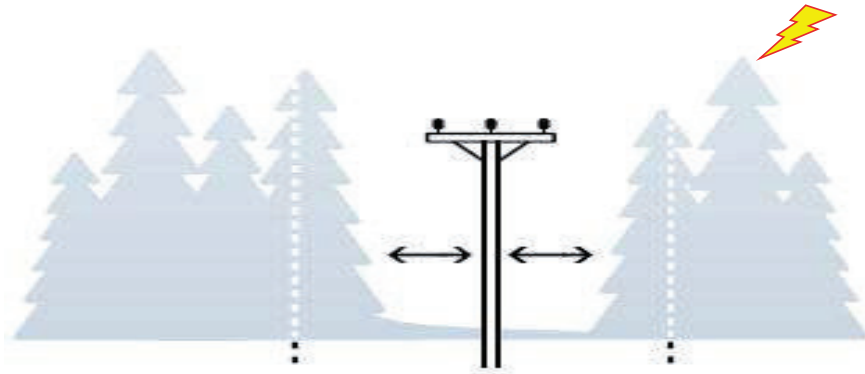


Overvoltage Protection with Current Limiting Device (CLD)

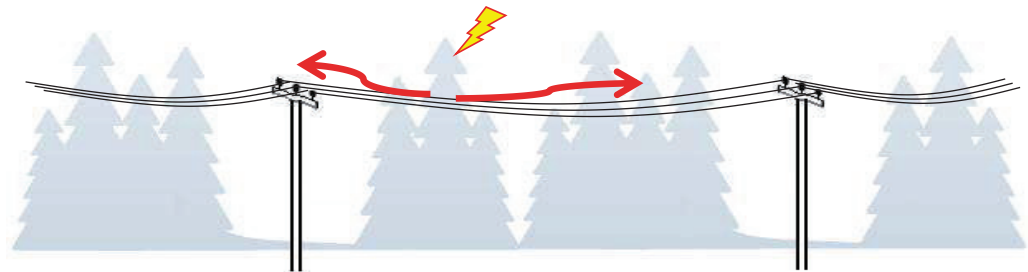
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Overvoltage Surge on Overhead Line

1. Lightning strikes near the line and induces surge voltage impulse on conductors



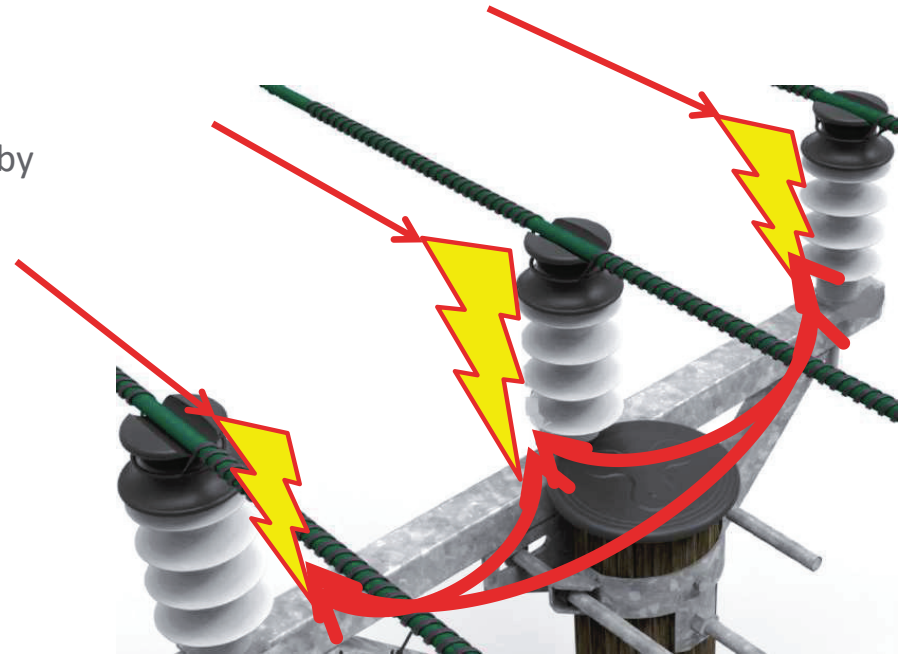
2. Impulse wave travels along the line both directions, on all 3 phases



What Happens on Top of the Pole?

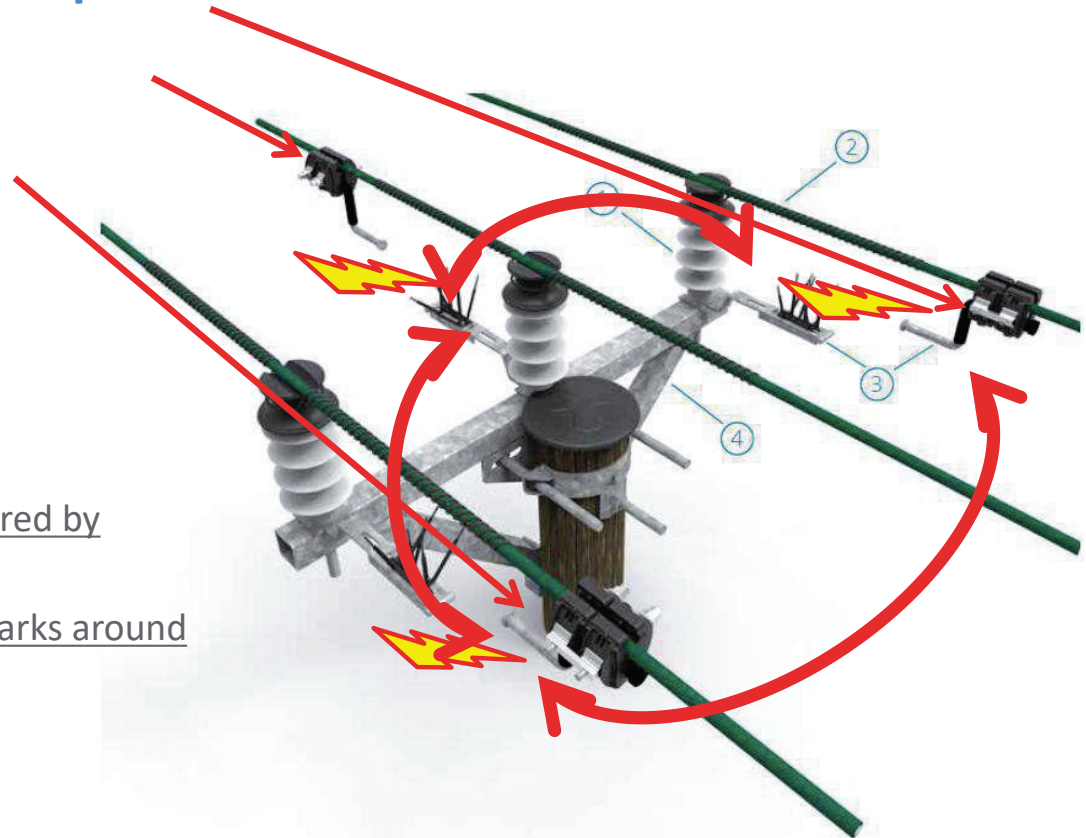
If over voltage impulse is more than basic insulation level

- insulator arcs over and ignites a 60 Hz short-circuit powered by transformer
- short-circuit arc keeps burning on uncontrolled place
- arc (1...10 kA) damages conductors
- Line is turned off by relay operation



Protection with Spark Gap

- spark-gap arcs and starts 60 Hz short-circuit powered by transformer
- short-circuit arc keeps burnings and discharges sparks around
- Line is turned off by relay operation

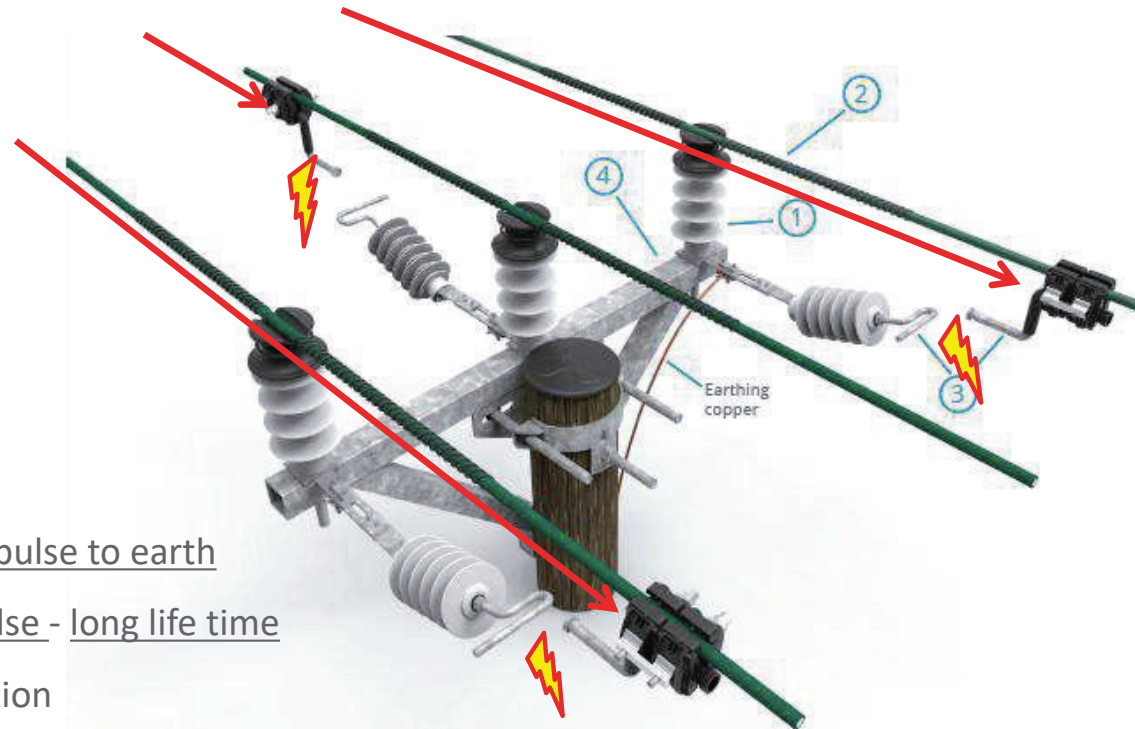


Protection with Surge Arrester



- Surge arrester conducts the impulse to earth
- Surge arrester is continuously under voltage and ages
- Surge arrester failure results in short circuit to earth or, if disconnected, in no overvoltage protection
- Disconnecter activation discharges sparks around

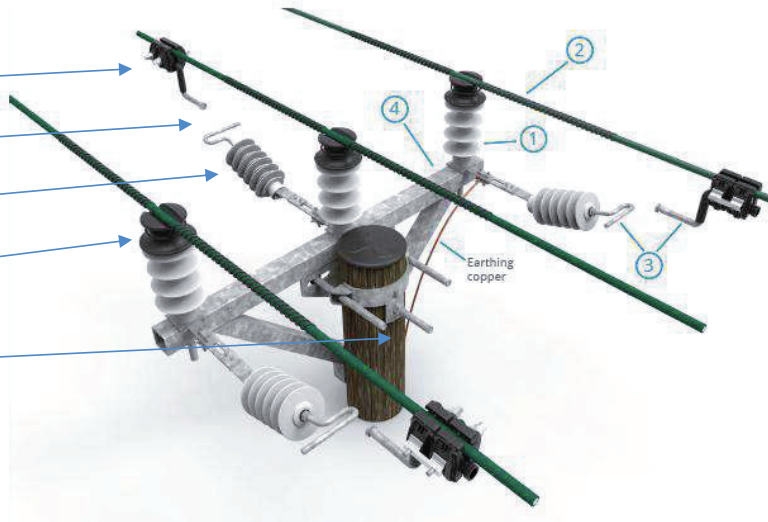
Protection with Current Limiting Device (CLD)



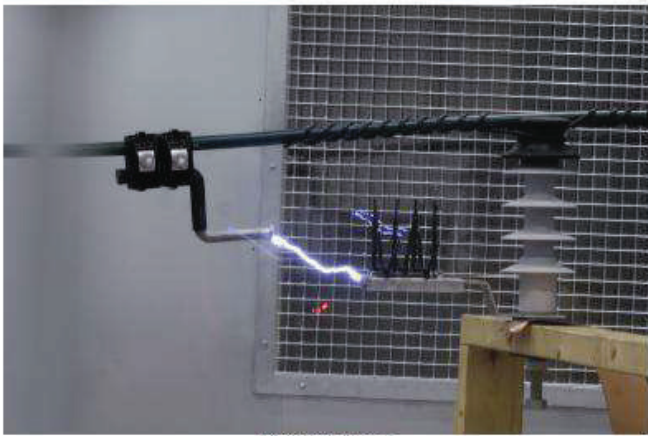
- spark-gap arcs and surge arrester conducts the impulse to earth
- Surge arrester under voltage only during the impulse - long life time
- If surge arrester fails, spark gap remains as protection
- Arc is short and weak as only the over voltage impulse is giving energy, not 60Hz transformer
- No phase to phase short circuit - no relay operation - line stays on

Structure

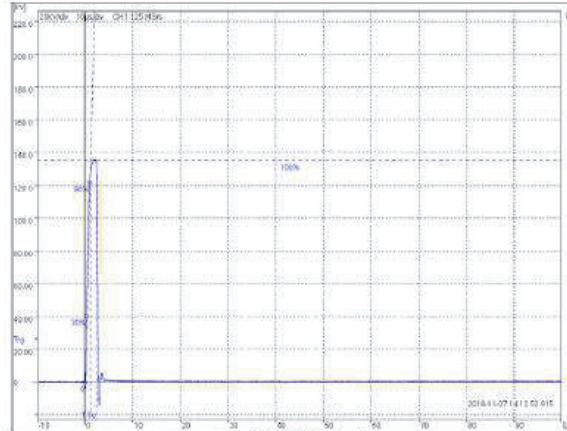
- Insulation piercing connector
- Spark gap
- Surge arrester
- Plastic top insulator
- Earthing



Spark Gap vs. CLD

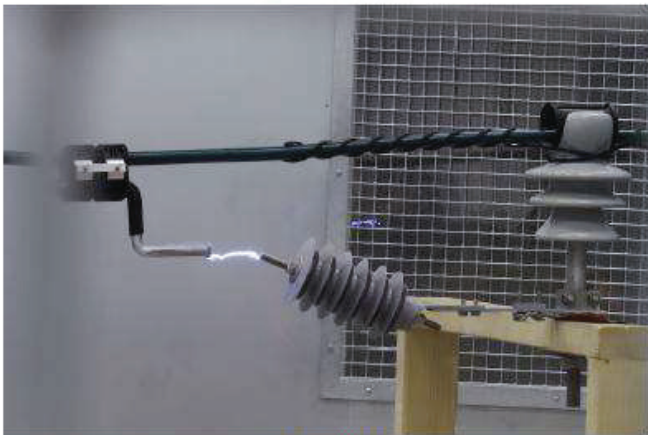


Picture 1: SDI24 arc

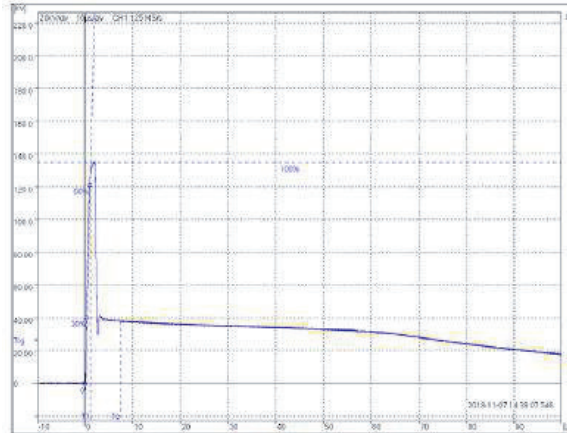


Graph 1: SDI24 test pulse

→ spark-gap arcs and cuts the over voltage spike and makes short circuit to earth and to other phases



Picture 2: SDI48.7 arc



Graph 2: SDI48.7 test pulse

→ CLD activates and cuts the over voltage spike, but keeps arrester voltage to earth and to phases – no short circuit



LENUSA PT.LAUTAN ENERGI NUSANTARA

Gedung 18 Office Park Fl. 22 Unit 22 E,F,G

Jl. TB. Simatupang Kav.18 Jakarta 12520

Phone : (+6221)-8064 1978, 08111 328899 Fax: {+6221)-8064 1999}

Email : sales@lenusa.co.id, pt.lenusa@gmail.com

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Current limiting device - CLD

SDI46.5

Code SDI46.5
 GTIN 6418677418631
 Name Current limiting device
 For 20 kV, line-post
 Description Used on straight line crossarms with post line insulators for arc protection. The set includes a surge arrester, a fixing bracket, a connector, a spark horn/an arc protection horn and a cover. Three sets are needed for one crossarm.



Vendor

Technical specification

Others

ETIM Class: EC000490

Features

For conductor size: 50-157 mm²
 Insulator pin: Line-post
 Surge arrester: Metal oxide (ZnO)

Dimensions

Net Weight: 3.86 kg

Electrical values

Arc gap: 70 ... 80 mm
 Highest system voltage: 24 kV
 Nominal voltage (Un): ≥ 20 kV

ETIM 7

Etim

Material: Other
 Surface protection: Other

Type of accessory:	Other
Packaging	
Pallet package	
Unit:	pcs
Package size:	24
Depth:	1200 mm
Width:	800 mm
Height:	1030 mm
Default package	
Unit:	PCE
Package size:	1
Depth:	383 mm
Width:	258 mm
Height:	173 mm
Weight:	4.102 kg
Volume:	17.094822 l



LENUSA - PT.LAUTAN ENERGI NUSANTARA

Gedung 18 Office Park Fl.22 Unit 22 E,F,G - Jl.TB. Simatupang Kav.18 Jakarta 12520

P: (62-21) 8064 1978, 0811 1328 899 F: (62-21) 8064 1999 E: info@lenusa.co.id - sales@lenusa.co.id - pt.lenusa@gmail.com