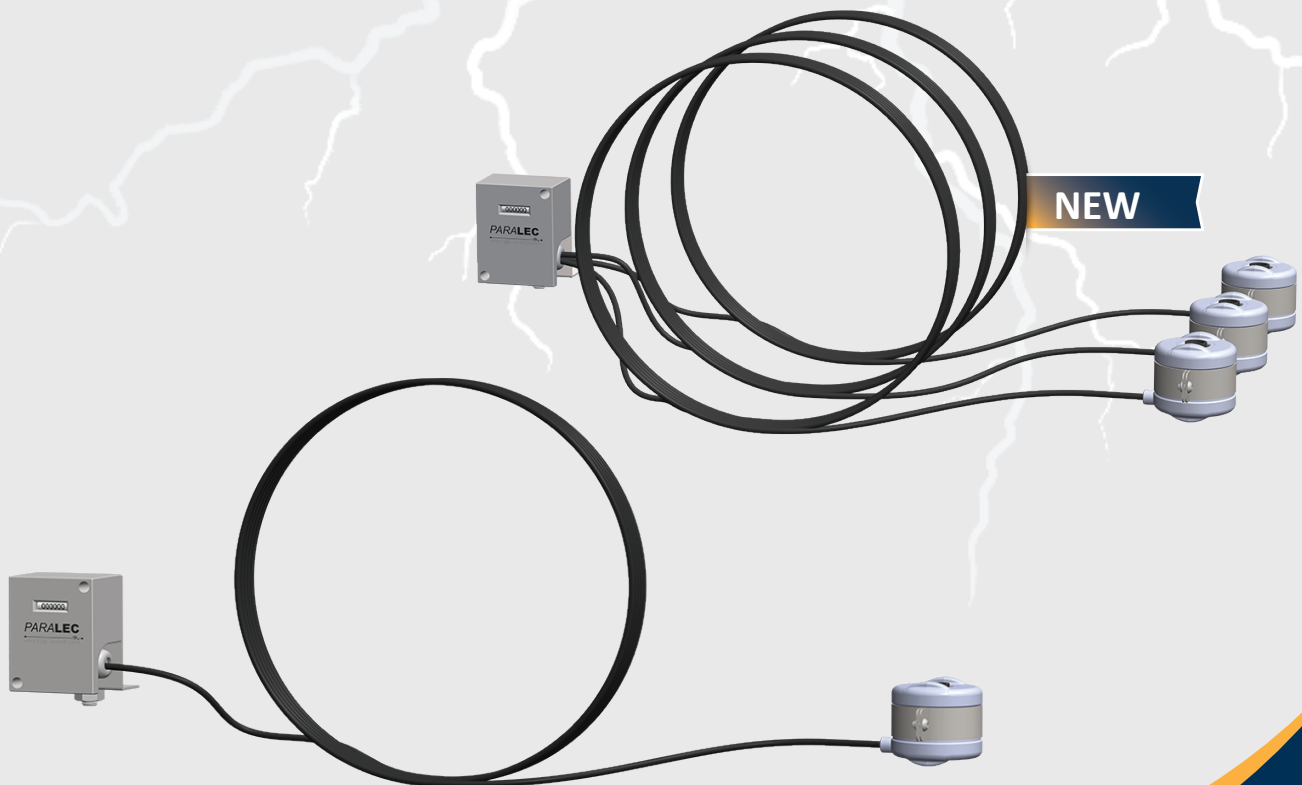


# SURGE counter

## LSC lightning strike counter



### High sensitivity universal counter

- Monitoring of lightning protection equipment: lightning rod, surge arrester, EGLA, MOA, MOR, SPD, TLA, ground lead, ground rod...
- High measurement performance: from 250 A minimum to 100 kA detection
- Counts lightning impulse separated by more than 20 ms
- Outdoor device : IP68
- No maintenance : self powered device, no battery
- 4-20 mA output (Optional)
- Easy cable installation : up to 3 split cores current transformers, 5 to 25 mm cable diameter
- Easy counter installation : bottom, top, back or strap mounting. Up to 20 m cable length
- Durable device : glass window, stainless steel & HDPE plastic

PARALEC Lightning Strike Counter is meant to count the number of lightning strikes based on the current flowing in a conductor.

Surge Counter can be installed easily on the ground leads even on existing installations thanks to its split core transformer.

The counter display can be mounted top, bottom, back, or strapped up to 20 m from the measurement point.

The device complies to the IEC 62561.

Thanks to its IP68, housing, rugged materials and self power, the LSC is suitable for outdoor and hazardous atmospheres.

## FEATURES

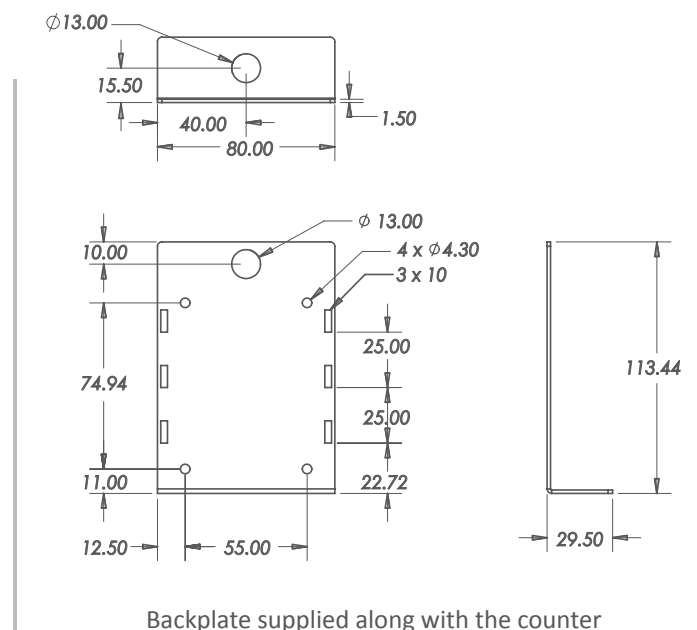
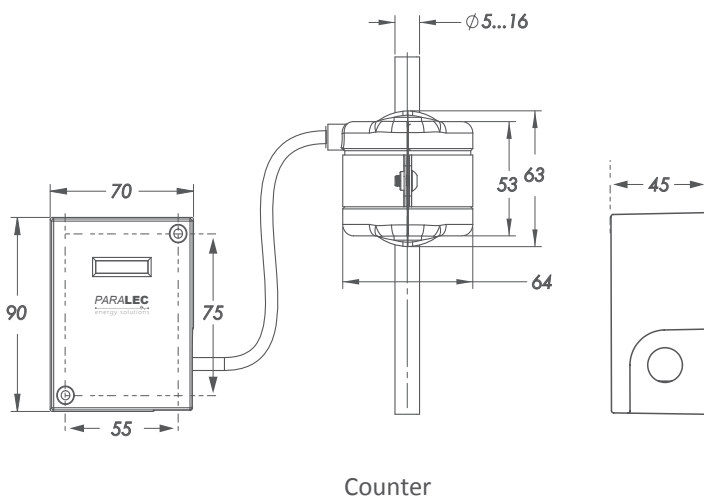
- Easy installation: any place on an earthing wire
- Performance monitoring simplified: indication unit can be even at eyes level
- High sensitivity: 250 A minimum sensitive current

### Don't miss a thing!

Lightning events are composed of up to 10 strokes (impulses) and 3 in average. The interval between lightning stroke is in average 50 ms, the SC250 is able to count every stroke/impulse during a lightning event down to 250 A so you won't miss a thing.

<b>Minimum</b> discharge 8/20 $\mu$ s current counted, $I_{nmin}$	250 (500*) A
<b>Maximum</b> discharge 8/20 $\mu$ s current counted, $I_{nmax}$	100 kA
<b>Minimum</b> impulse 10/350 $\mu$ s discharge current counted, $I_{impmin}$	250 (500*) A
<b>Maximum</b> impulse 10/350 $\mu$ s discharge current counted, $I_{impmax}$	100 kA
Conductor diameter range (mm)	a) 5-16 mm with maximum sensitivity b) 17-26 mm reduced sensitivity (check page 5)
Counts lightning impulse separated by more than 20 ms	

## DIMENSIONS & PARTS



# TECHNICAL CHARACTERISTICS



REFERENCE	VALUE
EARTHING CONDUCTOR DIAMETER RANGE, mm	5 to 16   35 to 150mm <sup>2</sup>
EARTHING RIBBON, MAX, mm x mm	20 mm x 60 mm
MAXIMUM DISTANCE BETWEEN DISPLAY AND SENSOR	20 m
INSTALLATION ON THE CONDUCTOR	in parallel – clamped
MINIMUM DISCHARGE PEAK CURRENT DETECTED - 8/20us waveform - IEC 62561-6	250 (500*) A
MAXIMUM DISCHARGE PEAK CURRENT DETECTED - 10/350us waveform - IEC 62561-6	100 kA
MINIMUM NUMBER STROKE REGISTRATION RATE	≥ 2 counts/sec.
MINIMUM TIME BETWEEN 2 STROKE FOR REGISTRATION, RESPONSE TIME	20 ms
VOLTAGE DROP ON TERMINALS	< 1 V
LONG DURATION CURRENT WITHSTAND CAPABILITY	2500 A for 4 ms
HIGH CURRENT WITHSTAND CAPABILITY	100 kA
FREQUENCY, Hz	47 to 63
NUMBER OF DIGITS ON DISPLAY	6
TYPE OF DISPLAY	MECHANICAL
BATTERY POWER SUPPLY	NO
SELF POWERED	YES
RESET COUNTER METHOD	NO
MEMORY ROM - Storage of last counter value	NO
WEIGHT, kg	1 Kg

## ENVIRONMENTAL CONSTRAINTS

TEMPERATURE - °C	Class C2: -40 to +70
PROTECTION CLASS	IP67, NEMA 4X
TEMPERATURE CHANGE RATE - °C/min	Class C2: 1,0
RELATIVE HUMIDITY - %	Class C2: 10 to 100
MAX ABSOLUTE HUMIDITY - g/m <sup>3</sup>	Class C2: 35
MAX ALTITUDE - m	2 000
ATMOSPHERIC PRESSURE - kPa	70 to 106
STANDARDS/TEST	IEC 62561-6
LABEL INCLUDES	Hardware version number, serial number, manufacturing batch
UV STABILIZED HOUSING	YES
STAINLESS METAL	YES
TYPE OF SURGE COUNTER as per IEC62561-6	Type 1 and Type 2; outdoor

\* for the Surge Counter SC250 3 split cores

## MAINTENANCE

The PARALEC Lightning Strike Counter requires no maintenance and its life expectancy is above 10 years.

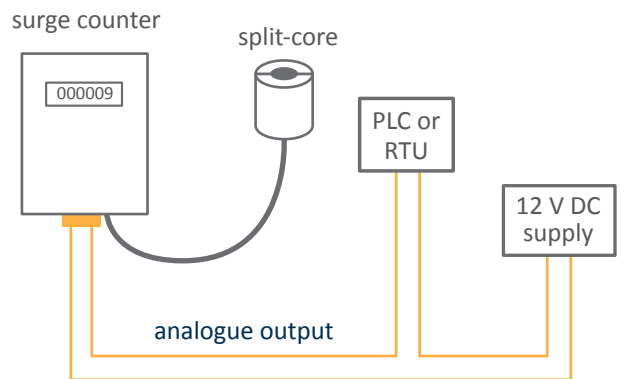
# ANALOGUE OUTPUT



An optional 4-20 mA output is available. The output requires the unit to be powered by 12 VDC supply. The output can be connected to a PLC, or a modem for remote monitoring through BMS, DMS etc...

On lightning event the output goes from 4 to 6 mA to 15 to 20 mA according to the length of the cable.

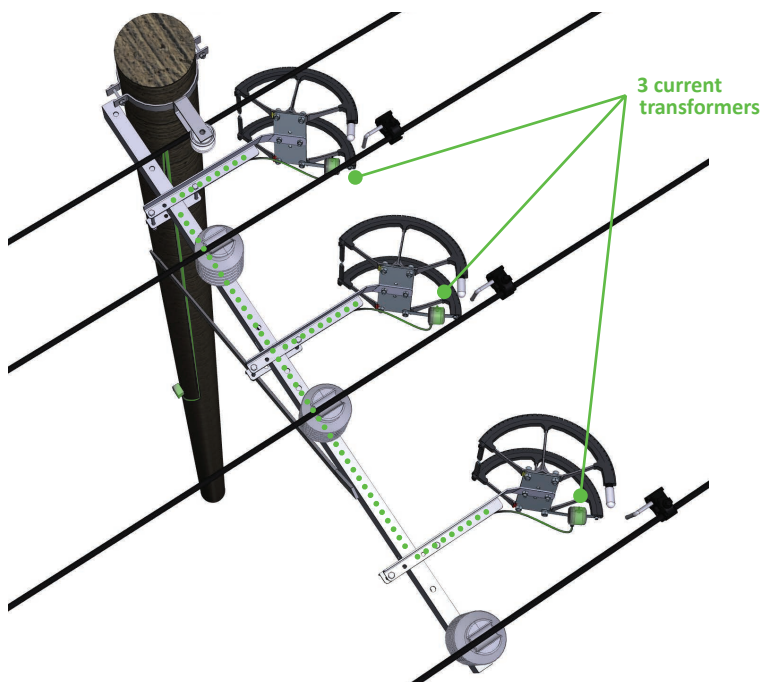
ANALOGUE OUTPUT (OPTIONAL)	4-20 mA   no event : 4 to 6 mA   on event : 15 to 20 mA for 2 s (minimum)
ANALOGUE OUTPUT CABLE	Max length : 150 m   Min cable section: AWG28 or 0.07 mm <sup>2</sup>
VOLTAGE SUPPLY FOR ANALOGUE OUTPUT	12 (+-1) V DC



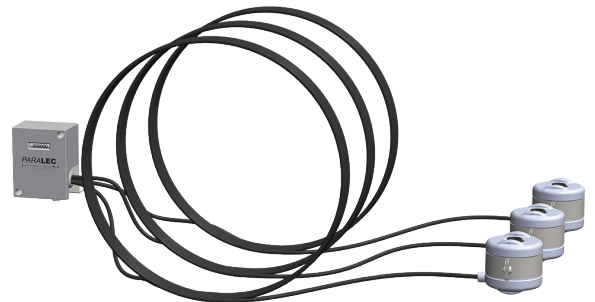
[www.paralec.com](http://www.paralec.com)

# 3 CURRENT TRANSFORMERS DEVICE

The 3 current transformers SC250 is in all point similar to the 1 current transformer SC250 in terms of detection levels, electrical characteristics, withstand, performance and dimensions.



*SADC20z mounted with SC250 with 3 current transformers*



The device has been designed to monitor 3 earthing point simultaneously, that could include for example 3 x LLPD, as the LLPD have not be design to have specific groundings OR as the grounding path might not be unique.

The counter will totalize the surges on one unique counter, therefore it will not be possible to distinguish which location ( current transformer ) the surge originated from.

The usage of a 3 current transformers is justified to reduce time and cost of installation and ensure proper detection.

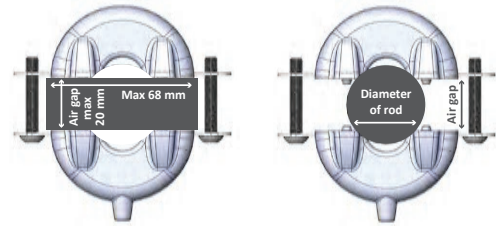
# SPLIT CORE CHARACTERISTICS



**PARALEC**  
energy solutions

The 16 mm split core is suitable for ground lead with diameters from 5 to 26 mm.

250 A minimum detection is achieved for diameters from 5 to 16 mm. For diameters or airgaps above, the table below provides minimum detection current.



Conductor ribbon section

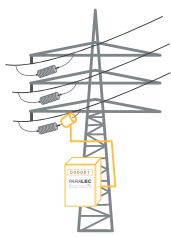
Conductor round section

Air gap	0	2	4	6	10	15	20
Diameter of rod/conductor	<16	16.1	16.5	17.1	18.8	21.9	25.6

Minimum discharge current, 8/20 us, A

Conductor length SC250 1 core	3 m	250	350	450	500	600	650	700
	10 m	250	370	500	600	700	800	900
	20 m	320	400	600	700	900	1000	1000
Conductor length SC250 3 cores	3 m	500	600	700	800	1200		
	6 m	500	650	780	900	1350		
	10 m	600	700	850	1000	1500		

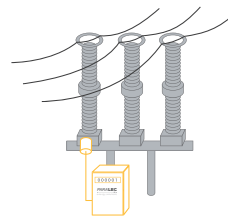
## INSTALLATION



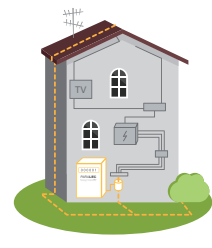
On overhead lines with LLPD, TLA or EGLA



On buildings ground lead



On substation MOA



On building SPD



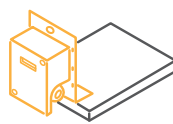
Top mounted



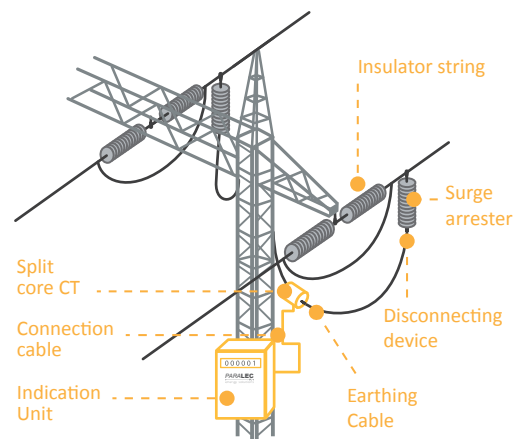
Strapped



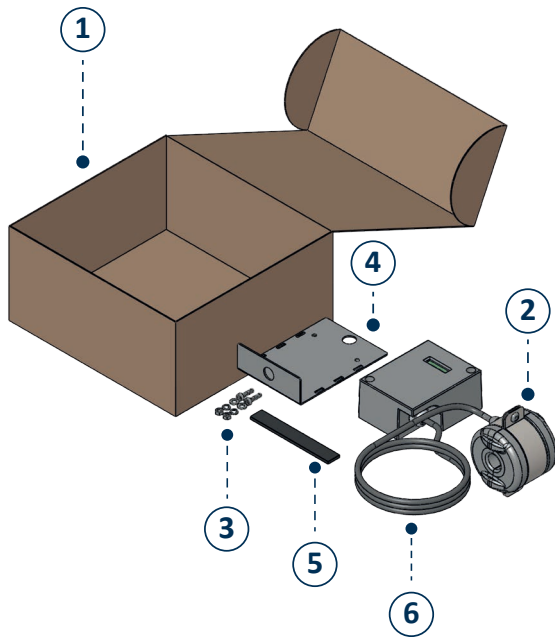
Back mounted



Bottom mounted



## PACKAGING




No. Item	Description	
1	Box	
2	Surge counter with split cores	Included
3	Screws for the mounting plate	Included
4	Mounting plate	Included
5	Rubber sheet	Included
6	Cable	Included


## PRODUCT RANGE

	ANALOGUE OUTPUT	CONNECTION CABLE	REFERENCE
<b>SC 250</b> 1 current transformer	WITHOUT analogue output	3 meters	10011111
		10 meters	10013111
		20 meters	10014111
	WITH analogue output	3 meters	10031111
	10 meters	10033111	
	20 meters	10034111	
<b>SC250</b> 3 current transformers	WITHOUT analogue output	3 meters	10011311
		6 meters	10012311
		10 meters	10013311




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