

# Link Boxes

High Voltage Cable Systems  
Cable Sheath Earthing

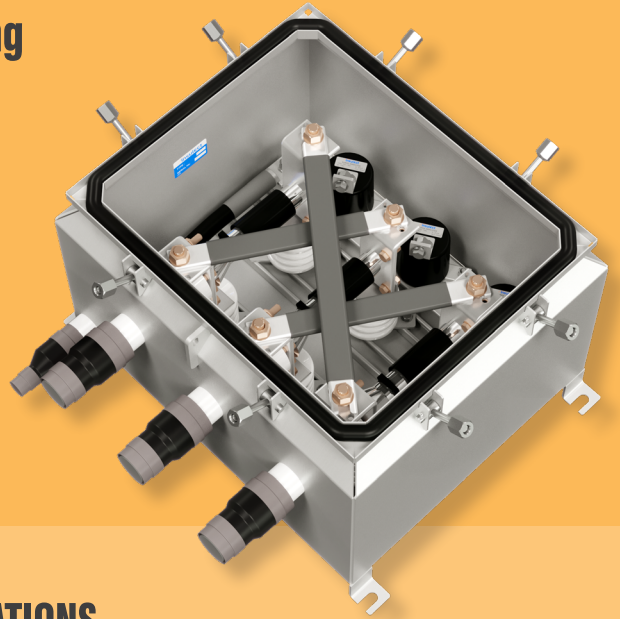


## Insulect link box designs use various earthing practices to minimise sheath currents and provide sheath voltage protection.

**Direct Earthing** or **SVL Earthing** through sheath voltage limiter surge arrester.

**Cross Bonding** with insulation withstand between phases.

**Cable Sheath Protection** using metal oxide sheath voltage surge limiters (SVLs).



### COMMON SPECIFICATIONS



Link Box  
Mounting

Structure or Pit



DC  
Withstand

25 kV/5mins



Pressure  
Withstand

250 kPa



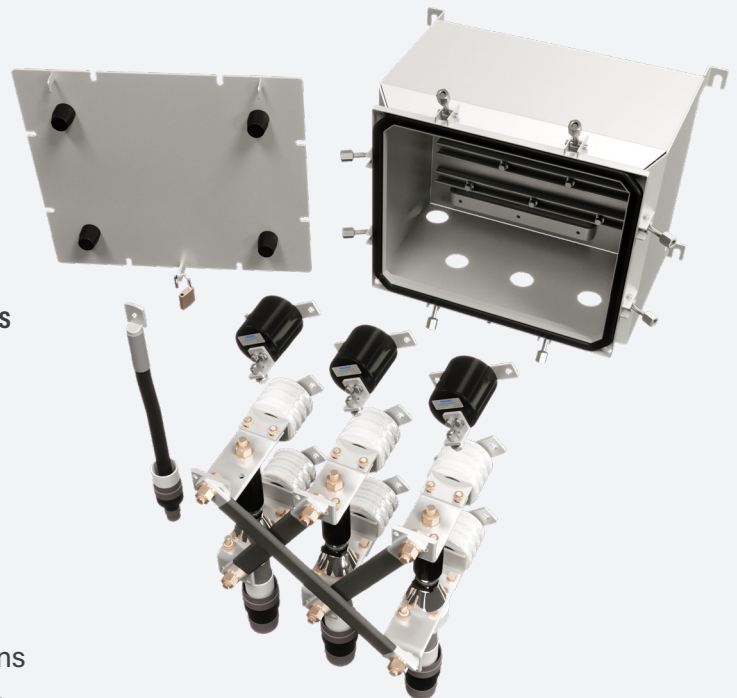
Engineering  
Compliance

C55/4

## LINK BOX ULTRA

ULTRA is our original Link Box design, built for demanding conditions and highest performance.

Material **316 Stainless Steel** Short Circuit **63 kA/1s**  
Enclosure rating **IP68** Internal power arc **40 kA/0.12s**  
Pressure test meter **10M**

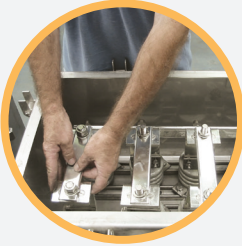


## LINK BOX LITE

The LITE is designed for less arduous applications and where ease of handling and install is important.

Material **304 Stainless Steel** Short Circuit **40 kA/1s**  
Enclosure rating **IP68** Internal power arc **20 kA/0.12s**  
Pressure test meter **2M**

# Insulect Link Boxes ensure a weather proof environment for connecting links, whether for earthing or cross-bonding high voltage cables.



## Comprehensive link box range

Link boxes of all types for single core and concentric bonding cables.



## Up to IP68 rated stainless steel enclosures

Fully tested and fully sealed stainless steel enclosures, rated at a minimum of IP68.



## For above or below ground applications

Universal design to suit indoor, outdoor and in-pit installation.



## Australian design and manufacture

Our link boxes have been designed, manufactured and tested in Australia for over twenty years.

## KEY COMPONENT MATERIALS

### LINKS

Extruded copper in hard drawn high conductivity 300mm<sup>2</sup> minimum.

### STRESS CONES

Polyurethane elastomer.

### INSULATORS

High tension porcelain, stainless steel hardware.

### PLATING

All conductors plated with  $\geq 8\mu\text{m}$  of tin.

## Sheath Voltage Limiters (SVL) are an economic solution for safeguarding expensive cable installations.

They are highly reliable and effective at managing cable sheath voltage rises and the associated power flows that can result under fault conditions.

Insulect manufacture an extensive range of quality 20kA zinc oxide sheath voltage limiters (SVL's).

Voltages: **1.5kV to 9.0kV**



See over for full SVL technical specification

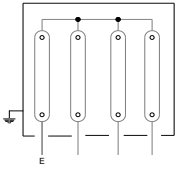
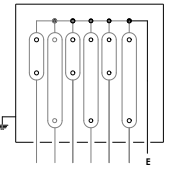
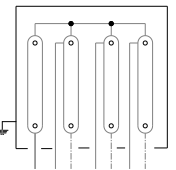
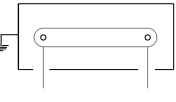
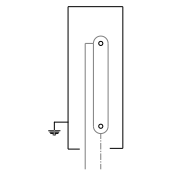
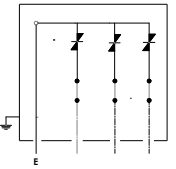
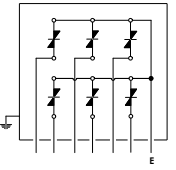
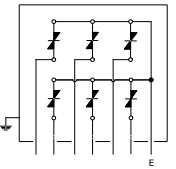
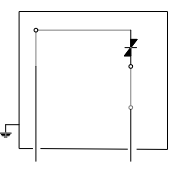


**LINK BOX ULTRA**

316 Stainless

**LINK BOX LITE**

304 Stainless

Schematic	Application	Bonding Cable (mm <sup>2</sup> )	SVL (optional)	Impulse Level	Short Circuit	Dimensions (mm)	Weight (kg)	Short Circuit	Dimensions (mm)	Weight (kg)
	Direct Earthing	Single Core (95-500)	-	75 kVp Ph-Ph 40 kV Ph-E	63 kA/1s	W730 D560 H560	110	40 kA/1s	W730 D560 H560	90
	Direct Earthing	Single Core (95-500)	-	75 kVp Ph-Ph 40 kV Ph-E	63 kA/1s	W770 D670 H560	140	40 kA/1s	W770 D670 H560	115
	Direct Earthing	Concentric (95-300)	-	75 kVp Ph-Ph 40 kV Ph-E	63 kA/1s	W730 D560 H560	110	40 kA/1s	W730 D560 H560	90
	Direct Earthing	Single Core (95-500)	-	40kV Ph-E	63 kA/1s	W525 D410 H490	50	40 kA/1s	W525 D410 H490	41
	Direct Earthing	Concentric (95-300)	-	40kV Ph-E	63 kA/1s	W360 D645 H515	50	40 kA/1s	W360 D645 H515	41
	SVL Earthing	Single Core (95-500)	1.5kV to 9kV	75 kVp Ph-Ph 40 kV Ph-E	-	W730 D560 H560	95	-	W730 D560 H560	78
	SVL Earthing	Single Core (95-500)	1.5kV to 9kV	75 kVp Ph-Ph 40 kV Ph-E	-	W770 D670 H560	120	-	W770 D670 H560	98
	SVL Earthing	Concentric (95-300)	1.5kV to 9kV	75 kVp Ph-Ph 40 kV Ph-E	-	W770 D670 H560	125	-	W770 D670 H560	102
	SVL Earthing	Single Core (95-500)	1.5kV to 9kV	40kV Ph-E	-	W525 D410 H490	50	-	W525 D410 H490	41

					LINK BOX ULTRA 316 Stainless			LINK BOX LITE 304 Stainless		
Schematic	Application	Bonding Cable (cable diameter)	SVL (optional)	Impulse Level	Short Circuit	Dimensions (mm)	Weight (kg)	Short Circuit	Dimensions (mm)	Weight (kg)
	Cross Bonding	Single Core (95-500)	1.5kV to 9kV	75 kVp Ph-Ph 40 kV Ph-E	63 kA/1s	W770 D670 H560	140	40 kA/1s	W770 D670 H560	115
	Cross Bonding	Concentric (95-300)	1.5kV to 9kV	75 kVp Ph-Ph 40 kV Ph-E	63 kA/1s	W770 D670 H560	130	40 kA/1s	W770 D670 H560	107
	Combination SVL/Direct Earthing	Single Core (95-500)	1.5kV to 9kV	75 kVp Ph-Ph 40 kV Ph-E	63 kA/1s	W770 D670 H560	145	40 kA/1s	W770 D670 H560	119
	Combination SVL/Direct Earthing	Concentric (95-300)	1.5kV to 9kV	75 kVp Ph-Ph 40 kV Ph-E	63 kA/1s	W770 D670 H560	130	40 kA/1s	W770 D670 H560	107

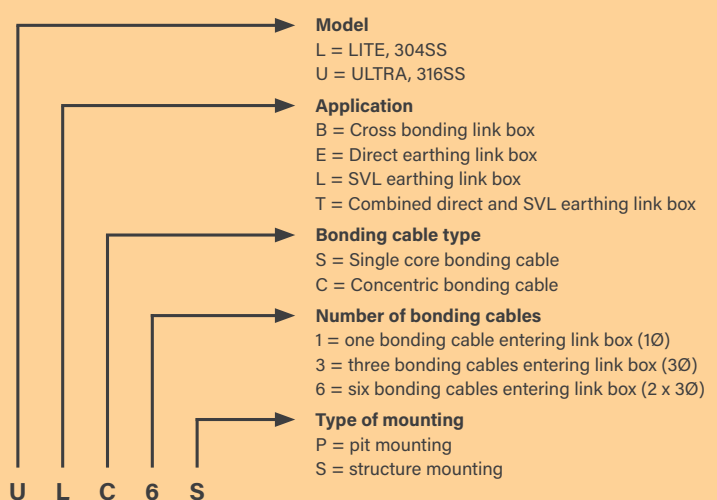
## ORDERING INFORMATION

Use the table to build your specification and confirm your link box **5 digit Part Number**. Use the diagram on the right as a guide or call us for assistance.

1. Select the **model** type - ULTRA or LITE
2. Choose the **application**
3. Choose **single** or **concentric** cables
4. And the **number of cables**
5. Choose the **mounting type**

Along with your 5 digit Part Number, you will need to confirm the following:

- **Confirm the cable size** of the bonding and earth cables
- Advise of any **special requirements or modifications** in detail



Link Box Part Number Example

Got Questions?

CALL OUR CUSTOMER SUPPORT TEAM **1300 446 565**

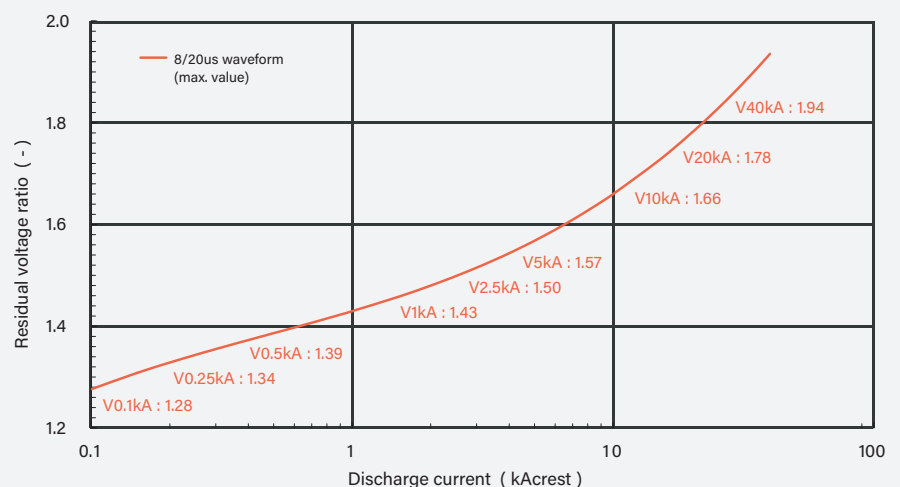


# Sheath Voltage Limiters (SVL) Technical Specifications

SVL Type		TZS1.5	TZS3.0	TZS4.5	TZS6.0	TZS7.5	TZS9.0
Rated Voltage	kVrms	1.5	3.0	4.5	6.0	7.5	9.0
Maximum Continuous Operating Voltage	kVrms	1.3	2.5	3.8	5.1	6.4	7.7
Rated 8/20 $\mu$ s current	kA	20	20	20	20	20	20
20kA 8/20 20 shot duty cycle with power frequency voltage applied 1s/shot	kVrms	1.8	3.6	5.4	7.2	9.0	10.8
High current 4/10 $\mu$ s withstand	kA	100	100	100	100	100	100
Low current rectangular 2000 $\mu$ s duration withstand (20) shot	A	1000	1000	1000	1000	1000	1000
Energy absorption (on each of 20 shots)	kJ	5	10	15	20	25	30
Energy absorption on 2 shots before cooling	kJ	6.5	13	20	26	33	40
Maximum 8/20 $\mu$ s residual voltage at:							
1.5kA	kV	3.6	7.1	10.5	14.1	17.6	21.1
3kA	kV	3.7	7.4	11.0	14.7	18.4	22.1
5kA	kV	3.9	7.7	11.5	15.4	19.2	23.0
10kA	kV	4.1	8.2	11.8	16.3	20.4	24.5
20kA	kV	4.4	8.8	13.2	17.6	22.0	26.4
40kA	kV	4.9	9.7	14.5	19.3	24.2	29.0
100kA (4/10 $\mu$ s)	kV	6.0	12.0	18.0	24.0	30.0	36.0
Residual at 15kA 1 $\mu$ s current rise time	kV	4.7	9.3	14.0	18.6	23.3	28.0
Resistance at 2500Vdc	$\Omega$	N/A	N/A	$> 10^7$	$> 10^7$	$> 10^8$	$> 10^8$
Resistance at 1500Vdc	$\Omega$	$> 10^7$	$> 10^7$	$> 10^7$	$> 10^7$	$> 10^8$	$> 10^8$
Temporary over-voltage (TOV) 1s withstand: from no prior load	kV rms	1.9	3.9	5.9	7.8	9.8	11.8
after 7kJ/kVrms of rated voltage	kV rms	1.8	3.7	5.6	7.4	9.3	11.2
TOV of 5kV dc withstand time	s	$\infty$	2	$\infty$	$\infty$	$\infty$	$\infty$
TOV of 3.5kV dc withstand time	s	$\infty$	50	$\infty$	$\infty$	$\infty$	$\infty$
TOV of 2.5kV dc withstand time	s	2	$\infty$	$\infty$	$\infty$	$\infty$	$\infty$
Current at 5kV dc	A	$\infty$	3	10-4	10-5	10-5	10-5
Reference Current	mA dc	1	1	1	1	1	1
Reference Voltage (minimum)	kV dc	2.1	4.18	6.28	8.36	10.46	12.54
Mechanical robustness	-	Dropped 1.5m without internal damage					

## Residual Voltage Ratio

Discharge Current Characteristics of Block



## Insulect Australia

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Quality  
ISO 9001  
V2019.1

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