

# Link Boxes

High Voltage Cable Systems

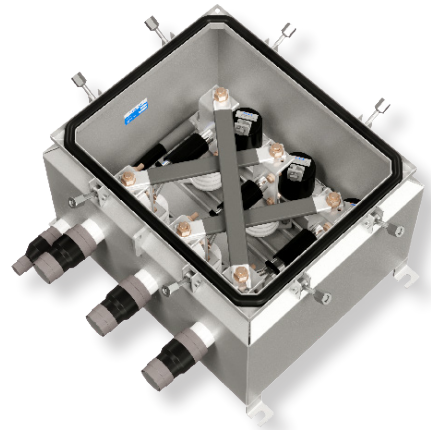
Cable Sheath Earthing

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 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.
- ✓ Insulators - High tension porcelain, stainless steel hardware.
- ✓ Stress cones - Polyurethane elastomer.
- ✓ Plating - All conductors plated with  $\geq 8\mu\text{m}$  of tin.

**SVL**

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

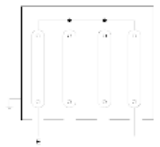
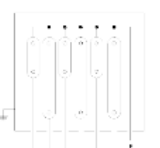
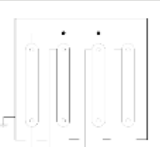
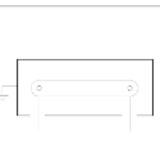
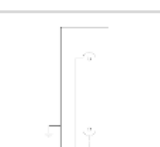
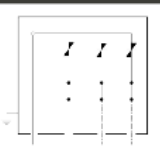
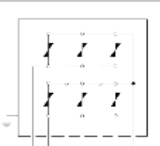
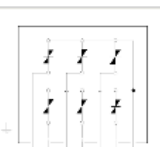

They are highly reliable and effective at managing cable sheath voltage rises and the associated power flows that can result under fault conditions.

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

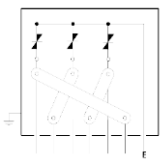
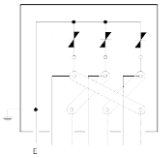
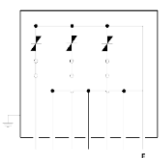
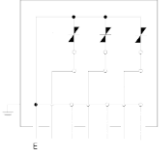
Voltages: 1.5kV to 9.0kV



## Technical Specifications

Technical Specifications					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

### Technical Specifications

Schematic	Application	Bonding Cable (cable diameter)	SVL (optional)	Impulse Level	LINK BOX ULTRA 316 Stainless			LINK BOX LITE 304 Stainless		
					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

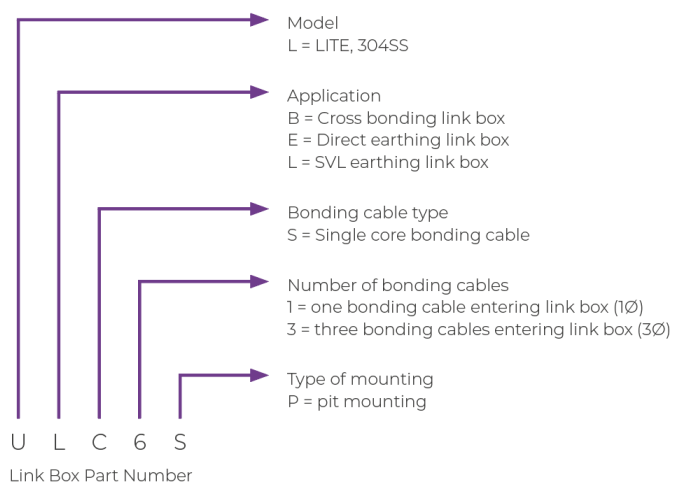
### Ordering Information

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

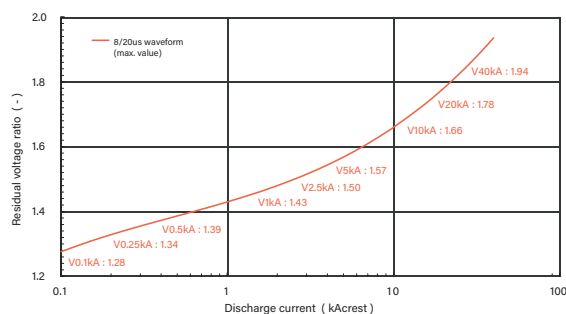


## Technical Specifications

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 <sup>7</sup>	> 10 <sup>7</sup>	> 10 <sup>8</sup>	> 10 <sup>8</sup>
Resistance at 1500Vdc	$\Omega$	> 10 <sup>7</sup>	> 10 <sup>7</sup>	> 10 <sup>7</sup>	> 10 <sup>7</sup>	> 10 <sup>8</sup>	> 10 <sup>8</sup>
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



For more information contact your Hiko Power Engineering representative.  
Hiko Power Engineering reserve the right to amend product details without notice.

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