

LIGHTNING PROTECTION INTERNATIONAL PTY LTD



LPI PRODUCT Summary Brochure





LPI®

LIGHTNING PROTECTION INTERNATIONAL PTY LTD



PROUD AUSTRALIAN MANUFACTURER

DIRECT STRIKE PROTECTION



Ordering Code	Description
CAT I-SS	CAT Terminal, Stainless steel, Model I
CAT II-SS	CAT Terminal, Stainless steel, Model II
CAT III-SS	CAT Terminal, Stainless steel, Model III
HVSCPLUS-PM	High Voltage Shielded Cable - per metre
LSR2	Lightning Strike Recorder
LSR Tester-MKII	Lightning Strike Recorder Tester

* 2 inch GI mast versions of Guardian CAT terminals available on request.

Guardian Lightning Protection System 5

- LPI's Guardian System 5 provides a purpose designed package for direct strike lightning protection
- Family of Controlled Advanced Triggering Terminals (CAT) with the design based on the latest research
- High Voltage Shielded Cable Plus (HVSC Plus) is a purpose designed insulated downconductor which greatly reduces the risk of side flashing, tested to 500 kV
- Lightning Strike Recorder (LSR2) to effectively count strikes captured by the Guardian System
- The Guardian System 5 is economical and simple to install
- Installations in over 70 countries worldwide
- Tested in compliance to IEC Standards



Ordering Code	Description
STORMASTER-ESE-15-SS	Stormaster, ESE 15, Air Terminal, Stainless steel
STORMASTER-ESE-30-SS	Stormaster, ESE 30, Air Terminal, Stainless steel
STORMASTER-ESE-50-SS	Stormaster, ESE 50, Air Terminal, Stainless steel
STORMASTER-ESE-60-SS	Stormaster, ESE 60, Air Terminal, Stainless steel
AIR TERMINAL TESTER	Guardian/Stormaster Air Terminal Tester

* 2 inch GI mast versions of Stormaster ESE terminals available on request.

Stormaster ESE Air Terminal

- LPI offers a selection of models from within its ESE range of terminals
- All terminals have been tested to standard NFC 17-102 (2011)
- Economical and easy to install





Ordering Code	Description
GPLUS-1SS	Guardian Plus, CAT I Stainless Steel
GPLUS-2SS	Guardian Plus, CAT II Stainless Steel
GPLUS-3SS	Guardian Plus, CAT III Stainless Steel

- * For connection to 2" GI pipe add "CM" to end of ordering code.
- * For use with FRP mast and HVSC Plus add "IM" to end of ordering code.
- * For supply without base add "WO" to end of ordering code.

Guardian Plus Lightning Protection System

- Guardian Plus protection solutions for HV power facilities and slender structures
- Placement methodology based on leader inception theory as per IEEE Std. 998
- Manufactured to a design achieving compliance with IEC 62651-2 and UL 96

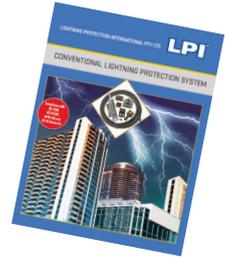


Conventional Lightning Protection

- Extensive range of flat tape (copper system) products and accessories
- A modern system allowing for "non-roof-penetrating" installations utilizing a woven conductor (aluminium or tinned

copper) and specially designed components for use with strong structural adhesive

- All components and systems comply with AS 1768, IEC 62305, IEC 62561, NFPA 780 & UL 96



Ordering Code	Description
FL1ATP0558C	Air terminal, pointed, 500 mm x 14 mm, copper, 5/8" Thread
FL1ATP1058C	Air terminal, pointed, 1000 mm x 14 mm, copper, 5/8" Thread
BB3B5/8	2 Way Cast bronze adhesive base to suit 5/8" copper finial
BB26B5/8	Horizontal pipe top mount, cast bronze base to suit 5/8" copper finial where no conductor is required
BB28B5/8	Vertical pipe top mount, cast bronze base to suit 5/8" copper finial where no conductor is required
BB14B5/8	Horizontal pipe mount, cast bronze base to suit 5/8" copper finial where conductor is used
FL6C	Layover adhesive stamped copper cable holder
FL4C	Stamped adhesive crimp copper loop for use on built-up
FL1C	1 Nail stamped copper loop
BF100B	Round - Round, cast bronze bolt cable to cable clamp, specifically designed for cable splice on single membrane roofs
BF13B	Cross run, cast bronze cross run or cross tee clamp
BF21B	Cable to strip conductor, cast bronze two way cable holder with cast flat backed bottom
BWCC35	Bare Tinned copper 35 mm ² woven conductor

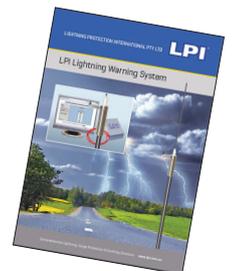


LPI's Lightning Warning System is designed for the early warning of an approaching storm front. The LPI LWS sounds an alarm on the approach of a lightning discharge and allows all personnel to take precautionary action to protect themselves from the dangers of a lightning discharge.

Ordering Code	Description
LWS Mk 3 – A	Lightning Warning System Mk III
LWS MK3 – Tester	Lightning Warning System Tester

Lightning Warning System

- Suitable applications include
 - sporting events such as golf and football, mining, defence and explosive environments
- Detects lightning activity within 10 to 25 km
- Warning and alert status
- All clear signal



EARTHING AND BONDING



LPI provides an extensive range of earthing products for the installation of a low impedance earthing system. Whether you are installing a dedicated lightning earth or a facility earth grid, it is essential to ensure personnel safety and provide an effective earth which will limit disruptions to services.

Telecommunications Earthing

LPI manufactures a range of specialised telecommunications earthing and lightning protection solutions. The experienced LPI team delivers hassle-free solutions, tailored to each project, with a commitment to holding local stock.

The LPI range includes:

- In-ground earthing
- Earth Bars
- Surge Protection
- Associated Accessories

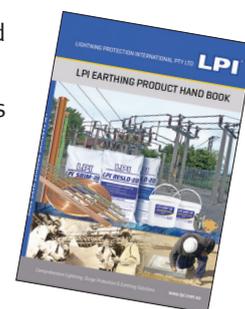
All this is backed by exceptional customer service and LPI's strong focus on engineering, research and development which ensure reliable, well supported products of the highest quality.



Earth Rods and Accessories

LPI offers a range of earthing products and accessories as part of its packaged solution for the complete approach to lightning protection. The LPI range includes a complete selection of copper bonded steel earth rods, solid stainless steel earth rods, solid copper earth rods, clamps, tapes, braids and pre-engineered ground grids and meshes.

Contact LPI or an authorised representative for details on the full range of earth rods and accessories.



Earth Enhancing Compounds

LPI offers a selection of earth enhancing compounds for installation around earthing electrodes to reduce the earthing system impedance. Our three most popular compounds are:



Ordering Code	Description
GRIP-10	Ground Resistance Improvement Powder – 10 kg
GRIP-40	Ground Resistance Improvement Powder – 40 kg
RESLO-20	Resistance Lowering Compound – 20 kg Bag
SRIM-20	Soil Resistance Improving Material – 20 kg Bag

• Independent test reports available

- SRIM (Soil Resistance Improvement Material) – a cementitious, highly-conductive compound supplied in 20 kg bags. It is fully compliant with IEC 62561-7. It is suitable for all problem sites with moderate-to-high resistivity
- RESLO – an economical, bentonite-based, specially-formulated compound supplied in 20 kg bags. It is best suited to problem sites with moderate soil resistivity, where underground watercourses, aquifers etc. do not predominate
- GRIP (Ground Resistance Improvement Powder) – supplied in 10 kg and 40 kg kits. It is effective in difficult sites, such as sandy soils and rocky ground



Ordering Code	Description
EPRSM-1MB	Earth Potential Rise Safety Mat 1m x 1.5m complete with Bonding Kit

EPR Safety Mat

- Safety mat for mitigation of EPR hazards to personnel from lightning discharges and other fault currents injected into the ground
- Unique three-layer design and technology to redistribute surface potential gradients
- High degree of portability and deployment (easily unrolled and rolled up)





Transient Earth Clamp

The LPI Transient Earth Clamp provides equipotential bonding under transient conditions by forming a closed circuit, whilst remaining 'open circuit' under normal operating conditions. The TEC should be used where earthing systems need to be kept separate.

Ordering Code	Description
TEC100-2L	Transient Earth Clamp, DC Sparkover voltage > 350 V DC, Impulse Current (Iimp) 100 kA 10/350 μs Max discharge current (Imax) 200 kA 8/20 μs



Earth Bars and Inspection Pits

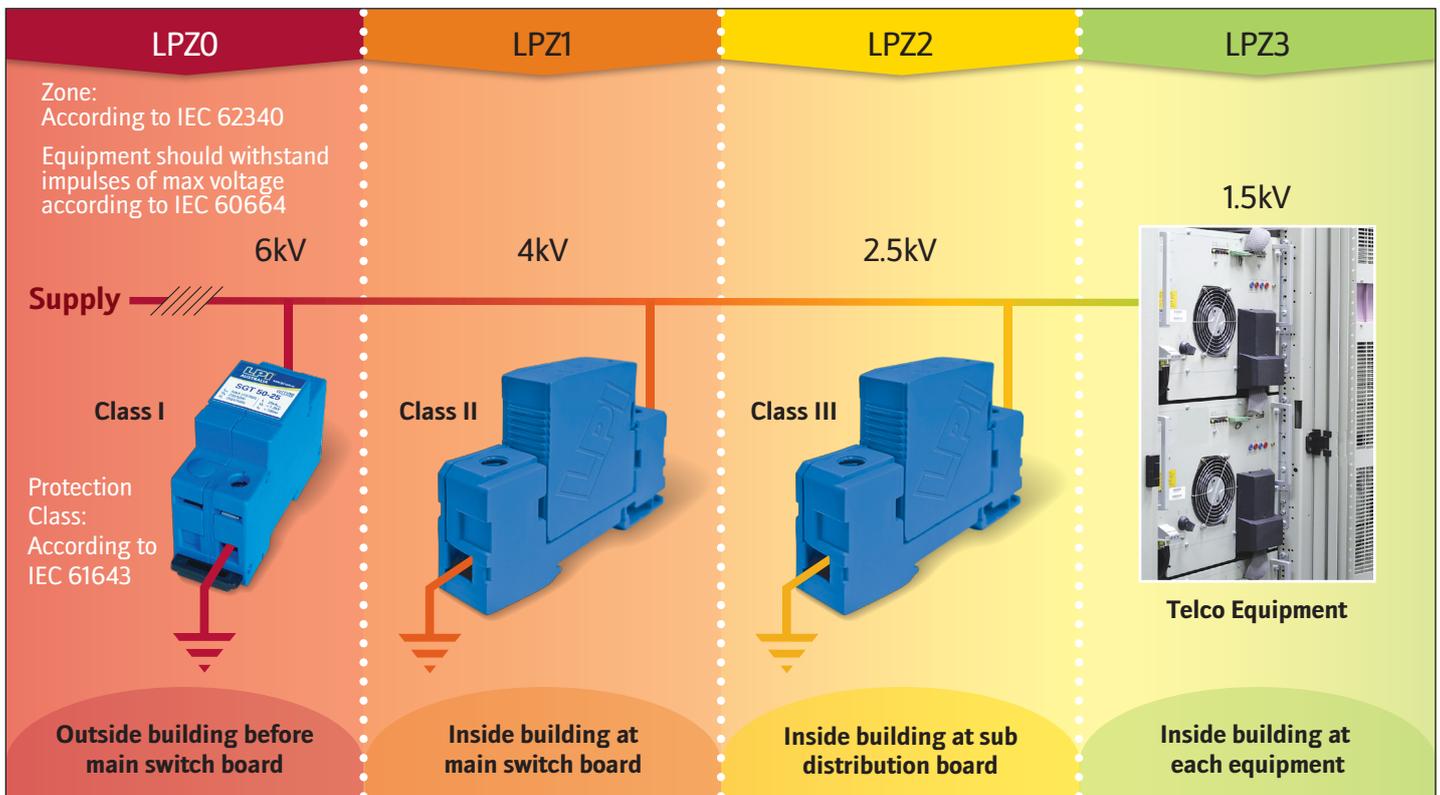
Ordering Code	Description
EPIT-P	Polymer Earth Pit, Rated + 5 Tonne, 250 mm (top) x 180 mm (base) x 210 mm (depth)
EB400	Earth Bar, 400 mm x 80 mm x 98 mm, 6 Way
DL-4751	Disconnecting Link, 6 Way earth bar, 475 mm x 80 mm x 98 mm, single disconnect link
DL-5502	Disconnecting Link, 6 Way earth bar, 550 mm x 80 mm x 98 mm, twin disconnect links

* Contact LPI or an authorised representative for details on the full range of LPI earth bars and inspection pits.

SHUNT POWERLINE PROTECTION

LPI offers a wide selection of technologies and products which are available for transient protection of the mains power supply at the point of entry to your facility. These products and technologies are represented in two categories - shunt protection and series protection.

- Ideal for robust equipment such as air conditioning, pumps and motors
- Point-of-entry protection
- Energy diversion only, voltage clamping devices installed between each phase and neutral or earth on mains switch board





Class I Protectors, (Spark Gap based) per IEC 61643

Ordering Code	Description
SGT50-25	DIN Mount Spark Gap L-N, L-E protection, 240 VAC Nominal, 50 kA 10/350 μ s
SG60	DIN Mount Spark Gap L-N, L-E protection, 440 VAC Nominal, 60 kA 10/350 μ s
NE100	DIN Mount Spark Gap N-E protection, 240 VAC Nominal, 100 kA 10/350 μ s



Class II Protectors, (MOV based) per IEC 61643



Ordering Code	Description
SST150B-385	DIN Mount, L-N, L-E protection, 220-240 VAC Nominal, (385 V Uc), 50 kA 8/20 μ s
SST150B-480	DIN Mount L-N, L-E protection, 220-277 VAC Nominal, (480 V Uc), 50 kA 8/20 μ s
1 ph & 3 ph Shunt Protection	DIN Mount 1 phase or 3 phase with L-N and NE Protection. Please contact LPI for more details.
NE-15-B	DIN Mount, N-E Protection, 15 kA 10/350 μ s

Alarm interface module (AIM) offers alarm contacts and Bluetooth connectivity.

Single-phase and three-phase protectors fitted into aluminium enclosures (IP67) are available as 1PPM and 3PPM. Ask LPI for further details.

SERIES POWERLINE PROTECTION



Series powerline protection is the best available protection for sensitive electronics such as rectifiers, switchmode power supplies, and other mission critical equipment. The Series Filter reduces the rate of rise of any transient overvoltage to acceptable levels, and also reduces the overall magnitude of the transient voltage the equipment receives.

Low Current Single Phase Filters Location: IEC 61643 Class III

Ordering Code	Description
DLSF-XXA-24V	DIN line surge filter, 1Ph 240 Vac, 3 modes of protection, 25 kA 8/20 μ s L-N primary protection, 25 kA 8/20 μ s L-N secondary protection, and 25 kA 8/20 μ s N-E protection. 110 Vac version available upon request. Variants available with 8 A, 16 A and 20 A load current capacity
DLSF-XXA-230V	
DLSF-XXA-385V	
DLSF-XXA-480V	

XX refers to load currents in amps = 8 or 16 or 20

Please ask for Technical Data Sheet (TDS) on DLSF Surge Filters for more details

Single and Three Phase Surge Filters

Location: IEC 61643 Class I, II & III



Standard Surge Filter Order Code:

SF X YY ZZZ-100+50-AIMCB

Where X is the number of phases, YY is circuit current rating per phase, ZZZ is the voltage. Standard filters are manufactured and supplied 100 kA line and 50 kA load size. All surge filters are supplied with Alarm interface module (AIM).

Standard Surge Filter specifications:

All units can withstand overvoltage and fault conditions in accordance with IEC 61643 requirements. All units incorporate non saturating inductors combined with high reliability capacitors to form an effective low pass filter, incorporating shunt protection elements on the line and load sides.



Number of Phases X	Current Rating YY	Max. Continuous Operating Voltage (Uc)	Description
1 or 3	32 A, 63 A, 125 A	385, 480 Vrms	Surge filter with Class II protection applied P-N, 100 kA 8/20 μ s line side protection, 50 kA 8/20 μ s load side protection per phase. 100 kA 10/350 μ s N-E
3	200 A 315 A, 400 A, 630A	385, 480 Vrms	Surge filter with Class I protection applied P-N, 135 kA 8/20 μ s line side protection, 50 kA 8/20 μ s load side protection per phase. 100 kA 10/350 μ s N-E
3	800 A, 1000 A, 1250 A, 1500 A, 1750 A	385, 480 Vrms	Surge filter with Class I protection applied P-N, 110 kA 10/350 μ s, line side protection, 50 kA 8/20 μ s load side protection per phase. 100 kA 10/350 μ s N-E

TELECOMMUNICATION PROTECTION

DIN Mount Data and Telephone Line Protectors



- New DD range used directly with EIA standard interfaces RS-232, RS-422, RS-423, RS-485 and with 4-20mA instrumentation loops
- DD-1T single pair telephone line protector is suitable for analogue phone lines, ISDN, ADSL and PCM circuits

Electrical Specifications		DD-06	DD-06-BNC	DD-12	DD-24	DD-48	DD-1T
Nominal Operating Voltage	U_N	6 V	6 V	12 V	24 V	48 V	Telephone
Max. Continuous Operating Voltage		6.6 VDC		15.6 VDC	29 VDC	62 VDC	
Voltage	U_C	4.7 VRMS	6.6 VDC	11.0 VRMS	20 VRMS	44 VRMS	190 VDC
Surge Current rating (8/20 μ s)	I_{MAX}	20 kA					
Operating Current (DC or RMS)	IL	2 A					150 mA
Voltage Protection Level @ 3 kA (8/20 μ s)	UP	16 V	16 V	28 V	60 V	120 V	240 V
Loop Resistance		< 0.1 Ω					6.6 Ω
Bandwidth		5 MHz					1 MHz
Protection Modes		Line-Line & Line-Ground					
Operating Temperature		-40° C to 60° C					

Application	DD-06	DD-06-BNC	DD-12	DD-24	DD-48	DD-1T
RS-232				✓		
RS-422	✓					
RS-485			✓			
Fire Alarm Panels				✓		
Security Systems			✓	✓		
Process Control loops				✓		
C-BUS					✓	
Analogue telephone line						
Digital telephone line						✓
CCTV		✓				✓



Telephone and Data Line Protectors

Ordering Code	Description
VHS-K10-72	Very High Speed, 10 Pair, 12 MHz, 8 Mbits/s, 72 V, a+b+e 20 kA 8/20 μ s, Multistage, Krone, LSA
VHS-K10-230	Very High Speed, 10 Pair, 12 MHz, 8 Mbits/s, 230 V, a+b+e 20 kA 8/20 μ s, Multistage, Krone, LSA

- Telephone and data line protection
- Multistage / over voltage protection
- Plugs directly into a KRONE* disconnect block

* KRONE, KRONE LSA and PROFIL are registered Trade Marks of KRONE GmbH Germany.

Please add "A" at the end of product code for markets outside of Australia.

TELECOMMUNICATIONS PROTECTION

Protection of RF Feeder Cables & High Speed Coaxial Cable Data Lines



Ordering Code	Description
CF-90	RF / High Speed coaxial cable data line protector, 90 V, 20 kA, 75 Ohms
C75-BNC90	CCTV Circuit, 20 kA, 90 V, 75 Ohm, BNC Type

- For protection against transients on coaxial antenna RF feeder cables
- Simple plug in installation
- High impulse rating of 20 kA 8/20 μ s
- Characteristic impedance: 50 Ohms and 75 Ohms where applicable



Local Area Network Protector

Ordering Code	Description
LAN RJ45 Cat6	LAN, RJ45, 100 Base T Protector, Cat 6
POE-RJ45-Cat5	Power over ethernet protector for CAT5 10/100 Base-T data & 48 V DC power signals

- Simple plug in operation
- CAT 6 / 1000 Mbits application
- Low attenuation
- Compact design



Load Cell Protector

Ordering Code	Description
ILC36V	Load Cell Surge Protector, 4 or 6 wire application, 36 V

- Designed for protection of sensitive strain gauge measuring equipment
- Protects against excitation overvoltage
- Low capacitance



CONSULTANCY AND DESIGN SERVICE

Lightning Protection International Pty Ltd provides specialised engineering consulting and design services in lightning protection, surge and transient protection and earthing.

LPI's expertise is board with many years experience servicing customers throughout the world in some of the most lightning regions.

- Team of qualified electrical and mechanical engineers
- Direct strike in compliance with international standards
- Surge and transient protection for powerlines, communications and data
- Earthing in compliance with international standards
- Risk analysis in compliance with international standards
- Designs to internationally recognized standards
- Site evaluation, surveys and audits
- Customized designs to suit individual project requirements
- Review of existing designs and drawings
- Design and drafting capabilities utilising AutoCad software
- Trouble shooting
- Solutions based engineering
- Report writing including findings, recommendations and budget costings
- Specification writing and tender document preparation

Disclaimer

- LPI maintains a policy of on-going product development, specifications are subject to change without notice
- Application detail, illustrations and schematic drawings are representative only and should be used as guides
- It should be noted that 100% (100 percent) protection level for direct strike lightning, lightning detection and surge and transient protection equipment is not possible and cannot be provided due to the lightning discharge process being a natural atmospheric event

Distributed by:

**LIGHTNING PROTECTION
INTERNATIONAL PTY LTD**

ABN 11 099 190 897



P0 Box 379 Kingston, Tasmania, Australia 7051
49 Patriarch Drive, Huntingfield, Tasmania, Australia 7055

- Telephone: Australia: 03 6281 2477 International: +61 3 6281 2480
- Email: info@lpi.com.au
- Web: www.lpi.com.au