

eca3g - Total Lightning surge protection

- Free from Grounding Rod, free from low Earthing Resistance
- Perfect protection for Military electronic, communication, radar system, vehicle/shelter systems.

○ Provide maximum field operation efficiency with total integrated lightning protection

- No need to install additional secondary grounding rods.
- No need to acquire low earthing resistance, but secure equi-potential common grounding.
- Provide neutral-ground potential difference within 0.2 volt which is important for advanced electronic systems.
- No need to install grounding rod for mobile military vehicle/shelter system for communication, rader, C4i tactical

○ Perfect total lightning protection for

- Military Communication, Rader, Broadcasting systems
- Rocky, mountain area where could not get low grounding resistance
- **Moblie Rader / Communication vehicles** without Grounding Rod
- Frequently surge damaged sites which could not find perfect protection solution yet.
- Airport Instrument landing guide system
- Border surveillance, coastal rader system
- IP CCTV network system



► Low-Altitude Surveillance Radar
http://www.lignex1.com:8001/en_US/product/product_detail.jsp?pid=19&scode1=&scode2=&scode3=&skey

○ Countries using eca3g Product

- Korea for 17 years**, mostly for National Security about 4000 sites – Navy, border surveillance, digital TV, Mobile radar vehicle
- Malaysia for 5 years** for Police, Telecom Malaysia, Army PABX, Air force radar, Airport localizer system
- Thailand for 3 years** for Satellite station, Army ammunition depot, Border surveillance, Army video network
- India for 2 year** for Glide path of airport, Military engineering, Police communication, Satellite Research Institute, Telecommunication



US Patent as “Grounding Device which not need to be buried in Ground”
 Registered product at US Army Foreign Technology Database (GSTW)

3rd generation Digital Grounding Device with Total Surge protection & equi-potential function

eca3G - Perfect Ground System (US Patent No 7,652,865 B2)

Proven performances at various national security sites :
4,000 sites for 17 yrs, Protection Success rate : 99.88%
 Successful performances in Malaysia, Thailand, India

Lightning Protection for National defense is ensured by eca3G'

We have implemented lightning protection systems for entire NAVY bases from 2001, and has supported for 365/24 operation without interruption by lightning damages. eca3G' become the lightning protection Standard of NAVY, KBS Digital TV Relay station, Automated Drinking water treatment plant , Korea Hydro & Nuclear power co., Ltd. DMZ Border Surveillance systems etc.

Major Military Applications

Application	Facilities to be protected				
*Base & Relay station	*Power supply system.	*Repeater system	*Communication system	*Broadcasting	
*Computing Room	*Power supply system.	*Switching Hub	*Server system	*Office/Home facilities	
Auto Surveillance	*Power supply system.	*Control Center system	*CCTV	*Built-in Sensor system	
Radar Base	*Power supply system.	*Monitoring / Diagnosis system		*Transmission system	
Anti-Aircraft Base	*Power supply system.	*Fire Control system	*Monitoring / Diagnosis system		
C4 I Vehicles	*Rack systems in vehicle.	*Generator	*External power supply system		

* GP & GOP advanced scientific surveillance system, integrated command center * Firearms battery



<Water Plant control>



<Navy Communication system>



<RADAR Station>



<RADAR Station>



<Meteorological station>



<Thailand Army Ammunition Depot>



<OO Base Surveillance System>



<Water Treatment Plants>



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Advanced DC Decoupling Device

(Co-developed with KOGAS, patented)

Patent No. 10-1279836

Provide DC decoupling and AC continuity/grounding when used with cathodically protected structures
 Advanced product overcome several problems found at field operation of existing imported products

items	Advanced DC Decoupling Device specification
(1) Lightning current rating	max20kA, Class I, 10x350 sec waveform (primary lightning surge)
(2) AC fault current rating (AC 60Hz rms)	Max 3.7kA or above, 30Cycle,
(3) DC Blocking Voltage	DC -6V/+1V (each ends voltage difference under DC supply : below 1V)
(4) AC steady-state current	max 45A, 60Hz (each ends voltage difference under AC supply : below 1V)
(5) DC current leakage	below 0.25 mA/V under DC blocking voltage
(6) power supply	Not required
(7) instant off potential	enable to measure instant off potential without dismantle
(8) Inner corrosion	Adopt one type of metal parts
(9) Explosion proof	Provide certificate
(10) Others	Patent registered, measuring terminal attached, silicon

Patent certificate, Test Report



Patent certificate : No 10-1279836
 Advanced DC Decoupling Device



KERI Test Report
 Advanced DC Decoupling Device



Explosion proof certificate
 for enclosed Box

Product Image



Solving Field problems of existing products at KOGAS sites (completely overcome these problems under Advanced DDD)

1. enable to measure Instant Off potential without dismantle DDD.
2. remove noise peak which is generated upon rectifier ON/OFF.
3. improve lightning protection level for high voltage current (lightning surge, AC fault current, induced AC current)
4. prohibit internal metal corrosion of DDD – galvanic corrosion
5. Others : economical cost, customized service , test terminal etc
6. Authorized third party performance test

LM-Series



Application

Power distribution system (Distribution Board), Communication system, Computing system, Broadcasting system, Automation, control system, Signaling system, Firefighting system, PLC

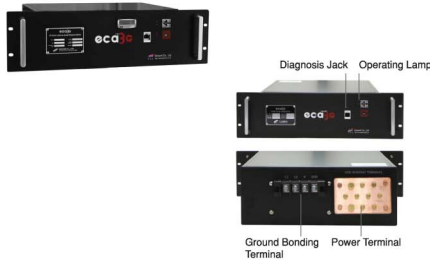
Function

- * Protect power supply system from lightning, induced surge and eliminate surge
- * Enable to secure 24 hours operation under lightning, bad weather
- * Provide equi-potential system by common grounding
- * Response against multi-stage lightning
- * Continue to count surge intrusion
- * Real-time monitoring on device health, operation functions (option)
- * Provide PL insurance coverage in Korea (max usd 1 mil)

Model	Specification
LM-1P	1Φ2w/110V/160KA
	1Φ2w/220V/160KA
	1Φ3w/220V/320KA
LM-3P	3Φ3w/220V/480KA
	3Φ3w/380V/480KA
	3Φ4w/220V/480KA
Weight(kg)	13.5~14.5
Size(W×H×D/mm)	150×360×450

* Design, weight of the product can be slightly different upon manufacturing condition

TM-Series



Application

Model for 19 inch standard Rack installation

Function

- * Protect secondary power supply system, communication system, control system, electronic system, from lightning, induced surge and eliminate surge
- * Enable to secure 24 hours operation under lightning, bad weather
- * Provide equi-potential system by common grounding
- * Response against multi-stage lightning
- * Continue to count surge intrusion
- * Real-time monitoring on device health, operation functions (option)
- * Provide PL insurance coverage in Korea (max usd 1 mil)

Model	Specification
TM-1P	1Φ2w/110V/160KA
	1Φ2w/220V/160KA
	1Φ3w/220V/320KA
TM-3P	3Φ3w/220V/480KA
	3Φ3w/380V/480KA
	3Φ4w/220V/480KA
Weight(kg)	10
Size(W×H×D/mm)	480×130×355

* Design, weight of the product can be slightly different upon manufacturing condition

TNC-Series



Application

- Total lightning protection for
- 1) Single phase of Delta power supply,
 - 2) Power supply without ground or not clear ground,
 - 3) Power supply with TT ground,
 - 4) Power line without neutral line
 - 5) power line which cannot be ground

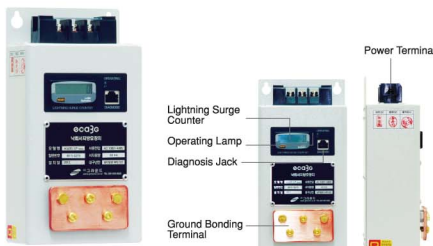
Function

- * Convert to TN-C system to make ideal equi-potential status.
- * Convert TT system to TN system which will have neutral line
- * Enable to secure 24 hours operation under lightning, bad weather
- * Provide equi-potential system by common grounding
- * Response against multi-stage lightning
- * Continue to count surge intrusion
- * Real-time monitoring on device health, operation functions (option)
- * Provide PL insurance coverage in Korea (max usd 1 mil)

Model	Specification	Wt(kg)	Size(W×H×D/mm)
TNC	1Φ2w/220V/240KA/0.3kVA	9	146×196×290
	1Φ2w/220V/240KA/1kVA	25	230×345×408
	1Φ2w/220V/240KA/2kVA	32	250×345×408
	1Φ2w/220V/240KA/3kVA	39	270×345×408
	1Φ3w/220V/240KA/5kVA	52	320×345×408

* Design, weight of the product can be slightly different upon manufacturing condition

LP-Series



Application

Communication system, CCTV, DVR, PLC, Computing system

Function

- * Protect small power supply system from lightning, induced surge and eliminate surge
- * Enable to secure 24 hours operation under lightning, bad weather
- * Provide equi-potential system by common grounding
- * Response against multi-stage lightning
- * Continue to count surge intrusion
- * Real-time monitoring on device health, operation functions (option)
- * Provide PL insurance coverage in Korea (max usd 1 mil)

Model	Specification
LP-1P	1Φ2w/220V/80KA
	1Φ3w/220V/120KA
LP-3P	3Φ3w/220V/240KA
	3Φ3w/380V/240KA
	3Φ4w/220V/240KA
Weight(kg)	1.8
Size(W×H×D/mm)	130×205×96

* Design, weight of the product can be slightly different upon manufacturing condition



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