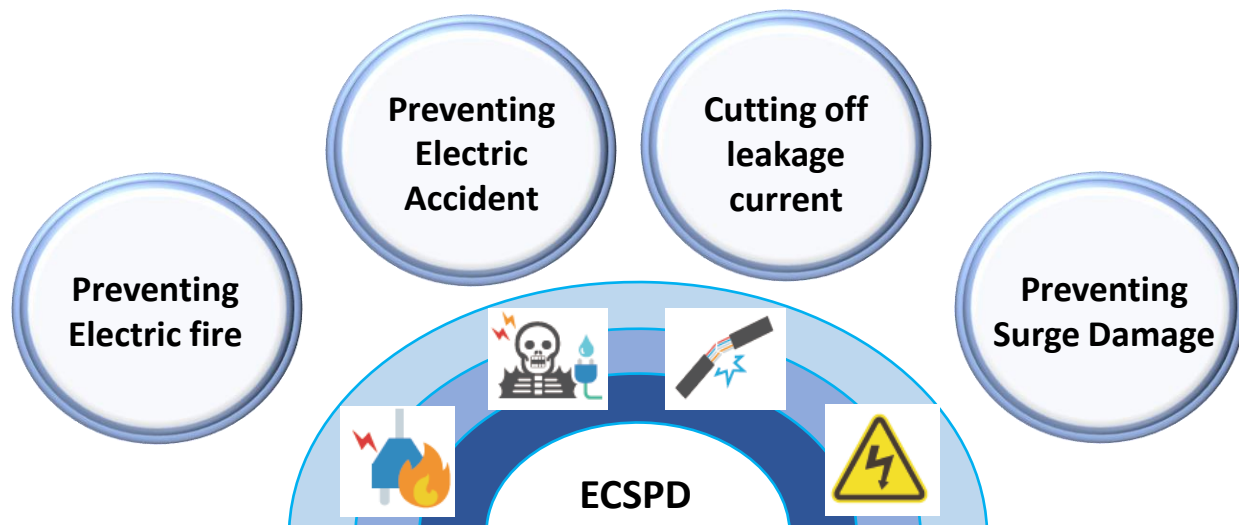


ECSPD . ENSPD Background of technical proposal

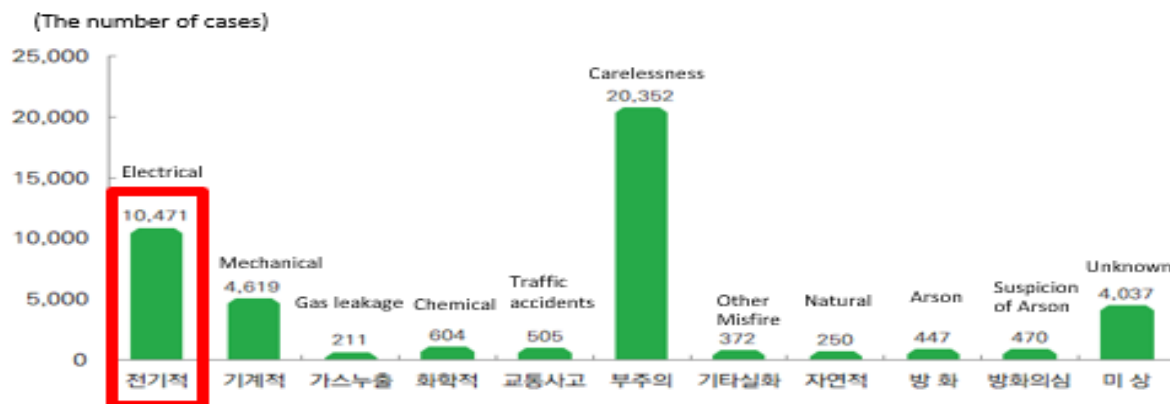


ECSPD : Electric **C**apture **S**urge **P**rotective **D**evice

Prevention of electrical disasters that can occur due to aging of electrical facilities, electric shock accidents, damage to the surge, etc.



Increase in Electric shock accidents



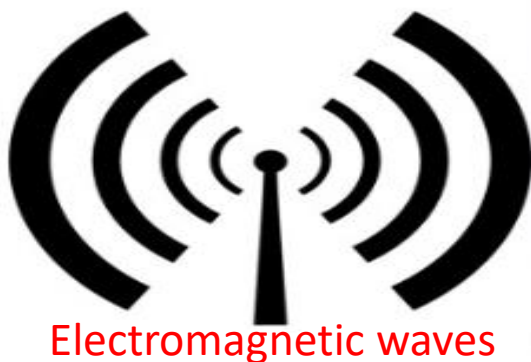
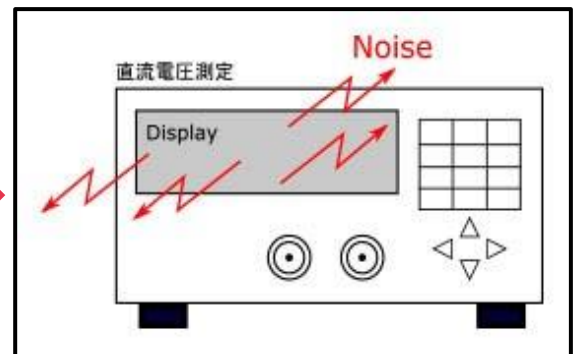
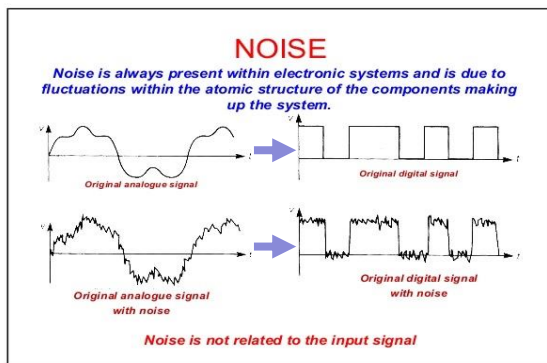
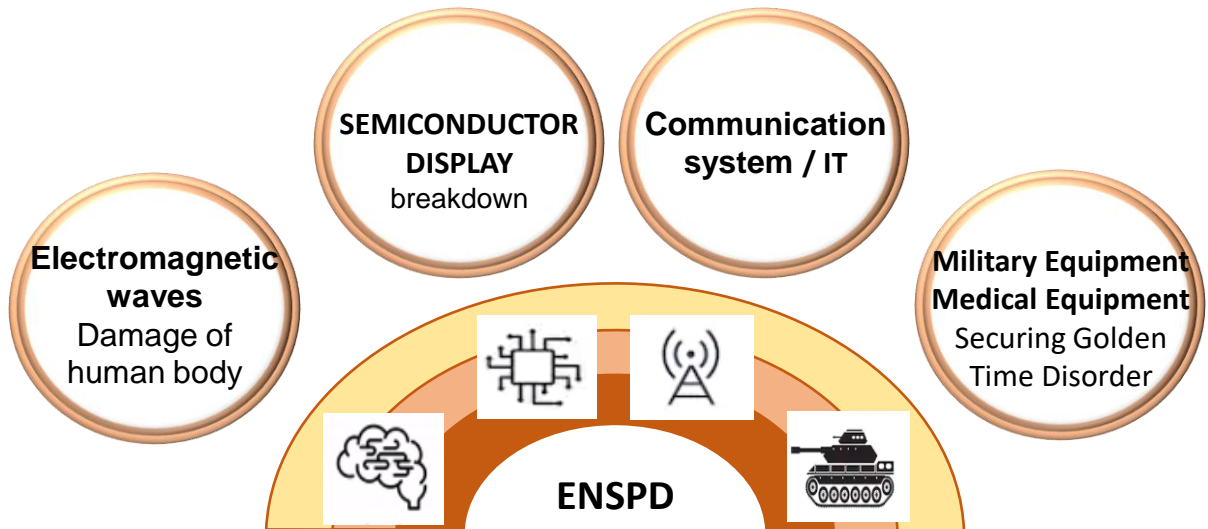
Separation (Year)	Casualties (person)	Casualty Ratio by electric shock accidents (2013~2017)	Monthly ^ㄱ Electric shock Casualties (person)
2013	605	<p>27.1 72.9</p> <p>■ Work site ■ Daily environment</p> <p>Source : Finance News(2018. 9. 10)</p>	<p>171 144 206 217 250 288 380 365 257 240 188 164</p> <p>1월 2월 3월 4월 5월 6월 7월 8월 9월 10월 11월 12월</p> <p>• Summer season occurs twice as much as winter season</p>
2014	569		
2015	558		
2016	546		
2017	532		
Average(year)	562		

ECSPD . ENSPD Background of technical proposal



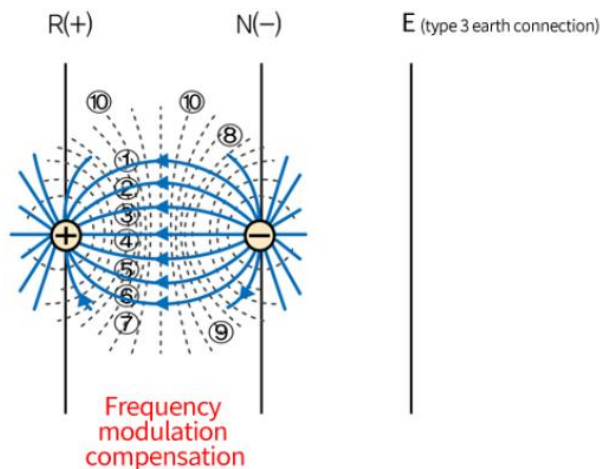
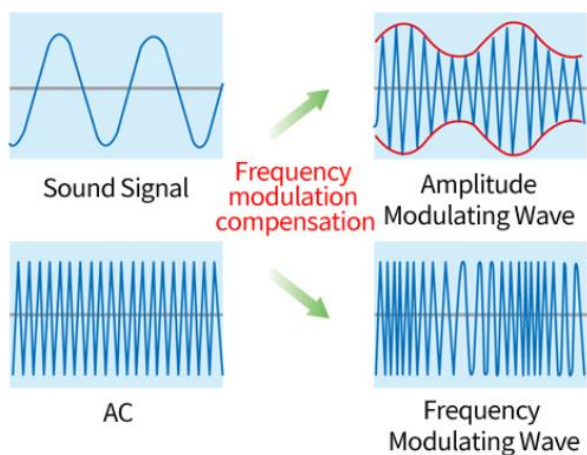
ENSPD : E_{lectromagnetic waves} N_{oise} S_{urge} P_{rotective} D_{evice}

Prevent electrical disasters that can be caused by noise and electromagnetic waves, surge damage, etc.
Due to increased use of electrical devices



ECSPD . ENSPD Technical principle

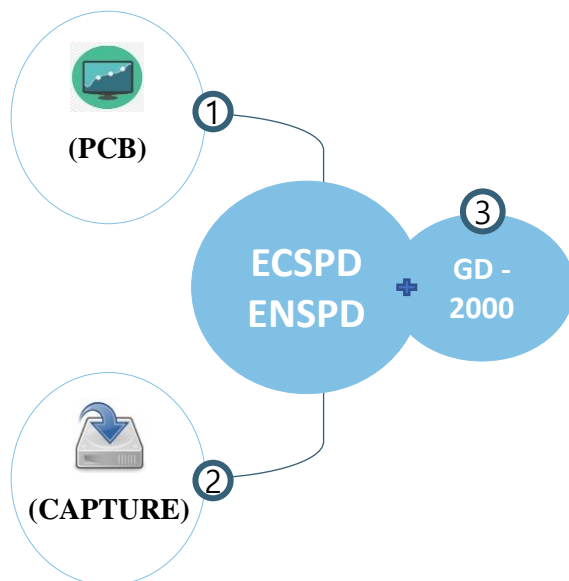
Frequency modulation compensation technology



- The 'ECSPD. ENSPD' uses wavelengths according to the equipotential phase of each phase (phase 1, phase 3) to compensate the frequency with "frequency modulation compensation control" and to convert the frequency to a constant amplitude without external interference so that the electric force lines are electrically arranged after that no electricity flows.
- The current phenomenon is called "zero potential." The flow of electrical current to prevent electric shock accidents. This principle helps prevent residual fire accidents (ARC detectors combined), electromagnetic waves, noise and surge shielding.

Element

- 1 Frequency Modulation Calibration PCB**
Part of the modulation frequency with a constant amplitude without external interference.
- 2 Frequency Modulation Calibration Capture**
The part that is collected without emitting an electric force line.
- 3 Grounding leakage current shielding Device (GD-2000)**
ECSPD. ENSPD is a set with GD-2000.



ECSPD . ENSPD Function & Range



Main function



Preventing
Electric fire



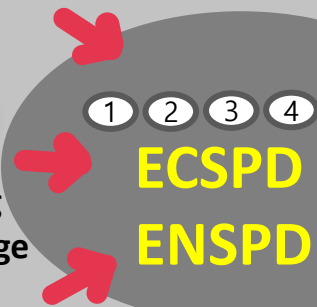
Preventing
Electro noise



Preventing
Electromagnetic
waves



Preventing
Surge Damage



ONE CARE



Range

01

Model Name

- ECSPD / ENSPD + GD-2000
- AC – 30A, 100A
- KC Patents (ENSPD / ECSPD)

02

Specifications and Capacity

- Allowable voltage : AC 90V~264V
- Allowable current range : 30A, 100A
(110V/220V ,50HZ/60HZ compatible)

03

Allowable distance range

- Straight distance, direct connection : 100M

04

Function

- ECSPD : Leakage shield – electric shock. Prevention of fire accidents, Lighting surge shielding 40KA
- ENSPD : Electromagnetic. Noise Shielding , Lighting surge shielding (3.5KA)

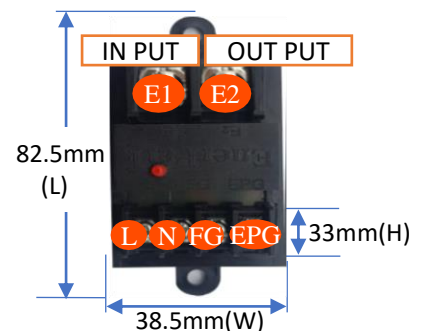
05

GD-2000

- Ground fault current shielding
- Acts as a ground distributor
- Designed to connect FG-E1 and EPG-E2 to utilize 100% of ECSPD functions.



ENSPD



GD-2000

- Installation must be built by a license holder for electric works.



ECSPD . ENSPD Effect & Application Field



Effect

User's aspect

- Eliminate a sensation of fear for electricity
- Precautions and Reduction of Electrical Safety Accidents
- Contribution to user safety by EM reduction
- Expectation of prevention for industrial accident and human casualties from electric shock

Industrial aspect

- Preventing energy losses due to a short circuit and reducing social costs
- Leading the way in IT-based technology by applying it to a variety of electrical technologies
- Prevention of damages caused by the operation stop of water supply facilities due to flooding

Economic aspect

- Expanding business opportunities for electricity and electronics-related companies through the possession of source technologies
- Preventing safety accident and reducing economic losses
- Securing technology competitiveness through convergence and complexness with domestic IT technology infrastructure

National aspect

- Prevention from electric shock of streetlights such as a short circuit, in the summer
- Improving public services for enhanced safety
- Preventing loss of energy resources due to short circuit, improving efficiency and reducing budget
- Increasing national competitiveness by securing low-cost, high-quality leakage current shielding technology



Application Field



- Electricity/Electronic -



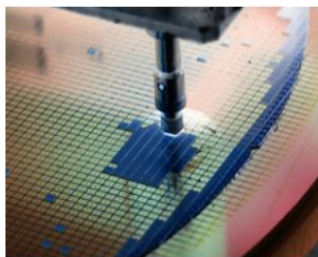
- Construction/Architecture -



- Shipment -



- Aerospace -



- Semi-conductor/Display -



- Mechanical/Industrial equipment -



- Public transportation/Public facilities -



- High-tech industry/Defense facilities -

ECSPD . ENSPD TEST & Patents



KTC TEST , KC Patents

방송통신기자재등의 적합등록 필증 Registration of Broadcasting and Communication Equipments	
장도 또는 설명 App Name / Register 기타사항(필수/제품명) Accessories / Name 기타등록명 Other Model Number	(주)에치에스 EC-SPD
제품모델명 Model Name	EC-A-1000, EC-F-1000, EC-H-1000, EC-J-1000, EC-K-1000, EC-L-1000, EC-M-1000, EC-N-1000, EC-O-1000, EC-P-1000, EC-Q-1000, EC-R-1000, EC-S-1000, EC-T-1000, EC-U-1000, EC-V-1000, EC-W-1000, EC-X-1000, EC-Y-1000, EC-Z-1000
등록번호 Registration No.	R-R-ENX-EC-A-1000
제조국(제조(도입)국가) Manufacture/Country of Origin	(주)에치에스 / 한국
등록일(일) Date of Registration	2020-02-04
기타 Others	

본 기자재는 「전자파」 제38조 제1항에 따라 등록필증을 증명합니다.
It is verified that foregoing equipment has been registered under the Clause 3, Article 38-1 of Radio Waves Act.

2020년 02월 04일(Monday) 04일(Day)

국립전파연구원장
Director General of National Radio Research Agency

방송통신기자재등의 적합등록 필증 Registration of Broadcasting and Communication Equipments	
장도 또는 설명 App Name / Register 기타사항(필수/제품명) Accessories / Name 기타등록명 Other Model Number	(주)에치에스 ENSPD
제품모델명 Model Name	EN-A-1000, EN-F-1000, EN-H-1000, EN-J-1000, EN-K-1000, EN-L-1000, EN-M-1000, EN-N-1000, EN-O-1000, EN-P-1000, EN-Q-1000, EN-R-1000, EN-S-1000, EN-T-1000, EN-U-1000, EN-V-1000, EN-W-1000, EN-X-1000, EN-Y-1000, EN-Z-1000
등록번호 Registration No.	R-R-ENX-EN-A-1000
제조국(제조(도입)국가) Manufacture/Country of Origin	(주)에치에스 / 한국
등록일(일) Date of Registration	2020-01-22
기타 Others	

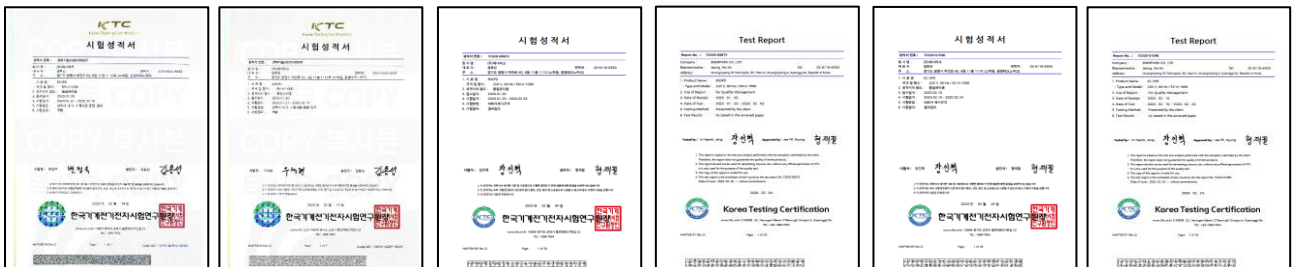
본 기자재는 전자파 제38조 제1항에 따라 등록필증을 증명합니다.
It is verified that foregoing equipment has been registered under the Clause 3, Article 38-1 of Radio Waves Act.

2020년 01월 22일(Monday) 22일(Day)

국립전파연구원장
Director General of National Radio Research Agency

ECSPD KC Patents (KOR)
NO : R-R-ENX-EC-A-1000

ENSPD KC Patents (ENG)
NO : R-R-ENX-EN-A-1000



ENSPD KTC TEST
NO : T2020-00007

ENSPD KTC TEST
NO : T2020-00008

ENSPD KTC TEST (KOR)
NO : T2020-00873

ENSPD KTC TEST (ENG)
NO : T2020-00873

ECSPD KTC TEST (KOR)
NO : T2020-01590

ECSPD KTC TEST (ENG)
NO : T2020-01590



ECSPD



ENSPD



GD-2000