LSIS is now taking off to become a global leader with proper know-how in the field of power solutions and automation solutions.

Where there is light, energy, and electric power, you will find LSIS. LSIS is with you in your everyday life.

LSIS is a leader of the electric power and automation industry. Through ongoing innovation, LSIS strives for top quality and groundbreaking products, so that it can become the global leader the world of tomorrow requires.
Power Grid Solutions

Leading the Future World Class Product

Low Voltage Equipment
Medium Voltage Equipment
Protection & Measurement
Metering
Transformer
Gas Insulated Switchgears
Low & Medium Voltage Switchgears
Bus Duct Systems
Power Equipment Diagnosis - Preventive Maintenance
HVDC
LSIS is taking off toward a global leader beyond the first company in the field of power solution in Korea.

Using technology that it has accumulated over more than 30 years in the electric power industry, LSIS develops, produces, and supplies a whole range of products related to power plants, power transmission and distribution, equipment for electricity users, and electric power IT to overseas markets as well as within Korea. LSIS electric equipment is developed under the quality-first principle. Year on year, its sales in the global market have increased by 30 to 40 percent. LSIS develops and produces various products in the field of power solutions. Most notable among these is their 1st series, a premium brand that was developed through the company’s “World’s No. 1 Product Project,” which further increased the company’s reputation internationally. The company’s basic technology in fields like arc discharge protection, application of environment-friendly materials, and technology for multi-functional digital watt-hour meters and relays are already at the highest international standards. The company’s leading technology was further recognized when it released circuit breakers with the world’s highest level of breaking performance.

First company in the world to develop hybrid superconducting fault current limiter, LSIS has expanded to develop Ultra high voltage business. With the world’s highest levels of technology and product quality in electric power solutions, LSIS is always actively exploring the global market in the field of ultra-high voltage electric equipment as well.
**Low-Voltage**

### Molded Case Circuit Breakers
- **Miniature Circuit Breakers/Residual Current Device**
  - Protection: RK series - Short circuit & Overload
  - RK series - Ground fault, Ground fault & Overcurrent
  - Rated current: 1 to 125A
  - Characteristics: B, C, D
  - IP: IP44, IP20, IP30, IP66, 4 Poles
  - Rated breaking capacity: 3~10kA at 230/400V
  - UL6095, IEC 60898, EN60947-2

### UL Molded Case Circuit Breakers
- **Miniature Circuit Breakers/Residual Current Device**
  - Rated current: 3~1200A with 6 Frame size
  - Rated breaking capacity: Up to 150kA at 415Vac
  - Ulmp: 5kV, Ua: 750V, Ic: 75~100kA
  - Same external dimensions with MCCB&ELCB
  - Rated breaking capacity: Up to 85kA at 415Vac
  - Rated current: 3~1200A with 6 Frame size

### Contactors
- **2100AF Contactors**
  - Optimized to control AC-1 category loads
  - Rated current: 1400, 2100A with 3 Frame size
  - Ulmp5kV, Ul1:1,040V
  - Coil voltage: 100~240VAC, 50/60Hz
  - 100~220VDC
  - One-Mold Type
  - CE, UL/cUL, CCC certified

### Motor Protection Relays
- **Electronic Motor Protection Relays**
  - Reduction of parel space
  - ENEC certified according to EN
  - Adjustable trip time (trip class S, T, L, C, D, E, F, G, H)
  - Inverse time or definite time characteristics are available
  - Adjustable trip time (trip class 5_10_15_20_30)
  - EMV tested according to EN
  - Manual reset as standard (automatic reset optional)
  - CE, UL certificate

### Air Circuit Breakers
- **Vacuum Circuit Breakers**
  - Rated voltage: 12kV, 24kV, 36kV, 40.5kV
  - Rated current: 100~1000A
  - Rated breaking capacity: 120kA, 6300A at AC500V
  - Compact & simplified size
  - One-Mold Type
  - CE, UL certificate

### Medium-Voltage

### Contactors
- **Susel Air Circuit Breakers**
  - Rated current: 200~6,300A with 3 Frame size
  - Rated breaking capacity: Up to 150kA at 500Vac
  - Rated short-time withstand current: Up to 100kA / 3sec
  - Ulmp: 12kV, Ul: 1,000V, Ic: 750% Icu
  - Multi-functional digital trip relays (NAPPS type OCR)
  - Various accessories (18 types)
  - Compact size & high breaking capacity
  - Complete full line-up
  - 100% N-Phase conducting capacity
  - KEMA, CE, KEM, CE certified

### Ring Main Units
- **Susel Ring Main Units**
  - Rated voltage: 12kV, 17.5kV, 24kV
  - Impulse withstand voltage: 50kV, 95kV, 125kV
  - Normal current
  - Ring switchgear: 630A
  - 3 second short time current
  - Ring switchgear: 216A
  - Two-circuit breaker: 216A
  - Internal arc rating (Freestanding): 216A 1sec

### Transformer
- **Transformer Protection & Measurement**
  - Rated voltage: 7.2kV, 12.5kV, 17.5kV, 24kV, 36kV, 40.5kV
  - Rated current: 1400, 2100A with 3 Frame size
  - Rated breaking capacity: Up to 150kA at 500Vac
  - Rated short-time withstand current: Up to 100kA / 3sec
  - Ulmp: 12kV, Ul: 1,000V, Ic: 750% Icu
  - Multi-functional digital trip relays (NAPPS type OCR)
  - Various accessories (18 types)
  - Compact size & high breaking capacity
  - Complete full line-up
  - IEC 62271-100
  - KEMA, CE, KEM certified

### Bus Duct Systems
- **Bus Duct Systems**
  - Rated voltage: 400V, 630A
  - Rated current: 1400, 2100A with 3 Frame size
  - Rated breaking capacity: Up to 150kA at 500Vac
  - Rated short-time withstand current: Up to 100kA / 3sec
  - Ulmp: 12kV, Ul: 1,000V, Ic: 750% Icu
  - Multi-functional digital trip relays (NAPPS type OCR)
  - Various accessories (18 types)
  - Compact size & high breaking capacity
  - Complete full line-up
  - IEC 62271-100
  - KEMA, CE, KEM certified

**Power Grid Solutions**
**Power Grid Solutions**

- **Load Break Switches**
  - Rating: 24kV/630A
  - Rated short time current: 20kA/1s
  - Air arc extinguishing type
  - Minimum distance between phases (215mm, metal to metal)
  - Overcurrent and ground fault protection, and short circuit current lock
  - Bending knife structure
  - Accessories: switching counter, sub switch (2A2B)
  - Applied standard: KEMC1126, KEMC1120

- **Power Fuses**
  - Rating: 3.67/20kA/1s
  - Uniﬁcation of connection size by DIN43825 for easy replacement and maintenance
  - Viewing veriﬁcation due to the improvement of operation distance and weight of striker
  - Electrical signal and mechanical interlock by striker
  - Applied standard: IEC60265-1, IEC60265-2-1

- **Vacuum Fuses**
  - Rated voltage: 7.2kV, 12kV, 17.5kV, 24kV, 36kV, 40.5kV
  - Rated current: Up to 4,000A
  - Rated short circuit breaking current: Up to 50kA
  - Air arc extinguishing type
  - Various protection functions
  - Remote control & Monitoring of circuit breaker
  - Wave Record: 32 Sample / 30-Cycle / 4.6A
  - Certiﬁcation: KEMC1120, IEC62271-105

- **Vacuum Contactors**
  - Rating: 25.8kV/200A
  - Air insulation method
  - Various protection functions
  - Remote control & Monitoring of circuit breaker
  - Wave Record: 32 Sample / 30-Cycle / 4.6A
  - Certiﬁcation: KEMC1120, IEC62271-105

- **Auto Section Switches**
  - Rating: 25.8kV/200A
  - Air arc extinguishing type
  - Rated short-time current: 10kA/1s
  - Air insulation method
  - Rated short-time current: 20kA/1s
  - High speed transfer time: 10 cycles, 167ms or less
  - Monitoring of the phase fault of main power
  - Various output contacts: Small, light-weighted
  - Motor spring charge method
  - Applied standard: KEMC1120, IEC62271-105

- **Digital Motor Protection Relays**
  - Protection function: 50/51, 50/51N, 67G, 67N, 59, 27, 64, 47, 46, 49, 48/51LR, 79, 87T
  - Metering & Measurement
  - 5V, 6V, 12, 48, 100, 200V, 230V, 400V, 500V
  - Event & Fault Recording
  - Event recording: Max. 800 events
  - Fault recording: Max. 200 faults
  - Event Wave Recording: 64-cylce
  - SOE & SBO Functions
  - Vector Diagram
  - Programmable I/O: DI 10, DO 10
  - PCS/IFS Functions

- **Digital Protection Relays (GIPAM-10 CL/CR/VD/NZ)**
  - 11 protective function for the medium-voltage motors
  - Compact type protection relay with built-in various add functions
  - The set contents can be downloaded/uploaded by USB cable, therefore maintenance and data inquiry are very convenient.
  - Remote control & Monitoring of circuit breaker
  - Standard: KEMC1120, IEC62271-105
  - Certification: KEMC1120, IEC62271-105

- **Digital Protection Relays (DPR-1000)**
  - Protection function: 50/51, 50/51N, 67G, 67N, 59, 27, 64, 47, 46, 49, 48/51LR, 37, 66, 38
  - Event Triggered Wave Recording
  - Smart & SBO Functions
  - DI 5, DO 5, AI 2 point
  - Communication: DNP3.0, Modbus/RS-485

- **Digital Integrated Protection & Monitoring Devices (GIPAM-2000FI/NFI)**
  - Dual Communication System, IEC61850 (TE)
  - Harmonics, THD, TDD, K-factor
  - Sag, Swell, Interruption & Harmonic analysis of 63rd orders
  - Performing 0.2% measurement accuracy for Current and Voltage
  - Increasing reliability/Flexibility through Duplex communication
  - Control and operate on screen by graphic user interface
  - Hardware/Software flexibility and easy setting with PC manager

- **Gas Insulated Switchgears**
  - Protection & Measurement
  - Low Voltage Equipment
  - Medium Voltage Equipment
  - Protection & Measurement
  - Metering
  - Transformer
  - Gas Insulated Switchgears
  - Low & Medium Voltage Switchgears
  - Bus Duct Systems
  - Power Equipment Diagnosis: Preventive Maintenance
  - HVDC
**Digital Integrated Metering & Control Devices (GIMAC-i)**
- Main features: V, V0, I, I0, I2, W, WH, VAR, VARH, VA, F, PF, DPF, Demand, TD, TD0, k-factor, Analog Input
- Korean/English switching on touch screen menus
- Seg. Switch, Interruption Analysis, Measurement, and 512 Events storage
- Harmonic analysis spectrum, (In)analysis (THD, TDD), k-factor, Crest Factor
- Current and voltage measurements with accuracy 0.2%
- Power, energy measurements with accuracy 0.5 Class
- Wide input range (AC 10 ~ 452V, 40 ~ 70Hz)
- Voltage/current 0.2% and power/energy 0.5 Class accuracy achieved

**Digital Integrated Metering & Control Devices (GIMAC-IV)**
- Main features: V, V0, I, I0, I2, W, WH, VAR, VARH, VA, F, PF, DPF, Demand (kWh, kVARh), TD, TD0, Analog Input
- Accuracy: ±0.2% ~ ±0.5%
- SOE & SBO Functions
- 2nd~15th Harmonics
- Vector Diagram
- DI 10, D0 10, AI 2 point
- Option: Automatic power factor controller, Demand controller
- Communication
- Modbus/RS-485

**Power Transformer**
- Rating: 3P ~ 550kV ~ 800MVA
- Using the latest program related magnetic field, insulation, cooling and structure, product stability and electric reliability by optimum insulation and structural analysis secured
- LSIS’s Power Transformer factory is equipped with the latest core process machines, winding machines, high capacity vacuum heat drying equipment, state-of-the-art cleaning facilities and has the best testing room.

**Low Voltage Equipment**
- Rated voltage: 690V
- Rated current: 630 ~ 5000A
- Rated breaking current: up to 80kA
- Standard: IEC 61439-2
- Compact size
- Available various options

**Medium Voltage Equipment**
- Rated voltage: 690V
- Rated current: 630 ~ 5000A
- Rated breaking current: up to 80kA
- Standard: IEC 61439-2
- Single and/or double front construction
- Safety considerations
- Washable units
## Gas Insulated Switchgears

### 25.8kV / 36kV GIS
- Rated voltage: 25.8kV / 36kV
- Rated continuous current: Up to 3150A
- Rated breaking current: Up to 40kA
- Performance of large-current and high
- Large current carrying capacity
- Minimizing installation space and integrating control unit

### 72.5kV / 145kV GIS
- Rated Voltage: 72.5kV / 145kV
- Rated Current: Up to 3150A
- Rated Breaking Current: Up to 40kA
- 3Phase encapsulated compact GIS
- Modular system makes easy to operate
- Motor spring mechanism

### 362kV GIS
- Rated Voltage: 362kV
- Rated Current: Up to 3150A
- Rated Breaking Current: Up to 40kA
- High short-circuit interruption (63kA)
- High reliability type GIS
- Horizontally designed 3Way GIS for Compactness

### 420kV GIS
- Rated Voltage: 420kV
- Rated Current: 4000A
- Rated breaking current: 50kA
- High reliability & Compact GIS
- Reduces breaker vibration and guarantees safe installation
  by using horizontally designed circuit breakers

### 170kV GIS
- Rated Voltage: 170kV
- Rated Current: Up to 4000A
- Rated Breaking Current: Up to 50kA
- 3Phase encapsulated compact GIS
- Hybrid extinguishing type Circuit Breaker
- Motor spring mechanism

### 245kV / 252kV GIS
- Rated Voltage: 245kV / 252kV
- Rated Current: Up to 4000A
- Rated Breaking Current: Up to 50kA
- Minimizing installation space & High Reliability
- Hybrid extinguishing type Circuit Breaker
- Motor spring mechanism

### Busway System
- Rated voltage: AC 1000V/DC 1500V
- Rated current: Up to 7500A
- Rated short time withstand current: 200kA/4s (Cu/4,000A)
- Degree of protection: IP65(Indoor)/IP67(Outdoor)
- Standard: IEC 60439-1,2
- Certification: KEMA
- Compact & safety design
- Metal clad switchgear which compartments are divided by ground metal partitions
- Power distribution System of the optimum which substitutes cable

### MV Switchgears
- Rated voltage: 7.2kV ~ 36kV
- Rated current: Up to 4000A
- Rated short time withstand current: Up to 50kA/3s
- Degree of protection: IP65
- Standard: IEC 62271-200
- Certification: KEMA, KES, LESI
- Compact & safety design

### 72.5kV / 145kV GIS
- Rated voltage: 7.2kV ~ 36kV
- Rated current: Up to 4000A
- Rated short time withstand current: Up to 50kA
- Degree of protection: IP65
- Standard: IEC 62271-200
- Certification: KEMA
- Compact & safety design
- Metal clad switchgear which compartments are divided by ground metal partitions
- Power distribution System of the optimum which substitutes cable
Power Equipment Diagnosis - Preventive Maintenance

We provide comprehensive one-stop total solutions, from consulting engineering to power equipment preventive maintenance and power systems.

PQ Equipment
PQ equipment prevents any harmful elements from altering the electricity quality in electric systems. The DVR compensates for temporary voltage sags and swells, the SVC compensates for reactive power while stabilizing voltage, and the APF compensates current harmonics.

Dynamic Voltage Restorers (DVRs)
DVRs are inserted in series in distribution systems to compensate for low quality power such as voltage sags and swells and to supply high quality power.
- Rating : capacity-100/200/300/500kVA, 1,000/2,000kVA voltage - 200/380/440V/660/22.9kV

Static Var Compensators (SVCs)
SVCs compensate for voltage fluctuation as well as reactive power online using power semiconductor elements to improve the quality of power supply.
- Rating : 3P3W, 440V, 6kV, 22.9kV, 500kVA-100MVA
- Compensates for lagging and leading reactive power and voltage
- Improves power factor, saves energy
- Compensates for flickers

Active Power Filters (APFs)
APFs eliminate the harmonics of source current by inverting an electric current (which has the same value as but contrary polarity to the harmonic current generated by nonlinear load) into the line.
- Rating : 3P3W, 3P4W 100-400kVA
- Removes harmonics from non-linear loads such as rectifiers by using power transfer equipment

GIS Maintenance Solutions
- Insulation diagnosis using UHF PD technology
- Forecasting life expectancy of facilities by checking GCB contact erosion
- Maintenance-supply using GCB operation characteristics

Substation Monitoring & Diagnosis Systems
The substation monitoring and diagnosis system is a web-based online diagnosis system which examines/forecasts the cause of failure by monitoring and diagnosing the operation of substation power facilities to improve the reliability of power supply.
• Improves the stability and reliability of power supply. Efficient and reliable equipment operation. Accident prevention and minimization of regular maintenance. Mid-and long-term data trend management of equipment.
High Voltage Direct Current (HVDC) transmission systems convert alternating currents generated at power plants into direct currents for supply. The converted currents are reconverted into alternating currents in the target location. The system is not limited by transmission distance, realizes less power loss and can be adapted to renewable energy facilities to ensure provision of high quality electricity.

**Transformer**

This equipment transforms alternating currents and supplies them to thyristor valve.

**Thyristor Valve**

The thyristor valve converts alternating currents into direct currents, and reconverts direct currents into alternating currents. It plays a core role in the equipment by separating alternating currents and direct currents systems.

**C&P (Control & Protection)**

C&P controls and protects transformer, thyristor valve, and entire system at HMI (Human Machine Interface). HMI refers to the interface for operators to control all devices in HVDC.

Busan HVDC Plant

Jeju HVDC Smart Center (HVDC test-bed)
Automation & Drive Solutions

Leading the Future World Class Product

PLC
Distributed I/O
Servo Motor / Servo Drive
HMI
AC Drive
PSC
Automation Systems
From production facility to information system, LSIS is creating core automation solution.

Ever since producing and supplying Korea’s first programmable logic controller (PLC), LSIS has played a pivotal role in the history of automation equipment in Korea. From unit machinery to large-scale processes, the company has created an optimum automation environment based on the country’s highest level of reliability and technology. While leading industrial automation and supplying optimum solutions for automobile companies, international airports, subways, power plants, and LCD production complexes, LSIS has had its industry-leading technology recognized by international certification organizations such as CE and UL.

LSIS succeeded in developing the first Korean DCS with its own technology. Since then LSIS has established the main control and process knowledge in various kind of industry field. LSIS has had its industry-leading technology recognized by international certification organizations such as CE and UL. Optimum solutions for automobile companies, international airports, subways, power plants, and LCD production complexes, LSIS has created an optimum automation environment based on the country’s highest level of reliability and technology. While leading industrial automation and supplying automation equipment in Korea. From unit machinery to large scale processes, the company has created an optimum automation environment based on the country’s highest level of reliability and technology. While leading industrial automation and supplying automation equipment in Korea.

LSIS developed and provides products satisfying demands in and out of Korea as the leading automation solution provider.
## PLC XGB Series

<table>
<thead>
<tr>
<th>Type</th>
<th>Processing Speed</th>
<th>Max. I/O Points</th>
<th>Program Capacity</th>
<th>Additional Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>0.094 µs/step</td>
<td>256</td>
<td>200KB</td>
<td>Build-in PID, process control, powerful built-in functions (Comm., HSC, PID), RTC (Real Time Clock), USB I/F, IEC61131-3 standard programming, enhanced maintenance via system history and network configuration, powerful built-in PID and process control.</td>
</tr>
<tr>
<td>Analog Type</td>
<td>0.094 µs/step</td>
<td>256</td>
<td>10Kstep</td>
<td>Built-in PID, Cnet, Positioning, HSC - Max. 256 loops and variety of process functions</td>
</tr>
<tr>
<td>Positioning Type</td>
<td>0.094 µs/step</td>
<td>256</td>
<td>10Kstep</td>
<td>Built-in PID, Cnet, Positioning, HSC - Max. 256 loops and variety of process functions</td>
</tr>
</tbody>
</table>

## PLC GLOFA-GM Series

<table>
<thead>
<tr>
<th>Type</th>
<th>Processing Speed</th>
<th>Max. I/O Points</th>
<th>Program Capacity</th>
<th>Additional Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLOFA-GM4 / GM4C</td>
<td>0.1 µs/step</td>
<td>128</td>
<td>64KB</td>
<td>Build-in PID, process control, powerful built-in functions (Comm., HSC, PID), RTC (Real Time Clock), USB I/F, IEC61131-3 standard programming, enhanced maintenance via system history and network configuration, powerful built-in PID and process control.</td>
</tr>
<tr>
<td>GLOFA-GM6</td>
<td>0.5 µs/step</td>
<td>256</td>
<td>384</td>
<td>Build-in function: PID, Cnet, etc.</td>
</tr>
<tr>
<td>GLOFA-GM7U</td>
<td>0.5 µs/step</td>
<td>120</td>
<td>7Kstep</td>
<td>Build-in function: PID, Cnet, etc.</td>
</tr>
</tbody>
</table>

## PLC MASTER-K Series

<table>
<thead>
<tr>
<th>Type</th>
<th>Processing Speed</th>
<th>Max. I/O Points</th>
<th>Program Capacity</th>
<th>Additional Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>MASTER-K200S</td>
<td>0.1 µs/step</td>
<td>128</td>
<td>10Kstep</td>
<td>Build-in PID, Cnet, Positioning, HSC - Max. 256 loops and variety of process functions</td>
</tr>
<tr>
<td>MASTER-K120S</td>
<td>0.1 µs/step</td>
<td>128</td>
<td>10Kstep</td>
<td>Build-in PID, Cnet, Positioning, HSC - Max. 256 loops and variety of process functions</td>
</tr>
</tbody>
</table>
Automation & Drive Solutions

**Distributed I/O**

- **Block Type SMART I/O**
  - Compatible with Modbus, Profinet, DeviceNet, EtherCAT
  - Suitable for medium and small scale network system
  - Small size

- **Extension Type SMART I/O**
  - Open protocol: Profinet, DeviceNet, EtherCAT, Modbus/TCP, Peer
  - Suitable for medium and large scale system
  - Wide extension of input/output
  - Maximum 256 points
  - 100% compatible with XGB I/O module

**Servo Solution**

- **XDL (Servo Drive) / XML (Servo Motor)**
  - 200V: 100W ~ 3.2kW / 5kW
  - 400V: 1kW ~ 3.5kW / 7.5kW / 15kW
  - High resolution vector type encoder (~19bit)
  - Accurate position control and improved stability at low speed
  - Motion network type(EtherCAT)/XDL N Series
  - 100BASE-TX/1000Mbps/EtherCAT based real-time communication
  - Support Full-closed control (Network type)
  - Serial communication (RS-422/485, Modbus)
  - Various operation modes
  - CIP, EU, EUV, PV, IP, HM, IP
  - Safe torque off function
  - Linked with LSIS’s XGT PLC

**HMI iXP / XP Series**

- **IPX 90 / 80 / 70 / 50-TTA**
  - Screen size: 38cm(15") / 31cm(12.1") / 26cm(10.4")
  - Display color: 16.7M
  - 128KB display data and 1MB back-up memory
  - USB host 3ch and device 1ch
  - SD memory card interface

- **XP 90 / 80 / 70 / 50 / 3D-TTA**
  - Screen size: 38cm(15") / 31cm(12.1") / 26cm(10.4")
  - TFT color: 65,536
  - 8-wire system, analog
  - RJ100 Base-T Ethernet, USB
  - CF memory card

- **XP 50 / 30-TTE, XP-BTA/BTE**
  - Screen size: 21cm(8.4") / 14cm(5.7")
  - TFT color: 640x480
  - 4-wire system, analog
  - RS232C, RS422/485
  - CR memory card

**S/W HMI**

- **Positioning Module (XPA)**
  - Max 4Axis, Max pulse output 8Mpps
  - Circular/linear/orthogonal interpolation
  - FRAM parameter
  - XG-PM monitoring, simulation, trace
  - CAM profile program

- **Motion Module (EtherCAT)**
  - 32 axes (master) and 4 axes (virtual) control
  - EtherCAT Coll supported servo drive
  - Communication cycle: 1ms
  - Built-in 1920 8 points each and EtherCAT I/O 512 points
  - Program 2MB
  - External encoder input 2ch (line driver)
  - Max. transmission distance: 100m

- **Positioning Module (Network Type)**
  - XG-PMB: Dedicated LSIS EtherCAT Network
  - Support (XGP Servo N Series)
  - XG-PMBB: Standard EtherCAT Network
  - Support(XGT Servo XDL Series)
  - Direct connect with servo drive 16bit 2~8 axis linear interpolation, 2axis circular interpolation, 2axis helical interpolation
  - Position, speed, feed control is possible through the various operation
  - CAM for controlling up to eight different types of CAM data

- **XP40-TTA / TTE**
  - Screen size: 17.8cm(7")
  - TFT color: 65,536
  - Display color: 65,536
  - 10/100 BASE-T Ethernet, USB
  - CR memory card

- **XP10-BKA / BKB**
  - Screen size: 10cm(4.1")
  - MONO (192 x 64 graphic LCD)
  - Text display
  - RS232C, USB
  - Built-in RTC

- **XGT InfoU**
  - Integrated development environment for interactive user interface
  - Direct import tag database for LS PLC software
  - Open architecture meets industrial standards (OPC, OLE DB, etc.)
  - Easy to use
  - Program development environment for simple application
## Automation & Drive Solutions

### AC Drive

**S100 (Standard VFD)**
- 1 phase 0.4~1.5kW (0.5~2HP), 200~230V
- 3 phase 0.4~75kW (1~100HP), 380~480V

**H100 (HVAC Specialized VFD)**
- 3 phase 5.5~138kW (7.5~200HP), 380~480V
- 3 phase 0.4~15kW (0.5~20HP), 200~230V
- 1 phase 0.4~1.5kW (0.5~2HP), 200~230V

**C100 (Compact VFD)**
- 1 phase 0.1~1.5kW (0.2~2HP), 200~230V
- 3 phase 0.4~7.5kW (0.5~10HP), 380~480V

**iS7 (Premium VFD)**
- 1 phase 0.4~1.5kW (0.5~2HP), 200~230V
- 3 phase 0.4~220kW (0.5~300HP), 380~480V

**iPSA (Fan & Pump Specialized VFD)**
- 3 phase 0.5~500kW (0.5~800HP), 380~480V

**iVS (Full Flux Vector Control VFD)**
- 3 phase 2.2~27kW (3~30HP), 200~230V
- 3 phase 2.2~400kW (1~600HP), 380~480V

**iP5A (Fan & Pump Specialized VFD) Super Solution Power Module (SUSPM1/2/3)**
- 3 phase 0.4~7.5kW (0.5~10HP), 380~480V
- 1 phase 0.1~2.2kW (0.2~3HP), 200~230V

### Medium Voltage Drive

**M1000**
- 3L 3.3kV 200~3,700kVA / 4.16kV 250~4,700kVA
- 6L 6.6kV 400~7,500kVA / 10kV 6,000~11,000kVA
- 11kV 600~12,500kVA

**M1000A**
- 3L 3.3kV 200~600kVA / 4.16kV 300~1,200kVA
- 6L 6.6kV 400~1,200kVA

### PSC (Power semiconductor) Module

**Simple Solution Power Module (SISPM0)**
- Features
- The Latest IGBT Technology
- Low-power dissipation
- Optimized anti-parallel diodes
- Various circuit configurations
- Single-phase CB/PDU 3-phase C/B/P
d
- Product range
- 600V 10A ~ 30A
- 1200V 5A ~ 10A

**Simple Solution Power Module (SISPM1)**
- Features
- The Latest IGBT Technology
- Low power dissipation
- Optimized anti-parallel diodes
- Operation frequency up to 40kHz
- Product range
- 400V 75~400A
- 1200V 50~400A
Process Solution

Water & Waste Water
Water treatment includes the treatment and management of all water resources, including water treatment for making clean drinking water, sewage water treatment, and industrial wastewater treatment. In order to automate such water treatment systems, we not only design and install control systems but also provide total solutions encompassing equipment manufacturing and tests as well as application software, testing, education and after-sales services.

Power Plant
Power plant control systems are said to be the core of operating power facilities since they shorten daily and weekly boiler start-up times while also ensuring reliability, safety, and efficient operations by improving load follow-ups and operation utilities maintenance. LSIS provides solutions for establishing the main control systems and power plant integration control systems required for efficient management and accident analysis.

Community Energy System
Community energy systems supply high-temperature exhaust gas heat in the form of steam or hot water to a local community with its energy requirements.

Small Hybrid Power
Small hydro power is less than 10,000 kw of installed capacity of hydroelectric power. Small hydro power system is power generation by using a low fall turbine mainly, and provides monitoring and control solution about Valve & Gate, alternation and generators, pumps and other major equipment.

Waste Transfer System
As an alternative for environment problem and existing inefficient collection and transport of waste, waste transfer system uses underground transferring pipe line for collection and transport of waste.

Incinerator
Control System in incineration process performs integrated control & monitoring of pumps, valves, measuring devices in order to make sure that entire incineration plant are run efficiently according to regulations on environment pollution.

City Gas
Master-RTU for city gas facilities collects data from field devices and sensors such as governor, MVDr and etc. to send it to SCADA system in central center via wired/wireless communication line. And it receives commands from SCADA and performs on-line & real time control as well.

Industrial Integration Solution

Water Resources Integrated Management Solution
The Water Resources Integrated Management Center performs remote control and monitoring of every local station to support the creation of synergy in operating each local station.

Water Treatment Production Planning Solution
Water treatment production planning solutions consist of a water demand forecasting system, a water pumping and supplying system, a facility information management system, a pipe-line network analysis system, a status monitoring system, and web monitoring so as to forecast local water demand, establish a supply plan, and monitor the plant’s operating status.

Energy Integrated Management Solution
By consistently meeting customer’ energy demands and saving energy at iron & steel mills, this solution maximizes the recovery rate of exhaust energy (gas, vapor, etc.) from the manufacturing process, providing energy to each part of the reall where it is needed.

Sewage Integrated Management Solution
This consists of a sewage pipe-line maintenance and management monitoring system, a sewage treatment process diagnosis system, a facility information management system, a sewage operation information system, and a sewage pipe-line network monitoring system to monitor and control, from sewage treatment to sewage pipe-line management.

Distributed Control System

SCADA & RTU

MASTER-RTU SYSTEM
The Remote Terminal Unit (RTU) collects data from field instruments & sensors and transmits the information to the Supervisory Control and Data Acquisition System (SCADA) installed in a central control room through wireless/communication systems and lines, and receives control commands from the telewater telecontrol system to conduct online controls in real time.
Convergence Solutions

Leading the Future World Class Product

Smart Grid
Photovoltaic Solutions
Railway systems
Electric Vehicle Components
Convergence Solutions

Convergence of the nature, people, and technology to make new things possible.

In addition to future automotive technologies such as environment-friendly vehicle inverters, advanced EV-relays, and electric car charger components, LSIS innovative smart grid technologies enable the optimum power grid operation and maximum efficiency power supply control required to create a green energy environment.

In the field of power generation, LSIS provides photovoltaic systems, a pollution-free and limitless source of energy, through a one-stop service that includes consulting, construction, and follow-up service. All in all, LSIS is a leader of convergence technology.

Supply History (Smart Grid)

EMS (Energy Management System)
- Joju Test-bed TOC EMS (1st Phase: 2008.12~2011.05, 2nd Phase: 2011.06~2012.05)
- Development of National Funded Project "K-EMS" (2005.11~2010.10)
- Installation of Joju EMS (2006)

SCADA (Supervisory Control And Data Acquisition)
- Incheon Airport 3rd Phase SCADA (2013.06~2017.10)
- Iraq DCS SCADA (2013.01~2014.12)
- Jordan Dam Water Drawing Project (2013.01~2013.12)
- Iraq MEWAED Project (2011~2012)

DMS/DAS (Distribution Management/Automation System)
- Rural Development Administration (RDAC) RTU (2014.01~2014.12)
- Buam Jeonggwan FRTU and DAS (2007~2009)

EES (Electrical Energy Storage Systems)
- SCE (Southern California Edison) Residential EES Test-bed in North America, Acquisition of UL Certification (2012)
- Smart Grid Project in Busan 1.0MW EES System (2012)
- 5MW EES/PCS in Samsung SDI (2014)
- KEPCO 1MWh Generation PCS/STATCOM in En-Ar (2014)
- Development of National Funded Project "Smart Renewable" (2009.12~2013.05)
- KEPCO Frequency Regulation 1MW EES/PCS (2014)

Photovoltaic Solution

Residential
- Annual Exports Surpassed 100MW in Japan (2014)

Commercial
- Shihwa Lake 100MW Water Floating PV System (2013)
- Chungju Hospital 100MW PV System (2011)
- Greece 110MW Module Exportation (2011)
- Belgium 110MW Module Exportation (2011)

Power Plant
- Hapcheon Dam 500MW Water Floating PV System (2012)
- Bulgaria 14SMV PV Plant (2012)
- Japan Mitro City 1MWV PV Plant (2012)
- Afghanistan 11MW PV Plant (2012)
- Renault-Samsung Component Center 1MW PV System (2011)

High Speed Railway
- Seoul High Speed Railway Signalling System & Electrical System Project (2014~2015)
- Hikomen High Speed Railway Signalling System & Electrical System Project (2012~2014)
- Gyeongbu High Speed Railway (Phase 2) Control System Project (2008~2014)
- Gyeongbu High Speed Railway/Phase 1 Electrical System Project (2008~2010)

Main Line
- Taekung Electrical Interlocking System Project (2013~2014)
- Banghwa Railway 13 Stations Modernization Project (2012~2015)
- Bangladesh Double Track Line Signaling System Project (Laksham - Chini Astar) (2012~2015)
- Bangladesh Double Track Line Signaling System Project (Yangli - Bhundari Bazar) (2011~2015)
- Thailand 514 Double Track Line Signalling & Communication System (2009~2011)

LRT
- Incheon International Airport 3-phase IAT E&M Project (2013~2017)
- Wood-Solarity LRT Electrical System Project (2012~2016)
- Incheon International Airport Magnetic Levitation Railway Electrical System Project (2012~2012)
- Buam Jeonggwan LRT Electrical System (2007~2011)

Metro
- Seoul Metro Phase 1 (Line 6, 2 Stage) Electrical System (2012~2015)
- Seoul Metro Line 7 Replacement Control System (Signaling system, Electrical System, Communication System) (2008~2013)
- Sinsudang Line SCADA System (2006~2011)
- Buam Metro Line 2 Stage 1 Phase (Ippo - Jeonggung) Signaling System (2005~2008)
LS-ILCMS Individual Light Control & Monitoring System

LS-ILCMS based on Computer and Power Line communication Technology (PLT) which sends the data to serial load circuit of constant current regulator and make it possible to control each airfield light's on and off by a group and individually.

- Safe and efficient ground movement in all weather, this is the main objective of “LS-ILCMS” by means of Airfield Individual Lighting Control. 
- LS-ILCMS realizes an efficient ground control & surveillance by improving Safety, Reliability and User convenience comparing the existing system.

A-SMGCS Advanced Surface Movement Guidance & Control System

A-SMGCS has a function of the followings to manage the aviation light system in all. This system is based on ILCMS by using Power Line communication Technology (PLT) which sends the data to serial load circuit of constant current regulator and make it possible to control each airfield light's on and off by a group and individually.

- Safe and efficient ground movement in all weather, this is the main objective of “A-SMGCS” by means of Airfield Individual Lighting Control. It realizes an efficient ground control & surveillance by improving Safety, Reliability and User convenience comparing the existing system.

Power IT EMS, SCADA, SAS, DMS

- Customer Oriented Power Solution with the newest Digital Network System Integration and New Trend Information Technology of Generation, Substation, Transformation, Distribution and Customer!

EMS (Energy Management Systems)
- Applies Open-Architecture and a general Database (DBC, ADC)
- Uses real time OS to process real time data
- Supports Economic Dispatch and Load Frequency
- Control to ensure stable power supply and operation
- Applies the Contingency Analysis program which simulates the effect of separating the power line and generator in case of accident
- Supports scenario restructuring and accident analysis in the event of an accident.

SCADA (Supervisory Control & Data Acquisition)
- User-oriented graphic environment with full graphic resources and working tools
- Possible to monitor and control the site in Viewport and alarm window
- Transmits the operating information relating to I/O point in real time
- Support for making full use of ED functions through wireless communication with IEDs
- Storage of long-term data using the relational database
- Report generation with various formats reflecting user requirements
- O/T Operator Training System (function support)
- Online
- Web monitoring function support (Option)

SAS (Substation Automation Systems)
- Makes possible communication with various Intelligent Electronic Devices (IEDs) and analysis of the IED relay curve and accident function
- Increases the convenience of operation through the remote setting function of the IEDs, the bay-status indicating function, and others
- Provides support for large capacity data communication in real time by applying the real time OS and TCP/IP Protocol
- Applies object-oriented technology to secure the flexibility, efficiency and reliability of data communication between software modules

DMS (Distribution Management Systems)
- Supports automatic decision point of accident
- Automatic decision function in breakdown mode (manual / automatic PT)
- Automatic separation and recovery support in the failed area
- Applies the IBD and CBQ functions to secure the reliability of the control operation
- The composition of the hardware is designed to consider functional improvements and update
- Functions through the downloading of the application program
- Supports various wired and wireless communication (RF, CDMA, optical communication and others) functions

EV Charging Infrastructure

LS IS produces portable EV Charger, Cordset. This product is convenient since it can be carried around and charges whenever the user is needed. AC Quick Charging Stand is optimized for chameleone type (the system converts into Quick charger or slow charger at different situation) which is customized for Renault Samsung Cars. It is suitable for public transportation or taxi since it charges quickly.

EV Charging Infrastructure

AC Quick Charging Stand
- AC Charging Power Output : IEC 61851 MODE3
- AC Power Input/output : 45kW (380V, 32A)
- Power System : 1phase, 4wire
- Frequency : 50Hz
- Protective Device : Electrical leakage circuit breaker;
- Operating Temperature : -25 ~ +50 [°C]
- Operating Humidity : 5 ~ 95%
- Outdoor Rated : IP44

Slow Charging Stand
- AC Charging Power Output : Level2 - SAE J1772
- AC Power Input/output : 7kW (220V, 32A)
- Power System : 1phase, 2wire
- Frequency : 60Hz
- Protective Device : Electric leakage circuit breaker, 30mA 0.03sec
- Operating Temperature : -25 ~ +50 [°C]
- Operating Humidity : 5 ~ 95%
- Outdoor Rated : IP44

PCS for Commercial / Industrial 1MW EES
- Load leveling
- Peak shaving
- Emergency generation (Independent operation)
- Controls active and reactive power
- Controls the electricity quality

PC, Server, communication devices via batteries
- Possible to convert battery energy storage within 4msec
- Available in UPS mode
- Available in installation outdoor(IPH65)

ESS Electrical Energy Storage System

Increases energy efficiency, promotes the use of renewable energy, and stabilizes power supply systems by storing electric energy for use when required

- Supports scenario restructuring and accident analysis in cases of accident
- Applies the Contingency Analysis program which simulates the effect of separating the power line and generator in cases of accident
- Supports Economic Dispatch and Load Frequency
- Uses real time OS to process real time data
- Applies Open-architecture and a general Database

SCPC Smart Cabinet Panel
- Load control, circuit breaker control
- Status monitoring of devices and circuit breakers
- Power quality meter, demand control
- Monitoring of air, earth leakage, over voltage, over current, temperature
- Airflow at real time integrated control and demand response (DR)
- Core equipment for constructing and operating smart and green buildings
- PulseWidth: 10,000 - PD Event Record Max 252
- Load Profile: Max 28,672 - Sag/Swell/Undervoltage/Over Voltage

- Remote density
- Designed to operate at low cost
- Possible to convert battery energy storage within 4msec
**Convergence Solutions**

**Photovoltaic System**

LSIS has begun Photovoltaic Business for the first time in Korea from 1986. For past 28 years, LSIS has accumulated many experiences and know-how on various photovoltaic systems and power systems. Based on Korea’s the best electronics technology, we offer you optimal photovoltaic total solution from module, inverter, connection board, monitoring, engineering to After Service. In recent years, by entering global market like Japan, LSIS has increased not only domestic share but also international market share as well.

**Large-Scale Photovoltaic System**

LSIS offers products for large-scale/MW level photovoltaic system and provides engineering solution for grid connection.

**Residential Photovoltaic System**

LSIS provides various products and solutions from PV module to EES (Electrical Energy Storage) for Green Home Photovoltaic System.

**Water Floating Photovoltaic System**

LSIS’s eco-friendly photovoltaic system utilizes unused surface of water, so land is not required. Also takes advantage of water’s natural cooling system which can help you achieve high efficiency. (Provides Water Floating PV Module)

**Photovoltaic Inverter**

LSIS PV inverter that realizes high-efficiency and low distortion through the optimal current control based on its experiences and technologies related to the photovoltaic field.

LSIS is implementing 6-Sigma activity for the world’s top quality control, targeting a zero defect rate and is built with a global standard product testing and assessment system to ensure the reliability of the product.

**Web Monitoring System**

LSIS Photovoltaic Web Monitoring System provides user-friendly interface. With our web monitoring system, users can easily check and manage power output, operating condition, error alert etc. that are sent from PV inverter.

**Photovoltaic Module**

LSIS has been manufacturing photovoltaic modules for more than 28 years. We are confident that this history-based experience can provide convenience and efficiency to make the best use of building Photovoltaic system. LSIS PV modules are all made in Korea with assuring credibility and the highest quality.

**1 Phase Residential PV inverter**

- On-Grid Transformer-less Type
- Rated Output Power: 3/4/4.6kW
- Euro Efficiency 97.9%/97.6%/97.8%
- IP 65 Protection Class
- Launch in 2015

**3 Phase Commercial & Utility PV inverter**

- On-Grid Transformer-less Type
- Rated Output Power: 10/13/17/20kW
- Euro Efficiency: 97.9%/97.6%/97.8%
- IP 65 Protection Class

**3 Phase Utility PV inverter**

- On-Grid Transformer-less Type
- Rated Output Power: 250/500kW
- Euro Efficiency: T.B.D
- IP 21 Protection Class
- Launch in second half of 2014

**Photovoltaic Monitoring Set**

- GridSol HEMS, the Energy Management System
- Can monitor and control power related data such as in-house power consumption, PV power output, energy storage data, etc. using PC, IHD, Smart TV, Smart Phone, Tablet PC, etc.
- Designed with embedded sensor concept, and connection from local through Wi-Fi access is possible.

- Certification: J-MIC

**Poly-Crystalline Module**

- Cell Quantity: 60EA
- Max Power: 255Wp
- PID Free Function
- Water Floating PV Module
- Pb-free module (Eco-friendly)

**Mono-Crystalline Module**

- Cell Quantity: 48EA
- Max Power: 200Wp
- Optimized for Residential PV System (Especially for Japan)
- PID Free Function

- Cell Quantity: 60EA
- Max Power: 280Wp
- PID Free Function

- Cell Quantity: 72EA
- Max Power: 320Wp
- Pb-free module (Eco-friendly)

- Cell Quantity: 60EA
- Max Power: 255Wp
- PID Free Function
The LS-EIS 620 controls signals, rail switches, and railway crossings, etc. without relays by selecting the entire electronic module to control the system safely and smoothly.

Traffic Management Systems
With its advanced railway signaling system which can be used for railways, subways, and LRTs, LSIS Traffic Management System (TMS) provides total solutions that realize automatic train control & monitoring and train operation management with automated and computerized systems.

The PIS receives and processes train operation information, transmits it to the host equipment of each control room, and then accordingly informs passengers who are waiting on platforms.

The LS-EIS 520 controls signals, rail switches, and railway crossings, etc. without relays by selecting the entire electronic module to control the system safely and smoothly.

The ATC satisfies requirements of various customer needs for railways, subways, and LRTs with its enhanced safety and reliability based on safe train control and advanced electric/electronic & information processing technology.

Through computerization, AFC enables efficient management of train station entrances, data processing, equipment monitoring, and collecting of financial and statistical data regarding ticketing, issuing of tickets, and supplemental fare adjustments.

The LS-EIS 520 enables safe train operations by establishing software with a database of interlocking conditions such as track circuits, point machines, signals and block systems, and then analyzing, controlling, and displaying the information on a microcomputer.

The LS-EIS 520 enables safe train operations by establishing software with a database of interlocking conditions such as track circuits, point machines, signals and block systems, and then analyzing, controlling, and displaying the information on a microcomputer.

With its advanced railway signaling system which can be used for railways, subways, and LRTs, LSIS Traffic Management System (TMS) provides total solutions that realize automatic train control & monitoring and train operation management with automated and computerized systems.
Electric Control Products
HV Relay & BDU

Main Function of Relay and BDU is to stably supply and cut-off battery power. LSIS designs advanced products to bring next-generation products to the market with innovative technology.

### 20A (GER020)
- Pre-Charging Relay
- Input Voltage: 450Vac, 20A
- Dimension (WxHxD): 41x43x32mm
- Weight: 70g
- Coated Rated Voltage: 12Vac
- Operating Temp.: -40~85°C

### 40A (GER040)
- Pre-Charging Relay
- Input Voltage: 450Vac, 40A
- Dimension (WxHxD): 61x47x35mm
- Weight: 150g
- Coated Rated Voltage: 12Vac, 24Vac
- Operating Temp.: -40~85°C

### 150A (GER150)
- Main Relay
- Input Voltage: 450Vac, 150A
- Dimension (WxHxD): 81x70x39mm
- Weight: 380g
- Coated Rated Voltage: 12Vac
- Operating Temp.: -40~85°C

### 400A (GER400)
- Main Relay
- Input Voltage: 450Vac, 400A
- Dimension (WxHxD): 100x91x58mm
- Weight: 700g
- Coiled Rated Voltage: 12Vac, 24Vac
- Operating Temp.: -40~85°C

Power Electronics
PCU, DC/DC Converter, OBC

LSIS designs, develops, manufactures, and integrates power electronics such as PCU (Inverter), DC/DC Converter, and OBC (On board charger). With our engineering expertise and extensive knowledge, LSIS's development fits a variety of platforms and applications.

### PCU (GER060)
- Input Voltage: 240~400Vac
- Max Power: 60KW
- Weight: 130g
- Size (WxHxD): 354x87x254mm
- Water Cooling: 
- Protection Temp.: -40°C~85°C
- Protection Class: IP67

### OBC (GER360)
- Input Voltage: 240~400Vac
- Output Power: 3.6kW
- Weight: 6.4kg
- Size (WxHxD): 303x44x210mm
- Water Cooling: 
- Protection Temp.: -40~60°C
- Protection Class: IP59

### DC/DC Converter (GER290)
- Input Voltage: 250~430Vac
- Output Voltage: 0~15kV
- Max Output Current: 20kA
- Rated Power: 2.9kW
- Weight: 2.8kg
- Size (WxHxD): 170x65x220mm
- Liquid Cooling: 
- Protection Class: IP67

LSIS designs, manufactures, and integrates power electronics such as PCU (Inverter), DC/DC Converter, and OBC (On board charger). With our engineering expertise and extensive knowledge, LSIS’s development fits a variety of platforms and applications.
A PROVIDER OF LEADING SOLUTIONS TO THE WORLD

Since its spin-off from the LG Group in 2003, aiming to intensify the specialty of each group, LSIS has accelerated its speed of growth and become a model for a successful spin-off. The LS Group is currently composed of 51 affiliates centering on 7 flagship companies that have secured the top competitive strengths in their fields in Korea. The LS Group will continue to pursue the management philosophy of the LS partnership to support each affiliate to grow into a global leader by creating greater value.

We guarantee all our customers a safe and affluent life and a happy future by supplying them with convenient smart energy.