LTran-IX2™
Computer Based Interlocking System LSEIS-520V

Smart Railway System Striving for Customer Safety by

- Achieving Top-Tier Level of Safety and Reliability with SIL4 Standard
- Utilising RAMS Expert Resources with Consistent R&D Investment
Main Benefits of LTran-IX2™

- Technologically Developed Computer Based Interlocking System Available for Both the Single Main Station and Multi Stations
- Designed for Convenient Integration with Centralised Traffic Control, Safety Management and Automatic Train Protection Systems
- Distributed Control System for Simultaneous Control of Stations

Convenient Expansion
- Expandable OC Equipment
- Compatible with Existing System
- Centralised/Decentralised Architecture

Efficient Maintenance
- Easy Maintenance with Distributed Structure
- Low Life-Cycle Cost

Top-Tier Level of Safety & Reliability
- SIL4 Complied with IEC & EN Standards
- 2 out of 2 Hot & Standby Redundancy Structure

LSIS’ Electronic Interlocking System (EIS) Business

LSIS’ Interlocking System is Proven by a Wide Range of Projects
- Successful Implementation of More than 100 EIS in Bangladesh, Thailand, and Taiwan
- Interlocking Modification and Interface with the Existing System in Accordance with Customer’s Needs

Bangladesh
- Joydebpur ~ Mymensingh 13 stns (’12~’15)
- Laksam ~ Chinki Astana 11 stns (’12~’15)
- Tongi ~ Bhairab Bazar 12 stns (’11~’15)
- Akhaura Junction 1 stn (’05~’07)
- Sylhet ~ Azampur 10 stns (’04~’06)
- Chinki Astana ~ Chittagong 11 stns (’15~’18)
- Akhaura ~ Laksam 12 stns (’16~ in progress)
- Dohazari ~ Cox’s Bazar 9 stns (’18~in progress)

Thailand
- ST4 Chachoengsao ~ Laem Chabang 7 stns (’09~’11)
- ST1 Bang Sue ~ Ban Phachi 14 stns (’01~’05)
- ST5 Chachoengsao ~ Khlong Sip Kao ~ Keang Khoi 12 stns (’15~in progress)

Taiwan
- Taitung ~ Zhiben 3 stns (’13~’14)
CIU (Central Interlocking Unit)

Safety & Reliability
- 2 out of 2 System Architecture
- Ladder Diagram for Logic Generation

Availability
- Hot & Standby Redundancy Structure

Maintenance
- Efficient Maintenance with Flexible Structure

OC (Object Controller)

Expansion
- Flexible Application with Modular Architecture
- Distributed System Architecture

Maintenance
- Dual-active Structure for Quick Changeover
- Easy to Modify/Improve for Station Renovation
## Main Functions of LTran-IX2™

- Initialising and Configuring System on Startup
- Receiving and Storing Information from Consoles and Relay Racks
- Conducting Calculations Defined in Interlocking Logic against Inputs
- Transmitting Information to Consoles
- Processing Outputs of Control Data to Relay Racks
- Detecting Faults and Operating in Safe-State

## Specification

### CPU

<table>
<thead>
<tr>
<th></th>
<th>Pro Integrated Host: Operates at up to 667 MHz DDR2 up to 200 MHz</th>
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</thead>
<tbody>
<tr>
<td>CPU</td>
<td></td>
</tr>
<tr>
<td>Memory</td>
<td>NOR Flash/Boot ROM/SDRAM Memory</td>
</tr>
<tr>
<td>I/O Interface</td>
<td>PCI, I2C, Local Bus, RS-232, and GbE Interface [RGMI]</td>
</tr>
</tbody>
</table>

### DI

<table>
<thead>
<tr>
<th>Input Point</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Input Voltage</td>
<td>DC 24 V</td>
</tr>
<tr>
<td>Used Power</td>
<td>DC 3.3 V, DC 5 V</td>
</tr>
<tr>
<td>Consumption Power</td>
<td>Maximum 20 W</td>
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</tbody>
</table>

### PWR

<table>
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<tr>
<th>Input</th>
<th>AC 220 V</th>
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<tbody>
<tr>
<td>Rating DC Output Voltage</td>
<td>DC 3.3 V, DC 5 V</td>
</tr>
<tr>
<td>Maximum DC Output Current</td>
<td>12 A, 18 A</td>
</tr>
<tr>
<td>Maximum Output Power</td>
<td>100 W</td>
</tr>
<tr>
<td>Operation Temperature</td>
<td>-25°C – 70°C</td>
</tr>
<tr>
<td>Operation Humidity</td>
<td>30 % – 95 % RH</td>
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</tbody>
</table>

### DO

<table>
<thead>
<tr>
<th>Input Point</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Output Voltage</td>
<td>DC 24 V</td>
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<tr>
<td>Used Power</td>
<td>DC 3.3 V, DC 5 V</td>
</tr>
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<td>Consumption Power</td>
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</table>