Gateways (KSGL)

**Rugged**
- Robust design with no moving parts
- Meets harsh environments and stringent EMI/EMC requirements

**Secure**
- Open SSL Support for security
- Secure authentication, encryption and decryption for controlled data access

**Scalable**
- A wide range of protocols and physical interfaces available
- Different models to handle varying data capacities
- OEM Module for customized and co-branded requirements
- Many to one and one to many conversion possible to support different application architectures
- Supports transparent channel technology for configuration using native protocol
- Supports hot stand by mode for redundancy

**Substation Automation**
- Substation automation and IEC 61850
- Supports multi-vendor IEDs and protocols
- Support for IEEE C37.118 for PMU data integration
- Support for IEC 62056 (DLMS COSEM) and other metering protocols

**Distribution Automation**
- Implement Distribution Applications over public networks with secure VPN support
- Mobile to Mobile Gateway Support

**Network Management**
- Support ICCP/TASE.2 and many proprietary protocols for control center integration

**Smart grid applications**
- Metering and utility automation protocols supported
- I/O Support for control signals integration
- Integrated GSM/GPRS Support
- Data concentration capability
- SSL Based VPN (Virtual Private Network) architecture supported

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**IEC Standards**

<table>
<thead>
<tr>
<th>Standards</th>
<th>Description</th>
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<tbody>
<tr>
<td>IEC 61850</td>
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<tr>
<td>IEC 60870-5-101</td>
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<td>IEC 60870-5-102</td>
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<td>IEC 60870-5-103</td>
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<td>IEC 60870-5-104</td>
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<td>IEC 60870-6 (ICCP / TASE.2)</td>
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<td>IEC 61400-25</td>
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<td>IEC 61968</td>
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<td>IEC 61970</td>
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<td>IEC 62056 (DLMS/COSEM)</td>
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<tr>
<td>DNP3 Serial</td>
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<tr>
<td>IEEE C37.118</td>
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<tr>
<td>IEEE 1344*</td>
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<tr>
<td>CANOpen</td>
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<tr>
<td>Modbus TCP/IP</td>
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<td>Profibus DP Slave*</td>
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<td>OPC DA</td>
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<td>ODBC</td>
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<td>SEL 451</td>
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<td>SEL 421</td>
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<tr>
<td>SEL 311A</td>
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<tr>
<td>SEL 421</td>
<td></td>
</tr>
<tr>
<td>SEL Fast Message</td>
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</tr>
<tr>
<td>ABB SPA Bus</td>
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<tr>
<td>ABB RPS70 / 571</td>
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<tr>
<td>Areva Courier RS485</td>
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<td>Schneider Modbus RTU - SEPAM</td>
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<td>Altus</td>
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<td>RTK</td>
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*Refer [http://www.kalkitech.com/protocolsupport.htm](http://www.kalkitech.com/protocolsupport.htm) for more details on protocols supported
### IEC 61850-3 EMI TYPE TESTS

<table>
<thead>
<tr>
<th>Test Area</th>
<th>Test Levels</th>
<th>Severity Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESD</td>
<td>+/- 8kV</td>
<td>4</td>
</tr>
<tr>
<td>Radiated RFI</td>
<td>20 V/m</td>
<td></td>
</tr>
<tr>
<td>Burst (Fast Transient)</td>
<td>+/- 4kV @ 2.5kHz</td>
<td>x</td>
</tr>
<tr>
<td>Surge</td>
<td>+/- 2kV line-to-earth</td>
<td>3</td>
</tr>
<tr>
<td>Induced (Conducted) RFI</td>
<td>10V</td>
<td>3</td>
</tr>
<tr>
<td>Voltage Dips &amp; Interrupts</td>
<td>30% for 0.1s, 60% for 0.1s, 100% for 0.05s</td>
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<tr>
<td>Damped Oscillatory</td>
<td>2.5kV common, 1kV diff. mode@1MHz</td>
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</tbody>
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### SUPPORTED FEATURES

<table>
<thead>
<tr>
<th>Topic</th>
<th>Feature</th>
<th>Description</th>
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</table>
| Serial                 | **S2** - 2 Serial Ports RS-485/RS-422  
S4 - 4 Serial Ports RS-485/RS-422  
S6 - 4 Serial Ports RS-485/RS-422  
S8 - 8 Serial Ports RS-485/RS-422  
S16 - 16 Serial Ports RS-485/RS-485 |
| Network                | R1 - 1 Ethernet 10/100 Base-T RJ45 Interface  
R2 - 2 Ethernet 10/100 Base-T RJ45 Interface  
R4 - 4 Ethernet 10/100 Base-T RJ45 Interface  
F2 - 2 Ethernet 10/100 Fiber Interface |
| Maintenance            | Ethernet Port can be reserved for maintenance and diagnostics,  
1 dedicated RS232 Console port for maintenance |
| Database               | Offline creation via Windows utility, loaded through network or configuration and maintenance port |
| Protocol               | Selectable By Channel |
| Master/Slave Mode      | Selectable By Channel |
| RTU Point Counts       | S2R1 - Capacity upto 2000 points and limited devices*  
S4R1 - Capacity upto 4000 points and multiple devices*  
S6R1- Capacity upto 10,000 points and multiple devices*  
S8R2- Capacity upto 20,000 points and multiple devices*  
S16R2- Capacity upto 20,000 points and multiple devices* |
| Diagnostics            | Online Diagnostics over Ethernet/Serial Interface |
| Protocol translator    | Add new protocol capabilities to existing devices |
| MultiPort Gateway      | Allow multi-host access on different protocols to a single-ported RTU/IED/PLC |
| Data Concentrator      | Concentrate Data from Serial channels and send through Ethernet LAN/WAN circuit or One Serial Channel |
| Byte Transport         | Supports Legacy Serial Protocols |
| Hardware               | Power24V, 15W  
Humidity  
Watch-dog timer |
| Security/VPN           | Authentication & Encryption |
| SSL v1/v2, TLS         | Supports Legacy Serial Protocols |