



KALKI I/O GATEWAY

Protocol Converter, Gateway and Data Concentrator with I/O Module connectivity

KALKI I/O Gateway

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1. Overview

Kalki I/O Gateways enable Utility's to easily and seamlessly modernize their Sub-Station Infrastructure in a systematic and graded manner. The capability to support CANOpen supported I/O's in addition to the existing protocol conversion, gateway and data concentration capabilities make it ideal for any modernization and extension projects in the Energy Industry.

KIOG can be interfaced with any CANOpen (CAN 2.0 Physical Interface) IO's available in the market. System Integrators and OEM's can easily design a solution based on this gateway.

2. Basic Features

The KIOG product features include:

- Collecting data from multiple I/O modules on CAN bus using CANOpen protocol.
- Secure Communications (AES / DES / 3DES / SSL)
- Protocol Conversion

- Data Concentrator
- Device Server / Terminal Server
- Transparent Port for IED
- Parameterization
- PSTN/GPRS/CDMA/RF External
- Modem Support
- Support for various time sync options
- Windows Based Common Configuration & Diagnostic utility
- ABB SPA Master
- ABB RP570 Master
- Areva Courier Master
- BACnet/IP client
- DLMS / IEC 62056
- SNTP for time sync
- Custom Protocol Support on request

3. Protocol Support

The KIOG Supports the following Protocols by default:

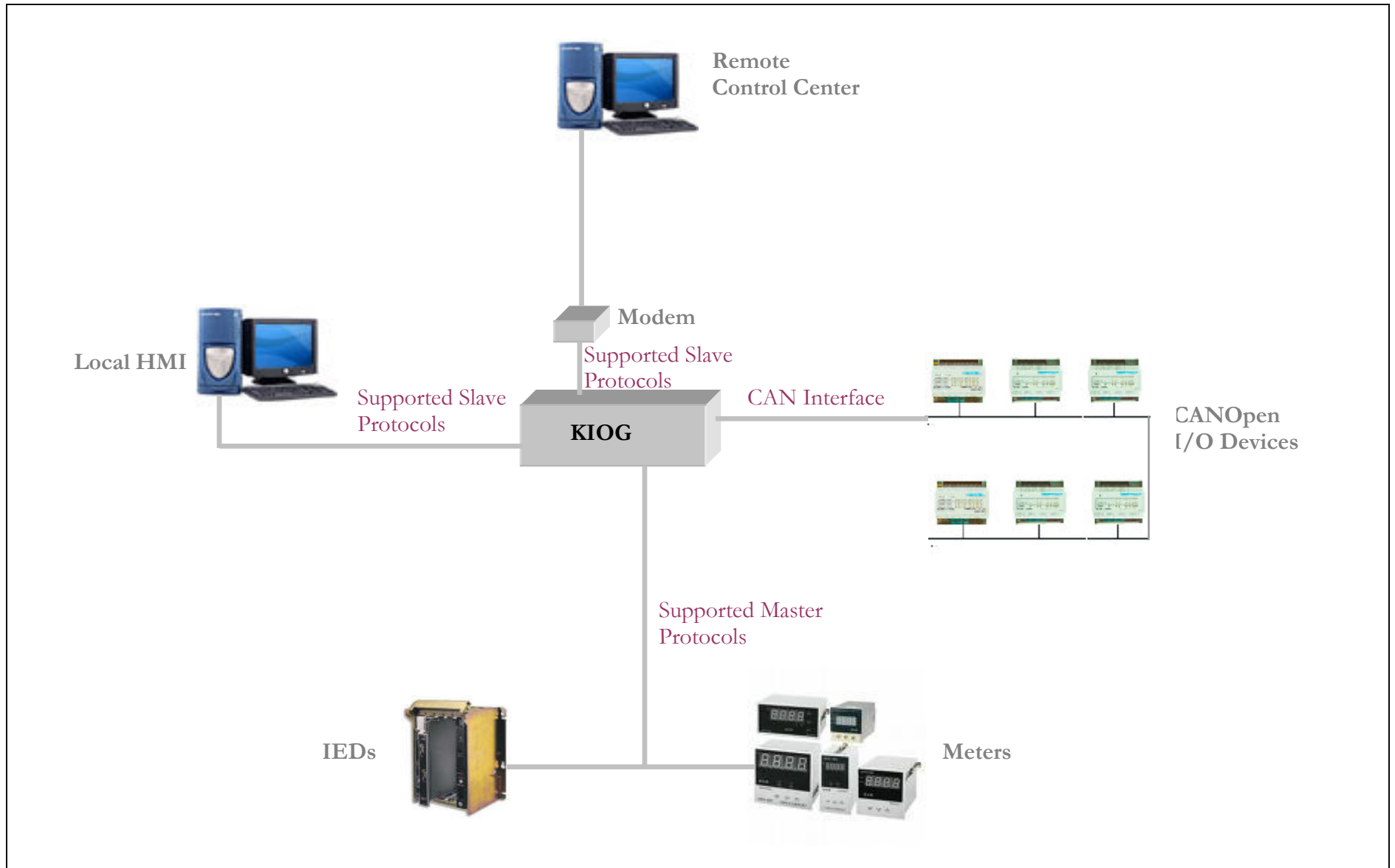
- CANOpen Master/Slave
- DNP3 Serial Master/Slave
- DNP3 Network Master/Slave
- IEC 61850 Client/Server
- IEC 60870-5-101 Master/Slave
- IEC 60870-5-103 Master/Slave
- IEC 60870-5-104 Master/Slave
- IEC 60870-6 ICCP TASE2 Client/Server
- Modbus RTU Serial Master/Slave
- Modbus TCP Master/Slave

5. Configuration Utility

“**EasyConnect**” configuration utility is used for the configuration of KIOG. It has got the following functionalities.

- Adding multiple I/O modules on CAN and configuring the details.
- Protocol Configuration, Database creation & protocol mapping.
- Diagnostics of the converter with total protocol packet details can be monitored in Easy Connect.
- Miscellaneous functions like restarting, downloading the configuration files, updating the firmware, IP setting etc can be done from EasyConnect.

6. Connectivity



7. Data Sheet

Topic	Feature	Basic	Description
Communication	CAN Port	1	Supports CANOpen master as application protocol
	Only RS232	3	Supports Only RS232
	RS232/RS485		RS232 and RS485 Selection by external DIP Switch
	RS422/RS485	1	RS422 and RS485 Selection by internal Jumper
	Network/Ethernet Port	1	10/100 Support
Software Configuration	Maintenance Configuration, Database Creation and Protocol Mapping	Ethernet Port	Using Easy Connect Software
	Multi - Protocol Support	Y	Using Easy Connect Software
	Master/Slave Mode	Y	Category S Protocol Support, Selectable by Channel
	Point Counts	10,000	Selectable by Channel
	Diagnostics	Y	Depends on configuration and protocol
Applications	Protocol Translator	Y	Using Easy Connect Software
	Multi-Port Gateway	Y	Many-To-Many Conversion Support
	Data Concentrator	Y	
	Network Transport & Device Server	Y	Supports Virtual Serial Ports, and Device Server Functionality
	Pass Through Port	Y	Supports Parameterization using existing Software Tools of IED's
Hardware	Processor	AMD Elan X86	
	Clock Cycle	133 MHz	
	Power Consumption	8 W	
	Power Supply	24 VDC	
	Temperature (Operating)	-10°-60°	
	Humidity	95% RH	
	Watch-dog timer	Y	
	Activity LED's	Y	
	Mounting	DIN	Optional RACK / Wall Mounting
	RAM	32 MB	
	FLASH	16 MB	
	CPU Certification	CE	Complies with European EMC / EMI Regulations
Enclosure Certification	CE or Without CE	Enclosure's are available with and without CE Certifications	

8.CANOpen Interoperability

CANOpen Master will communicate to all the CANOpen I/O devices supporting DS-301 & DS-401 CiA standards.

Basic DS-301 services		Implementation Status	Comments
Service Data Objects (SDO)			
S11	SDO Download protocol	Y	
S12	SDO Upload protocol	Y	
S13	Abort SDO Transfer protocol	Y	
S14	SDO Block Download protocol	N	
S15	SDO Block Upload protocol	N	
Process Data Objects (PDO)			
S21	Write PDO protocol	Y	Max. 512 TPDOs supported
S22	Read PDO protocol	Y	Max. 512 RPDOs supported
S23	Dynamic PDO Mapping	Y	TPDO/RPDO can be dynamically mapped
Synchronization Object			
S31	SYNC protocol	Y	SYNC producer/consumer is supported
Time Stamp Object			
S41	TIME protocol	N	
Emergency Object			
S51	Write EMCY protocol	N	
Network Management Object			
S61	Module Control protocols	Y	
S62	Node Guarding protocol	Y	
S63	Heartbeat protocol	Y	
S64	Bootup protocol	Y	