Kalkitech

SYNC 3000

SYNC 3000 Series
Substation Data Concentrator

OVERVIEW

The SYNC 3000 family of substation data concentrators feature a powerful protocol conversion engine with support for an extensive library of more than 60 utility protocols. Built on a reliable and ruggedized platform for substation environments, it delivers the high-performance processing power needed for a range of applications including substation real-time controller, automated fault file collection, inter control center gateway and many more. It supports IEC 61131-3 standard-based programming to give the user flexibility to easily build any complex logic and have decision making capability at the substation level rather than at the control center. Decentralized critical decision making can accelerate problem resolution and increases engineering flexibility. SYNC 3000 has a hardened Linux-based system with communication, data and access security that is in compliance with NERC CIP v5, IEEE1686 and IEC 62351 industry standards. Device are available in various models with different hardware options including multiple Ethernet and Serial ports.

Alternatively, the SYNC 3000 can be configured as an M2M Gateway designed for deployment in control centers for managing SCADA/DMS or as a meter head end system connection to multiple field devices. The M2M function is used to interconnect automation system (SCADA, EMS/DMS) LANs to WAN networks such as MPLS/GPRS/CDMA/UMTS, etc., without compromising the security of the network. The SYNC 3000 can be configured as an M2M gateway plus a protocol converter creating a secure connection from a data center LAN to field devices via the backhaul WAN.

FEATURES

General
- Protocol Conversion Engine with extensive list of licensable protocols
- APIs for adding custom protocol & applications
- Multi master communication capability
- Automatic start-up, initialization with restart notification following power restoration
- Disturbance and fault record collection and management
- Time synchronization using IEC 60870/DNP3/SNTP/IRIG-B/IEC 61588/IEEE 1588 PTP version 2.0
- Supports redundant time sync from SNTP servers
- Transparent/tunneling support for remote management of substation devices (IEDs/RTUs)
- Remote device management using kalki.io including kernel and file system update
- SNMP Agent/ Manager for NMS Integration
- File upload/download support
- Obtain and store event records and disturbance records from substation devices and sends it to local/remote centers
- Network tunnelling and routing support
- Built-in Web HMI for monitoring and control
- M2M function can assign private fixed IP to the field devices thereby eliminating the requirement of service provider fixed IP
- Syslog support for device logging

Reliability
- IEC 61850-3 based rugged hardware for substation environment
- No fans or other moving parts
- Supports device and communication redundancy
- Option for power supply redundancy (Need to order separately)
- Supports security on both upstream and downstream communication links
- Option for network bonding using Ethernet interface teaming
- Ethernet link redundancy support as per IEC62439-3 PRP and HSR

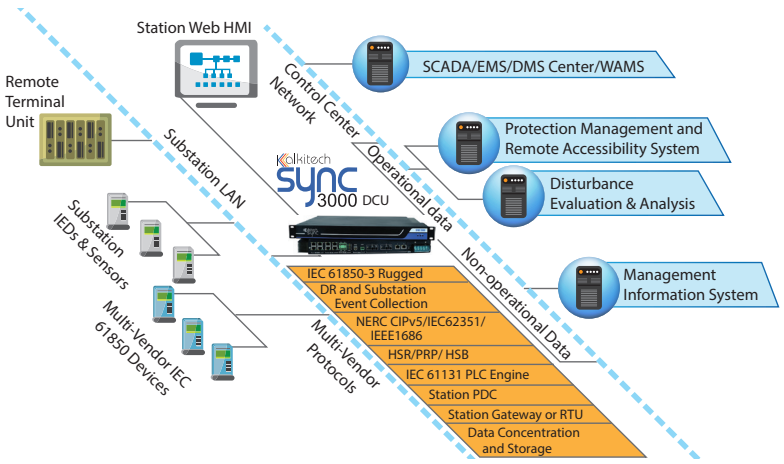
Scalability and Upgradability
- Modular design with plug-in serial and Ethernet port
- Built-in 2 port Ethernet switch option
- Variants available up to 12 serial ports and 6 ethernet ports
- Option for expanding communication ports using terminal server and pluggable switch
- Fibre optic Ethernet option available on special request
- Wide range of AC and DC power supply

Security
- Compliant with NERC-CIP v5#
- Compliance with IEEE1686
- Role based access based on OCSP or IEC 62351-8
- Terminal access with two factor authentications
- Inbuilt firewall
- IEC 62351-3 transport layer security
- IEC 62351-5/DNP3 secure authentication
- SSL based VPN support
- Secure password-based locking of configuration project

MODELS
- SYNC 3000-M1 for S12R2 - 12 serial ports, 2 Cu Ethernet ports licensed
- SYNC 3000-M2 for S12R4 - 12 serial ports, 4 Cu Ethernet ports licensed
- SYNC 3000-M3 for S12R6 - 12 serial ports, 6 Cu Ethernet ports licensed
- SYNC 3000-M4 for S4R4 - 4 serial ports, 4 Cu Ethernet ports
- SYNC 3000-M12 for S12R2F2 - 12 serial ports, 2 Cu Ethernet ports, 2 Fiber Ethernet ports

RELATED PRODUCTS
- ICD Manager: IED configuration tool based on IEC 61850 standards
- SCL Manager: Substation engineering and design tool based on IEC 61850 standards
- Remote Accessibility System (RAS) and Remote IED configuration tool
- Kalki.io: Energy IoT Platform

APPLICATIONS
- Automatic Fault File Collection
- Control Center Gateway
- ICCP Gateway
- Real Time Substation Controller
- Substation Data Concentrator
- Substation Phasor Data concentrator



SYNC 3000					
	Management	EasyConnect configuration utility for local configuration access. SSH access for troubleshooting kalki.io device management service for remote management of devices SNMP Agent to send device and network status to a NMS system. Built-in Web HMI for monitoring and control of field data.			
	Maintenance	Direct over debug port or console port			
	System Protocols	TCP/IP, UDP/IP, HTTPS, SNMP, ICMP, ARP, SSL, SFTP, SSH			
	Device Security	Built-in firewall, NERC-CIPv5#, IEEE1686 and IEC62351 compliant# SSHv2 with TOTP two factor access OCSP/IEC62351-8 Role based access control			
	Communication Security	IEC 62351-3 and -5 (DNP3 secure authentication), Direct TLS support for DNP3.0, Modbus TCP & IEC104. TLS/SSL based VPN support for the high-end security and communication with control center.			
	Logic Programming	AND/OR/NOT/Bit SHIFT/Split/Index support for digital and analog data, Delay operations, IEC 61131-3 based logic engine*			
	Redundancy	Communication redundancy on upstream/downstream link using teaming/HSR/PRP support Device redundancy			
CPU	Processor	Server grade quad core processor			
Memory	RAM	1 GB (default) 4GB (on request)			
	Secondary Storage	8 GB flash (default)		SSD	Optional SATA HDD* standard option - 256GB (128GB, 512GB, 1024GB, 2048GB available on request)
Communication Capability	Proprietary Protocols	ABB - RP570, 571, SPA bus SEL - SEL451, 421, 311, 300G Schneider - SEPAM Modbus	Areva - Courier RTK, EXCOM, CMC Master	Additional Protocols	Refer to full list of protocols at https://www.kalkitech.com/knowledge-center/protocols/
	Standard Protocols	IEC 60870-5-101/103/104, DNP3 serial/TCP, Modbus RTU/ASCII/TCP, IEC 62056-DLMS, IEC 61850, IEC 61400, ICCP, IEEE37.118			
Device Support	Protocol Dependent	Up to 250**			
Data Point Support	IEC 61850, ICCP, SPA	Up to 10000**	DNP3, IEC 60870, Modbus and other proprietary protocols		Up to 100000**
Communication Interfaces	**Serial**				
	Connector^	Up to 12 serial ports – 4 x RS-232/RS485 ports (RJ45, all ports with two-wire - Tx and Rx signals); 4 x RS-232 ports (RJ45, one full modem port, remaining four-wire -Tx, Rx, RTS and CTS); 4 x RS-485 ports (Terminal Block - Tx, Rx)			
	Ethernet				
	Connector^	4 x 10/100/1000 Mbps Ethernet ports with auto MDIX capability or 2 x 100 Mbps Fiber Optic Ports with Full duplex capability		2 number of 10/100 Mbps Ethernet ports with auto MDIX capability	
	Physical Layer	Auto-sensing 10/100/1000 Mbps for first 4 ports and 10/100 Mbps for next 2 ports, auto MDIX			
	Isolation	1500VAC min per IEEE802.3/ANSI X3.263			
Power Requirements	Power Supply	Option1 (SYNC 3000 -ACDC_PS) : 90-260VAC (50/60Hz), 100-360VDC Single or dual* inputs Option 2 (SYNC3000 -DC_PS): 38 - 68VDC Single or dual* inputs		Consumption	26W
Physical	Design	Ruggedized design, no fan	Mounting	Standard 19-inch rack-mount	
	Weight (In grams)	4500	Dimensions (W x H x D)	440 mm x 45 mm x 315 mm (340 mm including connectors)	
	LED Indications	Power, LAN Link/status, serial port RX/TX, processor status			
Environmental	Storage Temperature	-40°C to +85°C	Operating Temperature	IEC 60870-2-2, -40°C to +70°C	
	Relative Humidity	IEC 60870-2-2, 5% - 95% RH non-condensing	Barometric Pressure Test	IEC 60870-2-2, 0-3000 m (101.3kPa to 70kPa)	
	Anti-Vibration	As per 60870-2-1	Anti-Shock	As per 60870-2-1	
Certifications and Approvals	Emission (EMC)	CISPR 22:2008-09, Ed6.0, EN55022:2006/A1:2007		Green Product	RoHS2
	Power Automation (EMI)**	IEC 61850-3 (IEC 61000-4-4 EFT, IEC 61000-4-5 SURGE, IEC 61000-4-6 Conducted RF, IEC 61000-4-12 Damped Oscillatory Wave, 61000-4-10 Damped Oscillatory Magnetic Field, IEC61000-4-8 Power Frequency Magnetic Field, IEC 61000-4-11 Voltage dips and interrupts, IEC 61000-4-3 RS, IEC 61000-4-2 ESD, IEC 61000-4-16 immunity to conducted common mode disturbances)			
	ESD Protection	15 KV for air discharge 8 KV for contact discharge			

* Need to order separately
** Contact sales for more details
^ Model dependent
# Refer to compliance document for implementation details

Contact sales for product type test report

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