

# SYNC 4000 CONTROL CENTER FRONT END

## Overview

SYNC 4000 is a high end control center front end gateway, with protocol conversion, IEC61131-3 based user configurable logic, and front end processing capabilities, built into one device. It can help interconnect automation systems (SCADA/EMS/DMS), connect LAN to WAN networks such as MPLS/GPRS/CDMA/UMTS, without compromising network security.

SYNC 4000 enables communication between SCADA/EMS/DMS and remote devices even when the upstream, downstream communication protocols are not the same. Available SYNC 4000 protocol drivers communicate with remote field devices and provide data via communication protocols supported by SCADA/EMS/DMS. SYNC 4000 creates a trusted network of widely distributed automation components like PLC, RTUs, transformer monitoring units, RMU automation units, and capacitor bank control units. The security is guaranteed through a Virtual Private Network (VPN) created from site location to control center using SSL/TLS.

## Features

### General

- Vast protocol conversion capability
- Multi master/SCADA communication capability
- Automatic startup and initialization following power restoration
- Disturbance and fault record collection and management
- IEC61131 based programming logic\*\*
- Time synchronization using IEC60870/DNP3/SNTP/NTP/IEEE1588\*\*
- Device management using SNMP/Webserver\*\*



- Assigns static IP address to the field devices thereby eliminating the requirement of fixed IP at remote location
- C37.118 data processing, time alignment and aggregation
- TCP, UCP and hybrid communication profiles for Phasor data

### Reliability

- Supports Device redundancy
- Server grade hardware

### Security

- Supports communication security on both upstream and downstream
- Protects the system against possible intrusions with built in firewall
- Adheres to NERC-CIP security compliance requirements#
- Offers IEC62351 based transport layer security
- Provides SSL VPN with AES,DES or 3DES encryption
- Follows IEC62351-5/DNP3 secure authentication process

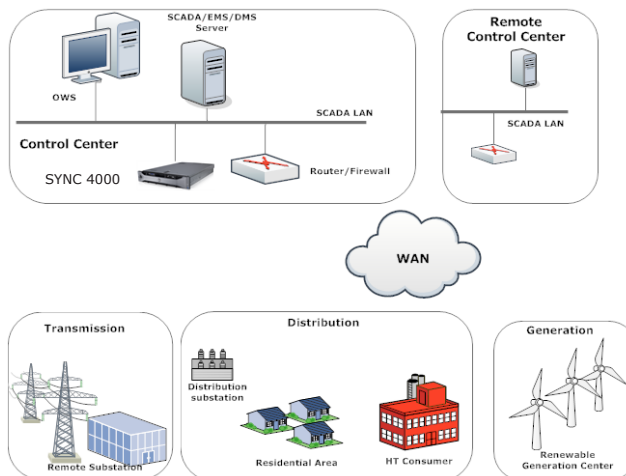
### Scalability and Upgradability

- Supports serial port expandability with terminal server

### Models

- SYNC 4000-M1: Control Center Gateway

## Sample Application Case - Diagram



## Applications

- APP-CCG: Control Center Gateway
- APP-PDC: Phasor data concentrator

SPECIFICATION SHEET		SYNC 4000-M1
<b>General</b>		
Management	EasyConnect Configuration utility/Web Server/SNMP & SSH Interface over Secure Network	
System Protocols	TCP/IP, UDP/IP, SMTP, POP, HTTP, FTP, SNMP, ICMP, DHCP, BOOTP, Telnet, DNS, ARP, PPPoE, DDNS	
Device Security	NERC/CIP Compliant*, SSHv2	
Communication Security	SSL based VPN tunnel using Blowfish/AES/3DES	
Logic Programming	AND/OR/NOT/Bit SHIFT/Split/Index support for digital and analog data, Delay operations IEC61131-3**	
Redundancy	Communication redundancy Device Redundancy**	
SMS based Alarm	Available on request**	
<b>Certifications &amp; Approvals</b>		
Green Product	RoHS	
Others	CE	
<b>Base Features</b>		
Processor	Intel® Xeon processor (2.4GHz,6-core/15MB/85w)	
Cache	2.5MB /Core	
RAM	8GB DDR4	
Hard disk	300GB	
<b>Communication Interface</b>		
RS232 Serial Ports (DB9)	1 (9-pin, DTE, 16550-compatible)	
Copper Ethernet Port (10/100/1000 Mbps)	4	
Expansion Slot	2 PCIe	
USB	4 (One 9-pin, USB 3.0-compliant, Three 4-pin, USB 2.0-compliant)	
<b>Power Supply</b>		
Input Primary Supply	100–240 V, 50/60 Hz, 7.4 A-3.7 A	
Hot-plug, redundant power supply (Order Code: SYNC4000-PS-R)	100–240 V, 50/60 Hz, 7.4 A-3.7 A	
Consumption	495W, 750W or 1100W AC power supply; 1100W DC power supply	
<b>Physical</b>		
Mounting	Rack Mounting	
Form factor	1U rack	
Dimension	42.8 mm x 482.4 mm x 607 mm (with rack latches), 42.8 mm x 434mm x 607 mm (without rack latches)	
Weight	19.9 kg (43.87 lb)	
<b>Applications</b>		
<b>Control Center Gateway (Order Code: APP-CCG)</b>		
Available Master/Client Protocol (licensable)	DNP3.0 Serial and TCP, IEC101, IEC104, IEC61850	
Available Slave/ Server Protocol (licensable)	DNP3.0 Serial and TCP, IEC101, IEC104, IEC61850	
Supporting Modules (licensable)	SNMP, SNTp client and server, VPN Server (M2M Server)	
Max Data Point support for 61850/ICCP	100,000 Tags	
Max Data Point support for all other protocols	200,000 Tags	
Number of Connection on Upstream	10	
Number of Connection on Downstream	5000	
<b>Phasor Data Concentrator (Order Code:APP-PDC)</b>		
Available Master/Client Protocol (licensable)	IEEE C37.118 (2005 and 2011)	
Available Slave/ Server Protocol (licensable)	IEEE C37.118 (2005 and 2011)	
Supporting Modules (licensable)	SNTp/NTP, IEEE1588**	
IEEE C37.118 profiles	UDP, TCP/IP, UDP_T	
Data processing	Phase shifting of selected data, data format conversion, data type conversion, re-sampling before streaming	
Diagnostics	Each input and output streams monitoring and statistics logging	
Event Detection	Frequency related event (f, df/dt, f+ df/dt) Voltage magnitude related event (v, dv/dt, V + a x dv/dt) Voltage phase angle difference related event detection (ang diff, ang diff rate) Other real-time event detection criteria - symmetric and asymmetric fault occurrence	
Number of Direct connected PMU	400 PMU directly each having 25 frame/sec	
Number of Indirect connected PMU	2000 PMU Indirectly each having 25 frame/ sec	
Number of output streams	10	

\*\* Available on request

\* Refer Compliance document for details

Disclaimer: Some of the features might not be available for select geographies. Product descriptions and features in this document subject to change without notice