Foxboro™ SCADA

SCD6000 RTU Architectural Overview

PSS 41H-8S6KAOV

Product Specification

April 2024

https://www.se.com

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Overview

EcoStruxure™ Foxboro™ SCADA SCD6000 is a Station Computing Device (SCD), commonly referred to as a Remote Terminal Unit (RTU). It helps enable process automation in SCADA systems by providing remote (long-distance, high-integrity) communications.

The SCD6000 and EcoStruxure™ Foxboro™ SCADA SCD6000-SVX inherit the functionality of the modular SCD5200, RTU50, and RTU50 SVX. The SCD6000 requires software part number SY-1101207_A or later. The SCD6000-SVX requires software part number SY-1101207_P or later. The SCD6000/SCD6000-SVX architecture allows a full spectrum of configurations ranging from small single device stations to distributed input/output systems with redundant (duplicated and path diverse) communications networks.

The SCD6000 can also be used as an EcoStruxure™ Electrodynamic Controller. This controller is part of the EcoStruxure Power and Process Control System, which includes the EcoStruxure Foxboro™ Distributed Control System (DCS) and the EcoStruxure Power Automation System. The controller can be used in both simplex and high availability configurations. For more information on the Electrodynamic Controller, see *EcoStruxure™ Electrodynamic Controller* Product Specification (PSS 41S-2EDC).

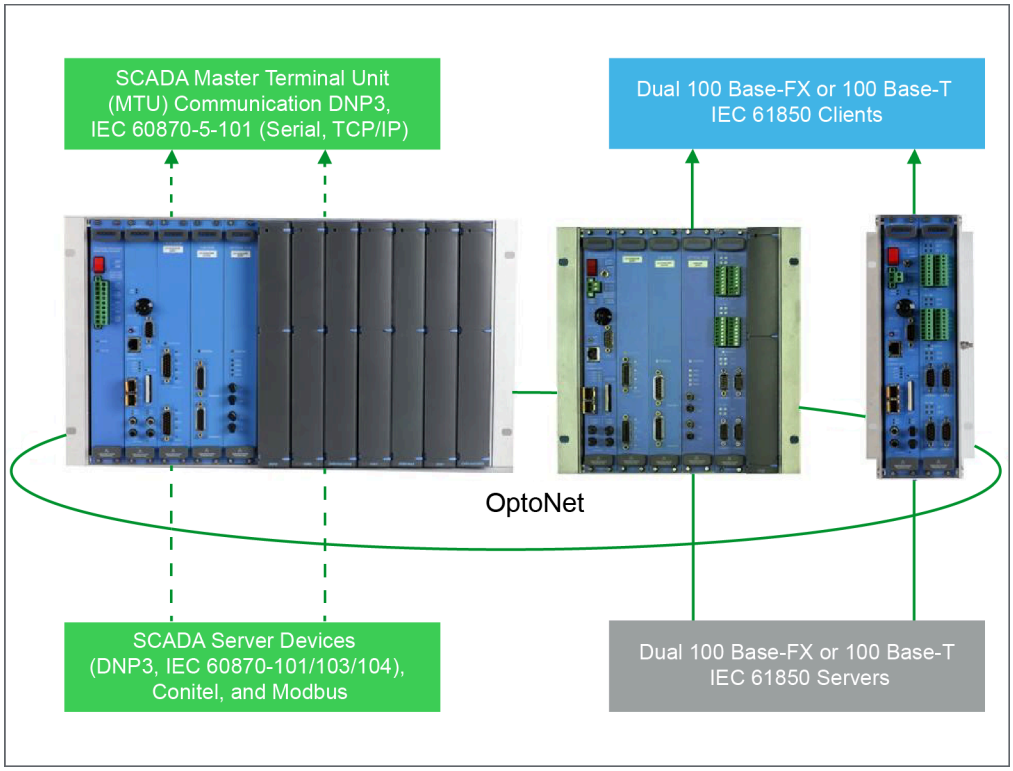
The SCD6000 supports Automatic Transfer Switch (ATS) functionality when used with CTVT modules and SALL-based configuration. This ATS function monitors voltage, frequency, and phase of the electrical networks and sends signals to the circuit breaker switching control application. For more information on how to configure ATS functionality, see *EcoStruxure™ Foxboro™ SCADA RTU AC Transducer Module - Type 2 User's Guide* (B0780DV).

The CPU used in an SCD6000 controller provides more dynamic RAM for a higher concentration of IEC 61850, Modbus, IEC 101, IEC 103, IEC 104, DNP3, Conitel, and Intelligent Electronic Devices (IEDs). The SCD6000 supports both half and full duplex Ethernet communications.

The SCD6000 has dual 100 Mbps fixed SFP ports to support either 100 Base-FX or 100 Base-T and provide a cost-effective and versatile optical and wired Ethernet interface.

The SCD6000 architecture provides continuous support for OptoNet. Backward compatibility of the OptoNet is maintained with the Foxboro SCADA Remote Terminal Unit (RTU) RTU50/RTU50 SVX/SCD5200. In Electrodynamic Controller high availability configurations, the OptoNet and serial connection ports are used to communicate, synchronize, and share data between the active and standby controllers.

Figure 1 - CPU Module Support for OptoNet



The CPU module supports these features:

- Specialized communications
- Local networking
- Application processing
- Integration of station devices and meters

RTU50 SVX/SCD6000-SVX are variants of SCD6000 used with the RTU50 card file. These allow older RTU50/SCD5200 card files to be mixed with the newer SCD6000/SCD6000-SVX cards. The SCD6000/SCD6000-SVX Main Processor module can be used as a plug-in replacement for the existing SCD5200 and RTU50/RTU50 SVX CPU module installed base with a regenerated configuration file except for few modules. For more information, see *EcoStruxure™ Foxboro™ SCADA Remote Terminal Unit Migration Guide* (B0780FA).

The RTU's real time clock is synchronized to either a local GPS clock or from the primary station as part of the protocols synchronizing the primary station's clock. Time synchronization is extended across the Electrobus as additional signals to the Industry Standard Architecture (ISA) bus. The intelligent input modules use the real-time clock to time stamp the changes of all status inputs.

Insensitive Terms Replaced in this Document

We have replaced these terms in this document. However, the product's user interface and ordering information might still use old terms.

Old Term	New Term
Modbus Master	Modbus Client
Modbus Slave	Modbus Server
master station	primary station

Old Term	New Term
DNP3 Master	DNP3 Controlling station
DNP3 Slave	DNP3 Outstation
IEC 60870-5-104 Master	IEC 60870-5-104 Controlling Station
IEC 60870-5-104 Slave	IEC 60870-5-104 Controlled Station
Modbus TCP (Master and Slave)	Modbus TCP (Client and Server)

Cybersecurity Features

SCD6000 provides dedicated features that help improve the cybersecurity posture of the product. These include:

- System Use Notification
- Trusted Hosts with online configuration
- Audit Logs
- DNP3 SAv2 and DNP3 SAv5 using Asymmetric and Symmetric methods
- IEC 60870-5 - 104 (Secure Authentication) using Symmetric methods
- Encryption of Diagnostic Tool Access
- Role-based access for RTV connectivity

The SCD6000 can be password-protected on any TCP/IP or serial port to restrict end user access. Passwords can be assigned for individual users and common roles such as Maintainer, Browser, and Superuser.

SCD6000 Distributed Building Block Options

The SCD6000 architecture provides a series of building blocks that can be tailored to suit your control and communication needs. These building blocks are made up of Main files with modules. You can connect these building blocks using different methods to obtain the best solution for your needs. Some connection methods are:

- Electrobus Expansion
- OptoNet Expansion
- DCIU Integration
- IED Integration – Embedded and user defined protocols
- Communication Integration
- Power and Process Integration
- Automatic Transfer Switch (ATS) Functionality

SCD6000 Main File

The SCD6000 Main File is the first chassis of the RTU. It contains the configuration data for all individual I/O slots and includes the database and logic definition.

The SCD6000 Main File is a modular unit consisting of these subsystems:

- Power Supply module
- CPU module
- Communications module

The SCD6000 can be configured as an independent Remote Terminal Unit (RTU), monitoring and controlling a remote plant via a variety of communication interfaces. The RTU can be as simple as a main file of electronics, can include extended I/O modules using Electrobus for a maximum of up to four chassis, or can be configured as part of an OptoNet network. For more information about I/O and DCB modules, see *EcoStruxure™ Foxboro™ SCADA SCD6000 and SCD6000-SVX Power Supply, I/O, and Communication Modules* (PSS 41H-8S6KMOD).

Figure 2 - SCD6000 Main File

A	Power Supply
B	SCD6000 CPU
C	I/O Modules
D	Communication Modules

SCD6000 Card File Variations

The SCD6000 is provided with a passive high speed backplane that makes it possible to provide a number of formats with varying number of I/O slots. The SCD6000 supports four standard file variations:

- 10- I/O slot card file
- 5- I/O slot card file
- 3- I/O slot card file
- 1- I/O slot card file

Some more card file variant combinations are:

- 2x5 I/O slot card file
- 3x3 I/O slot card file
- 6x1 I/O slot card file

Each variation allows one CPU. The most popular card format for the SCD6000 is a 19" 10 I/O slot card file, which includes a wide range power supply, a COE (CPU, OptoNet, and Ethernet) variant of the COPE module (CPU, OptoNet, Power Supply, and Ethernet), and space to accommodate up to 10 standard width I/O modules.

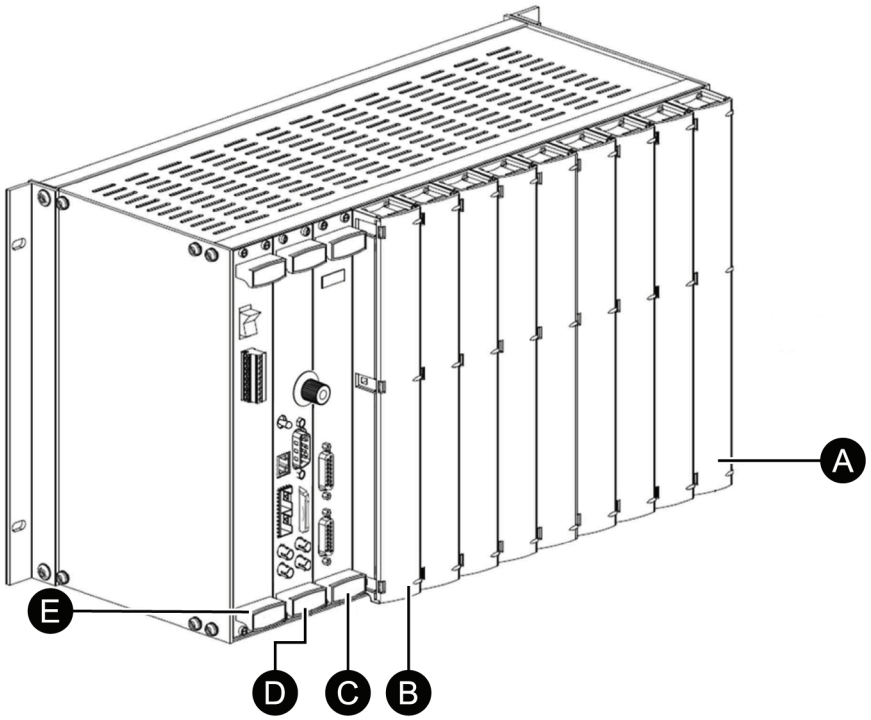
You can use OptoNet cables to interconnect each card file to allow a scalable solution involving multiple computing nodes. Use the 5 I/O slot, 3 I/O slot, and one I/O slot card files for smaller spaces where a 19" card file solution might not be feasible. In this case, a COPE (CPU, OptoNet, Power supply, and Ethernet) variant of the CPU module supplies backplane power, which avoids the need for a separate power supply. For more information, see *EcoStruxure™ Foxboro™ SCADA SCD6000 Hardware User's Guide* (B0780DW).

Ten I/O Slot Card File

The ten I/O slot card file is the largest SCD6000 assembly. It consists of a 19-inch rack mounted file with a CPU, OptoNet, Power Supply, and Ethernet (COPE) module, and up to ten I/O or communication modules.

The 19-inch ten I/O slot card file requires the Power Supply Modules (SY-0399131R) to power up appropriately.

Figure 3 - Ten-I/O Slot Card File

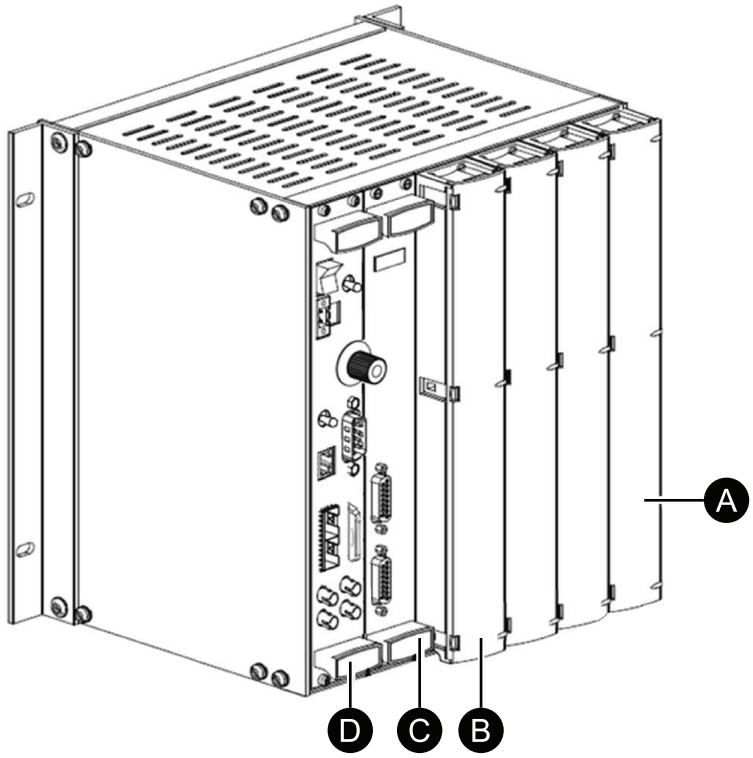


A	I/O Slot 10
B	I/O Modules can go from slot 1 to slot 10
C	Communication Modules can go from slot 1 to slot 10
D	COE (CPU//OptoNet/Ethernet) Module in second slot
E	65W Power Supply Module in first slot

Five I/O Slot Card File

The five I/O slot card file has one processor slot and five slots for I/O or communication modules.

Figure 4 - Five I/O Slot File

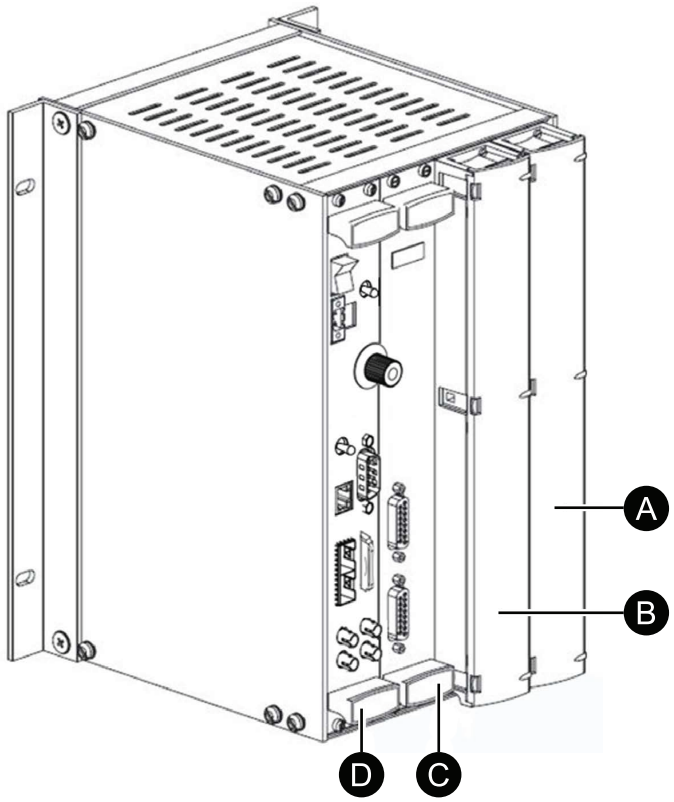


A	I/O Slot 5
B	I/O Modules (5 maximum)
C	Communication Modules (5 maximum)
D	COPE (CPU/OptoNet/Power Supply/Ethernet) Module in first slot

Three I/O Slot Card File

The three I/O slot card file has one processor slot and three slots for I/O or communication modules.

Figure 5 - Three I/O Slot File

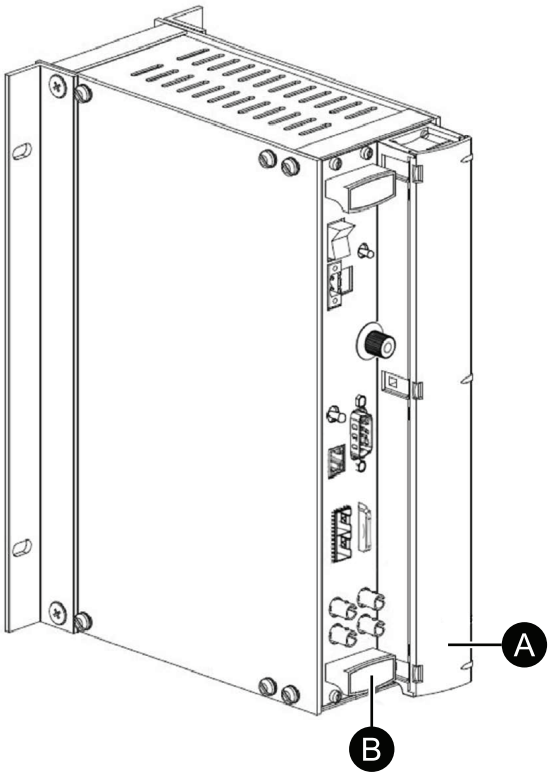


A	I/O Slot 3
B	I/O Modules (3 maximum)
C	Communication Modules (3 maximum)
D	COPE (CPU/OptoNet/Power Supply/Ethernet) Module in first slot

One I/O Slot Card File

The one I/O slot card file has one processor slot and one slot for an I/O or a communication module.

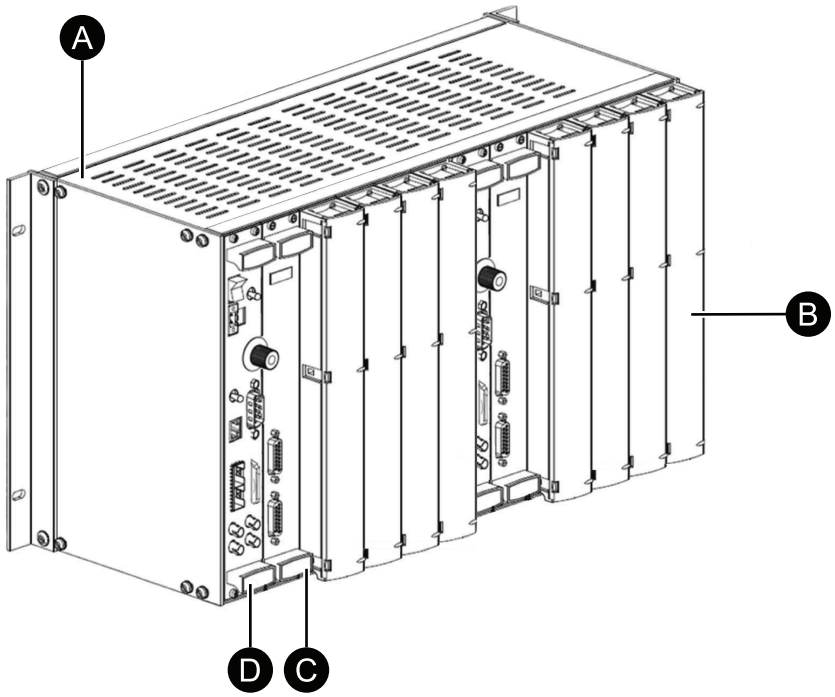
Figure 6 - One I/O Slot File



A	Communication or I/O Module
B	COPE (CPU/OptoNet/Power Supply/Ethernet) Module in first slot

2x5 I/O Slot Card File

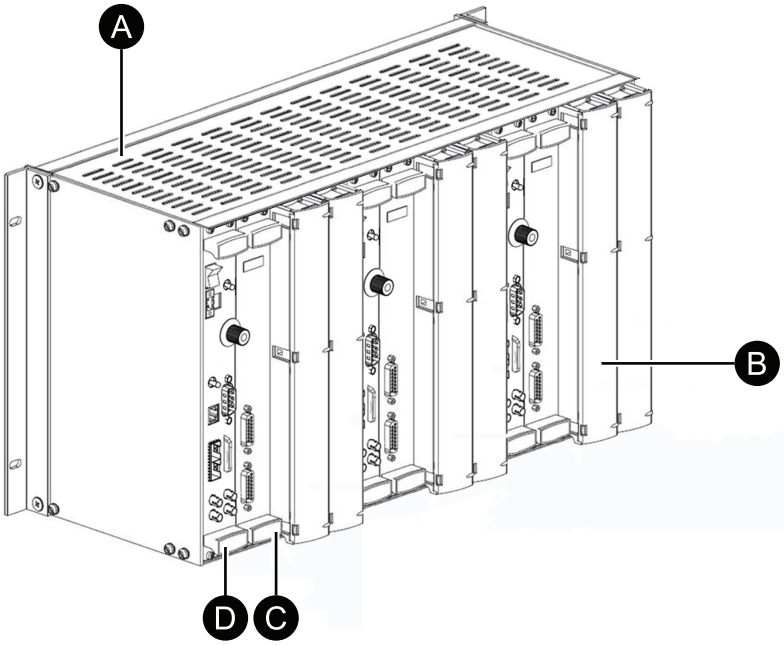
For the 2x5 I/O slot card file, insert two 5 I/O slot backplanes in one ten I/O slot card file. Each backplane has one COPE module and 5 I/O or communication modules.



A	Card Files
B	I/O Modules
C	Communication Modules
D	COPE (CPU/OptoNet/Power Supply/Ethernet) Module

3x3 I/O Slot Card File

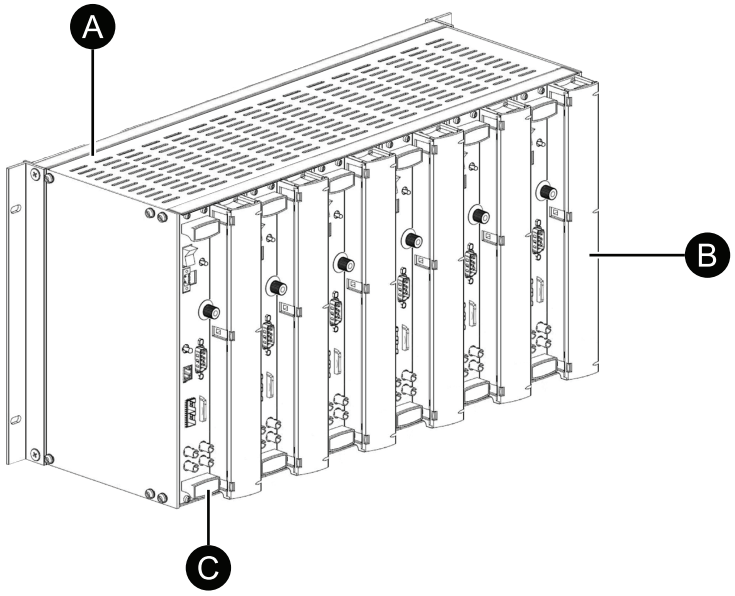
For the 3x3 I/O slot card file, insert three 3 I/O slot backplanes in one ten I/O slot card file. Each backplane has one COPE module and 3 I/O or communication modules.



A	Card Files
B	I/O Modules
C	Communication Modules
D	COPE (CPU/OptoNet/Power Supply/Ethernet) Module

6x1 I/O Slot Card File

For the 6x1 I/O slot card file, insert six 1 I/O slot backplanes in one ten I/O slot card file. Each backplane has one COPE module and 1 I/O or communication modules.



A	Card Files
B	I/O Modules
C	COPE (CPU/OptoNet/Power Supply/Ethernet) Module

SCD6000-SVX Card File Variations

Similar to SCD6000, SCD6000-SVX is provided with a passive high speed backplane that makes it possible to provide different formats with varying number of I/O slots. The SCD6000-SVX supports two standard file variations:

- 7 slot card file
- 6 slot card file

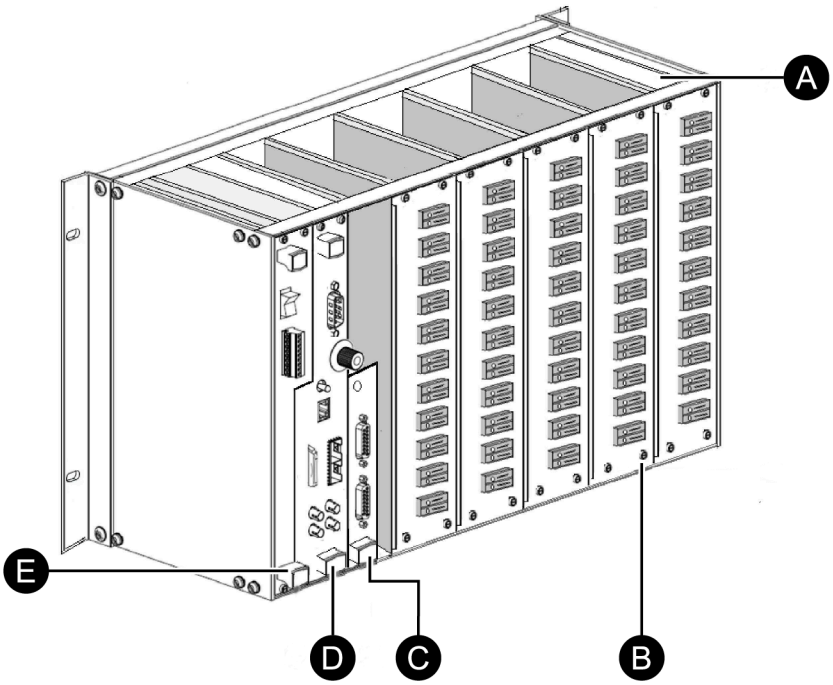
Each variation allows one CPU. The most popular card format for the SCD6000-SVX is also a 19" rack file, which includes a wide range power supply, a CPU module, and space to accommodate up to 5 I/O or Communication modules.

You can use OptoNet cables to interconnect each card file to allow a scalable solution involving multiple computing nodes. For more information, see *EcoStruxure™ Foxboro™ SCADA SCD6000-SVX and RTU50 SVX Hardware User's Guide* (B0780EQ).

Seven Slot Card File

Out of seven card file slots available, six are used to install the communication and I/O modules, and the seventh slot is used by the CPU. The SY-0702076R power supply is always required to power the 19-inch seven slot file.

Figure 7 - Seven Slot Card File

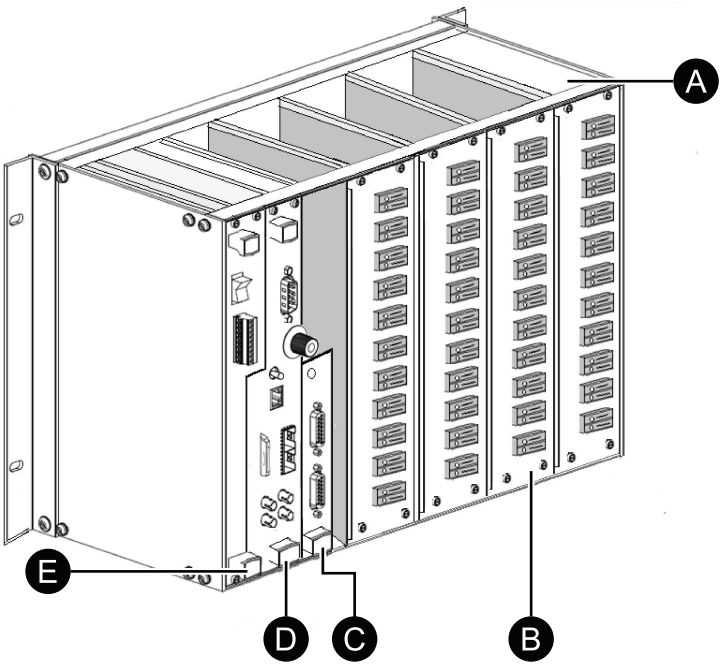


A	Card File Slots
B	I/O Modules (6 maximum)
C	Communication Modules (6 maximum)
D	SCD6000-SVX CPU Module
E	Wide Range Power Supply Module

Six Slot Card File

Out of six card file slots available, five are used to install the communication and I/O modules, and the sixth slot is used by the CPU. The SY-0702076R power supply is always required to power the 19-inch six slot file.

Figure 8 - Six Slot File



A	Card File
B	I/O Modules (5 maximum)
C	Communication Modules (5 maximum)
D	SCD6000-SVX CPU Module
E	Wide Range Power Supply Module

Power Supply

Power Supply for SCD6000:

- Smaller file formats (with up to 5 I/O modules): The COPE's (CPU, OptoNet, Power supply, Ethernet) integral 40W wide input voltage supply is enough to power the system.
- Larger 19-inch file formats (10-slot): the COPE's power supply is not enough. Use a standalone power supply module to power the I/O modules and provide the field supply. These power supplies operate from 19.2 to 148VDC.

Power Supply for SCD6000-SVX:

- Larger 19-inch file formats (6-slot and 7-slot): The COPE's power supply is not enough. Use a standalone power supply module to power the I/O modules and provide the field supply. These power supplies operate from 19.2 to 148VDC.

For more information, see *EcoStruxure™ Foxboro™ SCADA SCD6000 and SCD6000-SVX Power Supply, I/O, and Communication Modules* (PSS 41H-8S6KMOD).

CPU Module

For the technical specifications of the SCD6000 processor modules, see *EcoStruxure™ Foxboro™ SCADA SCD6000 CPU Modules* (PSS 41H-8S6KCPU). The SCD6000 board supports:

- OptoNet high-speed optical redundant token passing local area network
- Dedicated RJ45 Ethernet diagnostic port for the EcoStruxure™ Foxboro™ SCADA Remote Terminal Viewer (RTV)
- COM2 port (RS-232/RS-485) that can support these protocols
  - DNP3 Controlling Station (SAv2 and SAv5)
  - DNP3 Outstation (SAv2 and SAv5)
  - DNP3 Outstation Dialup (SAv2 and SAv5)
  - Modbus Client
  - Modbus Server
  - IEC 60870-5-101 Master
  - User Configurable Serial Interface
  - IED Pass-Through/Terminal Server
- Ethernet supported protocols
  - DNP3 Controlling Station on TCP/IP (SAv2 and SAv5)
  - DNP3 Outstation on TCP/IP (SAv2 and SAv5)
  - DNP3 Controlling Station on UDP (SAv2 and SAv5)
  - DNP3 Outstation on UDP (SAv2 and SAv5)
  - IEC 60870-5-104 Controlling Station (Secure Authentication)
  - IEC 60870-5-104 Controlled Station (Secure Authentication)
  - IEC 61850 Edition 2.1 GOOSE Publisher, and Subscriber
  - DNV GL certified IEC 61850 Edition 2.1 Server and 2.0 Client
  - DNV GL certified IEC 61850 Edition 1 Server and Client
  - DNV GL certified IEC 61850 Edition 1 GOOSE Publisher and Subscriber
  - Modbus TCP (Client and Server)
  - Diagnostic Utility over TCP/IP
  - PTP (Slave and Master)
  - SNTP (Client and Server)

Input/Output Assemblies (I/O)

The CPU interfaces with the I/O modules through Electrobus. The range of I/O modules is extensive, covering all aspects of I/O at a wide range of input voltage level. Each I/O processor is intelligent, provides on-board pre-processing, and captures information on the sequence of events. For the technical specifications of the Input and Output Modules, see *EcoStruxure™ Foxboro™ SCADA SCD6000 and SCD6000-SVX Power Supply, I/O, and Communication Modules* (PSS 41H-8S6KMOD).

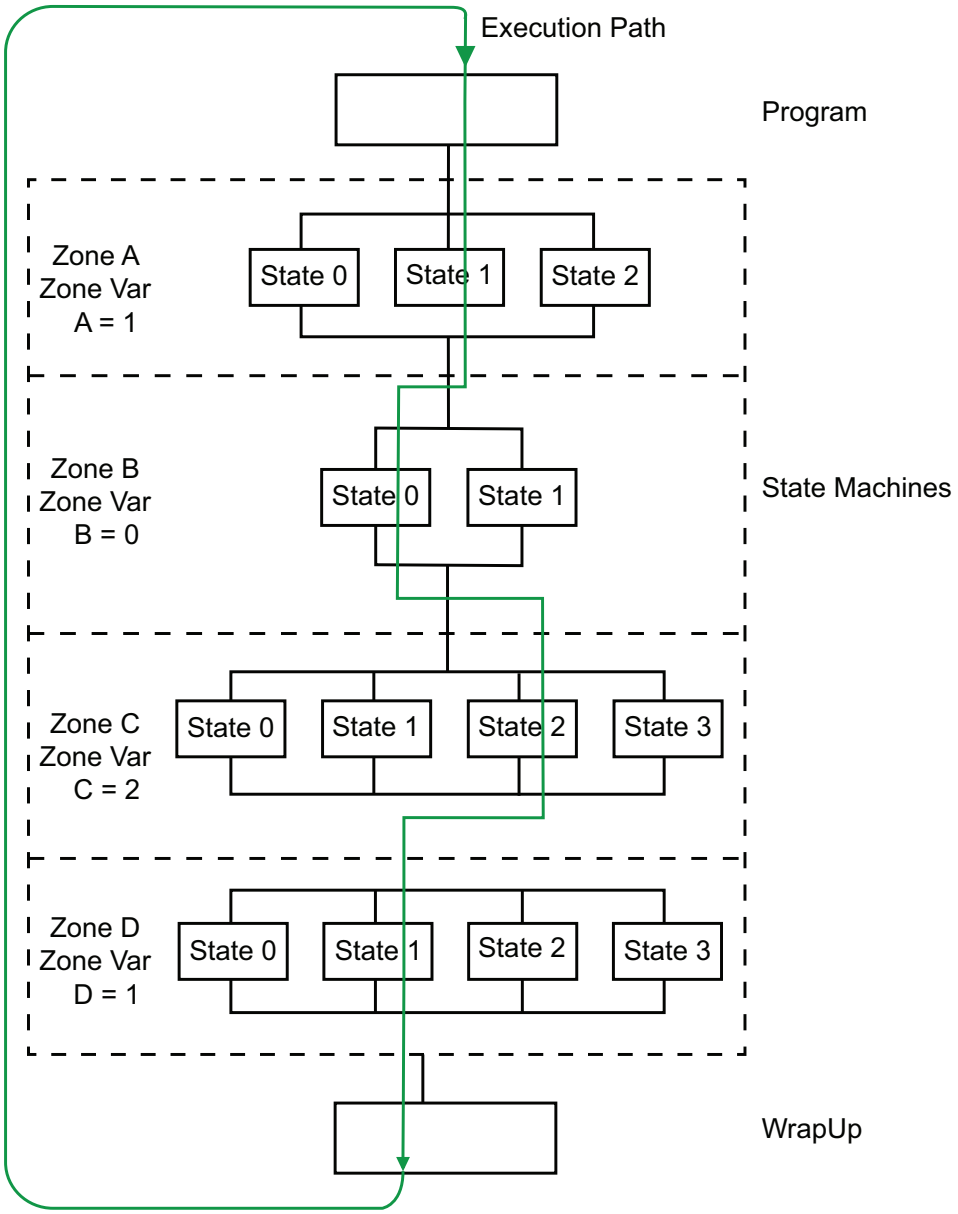
Dual Communication Board (DCB)

DCB provides the communication interface between the SCD6000 and the client station. For the complete specifications of the SCD6000 Dual Communication Modules, see *EcoStruxure™ Foxboro™ SCADA SCD6000 and SCD6000-SVX Power Supply, I/O, and Communication Modules* (PSS 41H-8S6KMOD).

State And Logic Language (SALL)

State And Logic Language (SALL) provides the means to implement individual control and data processing logic for execution on the SCD6000, including ATS functionality. For more information, see *EcoStruxure™ Foxboro™ SCADA SCD6000 State And Logic Language (SALL)* (PSS 41S-2S6KSAL) and *EcoStruxure™ Foxboro™ SCADA RTU Programming: State and Logic Language (SALL) Reference User's Guide* (B0780DK).

Figure 9 - SALL Program Execution Flow



The Electrodynamic Controller supports SALL in both simplex and high availability configurations.

SALL High Level Serial Interface (HLSI)

The High Level Serial Interface (HLSI) allows users of Foxboro SCADA remote devices and RTU50 to define an asynchronous, byte-oriented communications protocol. Using the SALL, you can develop applications that communicate with the protocol. The services provided by the High Level Serial Interface are:

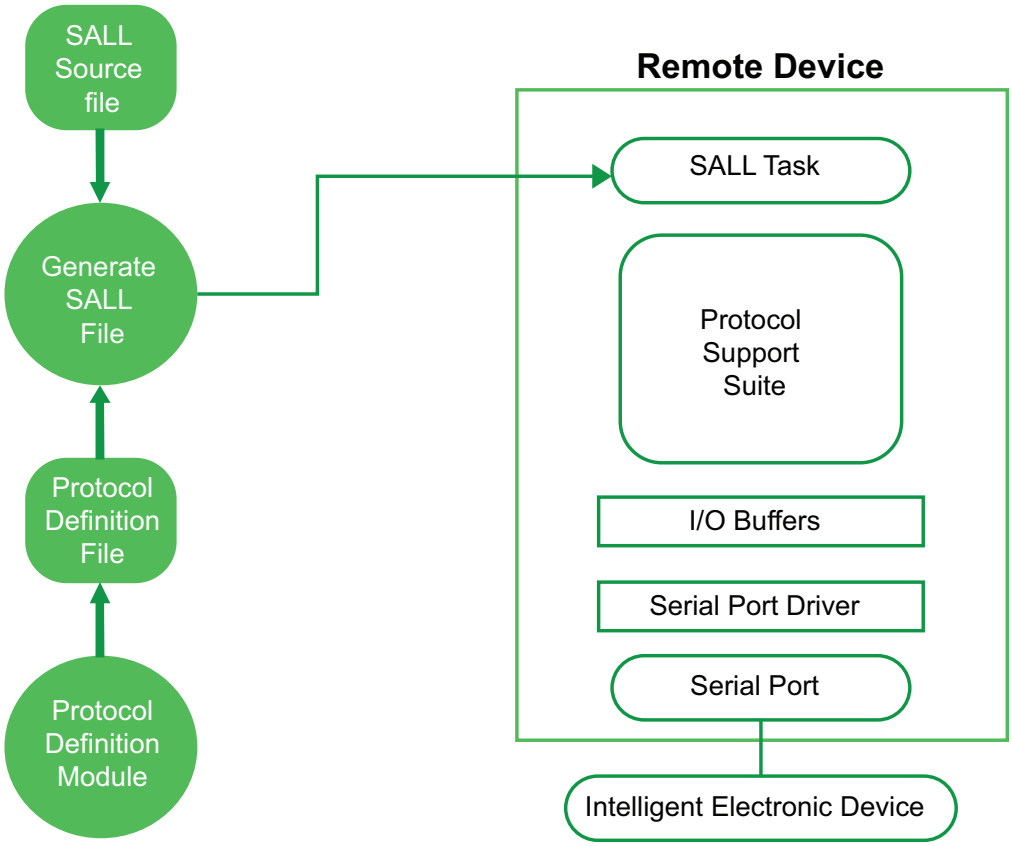
- **Protocol Definition:**

  An offline configuration program, called SALLHLSI.EXE, used to generate a Protocol Definition File.

- **Protocol Support Functions:**

  A set of SALL functions that perform online input and output operations within a SALL task based on the protocol definition.

Figure 10 - Protocol Support Functions Architecture



SALL HLSI is not supported in Electrodynamic Controllers.

For more information, see *EcoStruxure™ Foxboro™ SCADA SALL High Level Serial Interface (Foxboro SCADA Remote Devices and RTU50) User's Guide* (B0780DM) and *EcoStruxure™ Foxboro™ SCADA SCD6000 State And Logic Language (SALL)* (PSS 41S-2S6KSAL).

Intrinsic Database Functions (IDF)

Intrinsic Database Functions (IDF) provides a range of embedded functions that can be applied to RTU database points (Source Points) to produce new database points (Result Points). IDF manipulates previously specified analog and digital inputs (Source Points) to produce analog and digital values (Result Points). This allows several kinds of calculations to be implemented within the RTU configuration without requiring the user to create application programs using SALL. For more information, see *EcoStruxure™ Foxboro™ SCADA Intrinsic Database Functions (Foxboro SCADA Remote Devices and RTU50) User's Guide* (B0780DR).

The Electrodynamic Controller supports IDF in both simplex and high availability configurations.

Foxboro SCADA RTU Station

RTU Station is a configuration tool for the Foxboro SCADA remote device or RTU50 that run on Microsoft Windows® operating system. RTU Station is graphical and mouse-based, permitting browsing and editing of configurations in a windows environment.

RTU Station supports configuration of hardware and protocols. For more information, see *EcoStruxure™ Foxboro™ SCADA RTU Station (Foxboro SCADA Remote Devices and RTU50) User's Guide* (B0780DQ) and *EcoStruxure™ Foxboro™ SCADA RTU Station, RTV, and RTU Connect Secure Software* (PSS 41S-2S6KSWR).

Foxboro SCADA RTU Connect Secure

Foxboro SCADA RTU Connect Secure is a configuration tool for Foxboro SCADA remote devices and RTU50 used to create the security configuration file. The security configuration file provides a password-based authentication mechanism to help prevent unauthorized access to the RTU through the EcoStruxure™ Foxboro™ SCADA Remote Terminal Viewer (RTV). For more information, see *EcoStruxure™ Foxboro™ SCADA RTU Connect Secure (Foxboro SCADA Remote Devices and RTU50) User's Guide* (B0780DP) and *EcoStruxure™ Foxboro™ SCADA RTU Station, RTV, and RTU Connect Secure Software* (PSS 41S-2S6KSWR).

Foxboro SCADA Remote Terminal Viewer (RTV)

RTV is a diagnostic and remote file management tool. It helps provide authenticated and authorized access to the Foxboro SCADA remote devices and RTU50 from different locations.

RTV connects to multiple RTU controllers through a Graphical User Interface (GUI) and presents a real-time view of the operation of each RTU. RTV communication interfaces include serial connection for local access and a dial-up modem or TCP/IP for both local and wide area networks.

RTV also allows you to connect using the File Transfer Protocol. RTV uploads, downloads, and displays device configurations, including firmware and calculations. Several windows of the RTV are dynamically updated with input, output, and calculation data. Other windows display information on dynamic communications and raw communication packets, and provide communication diagnostics. For more information, see *EcoStruxure™ Foxboro™ SCADA Remote Terminal Viewer (Foxboro SCADA Remote Devices and RTU50) User's Guide* (B0780DY) and *EcoStruxure™*

Foxboro™ SCADA RTU Station, RTV, and RTU Connect Secure Software (PSS 41S-2S6KSWR).

Electrobus Expansion

To expand the SCD6000/SCD6000-SVX main file to include additional I/O cards, expansion files are added to the main file using Electrobus I/O expansion modules. This extends the backplane of the RTU up to a maximum of four chassis to hold a maximum of 31 I/O modules for SCD6000 and maximum of 24 I/O modules for SCD6000-SVX. Each additional unit is electrically connected to the SCD6000/ SCD6000-SVX Main File through an Electrobus I/O expansion module (see figure). To support migration we provide several ways to use expansions in a SCADA system solution. For more information, see *EcoStruxure™ Foxboro™ SCADA Remote Terminal Unit Migration Guide* (B0780FA).

Figure 11 - Connecting Additional Units Electrically to SCD6000 Main File through Electrobus I/O Expansion Module

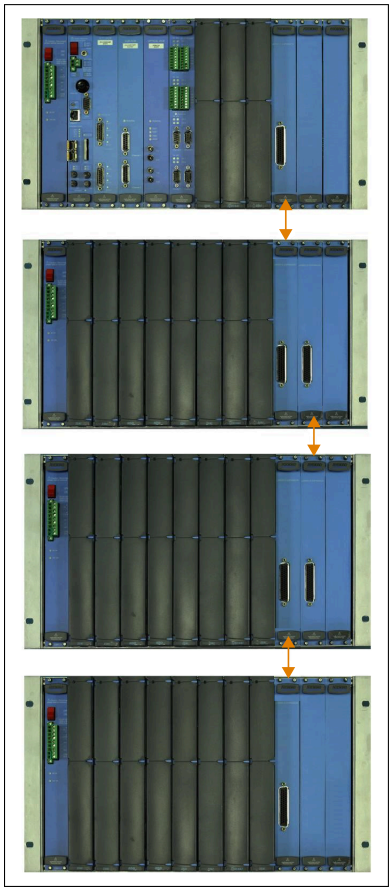
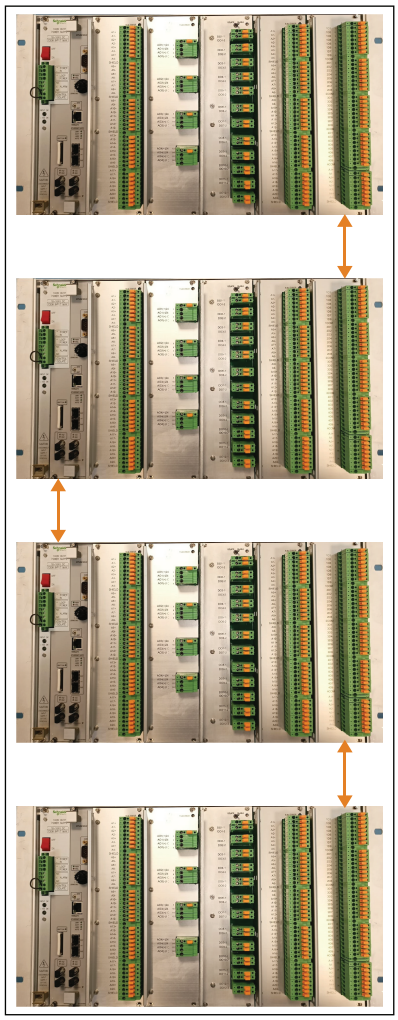


Figure 12 - Connecting Additional Units Electrically to SCD6000-SVX Main File through Electrobus I/O Expansion Module



For more information see *EcoStruxure™ Foxboro™ SCADA SCD6000 Hardware User's Guide* (B0780DW) and *EcoStruxure™ Foxboro™ SCADA SCD6000-SVX and RTU50 SVX Hardware User's Guide* (B0780EQ).

OptoNet Distribution of Control Logic

Local logic in each processor can seamlessly access data and controls from any node on the OptoNet (see figure), through the use of a "global database". OptoNet allows optimization of:

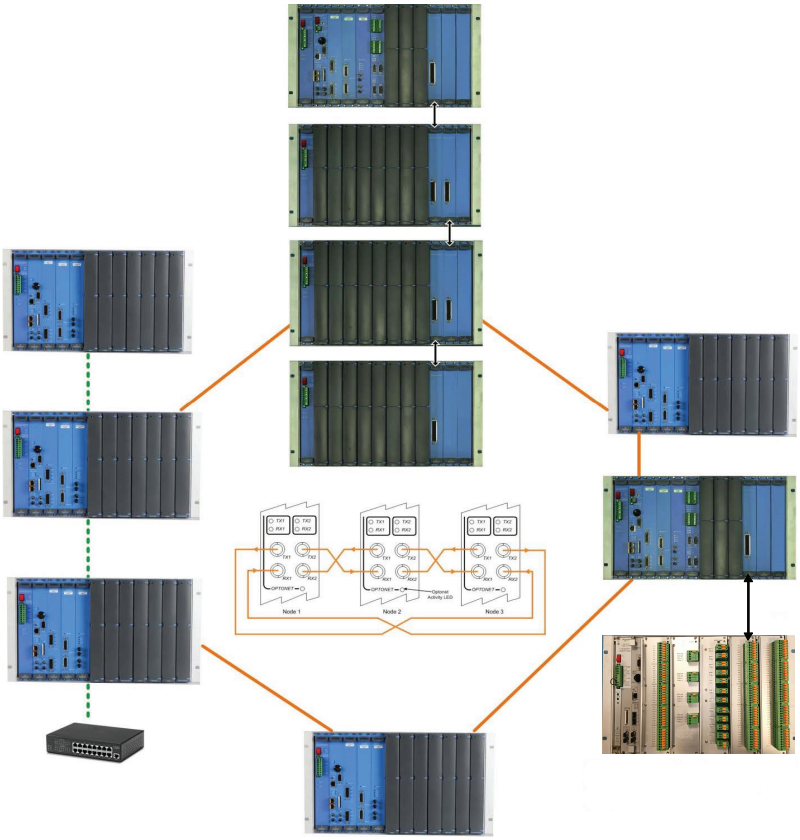
- **Logic**: Distributed to match the plant configuration
- **Distributed I/O**: To minimize cabling
- **Performance**: Locating processing power where it is needed
- **Availability**: No single point of a detected failure affects the total plant performance
- **Flexibility**: Full peer-to-peer access to database and logic
- **Maintainability**: All modules are maintained from one location

OptoNet is a ring topology optical network. Each RTU on the network has a processor, power supply, and OptoNet Interface that completely supports peer-to-peer communication between all nodes on the network. The protocol helps to ensure time

deterministic delivery of the data across the OptoNet for up to 63 nodes on the network.

The ring network also supports the distribution of automation functions across the network, allowing control functions to be configured to match the plant topology for high availability solutions. In addition, the protocol communication is maintained independent to the processor in each node and is not affected by a single processor an error detected in the network interface. For more information, see *EcoStruxure™ Foxboro™ SCADA OptoNet Software (Foxboro SCADA Remote Devices and RTU50) User's Guide* (B0780DS).

Figure 13 - OptoNet Expansion



Data and Control Interface Unit Integration

An optional implementation of the communications capability for the SCD6000 includes the Data and Control Interface Unit (DCIU). This function allows an RTU to scan and control other RTUs. The RTU is then able to use any of the communications interfaces to link to other RTUs or client stations (for example, store, data concentrate, and forward operation).

The database of the DCIU RTU contains all the points resident in the scanned RTUs. Therefore, SALL logic can implement control strategies that include remote RTUs. This is useful for providing local control strategies independent of the primary station and communications links.

Intelligent Electronic Device Integration

Each processor in an SCD6000 main file has an RS232 interface available for local Intelligent Electronic Device (IED). The SALL language supports a configurable protocol link via this port using the IED's native protocol. The data acquired forms part of the RTU's database and is available for all the RTU's functions. Several protocols are already implemented via this port as detailed in *EcoStruxure™ Foxboro™ SCADA SCD6000 State And Logic Language (SALL)* (PSS 41S-2S6KSAL). Optionally, additional ports are available with the Multi-Channel Serial Interface Module, which can be located in any I/O slot. SALL HLSI can be used to integrate the IEDs.

Power and Process Integration

Another optional implementation for the SCD6000 is to use it as an Electrodynamic Controller that is part of the EcoStruxure Power and Process Control System. The EcoStruxure Power and Process Control System connects the process control domain and the electrical control domain, allowing operators to see conditions that might compromise the electrical distribution network before a process is started and identify how measures, such as Intelligent Fast Load Shedding (iFLS), might impact a process. The Electrodynamic Controller is at the center of this system, facilitating the integration of power systems and IEDs.

Device integration includes interfacing IEDs, gathering IED data, and sending that data to user interfaces (UI). During this process, the Electrodynamic Controller performs internal regulatory, logic, timing, and sequential control, supports alarm detection and notification, and allows for sequence of events (SOE) notification. The Electrodynamic Controller also acts as a compound block processor, integrates with multi-protocol data feeds, and incorporates key power load control and integration strategies.

The Electrodynamic Controller can be used in both simplex and high availability configurations. While these configurations provide similar monitoring and control functionality, high availability also provides redundant control mechanisms that support Foxboro DCS Control Network redundancy and various forms of electrical network redundancy. High availability also allows for softwired load management on the DCS through TCP/IP connectivity instead of hardwired input/output (I/O).

For more information on the Electrodynamic Controller, see *EcoStruxure™ Electrodynamic Controller* Product Specification (PSS 41S-2EDC).

Automatic Transfer Switch Functionality

SCD6000 supports ATS functionality when used with Current Transducer, Voltage Transducer (CTVT) modules and State and Logic Language (SALL) based configuration. This ATS function monitors voltage, frequency, and phase of the electrical networks and sends signals to the circuit breaker switching control application.

To enable this functionality, use these components with an SCD6000 card file to configure an ATS and connect it to the RTU or an Electrodynamic Controller:

- Four 3-phase sync-check CTVT modules and two built-in digital I/O on the CTVT module for the physical ATS
- IED system that uses three circuit breakers and breaker status supervision
- SALL configuration customized for ATS
- RTU firmware (SY-1101207_R1 and later) and CTVT firmware (SY-1037595_F and later) for sync check to perform power supply transfer

For information on how to configure the AC Transducer Type 2 Module and SCD6000 for ATS functionality, see *EcoStruxure™ Foxboro™ SCADA RTU AC Transducer Module - Type 2 User's Guide* (B0780DV) and *EcoStruxure™ Foxboro™ SCADA RTU Station (Foxboro SCADA Remote Devices and RTU50) User's Guide* (B0780DQ).

For information on how to engineer the ATS system, contact Global Customer Support at https://pasupport.se.com (registration required).

Ordering Information

SCD6000 Supported Modules

Part Number	Description
CPU Modules	
SY-60399001R	SCD6000 CPU OptoNet Power Supply Ethernet (COPE) Module
SY-60399002R	SCD6000 CPU OptoNet Ethernet (COE) Module (RoHS)
SY-60399008R	SCD6000 COPE TYPE II Module (1GB DDR3)
SY-60399009R	SCD6000 COE TYPE II Module (1GB DDR3)
Power Supply	
SY-0399131R	Wide Input Range Power Supply Module (needed for 2003098R) (RoHS)
Small Form-Factor Pluggable (SFP) Module	
SY-6034085	10/100Base-T SFP Module
SY-6038038	100Base-FX SFP Module
I/O Files	
SY-2003092R	2x5 I/O slot file (RoHS)
SY-2003098R	Ten I/O slot card file (RoHS)
SY-2003100R	Five I/O slot card file (RoHS)
SY-2003102R	Three I/O slot card file (RoHS)
SY-2003104R	One I/O slot card file (RoHS)
SY-2003107R	3x3 I/O slot file (RoHS)
SY-2003110R	6x1 I/O slot file (RoHS)
SY-60399004R[(a)]	Electrobus Upper I/O Expansion Module
SY-60399005R[(a)]	Electrobus Lower I/O Expansion Module
SY-6500175R	Electrobus I/O Expansion 50 PIN DSUB Cable
Multiple I/O Module	
SY-0399095R	Multi Input Output Module 129 V 8 Mini Pilot Relay
SY-0399094R	Multi Input Output Module 48 V 8 Mini Pilot Relay
SY-0399088R	Multi Input Output Module 24 V 8 Mini Pilot Relay
SY-0399097R	Multi Input Output Module 129 V 6 Paired Pilot Relay
SY-0399096R	Multi Input Output Module 48 V 6 Paired Pilot Relay
SY-0399089R	Multi Input Output Module 24 V 6 Paired Pilot Relay
Analog Input Module	
SY-0399085R	20 Channel Analog Input Module (Isolated)
Analog/Digital Input Module	
SY-0399160R	4 Analog/32 Digital Input Module (24 V to 129 V)

Part Number	Description
SY-0399222R	4 Isolated Analog Inputs and 32 Digital Inputs (Deep Wiring Channel) Module
SY-60399035R	4 Isolated AI and 32 DI Input Board 24 V to 129 V with configurable debounce time
SY-60399011R	4 Isolated AI and 32 DI Input Board (Deep Wiring Channel) 24 V to 129 V configurable debounce time
Digital Output Module	
SY-0399086R	12 Pilot Relay Digital Output Module
SY-0399087R	12 Magnetically Latched Relay Digital Output Module
SY-0399136R	8 Digital Output 10 Amp Module
Analog Output Module	
SY-0399084R	4 Channel Analog Output Module
V.28 Dual Communication Modules	
SY-0399192R	Communication Module V.28 Conitel C2020/C2025 Master/Slave, C300/C3000 Slave
SY-0399194R[a]	Communication Module V.28 DNP3 Master/Slave
SY-0399196R	Communication Module V.28 IEC 60870-5-101 Slave
SY-0399226R[b]	SCD6000 Communication Module V.28 DNP3 Master/Slave Type 2
SY-60399036R[c]	SCD6000 Communications Module V.28 IEC60870-5-101 Master
V.11 Dual Communication Modules	
SY-0399163R[a]	Communication Module V.11 DNP3 Master/Slave
SY-0399224R[a]	Communication Module V.11 DNP3 Master/Slave (Ignore DCD)
SY-0399225R[b]	SCD6000 Communication Module V.11 DNP3 Master/Slave Type 2
Glass Fiber Optic Dual Communication Modules	
SY-0399122R[a]	Communication Module Glass Optical DNP3 Master/Slave
SY-0399127R	Communication Module Glass Optical IEC 60870-5-103 Master
SY-0399227R[b]	SCD6000 Communication Module Glass Optical DNP3 Master/Slave Type 2
Wide Range Input Power Supply Module	
SY-0399131R	Wide Input Range Power Supply Module
8 Channel Serial Module	
SY-0399132R	8 Channel Serial Module
Remote Terminal Unit (RTU) 3 Phase Digital Transducer Module	
SY-0399140R	3 Phase Digital Transducer Module (1 Amp, 0.5% Accuracy)
SY-0399142R	3 Phase Digital Transducer Module (5 Amp, 0.5% Accuracy)
(a) These modules support SCD6000 firmware version SY-1101207_A up to SY-1101207_C (b) These modules support SCD6000 firmware version SY-1101207_D (c) These modules support SCD6000 firmware version SY-1101207_K and later.	

SCD6000-SVX Supported Modules

Part Number	Description
CPU Modules	
SY-60399012R	SCD6000-SVX TYPE II Module (1GB DDR3)
SY-60399010R	SCD6000-SVX CPU/OptoNet/Ethernet (COE) Module
Small Form-Factor Pluggable (SFP) Module	
SY-6034085	10/100Base-T SFP Module
SY-6038038	100Base-FX SFP Module
Power Supply	
SY-0702076R	100W Power Supply Assembly
I/O Files	
SY-2003088R	SCD6000-IOX 6 Slot Card File Assembly
SY-2003089R	SCD6000-IOX 7 Slot Card File Assembly
Analog Input Module	
SY-0399071R	SCD6000-IOX 20 Channel 1 KV Analog Input Module (Isolated)
Analog/Digital Input Module	
SY-0399161R	SCD6000-IOX 32 DI/4 AI Module (24 V to 129 V)
SY-60399037R	SCD6000-IOX 32 DI/4 AI Debounce Assembly
Digital Output Module	
SY-0399008R	SCD6000-IOX 12 DO Pilot Relay Module
Analog Output Module	
SY-0399012R	SCD6000-IOX 4 Channel Analog Output Module
V.28 Dual Communication Modules	
SY-0399195R	SCD6000-IOX Remote Terminal Unit Dual Comms Board V.28 IEC 60870-5-101 Slave Module Assembly
SY-0399197R (a)	SCD6000-IOX Remote Terminal Unit Dual Comms Board V.28 WISP+ Master/Slave Module Assembly
SY-0399228R(b)	SCD6000-IOX Dual Communications Module V.28 DNP3 (Without Link Layer) Firmware Assembly
SY-60399038R(c)	SCD6000-IOX V.28 DCB IEC 101 Master Module Assembly
V.11 Dual Communication Modules	
SY-0399230R(b)	SCD6000-IOX Dual Communications Module V.11 DNP3 (Without Link Layer) Firmware Assembly
Glass Fiber Optic Dual Communication Modules	
SY-0399073R	SCD6000-IOX Remote Terminal Unit Dual Comms Board Glass Optical IEC-103 Module Assembly
SY-0399229R(b)	SCD6000-IOX Dual Communications Module Glass Optical DNP3 (Without Link Layer) Firmware Assembly
Wide Range Input Power Supply Module	

Part Number	Description
CPU Modules	
SY-0702076R	SCD6000-IOX PSU Module
Remote Terminal Unit (RTU) 3 Phase Digital Transducer Module	
SY-0399140R	3 Phase Digital Transducer Module (1 Amp, 0.5% Accuracy)
SY-0399142R	3 Phase Digital Transducer Module (5 Amp, 0.5% Accuracy)
(a) These modules support RTU50. **NOTE:** For more information on other binary options and non-RoHS variants, see the latest revision of Product Specification Sheet No. PSS 31H-8G5. (b) These modules support SCD6000 firmware version SY-1101207_D (c) These modules support SCD6000 firmware version SY-1101207_K and later.	

Electrodynamic Controller Supported Modules

Part Number	Description
CPU Modules	
SY-60399008R	SCD6000 COPE TYPE II Module (1GB DDR3)
SY-60399009R	SCD6000 COE TYPE II Module (1GB DDR3)
Power Supply	
SY-0399131R	Wide Input Range Power Supply Module (needed for 2003098R) (RoHS)
Small Form-Factor Pluggable (SFP) Module	
SY-6038090	100Base-FX SFP Module
I/O Files	
SY-2003092R	2x5 I/O slot file (RoHS)
SY-2003098R	Ten I/O slot card file (RoHS)
SY-2003110R	6x1 I/O slot file (RoHS)
Multi I/O Modules	
SY-0399095R	Multi Input Output Module 129 V 8 Mini Pilot Relay
SY-0399034R	Multi Input Output Module 48 V 8 Mini Pilot Relay
Analog Output Module	
SY-60399084R	4 Channel Analog Output Module (for simplex configurations only)
SY-60399016R[(a)]	4 Channel Analog Output Module for Electrodynamic Controllers
(a) For more information on the module's use in Electrodynamic Controller applications, see *EcoStruxure™ Electrodynamic Controller* (PSS 41S-2EDC).	

Related Documents

PSS 41H-8S6KMOD	*EcoStruxure™ Foxboro™ SCADA SCD6000 and SCD6000-SVX Power Supply, I/O, and Communication Modules*
PSS 41H-8S6KCPU	*EcoStruxure™ Foxboro™ SCADA SCD6000 CPU Modules*
PSS 41S-2S6KSWR	*EcoStruxure™ Foxboro™ SCADA RTU Station, RTV, and RTU Connect Secure Software*
PSS 41S-2S6KSAL	*EcoStruxure™ Foxboro™ SCADA SCD6000 State And Logic Language (SALL)*
PSS 41S-2EDC	*EcoStruxure™ Electrodynamic Controller*
B0780FA	*EcoStruxure™ Foxboro™ SCADA Remote Terminal Unit Migration Guide*
B0780EQ	*EcoStruxure™ Foxboro™ SCADA SCD6000-SVX and RTU50 SVX Hardware User's Guide*
B0780DK	*EcoStruxure™ Foxboro™ SCADA RTU Programming: State and Logic Language (SALL) Reference User's Guide*
B0780DR	*EcoStruxure™ Foxboro™ SCADA Intrinsic Database Functions (Foxboro SCADA Remote Devices and RTU50) User's Guide*
B0780DM	*EcoStruxure™ Foxboro™ SCADA SALL High Level Serial Interface (Foxboro SCADA Remote Devices and RTU50) User's Guide*
B0780DQ	*EcoStruxure™ Foxboro™ SCADA RTU Station (Foxboro SCADA Remote Devices and RTU50) User's Guide*
B0780DP	*EcoStruxure™ Foxboro™ SCADA RTU Connect Secure (Foxboro SCADA Remote Devices and RTU50) User's Guide*
B0780DV	*EcoStruxure™ Foxboro™ SCADA RTU AC Transducer Module - Type 2 User's Guide* (B0780DV)
B0780DW	*EcoStruxure™ Foxboro™ SCADA SCD6000 Hardware User's Guide*
B0780DY	*EcoStruxure™ Foxboro™ SCADA Remote Terminal Viewer (Foxboro SCADA Remote Devices and RTU50) User's Guide*
B0700JB	*EcoStruxure™ Foxboro™ DCS Electrodynamic Controller User's Guide*

WARNING: This product can expose you to chemicals including lead and lead compounds, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to www.p65warnings.ca.gov/.

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As standards, specifications, and design change from time to time, please ask for confirmation of the information given in this publication.

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