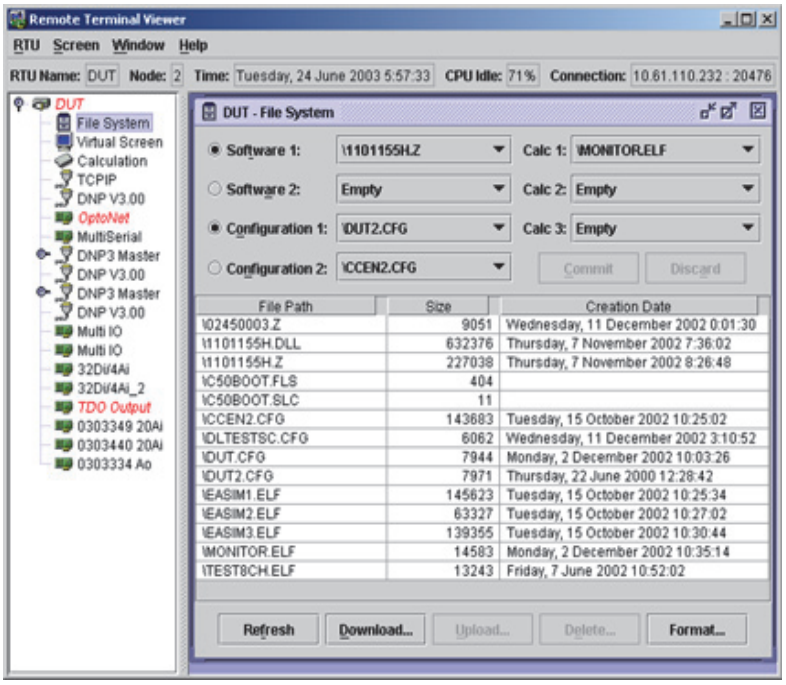
I/A Series® SOFTWARE
Product Specifications

invensys Foxboro®

PSS 21S-2M4 B3

I/A Series® Station Computing Device (SCD)
SCD5200 Remote Terminal Viewer (RTV) Diagnostics Utility



BACKGROUND

The SCD5200 Station Computing Device inherits the pedigree and function of the I/A Series® Remote Terminal Unit RTU50. The SCD5200 utilizes the RTU50's field proven software and uses the latest generation processes and fabrication techniques to achieve more compact hardware with higher performance.

The SCD5200 combines the features and benefits of RTU50 Series components with higher levels of integration and state-of-the-art configuration and diagnostic packages. CPU, OptoNet, Power, and dual Ethernet (COPE - refer to PSS 21H-8G3 B4) are integrated into a compact main processor board. Repackaging allows up to ten input/output modules (refer to PSS 21H-8G2 B4) in a single file. The COPE and separate power supply operate from station batteries from 24 to 129 V dc nominal. Refer to PSS 21H-8G4 B4 for more information.

The SCD5200 architecture allows a full spectrum of configurations such as:

- small single-device stations
- redundant power supply
- redundant processor
- redundant input output systems with redundant (duplicated and path diverse) communications networks.

For more information, refer to PSS 21H-8G1 B3.

INTRODUCTION

Remote Terminal Viewer (RTV) is a diagnostic utility for the SCD5200 Station Computing Device (SCD). RTV presents a real-time view of the operation of the SCD5200 through a windowed graphical user interface (GUI). RTV communications interfaces include serial for local access and dial-up modem or TCP/IP over local and wide area networks. Device configurations, including firmware and calculations, can be uploaded, downloaded, and displayed.

Many of the diagnostic windows feature dynamic updating of input, output, and calculation data. Other windows show dynamic communications information, display raw communication packets, and provide communications diagnostics. The RTV also provides diagnostic functions for RTU50 users.

FEATURES

- Operates on Windows® 7 Professional (32 bit and 64 bit) SP1 and Windows 2008 Server (64 bit) Operating Systems.
  Refer to *Remote Terminal Viewer Software Release Notes* (SY-1101192-RN, Rev L) for updates on product compatibility.
- Connects via serial or TCP/IP communications
- Single connection accesses all OptoNet nodes
- Pull-down menus and tree-type functional display provides user-friendly navigation
- Displays configuration summary and detail
- Downloads/uploads firmware, configuration, calculations, and other files
- Remote configuration selection and restart
- Displays input/output point detail (status and analog values) and module health points
- Displays communication configuration and detail
- Allows trapping and display of transmitted and received messages of many protocols
- Enables and displays diagnostics for communications protocols
- Allows diagnosis and debug of calculations
- Supports bulk transfers for the upload, download, and reset of multiple RTUs
- Supports connection via DNP on I/A Series SCADA Master Station serial and TCP/IP communications channels

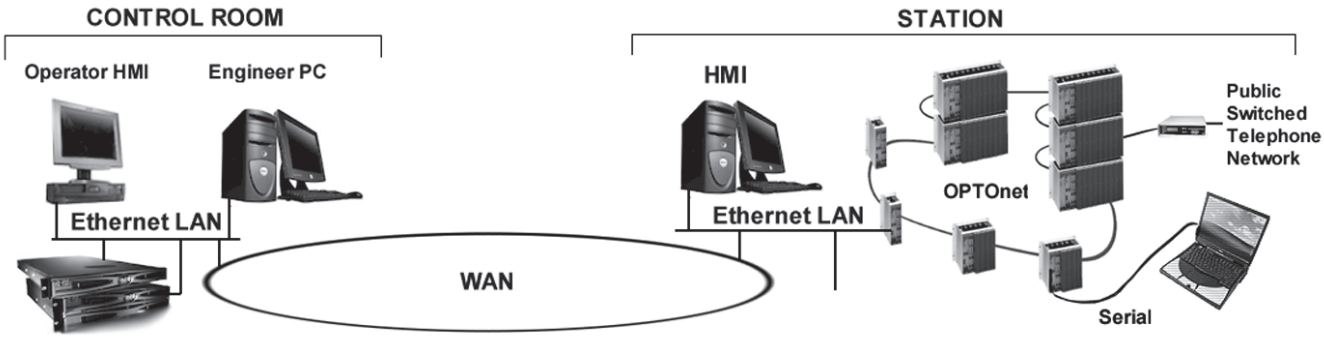


Figure 1. RTV to SCD5200 Communications Options

- Provides the following Diagnostic Security features when Diagnostic Security is configured in RTU:
  - Password-based authentication for RTV connection to the RTU to prevent unauthorized access

- Three privilege levels to access RTU
- Log of 500 most recent user actions with time stamp and activity details in CSV format.

FUNCTIONAL DESCRIPTION

RTV is a diagnostic utility designed to allow technical staff and system engineers to configure, diagnose, and maintain SCD5200 Station Computing Devices and associated plant.

Installation options include:

- Personal Computer (PC) connected by a serial communication cable or to a dial-up modem
- On-site PC connected by local area network
- Remote Windows PC connected by local and wide area networks.

Connection Options

The RTV may connect to the COM1 serial port on the SCD5200 main processor module or via TCP/IP on local and wide area networks.

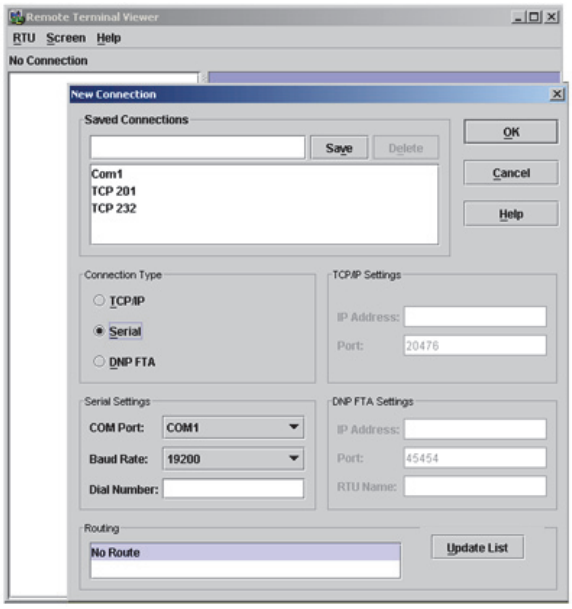


Figure 2. New Connection

On startup, the "New Connection" form displays the default serial option and any saved serial or TCP/IP communications configurations. Serial options include PC serial port, baud rate and dial-up modem interface. TCP/IP option allows setting of IP address.

Connection can be re-established even where the remote device fails to restart correctly due to download or configuration errors.

All run-time operations of the SCD5200, such as communication and I/O data collection, continue independent of the connection of RTV via TCP/IP or serial.

User Authentication

When connecting to an SCD5200 that is configured to enable diagnostic security, the user is prompted to enter his or her User ID and Password. Correct entry of these credentials enables RTV access to the secured SCD5200. Each authorized user is afforded role-based access in one of the secured access modes:

- Browse: The "View-Only" mode. The user can view all diagnostic details but cannot activate control outputs, upload files, change the file settings, or reset the SCD5200.
- Maintenance: The user can view all data, operate control commands, manipulate files, and reset the SCD5200. This is the same level of functionality as is afforded to any RTV user when connected to an SCD5200 that does not have diagnostic security enabled.
- Superuser: The Superuser manages other users and can access the diagnostic security log where all diagnostic user actions (log in, log out, control operations, file operations, restarts, and so on) are recorded.

Unauthorized users are denied all diagnostic access to the SCD5200.

The diagnostic security feature is available in RTV

revision SY-1101192_F or later when used with SCD5200 firmware revision SY-1101205_A or later. It is configured using the RTU Security Configurator: SY-1101206_A.

Main Screen

Menu selections allow upper level functions including connect, disconnect, display or set remote device time and date, force a reset of the remote device, and select on-line help.

A status line shows the connection status, the system time and date, and the node number and CPU activity for the current OptoNet node.

A tree diagram in the left hand panel displays the configuration of connected OptoNet nodes. The node to be displayed can be selected from the tree.

The right-hand panel is used to display windows for selected configuration items. The levels of the tree can be expanded or compressed to assist navigation.

The highest level of the tree displays a summary of the active firmware, configuration, and calculation file names, the name and size of the active calculations and system diagnostics including memory allocation, flash file status, connected diagnostic sessions, and system health. Detail can be displayed by clicking a button associated with the point.

OptoNet Detail

The status of OptoNet nodes together with diagnostic detail for the selected node is shown.

Input Output Detail

Selection of an item in the tree triggers the display of the associated database points and diagnostics. Diagnostic information includes the card ID, card type, card function, installed slot, health points, command processing, flags, scanning status, configuration status, and the available and configured database points on that card. Where cards require several levels to display points, status, or allow display and selection of diagnostics, labelled tabs are provided.

Detail for each point can be displayed in a secondary window by double-clicking the point or clicking the button associated with the point. Output points can be operated.

Communications Protocol Detail

Communications protocol attributes, captured transmitted and received data frames and point values are displayed. Diagnostic functions can be operated from buttons on the protocol displays.

Calculation Detail

The status of calculations and their variables are displayed. Variables can be selected to a watch list to assist debugging.

For State And Logic Language (SALL), variables can be forced and calculations can be stopped/started and single stepped. For IEC 61131-3 calculations, on-line analysis is provided by ISaGRAF® Workbench.

Virtual Screen

To assist processor, firmware, and configuration debug, this screen shows system errors and warnings. At startup, processor type and speed, initial memory allocation, and selected firmware is shown.

File System

In addition to displaying the contents (file name, size, and creation date) of the flash file system, this window allows the user to select and activate the firmware, configuration, and calculation files. Flash file system format and file delete, upload, and download functions are accessed by buttons on this window.

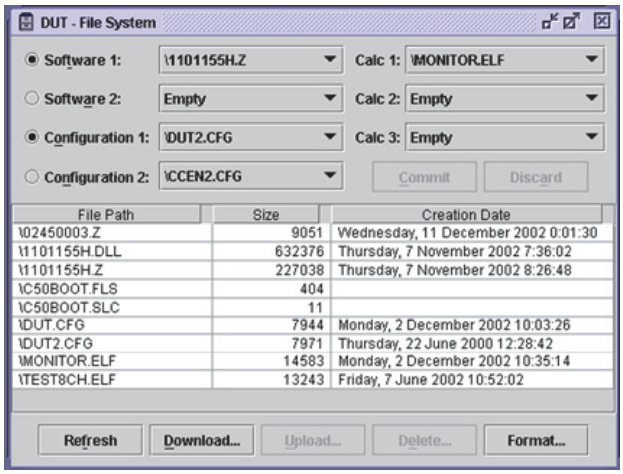


Figure 3. File System Screen

Window Manipulation

The main and right-hand panel windows can be brought into focus, sized, minimized, maximized, and closed through the familiar window operations.

Bulk Transfer

Bulk Transfer, provided in RTV, can be used to upload, and download multiple files from multiple RTUs connected on the OptoNet or TCP/IP Network. In addition, multiple RTU's on the OptoNet and TCP/IP can be reset in this window.

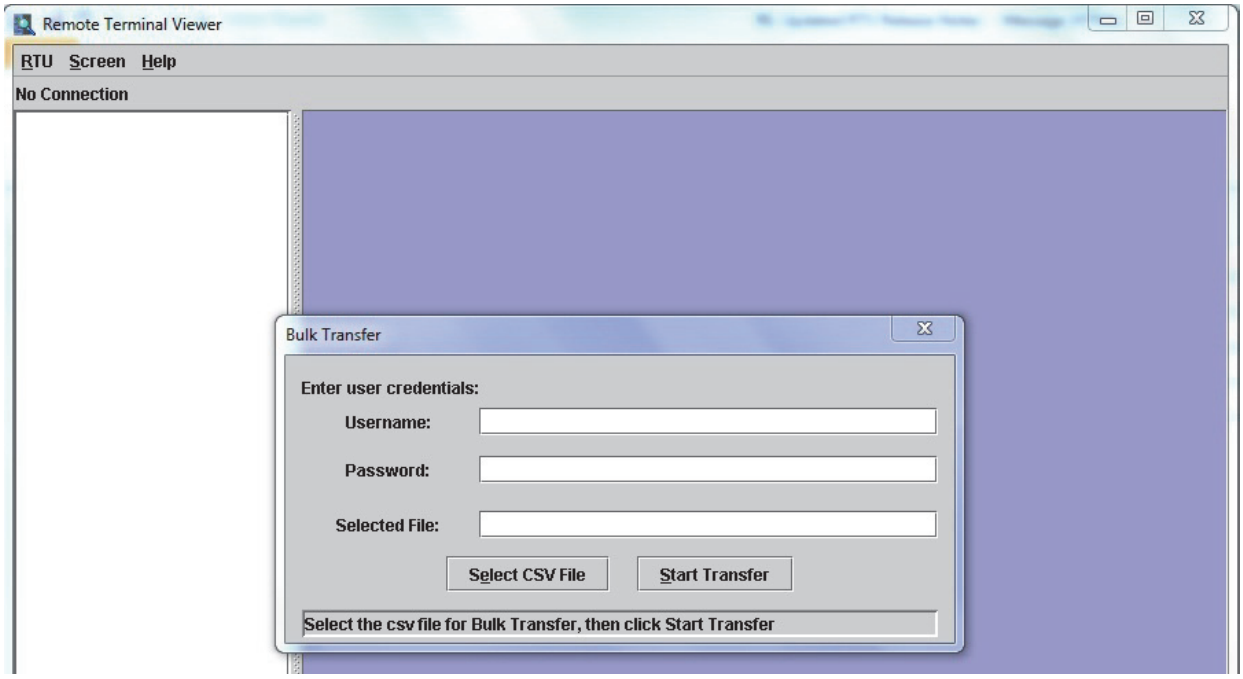


Figure 4. Bulk Transfer Screen

Help

Help is available through a content index available from the Help menu on the main form.

In addition, context sensitive help is available for each level of the tree and display windows by pressing F1 key.

System Requirements

RTV application operates on Windows 7 Professional (32 bit and 64 bit) SP1 and Windows 2008 Server (64 bit) Operating Systems.

Java Runtime Environment V1.5 is supplied with the RTV diagnostic and configurator utilities.

RTV is compatible with the SCD5200 and RTU50 using firmware SY-1101205 or SY-1101155_D or later with compatible bootstrap firmware.

Some communications protocols and input output modules available in the RTU50 are not supported by RTV. Refer to version release notes for the modules supported by that version.

RTV SY-1101192 supports the hardware modules in Table 1 and the software modules in Table 2.

Table 1. SCD5200 RTU Hardware Modules Supported by RTV

Part Number	Subsystem
AC Transducer Modules	
SY-0399142	3 Phase AC Transducer Module 5 Amp Module Assembly
SY-0399140	3 Phase AC Transducer Module 1 Amp Module Assembly
Multiple I/O Modules	
SY-0399095	SCD5200 Multi Input Output Module 129 V8 Mini Pilot Relay
SY-0399094	SCD5200 Multi Input Output Module 48 V8 Mini Pilot Relay
SY-0399088	SCD5200 Multi Input Output Module 24 V8 Mini Pilot Relay
SY-0399097	SCD5200 Multi Input Output Module 129 V6 Paired Pilot Relay
SY-0399096	SCD5200 Multi Input Output Module 48 V6 Paired Pilot Relay
SY-0399089	SCD5200 Multi Input Output Module 24 V6 Paired Pilot Relay
Analog Input Module	
SY-0399085	SCD5200 20 Channel Analog Input Module (Isolated)
Analog/Digital Input Module	
SY-0399160	SCD5200 4 Analog/32 Digital Input Module (24 V to 129 V)
Digital Output Modules	
SY-0399086	SCD5200 12 Pilot Relay Digital Output Module
SY-0399087	SCD5200 12 Magnetically Latched Relay Digital Output Module
SY-0399136	SCD5200 8 Digital Output 10 Amp Module

Table 1. SCD5200 RTU Hardware Modules Supported by RTV (Continued)

Part Number	Subsystem
Analog Output Module	
SY-0399084	SCD5200 4 Channel Analog Output Module
Processor Modules	
SY-0399143	SCD5200 CPU OptoNet Power Supply Ethernet (COPE) Module
SY-0399144	SCD5200 CPU OptoNet Ethernet (COE) Module
SY-0399151	SCD5200 CPU OptoNet Ethernet (COE) Module with 64 MB SDRAM
SY-0399152	SCD5200 CPU OptoNet Power Supply Ethernet (COPE) Module with 64 MB SDRAM
8 Channel Serial Module	
SY-0399132	SCD5200 8CH Serial Module RS-485/RS-232
Dual Communications Modules	
SY-0399122	DCB DNP Glass Optical supporting DNP3 Master/Slave
SY-0399127	DCB IEC 60870-5-103 Glass Optical supporting IEC 60870-5-103 Master
SY-0399163	DCB DNP V.11 supporting DNP3 Master/Slave
SY-0399192	SCD5200 Communications Module V.28 Conitel C2020/C2025 Master/Slave, C300/C3000 Slave
SY-0399194	SCD5200 Communications Module V.28 DNP3 Master/Slave
SY-0399196	SCD5200 Communications Module V.28 IEC 60870-5-101 Slave
SY-0399198	SCD5200 Communications Module V.28 WISP+ Master/Slave
SY-0399122	SCD5200 Comms Module Glass Optical DNP3
SY-0399127	SCD5200 Comms Module Glass Optical IEC103

Table 2. SCD5200 Communication Protocols

Subsystem	RTV Support
C2025 Conitel Master	Yes
C2025 Conitel Slave	Yes
C300 Conitel Slave	Yes
DNP3 Master	Yes
DNP3 Slave	Yes
FoxCom Master	Yes
Harris 5000/5500/6000 Slave	No
IEC 60870-5-101 Master	Yes
IEC 60870-5-101 Slave	Yes
IEC 60870-5-103 Master	Yes
IEC 60870-5-104 Slave	Yes
IEC 61850 Client / GOOSE Subscriber	Yes
IEC 61850 Server / GOOSE Publisher	Yes
LN57-3	No
Modbus Master	Yes
Modbus Slave	Yes
OptoNet	Yes
SNTP	Yes
TCP/IP	Yes
WISP + Master	Yes
WISP + Slave	Yes
Calculations:	
Intrinsic Database Functions	Yes
SALL Calculations	Yes
IEC 61131-3 (ISaGRAF)	Yes
Miscellaneous:	
Analog Logger	Yes

Table 2. SCD5200 Communication Protocols (Continued)

Subsystem	RTV Support
Control Interlock	Yes
Serial Event Logger	Yes
IRIG-B Serial Time Code Generator	No
System Monitor (SysMon)	Yes
Security	Yes

ORDERING INFORMATION

Remote Terminal Viewer (RTV) is a component of the SCD5200 Firmware and Utilities.

Part Number	Description
SY-1101190	SCD5200 Firmware and Utilities

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