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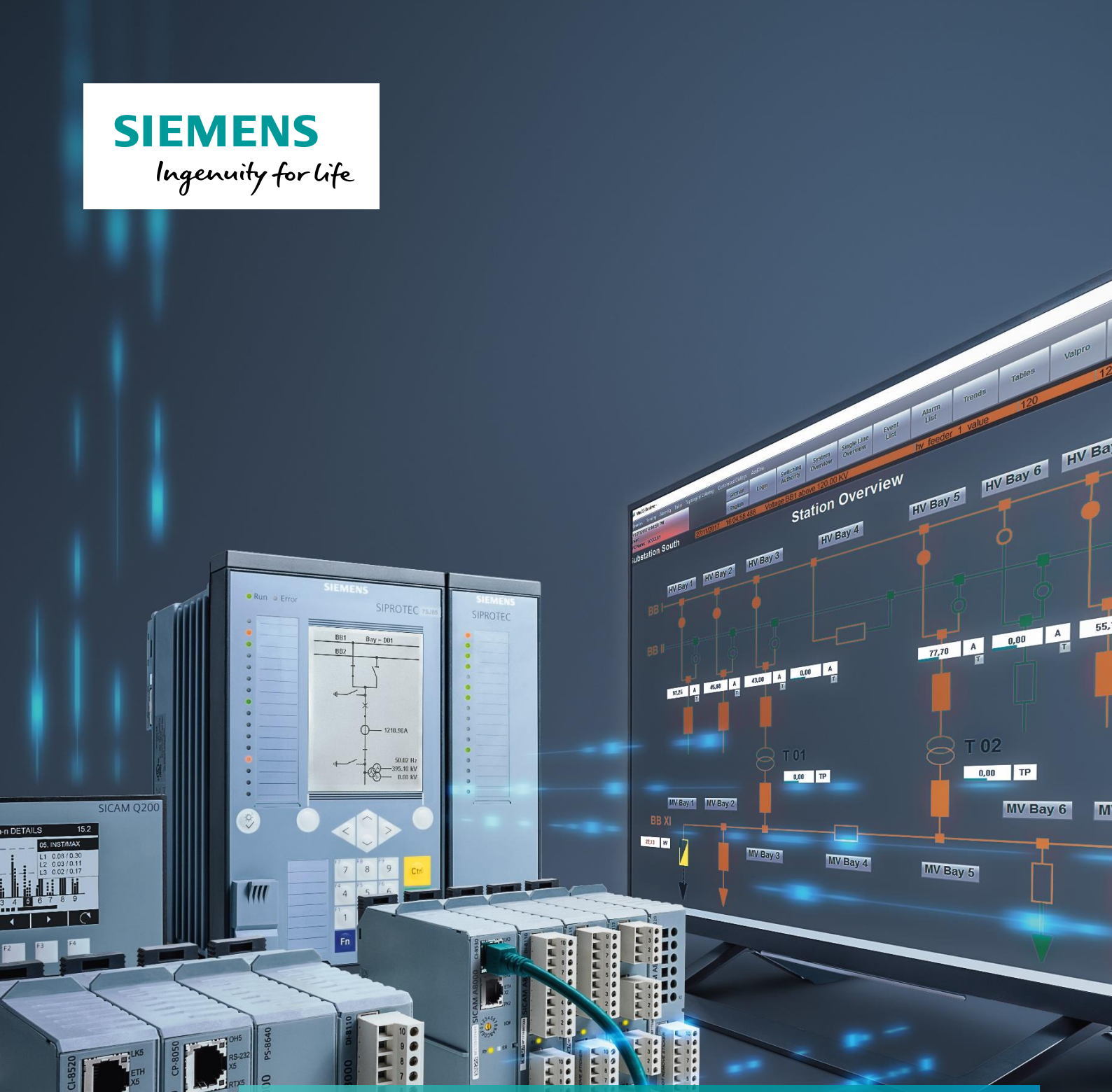

DIGSI 4 Remote Access to SIPROTEC Devices for Windows 10 or higher

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SIPROTEC 3/4/Compact Application

DIGSI 4 Remote Access to SIPROTEC Devices for Windows 10 or Higher

APN-062, Edition 1

Content

1 DIGSI 4 Remote Access to SIPROTEC Devices for Windows 10 or Higher

1.1 Introduction and Motivation

With the ending of support for Microsoft Windows 7, it may be necessary to switch the DIGSI 4-PC operating system to Windows 10. Existing DIGSI 4 configurations with a serial connection to substations via the 7XV585 and 7XV5655-0BB00 serial modem cannot be used with Windows 10, as the driver for the serial modem, which has also been discontinued, is not compatible with Windows 10.

Hint

It is generally possible to operate the old configuration (ipEtherConfigTool + serial **modem**) and the new configuration (RUGGEDCOM) in parallel with Windows 7.

Hint

It is generally possible to operate the old configuration (ipEtherConfigTool + serial **hub**) and the new configuration (RUGGEDCOM) in parallel with Windows 10.

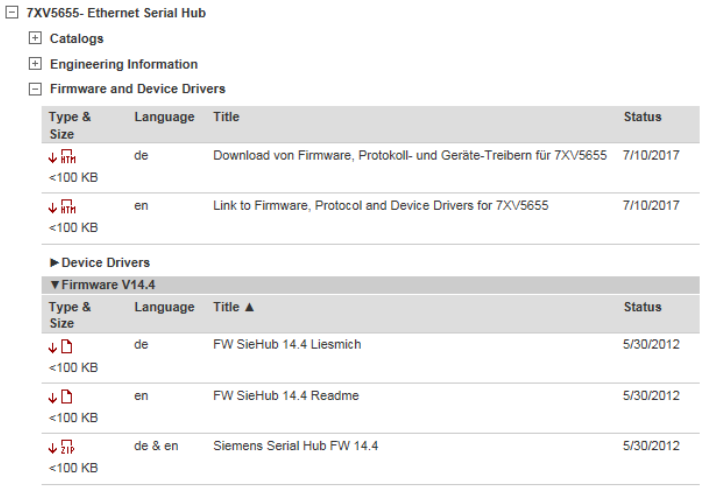
1.2 Solution: Switching from the Serial Modem to the Serial Hub

As the serial interface from the DIGSI4-PC is no longer available, as described above, it is possible to switch to an direct Ethernet connection. This means that the office modem is no longer required, and that access is gained directly to the substation/substation serial hub. This involves either purchasing a new serial hub or switching from the existing substation serial modem to a substation serial hub, simply by carrying out a firmware upgrade and changing the ordering code.

By changing the firmware and ordering code, the serial modem 7XV56550BB00 becomes a serial hub 7XV56550BA00. For this purpose, the firmware for the serial hub is transferred to the serial modem. Please consult the readme file first.

You can find this file, along with the corresponding manuals and firmware, in the .zip folder. You can find the latest versions and further information under the following link:

https://w3.siemens.com/smartgrid/global/en/products-systems-solutions/downloads/Pages/SIPROTEC-Accessories-Downloads.aspx



7XV5655- Ethernet Serial Hub

Catalogs

Engineering Information

Firmware and Device Drivers

Type & Size	Language	Title	Status
<100 KB	de	Download von Firmware, Protokoll- und Geräte-Treibern für 7XV5655	7/10/2017
<100 KB	en	Link to Firmware, Protocol and Device Drivers for 7XV5655	7/10/2017

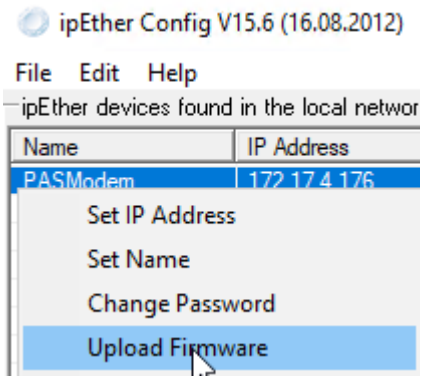
▶Device Drivers

▼Firmware V14.4

Type & Size	Language	Title ▲	Status
<100 KB	de	FW SieHub 14.4 Liesmich	5/30/2012
<100 KB	en	FW SieHub 14.4 Readme	5/30/2012
<100 KB	de & en	Siemens Serial Hub FW 14.4	5/30/2012

Download the "Siemens_Serial_Hub_14.4.hex" file from here.

The firmware upload is performed using the ipEther Configtool V15:

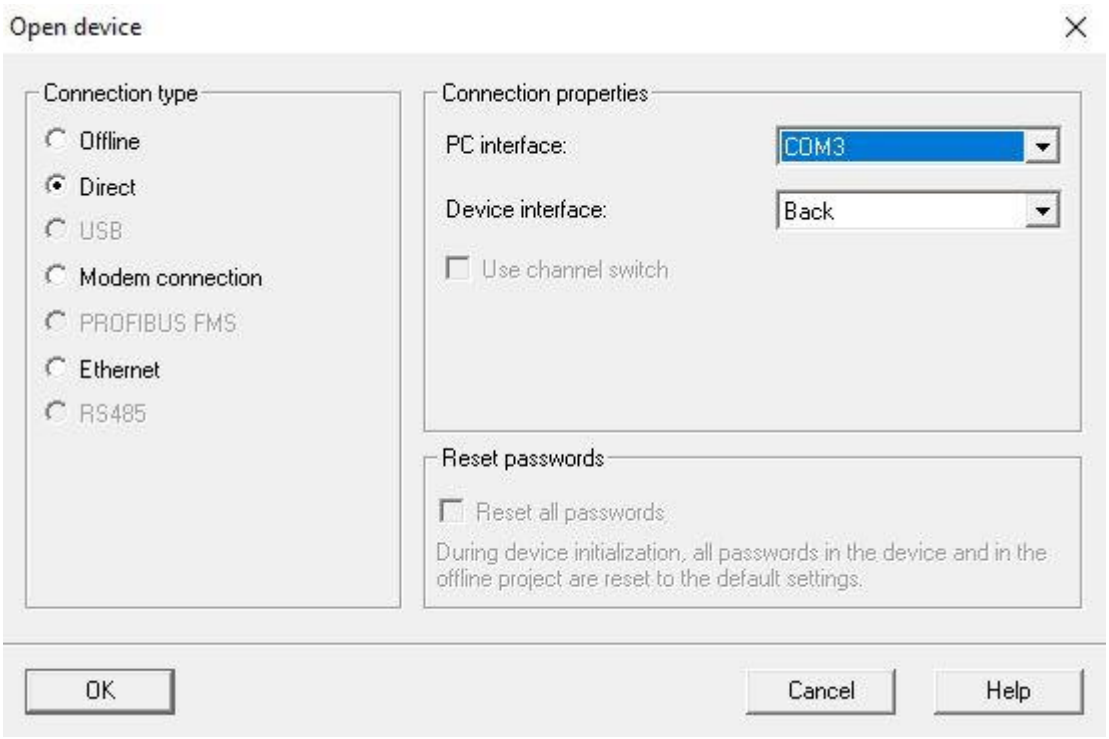


Hint

In the following “Open file” dialog, replace the “Siemens_Modem*.hex” filter with *, otherwise, the firmware file Siemens_Serial_Hub_14-4.hex will not be visible.

Once the firmware upload has completed successfully, the ipEther Configtool recognizes the device as a Siemens_Hub type device and the connection can be configured as a virtual COM port.

The SIPROTEC devices of the substation are now no longer opened from DIGSI 4 via the DIGSI 4 modem connection but are instead opened directly via the virtual COM port (for example COM3) provided by the Configtool.

1. 

To document the switch from the serial modem to the serial hub, change the ordering code on the name plate.

1.3 Alternative 1: Running the Windows 7 Installation on a Virtual Machine

For this purpose, the existing Windows 7 + DIGSI 4 installation is transferred to a virtual machine. The virtual machine is then reproduced on the Windows 10 system.
(see, for example, VMWare.com and https://wse03.siemens.com/content/P0007901/knowledge_database/ea_sys_wiki/Wiki%20Pages/VMWare.aspx)

1.4 Alternative 2: Using RUGGEDCOM RMC30 or RS910

The serial modems on the substation or office side are substituted by RMC30. If the serial interface must be provided as an optical interface on the substation side, then RS910 must be used, as RMC30 has no optical interface (1.5 km with 62.5/125-µm multimode fiber). Please note that the RS485 interface for the RS910 is configured differently than for the serial modem. A null modem adaptor, available from RS Components, order no. 243-0374, ensures that the lines are connected correctly:

9-poliger Nullmodemadapter

D9M	2	3	4	5	(1-6)	7	8
D9F	3	2	(1-6)	5	4	8	7

No RMC30 is required on the office side for the “virtual COM port” configuration.

For Ethernet-based communication routes between the RUGGEDCOM devices, a TCP or UDP can be configured. Please consult your network administrator if you have any queries in this regard.

Examples of the various RUGGEDCOM configurations are described below:

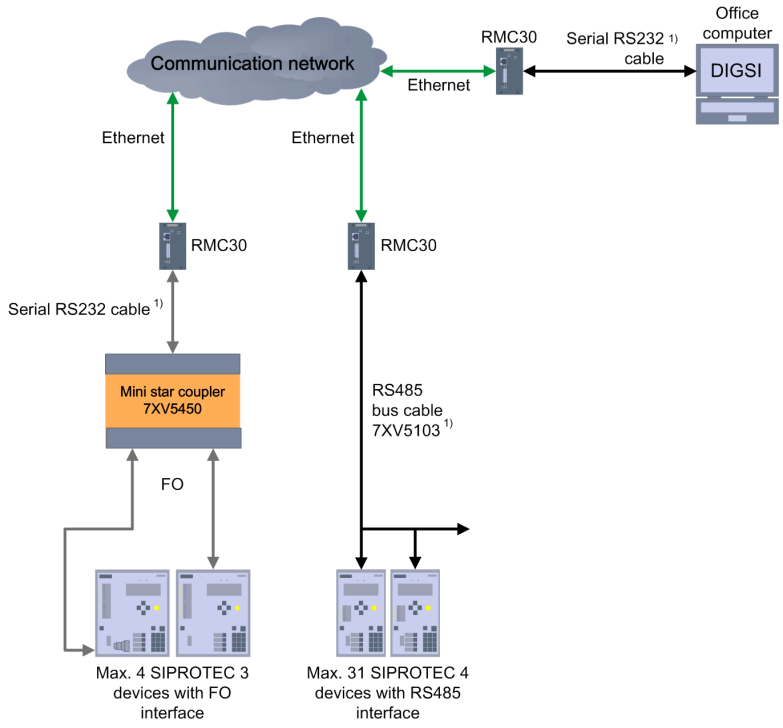


Figure 1: Extended COM Port RS232/485 with RMC30

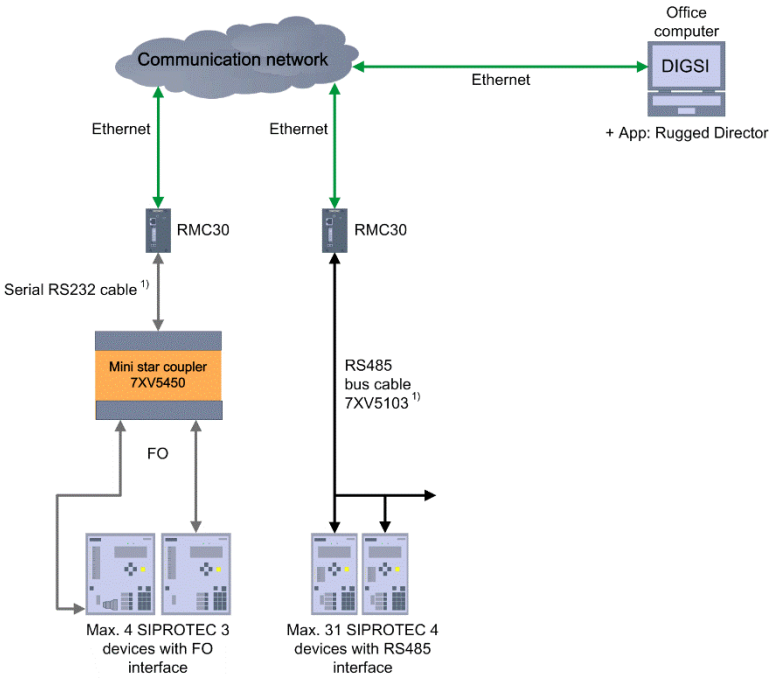


Figure 2: Virtual COM Port RS232/485 with RMC30

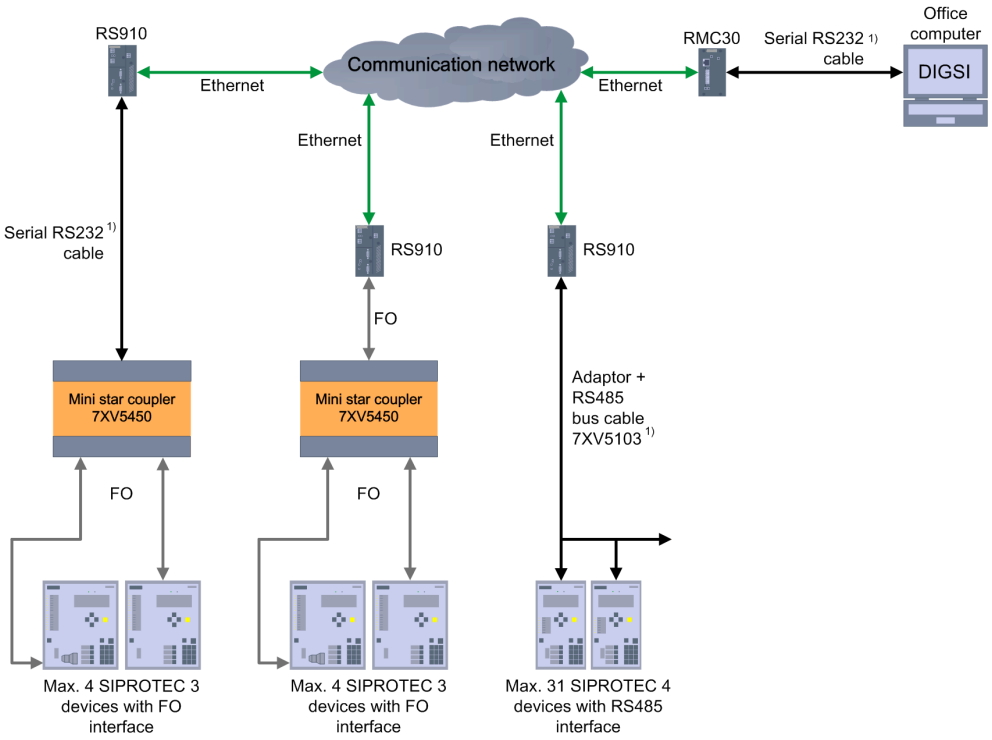


Figure 3: Extended COM Port for Optical Fiber/RS232/485 with RS910

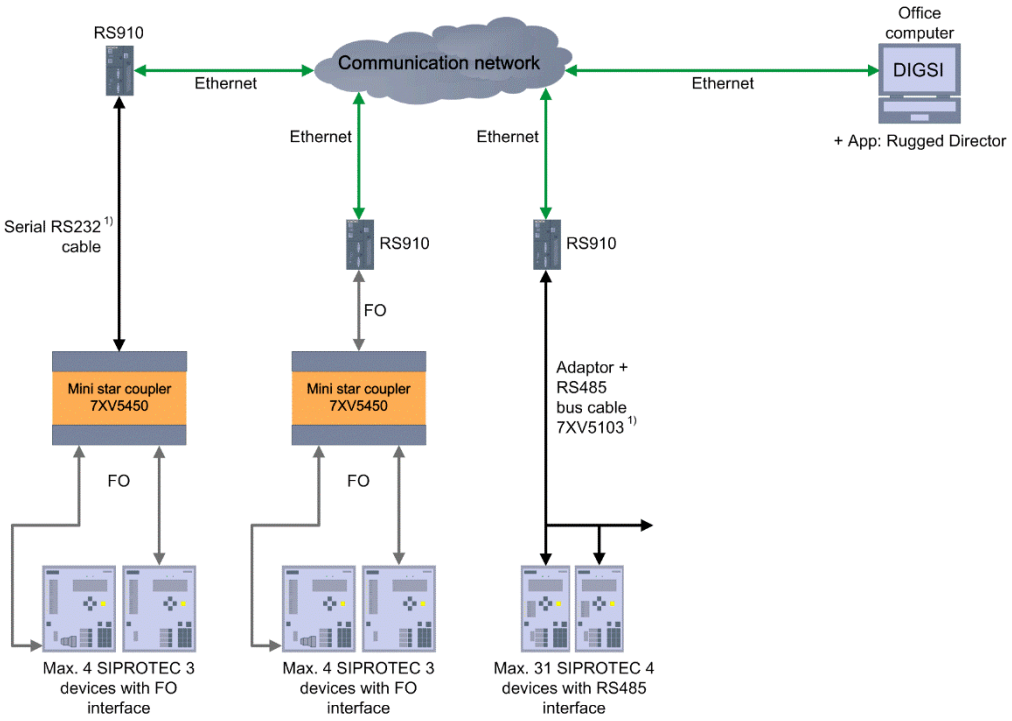


Figure 4: Virtual COM Port for Optical Fiber/RS232/485 with RS910

Please note that the RS485 interface for the RS910 is configured differently than for the serial modem. A null modem adaptor, available from RS Components, order no. 243-0374, ensures that the lines are connected correctly:

9-poliger Nullmodemadapter							
D9M	2	3	4	5	(1-6)	7	8
D9F	3	2	(1-6)	5	4	8	7

1.4.1 "Extended COM Port" UDP Configuration

To adjust the settings, call the RMC30 or RS910 Web interface.

<table>
<tr><td>RMC30 (office)</td><td>RS910 (substation)</td></tr>
<tr><td>Serial Protocols -> Configure Serial Ports

Serial Ports

Port: 2
Name: Port 2
Protocol: RawSocket
Type: RS232: ◉
ForceHD: On: ○ Off: ◉
Baud: 19200
Data Bits: 7: ○ 8: ◉
Stop: 1
Parity: None
Turnaround: 0 ms
Hold Time: Off
DSCP: 0
RxtoTx Delay: 0 ms</td><td>Serial Protocols -> Configure Serial Ports

Port: 1
Name: Port 1
Protocol: RawSocket
Type: FIBER: ◉
ForceHD: On: ○ Off: ◉
Baud: 19200
Data Bits: 7: ○ 8: ◉
Stop: 1
Parity: None
Turnaround: 0 ms
PostTx Delay: 15 bits
Hold Time: Off
DSCP: 0
RxtoTx Delay: 0 ms</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Configure Protocols -> Configure Raw Socket -> Configure Protocol

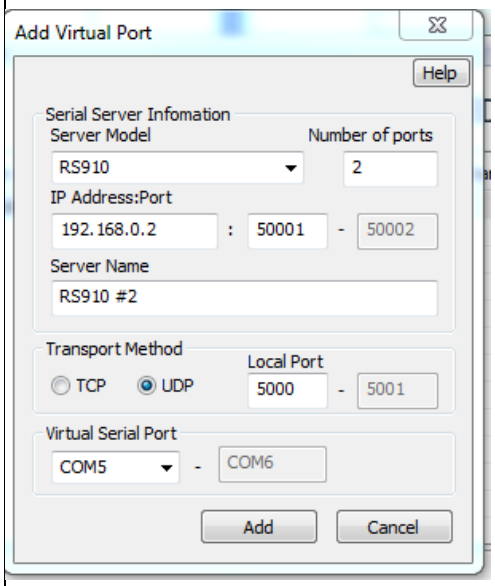
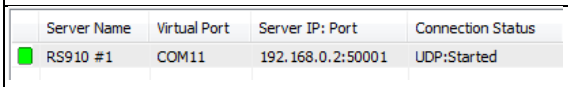
Port: 2
Pack Char: Off
Pack Timer: 10 ms
Pack Size: Maximum
Flow Control: None: ◉ XON/XOFF: ○
Response Time: Off
Response Dest: All: ◉ Last requester: ○
Transport: TCP: ○ UDP: ◉
Call Dir: Out
Max Conns: 1
Loc Port: 50000
Rem Port: 50001
IP Address: 192.168.0.2
Link Stats: Disabled: ○ Enabled: ◉</td><td>Configure Protocols -> Configure Raw Socket -> Configure Protocol

Port: 1
Pack Char: Off
Pack Timer: 10 ms
Pack Size: Maximum
Flow Control: None: ◉ XON/XOFF: ○
Response Time: Off
Response Dest: All: ◉ Last requester: ○
Transport: TCP: ○ UDP: ◉
Call Dir: In
Max Conns: 1
Loc Port: 50001
Rem Port: 50000
IP Address: 192.168.0.1
Link Stats: Disabled: ○ Enabled: ◉</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Configure Protocols -> Configure Raw Socket -> Configure Remote Host

IP Address: 192.168.0.2
IP Port: 50001
Port(s): All</td><td>Configure Protocols -> Configure Raw Socket -> Configure Remote Host

IP Address: 192.168.0.1
IP Port: 50000
Port(s): All</td></tr>
</table>

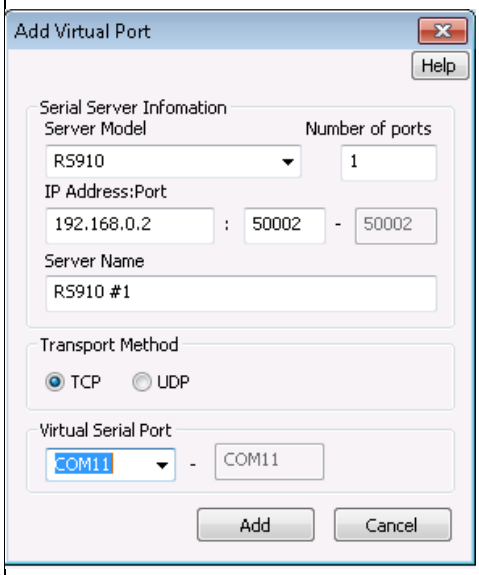
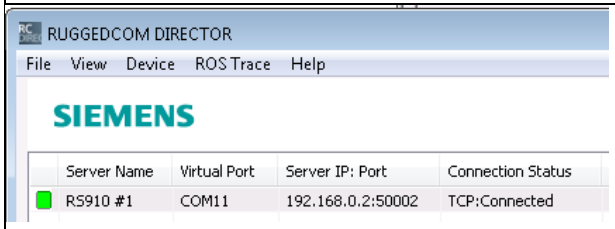
1.4.2 "Virtual COM Port" UDP Configuration

<table>
<tr><td>RuggedDirector</td><td>RS910 (substation)</td></tr>
<tr><td>Device / Add
 
</td><td>Serial Protocols -> Configure Serial Ports
Port: 2
Name: Port 2
Protocol: RawSocket
Type: FIBER:
ForceHD: On: Off:
Baud: 19200
Data Bits: 7: 8:
Stop: 1
Parity: None
Turnaround: 0 ms
PostTx Delay: 15 bits
Hold Time: Off
DSCP: 0
RxtoTx Delay: 0 ms</td></tr>
<tr><td> 
</td><td>Configure Protocols -> Configure Raw Socket -> Configure Protocol
Port: 2
Pack Char: Off
Pack Timer: 10 ms
Pack Size: Maximum
Flow Control: None: XON/XOFF:
Response Time: Off
Response Dest: All: Last requester:
Transport: TCP: UDP:
Call Dir: In
Max Conns: 1
Loc Port: 50002
Rem Port: 50000
IP Address: 192.168.0.65
Link Stats: Disabled: Enabled:</td></tr>
<tr><td></td><td>Configure Protocols -> Configure Raw Socket -> Configure Remote Host
IP Address: 192.168.0.65
IP Port: 50000
Port(s): All</td></tr>
</table>

1.4.3 "Extended COM Port" TCP Configuration

RMC30 (office)	RS910 (substation)
Serial Protocols -> Configure Serial Ports **Serial Ports** Port: 2 Name: Port 2 Protocol: RawSocket Type: RS232: ForceHD: On: Off: Baud: 19200 Data Bits: 7: 8: Stop: 1 Parity: None Turnaround: 0 ms Hold Time: Off DSCP: 0 RxtoTx Delay: 0 ms	**Serial Protocols -> Configure Serial Ports** Port: 1 Name: Port 1 Protocol: RawSocket Type: FIBER: ForceHD: On: Off: Baud: 19200 Data Bits: 7: 8: Stop: 1 Parity: None Turnaround: 0 ms PostTx Delay: 15 bits Hold Time: Off DSCP: 0 RxtoTx Delay: 0 ms
Configure Protocols -> Configure Raw Socket -> Configure Protocol Port: 1 Pack Char: Off Pack Timer: 10 ms Pack Size: Maximum Flow Control: None: XON/XOFF: Response Time: Off Response Dest: All: Last requester: Transport: TCP: UDP: Call Dir: Both Max Conns: 1 Loc Port: 50001 Rem Port: 50000 IP Address: 192.168.0.1 Link Stats: Disabled: Enabled:	**Configure Protocols -> Configure Raw Socket -> Configure Protocol** Port: 2 Pack Char: Off Pack Timer: 10 ms Pack Size: Maximum Flow Control: None: XON/XOFF: Response Time: Off Response Dest: All: Last requester: Transport: TCP: UDP: Call Dir: Both Max Conns: 1 Loc Port: 50000 Rem Port: 50001 IP Address: 192.168.0.2 Link Stats: Disabled: Enabled:
Configure Protocols -> Configure Raw Socket -> Configure Remote Host IP Address: 192.168.0.2 IP Port: 50001 Port(s): All	**Configure Protocols -> Configure Raw Socket -> Configure Remote Host** IP Address: 192.168.0.1 IP Port: 50000 Port(s): All

1.4.4 "Virtual COM Port" TCP Configuration

RuggedDirector	RS910 (substation)
Device / Add 	**Serial Protocols -> Configure Serial Ports** Port: 2 Name: Port 2 Protocol RawSocket Type: FIBER: ForceHD: On: Off: Baud: 19200 Data Bits: 7: 8: Stop 1 Parity None Turnaround: 0 ms PostTx Delay: 15 bits Hold Time: Off DSCP: 0 RxtoTx Delay: 0 ms
	**Configure Protocols -> Configure Raw Socket -> Configure Protocol** Port: 2 Pack Char: Off Pack Timer: 10 ms Pack Size: Maximum Flow Control: None: XON/XOFF: Response Time: Off Response Dest: All: Last requester: Transport: TCP: UDP: Call Dir Both Max Conns: 1 Loc Port: 50002 Rem Port: 50003 IP Address: 192.168.0.65 Link Stats: Disabled: Enabled:
	Configure Protocols -> Configure Raw Socket -> Configure Remote Host IP Address: 192.168.0.65 IP Port: 50003 Port(s): All

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