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SIPROTEC

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

HV Bay 5 HV Bay 6 HV Ba

77,70 A 0,00 A

0,00 TP

MV Bay 5

MV Bay 6

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Station Overview

HV Bay 4

HVBay1 HV Bay 2

MV Bay 1 MV Bay 2

5511 KV

1925 A 65.89 A 77 T T

MV Bay 3

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MV Bay 4

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

SIPROTEC 3/4/Compact Application

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

APN-062, Edition 1

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

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 <u>modem</u>) and the new configuration (RUGGEDCOM) in parallel with Windows 7.
Hint
It is generally possible to operate the old configuration (ipEtherConfigTool + serial <u>hub</u>) 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

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- 7)	XV5655- Ethernet Serial Hub							
+	+ Catalogs							
+	+ Engineering Information							
E	Firmware an	rers						
	Type & Size	Language	Title	Status				
	↓ нти <100 KB	de	Download von Firmware, Protokoll- und Geräte-Treibern für 7XV5655	7/10/2017				
	↓ нтн <100 KB	en	Link to Firmware, Protocol and Device Drivers for $7\times\!$	7/10/2017				
	Device Drivers							
	▼Firmware V14.4							
	Type & Size	Language	Title 🛦	Status				
	↓ [] <100 KB	de	FW SieHub 14.4 Liesmich	5/30/2012				
	↓ D	en	FW SieHub 14.4 Readme	5/30/2012				
	< TOU ND							

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

The firmware upload is performed using the ipEther Configtool V15:

ipEther Config V15.6 (16.08.2012)

File	Edit	Help				
-ipEth	ipEther devices found in the local networ					
Name	е		IP Address			
PAS	Modem		172 17 4 176			
	Set IP Address					
	Set Name					
Change Password						
	Upload Firmware					



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.

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Connection type	Connection properties	
C Offline	PC interface:	COM3
C USB	Device interface:	Back
C Modem connection	📕 🗖 Use channel switch	
C PROFIBUS FMS		
C Ethernet		
C RS485		
	Reset passwords	
	🗖 🗖 Reset all passwords	
	During device initialization, offline project are reset to t	, all passwords in the device and in the the default settings.
		1

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



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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.a spx)

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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:

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

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Figure 2: Virtual COM Port RS232/485 with RMC30



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

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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

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1.4.1 "Extended COM Port" UDP Configuration

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

RMC30 (office)		RS910 (substati	RS910 (substation)			
Serial Protocol	s -> Configure Serial Ports	Serial Protocols -> Configure Serial Ports				
<u>Serial F</u>	<u>'orts</u>					
Port:	2	Port [.]	1			
Name:	Port 2	Name:	Port 1			
Protocol	RawSocket 🗸	Protocol	RawSocket -			
Type:	RS232 [.] •	Type:	FIBER:			
ForceHD:	On: O Off: O	ForceHD:	On: ◎ Off: ●			
Baud:	19200	Baud:	19200			
Data Bits:	7. 0 8. 0	Data Bits:	7: O 8: O			
Stop	1 •	Stop	1 -			
Parity	None 🔻	Parity	None 👻			
Turnaround	0 ms	Turnaround:	0 ms			
Hold Time:	0"	PostTx Delay:	15 bits			
HOID TIME.	Off	Hold Time:	Off			
DSCP:	0	DSCP:	0			
RxtoTx Delay:	0 ms	RxtoTx Delay:	0 ms			
Configure Prot Configure Prot	ocols -> Configure Raw Socket -> ocol	Configure Protocols -> Configure Raw Socket -> Configure Protocol				
Port:	2	Port [.]	1			
Pack Char	2 Off	Pack Char	- Off			
Pack Timer	10 ms	Pack Timer	10 ms			
Pack Size	Maximum	Pack Size:	Maximum			
Flow Control		Flow Control:	None: XON/XOFF: O			
Response Time:	Off	Response Time:	Off			
Response Dest:	All: Last requester:	Response Dest:	All: Last requester:			
Transport:	TCP: O UDP: O	Transport:	TCP: O UDP: O			
Call Dir	Out 👻	Call Dir	In 👻			
Max Conns:	1	Max Conns:	1			
Loc Port:	50000	Loc Port:	50001			
Rem Port:	50001	Rem Port:	50000			
IP Address:	192.168.0.2	IP Address:	192.168.0.1			
Link Stats:	Disabled: O Enabled: O	Link Stats:	Disabled: Circle Enabled: Circle Enabl			
Confine Doi		Cardina Dari				
Configure Rem	ocois -> Configure Raw Socket -> lote Host	Configure Prot	ocols -> Configure Raw Socket -> lote Host			
IP Address:	192.168.0.2	IP Address:	192.168.0.1			
IP Port:	50001	IP Port:	50000			
Port(s):	All	Port(s):	All			

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RuggedDirector	RS910 (substation)		
Device / Add	Serial Protocols -> Configure Serial Ports		
Add Virtual Port 33 Help Serial Server Infomation Server Model Number of ports RS910 2 IP Address:Port 192.168.0.2 Server Name RS910 #2 Transport Method Local Port TCP UDP 5000 Virtual Serial Port COM5 Add	Port:2Name:Port 2ProtocolRawSocketType:FIBER: ●ForceHD:On: ● Off: ●Baud:19200Data Bits:7: ● 8: ●Stop1 ▼ParityNone ▼Turnaround:0 msPostTx Delay:15 bitsHold Time:OffDSCP:0RxtoTx Delay:0 ms		
Server Name Virtual Port Server IP: Port Connection Status RS910 #1 COM11 192.168.0.2:50001 UDP:Started	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: Loc Port:		

1.4.2 "Virtual COM Port" UDP Configuration

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

RMC30 (office)		RS910 (substation)			
Serial Protocols	-> Configure Serial Ports	Serial Protocols -> Configure Serial Ports			
Serial Po	<u>rts</u>				
		Port:	1		
Port [.]	2	Name:	Port 1		
Name ⁻	Port 2	Protocol	RawSocket -		
Protocol	RawSocket -	Type:	FIBER:		
Type:	RS232:	ForceHD:	On: Off: Off:		
ForceHD:	On: Off: O	Baud:	19200		
Baud:	19200	Data Bits:	7: 💿 8: 💿		
Data Bits:	7: 0 8: 0	Stop	1 •		
Stop	1 •	Parity	None 🔻		
Parity	None 🔻	Turnaround:	0 ms		
Turnaround:	0 ms	PostTx Delay:	15 bits		
Hold Time:	Off	Hold Time:	Off		
DSCP:	0	DSCP:	0		
RxtoTx Delay:	0 ms	RxtoTx Delay:	0 ms		
Configure Proto Configure Proto	ocols -> Configure Raw Socket -> ocol	Configure Prot Configure Prot	ocols -> Configure Raw Socket -> ocol		
Port:	1	Port:	2		
Pack Char:	Off	Pack Char:	Off		
Pack Timer:	10 ms	Pack Timer:	10 ms		
Pack Size	Maximum	Pack Size	Maximum		
Flow Control		Flow Control			
Response Time	Off	Response Time			
Response Dest	All: All:	Response Dest	··· All: I ast requester:		
Transport:		Transport:	TCP' O UDP' O		
Call Dir	Both -	Call Dir	Both -		
Max Conns:	1	Max Conns:	1		
Loc Port:	50001	Loc Port	50000		
Rem Port:	50000	Rem Port	50001		
IP Address	192,168,0,1	IP Address	192 168 0 2		
Link Stats:	Disabled: C Enabled: O	Link State:	Disabled: C Enabled: O		
		Ennk Stats:			
Configure Proto Configure Remo	ocols -> Configure Raw Socket -> ote Host	Contigure Prot Configure Rem	ocois -> Configure Raw Socket -> 10te Host		
	2 169 0 2		2 168 0 1		
ID Port: 50	2.100.0.2	IP Audress. 19	2.100.0.1		
Dert(a):	501				
POR(S): All		Port(S): All			

1.4.3 "Extended COM Port" TCP Configuration

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RuggedDirector	RS910 (substation)		
Device / Add	Serial Protocols	-> Configure Serial Ports	
Add Virtual Port Help Serial Server Infomation Server Model Number of ports R5910 IP Address:Port 192.168.0.2 Server Name R5910 #1 Transport Method TCP UDP Virtual Serial Port COM11 Add Cancel	Port: Name: Protocol Type: ForceHD: Baud: Data Bits: Stop Parity Turnaround: PostTx Delay: Hold Time: DSCP:	2 Port 2 RawSocket ▼ FIBER: ● On: Off: ● 19200 7: ● 8: ● 1 ▼ None ▼ 0 ms 15 bits Off 0	
	RxtoTx Delay:	0 ms	
RUGGEDCOM DIRECTOR File View Device ROS Trace Help SIEMENS Server Name Virtual Port Server IP: Port Connection Status RS910 #1 COM11 192.168.0.2:50002 TCP:Connected	Configure Proto Configure Proto Port: Pack Char: Pack Char: Pack Size: Flow Control: Response Time: Response Dest: Transport: Call Dir Max Conns: Loc Port: Rem Port: IP Address: Link Stats:	cols -> Configure Raw Socket -> col 2 Off 10 ms Maximum None: • XON/XOFF: • Off All: • Last requester: • TCP: • UDP: • Both • 1 50002 50003 192.168.0.65 Disabled: • Enabled: •	
	Configure Proto Configure Remo IP Address: 19 IP Port: 50 Port(s): Al	cols -> Configure Raw Socket -> ote Host 92.168.0.65 1003	

1.4.4 "Virtual COM Port" TCP Configuration

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