Remote control SIPROTEC 4 with EN100 over ISDN-Modem-Router

Data transmission takes place via an RDT connection of an ISDN modem with an ISDN router and SIPROTEC 4 devices with EN100-interface.

Operation concept SIPROTEC 4 with Ethernet module EN100

The figure below displays a typical hardware structure for V4-protection devices with Ethernetinterface in the installation. The protection devices with electrical EN100-interface are connected to the switches via patch cables. The devices with optical EN100 module are looped into the optical double ring in the form of a ring together with the switches.

The switches together with the protection devices constitute a local subnet (LAN) with its own address range.

The ISDN modem router which enables the remote connection via an ISDN dial-up line to the control centre, is also connected to the LAN with a patch cable. As a rule, the router is assigned the first IP address, which is then the standard gateway for all users.

The connection is established by the control centre with an RDT connection in Windows XP with an ISDN modem. The DIGSI 4 protection devices can then be operated. To connect various substations, an RDT dial-up connection is required for each substation.



For testing and diagnostic services, or on-site operation of the protection devices, a laptop PC can additionally be connected to the subnet, using a patch cable. Detailed application examples regarding the construction of a local subnet can be found in the EN100 manual under

<u>www.SIPROTEC.com</u> / Prot. Devices / General Information / Communication.



Introduction

The possibilities of remote control of SIPROTEC devices are manifold. Help regarding the selection of "Your" remote control concept can be found in the document "Notes" in the Internet under <u>www.SIPROTEC.com</u> / Applications / Remote control

This document describes the procedure for secure remote control of SIPROTEC 4 devices with DIGSI 4 via the modems INSYS Pocket Profi ISDN (table-top device in the office) and INSYS ISDN-router (rail mounted ISDN-Router in the substation) in detail.

The application described here was successfully tested with Windows XP SP2 and DIGSI 4.81 as well as 4.82. The following modems were used during the tests: Office modem: INSYS Pocket Profi ISDN (desktop model with plug-in power adapter) Substation modem: INSYS ISDN-Router (rail mounted device with external wide range power adapter).

The modem drivers **TA+POX (PPP,V.120,X.25,V.110)** used here for the INSYS Pocket Profi ISDN modem are located on the supplied CD or may be found in the Internet under:

www.SIPROTEC.com / Accessories / 7XV5820 / ...

The safety concept

The safety concept regarding interference on the entire transmission line, as well as the risk of unauthorised access to the protection devices are taken regard of with correspondingly high priority measures.

Transmission security is ensured by an efficient error correction procedure along the transmission line. The settings of the modems described here take cognisance of this concept.

The substation with SIPROTEC 4 devices is protected from unauthorised access by an RDT connection with login-name, password and restricted call acceptance from specified telephone numbers.

The most important general rules

- For remote control under Windows XP Prof. only use DIGSI 4.80 + SP2, DIGSI 4.81 + HF1, DIGSI 4.82 or newer DIGSI-versions.
- Always use the modem drivers referred to in the application manuals. These may be downloaded from the Download-Area under <u>www.SIPROTEC.com</u>.
- Each protection device in the substation <u>must</u> have a distinct IP address.





Creating a project and substation in DIGSI 4

📓 DIGSI Manager - Region L	London			
<u>File E</u> dit <u>I</u> nsert <u>D</u> evice <u>V</u> iew	<u>O</u> ptions <u>W</u> indow <u>H</u> elp			
🗅 🗃 X 🖻 🛍 🖺 🔁	🕞 🏥 🏥 📉 < No Filter > 💽 🏹 🖷 🗖 📢			
🖹 Region London D:\DIG	GSI 4 Anlagen (D4proj)\D4proj\Region_L			
Begion London Substation East Feeder 1	🔁 Substation East 🛛 Substation West 🗐 Phone Book 🛛 🛞 Modems	3		
i ⊕ ·· 📄 Feeder 2 i ⊕ ·· 📄 Feeder 3	📓 DIGSI Manager - Region London			
🖻 💼 Substation West	<u> Eile E</u> dit Insert <u>D</u> evice <u>V</u> iew <u>O</u> ptions <u>W</u> indow <u>H</u> elp			
Feeder 1	🗋 😂 👗 🛍 💼 🕒 🎦 🏭 🏥 🔁 🛛 < No Filter > 💽 🏹 🖷 🚍 🗍			
teeder 3	🖹 Region London D:\DIGSI 4 Anlagen (D4proj)\D4proj\Region_L			
	Region London Substation East Feeder 1 Feeder 2 Feeder 3 Feeder 1 Feeder 3			
Press F1 to get Help.				

The new project in DIGSI 4 with substation files, feeder files and protection devices may be dearchived from an archived substation or be newly created. The procedure is described in the **"SIPROTEC System Manual**".

Before the necessary settings for remote control are done, the local connection to all protection devices via the central interface (e.g. at the LAN connection of the ISDN router) must be tested (see Figure 1).

Please also note the detailed application examples for the structure of a local subnet in the EN100 manual under:

<u>www.SIPROTEC.com</u> / Prot. Devices / General Information / Communication.

Note:

- All devices require an EN100-system interface
- Each device must have a unique IP-address.



Setting the protection devices

The Ethernet-system interfaces of the SIPROTEC-protection devices must all be assigned with different

IP-addresses. The IP-addresses of the PC's, the routers and other devices in the network may not be



assigned again.

For the purpose of setting the Ethernet-system interface (EN100), a connection via the front interface of the relevant device is created with DIGSI 4. Thereafter, **"Object Properties…**" is opened with the right mouse button.

In the window **"Properties"** the IP addresses of the protection devices can be assigned under **"Communication parameters"**.

The "**IP address**" must be allocated in the same subnet range as the router. (here 192.168.20.xxx).

The "**Subnet mask**" 255.255.255.0 allows for the allocation of addresses to 254 devices (incl. PC, Router, etc.).

The IP address of the ISDN router is always used as the "**Standard gateway**"

All other entries should not be changed.

net]		
192 . 168 .	20 . 30	Important: There is no consistency check here fo
255 . 255 .	255 . 0	manually entered settings!
192 . 168 .	20.1	
50 000		
	192 168 255 255 192 168 50 000	192 168 20 30 255 255 255 0 192 168 20 1 50 000

Close the window with "OK" and save the settings in DIGSI and the protection devices.



Installing the modem driver

If the office modem "INSYS Pocket ISDN TA" was already connected prior to the re-start of the computer, the modem is recognised by Windows XP as a PnP modem during the start, and the installation process is started automatically.

The suggested driver **TA+POX X.75 (PnP)** is not needed for this application.

Once the driver has been installed this irritating installation suggestion will not appear in future.



The correct modem driver TA+POX (PPP,V.120,X.25,V.110) for this application is included with the modem on a CD, or may be downloaded from the "SIPROTEC-Download-Area". For the purpose of installation the INSYS-driver-CD must be inserted into the CD/DVD-drive of the computer, alternatively the driver must be available from the hard-drive or another storage medium.

The driver, unzipped to C:\Siemens\... is then installed from the SIPROTEC-Download-Area.

In the **"Control Panel**" the **"Phone and Modem Options**" are opened.

With **"Add...**" a new modem driver is installed in Windows.

one and Mo	odem Op	otions			L
aling Rules	Modems	Advanced			
The	e following	<u>m</u> odems are	installed:		
Modem				Attached To	
🧇 Lucent T	echnologi	ies Soft Mode	m AMR	COM3	
		Add	<u><u> </u></u>	emove Pro	opertie



Add Hardware Wizard The modem must be selected manually. Install New Modem Do you want Windows to detect your modem? To do this put a check at Windows will now try to detect your modern. Before "Don't detect my modem; continuing, you should: I will select it from a list." 1. If the modem is attached to your computer, make sure it is turned on. 2. Quit any programs that may be using the modem. Click Next when you are ready to continue. Don't detect my modem; I will select it from a list. "Next >" < Back Next > Cancel Add Hardware Wizard Install New Modem Install the new modem from Select the manufacturer and model of your modern. If your modern is not listed, or if you have an installation disk, click Have Disk. Manufacturer Models ~ (Standard Modern Types) Communications cable between two computers Verallel cable between two computers 💱 Standard 🛛 300 bps Modem 💱 Standard 1200 bps Modem v "Have Disk…" March. 📑 This driver is digitally signed. Have Disk. Tell me why driver signing is important "Next >" Next > < Back Cancel

With

"Browse…"

search the relevant drive for the driver (e.g. C:\Siemens\INSYS-ISDN).







The modem driver is located in the following path e.g. **C:\Siemens\INSYS-ISDN**.

Mark the driver file **mdmstpox.inf** and



"Open"

Continue with "OK"



Add Hardware Wizard
Install New Modem
Select the manufacturer and model of your modem. If your modem is not listed, or if you have an installation disk, click Have Disk.
Models 🛆
TA+POX (PPP, V.120, X.25, V.110) TA+POX V.110
This driver is not digitally signed! <u>I ave Disk I ave Disk <u>I ave Disk </u></u>
< <u>B</u> ack <u>N</u> ext > Cancel

STEMENS siemens-russia.com

Check the modem driver TA+POX (PPP,V.120,X.25,V.110) and

"Next >"

Select the serial port e.g.,

"COM1"

which will later be connected with the modem.

"Next >"







SIEMENS siemens-russia.com

This Windows XP warning may be ignored. The driver was tested with Windows XP.

Continue with "Continue Anyway"

The installation is completed with **"Finish"**

Setting the modem driver

These settings of the system modem driver are used during each dial-up procedure for initialisation of the modem driver and must be done exactly as described.

In the overview of the installed modem drives, the presently installed modem driver is shown.

With "**Properties**" the settings of the marked modem driver can be controlled and changed.

ialina Dulas Modems Advanced	(L)
The following moderns are installed:	
Modem	Attached To
🐲 Lucent Technologies Soft Modem AMR	COM3
🍣 TA+POX (PPP, V.120, X.25, V.110)	COM1
A <u>d</u> d <u>R</u> ei	move <u>P</u> roperties

TA+POX (PPP, V.120, X.25, V.110) Properties	? 🗙
General Modem Diagnostics ISDN Advanced Driver	
Port: COM1	
Speaker volume	
Low High	
Maximum Port Speed	
115200	
Dial Control	
Wait for dial tone before dialing	
ОК	Cancel



SIEMENS siemens-russia.com

The pre-setting **"Maximum Port Speed"** of **115200** is not changed.

In the pull-down window **"ISDN**" the **"European ISDN** (DSS1)" is selected under **"Switch Type**".

Under **"First Number**" the own telephone number is entered. This number is later interrogated by the substation router during "selective call-acceptance".

Continue to the pull-down menu "Advanced"

Settings in the pull-down menu "General":

The "Call preferences" do not have to be changed.

Do not change the "Data Connection Preferences"

Port speed Data Protocol Compression Flow control 115200 PPP (64K) Hardware

Settings	in	the	window	"Advance	d" :
----------	----	-----	--------	----------	-------------

Do not change the	e "Hardware Settings"
Data bits	8
Parity	None
Stop bits	1
Modulation	

Close all windows with "OK".

"Restart" the PC.

ГА+РОХ	(PPP , V.120 , X.25 , V.110) Default ? 🔀
General	Advanced
Call pr	eferences
	2isconnect a call if idle for more than mins
	Cancel the call if not connected within 60 secs
- Data I	Connection Preferences Port speed: 115200
[D <u>a</u> ta Protocol: PPP (64K) 💉
	Comp <u>r</u> ession:
	Elow control: Hardware
	OK Cancel

TA+POX (PPP, V.120), X.25, V.110) Defa	ult ? 🔀
General Advanced		
Hardware Settings		
<u>D</u> ata bits:	8	~
Parity:	None	~
<u>S</u> top bits:	1	~
<u>M</u> odulation:		~
	ОК	Cancel





Setting the Ethernet-interface of the PC

To set the ISDN router via it's LAN interface, a PC/Notebook with Ethernet interface must be connected. Prior to this, the interface must be configured accordingly.

Connect the PC with a patch-cable to the ISDN router and open the window **"Local Area Connection Status"**.

Then open the next window with the button "Properties".

All elements in the window **"Local Area Connection Properties**"

remain checked.

Under "General" the element "Internet Protokoll (TCP/IP)" is marked and the button "Properties" is selected.

If **"Show icon in notification area when connected"** is checked, an existing connection is displayed, and the status window may be opened at any time.

Most networks obtain the IP address automatically from the router or server.

To set the ISDN router, (Default-IP 192.168.1.1) the IP address of the PC must be located in the same network segment.

For this purpose

IP address:	192.168.1.2	(IP-PC)
Subnet mask:	255.255.255.0	(Range 1-254)
Default gateway:	192.168.1.1	(IP-Router)
is set under "Use th	e following IP add	ress:".

Save everything with "OK" and close.

🔟 Local Area Connection Status	? 🗙				
General Support					
Connection					
Status: Connec	ted				
Duration: 00:01	:26				
Speed: 100.0 Mt	ops				
Activity					
Sent 🔂 🕂 Beceiv	her				
	eu				
Packets: 21	2				
Properties Disable					
Local Area Connection Properties	? 🗙				
General Authentication Advanced					
Lonnect using:	_				
	·				
This connection uses the following items:					
Elient for Microsoft Networks Elie and Rinter Charing for Microsoft Networks					
 Image: A set of the set of the					
Internet Protocol (TCP/IP)					
	Description				
Transmission Control Protocol/Internet Protocol. The default					
wide area network protocol that provides communication across diverse interconnected networks.					
Show icon in notification area when connected					
Votify me when this connection has limited or no connective	rity				
	ancel				
Internet Protocol (TCP/IP) Properties	? 🗙				
General					
You can get IP settings assigned automaticallu if your network support	orts				
this capability. Otherwise, you need to ask your network administrato the appropriate IP settings.	r for				
Ubtain an IP address automatically O Use the following IP address:					
<u>IP address:</u> 192.168.1.2					
Subnet mask: 255 . 255 . 255 . 0					
Default gateway: 192 . 168 . 1 . 1					
O Obtain DNS server address automaticallu					
• Use the following DNS server addresses:					
Preferred DNS server:					
Alternate DNS server:					
Advanc	ed				
ОК	Cancel				





Setting the ISDN-Router with the Default-IP-address

The ISDN-router is set with an HTML-menu, which is opened by entering the default IP-address 192.168.1.1 in the Internet-Explorer or another Browser.

about:blank - Microsoft Internet Explorer	
File Edit View Favorites Tools Help	
Search 🛠 Favorites 🚱 🔝 🔜	11 48
Address 🗃 http://192.168.1.1	So Links 🎽
Connect to 192,168.1.1	
e opening page nucp.//192.100.1.1/	

During the first log-in, the user name "**insys**" and the password "**moros**" must be entered.

The user name and the password should be changed as described hereunder.

After successful log-in the main menu **"Home**" is displayed Here, the settings can be done in blocks and saved.





Basic Settings

Under **"Authentication**" the user name and password for log-in purposes can be altered and saved.

Without valid log-in, no security relevant settings can be changed, which increases protection against unauthorised access.

Save with "OK".

Under **"Ethernet Addresses**" the IP-address and subnet mask of the ISDN-Routers may be changed, in other words, it can be adapted to the subnet of the substation. (e.g. **192.168.20.1**).

The worldwide unique MAC- address is only displayed and cannot be changed.

Save with "OK".

Under "**DNS**" no entries are required.

To further set the ISDN-router, the browser window must be closed and the IP address of the PC must be adapted to the new IP address of the router.

IP address:	192.168.20.2
Subnet mask:	255.255.255.0
Default gateway:	192.168.20.1

Save with "OK" and close.

(IP-PC) (range 1-254) (IP-Router)



eral			
ou can get IP settings assigned is capability. Otherwise, you ne e appropriate IP settings.	automatically if your network supports ed to ask your network administrator for		
O Dbtain an IP address automatically			
Use the following IP address	s:		
IP address:	192.168.20.2		
S <u>u</u> bnet mask:	255 . 255 . 255 . 0		
Default gateway:	192.168.20.1		
○ Obtain DNS server address	automatically		
Use the following DNS serv	er addresses:		
Preferred DNS server:			
Alternate DNS server:			
	Advanced		
	OK Cance		





Setting the ISDN-router with user IP-address

The ISDN-router can now again be set in the HTML menu, which is opened after entry of the new user IP address 192.168.20.1, in the Internet-Explorer or other browser.



During log-in new altered user name and the corresponding password must be entered.

After successful log-in the main menu **"Home"** is reached.

Further setting options can be selected from the navigation list on the left.

In the window **"Basic Settings**" the existing settings can again be checked.

In the window **"DHCP**" both settings must remain on **"Stop**".





In the window **"ISDN**" the <u>own</u> telephone number of the ISDN router connection is entered under **"MSN:**".

Under **"Only allow these caller numbers:** ..." 5 telephone numbers can be entered, which receive incoming calls.

This setting ensures high security against unauthorised access to the ISDN-modem-router.

In the window "**Dial-In**" all settings pertaining to call pick-up and connection are done.

Initially, the **"Activate Dial-In"** must be set to **"Yes"**.

Under **"Idle Time** …" the time, after which the modem interrupts the connection, when no further data transfer takes place, may be set in seconds. The basic setting of 60 seconds should maybe be increased.

To increase access security, the **"Authenticate Dial-In"** should be set to **"Yes"**.

Under **"Authentication for Dial-In"** various rights of access for different users may be assigned, e.g. **"Username:"** *siemens* and the **"Password:"** *geheim* for the first user.

NOTE!

Mind higher and lower case writing!

These access data will later be used for connection of the office modem.

Power Transmission and Distribution Energy Automation





Power Transmission and Distribution Energy Automation

The **"Local IP-Address of PPP-Connection"** and the **"Remote IP-Address"** are used for the temporary connection. They can, do however not need to be changed.

A "Gateway for Dial-In-Connections" can, does however not need to be entered

Confirm all settings with "OK".

The windows **"Dial-Out**", **"Inputs"** and **"Outputs**" are not described here, as they do not contain any relevant settings for this application.

In the window **"System**" the system time can be set under **"Time**" with **"Set Systemtime to:**" and under **"Timezone**" the time zone may be entered.

Save the settings with "OK".

In the window **"System**", no further settings are required under **"Reset**" and **"Update"**.

Under "**System Data**" (no longer visible at the bottom in the picture on the right) the current device data is displayed.

With the button **"Help**" a new window is opened and general help is offered for every page.

When all settings have been saved with **"OK**", the ISDN router has been set correctly and the explorer window can be closed.









Setting up a Dial-up connection

The ISDN-connection between the office modem INSYS Pocket ISDN, and the ISDN-modem router MoRoS in the substation is established via a Dial-up connection. Besides the telephone number, the user name and password are also defined here.

S Network Connections				×
<u>File E</u> dit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools Adv	a <u>n</u> ced <u>H</u> elp			1
G Back 🝷 🕥 🕤 🏂 🔎 Search	Folders	× ♥		
Address 💊 Network Connections			💌 🄁 G	0
Name	Туре	Status	Device Name Phon	ie #
LAN or High-Speed Internet				
Local Area Connection	LAN or High-Speed Internet LAN or High-Speed Internet	Connected, Firewalled Connected, Firewalled	1394 Net Adapter Intel 8255x-based PCI Etherne	
New Connection Wizard	Wizard Wizard			
<	III			>

In the Windows **"Control Panel**" of the office PC, the file **"Network Connenctions**" is opened and subsequently the **"New Connenction Wizard**" is started.



Continue with "Next >".





In this window the **"Network Connenction Type"** is defined.

A "Connect to the network at my workplace" is selected.

"Next >"

In this window the **"Network connection**" is defined.

A "Dial-up connection" is selected.

"Next >"

The correct device (office modem) is selected with a check.

Here this is the "Modem – TA+POX (PPP, V.120, X.25, V.110) (COM1)".

"Next >"







Under **"Company Name**" an available and distinct Connection name is entered.

As this name is also allocated to the Shortcut on the Desktop , the corresponding Substation name can be entered, e.g. **"Substation West"**.

"Next >"

Under **"Phone number**" the <u>complete</u> telephone number of the substation modem is entered.

Note! All dial-up number and prefixes (e.g. "0") must be entered.

"Next >"

Here a **"Add a shortcut to this connection to my desktop**" can be checked. This simplifies the selection of a connection to a certain substation later.

The connection is saved with **"Finish"** and the process is finished.



New Connection Wizard					
Phone Wł	Number to Dial nat is the phone numbe	er you will use to make this connection?			
Type the phone number below. Phone number: 4399637 You might need to include a "1" or the area code, or both. If you are not sure you need the extra numbers, dial the phone number on your telephone. If you hear a modem sound, the number dialed is correct.					
	< <u>B</u> ack <u>N</u> ext > Cancel				
New Con	nection Wizard				
New Connection Wizard Image: Second					
		< <u>B</u> ack Finish Cancel			



Setting the Dial-up connection

After the set-up of the Dial-up connection has been finalised, the window for the connection is immediately opened. However, before the Dial-up connection can be started, a few settings must be done.

In the window **"Connect Substation West**" the **"User name:**" and the **"Password:**" must be entered to establish a connection. These were previously stored in the ISDN router which is to be called.

NOTE! Mind the upper and lower case!

By checking **"Save this user name and password for the following users:**" the user name and password could be stored for further calls.

<u>NOTE Storing this information constitutes a security</u> risk, and is not recommended.

Under **"Dial**" the telephone number has already been entered. Here the telephone number can again be checked and changed if needed.

Continue with "Properties".

Connect Subs	tation West ?	×
C		
<u>U</u> ser name: <u>P</u> assword:	siemens	
● Me o <u>nly</u> ● Me o <u>nly</u> ● Anyone (ser name and password for the following users: who uses this computer	_
Djal:	4399637]
<u>D</u> ial	Cancel Properties Help	

In the window "Substation West Properties" the	
"Modem – TA+POX (PPP, V.120," is checked as	3
the <u>only modem</u> .	

The check at **"All devices call the same numbers"** should be removed, as this is not common in practice.

Under "**Phone number for** "**TA+POX (PPP,** …" the telephone number can again be corrected with setting and use of the dialling rules.

"Show icon in notification area when connected" is useful here.

🕨 Substation West Properties			
General Options Security Networking Advanced			
Connect using:			
Modem - TA+POX (PPP, V.120, X.25, V.110) (COM1)			
All devices call the same numbers Configure			
Phone number for TA+P0X (PPP, V.120, X.25, V.110)			
Ar <u>e</u> a code: <u>P</u> hone number:			
4399637 Alternates			
Country/region code:			
✓			
Use dialing rules Dialing Bules			
Show icon in notification area when connected			
OK Cancel			



Under "**Options**" the pre-settings can be retained.

To prevent a connection inadvertently remaining unterminated, a sensible value (eg. 5-10 minutes) can be entered into the pull-down window **"Idle time before hanging up"**

Note:

This value should not be too small, as the connection could later be automatically terminated, during a change from one protection device to another.

Under **"Security**" the security options can be increased. In this application the pre-settings were retained.

Subst	ation We	est Prop	erties		? 🔀
General	Options	Security	Networking	Advanced	
Cialin ♥ <u>₽</u> ■ Ir ♥ F • Redia <u>I</u> ime Idle I	Dialing options				
Multiple devices Dial all devices X.25 OK					

ubstation We	st Properties	?	
neral Options	Security Networking Advanced	Ы	
Security options			
Typical (reconstruction)	mmended settings)		
Validate my	dentity as follows:	~	
 Automatically use my Windows logon name and password (and domain if any) Require data encryption (disconnect if none) 			
Advanced (custom settings) Using these settings requires a knowledge of security protocols.			
nteractive logor) and scripting al window		
<u> </u>		~	
	<u>E</u> dit	(rowse)	





Under

remains selected.

Under **"Networking**" the **"Type of dial-up server I am calling**" is set to **PPP: Windows 95/98/NT4/2000, Internet**.

The selection under **"This connection uses the following items:**" can remain as pre-set (see Figure).

If the element **"Internet Protocol (TCP/IP)**" is selected, the following settings must be made under **"Properties"**.

"Internet Protocol (TCP/IP) Properties"

"Obtain an IP address automatically"

🖢 Substation West Properties 🛛 🔹 🔀			
General Options Security Networking Advanced			
Typ <u>e</u> of dial-up server I am calling:			
PPP: Windows 95/98/NT4/2000, Internet			
<u>S</u> ettings			
This connection uses the following items:			
 ✓ Treat Transmission (TCP/IP) ✓ Os Packet Scheduler → File and Printer Sharing for Microsoft Networks ✓ S Client for Microsoft Networks 			
I <u>n</u> stall <u>U</u> ninstall <u>Properties</u>			
Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.			
OK Cancel			

Internet Protocol (TCP/IP) Prope	rties 🛛 🛛 🔀
General	
You can get IP settings assigned autor supports this capability. Otherwise, you administrator for the appropriate IP setti	natically if your network need to ask your network ings.
Obtain an IP address automatical	y I
OUse the following IP address: —	
IP address:	
⊙ D <u>b</u> tain DNS server address auton	natically dresses:
Preferred DNS server:	
Alternate DNS server:	
	Ad <u>v</u> anced
	OK Cancel





In the window **"Advanced**" settings regarding security and common use of an Internet connection can be made again.

The settings were not changed.

Close all windows with "OK".

🖢 Substation West Properties 🛛 ? 🔀					
General Options Security Networking Advanced Windows Firewall Help protect my computer and network by limiting or preventing access to this computer from the Internet					
Internet Connection Sharing					
Allow other <u>n</u> etwork users to connect through this computer's Internet connection					
 Establish a dial-up connection whenever a computer on my network attempts to access the Internet 					
Allow other network users to control or disable the shared Internet connection					
Learn more about <u>Internet Connection</u> Settings					
If you're not sure how to set these properties, use the <u>Network Setup Wizard</u> instead.					
OK Cancel					

Connect Substation West						
P						
<u>U</u> ser name: Password:	siemens					
Save this user name and password for the following users: Me only Anyone who uses this computer						
Djal:	4399637	~				
Dial	Cancel Properties He	lp				

STEMENS siemens-russia.com

"OK" only the connection window remains visible.

Once all setting windows have been closed with

As all required settings have now been done and saved, the dial-up of the ISDN router in the substation can be started with the button "**Dial**".



Establishing a Dial-up connection to the ISDN-router

Before remote operation to the protection device can be established, the corresponding Dial-up connection to the ISDN router must be set up.

For a better overview, all

Dial-up connections can be linked to the desktop (see Figure). To do this, they are simply pulled with the mouse from the window **"Control Panel"** - **"Network Connections"** to the **"Desktop"**.



The connection is now established with telephone number, user name and password.

Once the connection stands, an additional icon is

displayed in the status line,

and a corresponding message issued.

Connecting Substation West				
3	Dialing 4399637			
	Cancel			

Connecting Substation West				
3	Verifying username and password			
	Cancel			
1 and				
Sp.	Substation West is now connected 🙁			
	DE 2000 4			



HELP_DIG48_SIP4_INSYS_MOROS_ISDN_EN100_EN1.DOC Seite

Establishing a connection to the protection device

After all devices have been set correctly, and the Dial-up connection in the substation is active, a connection to the protection device can be established.

🔄 DIGSI Manager - Region London			
File Edit Insert Device View Options Windo	w Help		
🗋 😅 👗 🛍 💼 🕒 📴 🛗 🛅	< No Filter > 💽 🏹		
🞒 Region London D: WIGSI 4 Anlagen (I	D4proj)\D4proj\Region_L		
E- 🎒 Region London	/4.2 👔 7SJ633 V4.6		
Substation West	Open device		
Feeder 2 Feeder 3	Connection type	Connection properties	
	C <u>O</u> ffline	No settings required for this connection type.	
	C <u>D</u> irect		
	C USB		
	○ <u>M</u> odem connection		
	C PROFIBUS FMS		
P	Ethernet		
		Cancel He	
Press F1 to get Help.			

In the window **"Open device**""Ethernet" is selected under **"Connection type**" and confirmed with **"OK**".

For the set-up and termination of a connection to the protection device, the following order must be followed:

- 1. Open the substation with the protection devices that are to be operated in DIGSI 4.
- 2. Open the Dial-up connection via the corresponding desktop icon.
- 3. Enter user name and password and dial.
- Open the first protection device and establish the connection with the connection type "Ethernet".
 <u>NOTE:</u> This must be done before the automatic termination by the Dial-up connection or the router. If necessary increase the Idle time settings.

While the protection device is online, the connection is not automatically terminated, as DIGSI 4 constantly transmits data for the purposes of line monitoring.

5. After closing the first protection device, immediately dial up the second protection device. <u>NOTE: See the note under number 4.</u>

After closing the last protection device, terminate the Dial-up connection manually! DIGSI 4 does not close this data remote connection!

Good luck!

