

OPERATIONS MANUAL

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Remote Drive

Drives Remote Control via Internet through a PC

Software Version 2.01
UPDATE 27/02/06
R.06 UK

English

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1 DEVICE OVERVIEW

1.1 GENERAL

Remote Drive is a software application running on Windows™ operating system. It is capable of managing all Elettronica Santerno's devices dialoguing with MODBUS protocol with serial standards RS232, RS422 or RS485.

The great adaptability of Remote Drive allows you to rapidly and efficiently set and store to file the whole set of the device parameters, its remote control and the possible upgrading of its firmware.

The application is also capable of acquiring and graphically represent all quantities detected by the device. The quantities detected will be then saved to file.

This manual refers to Remote Drive software version 2.01, allowing to control the following devices:

device	SW version	identifier
ASAC0 / ASAC1		AC000
ASA	2 / 3 / 4 / 5	AS200
DBU	35.04	DB000
DCREG	3.07 / 3.08 / 3.09 / 4.00 / 4.01	DC307 / DC308 / DC309 / DC400 / DC401
Sinus IFD	3.01 / 3.02 / 3.03	IF301 / IF302 / IF 303
Sinus K –	1.00x / 1.10x / 1.20x / 1.30x /	IK100X / IK110X / IK120X / IK130X /
IFD SW	1.31x / 1.40x / 1.41x / 2.00x /	IK131X / IK140X / IK140X / IK200X /
	2.01x / 2.02x / 2.03x / 2.04x	IK201X / IK202X / IK203X / IK204X
IPL	1.01x	IP101X
Sinus K – SW IFD	2.01x / 2.02x / 2.03x / 2.04x	IZ201X / IZ202X / IZ203X / IZ204X
(classes 5T and 6T)		
Sinus K –	1.10x / 1.20x / 1.21x /	LK110X / LK120X / LK121X /
SW LIFT	1.30x / 1.31x / 1.40x	LK130X / LK131X / LK140X
Sinus LIFT	2.02	LT202
Orion Drive	1.3 / 1.5 / 1.6 / 1.8 / 1.9	OD103 / OD105 / OD106 / OD108 / OD109
Sinus Penta –	1.00x / 1.10x / 1.20x / 1.30x /	PD100X / PD110X / PD120X / PD130X /
Basic SW	1.31x / 1.50x / 1.51x / 1.52x /	PD131X / PD150X / PD151X / PD152X /
	1.53x / 1.54x / 1.55x / 1.56x /	PD153X / PD154X / PD155X / PD156X /
	1.57x / 1.62x / 1.63x	PD157X / PD162X / PD 163X
Sinus Penta –	1.54x / 1.55x / 1.56x / 1.63x	PM154X / PM155X / PM156X / PM163X
Multipump SW		
Sinus Penta –	1.50x / 1.63x	PR150X / PR163X
Regenerative SW		
SFTM	4.11 / 4.12	SF411 / SF412
Vega Drive	5.0E / 5.1E / 5.2E / 5.3E / 5.4E	VD500 / VD501 / VD502 / VD503 / VD504
Sinus K –	1.00x / 1.01x / 2.00x / 2.01x /	VK100X / VK101X / VK200X / VK201X /
VTC SW	2.02x / 2.03x / 2.04x	VK202X / VK203X / VK204X
Sinus M	EU1.6	VM016
Sinus N	1.8 / 1.9	VN018 / VN019
Sinus VTC	2.04	VT204

For the description of MODBUS protocol, the list of the parameters that can be exchanged and the relevant addresses, please refer to MODBUS Manual (when present) or directly to User Manual relevant to each device.



NOTE: Higher SW versions for these devices or other devices manufactured by Elettronica Santerno (and not stated in the list above) may be controlled by simply adding to Remote Drive \Devices folder a configuration file for each one. These files are allowable on <http://www.elettronicasanterno.it> site or may be requested to Elettronica Santerno Technical Service.

2 SPECIFICATIONS

2.1 MINIMUM HARDWARE AND SOFTWARE REQUIRED

The hardware and software required are the same as those needed for a standard computer capable to be connected to the Internet.

2.1.1 Hardware

- PC Pentium 100 or greater.
- RAM 16 Mb minimum.
- CD-ROM Player.
- 1 RS232 serial port or 1 USB port.
- Video card and Monitor capable of supporting 800x600 resolution display or higher.
- Modem or network card (for remote connection only)

2.1.2 Software

- Operating system: Windows™ 95 (Vers.B), 98, Me, NT4, 2000, XP.
- Internet Explorer 4.00 or higher installed.

2.2 STANDARD SUPPLY

Remote Drive is provided on a CD-ROM containing an installation wizard to install the application on your hard disk. To install the application, click on the SETUP icon and follow the instructions displayed.

IMPORTANT: The application runs only if the original CD-ROM is inserted.

2.3 OPERATING MODES

The application supports two operating modes: *Local mode* and *Remote mode*.

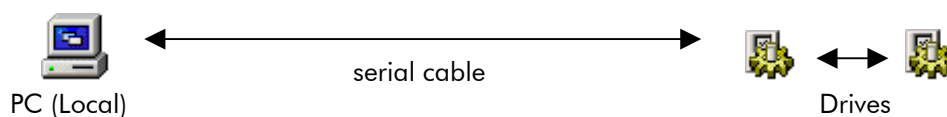
In “*Local*” mode, your computer is directly connected to the device. In “*Remote*” mode, two computers are required to be remotely connected to each other via telephone line, LAN or the Internet. Remote Drive must be active on both computers. The device is to be connected to the serial port of one computer, which will operate as the slave, whereas the other computer will be the master. The master computer uses the slave computer to manage the device and is capable of exploiting any functionality as if the device was connected to its serial port.

The remote connection uses Winsock services based on TCP/IP protocol. The communication process consists of TCP and UDP packages using the port stated for the connection parameters (see par. [4.3.1.4](#)).

While connected, a chat window is also displayed for the users of the two computers.

Connection examples:

2.3.1 Local Connection



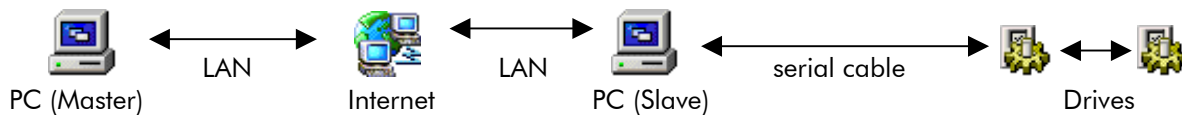
The computer is directly connected to the drives by means of a serial connection cable.

2.3.2 Remote Connection via LAN



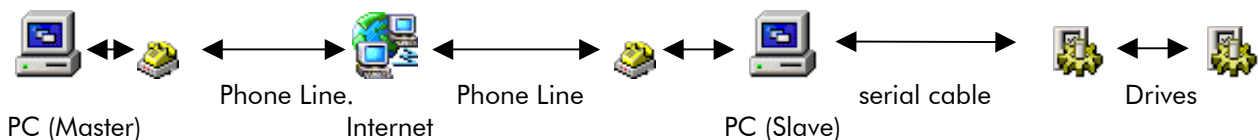
The remote control of the devices is possible using the local area network.
The network must support TCP/IP protocol.

2.3.3 Remote Connection via LAN and the Internet

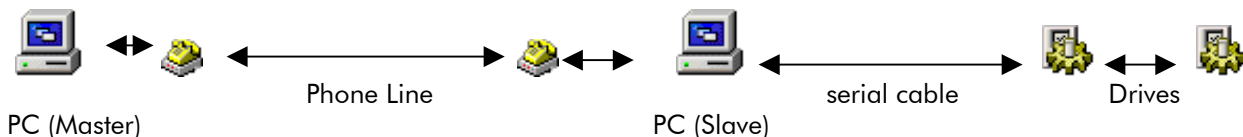


Internet allows the remote control of long-distance connections at a relatively low cost.
If you access the Internet through a Firewall or a Proxy server, remember to enable the port used for Remote Drive.

2.3.4 Remote Connection Through Telephone Line and the Internet via Your Modem



2.3.5 Point-to-point Remote Connection Through Telephone Line via Your Modem



If the connection to the Internet is too slow or is not available, you can use this type of connection (see [par. 5](#)).
The Remote Access Server is to be enabled on the computer called via your modem.

3 CONNECTING PROCEDURES

3.1 CONNECTING TO THE DEVICES

3.1.1 Connecting to Sinus K

For the connection to the serial line, use connector **CN8** located on control board ES778 for sizes S05..S15 or connector located on the lower part of the inverter near the terminals for sizes \geq S20. This is a 9-pole, male D connector having the following features:

Pins	Function
1 – 3	(TX/RX +) Differential input/output + (bidirectional). Positive polarity with respect to pins 2 – 4 for a MARK.
2 – 4	(TX/RX –) Differential input/output – (bidirectional). Negative polarity with respect to pins 1 – 3 for a MARK.
5	(GND) Ground of differential signals and RS232–RS485 adapter power supply (when used).
6 – 7 – 8	not connected
9	+5V for RS232–RS485 adapter power supply (when used).

SW1 selectors 1 and 2: ON = TERMINATION and BIAS ON
OFF = TERMINATION and BIAS OFF

For a connection between the computer and the drive, you can use the kit supplied. This includes an RS232–RS485 or an USB–RS485 adapter box and the relevant cable (connector “SINUS”) (see [Connection Kits](#)).

3.1.2 Connecting to Sinus Penta

As for Sinus K, connection to the serial link is made through connector **CN8** located on control board ES821 for sizes S05..S15 or through the connector located on the lower part of the inverter near the terminals for sizes \geq S20. This is a 9-pole, male D connector having the following features:

Pins	Function
1 – 3	(TX/RX +) Differential input/output + (bidirectional). Positive polarity with respect to pins 2 – 4 for a MARK.
2 – 4	(TX/RX –) Differential input/output – (bidirectional). Negative polarity with respect to pins 1 – 3 for a MARK.
5	(GND) Ground of differential signals and RS232–RS485 adapter power supply (when used).
6	(VTEST) Input for test power – do not connect
7 – 8	not connected
9	+5V for RS232–RS485 adapter power supply (when used).

SW3 selectors 1 and 2: ON = TERMINATION and BIAS ON
OFF = TERMINATION and BIAS OFF

For a connection between the computer and the drive, you can use the kit supplied. This includes an RS232–RS485 or an USB–RS485 adapter box and the relevant cable (connector “SINUS”) (see [Connection Kits](#)).

3.1.3 Connecting to Sinus K / Sinus Penta – Using ES822 Board

Serial board ES822 allows to connect inverters of the Sinus K and Sinus Penta series through a galvanically isolated interface. Board ES822 is recommended to avoid ground loop and possible interface electrical noise. Beyond connector RS485, board ES822 is also provided with a connector RS232 for a point-to-point connection to a computer or a device with serial interface RS232.

Insert optional board ES822 to Sinus K and Sinus Penta inverters to automatically disable the serial interface connectors located on board ES822 (**CN8** and **CN9** respectively).

Jumper **J1** on board ES822 allows to select either connector RS485 (**CN3**) or connector RS232 (**CN2**).

The RS485 connector is a 9–pole, male D connector having the following features:

Pins	Function
1 – 3	(TX/RX +) Differential input/output + (bidirectional). Positive polarity with respect to pins 2 – 4 for a MARK.
2 – 4	(TX/RX –) Differential input/output – (bidirectional). Negative polarity with respect to pins 1 – 3 for a MARK.
5 – 8	(GND) Ground of differential signals (insulated from the control board) and RS232–RS485 adapter power supply (when used).
6 – 8	not connected
9	+5V 100mA max for RS232–RS485 adapter power supply (when used).

SW1 selectors 1 and 2: ON = TERMINATION and BIAS ON
OFF = TERMINATION and BIAS OFF

The RS232 connector is a 9–pole, female (DTE) D connector having the following features:

Pins	Function
1 – 9	not connected
2	(TX) Output according to the RS232 standard.
3	(RX) Input according to the RS232 standard.
5	(GND) Ground of TX e RX signals (insulated from the control board).
4 – 6	Tied together for DTR–DSR loopback.
7 – 8	Tied together for RTS–CTS loopback.

Three–wire RS232 is implemented. Handshaking hardware signal control is not implemented.
A connection wire of max. 3 m in length is allowed for interface RS232. No terminator is allowed.
Use a modem cable (not crossed) to connect a computer to port RS232.

3.1.4 Connecting to Sinus IFD, Sinus VTC and Sinus Lift

For the connection to the serial line, use connector **K5** located on control board ES696. This is a 9–pole, male D connector having the following features:

Pins	Function
1	(TX/RX +) Differential input/output + (bidirectional). Positive polarity with respect to pin 2 for a MARK.
2	(TX/RX –) Differential input/output – (bidirectional). Negative polarity with respect to pin 1 for a MARK.
5	(GND) Ground of differential signals and RS232–RS485 adapter power supply (when used).
3 – 4 – 6 – 7 – 8	not connected
9	+5V for RS232–RS485 adapter power supply (when used).

J2: A = TERMINATION and BIAS ON
B = TERMINATION and BIAS OFF

J3: A = TERMINATION and BIAS ON
B = TERMINATION and BIAS OFF

For a connection between the computer and the drive, you can use the kit supplied. This includes an RS232–RS485 or an USB–RS485 adapter box and the relevant cable (connector “SINUS”) (see [Connection Kits](#)).

3.1.5 Connecting to DCREG – Using ES733 Board

IMPORTANT: This optional board is to be used for a serial connection. Plug it into connector **CN7** of control board ES800 and use the three nylon fasteners to fix it. Also set the jumpers listed below. Board ES733 includes two connectors for the control of different electrical standards:

CN2: RS422 (full duplex) / RS485 (half duplex) (set JP1, JP2 and JP3) 9–pole, female connector

Pins	Function
1.	GND
2.	not connected
3.	RX+ if RS422 is used (full duplex / 4–wire) TX/RX+ if RS485 is used (half duplex / 2–wire)
4.	TX+ if RS422 is used (full duplex / 4–wire) not connected if RS485 is used (half duplex / 2–wire)
5.	GND
6.	+5V
7.	not connected
8.	RX– if RS422 is used (full duplex / 4–wire) TX/RX– if RS485 is used (half duplex / 2–wire)
9.	TX– if RS422 is used (full duplex / 4–wire) not connected if RS485 is used (half duplex / 2–wire)

CN3: RS232 (set JP3) 9-pole, male connector

Pins Function

1. DCD
2. RXD
3. TXD
4. DTR
5. GND
6. DSR
7. RTS
8. CTS
9. RI

JP1: 1-2 = RS485 (half duplex / 2-wire)
2-3 = RS422 (full duplex / 4-wire)

JP2: 1-2 = SWAP TX/RX (if RS485 is used, transmitter and receiver are alternatively enabled)
2-3 = ECHO ON (if RS485 is used, the receiver is always enabled)

JP3: 1-2 = RS232
2-3 = RS422/RS485

JP4: 1-2 = BIAS ON
2-3 = BIAS OFF

JP5: 1-2 = TERMINATION ON
2-3 = TERMINATION OFF

JP6: 1-2 = BIAS ON
2-3 = BIAS OFF

L1: TX (LED)

L2: RX (LED)

For the connection between the computer and the drive to port RS485 or RS422 (**CN3**), you can use the kit supplied. This includes an RS232–RS485 or an USB–RS485 adapter box and the relevant cable (connector “DCREG”) (see [Connection Kits](#)).

For the connection to port RS232 (**CN2**), use a null-modem cable (crossed-type).

3.1.6 Connecting to SFTM

For the connection to the serial line, use connector **K3** located on control board ES600. This is a 9-pole, male D connector having the following features:

Pins	Function
1	(TX/RX +) Differential input/output + (bidirectional). Positive polarity with respect to pin 2 for a MARK.
2	(TX/RX -) Differential input/output - (bidirectional). Negative polarity with respect to pin 1 for a MARK.
3	(TX_AUX) – do not connect
5	(GND) Ground of differential signals and RS232–RS485 adapter power supply (when used).
4 – 6 – 7 – 8	not connected
9	+5V for RS232–RS485 adapter power supply (when used).

For the connection between the computer and the drive, you can use the kit supplied. This includes an RS232–RS485 or an USB–RS485 adapter box and the relevant cable (connector SINUS) (see [Connection Kits](#)).

3.1.7 Connecting to ASA, ASAC0 and ASAC1

For the connection to the serial line, use terminals B1(–) and B3(+) located on the device front part (ASA) or terminals B1(–) and B3(+) located on the lower part of the optional module (ASAC0 and ASAC1).

NOTE: The optional module must be used for a serial link to ASAC0 and ASAC1.

Term.	Function
B1(–)	Differential input/output – (bidirectional). Negative polarity with respect to B3(+) for a MARK.
B3(+)	Differential input/output + (bidirectional). Positive polarity with respect to B1(–) for a MARK.

For the connection between the computer and the inverter, you can use the kit supplied. This includes an RS232–RS485 or an USB–RS485 adapter box and the relevant cable (terminals –) and (+) (see [Connection Kits](#)). Also connect the box to the external 230 VAC AC–adaptor if RS232–RS485 is used.

3.1.8 Connecting to Vega Drive and Sinus M Inverters

For the connection to the serial line, use terminals S+ and S– located on the device front part:

Term.	Function
S+	Differential input/output + (bidirectional). Positive polarity with respect to S– for a MARK.
S–	Differential input/output – (bidirectional). Negative polarity with respect to S+ for a MARK.

For the connection between the computer and the inverter, you can use the kit supplied. This includes an RS232–RS485 or an USB–RS485 adapter box and the relevant cable (terminals (–) and (+) (see [Connection Kits](#)). Also connect the box to the external 230 VAC AC–adaptor if RS232–RS485 is used.

3.1.9 Connecting to Orion Drive and Sinus N Inverters

For the connection to the serial line, use terminals N(–) and P(+) of the option board.

NOTE: The optional board must be used for the serial link.

Term.	Function
P	Differential input/output + (bidirectional). Positive polarity with respect to N for a MARK.
N	Differential input/output – (bidirectional). Negative polarity with respect to P for a MARK.

For the connection between the computer and the inverter, you can use the kit supplied. This includes an RS232–RS485 or an USB–RS485 adapter box and the relevant cable (terminals (–) and (+) (see [Connection Kits](#)). Also connect the box to the external 230 VAC AC–adaptor if RS232–RS485 is used.

3.1.10 Connecting to DBU

The drive includes two connectors for the control of different electrical standards:

J2: RS232 9–pole, male connector

Pins	Function
1.	+5V
2.	RXD
3.	TXD
4.	not connected
5.	GND
6.	EX.R
7.	not connected
8.	not connected
9.	not connected

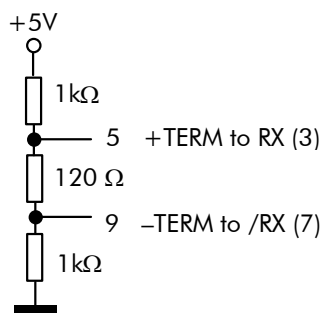
J3: RS422 (full duplex) / RS485 (half duplex) 9-pole, female connector

Pins	Function
1.	(GND) Ground of differential signals.
2.	(TX+) Differential output +. Positive polarity with respect to pin 6 for a MARK.
3.	(RX+) Differential input +. Positive polarity with respect to pin 7 for a MARK.
4.	not connected
5.	(+TERM) (+) point to "terminate" the line (see figure below).
6.	(TX-) Differential output -. Negative polarity with respect to pin 2 for a MARK.
7.	(RX-) Differential input -. Negative polarity with respect to pin 3 for a MARK.
8.	not connected
9.	(-TERM) (-) point to "terminate" the line (see figure below).

For the connection between the computer and the drive to port RS485 or RS422 (**J3**), you can use the kit supplied. This includes an RS232-RS485 or an USB-RS485 adapter box and the relevant cable (connector DBU) (see [Connection Kits](#)). Also connect the box to the external 230 VAC AC-adaptor if RS232-RS485 is used.

This kit provides the connections: 2-3-5 and 6-7-9. So transmission is two wires (half duplex) and termination line and bias impedances are inserted (see figure below).

Open pins 5 and 9 if line termination and bias must be disabled.



For the connection to port RS232 (**J2**), use a null-modem cable (crossed-type). Moreover pin 6 (EX.R) must be connected to pin 1 (+5V) to enable **J2**.

3.1.11 Connecting to IPL

For the connection to the serial line, use RS232 connector on the front of the drive. It is a 9-pole, female (DTE) D connector having the following features:

Pins	Function
1 - 4 - 6 - 7 - 8 - 9	not connected
2	(TX) Output according to the RS232 standard.
3	(RX) Input according to the RS232 standard.
5	(GND) Ground of TX e RX signals (insulated from the control board).

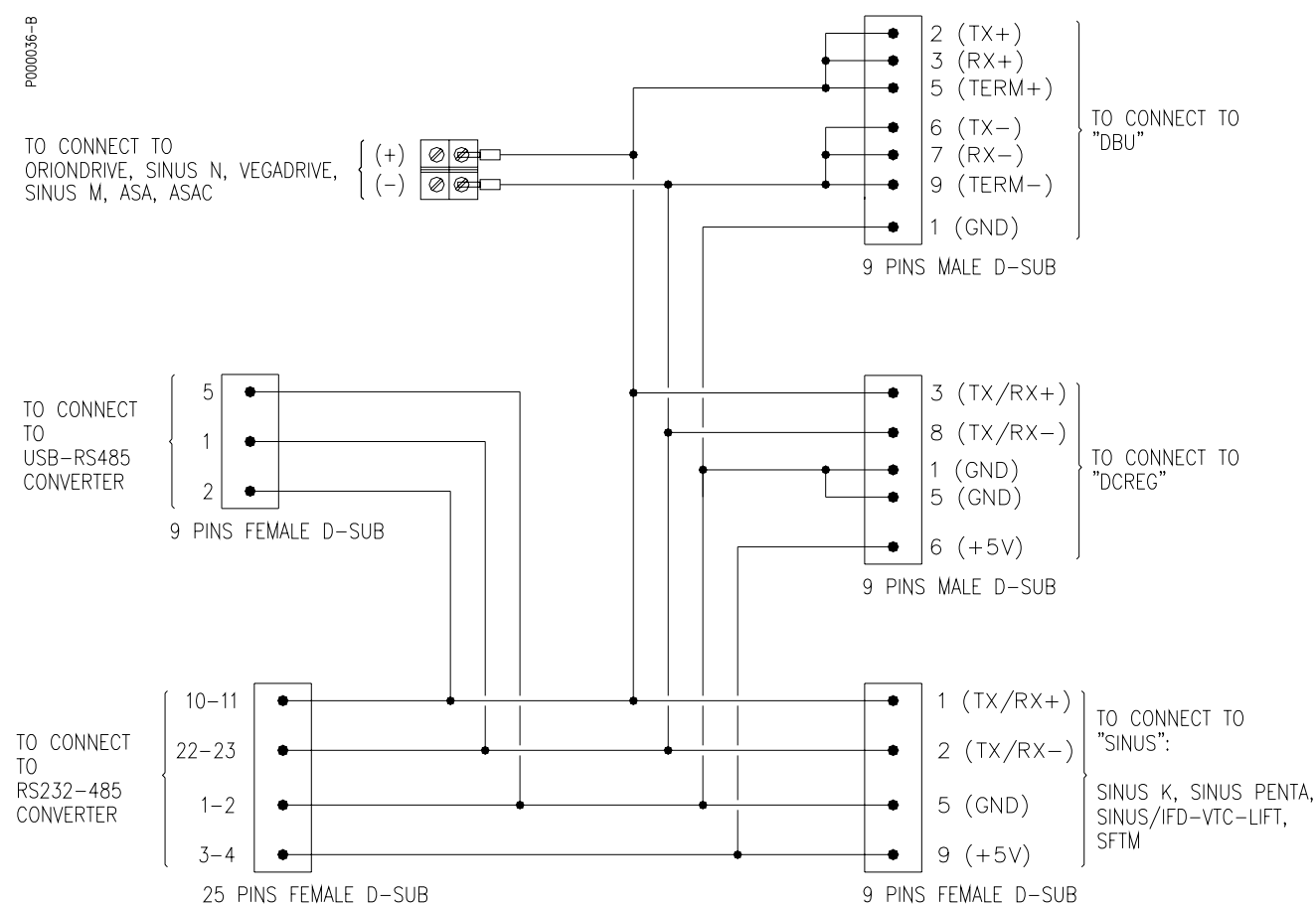
Three-wire RS232 is implemented. Handshaking hardware signal control is not implemented. A connection wire of max. 3 m in length is allowed for interface RS232. No terminator is allowed. Use a modem cable (not crossed) to connect a computer to port RS232.

3.1.12 Connection Kits

Two connection kits are available depending on the computer port:

1. adaptor box RS232–RS485 (including its 230VAC supply) and its standard cable (RS232);
2. adaptor USB–RS485 and its standard USB cable.

Both kits are provided with a special cable with 2 computer-side connectors and 4 device-side connectors (see figure below).



3.1.13 General Notes

IMPORTANT: In case of a multidrop connection RS485 to multiple devices, if an RS232–RS485 adapter box is used, be careful to supply it with the external 230 VAC AC–adaptor. Then DO NOT CONNECT the +5V and GND pins of the drives connected.

IMPORTANT: In case of a multidrop connection RS485 to multiple devices, the device with the longest connection to the computer must have the line termination and bias termination on. Similarly, the intermediate–located devices must have the line termination and bias termination off.

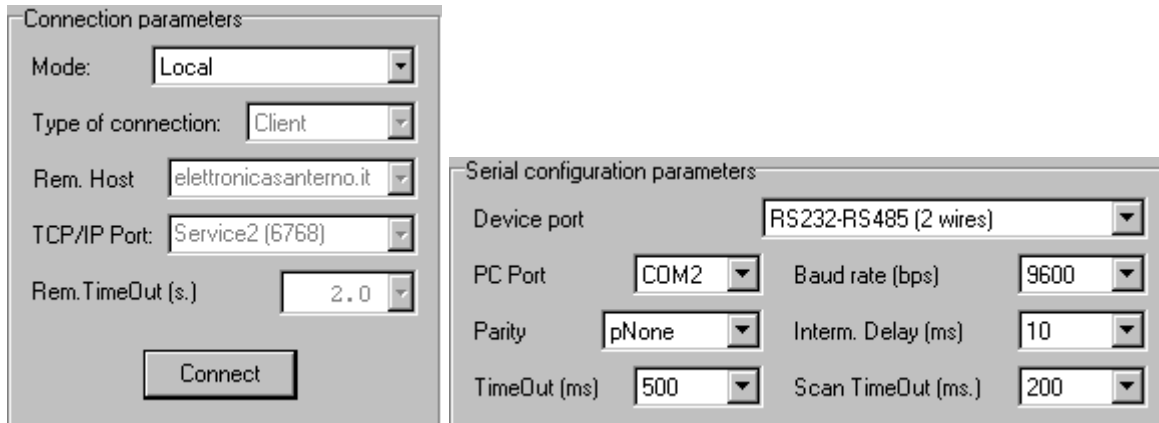
IMPORTANT: The line termination and bias for ASA, ASAC0/1 and SFTM soft starters cannot be disabled.

IMPORTANT: The bias for Vega Drive inverter cannot be disabled. Only line termination can.

IMPORTANT: It is possible to disable the line termination and bias by opening pins 5 (TERM+) and 9 (TERM–).

3.2 LOCAL CONNECTION

1. Check the serial connection between the computer and the device. If you are using protocol RS485 or RS422, check to see if the configuration is correct and if the adapter box is powered.
2. Start Remote Drive, choose the language and click on **Next**
3. Set the type of connection as follows:



Connection parameters

Mode: **Local**

Type of connection: **Client**

Rem. Host: **elettronicasanterno.it**

TCP/IP Port: **Service2 (6768)**

Rem. TimeOut (s.): **2.0**

Connect

Serial configuration parameters

Device port: **RS232-RS485 (2 wires)**

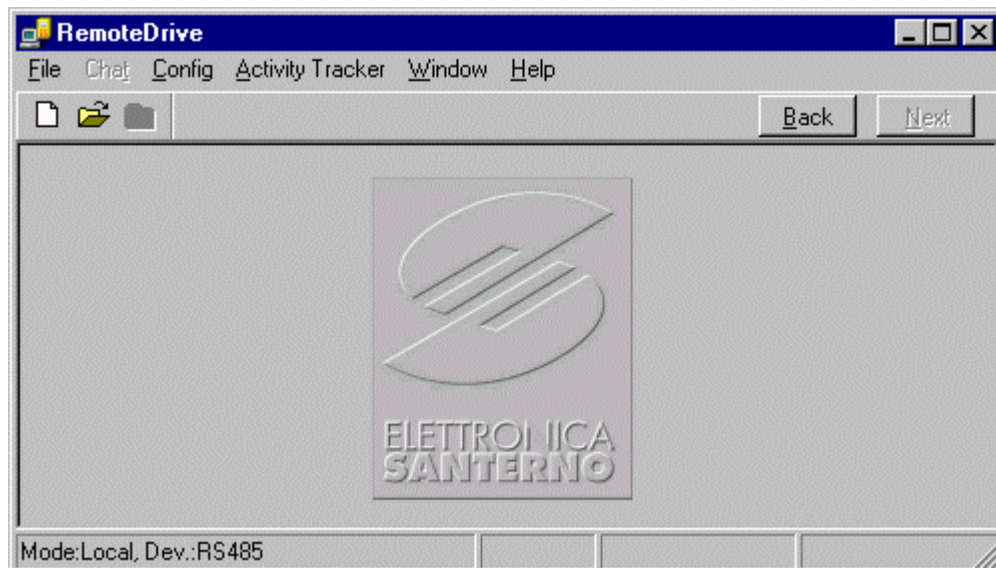
PC Port: **COM2** Baud rate (bps): **9600**

Parity: **pNone** Interm. Delay (ms): **10**

TimeOut (ms): **500** Scan TimeOut (ms.): **200**

Set the protocol considering the selected connection and serial port. Baud and Parity must match with the values set through the device keypad.

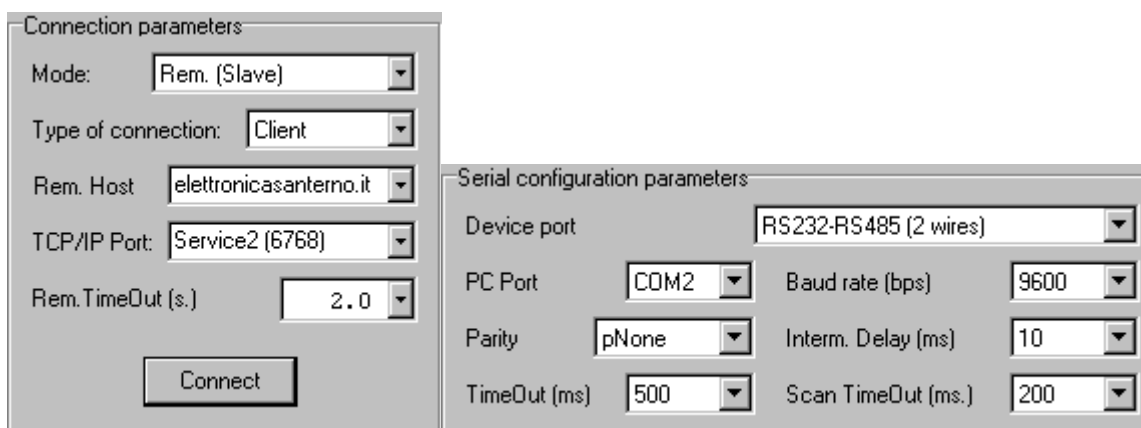
4. Establish the connection (click **Connect**) and check if the connection is on on the status bar of the application (in the bottom right corner): **Connected to: [COM1]**
5. Click **Next**
6. You accessed the main application area. Follow the instructions given in par. [4.1](#).



3.3 REMOTE CONNECTION (SLAVE)


The goal here is to contact Elettronica Santerno's remote service through the Internet at the address "elettronicasanterno.it", where a PC is available with an active Remote Drive as a master ready to control the device.

1. Check the serial connection between the computer and the device; if you are using protocol RS485 or RS422, check to see if the configuration is correct and if the adapter box is powered.
2. Start Remote Drive, choose the language and click **Next**
3. Set the type of connection as follows:



The screenshot shows a dialog box titled "Connection parameters" with two main sections. The left section, "Connection parameters", includes fields for Mode (set to "Rem. (Slave)"), Type of connection (set to "Client"), Rem. Host (set to "elettronicasanterno.it"), TCP/IP Port (set to "Service2 (6768)"), and Rem. TimeOut (s.) (set to "2.0"). A "Connect" button is at the bottom. The right section, "Serial configuration parameters", includes fields for Device port (set to "RS232-RS485 (2 wires)"), PC Port (set to "COM2"), Baud rate (bps) (set to "9600"), Parity (set to "pNone"), Interm. Delay (ms) (set to "10"), TimeOut (ms) (set to "500"), and Scan TimeOut (ms.) (set to "200").

Set the protocol considering the selected connection and serial port. Baud and Parity must match with the values set through the device keypad.




The screenshot shows a "User sheet" form with various input fields. Fields include Customer ID (1), Confirmation password (masked), Save password (checked), Send button, *Company (Tecnotess), Address (via Grandi 3 Milano), *First Name (Achille), *Last Name (Giacomoni), Telephone (02656565), Fax (02565565), E-Mail (agiaco@tecnotess.it), VAT N. (4545454555), F.C. (GCMACH61E10H199Z), *Call Reason (PI setting), Bank (Banca Popolare di Milano), C/C (343433), Bank Code (4443), and another Bank Code (4333). A note at the bottom left states "(*) Required Data".

Fill in the user sheet.

4. Without closing Remote Drive, establish the connection to the Internet. This connection is the same as the one you use to navigate or send and receive e-mail messages.
5. Click "Connect". Check if the connection is on on the status bar of the application (in the bottom right corner): **Connected to: elettronicasanterno.it**
This can be seen when the Chat window automatically opens.
6. Click **Next**
7. You accessed the main application area. Follow the instructions given in par. 4.1. Remember that in slave mode you cannot write or save any parameter to EEPROM.

3.4 REMOTE CONNECTION (MASTER)

Generally, the master computer receives the calls made by the slave, so it must be enabled before the slave computer starts calling.

1. Start Remote Drive, choose the language and click 
2. Fill in the connection sheet as follows:

Connection parameters


Mode:

Type of connection:

Rem. Host:

TCP/IP Port:

Rem. TimeOut (s.):

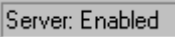
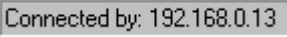



Fill in the operator sheet:

Operator Sheet

*First Name: *Last Name:


☒ Available

3. Without closing Remote Drive, establish the connection to the Internet.
4. Click the "Enable" button. Remote Drive is now enabled to receive a connection, as you can see by the string displayed on the status bar:  If the connection is on, the status bar will display the following string 
5. Once the connection is established, click 
6. You entered the main application area. Follow the instructions given in par. [4.1](#).
The connection to the Internet will slow down the data transfer procedure; this is due to the connection quality.

3.5 REVERSED REMOTE CONNECTION

This type of connection is required for remote monitoring when no operator is needed. With this connection mode, the master device places the calls, which will be received by the slave device.

3.5.1 Reversed REMOTE Connection (MASTER)

1. Start Remote Drive, choose the language and click 

- Fill in the connection sheet as follows:

Connection parameters

Mode:

Type of connection:

Rem. Host:

TCP/IP Port:

Rem.TimeOut (s.):

In the Rem.Host box, instead of 216.67.89.132 enter the IP address of the computer being used for the connection!

Fill in the operator sheet:

Operator Sheet

*First Name *Last Name

☒ Available

- Connect to the Internet without closing Remote Drive.
- Click "Connect" and check if the connection is established (see bottom right corner of the status bar of the application):
the Chat window automatically opens.
- If enabled on slave-side, you are asked to enter an access password (4.8) required to complete the access procedure.
- Click .
- You gained the main work area of the application; follow the instructions given in section 4.1.

3.5.2 Reversed REMOTE Connection (SLAVE)

- Check serial link between your computer and the equipment. If RS485 or RS422 protocols are used, make sure that their configuration is correct and check if the adaptor box is powered on.
- Start Remote Drive, choose the language and click .
- Set the type of connection as follows:

Connection parameters

Mode:

Type of connection:

Rem. Host:

TCP/IP Port:

Rem.TimeOut (s.):

Serial configuration parameters

Device port:

PC Port: Baud rate (bps):

Parity: Interm. Delay (ms):

TimeOut (ms): Scan TimeOut (ms.):

Set the protocol based on the selected link and the correct serial port. Baud and Parity must be the same as the values set using the equipment keypad.

User sheet									
Customer ID	1	Confirmation password	*****	<input checked="" type="checkbox"/> Save password	<input type="button" value="Send"/>				
*Company	Tecnotess		Address	via Grandi 3 Milano					
*First Name	Achille	*Last Name	Giacomoni	Telephone	025437843	Fax	025437845		
E-Mail	agiac@tecnotess.it		VAT N.	46564344545	F.C.	GMACQQ34F22A123Z			
*Call Reason	<div style="border: 1px solid black; height: 60px;"></div>				Bank	Banca Popolare Milano			
					IBAN Code	ASFGFHJTTYUU			
					BIC Code	2323243			
(*) Required Data									

Fill in the user sheet.

4. Connect to the Internet without closing Remote Drive.
5. Click "Enable". Remote Drive is now enabled to receive connections, as stated in the status bar:

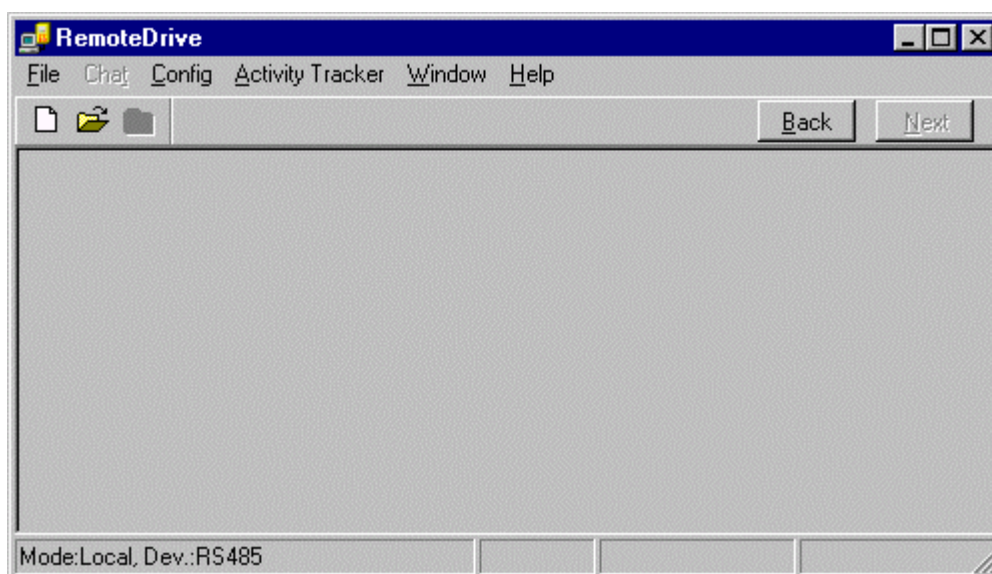
Server: Enabled . If the connection is established, the status bar shows **Connected by: 192.168.0.13** .

The local operator can use Remote Drive with the same functionality as the local connection (such as open projects, read parameters, perform acquisitions...) . Only, access to write is enabled by entering a password from the Options menu. See 4.8.

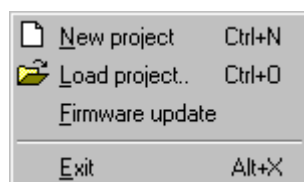
4 USER INTERFACE

4.1 MAIN WINDOW

Use the   buttons to browse the window relating to the control of the type of connection and the window relating to the language selection.



Choose File; the drop-down menu appears:



4.1.1 New Project

Opens the project window (see par. [4.5](#)).

4.1.2 Load Project

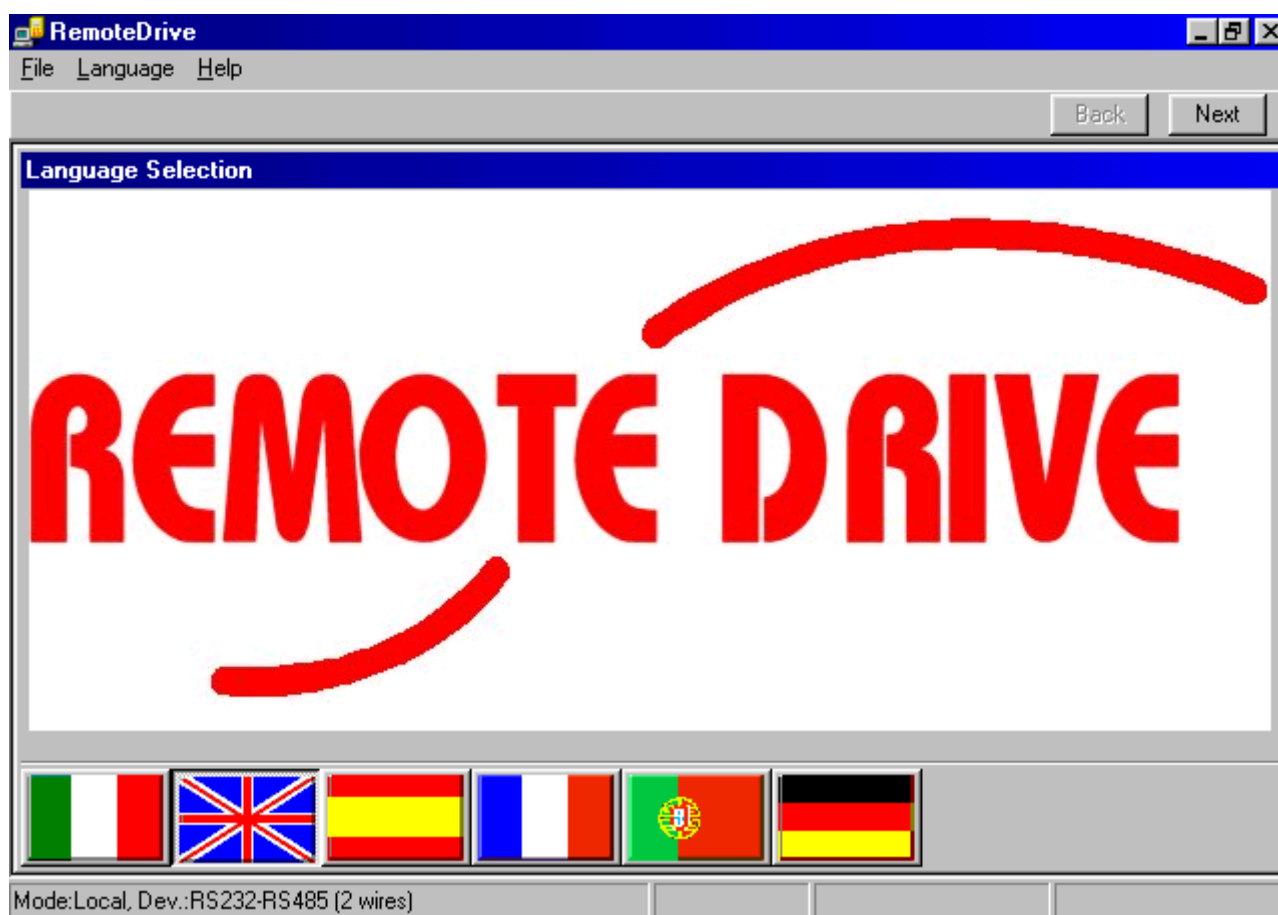
Loads a project from file (see par. [4.5.4.5](#)).

4.1.3 Firmware Update

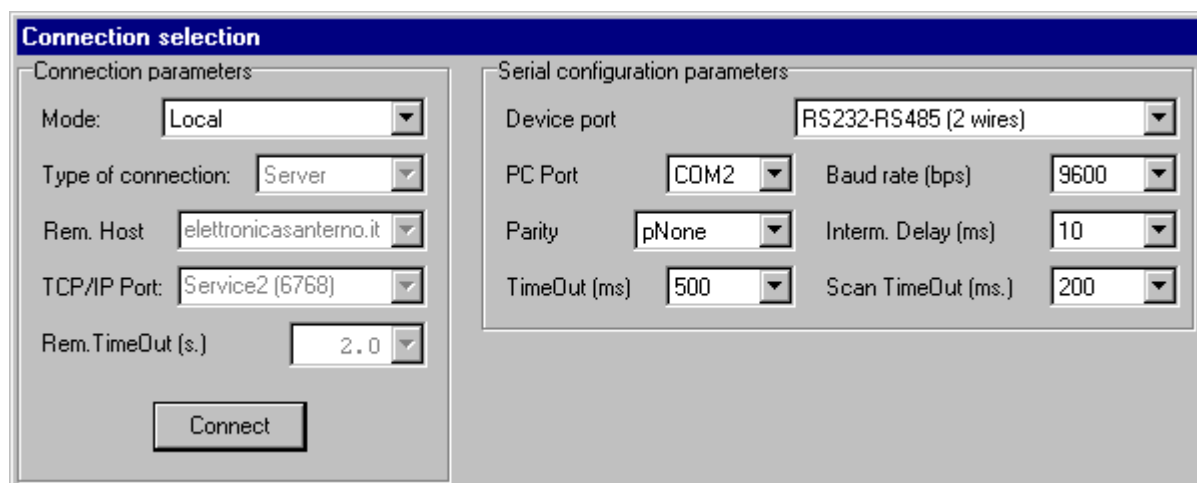
Opens the window of the firmware download utility of the equipment.

4.2 LANGUAGE SELECTION

The language selection window is displayed whenever Remote Drive is started. You can select a new language by clicking the relevant flag or clicking the **Languages** menu.



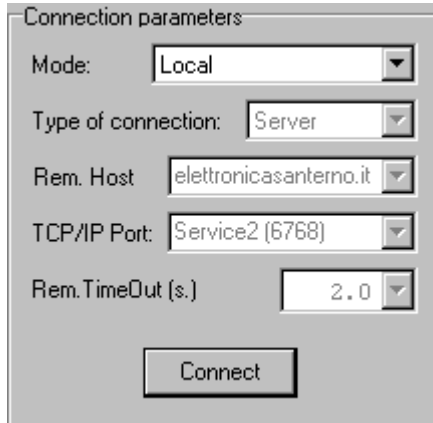
4.3 SELECTING THE TYPE OF CONNECTION



This window allows to select the type of connection and the master or slave configuration of the computer with respect to the device or to another computer (in case of remote connection).

The display of the required parameters will change depending on the selected mode (only the parameters being used are active).

4.3.1 Connection Parameters



4.3.1.1 Mode:

1. Local Mode

Local control: The computer is directly connected to the device by means of a serial cable.

2. Remote Mode (Master)

The computer controls the device through another computer which is configured as a slave PC.

3. Remote Mode (Slave)

The computer receives any queries from the master computer and sends them to the device. Any device response will be sent to the master computer. In slave mode, you can read any measure and parameter, but you cannot write any parameter, since writing depends on master computer only.

4.3.1.2 Type of Connection:

In remote connection mode, it determines if the calls are to be sent or received by the computer:

1. Client

The call must be sent by the computer. Before calling, make sure that the computer configured as a server is enabled to receive the call.

2. Server

The computer is configured to receive the calls sent by the client computer.

4.3.1.3 Rem. Host (Remote Host Address)

Active in client mode only. This is the name of the server computer you are connecting to. This box also acknowledges the IP address of the server computer.

4.3.1.4 TCP/IP Port

TCP/IP port used for the connection. The port number ranges from 1 to 65535 and can be configured by selecting a number that is not used by any other TCP/IP service.

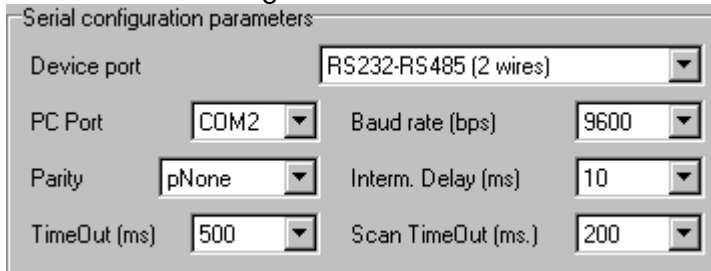
4.3.1.5 Rem. TimeOut (s.) (Remote Timeout)

Maximum delay of the response sent by the server after a client's query. Once this timeout is over, a timeout message will be displayed.

4.3.1.6 Connect Button

In local mode, it enables or stops the serial connection. In remote mode, if the type of connection is **Client**, it enables or stops the connection to the server computer. If the type of connection is **Server**, it enables or disables the computer to receive a call from the client computer.

4.3.2 Serial Configuration Parameters



Serial configuration parameters

Device port	RS232-RS485 (2 wires)		
PC Port	COM2	Baud rate (bps)	9600
Parity	pNone	Interm. Delay (ms)	10
TimeOut (ms)	500	Scan TimeOut (ms.)	200

Parameters required to configure the computer serial or USB port connected to the drive in local and slave mode.

4.3.2.1 Device Port

RS232 (only for Sinus K and Sinus Penta with ES822 or DCREG with ES733) **DBU???**

Three-wire standard RS232C is used. Use a modem cable (not crossed) for Sinus K and Sinus Penta with ES822 or a null-modem cable (crossed) for DCREG with ES733.

USB-RS232 (only for Sinus K and Sinus Penta with ES822 or DCREG with ES733) **DBU???**

Protocol RS232C using a USB port of the computer set as a virtual COM. A converter USB/RS232 is needed (not included in the connection kit). Use the same cables as stated in step 1.

RS232-RS422 (4-wire) (only for DCREG with ES733) **DBU???**

Four-wire RS422 protocol, supportable through a RS232/485 adaptor box included in the connection kit. No bidirectional control is needed.

NOTE: A connection cable different from the one supplied must be used.

USB-RS422 (4-wire) (only for DCREG with ES733) **DBU???**

Four-wire RS422 protocol using a USB port of the computer set as a virtual COM. Adaptor box USB/RS485 included in the connection kit is needed.

NOTE: A connection cable different from the one supplied must be used. A different configuration of the jumpers inside the connection box is needed.

RS232-RS485 (2-wire)

Two-wire RS485 protocol supportable through a RS232/485 adaptor box included in the connection kit. The bidirectional control of the line is obtained through RTS signal.

USB-RS485 (2-wire)

Two-wire RS485 protocol using a USB port of the computer set as a virtual COM. Adaptor box USB/RS485 included in the connection kit is needed. The bidirectional control of the line is automatically managed by the connection box.

RS232-Keypad (DCREG only)

Elettronica Santerno proprietary protocol for the firmware updating through the keypad connector. Uses standard RS485; adaptor box RS232/485 is needed.

NOTE: A connection cable different from the one supplied must be used.

USB-Keypad (DCREG only)

As RS232-Keypad, but the USB port of the computer is used. Adaptor box USB/RS485 is needed.

NOTE: A connection cable different from the one supplied must be used.

4.3.2.2 PC Port

Serial port of the computer connected to the device.

4.3.2.3 Baud Rate (bps)

Baud rate of the serial port. It must be the same as the one selected for the device.

4.3.2.4 Parity

Specifies the parity bit. It must be the same as the one selected for the device.

4.3.2.5 Interm. Delay (ms) (Intermediate Delay)

Minimum delay between a response and a new query. This is a waiting time, expressed in ms, between the last response received by the device and a new query sent by the computer. This is useful when you use **RS485** or **Keypad** protocols and the device connected during the response maintains the transmission for a time longer than the time required for the data transfer.


4.3.2.6 TimeOut (ms)

Max. allowable time between a computer query and a device response. When this timeout is over, an alarm message is displayed.

4.3.2.7 Scan TimeOut (ms)

Max. allowable time between the computer query and the device response during the scanning of the devices connected to the network (see par. [4.5.4.2](#))

4.3.3 IP Local Address

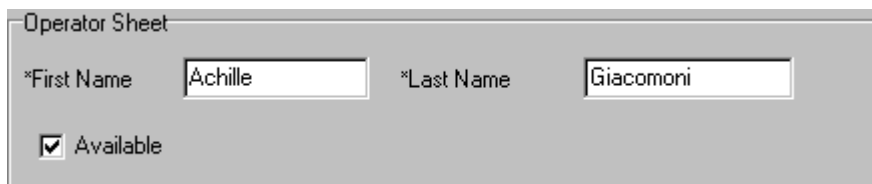


IP Local Address

192.168.0.4 Refresh

It appears in remote mode and indicates the IP address of the computer in the current connection section.

4.3.4 Operator Sheet



Operator Sheet


*First Name Achille *Last Name Giacomoni

☒ Available

It appears in master mode and must be filled in because it states, for the operator of the slave computer, the name of the service technician you called. As soon as the connection is established, the technician name will appear in the Chat window of the slave computer.

Available: It always indicates to the computer if the operator can receive a call or if he is unavailable at that moment.

4.3.5 User Sheet



User sheet

Customer ID Confirmation password ☒ Save password

*Company Address

*First Name *Last Name Telephone Fax

E-Mail VAT N. F.C.

*Call Reason Bank

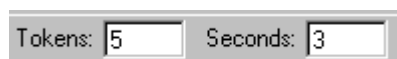
C/C

Bank Code Bank Code

(*) Required Data

Appears in slave mode and must be filled in because it identifies the company, the operator and the reason of the call.

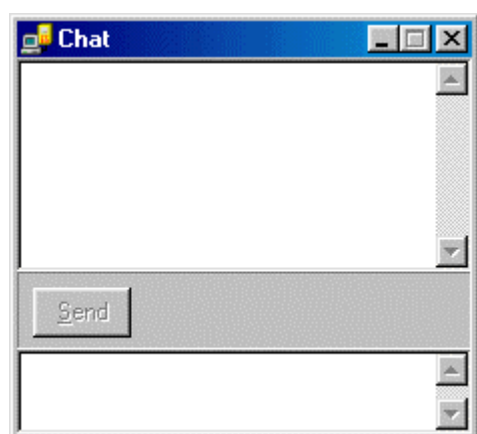
If you prefer using a token assistance contract, you must state the user code and password. In that case, once the connection has been established, the token totalizer will be displayed in the top right corner of the window (the token counting will start after 10 seconds).



Tokens: Seconds:

The "Send" button allows to automatically record the user general data and fiscal data to the service database—after sending a query to the personnel in charge.

4.4 CHAT WINDOW



The Chat window appears when you select a remote connection mode. It is active only once the connection has been established and it is used to dialog with the operator of the remote computer.

The top box lists history messages from the top to the bottom. Each message is preceded by Date Time and Sender. Remote Drive is the <System> sender.

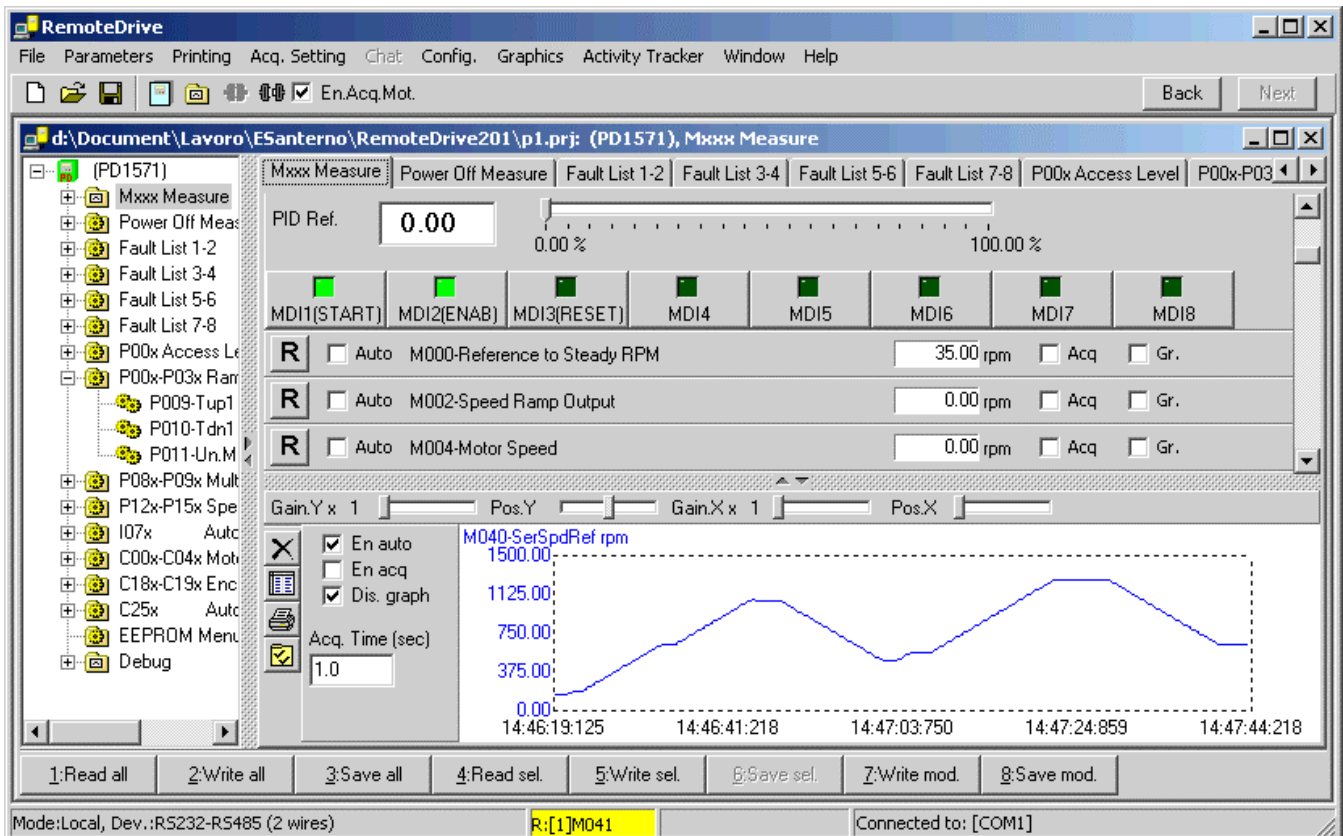
Use the bottom box to write the message. The message may be composed of multiple lines. The cut and paste function is supported.

4.5 PROJECT WINDOW

IMPORTANT: The screens shown in this section relate to a special device (DCREG), and are to be considered as an example. They can be different from the screens displayed for other devices controlled by Remote Drive.


The project window displays the parameters for one or multiple devices.


This window may be customized. You can select the number of devices to display and the number of parameters for each device. The structure is called a project and may be saved to disk and be reloaded when required.





The project window is divided into two sections: a tree structure summarizing the devices and the relevant parameters, and a tab structure grouping the different parameters by characteristic.


Command Bar

 **En.Acq.Mot.** All-purpose enabling of the acquisition engine.







 **Command: 4.5.4.1 New Equipment.**

 **Goes to the next measure sheet of the project.**

 **Connection shortcut command.**

 **Disconnection shortcut command**

4.5.1 Elements of the TreeList

Level	Object	Reference in the file menu	Description
1	 [1] Motor:1 (DC306)	device	MODBUS address, name, device type + firmware version
2	 KEY MENU - P00x  MEASURE MENU - Mxxx	parameter sheet	The parameter sheet may be of two types:  parameters  measures.
3	 P000-Key	parameter	Parameter name, truncated description of the parameter.

You may customize, save, and load the whole tree list or only part of it. There is no limitation for the device number, the parameter sheets and the parameters to be entered in the tree list, but a lot of them will make the application run slowly.

4.5.2 Parameters Sheet

LOOPS CONFIGURATION MENU - C05x		SPEED FEEDBACK CONFIGURATION MENU - C07x	
R	W	S	C070-Feedback Selection 2:Tach 80-250V
R	W	S	C072-Encoder Pulses/Rev 1024 Pulses
R	W	S	C074-Tacho Transduction Ratio 60.00 V / 1000 R

Contains the device configuration parameters. Normally, you can read, edit, write, and save to EEPROM.

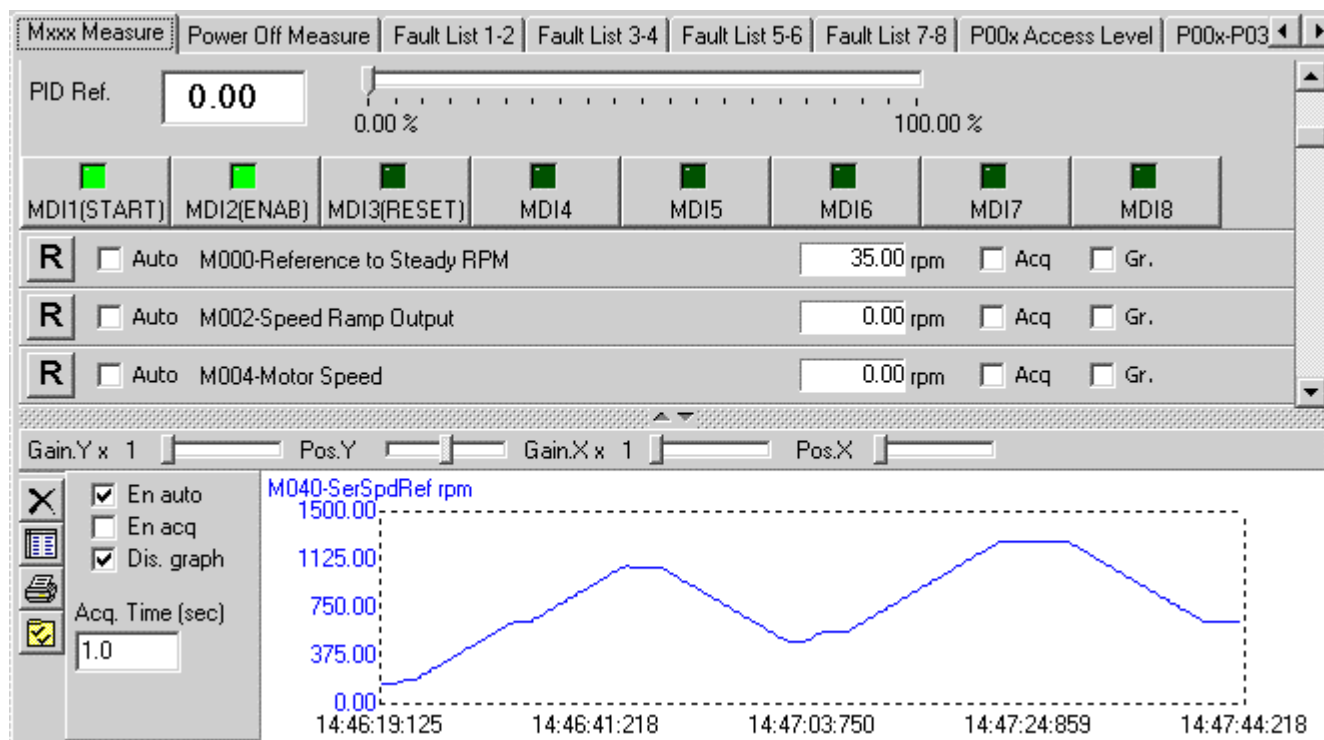
- R** Read
W Write
S Save to EEPROM

The value of parameter 1024 Pulses highlighted in red means that this value cannot be read. The represented value is the default value.

The value of parameter 1023 Pulses highlighted in yellow background means that the parameter has been changed but has not been written.

The value of parameter 1023 Pulses highlighted in light blue background means that the parameter has been changed and written but has not been saved to EEPROM.

4.5.3 Measure Sheet



This tab allows to display, acquire and graphically represent the time trend of all the device measure parameters. The acquisition results may be printed or saved to disk in RTF or CSV format. You can record the device history data and associate the acquisition of a certain number of measures with its editing. A console for the device remote control is also available.

4.5.3.1 Measure Panel



R Reads the current measure.

☐ **Auto** Performs the measures in automatic mode at time intervals specified by **Acq. Time**

☐ **Acq.** Records the measure. Recording may be done in two ways: either at time intervals specified by **Acq. Time**, only if **En. Acq** is active, or at each device state change, only if ☐ **Acq.** is active in the panel displaying the device state.

☒ **Dis. graph** Graphically represents the quantity trend with respect to time only if **Dis. Graph** is active.

4.5.3.2 State Display Panel

R	<input type="checkbox"/> Auto	M030-Digital Input State from Serial Connection	ENABLE	<input checked="" type="checkbox"/>	<input type="checkbox"/> Acq	<input type="checkbox"/> Gr.	START	<input checked="" type="checkbox"/>	<input type="checkbox"/> Acq	<input type="checkbox"/> Gr.
			MDI1	<input checked="" type="checkbox"/>	<input type="checkbox"/> Acq	<input type="checkbox"/> Gr.	MDI2	<input checked="" type="checkbox"/>	<input type="checkbox"/> Acq	<input type="checkbox"/> Gr.
			MDI3	<input checked="" type="checkbox"/>	<input type="checkbox"/> Acq	<input type="checkbox"/> Gr.	MDI4	<input checked="" type="checkbox"/>	<input type="checkbox"/> Acq	<input type="checkbox"/> Gr.
			MDI5	<input checked="" type="checkbox"/>	<input type="checkbox"/> Acq	<input type="checkbox"/> Gr.	MDI6	<input checked="" type="checkbox"/>	<input type="checkbox"/> Acq	<input type="checkbox"/> Gr.

4.5.3.3 Panel for Device State Display

R	<input type="checkbox"/> Auto	Device status	A022 Drive It Trip	<input type="checkbox"/> Acq
----------	-------------------------------	---------------	--------------------	------------------------------

R Refreshes the device state.

☐ Auto Performs the cyclic reading of the device state. The time interval is specified by **State Acq. Time**.

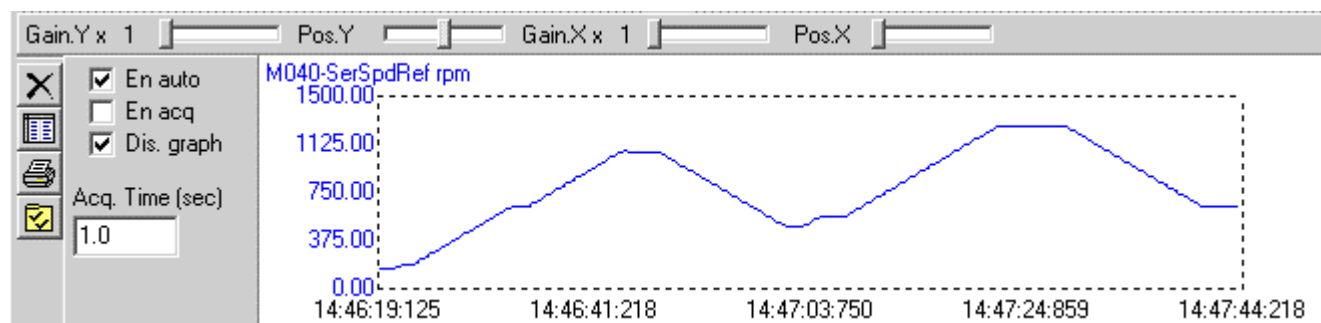
☐ Acq. Enables the device state recording. The actual acquisition will occur only once the state has changed. The state is checked at each time interval specified by **State Acq. Time**. As stated in par. [4.5.3.1](#), you can acquire any measure when the state changes; you just need to enable the relevant ☐ Acq. checkbox.

4.5.3.4 Remote Console Panel

SLRef	-0.74	<input type="range" value="0"/>		-100.00 %	100.00 %		
<input checked="" type="checkbox"/> ENABLE	<input checked="" type="checkbox"/> START	<input checked="" type="checkbox"/> MDI1	<input checked="" type="checkbox"/> MDI2	<input checked="" type="checkbox"/> MDI3	<input checked="" type="checkbox"/> MDI4	<input checked="" type="checkbox"/> MDI5	<input checked="" type="checkbox"/> MDI6

This console allows to control the device by enabling specific parameters. Eight control buttons are available in conjunction with a cursor and a text box to edit the reference value.

4.5.3.5 Graph Panel and Acquisition Table

**Gain. Y**

Vertically zooms to the graph of the selected quantity.

Pos. Y

Adjusts the vertical position of the graph of the selected quantity.

Gain. X

Horizontally zooms to the graph of the selected quantity.

Pos. X

Adjusts the horizontal position of the graph of the selected quantity.

Dis. Graph:

Displays the graph for the trend, with respect to time, of the quantities acquired when ☒ Dis. graph is enabled. See par. [4.5.3.1](#).

En Acq

Enables the quantity acquisition when ☐ En acq is enabled.

The buffer of the acquired value contains 1000000 points max. for 30 channels, is a circular buffer and may be displayed by clicking the **Table** button.

IMPORTANT: during the automatic acquisition, some reading errors will be ignored and the buffer will include the last valid acquired value. If the connection is stopped, the engine managing the automatic acquisition will stop as well and will restart once the connection is established again.

En Auto

Enables the quantity view when ☐ En auto is active.

Acq. Time (sec)

Time interval (in seconds) between two acquisitions.



Cancel

Clears the acquisition buffer.



Table

Opens a print preview window showing the current acquisitions.



Print

Prints the graph. *Printing is possible when no acquisition is in progress.*

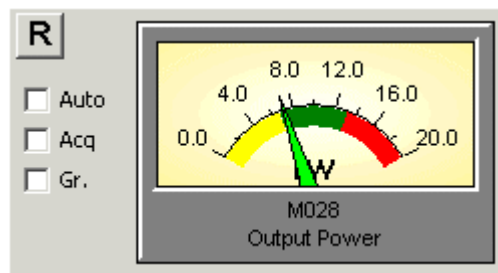


Set Acquisition Saving

Opens the window allowing scheduled saving of the acquisitions [5.6 Set Acquisition Saving Window](#).

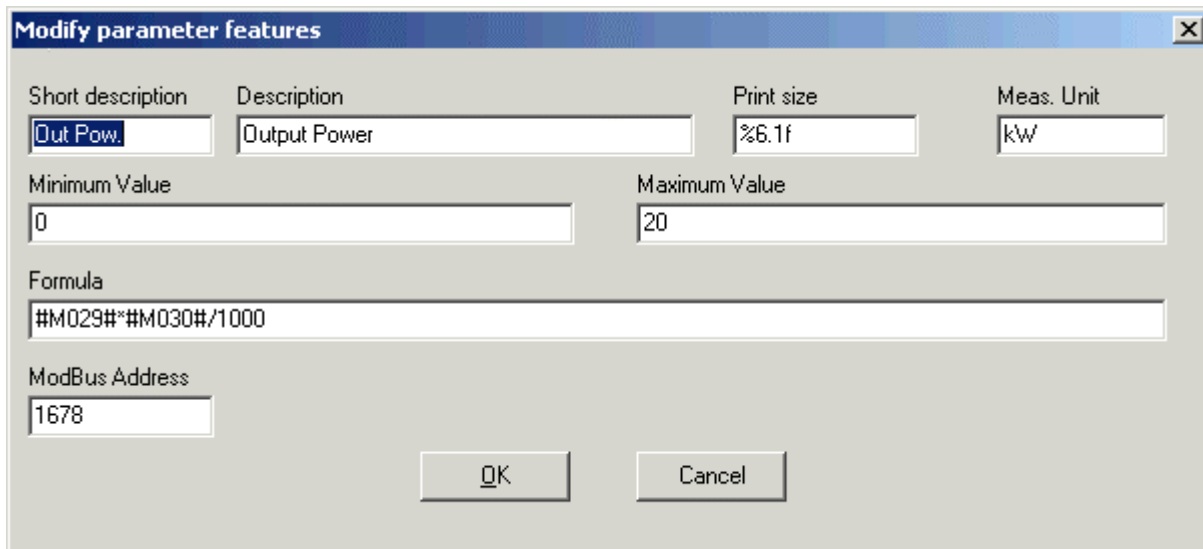
In case of multiple graphical display you can display the values in the Y axis of the quantity by either clicking the value box (for analog values) or the LED icon (for a logic value). The same effect may be obtained by clicking the graph curve.

4.5.3.6 Measure Panel with Custom Properties



Certain measure panels allow to change the properties of the represented measure.

If this function is enabled, right-click to show ; left-click to open the following:



Description of the customizable properties:

Short Description

Parameter description in the Treelist.

Description

Parameter description in the panel.

Print Format

The print format may be decimal (%d) or hexadecimal (%h).

The decimal format represents the display mode of a number with a decimal separator

"%<width>.<decimals>d", where <width> is the character space and <decimals> indicate the decimal numbers following the separator.

Example:

Number 100.123 in "%10.2" format is printed as follows: " 100.12"

Hexadecimal representation is as follows: "%<width>h", where <width> is the character space.

Example:

Number "3F5" in "%5h" format is printed as follows: " 3F5"

Two additional formats are available, allowing to view work time, trip time, etc. They are marked with an S or an M. "S" is displayed as follows: "h..h:mm:ss", while M is displayed as follows: "h..h:mm:ss:zzz" ("zzz" stands for "milliseconds"). The units of the number to be displayed correspond to the seconds, while decimals are the fractions of a second.

Un.Meas.

Unit of measure of the numeric representation.

Minimum Value

Minimum value to be assigned to the measure (enables processing the graph scaling).

Maximum Value

Maximum value to be assigned to the measure (enables processing the graph scaling).

Formula

String representing the formula to be processed in order to obtain the parameter value. You can refer to parameters relating to different equipment at different addresses to obtain the parameter value. Express references as follows: **#d:a:p#**, where **d** is the equipment identifier, **a** is the address, and **p** is the parameter identifier.

Example: #ST1508:2:M003#.

You can refer to a value read directly from the modbus; the function syntax is the following:

@t:a:n

where

t indicates how the read value should be processed: **S**: integer with sign +/- (16 bits), **U**: integer with no sign (16 bits), **f**: float (32 bits);

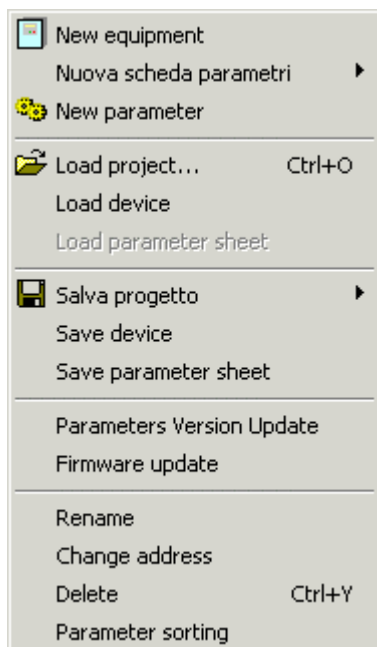
a is the address of the device;

n decimal modbus address to be read.

Example: @S:1:1000+@U:2:1200*@f:3:100

Changes will be saved to the project file

4.5.4 File Menu



The File Menu includes all the commands required for the control of the tree list for the following parameters: Creation, saving, loading, deletion and editing.

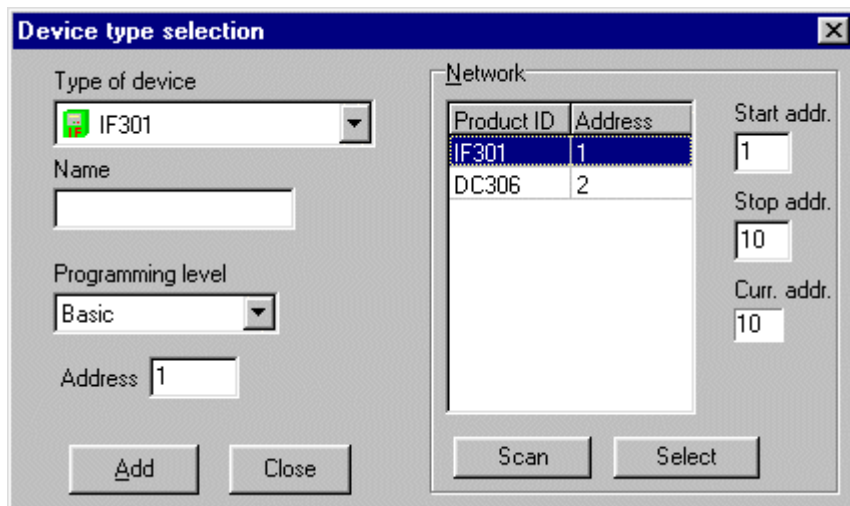
IMPORTANT: When you save the parameter list, you save the parameter value and its features, such as: its ID (e.g. P000), type (e.g. DC), firmware version (e.g. 307), and MODBUS address of the device it refers to. The same is true for the parameter loading.

The values of the parameters loaded from file are not automatically written in the device. If this is required, you have to write them using the "Write Selection" or "Write All" commands.

4.5.4.1 New Device

Adds a new device and the relevant parameters to the TreeList.

IMPORTANT: During the uploading of the parameter list, the application will try to read the device value. If the device is in off-line mode, the off-line error message will be displayed and the parameter will be set to its default value.



The dialog box "Device type selection" contains the following elements:

- Type of device:** A dropdown menu showing "IF301".
- Name:** An empty text input field.
- Programming level:** A dropdown menu showing "Basic".
- Address:** A text input field containing "1".
- Buttons:** "Add" and "Close" at the bottom left.
- Network groupbox:**
 - A table with columns "Product ID" and "Address":

Product ID	Address
IF301	1
DC306	2
 - Buttons "Scan" and "Select" at the bottom right of the table.
 - Fields for "Start addr." (1), "Stop addr." (10), and "Curr. addr." (10) on the right side.

Type of device

The "Type of device" combobox allows to select the device type and firmware version. The selection of one of the available versions automatically creates the relevant parameter list, whose structure depends on the programming level chosen by its combobox.

The list includes the "hybrid" item allowing to create a hybrid device (with no preset parameter list tree). Therefore, you can build a totally custom parameter list.

Name

Name of the device (optional).

Programming level

Determines the parameter list that will be entered in the parameter structure: for example the "Basic" programming includes the main parameters, whereas the "Advanced" programming includes a list with all parameters.

Address

MODBUS address of the device.

4.5.4.2 Device Scanning

The **Network** groupbox allows to scan the network-connected devices. The acknowledged devices will be listed in a table. You can then select one of them and add it to the project.

Start addr. and **Stop addr.** allow to select the address field to scan (the max. value for **Stop Addr.** is 247).

Click Scan to start scanning and Stop Scan to stop scanning.

4.5.4.3 New Parameter Sheet

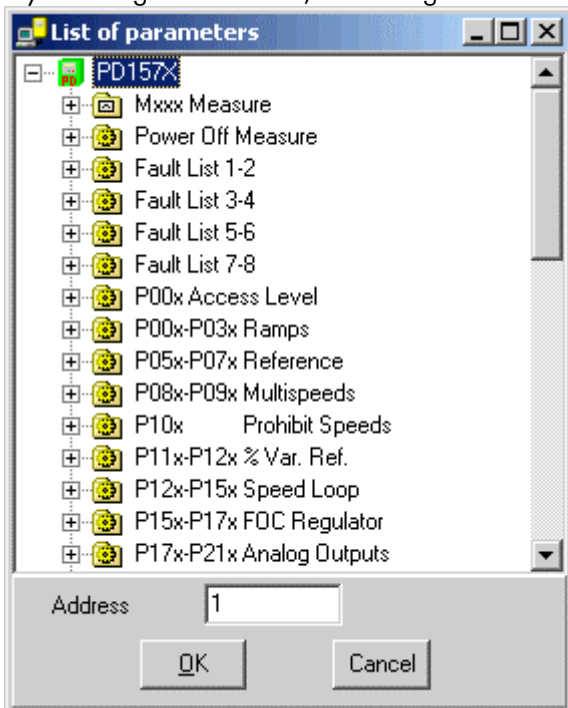
Creates a new parameter sheet for the selected device.
You can create a standard or custom parameter sheet.

The standard sheet may be chosen from a parameter list.

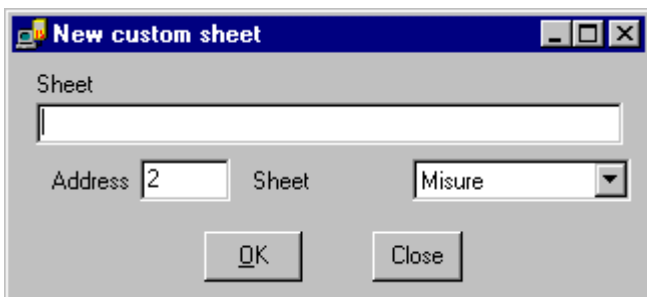
If the device is not hybrid, the list will include only the sheets associated with the device type and firmware version; otherwise, the list will contain the parameter sheet of the devices controlled by the application.

If you select a sheet and confirm your selection, the sheet will be created with all the parameters it contains. If you open the sheet and select one of the parameters it contains, once you confirm your selection, the system will create the sheet containing only the selected parameter.

If you change the address, this change will affect any parameters in the newly created sheet.



The custom sheet is blank and is to be filled in by the user. When a custom sheet is created, the following window will appear:



Sheet name:

Name assigned to the sheet.

Address:

Address proposed whenever a parameter is added to the sheet.

Sheet type:

It can be a Measure or Parameter sheet.

4.5.4.4 New Parameter

Adds a parameter to the selected sheet:

If the sheet is a standard one for a non-hybrid device, the parameter list related to the parameter sheet will be displayed.

If the sheet is a custom one for a non-hybrid device, the list of the parameters related to the device owning the sheet will be displayed.

If the sheet is owned by a hybrid device, the whole parameter list will be displayed, i.e. all the parameters for the devices controlled by the application will be displayed.

4.5.4.5 Load Project

Loads from disk the data and structure of a project. The current project window is deleted. The extension of the project files is "prj".

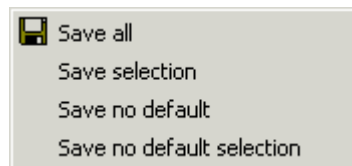
4.5.4.6 Load Device

Loads from disk the data and structure of a device and enters it in the project. The extension of the device files is "dev".

4.5.4.7 Load Parameter Sheet

Loads from disk the data and structure of a parameter sheet and enters it in the selected device. The extension of the parameter sheet files is "sht".

4.5.4.8 Save Project



4.5.4.8.1 Save All

Saves the whole project.

4.5.4.8.2 Save Sel.

Saves the parameters relating to the selected objects.

4.5.4.8.3 Save No Default

Saves the parameters having different values than the default values.

4.5.4.8.4 Save Sel. No Default

Saves the parameters relating to the selected objects having different values than the default values.

For each option, the following items are also saved: display settings, connection settings, position and size of the windows relating to the current project.

Project files have a "prj" extension.

4.5.4.9 Save Device

Saves to disk the data and structure of the selected device. The extension of the device files is "dev".

4.5.4.10 Save Parameter Sheet

Saves to disk the data and structure of the selected parameter sheet. The extension of the parameter sheet files is "sht".

4.5.4.11 Parameter Version Updating

Opens the window allowing parameter version updating. See 0.

4.5.4.12 Refresh Firmware

Opens the firmware download utility of the equipment; see 4.10

4.5.4.13 Rename

Allows to enter a new name for the selected sheet or device.

4.5.4.14 Change Address

Changes the address for all the parameters of the selected object.

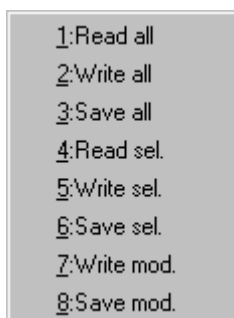
4.5.4.15 Delete

Deletes the selected object.

4.5.4.16 Parameter Sorting

Sorts the parameter list in alphabetical order.

4.5.5 Parameters Menu



Menu for the parameter reading and writing commands:

4.5.5.1 Read All:

Reads from the devices all the parameters listed in the TreeList.

4.5.5.2 Write All:

Writes to the devices all the parameters listed in the TreeList.

4.5.5.3 Save All:

Saves to the devices EEPROM all the parameters listed in the TreeList.

4.5.5.4 Read Sel.:

Reads from the devices the parameters related to the selected object.

4.5.5.5 Write Sel.:

Writes to the devices the parameters related to the selected object.

4.5.5.6 Save Sel.:

Saves to the devices EEPROM the parameters related to the selected object.

4.5.5.7 Write Mod.:

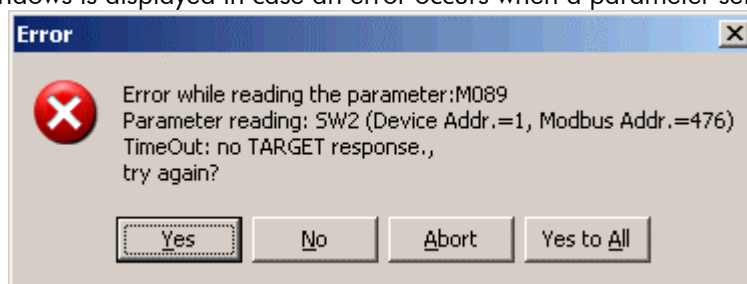
Writes to the devices the modified parameters that have never been written.

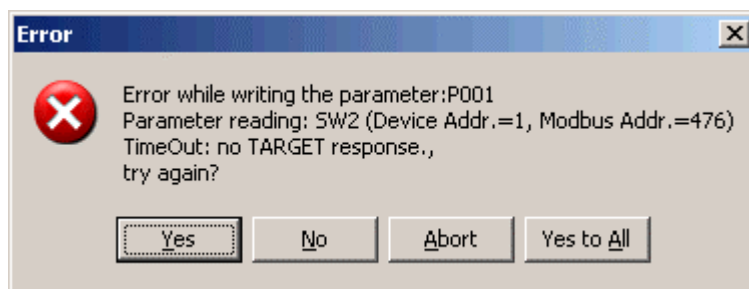
4.5.5.8 Save Mod.:

Saves to the devices EEPROM the modified parameters.

Error Control While Reading or Writing Parameter Sets

One of the following windows is displayed in case an error occurs when a parameter set is read or written:





Selecting:

Yes, repeats the operation responsible for the error; if a positive result is obtained, the next parameters are processed, otherwise an error window appears.

No, interrupts the process for the current parameters and goes on with the next parameter.

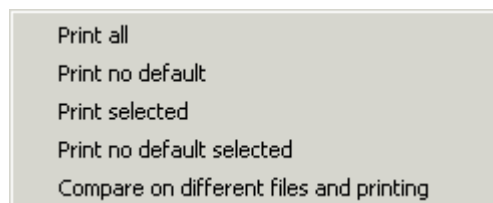
Abort, the process is interrupted and cannot be resumed.

Yes to All, goes on with the next parameter and overrides the parameter that caused the error, but with a stronger read cycle: the error condition will occur after the following sequence:

<4 attempts> ---- <pause 2 seconds> ---- <4 attempts> ---- <pause 2 seconds> ---- <4 attempts>

This is particularly useful for disrupted environments.

4.5.6 Print Menu






Parameter print command menu:

NOTE: Unread values, usually due to communication errors, will be represented with a sequence of asterisks*****.

4.5.6.1 Print All:

Prints the whole list of the parameters contained in the TreeList.

Print preview.



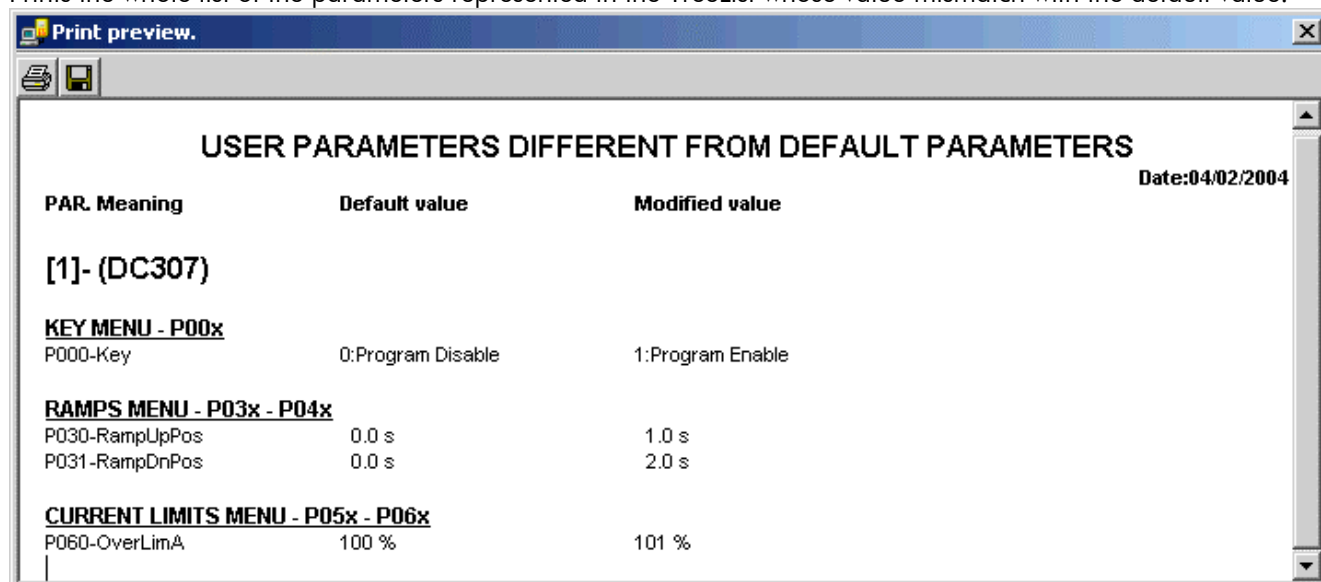
USER PARAMETER LIST

Date:10/07/2002

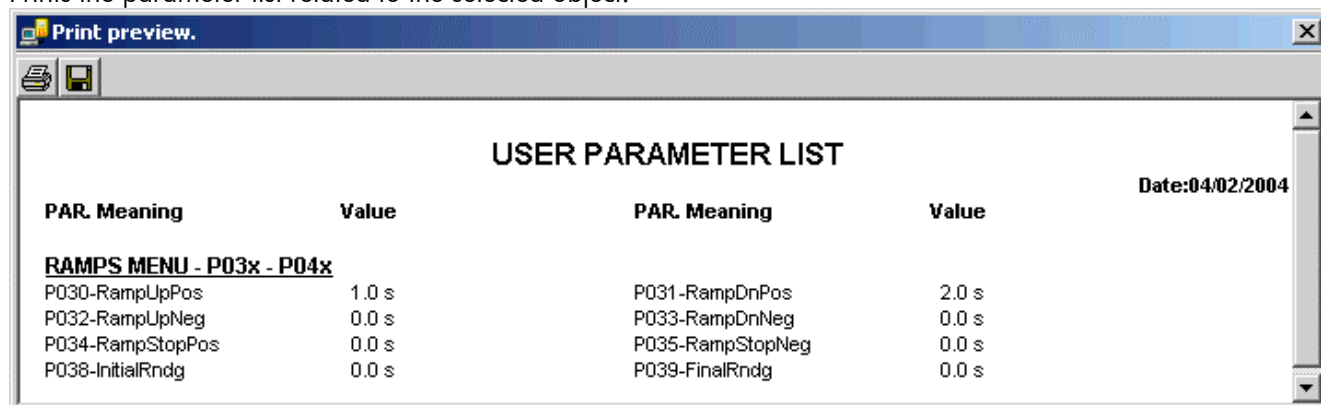
PAR. Meaning	Value	PAR. Meaning	Value
[1]-Motor:1 (DC307)			
<u>MEASURE MENU - Mxxx</u>			
X001-RemConsole		X002-Dev.Status	A002 Heatsink
Trip			
M000-Vref	13.14 %	M001-nFdbk	0.24 %
<u>KEY MENU - P00x</u>			
P000-Key	0:Program Disable	P001-AutoTune	0:Disabled
P003-ProgLevel	0:Basic		
<u>SPEED LIMITS MENU - P01x - P02x</u>			
P010-nFdbkMax	2500 RPM	P011-VarmMax	400 V

4.5.6.2 Print No Default Parameter:

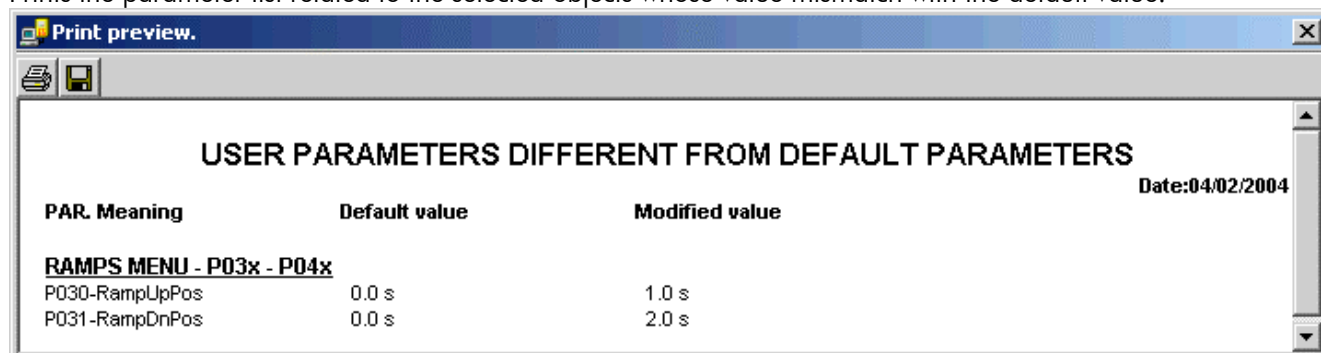
Prints the whole list of the parameters represented in the TreeList whose value mismatch with the default value.

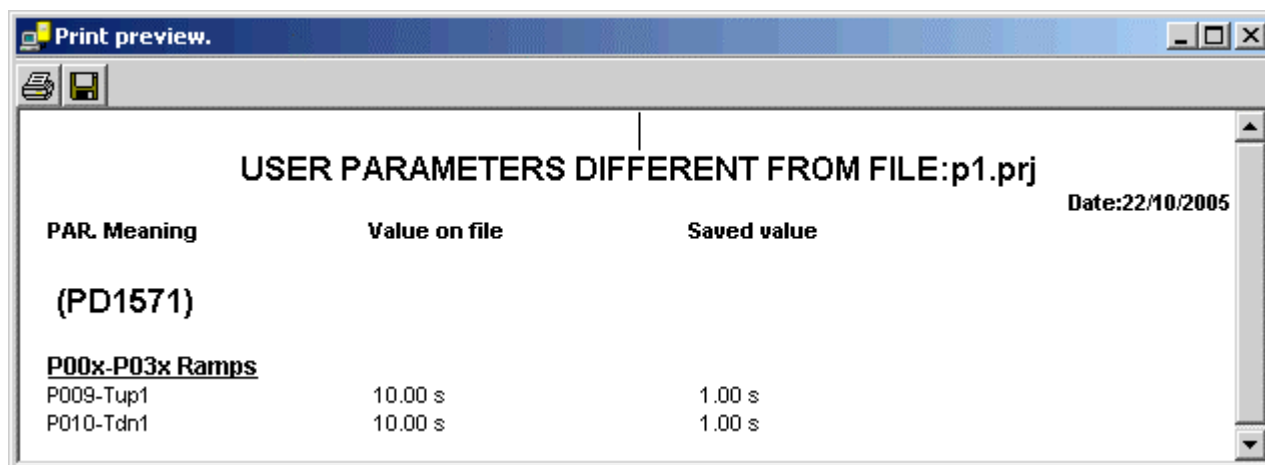
4.5.6.3 Print Sel.:

Prints the parameter list related to the selected object.

4.5.6.4 Print No Default Sel.:

Prints the parameter list related to the selected objects whose value mismatch with the default value.



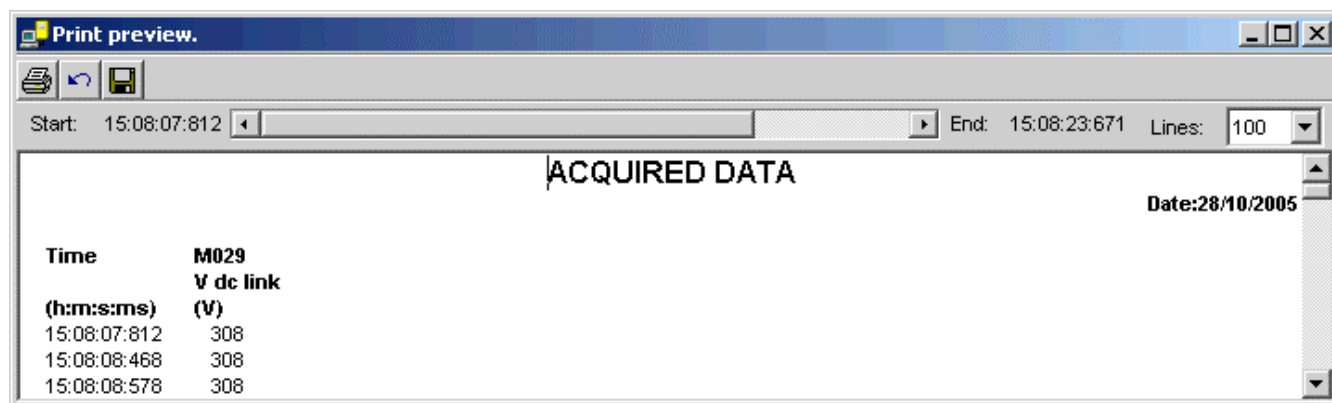
4.5.6.5 Print Different from File:

Compares the values of the project parameters stored to the values saved to a specified file and prints the list of the different parameters. If a stored parameter has no corresponding value, it is marked with "<not found>". The stored values are the values stored in the computer, not in the equipment.

4.5.7 *Options Menu*

Opens the Option window (see par. [4.8](#)).

4.6 PRINT PREVIEW WINDOW FOR ACQUIRED DATA



The text can be modified, so you can enter some comments.



Prints the document contents.



Updates the acquisition list.

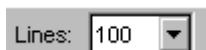


Saves the list to disk in RTF or CSV format.

CSV format may be read by any electronic sheet, so you can use it for additional changes.

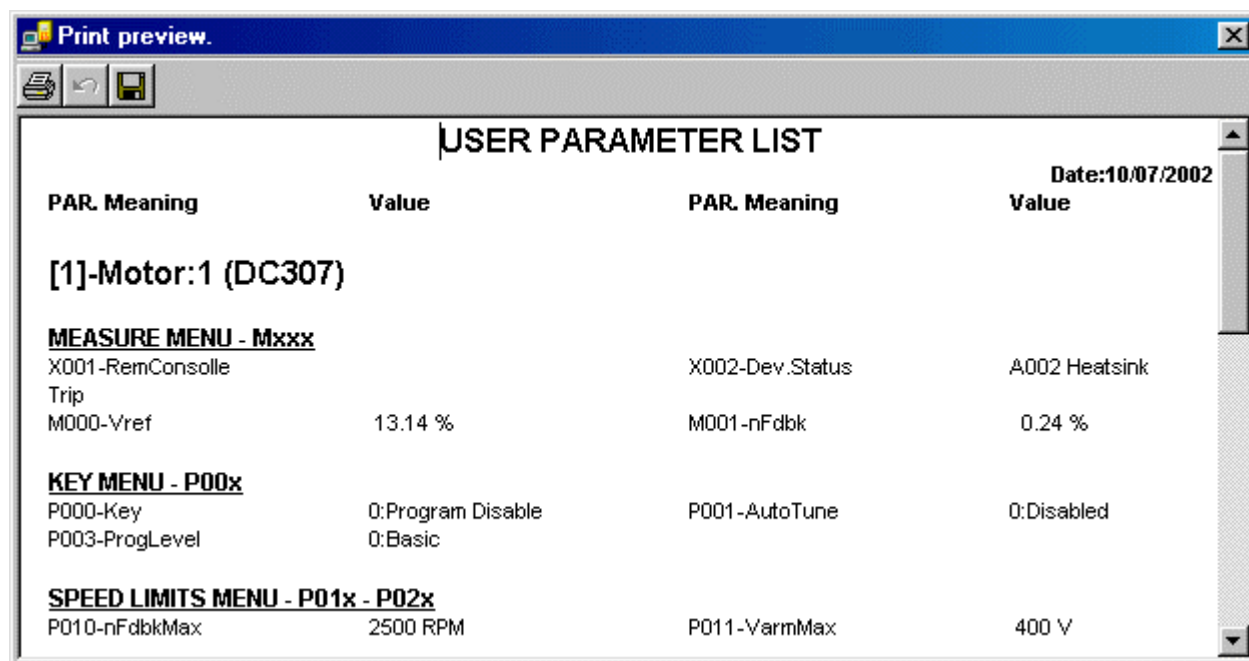


This scrollbar allows to display some samples stored from any position; this is useful when the acquisition list becomes longer and longer.



This combobox allows to choose the amount of acquisition lines to be displayed in the window.

4.7 PARAMETER PRINT PREVIEW WINDOW



The text can be modified, so you can enter some comments.

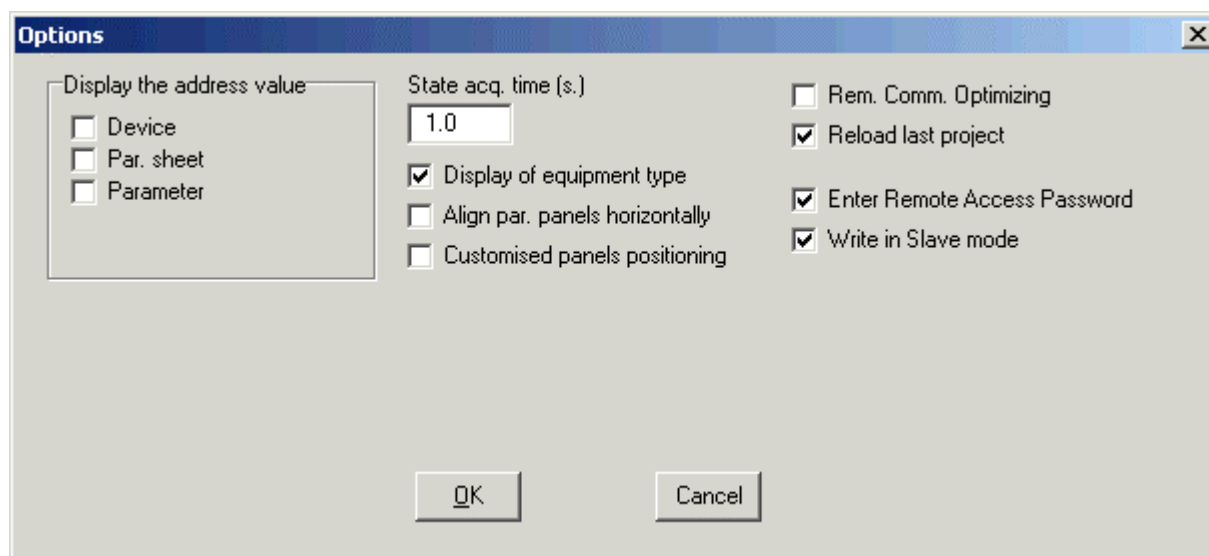


Prints the document contents.



Saves the list to disk in RTF format.

4.8 OPTIONS WINDOW



Display the address value:

Selection options to enable or disable the device address, parameter sheets and parameters in the TreeList.

State acquisition time:

Time interval, in seconds, of the device state polling.

View Type of Equipment

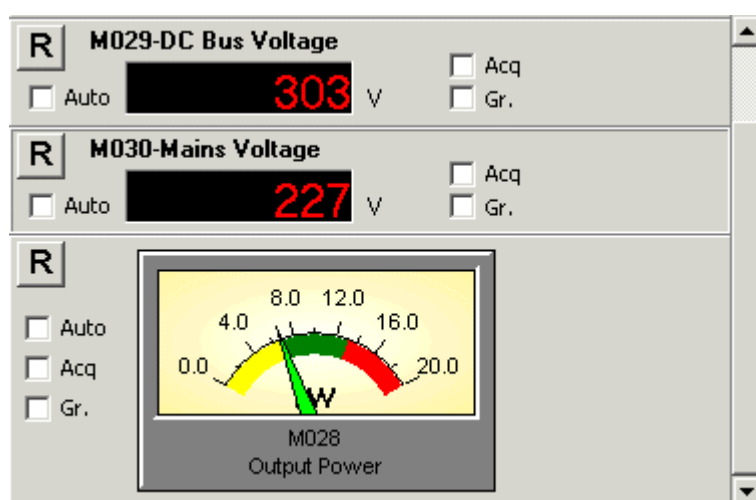
Views the type of equipment in brackets near the name  Device 1 (PD1571)

IMPORTANT: Editing will have effect when the project is next loaded.

Arrange Par. Panel Horizontally

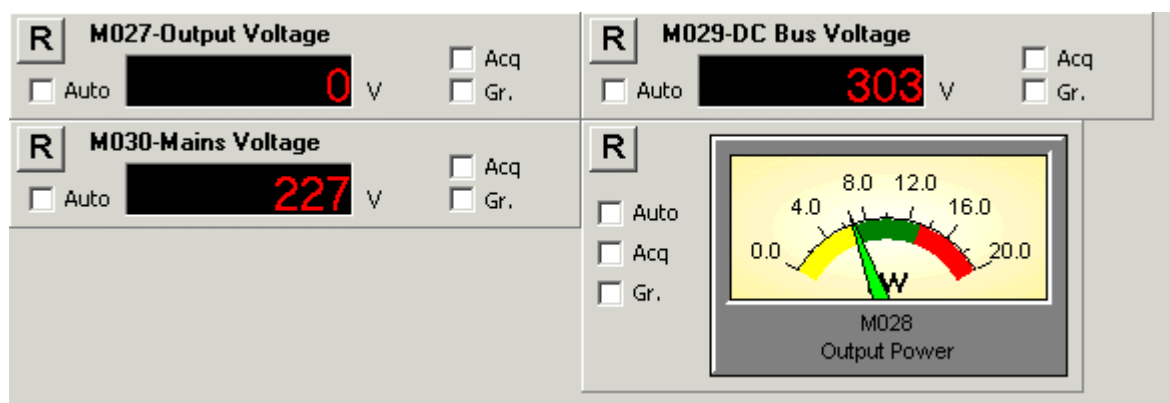
Arranges measure panels from upwards to one column


☒ Align par. panels horizontally



If inactive, it arranges panels from left to right depending on the horizontal space available in the sheet:

☐ Align par. panels horizontally



IMPORTANT: This is active for measure sheets only . Editing will have effect when the parameter sheet is next changed.

Custom Panel Position

The position of the measure panels is customizable and is stored to the project file.

To move one panel to a different position, use the mouse to drag the selected panel while holding down **Ctrl** (always point to the background of the selected panel).

Remote Communications Optimization:

Optimizes data acquisition time and data transfer rate when slow connections are used. This is particularly useful for remote acquisition with Internet connections.

Acquisition times are managed by the slave server, which sends data acquired from the master server by taking advantage of the benefits of the TCP protocol. If communications slow down, this will not affect the acquisition time.

IMPORTANT: The function settings must be the same both for Remote Drive configured as a slave and for Remote Drive configured as the master.

Reload Last Project

The last project that has been saved is loaded at startup; if the project was saved with an active connection, it also restores the connection.

Enter Remote Access Password

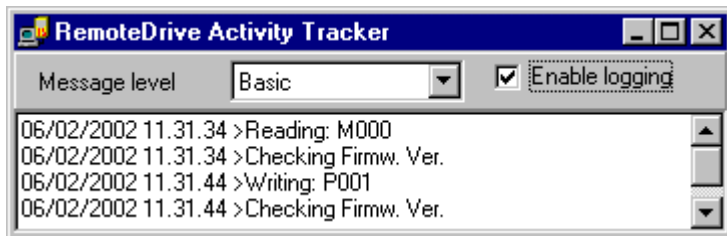
Allows to set an access password in **Slave server** mode. Initially, the default password is used, then the user-defined password (from the **Config. -> Change Remote Access Password** menu) will be used.

Write in Slave Mode

Enables writing and saving parameters in slave mode: [5.3.1.1](#). A password is required; initially, the default password is used, then the user-defined password (from the **Config. -> Change Write Password in Slave Mode** menu) will be used.

Opens the window of the firmware download utility of the equipment

4.9 REMOTE DRIVE ACTIVITY TRACKER WINDOW



Window related to Remote Drive activity tracker (log book).

The activity tracker, if enabled, stores any Remote Drive's activities (parameter reading and writing, communication errors, and so on).

Each recorded message is displayed with date and time and is stored in the "LogBook.txt" file. This file is never deleted; the application only adds new messages to the file. The logging is disabled by default and is to be enabled only when required. If Remote Drive activity is very demanding, the "LogBook.txt" file size will remarkably increase. If you are not interested in the content of the "LogBook.txt" file, you can delete it; the application will automatically rebuild it when required.

Message level:

Four message classes are available:

1. "Acq": views errors and events for saving to file of the current acquisitions
2. "Basic": views errors and ordinary read/write parameters to modbus
3. "Advanced": like "Basic", plus contents of remote communications messages
4. "Engineering": like "Advanced", plus detailed modbus activity.

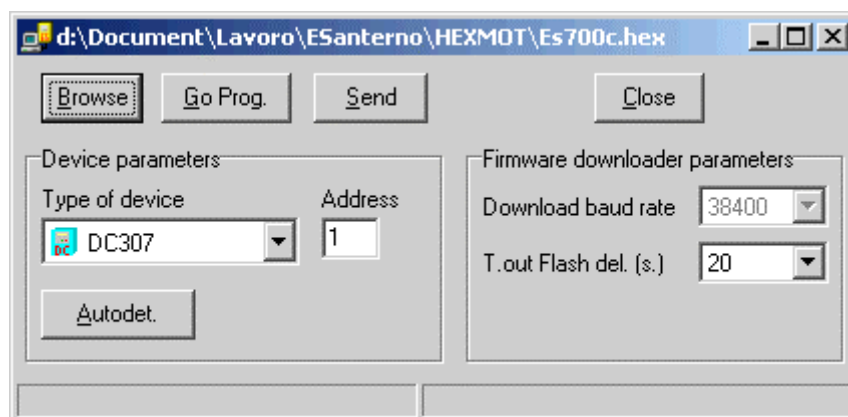
Enable logging:

Enables any functionality of Remote Drive Activity Tracker.

4.10 DEVICE FIRMWARE UPGRADE WINDOW

Use this panel to upgrade the device firmware.

Before this window opens, you have to enter the name of the hexadecimal file (*.hex or *.mot) containing the new firmware version. When the window is open, you can change the upgrade file by clicking the "Browse" command:



Device type

Device type and firmware version to be updated. The "Autodetect" button, if available, allows the automatic detection of the device type and firmware version.

Address

MODBUS address of the device.

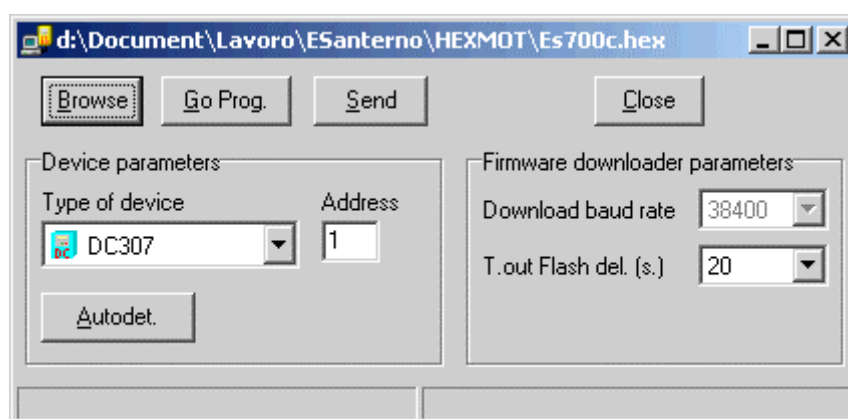
Download baud rate (bps)

Data transfer speed during download (modifiable for Sinus Penta types devices only).

Flash Erasing T.out (s)

Max. time in sec. between flash erasing command and response after erasing.

4.10.1 Download procedure for DCREG (DC) type devices



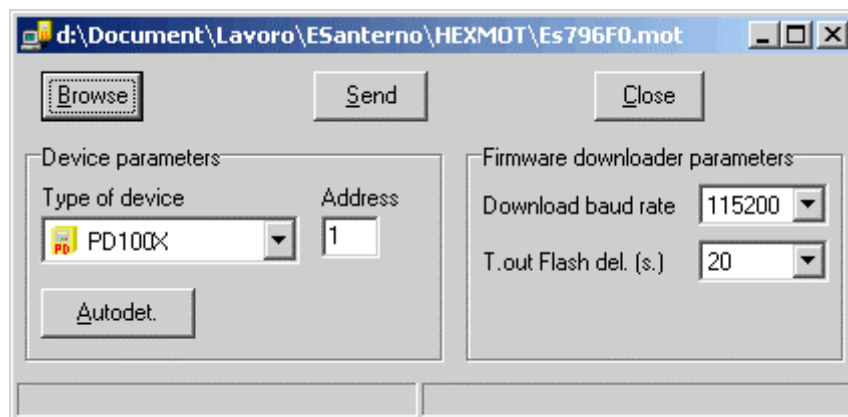
firmware download

1. In case of multidrop connection (RS485), only the device to be upgraded is to be left connected to the network.
2. Choose the right type of device and address.
3. Click "Go prog". This command checks if the selected device type is valid and if the upgrade file complies with it. In this case, it sends a preliminary upgrade command to the device.
4. You can now start writing the device internal flash memory by clicking "Send".
The flash memory writing procedure is preceded by an erasing stage that will last a few seconds. This is controlled by a timeout procedure (see ["Flash Erasing T.out"](#)) allowing to detect any interruption of this stage. When the timeout is over, if the erasing continues, the procedure will stop and a time-out message will be displayed.

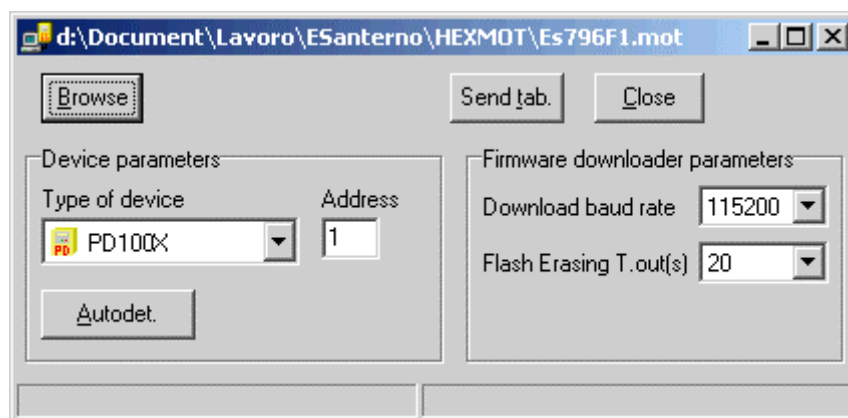
4.10.2 Download procedures for IPL (IP) type devices and for Sinus Penta (PD) type devices and its applications (Px)

Two download procedures are allowable: firmware or MMI table. Both of them make use of *.mot hexadecimal files; the distinction between them is made by means of the file name: if it terminates with F0 is firmware; if it terminates with F1 is an MMI table.

According to the type of the selected file the application makes the command buttons necessary to operate allowable.



firmware download



MMI table download

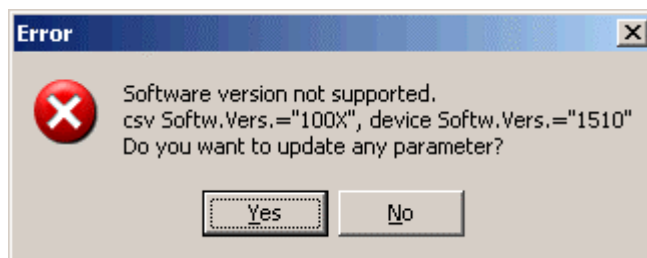
1. In case of multidrop connection (RS485), only the device to be upgraded is to be left connected to the network.

2. Choose the right type of device and address.

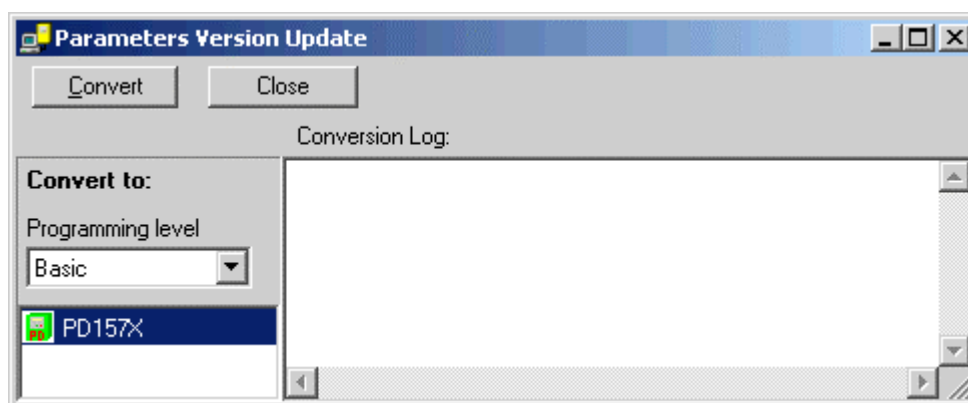
Click "Send" or "Send tab". This commands check if the selected device type is valid and if the upgrade file complies with it. In this case, it sends a preliminary upgrade command to the device. The flash memory writing procedure is preceded by an erasing stage that will last a few seconds. This is controlled by a timeout procedure (see ["Flash Erasing T.out"](#)) allowing to detect any interruption of this stage. When the timeout is over, if the erasing continues, the procedure will stop and a time-out message will be displayed.

PARAMETER UPDATING WINDOW

This window is used to update the parameters of the previous version that are saved to a prj file. This window pops up when you confirm the following message:



that appears when you try to write parameters loaded from a file to a drive where the new parameter version is installed.



Before starting the conversion procedure, choose the **programming level** for the integration of the parameter set to be converted.

Conversion is to be done when the equipment is connected.

Press the "Convert" button to start parameter conversion. This includes three steps:

1. Uploading of the selected parameter set.
2. Integration of the old parameters in the new parameter set.
3. Writing of the new parameter set to the equipment "on-line".

If no drive is on-line, the parameter version can be updated off-line by selecting the "Parameter Version Updating" command in the File menu. Step 3 is not performed when the equipment is off-line.

Conversion Log:

This box lists the results of the conversion of each parameter. The conversion results are saved to a text file ("ParamUpdate.log") included in the "logs" folder in Remote Drive.

Below is a list of the possible messages and their description:

Old Ver.	Value	New Ver.	Value
PD100X: P001=	2.00	PD151X: P001=	2.00 OK

Parameter conversion was successful.

Old Ver.	Value	New Ver.	Value
		PD151X: I073=	1.00 OK

This parameter is not to be found in the previous version.

Old Ver.	Value	New Ver.	Value
P185=	0.00	PD151X: P184=	0.00 <<Id changed>>

New parameter Id (from P185 to P184).

Old Ver.	Value	New Ver.	Value
PD100X: C023=	400.00	PD151X: C023=	320.00 <<too high, Clipped>>

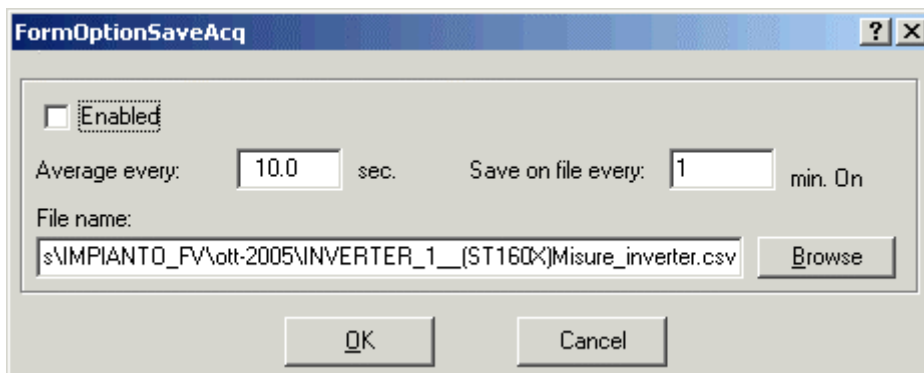
Truncated parameter value (in the latest version, the maximum value for C023 is 320.00, so the old value has been truncated to 320.00).

Old Ver.	Value	New Ver.	Value
PD100X: C024=	10.00	PD151X: C024=	50.00 <<too low, Clipped>>

Truncated parameter value (in the latest version, the minimum value for C024 is 50.00, so the old value has been truncated to 50.00).

Old Ver.	Value	New Ver.	Value
PD100X: C008=	22.00	PD151X: C008=	22.00 <<Cannot write is readonly!>>

The parameter cannot be written because it is readonly at the moment.

4.11 ACQUISITION SAVING SETTINGS WINDOW


The dialog box "FormOptionSaveAcq" contains the following settings:

- ☐ Enabled
- Average every: 10.0 sec.
- Save on file every: 1 min. On
- File name: s:\IMPIANTO_FV\ott-2005\INVERTER_1__(ST160X)Misure_inverter.csv
- Browse button
- OK button
- Cancel button

Window containing the configuration panel for scheduled saving to file of the acquired data related to the active measure sheet.

4.11.1 Enabled

Save to file: active.

4.11.2 Average Every

Saves to file the average number of the acquired data depending on the preset delay. Set an average time equal to or multiple of the acquisition time. If the average time is the same as the acquisition time, data is saved to file with no average time processing.

4.11.3 Save to File Every

Delay for saving to file.

4.11.4 File Name

Path including the name of the file for data saving.

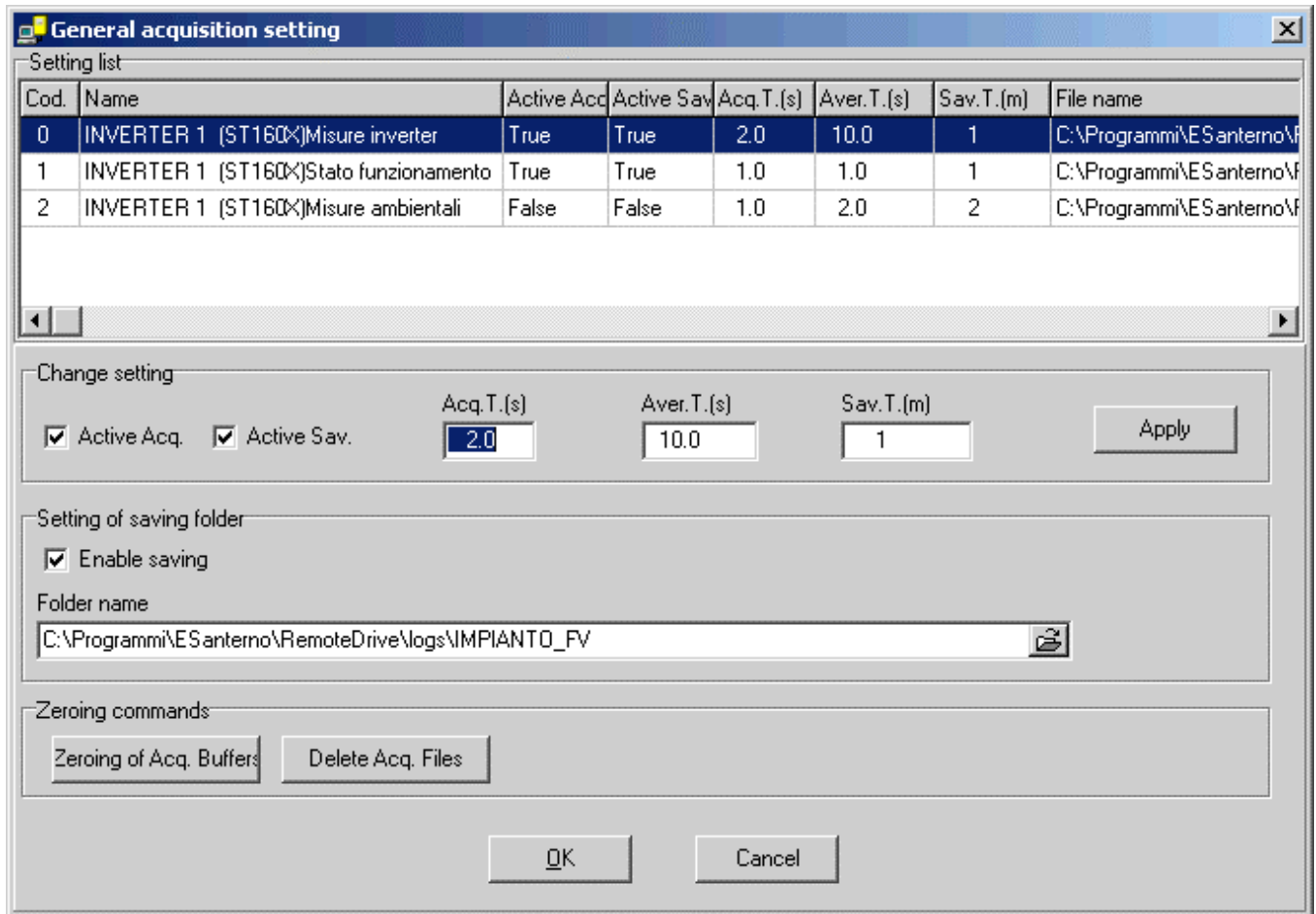
Whenever data is saved, the system verifies that the file is present; if so, a backup file (same file name with a .bak extension) is created and data acquired in the preset time interval are appended; otherwise, the file is created and data acquired in the preset time interval is saved.

The format of the saved file is CSV; separators and punctuation marks comply with the international options and the options of the language of the operating system.

Caution: When this function is active, do not open the file with applications privileging this type of file (e.g. MS Excel), otherwise Remote Drive will not be capable of saving the file.

All parameters in this window are saved to the project file.

4.12 ACQUISITION GENERAL SETTINGS WINDOW



Cod.	Name	Active Acq.	Active Sav.	Acq. T. (s)	Aver. T. (s)	Sav. T. (m)	File name
0	INVERTER 1 (ST160X) Misura inverter	True	True	2.0	10.0	1	C:\Programmi\ESanterno\F
1	INVERTER 1 (ST160X) Stato funzionamento	True	True	1.0	1.0	1	C:\Programmi\ESanterno\F
2	INVERTER 1 (ST160X) Misure ambientali	False	False	1.0	2.0	2	C:\Programmi\ESanterno\F

Change setting

☒ Active Acq. ☒ Active Sav. Acq. T. (s) 2.0 Aver. T. (s) 10.0 Sav. T. (m) 1 Apply

Setting of saving folder

☒ Enable saving

Folder name
C:\Programmi\ESanterno\RemoteDrive\logs\IMPIANTO_FV

Zeroing commands

Zeroing of Acq. Buffers Delete Acq. Files

OK Cancel

The window called Acquisition General Settings prepares the system to an acquisition process allowing to save to one folder any data resulting from the different measure sheets, as stated in section [5.13.3](#).

Procedures for the Acquisition Process

1. Stop the acquisition engine.
2. Use ☐ Acq. to choose the measure parameters to be acquired from the measure sheets; see section 4.5.3.1 Measure Panel.
3. Open the window.
4. Define the name of the folder for the acquisition files and enable saving: 4.12.3 Saving Folder Settings.
5. Reset the acquisition buffers and delete the old acquisition files if necessary: 4.12.4 Reset Commands.
6. Close the window.
7. Start the acquisition engine.

4.12.1 Setting List

The "Settings List" table lists all measure sheets in the project. Each line corresponds to one sheet

Description of the columns in the table:

4.12.1.1 Cod.

Progressive number of the measure sheet.

4.12.1.2 Name

Name of the measure sheet.

4.12.1.3 ActiveAcq

Indicates if the acquisition is active: *True=Active False=Inactive*. It corresponds to: **En. Acq.** In 4.5.3.5 **Graph Panel and Acquisition Table**.

4.12.1.4 SaveActive

Scheduled saving to file is active: *True=Active False=Inactive*. It corresponds to: 4.11.1 **Enabled**.

4.12.1.5 T.Acq(s.)

Delay between two acquisition events expressed in seconds. It corresponds to: **Acq.Time** in 4.5.3.5 **Graph Panel and Acquisition Table**.

4.12.1.6 Aver.T. (s.)

Average time. Delay allowing to process the average number of the registered samples. This is expressed in seconds. It corresponds to: 4.11.4 **Average Every**.

4.12.1.7 Sav.T. (m.)

Delay for the acquisitions to be saved to file. This is expressed in minutes and corresponds to: 4.11.3 **Save to File Every**.

4.12.1.8 File Name

Path with the name of the CSV file for the acquisitions related to the measure sheet. It corresponds to: 4.11.4 **File Name**.

4.12.2 Change Settings

Panel allowing to change the values in the table. Select a line in the table to automatically reproduce the relevant parameters in the panel. Press Apply to confirm changes.

If multiple lines are selected in the table, changes will be applied to all the selected lines.

The file name cannot be changed. To change the file name, use 4.11.4 **File Name**.

4.12.3 Saving Folder Settings

Panel for the configuration of the "autosave" function to one folder of the acquisitions in the project. Enter folder name in: **Folder Name**.

If this function is enabled (**Enable Saving**), the file name saving the acquisitions of each measure sheet is no longer customizable but will be forced to the following formula:

<contents of Folder Name> + <month and year mmm-yyyy> + <name of the equipment > + <name of the measure sheet> + <extension csv>. Blanks (if any) are replaced with "_".

Example:

C:\Programmi\ESanterno\RemoteDrive\logs\IMPIANTO_FV\ago-2005\INVERTER_1__(ST150X)Misura_inverter.csv

C:\Programmi\ESanterno\RemoteDrive\logs\IMPIANTO_FV\ago-2005\INVERTER_1__(ST150X)Stato_funzionamento.csv

C:\Programmi\ESanterno\RemoteDrive\logs\IMPIANTO_FV\ago-2005\INVERTER_1__(ST160X)Misura_ambientali.csv

The "mmm-yyyy" item is created based on the computer clock. The acquisition files will be divided by subfolders corresponding to the month and year when they were saved.

4.12.4 Reset Commands

4.12.4.1 Reset Acq. Buffers

Resets all acquisition buffers for the measure sheets.

4.12.4.2 Delete Acq. Files

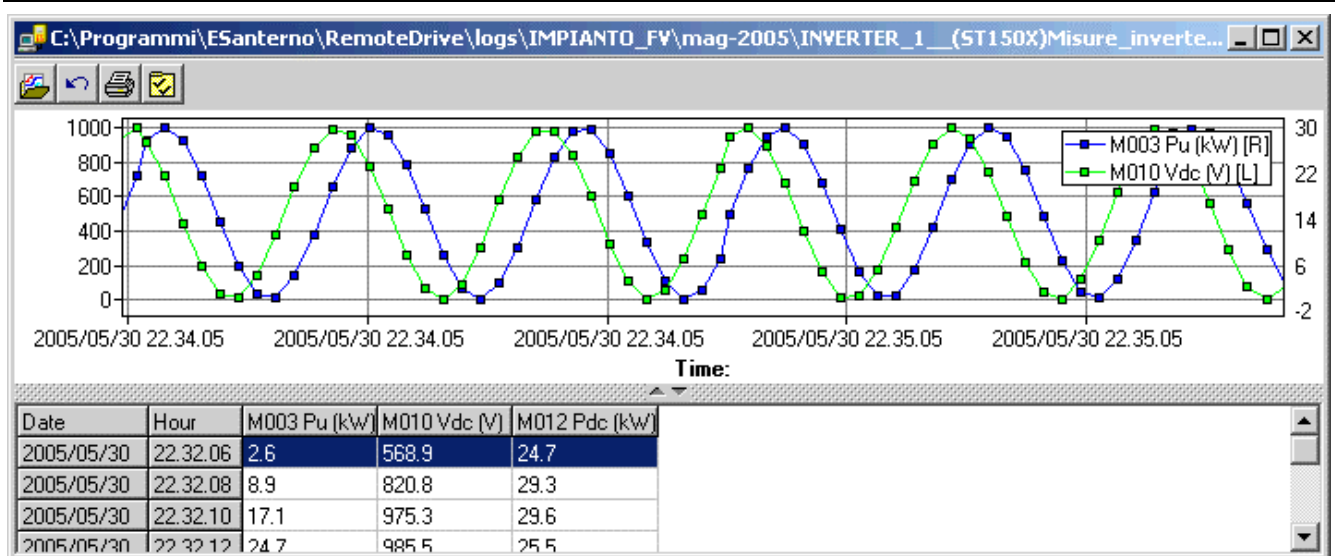
Deletes all files containing the acquisitions of the current folder (use with caution!).

Example:

With reference to the example above, this would delete the contents of

"C:\Programmi\ESanterno\RemoteDrive\logs\IMPIANTO_FV\ago-2005". Backup files (*.bak) are not deleted.

4.13 GRAPH WINDOW



The Graph window graphically represents the data acquired from Remote Drive in csv files.

Zoom in: select a graph region with the mouse and hold down the Shift key.

To move the graph: drag the graph with the mouse and hold down Ctrl.

To return to the initial condition: hold down the Shift key and left-click.



Selects a csv file.



Refreshes display; this is useful to collect the latest data when the file is being acquired.

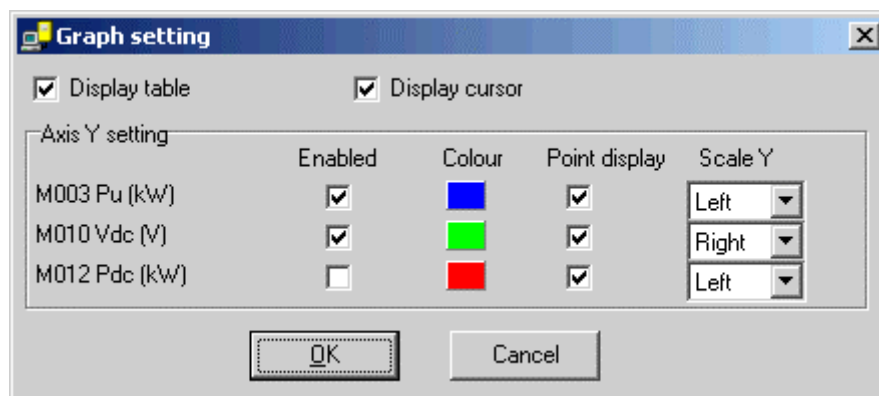


Print graph.



Graph settings.

4.14 GRAPH SETTINGS WINDOW

**View Table**

Views the table with graphically represented values.

View Cursor

Views a cursor to localize the graph region corresponding to the line selected in the data table.

Setting Y axes:**Enabled**

Views the graph of the selected variable.

Colour

Colour of the pattern corresponding to the selected variable: click a colour to apply it to the pattern.

ViewPoints

Highlights the points corresponding to the data in the table.

ScaleY

Selects the scaling of the selected variable on the right/left Y axis in the graph.

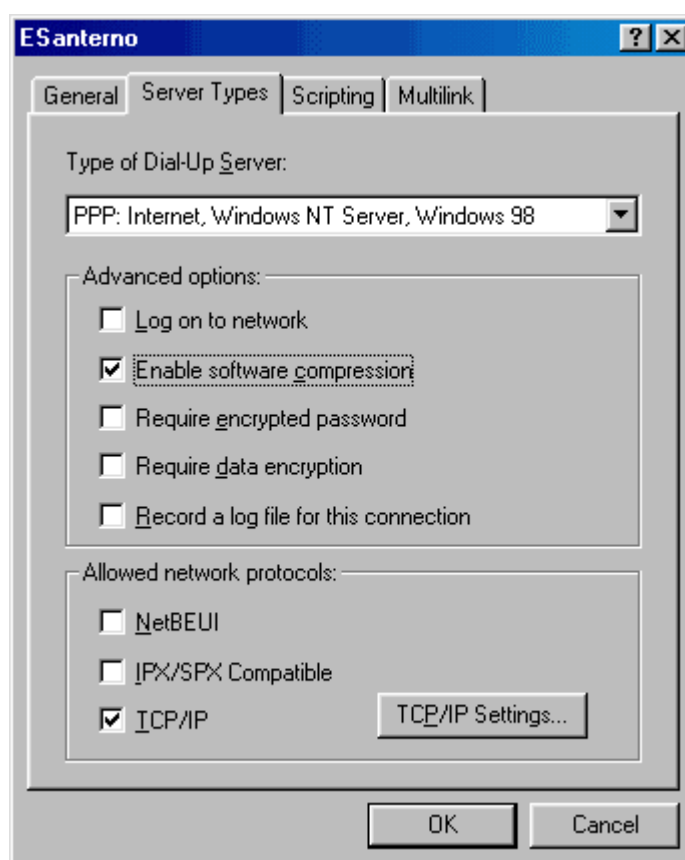
5 CONFIGURATION OF THE O.S. FOR POINT-TO-POINT CONNECTIONS

5.1 WINDOWS 98

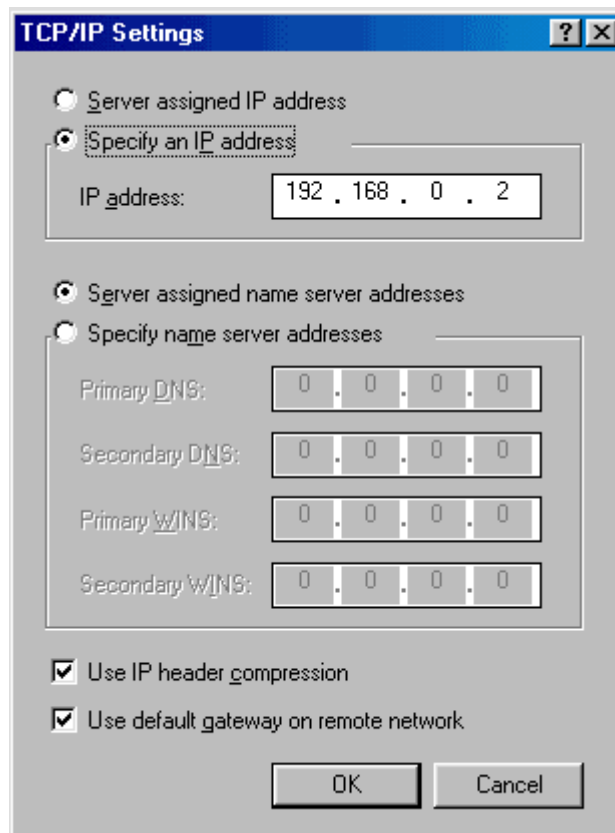
5.1.1 Client

Create a new connection from the remote access window:  Make New Connection . Enter the telephone number of the modem that will be called.

Access the connection properties and set the "Server Types" tab as follows:



and the "TCP/IP Settings" window as follows



TCP/IP Settings [?] [X]

☐ Server assigned IP address

☒ Specify an IP address

IP address: 192 . 168 . 0 . 2

☒ Server assigned name server addresses

☒ Specify name server addresses

Primary DNS: 0 . 0 . 0 . 0

Secondary DNS: 0 . 0 . 0 . 0

Primary WINS: 0 . 0 . 0 . 0

Secondary WINS: 0 . 0 . 0 . 0

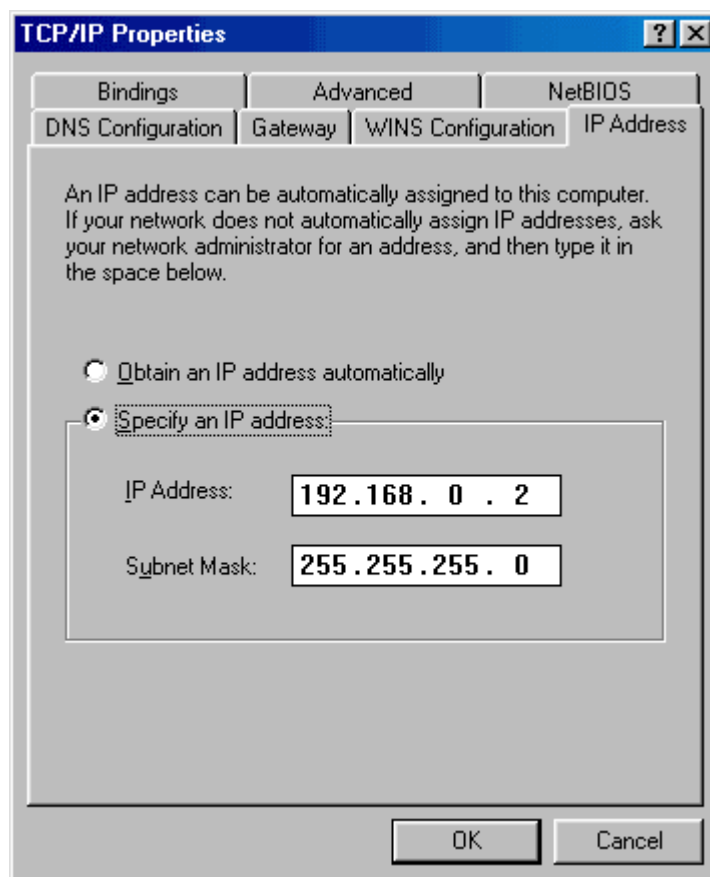
☒ Use IP header compression

☒ Use default gateway on remote network

OK Cancel

5.1.2 Server

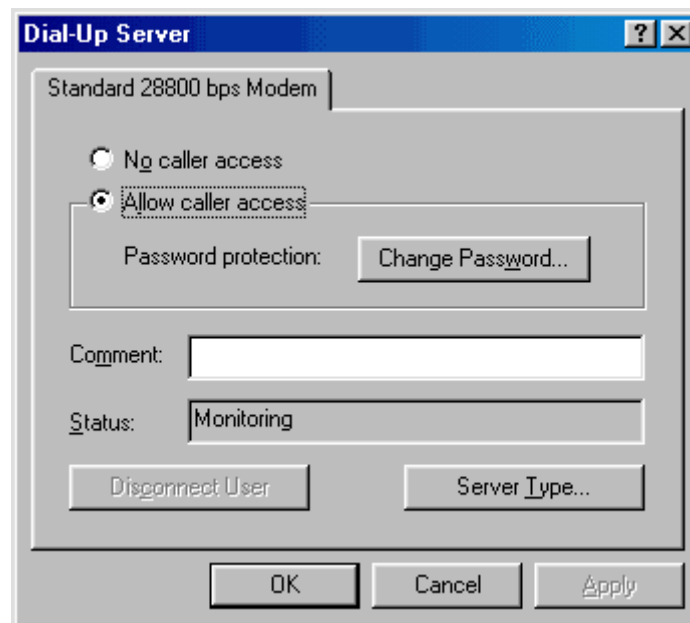
From the network configuration window, switch to the properties of TCP/IP protocol for the remote access device and set the following:



from the remote access window, choose the following:



and enable the remote access server:



the icon in the bottom-right corner means that the remote access server is active and is ready to be called.



5.2 WINDOWS XP

5.2.1 Client

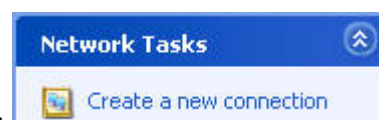
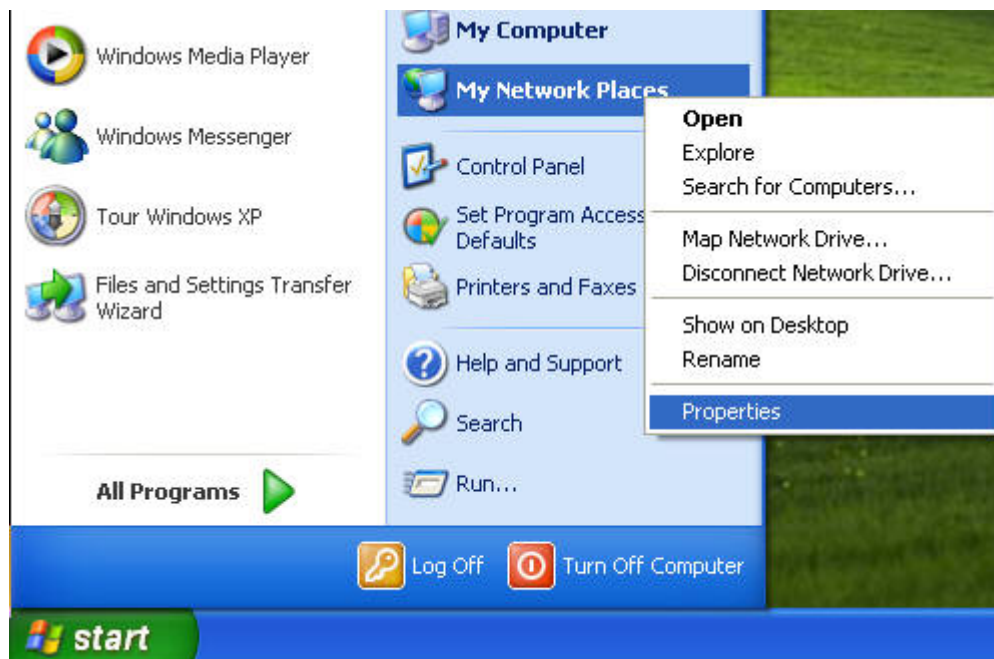
A client connection to an XP server is made possible by Win98, WinMe, Win2000 and WinXP. You can use the same connection procedure enabling Internet access via an analog modem; the default settings suggested by your operating systems may be used.

Your username and password must be the same as the ones entered for your account authorizing incoming calls to the server computer.

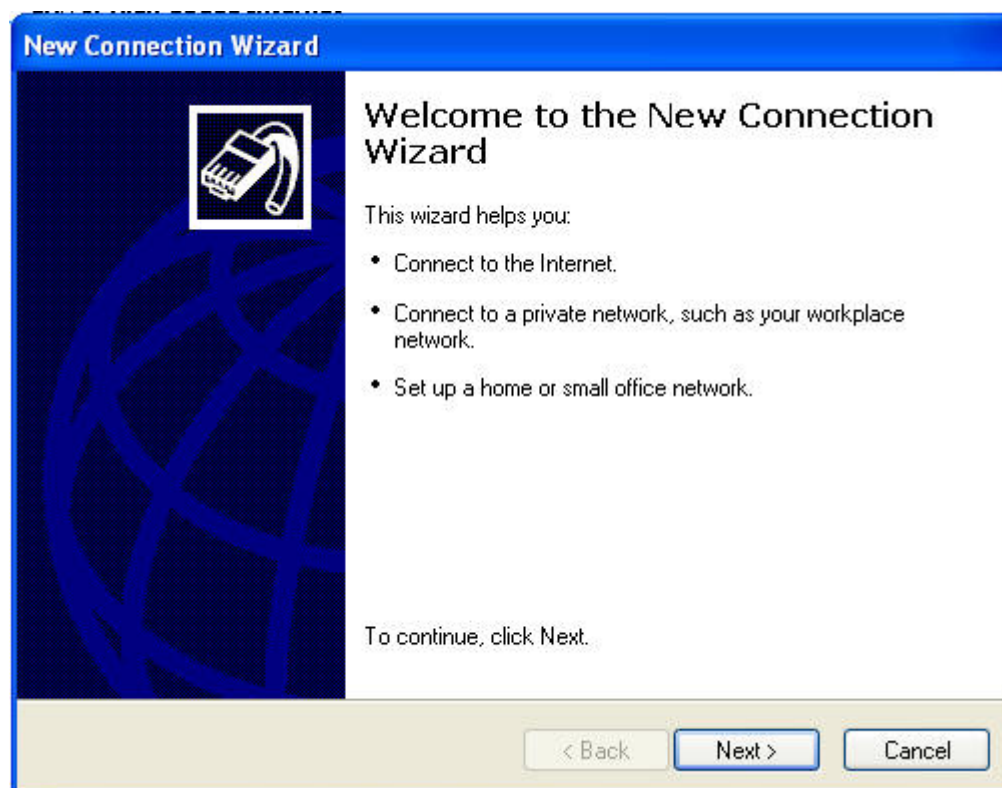
IMPORTANT: if you are asked to enter the domain name, leave it blank.

5.2.2 Server

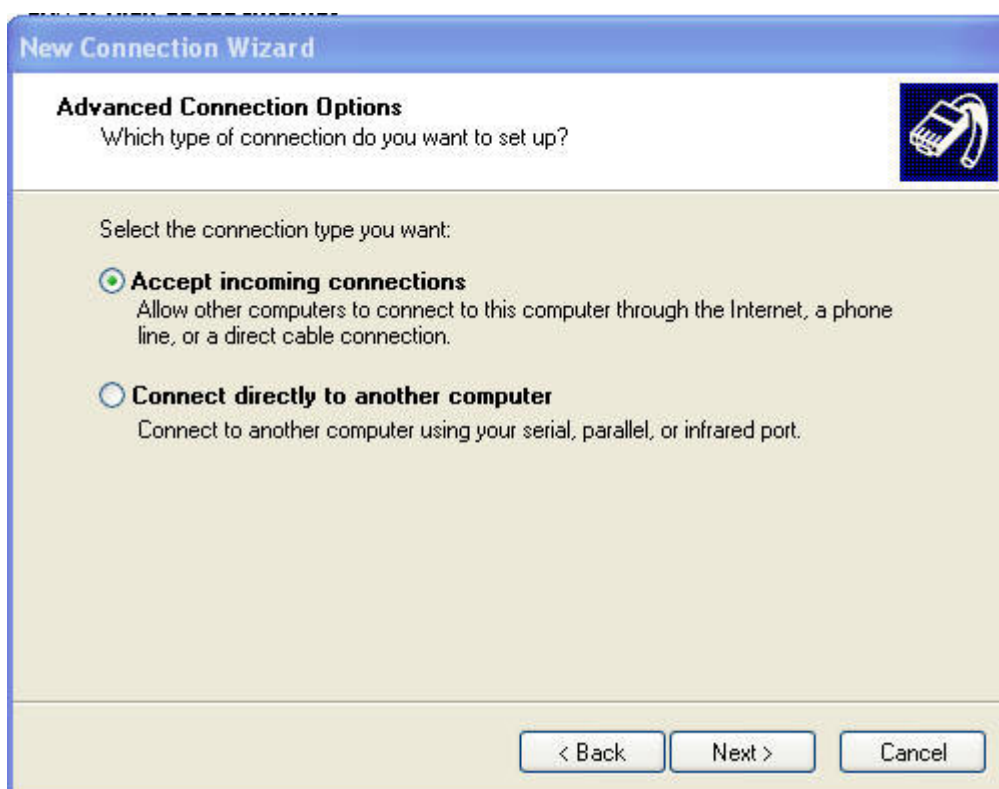
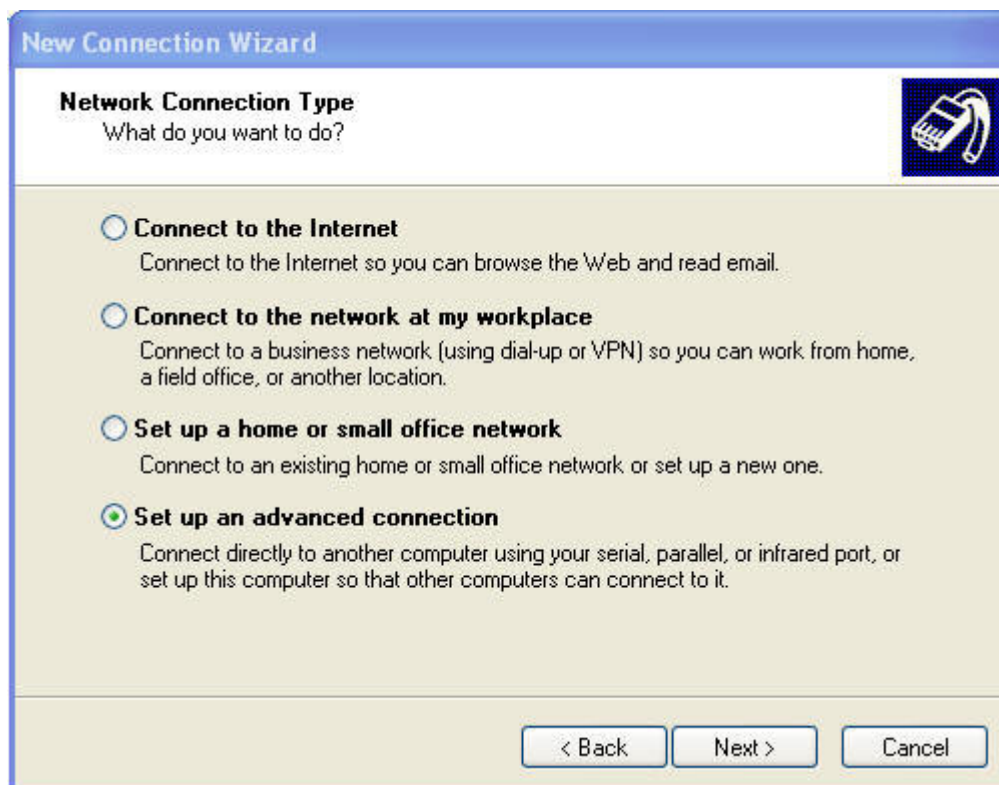
From the Start menu, choose:



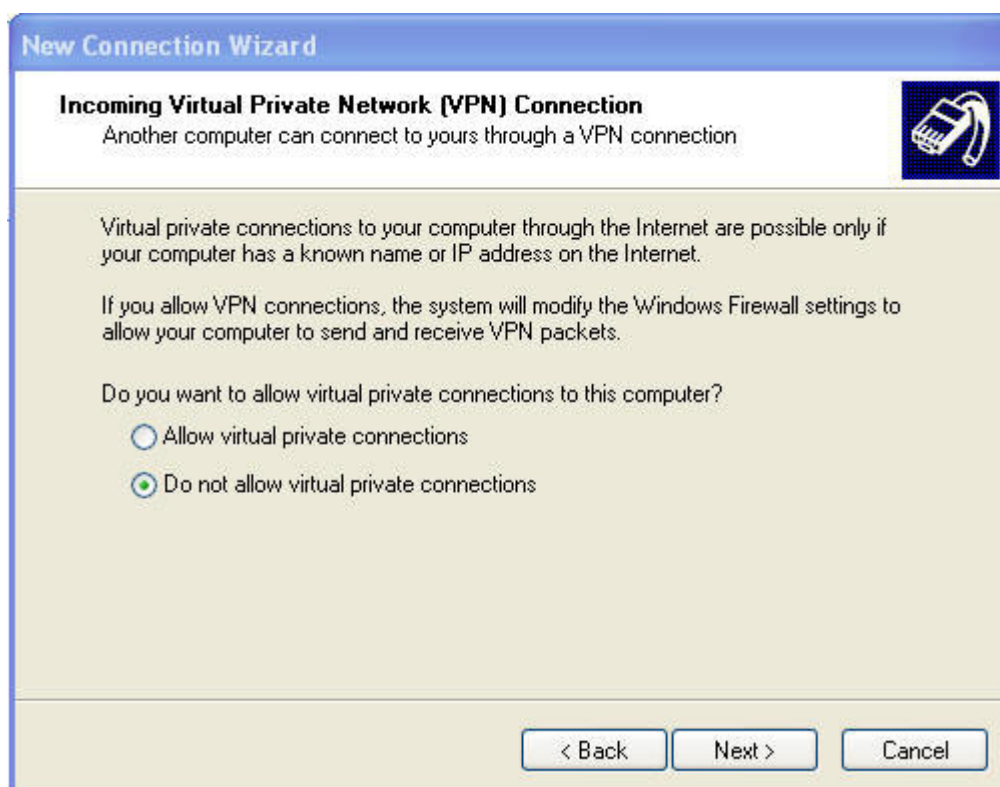
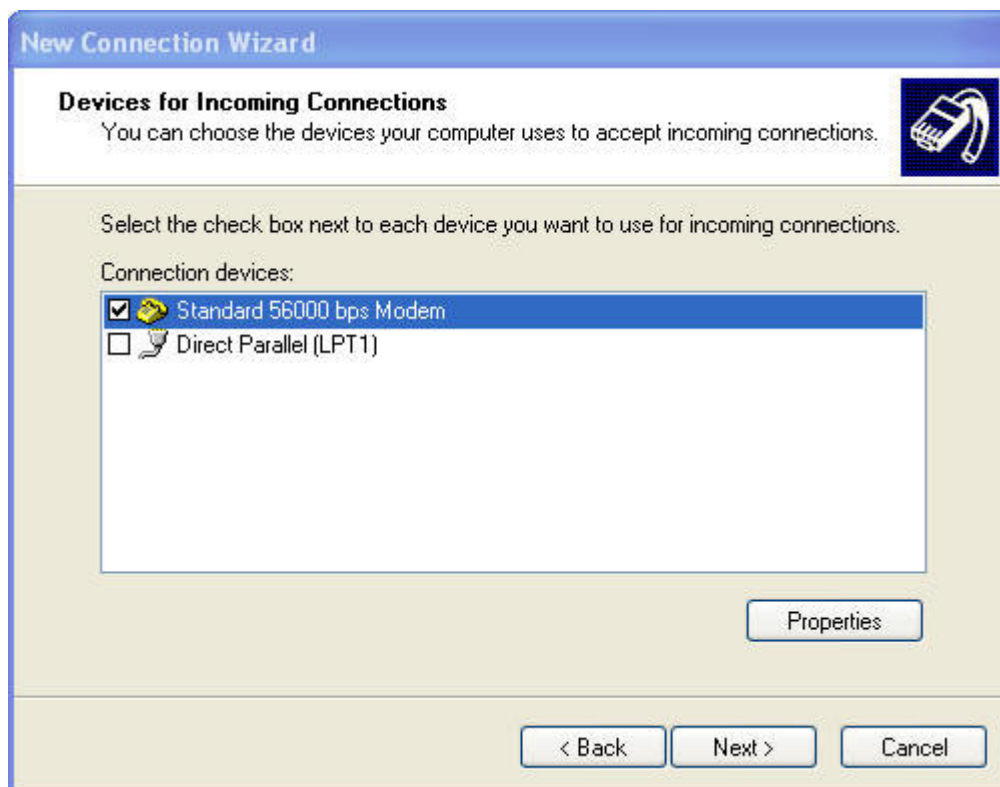
To open the "Network Connections" window, create a new connection using:



Then set as follows:



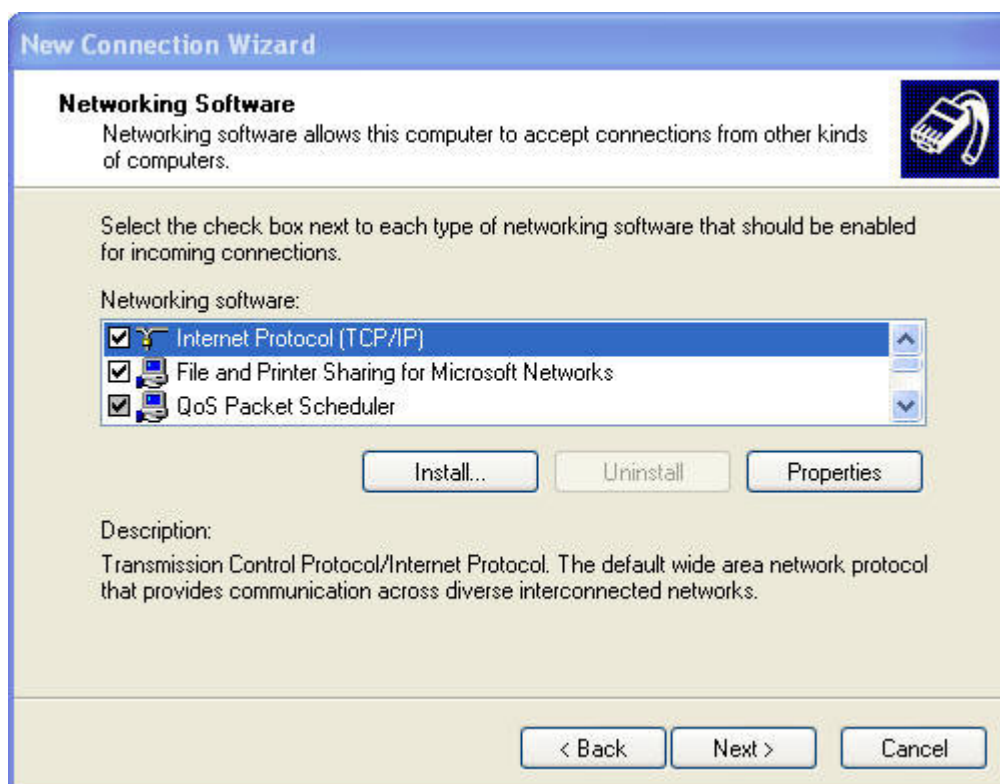
Select the modem for incoming calls

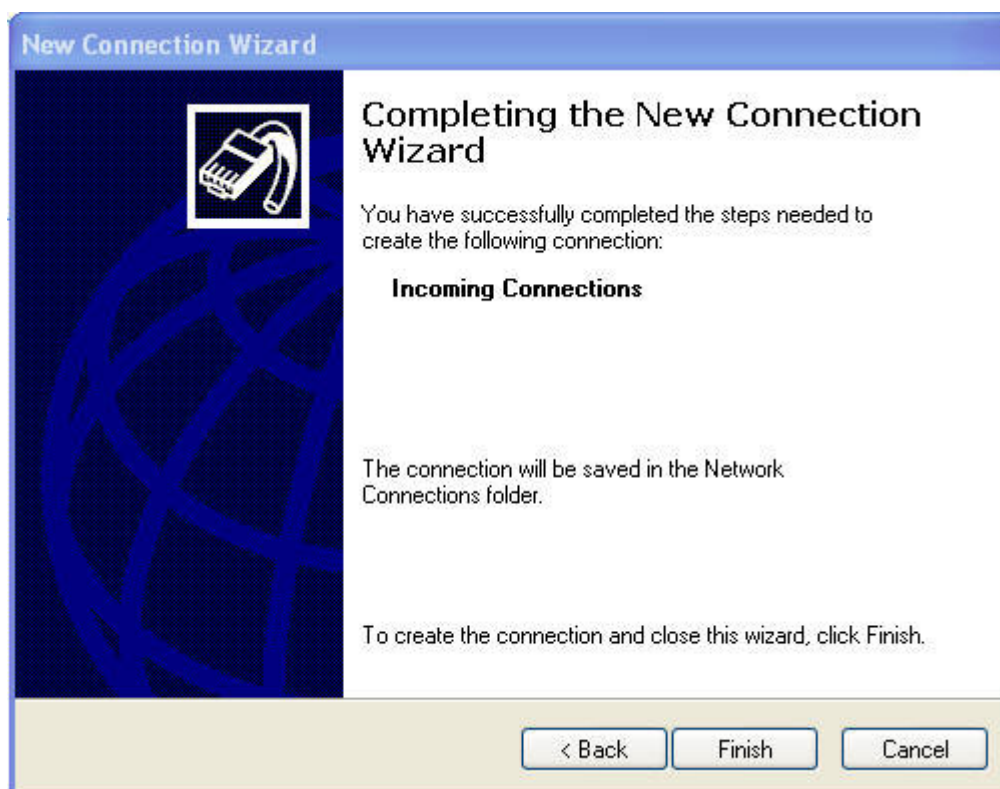


Select or add the user the client computer shall connect to; if no user is authorized, no incoming connection will be enabled.



No additional data is required in the "Network Software" section, because enough default settings are provided.





Incoming



Incoming Connections
No clients connected

When configuration is complete, will appear in the "Network Connections" window, to indicate that the computer can receive incoming calls.

An icon with the username of the connected user indicates an incoming connection:

Incoming



Incoming
Connections



mau