

# Applications

## 1. Display of the calibration signal



- Using the key shown *opposite*, select the "Oscilloscope" mode.
- Connect the **Probix** adapter of a 1/10-ratio HX0030 probe to input CH1.
- ☞ *A message indicating the characteristics of the probe is displayed briefly, confirming that it has been detected.*

The **Probix** menu (Vert → CH1 → **Probix**) can be used to configure buttons **A** and **B** of the probe.

- Use this menu to assign button **A** to increasing the sensitivity and button **B** to reducing it by selecting: Sensitivity +/-.

☞ *See the description in the chapter on **Probix** p. 29.*

- The same menu can be used to modify the color of CH1 trace → Red
- Via the probe (with its earth) connect the calibrator output to input CH1 (Probe Adjust:  $\approx 3\text{ V}$ ,  $\approx 1\text{ kHz}$ ) located on the side of the instrument.

☞ **Connect the cold point of the 1/10 probe to the cold point of the calibration output of the probes.**

- Check that the coefficient of the 1/10 probe has been taken into account: Vert Menu → CH1 → Vertical Scale → Coefficient: 10.

☞ *The sensitivity and the measurements take the probe's coefficient into account.*



- Validate the signal:  
Vert Menu → Display → Trace 1  
or by pressing the CH1 key  
or on the display of the CH1 trace parameters.



- Adjust the CH1 sensitivity:  
Vert Menu → CH1 → Sensitivity/coupling: 500 mV/div. (1/10 probe)  
or by using buttons **A** and **B** of the **HX0030** probe  
or the keys *opposite*.



- Adjust the CH1 coupling:  
Vert Menu → CH1 → Sensitivity/coupling → AC  
or by pressing the AC/DC GND key.



- Adjust the scan speed:  
using the scrollbar in the time base window: 500  $\mu\text{s}/\text{div}$   
or the keys *opposite*.



- Select the trigger parameters:  
Trig. Menu → Parameter → Main → Source: CH1  
Coupling: AC  
Front: + (or using the key *opposite*).



- Adjust the trigger mode:  
Trig. Menu → Automatic mode  
or using the SGLE REFR key.



- Use the RUN HOLD key to start acquisition ("RUN" mode)

## Applications (cont'd)

If necessary:

- Modify the trigger level using the stylus:
  - by moving the symbol T (Trigger) on the screen. The value of the trigger level is indicated in the bottom right-hand corner of the screen.
  - or through the trigger parameters menu:  
Trig. Menu → Parameter → Main → Level
- Modify the vertical positioning of the curve:
  - by using the stylus to move symbol 1, on the left of the screen.
  - or by using the keys *opposite*.

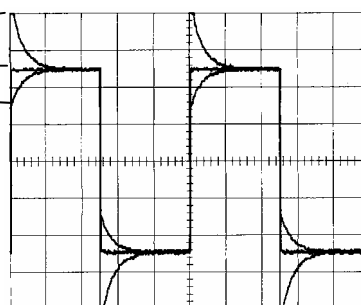


*The key opposite is used to make these adjustments automatically.*

### HX0030 probe compensation

Adjust the low-frequency compensation of the probe so that the signal plateau is horizontal (see figure below).

- Over-compensated probe
- Compensated probe
- Under-compensated probe



*Adjust the screw on the **Probix HX0030** probe to adjust the compensation.*

## Applications (cont'd)

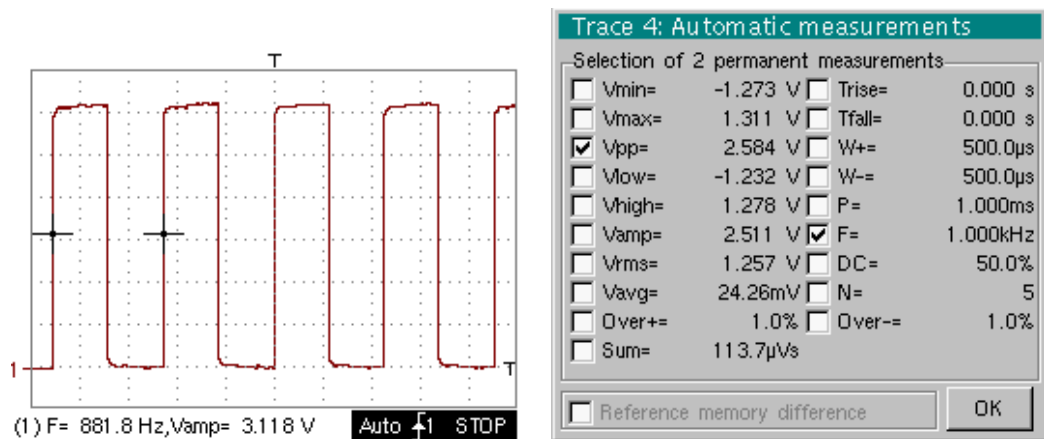
### 3. Automatic measurement

- Connect the calibrator output (3 V, 1 kHz) in the connection zone to input CH1, using a 1/10 measurement probe.
- For probe adjustments, see the §. Calibration signal display.
- Opt for: 500 mV/div. vertical calibre,  
time base coefficient 500  $\mu$ s/div.  
vertical scale coefficient 10  
DC coupling of CH1



Display the table of the automatic signal measurements on channel 1 by: Measure Menu  $\rightarrow$  Automatic Measurements (see §. Measure Menu) or using the key *opposite*.

The table of all the measurements made on the trace is displayed:



The "✓" symbol indicates the 2 measurements that will be displayed on the trace once the table has been closed.

The automatic measurements beneath the trace are deleted by deleting the last 2 measurements selected.



*By validating the "Reference memory difference" option, you can calculate, for the same measurements, the difference between a selected trace and a memorized reference trace (see §. Memory Menu).*


#### Recall

The measurement precision is optimum if 2 complete signal periods are displayed.

When the automatic measurements are activated, 2 cursors appear on the trace at the beginning and end of a period, if at least one period can be viewed on the screen.

## Applications (cont'd)

### 4. Measurement using cursors

- Select measurement by cursors using the menu:  
Measure → Manual measurements (dt, dv) (see §. Measure Menu).
    - \* Two measurement cursors (1 and 2) are displayed as soon as the menu has been activated.
    - \* The 2 measurements indicated under the trace display are **dt** (interval between the 2 cursors as a function of the time base) and **dv** (voltage between the 2 cursors as a function of the vert. sensitivity).
-  *Example:* (1)dt : 2,150 ms, dv = 250.0 mV




#### Recall

- The two measurement cursors (1 and 2) can be moved directly on the screen by means of the stylus. In the same way, they can also be moved horizontally by means of the stylus, by selecting the 1 (cursor 1) or the 2 (cursor 2) in the bargraph of the status zone.
- If the unattached cursors option is not activated (see §. Measure Menu → Unattached cursors), the cursors remain linked to the trace during the moves.
- If the unattached cursors option is active, the cursors can be moved anywhere on the screen.

### 5. Phase Offset measurement/cursors

- Initially, there must be 2 out-of-phase signals on 2 channels (ch1 and ch2).

### 6. Automatic phase measurement

- Select the reference trace in relation to which you want to perform the phase measurements via the menu:  
Measure → Reference → Trace 1 to Trace 4 (see §. Reference).  
 *Example:* Reference Measurement → Trace 1.
  - Select automatic phase measurement via the menu:  
Measure → Phase measurements (see §. Phase measurement).  
 *Example:* Phase Measurement → Phase Trace 2.
    - \* The 2 cursors (+) of the automatic measurements are displayed on the reference trace. A cursor "φ" is displayed on the trace concerned by the phase measurements.
    - \* The phase measurement (in °) is indicated under the display of the curves.
-  *Example:* (1)Ph (2) = 180.0°

#### Reminder

- The 3 cursors are fixed; they cannot be moved.
- If it is not possible to perform the measurement, "-.-" appears.

## Applications (cont'd)

### 6. Manual measurement of phase

- Select manual phase measurement via the menu: Measure → Manual phase measurement (see §. Measure Menu).
  - \* The 2 cursors (1 and 2) of the manual measurements are displayed on the reference trace. A "φ" cursor in relation to which the phase is measured is displayed.
  - \* The phase measurement (in °) is indicated under the display of the curve(s).
    - 🔍 *Example:* (1)Ph = 150.0°

#### Reminder

- The 3 measurement cursors are present if at least one trace is present on the screen.
- The 3 measurement cursors can be moved directly on the screen by using the stylus. They can also be moved using the stylus by selecting 1 (cursor 1) or 2 (cursor 2) in the bargraph in the status zone.
- If the unattached cursors option is not activated (see §. Unattached cursors), the cursors (1 and 2) will remain linked to the trace when moved. If the option is active, these cursors can be moved as required on the screen.

In all cases, the symbol "φ" can be moved freely.

### 7. Display of a TV video signal

This example illustrates the TV synchronization functions.

- *The parameters in the TV menu (Trigger Parameters menu) for displaying a TV signal only apply to the CH1 input.*

- *it is recommended to use a 75 Ω adapter for observing a video signal.*

- Use a **Probix** HX0031 adapter to inject on CH1 a composite TV signal with the following characteristics:
  - 625 lines
  - positive modulation
  - vertical grey scale stripes

- In the Trigger Parameters menu, select the tab: Trig. Menu → Parameter → TV:

- Set the standard number of lines: 625 lines

- polarity: +
- line: 25 (for a video signal)
- front: + (or using the key *opposite*).



- Adjust the CH1 coupling: Vert Menu → CH1 → Sensitivity/coupling → DC or by pressing the AC/DC GND key.



- Adjust the CH1 sensitivity: Vert Menu → CH1 → Sensitivity/coupling → 200 Mv/div. or using the keys *opposite*.



- Adjust the scan speed: using the scrollbar in the time base window: 20 μs/div. or using the keys *opposite*.

## Applications (cont'd)



- Select the trigger mode:  
Trig. Menu → Automatic mode  
or using the SGLE REFR key.



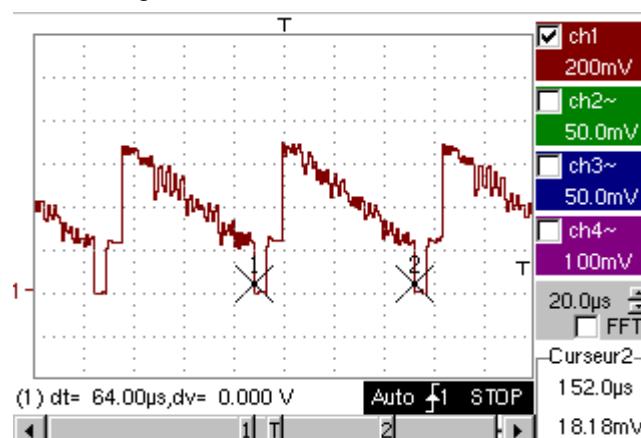
- Use the RUN HOLD key to start acquisition (RUN mode)  
or use the time base menu.

### Reminder

The acquisition status (Ready, RUN, STOP) is indicated on the right, under the display of the trace, in the trigger status display zone.

- Optimize the time base speed to observe several complete TV lines.

Example of a video signal



Use the manual cursors to check the duration of a line.



- Display the manual cursors:  
Menu → Measure → Manual measurements (dt, dv)  
or using the key *opposite*.
- To move the cursors freely, select:  
Measure Menu → Unattached cursors.
- Use the stylus to position cursors 1 and 2 on the start and end of the signal, respectively.

The measurements between the 2 cursors are indicated under the curve display.

Example:  $dt = 64.00 \mu s = \text{duration of a line}$

## Applications (cont'd)

### 8. Examination of a specific TV line

For more detailed examination of a video line signal, the TV trigger menu can be used to select a line number.

- In the Trigger Parameters menu, select the tab:  
Trig. Menu → Parameter → TV:



- Set the standard number of lines: 625 lines

polarity: +  
line: 1  
front: + (or using the key *opposite*).

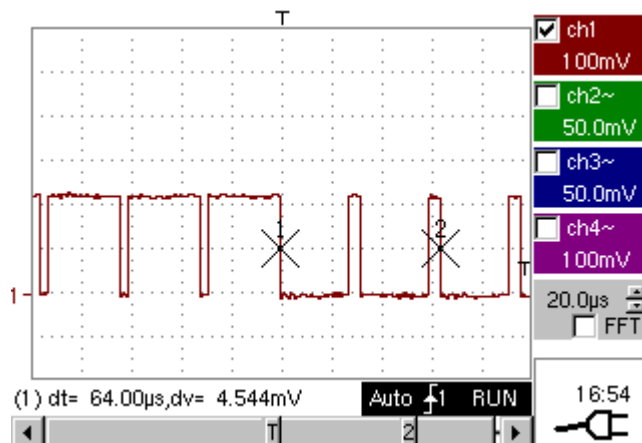
- Adjust the ch1 sensitivity:  
Vert Menu → CH1 → Sensitivity/coupling → 100 mV/div  
or using the keys *opposite*.



- Modify the scan speed:  
using the scrollbar in the time base window: 20 μs/div  
or using the keys *opposite*.



Example of video line 1



## Applications (cont'd)

### 9. Automatic measurement in Harmonic Analysis mode

Initially, there must be one or two traces on channels CH1 to CH4.

#### Recall

- Only the channels (and not the functions) can be the subject of harmonic analysis.
- In this mode, the time base is not adjustable.



- Set the traces for channels CH1 to CH4 to the mode "Oscilloscope".
- Using the key *opposite*, select the "Harmonic Analysis" mode.

The traces of channels CH1 and CH4 are shown in a dark color, while the traces of CH2 and CH3 are light (or in the color of the trace).


- Use the "Display" menu (see §. Display) to select the harmonic breakdown required:
  - the fundamental (F) and the first 15 harmonics
  - the even harmonics (2 to 30)
  - the odd harmonics (3 to 31)

The selection chosen appears under the breakdown display.

- The "SIGNAL" table under the breakdown provides information on:
  - the active channel(s) (CH1 to CH4)
  - the RMS voltage of the signal in V
  - harmonic distortion rate (in %) of the signal
- The "✓" symbol, present on the fundamental (F) or one of the harmonics and modifiable using the stylus, means that measurements can be made on the harmonic selected.

## Applications (cont'd)

- The Table "Ref.: Harmonic X" indicates, for the harmonic selected:
  - its value as a % of the fundamental
  - its phase in ° with respect to the fundamental
  - its frequency in Hz
  - its RMS voltage in V

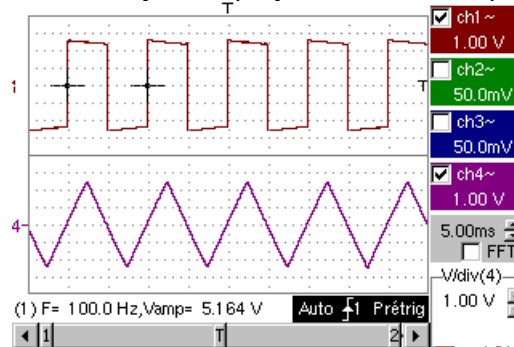
 *Example of harmonic breakdown*

- On CH1, inject a rectangular signal with frequency 100 Hz and amplitude 5 V.
- On CH4, inject a triangular signal with frequency 100 Hz and amplitude 5 V.
- Use the key *opposite* to perform automatic optimum adjustment of the channels, the ranges, the time base and the trigger.




### "Oscilloscope" Mode

Use the FULL TRACE key to display the 2 traces separately.

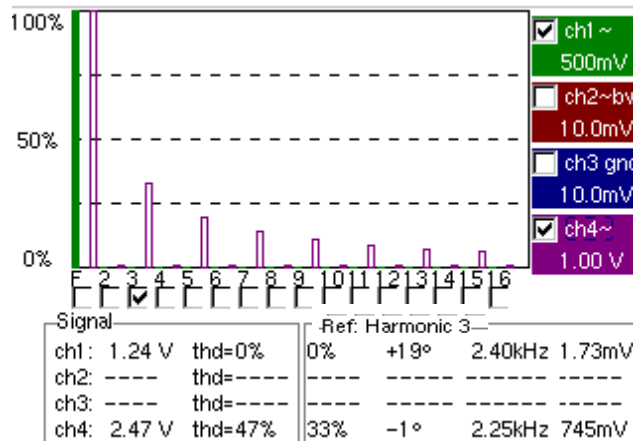


### "Harmonic Analysis" Mode



- Press the key *opposite* to activate the "Harmonic Analysis" mode.
- Use the "Display" menu to select the required harmonic breakdown:
  -  *Example: Odd harmonics*
- Use the stylus to select the fundamental (F) or one of the harmonics to perform the measurement:

 *Example: Harmonic 3*



## Applications (cont'd)

### 10. Display of slow phenomena "ROLL" mode

This example examines the analysis of slow phenomena for time bases ranging from 200 ms to 200 s. The samples are displayed constantly, without waiting for the Trigger (ROLL mode).

 Examination of slow phenomena over a significant period of time



- Select "Oscilloscope" mode (key *opposite*).
- Inject on the CH1 input a sinusoidal signal at 1 Hz and 1 Vrms.
- Adjust the scan speed: using the scrollbar in the time base window: 500 ms/div or using the keys *opposite*.



- Validate signal CH 1:  
Vert Menu → Display → Trace 1  
or by pressing the CH1 key  
or on the display of the CH1 trace parameters.



- Adjust the CH1 sensitivity:  
Vert Menu → CH1 → Sensitivity/coupling → 500 mV/div (1/10 probe)  
or using the keys *opposite*.

- Adjust the CH1 coupling:  
Vert Menu → CH1 → Sensitivity/coupling → DC  
or by pressing the AC/DC GND key.



- Select the trigger parameters:  
Trig. Menu → Parameter → Main → Source → CH1  
Coupling: AC  
Front: + or using the key *opposite*.



- Adjust the trigger mode:  
Trig. Menu → Single mode  
or using the SGLE REFR key.

Use the stylus to move the Trigger level symbol up or down in the display area:

Trigger level is < the signal level → the oscilloscope stops data acquisition once it has filled the acquisition memory (STOP mode).

- Trigger level > Signal level → data acquisition no longer stops and the signal is analyzed constantly.

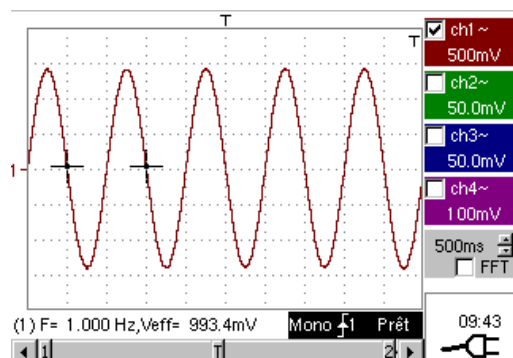


The trigger level may be set precisely, using the trigger parameters menu:  
Trig. Menu → Parameter → Main → Level.




- Start acquisition using the RUN/HOLD key (RUN mode).

#### Examination of the signal




The signal is analyzed constantly (RUN mode).  
This trace scroll function allows the form of the signal to be monitored.

 This function is recommended for studying low-frequency signals.

## Applications (cont'd)

### 11. Min / Max Acquisition

Detection of a wrong representation due to under-sampling

 Examination of an amplitude-modulate signal



- Using the key shown *opposite*, select the "Oscilloscope" mode.
- Inject on the CH1 input an amplitude-modulated sinusoidal signal at a frequency of 15Hz.
- Inject on the CH4 input a sinusoidal signal at 300 Hz and 3 VDC. for synchronization of the signal on CH1.



- Adjust the scan speed:  
using the scrollbar in the time base window: 1 ms/div  
or using the keys *opposite*.
- Validate the CH1 signal: Vert Menu → Display → Trace 1  
or using the key *opposite*.  
or on the display of the CH1 trace parameters.



- Adjust the CH1 sensitivity:  
Vert Menu → CH1 → Sensitivity/coupling: 200 mV/div  
or using the keys *opposite*.

- Ditto for CH4 with a sensitivity of: 500 mV/div

- Adjust the trigger parameters:



Trig. Menu → Parameter → Main:  
Source: CH4  
Coupling: AC  
Front: + or using the key *opposite*.



- Adjust the trigger mode:

Trig. Menu → Auto Mode:  
or using the SGLE REFR key.

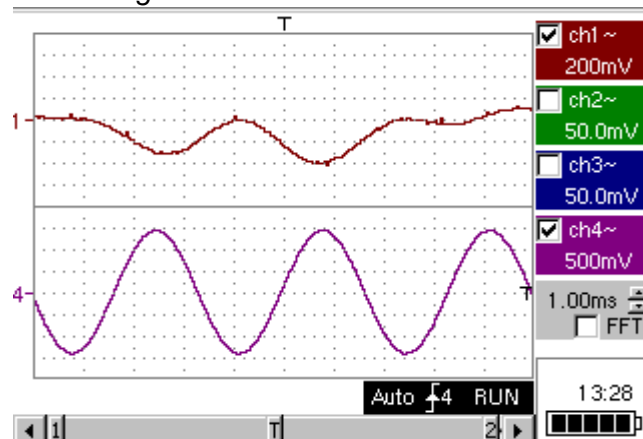


- Start acquisition using the RUN/HOLD key (RUN mode).




- Use the FULL TRACE key to display the 2 traces separately.

 Examination of the signals

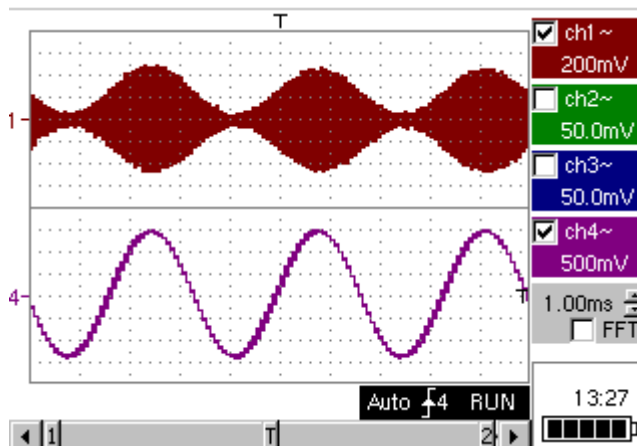


## Applications (cont'd)

 The observation of the amplitude-modulated CH1 trace cannot be used (incorrect display).

- Validate the MIN / MAX mode:  
Horiz → MIN/MAX Acquisition menu, to view the amplitude modulation of the CH1 signal.

 Examination of the signals



## Applications (cont'd)

### 12. Measurement in multimeter mode



#### Measurement in Multimeter Mode

- Press the key *opposite* to activate the "Multimeter" mode.
- Connect the **Probix HX0033** adapter on the CH1 input.
- ☞ *A message indicating the characteristics of the probe is displayed briefly, confirming that it has been detected.*

The positive input is indicated by the "+" sign on the adapter for VDC measurements.

- Use the appropriate cables to connect the **Probix** adapter to the test resistor.
- Select input CH1 in Ohmmeter mode:  
Menu: Measurement → CH1 → Ohmmeter.
- ☞ *Ohmmeter mode ( $\Omega$ ) is indicated in the display of the parameters for CH1.*



- Validate the measurements on CH1 by pressing the key *opposite* (- X - disappears).

The resistance measured is not known:



- Select the "Autorange" mode.  
"Channel 1 Parameters" menu under Vert → CH1 → Range/Coupling or by a long press on the CH1 key.
- ☞ *The autorange mode (auto) is indicated in the display of the parameters for CH1.*

In this case, the instrument constantly seeks the most suitable measurement range.

The resistance measured is known:



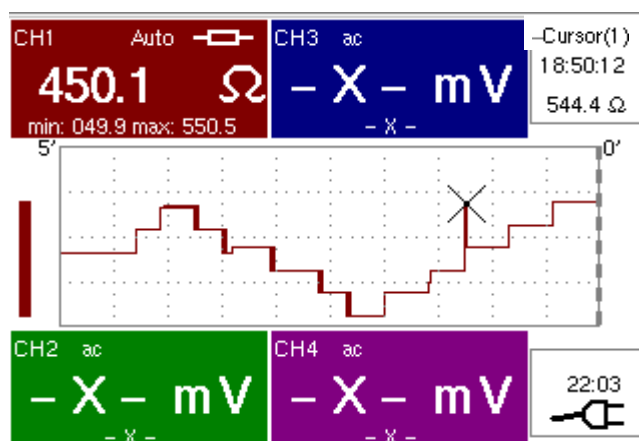
- Select the appropriate range:  
"Channel 1 Parameters" menu under Vert → CH1 → Range/Coupling or using the keys *opposite*.
- ☞ *See the general characteristics for the ranges available.*
- Select the "Statistics" mode.  
Menu: Display → Statistics, to find out the minimum and maximum values when the measurement variations are analyzed.
- ☞ *The MIN and MAX measurements are indicated in the display of the parameters for CH1.*



- Use the keys *opposite* to select the duration of the period (5', 15', 30', 1 h, 6 h, 12 h, 24 h, week, month) for analysis of the measurement variations.
- ☞ *The duration selected is indicated in the top left-hand corner of the graphic window.*
- Deactivate "Roll" mode:  
Menu: Horiz → Roll to stop the measurements at the end of the analysis period.

## Applications (cont'd)

### Example of measurement in Multimeter Mode




The graphic window records the changes in the measurements during the analysis period (5 minutes).

The bargraph shows the amplitude of the variations.

The minimum value (49.9 ohms) and the maximum value (550.5 Ohms) measured are indicated in the CH1 parameter display.

The cursor linked to the trace indicates the measurement a specific point on the trace, along with the time of the event.

 The value measured which is displayed in the CH1 parameter display remains active after the analysis period has ended.

### 13. Measurement in "Recorder" mode

#### Analysis of iron heating




 Example: Monitoring of temperature variation of a soldering iron

Using the key shown *opposite*, select the "Recorder" mode.

Connect the **Probitx** adapter of an **HX0035** K Thermocouple probe to input CH1.

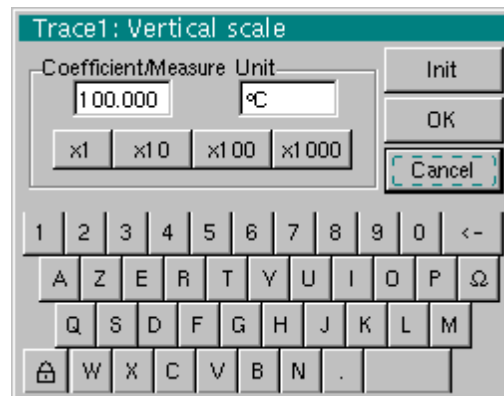
A message showing the characteristics of the probe is displayed briefly → the probe has been detected:

ch1: PROBITX event			
 HX35 - NO ISOLATION BETWEEN 2 KTC -40°C/+1 250°C, 1% +/-3.5°C typ			
	Input:	Floating:	Between Channel:
Ch1	K TC	30V CAT I	-
HX35	-	-	-
Ch2	-	600V CAT III	300V CAT II
-	-	-	-
Ch3	-	600V CAT III	300V CAT II
-	-	-	-
Ch4	-	600V CAT III	300V CAT II
-	-	-	-

## Applications (cont'd)

Ch1 is validated automatically.

Ch1 selects automatically the unit "degree Celsius": verification possible in the Vert menu → Ch1 → Vertical scale.



Adjust the vertical sensitivity to 50°C/div. Three options:



- using the keys opposite,
- selecting channel 1 using the key opposite. Adjust the sensitivity, displayed at the bottom right of the screen, using the scroll bar with the stylus,
- with the Vert Menu → CH1 → Sensitivity/Coupling: 50°C

The CH1 coupling was already adjusted in DC automatically by the probe.

The symbol  $\overline{=}$  appears in the parameters of the CH1 trace.

Adjust the recording period or the sampling interval (for example: 60 s)



- using the keys *opposite*,
- or in the "Horiz" menu → Horizontal scale

Adjust the trigger parameters: threshold type and level.

*Example:* High triggering on channel 1 represented by the symbol  $\overline{1}^T$  with a level of 61.3°C. On the other channels: no triggering.

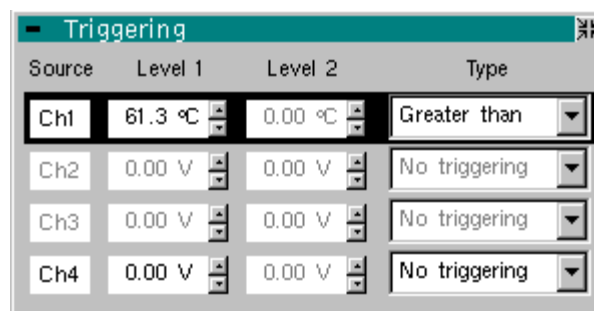
Operation: 2 options



- Press on CH1 and on the key opposite to select the required triggering. Repeat for all channels.  
To adjust the level, select the symbol  $\overline{1}^T$  using the stylus and adjust it to the required level.
- Go to the "Trigl" menu → Source/Level and adjust the type and level of triggering required on each channel.

## Applications (cont'd)

### Triggering after adjustment window

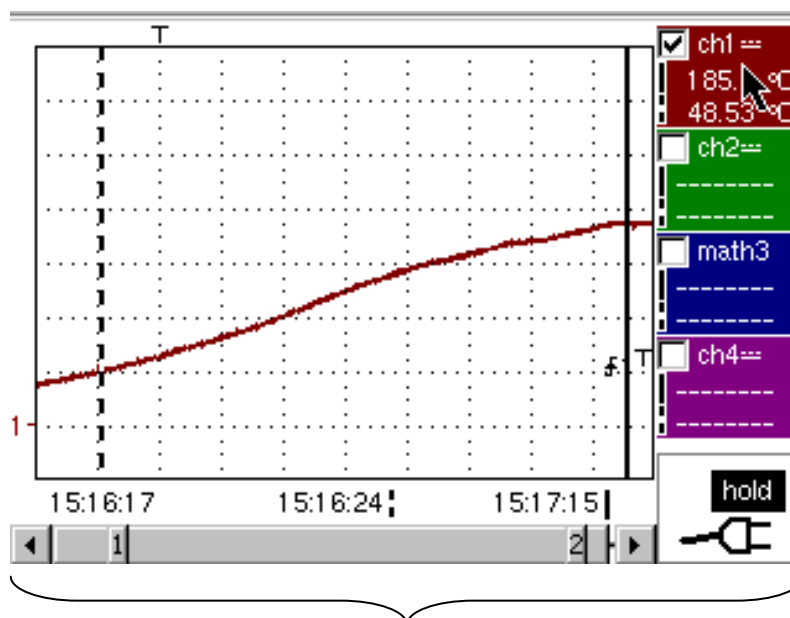


Adjust the position of the vertical position indicator of channel CH1 to -149°C, as follows:



- Press key CH1, then on the keys opposite. The position of the indicator is displayed at the bottom right of the screen.
- Apply the end of the temperature probe to the end of the soldering iron.
- When the end is in position, launch acquisition using the key opposite.
- Connect the soldering iron.

### Resulting Curve



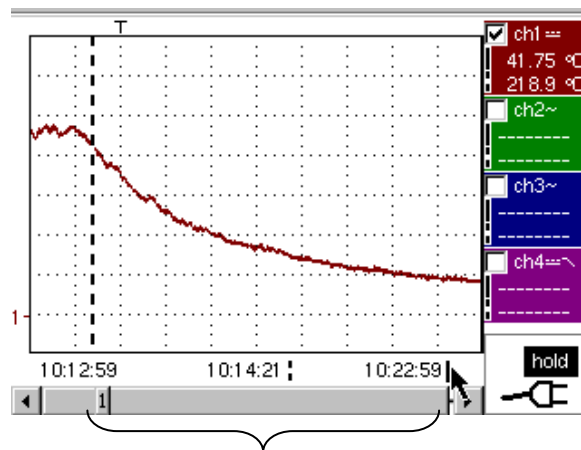
This acquisition shows the heating dynamic of the soldering iron.

## Applications (cont'd)

### Analysis of soldering iron cooling

The acquisition parameters must be changed.

- Sensitivity: 50°C/division
- Recording period: 10 minutes
- Trigger type: low,
- Trigger level: 140°C,
- Position of ch1 ground indicator: id.



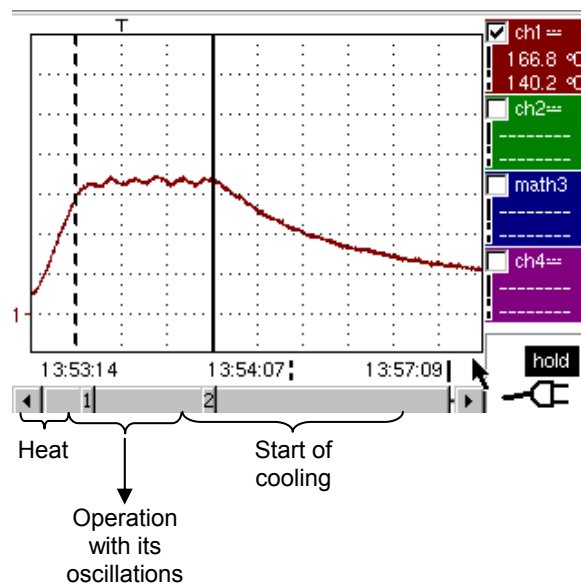
Iron cooling:  
a dynamic study is possible using this acquisition.

### Overall operation of soldering iron

Last acquisition: the iron heats, operates and cools.

Acquisition parameters:

- Vertical scale, acquisition period, coupling, ground indicator: identical
- No triggering on channels: manual shutdown of acquisition using key opposite.

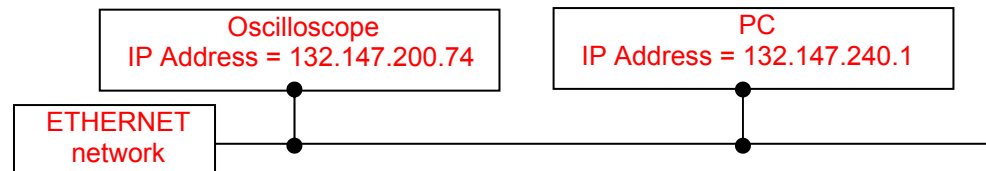


## Applications (cont'd)


### 14. ETHERNET network application examples

#### a) File transfer from a PC via the network

The files in the oscilloscope's "File Management" menu (see §. "Util" Menu) can be downloaded onto a PC (or uploaded from a PC) via an ETHERNET network.



- Use a suitable ETHERNET cable to link the oscilloscope to the network.
- Open the oscilloscope's "Network" menu.
- Enter the IP address manually or automatically using the icon "provided by a DHCP server" (if the server is accessible).
- Then validate the information by choosing **OK**.

 *Example: 132.147.200.74*

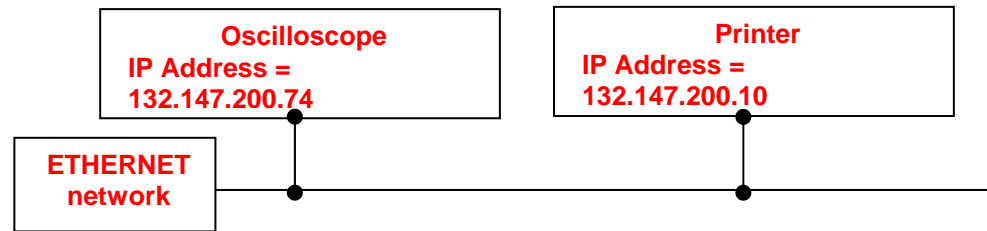
- Use a PC connected to this network.
- In your browser, type in the URL zone: ftp://132.147.200.74  
A list of the files is then displayed.
- 👉 *If an SD Card is present, the entire memory of the SD Card is displayed on the FTP server and not only the specific "metrix" folder.*
- You can use your browser to:
  - copy files (PC → Scope or Scope → PC),
  - delete files,
  - rename files.

👉 *The SX-METRO software (option) simplifies file transfer via the ETHERNET network.*

## Applications (cont'd)

### b) Hard copy of the screen on a network printer

Screen copying can be initiated on a network printer.



- Use a suitable ETHERNET cable to link the oscilloscope to the network.
- Open the oscilloscope's "Network" menu.
- Enter the IP address manually or automatically using the icon "provided by a DHCP server" (if the server is accessible).  
   🔗 *Example: 132.147.200.74*
- Enter the IP address of the network printer using the table of usable numbers after selecting the zone to be modified.  
   🔗 *Example: 132.147.200.74*
- Specify the name of the required printer (🔗 *Example: LaserJet 4*)  
   👉 *To find out the IP address of the server or the name of the printer, contact the network administrator responsible for your IT installation.*
- Then validate the information by choosing **OK**.
- Open the "Hardcopy" menu (See §. "Util" Menu) of the oscilloscope.
- According to the printer connected to the network, select the print format or type of printer.  
   👉 *The use of BMP and GIF graphic formats is reserved for printing through a "Virtual Printers" LDP type server (see p. IX - 188).*
- Validate the color or black/white option.
- Validate the Network option of the port menu.
- Configure the oscilloscope so that it displays the screen as you wish to print it.



Start the required print operation by pressing the key *opposite*.

## Applications (cont'd)

### **c) Installation of an FTP server on a PC**

This application note is designed to make an FTP server function (FileZilla server) in basic mode on your PC. You will find more explanations on the configuration and use of this server on the site ["sourceforge.net/projects/filezilla"](http://sourceforge.net/projects/filezilla).

#### **Why install an FTP server on your PC?**

- This can be used to save the files generated on the device directly on the PC's hard drive without having to switch the memory card between the device and the PC.

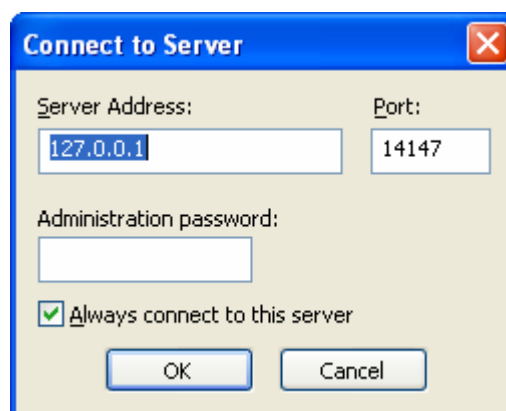
#### **Equipment required**

- A PC connected to the ETHERNET network.
- On the PC, deactivate any firewalls via the control panel.
- Your SCOPIX should also be connected to the ETHERNET.

#### **Installing an FTP fileZilla server**

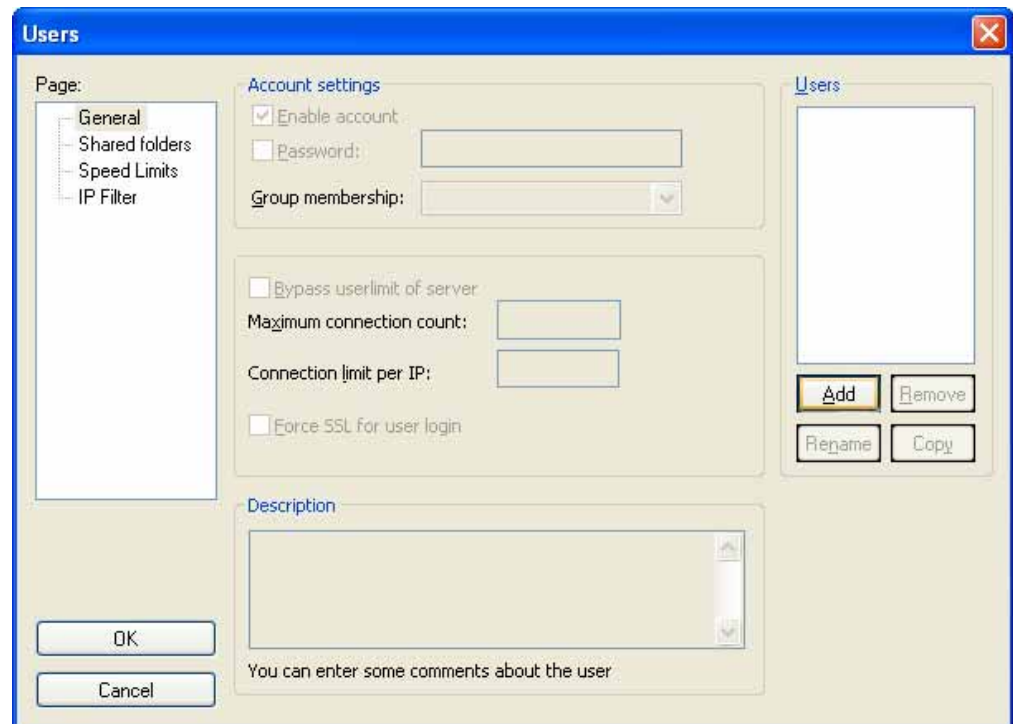
On your PC, log onto the Internet site "sourceforge.net/projects/filezilla"

1. Download the FileZilla server software.
2. Launch the installation of the software by using all the default options.
3. Launch the execution of the application named FileZilla Server Interface.
4. In the window displayed, tick the box "Always connect to this server":

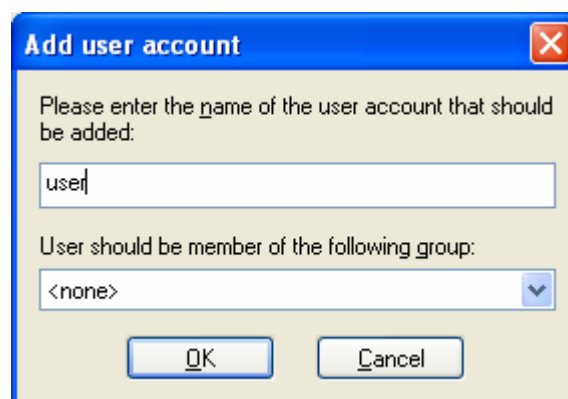


## Applications (cont'd)

5. In the Edit menu, click on Users to display the following:



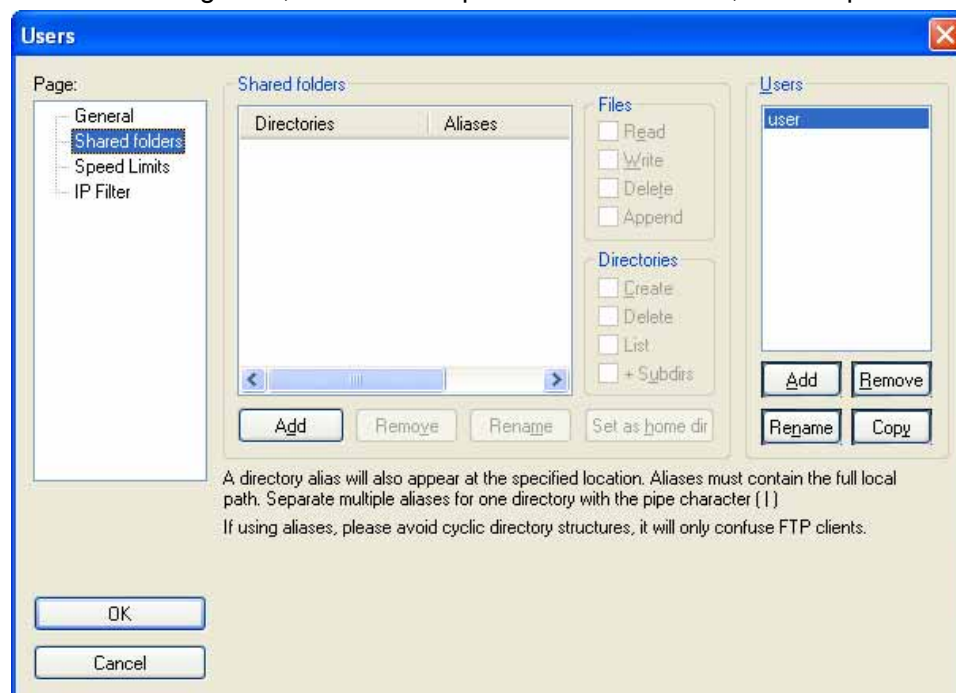
6. Click on "Add", and the window "Add user account" will appear:



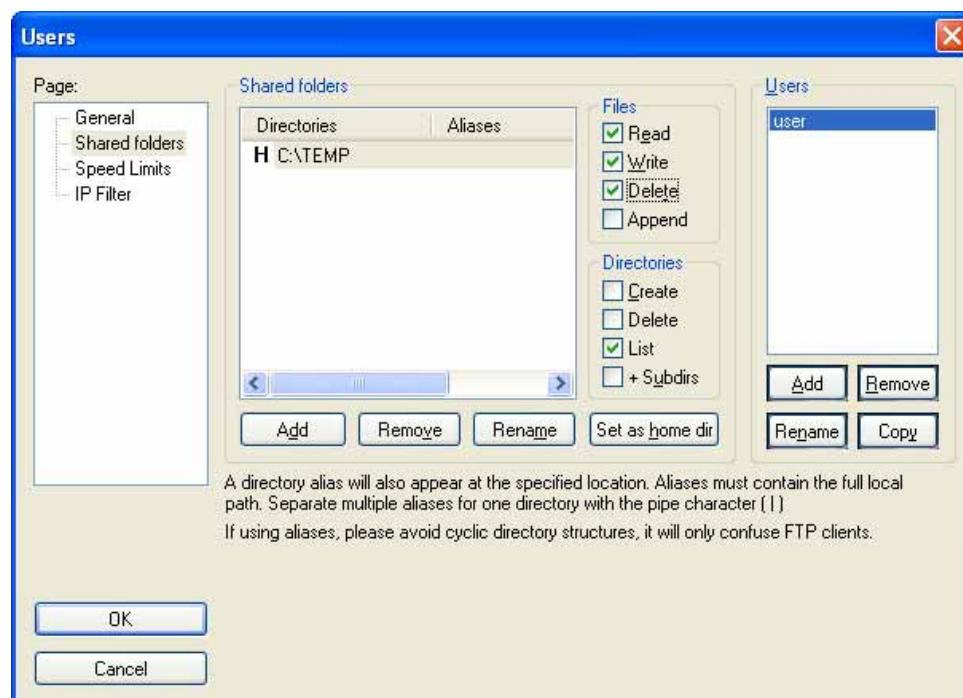
7. Create a user.
8. Click on "OK".

## Applications (cont'd)

9. In the “Page” list, click on the option “Shared folders”, in the top left:



10. Using the "Add" button under the "Shared folders" window, choose a directory on the disk in which the "user" can read and write files from SCOPIX.
11. In the Files list, check the options “Read”, “Write” and “Delete”.
12. In the “Directories” list, check the “List” option.




13. Click on OK to validate all options.
14. Your FTP server is now configured; you can close the FileZilla Server Interface application.

## Applications (cont'd.)

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### **SCOPIX settings**

15. In SCOPIX, go into advanced mode "Util" → "Advanced Mode"
16. Open the menu "Util" → "Config I/O Ports" → "Network"
17. Click twice on the button ".../..."
18. Configure the FTP server (IP address of the PC on which the fileZilla Server was installed, user name and password if it has been defined).
19. Save a trace in the file via the menu "Memory" → "Trace" → "Save.TXT".  
Tick the box "on the FTP server".

Validate the save by clicking on .

## Applications (cont'd.)

### d) Virtual Printers

"**Virtual Printers**" is an application that must be installed on a PC running Windows 2000, XP or Vista.

It manages METRIX oscilloscope printouts via an ETHERNET Connection. Your PC becomes a LPD server and the oscilloscopes are its clients.

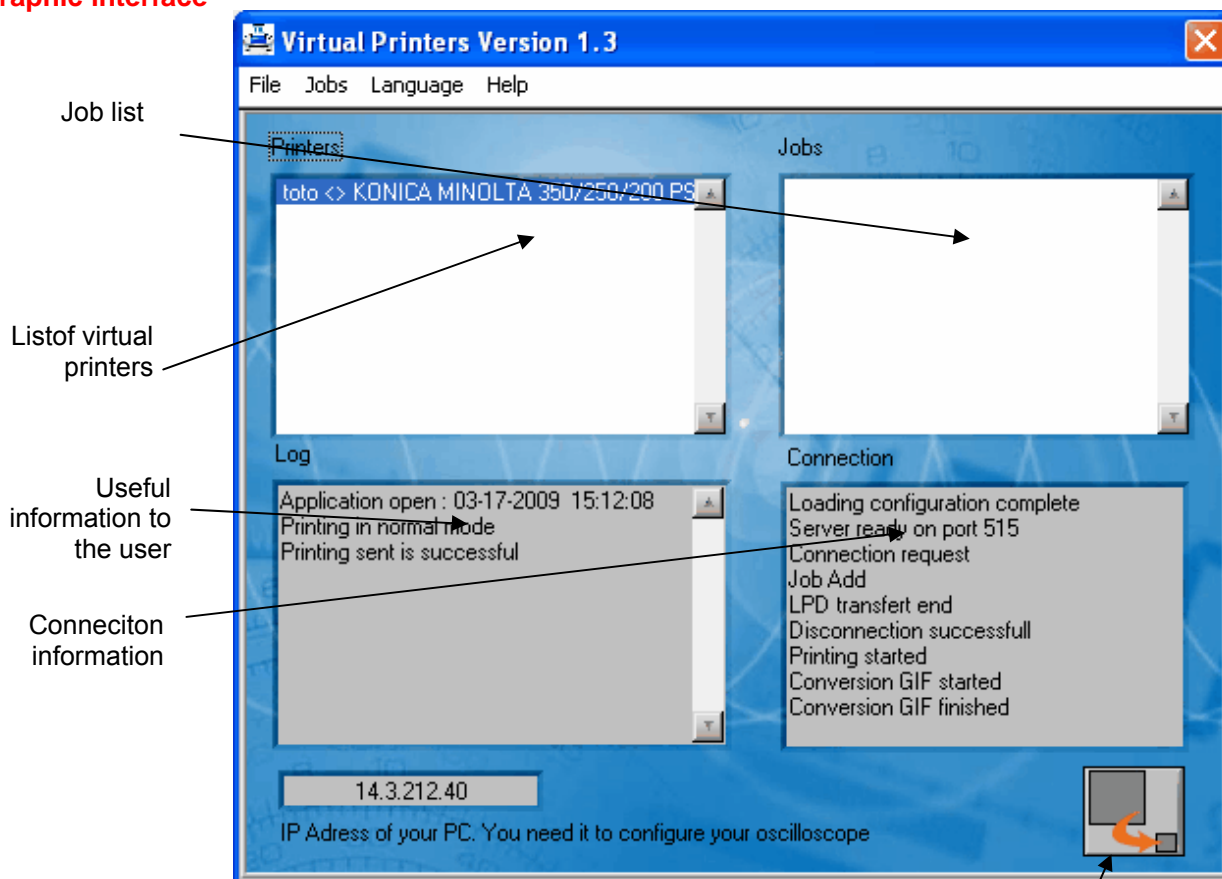
This server manages all printing for the clients on the printers that are connected to it.

"**Virtual Printers**" is on the CD delivered with your instrument. It can also be downloaded from the site [www.chauvin-arnoux.com](http://www.chauvin-arnoux.com).

### Advantages

- The PC on which "**Virtual Printers**" is installed centralizes print requests from SCOPIX clients and reroutes them to the printer peripherals.
- SCOPIX uses the BMP / GIF printing format whatever the printer selected.
- Full page, A4 format, landscape or portrait printing.
- Configure printers directly using **Virtual Printers**.

### Graphic interface

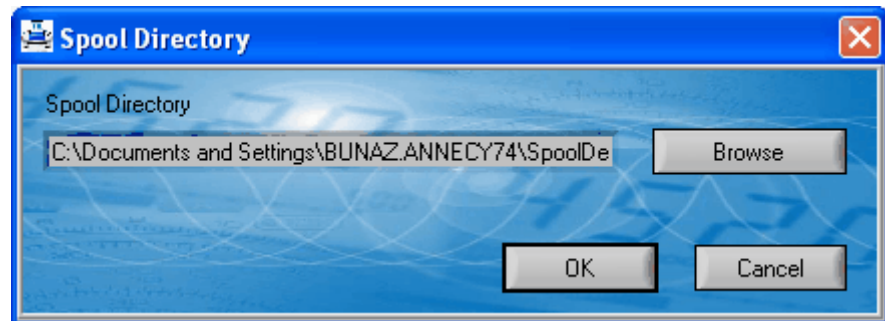


Setting the application icon on the task bar

## Applications (cont'd)

**Spooler** The spooler is a directory used for temporary storage of printing data before it is sent to the printer.

This directory is defined in: File → Spooler.



In the example above the temporary data is stored in the following directory:  
**"c:\Spool"**

☞ *In this directory you will also find a file called **"Impression.log"** that contains the data displayed in the software's Log window once it is closed.*

**Add printer** Creating a virtual printer

**LPD Printer name:** Printer name defined by the user

### Printing modes

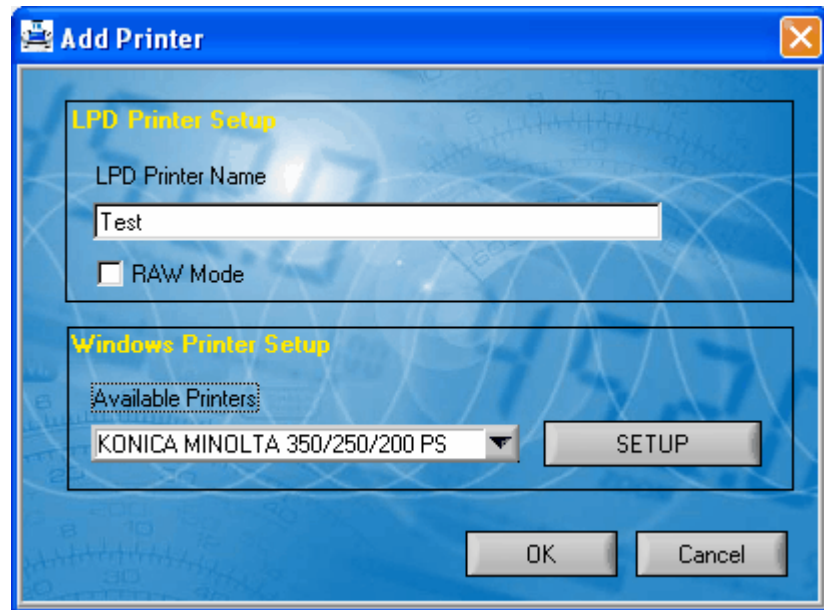
- **classical:**  
SCOPIX must transmit GIF or BMP format data.  
The scope image is stored in the spooler. It is then sent to the printer via its print driver.  
This mode is compatible with all printers as long as the printer driver is correctly installed on the station on which the software is run.
- **transparent:**  
The data is sent to the printer without being interpreted by Virtual Printers.  
SCOPIX must therefore transmit the data in a format understandable by the printer (≠ GIF and ≠ BMP).

**Available printers:** List of printers installed on the PC.

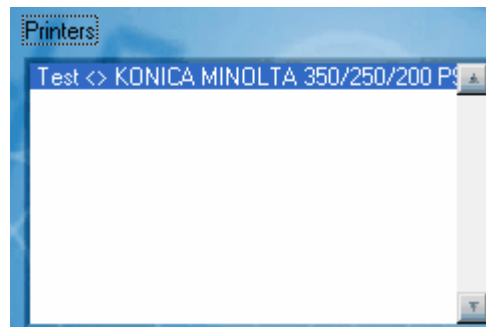
**Property:** opens the Windows configuration panel.

## Applications (cont'd)

Example :



The following window appears :

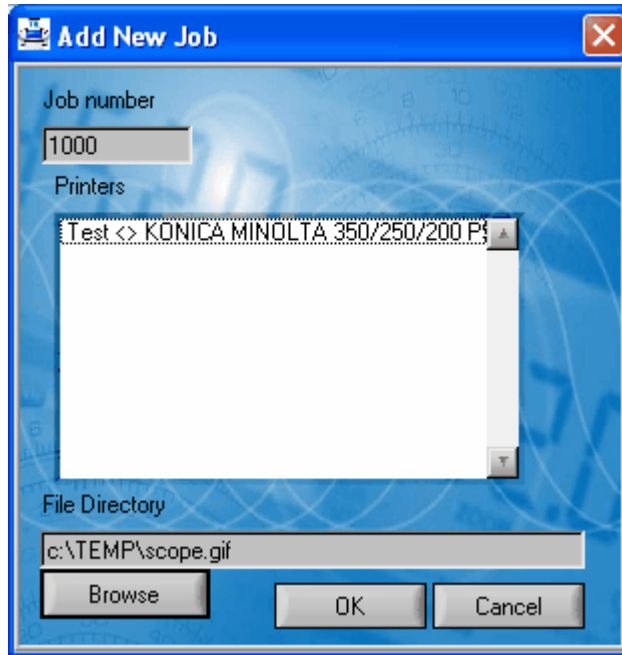


Thus, all the impressions sent by the oscilloscope with the name "Test" will be printed by the printer Konica Minolta.

## Application (cont'd)

### Print job menu

- Suspend the print queue :  
The next requests (Jobs) sent by the oscilloscopes are stored while waiting to be unblocked.
- Unblock the queue : processes the requests held in the queue (See **Suspend the queue**).
- Adds a PC file to the print queue :



**Job Number:** contains the identifier generated by Virtual Printers.

**Printers:** list of virtual printers

**File Path:** name of the file to be printed

☞ *The file format must be compatible with the selected virtual printer configuration.*

- Delete Job : deletes a job from the queue.

☞ *The job will not be removed from the display until it has been processed.*

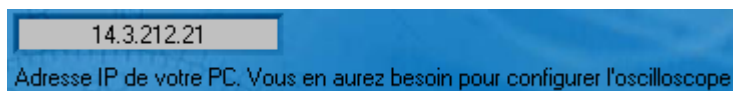
- Delete All : deletes all Jobs in the queue

## Applications (cont'd)

### Oscilloscope Configuration

To configure your oscilloscope correctly you must have the following information available:

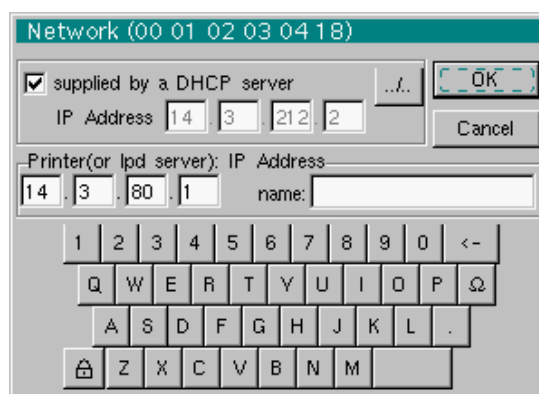
- Your PC's IP address, which you can see in the box at the bottom of the software



In our example: "**14.3.212.21**"

- The name of the virtual printer created earlier: "**Test**"

On SCOPIX, in: Util → I/O Port Config → Network



On SCOPIX, in: Util → Hardcopy

- Choose either "**bitmap BMP**" or "**GIF**" format.
- Select the "**Network (LPD)**" port.
- Close the dialogue box using "OK".

