



Automotive
Energy & Power Analysis
Field service
Environmental
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DEWESoft – NET

Users Manual



...the precision signal conditioning company



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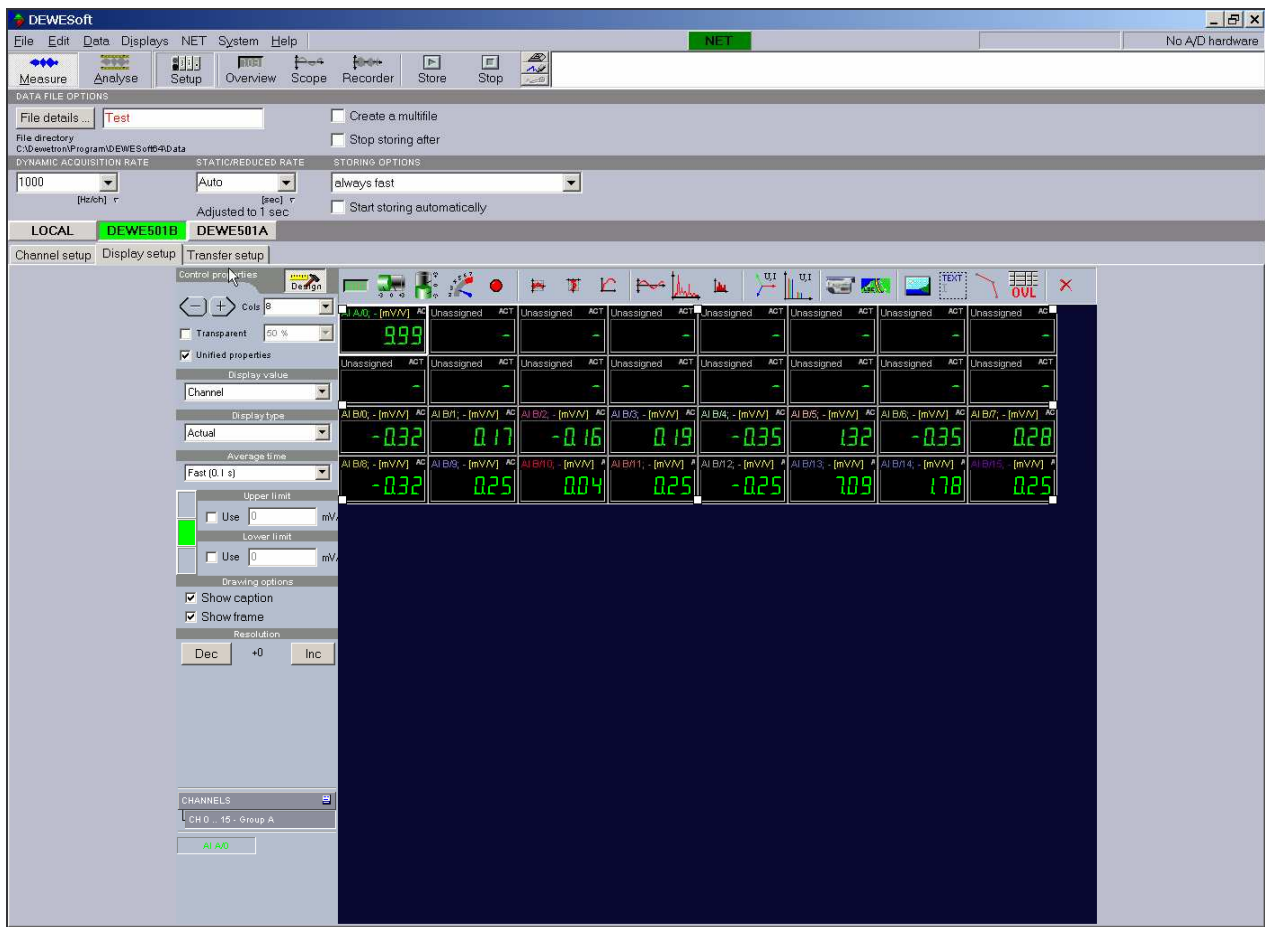
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DEWESoft NET



Users Manual

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1. Preface

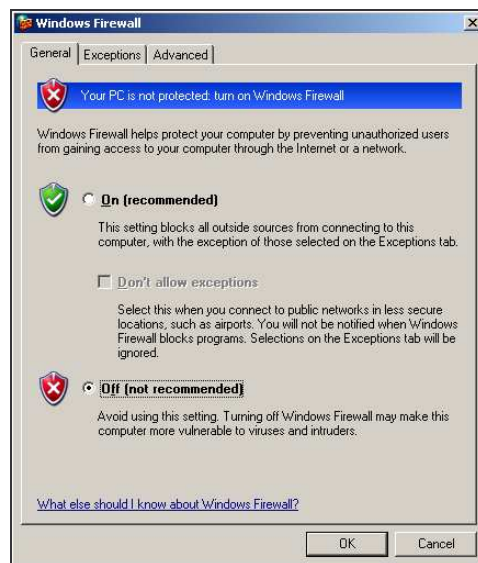
This manual should give the user an overview on the DEWESoft-NET functionality and its configuration possibilities in combination with two DEWE-501 measurement units. It covers general operating system settings as well as the DEWESoft-NET configurations for various measurement topologies.

2. Operating system configuration

In order to have DEWESoft-NET function properly, a few settings in the Operating System (WinXP) have to be made. This includes general system settings, Firewall settings and NIC (Network Interface Card) configuration.

2.1 Firewall settings

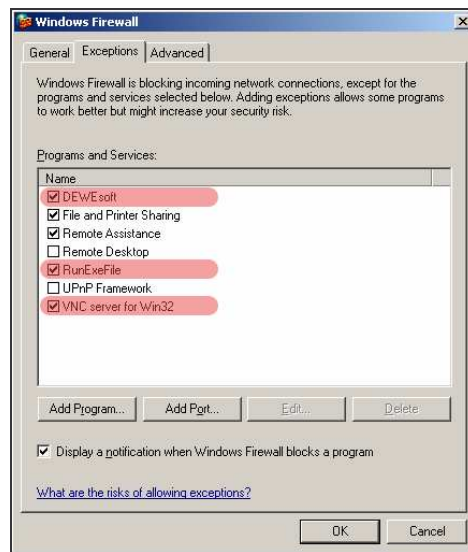
Windows XP has a built-in Firewall which is enabled by default. Usually, measurement systems are not connected to the local network infrastructure or to the Internet, so it is safe to disable the Firewall. This can be done in the *Control Panel* (Start→Settings→Control panel→Windows Firewall).



Picture 1 - Disabled Firewall

However, if an active Firewall is necessary, the following programs have to be checked in the *Exceptions* tab of the Windows Firewall settings:

- DEWESoft
- RunExeFile
- VNC Server for Win32

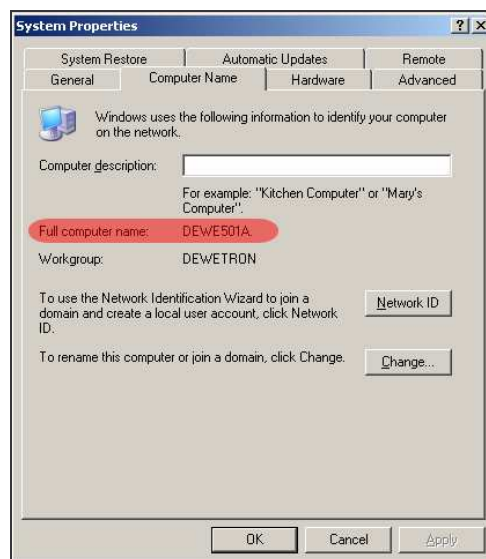


Picture 2 - Firewall exceptions

NOTE: Usually, during the DEWESoft installation when the Firewall is active, the user is prompted by Windows whether these programs (DEWESoft, RunExeFile and VNC) shall be blocked or not. Click on “Don’t block” to automatically add them to the Exceptions list!

2.2 System settings

The Computer name is used to identify the Computer in DEWESoft-NET and has been preconfigured by DEWETRON (*Dewe501A* and *Dewe501B*). If necessary, these can be changed in the *System Properties*.



Picture 3 - System Properties

NOTE: The Computer name has to be unique within the network! Otherwise DEWESoft can not identify the Computer. Also the system has to be rebooted when the Computer name is changed.

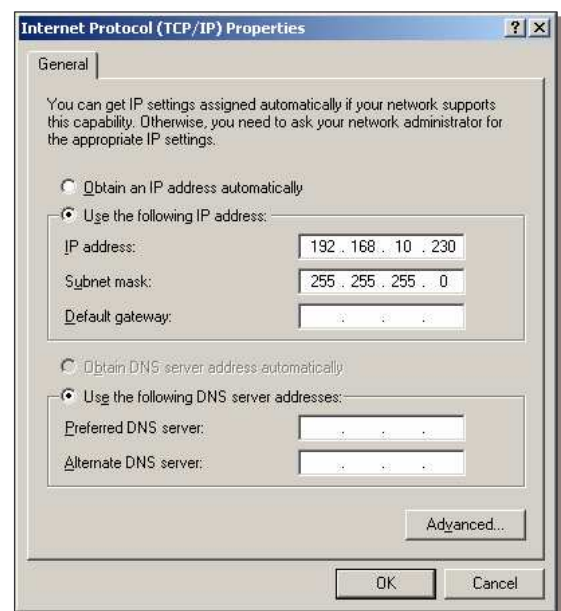
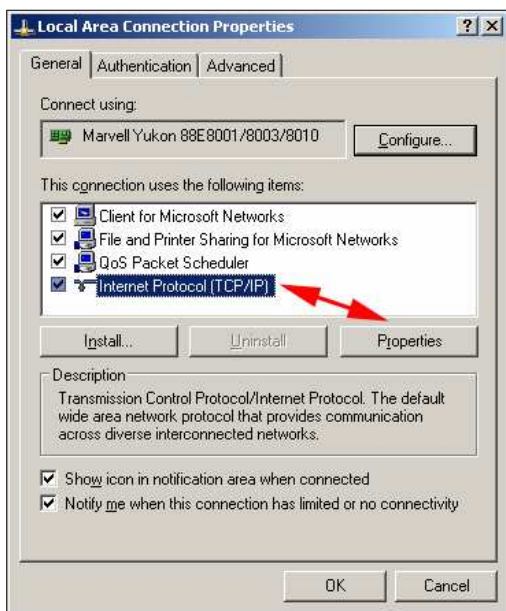
2.3 Network settings

Before DEWESoft-NET can establish a connection, the network settings (IP addresses and Subnet-Mask) have to be configured on both units. The following settings are preconfigured by DEWETRON:

Measurement Unit	IP address	Subnet-Mask
Dewe501A	192.168.10.230	255.255.255.0
Dewe501B	192.168.10.229	255.255.255.0

Table 1 - Preconfigured network settings

To configure the IP addresses go to Start→Settings→Network Connections→Local Area Connections. Click on *Properties* to open the *Local Area Connection Properties*. Select the *TCP/IP* entry and click on *Properties*. This opens the TCP/IP configuration:



NOTE: IP addresses must be configured statically (no assignment by a DHCP-Server)! Further it is important that they are in the same Subnet!

2.4 Wake-On-LAN

The Wake-On-LAN functionality is useful to boot the remote units from the local unit. Therefore WOL (Wake-On-LAN) must be activated in the BIOS. Also the MAC-Address (Physical address) of the NIC is required. Go to the command line (Start→Run→CMD) and type in "ipconfig -all" to list all information, including the MAC-Address, about the NICs.

NOTE: The Wake-On-LAN functionality requires a NIC and Mainboard which support ACPI. Further the Mainboard must support ATX power supplies.

3. DEWESoft NET – General informations

The idea of the DEWESoft-NET technology is to have a distributed system when:

- the required computing power is too high for a single measurement unit (e.g.: many channels sampled with a high sample rate).
- there is too much distance between the units for analog data transfer.
- the measurement unit is not accessible (e.g.: dangerous measurements, test rig measurements...).
- data from measurement units shall be displayed on several client computers.
- measurements have to be remotely controlled or supervised.
- ...

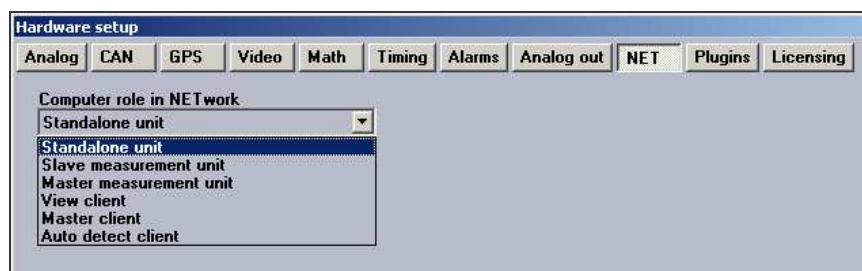
Within DEWESoft-NET the Master-Unit (Master client or Master measurement unit) totally controls the Slave-Units (Slave measurement units) – when the Master-Unit switches to the Setup screen, also the Slave-Unit switches to the Setup screen.

The live channel data is transferred via Ethernet to the client(s) with the drawback that the Ethernet interface is the bottleneck for the transfer. Therefore the live channel data can be stored in different ways to avoid excessive network traffic and optimize the units calculation power:

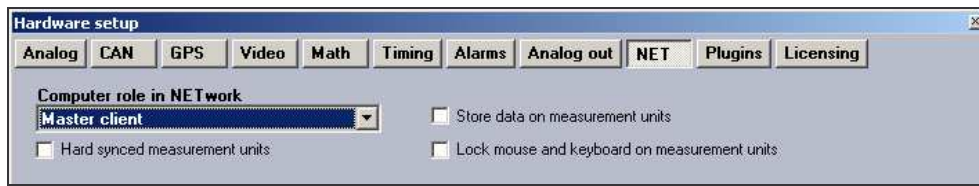
- **Local:** Measurement data is stored locally (i.e. on the client side). The live data of the selected channels is transferred to the client where it is stored.
The maximum throughput for local storage is 12 MByte/sec.
- **Remote:** Measurement data is stored on the measurement unit (i.e. on the server side). The data is transferred to the client manually (on user request), when the measurement is stopped.
The maximum throughput for remote storage is 8 MByte/sec.
- **Local & Remote**

3.1 Setup options

Each unit in a measurement network has its own role. Depending on the assigned role, a unit has limited or full functionality. The role is set in the DEWESoft NET module (System→Hardware setup→NET) and configured separately on each unit.



Picture 4 - Computer roles in DEWESoft-NET



Picture 5 - Options

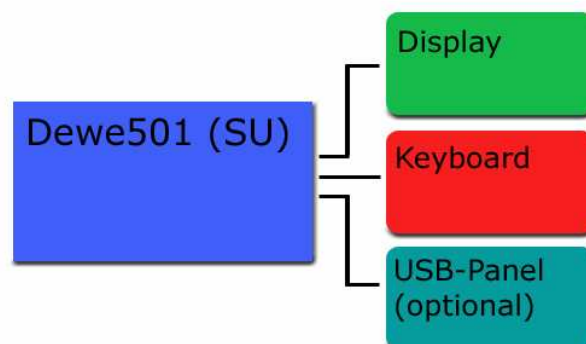
Depending on the units role, there are three **options** available:

- **Store data on measurement units:**
 - ON – All measurement data is stored on the unit (Remote storage).
 - OFF – Data is not stored on the unit. Only the channels selected in the *Transfer setup* are transferred to the client.
- **Hard synced measurement units:**
 - ON – The units A/D-Cards are synchronized via external Sync-Cable.
 - OFF – The units A/D-Cards are running independently.
- **Lock mouse and keyboard on measurement units:** The input devices on the measurement units can be locked to avoid unintended usage.

Depending on the topology (the structure the units are connected), various configuration possibilities are available.

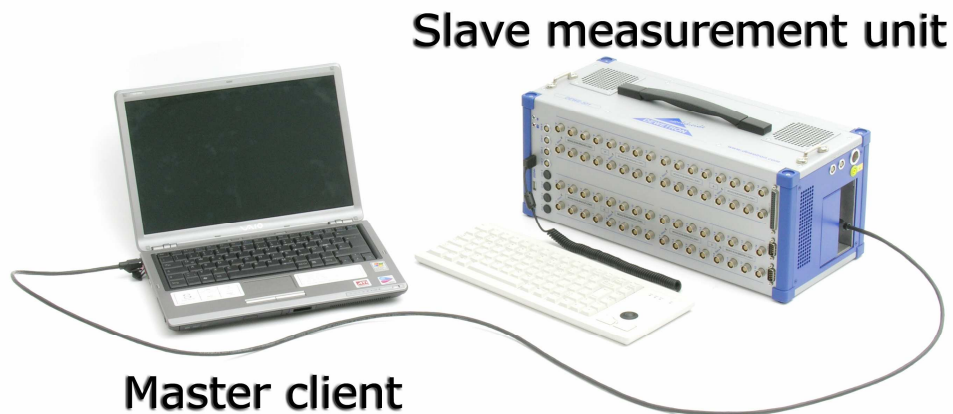
4 DEWESoft NET configurations

4.1 Standalone



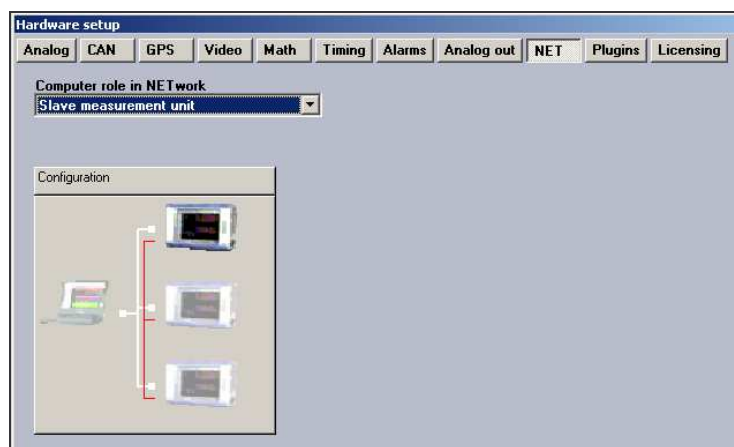
The Standalone-Configuration is the standard configuration of a measurement unit (no DEWESoft-NET configuration necessary). The measurement data is stored on the unit.

4.2 Master client – Slave



To configure the DEWE-501 as Slave measurement unit:

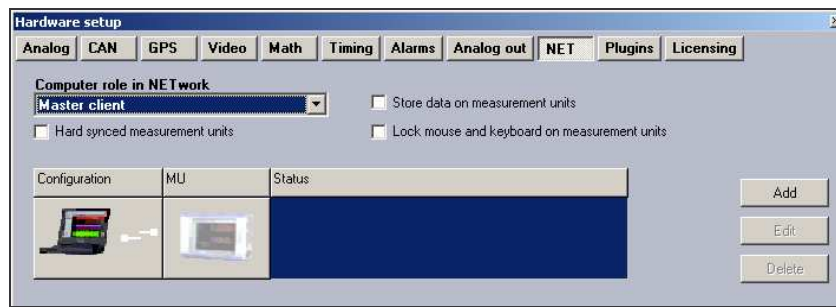
- On the DEWE-501, select *Slave measurement unit* from the drop-down menu. For a SMU, there are no additional options available.



Picture 6 - DEWE-501 as Slave Measurement Unit

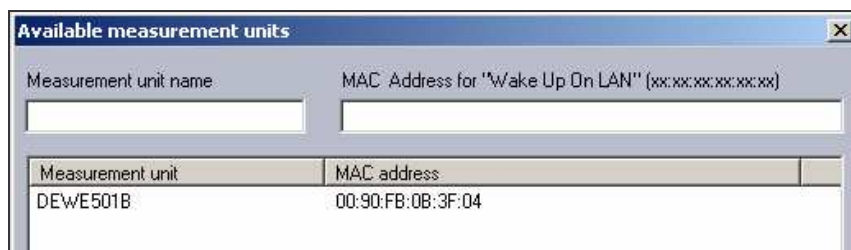
Any Computer can now be configured as Master client:

- On a Computer running DEWESoft-NET, select *Master client* as the units role.
 - Optional: Check or uncheck the desired *Options*.



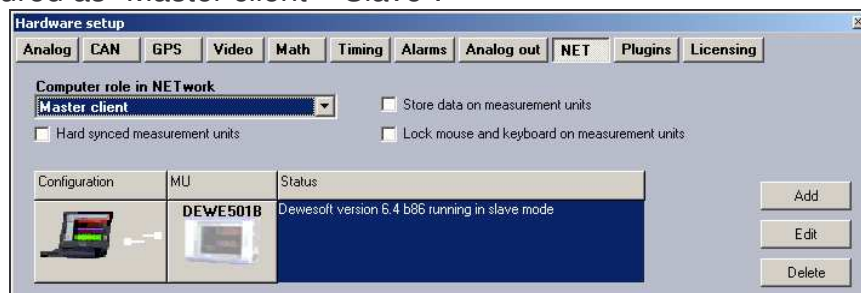
Picture 7 - Master client configuration

- Now the Slave measurement unit has to be assigned to the Master client by clicking on the *Add* button. The available units listed in the *Available measurement units* dialog and can now be assigned to the Master client.



Picture 8 – Available measurement units dialog

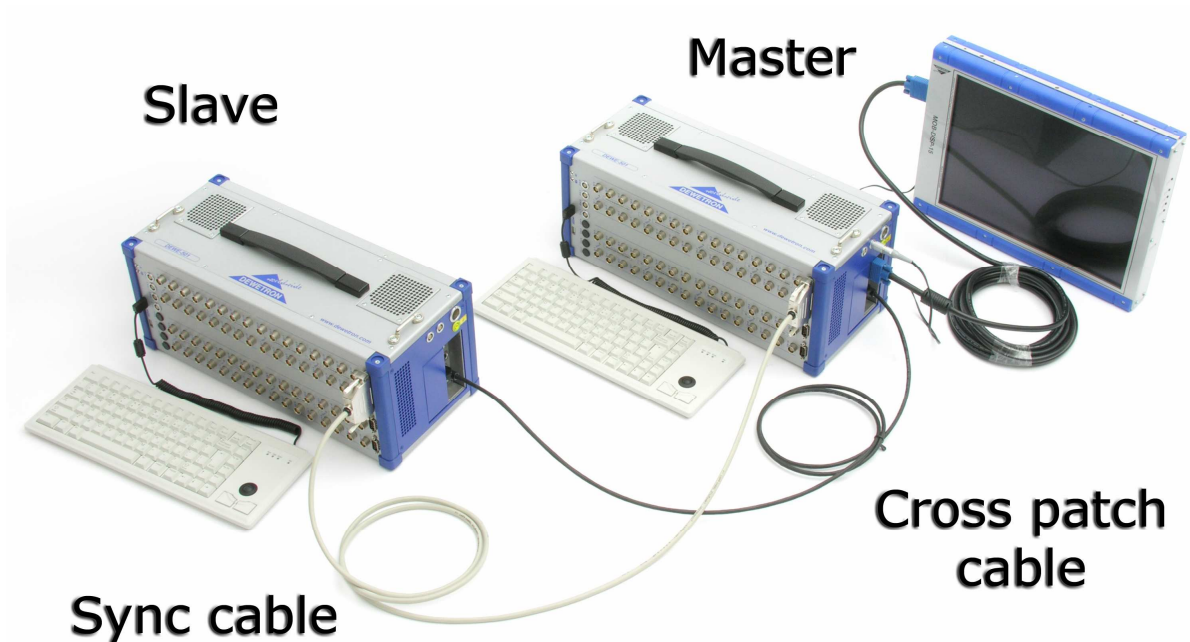
- When a measurement unit has been assigned to the Master client, the units name, DEWESoft version and role are displayed. DEWESoft-NET is now configured as “Master client – Slave”.



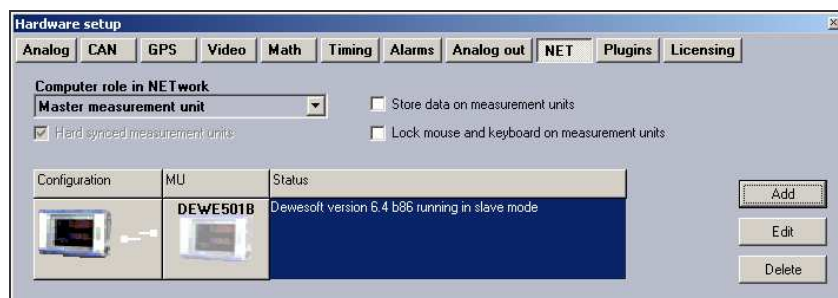
Picture 9 - Master client with assigned Slave measurement unit

- Continue at section 5. Measurement

4.3 Master – Slave



- Configure one unit as Slave measurement unit.
- On the other unit, select *Master measurement unit* as the Computer role.
 - Optional: Check or uncheck the desired options.
- Assign the Slave measurement unit to the Master measurement unit by clicking the Add button and selecting the respective Slave unit.
- Continue at section 5. Measurement



Picture 10 - Master measurement unit with assigned Slave

NOTE: The Master-Slave configuration requires hard-synced measurement units!

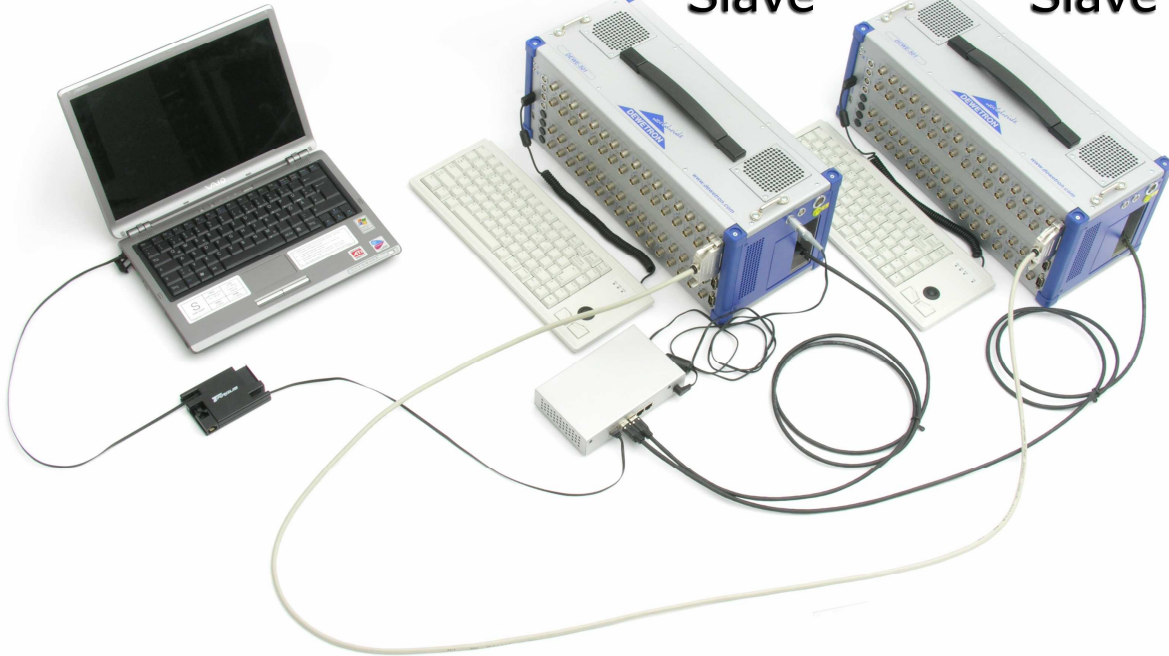
NOTE: When there is a point-to-point connection between the units (no HUB is used), a cross-patched network cable is required!

4.4 Master client – Slave – Slave

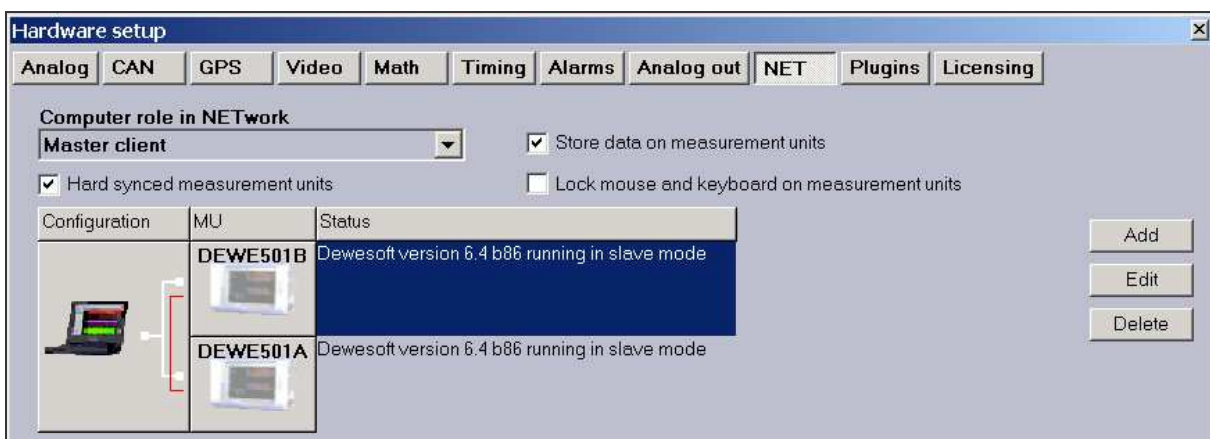
Master client

Slave

Slave



- Configure the DEWE-501 units as Slave measurement units.
- Configure any Computer running DEWESoft-NET as Master client.
 - Optional: Check or uncheck desired options.
- Assign both Slave measurement units to the Master client.
- Continue at section 5. Measurement

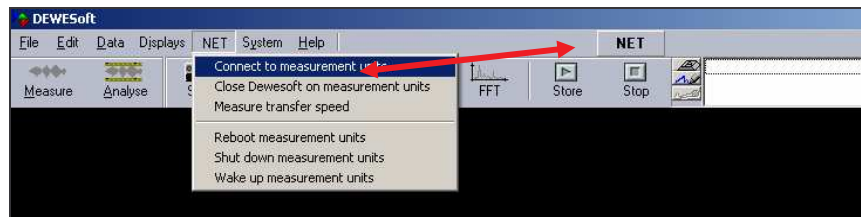


Picture 11 - Master client with assigned Slaves

5. Measurement

Connecting to the remote units

- When DEWESoft-NET has been configured, the Master unit can connect to the Slave units by selecting NET→Connect to measurement units from the menu or clicking the *NET* button.

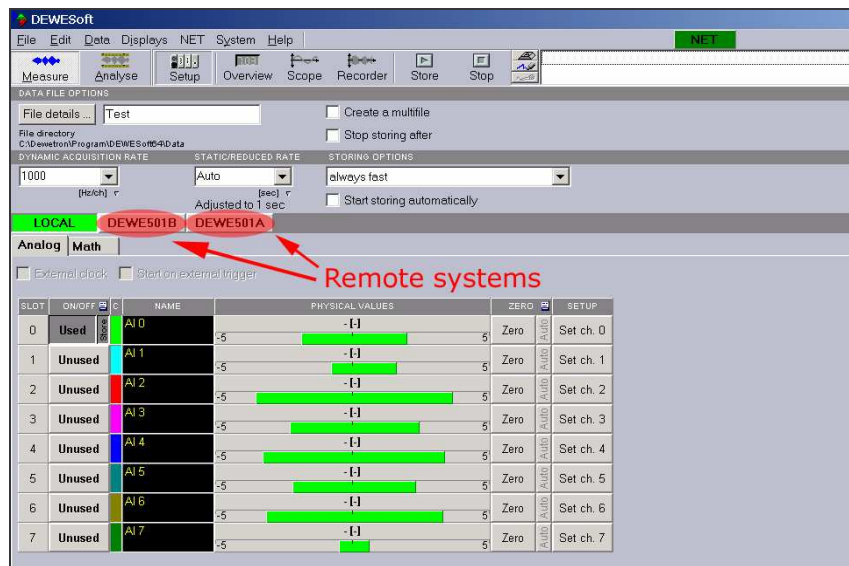


Picture 12 - Connect units



Picture 13 - Connection dialog

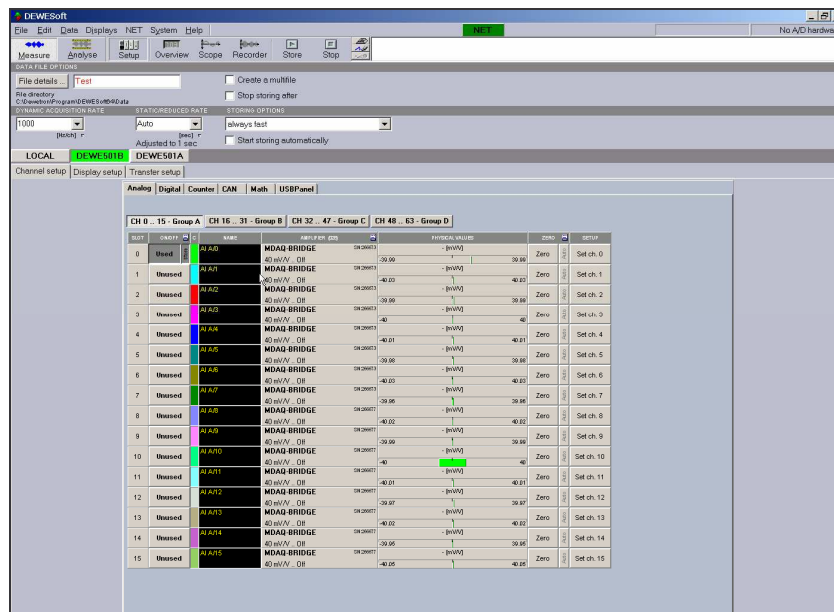
- When the connection was successful, the NET button turns green and the Setup screen appears. Each system setup (local and remote units) can now be accessed via the button bar (green indicates the selected unit).



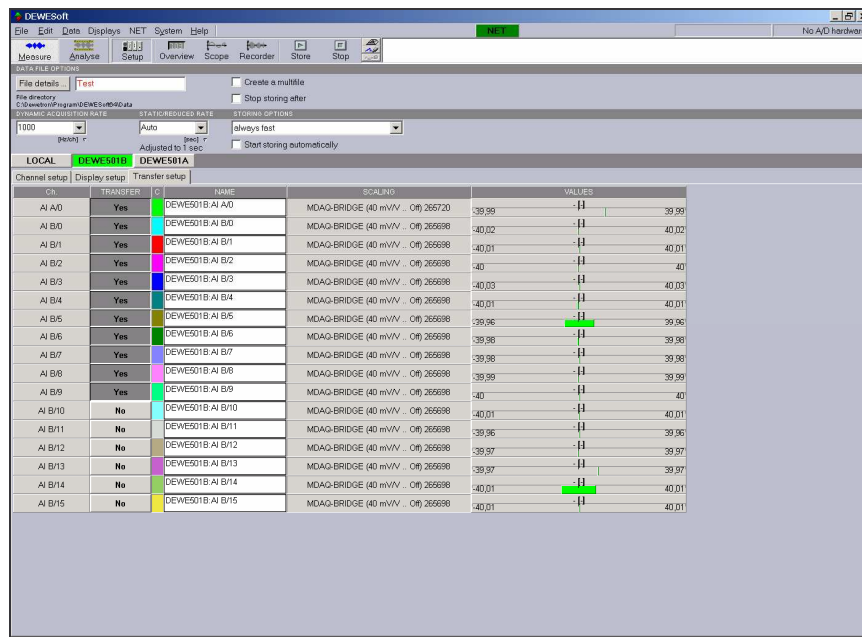
Picture 14 - Local setup screen with buttons to the remote setup screens

Remote channel setup

In the Remote channel setup screen each channel from the selected remote unit can be configured in the typical DEWESoft habit. The Remote channel setup screen is actually a copy of the Channel setup screen from the remote unit. This means that what is changed locally, is simultaneously changed on the remote unit.



Picture 15 - Remote channel setup screen for DEWE501B



Picture 17 - Remote transfer setup

NOTE: The more channels are selected for transfer, the higher the network load! Choose *Store data on measurement units* to minimize network usage during measurement. The acquired data can be transferred to the Master unit after the measurement (Transfer button).

When *Store data on measurement units* has been checked during DEWESoft-NET configuration, the data is transferred to the Master-Unit by clicking the *Transfer* button after the measurement.



Picture 18 - Transfer button

6. FlexPro – MergeDB

The MergeDB script allows the user to import existing FlexPro-Databases (for example from previous DEWESoft-to-FlexPro exports) to the exported measurement data.

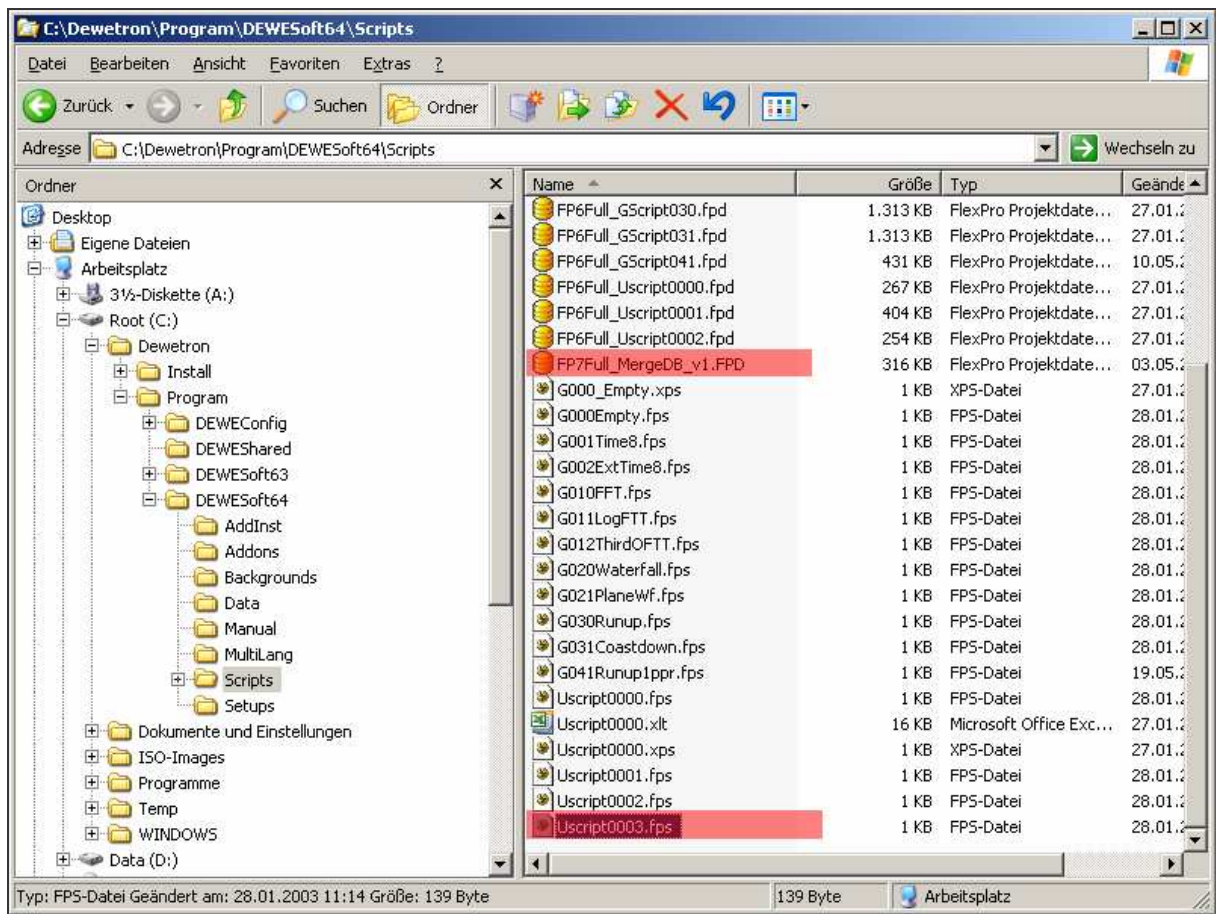
NOTE: MergeDB requires either FlexPro-Standard or FlexPro-Professional!

6.1 Installation

To make the MergeDB-Script available in the DEWESoft export screen, two files must be in the DEWESoft script folder (usually C:\Dewetron\Program\DEWESoft64\Scripts\):

- Copy the file FP7Full_MergeDB_v1.fpd to the DEWESoft script folder.
- Copy the file Uscript000X.fps to the DEWESoft script folder.

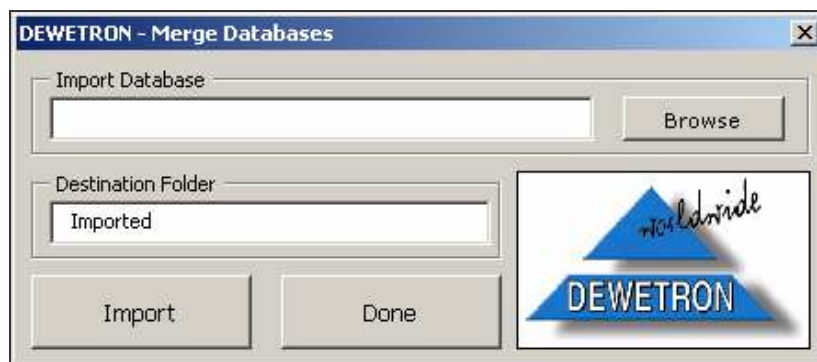
NOTE: There are several Uscript-files in the DEWESoft script folder (e.g.: Uscript0001.fps, Uscript0002.fps ...). The **X** in the filename Uscript000**X**.fps must be replaced by a number that is not assigned yet! For example if the last file is called Uscript0002.fps, name the created file Uscript0003.fps!



Picture 19 - DEWESoft script folder with the to files needed for MergeDB

6.2 Usage of MergeDB

- Click on the *Browse* button to select the FlexPro-Database to be imported.
- Optionally a folder name (*Destination folder*) can be specified in which the imported files are copied.
- Click on *Import* to import the selected Database to the Destination folder.
- Click on *Done* when all Databases have been imported.



Picture 20 - The MergeDB GUI

Notes