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847 USB Lab Link
Lab Link Server

Instructions for Use

8.847.1003 05.2006 / ars

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Although all the information given in these Instructions has been checked with great care, errors cannot be entirely excluded. Should you notice any mistakes please inform the author at the address given above.

Table of contents

1 Introduction

1.1 Instrument description

The Lab Link System consists of the instrument **847 USB Lab Link** and the PC program **Lab Link Server**. It allows the Ethernet connection (e.g. intranet, LAN) of a Titrando system with Touch Control. Several Titrando systems can transfer their data (methods, results, LIMS data, etc.) to a networked PC with installed Lab Link Server software via such a TCP/IP connection. In this way correspondingly configured folders of the server PC are available to Touch Control as an **additional memory medium**.

In addition, the Titrando system has the possibility of sending **e-mail** messages via the Lab Link Server.

A further feature of the Lab Link System is the possibility of using a **network printer**. You can print out your current sample data and reports on a printer in the network directly from Touch Control.

The remote service function of the Lab Link System can be used for "**Long Distance Service**", i.e. your Titrando system can be serviced by technicians without them having to be physically present. Access to your system is via the network.

1.1.1 Arrangement and functions

The following illustration shows the schematic arrangement of a Titrando system for network operation in combination with the Lab Link Server. Peripheral devices such as stirrers, etc. have been left out for reasons of clarity.

Each Titrando system consists of at least one Titrando, one Touch Control for control and an 847 USB Lab Link, which provides the network connection. The illustration shows 4 systems that are managed by the Lab Link Server. All systems can print out on the "Network Printer",

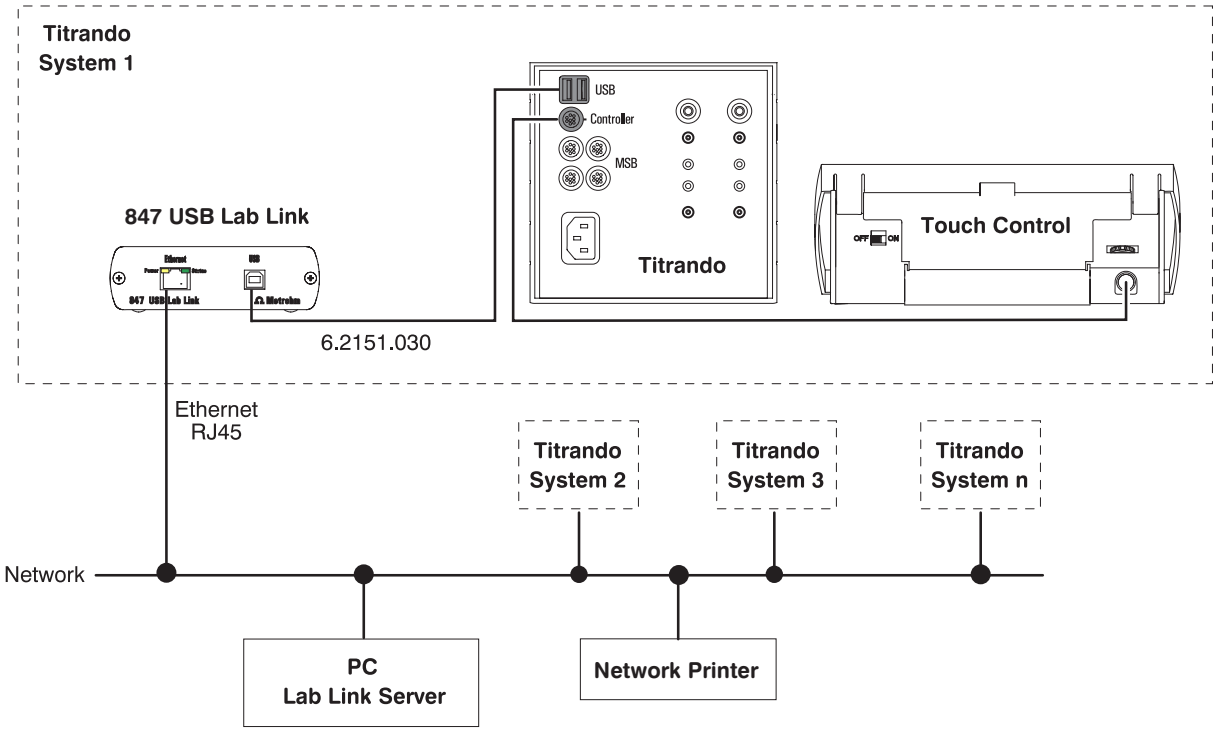


Fig. 1 Titrando system with Ethernet connection

1.2 Information about these Instructions for Use

Attention!

Please study these instructions carefully before you start to use the 847 USB Lab Link and the Lab Link Server. The instructions contain information and warnings that must be observed by the user in order to guarantee the safe use of the instrument. Please keep these instructions near the instrument so that they are always to hand when required.

1.2.1 Organization

These Instructions for Use for the 847 USB Lab Link and the Lab Link Server provide a comprehensive overview about the installation, startup, operation, troubleshooting and technical specifications of the instrument.

The Instructions for Use are arranged as follows:

- **Introduction**
  General description of the instrument, operating elements and safety information
- **Installation**
  Installation of the instrument and the server
- **Operation**
  Setting up and operating the instrument
- **Troubleshooting**
  Description of possible problems and their solution
- **Appendix**
  Technical data, standard equipment, warranty and declaration of conformity
- **Index**
  In order to find the required information should either use the **Table of contents** or the **Index**.

1.2.2 Notation and pictograms

The following notations and pictograms (symbols) are used in these instructions:

9	**Control element, instrument element** see illustration in *Section 1.3*
[Continue]	**Button** on the user interface
	**Warning** This symbol indicates a possible risk of damage to the instrument or its components if the given information is not properly observed.
	**Caution** This symbol indicates important information that you should read before continuing.
	**Note** This symbol indicates additional information and tips which may be of particular use to you.

1.3 Parts and controls

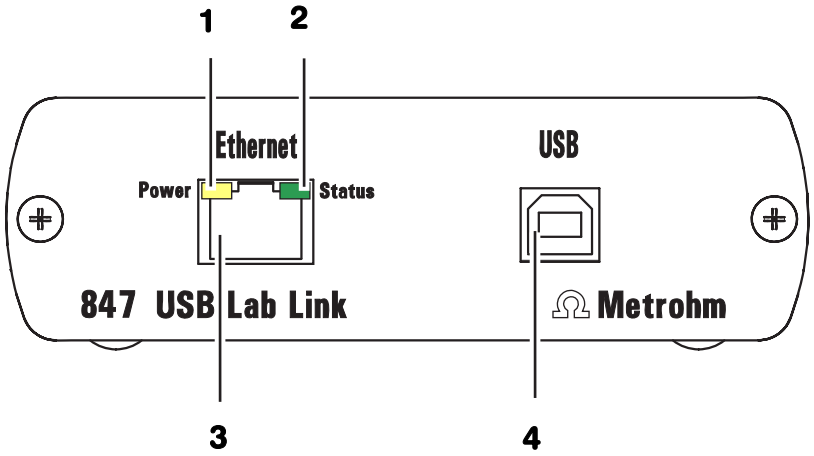


Fig. 2 Front view 847 USB Lab Link

1	**LED "Power" Display** Lit up when power supply of the 847 USB Lab Link, via Titrando, is sufficient (exception: with USB hub, see *p. 16*)	**3**	**RJ45 network connection (Ethernet)** Connection to network (10 Mbit/s)
2	**LED "Status" Display** Blinks irregularly during data transfer	**4**	**USB connection** USB-Port (type B), connection to Titrando

1.4 Safety information

Warning!

This instrument should only be used in accordance with the information given in these instructions for Use.

1.4.1 Electrical safety

Please observe the following guidelines:

- Do not open the 847 USB Lab Link housing. This could destroy the device. Inside the housing there are no components that the user can service or exchange.

Electrical safety when handling the 847 USB Lab Link is guaranteed within the framework of the EN/IEC 61010-4 and EN 55022 standards.

2 Installation

2.1 Requirements

In order to network a Titrando system using the 847 USB Lab Links you require the following equipment (see also *Section 5.1 Technical data*).

- Titrando system with Touch Control
- 847 USB Lab Link
- at least a 10 Mbit network with RJ45 Ethernet cable
- one free IP address per 847 USB Lab Link; Subnet Mask and Gateway must be known or have to be assigned by the DHCP server

The Lab Link Server software should be installed on a PC with the following requirements:

- Processor: Pentium III
- RAM: 256 MB
- Operating system: Windows 2000/XP
- Free hard disk memory: 50 MB for program files and sufficient space for the planned Titrando data
- Network connection with at least 10 Mbit/s

The use of Microsoft Windows 2000 or Windows XP as the operating system is absolutely essential.

Caution!

The installation of the Lab Link Server must be carried out as "Administrator". If you are using an NTFS file system then take care that the users intending to utilize the server operation have full rights of access to the data folders that have to be set and to all subfolders created in them. This can be checked in Windows Explorer in the security settings in which the properties of the corresponding folders are defined. Please note that for the operation of the Lab Link Server software the corresponding user must remain continuously logged in under Windows.

Windows XP: The safety settings described above are only accessible when the option "Use simple file release" is switched off in the menu Extras / File options / View *in Windows Explorer.*

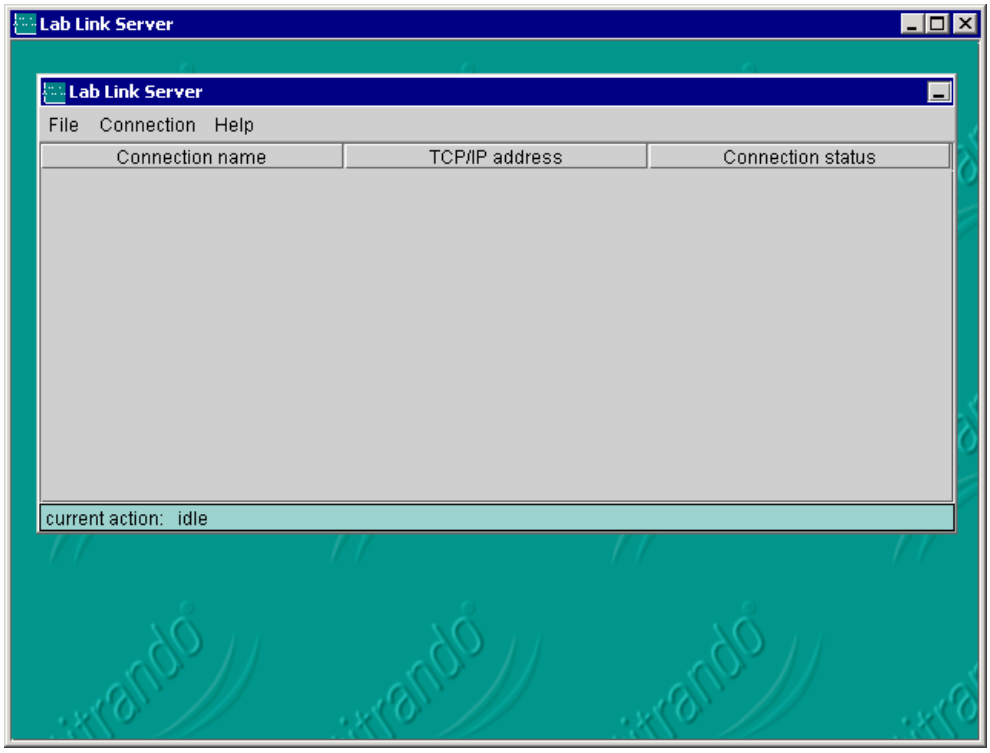
2.2 Lab Link Server configuration

2.2.1 Software installation

On the server PC start the installation program **Titrando.exe** in the main folder of the accompanying CD and select the option **Lab Link Server**. You can also start the corresponding installation program **Setup.exe** directly from the folder **Lab Link Server**. Follow the instructions given by the program.

2.2.2 Basic settings

After successful installation start the program **Lab Link Server**. The main program window opens:

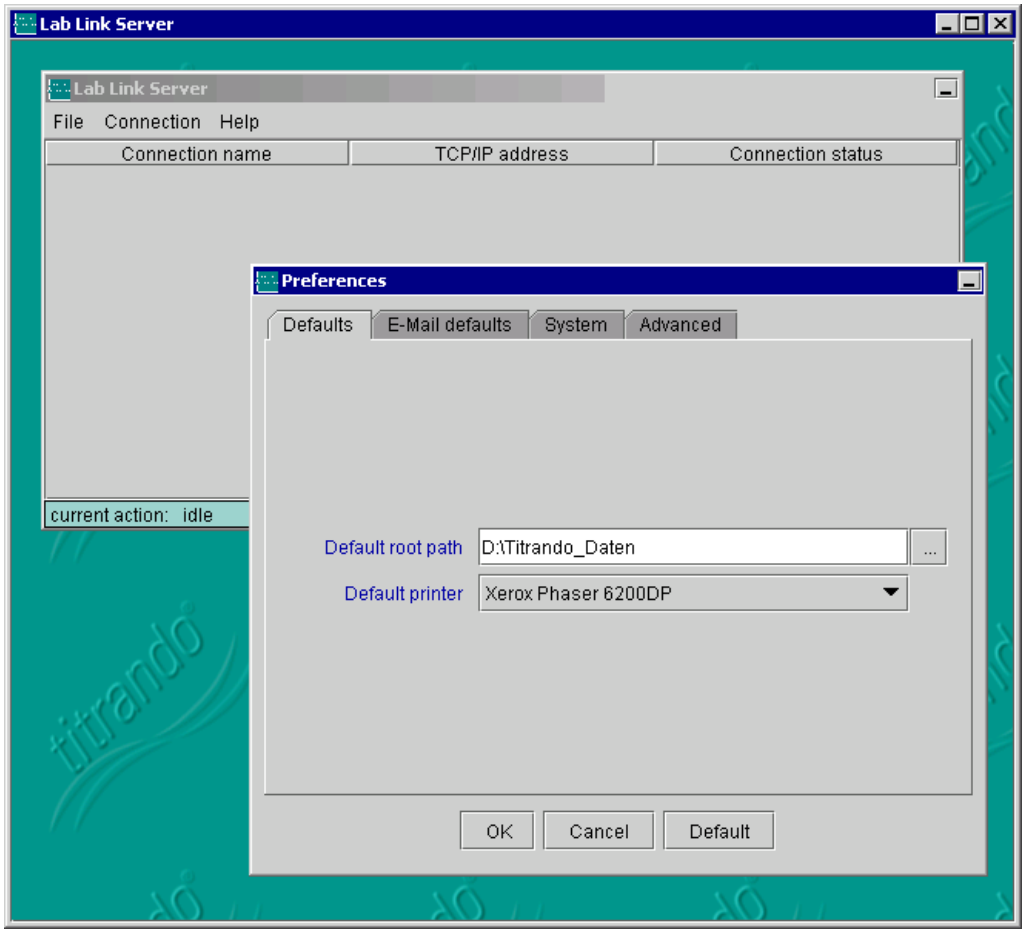


Under **File** / **Preferences** you should first configure some standard settings. These will then appear automatically as defaults when setting up new connections. Later, you can alter or complete these settings (see *Section 3.1*).

Note

*The standard settings of all the tabs under **File** / **Preferences** can be reset together to the values they had immediately after the program installation with the **[Default]** button.*

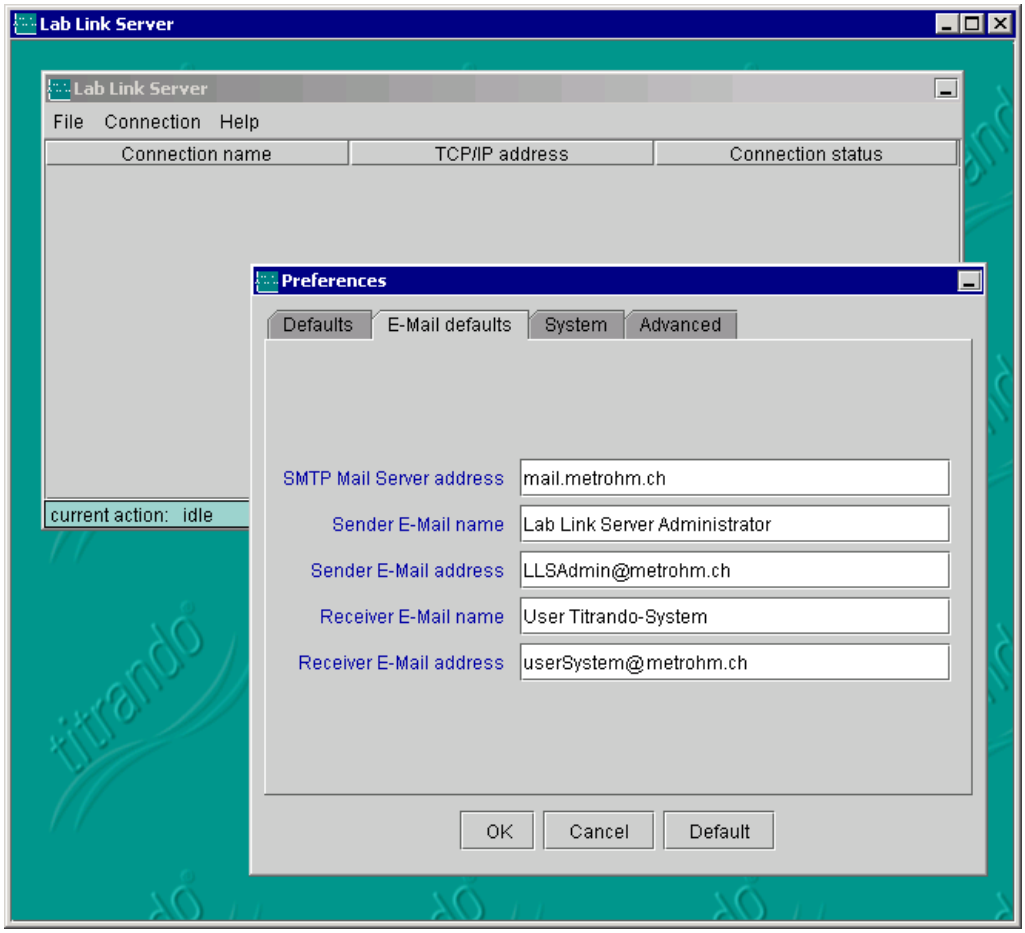
- **Defaults**



A common default root path can be defined for the data (methods, determinations etc.) of all the Titrando systems connected to the Lab Link Server. The specific folders for the individual Lab Link connections are defined separately (see *Section 3.1*). Additionally, you can select a standard printer for all connected Titrando systems.

1. Under **Default root path** enter the required Default root path.
2. Under **Default printer** select the printer that is to be adopted as the default printer for all Lab Link connections. Any local printer or one available in the network can be selected here, provided that it has been installed on the PC.

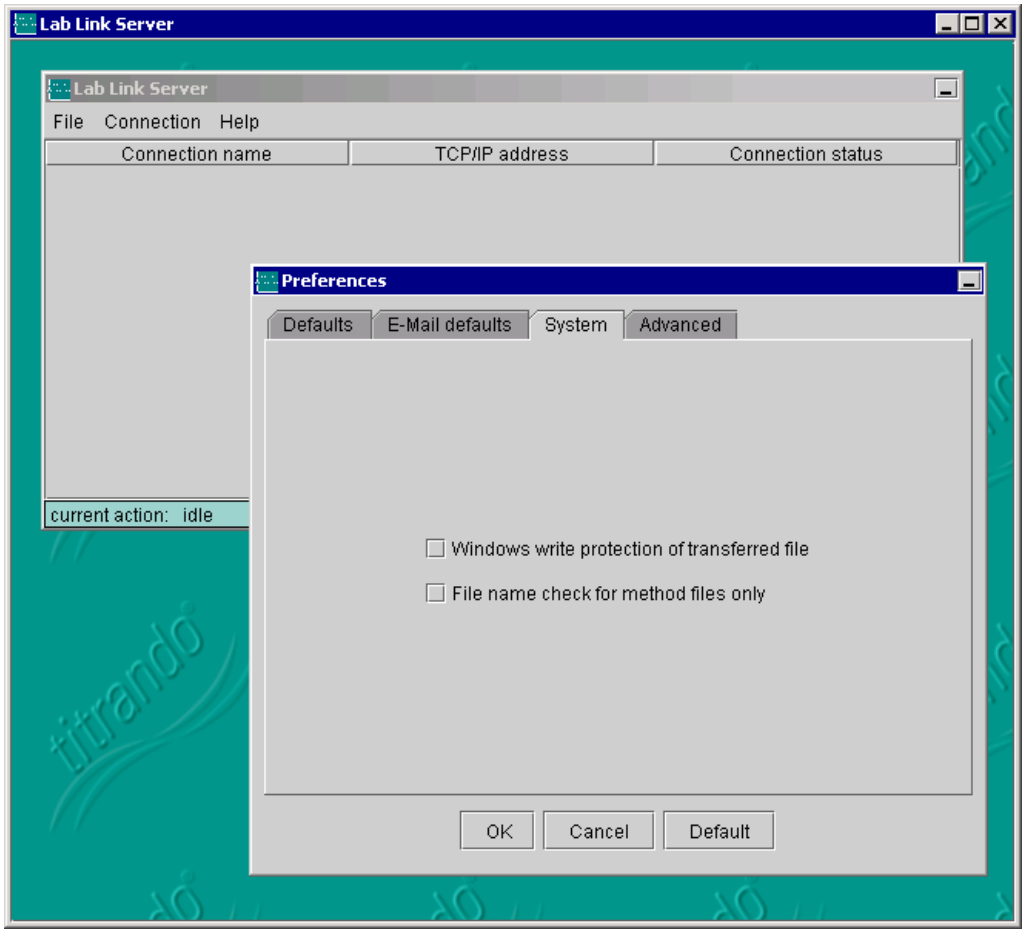
- **E-Mail defaults**



Error and warning messages from the Touch Control can be sent by e-mail to any address. Under **E-Mail defaults** you can define the standard instructions for the corresponding settings of the Lab Link connections.

1. Enter the **SMTP Mail Server address** of your mail server.
2. Define a **Sender E-Mail name** which has to appear as the E-Mail sender in the mail header of the E-Mail.
3. Enter the **Sender E-Mail address**.
4. Define a **Receiver E-Mail name**.
5. Enter the **Receiver E-Mail address**. If an invalid e-mail address is entered the sender e-mail address will receive a message that the e-mail cannot be delivered.

- **System**



1. Activate the checkbox **Windows write protection of transferred file**, if you want to provide all files (methods, determinations etc.) transferred from the Titrando system to the Lab Link Server with a write protection.

Files transferred from the Titrando system to the Lab Link Server are not write protected by default outside the Touch Control. By activating this checkbox all files can be protected by the Windows write protection after transmission to the server, so that they cannot be directly overwritten or deleted in a Windows file manager (e.g. Explorer). This Windows write protection should not be confused with the write protection option in Touch Control under **Method options** / **Save automatically**, which provides an internal system protection against accidental overwriting or deletion of files.

Note

Please note that, if the "Windows write protection" is activated, there is no possibility of deleting or overwriting an already existing file on the server from the Titrando system. In this case the "Windows write protection" for the particular file must first be manually disabled at the Lab Link server PC.

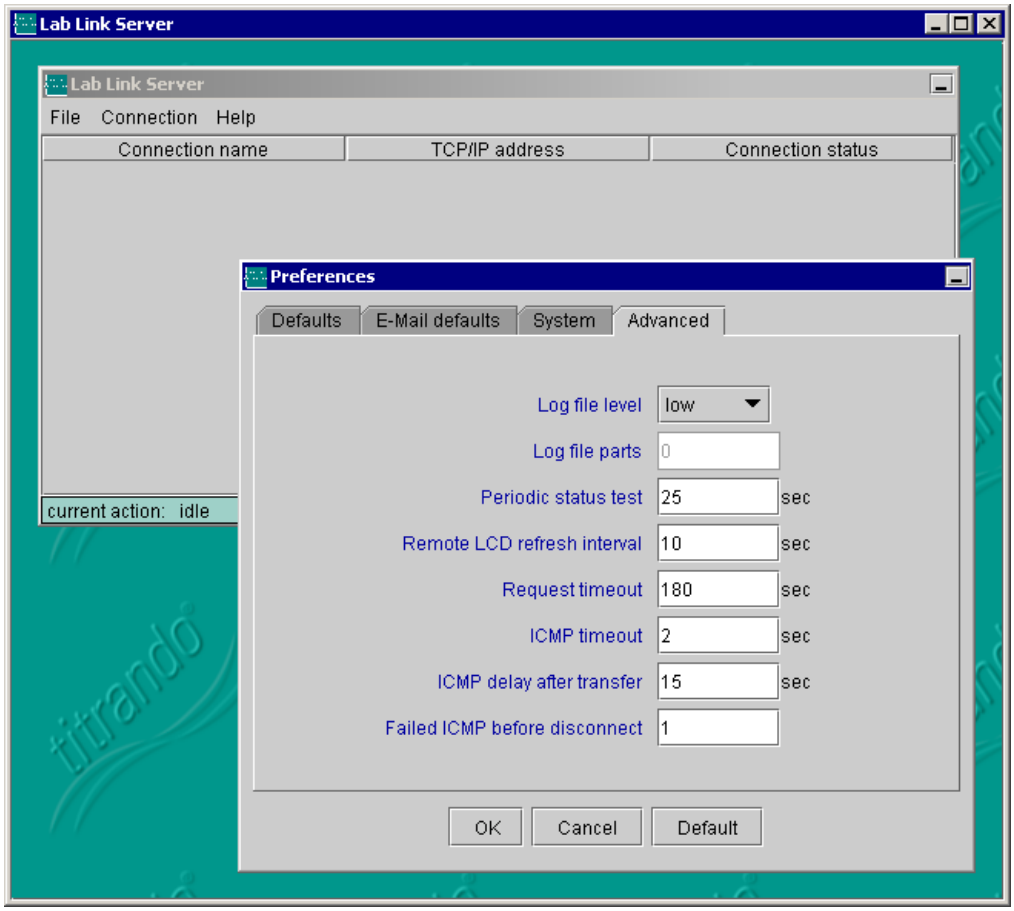
2. **File name check for method files only**: When files are saved, the Titrando checks the exclusivity of the file name in all folders and subfolders in the folder defined as **Root path** for the particular Lab Link connection. This check could take some time, particularly when a large number of determination files are stored in a single (sub)folder. By activating this checkbox this check can be switched off for all files with the exception of the methods. This increases the performance, but the Titrando user must then personally ensure that no files names are used twice.

Note

If you automatically save your determinations (see Instructions for Use for PC Control / Touch Control) the Touch Control will provide an exclusive name. In this case it is sufficient if you let the system check the exclusivity of the method names only.

- **Advanced**

  Special adaptations to the local network surroundings can be carried out here. These apply immediately for all Lab Link connections after confirmation with **[OK]**.



Caution!

You should only alter these settings when you have detailed knowledge of the corresponding functions. Faulty timing settings may cause malfunctioning.

1. Under **Log file level** select the degree of detail for the information in the Log file.

   Standard value: low, **Selection**: low, medium, high

   Communication with the connected Titrando systems can be recorded in a log file. This function may be particularly useful during startup for searching for errors. The log file is deleted every 60 operating minutes or after restart of the Lab Link Server; recording then starts again from the beginning. The file is saved in the installation directory of the Lab Link Server under **bin\log**.

low: No detailed recording is made. This is recommended for normal operation.

medium: All received and transmitted commands as well as the periodic status tests are recorded. This is normally sufficient for tracing communication problems.

high: In addition, technical programming information is recorded. This is only for debugging, in cooperation with Metrohm service staff.

Note

Keep the log file level as low as possible in order to avoid unnecessary CPU and memory occupancy.

Additional debug switches are set with the parameter **Log file parts**. This parameter is only required by Metrohm service staff.

2. Under **Periodic status test** define at which intervals the defined Lab Link connections are to be checked.

   Standard value: 25 s, **Input range**: 5 ... 50 s

   The Lab Link Server performs this status test in the above defined interval for:

   - all connections with status *connected*
   - connections with status *not available*, for which the option *Auto connect (via multicast)* is deactivated

   The status test consists of an **ICMP** (Internet Control Message Protocol = "Ping") request to the corresponding TCP/IP address. A short cycle period enables a rapid reaction to status changes, but subjects the network to slightly greater traffic. A long cycle period lengthens the reaction time to a newly switched-on Lab Link device with deactivated option *Auto connect (via multicast)*, but results in less network traffic. The time must be selected so that the Lab Link Server program always has the opportunity of opening the TCP/IP connection to newly switched-on hardware before the Titrando system terminates the setting up of a connection to the Lab Link Server. At the earliest, the connection setup takes place 25 seconds after switch-on and is terminated after 50 seconds at the latest with an error message if no connection is made within this time. The following equation can be used as an aid for calculating the optimal time:

   Calculation of the *Periodic status test* time
   = 42 s – (number of defined connections * ICMP timeout)

3. With **Remote LCD refresh interval** you can define at what time interval the remote control display is to be updated (see also *Section 3.5 Remote service)*.

   Standard value: 10 s, **Input range**: 0 and 3 ... 600 s.

If you enter **0** then automatic updating is switched off. The remote control display will now only be updated when a button is pressed directly on the corresponding Touch Control or in the window of the remote control display. You can trigger a refresh without accessing the Titrando system by clicking on the green area of the remote control display (see *Section 3.5*).

Note

With a short interval time you increase the network traffic in remote operation and slightly delay the reaction when operating Touch Control.

4. With the parameter **Request timeout** you define the maximum time for which the Lab Link server is to wait for an answer from the Lab Link instrument after a request (e.g. data request).

   Standard value: 180 s, **Input range**: 20 ... 900 s

   A running request cannot be interrupted by the *Periodic status test*. If for any reason a request cannot bee completed (e.g. power cut affecting the Touch Control), then this connection remains blocked from the point of view of the Lab Link server. When this timeout period has elapsed, the connection will be reset automatically and initialized. In order to avoid unintended resetting do not set this time too short.

5. Under **ICMP Timeout** you can define how long a Lab Link connection with the status *connected* is to wait for an answer after a *Periodic status test* (ICMP request) has been carried out. When this time has expired the connection will be shown as non-existent.

   Standard value: 2 s, **Input range**: 1 ... 20 s

   In networks with only little traffic a successful ICMP only requires a few milliseconds. With intensive network traffic this command may take a little longer. However, we recommend that the timeout setting is not defined too high as its size directly influences the *Periodic status test* (because the server waits for an answer before the next connection in the list is checked). This applies particularly if a large number of 847 USB Lab Link devices without *Auto connect (via multicast)* have been defined (but are switched off).

6. Under **ICMP delay after transfer** you should adapt the time to elapse after a data transfer after which an ICMP request (Periodic status test) is to be transmitted.

   Standard value: 15 s, **Input range**: 0 ... 40 s

   Since successful data transfer indicates a functioning connection, an additional ICMP request does not need to be set in this case.

   The time shown here indicates the off-time for an ICMP request to the corresponding TCP/IP address after a successful transmission. A larger

off-time reduces network traffic, but increases the reaction time of the Lab Link Server software to a change in status of Lab Link devices.

7. Under **Failed ICMP before disconnect** define the permitted number of failed status tests. If this number is exceeded an existing connection is interrupted (status *not available*).

   Standard value: 1, **Input range**: 0 ... 10

2.3 847 USB Lab Link configuration

2.3.1 Connection to Titrando and network

Connect the 847 USB Lab Link to your Titrando-System as shown in *Fig. 1* and connect it to the network. Proceed as follows:

1. Switch off your Titrando system.
2. Connect the USB connection **4** from the 847 USB Lab Link to a USB connection on the Titrando. Use the 6.2151.030 USB cable.
3. Connect the RJ45 network connection **3** from the 847 USB Lab Link to the local network using an RJ45 Ethernet cable.

Power supply to the 847 USB Lab Link is via the USB connection to the Titrando.

Note

*If free USB connections are no longer available on the Titrando you can use a commercially available **USB hub**. However, it is essential that this has its own power supply, i.e. you must use a self-powered hub.*

2.3.2 Parameter configuration

The following parameters are set directly on the Touch Control.

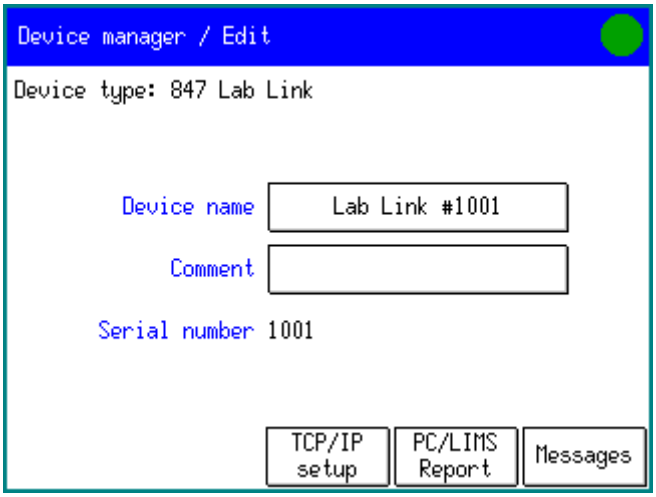
- Device name for the 847 USB Lab Link
- TCP/IP settings
- Parameters for the PC/LIMS report
- Parameters for messages

Note

Once these parameters have been set you must switch off the Touch Control, wait a few seconds and then switch it on again so that the alterations are adopted by the system.

1. Open the dialog **System** / **Device manager**.
2. Mark the entry **847 Lab Link** and press **[Edit]**.

- **Device name**

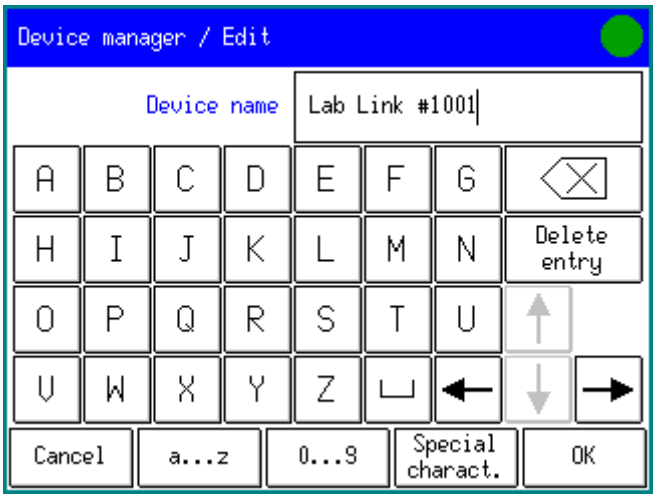


The **Device name** is assigned automatically by the Touch Control and is made up from the name "Lab Link" and the **Serial number** of the device. This device name can be altered at any time.

Warning!

The device name must be unambiguous, i.e. it must exist only once in the network.

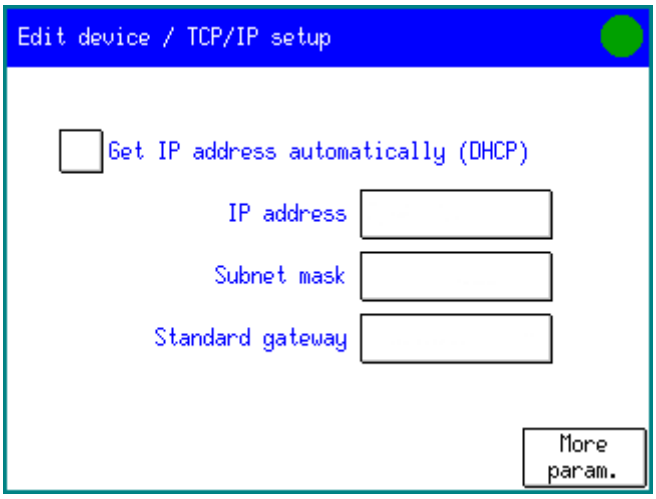
1. Touch the field **Device name** to open the text editor and enter the required device name.



2. Confirm the entry with **[OK]**.
3. You can enter a **Comment** in the same way.

- **TCP/IP Setup**

1. With **[TCP/IP Setup]** you can make network-relevant settings.



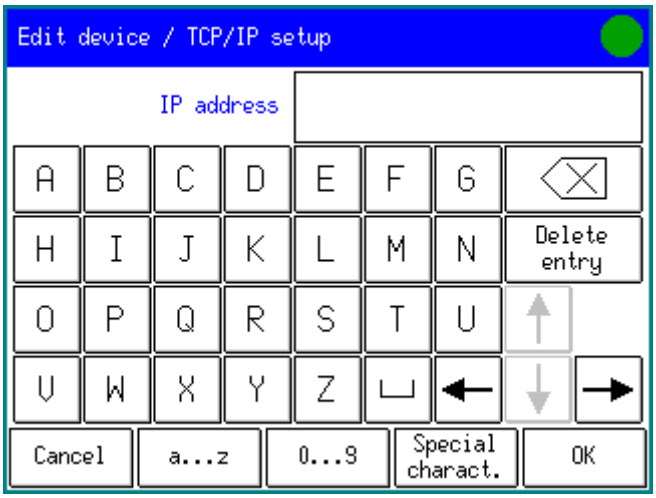
In order for you to be able to address the 847 USB Lab Link in your network it must be given an IP address. The 847 USB Lab Link can then obtain it either dynamically from a DHCP server (Step **2**) or you can enter it directly in the dialog shown above (Step **4**ff.).

2. **Dynamic IP address**: Activate the checkbox **Get IP address automatically (DHCP)** if the 847 USB Lab Link is to obtain the IP address from a DHCP server. All the other parameters can then no longer be edited.
3. Confirm and exit the TCP/IP settings with **[Back]**.

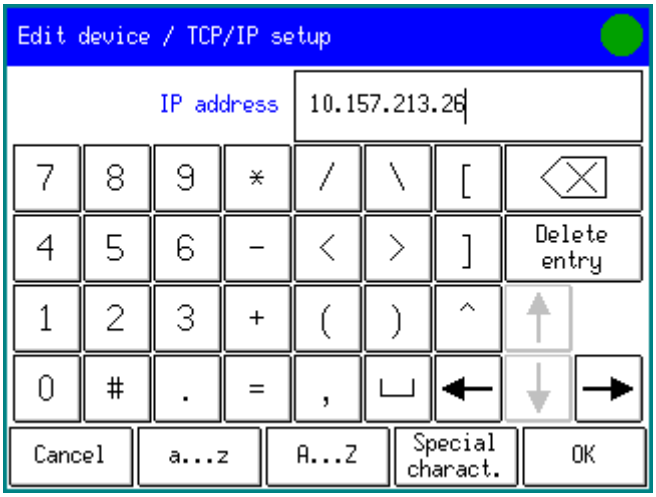
Note

*As soon as you exit the dialog with **[Back]** and then restart your Touch Control the, IP address, subnet mask and standard gateway assigned to the 847 Lab Link by the DHCP server will be shown in this dialog.*

4. **Static IP address**: touch the field **IP address** in order to open the text editor.



5. Use **[0...9]** to open the number block of the editor. Enter the IP address in the form of xxx.xxx.xxx.xxx (e.g. 10.157.213.26). Leading zeros must be omitted (wrong: 026... / correct: 26...).



6. Confirm the entry with **[OK]**.
7. Enter the **Subnet mask** and **Standard gateway** in the same way.
8. Confirm the TCP/IP settings with **[Back]**.

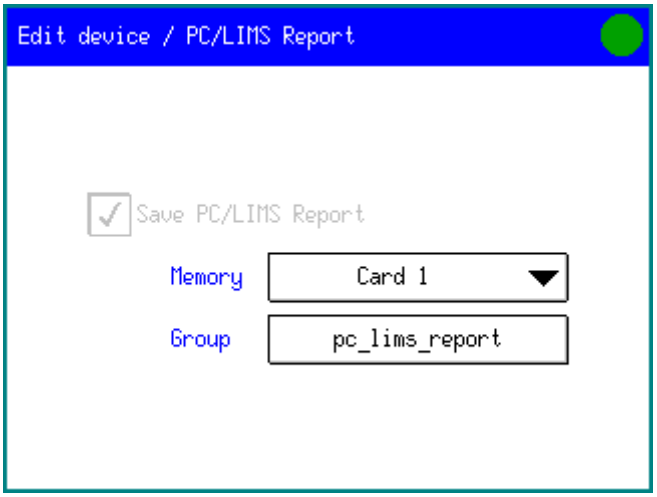
- **More parameters**

  Under **Edit device** / **TCP/IP setup** you can use **[More Param.]** to access the dialog in which the MAC address, manufacturer and product ID as well as the device release are shown.

- **PC/LIMS Report**

  This is where you define where the machine-readable ASCII report is to be stored. A PC/LIMS report contains all the data of a determination (method, sample size, result, messages, etc.) and is saved as a *.txt file.

  1. Touch the **[PC/LIMS Report]** field in order to make the settings for the PC/LIMS report.



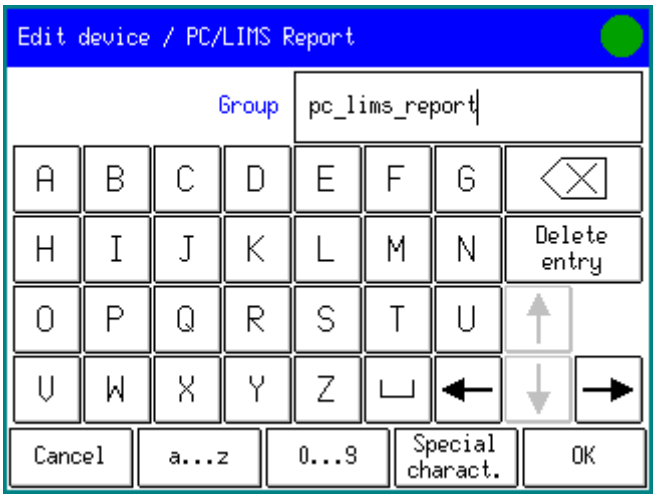
  The checkbox **Save PC/LIMS Report** is always activated. You must define the memory location for the report.

  2. Touch the **Memory** field and select whether the report is to be stored on **Card 1**, **Card 2** or in the **Shared memory**.

Note

*If you select the memory location (**Card 1** or **Card 2**) you must make sure that a memory card is inserted in the corresponding slot.*

3. In the **Group** field enter the folder in which the PC/LIMS report is to be saved by touching this field to open the text editor.

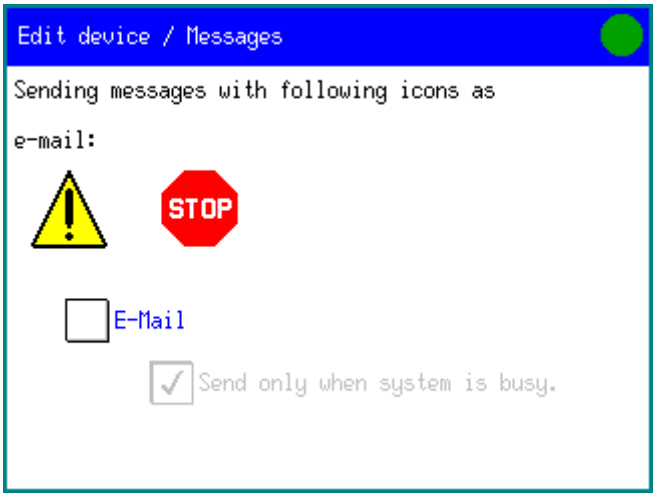


4. Confirm the entry with **[OK]**.

- **Messages**

  When working with the Titrando system errors could occur (e.g. the defined stirrer is not connected). The Touch Control indicates this with a message. With the 847 USB Lab Link you have the possibility of sending such messages (all warnings with the symbol ⚠ and error messages with the symbol STOP) as e-mails.

  1. Open the corresponding dialog with **[Messages]**.

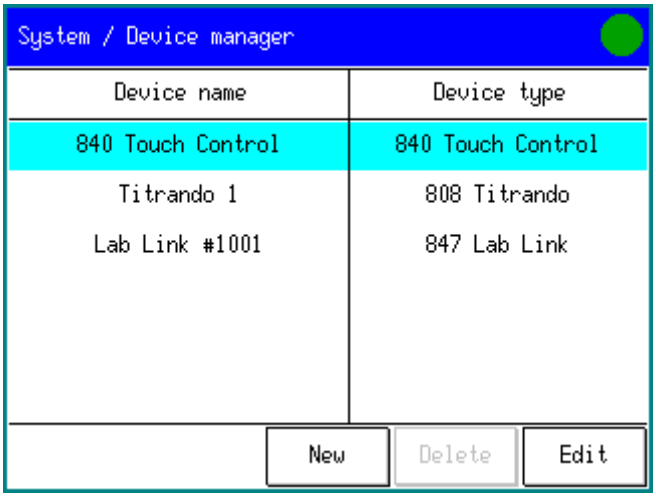


  2. Activate the checkbox **E-Mail** to send messages as e-mails.
  3. **Send only when system is busy**: if you activate this checkbox then messages will only be sent when a determination run has been started, i.e. when the system is in operation ("busy").
  4. Confirm the alterations with **[Back]**.

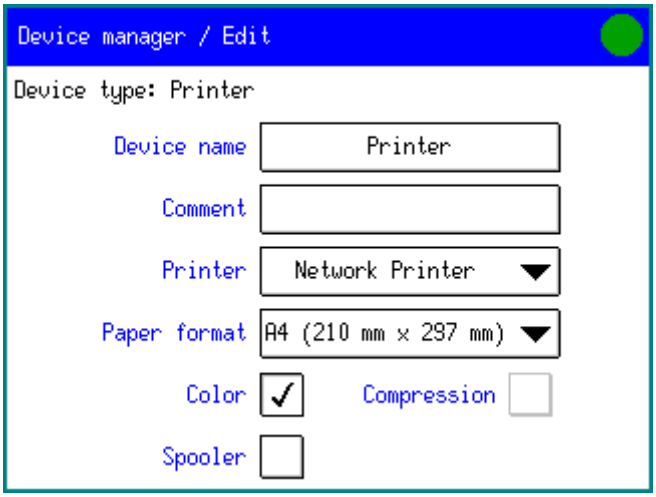
Note

The sender and receiver of the e-mail and the e-mail server are defined under Lab Link Server (see p. 28).

- **Network Printer**



1. Use **[New]**, **[Printer]** to add a new printer.
2. Touch **[Edit]** and select the network printer under **Printer**.



3 Operation

3.1 Making new connections or editing existing ones

New connections to Lab Link devices must only be made explicitly at the Lab Link server when

- Your network does not support Multicast, *or*
- You want to deactivate the option *Auto connect (via multicast)* (see *p. 27*).

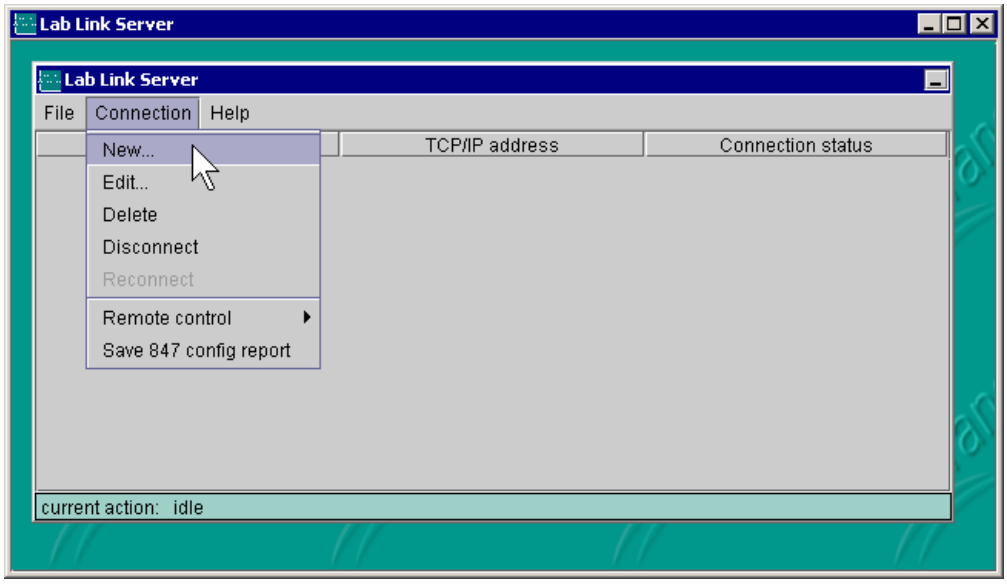
A connection between a configured 847 USB Lab Link and the Lab Link Server via a "Multicast enabled" network is established automatically. This means that alterations to the existing connection settings can only be made when the device is connected.

Under **Connection** you can create new Lab Link connections or edit existing ones.

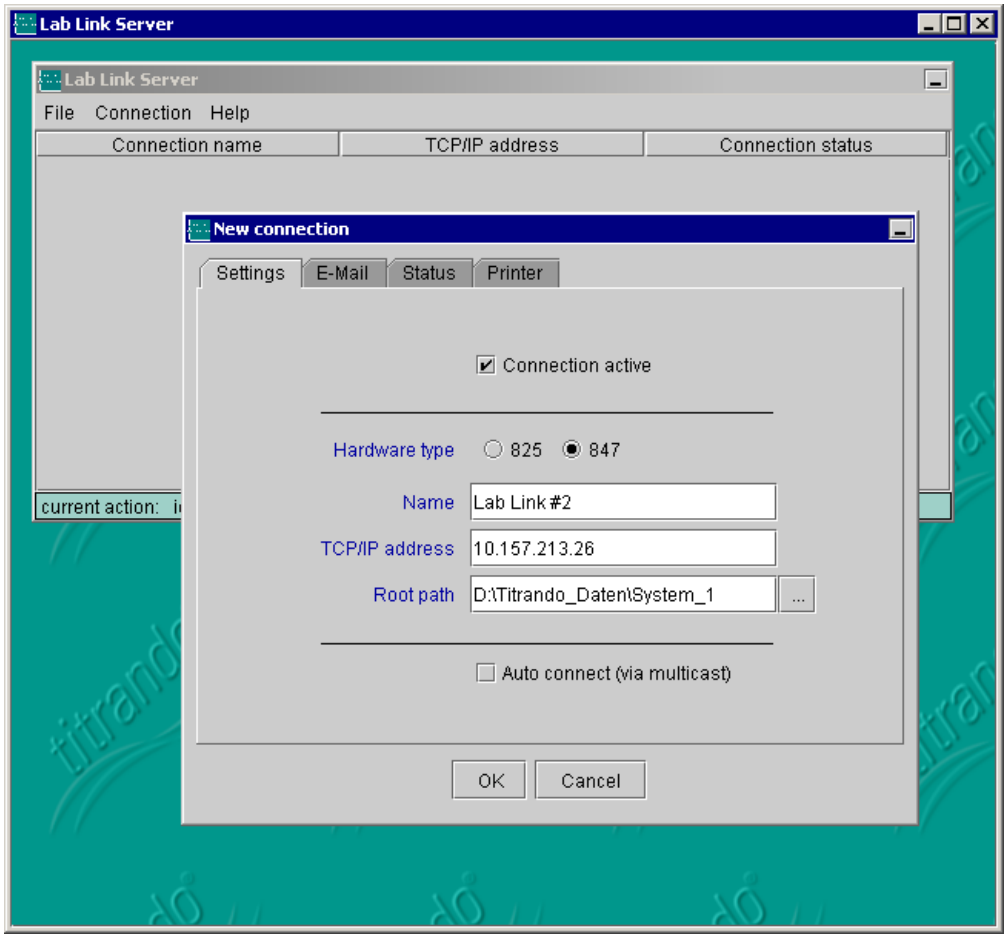
Note

After you have created a new connection at the Lab Link Server you must restart the corresponding Titrando system, i.e. switch off the Touch Control and switch it on again after a few seconds.

1. To create a new Lab Link connection select **Connection** / **New**, or **Connection** / **Edit** to change the settings of an existing connection.



- **Settings**



1. Use **Connection active** to choose whether the connection is to be active or not.

   To set a connection to inactive is chiefly advisable when the connection is not to be used for a long time. This means that it will not be included in the regular connection check (*Periodic status test*, see *p. 13*), which reduces unnecessary network traffic.

   For (re-)activation it is only necessary to activate this checkbox. During the next periodic status test all the active connections will be checked and, if necessary, restarted. Inactive connections are given the status “inactive”.

2. With **Hardware type** you select whether a connection is to be made to an **847** USB Lab Link or to its predecessor, the **825** Lab Link.
3. Under **Name** enter the name of your Lab Link. This name must only occur once in the network.

Note

With connections to 847 USB Lab Link devices which log in automatically via Multicast, i.e. devices that have the option Auto connect (via multicast) switched on, the name defined in Touch Control (Device manager) will be adopted automatically (see Section 2.3.2).

4. Under **TCP/IP address** enter the same IP address that you entered for the corresponding 847 USB Lab Link device during configuration at the Touch Control (see *Section 2.3.2*).

   When editing an existing connection it is not possible to alter this field. If you subsequently find that the TCP/IP address of a defined connection is incorrect then you should delete this connection and set up a new one.

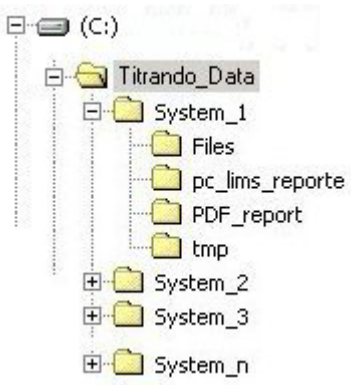
5. Under **Root path** you should define the path under which the data of a connection is to be saved.

   At first the **Default root path** defined in *Section 2.2.2* appears here. You should now extend this path by adding the subfolder intended for use with this connection. In this way you can differentiate between the individual Titrando systems that are connected.

Note

If you enter the same folder for all connections then the amount of data in this folder and its subfolders will increase; this has a negative effect on the performance, e.g. during manual storage.

Folder structure: The folder structure, which is created on the computer by the Lab Link Server depends on the configuration (*Default root path* and *Root path*) and, for example, could look like that shown below:



In the above illustration the **Default root path** is therefore C:\Titrando_Data. Several connections have also been created, one of which has the **Root path**: C:\Titrando_Data\System_1

The Lab Link Server has automatically generated a folder **Files** in it. The file manager of the Touch Control directly accesses the subfolders and files – **Methods and Determinations** – contained in this folder.

As soon as you transmit a **PC/LIMS report** from Touch Control and select the **Shared memory** a separate folder will be generated in the *Root path*. The name of this folder can be entered directly in Touch Control. In the example the name **pc_lims_report** has been selected.

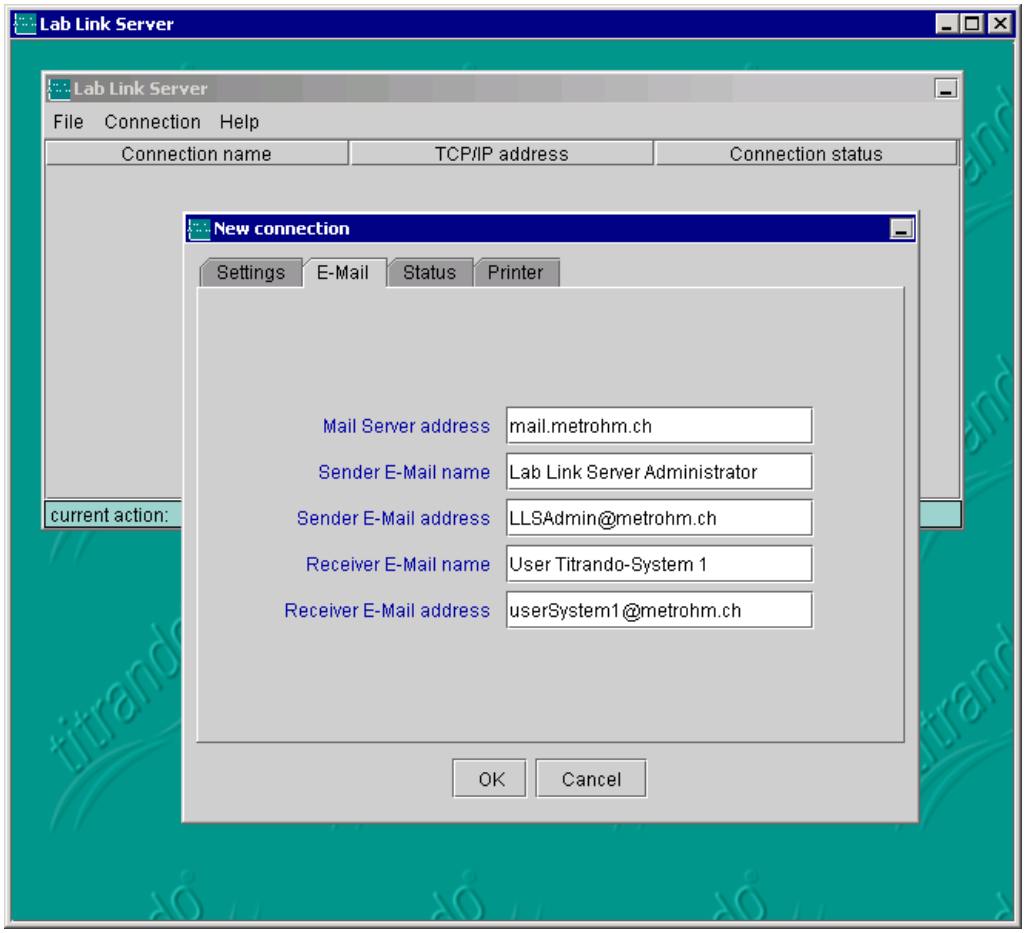
The folder **PDF_report** is automatically generated by the Lab Link Server the first time that you generate a PDF report.

6. You should deactivate the **Auto connect (via multicast)** checkbox if your network cannot transmit a Multicast package or if you want a *Periodic status test* to be carried out for connections with the status *not available*.

   If your network allows Multicast packages then your 847 USB Lab Link will log in to the Lab Link Server automatically. Contact your network administrator for more information about Multicast.

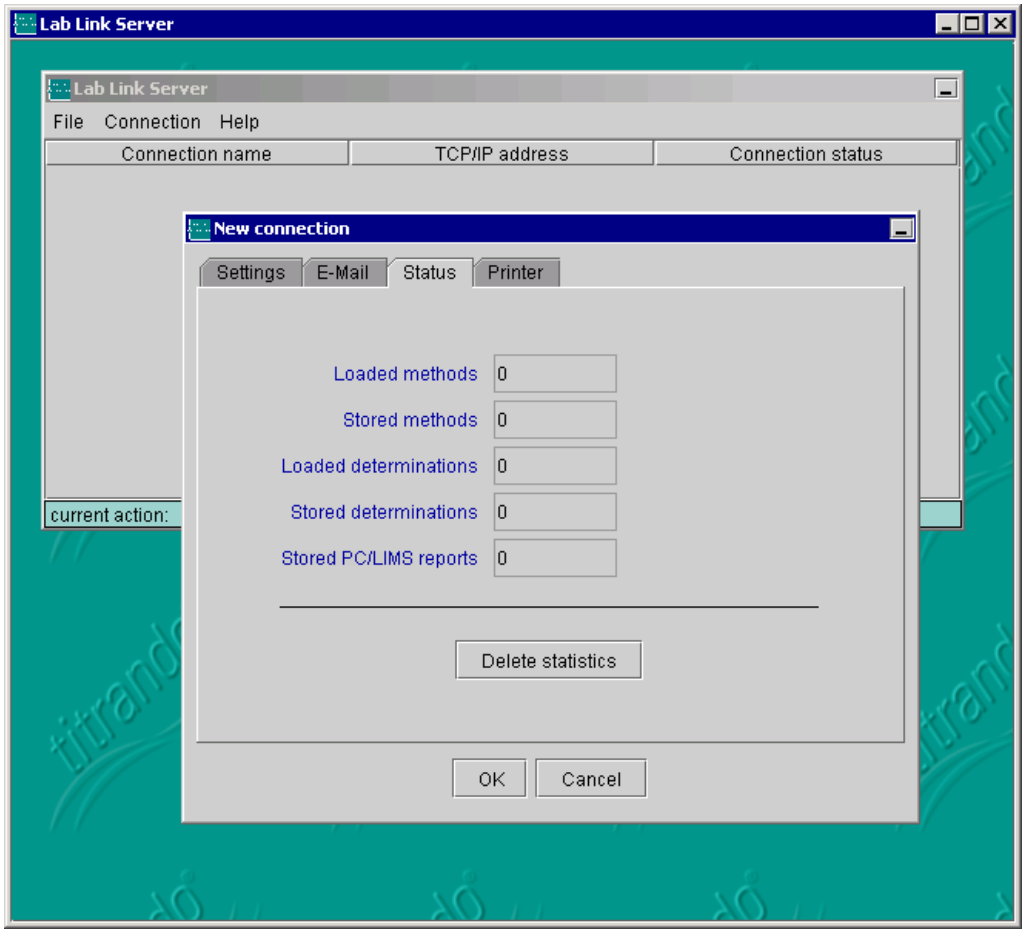
- **E-Mail**

  Here you can make special settings for each Lab Link connection for sending e-mails or accept the default settings defined in *Section 2.2.2* without alteration.



- **Status**

  This table shows the statistics for the transmitted data for the connection. With **[Delete statistics]** all fields can be reset to zero.



Loaded methods: Number of methods that have been loaded from the memory of the PC (Default root path/Root path) into the main memory of the Touch Control.

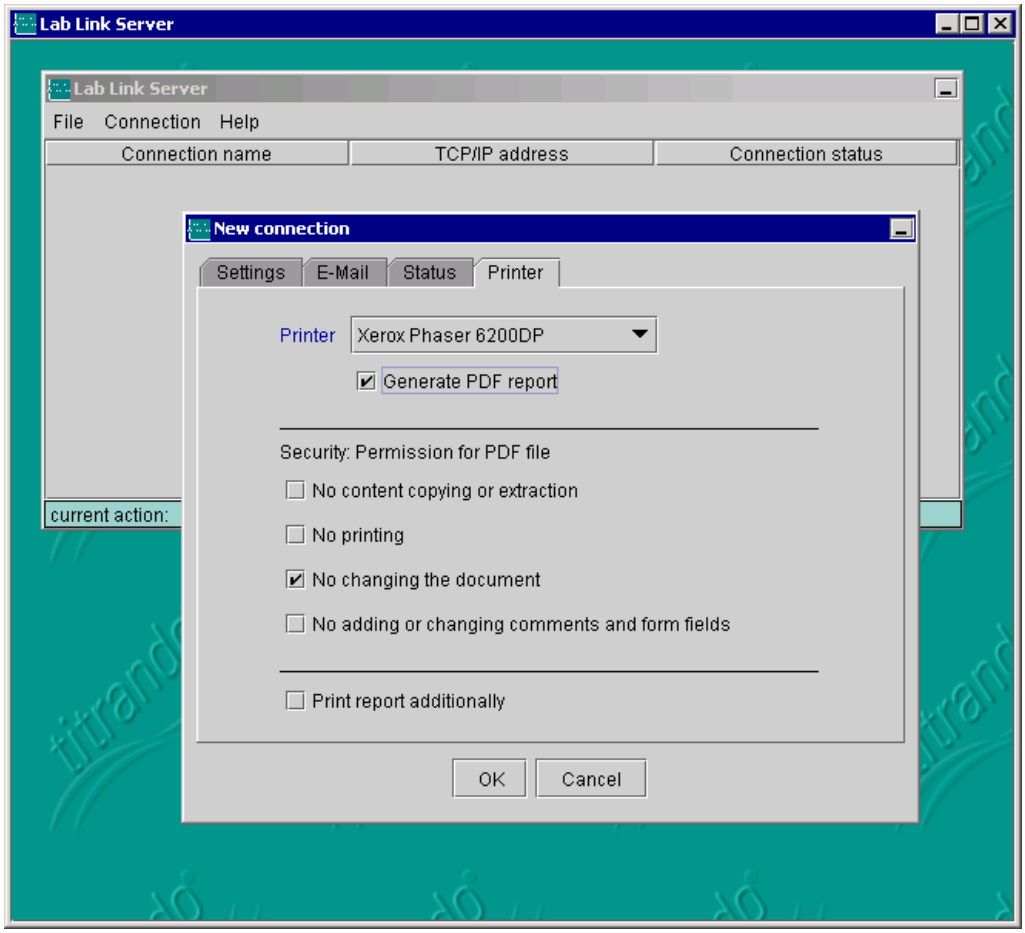
Stored methods: Number of methods that have been stored from the Touch Control into the memory of the PC (Default root path/Root path).

Loaded determinations: Number of determinations that have been loaded from the memory of the PC (Default root path/Root path) into the main memory of the Touch Control.

Stored determinations: Number of determinations that have been stored from the Touch Control into the memory of the PC (Default root path/Root path).

Stored PC/LIMS reports: Number of PC/LIMS reports that have been stored from the Touch Control into the memory of the PC (Default root path/Root path).

- **Printer**



1. If you want to use a different printer for this connection from the proposed standard printer then select the required printer from the **Printer** list. This list automatically contains all the printers that are available in the network and that have been installed on the PC.
2. Activate the checkbox **Generate PDF report** if you want to save a report in PDF format instead of printing it out on paper. The report will be stored under **Default root path/Root path/PDF_report** (see *p. 26, Folder structure*). The name of the file is made up from the term "LLS_PDF_Netprint" and the date and time:

   e.g. LLS_PDF_Netprint-20051206-152332.pdf

   As soon as you have activated the checkbox **Generate PDF report** the following access parameters can be edited:

   - **No content copying or extraction**: Activate this checkbox when the contents of the generated PDF report are neither to be copied nor extracted.
   - **No printing**: Activate this checkbox when the generated PDF report is not to be printed out.

- **No changing the document**: Activate this checkbox when the contents of the generated PDF report are not to be edited.
- **No adding or changing comments and form fields**: Activate this checkbox when no comments or form fields are to be added or edited.
- **Print report additionally**: Activate this checkbox when, in addition to the PDF report, you want to have a paper printout.

3. Close your entries with **[OK]** in order to enter the new connection in the current list or to make the modifications to the connection settings effective.

3.2 Making a connection

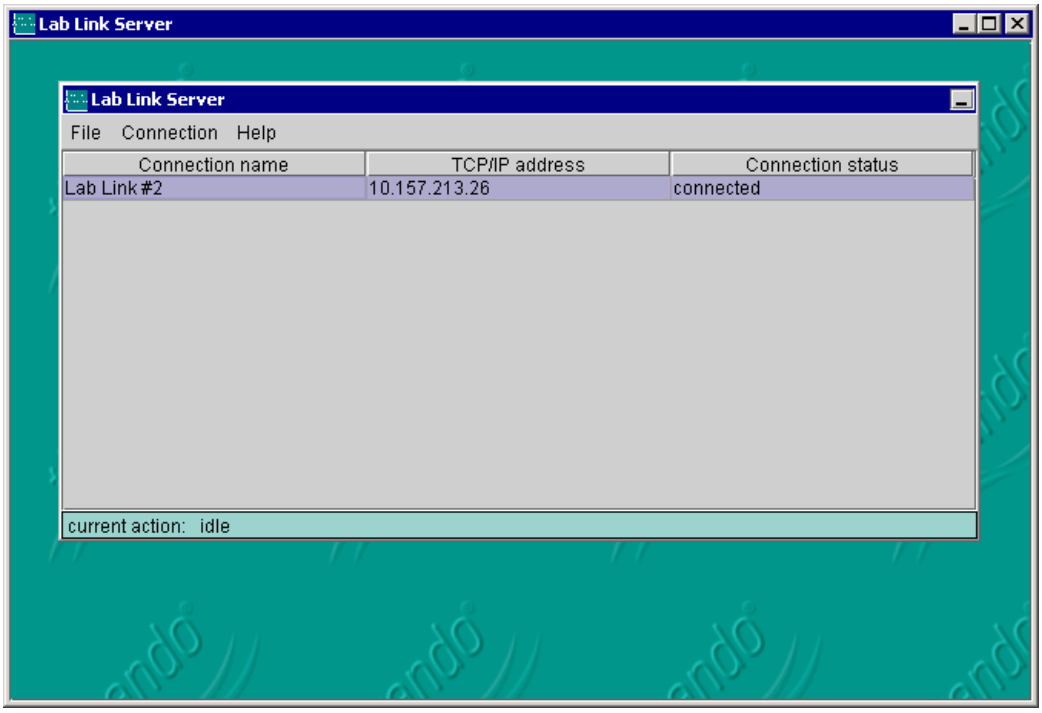
Note

Always start the Lab Link Server software before you switch on the Touch Control!

847 USB Lab Link devices for which the option *Auto connect (via multicast)* is switched on log in to the server automatically when they are switched on.

As soon as you have started the Lab Link Server it will attempt to make a connection to all defined Lab Link devices in the list.

If this is successful then the **Connection status** will change from *not available* to *not connected* and then to *connected*. Otherwise the server will make regular attempts to set up the connection. This is indicated in the status line at the lower margin of the window. An existing connection (status *connected*) will also be checked at regular intervals to see if it is still active.



Under **Connection status** the following messages are possible:

"*inactive*"	Ethernet connection is deactivated (no periodic status test) You can activate the connection under **Connection** / **Edit** / **Settings** (see *Section 3.1*).
"*not available*"	No Ethernet connection to Lab Link or the Lab Link is switched off

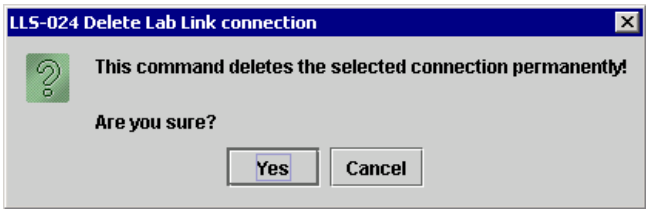
"*not connected*"	The connection has only been established uni-directional (from server to Lab Link)
"*connected*"	A functioning Ethernet connection to the Lab Link hardware exists
"*busy*"	Data transfer Titrando system ↔ Lab Link Server is taking place

Note

Please note that the message given in column 3 only indicates the status of the Ethernet connection from the Lab Link Server to the Lab Link device. The connection from the Lab Link Server to the Titrando system is checked by the Client (Touch Control) for each communication.

3.3 Delete connection

1. Under **Connection** select the menu item **Delete**.



2. Answer the question "**LLS-024 Delete Lab Link connection**" with **[Yes]**.

3.4 Breaking and remaking connections

Each existing connection that has the status *connected* can be broken manually with **Connection** / **Disconnect** and then has the status *not connected* (for connections without *Auto connect*) or *not available* (for connections with *Auto connect*).

As soon as you switch on the Touch Control with 847 USB Lab Link again the connection will be automatically reestablished.

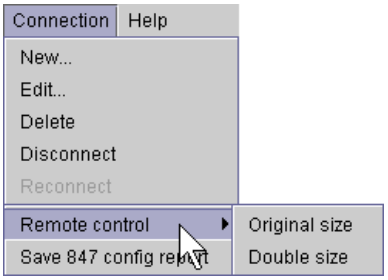
3.5 Remote service

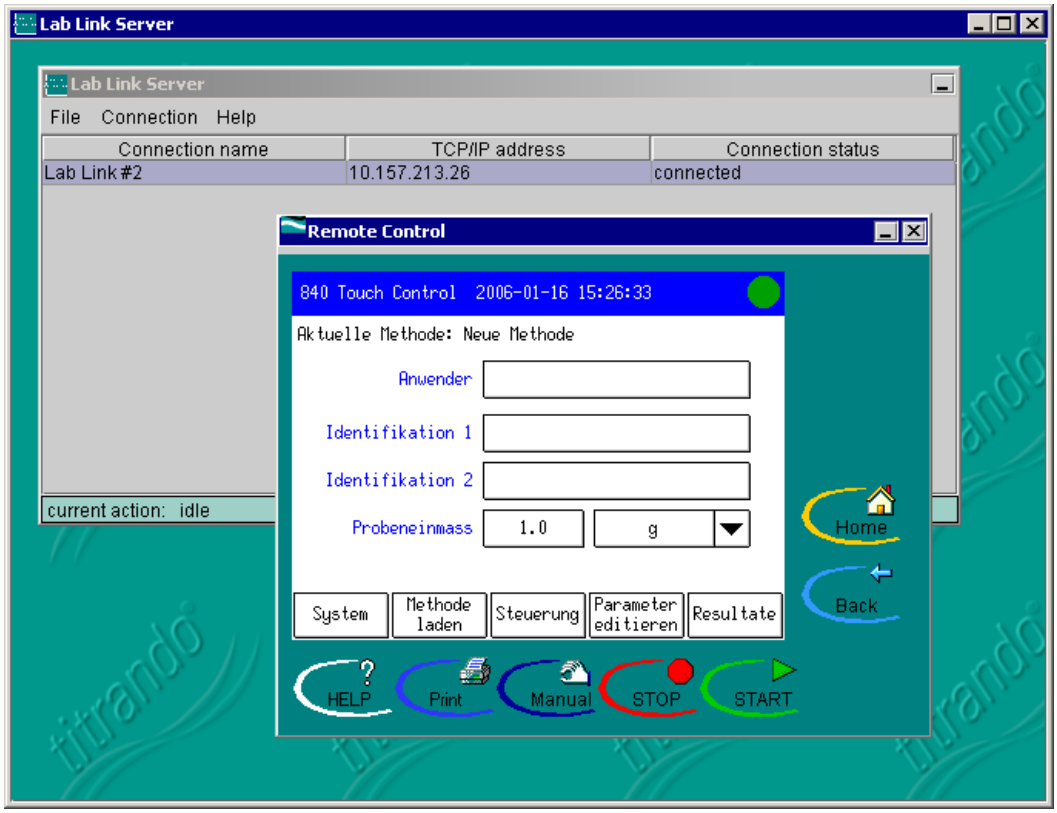
The Lab Link Server offers a remote service function with which all connected Titrando systems can be remotely controlled directly from the server. This allows service technicians to service your system even though they are not present on site.

This is done by transferring the display of the Touch Control directly to the desktop of the Lab Link Server. A precondition for this is that the corresponding 847 USB Lab Link is correctly connected to both the Titrando system and the network, and that a communication connection to the Lab Link Server exists.

1. Mark the connection of the 847 USB Lab Link that you want to control remotely.
2. Use **Connection** / **Remote Control** to open the control window. You can show the Touch Control display in the **original size** or twice as large (**double size**).

   A double-click directly on the connection also opens the Remote control window.





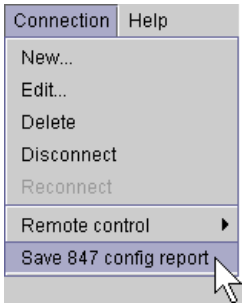
The Remote control display is either updated at defined fixed intervals or when a key is pressed on the Touch Control. The default value for the update interval is 10 seconds; it can be edited under **File** / **Preferences** / **Advanced** with the parameter *Remote LCD refresh interval*.

Note

*To deliberately trigger a refresh of the remote control display click on the green area above the **[Home]** key.*

3.6 847 Configuration report

With **Connection** / **Save 847 config report** a report can be saved as a text file that contains all the configuration settings of the marked 847 USB Lab Link connection. The file is saved automatically in the installation folder of the Lab Link Server under \bin\log with the name "Lab Link #Serial number.txt".



The configuration report contains the following information:

- 847 USB Lab Link parameters: parameter and device-specific settings of the 847 USB Lab Link
- Ethernet Status: information about the network
- Ethernet Statistics: information about data exchange between the Lab Link Server and Titrando system.
- 847 USB Lab Link EEPROM: shows the contents of the EEPROM

4 Troubleshooting

4.1 Faults

Problem	*Cause*	*Remedy*
Lab Link Server: **Status "not available"**	Power supply of the Lab Link is missing or insufficient	Check whether the USB cable between the 847 USB Lab Link and the Titrando is plugged in correctly. If you have used a hub to connect the 847 USB Lab Link to the Titrando, this hub must be self-powered. Otherwise the Lab Link's power supply is insufficient.
	Ethernet connection is interrupted	Check whether the Ethernet cable **3** of the 847 USB Lab Link is plugged in correctly. The status LED **2** is blinking irregularly if communication is functioning (e.g. printing a report)
	TCP/IP address of the 847 USB Lab Link is incorrectly configured	Compare the TCP/IP address set in the Lab Link Server with the address of the Lab Link. The address of the 847 USB Lab Link can be checked and modified in the device manager of the Touch Control (see *Section 2.3.2*).

	Time for *Periodic status test* is set too high	If the Lab Link Server list contains a large number of non-existent connections for which the option *Auto connect (via multicast*) has been deactivated, the *ICMP timeout* period must be included when calculating the time (see formula for *Periodic status test*, p*. 13*). We recommend that unnecessary connections are deleted from the list.
	Connection has been interrupted with Connection/ Disconnect	Turn off the Touch Control, wait a few seconds, then switch it back on.
Lab Link Server: **Status "not connected"**	Connection has only been established unidirectional	Restart the Lab Link Server. Turn off the Touch Control, wait a few seconds, then switch it back on.
Touch Control Error message: **"026-130 Incompatible Software"**	The software versions of the Lab Link Server and the Touch Controls are not compatible	On the Titrando installation CD you will find versions that are compatible.

5 Appendix

5.1 Technical data

5.1.1 Interfaces

USB

Titrando connection cable	USB Type B, max. 12 Mbit/s, max 5 m cable length When using a Hub only use self-powered Hubs!

Network connection

TCP/IP Ethernet	10 BT, RJ 45, min. 10 MBit/s

5.1.2 Ambient temperature

Nom. working range	+5 °C...+45 °C (at max. 85% humidity)
Storage	–20 °C...+60 °C
Transport	–40 °C...+60 °C

5.1.3 Power supply

Voltage	5 V DC ± 5 %
Power consumption	200 mA at 5 V DC

5.1.4 Dimensions

Material housing	Aluminum
Width	106 mm
Height	32 mm
Depth	83 mm
Weight	190 g

5.1.5 Disposal

All electrical or electronic products must be collected separately from household waste at local points stipulated by the authorities for disposal or recycling. This product is covered by European Directive 2002/96/EC, WEEE – Waste from Electrical and Electronic Equipment.

The correct disposal of your old equipment will help to prevent negative effects on the environment and public health.

More details about the disposal of your old equipment can be obtained from your local authorities, from waste disposal companies or from your local dealer.

5.2 Standard equipment

Order number **2.847.0010**, the following accessories are included:

No.	*Order no.*	*Description*
1	**1.847.0010**	**847 USB Lab Link** 
1	**6.2151.030**	**Cable** USB connection 847 USB Lab Link — Titrando length 0.3 m 
1	**A.704.0006**	**Titrando CD-ROM** Release x = 6 or higher contains Lab Link Server Software, version 4.1
1	**8.847.1003**	**Instructions for Use** for 847 USB Lab Link and Lab Link Server

5.3 Warranty and conformity

5.3.1 Warranty

The warranty on our products is limited to defects that are traceable to material, construction or manufacturing error which occur within 12 months from the day of delivery. In this case the defects will be rectified in our workshops free of charge. Transport costs are to be paid by the customer.

For day and night operation the warranty is limited to 6 months.

Glass breakage in the case of electrodes or other parts is not covered by the warranty. Checks which are not a result of material or manufacturing faults are also charged during the warranty period. For parts from outside manufacturers, insofar as these constitute an appreciable part of our instrument, the warranty stipulations of the manufacturer in question apply.

With the regard to the guarantee of accuracy the technical specifications in the instruction manual are authoritative.

Concerning defects in materials, construction or design as well as the absence of guaranteed features the purchaser has no rights or claims except those mentioned above.

If damage of the packaging is evident on receipt of a consignment or if the goods show signs of transport damage after unpacking, the carrier must be informed immediately and a written damage report demanded. Lack of an official damage report releases Metrohm from any liability to pay compensation.

If any instruments and parts have to be returned then the original pack-aging should be used if at all possible. This applies above all to instruments and electrodes. Before embedment in wood shavings or similar material the parts must be packed in a dustproof package (for instruments the use of a plastic bag is essential). If open assemblies are included that are sensitive to electromagnetic voltages (e. g. data interfaces, etc.) then these must be returned in the associated original protective packaging (e. g. conductive protective bag). (Exception: assemblies with a built-in voltage source belong in non-conductive protective packaging).

For damage which arises as a result of non-compliance with these instructions no warranty responsibility whatsoever will be accepted by Metrohm.

5.3.2 Declaration of Conformity

This is to certify the conformity to the standard specifications for electrical appliances and accessories, as well as to the standard specifications for security and to system validation issued by the manufacturing company.

Name of commodity

847 USB Lab Link

Metrohm
Ion analysis
CH-9101 Herisau/Switzerland
E-Mail info@metrohm.com
www.metrohm.com

Description USB-Ethernet converter for connecting a Titrando system with Touch Control to the Ethernet.

This instrument has been built and has undergone final type testing according to the standards:

Electromagnetic compatibility: Emission
EN/IEC 61326, EN 55022 / CISPR 22, EN/IEC 61000-6-3/4

Electromagnetic compatibility: Immunity
EN/IEC 61326, EN/IEC 61000-4-2, EN/IEC 61000-4-3, EN/IEC 61000-4-4, EN/IEC 61000-4-5, EN/IEC 61000-4-6, EN/IEC 61000-4-11, EN/IEC 61000-4-14

Safety specifications
EN/IEC 61010-1, UL 3101-1

It has also been certified by ElectroSuisse, which is member of the International Certification Body (CB/IEC).

CE *The instrument meets the requirements of the CE mark as contained in the EU directives 89/336/EEC and 73/23/EEC and fulfils the following specifications:*

EN 61326 Electrical equipment for measurement, control and laboratory use – EMC requirements

EN 61010-1 Safety requirements for electrical equipment for measurement, control and laboratory use

Metrohm Ltd. is holder of the SQS-certificate of the quality system ISO 9001 for quality assurance in design/development, production, installation and servicing.

The system software, stored in Read Only Memories (ROMs) has been validated in connection with standard operating procedures in respect to functionality and performance.

The technical specifications are documented in the instruction manual.

Herisau, 08 May, 2006

D. Strohm
Vice President
Head of R&D

Ch. Buchmann
Vice President
Head of Production
Responsible for Quality Assurance

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