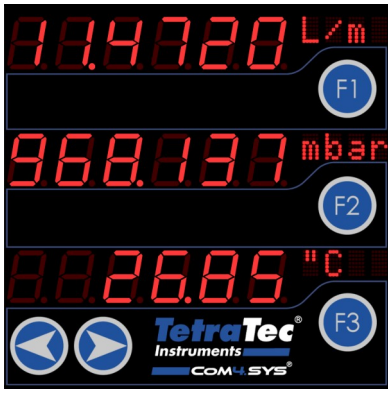




# CoM4.SYS
# Browser v1.3

## Documentation of Browser Interface & Touchscreen

Translation of the German original

Status: 2025 / 3 / 5

# Contents

# A Description

**CoM4.SYS** is a versatile measuring and control system. The designation is used both for the overall system and for the controller in particular.

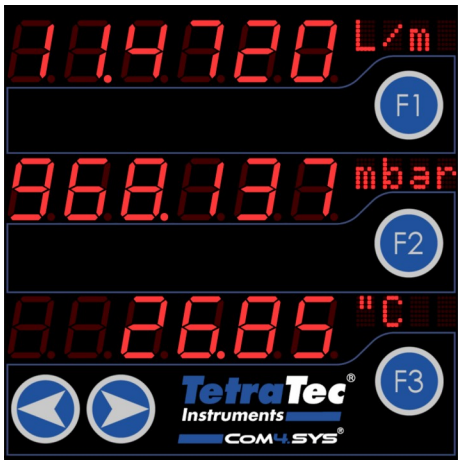
The **CoM4.CAL** application runs on the controller. It provides all functions for communication, sequence control and measurements and is largely parameterizable. Parameterization and in some cases scripts and function modules are set up as part of the commissioning of your measuring system. Extensive documentation for the relevant measuring system can be found in document "Operating Instructions and System Configuration," which is specially prepared for the respective measuring system and included with delivery.

This quick guide describes the process for establishing a connection with the **CoM4.SYS** controller and the browser interface of the **CoM4.CAL** application. The browser interface is used to communicate with the **CoM4.SYS** controller or to read information for service purposes.

# B Description of Control Elements and Interfaces of CoM4.SYS

## B.1 Touchscreen

The controller is equipped with a 4“x 4“ touchscreen. The screen generally shows 3 lines with a 7-segment display and 5 buttons.




The blue buttons have different functions depending on the context. Which of these functions are relevant for your measuring system depends on your measuring system. The corresponding instructions can be found in document "Operating Instructions and System Configuration."

Operation via the browser interface is relevant for setting up the network connection. The IP address of the controller is required for this.

- The instructions for determining the IP address (and other system information) can be found in section C.1.
- The instructions for setting up the network connection can be found in section E.1.

## B.2 Hardware Interfaces

The hardware interfaces for communication are generally available on the rear wall of the slide-in module:

| | |
|---|---|
|  | RS232 interface for optional connection of external devices (scanner, etc.).<br>Whether and if so how the RS232 interface is used is described in document "Operating Instructions and System Configuration." |
| | USB interface for updating the operating system. An additional USB socket with the same function can optionally be led out to the front side of the slide-in module as well. |
| | Network interface for network-supported remote control and data exchange. |

# C Instructions for Basic Functions of the Touchscreen

This section is limited to instructions that may be required to set up the network connection. Subsequent operation is controlled by the browser interface. The browser interface is described in section D. The corresponding instructions can be found in section E.

## C.1 Displaying System Information

System information can be queried directly via the touchscreen. The following information is available

- IP address
- Subnet mask
- Serial number
- Measuring system number / controller number
- Software version number
- Version of the operating system
- MAC of the controller
- Existing connections

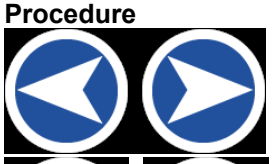
**Precondition**

✓ **CoM4.SYS** is energized
✓ **CoM4.SYS** is in STANDBY status

**Comment**

If the display is too dark or too bright, you can find instructions for what to do in section C.2.

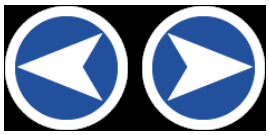
**Procedure**



➢ To start the display of system information, press the "<" and ">" buttons at the same time and hold them for 3 seconds.


➢ You can also scroll to the information you want with the "F1" and "F3" buttons.
The following pages are available:
– IP address of the controller
– Subnet mask of the controller
– Serial number of the controller
– Number of the measuring system and controller
– Software version number
– Version of the operating system
– MAC address of the controller
– COMM – existing connections

The COMM page is further subdivided according to different connection types.

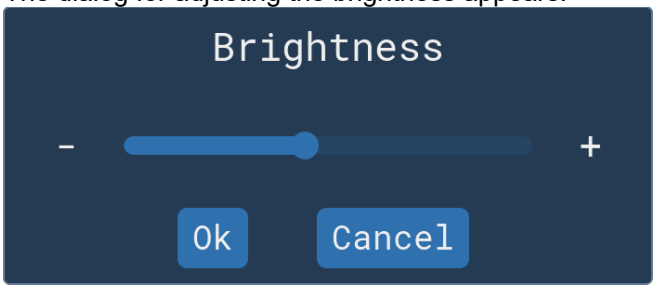


➢ You can also scroll to the connection type you want with the "<" and ">" buttons.
The following connection types can be read in:
– COMM
– SYS
– NET-IO
– AK
– Publish
– Subscribe


➢ To end the display of system information, press the "F1" and "F3" buttons at the same time and hold them for 3 seconds.

## C.2 Adjusting the Brightness of the Display

➢ Press the logo and hold it for about 2-3 seconds.
The dialog for adjusting the brightness appears:




➢ Adjust the brightness with the drag handle or with '+' and '-'.

➢ To save the setting, tap "OK."
The dialog is closed.

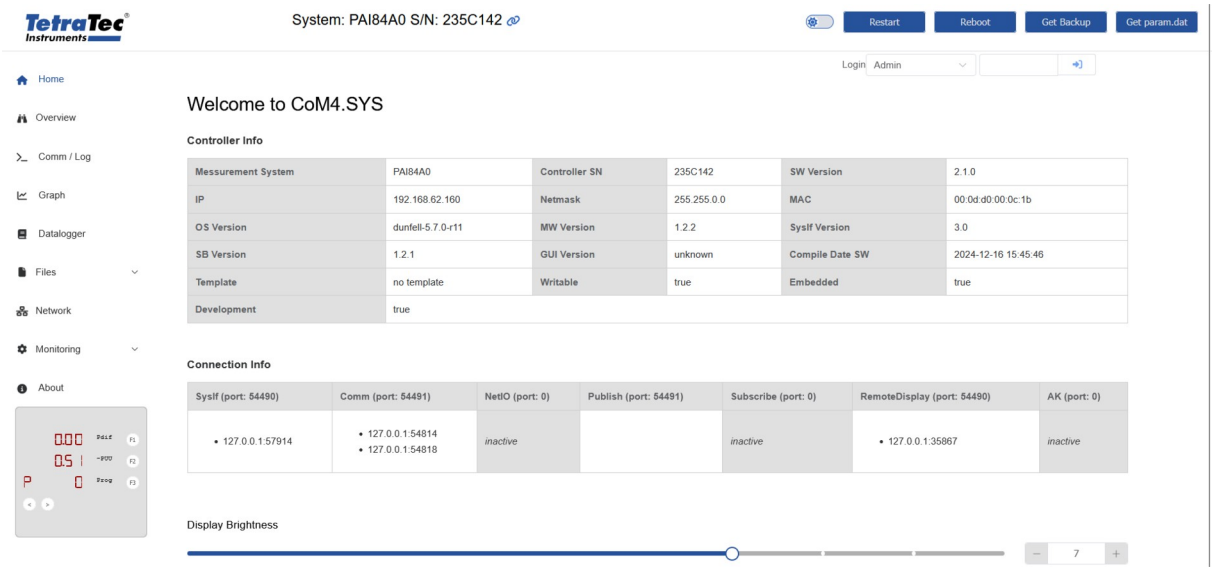
**- or -**

➢ To discard the setting, tap "Cancel."
The dialog is closed.

# D Description of the Browser Interface

The instructions for setting up the network connection and opening the browser interface can be found in section E.1.

After the connection is established, the browser interface opens:




The browser interface is divided into four areas:

- Header (see section D.1)
- Navigation bar (see section D.2)
- Remote display (from version 1.2.2, see section D.3)
- Content area ("pages," see sections D.4 to D.12)

## D.1 Header


The header makes information for identifying the measuring system and fundamental functions available:

| | |
|---|---|
| Logo | Manufacturer's logo |
| System: | Identification of the controller and measuring system.<br>Example – PAI84A0: Measuring system PAI84A, controller A0. |
| S/N: | Serial number of the controller with which the connection has been set up. |
| Toggle switch | The toggle switch is used to switch between Light and Dark mode. |
| Restart | Restarts the program on the controller. The project files are read in again. |
| Reboot | Carries out a complete restart of the controller. |
| Get Backup | Downloads a backup from the controller. See section E.7.1. |
| Get param.dat | Downloads file *param.dat*, which contains the customer-supplied settings. See section E.7.3 |
| Login | Login field for protected actions. See section E.2. |

The header is the same on all pages.

## D.2 Navigation Bar

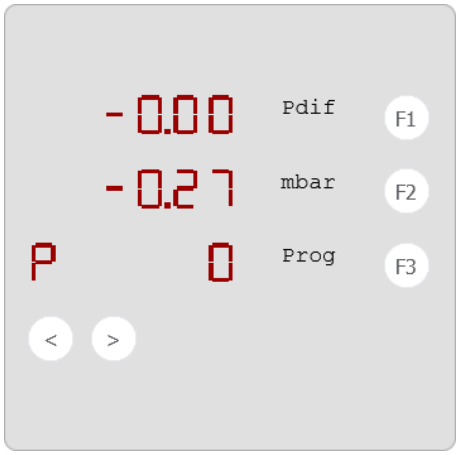
Below the logo on the left edge of the screen there is a navigation bar with the following entries:

| | |
|---|---|
| Home | The start page with the most important system information.<br>See section D.4 |
| Overview | Overview of the most important sensor measured values, inputs and outputs. See section D.5. |
| Comm / Log | Makes a Comm interface available for communication with the system and display of the log. See section D.6. |
| Graph | Display of measurement data over time. See section D.7 |
| Datalogger | Measured values saved on the PC with definable time intervals. See section D.8 |
| Files | Makes data exchange with the system available. See section D.9.<br>Clicking on "Files" opens up various subitems:<br>Tmp — For files in volatile working memory such as the current datalogging or results see section D.9.1.<br>Public — For customer-supplied configurations, datalogging saved with "save," results, etc., see section D.9.2.<br>Incoming — For functions for updating the software of the **CoM4.SYS** controller see section D.9.3.<br>Interfaces — For files used to configure the display components of the browser and TetraTec terminals see section D.9.4.<br>Patches — A function used to load parameter subsets, for example after replacing a sensor, see section D.9.5.<br>Backup — A function to restore previously saved backups, see section D.9.6. |
| Network | Shows the current network settings of the system. They can be changed by logging in here. See section D.10. |
| Monitoring | Makes it possible to record connections to the system . See section D.11.<br>Clicking on "Monitoring" opens up various subitems:<br>Net-IO — For monitoring of the virtual PLC interface to Net-IO see section D.11.1.<br>CommMonitor — For monitoring external Comm connections to the measuring system, see section D.11.2.<br>Syslogs — Display of log messages: For demon, middleware and GUI see section D.11.3. |
| Display | Shows a remote display. See section D.3<br>**Comment**<br>This menu entry appears only in MW versions 1.2.0 and 1.2.1.<br>From MW version 1.2.2, the remote display under the navigation area is displayed permanently. |
| About | Shows contact information and licenses. See section D.12 |

The navigation area is the same on all pages. The last page to be opened is highlighted in blue in the navigation bar.

## D.3 Remote Display

The remote display reflects the display of the controller.

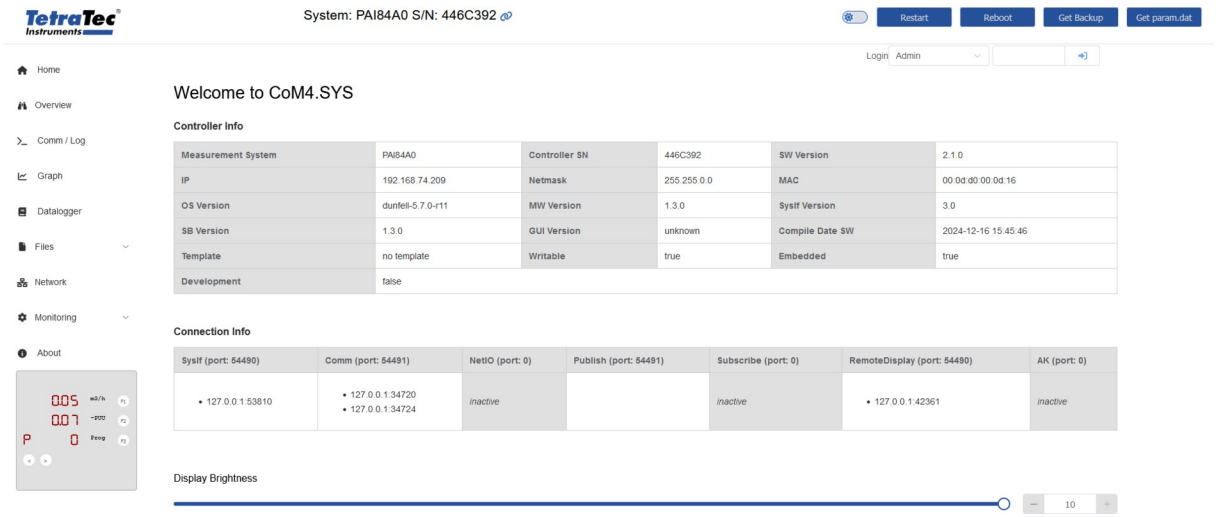



The buttons of the touchscreen are represented and can be operated with the mouse:

- Clicking with the left mouse button is equivalent to a single tap.
- Clicking with the right mouse button is equivalent to pressing and holding. This makes it possible to carry out operations that require pressing and holding 2 keys with the browser interface as well. A button that is pressed is highlighted in gray F1 → F1 .
- Clicking a second time with the right mouse button ends pressing and holding.

## D.4 Home

The "Home" page shows the most important system information, existing connections and software version numbers.




The three areas "Controller info," "Connection info" and "Display brightness" are described in separate sections.

### D.4.1 Controller Info

| | |
|---|---|
| Measurement System | Shows the identification of the controller and measuring system. E.g.: PY873A0: Measuring system PY873, controller A0. |
| Controller SN | Shows the serial number of the controller. |
| SW version | Shows the version number of the CoM4.CAL program running on the controllers. |
| IP | Shows the IP of the controller. |
| Netmask | Shows the net mask of the controller. |
| MAC | Shows the MAC of the controller. |
| SB version | Shows the version of the browser interface that is displayed. |
| GUI version | Shows the version of the GUI if present. |
| Compile date | Shows the date on which the CoM4.CAL program was compiled. |
| Template | *Developer info:* Shows the name of the project software template. |
| Writable | *Developer info.* |
| Embedded | *Developer info.* |
| Development | *Developer info.* |

**Comment**
The information that is displayed cannot be changed. Instructions for changing the IP address and net mask can be found in section D.10.

### D.4.2 Connection Info

There are existing connections with an IP address and port number for each interface:

| | |
|---|---|
| SysIf | System interface for transferring content, especially for TetraTec software (including also for this browser display). |
| Comm | COMM interface "Comm." Uses include exchanging, reading and writing parameters for CoM4.CAL and executing commands. The COMM interface is usually addressed via a terminal. This browser application also has an integrated terminal for this interface, see section D.6.1. |
| Net-IO | Virtual PLC interface Net-IO for remote control of the measuring system of a master computer or PLC. |
| Publish | Publish interface to provide data for systems with multiple controllers. |
| Subscribe | Subscribe interface to subscribe to values for systems with multiple controllers. |
| RemoteDisplay | Interface for remote display that duplicates the contents of the hardware display. See section D.3. |
| AK | AK interface for remote control of the measuring system via AK protocol. |

Details in parentheses: Port number of the respective interface on the controller under consideration.

List items below: IP addresses and port numbers of all remote stations on the respective interface.

### D.4.3 Display Brightness

The brightness of the controller display can be adjusted with the slide control or the toggle setting field.

## D.5 Overview

The "Overview" page shows the most important information about the inputs and outputs of the system as well as log messages.


All displays are for information purposes only. No entries can be made here and no outputs can be set.

### D.5.1 DI/DO Monitor

The status of all digital outputs from outside into the system (DI – green) and digital outputs from the system to the outside (DO – red) are displayed here.

### D.5.2 State, Input & Outputs

| | |
|---|---|
| State | State of the internal state machine |
| Phase | Phase for a measurement in progress. |
| Prog MK0 | Active program in measuring circuit 0. |
| Prog MK1 | Active program in measuring circuit 1 if present. |
| Prog MK2 | Active program in measuring circuit 2 if present. |
| Cycle Time | Current cycle time of the controller. |
| | |
| Block of linearized sensor values | A block with the linearized sensor values of the system. |
| | |
| Block of raw values of the sensors | A block with the raw values of the sensors of the system. |
| | |
| Block of analog outputs | A block with the analog output values of the system if present. |

### D.5.3 Log

Log notifications of the **CoM4.CAL** application.

Meaning of the columns:

| | |
|---|---|
| Time | Time stamp |
| Lv | Level: Severity level of the message |
| Facility | Origin of the message |
| Message | Content of the message |

The log messages can be filtered. The headings of columns "Lv" and "Facility" have a triangle pointing down. This can be used to open a specific drop-down menu containing predefined filters. When the drop-down menu is open, the triangle points up so that the menu can be closed again.

- The lowest importance level that will be displayed independently of the facility filter can be selected in the drop-down menu of the "Lv" column. Messages with higher importance are always displayed. The "None" option at the bottom means that there will be no filter at all by importance.
- Messages of specific facilities can be displayed in addition in the drop-down menu of the "Facility" column. The setting of the "Lv" filter plays no role for messages of these facilities.

In summary, all messages corresponding to at least the selected level "Lv" OR that have been subscribed to in the "Facility" filter are displayed.

The following buttons appear below the log messages:

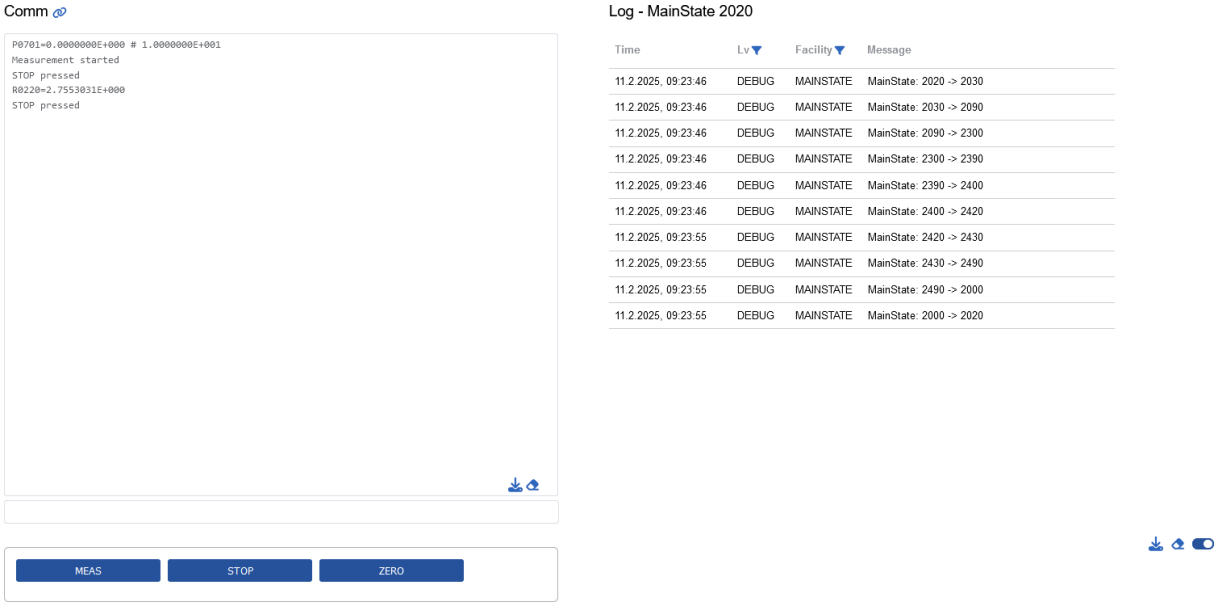

Save messages history as text file


Empty log window


If automatic scrolling is activated (default), the most recent messages are always displayed and older messages are displaced from the display area by newer ones. To view an older message, we recommend deactivating automatic scrolling.

## D.6 Comm / Log

The page is divided into two sections. The left half is used for communication with the controller, while the right half shows the log messages of the **CoM4.CAL** application.




### D.6.1 Comm

The terminal interface of the controller is made available here. The area consists of two or optionally 3 elements:

- Terminal window: The outputs of the controller as well as any echoes of the inputs land here.
- Input line

- Optionally buttons with predefined input sequences, see section D.6.1.1.

The lower area of the terminal window contains the following buttons:

 Save communication history as text file

 Empty terminal window

The input line below the terminal window gives you the following options:

- Querying parameters and measured results. For instructions see section E.4.1.
- Changing parameters. For instructions see section E.4.2.
- Executing commands and function calls. If commands or function calls are available and relevant for your system, you can find instructions in document "Operating Instructions and System Configuration."

#### D.6.1.1 Optional: Comm Buttons

There is another frame below the input line. Additional buttons may be optionally available here that are able to send function calls or predefined input sequences to the controller. The input sequences can consist of parameter settings and commands.
If you move the mouse over one of the buttons, the saved text appears as a tooltip. Comment lines are identified by the "#" sign at the beginning of the line.

**Comment**
The buttons are defined exclusively by TetraTec employees.

### D.6.2 Log

The log window on the "COMM / LOG" page is completely identical with the log window on the "Overview" page, which is described in section D.5.3. Even the filter settings are taken over from one page to the next one. The only difference is in the heading: Since the Mainstate status is represented by other means on the "Overview" page, there is no need to display it in the heading there.

## D.7 Graph

The "Graph" page is used to display selected variables over time. It is divided into three areas:

- The actual graph area is at the top
- On the left under the terminal area is the COMM interface consisting of input line and terminal window. The access is the same as described on the "Comm / Log" page (see section D.6.1) with the sole difference that here the input line is located above the terminal window.
- The Comm buttons can optionally appear again at the bottom right, see section D.6.1.1.


The actual graph area can be understood as a plotter with the paper running from right to left when the graph starts. Up to 10 parameters can be represented.
If you move the mouse through the graph area, crosshairs appear at the location of the mouse pointer. If one or more curves intersect the vertical line of the crosshairs, their values are displayed in the intersection points below the graph.
For each curve there is a box below the graph area in the color of the curve. It can be used to show or hide the corresponding curve at any time.
The scales on the left and right can be selected in the "Variables" dialog, see section D.7.1.

The time representation can be affected by the slide controls:

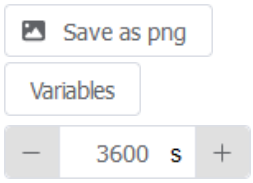
- The upper slide control is used to jump back in time
- The lower slide control adjusts the width of the time intervals that are represented.

The values can also be adjusted numerically with the toggle boxes to the right of the slide controls.

There are a few additional buttons below the slide control:


Meanings:

| | |
|---|---|
| Start | Starts the graph. |
| Stop | Stops the graph. |
| Reset Graph | Empties the graph. |
| Reset Markers | Removes markers from the graph. Markers can be set automatically by means of logical expressions, see section D.7.1. |



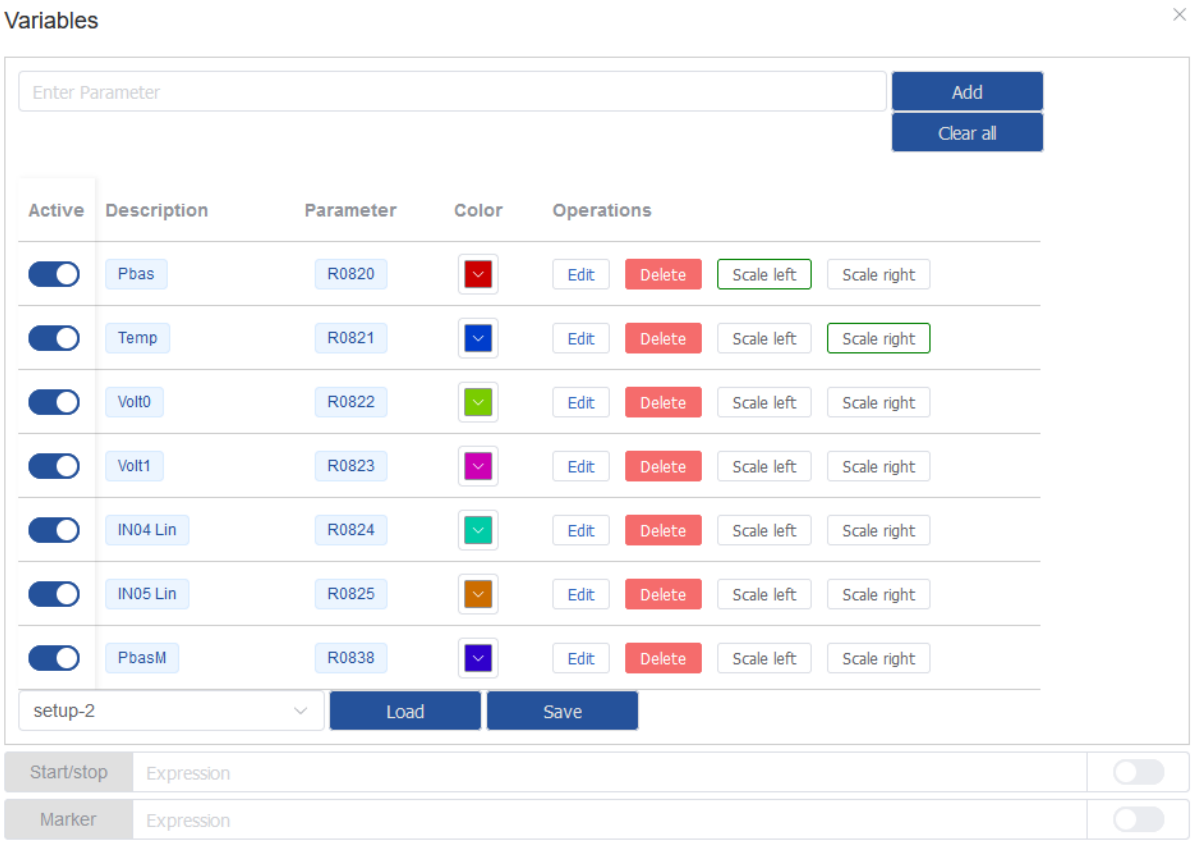

Saves the currently visible graph.

Opens the "Variables" dialog for the configuration of the graph, see section D.7.1.

Toggle field for defining the maximum time interval for ring memory. Older data points are "forgotten."

## D.7.1 "Variables" Dialog

The "Variables" dialog is opened with the "Variables" button. You can configure here which parameters will be displayed and how. These configurations can also be saved and reloaded. Logical expressions can also be entered to start and end graph recording based on events or to mark certain events.



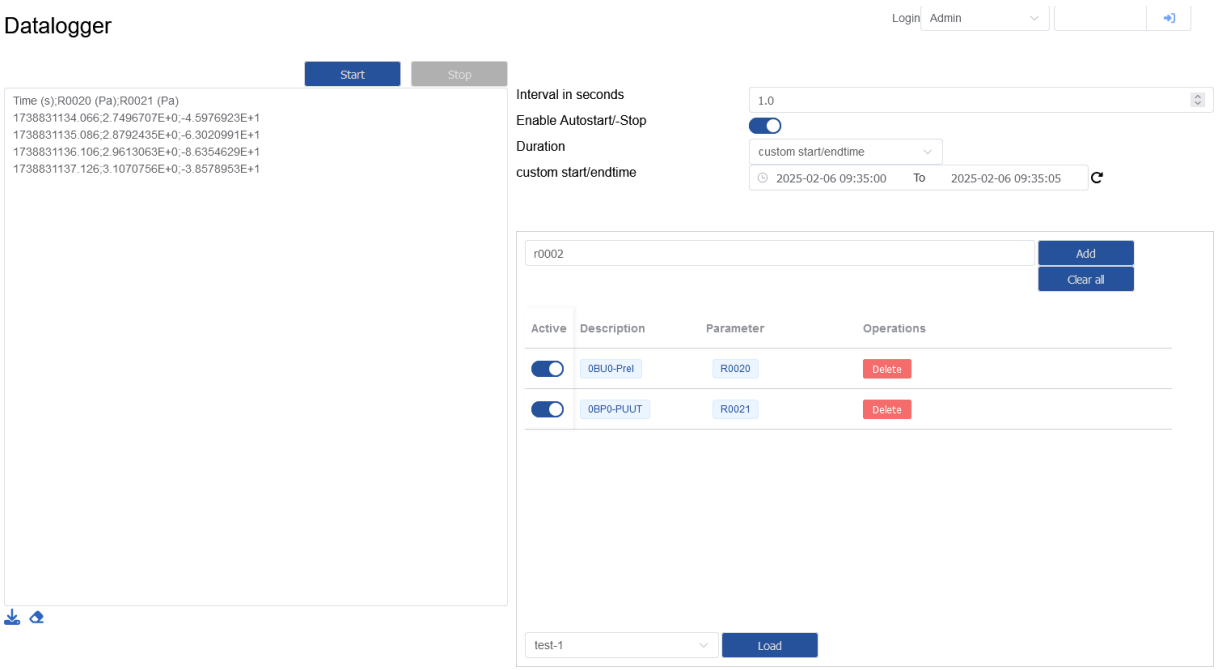

Description:

- Variables can be added in the top line in the form of R parameters. The R parameters relevant for the specific measuring system can be found in the corresponding document "Operating Instructions and System Configuration."
- "Add" button: The parameter entered in the input line can be added to the table with "Add."
- "Clear all" button: Removes all variables
- Switch in the "Active" column: A setting that indicates whether or not the relevant variable should be displayed in the graph.
- Entry in the "Description" column: Description of the variable; comes initially from the controller settings but can be edited with "Edit."
- Entry in the "Parameters" column: The R parameter, which was taken over into the table with "Add" and represents the variable.
- Color field in the "Color" column: Opens a sub-dialog for selecting the color that will be used to represent the relevant variable in the diagram.
- "Edit" button in the "Operations" column: Opens a sub-dialog for editing the variable. Contains:
  – "Autoscale on/off": Activates or deactivates automatic scaling.

  - "yRng min": Manual scaling of the lower value.
  - "yRng max": Manual scaling of the upper value.
  - "Unit": Cannot be edited; physical unit according to the display configuration of the controller.
  - "Desc": Description of the variable.
- "Delete" button in the "Operations" column: Delete the relevant line.
- "Scale left" and "Scale right" buttons: You can select the variable here to which the left or right scale will be assigned. Each side can only be assigned to one variable.
- Drag bar: The "Variables" dialog can list as many as 7 of the maximum 10 configurable variables. If there are more than 7 entries, a drag bar appears at the right end of the table as soon as the mouse pointer is in the area of the table.
- Drop-down field (shows the name of the most recently selected graph configuration, otherwise "Select saved config"): Opens a small sub-dialog with the following contents:
  - List of available graph configurations
  - Input field for the name of a new graph configuration
  - "Save" button: Saves the new graph configuration under the name that was entered
  - "Cancel" button: Closes the sub-dialog.
- "Load" button: The "Load" button is only active when a graph configuration has been selected and is used to load this configuration from the controller.
  This is followed by a dialog asking whether you agree that the current settings will be discarded and replaced by the settings of the graph configuration that will be loaded.
- "Save" button: The "Save" button is only active when a graph configuration has been selected and is used to overwrite the loaded graph configuration with the current settings. This has to do with saving changes on the controller.
- "Start/Stop: Expression": For advanced users. A logical expression can be saved here that can be evaluated as an integer. If the integer is not equal to 0, the graph runs. The button on the right activates or deactivates the function.
  **Example**
  `state>2400`
  Effect: The recording does not start until the beginning of a mean value-forming measurement.
- "Marker": Expression": For advanced users. A logical expression can be saved here that can be evaluated as an integer. If the graph is running and the integer changes from 0 to not equal to 0, a thick vertical marker is drawn in the graph. If the integer changes from not equal to 0 to 0, a thin vertical marker is drawn in the graph.
  **Example**
  `state>2400 && state<2500`
  Effect: At the beginning of the mean value forming measurement, the thick marker is set to "high," at the end of the measurement to "low."

## D.8 Datalogger

The "Datalogger" page makes functions available that can be used to save measured values at a time interval.




There are two buttons "Start" and "Stop" on the left above the actual logging area for controlling the recording.

- A configured recording in the area on the right can be started with the "Start" button:
  - If "Enable Autostart/stop" is deactivated or only a duration is configured, the recording starts immediately.
  - If a "custom start/endtime" is defined, the time window for the recording is activated. The recording does not begin until the point in time programmed for the start.
- A recording that is running can be aborted with the "Stop" button.

The logging area is located below the "Start" and "Stop" buttons:

- All entries are separated into columns by a semicolon
- In the first line there is a header that identifies the initial columns.
- The output can be saved in a file on the controller with the button.
- The output window can be emptied with the button.

**Comment**

Since the timestamp in the datalogger is not converted by the browser, it appears in the format of the "Unix Standard Time", i.e. the number of seconds since 01.01.1970 00:00 UTC, each day being set up with exactly 84600 seconds.

Datalogging can be configured on the right side:

- "Interval in seconds": The interval for data output in seconds.
- "Enable Autostart/-Stop": This button is used to activate the "Duration" line, see next list item.
- "Duration" (optional): The drop-down list contains various default values for the automatic end of recording after a manual start. It also contains the entry "Custom start/endtime." This entry is used to activate the line with the same name, see next list item.
- "Custom start/endtime" (optional): The first time it is opened and also after the curl on the right is activated, the start and endtime are automatically set to the current system time. When you click in the input line, a sub-dialog opens with input lines and a calendar that can be used to set the times for the start and end in a different way.

**Comment**
Automatic recording only becomes active if the "Start" button on the left is subsequently activated. Active waiting for the beginning of the recording is identified in the logging area by means of an animated curl.

- "Enter Parameter": Variables can be added here in the form of R parameters. The R parameters relevant for the specific measuring system can be found in the corresponding document "Operating Instructions and System Configuration."
  **Comment**
  Changes to the parameters to be recorded on the "Datalogger" page cannot be saved. We recommend configuring the parameters to be recorded on the "Graph" page in the "Variables" dialog (see section D.7.1), saving them there and then loading them on the "Datalogger" page.
- "Clear all": Removes all R parameters from datalogging.
- Drop-down field (shows the name of the most recently selected graph configuration, otherwise "Select saved config"): Opens a small sub-dialog with a list of available graph configurations.
- "Load": A graph configuration that was compiled on the "Graph" page in the "Variables" dialog (see section D.7.1) can be transferred to datalogging here.
  **Comment**
  It is possible that a graph configuration that was just created under "Variables" does not appear immediately in the drop-down list. In this case please update the page with the F5 function button on the PC keyboard.

## D.9 Files

Under "Files" there are six pages for file transfer. Each page provides access to a separate folder of the controller.

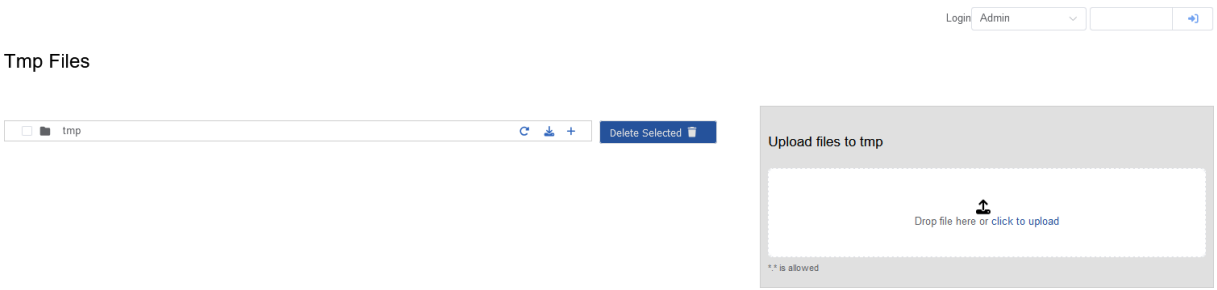
| | |
|---|---|
| Tmp | For files in volatile working memory such as the current datalogging or results see section D.9.1. |
| Public | For customer-supplied configurations, datalogging saved with "save," results, etc., see section D.9.2. |
| Incoming | For functions for updating the software of the **CoM4.SYS** controller see section D.9.3. |
| Term | For files used to configure the display components of the browser and TetraTec terminals see section D.9.4. |
| Patches | A function used to load parameter subsets, for example after replacing a sensor, see section D.9.5. |
| Backup | A function to restore previously saved backups, see section D.9.6. |

## D.9.1 Tmp

The "Tmp" page provides read and write access to files that reside in the working memory of the controller. For example, the current data logging and other output can be retrieved here.

**Attention**
These files are not saved so they will be retained through a power failure, so they will be lost if the power supply is removed or if the controller is rebooted!

The folder structure of temporary files can be found under the "Tmp files" heading.




You can use the button to download the entire "tmp" folder or individual files as well to the PC.

The button is used to delete files.

You can use the checkboxes in the structure tree to mark the entire "tmp" folder or individual files as well.

You can use the "Delete Selected" button to delete all marked files or empty the "tmp" folder (the "tmp" folder itself cannot be deleted).

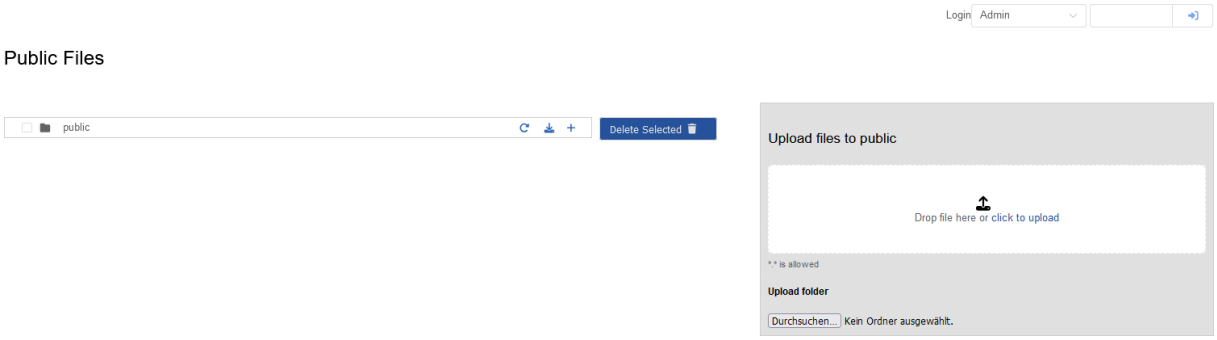
In the "Directory name" input line you can enter the name of a subfolder and create the subfolder with the "New directory" button.

In the "Upload files to tmp" area you can upload files to the controller. Two procedures are possible:
- Drag-and-drop
- Use the "Click to upload" link to open a system dialog to select a file.

All file extensions are permitted.

## D.9.2 Public

The "Public" page provides read and write access to files that reside on the physical disk drive of the controller. These files are saved so they are retained through a power failure. For example, here you can
save configurations for specific test settings or retrieve measured results.

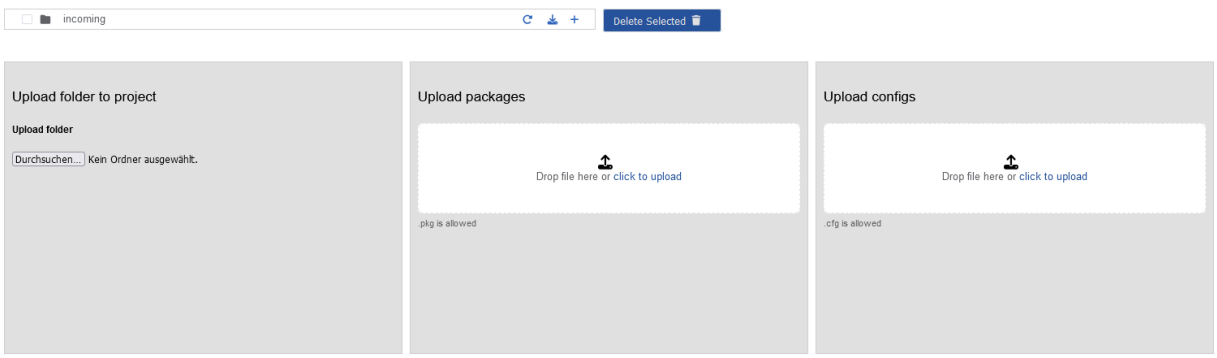



The structure and function are identical to what was described in section D.9.1.

## D.9.3 Incoming

The "Incoming" page is used to update the software on the **CoM4.SYS** controller.

**Malfunction**
Measuring system may become incapable of functioning if it is operated improperly! If the wrong files are loaded (such as those belonging to a different **CoM4.SYS** controller) or files are deleted, this will result in malfunctions!
➢ Use this page only as instructed by a TetraTec employee.



The structure is expanded compared to the description in section D.9.1.
There are three different upload areas:

- For "Upload folder to project" see section D.9.3.1.
- For "Upload packages" see section D.9.3.2.
- For "Upload configs" see section D.9.3.3.

### D.9.3.1 Upload Folder to Project

The project files can be updated to the current version in the "Upload folder to project" area. It is always recommended to make a backup previously (for instructions see section E.7.1).

Only files with the following file extensions are permitted:

- *.dat (parameters)
- *.scr (scripts)

In contrast to the upload areas described previously, entire folders can also be uploaded here. To do this, open a system diagram under the "Upload folder" heading to select a folder with the "Browse…" button.

Instructions for loading project files can be found in section E.8.1.

**Notice**
Project files define only the (new) delivery status. After a restart or reboot, the parameter settings are first loaded from the project files in working memory and are then overwritten by loading the content of param.dat. The corresponding values from the project files then have no effect on these parameters! For this reason we recommend making param.dat available to our service technicians promptly so they can integrate the relevant changes into the project files before they provide you with the update. Instructions for downloading param.dat can be found in section E.7.3.

### D.9.3.2 Upload packages

**Malfunction**
Measuring system may become incapable of functioning if it is operated improperly! If the wrong files are loaded (such as those belonging to a different **CoM4.SYS** controller) or files are deleted, this will result in malfunctions!

➢ Use this page only as instructed by a TetraTec employee.

Executable programs can be updated to the current version in the "Upload packages" area. It is always recommended to make a backup previously (for instructions see section E.7.1).

Only files with the file extension *.pkg are permitted.

Instructions for loading packages can be found in section E.8.3.

### D.9.3.3 Upload Configs

**Malfunction**
Measuring system may become incapable of functioning if it is operated improperly! If the wrong files are loaded (such as those belonging to a different **CoM4.SYS** controller) or files are deleted, this will result in malfunctions!
➢ Use this page only as instructed by a TetraTec employee.

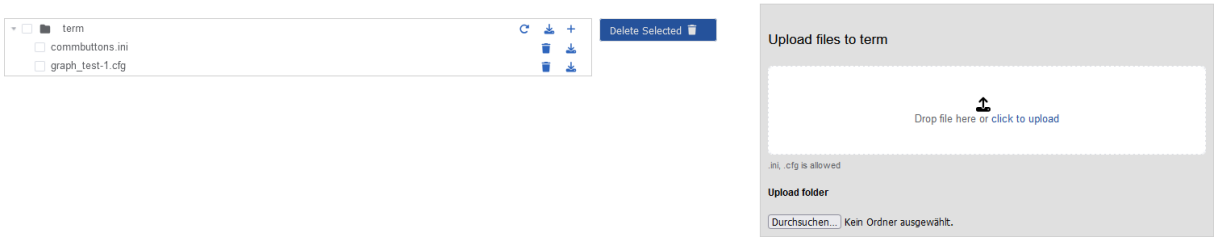
Configuration files for the different software parts can be updated to the current version In the "Upload configs" area.
It is always recommended to make a backup previously (for instructions see section E.7.1).

Only files with the file extension *.cfg are permitted.

## D.9.4 Interfaces – Term Files

The "Term Files" page is only used to configure display components of the browser and TetraTec-terminals. The configuration file for the graph and the Comm buttons among other things can be found here. They can be deleted or downloaded here.

Term Files



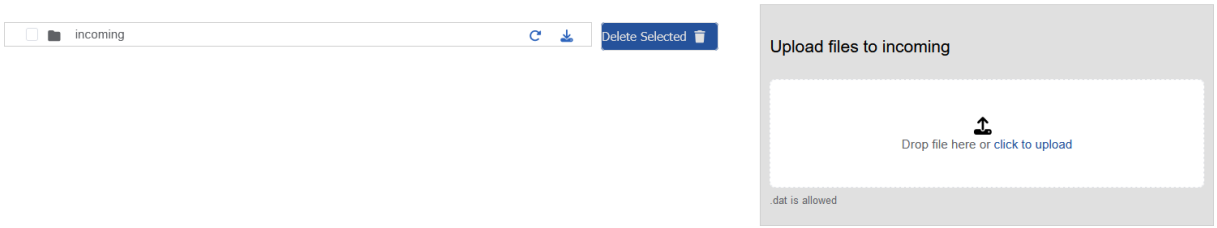

**Malfunction**
Measuring system may become incapable of functioning if it is operated improperly! If the wrong files are loaded (such as those belonging to a different **CoM4.SYS** controller) or files are deleted, this will result in malfunctions!
➢ Use this page only as instructed by a TetraTec employee.

Only files with file extension *.ini are permitted.

## D.9.5 Patches

The "Patch Files" page is only functional beginning with operating system R12. It is used to load parameter subsets, for example the linearization data records of individually replaced sensors.

Patch Files




**Malfunction**
Measuring system may become incapable of functioning if it is operated improperly! If the wrong files are loaded (such as those belonging to a different **CoM4.SYS** controller) or files are deleted, this will result in malfunctions!
➢ Use this page only as instructed by a TetraTec employee.

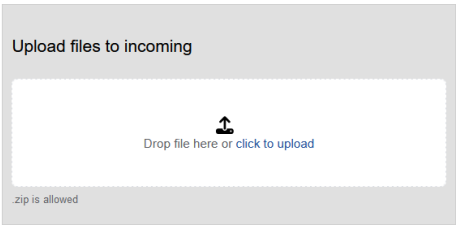
Only files with file extension *.dat are permitted.

**Notice**
Patches are used to update project files. However, project files define only the (new) delivery status. After a restart or reboot, the parameter settings are first loaded from the project files in working memory and are then overwritten by loading the content of param.dat. This is relevant if param.dat contains changes to parameters that are also included in the patches. The values from the project files then have no effect on these parameters!
For this reason we recommend making param.dat available to our service technicians promptly so they can integrate the relevant changes into the project files or the patch that is being generated before they provide you with the update or patch. Instructions for downloading param.dat can be found in section E.7.3.

## D.9.6 Backup/Restore

The "Backup/Restore Files" page is only functional beginning with operating system R12. It can be used to restore previously saved backups.

Backup/Restore Files


**Malfunction**
Measuring system may become incapable of functioning if it is operated improperly! If the wrong files are loaded (such as those belonging to a different **CoM4.SYS** controller) or files are deleted, this will result in malfunctions!
➢ Use this page only as instructed by a TetraTec employee.

Only files with file extension *.zip are permitted.
For instructions see section E.7.2.

## D.10 Network

All network settings can be displayed on the "Network" page. The figure below shows the status after login:


Changes are only possible after logging in. For instructions see section E.2.

For instructions on changing the network settings see section E.3

## D.11 Monitoring

Two functions can be found under "Monitoring" for monitoring interfaces from the outside to the measuring system. A display for additional log messages is also available.

| | |
|---|---|
| Net-IO | For monitoring of the virtual PLC interface to Net-IO see section D.11.1. |
| CommMonitor | For monitoring external Comm connections to the measuring system, see section D.11.2. |
| Syslogs | Display of log messages: For demon, middleware and GUI see section D.11.3. |

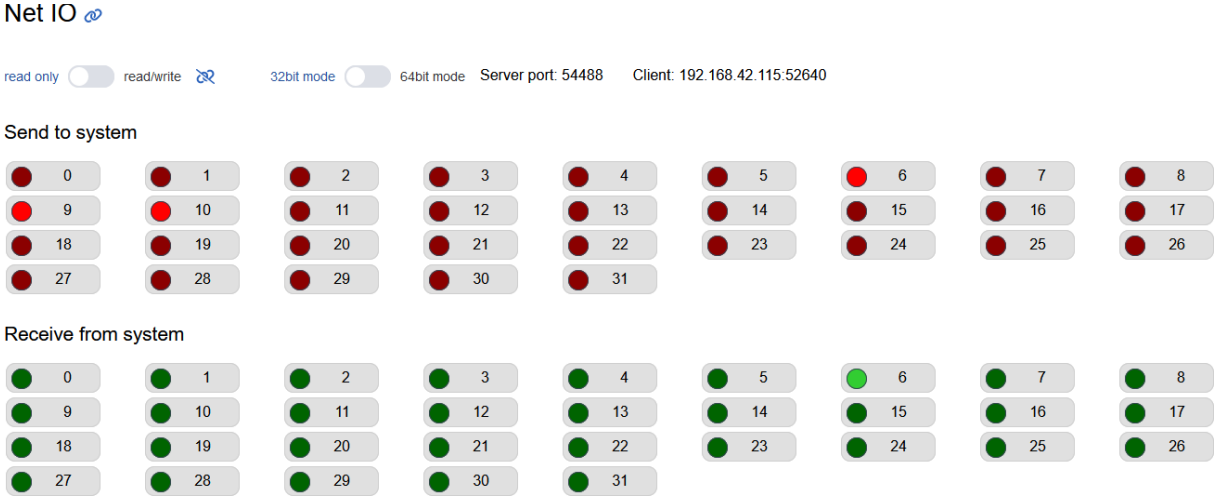
### D.11.1 Net-IO

The virtual PLC interface Net-IO is used for monitoring an existing Net-IO connection. After logging in it is also possible to send virtual control signals to the system manually. For login see section E.2.

**CAUTION**
The possibility cannot be ruled out in these general instructions that some control signals may trigger dangerous actions that could possibly result in major damage to property or serious injuries.

➢ Set control signals only as instructed by a TetraTec employee.

The illustration below is an example after logging in on the "TetraTec" level:




If there is no connection for the Net-IO interface, all fields appear in gray.

If there is a connection, the port number of the controller (server port) and the IP address and port number of the remote control (client) are displayed. If the user is furthermore authorized to set control signals after logging in, the "read only" toggle switch can be set to indicate whether the user would like to do have this authorization.

The "32bit mode" toggle switch can be used to switch between 32-bit and 64-bit representation.

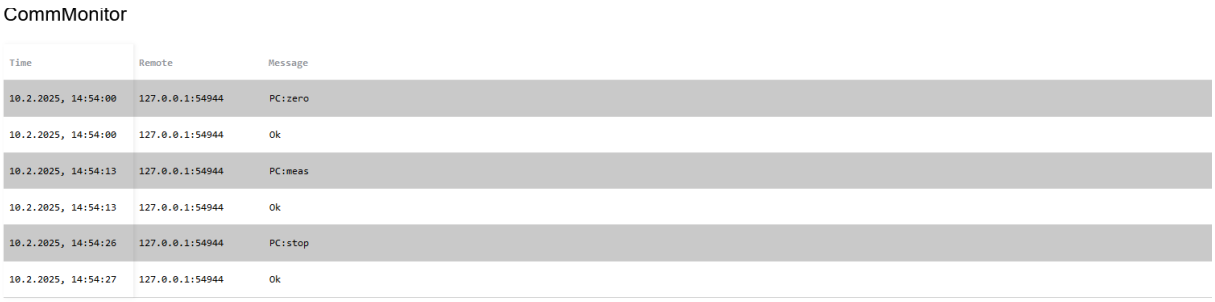
The signals currently present for controlling the system are summarized under "Send to system."

The signals of the system currently present in the direction of the higher-level control system are summarized under "Receive from system."

The meaning of the signals for your system can be found in the associated document "Operating Instructions and System Configuration." They may differ from one series to another.

## D.11.2 CommMonitor

The "CommMonitor" page can be used to monitor what is sent to the measuring system via the Comm interface or what is generated from the measuring system via the Comm interface.






You can use the button to save the previous communication history in a file.
The button is used to empty the list.
You can use the button if there are numerous output items to allow automatic scrolling.

## D.11.3 Syslogs

The following expanded syslogs are available

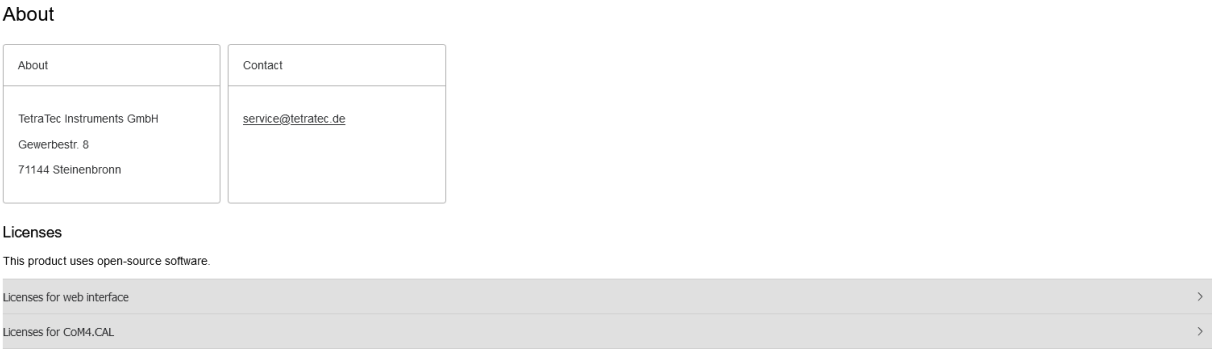
| | |
|---|---|
| Daemon | The daemon is the background process that monitors all programs on the controller. For example, you can see here whether an update has been performed correctly. |
| Middleware | The middleware is a program package that prepares information of the CoM4.CAL software for interfaces to the outside. |
| GUI | When a graphical user interface is active, the log messages can be found here. |

The contents are usually only of interest for specialists and are therefore not discussed here. Only one list at a time can be expanded. Since there are usually more entries than will fit in the display area, a scroll bar appears when the mouse is moved over the right edge.
The following buttons appear in the bottom left of each area:

- The display can be updated with the button.
- The button is used to download the entire list of log messages.

## D.12 About

The "About" page shows the manufacturer's contact information and the open source licenses used.




The open source licenses can be displayed here by expanding the desired list.

# E Operation via the Browser Interface

This section contains instructions concerning the most important operational objectives that could be relevant in connection with self help or remote service.

Instructions regarding the actual operation of your system can be found in document "Operating Instructions and System Configuration."

## E.1 Setting up a Network Connection, Opening the Browser Interface

**Requirements**

✓ **CoM4.SYS** is energized
✓ The **CoM4.SYS** is connected to a PC with a network cable
✓ Any browser is installed on the PC
✓ The IP address or the DNS name of the **CoM4.SYS** controller is known.
(For instructions on querying the IP address directly on the **CoM4.SYS** controller see section C.1.)

**Information**

The IP addresses of the **CoM4.SYS** controller and PC must match the network and must not occur more than once in it.

**Procedure**

➢ Enter the IP address or DNS name of the **CoM4.SYS** controller in the input line of the browser.
The Home screen appears, for description see section D.4.

## E.2 Login for Advanced Settings

Certain actions are protected with a user login:

| Protected action | Also refer to | Login level | |
|---|---|---|---|
| | | Admin | TetraTec |
| Changing the network setup | For description see section D.10.<br>For instructions see section E.3. | ✓ | ✓ |
| Edit buttons for the COMM interface | For description see section D.6.1. | | ✓ |
| Set control signals via the virtual PLC Net-IO interface | For description see section D.10. | ✓ | ✓ |

The password for the Admin level is `(adminpw)`.

The "TetraTec" level is reserved for TetraTec employees.

## E.3 Changing the Network Setup

**Precondition**

✓ There is a network connection between the **CoM4.SYS** controller and its browser interface on a PC. (For instructions on setting up a connection see section E.1.)

**Information**

- For a description of the "Network" page see section D.10.

**Procedure**

➢ Switch to the "Network" page.
➢ Edit the desired fields.
➢ To make the settings take effect, click on the "Save" button.

## E.4 Data Exchange and Control via the COMM Interface

### E.4.1 Querying Parameters and Measured Results

Measured results are available via "R parameters" (R for "read only"). The procedure for querying R parameters is no different than for querying other parameters, so both will be described together here.

The parameters relevant for your measuring system are named in document "Operating Instructions and System Configuration."

**Precondition**

✓ There is a network connection between the **CoM4.SYS** controller and its browser interface on a PC. (For instructions on setting up a connection see section E.1.)

**Procedure**

➢ If necessary switch to the "Comm / Log" or "Graph" page.

➢ Enter the number of the desired parameter in the input line of the "Comm" terminal.
**Example**
Interrogation of the actual differential pressure:
Input: `R0001` (conclude the input with the Enter key)
Answer: `R0001=1.102345E+01`
Meaning: The differential pressure is 11.02345 Pa = 0.1102345 mbar

**Notes**

- Multiple parameters can be queried by using wildcard "`?`".
- Every arbitrary parameter can be queried.
- In contrast to the display on the screen, the value are always represented in SI units.
- With editable parameters it may happen that two values are generated, separated from each other by the "#" sign. Then the value immediately after the equal sign indicates the value that is currently being used and the value after the "#" sign indicates a preliminary new value that has not yet taken effect. For further information see section E.4.2.

### E.4.2 Changing Parameters

**Notice**

Changing parameters can make the measuring system incapable of functioning. Changes should only be made if it is known what the effects will be. The relevant parameters are summarized in document "Operating Instructions and System Configuration."

**Precondition**

✓ There is a network connection between the **CoM4.SYS** controller and its browser interface on a PC. (For instructions on setting up a connection see section E.1.)

**Procedure**

➢ If necessary switch to the "Comm / Log" or "Graph" page.

➢ Enter the number of the desired parameter followed by an equal sign and a value in the input line of the "Comm" terminal.
**Example**
Set the number of positions after the comma for the differential pressure in the program 0 to 3:
Input: `P0013=3` (conclude input with Enter key)
Answer: `P0013=2 # 3` (if 2 places after the decimal was set previously)

**Notes**

- In this manner, numerous parameters can be provisionally allocated new values.
- When two values separated by a "#" sign are specified, this indicates that the result has not taken effect yet. The equal sign is followed by the value that is currently not used yet, then after the "#" sign the preliminary new value.
- All preliminary new values take effect only after one of the commands "activate," "temp" or "save":

➢ To make changes take effect immediately without interrupting the actual processes, enter the "activate" command or else just "act" (without quotation marks and conclude input with the Enter button).

The changes are written to the working memory, however, not permanently saved. This means that after the **CoM4.CAL** application is restarted next time, the changes are lost.

**- or -**

➢ To make changes take effective and restart processes (such as a controller), enter the "temp" command (without quotation marks and conclude input with the Enter button).
The changes are written to the working memory, however, not permanently saved. This means that after the **CoM4.CAL** application is restarted next time, the changes are lost. The processes are restarted.

**- or -**

➢ To make changes take effect permanently, enter the "save" command (without quotation marks and conclude input with the Enter button).
All changes made previously (including those that were set with "activate") are then written to memory where they are retained through a power failure.
The "save" command should only be used if it can be ensured that ALL changes since the last "save" or restart are reasonable.

## E.5 Time Representation of Measured Values

On the "Graph" page, up to 10 parameter values (especially measured value) can be represented over time. A description of the "Graph" page can be found in section D.7.

**Precondition**

✓ There is a network connection between the **CoM4.SYS** controller and its browser interface on a PC. (For instructions on setting up a connection see section E.1.)

**Important notes**

- The recording ends as soon as a screen saver becomes active, the browser (or the current browser tab) is closed or the user logs out.
- If the network connection is interrupted, the graph stops until the network connection is restored. However, the time does not continue running in the graph during the interruption.

**Procedure**

➢ Switch to the "Graph" page if necessary.
➢ Open the "Variables" dialog with the button that has the same name.
➢ Open the drop-down list in the "Variables" dialog bottom left.
The rest of the procedure depends on the content of the drop-sown list:

➢ If there is already a suitable graph configuration, select it and load it with the "Load" button. Respond to the confirmation prompt, which deals with discarding the previous graph settings and replacing them with the ones that were loaded, with the "YES" button.

➢ If there is not any suitable graph configuration yet or none at all, enter an appropriate name in the input line belonging to the drop-down area and save it with the "save" button in the drop-down area.
The current graph configuration is automatically taken over into the new graph configuration. This means that if no parameters have been configured yet, the new graph configuration will be empty. On the other hand, if parameters have already been configured, they will now be saved in the new graph configuration.
➢ To ensure that further changes will be saved in the graph configuration that has just been created if "Save" is selected later, and not be loaded into a previously loaded graph configuration, load the graph configuration that was just created with the "Load" button.

➢ To add a parameter to the view, enter the parameter in the "Variables" dialog top left and then click on the "Add" button.
A list of relevant measured value parameters can be found in document "Operating Instructions and System Configuration," mostly in the "System Configuration" section and subsection "Read Parameters for Measurands and Their Designators."
The description (in the "Description" column) and the display color (in the "Color" column) are assigned automatically but both can be changed.
➢ To change the color, click on the color field, then in the color selection dialog that appears select a color and close the dialog with "OK."

➢ To set up the value range to be displayed, (or also to change the description) click on the "Edit" button.
A dialog opens with the following setting options:

| | |
|---|---|
| Autoscale  | You can use the toggle switch to select between automatic and manual range setting. |
| Use current scale as fixed | This button is used to fix a range setting that was previously determined automatically. This switches the range setting to manual. |
| yRng min | With manual range setting: The smallest value that can still be displayed. For the unit see the "Unit" line. |
| yRng max | With manual range setting: The largest value that can still be displayed. For the unit see the "Unit" line. |
| Desc | The description can be adapted here. |

**Comment**
The "Unit" is for information only, for interpreting the manual range limit. It is taken over automatically from the settings for representing the parameter in the display.

➢ To leave the dialog with the setting options, simply click outside of the dialog.

➢ Repeat the procedure for additional parameters.

**Notes**
- Unfortunately it is not possible to change the order in the list. The only way to do this is to delete a parameter and then add it in the desired order.
- Parameters can be deleted with the "Delete" button.
- If you do not want to record a parameter but you do not want to lose it, you can also deactivate it.
- If more than seven parameters are configured, there is a slide bar at the right edge of the table. However, it will only be visible if the mouse pointer is in that part of the table.

➢ Select the parameter for which the left scale will be used and the one for which the right one will be used (only one "Scale left" button and one "Scale right" button at a time can have a green border).

➢ To save changes:
  – If you want to save the changes in the configuration that is displayed at the bottom right in the drop-down field, click the large "Save" button.
  – If you want to save the changes in a new configuration, open the drop-down field, give it a new name there and click on the small "save" button.

➢ To leave the "Variables" dialog, click on "x" top right .

➢ To start the graph, click on the "Start" button.
When the graph is initialized, a legend appears that can be used to hide the individual curves or show them again at any time. If the mouse pointer is positioned in the area of the recording, the values of the displayed curves at that time are indicated in the legend.

➢ To save a graph as an image, click the "Save as png" button.
The graph resides in the Download directory. The filename is made up of the name of the controller and a time stamp.

**Comment**
Unfortunately it is not possible to save the recorded curves directly as a data record. To record measurement series for later evaluation, please use the datalogger, see section E.6.

## E.6 Recording Measured Values for Later Evaluation

The "Datalogger" page can be used to query sets of up to 10 parameters at a defined interval and write them to a log that can subsequently be downloaded for later evaluation. A description of the "Datalogger" page can be found in section D.8.

**Precondition**

✓ There is a network connection between the **CoM4.SYS** controller and its browser interface on a PC. (For instructions on setting up a connection see section E.1.)

**Important notes**

- The recording ends as soon as a screen saver becomes active, the browser window (or the current browser tab) is closed or the user logs out.
- If the network connection is interrupted, the recording stops and continues after the network connection is restored. The interruption can be identified by the time stamp.
- The log is initially saved only in the browser's local store, but it can be temporarily saved in a file at any time.

**Recommendation**

➢ Create a graph configuration first, see section E.5.
Background:
Since the same parameters are generally of interest for both the graph and the log, it makes sense to maintain the configuration in only one place. However, the datalogger needs only a subset of the settings. The configuration is therefore maintained in the "Variables" dialog, which belongs to the "Graph" page.

**Procedure**

➢ Switch to the "Datalogger" page (if this page is not already displayed).
The bottom right area is similar to the "Variables" dialog, which can be opened on the "Graph" page with the "Variables" button.

➢ Select a graph configuration in the drop-down field next to the "Load" button and load it with the "Load" button.

**Comment**
Optionally you can add more parameters for the recording with the "Enter Parameter" input line and the "Add" button or delete parameters from the recording with the "Delete" button. However, these changes cannot be saved.

➢ Enter an interval between 0.2 and 7200 seconds in the "Interval in seconds" input line.
The rest of the procedure depends on how you would like to control the recording:

➢ To control the recording completely manually with the "Start" and "Stop" buttons, deactivate the "Enable Autostart/stop" toggle switch.

➢ Start the recording as necessary with the "Start" button and end it as necessary with the "Stop" button.

➢ To control the recording semi-automatically or fully automatically, activate the "Enable Autostart/stop" toggle switch.
The "Duration" drop-down field is shown.
The rest of the procedure depends on how you would like to control the beginning of recording.

➢ To limit only the duration of the recording, select one of the suggested durations.

➢ Start the recording as necessary with the "Start" button.
The recording begins and ends no later than when the selected maximum duration has elapsed. However, it can be ended prematurely with the "STOP" button.

➢ To program the time for both the beginning and end of recording, select the "custom start/endtime" line in the "Duration" field.
The "custom start/endtime" input line appears. By default both times are set to the current time, which means the recording will not be started, because this time is already in the past.
A dialog appears with four input fields and two calendars.

➢ First enter a date in the future for the end of the recording. Close the sub-dialog for the time with OK.

- ➢ Then enter the beginning of the recording. This time should also be in the future, but before the date for the end. Close the sub-dialog for the time here as well with OK.
- ➢ Make sure that all entries have actually been accepted.
- ➢ Close the dialog with "OK."
- ➢ To switch the programmed recording to live, click the "Start" button.
  The wait for the programmed beginning of recording is indicated in the log area by a rotating semi-circle.
  Both the waiting and the recording that has already been started can be ended with the "Stop" button.

- ➢ To save the log as a file, click on the .
  A cvs file is saved in the download directory. The filename is made up of the controller name plus the addition "_datalog". If the file is saved several times, the file is not overwritten. Instead a number in parentheses is added to the filename each time.

## E.7 Data Backup and Restore

### E.7.1 Downloading a Backup

Important: Create a backup before any change to the system!

**Precondition**

✓ There is a network connection between the **CoM4.SYS** controller and its browser interface on a PC. (For instructions on setting up a connection see section E.1.)

**Procedure**

- ➢ Click on the "Get Backup" button in the header on the right.
  A system dialog opens for saving the zip file.
- ➢ Select a storage location and save the file.

The *.zip file contains the entire contents of the controller memory.

**Notes**

- The USB stick included with delivery of the measuring system contains a *.zip file with the factory settings.
- We recommend creating a backup before important points in time:
  - After initial commissioning
  - Before changing limits or times
  - After all changes to limits or times have been successfully tested.
  - Before software updates

### E.7.2 Reloading a Backup (Restore)

**Notice**

This function is available beginning with operating system version R12. If your **CoM4.SYS** controller uses an older operating system please contact service@tetratec.de. Which operating system your **CoM4.SYS** controller uses can be seen on the "Home" page in the "Controller info" area, third line left entry "OS version." See section D.4.1.

**Malfunction**

Measuring system may become incapable of functioning if it is operated improperly! If the wrong files are loaded (such as those belonging to a different **CoM4.SYS** controller) or files are deleted, this will result in malfunctions!

➢ Use this page only as instructed by a TetraTec employee.

**Requirements**

✓ You have a backup of a functioning state of your system.

✓ There is a network connection between the **CoM4.SYS** controller and its browser interface on a PC. (For instructions on setting up a connection see section E.1.)

**Procedure**
- ➢ Switch to the "Files → Backup" page.
- ➢ Drag the "backup.zip" file onto the "Upload files to incoming" drop field or navigate to this file with the "click to upload" link and select it.
- ➢ Click on the "Restart" button in the header on the right.

### E.7.3 Downloading Param.dat

The "param.dat" file contains all parameter changes saved with the SAVE command. It is not a fully adequate replacement for a backup, but on the other hand it is included in the backup. In the event of a service visit, we recommend making param.dat available to our Service department as early as possible. param.dat contains information that is useful for diagnostics. This means your parameter changes can also be taken into account in the case of updates or patches.

**Precondition**
- ✓ There is a network connection between the **CoM4.SYS** controller and its browser interface on a PC. (For instructions on setting up a connection see section E.1.)

**Procedure**
- ➢ Click on the "Get param.dat" button in the header on the right.
  The "param.dat" file resides in the Download directory of your PC.
- ➢ Send param.dat together with the measuring system number to service@tetratec.de.

### E.7.4 Restoring the Delivery Status

**Data loss**
All changes you have saved since the last delivery with the SAVE command are saved in param.dat. If param.dat is emptied or deleted, all your changes will be irretrievably lost.
- ➢ Before resetting param.dat, back it up as described in section E.7.3!

When the **CoM4.SYS** controller starts up, first the project files are loaded into working memory. Then file "param.dat" is loaded. The entries of param.dat overwrite the settings previously loaded from your project files. If param.dat is emptied or deleted, the delivery status will therefore be restored.

**Precondition**
- ✓ There is a network connection between the **CoM4.SYS** controller and its browser interface on a PC. (For instructions on setting up a connection see section E.1.)
- ✓ Your measuring system is in a safe operating condition (STANDBY).

**Procedure**
- ➢ Save param.dat as described in section E.7.3.
- ➢ Archive a copy of param.dat in a safe location.
- ➢ Switch to the "Comm / Log" page.
- ➢ Send the "defaults" command via the input line of the "Comm" terminal area.
  The content of param.dat is deleted.
  The controller performs a restart.

**Comment**
- Optionally the "defaults" command can be saved by means of a command with a code entered.
- If **CoM4.SYS** is accidentally reset to the delivery status, you will lose all your settings (such as modified nominal values and limits). The saved param.dat cannot be immediately reloaded. Please contact service@tetratec.de.

## E.8 Loading Patches and Updates

**Data loss**
It is possible that this will cause serious errors that are difficult to find, in particular when editing or overwriting the configuration files!

- ➢ Changes on this page may only be made under direct instruction, for example during telephone support! Never carry out changes arbitrarily!
- ➢ Do not under any circumstances transfer any files from one **CoM4.SYS** controller to another if you are not fully conversant with this!
- ➢ The **CoM4.SYS** controller must not be switched off during the data transmission or internal data reorganization!

Updates can involve bug fixes or expansions of functions ordered by the customer. The following levels are distinguished:

- Patches and project files: Parameterization and scripts if any
- GUI
- Middleware
- CoM4.CAL application
- Operating system

## E.8.1 Update of Project Files

**Partially invalid update / data loss**
Param.dat is retained when the project files are updated. It contains all your changes since the last "Save." Since the **CoM4.SYS** controller does not load param.dat into working memory until after the project files, all parameters that are also included in param.dat with the changes that have been made there are overwritten. To ensure that the system does not work with settings that are partially out-of-date, please follow the steps in the procedure below:

- ➢ To prevent irretrievable loss of your settings, download param.dat and back it up as described in section E.7.3.
- ➢ Send param.dat together with the measuring system number to service@tetratec.de. The service employees of TetraTec Instruments GmbH will check which of your changes can/should be made. Then they will take this into consideration in the new project files.
- ➢ After the new project files have been loaded, empty param.dat. Follow the step-by-step instructions after the warning notes.

**Malfunction / faulty measurement**
If project files belonging to another measuring system are loaded, this can result in significant malfunctions!
If project files are accidentally transferred from one measuring system to another measuring system with the same design, all linearization data records will be invalid. This will result in faulty measurements!

- ➢ Make absolutely certain NEVER to load files that come from another measuring system or controller or were/are intended for another measuring system or controller!

**Precondition**

- ✓ There is a network connection between the **CoM4.SYS** controller and its browser interface on a PC. (For instructions on setting up a connection see section E.1.)
- ✓ Your measuring system is in a safe operating condition (STANDBY).
- ✓ The update may only be carried out in direct contact together with a TetraTec employee. Remote access to the computer with the browser is recommended.
- ✓ A TetraTec employee has sent you a *.zip file with the project files.

**Procedure**

- ➢ Extract files from the *.zip file with a free program such as 7zip.
  You should now have a "project" folder that contains several files.
- ➢ Switch to the "Files – incoming" page.
- ➢ In the upload area "Upload files to project" under the heading "Upload folder," click on the "Browse…" button.
- ➢ Select the folder you just extracted and upload the entire folder.

➢ To make the updates take full effect, establish the new delivery status, see section E.7.4.

**Comment**
You can also upload files individually with drag-and-drop or with "Click to upload."

## E.8.2 Loading a Patch

**Notice**
This function is available beginning with operating system version R12. If your **CoM4.SYS** controller uses an older operating system please contact service@tetratec.de. Which operating system your **CoM4.SYS** controller uses can be seen on the "Home" page in the "Controller info" area, third line left entry "OS version." See section D.4.1.

A patch is a small file for loading parameter subsets, for example linearization data records for individual sensors that have been replaced. The project files are updated directly on the controller. Param.dat is therefore not modified by loading patches.

**Partially invalid update / data loss**
Param.dat is retained after a patch is loaded. It contains all your changes since the last "Save." Since the **CoM4.SYS** controller does not load param.dat into working memory until after the project files, all parameters that are also included in param.dat with the changes that have been made there are overwritten. This can also affect parameters that are to be updated with the patch. To ensure that the system does not work with settings that are partially out-of-date, please follow the steps in the procedure below:

➢ To prevent irretrievable loss of your settings, download param.dat and back it up as described in section E.7.3.
➢ Send param.dat together with the measuring system number to service@tetratec.de. The service employees of TetraTec Instruments GmbH will check which of your changes can/should be made. Then a decision is made whether the patch can be safely loaded or it would be better to send you new project files in which your changes are taken into account.
➢ Unless you have received other instructions from our service department, follow the step-by-step instructions after the warning notes.

**Malfunction / faulty measurement**
If patches belonging to another measuring system are loaded, this can result in significant malfunctions!
If the patch is forgotten after a sensor replacement or a patch with a linearization data record for a new sensor is loaded without that exact sensor actually being connected, this will lead to faulty measurements!

➢ Make absolutely certain that the patch matches the measuring system and if applicable the replaced sensor.

**Requirements**
✓ You have a patch that exactly matches your measuring system (measuring system number).
✓ There is a network connection between the **CoM4.SYS** controller and its browser interface on a PC. (For instructions on setting up a connection see section E.1.)

**Procedure**
➢ Switch to the "Files → Patches" page.
➢ Drag the patch file onto the "Upload files to incoming" drop field or navigate to this file with the "click to upload" link and select it.
➢ Click on the "Restart" button in the header on the right.

### E.8.3 Update of the CoM4.CAL Application, Middleware or GUI

**Precondition**

✓ There is a network connection between the **CoM4.SYS** controller and its browser interface on a PC. (For instructions on setting up a connection see section E.1.)
✓ Your measuring system is in a safe operating condition (STANDBY).
✓ The update may only be carried out in direct contact together with a TetraTec employee. Remote access to the computer with the browser is recommended.
✓ A TetraTec employee has sent you a *.zip file containing an update to the CoM4.CAL application, the middleware and/or the GUI.

**Procedure**

➢ Extract files from the *.zip file with a free program such as 7zip.
You should now have at least one file with the *.pkg extension.
➢ Switch to the "Files – incoming" page.
➢ Drag the included *.pkg files one after the other and drop them in the "Upload packages" upload area.
➢ To make the changes take effect, click on the "Restart" button.

**Comment**

You can also upload with "Click to upload."

### E.8.4 Update of the Operating System

If it is ever actually necessary to update the operating system, please contact service@tetratec.de.

## E.9 Error Diagnostics

If a process or measurement is not functioning according to expectations with **CoM4.SYS**, simple error diagnostics are possible. The "Overview" and "Monitoring" pages are used to do this.

### E.9.1 Overview

The sensor values can be viewed in the "State, Inputs & Output" list:

- The linearized sensor values are in the second block.
- If the information marker has a red light before the sensor, the sensor has an error.
- This error may also not appear until during a measurement process.
- Also have the current linearized value and sensor raw values in the third block checked for plausibility.

➢ To ensure that only errors in the process are displayed in the LOG, set the filters of the "Lv" and "Facility" columns as follows:
  – In the "Lv" column: Select importance level NOTICE.
  – In the "Facility" column: Set the checkbox for "SCRDEBUG."

### E.9.2 Monitoring

Under Monitoring you can monitor connections of the **CoM4.SYS** controllers to the higher-level control system.

- You can see whether there is a Net-IO connection.
- You can monitor which Net-IO signals come and go to and from your measuring system
- You can monitor which COMM messages come and go to and from your measuring system.