

GREISINGER electronic GmbH

Network Based Data Logging

As of Version 1.1

EASYControl net



Made in
Germany

Table of Contents

1	INTENDED USE	3
2	COMMON ADVICE	3
3	SECURITY ADVICE	3
4	SOFTWARE DESIGN	3
4.1	EASYCONTROL NETLOG	3
4.2	EASYCONTROL NETILLUSTRATOR	4
4.3	POSTGRESQL.....	4
4.4	COMPONENTS.....	4
5	REQUIREMENTS	4
6	INSTALLATION	5
6.1	SINGLE SEAT INSTALLATION.....	5
6.2	REMOTE INSTALLATION	5
6.3	STANDARD SETTINGS AFTER RUNNING THE SETUP.....	5
7	USER SPECIFIC COMPONENTS	5
8	HINTS FOR REMOTE INSTALLATION	6
8.1	FIREWALLS.....	6
8.2	POSTGRESQL.....	6
8.3	ENERGY SAVING OPTIONS	6
9	EASYCONTROL NETLOG	7
9.1	CONFIGURATION	7
9.2	USERACCOUNTS	7
9.3	HANDLING	7
10	EASYCONTROL NETILLUSTRATOR	8
10.1	CONNECTION TO EASYCONTROL NETLOG.....	8
10.2	INTERFACES	8
10.3	MODULES AND CHANNELS	8
10.1	SWITCHING- AND ALARM MODULES	9
11	QUICK START GUIDE FOR EASYBUS AND SINGLE SEAT INSTALLATION	9
12	START AND STOP RECORDINGS	9
13	HANDLING	10
13.1	TREE VIEW	10
14	VISUALISATIONS	12
14.1	TACHOMETER	12
14.2	DIGITAL	12
14.3	TABLE.....	13
14.4	CHART	13
15	LEGAL NOTES	15
16	ADDITIONAL LICENSES	16
16.1	POSTGRESQL	16
16.2	NPGSQL - .NET DATA PROVIDER FOR POSTGRESQL	16

1 Intended Use

The Software is designed and constructed for record measuring data.

The measuring data is stored in a Database.

Measuring data visualisation is done with an independent program.

All security advices mentioned in this manual have to be considered (follow chapter 3).

You must follow the intended use under consideration of the Security advices. In different cases or in case that one or more terms of the security advices are violated this software must not be used.

2 Common Advice

Please read this manual mindfully, familiarize with the operation of the software before using it.

Keep it within reach to consult the manual in case of doubt.

3 Security Advice

1. The Software may only be used on a system (computer or computer-network) that is intended for its use.
2. THIS SOFTWARE IS NOT DESIGNED, INTENDED, CONSTRUCTED, OR AUTHORIZED FOR USE IN ANY TYPE OF SYSTEM OR APPLICATION IN WHICH THE FAILURE OF THE SYSTEM OR APPLICATION COULD CREATE A SITUATION WHERE PERSONAL INJURY OR DEATH MAY OCCUR, OR SEVERE PHYSICAL OR ENVIRONMENTAL DAMAGE (E.G., MEDICAL SYSTEMS, LIFE-SUSTAINING, LIFE-SAVING SYSTEMS, NUCLEAR FACILITIES, AIRCRAFT NAVIGATION OR COMMUNICATION SYSTEMS, AIR TRAFFIC CONTROL SYSTEMS).
3. The system used for this software, as well as the software itself must be kept up to date. This includes antivirus-protection as well as security updates.
4. Microsoft releases security updates for Windows regularly.
5. Never write down any passwords or usernames, do not use passwords that could be guessed easily (like the name of your cat).

4 Software Design

The Software is network based and made of three program components. These can run on a single computer or shared between computers communicating via a local area network.

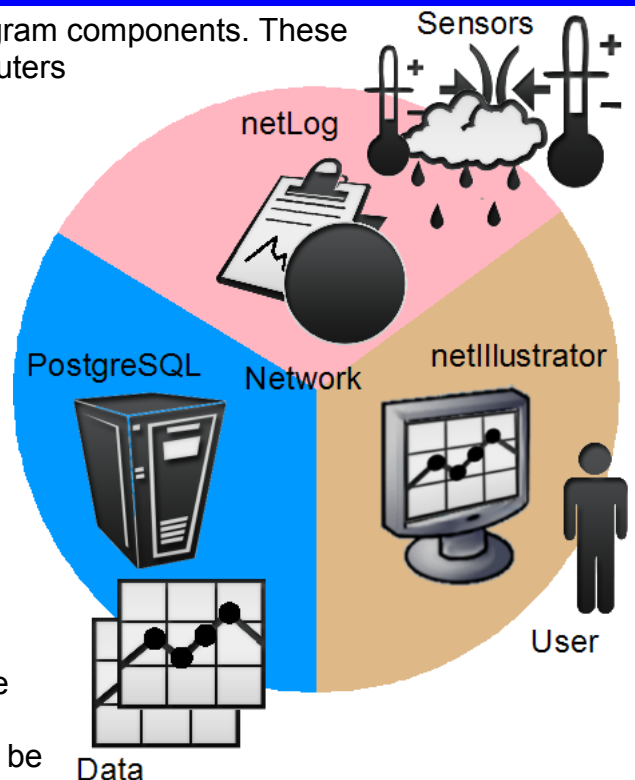
- EASYControl netLog
- PostgreSQL
- EASYControl netIllustrator

4.1 EASYControl netLog

EASYControl netLog is the data logging software part. This is the central node of EASYControl net. It can read data from different interfaces. A timestamp from a time standard is added and after that written to the database. The EASYBus-Interface support is installed by default.

E.A.S.Y.Bus®

All common EASYBus-devices are supported. Settings are depending on the device functionality. On the whole EASYBus there should be maximum 9 queries per second. You have to initialize the system first. This can be achieved with the free software EASYBus Configurator.



4.2 EASYControl netIllustrator

EASYControl netIllustrator is the visualization component.

Depending on the visualization the newest measured value, older series or both will be shown.

You can generate reports, store them digital or print them to paper.

The standard software comes with following visualization components:

- Tachometer
- Digital
- Table
- Graph

4.3 PostgreSQL

Each channel gets its own Table. A table can store up to 32 TB. The database is secured via password and username. User-rights will allow EASYControl netLog only to read measured data, changing or deleting of these values is not allowed (or possible) via any component of EASYControl net.



4.4 Components

Some of the PlugIns or functions have to be acquired with costs.

EASYControl net is not depending on the EASYBus as interface-bus.

Any desired visualization components, interface-buses, databases and alarm-management can be added. The components must match some requirements of EASYControl net. For example, a database must have a user administration, or for an interface-bus each channel must have a unique identification.

5 Requirements

EASYControl net supports following Microsoft® Windows™ operating systems:

- Microsoft Windows XP™
- Microsoft Windows Vista™ and
- Microsoft Windows 7™

The software runs in 32 bit as well as in 64 bit. Die Software is a 32 bit application.

Microsoft Windows Versions lower than Windows XP are no longer supported!



The Microsoft .net™ Framework 3.5 SP1 is needed. Normally this is already installed on actual systems. When this is not the case the .net Framework has to be installed before. The .net 3.5 Framework SP1 is on the installation CD.



Minimum hardware requirements

- CPU with at least 1,2 GHz
- 1024 MB RAM
- 300 MB free hard disk drive space
- Network interface

6 Installation

There are the following installation components:

- Single seat installation
 - Automatically configure and install the PostgreSQL database on this PC
 - This LAN has an existing PostgreSQL database to be used
- Remote installation
 - Install the EASYControl netIllustrator presentation client
 - Install the EASYControl netLog data collector
 - Custom installation (recommended only for experienced users)

The single seat installation will install all components on one PC. With a remote installation all components have to be installed manually on each remote PC.

6.1 Single seat installation

All components and there prerequisites are installed on one PC.

6.1.1 Automatically configure and install the PostgreSQL database on this PC

This will install all components, prerequisites and the PostgreSQL database on a single PC.

6.1.2 This LAN has an existing PostgreSQL database to be used

This will install all components and prerequisites on a single PC, but will use an existing PostgreSQL database. Ask your system administrator for the connection data for the PostgreSQL database.

6.2 Remote Installation

6.2.1 Install the EASYControl netIllustrator presentation client

Only installs EASYControl netIllustrator and all prerequisites.

6.2.2 Install the EASYControl netLog data collector

Only installs EASYControl netLog and all prerequisites.

6.2.3 Automatically configure and install the PostgreSQL database

Only installs the PostgreSQL database service and all prerequisites. The database will be preconfigured with standard settings.

6.2.4 Custom installation (recommended only for experienced users)

This will allow manual component selection. Please keep in mind, without needed prerequisites some components will not work properly



Do not use the standard Password for the PostgreSQL installation!
 Unauthorized person will try first try standard passwords to access your system!

6.3 Standard settings after running the setup

Program	Username	Password	IP-Address	Port
PostgreSQL	postgres	postgres	127.0.0.1	5432
netLog	-	-	127.0.0.1	50661
netIllustrator	As in EASYControl net user accounts		127.0.0.1	

IP-Address 127.0.0.1 is the local PC (loopback-address/local host)

7 User specific Components

According to reducibility and complexity a user specific PlugIn can be programmed, liable to pay costs. Possible may be e.g. a connection to another Database, a different interface-bus. The handling will be exactly the same, just some PlugIn specific settings may have to be done additionally.

8 Hints for remote installation

This is for accessing EASYControl netLog from another PC. To have access to your LAN some configuration settings on your system and the firewall have to be done. These settings are necessary only if LAN access is needed.

8.1 Firewalls

The firewall has to be configured that all connections to the PostgreSQL service are possible. The incoming TCP/UDP-port 5432 has to be released on the machine that runs the PostgreSQL service. On the PC that runs EASYControl netLog the incoming TCP-Port 50661 has to be released.



It is recommended that the firewall is configured for EASYControl netLog accessing an internet timeserver on TCP-port 39 (NTP).

If you have questions for the network- and firewall-configuration, please ask your system administrator.

8.2 PostgreSQL

Because PostgreSQL has additional security settings, any client accessing the database has to be allowed. This will be achieved by changing the configuration file "pg_hba.conf" located in the PostgreSQL installation directory („C:\Programme (x86)\PostgreSQL\8.4\data“). Open this file with any text-editor and attach the following line (Example for a network with IP-Range 192.168.123.000 and Subnet-Mask 255.255.255.0).

#	TYPE	DATABASE	USER	CIDR-ADDRESS	METHOD
#	IPv4	local	connections:		
Host	all		all	127.0.0.1/32	MD5
Host	all		all	192.168.123.000/24	MD5

After saving the file, all clients of your LAN can access the PostgreSQL database server, when restarting it.



Explicit note:
Backups of the database and machines have to be done

- Independently and
- Regularly!

Therefore ask your system administrator.

8.3 Energy saving options

Windows XP, Windows Vista und Windows 7 have extended options for saving energy. Some of these will shut down or standby the system after a certain user idle time. Please deactivate these options on the machine with the PostgreSQL database and the EASYControl netLog. The energy saving options for the CPU can be enabled.

9 EASYControl netLog

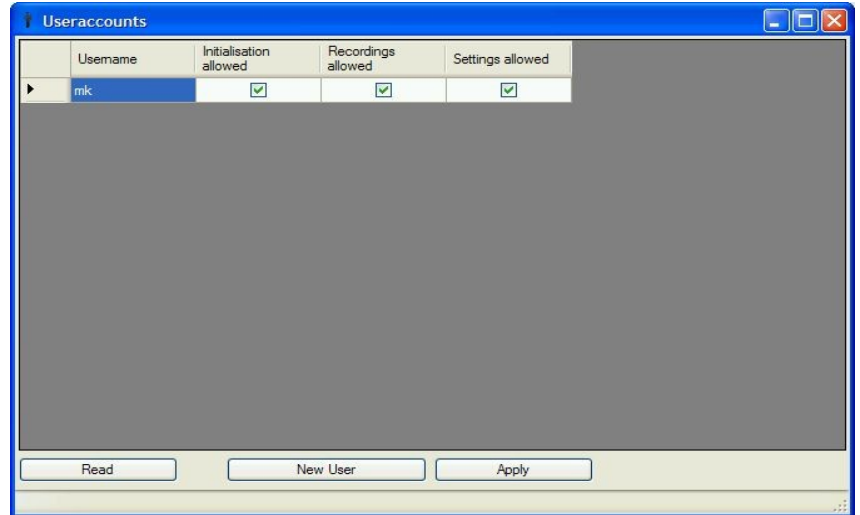
EASYControl netLog runs as an independent program.

9.1 Configuration

At the first start of EASYControl netLog you will be asked for the IP-Address and the port of the PostgreSQL Service. Then you are commanded to create a new user that can access EASYControl netLog.

9.2 Useraccounts

“Useraccounts” will open the useraccount administration window. All users and the rights will be listed there. Changes will be applied by pressing „Apply“.



Users can not be deleted! This is not possible because of the protocol affiliation. For example if the user “John Doe” leaves the firm, all actions he had done before should be still traceable.

Created users can be locked out by the superuser ‚postgres‘. Users locked out can no longer access the database.



A new user has no rights by default. The rights have to be allocated individually. Be careful when allocating user-rights. Do not give all user-rights to every user!

9.2.1 User-rights

The user-rights forbid some actions. So a user can not accidentally change the System. EASYControl netLog can only be closed by users with all user-rights

Initialisation

The system as well as the interface settings can be changed.

Settings

Module-settings like cycle time can be changed.

Recordings

Recordings can be started or stopped.

9.3 Handling

Everything except the user-administration is changed in EASYControl netIllustrator.

10 EASYControl netIllustrator

EASYControl netIllustrator runs as an independent program. It is the user interface to the measured data. Here sensors can be configured, recordings can be started and stopped.

10.1 Connection to EASYControl netLog

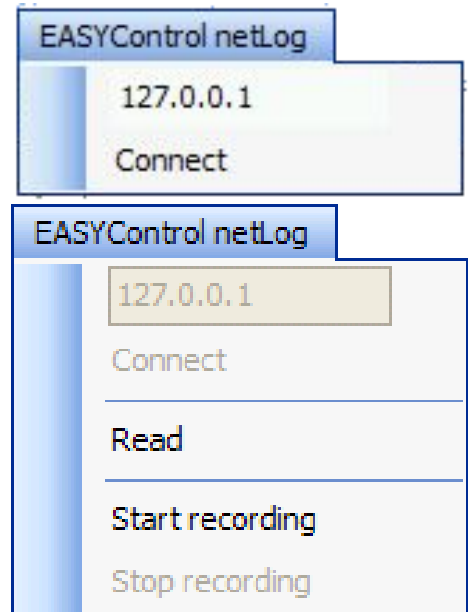
EASYControl netIllustrator needs a network connection to EASYControl netLog and to the database. All settings are changed in EASYControl netLog, so it is possible for more users working on one system at the same time.

10.1.1 Configuration

A connection to EASYControl netLog has to be established. In the menu on top open EASYControl netLog and enter the IP-Address on that EASYControl netLog listens to clients. If it runs on the local PC, it is "127.0.0.1" („loopback-address"). You will be asked for a user login, this can be any of the users created in EASYControl netLog. After connecting to EASYControl netLog the menu items "Read", "Start recording" and "Stop recording" will occur.

10.1.2 Handling

After successfully established a network connection between EASYControl netIllustrator, EASYControl netLog and the database, on the left side all interfaces are listed. Here all Modules and channels will also be shown. Configuration of channels can be done by right clicking the icon. To start or stop a record click on "Start recording" or "Stop recording"



10.2 Interfaces

EASYControl net supports the GREISINGER electronic GmbH E.A.S.Y.Bus® by default. With "EASYControl netLog" "Read" all Interfaces and modules connected to EASYControl netLog will be searched. EASYControl netLog will perform this scan on every restart showing always the current system. The "cycle time" and "use channel in recording" will be load from the database.

10.3 Modules and channels

In the module-list every channel can be right clicked to open the setting menu. At first a quick menu is shown, with "extended" an extended menu is shown, allow setting, name, description etc.

10.1 Switching- and alarm modules

EASYControl net supports EASYBus 'EBB Out' switching modules by default. These Modules can have 2 or 4 relay outputs. There are two versions, bus-powered or with external power supply. Pro of the bus powered version is that only a 2-wire-EASYBus-connection is needed. The power supply of the (bistable) relays is done directly with the EASYBus. Technically setting of the output may be delayed (up to 2 seconds)

Modules external power supply will change the output instantly (up to 0.1 seconds), but you need an external 12V power supply.



Please use a controller of the GIR 2000 family series with EASYBus connection for:

- Complex control loops like PID or
- Offline control without a PC

Different channels can be assigned to a switching module. The EBB Out is not limited to EASYBus-channels. Every channel that generates a min or max alarm can be used.

Only keep in mind that an EBB Out cannot be used for fast switching operations it is limited because of the EASYBus. It is only useful for slow systems like fans, damper register and things like that.



When having more than 20 EASYBus-channels an extra interface for the EBB Out is recommended. Every change of the output will result in interrupting the recording shortly. It might happen the cycle time of some channels cannot be exactly kept.

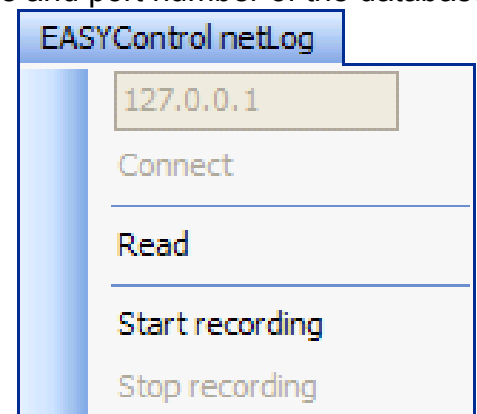
11 Quick start guide for EASYBus and single seat installation

Connect an EASYBus Converter to your PC and the EASYBus modules.

Initialize and configure the EASYBus (e.g. on COM1) with the **EASYBus-Configurator**.

Start **EASYControl netLog**. Keep the default value for IP-address and port number of the database (127.0.0.1 port 5432). Create a new user (e.g. „User“, „Password“) give him all available user rights.

Start **EASYControl netIllustrator**. Click on “EASYControl netLog” and “Connect” (keep the IP-address on default 127.0.0.1). Enter a valid and existing username and password (e.g. „User“, „Password“). After connecting successfully click on “Read” and wait until the search has finished. (Watch the progress bar on top of the interfaces). Click on “Start recording” and then on “View” -> “New Window” to open a table-view with all used channels.



12 Start and stop recordings

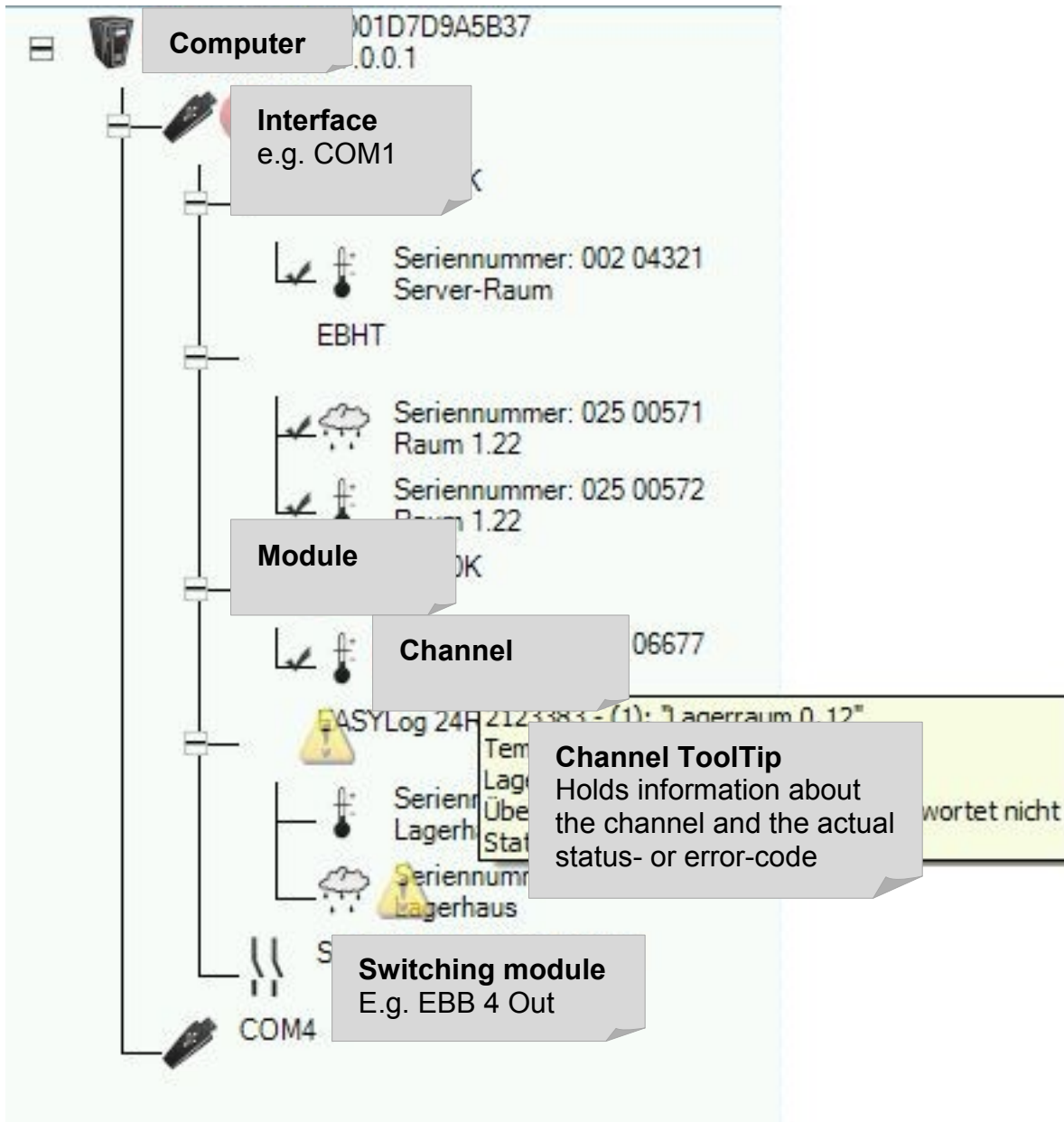
In the channel settings menu you can set the cycle time and check the ‘use channel in recording’ box. If a record is already running, an annotation is saved. Click on “Start recording” or on “Stop recording” in the “EASYControl netLog” menu to start or stop recording.

When a module has been found, the “Use channel in recording” flag is set automatically when no record is running. When a record is running, the flag is not set. The cycle time will be set to the last valid value from the database or a default value will be used (15 minutes for the EASYBus)

13 Handling

13.1 Tree view

All settings are opened with a right click on the Icon.



13.1.1 Computer

Here the IP-Address and MAC-Address of the EASYControl netLog is shown

13.1.2 Interface

The Interface of the measuring system

13.1.3 Modules

Each Module contains channels. If there are channel-comprehensive settings they will be opened here.

13.1.4 Channels

The channels are the sources of the measuring values. At first a quick menu is shown. Here the cycle time can be chosen and the channel can be added to the actual recording. The button "extended" opens a new menu where a Name, a description and depending on the channel functionality some other settings can be shown or changed. When a value is changed and the "Apply" button is pressed all changes will be sent to the channel. When a channel won't accept a value an error message will occur.

13.1.5 Switching module

Switching modules react on the state of channels. The switching output (or relays-output) is changed only when a record is running. When no record is running the output state is not changed by the program.

Channels can be assigned via Drag&Drop to each output.

In the tab "Switching-Module" a description and name can be assigned. For each Output an extra tab "Channel" will be shown.

In the "Channel" tab you can assign and configure the desired switching function.

Min.- and max.-alarm supervision

Assign channels to the "Channel-List" via Drag&Drop.

Each channel in the list will be monitored and the output will be changed depending on the selected output state.

Changes are made when you click on the 'Apply' button. The output state will only change when a record is running.

The image displays three overlapping windows from the EASYLog 40K software. The top window, titled "002 02683 - EASYLog 40K", shows the "Channel" configuration tab. It includes sections for "Record Informations" (with a checked "Use channel in recording" and a "Cyclotime" of 1.5 min), "Measuring Informations" (Temperature range: -25.0 to 60.0 °C), and "Display Informations" (Temperature range: -25.0 to 60.0 °C). A yellow tooltip titled "Channel Information" is overlaid on this window, showing details for "Storage Room 1 Temperature" (Moduletype: EASYLog 40K, Channel: 1, Serialnumber: 002 02683). The bottom window, titled "090 00110 - EBB-OUT (Switching-Module)", shows the "Channel" tab for "Min.- and max.-alamsupervision". It features "Supervision" settings (Normal State: Min-/Max-Alarm, Normal State Error State: Off) and a "Channel-List" table:

Serialnumber	Name	Min-Alarm	Max-Alarm
023 00545	Storage Room 1 Humidity	0.0 [% RH]	100.0 [% RH]
023 00546	Storage Room 1 Temperature Cell 1	-25.0 [°C]	60.0 [°C]

The bottom window also shows a "Username" field with "mk" and an "Apply" button.

14 Visualisations

Click in "View" -> "new Window" to open a new window. The Table view with all used channels will open as default. Now you can select between the settings in the drop down box.

The channel assignment for single channel views can be done via Drag&Drop from the module list or with a drop down box. Multichannel views have different selections.

Whenever "online view" is displayed, the visualisation itself tries to catch the actual value from the database.



All Visualisations are directly connected to the database and are calculating the optimum update time to refresh the values. It may be possible that the Visualisations will not refresh the value at the same time.

14.1 Tachometer

Refreshing of the values depends to the cycle time. The actual value in the database will be shown.

Advantages:

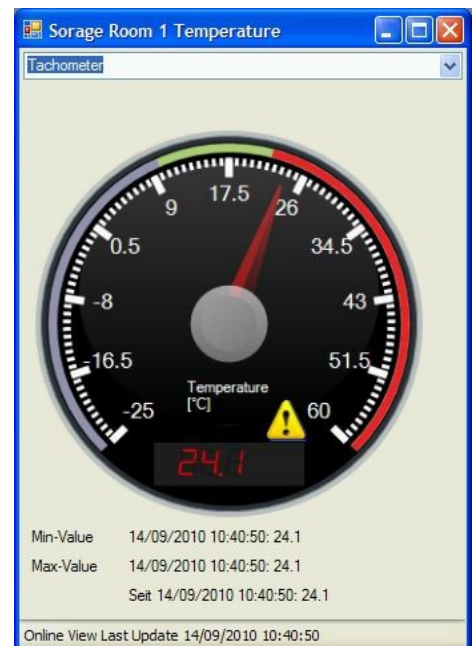
- Overview of the complete measuring range
- Overview of the complete alarm range
- Quick evaluation of the measured value
- Blinking warning- and error-symbols
- Blinking alarm ranges when exceeding the limits
- Digital display, measuring kind and unit
- Min.- max.- and mean from start of the visualisation.

Handling

Simply drop a channel from the module list, or select the module from the drop down box.

Settings

With "Use display range from database" the range is directly loaded from the module. A different range can be selected by setting the Min- and Max-Value to the desired value. "Display alarm range" will show the Min- and Max-Alarm as blue or red segment. "Alarms active" will show "Optic alarms" in the Visualisation.



14.2 Digital

Refreshing of the values depends to the cycle time. The actual value in the database will be shown.

Advantages:

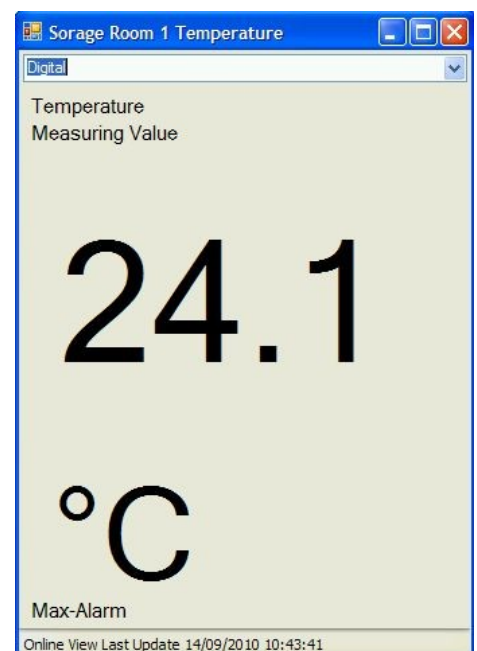
- Value as big text
- Measuring kind and unit
- Clear text error- and status messages

Handling

Simply drop a channel from the module list, or select the module from the drop down box.

Settings

No settings are available for this visualisation.




14.3 Table

Displays value, status- and error-code of one or more channels. Refreshing of the values depends to the cycle time of the channel. The actual value in the database will be shown.

Advantages:

- Fast overview of more channels
- Quick evaluation of status- and error-code for each channel.
- Clear text status- and error-message display



	Serialnumber	Name	Time	Measuring Value	State
	023 00495	Clima Chamber 1 Humidity	14/09/2010 10:55:14	46.7	OK
	023 00496	Clima Chamber 1 Temperature	14/09/2010 10:55:17	24.4	OK
	023 00520	Clima Chamber 2 Humidity	14/09/2010 10:55:30	44.5	OK
	023 00521	Clima Chamber 2 Temperature	14/09/2010 10:55:33	25.0	OK
	023 00545	Storage Room 1 Humidity	14/09/2010 10:55:43	47.6	OK

Online View Last Update: 14/09/2010 10:55:07

Handling

Everything is attached automatically. No settings have to be done.

Settings

No settings are available for this visualisation.

14.4 Chart

Here a chart of one or more channels is displayed. Refreshing of the chart series depends to the cycle time of the module.



Advantages:

- Quick overview of all channels
- Quick evaluation of channel errors and peaks
- Quick evaluation of values, trends according to different channels
- Tooltips for each measured value
- Clear text status- and error-message (displayed in the tooltip)

Handling

The channels to be displayed are selected by clicking on "Channel selection"

Settings

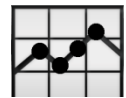
Scaling of axis, line- and symbol style and colours are set with a right click on the chart.

Channel selection

Here the channels can be selected. The channels are unit-sorted, so you can easily create a chart with only "°C" curves. In the "Time selection" a "Fixed scaling" or an "Online view" can be selected. The "Online View" can "Load older data in Online-View" or run in "Stylus mode" displaying a time slot of e.g. 45 minutes. The default setting is an "Online View" in "Stylus mode" with a time slot of 45 minutes

**Toggle symbols**

Displays symbols for each measuring point.

**Toggle chart legends**

Displays chart legend information.

**Zoom**

Activates the zoom mode.

This shows all axes of the diagram for zooming.

All selected axes will be zoomed, so e.g. only the time axis can be zoomed.

The axes will only be shown after the channels have been selected.

Zoom 1:1 resets the zoom to default.

**Generate report**

The report contains all data of the zoomed chart.

The report can only be shown after the channels have been selected.

You can change the name of the report, add header and footer lines, a logo (a JPEG, GIF, BMP, PNG or ICO file), a description and select if a complete table should be included. The Report can be exported as an Excel, Word or PDF file.



15 Legal Notes

Commonly all products, company names, brand names, trademarks and logos mentioned in this document are the property of their respective owners.

E.A.S.Y.Bus and the EASYBus Logo is a trademark or registered trademark of „GREISINGER electronic GmbH“.

Microsoft, Windows the Windows Logo, Windows XP, Windows Vista and Windows 7 as well as .net and the .net Logo are trademarks or registered trademarks of the “Microsoft Corporation” in the United States of America and other countries.

PostgreSQL is a trademark or registered trademark of the "PostgreSQL Global Development Group" (<http://ftp.postgresql.org/>) with licenses of the "University of California".

PostgreSQL, used in this Software, is published under the PostgreSQL License.

All Licenses above are listed in „16 Additional Licenses“.

16 Additional Licenses

16.1 PostgreSQL

PostgreSQL Database Management System
(formerly known as Postgres, then as Postgres95)

Portions Copyright (c) 1996-2010, The PostgreSQL Global Development Group

Portions Copyright (c) 1994, The Regents of the University of California

Permission to use, copy, modify, and distribute this software and its documentation for any purpose, without fee, and without a written agreement is hereby granted, provided that the above copyright notice and this paragraph and the following two paragraphs appear in all copies.

IN NO EVENT SHALL THE UNIVERSITY OF CALIFORNIA BE LIABLE TO ANY PARTY FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING LOST PROFITS, ARISING OUT OF THE USE OF THIS SOFTWARE AND ITS DOCUMENTATION, EVEN IF THE UNIVERSITY OF CALIFORNIA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

THE UNIVERSITY OF CALIFORNIA SPECIFICALLY DISCLAIMS ANY WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE SOFTWARE PROVIDED HEREUNDER IS ON AN "AS IS" BASIS, AND THE UNIVERSITY OF CALIFORNIA HAS NO OBLIGATIONS TO PROVIDE MAINTENANCE, SUPPORT, UPDATES, ENHANCEMENTS, OR MODIFICATIONS.

16.2 Npgsql - .Net Data Provider for Postgresql

Copyright (c) 2002-2010, The Npgsql Development Team

Permission to use, copy, modify, and distribute this software and its documentation for any purpose, without fee, and without a written agreement is hereby granted, provided that the above copyright notice and this paragraph and the following two paragraphs appear in all copies.

IN NO EVENT SHALL THE NPGSQL DEVELOPMENT TEAM BE LIABLE TO ANY PARTY FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING LOST PROFITS, ARISING OUT OF THE USE OF THIS SOFTWARE AND ITS DOCUMENTATION, EVEN IF THE NPGSQL DEVELOPMENT TEAM HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

THE NPGSQL DEVELOPMENT TEAM SPECIFICALLY DISCLAIMS ANY WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE SOFTWARE PROVIDED HEREUNDER IS ON AN "AS IS" BASIS, AND THE NPGSQL DEVELOPMENT TEAM HAS NO OBLIGATIONS TO PROVIDE MAINTENANCE, SUPPORT, UPDATES, ENHANCEMENTS, OR MODIFICATIONS.