

HSMonitor

for the

Gira

HomeServer and FacilityServer

DaCom HomeAutomation

2007 2009

Summary

Introduction	3
Function	3
Compatibility	3
Installation / Start-up	3
external access	4
Logging	4
Important Information	4
Support	4
Masks	5
Main mask C-Objects	5
Protocol mask	8
Settings Mask	9
Information about SQL-Databases	12
SQL-table	13
Communication protocol	14
IP telegram	14
Protocol	14
Structure	14
Establish a connection	15
Protocol initialization	16
Protocol Ping	16
Protocol set value	16
Plain text names of c-objects	17
Program version-history	20
Documentation version-history	21
Disclaimer	22

Introduction

This program is used exclusively as a **demonstrator** for the "Communication Object Gateway" (KO-Gateway) for the interface provided by the HS/FS. No other operating guarantee is given. The source code can be requested at the following E-mail address: hsmonitor@dacom-ha.de. Please specify your name and address.

Function

This PC program receives IP telegrams from the Gira HS/FS. Each telegram contains a group address and a value. These are sent by the HS/FS via the LAN. The telegrams are shown in an overview (summary). In addition, the program also enables the chronological display of the received telegrams. The telegrams can be saved as a protocol file. In addition to the group address, the name of the communication object (K-Object) and other information can also be sent to this program during the initial login (option in HS/FS Expert).

Compatibility

From HS/FS Version 2.2.x.
In older versions there is no KO-Gateway.

Installation / Start-up

The actual setup for the current version is available here: <http://www.dacom-homeautomation.de/labs>

The software has been developed for Microsoft Windows XP. Other operating systems were not tested and are not supported.

Install the Microsoft .net-Framework 2.0.

Copy the program HSMonitor.exe to any desired directory.

Note: The program is part of the Expert 2.2.x setup.

Activate the function for data exchange in the *HS/FS Expert* under *Project/Network/Communication object gateway*.

By using SQL-databases some additional Files are needed (see below).

If you are using the HSMonitor on an external HS / FS access, You should note that your IP address is dynamic and for every access is different.

external access

Therefor, you must register under

project settings

project settings

network

KO-Gateway

a sender with the IP address 0.0.0.0 and netmask 0.0.0.0 .

(For details, the HS/FS-experts – help function can be used.

To prevent unauthorized access, set up a password.

See "mask settings", box "[Schlüssel / Key](#)".

A file "log.txt" in the installation directory of the HSMonitors is created there.

Logging

Internal operations and errors are logged in this file.

If a connection is aborted, the program automatically attempts to re-establish a connection to the HS/FS.

Important Information

Connection costs may result if access is carried out via the Internet.

KO-Gateway of HS/FS supports up to 10 simultaneous connections (f.i. with HSMonitor).

Support questions, suggestions and remarks are only accepted and answered via email.

Support

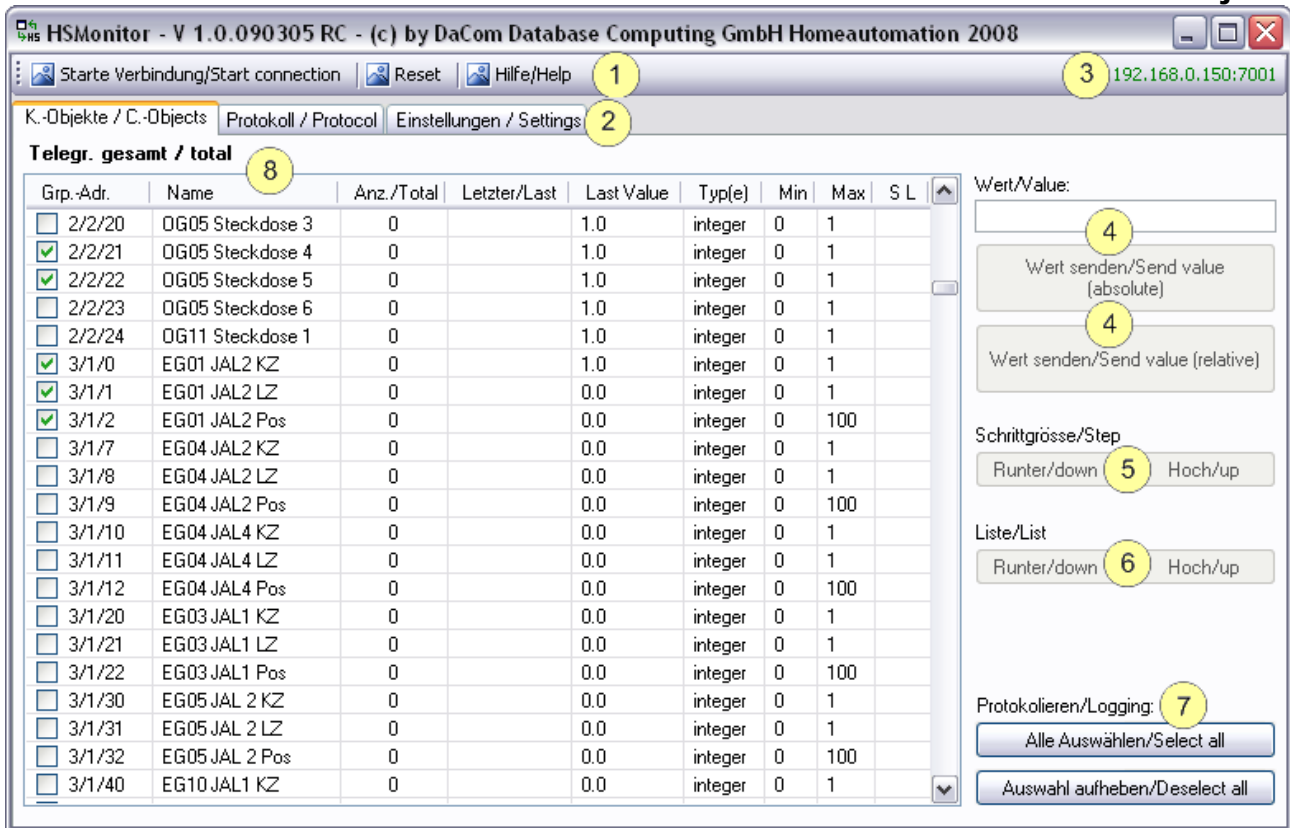
Please use this email-address:

hsmonitor@dacom-ha.de

Gira does not support HSMonitor!

Masks

Main mask
C-Objects



Beende Verbindung / close connection:

The connection to the HS/FS is terminated.

Point 1 - Mainmenu

Starte Verbindung / start connection:

The connection to the HS/FS is established.

Reset:

All values in the list are set to zero and the list is completely reloaded from the HS/FS.

Hilfe/Help:

Documentation "hs_monitor.pdf" is called.

This is used to toggle between the masks.

Point 2 - Tabs

Display of IP address and IP port
(Expert/Project/Communication object gateway/Local IP port)
of the HS/FS.

Point 3 - IP-Address

Meaning of the font color:

Green IP connection is OK

Red No IP connection to the HS/FS

Orange HSMonitor is trying to establish a connection to the HS/FS

If a SQL-database is used, the following messages will appear:

- SQL-Verbindung/Connection
- Keine/No SQL-Verbindung/Connection

The value to be sent is entered here.

Point 4 - Wert/Value

The value of this group address can be changed by marking a line. The condition is that the release in the Expert (Communication objects/Receive communication object gateway or Project/Communication object gateway/ Activate reception for all communication objects) has been activated.

Wert senden / send value (absolute):

The group address will be sent an absolute value.

Wert senden / send value (relative):

The current value of the group address is increased relatively.

The value of the communication object can be changed by one step with these buttons (see Expert/Communication objects).

*Point 5 -
Schrittgröße/Step*

Runter / down:

decrease value

Hoch / up:

increase value

The current value of the communication object can be set to the next value from the list with these buttons (see Expert/Communication objects).

Point 6 - Liste/List

Runter / down:

set next value in direction of beginning of list

Hoch / up:

set next value in direction of end of list

Switch for addressing all group addresses. The marked group addresses are shown in the *Protocol* mask.

*Point 7 -
Protokollieren/Logging*

Alle auswählen / select all:

Mark all

Auswahl aufheben / deselect all:

Remove all markings

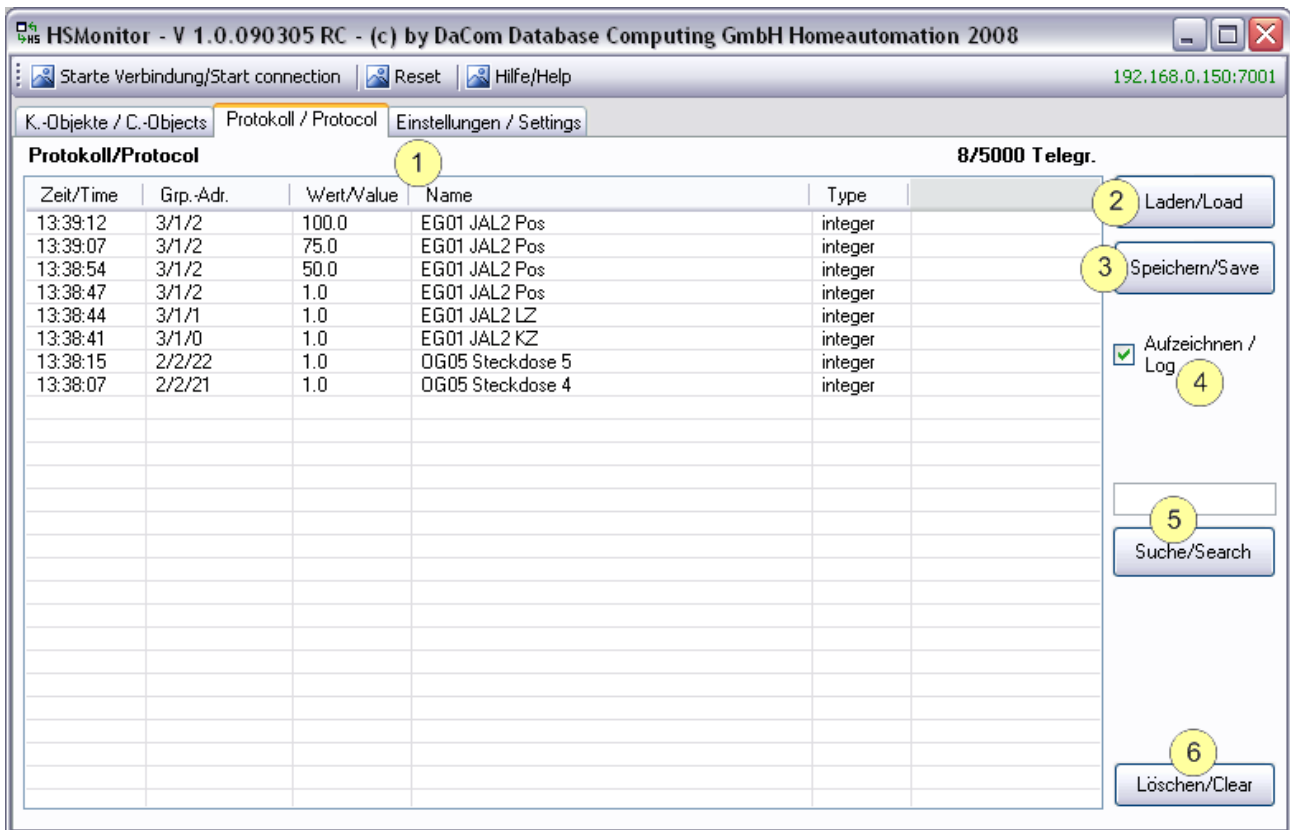
List of all received IP telegrams, grouped by group address.
The list can be sorted by double-clicking on the column header.

Point 8 - Columns

This group address can be added to the *Protocol* (Mask 2) by clicking on the box in the Group address field.

SL column: Marking for *Step* and *List*

Protocol mask



List of all received telegrams which were selected in the main mask. The list is sorted in chronologically descending order. Resorting is not possible.

Point 1 - Protokoll/Protocol

A saved protocol can be loaded for the analysis. Then (4) Log should be deactivated.

Point 2 - Laden/Load

The protocol can be saved. (Format: XML)

Point 3 - Speichern/Save

Incoming telegrams are shown.

Point 4 - Aufzeichnen/Log

Full text search through the list.

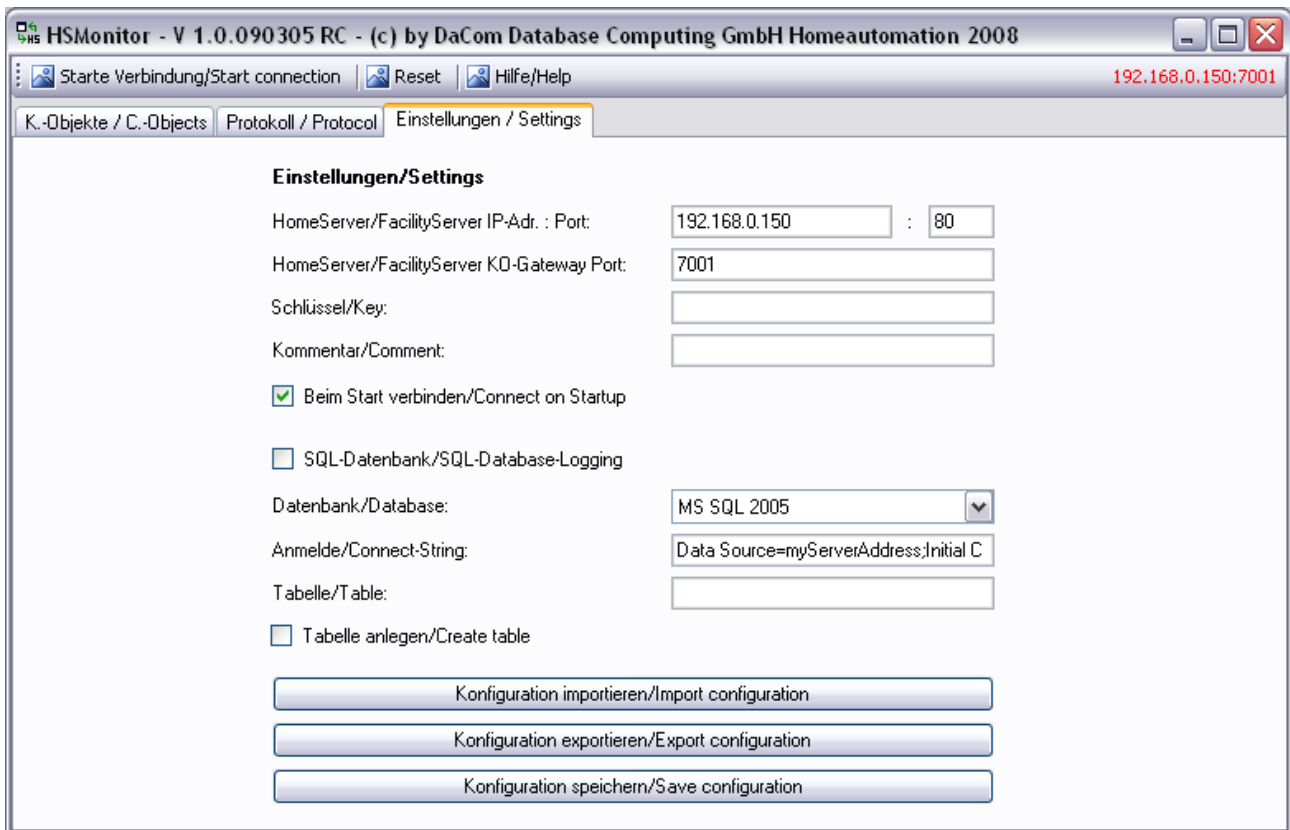
Point 5 - Suche/Search

If a search term occurs several times, then the next match is marked when the function is actuated again. The search term need not be specified in full.

This completely deletes the list.

Point 6 - Löschen/Clear

Settings Mask



A configuration can only be loaded, stored or processed, if no connection to the HS/FS exists.

Important note

(IP address is displayed in **red**)

IP address of HS/FS.

HomeServer / FacilityServer IP-Addr.

!Note: At this point, specifying a DynDNS name (or similar) **is not possible**. There must be entered a real IP address.

The HSMonitor receives the IP telegrams from the HS/FS on this port.

Port

The HS/FS sends via this port (this is set identically in the HS/FS Expert/Project communication object gateway).

HomeServer / FacilityServer KO-Gateway-Port

Code for access (this is set identically in the HS/FS Expert/Project communication object gateway).

Schlüssel / Key

Additional saving of all messages in a SQL database

SQL-Datenbank / SQL-Database-Logging

Choice of 3 possible databases:

Datenbank/Database

MS-SQL 2005 - MySQL - SQLite

To respond to the databases, the following files have to exist in the directory of HS-Monitor:

If using MySQL: `MySql.Data.dll`

If using SQLite: ***SQLite3.dll*** and ***SQLite.NET.dll***

The database-registration is done with this text.
If the field is empty, so the respective text to registration is proposed.

Anmelde / Connect-String

MS-SQL 2005:

*Data Source=****myServerAddress***;

*Initial Catalog=****myDataBase***;

*Integrated Security=****True***

MySQL:

*Server=****myServerAddress***;

*Database=****myDataBase***;

*Uid=****myUsername***;

*Pwd=****myPassword***;

SQLite:

*Data Source=****mydb.db***;Version=3;New=True;

Note: If the database exists, you have to set "New=False".

If "New=True" is set in an existing database, an error message will appear.

More information in chapter "[Information about SQL-Databases](#)".

Name of the table where the data should be saved.

Tabelle / Table

This option allows the HS-Monitor automatically create a table. The above-specified table name is used. If the table exists, it will not be deleted or not created. The records are appended.

Tabelle anlegen / Create table

A saved configuration can be imported.

*Konfiguration
importieren /
Import
configuration*

The following settings are loaded:

- HS/FS-IP
- HS/FS-Port
- HS/FS-Port of Gateway
- Key
- Comment
- Connect at startup
- SQL-Database-Logging
- Database
- Connection-String
- Table
- Create table

This is a configuration as an XML file.

*Konfiguration
exportieren / Export
configuration*

This file must be given a name.

This saves the settings.

*Konfiguration
speichern / Save
configuration*

**Information about
SQL-Databases***MySQL*

Tested with WAMP Server 1.6.4 and with XAMPP (Basic package) version 1.6.4 beta 3 (for Windows)

WAMP Server 1.6.4:

(MySQL Version "MySQL - 5.0.22-community-nt")
<http://www.wampserver.com/en/>

XAMPP 1.6.4 beta 3:

contains (et al.):

- Apache 2.2.6
- MySQL 5.0.45
- PHP 5.2.4 + PHP 4.4.7 + PEAR
- SQLite 2.8.15
- phpMyAdmin 2.11.1

<http://www.apachefriends.org/en/xampp.html>

For the connection to MySQL, we used the Connector/Net 1.0 (.NET) driver for MySQL.

<http://dev.mysql.com/downloads/connector/net/5.0.html>

This is licensed under the GPL.

Tested with SQLite Database Browser (Version 1.3)

SQLite

<http://sqlitebrowser.sourceforge.net/>

Tested with Visual Studio 2005 (Microsoft Visual C# 2005)

*MS SQL Server
2005*

Information and examples can be found here:

Connection Strings

<http://www.connectionstrings.com/>

SQL-table

Here is a sample table.

"hsmonitor_test_sql" is selected as name for the table, the database is called "ko_gateway".

Example for connect-string:

Connect-String

`Server=192.168.0.175;Database=ko_gateway;Uid=hsm;Pwd=;`

or

`Server=localhost;Database=ko_gateway;Uid=hsm;Pwd=;`

The resulting table contains 6 fields. Information about the fields you can find on the following graph

Structure

graph

Server: localhost Database: ko_gateway Table: hsmonitor_test_sql

Field	Type	Collation	Attributes	Null	Default	Extra
<input type="checkbox"/> id	int(11)			No		auto_increment
<input type="checkbox"/> time	timestamp		ON UPDATE CURRENT_TIMESTAMP	No	CURRENT_TIMESTAMP	
<input type="checkbox"/> ga	text	latin1_general_ci		Yes	NULL	
<input type="checkbox"/> value	text	latin1_general_ci		Yes	NULL	
<input type="checkbox"/> name	text	latin1_general_ci		Yes	NULL	
<input type="checkbox"/> type	text	latin1_general_ci		Yes	NULL	

With selected:

1 field(s)
 At End of Table
 At Beginning of Table
 After id

Indexes: 0					Space usage		Row Statistics	
Keyname	Type	Cardinality	Action	Field	Type	Usage	Statements	Value
PRIMARY	PRIMARY	0	<input type="button" value="Edit"/> <input type="button" value="Delete"/>	id	Data	0 B	Format	dynamic
Create an index on 1 columns <input type="button" value="Go"/>					Index	1,024 B	Collation	latin1_general_ci
					Total	1,024 B	Rows	0
							Next Autoindex	1
							Creation	Feb 26, 2009 at 02:07 PM
							Last update	Feb 26, 2009 at 02:07 PM

For this example, a XAMPP-installation and the Firefox 3.0.3 is used. Newer XAMPP-or WAMP-installations as well as when using other browsers may be different in appearance.

In this paragraph the communication with KO-gateway of the HS / FS is described. You can connect an own software to the HS/FS with this protocol. In case of any change of designated communication objects, the HS / FS will send an IP-Telegram. The Communication object gateway function is integrated in the HS/FS firmware from Version 2.2.

Communication protocol

Data can be exchanged between the HS/FS via TCP with the following protocol and telegram structure.

IP telegram

A telegram consists of a zero-terminated string (only ASCII characters with 0x00 as a separator between the telegrams)

Protocol

TCP

ANSI Encoding 1252; here the zero byte is not permissible in the data section

Structure

This part of the telegram can have the following values: 1 Follow telegram 2 Initialization telegram 99 Ping (HS/FS operating, is sent on request)	<i>Telegram type</i>
(ASCII 124)	<i>Separator</i>
Converted as integer (n) from group format x/y/z is converted $n=x*2048+y*256+z$ x/z is converted $n= x*2048+z$	<i>Group address</i>
(ASCII 124)	<i>Separator</i>
value of the c-object as a string The data may contain all values from Chr(1) to Chr(255).	<i>Value</i>
0x00	<i>End</i>

Establish a connection

Establishment

- Establishment of the TCP connection (HS/FS is the server). The port set in the Expert under Project/Communication object gateway is used as the target port.
- After the connection to the HS/FS is established, the code must be sent followed by 0x00 for authentication. If no code is used, only 0x00 must be sent.
- The HS/FS replies with the initialization telegrams. In the process, all marked communication objects (Expert/Project/Communication object gateway) are transferred with their current value.

- If a marked group address changes on the HS/FS, it automatically transfers this value in the format of the response telegram (see above).

on runtime of HS/FS

To check the availability of the HS/FS, a telegram with the following structure must be sent to the HS/FS:

Options of the "client program"

99||0x00





The HS/FS replies to this with the same telegram.

Other functions can be run with the following telegram:



Status number|Numeric group address|Data (optional) 0x00

Status number	Description	Data
1	set absolute value	Float or Text
2	set relative value	Float
3	Step+	empty
4	Step-	empty
5	List+	empty
6	List-	empty


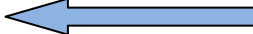
Protocol initialization

PC with HSMonitor		HS/FS with activated KO-Gateway
Establishing TCP connection		
Authentication to HS/FS (Example: key="flower")	 flower<0x00>	
	 2 Decimal value_Grp-adr Value<0x00>	The HS/FS replies with the initialization values of all marked C-Objects.
		...

Protocol Ping

PC with HSMonitor		HS/FS with activated KO-Gateway
Ping	 99 <0x00>	
	 99 <0x00>	Reply with Ping

Protocol set value

PC with HSMonitor		HS/FS with activated KO-Gateway
Set value as response telegram	 Status number Decimal_value_Grp-adr Value<0x00>	
	 2 Dezimalwert_Grp-adr Wert<0x00>	Reply by HS/FS with current value of communication object. The condition is that the release in the Expert (Communication objects / Send communication object gateway or Project / KO-Gateway / Activate sending for all c-objects) has been activated.

The names of the communication objects can be called as an XML file in the directory

Plain text names of c-objects

`http://<HSIP>:<HSPORT>/hscl?sys/cobjects.xml`

! Note: <HSPORT> is set under *Expert/Project/Network/IP port*

Data structure of the XML-File:

```
<object id="911" used="0" type="eib"
path="01 Lights\2nd Floor\" fmt="EIS1+EIS2+EIS7 1BIT"
fmtex="integer" name="Floor02 Light" rem="0" init="0"
min="0" max="1" step="0" list="" ga="1/2/1" ganum="2561"
cogws="1" cogwr="0" scan="1" sbc="1" read="0"
transmit="1"/>
```

All fields are edited in the HS/FS Expert in the program item Communication objects. Details on the fields are contained in the online help function of the communication objects.

! Note: This data will be sent even if the setting of the IP port (HomeServer / FacilityServer KO-Gateway-Port) is wrong.

Unique number of the communication object	<i>id</i>
1=Communication object is used in the project. 0=not used.	<i>used</i>
Type of communication object "internal"= internal communication object "eib"= EIB communication object	<i>type</i>
Folder in which the communication object is saved in the HS/FS Expert.	<i>path</i>

<p>Data format 1</p> <p>Plain text (texts are located in the file <i>minmax.txt</i> of the Expert-Folder <i>"/dat"</i>)</p> <p><i>EIS1+EIS2+EIS7_1BIT</i> <i>EIS6_8BIT</i> <i>NONEIS_8BIT_RTR</i> <i>EIS5_16BIT</i> <i>EIS2+EIS6_8BIT</i> <i>EIS?_8BIT</i> <i>EIS10_16BIT_UNSIGNED</i> <i>EIS10_16BIT_SIGNED</i> <i>EIS11_32BIT_UNSIGNED</i> <i>EIS11_32BIT_SIGNED</i> <i>EIS?_14BYTE</i> <i>EIS3_3BYTE_TIME</i> <i>EIS4_3BYTE_DATE</i> <i>EIS?_4BIT</i> <i>EIS9_4BYTE</i> <i>EIS8_2BIT</i> <i>EIS?_DALI</i> <i>EIS?_SRO</i></p>	<i>fmt</i>
<p>Data format 2</p> <p><i>integer</i> <i>number</i> <i>text</i> <i>date</i> <i>time</i> <i>unknown</i></p>	<i>fmtex</i>
Name of the communication object	<i>name</i>
1=retentive in the HS/FS 0=not retentive	<i>Rem</i>
Initialization value	<i>init</i>
Minimum value	<i>min</i>

Maximum value	<i>max</i>
Step size	<i>step</i>
List	<i>list</i>
Group address as entered in the HS/FS Expert	<i>ga</i>
Group address converted to a decimal value	<i>ganum</i>
Send KO-Gateway	<i>cogws</i>
Receive KO-Gateway	<i>cogwr</i>
1= Query during startup 0= Do not query during startup	<i>scan</i>
1= Send by Change 0= No Send by Change	<i>sbc</i>
1= can be read out 0= cannot be read out	<i>read</i>
1= transfer 0= do not transfer	<i>transmit</i>

**Program
version-history****Version of 03/05/2009***v1.0.090305 RC*

- English Text in tab "K-Objekte / C-Objects" corrected
- Documentation changes

Version of 06/05/2008*v1.0.080605 RC*

- HSMonitor logs internal processes and errors in the file 'log.txt'

Version of 04/17/2008*v1.0.080417 RC*

- Bug with double displayed K-objects is corrected
- Trail to Help-File (Help button) is corrected

Version of 12/06/2007*v1.0.071206 RC*

- Errors in advice of K-objects are corrected

Version of 09/24/2007*v1.0.070924 RC*

- Save the configuration

Version of 08/30/2007*v1.0.070830 RC*

- SQL-database-connection
- Review of K-Obj. List in connection with many K-objects
- Help

Version of 12/15/2006*v1.0.061215 RC*

- Revision of the masks and functions
- New functions: Set the step, list and value to relative

Version of 12/01/2006*v1.0.061201 RC*

- Revision of the masks and the protocol

First published on 09/06/2006*v1.0.060906 RC*

Filename: hs_monitor_doku_en.pdf

Documentation version-history

Version of 02/26/2009 for program version v1.0.080605_1 RC

v0.99

- Additional translations
- New chapter "[external access](#)"
- [Note](#) for DynDNS names is added
- New chapter "[SQL table](#)"
- Paragraph "[MySQL](#)" is updated
- New screenshots to take care of the program changes

Version of 06/05/2008 for program version v1.0.080605 RC

v0.98

- New chapter: "[Logging](#)"

Translated and First published on 06/05/2008

v0.97

Disclaimer

© 2006 DaCom Database Computing GmbH, Biedenkopf (Germany). All rights reserved.

All information contained in this documentation has been put together following careful checking, however cannot be considered to be a guarantee of product properties.

DaCom Database Computing GmbH is solely liable to the degree specified in the Terms of Sale and Delivery.

Passing on and reproduction of the documentation and software belonging to this product and the use of its contents are only allowed with the written permission of DaCom Database Computing GmbH. We reserve the right to make technical changes for the purpose of improving the software.

Windows[®] and **Microsoft**[®] are registered trademarks of Microsoft Corp.

All other names and designations used can be brands or registered trademarks of their respective owners.

DaCom Database Computing GmbH reserves the right to change data without prior notice, and assumes no guarantee for technical inaccuracies and/or omissions.

The HSMonitor may only be used with the

- Gira HomeServer
- Gira FacilityServer
- Feller HomeServer
- Feller FacilityServer

It may be used freely in this context.

Any other use is prohibited!

The use occurs on own danger!

DaCom Database Computing GmbH

Am Roten Stein 9A

35216 Biedenkopf

Germany

www.dacom-homeautomation.de

Biedenkopf, October 2006