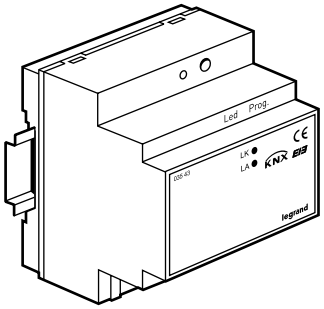
87045 LIMOGES Cedex France
Telephone: (+33) 05 55 06 87 87 - Fax: (+33) 05 55 06 88 88

IP communication module

Catalogue number(s): 0 035 43



CONTENTS Page

1. Functions 1
2. Technical features 1
3. Dimensions 1
4. Brief description of function modules 2
5. Device configuration 2
6. Presentation of the ETS configuration interface 2
7. Communication objects 3
8. Parameters 4
9. Using KNX functions 5
10. Configuration of KNX functions 6
11. Description of configuration 7
12. Restoring the factory configuration 10

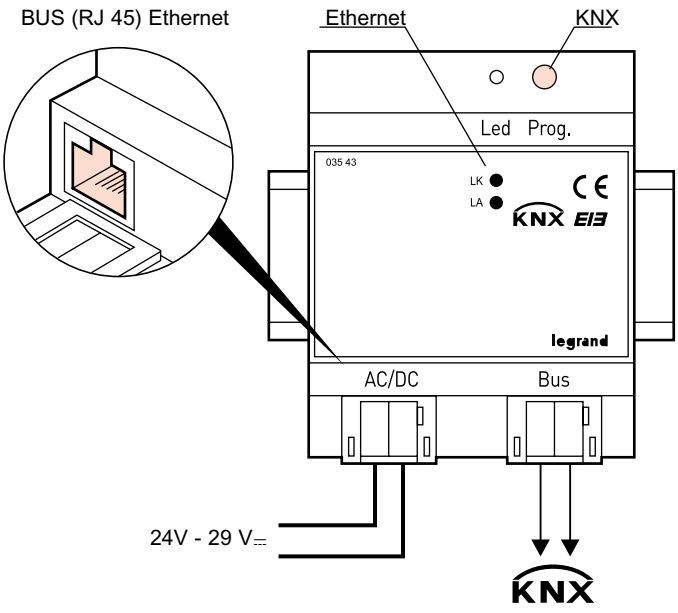
1. FUNCTIONS

The IP communication module is a KNX/IP gateway with an embedded Web server that can be used to control KNX systems. This interface can be used on any standard Web browser installed on a PC or a mobile device (PDA, mobile phone, etc).

In addition to a Web server, the interface has a KNX/IP connection and a connection to an object server that can be used in parallel.

Numerous different applications are then possible:
- Clear overview of 40 functions max. via the embedded Web server
- Commissioning, configuration and diagnostics of KNX installations via Ethernet with ETS
- Connection to any software based on KNX/IP in the Legrand KNX installation

2. TECHNICAL FEATURES



2. TECHNICAL FEATURES *(continued)*

Bus voltage: via BUS/KNX
Operating voltage: supplied by a safety extra low voltage (SELV) supply, nominal voltage of 27 V⎓/~
range of permissible input voltages 24 to 29 V⎓/~

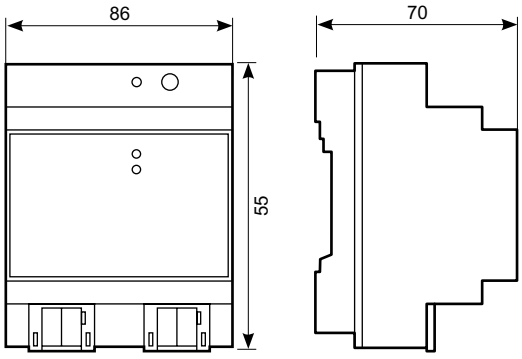
Power supply:
- 27 V~ supplied by power supply Cat. No. 0 035 67

Connections:
- KNX BUS line: screwless bus connection block (red-black) Ø 0.6 to 0.8 mm single-core wire stripped back approximately 5 mm
- Ethernet/IP network: RJ 45 socket
- Auxiliary power supply: screwless extra low voltage terminal (yellow-white) Ø 0.6 ... 0.8 mm single-core wire stripped back approximately 8 mm

Device mounted on DIN rail

Usage temperature: 0°C to +45°C
Storage temperature: -25°C to +70°C
Weight: 150 g
Impact resistance: IK04
Penetration by solid and liquid matter: IP20

3. DIMENSIONS



4. BRIEF DESCRIPTION OF FUNCTION MODULES

Online preview
The IP communication module has an embedded Web server. This server can be used to control and monitor any KNX installation connected via a standard browser, from a PC or mobile device (mobile phone, PDA, etc). Up to 40 KNX functions can be displayed on the runtime pages. Up to 80 communication objects are available for the functions. The functions are clearly displayed on a maximum of 5 pages. The communication objects are defined and assigned to group addresses in the usual way, via the ETS software. The display can be changed via a configuration Web page.

KNX/IP connection
Client software such as ETS based on the KNX/IP connection protocol can connect to the interface. KNX installations can thus easily be commissioned and configured via an IP network.

5. DEVICE CONFIGURATION

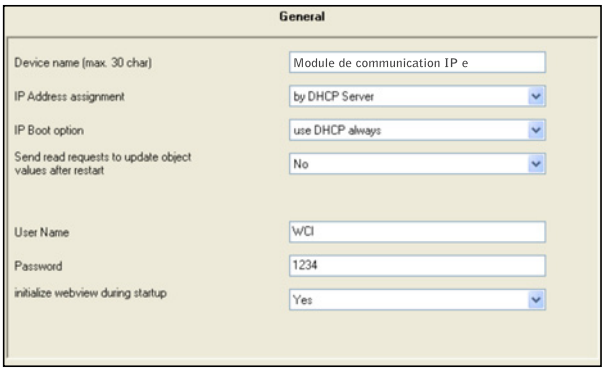
The device is configured using ETS software, in which the types of data for the 40 available functions are defined as well as the network parameters for communication with the connected IP network. All the layout and design parameters are set directly on the device using a browser.

The following functions are available for the ETS parameters:

- Not assigned
- Switch with feedback
- Switch without feedback
- 1 bit feedback
- Presence
- Dimming
- Shutter
- Relative value (0 to 100%)
- 1 byte value (0...255)
- 2 byte float (EIS 5)
- 4 byte float (EIS 9)
- 2 byte counter (EIS 10)
- 4 byte counter (EIS 11)
- Scene call/program 1 bit
- Scene call/program 1 byte

6. PRESENTATION OF THE ETS CONFIGURATION INTERFACE

A specific name is assigned to the device on the "General" page of the ETS interface configuration. Other general information concerning the device can also be entered here.



In particular it is possible to indicate here the identification type and how the IP address is assigned.
By default, the IP address is obtained from a DHCP server. If this option is disabled, the device is initialised with a configured IP address and subnet mask. In this case, it is also possible to use a standard gateway or router, making it possible to communicate with other users over the Internet or on a different network.

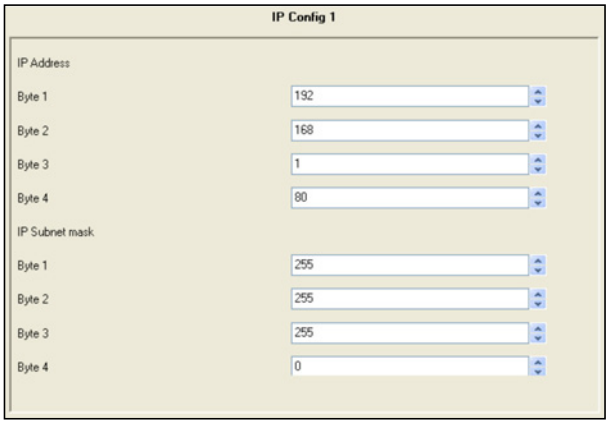
If the device is used as a preview server, we recommend using a fixed IP address so that the gateway can always be accessed via this address.

A user name and password can be configured to prevent unauthorised access to Web pages.

The user can decide, using an additional parameter, whether the parameters he has defined directly on the Web pages need to be reset or retained.

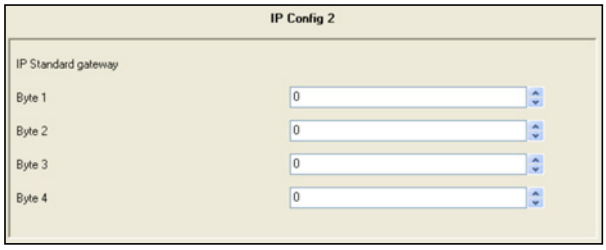
If a fixed IP address is used to assign addresses, the address, IP subnet mask and standard IP gateway can be set on the IP Config1 and IP Config2 pages.

All four bytes in each parameter are displayed individually. The value of each byte is between 0 and 255.



If the addresses are assigned manually, the standard IP gateway can be set on the IP Config2 page. The standard gateway is used to send IP telegrams addressed to a PC not on the local area network.

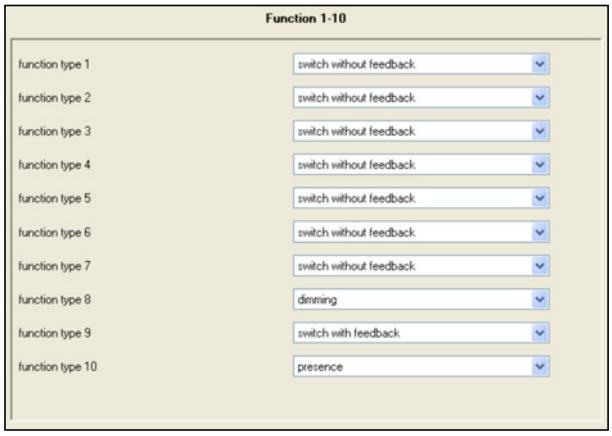
6. PRESENTATION OF THE ETS CONFIGURATION INTERFACE *(continued)*



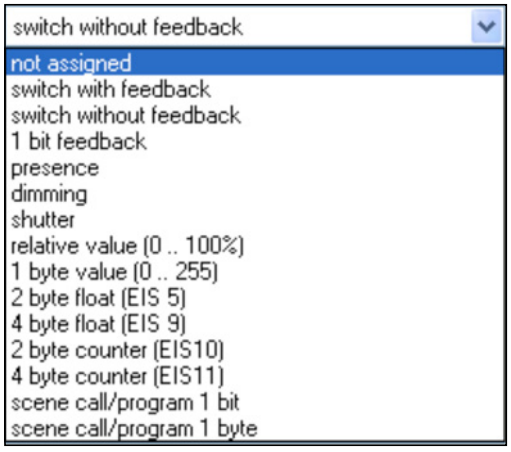
Use the Details page to define the communication wait times.

The default settings must only be changed if expressly requested by the network administrator.

Use the four function configuration pages to select the function types required.



The function types are selected using a dropdown menu.



The 40 functions available offer up to 80 communication objects to connect to groups of addresses. For example, the "Shutter (Shutter/Blind)"" user function offers 2 communication objects depending on the EIS definition.

7. COMMUNICATION OBJECTS

83 group addresses can be assigned to 80 communication objects via 83 associations.

It is possible to select the following communication objects:

5.1 Possible function types Function 1 - 40

The function and its type are defined in the ETS configuration.

* The object numbers for the connected peripherals are assigned dynamically when the project is created.

Obj.	Function	Object name	Type	Flags
Switch with feedback				
*	Function no.	Switch command	1 bit	CWTU
*	Function no.	Feedback	1 bit	CRWTU
Switch without feedback				
*	Function no.	Switch command	1 bit	CRWTU
1 bit feedback				
*	Function no.	Feedback	1 bit	CRWTU
Presence simulation				
*	Function no.	Presence	1 bit	CRWTU
Dimming				
*	Function no.	Dimming ON/OFF	4 bit	CWT
*	Function no.	Dimming	4 bit	CWT
Shutters				
*	Function no.	Blind	1 bit	CWT
*	Function no.	Shutter	1 bit	CWT
Relative value (0 to 100%)				
*	Function no.	Relative value (0 ... 100%)	1 byte	CRWTU
1 byte value (0... 255)				
*	Function no.	Value (0... 255)	1 byte	CRWTU
2 byte float (EIS 5)				
*	Function no.	2 byte float	2 byte	CRWTU
4 byte float (EIS 9)				
*	Function no.	4 byte float	4 byte	CRWTU
2 byte counter (EIS 10)				
*	Function no.	2 byte counter	2 byte	CRWTU
4 byte counter (EIS 11)				
*	Function no.	4 byte counter	4 byte	CRWTU
Scene call/program 1 bit				
*	Function no.	Scene call/program	1 byte	CWT
*	Function no.	Scene program	1 bit	CWT
Scene call/program 1 bit				
*	Function no.	Scene call/program	1 byte	CWT

7. COMMUNICATION OBJECTS *(continued)*

Preview:

Number	Name	Object Function	Length	C	R	W	T	U	Priority
0	switch command	Function 1	1 bit	C	R	W	T	U	Low
1	feedback	Function 1	1 bit	C	R	W	T	U	Low
2	switch command	Function 2	1 bit	C	R	W	T	U	Low
4	feedback	Function 3	1 bit	C	R	W	T	U	Low
6	presence	Function 4	1 bit	C	R	W	T	U	Low
8	dimming On/Off	Function 5	1 bit	C	-	W	T	-	Low
9	dimming	Function 5	4 bit	C	-	W	T	-	Low
10	blind	Function 6	1 bit	C	-	W	T	-	Low
11	shutter	Function 6	1 bit	C	-	W	T	-	Low
12	value relative (0 .. 10...	Function 7	1 Byte	C	R	W	T	U	Low
14	value (0 .. 255)	Function 8	1 Byte	C	R	W	T	U	Low
16	2 byte float	Function 9	2 Byte	C	R	W	T	U	Low
18	4 byte float	Function 10	4 Byte	C	R	W	T	U	Low
20	2 byte counter	Function 11	2 Byte	C	R	W	T	U	Low
22	4 byte counter	Function 12	4 Byte	C	R	W	T	U	Low
24	scene call/program	Function 13	1 bit	C	-	W	T	-	Low
25	scene program	Function 13	1 bit	C	-	W	T	-	Low
26	scene call/program	Function 14	1 Byte	C	-	W	T	-	Low

8. PARAMETERS

The following parameters are available in the application.

8.1 Parameter page

General	
Parameter	**Settings**
Device name (30 characters max)	**ComBridge WCI**
This parameter is used to define the name of the peripheral device. This name can then be used to identify the peripheral device in the preview screen.	
IP address assignment	Manual entry **By DHCP server**
The IP communication module can be assigned to a fixed IP address or a dynamic address assigned by a DHCP server.	
IP addressing options	**Always use a DHCP server** Use a fixed IP address if the DHCP server is not available
This parameter is only visible if the IP address has been assigned by a DHCP server. In this mode, several options allow you to choose a DHCP server permanently or to revert to a fixed IP address after a certain time if the DHCP server is not available. This wait time is defined in the Details tab. See below.	
Send a read request to update the value of the objects on restarting	Yes **No**
Used to determine whether the device needs to ask the bus to send it the value of the objects in the 40 functions (80 objects) after a restart.	
User name	**WCI**
The IP communication module Web pages can be protected by a user name.	
Password	**1234**
The IP communication module Web pages can be protected by a password.	
Initialise the Web display on starting	Yes **No**
The settings entered by the user in the configuration Web pages can be initialised when ETS is downloaded.	

8. PARAMETERS *(continued)*

IP Config1	
Parameter	**Settings**
IP address/Byte 1	**0**
IP address/Byte 2	**0**
IP address/Byte 3	**0**
IP address/Byte 4	**0**
The IP communication module standard IP address is predefined here. If DHCP mode is selected, the address assigned by the DHCP server permanently replaces this address. The IP address 0.0.0.0 is only used if the DHCP server is active.	
IP subnet mask/Byte 1	**255**
IP subnet mask/Byte 2	**255**
IP subnet mask/Byte 3	**255**
IP subnet mask/Byte 4	**255**
Web pages can be protected by a password.	
Initialise the Web display on starting	Yes **No**
The IP communication module standard IP subnet mask is predefined here. If DHCP mode is selected, the address assigned by the DHCP server permanently replaces this mask. If the device is configured without a DHCP server (set to **fixed IP address**), the correct subnet mask parameters must be set in order for it to work properly.	

IP Config2	
Parameter	**Settings**
Standard IP gateway/Byte 1	**0**
Standard IP gateway/Byte 2	**0**
Standard IP gateway/Byte 3	**0**
Standard IP gateway/Byte 4	**0**
The standard router is used to send UDP telegrams addressed to a PC not on the local area network. If DHCP mode has been selected, the DHCP server permanently overwrites this address. If the DHCP server does not send the router address, work on the basis that no router should be used.	

8. PARAMETERS *(continued)*

Function 1... 10	
Parameter	**Settings**
Function type	Not assigned Switch with feedback Switch without feedback 1 bit feedback Presence Dimming Shutters Relative value (0 to 100%) 1 byte value (0...255) 2 byte float (EIS 5) 4 byte float (EIS 9) 2 byte counter (EIS 10) 4 byte counter (EIS 11) Scene call/program 1 bit Scene call/program 1 byte
This is used to define the communication object data type and function. This configuration is possible for all 40 functions.	

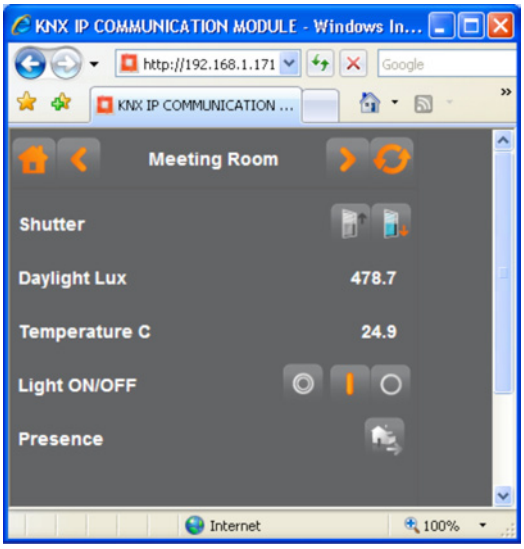
IP details	
Parameter	**Settings**
Communication wait time	**1 s.** **5 s.** **10 s.** **20 s.** **30 s.** **60 s.**
This parameter defines, in the context of IP communication, the time after which the connection will be interrupted if the client does not respond to the request from the device.	
DHCP wait time	**5 s.** **30 s.** **1 min.** **2 min.**
Used to define the time at the end of which a fixed IP address should be used if no DHCP server is available.	

9. USING KNX FUNCTIONS

Once ETS has been loaded in the device, all the defined functions appear in the predefined status.

The display can be changed via a configuration Web page.

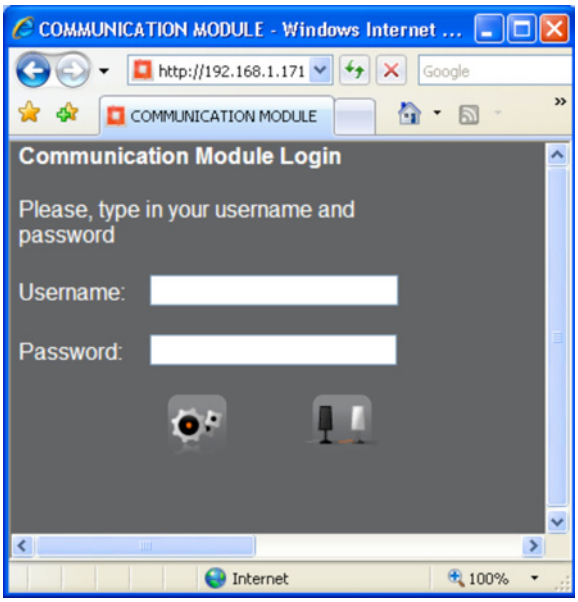
The display pages are then loaded automatically, then presented to the user in the following form:



The Web pages are accessible via the IP address which has been assigned in the ETS configuration.

http://<ip-address>, eg: http://192.168.1.171

Once the Web page has been loaded using the corresponding IP address, the logon screen appears:



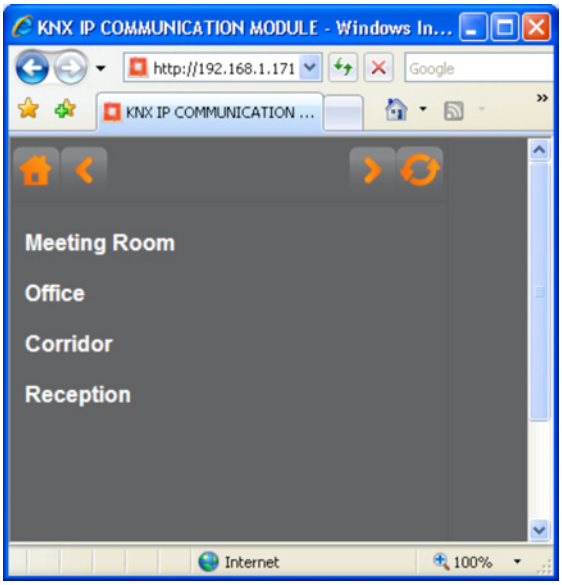
Web pages are protected by a user name and a password. Enter the access IDs configured in ETS (a blank space is also possible) to load the preview or the configuration using the buttons at the bottom of the page.

 Loads the configuration page

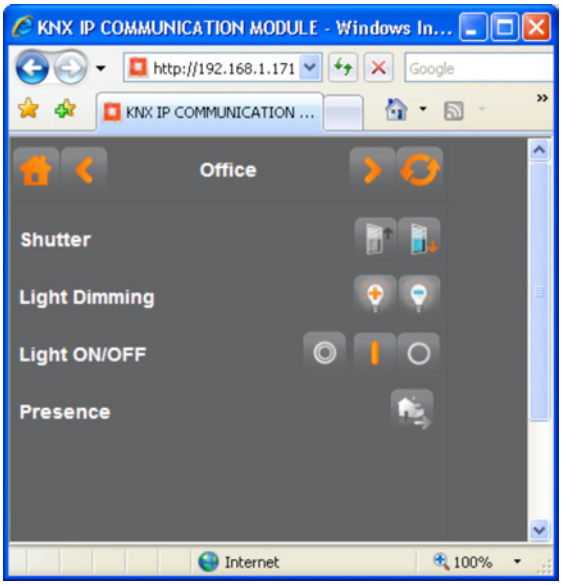
 Loads the preview page

9. USING KNX FUNCTIONS *(continued)*

Loading the preview page brings up the menu page containing a preview of all configured pages.



By clicking on the page labels, you can access the required page.



You can split the 40 available KNX functions over all 5 pages as you prefer.

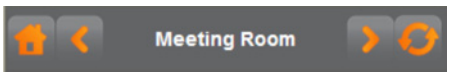
Each function has a label field on the left, a button field consisting of one or two buttons on the right and, if applicable, a feedback indicator to the left of the buttons.

Clicking on a button allows you to execute the corresponding function. The feedback indicator provides immediate information.

The feedback functions do not have a button and are only used to display a value or a status.

9. USING KNX FUNCTIONS *(continued)*

To access the previous page or next page, use the arrow buttons in the page header:



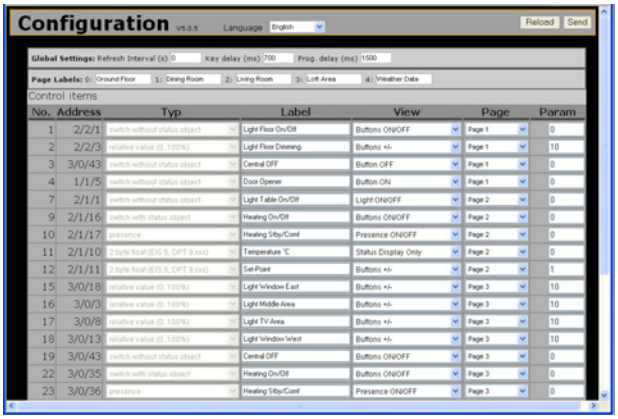
You can also use the Start button on the left of the page header to return to the menu page:

The refresh button on the right can be used to refresh the page and all the values and states displayed in the browser.

10. CONFIGURATION OF KNX FUNCTIONS

Display and assignment of the functions to the various tabs are defined on a configuration page. To load the configuration page, use the relevant button on the logon screen.

The configuration page is displayed in the form below in the browser window:



The configuration page header contains information concerning the current firmware version.

Use the middle dropdown menu to select the language to be used on the configuration page. The available languages are as follows:

- English
- German
- Spanish
- French
- Greek
- Italian
- Dutch
- Portuguese
- Turkish
- Chinese

The language displayed is set after pressing the "Send" button. The browser page is then refreshed.

Use the two control buttons on the right of the header to export and import the configuration you have created from and to the device.

10. CONFIGURATION OF KNX FUNCTIONS *(continued)*

Press the "Reload" button to export the device configuration and display it on the page. Use the "Send" button to import the displayed and/or modified configuration to the device.

The general parameters are defined at the top of the configuration page. The page labels and parameters for each of the functions (control elements) are defined in the middle of the page.

The general parameters that can be configured are as follows:

– **Refresh Interval**
If you want to define an automatic refresh interval, use the first data entry field. The minimum refresh interval is 2 seconds.

– **Key delay (ms)**
Used to define the duration of a "long" press (Dimming and Shutter functions).

– **Prog. delay**
Used to define the delay in identifying a programming process (programming a scene).

Use the line below to enter the names of the 5 runtime pages. Each entry can comprise a maximum of 16 characters.

The middle zone contains all the functions linked to a group address in ETS. The functions are displayed in the form of a table containing the following information:

– **Number (supplied by ETS, cannot be changed in the browser)**
Communication object number

– **Address (supplied by ETS, cannot be changed in the browser)**
Group address linked to the communication object in ETS.

– **Type (supplied by ETS, cannot be changed in the browser)**
Type of function configured in ETS.

– **Label (Parameter, can be changed from the browser)**
Function label. Up to 20 characters can be entered. The text can be wrapped and displayed on two lines.

– **Display (Parameter, can be changed from the browser)**
For more information about displaying functions, refer to the configuration details below.

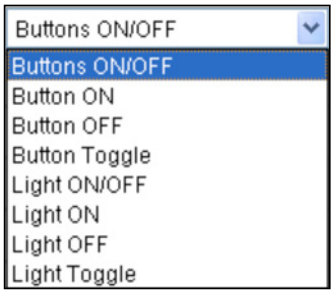
– **Page (Parameter, can be changed from the browser)**
Used to define the page on which the function is displayed. All 40 functions can be displayed on a single page. When more than 10 functions are displayed on a page, a scroll bar appears.

– **Parameter (Parameter, can be changed from the browser)**
For more information about the other function parameters, refer to the configuration details below.

11. CONFIGURATION DETAILS

Each basic data type (depending on the ETS configuration) can be displayed in a number of different ways. Use the "Display" column to select the display type individually in a dropdown menu.

Function type: Switching with indicator
Switching without indicator



You can choose to use an ON/OFF button (two buttons) or an ON, OFF type button or toggle (pulse operated latching relay) (just one button).

For example, if you choose the ON/OFF button, the following display appears:

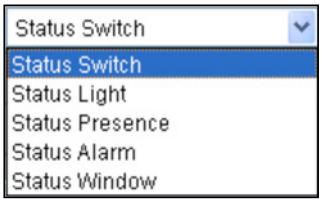
If you choose a function with one button ("Button ON", for example), the following display with a middle button appears:

If you choose a display based on bulb symbols, the symbol 0 I is replaced by a bulb ICON for the buttons and the feedback indicator (for an ON/OFF button assigned to a luminaire, for example):

For this type of function, the configuration page parameter field serves no purpose.

11.1 Function type: Indicator

The "Indicator" 1-bit function allows the following settings:



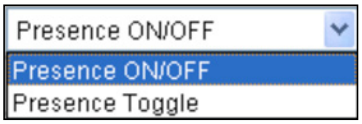
Depending on the selection, the indicator takes the form of different icons.

The configuration page parameter field serves no purpose.

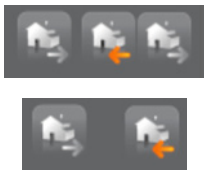
11. CONFIGURATION DETAILS *(continued)*

11.2 Function type: Presence

The "Presence" 1-bit function allows the following settings:



This is used to determine whether the switching function should be activated using both buttons (ON/OFF) or using a toggle button (pulse operated latching relay).



The configuration page parameter field serves no purpose.

11.3 Function type: Dimming

The Dimming function is displayed as follows:

When you use the Dimming function, a short press is used to switch on luminaires and a long press is used to modify their light intensity.
Always use the value 1 (0…100%) for dimming increments.

The configuration page parameter and display fields serve no purpose.

11.4 Function type: Shutter/Blind

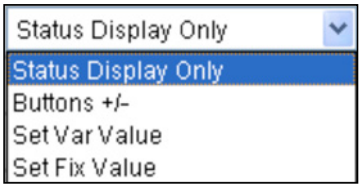
The Shutter function is displayed as follows:

When you use the Shutter function, a long press is used to modify the blind position and a short press is used to modify the slat orientation.

The configuration page parameter and display fields serve no purpose.

11.5 Function type: Relative value of 1 byte [0…100%]

Use this function to display 1-byte values as feedback in the format 0…100% or to send them to the bus. The following settings are available:

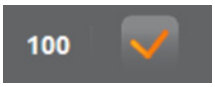


11. CONFIGURATION DETAILS *(continued)*

If you choose "Status Display Only", the function is only used to display the status of a value between 0 and 100%.
It is displayed as follows:

If you choose the "Buttons +/-" setting, the value can be modified in increments using both buttons. The size of the increment is defined in the configuration page parameter field (eg: 10). The display is as follows:

If you choose the "Set Var Value" setting, you can click on the value indicated in the field in order to modify it. When you press the button, the setting value is sent to the bus.
The display is as follows:

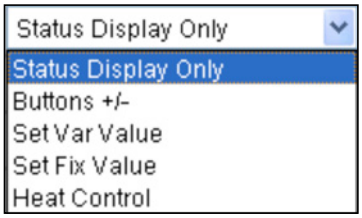


If you choose the "Set Fix Value" setting, the fixed value which was defined in the configuration page parameter field is sent to the bus when you press the button. The display is as follows:

The configuration page parameter field serves no purpose.

11.6 Function type: 1 byte value [0...255]

Use this function to display 1-byte values as feedback in the format 0…255 or to send them to the bus. The following settings are available:



The first four settings correspond to those of the "1 byte float [0…100%]" function (see paragraph 11.5). Another selection, "Heat Control", is used to set the operating mode of temperature controllers with appropriate parts. Use the buttons to change the operating mode (Comfort, Standby, Night and Protection). Depending on the mode selected, the corresponding 1-byte value is sent in accordance with the following assignments:

Comfort mode → **Value = 1**
Standby mode → **Value = 2**
Night mode → **Value = 3**
Protection mode → **Value = 4**

11. CONFIGURATION DETAILS *(continued)*

The operating mode is displayed as follows:

Comfort mode

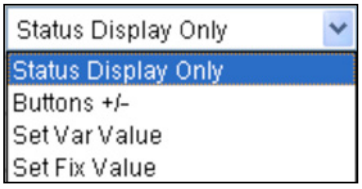
Standby mode

Night mode

Protection mode

11.7 Function type: 2 byte float (EIS 5)

Use this function to display EIS 5 type 2-byte values [-670,760… +670,760] as feedback or send them to the bus. The following settings are available:



The settings and display correspond to those for the relative 1-byte function [0…100%]. (See paragraph 11.5).
For the "Buttons +/-" and "Set Value" settings, only set whole numbers in the parameter field (eg: 1, 2, 5, 10). Floating point numbers (0.5, for example) are not permitted.

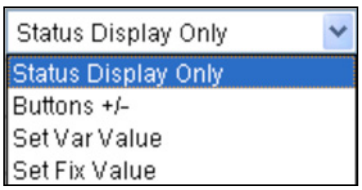
11.8 Function type: 4 byte float (EIS 9)

Use this function to display the status of EIS 9 type 4-byte data values [-9,999,999…+9,999,999].

The configuration page parameter and display fields are not used.

11.9 Function type: 2 byte counter (EIS 10)

Use this function to display EIS 10 type 2-byte values [0..65,535] as feedback or send them to the bus. The following settings are available:



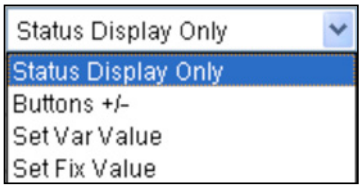
The settings and display correspond to those for the 1-byte function [0…100%]. (See paragraph 11.5).

For the "Buttons +/-" and "Set Value" settings, only set whole numbers in the parameter field (eg: 1, 2, 5, 10). Floating point numbers (0.5, for example) are not permitted.

11. CONFIGURATION DETAILS *(continued)*

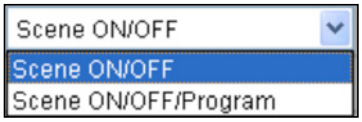
11.10 Function type: 4 byte counter (EIS 11)

Use this function to display EIS 11 type 4-byte values [0..99,999,999] as feedback or send them to the bus. The following settings are available:



The settings and display correspond to those for the 1-byte function [0…100%]. (See paragraph 11.5).
For the "Buttons +/-" and "Set Value" settings, only set whole numbers in the parameter field (eg: 1, 2, 5, 10). Floating point numbers (eg: 0.5) are not allowed.

11.11 Function type: Call/program a 1-bit scene



Use this function to define control elements designed to call and program scenes. You can:
- Call 2 scenes via a single 1-bit object
- Call and program scenes via two 1-bit objects

If you select "Scene ON/OFF", the first press on the button sends the communication object with the value 0 and thus calls scene 1. The second press on the button sends the value 1 and calls scene 2.

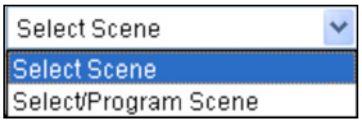
If you choose"Scene ON/OFF/Program", the system distinguishes between a long press and a short press on the buttons. A short press sends the first communication object in order to call the corresponding scene. A long press sends the second communication object with a value of either 0 or 1 depending on the button used.

NOTE: The IP communication module does not manage its own scenes. It is only used to program or send scenes saved in other products.

The following is displayed for both selections:

11. CONFIGURATION DETAILS *(continued)*

11.12 Function type: Scene call/program 1 byte



This function allows the user to define a control element in order to either call scenes via a 1-byte object, or reprogram them.
The scene number and corresponding object value are set in the function parameter field, on the configuration page.

If you choose "Select Scene", the communication object and its setting value (eg: 0) are sent and the scene (eg: scene 1) is loaded.

If you choose “Select/Program Scene”, the system distinguishes between a long press and a short press on the buttons. A short press sends the object value to the parameter field. A long press also sets the higher bit (eg: Short press → 0, long press → 128). This activates the scene elements programming function and the appropriate switch actuators.

NOTE: The IP communication module does not manage its own scenes. It is only used to program or send scenes saved in other products.

The following is displayed for both selections:

Note: All technical information is available at

www.legrandoc.com

12. RESTORING THE FACTORY CONFIGURATION

To restore the device default configuration, switch it on while holding down the programming button.

This completely reboots the device, which returns to its default configuration, as well as its initial physical address (15.15.255).