CHORUS

GEWISS

Easy 4-channel 16AX actuator - DIN rail mounting

GW 90 836B

Technical Manual

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1 Introduction

This manual explains the functions of the "**4-channel 16AX actuator**" (GW90836B), and how they are set and configured with the aid of the ETS configuration software.

2 Application

The 4-channel 16AX actuator is used to activate/deactivate electric loads via 4 relays of 16AX each. The device has 4 independent channels. Their output has a terminal to which a NO contact is connected, and the loads can in turn be connected to this, according to the various circuits. The actuator is powered from the BUS line and is equipped with 4 front green LEDs for a NO the output status. The device sends - on the BUS - information regarding the relay status (ON = NO contact closed, OFF = NO contact open) in the moment of switch-on or at the receipt of a command, and in the event of manual activation (using the push-buttons associated with each channel).
Each output channel of the actuator can be independently configured, and used for the ON/OFF commands of the commanded loads, the execution of timed commands, the management of scenes, and the execution of priority commands for forcing the output status. The operating modes can be used simultaneously. This means, for instance, that the device can switch a light on and off, or automatically switch it on and off after a certain pre-established time, simply on the basis of the command received.
The module is assembled on the DIN rail, inside the electric boards or junction boxes.

The device can perform the following functions:

- On/off switching
- Timed switching (stairs light)
- Execution of priority commands
- Scenes

2.1 Association limits

Maximum number of group addresses: 254
Maximum number of associations: 254

This means that up to 254 group addresses can be defined, and up to 254 associations can be made (communication objects and group addresses).

2.2 Function priorities

The priority of the functions implemented by the actuator channel is shown in the following table:

Function	**Priority**	
On/off switching	1	Low
Timed switching	1	
Scene	1	
Relay status after forcing	1	
Relay status after BUS voltage recovery	2	
Forcing	3	
Forcing status on BUS voltage recovery (=Forced positioning status on BUS voltage recovery)	4	
Status at BUS voltage drop	5	High

3 *"Settings"* Menu

The ***Settings*** menu contains only the parameter for selecting the programming mode - either ETS ("System" mode) or Easy (using the Easy controller software) - as shown in fig. 3.1.

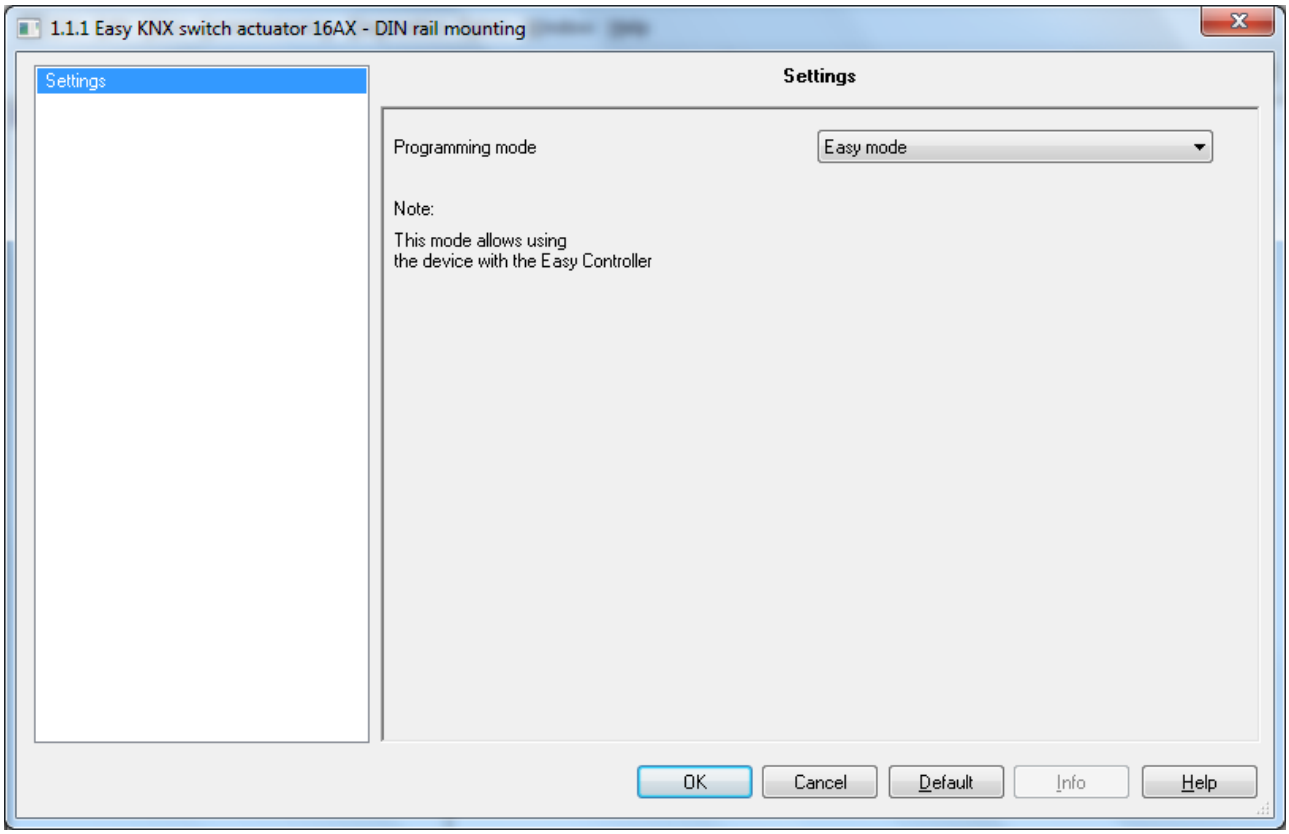

Fig. 3.1

3.1 Parameters

➢ *3.1.1 Programming mode*

Determines the device's programming mode:

- ***ETS mode***

This option must be selected if the device is configured with ETS ("System Mode").

- ***Easy mode***

This option must be selected if the device is to be configured with the Easy controller software.
If the device has been previously configured with ETS and it is to be included in an Easy project, download the application via ETS with this parameter selected in "Easy mode" to allow the Easy controller software to then be able to configure it.

4 *"Channel x"* menu

The **Channel x** menu contains the parameters that define the operation of the actuator channel implemented in the device.
The status of the relay, and therefore of the connected load, can be transmitted on the BUS via the specific communication object ***Ch.x - Status*** (Data Point Type 1.001 DPT_Switch). The status a NO takes place on change, i.e. the communication object is sent spontaneously when the status switches from ON to OFF or vice versa. The device also sends the status information when the BUS voltage is recovered.
The communication object assumes a value of 1 (ON) if the NO (normally open) contact closes, and a value of 0 (OFF) if the NO (normally open) contact opens.
The basic structure of the menu is as follows:

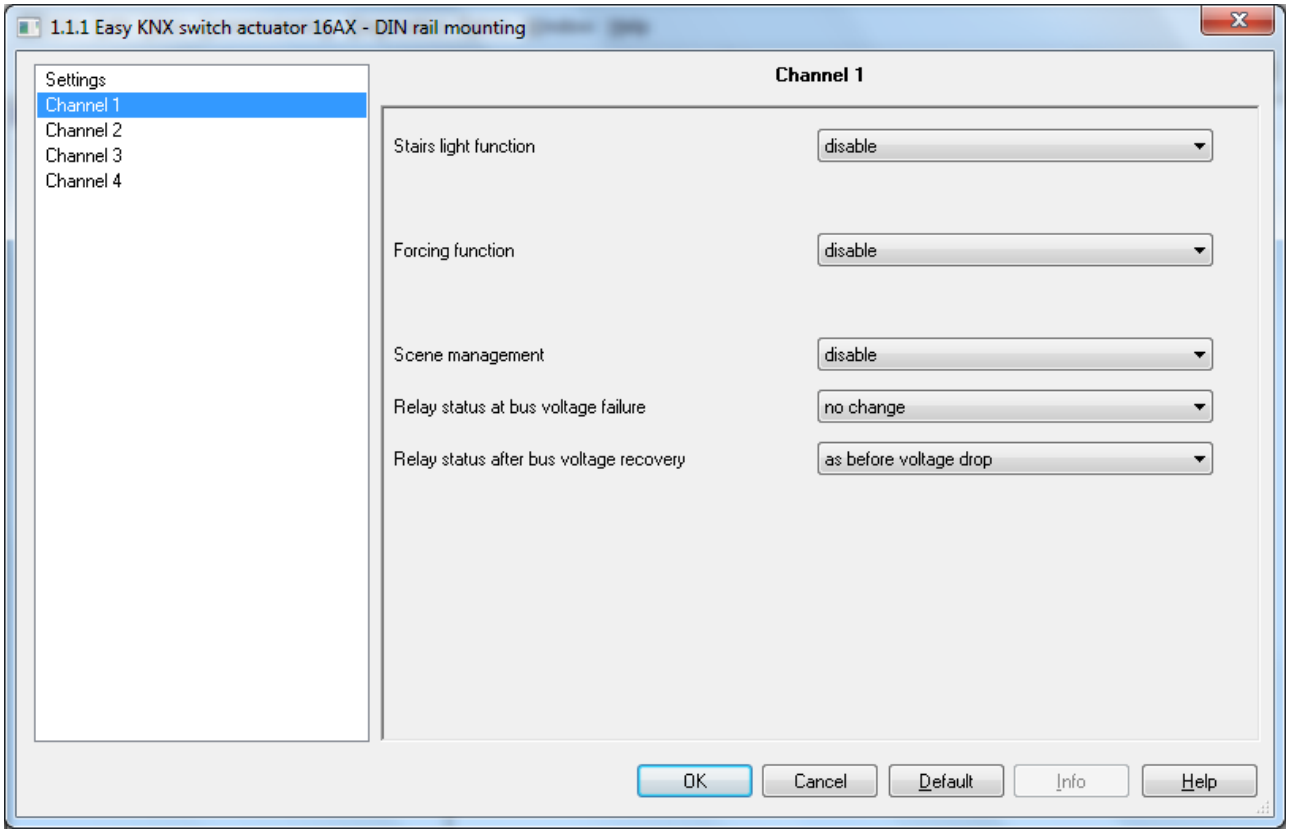

Fig. 4.1

4.1 Parameters

➢ 4.1.1 Stairs light function

- ***active***
  The actuator channel implements the operating mode "timed activation" (stairs light) which permits the device to activate the load for a certain period of time, before deactivating it independently; the ***Ch.x - Timed switching*** communication object is used to receive - from the BUS - the timing activation start (value "1") and timing stop (value "0") commands; a timing start command with active timing will reset the activation time count.

- ***deactivated***
  The timing function is not activated.

➢ *4.1.2 Activation time*

If the timed implementation is activated, this parameter is made visible. It allows you to set the activation time for the relay associated with Channel x. When a timed switching command is received (via the ***Ch.x - Timed switching*** object), the device switches the relay associated with Channel x (closure of the NO contact) and, at the end of the set activation time, it brings the contact autonomously back to its normal conditions (NO contact open), as shown in fig. 4.2.
You can select an activation time from a series of values ranging from 1sec to 24 hours (1min is the default value).

➢ *4.1.3 Pre-warning time*

If the timed implementation is activated, the Pre-warning time parameter is also made visible. It is used to enable a signal when the set time is about to end, by deactivating and reactivating the load for a moment.
The pre-warning time is calculated from the end of the activation time. For example, when the load is switched to timed mode, with a set activation time of 1 min and a pre-warning time of 15s, the user will receive a signal 15 seconds before the end of the activation time. This signal takes the form of a brief (half a second) opening of the NO contact, and indicates that the load will be definitively deactivated after a further 15 seconds (in the case of stair lights, the light will be switched off).
The values that can be set are: “no pre-warning” (default value: function not enabled), 15s, 30s, 1 minute.

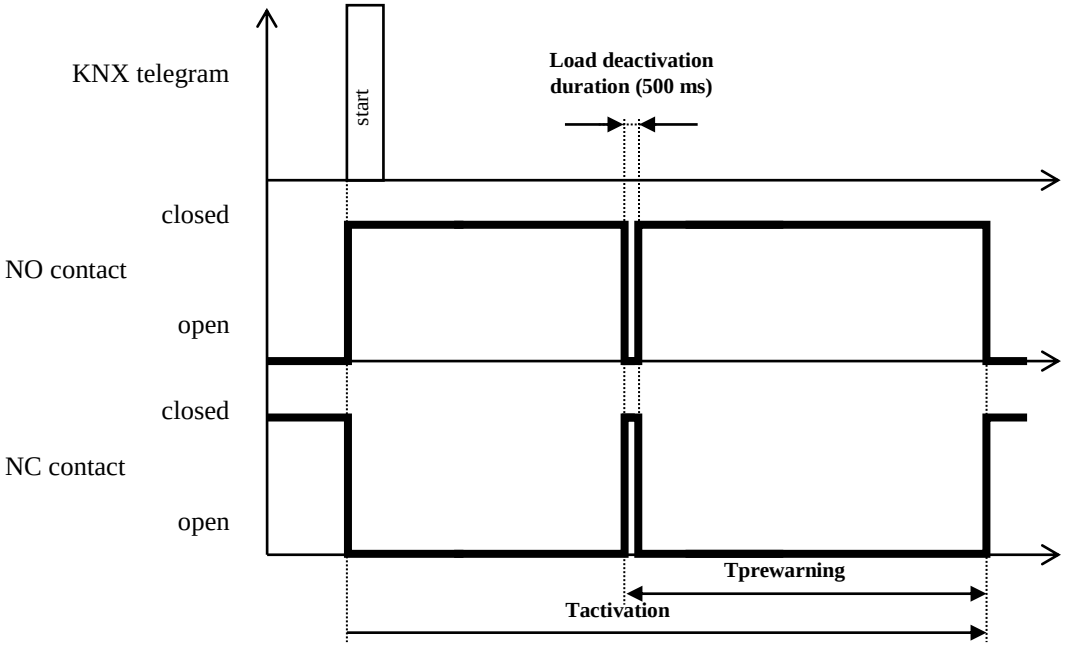

Fig. 4.2

➢ *4.1.4 Forcing function*

The forcing function (priority commands) is used, based on the command received from the BUS, to force the relay contact to a determined condition until a forcing deactivation command is received; any command that is received during the period in which forcing is active will not be performed, as forcing has greater priority than any other BUS command.
The ***Ch.x - Priority command*** communication object is used to receive the forcing on/off activation or deactivation commands from the BUS.
The parameter may have the following values:

- **disable (default value)**
- enable

By selecting **enable**, the **“Relay status at end of forcing”** and **“Forcing status after BUS voltage recovery”** parameters, and the ***Ch.x - Priority command*** communication object are made visible.

The semantics of the command received from the BUS follows what is shown in the following table:

bit1	bit 0	
0	0	Forcing deactivation
0	1	Forcing deactivation
1	0	Forcing OFF
1	1	Forcing ON

When receiving the priority command with the forcing ON activation value, the actuator switches the relay, closing the NO contact; vice versa, when it receives a priority command with the forcing OFF value, it switches the relay, opening the NO contact.
Upon receipt of the forcing deactivation command, the status to which the actuator switches the relay is defined by the parameter **"Relay status after forcing"**; the possible values are:

- open
- closed
- no change
- **follows last command received (default value)**
- as prior to the forcing activation

If the parameter assumes the value **follows last command received**, the actuator follows the dynamics determined by the last command as if the execution of the command was initiated at the moment in which it was effectively received. Essentially, the command is executed in the background and is applied to the output in the moment in which forcing is ended. This behaviour applies, for example, to timed actuation commands with timing that has a duration that goes beyond the moment of forcing deactivation.

The parameter **"Forcing status after BUS voltage recovery"** is used to determine the status of the forcing function on BUS voltage recovery. It is useful if the function was active when the BUS voltage dropped, and you do not want the actuator behaviour to change after the voltage failure. The parameter may assume the following values:

- deactivated
- **as before voltage drop (default value)**

If the value **deactivated** is selected (and forcing was activated before the BUS voltage drop), when the BUS voltage is recovered the forcing function will be deactivated and the relay will take on the value determined by the parameter **"Relay status after forcing"**. If the value set for this last parameter is **follows last command received**, the actuator will execute the last command received before the BUS voltage drop that, as a result, must be stored to the non-volatile memory. If the last command received before the voltage drop was a timed activation or delayed activation command, then when the BUS voltage is recovered the command will not be executed and the relay will switch to the open status.
If the value **as before voltage drop** is selected (and forcing was activated before BUS voltage drop), when the BUS voltage is recovered the forcing function is reactivated and the relay switches to the status prior to the voltage drop.

➢ *4.1.5 Scene management*

The scene function is used to replicate a certain previously memorised status of the contact upon receipt of the scene execution command. The values that can be set are:

- ***disabled*** **(default value)**

The scenes function cannot be activated, and the relative communication object is not visible.

- ***enabled***

The ***Ch.x - Scene*** communication object is made visible, so the scene execution and storage commands can be received from the BUS.
The device can manage a maximum of 8 scenes, with an index between 0 and 7.

➢ *4.1.6 Relay status at BUS voltage failure*

This parameter can be used to set the status of the relay change-over contact after the BUS voltage drop. It can assume the following values:

- open
- closed
- **no change (default value)**

➢ *4.1.7 Relay status after BUS voltage recovery*

This parameter can be used to set the status of the relay change-over contact after the BUS voltage recovery. It can assume the following values:

- open
- closed
- **as before voltage drop (default value)**

➢ *4.1.8 Behaviour of the local push-buttons*

On the front of the device there is a push-button associated with Channel x. It performs the following function:

- if the ***Ch.x - Timed switching*** object is not associated with any valid group address (timed function disabled), the pressing of the push-button leads to the cyclical switching of the output. The event priority is the same as for the ***Ch.x - Switching*** communication object; this means that if the actuator is forced (ON or OFF) in a specific status after a command has been received on the ***Ch.x - Priority command*** object, the pressing of the local push-button will produce no change until the forcing function is deactivated.
- If the ***Ch.x - Timed switching*** object is associated with a valid group address (timed function enabled), the pressing of the push-button leads to the timed activation of the output. If the local push-button is pressed while the timing is already active, this will reset the activation time. The event priority is the same as for the ***Ch.x - Timed switching*** communication object; this means that if the actuator is forced (ON or OFF) in a specific status after a command has been received on the ***Ch.x - Priority command*** object, the pressing of the local push-button will produce no change until the forcing function is deactivated.

5 Communication objects

By enabling all the functions available for each channel, all the associated communication objects will be made visible, as shown in fig. 5.1.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type
0	Ch.1 - Switching	On/Off	1 bit	C	-	W	-	-	1 bit DPT_Switch
1	Ch.1 - Timed switching	Start/Stop	1 bit	C	-	W	-	-	1 bit DPT_Start
2	Ch.1 - Priority command	On/Off forced positioning	2 bit	C	-	W	-	-	1 bit controlled DPT_Switch_Control
3	Ch.1 - Scene	Execute/Store	1 Byte	C	-	W	-	-	
4	Ch.1 - Status	On/Off status	1 bit	C	R	-	T	-	1 bit DPT_Switch
5	Ch.2 - Switching	On/Off	1 bit	C	-	W	-	-	1 bit DPT_Switch
6	Ch.2 - Timed switching	Start/Stop	1 bit	C	-	W	-	-	1 bit DPT_Start
7	Ch.2 - Priority command	On/Off forced positioning	2 bit	C	-	W	-	-	1 bit controlled DPT_Switch_Control
8	Ch.2 - Scene	Execute/Store	1 Byte	C	-	W	-	-	
9	Ch.2 - Status	On/Off status	1 bit	C	R	-	T	-	1 bit DPT_Switch
10	Ch.3 - Switching	On/Off	1 bit	C	-	W	-	-	1 bit DPT_Switch
11	Ch.3 - Timed switching	Start/Stop	1 bit	C	-	W	-	-	1 bit DPT_Start
12	Ch.3 - Priority command	On/Off forced positioning	2 bit	C	-	W	-	-	1 bit controlled DPT_Switch_Control
13	Ch.3 - Scene	Execute/Store	1 Byte	C	-	W	-	-	
14	Ch.3 - Status	On/Off status	1 bit	C	R	-	T	-	1 bit DPT_Switch
15	Ch.4 - Switching	On/Off	1 bit	C	-	W	-	-	1 bit DPT_Switch
16	Ch.4 - Timed switching	Start/Stop	1 bit	C	-	W	-	-	1 bit DPT_Start
17	Ch.4 - Priority command	On/Off forced positioning	2 bit	C	-	W	-	-	1 bit controlled DPT_Switch_Control
18	Ch.4 - Scene	Execute/Store	1 Byte	C	-	W	-	-	
19	Ch.4 - Status	On/Off status	1 bit	C	R	-	T	-	1 bit DPT_Switch

Fig. 5.1

5.1 Communication object table

The following tables summarise all the communication objects with their ID number, the name and function displayed in ETS, plus a brief description of the function performed and the type of Datapoint used.

➢ *5.1.1 Communication objects with input functions*

The following table shows all the objects with an input function and with flags C (communication) and W (writing from BUS) enabled.

No. of communication objects				Object name	Object function	Description	Datapoint
Ch.1	Ch.2	Ch.3	Ch.4				
0	5	10	15	Ch.x - Switching	On/Off	Receives the load activation/deactivation commands	1.001 DPT_Switch
1	6	11	16	Ch.x - Timed switching	Start/Stop	Receives the timed activation start/stop commands	1.010 DPT_Start
2	7	12	17	Ch.x - Priority command	On/Off forced positioning	Forces the load value to an on/off value	2.001 DPT_Switch_Control
3	8	13	18	Ch.x - Scenes	Execute/Store	Makes it possible to store/execute scenes	18.001 DPT_SceneControl

➢ *5.1.2 Communication objects with output functions*

The following table shows all the objects with an output function and with the C (communication), R (reading from BUS) and T (transmission) flags enabled.

No. of communication objects				Object name	Object function	Description	Datapoint
Ch.1	Ch.2	Ch.3	Ch.4				
4	9	14	19	Ch.1 - Status	On/Off status	Sends the status of the load connected to the actuator	1.001 DPT_Switch

code 7.01.8.382.7

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