KNX 6A shutter actuators - DIN rail mounting

GW 90 856

GW 90 857

Technical Manual

Contents

1 Introduction

This manual describes the functions of the **"KNX 2-channel shutter actuator"** and the **"KNX 4-channel shutter actuator"** (GW90856 and GW90857 respectively), and how they are set and configured with the aid of the ETS configuration software.

2 Application

The GW90856 shutter actuator is used to command two separate groups of motors, each with a maximum of two 230V ac motors. The motors belonging to the same group are commanded at the same time.
The GW90857 shutter actuator has 4 independent outputs for commanding four separate 230V ac motors. For each output there is a pair of contacts for the command and movement in one direction or the other (the up or down movement of the shutter in question).
The outputs for up and down commands are mechanically interlocked together in order to prevent voltage from being applied at the same time to both.
The GW90856 and GW90857 actuators are configured in System configuration mode (ETS).

2.1 Association limits

The maximum number of communication objects available is 52 for the GW90856 and 104 for the GW90857.
The maximum number of associations that the devices can store is 255.
The maximum number of group addresses is 254.

2.2 Priority of the received commands

The priority of the functions is shown in the following table:

Function	**Priority**	
Ch.x - Movement	1	low
Ch.x - Stop (/Louvres adjustment)	1	
Ch.x - Position control	1	
Ch.x - Louvre position control	1	
Ch.x - Scene	1	
Automatic calibration	2	
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3 *“Channel x general settings”* menu

Used to configure the operating parameters, as shown in Fig. 3.1.

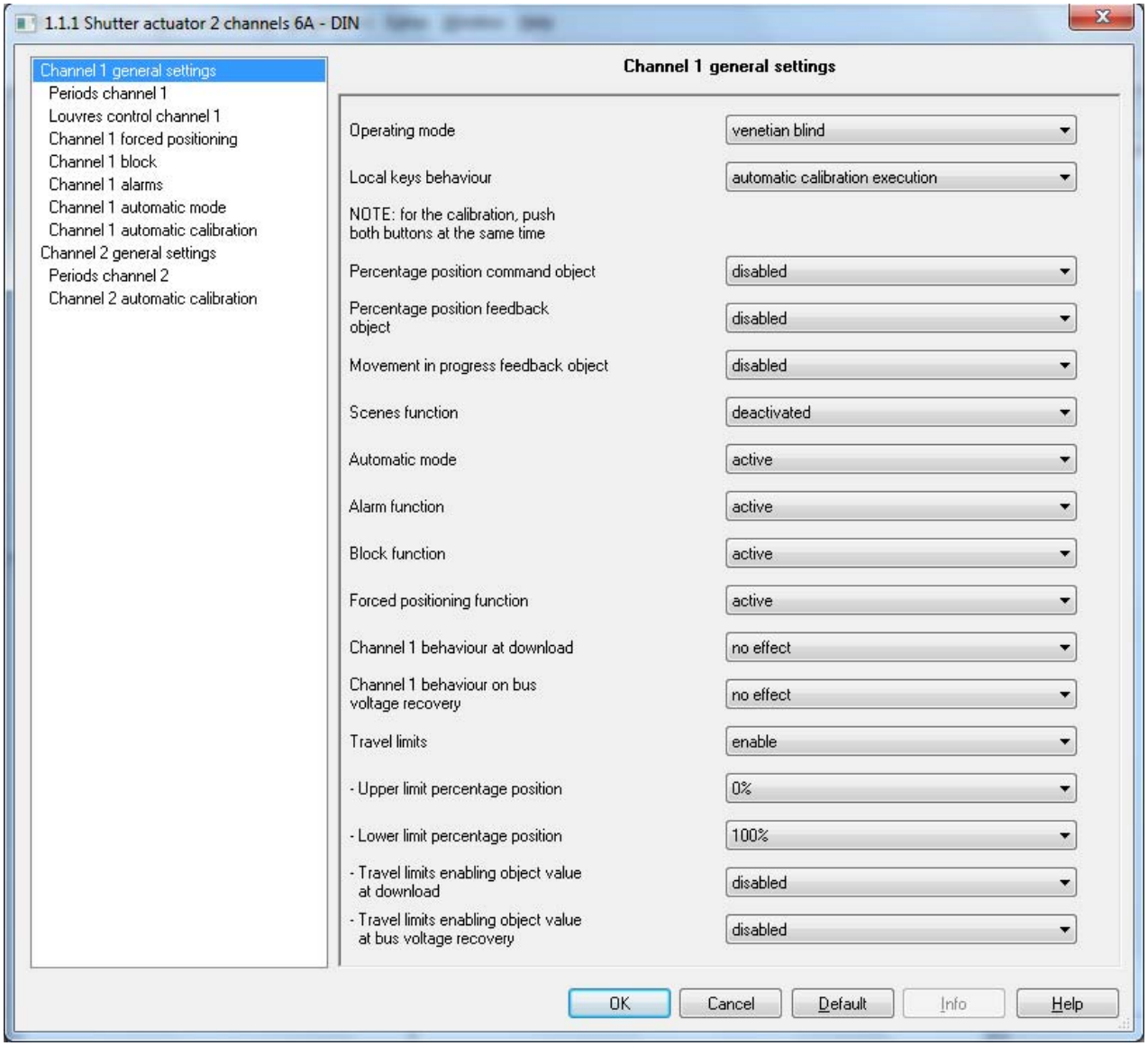


Fig. 3.1

3.1 Parameters

➢ 3.1.1 Operating mode

Determines the device operating mode, by means of the following values:

- ***Shutter***
  This is the default setting. If selected, it determines specific parameters and communication objects.

- ***Venetian blind***
  This option is an alternative to the one above. It adds further parameters and different communication objects.

The **Shutter** and **Venetian blind** values are associated with a communication object that stops their movement, but is different for each one; if shutter is selected, the object is **"Ch.x - Stop"**, but if venetian blind is selected, the object is **"Ch.x - Louvre stop/control"**. If any value is received on both objects while the load is moving, the movement will stop immediately; in the case of "shutter", no action is performed if the object is received when the load is not moving, but in the case of "venetian blind", there will be an opening control step (if the object has a value of "0") or a closure control step (if the value is "1").
If "venetian blind" is selected, the "Louvre control channel x" menu will appear.

Via the "**Ch.x - Movement**" communication object (always visible), it is possible to move the shutter or venetian blind up or down, then stop it via the *Ch.x - Stop* (or *Louvre stop/control*) object, or at the end of the set movement time.

➢ 3.1.2 Local keys behaviour

The behaviour of the local keys relating to channel x depends on the setting of the parameter, which may have the following values:

- ***disabled***
  this is the default value, with the local keys inhibited.

- **test (up/down/stop-step)**
  in this case, every time there is a long operation on the upper front key (>500 ms), the actuator moves the load upwards. With a short operation (<500 ms), the load is stopped or the louvre opening is controlled (if the set mode is "venetian blind"); the long operation of the lower front key involves a downward movement of the load, whereas a short operation of the key will stop or close the louvres of the load (if "venetian blind" is set). This command has top priority and is executed whatever the value of the communication objects (including the objects "*Ch.x - Priority command*" and "*Ch.x - Block*").

- **as communication objects (up/down/stop-step)**
  the function is as described above, with the main difference that an operation on the front keys emulates the arrival of the communication objects *Ch.x - Movement* and *Ch.x - Stop* (or *Louvre stop/control*); this implies that the actual execution of the commands only takes place if the functions with a higher priority (Block, Forced positioning, etc.) are deactivated.

- **automatic calibration execution**
  pressing the two front keys simultaneously, the actuator immediately performs the automatic calibration (for further details, refer to paragraph 6).
  Selecting the item "execution of automatic calibration", a dummy parameter is visualised with the note "**NOTE: for the calibration, push both buttons at the same time**".

➢ 3.1.3 Movement of the shutter/venetian blind without bus voltage

For the 4-channel version only (GW90857), if the device is powered with the auxiliary network voltage (230V ac), the load can be moved via the front keys even if there is no bus voltage, using the 230V ac network voltage (and enabling this parameter, which is disabled by default).
If "enabled" is selected, with a network voltage but no bus voltage, it is still possible to move the load via the front keys of the device. In this particular condition, the value set for the **"Local keys behaviour"** parameter is ignored and a long operation on the upper front key (>500 ms) causes the upward movement of the load, while a short operation (<500 ms) causes the stopping or louvre opening control (if the set mode is "venetian blind"); the long operation of the lower front key involves a downward

movement of the load, whereas a short operation of the key will stop or close the louvres of the load (if "venetian blind" is set).

➢ *3.1.4 Percentage position command object*

With this parameter it is possible to enable the communication object via which you can set the percentage position of the shutter/venetian blind, leaving the actuator to perform the necessary movement; this function is disabled by default.
If "enabled" is selected, the "**Ch.x - Position control**" communication object is visualised. With this, you can receive the command with the percentage position value to be used for the implementation.

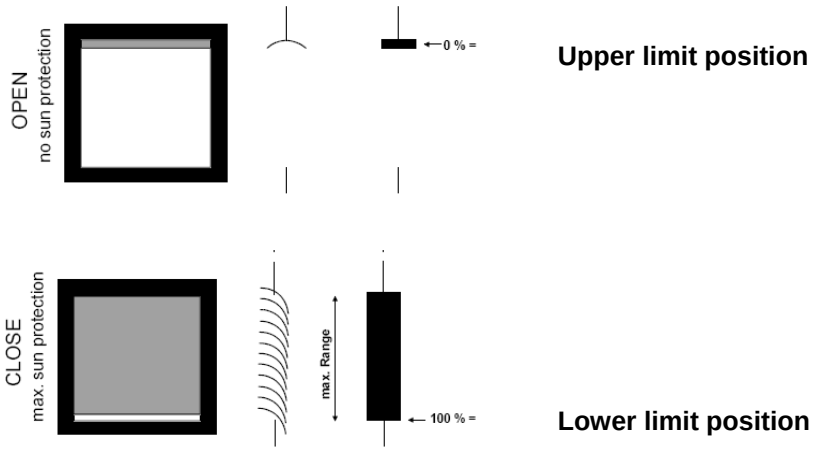
➢ *3.1.5 Percentage position feedback object*

The device can signal the percentage position of the load controlled by each channel following a movement, on the basis of the setting for this parameter, which may have the following values:

- ***disabled***
  This is the default setting. The **"Ch.x - Position feedback"** object is not activated.

- ***enabled only on demand***
  This option enables the **"Ch.x - Position feedback"** object, via which the device signals the percentage position of the load.

- ***enabled on variation and on switching on***
  This option enables the **"Ch.x - Position feedback"** object, via which the device signals the percentage position of the load.
  The transmission of the object occurs every time there is a variation in the position of the load and the bus voltage is restored.
  With regard to the percentage position of the object, the following convention is used:
  o 0% → shutter/venetian blind completely raised
  o 100% → shutter/venetian blind completely lowered
  Here is an example:



➢ *3.1.6 Movement in progress feedback object*

This makes it possible to enable movement in progress signalling object using this parameter, which can assume the following values:

- ***disabled***
  This is the default setting. The **"Ch.x - Movement feedback"** object is not activated.

- ***enabled only on demand***
  This option enables the **"Ch.x - Movement feedback"** object, via which the device signals with a value equal to "1" that a downward movement of the load is in progress and with a value equal to "0" that an upward movement is in progress.

- ***enabled on variation***
  This option enables the **"Ch.x - Movement signalling"** object, via which the device signals with a value equal to "1" that a downward movement of the load is in progress and with a value equal to "0" that an upward movement is in progress.
  The transmission of the communication object occurs every time there is a load movement.

➢ *3.1.7 Channel x behaviour at download*

With this parameter, it is possible to define the behaviour of channel x following the download of the application from the ETS software. By default, the parameter is set as **no effect**, but you can change this to **automatic calibration execution** (for further details, refer to paragraph 6).

➢ *3.1.8 Channel x behaviour on BUS voltage recovery*

The behaviour of channel x when the BUS voltage is restored is determined by this parameter, which may have the following values:

- ***No effect***
  This is the default setting.

- ***Up movement***
  This option applies an upward movement.

- ***Down movement***
  This option applies a downward movement.

- ***Automatic calibration execution***
  This option makes an automatic calibration (for further details, refer to paragraph 6).

- ***Percentage position***
  By selecting the "percentage position" value, the following parameters are visualised:
  - **Percentage position on bus voltage recovery** with the possibility to set a percentage from 0 to 100, in 5% steps; the default value is **0%**.
  - **Louvres percentage position on bus voltage recovery** if the set mode is "venetian blind", with the possibility to set a percentage from 0 to 100, in 5% steps; the default value is **0%**.

  Before going to the desired position, the actuator automatically executes the calibration operation.

➢ *3.1.9 Travel limits*

In some applications, it is useful to limit the object travel to a certain interval, to prevent it from being damaged or damaging other objects; this parameter enables the limiting of the load travel via the "**Ch.x - Travel limits enabling**" communication object, which may have the following values:

- ***disable***
  This is the default setting. The **"Ch.x - Travel limits enabling"** object is not activated.

- ***enable***
  This option visualises both the "**Ch.x - Travel limits enabling**", "**Ch.x - Upper travel limit**", "**Ch.Y - Lower travel limit**" communication objects and the **"Upper limit percentage position"** and **"Lower limit percentage position"** parameters; with the latter, you can set the interval limits for the load travel once the limit has been enabled via the "Ch.x - Travel limits enabling" object.
  The values that can be set are percentages from 0 to 100, in 5% steps; **0%** is the upper limit default value and **100%** is the lower limit default value.
  The travel limits can be modified via the "**Ch.x - Upper travel limit**" and "**Ch.x - Lower travel limit**" communication objects.

If “**enable**” is set for **“Travel limits”**, you can also define the initial value of the “Ch.x - Travel limits enabling” object when downloaded from ETS (via the **“Travel limits enabling object value at download”** parameter) and on bus voltage recovery (via the **“Travel limits enabling object value at bus voltage recovery”** parameter). The values that can be set for the latter are:

- ***disabled***
  This is the default setting. The “Ch.x - Travel limits enabling” object assumes a value of 0.
- **enabled**
  The “Ch.x - Travel limits enabling” object assumes a value of 1.
- **as before voltage drop**
  The “Ch.x - Travel limits enabling” object assumes the value set before the voltage drop.

The travel limits are only used for movements initiated by the communication object, with a priority level lower than the weather alarms (see the table in paragraph 2.2).

4 *“Periods channel x”* menu

The **Periods channel x** menu contains the parameters shown in figure 4.1.

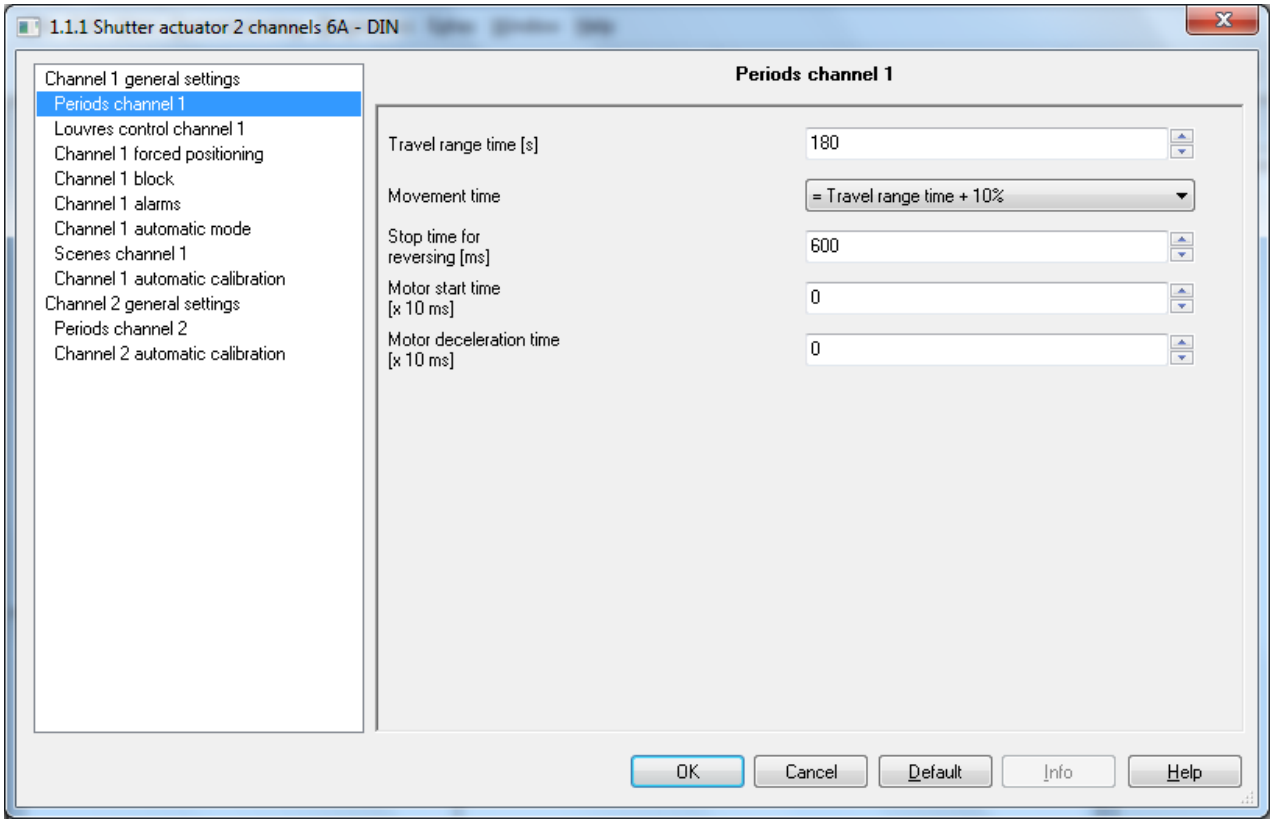


Fig. 4.1

4.1 Parameters

➢ 4.1.1 Travel range time [s]

The device calculates the percentage positions and executes partial movements based on the total load travel time, which is the time the load requires to move from the “fully up” position (0%) to the “fully closed” position (100%); this value is set in this parameter, and may assume a value from 1 to 3000 (the default value is 180).

➢ 4.1.2 Movement time

Normally the device continues to power the motor contact even if the limit switch has been reached, to make sure that the load has reached the limit switch position. You can set a time-out value with this parameter, which may have the following values:

- **= Travel range time**
- **= Travel range time + 2%**
- **= Travel range time + 5%**
- **= Travel range time + 10%** (default value)
- **= Travel range time + 20%**

➢ 4.1.3 Stop time for reversing [ms]

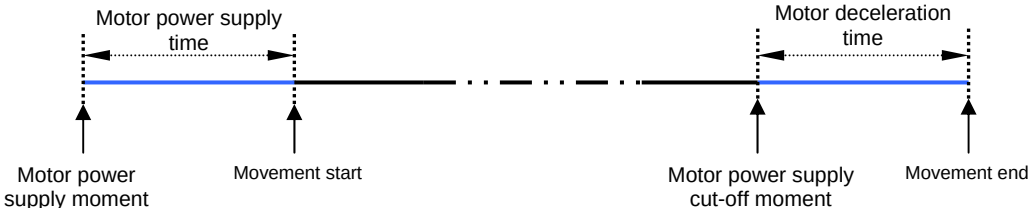
To prevent damaging the motor, a delay must be entered between receiving a command for movement in the opposite direction of the current movement and the effective reversal of direction; this time is normally provided by the shutter/venetian blind manufacturer and must be rigourously observed. This parameter is therefore used to set values from 50 to 10000 (the default value is 600).

➢ 4.1.4 Motor start time [x 10 ms]

With a view to keeping the correct load positioning unaltered over time (following the execution of scenes or percentage value commands), and to avoid any possible motor start-up delay (between the moment when the motor is powered and the moment when it starts running), it is possible to apply an extension of the time calculated to reach the required percentage position; this value can be set via this parameter, which may assume values from 0 (default) to 255.

➢ 4.1.5 Motor deceleration time [x 10 ms]

In addition, certain motors continue running for a short time even when the power supply has been switched off. With this parameter, you can set a time value to be subtracted from the time calculated to reach an intermediate percentage position (requested by the user), so the control is more precise. The values that can be set range from 0 (default) to 255.



The times set in the *“Motor start time [ms]”* and *“Motor deceleration time [ms]”* parameters are only used to calculate the time needed to reach a certain intermediate percentage position (following a specific command or the reproduction of a position associated with a scene, or prior to a feedback); they are not applied to any movements made via the “**Ch.x - Movement**” object. The factor set for the above listed parameters must be multiplied by 10 milliseconds.

5 *“Louvres control channel x”* menu

The **Louvres control channel x** menu contains the parameters shown in figure 5.1.

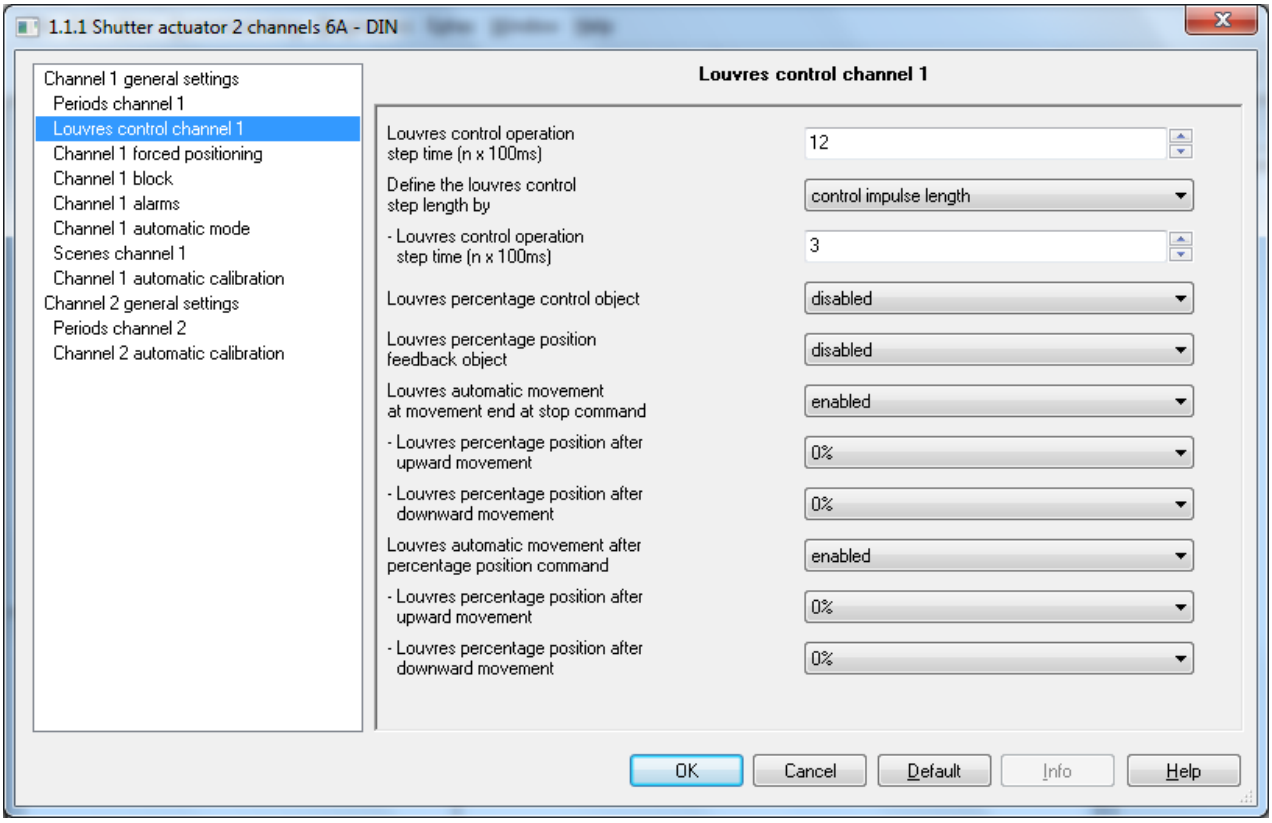


Fig. 5.1

5.1 Parameters

➢ *5.1.1 Louvres control operation step time (n x 100ms)*

If the user sets “venetian blind” as the channel x operating mode, the **Louvres control channel x** configuration menu will be visualised. With the **“Louvre control operation step time (n x 100ms)”** parameter, you can set the factor which, multiplied by the base (100 milliseconds), indicates the duration of the louvre control from “fully open” to “fully closed”. The values that can be set range from 1 to 120 (12 is the default value).

➢ *5.1.2 Define the louvres control step length by*

This parameter defines whether the duration of a louvre control step is set in terms of time, or in terms of the number of steps needed to pass from louvres "fully open" to "fully closed".
The parameter may have the values:

- **control impulse length**
  This is the default value which draws up the **“Louvre control operation step time (n x 100ms)”** parameter. Here, you can set the factor which, multiplied by the base (100 milliseconds), indicates the motor powering time corresponding to one louvre control step. The values that can be set range from 1 to 120 (the default value is 3).

- **number of control impulses**
  In this case, the **“Number of steps for total closing/opening of louvres”** parameter will appear. The values that can be set range from 1 to 15 (the default value is 4).

➢ *5.1.3 Louvres percentage control object*

It is possible to regulate the louvres position by setting from the bus the percentage value to which they should be brought according to the following convention:
0% → louvres completely open
100% → louvres completely closed
If enabled is set, then the **"Ch.x - Louvre control command"** communication object is visualised and allows the percentage control of the louvres from the BUS.

➢ *5.1.4 Louvre percentage position feedback object*

This makes it possible to enable the louvres percentage position signalling, which can assume the following values:

- **disabled**
  This is the default setting. The **"Ch.x - Louvres position feedback"** communication object is not activated.
- **enabled only on demand**
  The **"Ch.x - Louvres position feedback"** communication object is visualised. It is only sent upon request.
- **enabled on variation and on switching on**
  The **"Ch.x - Louvres position feedback"** communication object is visualised. It is sent every time there is a variation in the louvre position, and when the bus voltage is restored.

➢ *5.1.5 Louvres automatic movement at movement end at stop command*

The device can be configured so the louvre control is automatically performed at the end of a movement following the arrival of a stop command.
This parameter may have the following values:

- **disabled**
  this is the default value.
- **enabled**
  this displays both the parameter **"Louvres percentage position after downward movement"** which makes it possible to set the percentage value of the louvres after a downward movement, as well as the parameter **"Louvres percentage position after upward movement"** which makes it possible to set the percentage value after an upward movement. The percentage values range from 0 to 100 (50% is the default).
- **enabled after movement up**
  this is used to set the percentage value after an upward movement via the parameter **"Louvres percentage position after upward movement"**. The percentage values range from 0 to 100 (50% is the default).
- **enabled after movement down**
  this is used to set the percentage value after a downward movement via the parameter **"Louvres percentage position after downward movement"**. The percentage values range from 0 to 100 (50% is the default).

➢ *5.1.6 Louvres automatic movement after percentage position command*

This sets the automatic control of the louvres after the execution of a percentage position movement command. It may assume the following values:

- **disabled**
  this is the default value.
- **enabled**
  this displays both the parameter **"Louvres percentage position after downward movement"** which makes it possible to set the percentage value of the louvres after a downward movement, as well as the parameter **"Louvres percentage position after upward movement"** which makes it possible to set the percentage value after an upward movement. The percentage values range from 0 to 100 (0% is the default).
- **enabled after movement up**
  this is used to set the percentage value after an upward movement via the parameter **"Louvres percentage position after upward movement"**. The percentage values range from 0 to 100 (0% is the default).
- **enabled after movement down**

this is used to set the percentage value after a downward movement via the parameter **"Louvres percentage position after downward movement"**. The percentage values range from 0 to 100 (0% is the default).

6 *"Channel x automatic calibration"* menu

The **Channel x automatic calibration** menu contains the parameters shown in figure 6.1.

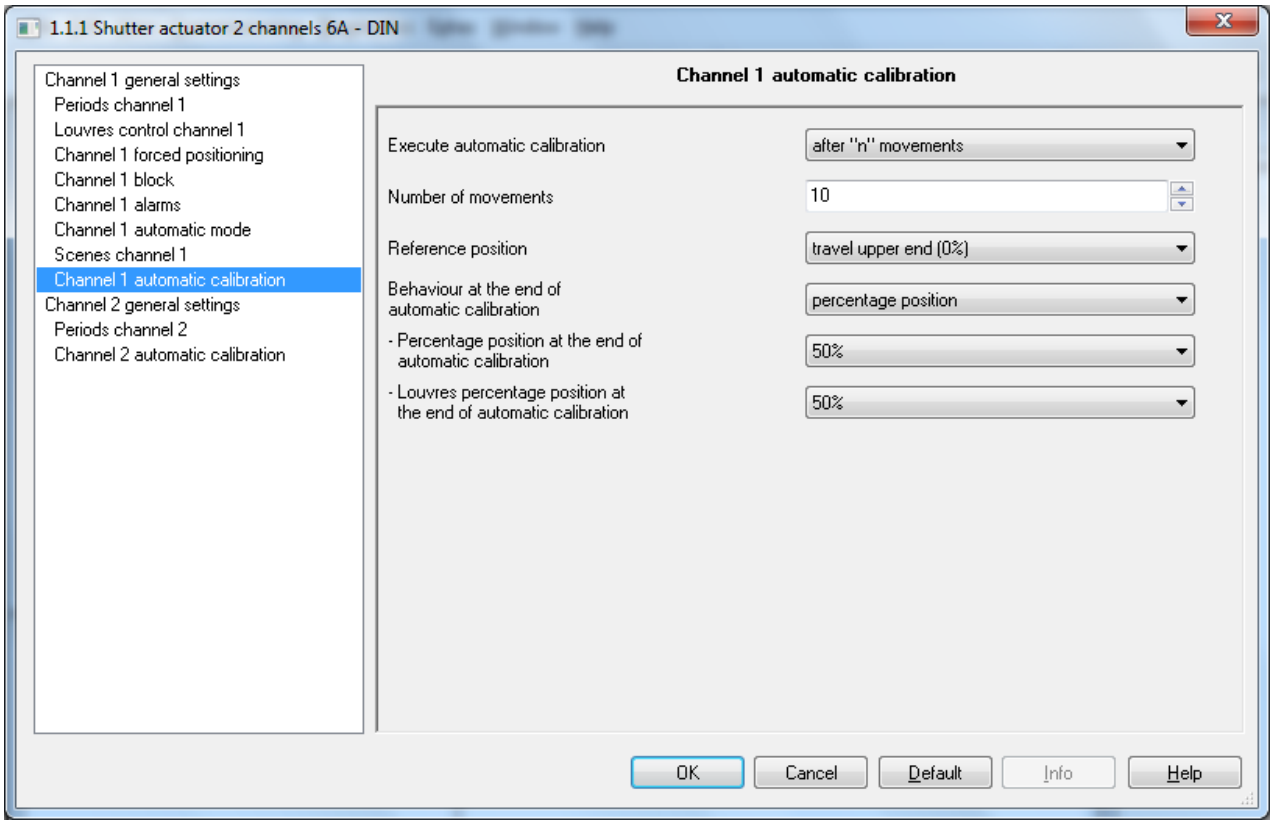


Fig. 6.1

6.1 Parameters

➢ 6.1.1 Execute automatic calibration

The actuator calculates the percentage position of the connected load based on the travel range time set by the user and in function of the movement commands it executes. Even if the parameters that determine the operating times are precisely set, there may still be little variations between the position calculated by the actuator and the real position, due for example to climate conditions or the mechanical load tolerance.

The device can zero out these variations by executing movements towards the reference positions, that is towards those identified by the two limit switches. Once the device executes a movement to the limit switch, the movement times can be correctly recalculated and any misalignment errors are cancelled. The device performs this operation every time the end stop is reached, but you can activate an automatic calibration by means of the **"Execute automatic calibration"** parameter, which may assume the following values:

- **never or downloading or bus voltage recovery**
  this is the default setting. It is selected when you do not want to perform an automatic calibration apart from at the time of the download, or when the bus voltage is restored (in accordance with the settings of the **"Channel x behaviour at download"** and **"Channel x behaviour on BUS voltage recovery"** parameters).

- **after n movements**
  it is possible to define after how many movements the device must perform an automatic calibration; each time the device reaches the limit switch, the movement counter is reset. The values that can be set range from 1 to 30 (the default value is 10).
- **at trigger reception**
  the **"Ch. x - Automatic calibration trigger"** communication object is visualised. If the value is "0" or "1", the device interprets this as a command to perform the automatic calibration.
  The enabling of this mode also activates the **"Reference position"** parameter, where you can define which end stop the device must use as a reference for the automatic calibration. The available values are:
  - **travel upper end (0%)** (default value)
  - **travel lower end (100%)**

  When the calibration operation has been completed, it is possible to define the behaviour of the device by means of the **"Behaviour at the end of automatic calibration"** parameter which, in turn, may assume the following values:
  - **stays in the reference position** (default value)
  - **back to previous position**
  - **percentage position**
    in this case, the **"Percentage position at the end of automatic calibration"** parameter is visualised (this defines the percentage position of the shutter) and, if the "venetian blind" mode is set, the **"Louvre percentage position at the end of automatic calibration"** parameter is also visualised (to define the percentage position of the venetian blind louvres at the end of the automatic calibration). The percentage values that can be set for both parameters range from 0 to 100 (the default value is 50%).
- **after n movements and at trigger reception**
  this option simultaneously activates both the modes (described above) - "after n movements" and "on trigger reception".

7 *"Channel x forced positioning"* menu

By activating the **"Forced positioning function"** in the General settings menu of the relative channel, the **"Ch.x - Priority command"** communication object will be visualised. In addition, the **Channel x forced positioning** menu will appear, with the parameters shown in figure 7.1.
Remember that ***the forced positioning activation command has a higher priority than any other bus command, including the block function.***

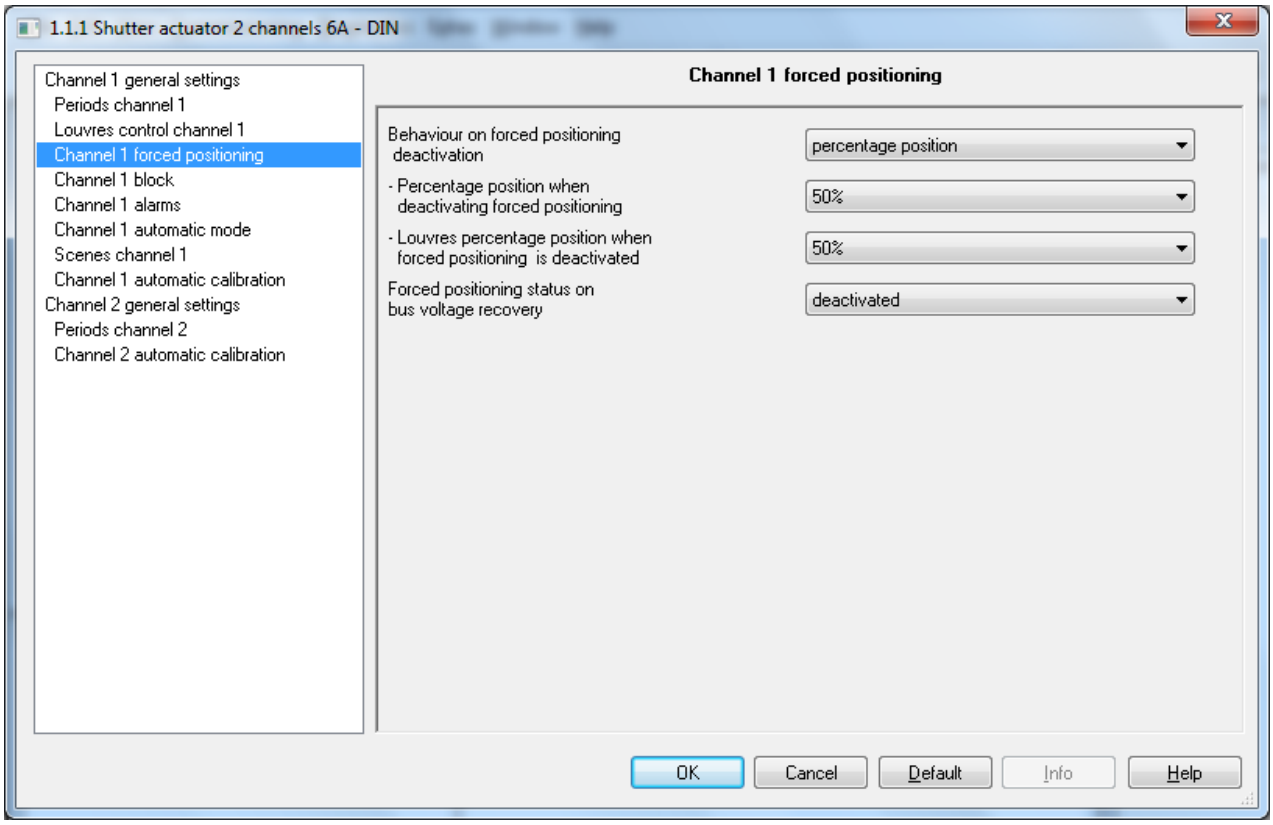


Fig. 7.1

7.1 Parameters

➢ *7.1.1 Behaviour on forced positioning deactivation*

This parameter is used to set the behaviour of the actuator when the forced positioning function is deactivated. The values that can be set are:

- **no effect**
  this is the default value. There is no action when the forced positioning function is deactivated.
- **up movement**
  when the forced positioning function is deactivated, an upward movement is commanded.
- **down movement**
  when the forced positioning function is deactivated, a downward movement is commanded.
- **back to previous position**
  when the forced positioning function is deactivated, the actuator returns to the previous position.
- **follows last command received**
  when the forced positioning function is deactivated, the valid command is the last one received.
- **percentage position**
  when the forced positioning function is deactivated, the **"Percentage position when deactivating forced positioning"** parameter is visualised. This is used to select the required value; the percentage values that can be set range from 0 to 100 in 5% steps and with a default value of 50%.

If the operating mode is “venetian blind”, then the **“Louvres percentage position when forced positioning is deactivated”** parameter is also visualised. This is used to select the required value; the percentage values that can be set range from 0 to 100 in 5% steps and with a default value of 50%.

- **stop**
  when the forced positioning function is deactivated, a stop is commanded.

➢ *7.1.2 Forced positioning status on bus voltage recovery*

This parameter is used to determine the forced positioning status when the bus voltage is restored. It is useful if the function is active when the bus voltage drops and you want to have the actuator behaviour not be changed after voltage failure. The parameter may assume the following values:

- **deactivated**
  the forced positioning function is deactivated when the bus voltage is restored. If forced positioning was active before the bus voltage drop, then when the bus voltage is restored the forcing function is deactivated and the actuator observes the setting of the “Behaviour on forced positioning deactivation” parameter.
- **as before bus voltage drop**
  this is the default value. If forced positioning was active before the bus voltage drop, then when the bus voltage is restored the forcing function is reactivated and the actuator reproduces the position prior to the voltage drop.

8 *"Channel x block"* menu

By activating the **"Block function"** in the General settings menu of the relative channel, you can block the device in a specific condition (settable) following the arrival of the **"Ch.x - Block"** communication object which activates the block function itself. Until this function is deactivated, no other command received on any communication object is executed (apart from the forced positioning activation command).
The activation of the block function enables the **Channel x block** menu, containing the parameters shown in figure 8.1.

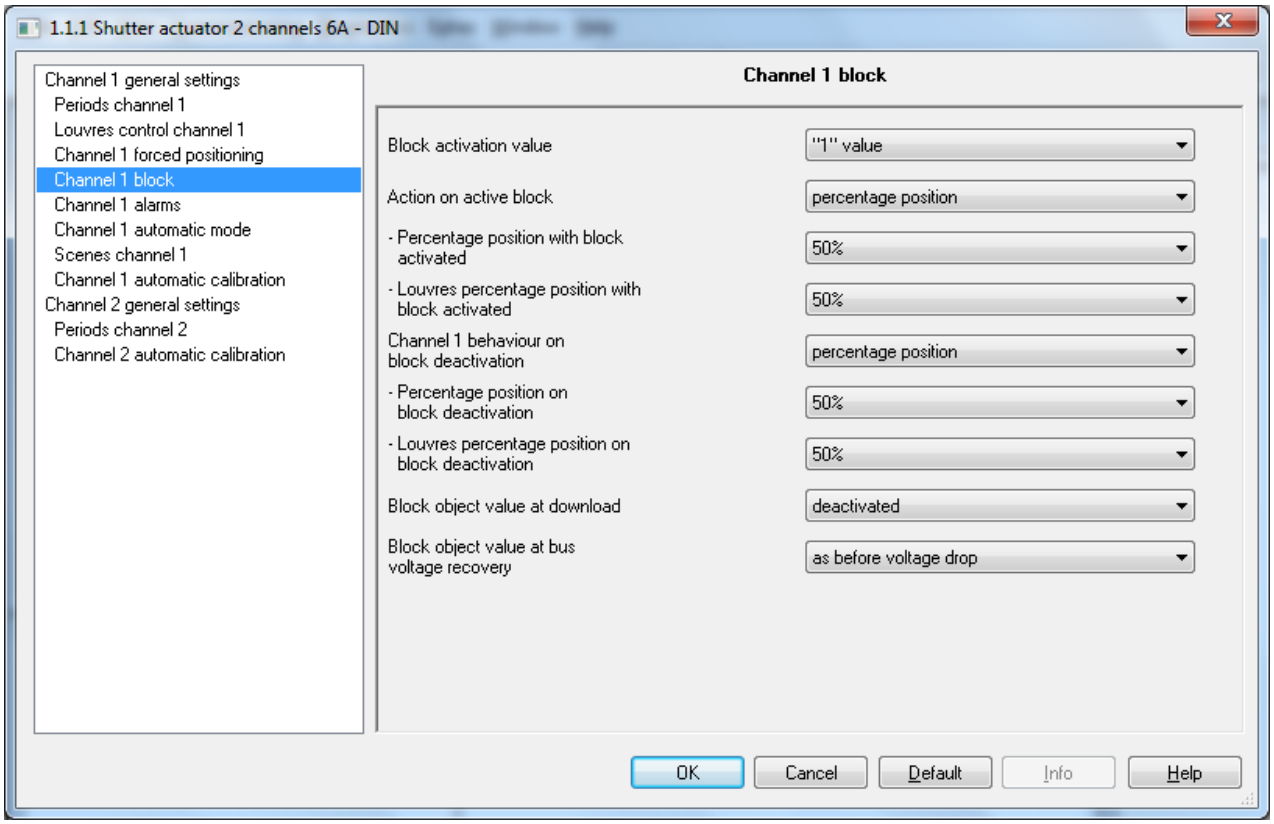


Fig. 8.1

8.1 Parameters

➢ *8.1.1 Block activation value*

This function determines the logic value with which the block function is activated via the **"Ch.x - Block"** object; the value opposite of the set value will deactivate the function. The values that can be set are:

- **value "0"**
  the block function is activated with a value of 0, and deactivated with a value of 1.
- **value "1"**
  this is the default value. The block function is activated with a value of 1 and deactivated with a value of 0.

➢ *8.1.2 Action on active block*

During the block, it is possible to use this parameter to set the behaviour of the actuator channel. The following values can be set:

- **no effect**
  this is the default value. No action is performed when the block function is activated.
- **up movement**
  when the block function is activated, an upward movement is commanded.
- **down movement**

when the block function is activated, a downward movement is commanded.

- **percentage position**
  this option visualises the **"Percentage position with block activated"** parameter, used to define the percentage position of the load. If the operating mode is "venetian blind", then the **"Louvre percentage position with block activated"** parameter is also visualised. This is used to define the percentage position of the venetian blind louvres; the percentage values that can be set for both range from 0 to 100 in 5% steps and with a default value of 50%.
- **Stop**
  when the block function is activated, a stop is commanded.

➢ *8.1.3 Channel x behaviour on block deactivation*

When the block function is deactivated, it is possible to use this parameter to set the behaviour of the actuator channel. The following values can be set:

- **no effect**
  this is the default value. No action is performed when the block function is deactivated.
- **up movement**
  when the block function is deactivated, an upward movement is commanded.
- **down movement**
  when the block function is deactivated, a downward movement is commanded.
- **percentage position**
  this option visualises the **"Percentage position on block deactivation"** parameter, used to define the percentage position of the load. If the operating mode is "venetian blind", then the **"Louvres percentage position on block deactivation"** parameter is also visualised. This is used to define the percentage position of the venetian blind louvres; the percentage values that can be set for both range from 0 to 100 in 5% steps and with a default value of 50%.
- **stop**
  when the block function is deactivated, a stop is commanded.

➢ *8.1.4 Block object value at download*

This parameter is used to set the logic value for the **"Ch.x - Block"** communication object upon ETS download. The possible values are:

- **deactivated**
  this is the default value. The block is deactivated after the ETS download.
- **active**
  the block function is activated after the ETS download.

➢ *8.1.5 Block object value at bus voltage recovery*

This parameter is used to set the logic value for the **"Ch.x - Block"** communication object whenever the bus voltage is restored. The possible values are:

- **deactivated**
  the block function is deactivated when the bus voltage is restored.
- **active**
  the block function is activated when the bus voltage is restored.
- **as before voltage drop**
  this is the default value. The block function returns to the condition set before the bus voltage drop.

9 *"Scenes channel x"* menu

By activating the **"Scenes function"** in the General settings menu of the relative channel, you can enable this function that allows you to repeat a specific pre-set or previously stored position whenever the **"Ch.x - Scene"** communication object is received. The device is able to memorise and execute 8 scenes.
The activation of the scenes function enables the **Scenes channel x** menu, containing the parameters shown in figure 9.1.

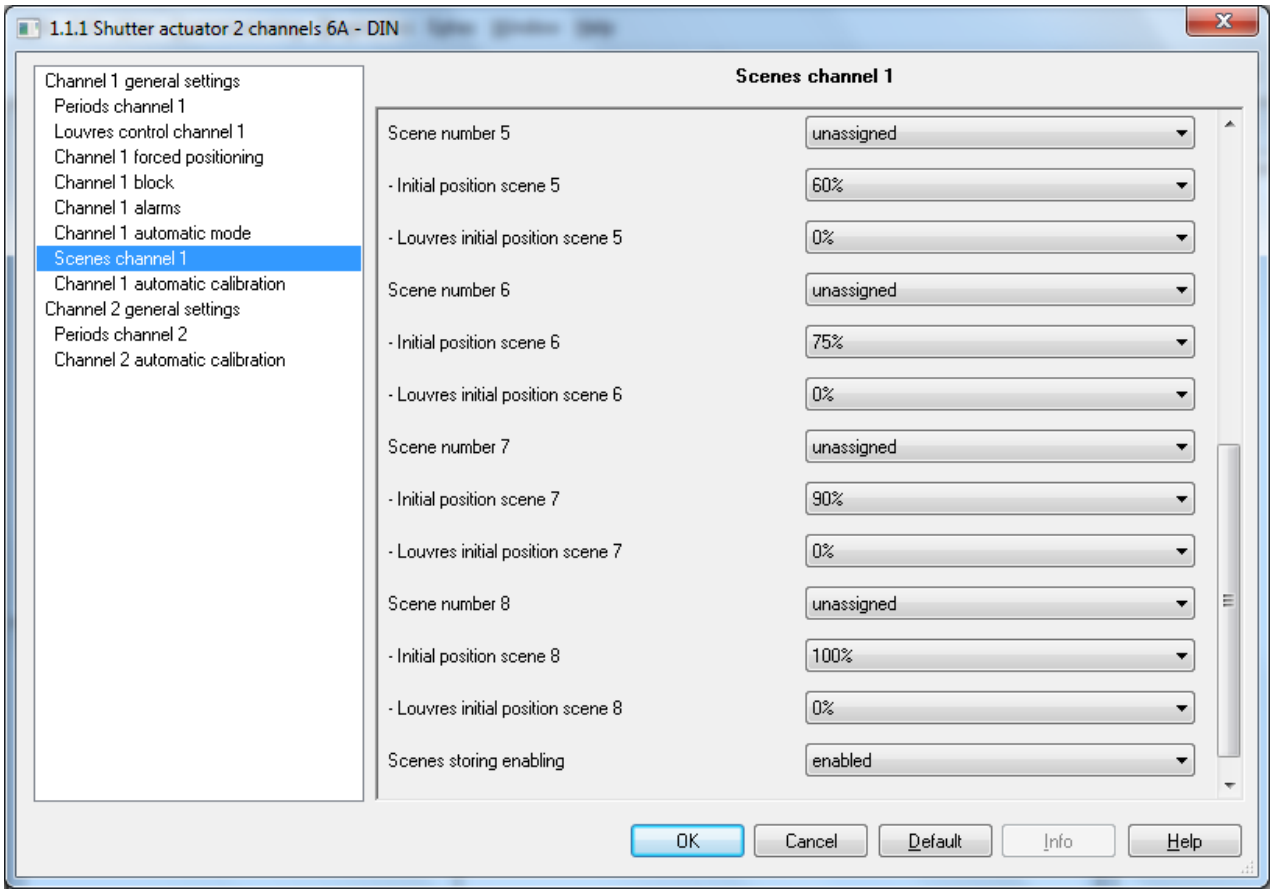


Fig. 9.1

9.1 Parameters

➢ *9.1.1 Scene number 1..8*

If the scenes function is activated, both the "**Ch.x - Scene**" input communication object (for receiving the scene execution/storage commands) and the "**Scenes channel x**" configuration menu (with the relative parameters) are received.
The **"Scene number 1..8"** parameters are used to set the numerical value for identifying and therefore executing/storing the nth scene. The possible values are:

- **unassigned**
  this is the default value. No number is assigned to the scene in question.
- **0, 1, ..., 63**
  a number from 0 to 63 is assigned to the scene. The maximum number of scenes that can be stored for each channel is 8.

The **"Initial position scene 1..8"** parameters are used to define the percentage position of the load linked to channel x, and which the actuator must repeat when it receives the communication object for the execution of the nth scene; the percentage values it can assume range from 0 to 100, in 5% steps. The respective default values are:

- **0%** (default value for scene 1)
- **15**% (default value for scene 2)
- **30**% (default value for scene 3)
- **45**% (default value for scene 4)
- **60**% (default value for scene 5)
- **75**% (default value for scene 6)
- **90**% (default value for scene 7)
- **100**% (default value for scene 8)

If the "venetian blind" operating mode is set, **"Louvre initial position scene 1..8"** defines the position of the blades of the load linked to channel x, and which the actuator must repeat when it receives the communication object for the execution of the nth scene; the values it can assume range from 0 to 100 in 5% steps, and for all 8 scenes the default value is 0%.

➢ *9.1.2 Scene storing enabling*

This parameter is used to enable/disable scene storing via the **Ch.x - Scene** communication object. The parameter may assume the following values:

- **disabled**
  scene storing is not possible.
- **enabled**
  this is the default value. It visualises the **"Ch.x - Scene storing enabling"** communication object, used to enable/disable - via bus - the possibility to store scenes by means of the "Ch.Y - Scene" communication object.

Scene storing includes memorising the percentage position of the louvres (for venetian blinds). Therefore, executing a scene must also include reproducing the previously memorised louvres position.

10 *"Channel x alarms"* menu

By activating the **"Alarms function"** in the General settings menu of the relative channel, you can enable this function that allows you to avoid any weather-related damage to the load connected to the actuator. There is a specific "**Channel x alarms**" configuration menu for enabling special communication objects that interface with weather sensors (rain sensor, wind sensor, etc.).
The activation of the alarms function enables the **Channel x alarms** menu, containing the parameters shown in figure 10.1.

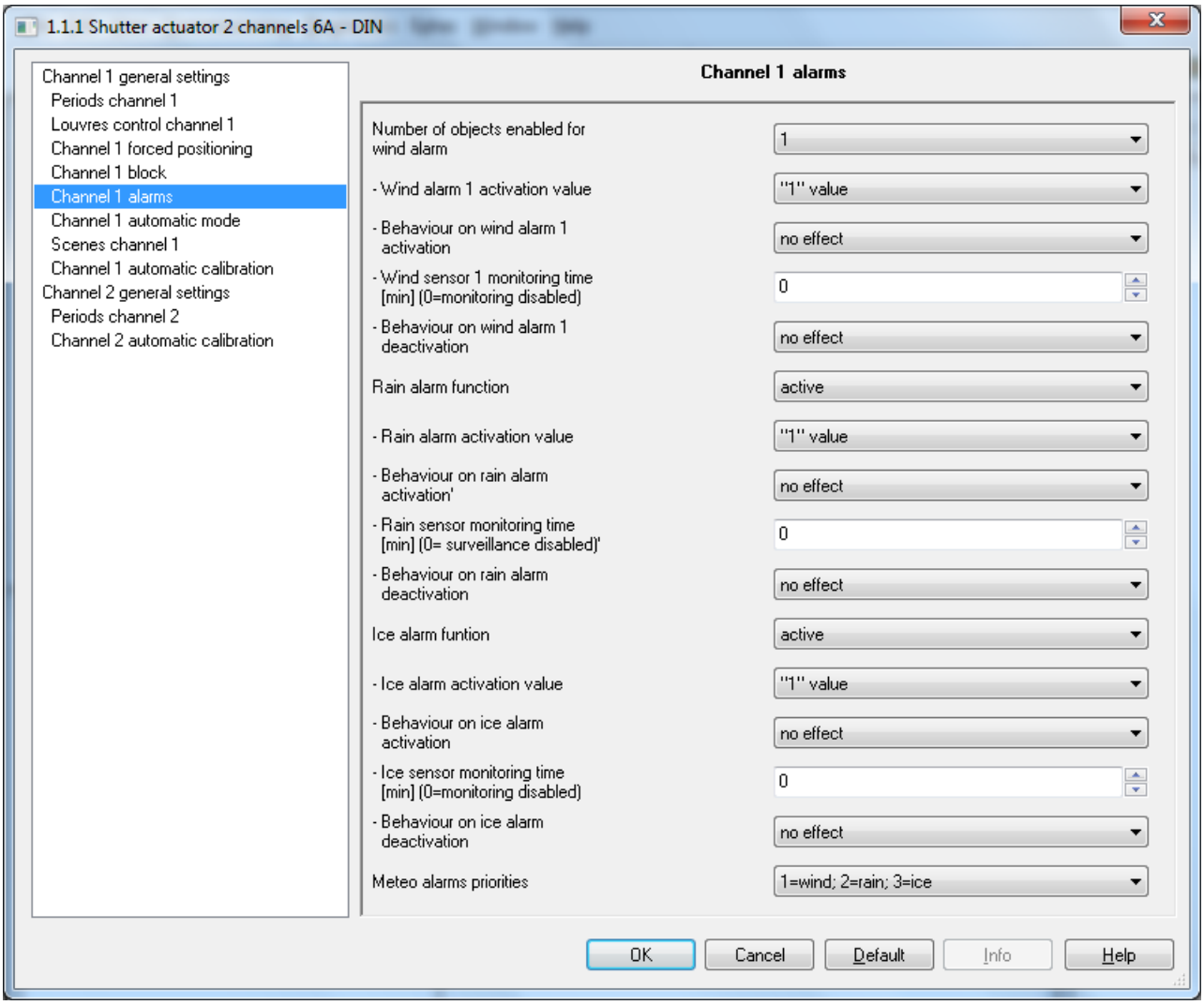


Fig. 10.1

10.1 Parameters

➢ *10.1.1 Number of objects enabled for wind alarm*

This parameter can be used to define how many communication objects the user wants to use to monitor the wind; up to 3 values can be set (the default setting is 0).

Depending on the number of objects enabled, the **"Ch.x - Wind alarm 1..3"** communication objects and the **"Wind alarm 1..3 activation value"** parameters will be visualised; the latter define the activation value for the communication object associated with the wind alarm. The values that can be set are:

- **value "0"**
  the relative wind alarm is activated with a value of 0.

- **value “1”**
  the relative wind alarm is activated with a value of 1 (the default value).

For each wind alarm enabled, the following parameters are visualised: **“Behaviour on wind alarm 1..3 activation”** (for defining the behaviour of the device when the relative wind alarm is active), **“Behaviour on wind alarm 1..3 deactivation"** (for defining the behaviour of the device when the relative wind alarm is deactivated), and **“Wind sensor 1..3 monitoring time [min] (0=monitoring disabled)”** (for defining the nth wind sensor monitoring time).

The **“Behaviour on wind alarm 1..3 activation”** parameters may assume the following values:

- **no effect**
  no action is applied when the relative wind alarm is activated.
- **up movement**
  an upward movement is made when the relative wind alarm is activated.
- **down movement**
  a downward movement is made when the relative wind alarm is activated.
- **percentage position**
  this option visualises the **“Percentage position with wind alarm 1..3 activated”** parameter, for defining the percentage position of the shutter in relation to the nth wind alarm. If the operating mode is "venetian blind", then the **“Louvre percentage position with wind alarm 1..3 activated”** parameter is also enabled and is used to define the percentage position of the venetian blind louvres. The percentage values that can be set for both parameters range between 0 and 100 a step of 5% and default value of 0%.
- **stop**
  a stop is commanded when the relative wind alarm is activated.

The **“Wind sensor 1..3 monitoring time [min] (0=monitoring disabled)”** parameters may assume values ranging from 0 to 60; the default value of 0 disables the monitoring function.
If the nth wind alarm communication object is not received in the period corresponding to the monitoring time, the actuator executes the same action corresponding to the nth alarm event.

The **“Behaviour on wind alarm 1..3 deactivation”** parameters are used to set the behaviour of the device when the nth wind alarm is deactivated. The values that can be set are:

- **no effect**
  this is the default value. No action is applied when the relative wind alarm is deactivated.
- **up movement**
  an upward movement is made when the relative wind alarm is deactivated.
- **down movement**
  a downward movement is made when the relative wind alarm is deactivated.
- **back to previous position**
  when the relative wind alarm is deactivated, the actuator brings the load back to the position assumed prior to the alarm.
- **follows last command received**
  when the relative wind alarm is deactivated, the last received command is executed.
- **percentage position**
  this option visualises the **“Percentage position on wind alarm 1..3 deactivation”** parameter, for defining the percentage position of the load. If the operating mode is "venetian blind", then the **“Louvres percentage position on wind alarm 1..3 deactivation”** parameter is also enabled and is used to define the percentage position of the venetian blind louvres. The percentage values that can be set for both parameters range between 0 and 100 a step of 5% and 0% is the default value.
- **stop**
  a stop is commanded when the relative wind alarm is deactivated.

The relative priority for the wind alarms is as follows:
Wind alarm 1 < Wind alarm 2 < Wind alarm 3.
Behaviour on alarm deactivation will be effectively implemented if and only if a wind alarm or another lower priority alarm is not active.

➢ *10.1.2 Rain alarm function*

Apart from the wind alarm, it is also possible to enable a communication object for monitoring rain. This is done via the **"Rain alarm function"** parameter, which is disabled by default.
Enabling the rain alarm, the **"Ch.x - Rain alarm"** communication object is visualised along with the following parameters: **"Rain alarm activation value"** (for defining the value of the communication object associated with the rain alarm), **"Behaviour on rain alarm activation"** (for defining the behaviour of the device when the rain alarm is active), **"Behaviour on rain alarm deactivation"** (for defining the behaviour of the device when the rain alarm is deactivated), and **"Rain sensor monitoring time [min] (0=monitoring disabled)"** (for defining the rain sensor monitoring time).

The **"Rain alarm activation value"** parameter may assume the following values:

- **value "0"**
  the rain alarm is activated with a value of 0.
- **value "1"**
  the rain alarm is activated with a value of 1 (the default value).

The **"Behaviour on rain alarm activation"** parameter defines the behaviour of the device when the rain alarm is active, while the **"Rain sensor monitoring time [min] (0=monitoring disabled)"** parameter defines the monitoring time of the rain sensor.

The **"Behaviour on rain alarm activation"** parameters may assume the following values:

- **no effect**
  no action is applied when the rain alarm is activated.
- **up movement**
  an upward movement is made when the rain alarm is activated.
- **down movement**
  a downward movement is made when the rain alarm is activated.
- **percentage position**
  this option visualises the **"Percentage position with rain alarm activated"** parameter, for defining the percentage position of the shutter in relation to the rain alarm. If the operating mode is "venetian blind", then the **"Louvres percentage position with rain alarm activated"** parameter is also enabled and is used to define the percentage position of the venetian blind louvres. The percentage values that can be set for both parameters range between 0 and 100 a step of 5% and default value of 0%.
- **stop**
  a stop is commanded when the rain alarm is activated.

The **"Rain sensor monitoring time [min] (0=monitoring disabled)"** parameters may assume values ranging from 0 to 60; the default value of 0 disables the monitoring function.
If the rain alarm communication object is not received in the period corresponding to the monitoring time, the actuator executes the same action corresponding to the alarm event.

The **"Behaviour on rain alarm deactivation"** parameter is used to set the behaviour of the device when the rain alarm is deactivated. The values that can be set are:

- **no effect**
  this is the default value. No action is applied when the rain alarm is deactivated.
- **up movement**
  an upward movement is commanded when the rain alarm is deactivated.
- **down movement**
  a downward movement is commanded when the rain alarm is deactivated.
- **return to previous position**
  when the rain alarm is deactivated, the actuator brings the load back to the position assumed prior to the alarm.
- **follows last command received**
  when the rain alarm is deactivated, the last received command is executed.
- **percentage position**
  this option visualises the **"Percentage position with rain alarm deactivated"** parameter, for defining the percentage position of the load. If the operating mode is "venetian blind", then the **"Louvre percentage position with rain alarm deactivated"** parameter is also enabled and is used to define the percentage position of the venetian blind louvres. The percentage values that can be set for both parameters range from 0 to 100 in 5% steps and with a default value of 0%.

- **stop**
  a stop is commanded when the rain alarm is deactivated.

➢ *10.1.3 Ice alarm function*

Apart from the wind and rain alarms, it is also possible to enable a communication object for monitoring ice. This is done via the **"Ice alarm function"** parameter, which is disabled by default.
Enabling the ice alarm, the **"Ch.x - Ice alarm"** communication object is visualised along with the following parameters: **"Ice alarm activation value"** (for defining the value of the communication object associated with the ice alarm), **"Behaviour on ice alarm activation"** (for defining the behaviour of the device when the ice alarm is active), **"Behaviour on ice alarm deactivation"** (for defining the behaviour of the device when the ice alarm is deactivated), and **"Ice sensor monitoring time [min] (0=monitoring disabled)"** (for defining the ice sensor monitoring time).

The **"Ice alarm activation value"** parameter may assume the following values:

- **value "0"**
  the ice alarm is activated with a value of 0.
- **value "1"**
  the ice alarm is activated with a value of 1 (the default value).

The **"Behaviour on ice alarm activation"** parameter defines the behaviour of the device when the ice alarm is active, while the **"Ice sensor monitoring time [min] (0=monitoring disabled)"** parameter defines the monitoring time of the ice sensor.

The **"Behaviour on ice alarm activation"** parameters may assume the following values:

- **no effect**
  no action is applied when the ice alarm is activated.
- **up movement**
  an upward movement is made when the ice alarm is activated.
- **down movement**
  a downward movement is made when the ice alarm is activated.
- **percentage position**
  this option visualises the **"Percentage position with ice alarm activated"** parameter, for defining the percentage position of the shutter in relation to the ice alarm. If the operating mode is "venetian blind", then the **"Louvres percentage position with ice alarm active"** parameter is also enabled and is used to define the percentage position of the venetian blind louvres. The percentage values that can be set for both parameters range from 0 to 100 in 5% steps and with a default value of 0%.
- **stop**
  a stop is commanded when the ice alarm is activated.

The **"Ice sensor monitoring time [min] (0=monitoring disabled)"** parameters may assume values ranging from 0 to 60; the default value of 0 disables the monitoring function.
If the ice alarm communication object is not received in the period corresponding to the monitoring time, the actuator executes the same action corresponding to the alarm event.

The **"Behaviour on ice alarm deactivation"** parameter is used to set the behaviour of the device when the ice alarm is deactivated. The values that can be set are:

- **no effect**
  this is the default value. No action is applied when the ice alarm is deactivated.
- **up movement**
  an upward movement is commanded when the ice alarm is deactivated.
- **down movement**
  a downward movement is commanded when the ice alarm is deactivated.
- **back to previous position**
  when the ice alarm is deactivated, the actuator brings the load back to the position assumed prior to the alarm.
- **follows last command received**
  when the ice alarm is deactivated, the last received command is executed.

- **percentage position**
  this option visualises the **"Percentage position with ice alarm deactivated"** parameter, for defining the percentage position of the load. If the operating mode is "venetian blind", then the **"Louvre percentage position with ice alarm deactivated"** parameter is also enabled and is used to define the percentage position of the venetian blind louvres. The percentage values that can be set for both parameters range from 0 to 100 in 5% steps with a default value of 0%.
- **stop**
  a stop is commanded when the ice alarm is deactivated.

➢ *10.1.4 Meteo alarms priorities*

With the **"Meteo alarms priorities"** parameter you can define which weather alarm should take priority. Considering that H=high priority, M=medium priority, L=low priority, the values that can be set are:

- **H=wind M=rain L=ice** (default value)
- **H=wind M=ice L=rain**
- **H=ice M=rain L=wind**
- **H=ice M=wind L=rain**
- **H=rain M=wind L=ice**
- **H=rain M=ice L=wind**

In general, all defined behaviours on alarm deactivation are effectively implemented if - and only if - an alarm with a lower priority is not active. Otherwise, the actuator will return the shutter/venetian blind to the position corresponding to the highest priority alarm still active.

When the bus voltage is restored, any active alarm status will be reset.

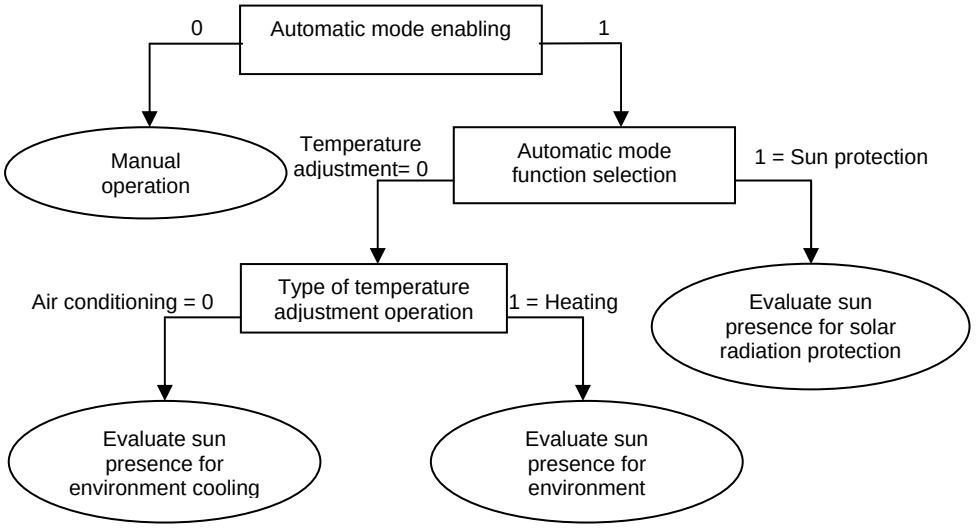
11 *“Channel x automatic mode”* menu

If **“Automatic mode”** is activated in the General settings menu of the relative channel, the device can perform autonomous implementations to take advantage of sunlight for heating the environment (for example). It is possible to define the position to which the load must be moved if the user requests protection against the direct light of the sun's rays, requests making use of the sun to heat the environment or requests suitable positioning of the load to protect against the sunlight to keep the environment cool.

Automatic operation is enabled via the **“Ch.x - Automatic mode enabling"** communication object; in this operating mode, the objects that permit 'manual' control (including automatic calibration) of the load are ignored whereas the higher priority commands (weather alarms, block and forced positioning) are executed.

In automatic operation, the device itself evaluates the best way to command the load. To do this, it considers the value of the “**Ch.x - Automatic mode function selection**” object (for activating the solar radiation protection function (value 1) or the thermoregulation function (value 0)) and the presence of the sun (indicated by the “**Ch.x - Sun presence**” communication object).

The block diagram shown below demonstrates this type of operation:



The activation of the automatic mode enables the **Channel x automatic mode** menu, containing the parameters shown in figure 11.1.

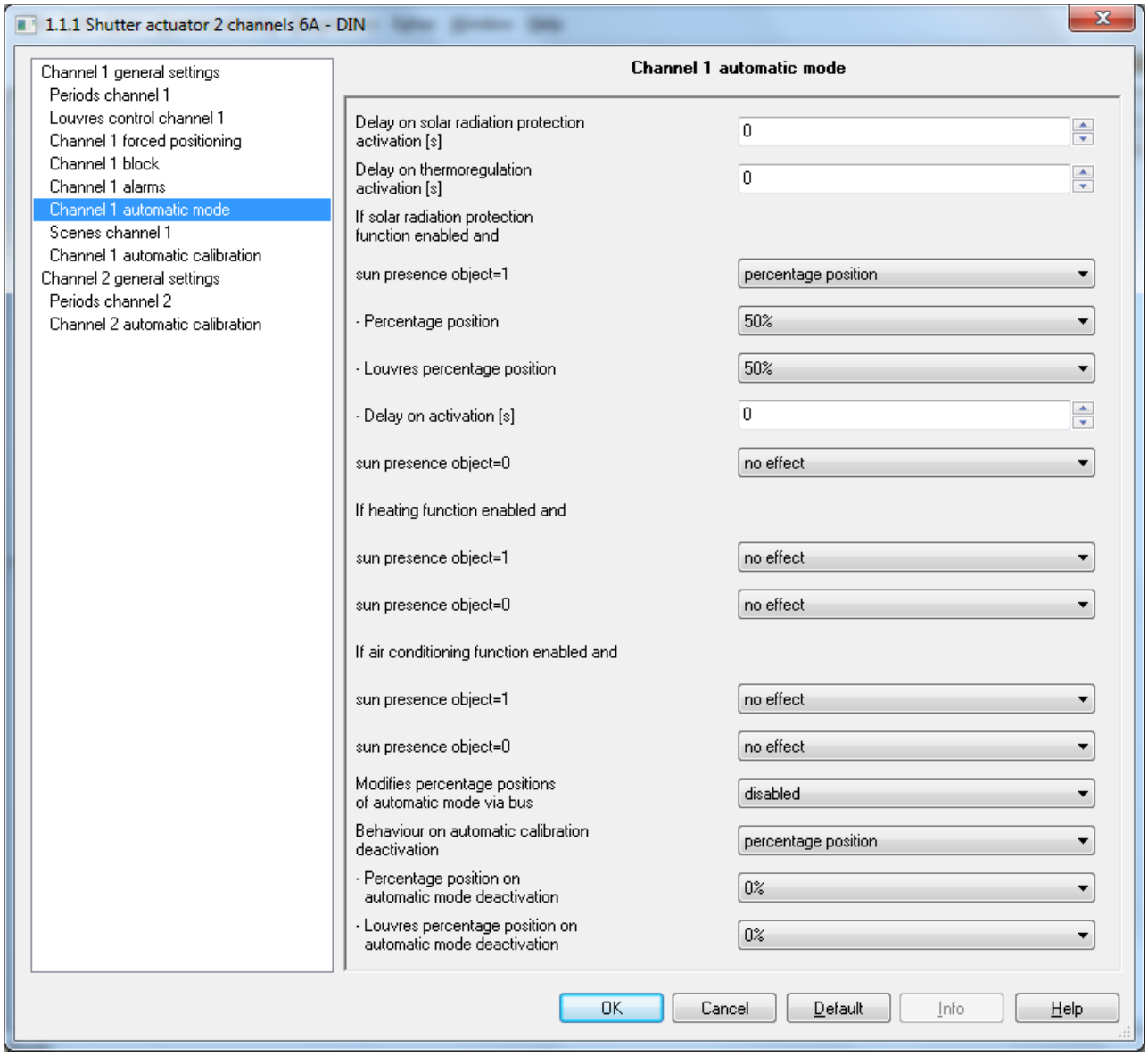


Fig. 11.1

11.1 Parameters

➢ 11.1.1 Delay on solar radiation protection activation [s]

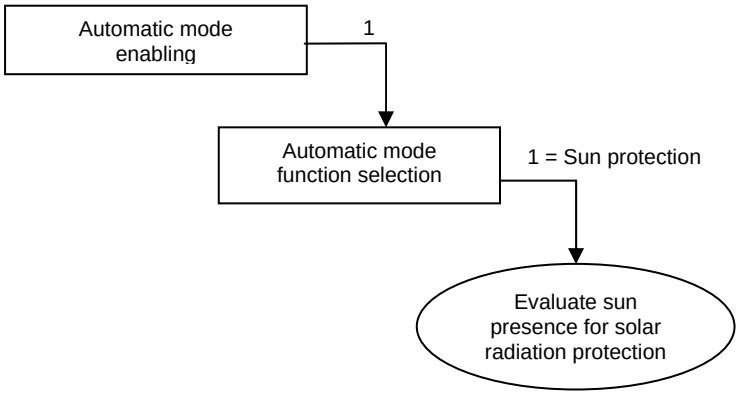
The activation of the solar protection function via "**Ch.x - Automatic mode function selection**" may be delayed, with a time lapse ranging from 0 to 3600 seconds (the default value is 0).

➢ 11.1.2 Delay on thermoregulation activation [s]

The activation of the thermoregulation function via "**Ch.x - Automatic mode function selection**" may be delayed, with a time lapse ranging from 0 to 3600 seconds (the default value is 0).

➢ 11.1.3 If solar radiation protection function enabled and

In this section, you can specify the behaviour of the load on the basis of the sun (as indicated by the "**Ch.x - Sun presence**" communication object and by the fact that the solar protection function has been activated via the "**Ch.x – Automatic mode function selection**" communication object).
The block diagram shown below demonstrates the condition for this type of operation:



For sun protection, it is possible to define the behaviour of the device in the presence of and without sun. Using the **"Sun presence object=1"** parameter, it is possible to define device behaviour when the set operation is "solar radiation protection" and the value of the "Ch.x - Sun presence" object is "1" (presence of the sun). The values that can be set are:

- **no effect**
  this is the default value, and does not carry out any action
- **percentage position**
  this displays the **"Percentage position"** parameters (for defining the percentage position of the shutter) and, if the operation is venetian blind, the **"Louvres percentage position"** parameter (for defining the percentage position of the venetian blind louvres). For both, the percentage values that can be set range from 0 to 100 (the default value is 50%).
  By using the **"Delay on activation [s]"** parameter, it is possible to define the delay time between receiving the sun presence object = 1 and the effective movement command. The parameter value can range from 0 (the default value) to 3600.

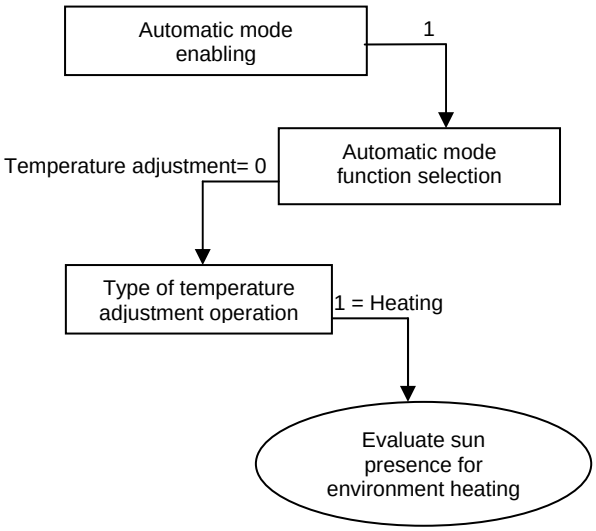
Using the **"Sun presence object=0"** parameter, it is possible to define device behaviour when the set operation is "solar radiation protection" and the value of the "Ch.x - Sun presence" object is "0" (no sun). The values that can be set are:

- **no effect**
  this is the default and does not carry out any action
- **percentage position**
  this displays the **"Percentage position"** parameters (for defining the percentage position of the shutter) and, if the operation is venetian blind, the **"Louvres percentage position"** parameter (for defining the percentage position of the venetian blind louvres). For both, the percentage values that can be set range from 0 to 100 (the default value is 50%).
  By using the **"Delay on activation [s]"** parameter, it is possible to define the delay time between receiving the sun presence object = 0 and the effective movement command. The parameter value can range from 0 (the default value) to 3600.

➢ *11.1.4 If heating function enabled and*

In this section, you can specify the behaviour of the load on the basis of the sun (as indicated by the "**Ch.x - Sun presence**" communication object and by the fact that the heating function has been activated via the "**Ch.x – Automatic mode function selection**" communication object).

The block diagram below shows the condition for this type of operation:



For the heating function, it is possible to define the behaviour of the device with or without the sun.
Using the **"Sun presence object=1"** parameter, it is possible to define device behaviour when the set operation is "Heating" and the value of the "Ch.x - Sun presence" object is "1" (presence of the sun). The values that can be set are:

- **no effect**
  this is the default and does not carry out any action
- **percentage position**
  this displays the **"Percentage position"** parameters (for defining the percentage position of the shutter) and, if the operation is venetian blind, the **"Louvres percentage position"** parameter (for defining the percentage position of the venetian blind louvres). For both, the percentage values that can be set range from 0 to 100 (the default value is 50%).
  By using the **"Delay on activation [s]"** parameter, it possible to define the delay time between receiving the sun presence object = 1 and the effective movement command. The parameter value can range from (the default value) to 3600.

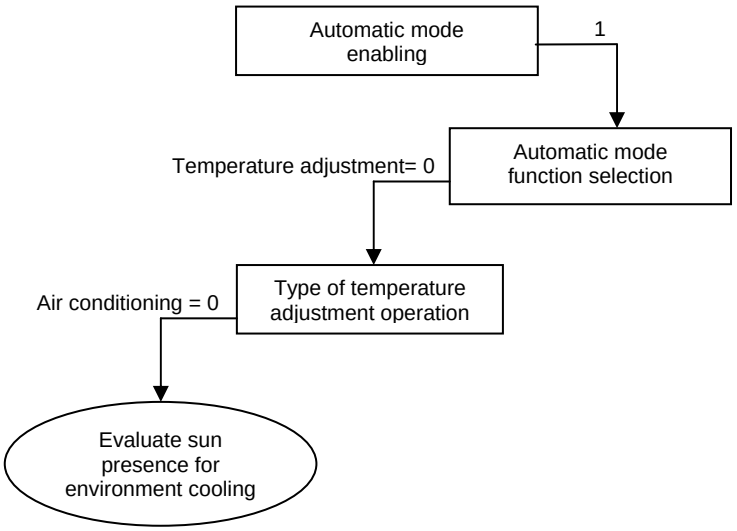
Using the **"Sun presence object=0"** parameter, it is possible to define device behaviour when the set operation is "Heating" and the value of the "Ch.x - Sun presence" object is "0" (no sun). The values that can be set are:

- **no effect**
  this is the default and does not carry out any action
- **percentage position**
  this displays the **"Percentage position"** parameters (for defining the percentage position of the shutter) and, if the operation is venetian blind, the **"Louvres percentage position"** parameter (for defining the percentage position of the venetian blind louvres). For both, the percentage values that can be set range from 0 to 100 (the default value is 50%).
  By using the **"Delay on activation [s]"** parameter, it is possible to define the delay time between receiving the sun presence object = 0 and the effective movement command. The parameter value can range from 0 (the default value) to 3600.

➢ *11.1.5 If air conditioning function enabled and*

In this section, you can specify the behaviour of the load on the basis of the sun (as indicated by the "**Ch.x - Sun presence**" communication object and by the fact that the air conditioning function has been activated via the "**Ch.x – Automatic mode function selection**" communication object).

The block diagram below shows the condition for this type of operation:



For the air conditioning function, it is possible to define the behaviour of the device with or without the sun.
Using the **"Sun presence object=1"** parameter, it is possible to define device behaviour when the set operation is "Air conditioning" and the value of the "Ch.x - Sun presence" object is "1" (presence of the sun). the values that can be set are:

- **no effect**
  this is the default and does not carry out any action
- **percentage position**
  this displays the **"Percentage position"** parameters (for defining the percentage position of the shutter) and, if the operation is venetian blind, the **"Louvres percentage position"** parameter (for defining the percentage position of the venetian blind louvres). For both, the percentage values that can be set range from 0 to 100 (the default value is 50%).
  By using the **"Delay on activation [s]"** parameter, it is possible to define the delay time between receiving the sun presence object = 1 and the effective movement command. The parameter value can range from 0 (the default value) to 3600.

Using the **"sun presence object=0"** parameter, it is possible to define device behaviour when the set operation is "Air conditioning" and the value of the object "Ch.x - Sun presence" is "0" (no sun). The values that can be set are:

- **no effect**
  this is the default and does not carry out any action
- **percentage position**
  this displays the **"Percentage position"** parameters (for defining the percentage position of the shutter) and, if the operation is venetian blind, the **"Louvres percentage position"** parameter (for defining the percentage position of the venetian blind louvres). For both, the percentage values that can be set range from 0 to 100 (the default value is 50%).
  By using the **"Delay on activation [s]"** parameter, it is possible to define the delay time between receiving the sun presence object = 0 and the effective movement command. The parameter value can range from 0 (the default value) to 3600.

➢ *11.1.6 Modifies percentage positions of automatic mode via bus*

It is possible to modify the position of the shutter or venetian blind louvres (in relation to a specific automatic mode set via the ETS parameters described above) with the aid of special communication objects. By enabling the **"Modifies percentage positions of automatic mode via bus"** parameter (disabled by default), the "**Ch.x - Automatic mode position command**" communication objects will be visualised and, if the "venetian blind" operating mode is set, then the "**Ch.x - Automatic mode louvre control command**" object will also be visualised.
The possible cases are indicated below:

- If the mode currently active is ***solar protection*** (paragraph 11.1.3), then the above-mentioned objects will modify both the position and the control of the louvres, and will also update the percentage values of *Percentage position* and *Louvre percentage position* (if "venetian blind" is set) defined by the database parameters previously set via ETS.

- If the mode currently active is ***heating*** (paragraph 11.1.4), then the above-mentioned objects will modify both the position and the control of the louvres, and will also update the percentage values of *Percentage position* and *Louvre percentage position* (if "venetian blind" is set) defined by the database parameters previously set via ETS.

- If the mode currently active is ***air conditioning*** (paragraph 11.1.5), then the above-mentioned objects will modify both the position and the control of the louvres, and will also update the percentage values of *Percentage position* and *Louvre percentage position* (if "venetian blind" is set) defined by the database parameters previously set via ETS.

➢ *11.1.7 Behaviour on automatic mode deactivation*

This parameter is used to set the behaviour of the device when the automatic mode is deactivated (a value of 0 is received on the Ch x – Automatic mode enabling communication object). The values that can be set are:

- **no effect**
  this is the default value that, upon deactivation of the automatic mode, does not carry out any action.
- **up movement**
  upon deactivation of the automatic mode it commands an up movement.
- **down movement**
  upon deactivation of the automatic mode it commands a down movement.
- **back to previous position**
  upon deactivation of the automatic mode, the load for the relative channel returns to the position prior to deactivation
- **follows last command received**
  upon deactivation of the automatic mode, the last received command is executed.
- **percentage position**
  in this case, when the automatic mode is deactivated, the **"Percentage position on deactivation"** parameters are displayed (for defining the percentage position of the shutter) and, if the operation is venetian blind, the **"Louvres percentage position upon deactivation of automatic mode"** parameter is also displayed (for defining the percentage position of the Venetian blind louvres). For both, the percentage values that can be set range from 0 (the default value) to 100.
- **Stop**
  a stop is commanded when automatic mode is deactivated.

12 Communication objects

Fig. 12.1 shows all the communication objects that can be enabled by the ETS database; in this specific case, the image only shows the objects for channel 1.

Number	Name	Object Function	Leng...	C	R	W	T	U	Data Type	Priority
0	Ch.1 - Movement	Up/Down	1 bit	C	-	W	-	-		Low
1	Ch.1 - Shutter stop/Louvres control	Stop/step	1 bit	C	-	W	-	-		Low
1	Ch.1 - Stop	Stop	1 bit	C	-	W	-	-		Low
2	Ch.1 - Position command	% Value	1 Byte	C	-	W	-	-		Low
3	Ch.1 - Shutter control command	% Value	1 Byte	C	-	W	-	-		Low
4	Ch.1 - Block	Switching On/Off	1 bit	C	-	W	-	-		Low
5	Ch.1 - Priority command	Forced positioning Up/Down	2 bit	C	-	W	-	-		Low
6	Ch.1 - Scene	Execute/Store	1 Byte	C	-	W	-	-		Low
7	Ch.1 - Wind alarm 1	Alarm input	1 bit	C	-	W	-	-		Low
8	Ch.1 - Wind alarm 2	Alarm input	1 bit	C	-	W	-	-		Low
9	Ch.1 - Wind alarm 3	Alarm input	1 bit	C	-	W	-	-		Low
10	Ch.1 - Rain alarm	Alarm input	1 bit	C	-	W	-	-		Low
11	Ch.1 - Ice alarm	Alarm input	1 bit	C	-	W	-	-		Low
12	Ch.1 - Automatic mode enabling	Enable/Disable	1 bit	C	-	W	-	-		Low
13	Ch.1 - Automatic mode function selection	Sun protection/Thermoreg.	1 bit	C	-	W	-	-		Low
14	Ch.1 - Thermoregulation operating type	Heating/Air conditioning	1 bit	C	-	W	-	-		Low
15	Ch.1 - Sun presence	True/False	1 bit	C	-	W	-	-		Low
16	Ch.1 - Automatic mode position command	% Value	1 Byte	C	-	W	-	-		Low
17	Ch.1 - Automatic mode louvres control co...	% Value	1 Byte	C	-	W	-	-		Low
18	Ch.1 - Automatic calibration trigger	Calibration request	1 bit	C	-	W	-	-		Low
19	Ch.1 - Movement feedback	Increase/Decrease	1 bit	C	R	-	-	-		Low
20	Ch.1 - Position feedback	% Value	1 Byte	C	R	-	T	-		Low
21	Ch.1 - Louvres position feedback	% Value	1 Byte	C	R	-	-	-		Low
22	Ch.1 - Travel limits enabling	Enable/Disable	1 bit	C	-	W	-	-		Low
23	Ch.1 - Lower travel limit	% Value	1 Byte	C	-	W	-	-		Low
24	Ch.1 - Upper travel limit	% Value	1 Byte	C	-	W	-	-		Low
25	Ch.1 - Scene storing enabling	Enable/Disable	1 bit	C	-	W	-	-		Low

Fig. 12.1

12.1 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.
The number of the communication object for channels three and four refers to GW90857 (i.e. the 4-channel actuator).

➢ *12.1.1 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	26	52	78	Ch.x - Movement	Increase/ Decrease	Makes up/down movements of channel x	1.008 DPT_UpDown
1	27	53	79	Ch.x - Stop	Stop	Stops all movements of channel x	1.017 DPT_Trigger
1	27	53	79	Ch.x - Louvre stop/control	Stop/Step	Stops/controls louvre movements of channel x	1.007 DPT_Step
2	28	54	80	Ch.x - Position control	% Value	Sets percentage position for channel x	5.001 DPT_Scaling
3	29	55	81	Ch.x - Louvre position control	% Value	Sets percentage position for louvres on channel x	5.001 DPT_Scaling
4	30	56	82	Ch.x - Block	Switching On /Off	Blocks the position of channel x in a status where parameters can be applied	1.003 DPT_Enable
5	31	57	83	Ch.x - Priority command	Up/down forcing	Forces the status of channel x up or down	2.008 Direction1DPT_ Switch_Control
6	32	58	84	Ch.x - Scene	Execute/Store	Allows the storage/execution of channel x scenes	18.001 DPT_SceneControl
7	33	59	85	Ch.x - Wind alarm 1	Alarm input	Channel x wind alarm input	1.005 DPT_Alarm
8	34	60	86	Ch.x - Wind alarm 2	Alarm input	Channel x wind alarm input	1.005 DPT_Alarm
9	35	61	87	Ch.x - Wind alarm 3	Alarm input	Channel x wind alarm input	1.005 DPT_Alarm
10	36	62	88	Ch.x - Rain alarm	Alarm input	Channel x rain alarm input	1.005 DPT_Alarm
11	37	63	89	Ch.x - Ice alarm	Alarm input	Channel x ice alarm input	1.005 DPT_Alarm
12	38	64	90	Ch.x - Automatic mode enabling	Enable/disable	Actuator automatic mode enabling	1.003 DPT_Enable
13	39	65	91	Ch.x - Automatic mode function selection	Solar protection/Thermo regulation	Sun protection or thermoregulation enabling	1.003 DPT_Enable
14	40	66	92	Ch.x - Thermoregulation operating type	Heating/Air conditioning	Automatic thermoregulation functioning type	1.100 DPT_Heat/Cool
15	41	67	93	Ch.x - Sun presence	True/false	Sun presence/absence signalling reception	1.002 DPT_Bool
16	42	68	94	Ch.x - Automatic mode position command	% Value	Modifies and memorises % position with automatic operation active	5.001 DPT_Scaling
17	43	69	95	Ch.x - Automatic mode louvre control command	% Value	Modifies and memorises louvres % position with automatic operation active	5.001 DPT_Scaling
18	44	70	96	Ch.x - Automatic calibration trigger	Calibration request	Activates device automatic calibration	1.017 DPT_Trigger

➢ *12.1.2 Communication objects with output functions*

The following table shows all the objects with an output function and with flags C (communication), R (reading from bus) and W (writing from bus) enabled.

No. of communication objects				Object name	Object function	Description	Datapoint
Ch.1	Ch.2	Ch.3	Ch.4				
19	45	71	97	Ch.x - Movement feedback	Increase/ Decrease	Channel x movement in progress	1.008 DPT_UpDown
20	46	72	98	Ch.x - Position feedback	% Value	Current percentage position for channel x	5.001 DPT_Scaling
21	47	73	99	Ch.x - Louvre position feedback	% Value	Current percentage position of louvres for channel x	5.001 DPT_Scaling

➢ *12.1.3 Communication objects that set parameters from the BUS*

The following table shows all the objects that set parameters from the BUS and have 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				
22	48	74	100	Ch.x - Travel limits enabling	Enable/disable	Enables/disables load travel limitation	1.003 DPT_Enable
23	49	75	101	Ch.x - Minimum travel limit	% Value	Sets the % position of the upper travel limit	5.001 DPT_Scaling
24	50	76	102	Ch.x - Maximum travel limit	% Value	Sets the % position of the lower travel limit	5.001 DPT_Scaling
25	51	77	103	Ch.x - Scene storing enabling	Enable/disable	Enables/disables scene storing	1.003 DPT_Enable

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Ai sensi dell'articolo 9 comma 2 della Direttiva Europea 2004/108/CE si informa che responsabile dell'immissione del prodotto sul mercato Comunitario è:
According to article 9 paragraph 2 of the European Directive 2004/108/EC, the responsible for placing the apparatus on the Community market is:
GEWISS S.p.A Via A. Volta, 1 - 24069 Cenate Sotto (BG) Italy Tel: +39 035 946 111 Fax: +39 035 945 270 E-mail: qualitymarks@gewiss.com

SAT
+39 035 946 111
8.30 - 12.30 / 14.00 - 18.00
lunedì ÷ venerdì - monday ÷ friday
24h
+39 035 946 260
sat@gewiss.com
www.gewiss.com

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