**Schneider Clipsal**
**C-Bus Home Automation**
**Goodnight Level Guide**

# How does the Goodnight level work with C-Bus, and how do I use the Goodnight level?

## Overview.

One of the most popular C-Bus home automation benefits from Clever Home involves allowing home owners to **limit the maximum brightness** of dimmable bedroom and adjacent room lights (in the Ensuite, WIR, passage, etc) late at night.

If you get up in the night after having gone to bed, it is much nicer if the lights only turn on dimly. It is much easier on your night-sensitive eyes if your lights are prevented from turning on at full brightness after you have gone to bed. If you also use C-Bus automatic lighting, then a Goodnight level is more important still. Even if you also have some low intensity non-dimmable lights, a Goodnight level can allow you to turn on other brighter dimmable lights at reduced brightness late at night.

Using a Goodnight level is the simplest and most practical way of limiting the maximum brightness of C-Bus dimmed lights, regardless of how those lights are turned on: by C-Bus wall switch, C-Bus touch screen, schedules, or by C-Bus movement and light level sensors.

When one or more C-Bus home automation switches are programmed by Clever Home to control the Goodnight level:

- The **indicator** on each Goodnight level switch is **always illuminated**.
- A **long press** on a Goodnight level switch changes it to a **dimmed** level.
- A **short press** on a Goodnight level switch resets it to a **100%** level.

A Goodnight level is a simple idea, and is easy to use, but the details of its implementation require a more in depth explanation.

## C-Bus Dimmer Output Units and Channels.

C-Bus dimmers are not available as single units. Instead, four or eight C-Bus dimmers are compactly combined together in one DIN mounted module (see Figure 1 below). **The individual dimmer outputs on a C-Bus dimmer are referred to as Channels.** Each C-Bus Dimmer module includes a shared C-Bus control board that provides a shared interface to the C-Bus pink Cat5e communications cable for all of the dimmer Channels in that module.

Each C-Bus dimmer channel output is wired to a light, or to a set of lights (if all lights in the set may always be operated together at the same dimming level). For example, a dimmer channel output may be wired to four down lights in the ceiling of your Bedroom. For simplicity, we will subsequently refer to the light (singular) that is connected to a C-Bus dimmer channel.

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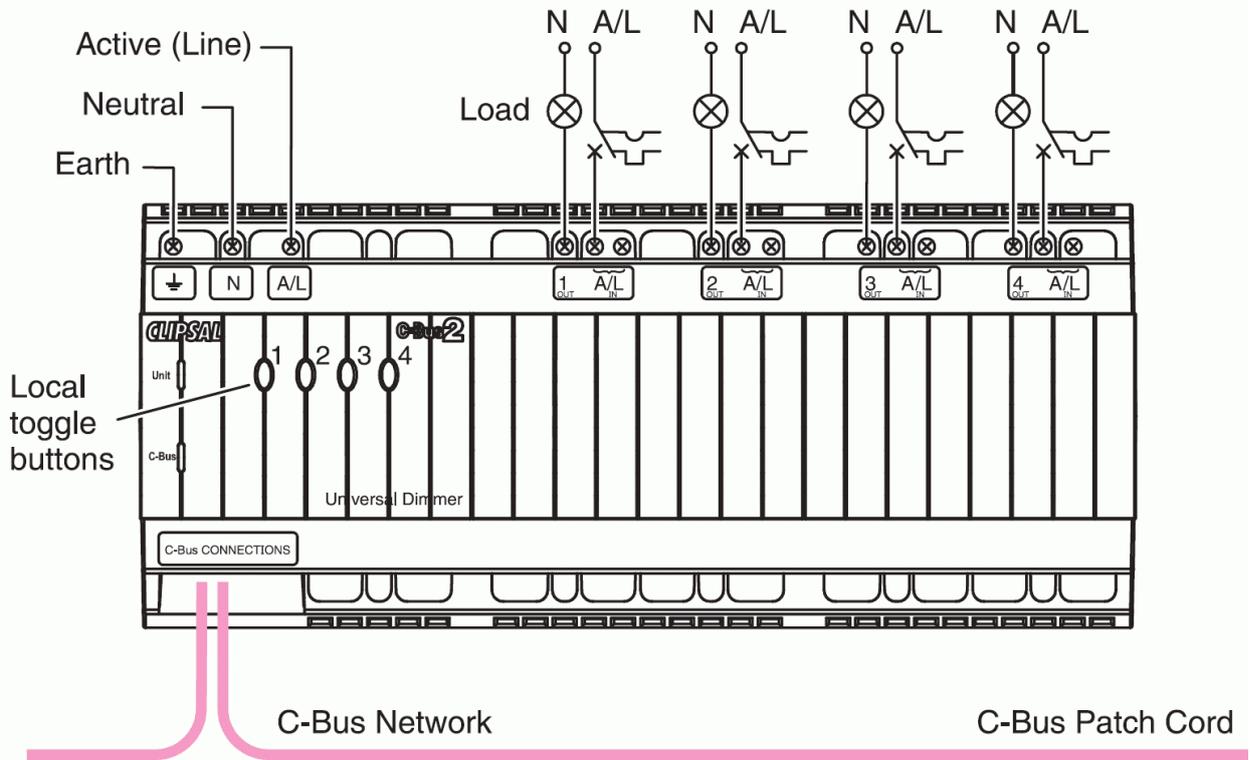


**Figure 1.** C-Bus L5504D2U 4 Channel C-Bus dimmer, with a dimmer output for each Channel.

The control board in each C-Bus dimmer module converts a single C-Bus Group Address level communicated on the C-Bus into a corresponding dimmer channel output. For example, the "Bed1 Light" Group Address as operated on a C-Bus wall switch, is converted into the actual dimmed level of the Bed1 ceiling light.

However, the control board can also implement a form of **Logic** whereby the dimmable level you set on a light switch (i.e. Group Address) for a light may be combined with one (or up to four) other dimmable level(s), before determining what the output from a dimmer channel will be.

## Some important distinctions.

The first important distinction is that **a C-Bus light switch for a light may not be the only determinant of the dimmer output for that light.** Usually the dimmable level you set at a C-Bus home automation light switch corresponds to the dimmable level that is produced at the output of a C-Bus dimmer **Channel**. This often leads home owners to think that there is no need to distinguish between them. However, when using a Goodnight level, this is not the case. Hence, the Bedroom light level you set on your C-Bus wall switch may not always correspond to the brightness of your Bedroom light bulb.

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The second important distinction is that **a C-Bus Goodnight level is fully implemented in a C-Bus Dimmer module.** A C-Bus Goodnight level is distinctly different to a C-Bus Goodnight Scene, or a C-Bus Goodnight Schedule. A C-Bus Goodnight level does not depend upon a C-Bus Scene for its implementation, though C-Bus Scenes and Schedules may be used to activate or change a C-Bus Goodnight level, to provide additional ways of operating of the Goodnight level.

### What is a Goodnight level?

**A Goodnight level is dimmable**, just like any other dimmable level that you would use to control a dimmable light on your C-Bus. It can be set to many values between 0% (light off) and 100% (light fully on).

A Goodnight level is **associated with a group of different lights** that each also have their own individually dimmable levels. For example, while the dimmable level for the Ensuite light affects only the Ensuite light, and the dimmable level for the Bedroom affects only the Bedroom light, the Goodnight level might affect the Ensuite light, the Bedroom light, and many other nearby lights as well.

The current dimmed level of a Goodnight level is combined with the dimmed level of other individually dimmable light levels **in real time, all the time,** in the C-Bus dimmer output unit.

### How does a Goodnight level work?

A Goodnight level is logically combined with individual light levels in C-Bus Dimmers, such that **the level of the dimmer output channel for a light is the minimum of both the Goodnight level, and the individual level for that light**. This is how the Goodnight level limits the maximum brightness of each of the individual lights that it is associated with.

In Figure 2 below, near the top of the GUI, you can see that four different set of lights, "Bed1 inner4", "Bed1 outer 6", "WIR 3", and "Ensuite 3" are assigned to the four dimmer output channels. Near the bottom left corner of the same GUI, you can see that these four channels are are also Logically combined using the "Min" minimum level relationship (bottom left) with a common "Bed1 gdnt level" that is a Goodnight level for the Bedroom 1 area.

**"Min" logic** means that the level of the individual channel group address (e.g. "Bed1 inner4") is compared with the Logic Group (e.g. "Bed1 gdnt level"), and then the lesser (or Minimum) value of these two levels determines the dimmer output level for that channel.

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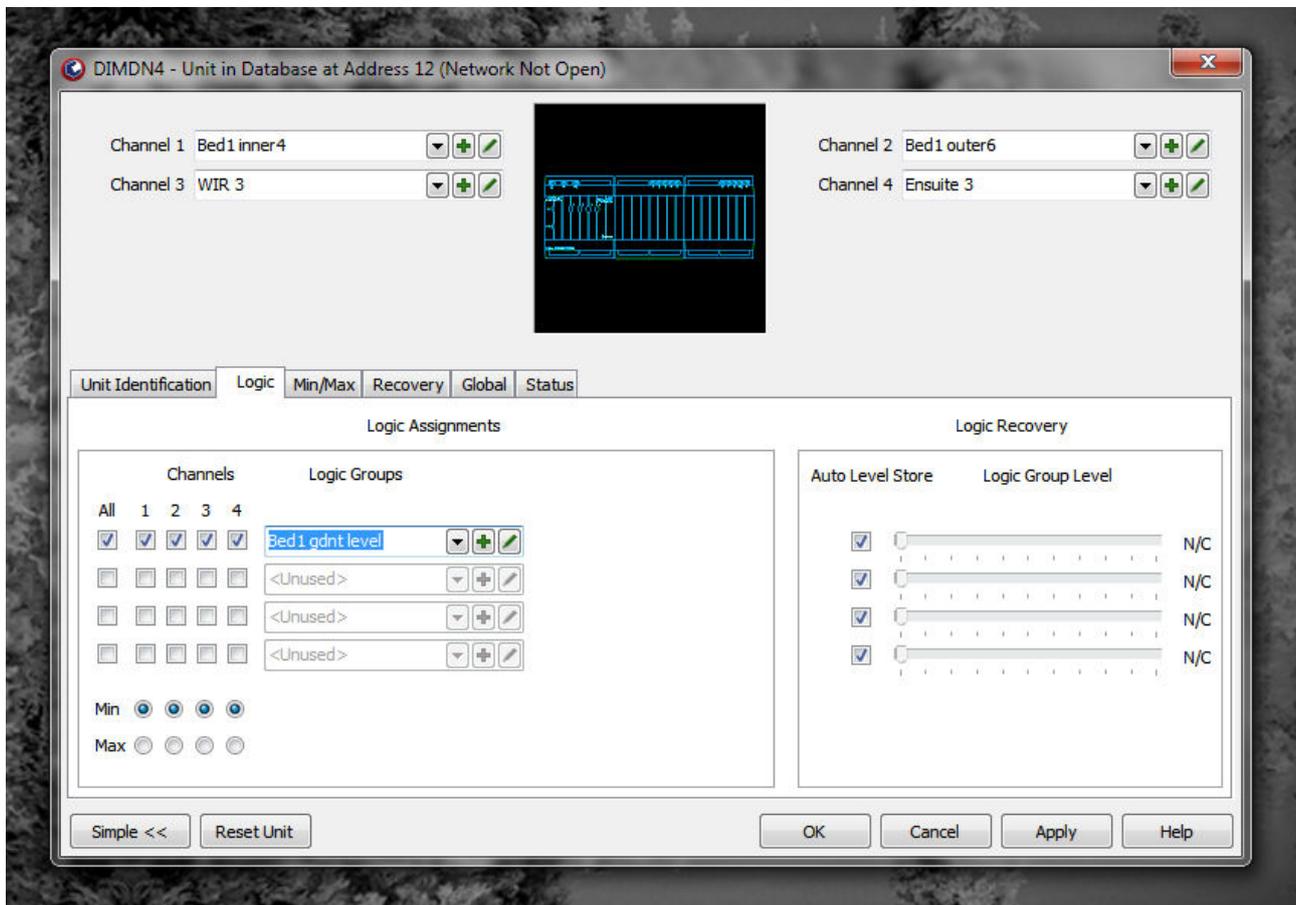


**Figure 2.** C-Bus Toolkit software GUI for programming a 4 Ch dimmer, showing the Logic tab.


**TIP:** For those who see the additional possibilities in Figure 2 above:
- Yes, you may use **more than one Goodnight level** in a home for independently limiting the maximum brightness around different bedrooms.
- Yes, you may **apply multiple Goodnight levels to common areas** like hallways and shared bathrooms. Whichever level is lowest dominates.


**When a Goodnight level is dimmed to greater than 0% and less than 100%** it is able to exercise a **useful** influence upon the dimmer channels that it is associated with. For example, if the Goodnight level is **set to 50%**, and the Bedroom dimmable level is set to 100%, then the dimmer output for the bedroom light will be the lower value of these two, i.e, 50%. (Other lights in the Ensuite and WIR will likewise be restricted to a maximum of 50% when their individual dimming levels are set to 50% or above.) If the Bedroom dimmable level is instead set to 25%, then the Bedroom light bulb will be set to 25%, because 25% is lower than 50%. Likewise, if the Bedroom dimmable level is 0%, then the Bedroom light bulb will be off.

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**When a Goodnight level is set to 100%**, it has no apparent effect upon the output level from a C-Bus dimmer at all. The individual light level associated with that dimmer output will always be less than or equal to the 100% Goodnight level. In this case the individual light level alone with determine the output level from the dimmer channel, in the same way as if the Goodnight level were not implemented.

**At times other than late at night, the Goodnight level would normally be set to 100%**. This can be done manually by the home owner if their sleep/wake timing is unpredictable, and/or automatically using C-Bus schedules.

**If a Goodnight level is set to 0%**, it will always be less than or equal to the individual light levels, and the dimmer output channels associated with this Goodnight level will be temporarily prevented from going any higher than 0%. In other words, a 0% Goodnight level effectively **disables the dimmer output channels** associated with it.

While there are some cases where a 0% Goodnight level can be useful, in most cases a 0% Goodnight level only causes confusion, especially for visitors. It is more intuitive if each light associated with the Goodnight level can turn on to some visible extent using its individual lighting level. This is achieved by **ensuring the Goodnight level always has a non-zero value**.

**TIP:** When the above programming is used, Goodnight level buttons are easy to identify. This is because **any C-Bus wall switch with an indicator that is always on is almost always a Goodnight level switch**.

### How can I change a Goodnight level?
You may change a Goodnight level in all the same ways you could change a dimmable light level; using C-Bus switches, touch screens, or PCs or wireless tablets via your Wiser.

For example, C-Bus light switches *could* be programmed to toggle a Goodnight level value on or off with a short press (though Clever Home does not recommend this), or to dim it up and down with a long press, in just the same way as a C-Bus light switch normally controls a dimmable light level. However, to help you avoid setting 0% Goodnight levels, Clever Home will normally program your C-Bus devices to control your Goodnight level in a different way.

Instead of a **short press** toggling your Goodnight level on and off, Clever Home will usually program a short press to **recall a fixed 100% value**, for your Goodnight level, making a short press an "on-only" Goodnight level function.

This short press "on-only" programming also has the advantage that if a visitor pushes the Goodnight level switch without knowing what it is, they will unwittingly restore the Goodnight level to 100%. This will disable the influence of the Goodnight level on the other dimmable lights levels with which it is associated, so that the visitor may then operate these individual lights normally.

Clever Home normally programs a **long press** to **recall your preferred Goodnight dimmed level**, which for most people is between 15% and 30%.

Taken together, the above programming ensures that neither a long press nor a short press is able to accidentally set the Goodnight level to 0%.

Some home owners with a good understanding of how the Goodnight level works like to be able to change the Goodnight level up and down themselves, so that they may set different dimmed Goodnight levels depending upon what they are doing and how much light they need. (E.g. washing hands vs shaving.)

In these cases Clever Home leaves the Goodnight level long press functioning the way it normally does for individual dimmable light levels, with a **long press dimming the Goodnight level slowly up and down**. These home owners understand that if on the odd occasion their Goodnight level associated lights don't seem to be working, that they should simply give the Goodnight level button a short press to restore it from 0% to 100%.

**The best solution** is often a combination of the two above alternative Goodnight level long press programming options on different wall switches. A fixed dimmed recall level is faster to use, but variable dimming level control is more flexible. Hence, Clever Home will often program most Goodnight switches to support the long press to a fixed recall level behavior, and some selected wall switches and touch screens to support variable dimming of the Goodnight level.

Those C-Bus devices that are able to label what the function of a switch is, and also show a bar graph indicating its dimmable level, provide better interfaces for implementing Goodnight levels than standard C-Bus wall switches that only have an on/off indicator. Examples of such Goodnight level friendly devices include C-Bus DLT wall switches, C-Bus touch screens (see Figure 3), and the C-Bus Wiser if appropriate widgets are used.

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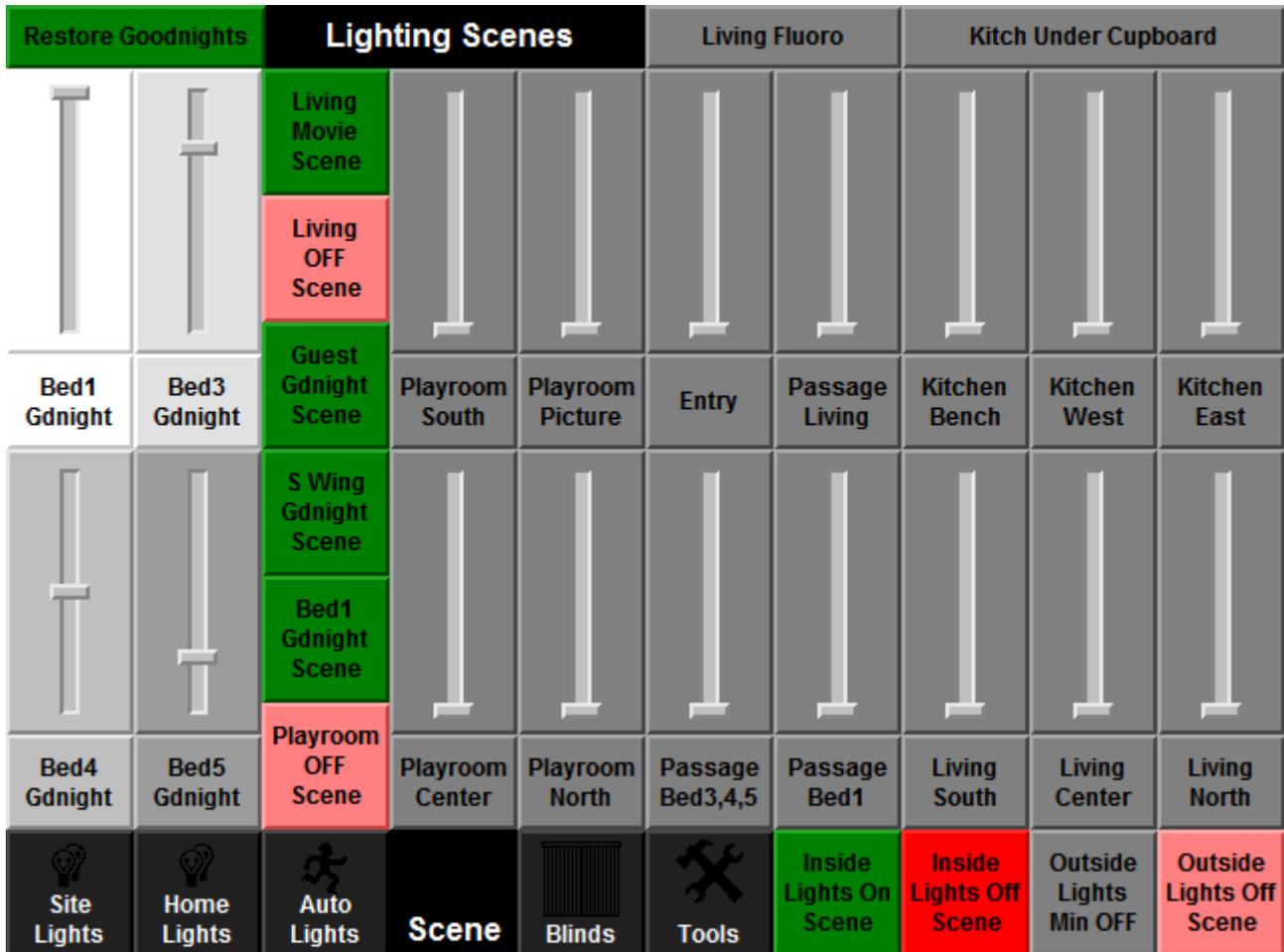


**Figure 3.** C-Bus colour touchscreen page showing Goodnight sliders and Goodnight scenes.

In Figure 3 showing an **example C-Bus colour touch screen page**, vertical slider bars show the current level of four different Goodnight levels (one for each bedroom) by the position and the shade of grayscale of each slider. The buttons of the same shade as the sliders, below each slider, both label which Goodnight level is being controlled, and also recall the home owner's favorite level for each Goodnight level independently if touched.

Touching a slider in any position sets that Goodnight level to the position of the slider where you touched. The green button at the top is a scene that gently restores all four Goodnight levels to their maximum 100% levels. This home owner requested another 3 custom scenes (third column, third to fifth from bottom) that gently set corresponding Goodnight levels and a number of other lighting settings that they like to set when people go to bed in each bedroom.

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While manual local control of each Goodnight level is usually essential, Goodnight level functionality may be extended considerably by also implementing **Goodnight schedules** to automatically set them to dimmed levels late and night, and to restore them back to non-dimmed levels in the morning.

**Goodnight scenes** may also be used to automatically set a group of different Goodnight levels to a preset value, an even to have them transition gently to these new levels over several seconds for nicer effect.

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