

# **LEDs e RGB Led**

## **USER MANUAL**

Translation of the original instructions

Version: **1.0**

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1.0	10/01/2023	-

Any information inside this manual can be changed without advice.

This handbook can be download freely from the website:  
[www.eelectron.com](http://www.eelectron.com)

Exclusion of liability:

Despite checking that the contents of this document match the hardware and software, deviations cannot be completely excluded. We therefore cannot accept any liability for this. Any necessary corrections will be incorporated into newer versions of this manual.

Symbol for relevant information



Symbol for warning



## 1. LEDs

Communication objects involved:

"<LED x> Command"	1 Bit	CW
"<LED x> Flashing command"	1 Bit	CW

Check whether the object "**<LED x> Flashing command**" is available for the LED function.

KNX PARAMETER	SETTINGS
<b>LED- configuration</b>	always off always on bus-controlled
<b>Always off</b> The LED is always OFF <b>Always on</b> The LED is always ON <b>Bus-controlled</b> The LED turns on or off when a telegram is received from the bus; the initial state and behaviour of the LED (flashing or steady) can be configured via parameter.	
<b>LED - activation telegram</b>	telegram "0" / telegram "1"
Defines the sent 1-bit telegram for turning on of the LED.	
<b>LED - initial state</b>	off / on / last
Defines the state of the LED upon start-up. The "last" configuration is not always available. Check the presence of the function for the LED in question.	
<b>LED - flashing</b>	fixed 1 s flashing 500 ms flashing 250 ms flashing
Defines the flashing time of the LED.	
<b>LED turn off after a certain time</b>	disabled / enabled
Used to enable an automatic switch-off time for the LED set in minutes or seconds.	

## 2. LED RGB

### General RGB

Communication objects involved:

"<RGB> Day-Night"	1 Bit	CW
"<RGB> Brightness"	1 Byte	CW

Depending on the selected mode, the related communication object will be available.

KNX PARAMETER	SETTINGS
<b>Brightness limit</b>	none day/night percentage
<b>none:</b> no limit <b>day-night:</b> a different default value can be set for night and day and via a 1-bit object to switch between night and day. <b>percentage:</b> this option enables a 1 byte communication object to modify the LED lighting value using a % command.	

### Main function RGB

**Not all the functions listed are available on the devices. To find out about the functions on the device, refer to the specific manual.**

KNX PARAMETER	SETTINGS
<b>Main function RGB</b>	no action Classic RGB feedback from KNX bus physical size internal sensor feedback [1] colours loop

[1] only visible if at least one of the functions of either thermostat, humidistat, CO2 or VOC is active.

**none:** no function

**Classic RGB:** with this option it is possible to change the colour of the RGB bar with 3 1-byte objects or with 1 3-byte object. It is also possible to set the RGB LED in flashing mode or turn it on / off via bus.

**feedback from KNX bus:** with this option it is possible to display up to five 1-bit objects on which to send on / off telegrams. When the value "0" or "1" is received (based on the parameter settings), it is possible to bring the colour of the RGB bar to a defined, fixed or flashing value. Receiving of a new telegram on another 1 bit object of the KNX feedback function causes the RGB bar to activate a new colour.

**physical size:** with this option, it is possible to use the RGB bar to display the value associated with a physical size. The colour of the RGB bar will change based on the received value to provide a visual indication. it is possible to choose a standard size (temperature, energy, etc.) or a generic datapoint (1, 2 and 4 bytes available) and to assign one colour to the minimum value and another to the maximum value. Intermediate values between minimum and maximum will be displayed in the colours of the selected ones, according to the colour wheel - clockwise (CW) or counter-clockwise (CCW). If the minimum and maximum values are exceeded, the RGB bar flashes to indicate alarms or malfunctions.

**colour loop:** this function activates an automatic colour change sequence; the range of colours (warm / cool colours or all colours) and the transition time between two colours is definable. With the object "<RGB> Stop Colour Loop" the loop can be interrupted with telegram "0" and then restarted with telegram "1". When the cycle is stopped it is possible to define a fixed colour for this state. In order to have more than one 9025 device running with demo colour loops and to keep them synchronised, it is necessary to select one device as "master" by setting the flag "T" = 1 in the "<RGB> Stop Colour Loop" object and connect it with all other "<RGB> Stop Colour Loop" objects of the other 9025s (which will act as slaves). Every time the master changes colour, the other device is synchronised. It is also necessary to set all the "colour led" and "time of colour change" parameters to the same value and to start them at the same time.

**internal sensor feedback[1]:** with this option, the RGB bar will display a colour related to the sensor and defined by the "Internal sensor feedback" parameter.

**access control:** with this configuration it is possible to establish the RGB colour associated with the action of card inserted and card not inserted in a "Tasca Transponder" device.

### Classic RGB

Communication objects involved:

"<RGB> On/Off "	1 Bit	CW
"<RGB> Red Component"	1 Byte	CW
"<RGB> Green Component"	1 Byte	CW

"<RGB> Blue Component"	1 Byte	CW
"<RGB> RGB Components"	3 Bytes	CW

In fixed colour mode, it defines the colour of the RGB bar, upon receipt of the OFF telegram.

### Physical size

Communication objects involved:

"<RGB> Physical Quantity"	4 Bytes, 2 Bytes, 1 Byte	CW
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KNX PARAMETER	SETTINGS
<b>Activation telegram</b>	telegram "0" / telegram "1"
Establishes the telegram to be sent on the "<General>Alarm Reset" object to reset the enabled general alarms.	
<b>Initial value configuration</b>	colour list colour panel
Defines the methodology for choosing the initial colour.	
<b>ON LED Behaviour</b>	fixed 1 s flashing 500 ms flashing 250 ms flashing
Defines the flashing frequency of the RGB bar.	
<b>RGB LED initial state</b>	off / on
Defines whether the initial state of the RGB LED is on or off.	
<b>ON/OFF object</b>	disabled / enabled
Used to enable the "<RGB> On/Off" object.	
<b>Type of communication object</b>	none 3 objects of 1 byte 1 object of 3 bytes both
With this parameter it is possible to choose which colour objects to enable.	

KNX PARAMETER	SETTINGS
<b>Physical size</b>	physical quantity size standard physical quantity

With this parameter it is possible to choose a standard size (temperature, energy, etc.) or a generic data point (1,2 and 4 bytes available).

<b>Physical quantity size</b>	1 byte signed 1 byte unsigned 2 bytes signed 2 bytes unsigned 2 bytes float 4 bytes signed 4 bytes unsigned 4 bytes float
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In "physical quantity size" mode, this parameter defines the size of the physical quantity.

The telegram can be:

- 1 byte (signed, unsigned)
- 2 bytes (signed, unsigned, floating)
- 4 bytes (signed, unsigned, floating)

<b>Standard physical quantity</b>	0-100% temperature °C power W energy kWh relative humidity CO2 ppm
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In "standard physical quantity" mode, this parameter defines the size of the physical quantity.

<b>Default colour</b>	red, orange, yellow, green-yellow, green, green-cyan, cyan, blue-cyan, blue, blue-magenta, magenta, red-magenta, white
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Defines the colour when the application is downloaded.

<b>Colour at minimum value</b>	red, orange, yellow, green-yellow, green, green-cyan, cyan, blue-cyan, blue, blue-magenta, magenta, red-magenta, white
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Defines a colour at the minimum physical size value.

<b>Colour at maximum value</b>	red, orange, yellow, green-yellow, green, green-cyan, cyan, blue-cyan, blue, blue-magenta, magenta, red-magenta, white
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Defines a colour at the maximum value of the physical size.

<b>Colour sequence direction</b>	CW (clockwise) CCW (counter-clockwise)
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Defines the display direction of the colours associated with the intermediate values between minimum and maximum, according to the colour wheel.

<b>If value out of minimum scale</b>	fixed 1 s flashing 500 ms flashing 250 ms flashing
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Defines the behaviour of the RGB bar to indicate alarms or malfunctions when the minimum value is exceeded.

### Feedback from KNX bus

Communication objects involved:

"<RGB> Feedback KNX x"	1 Bit	CW
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KNX PARAMETER	SETTINGS
<b>ON LED Behaviour</b>	fixed 1 s flashing 500 ms flashing 250 ms flashing
Defines the flashing frequency of the RGB bar	
<b>Feedback number from KNX</b>	1 ... 5
Defines the number of 1-bit objects to send on/off telegrams on.	
<b>KNX feedback 1 - ON telegram action</b>	no action switch off fixed colour
Defines the action of the RGB bar upon receipt of the ON telegram.	
<b>KNX feedback x - ON colour</b>	red, orange, yellow, green-yellow, green, green-cyan, cyan, blue-cyan, blue, blue-magenta, magenta, red-magenta, white
In fixed colour mode, it defines the colour of the RGB bar upon receipt of the ON telegram.	
<b>KNX feedback x - OFF telegram action</b>	no action switch off fixed colour
Defines the action of the RGB bar upon receipt of the OFF telegram.	
<b>KNX feedback x - OFF colour</b>	red, orange, yellow, green-yellow, green, green-cyan, cyan, blue-cyan, blue, blue-magenta, magenta, red-magenta, white

<b>If value out of maximum scale</b>	fixed 1 s flashing 500 ms flashing 250 ms flashing
Defines the behaviour of the RGB bar to indicate alarms or malfunctions when the maximum value is exceeded.	
<b>Minimum physical value</b>	0 ... 100%
Defines the lower limit for the physical quantity.	
<b>Maximum physical quantity value</b>	0 ... 100%
Defines the upper limit for the physical quantity.	

**Internal sensor feedback**

KNX PARAMETER	SETTINGS
<b>Internal sensor feedback</b>	thermostat humidistat CO2 sensor
Defines the type of sensor to receive feedback from.	
<b>Thermostat value displayed</b>	HVAC heating/cooling temperature delta setpoint
In the thermostat sensor, it defines the type of value considered for the RGB feedback.	

HVAC	
<b>Always uses colours for heating and cooling</b>	yes/no (checkbox)
In HVAC mode it allows use of the same range of colours for the heating and cooling modes.	

TEMPERATURE	
<b>Minimum heating temperature [°C]</b>	0 ... 63
Defines the minimum temperature in heating mode.	
<b>Maximum heating temperature [°C]</b>	0 ... 63
Defines the maximum temperature in heating mode.	
<b>Minimum cooling temperature [°C]</b>	0 ... 63
Defines the minimum temperature in cooling mode.	
<b>Maximum cooling temperature [°C]</b>	0 ... 63
Defines the maximum temperature in cooling mode.	

THERMOSTAT	
<b>Thermostat source</b>	thermostat 1 thermostat 2
Defines the thermostat to receive feedback from.	

HUMIDISTAT	
<b>Ideal humidity</b>	0 ... 100%
Defines the value to be considered ideal.	
<b>Ideal humidity colour</b>	red, orange, yellow, green-yellow, green, green-cyan, cyan, blue-cyan, blue, blue-magenta, magenta, red-magenta, white.
Defines the colour associated with the previously set ideal humidity value.	
<b>Minimum humidity</b>	0 ... 100%

Defines the value below which the humidity will be considered minimum	
<b>Minimum colour humidity</b>	red, orange, yellow, green-yellow, green, green-cyan, cyan, blue-cyan, blue, blue-magenta, magenta, red-magenta, white.
Defines the colour associated with the minimum humidity value.	
<b>Maximum humidity</b>	0 ... 100%
Defines the value above which the humidity will be considered maximum.	
<b>Maximum humidity colour</b>	red, orange, yellow, green-yellow, green, green-cyan, cyan, blue-cyan, blue, blue-magenta, magenta, red-magenta, white.
Defines the colour associated with the maximum humidity value.	

CO2 SENSOR	
<b>Minimum value [ppm]</b>	0 ... 5000
Defines the value below which CO2 will be considered minimum.	
<b>Colour at minimum value</b>	red, orange, yellow, green-yellow, green, green-cyan, cyan, blue-cyan, blue, blue-magenta, magenta, red-magenta, white.
Defines the colour associated with the minimum CO2 value.	
<b>Maximum value [ppm]</b>	0 ... 5000
Defines the value above which CO2 will be considered maximum.	
<b>Colour at maximum value</b>	red, orange, yellow, green-yellow, green, green-cyan, cyan, blue-cyan, blue, blue-magenta, magenta, red-magenta, white.
Defines the colour associated with the maximum CO2 value.	

**Colour loop**

Communication objects involved:

"<RGB> Colour Loop Stop"	1 Bit	CW
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KNX PARAMETER	SETTINGS
<b>LED Colours</b>	warm colours cool colours all the colours
Defines the range of colours displayed on the bar.	
<b>Colour change time</b>	3 ... 255
Defines the duration time of each colour.	
<b>Action if I receive stop</b>	stop and keep current colour LED turn off fixed colour LED turn on
Defines the behaviour of the RGB bar upon receipt of the stop telegram.	
<b>Stop telegram</b>	telegram "0" / telegram "1"
Establishes the telegram to be sent on the "<RGB> Colour Stop Loop" object to deactivate the colour loop.	
<b>Colour if I receive stop</b>	red, orange, yellow, green-yellow, green, green-cyan, cyan, blue-cyan, blue, blue-magenta, magenta, red-magenta, white.

Defines the colour of the RGB bar upon receipt of the stop telegram.

### RGB temporary function

KNX PARAMETER	SETTINGS
<b>RGB temporary function</b>	no action button press thermostat feedback [1]
[1] only visible if the thermostat function is active	
This parameter sets the behaviour of the RGB bar in temporary mode; in this mode the RGB colour changes temporarily according to the parameters and then returns to the previous mode. <b>no action:</b> no function <b>button press:</b> each time the button is pressed, a colour is displayed for a defined time. <b>thermostat feedback[1]:</b> the RGB bar shows HVAC mode or Heat / Cool mode or the Setpoint whenever these values change due to a button press.	
<b>RGB LED colour</b>	red, orange, yellow, green-yellow, green, green-cyan, cyan, blue-cyan, blue, blue-magenta, magenta, red-magenta, white
Defines the colour that will be displayed when the button is pressed.	
<b>LED ON time [0=while pressed / 1 .. 20=1 .. 20 s]</b>	0 ... 20
Defines the permanence time of the RGB colour set when the button is pressed.	

### RGB step-marker mode

Communication objects involved:

"<RGB> Step-Marker Mode	1 Bit	CW
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KNX PARAMETER	SETTINGS
<b>step marker mode RGB</b>	disabled/enabled
Enabling this function shows a 1 bit communication object. It has the highest priority in setting the colour of the RGB bar. When an activation telegram is received on this object, the RGB bar assumes the colour set for the parameter and this value does not change until a deactivation telegram is received.	