

RGBW-Dimming with KNX Multitouch Pro

Application note

Select a color and dim it with 4 separate Bytes RGBW

Mxx6215-5910/Mxx6215-0310

02/2020



Legal Information

The Schneider Electric brand and any trademarks of Schneider Electric SE and its subsidiaries referred to in this guide are the property of Schneider Electric SE or its subsidiaries. All other brands may be trademarks of their respective owners.

This guide and its content are protected under applicable copyright laws and furnished for informational use only. No part of this guide may be reproduced or transmitted in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise), for any purpose, without the prior written permission of Schneider Electric.

Schneider Electric does not grant any right or license for commercial use of the guide or its content, except for a non-exclusive and personal license to consult it on an “as is” basis. Schneider Electric products and equipment should be installed, operated, serviced, and maintained only by qualified personnel.

As standards, specifications, and designs change from time to time, information contained in this guide may be subject to change without notice.

To the extent permitted by applicable law, no responsibility or liability is assumed by Schneider Electric and its subsidiaries for any errors or omissions in the informational content of this material or consequences arising out of or resulting from the use of the information contained herein.

Trademarks

- Microsoft Windows®, Windows® 7, Windows® 10 and Internet Explorer® are trademarks or registered trademarks of the Microsoft Corporation in the USA and/or other countries.
- iTunes® is a registered trademark of the Apple Inc. in the USA and/or other countries.
- Google Chrome™, Google Play™, Google Maps™ and YouTube™ are trademarks of the Google Inc. in the USA and/or other countries.
- Firefox® is registered trademark of the Mozilla Corporation in the USA and/or other countries.

Important Safety Information

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Further information



The information provided must be complied with, otherwise program or data errors may occur.



You will find additional information here to make your work easier

Table of Contents

1	Introduction	8
1.1	Competencies	8
1.2	System prerequisites	9
2	Design	9
3	Configuration	10
3.1	Within the ETS	10
3.1.1	KNX Multitouch Pro	10
3.1.2	KNX DALI Gateway (or any other KNX LED Controller)	11
3.2	Within Wiser for KNX / spaceLYnk	12
3.2.1	Marking of three objects with a “Tag” (“Objects”-Tab)	12
3.2.2	Adding a new script	13
3.2.3	Open the new script and paste there the following code	13
3.2.4	What needs to be adapted	14
3.2.5	Scene Settings	15
4	Conclusion	16
5	Appendix	16
5.1	Glossary	16
5.2	Reference	16

For your safety



DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Safe electrical installation must be carried out only by skilled professionals. Skilled professionals must prove profound knowledge in the following areas:

- **Connecting to installation networks**
- **Connecting to several electrical devices**
- **Laying electrical cables**
- **Safety standards, local wiring rules and regulations**

Failure to follow these instructions will result in death or serious injury.

1 Introduction

When you have in your project multi color LEDs (RGBW) to dim via the KNX Multitouch Pro this script helps you to achieve that dimming in a comfortable way. Of course, you have to have a Wiser for KNX or a spaceLYnk in your project too.

This AN will guide through the configuration of the ETS (for the KNX Multitouch Pro) and the Wiser for KNX/spaceLYnk. In this AN a KNX DALI-GW is used for the LED-Controlling as an example, but it can be any KNX LED-Driver which provides 4 separate 1 Byte Object for the dedicated colors.

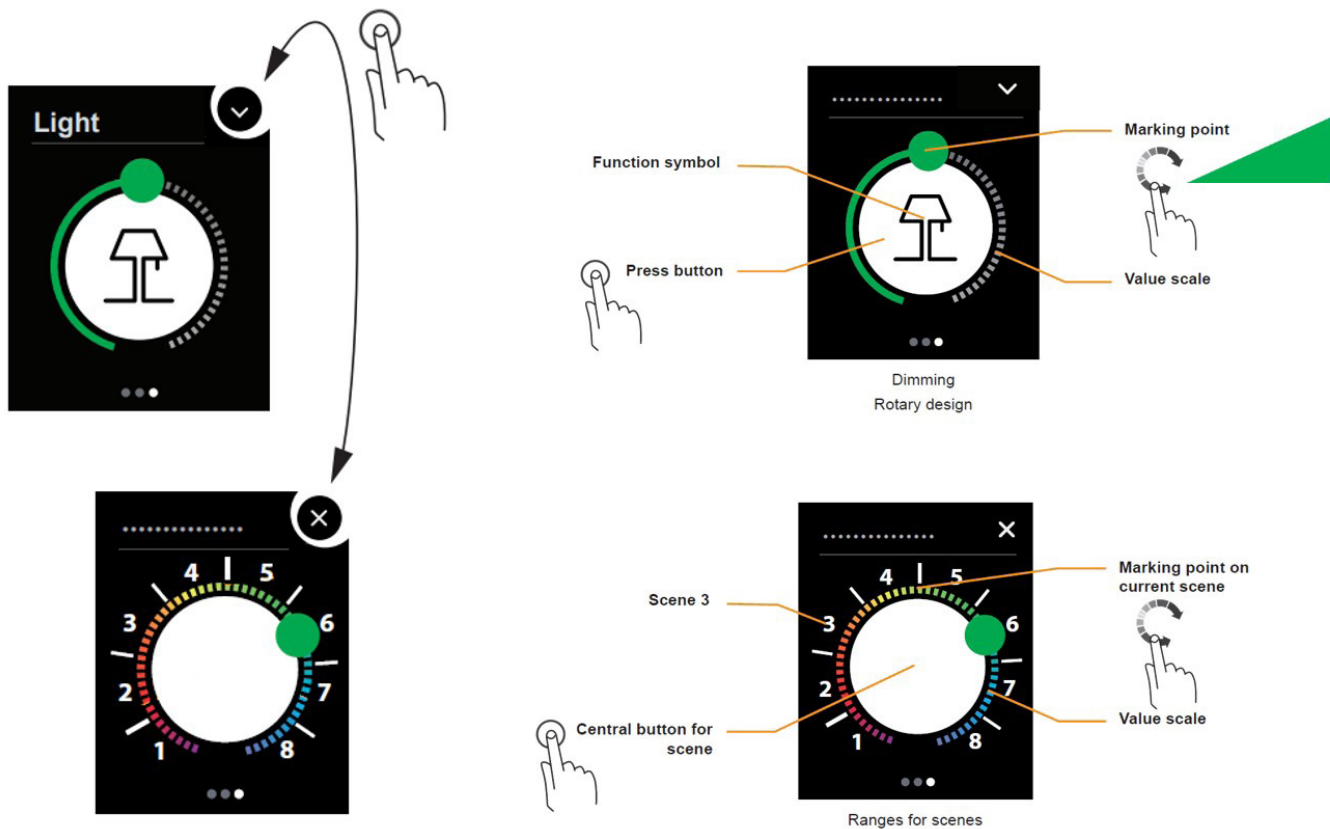


Figure 1: introduction

A glossary is available in the appendix chapter of this document. Please refer to it whenever necessary.

1.1 Competencies

This document is intended for readers who have been trained on Wiser for KNX, spaceLYnk products. The integration should not be attempted by someone who is new to the installation of either products. In addition we recommend that you be familiar with:

- The concepts of KNX
- The concepts of adapting a script in a simple way
- Basic technical knowledge on software technologies such:
 - » Web Services, XML, JSON
 - » Lua scripting
 - » KNX

Table 1: software versions of used software

The collage illustrates various components of a KNX system:

- Top Left:** A hand interacting with a wall-mounted lighting switch labeled "Lighting".
- Top Center:** A Schneider Electric "Wiser for KNX Logic Controller" (LSS100100) with a digital display and a QR code.
- Top Right:** A Schneider Electric power supply unit (PSU) with a digital display and a QR code.
- Bottom Left:** A KNX data interface unit (DIU) with a digital display and a QR code.
- Bottom Center:** A long, thin light strip with multiple color-coded buttons (yellow, red, blue, green) and a "RGBW" label.
- Bottom Right:** A KNX data interface unit (DIU) with a digital display and a QR code.

Green arrows with the "KNX" logo connect the components, indicating they are part of a single KNX system network.

Figure 2: Overview picture

3 Configuration

3.1 Within the ETS

3.1.1 KNX Multitouch Pro

Settings for the dedicated screen.

1.1.3 Multitouch Pro System Design > Express settings > Screen 1

Screen settings	Use Chinese Symbols for screen name	<input checked="" type="radio"/> No <input type="radio"/> Yes
Express settings	Screen name (1-13 characters)	RGB Control
Screen 1	Which screen type do you use?	1 function
Screen 1 - RGB settings	Function	Dimming RGB
+ Room temperature control	Use only value object	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Scene module	Cycle time when dimming = 100 ms * factor (2-10)	2
+ General settings	Maximum dimming value	100%
	Which function symbol do you use?	Table/standard lamp

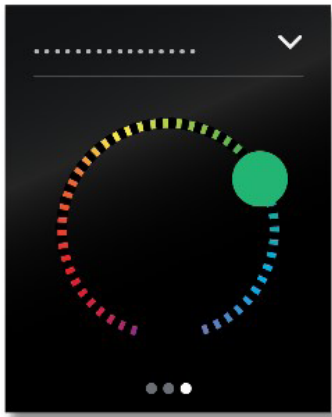


Figure 3: ETS screen settings

Settings for the sub screen (scene settings, please keep them as default).

1.1.3 Multitouch Pro System Design > Express settings > Screen 1 - RGB settings

Screen settings	Function of sub screens	RGB scenes
Express settings	Scene addresses for external RGB scenes	
Screen 1	Scene call 1 (0-63)	0
Screen 1 - RGB settings	Scene call 2 (0-63)	1
+ Room temperature control	Scene call 3 (0-63)	2
+ Scene module	Scene call 4 (0-63)	3
+ General settings	Scene call 5 (0-63)	4
	Scene call 6 (0-63)	5
	Scene call 7 (0-63)	6
	Scene call 8 (0-63)	7
	Scene call with central button (0-63)	8

Figure 4: Screen 1 - RGB settings

Object overview (Use your style of Group-Addresses (three level)).

Please link to each of the five screen related objects a dedicated Group-Address.

Number	Name	Object Function	Group Address	Length	C	R	W	T	U	Data Type	Priority	Description
1	Switch object	Screen 1	3/2/42	1 bit	C	-	W	T	-	1-bit, switch	Low	
2	Value object	Screen 1	0/0/2	1 byte	C	-	W	T	-	8-bit unsig...	Low	
3	Status feedback object	Screen 1	3/2/43	1 bit	C	-	W	-	-	1-bit, switch	Low	
4	Status feedback object value	Screen 1	0/0/3	1 byte	C	-	W	-	-	8-bit unsig...	Low	
5	Colour scene object	Screen 1	3/2/0	1 byte	C	-	-	T	-	scene cont...	Low	
193	Brightness	User interface		1 byte	C	-	W	-	-	8-bit unsig...	Low	
194	Night mode input	User interface		1 bit	C	-	W	-	-	1-bit, switch	Low	
196	Collected status feedback obj...	Feedback		4 bytes	C	-	W	-	-	32-bit set...	Low	
252	Value percent 1	Scene module - scene 1		1 byte	C	-	-	T	-	8-bit unsig...	Low	
253	Value percent 2	Scene module - scene 1		1 byte	C	-	-	T	-	8-bit unsig...	Low	
268	Scene address input	Scene module		1 byte	C	-	W	-	-	scene cont...	Low	

Figure 5: Screen 1 parameter objects

3.1.2 KNX DALI Gateway (or any other KNX LED Controller)

Settings for the dedicated screen. Parameter shown below for the RED-Color and are the same as for Green, Blue, White. No change of settings needed.

1.1.8 KNX DALI gateway REG-K/1/16(64)/64/IP1 > G1, RGBW-Red > General

+ GENERAL

- G1, RGBW-Red

General

Behaviour

Analysis and Service

Colour Control

+ G2, RGBW-Green

+ G3, RGBW-Blue

+ G4, RGBW-White

Group 1, Description

RGBW-Red

Operating Mode

Normal Mode

Function of Additional Object

No Object

Enable for Panic Mode

☒ No ☐ Yes

Value on DALI Power Fail (System Failure Level)

100%

Value on ECG Power Recovery (Power On Level)

0%

This Object can be used to switch Off the Power of the ECGs. As soon as the Group has been switch On again, this Object enables the Power of the ECG Line again.

Control ECG Power Line via Object

☒ No ☐ Yes

Calculation of Dimming Values

☐ linear ☒ logarithmic

Switch-On Behaviour

Set Value Imme

Switch-Off Value

0%

Switch-Off Behaviour

Set Value Imme

Value-Set Behaviour

Set Value Imme

Time for Dimming

10 Seconds

Max. Value for Dimming

100%

Min. Value for Dimming

0%

Min/Max Value is valid for

Dimming Objec

Switch-On via Dimming

Switch ON with

1.1.8 KNX DALI gateway REG-K/1/16(64)/64/IP1 > G1, RGBW-Red > Analysis and Service

+ GENERAL

- G1, RGBW-Red

General

Behaviour

Analysis and Service

Colour Control

+ G2, RGBW-Green

+ G3, RGBW-Blue

+ G4, RGBW-White

Type of Failure Status Object

☒ 1 bit ☐ 1 byte

Additional Failure Objects

☒ No ☐ Yes

Operation Hour Calculation

☒ No ☐ Yes

1.1.8 KNX DALI gateway REG-K/1/16(64)/64/IP1 > G1, RGBW-Red > Colour Control

+ GENERAL

- G1, RGBW-Red

General

Behaviour

Analysis and Service

Colour Control

+ G2, RGBW-Green

+ G3, RGBW-Blue

+ G4, RGBW-White

Colour Control Type

none

Figure 6: RED-Color settings

Number	Name	Object Function	Group Address	Length	C	R	W	T	U	Data Type	Priority	Description
32	G1, Switching, RGBW-Red	On/Off		1 bit	C	-	W	-	-	switch	Low	
33	G1, Dimming, RGBW-Red	Brighter/Darker		4 bit	C	-	W	-	-	dimming c...	Low	
34	G1, Set Value, RGBW-Red	Value	3/2/11	1 byte	C	-	W	-	-	percentag...	Low	RGBW-Red-V
37	G1, Status, RGBW-Red	On/Off		1 bit	C	R	-	T	-	switch	Low	
38	G1, Status, RGBW-Red	Value	3/2/10	1 byte	C	R	-	T	-	percentag...	Low	RGBW-Red-VFB
39	G1, Failure Status, RGBW-Red	Yes/No		1 bit	C	R	-	T	-	alarm	Low	
60	G2, Switching, RGBW-Green	On/Off		1 bit	C	-	W	-	-	switch	Low	
61	G2, Dimming, RGBW-Green	Brighter/Darker		4 bit	C	-	W	-	-	dimming c...	Low	
62	G2, Set Value, RGBW-Green	Value	3/2/21	1 byte	C	-	W	-	-	percentag...	Low	RGBW-Green-V
65	G2, Status, RGBW-Green	On/Off		1 bit	C	R	-	T	-	switch	Low	
66	G2, Status, RGBW-Green	Value	3/2/20	1 byte	C	R	-	T	-	percentag...	Low	RGBW-Green-VFB
67	G2, Failure Status, RGBW-Green	Yes/No		1 bit	C	R	-	T	-	alarm	Low	
88	G3, Switching, RGBW-Blue	On/Off		1 bit	C	-	W	-	-	switch	Low	
89	G3, Dimming, RGBW-Blue	Brighter/Darker		4 bit	C	-	W	-	-	dimming c...	Low	
90	G3, Set Value, RGBW-Blue	Value	3/2/31	1 byte	C	-	W	-	-	percentag...	Low	RGBW-Blue-V
93	G3, Status, RGBW-Blue	On/Off		1 bit	C	R	-	T	-	switch	Low	
94	G3, Status, RGBW-Blue	Value	3/2/30	1 byte	C	R	-	T	-	percentag...	Low	RGBW-Blue-VFB
95	G3, Failure Status, RGBW-Blue	Yes/No		1 bit	C	R	-	T	-	alarm	Low	
116	G4, Switching, RGBW-White	On/Off		1 bit	C	-	W	-	-	switch	Low	
117	G4, Dimming, RGBW-White	Brighter/Darker		4 bit	C	-	W	-	-	dimming c...	Low	
118	G4, Set Value, RGBW-White	Value	3/2/41	1 byte	C	-	W	-	-	percentag...	Low	RGBW-White-V
121	G4, Status, RGBW-White	On/Off		1 bit	C	R	-	T	-	switch	Low	
122	G4, Status, RGBW-White	Value	3/2/40	1 byte	C	R	-	T	-	percentag...	Low	RGBW-White-VFB

Figure 7: RGBW - Parameter objects

3.2 Within Wiser for KNX / spaceLYnk

3.2.1 Marking of three objects with a “Tag” (“Objects”-Tab)

In order to make it as simple as possible it is only one script needed which is needs to run when one of the three objects is updated on the KNX-Bus. The name of the “Tag” below is just an example.

Figure 8: Wiser for KNX / spaceLYnk object tab

3.2.2 Adding a new script

A new script needs to be added into Wiser for KNX / spaceLYnk.

Go to “Scripting” + “Event-based”, + “Add new script” + Define a Script name and select the Tag name defined before.

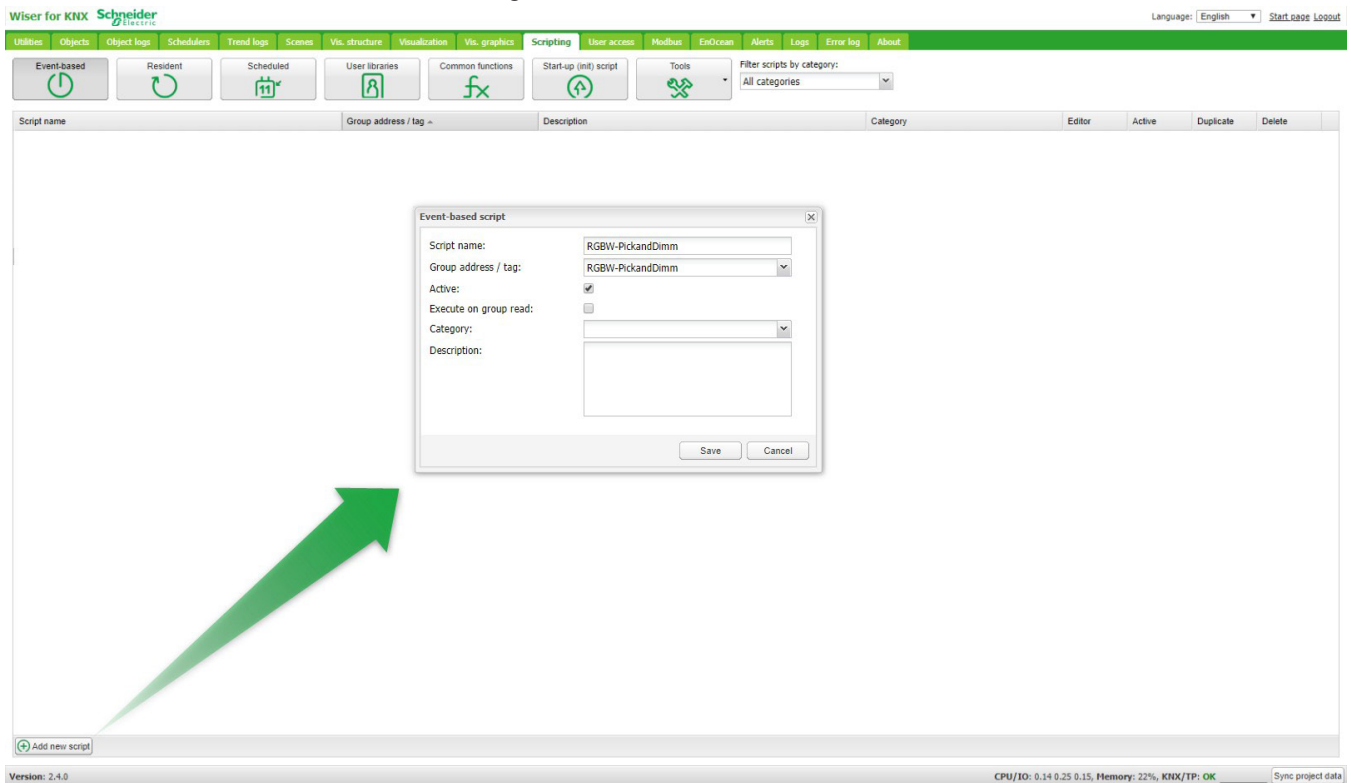


Figure 9: Add new script

3.2.3 Open the new script and paste there the attached code

Open script editor, copy all text from attached file “RGBW-Dimming-Script.txt” and place it into script editor window.

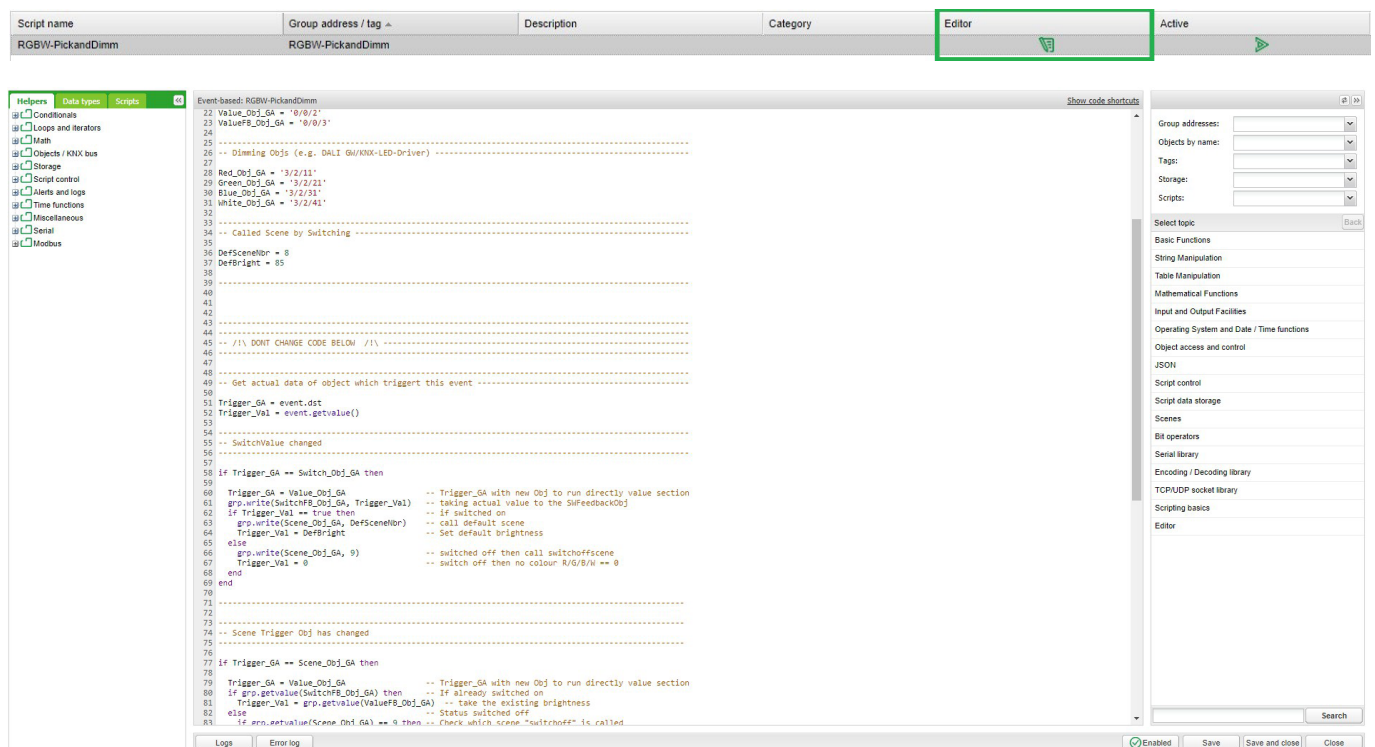


Figure 10: Script Editor with copied script

3.2.4 What needs to be adapted

The script is structured in three parts:

- Description (Yellow)
- Area to adapt (Green)
- Main code (Don't touch when you are not familiar with LUA!)

```

Event-based: RGBW-PickandDimm
1 -----
2
3 -- Description: RGBW-Control for KNX Multitouch Pro Mxx6215-5910/Mxx6215-0310
4 -----
5 -- Script needs to be create within \Scripting\Event-based\ which reacts on a tag
6 -- You need to update the group addresses below according to the ones you use within the ETS
7 -- The Defaultcolour (Scene/DefSceneNbr) when switching ON
8 -- The Defaultbrightness (DefBright) when switching ON
9 -- You need to give some objects (marked below) the same tag as used by script creation
10 -----
11
12 -- SECTION BELOW NEEDS TO BE ADAPTED!
13 -----
14
15
16 -----
17 -- KNX MultiTouch Pro Objs -----
18
19 Scene_Obj_GA = '3/2/0'
20 Switch_Obj_GA = '3/2/42'
21 SwitchFB_Obj_GA = '3/2/43'
22 Value_Obj_GA = '0/0/2'
23 ValueFB_Obj_GA = '0/0/3'
24
25 -----
26 -- Dimming Objs (e.g. DALI GW/KNX-LED-Driver) -----
27
28 Red_Obj_GA = '3/2/11'
29 Green_Obj_GA = '3/2/21'
30 Blue_Obj_GA = '3/2/31'
31 White_Obj_GA = '3/2/41'
32
33 -----
34 -- Called Scene by Switching -----
35
36 DefSceneNbr = 8
37 DefBright = 85
38
39 -----
40
41
42
43 -----
44
45 -- /!\ DONT CHANGE CODE BELOW /!\ -----
46
47 -----
48
49 -- Get actual data of object which trigger this event -----
50
51 Trigger_GA = event.dst
52 Trigger_Val = event.getvalue()
53

```

Figure 11: Script structure

Within the script you need to adapt mainly the KNX Group-Addresses you have used within the ETS.

Take care that only change the part between the apostrophe '**GA-TO_EDIT**'.

```

16 -----
17 -- KNX MultiTouch Pro Objs -----
18
19 Scene_Obj_GA = '3/2/0'
20 Switch_Obj_GA = '3/2/42'
21 SwitchFB_Obj_GA = '3/2/43'
22 Value_Obj_GA = '0/0/2'
23 ValueFB_Obj_GA = '0/0/3'
24
25 -----
26 -- Dimming Objs (e.g. DALI GW/KNX-LED-Driver) -----
27
28 Red_Obj_GA = '3/2/11'
29 Green_Obj_GA = '3/2/21'
30 Blue_Obj_GA = '3/2/31'
31 White_Obj_GA = '3/2/41'
32

```

Figure 12: Control Group Addresses

Within the script you can set two parameters.

- The default scene (color) when you switch on.
- The default brightness (%) when you switch on.

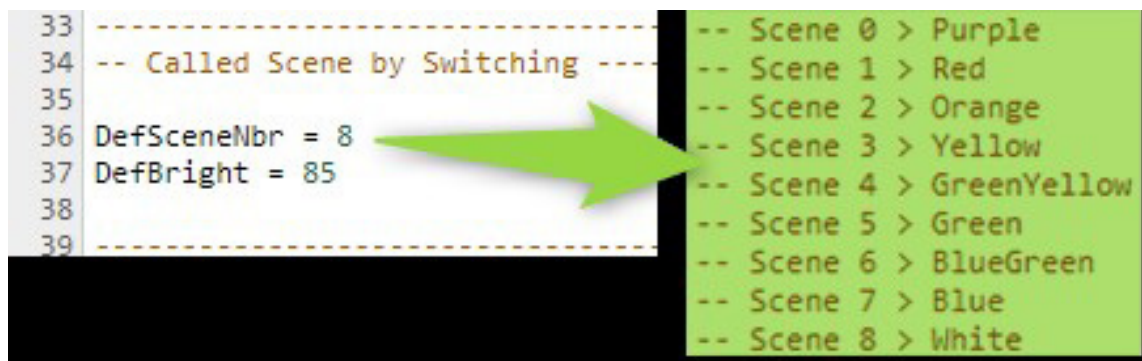


Figure 13: Script parameters

3.2.5 Scene Settings

The new script has already included all the scene details. So, no additional work to do.

```

102  Sce_Val = {}                                -- Fill array with scene-values
103  Sce_Val[1], Sce_Val[2], Sce_Val[3], Sce_Val[4] = 255, 0, 255, 0    -- Scene 0 > Purple
104  Sce_Val[5], Sce_Val[6], Sce_Val[7], Sce_Val[8] = 255, 0, 0, 0    -- Scene 1 > Red
105  Sce_Val[9], Sce_Val[10], Sce_Val[11], Sce_Val[12] = 255, 127, 0, 0 -- Scene 2 > Orange
106  Sce_Val[13], Sce_Val[14], Sce_Val[15], Sce_Val[16] = 255, 255, 0, 0 -- Scene 3 > Yellow
107  Sce_Val[17], Sce_Val[18], Sce_Val[19], Sce_Val[20] = 127, 255, 0, 0 -- Scene 4 > GreenYellow
108  Sce_Val[21], Sce_Val[22], Sce_Val[23], Sce_Val[24] = 0, 255, 0, 0 -- Scene 5 > Green
109  Sce_Val[25], Sce_Val[26], Sce_Val[27], Sce_Val[28] = 0, 255, 255, 0 -- Scene 6 > BlueGreen
110  Sce_Val[29], Sce_Val[30], Sce_Val[31], Sce_Val[32] = 0, 0, 255, 0 -- Scene 7 > Blue
111  Sce_Val[33], Sce_Val[34], Sce_Val[35], Sce_Val[36] = 0, 0, 0, 255 -- Scene 8 > White
112  Sce_Val[37], Sce_Val[38], Sce_Val[39], Sce_Val[40] = 0, 0, 0, 0 -- Scene 9 > All out
113

```

Figure 14: Scene settings

4 Conclusion

This Script save some time in setting up the needed scenes and realizes the comfort to select a color on one screen and to adapt the brightness of the selected color within the other one.

5 Appendix

5.1 Glossary

The following table describes the acronyms and defines the specific terms used in this document.

Abbreviation	Description
GA	Group-Address
W4K	Wiser for KNX (LSS100100)
sL	spaceLYnk (LSS100200)

Table 2: Glossary

5.2 Reference

Document title	Reference
-/-	-/-

Table 3: Reference

Schneider Electric

35 rue Joseph Monier

92500 Rueil Malmaison – France

Phone: +33 (0) 1 41 29 70 00

www.schneider-electric.com

