

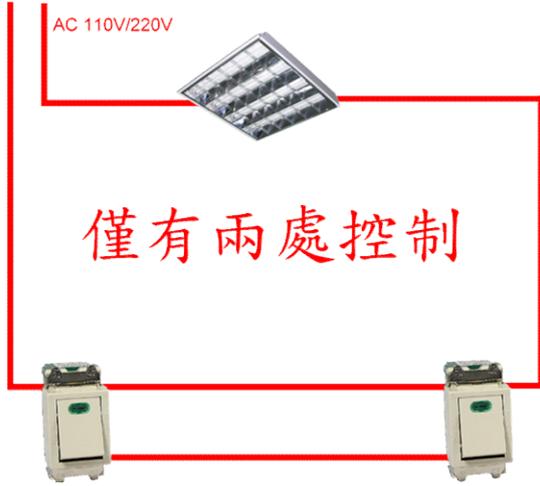
KNX系統架構及設定介紹

何謂KNX

- KNX為一國際開放式智慧建築標準
- KNX利用較低電源傳送訊號
- KNX能夠簡化複雜的配線
- KNX可以減少非必要的能源消耗
- KNX能夠快速判斷設備異常原因及位置
- KNX可使室內光環境做到多樣化控制
- KNX能夠做到有效的室內/外環境監控

傳統接線與KNX接線比較

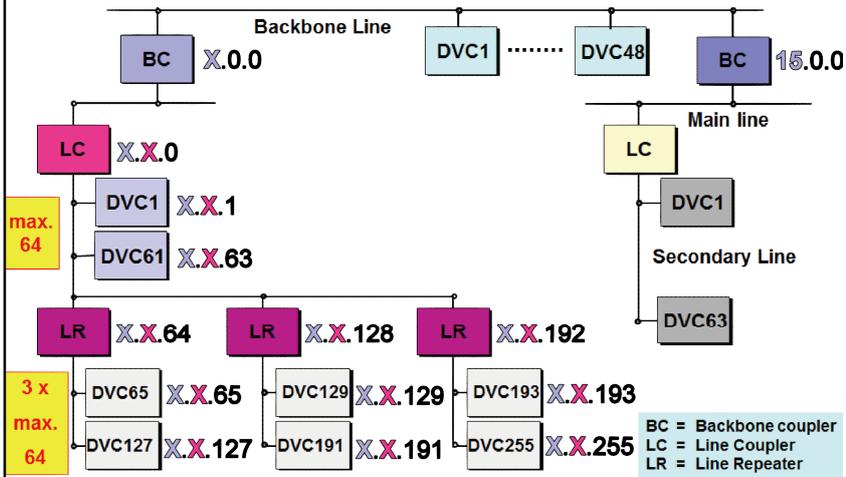
傳統樓梯燈接線



KNX樓梯燈接線



KNX系統架構



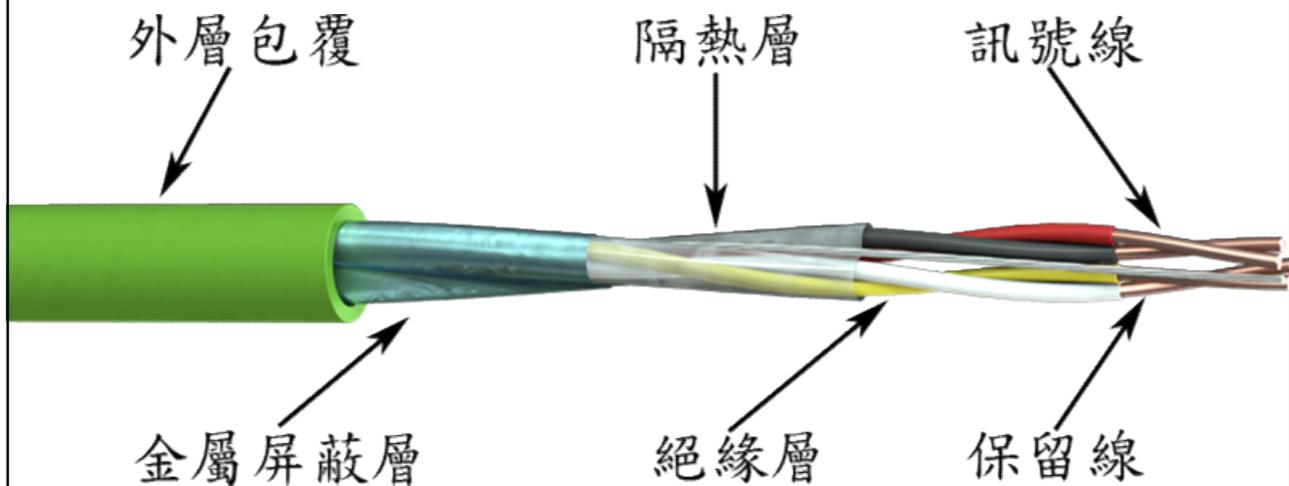
KNX最大位址: 15. 15. 255
 分別為15區 15線及255個設備
線: 一個線段可容納64個設備
 每個線具有4線段; 255個設備
區: 一個區能夠容納15線
 共3825個設備

一個KNX系統可以有15區
 也就是57375個設備
位址:
 第一區第一線的第一個設備
 其位址將被分配為1. 1. 1

KNX訊號傳輸媒介

- TP1: 雙絞線, 即KNX專用電纜(KNX Cable)
- IP: 區域網路
- RF: 射頻, 短距離無線傳輸
- PL110: 電力線, 利用屋內已配妥之電線橋接

KNX專用電纜



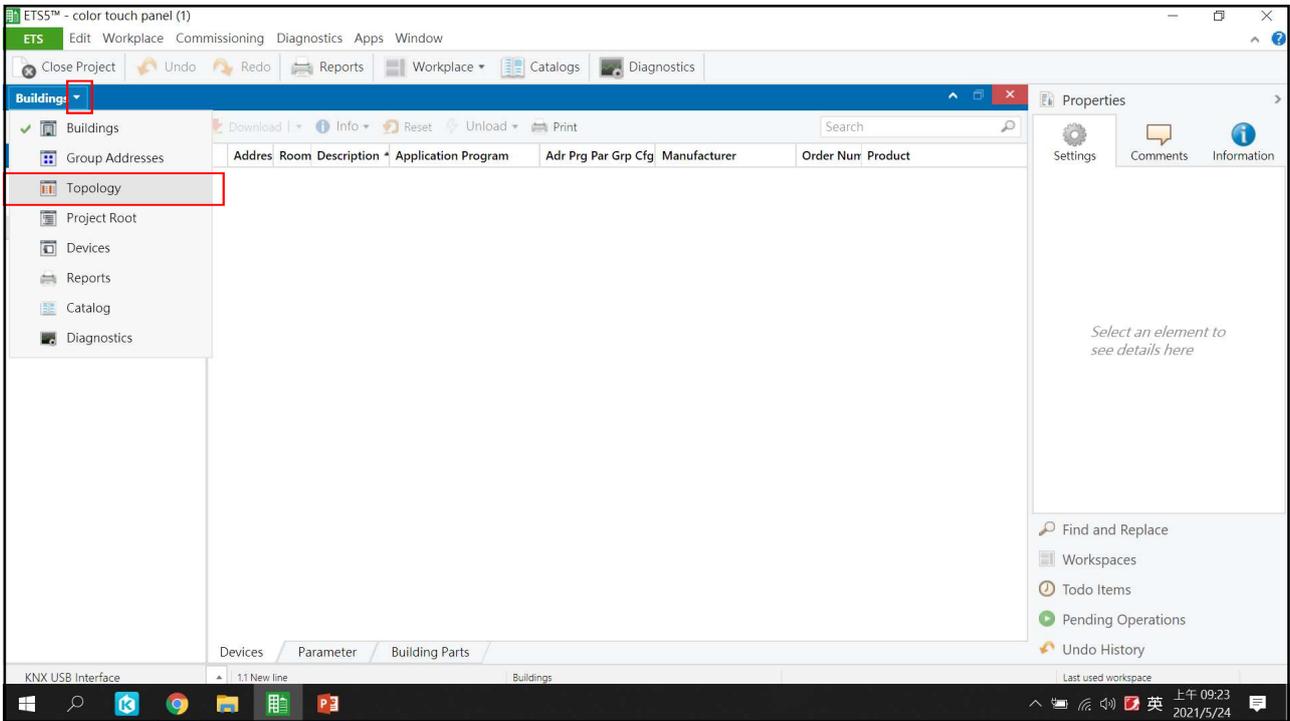
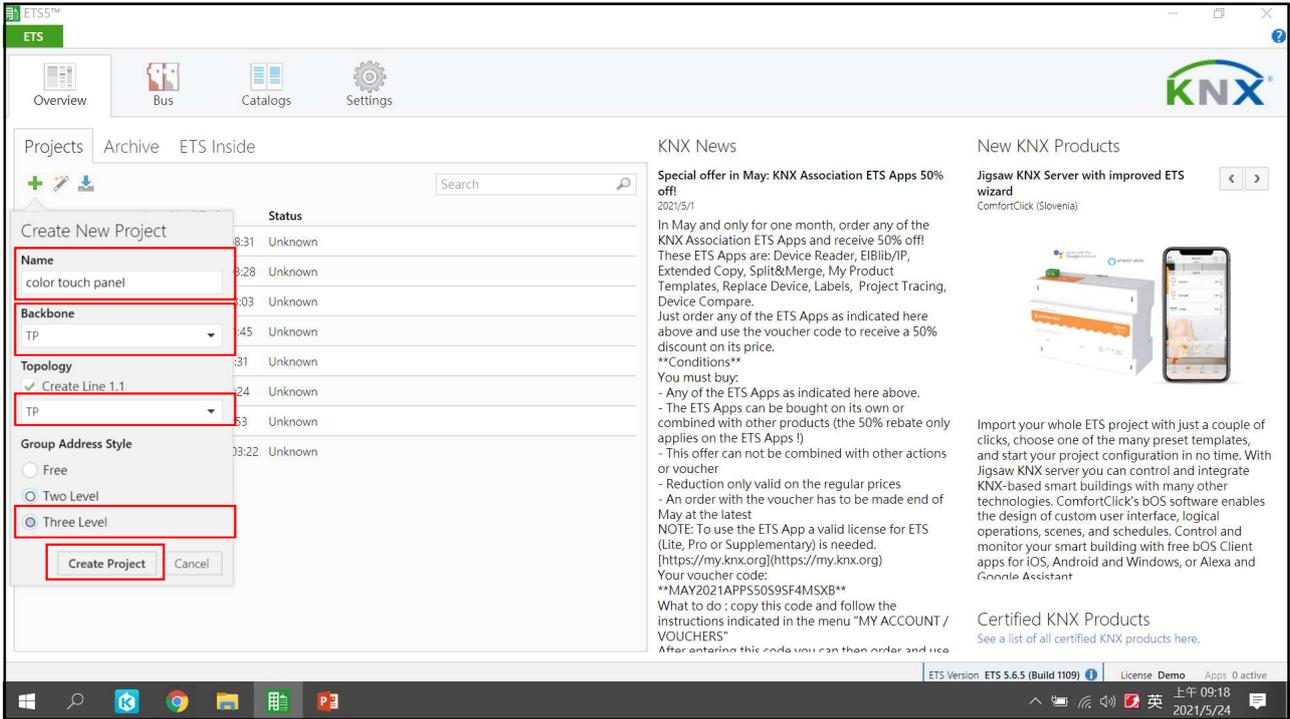
利用 6 Button 按鈕及彩色面板控制開關、調光、情境

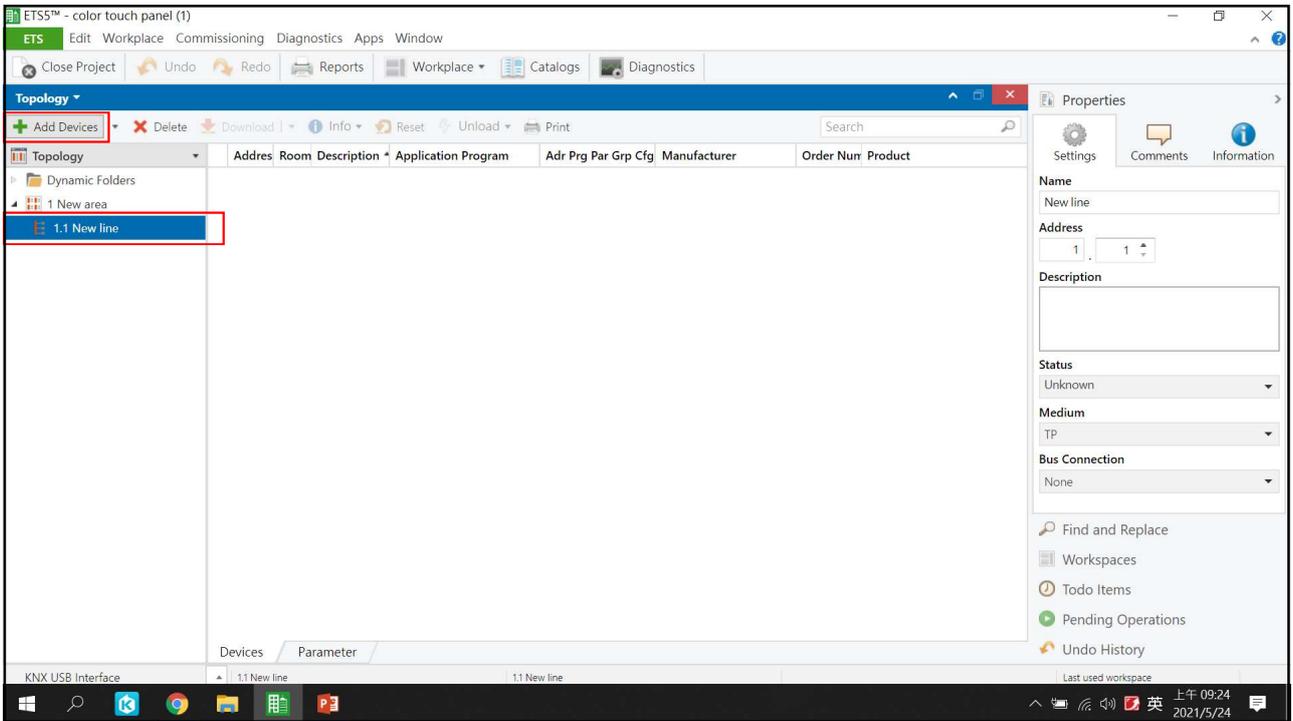
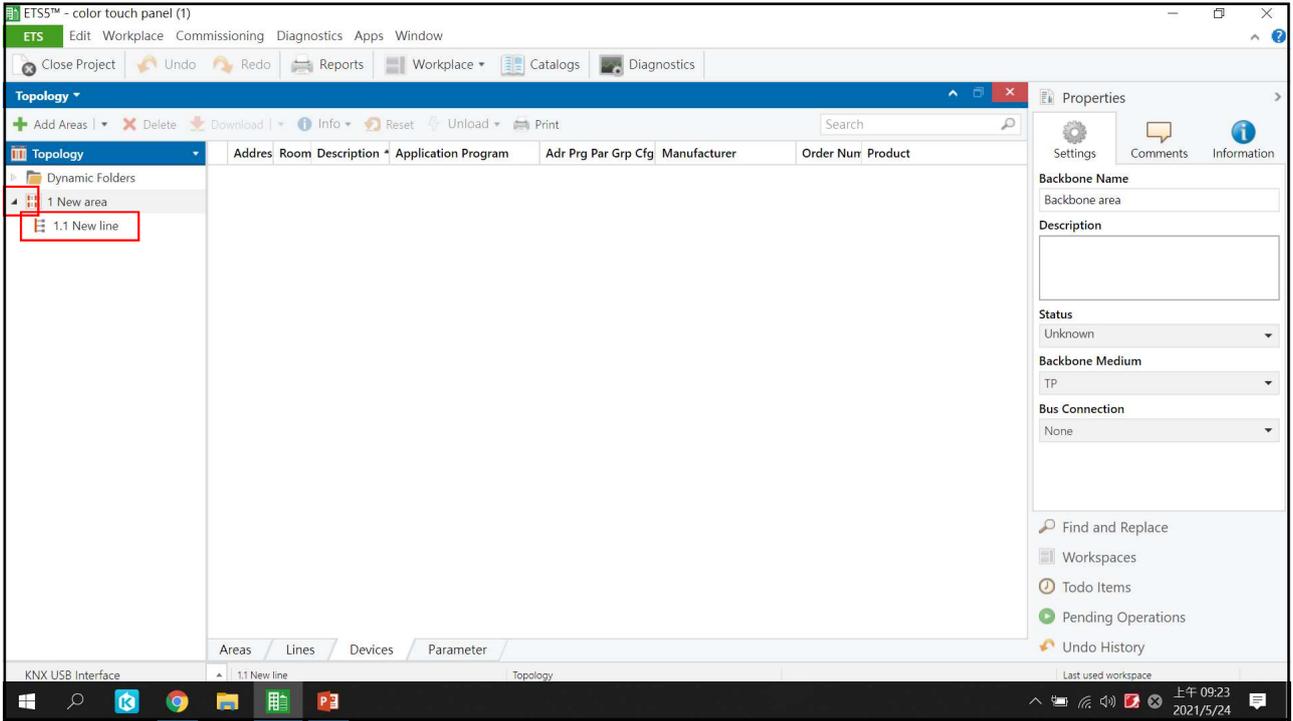
- B1 : L1 on/off
- B2 Short Press : D1 on/off
- B2 Long Press : D1 Brighter/Darker
- B3 : Sence D1 30% , D2 40% , D3 50%

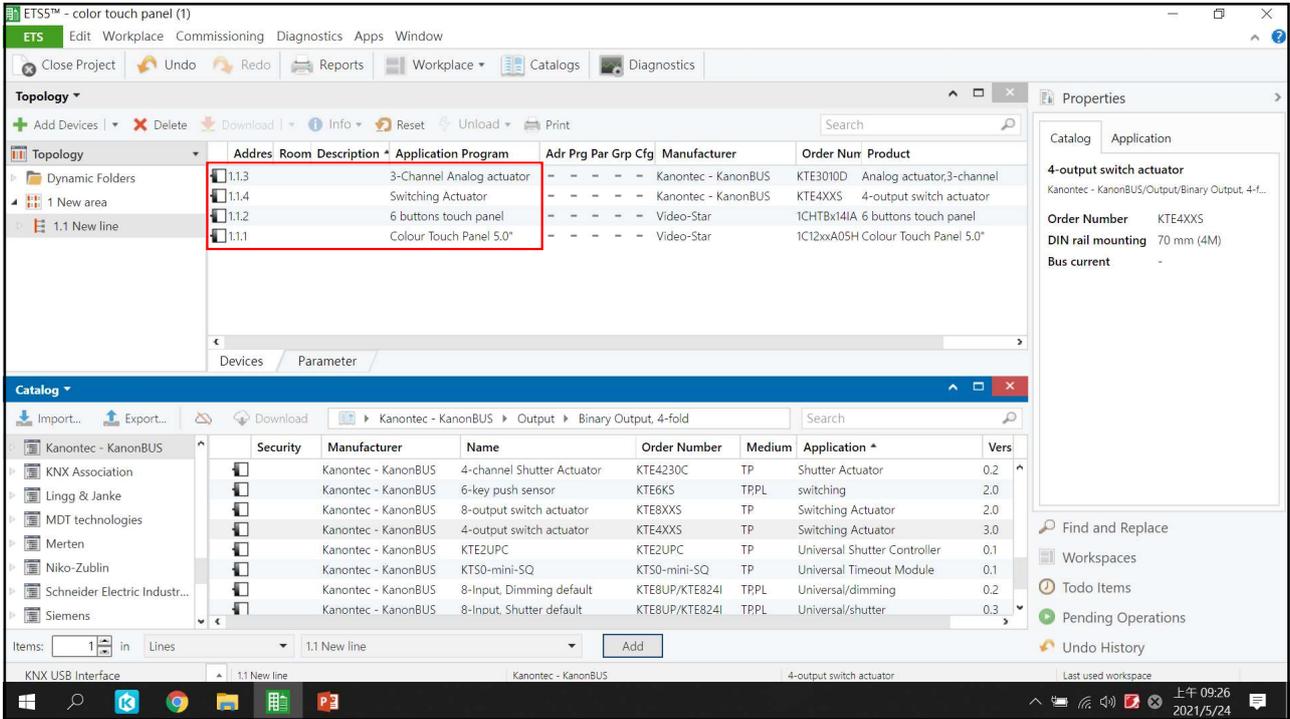
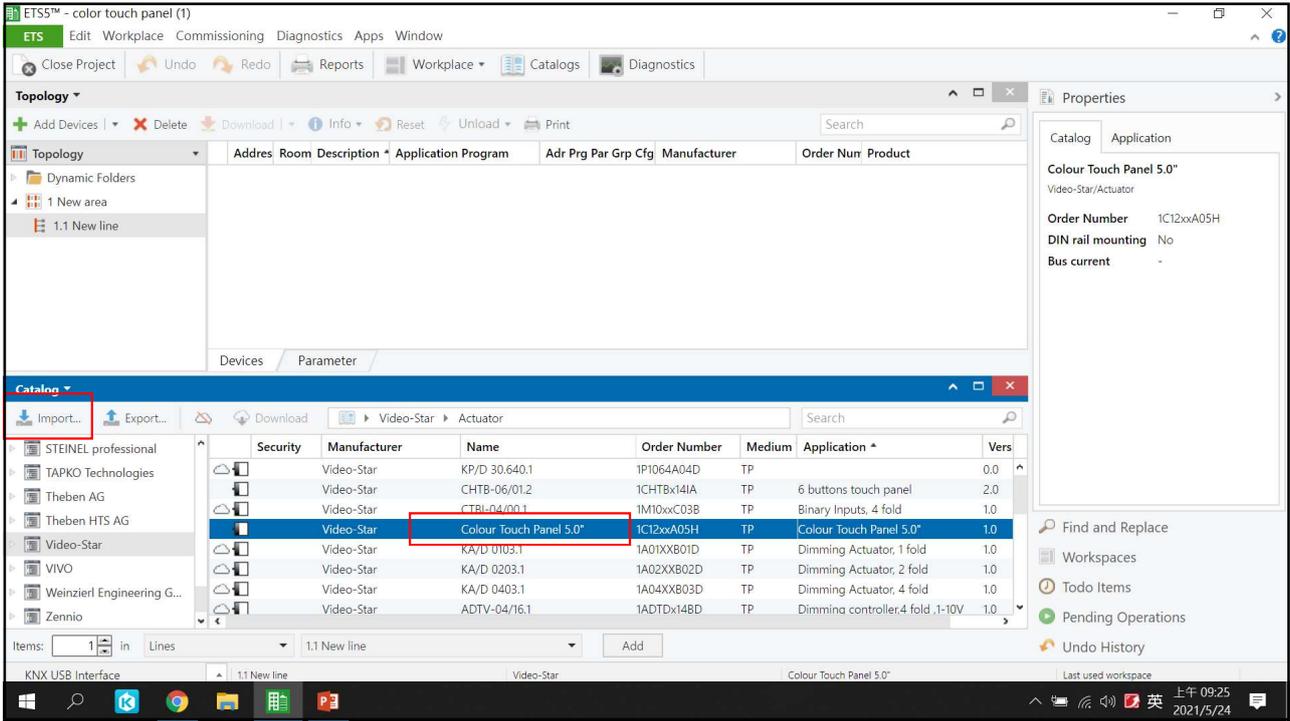
The screenshot displays the ETS5™ software interface. The top navigation bar includes 'Overview', 'Bus', 'Catalogs', and 'Settings'. The main content area is divided into three sections:

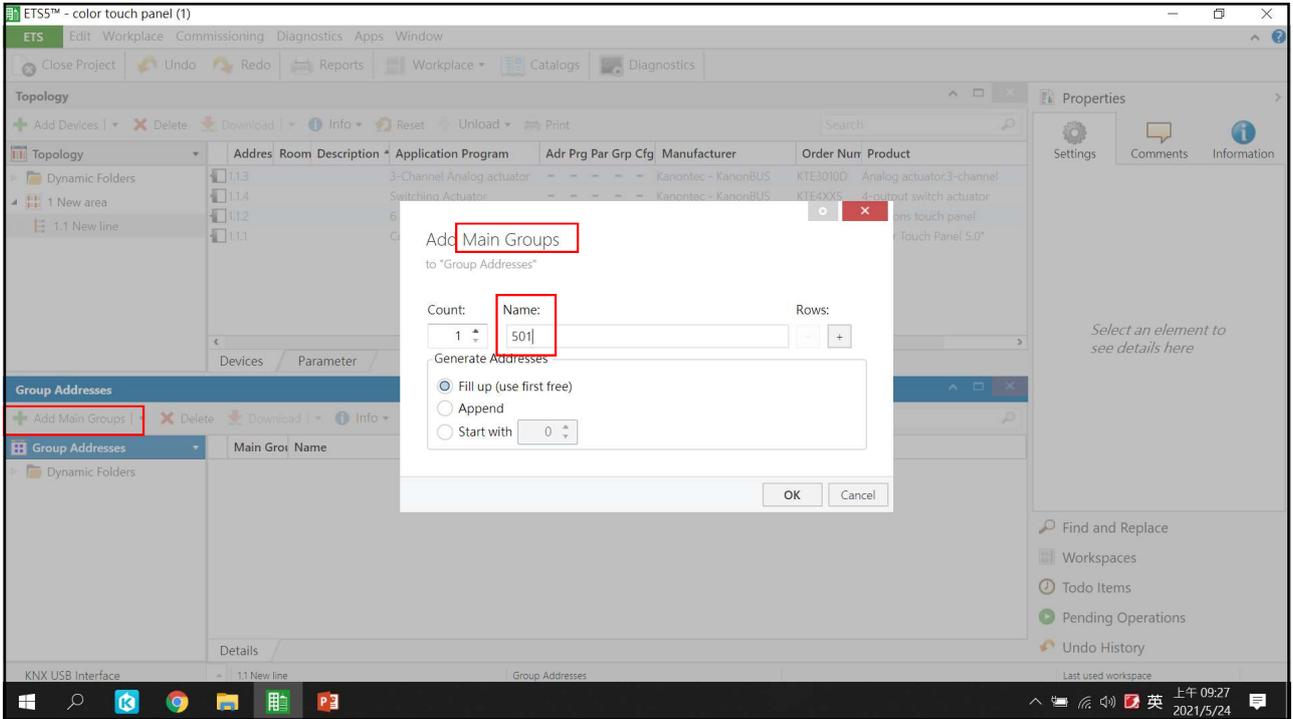
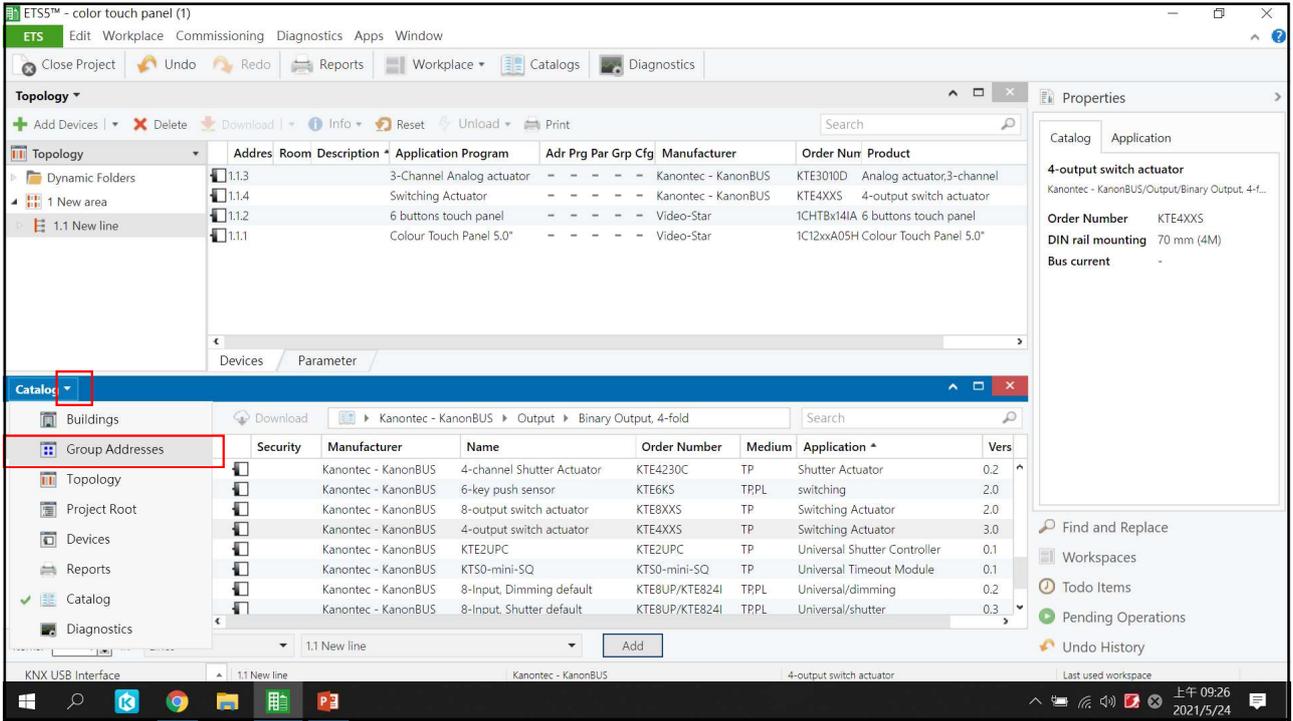
- Projects:** A table listing various projects with columns for Name, Last Modified, and Status. A red box highlights the '+', '-', and download icons in the top-left corner of the table.
- KNX News:** A section titled 'Special offer in May: KNX Association ETS Apps 50% off!' with details about the promotion and terms.
- New KNX Products:** A section for 'Jigsaw KNX Server with improved ETS wizard' by ComfortClick (Slovenia), featuring an image of the server and a smartphone displaying the ETS interface.

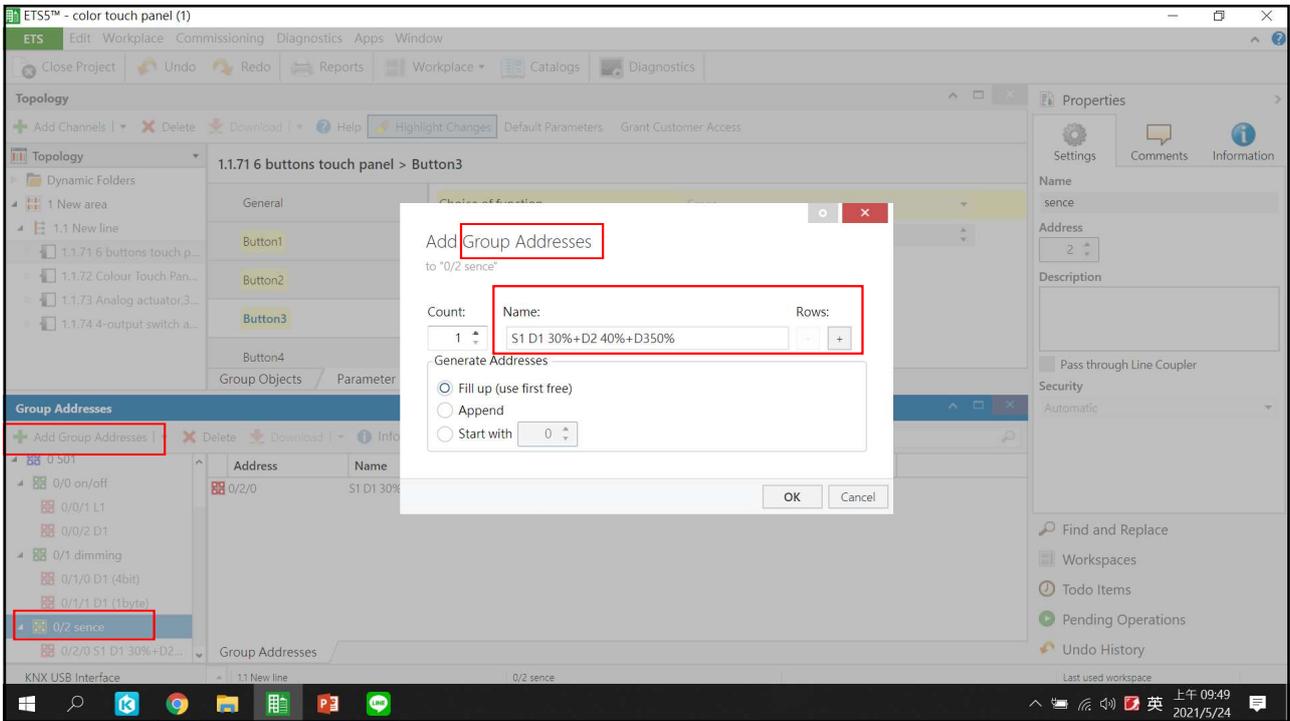
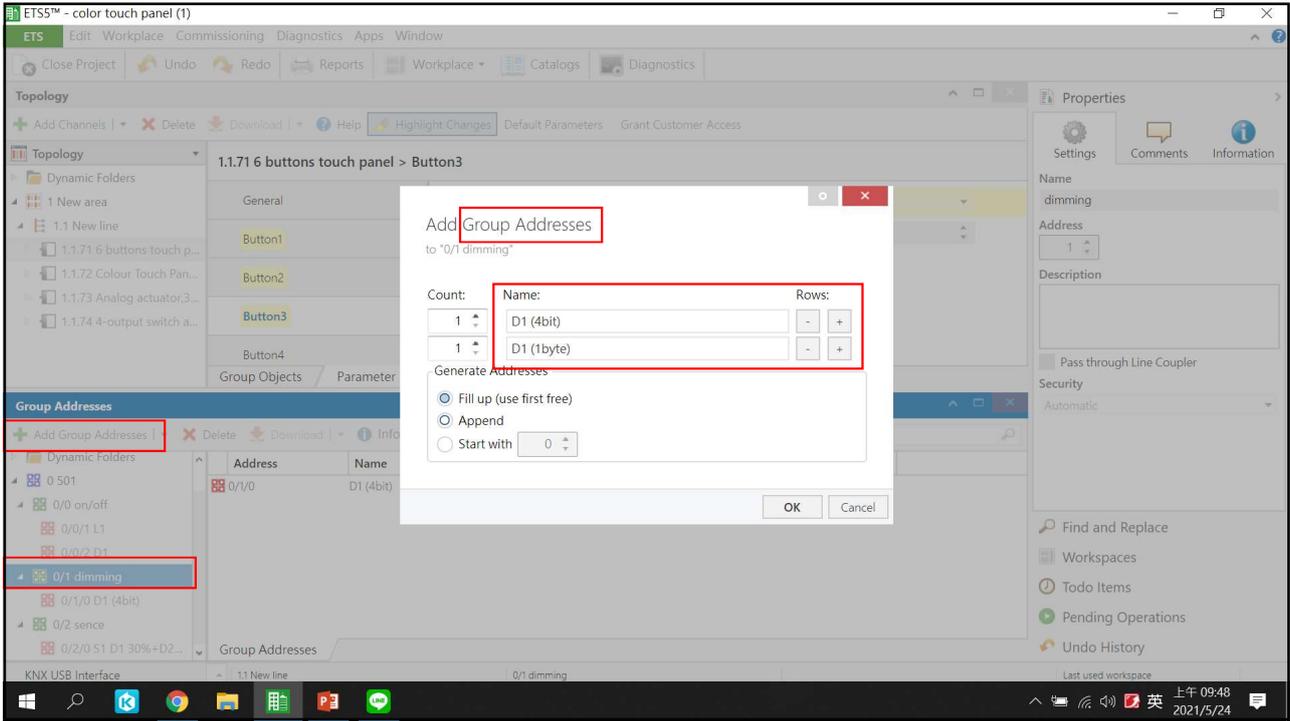
The bottom status bar shows 'ETS Version ETS 5.6.5 (Build 1109)', 'License Demo', and 'Apps 0 active'. The system tray at the bottom right indicates the date and time as '2021/5/24' and '上午 09:17'.

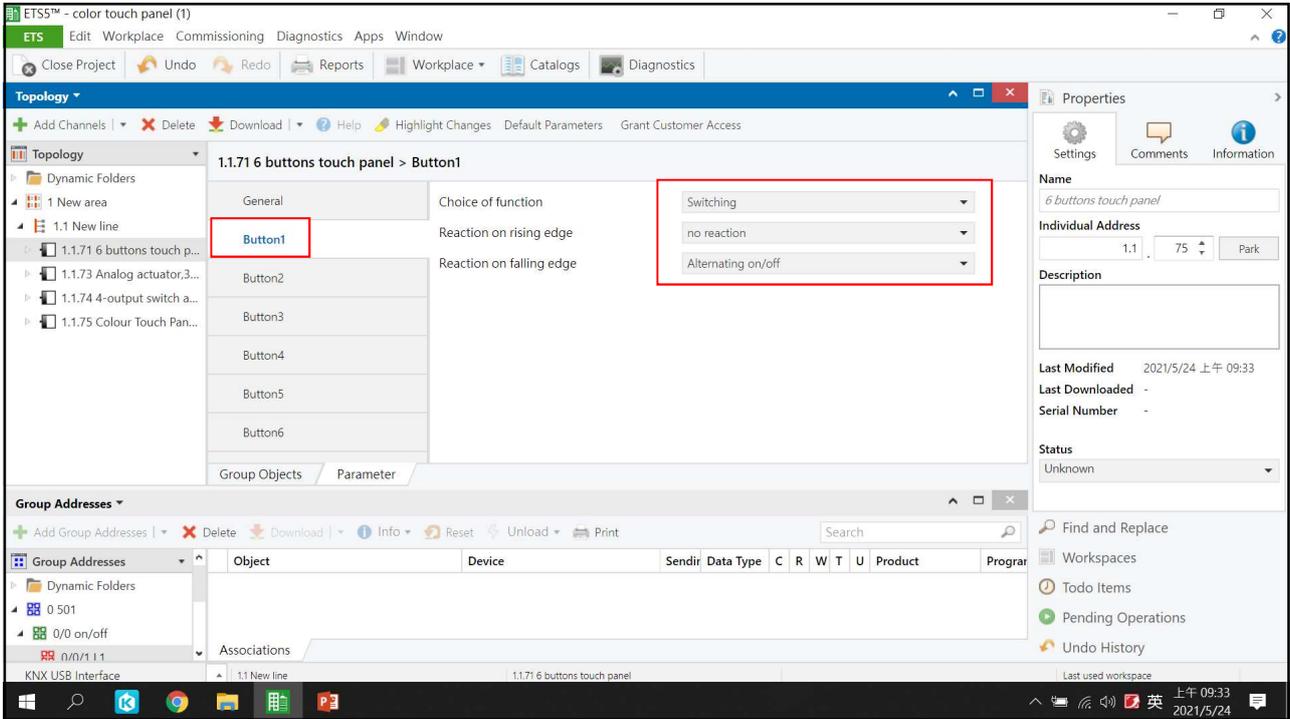
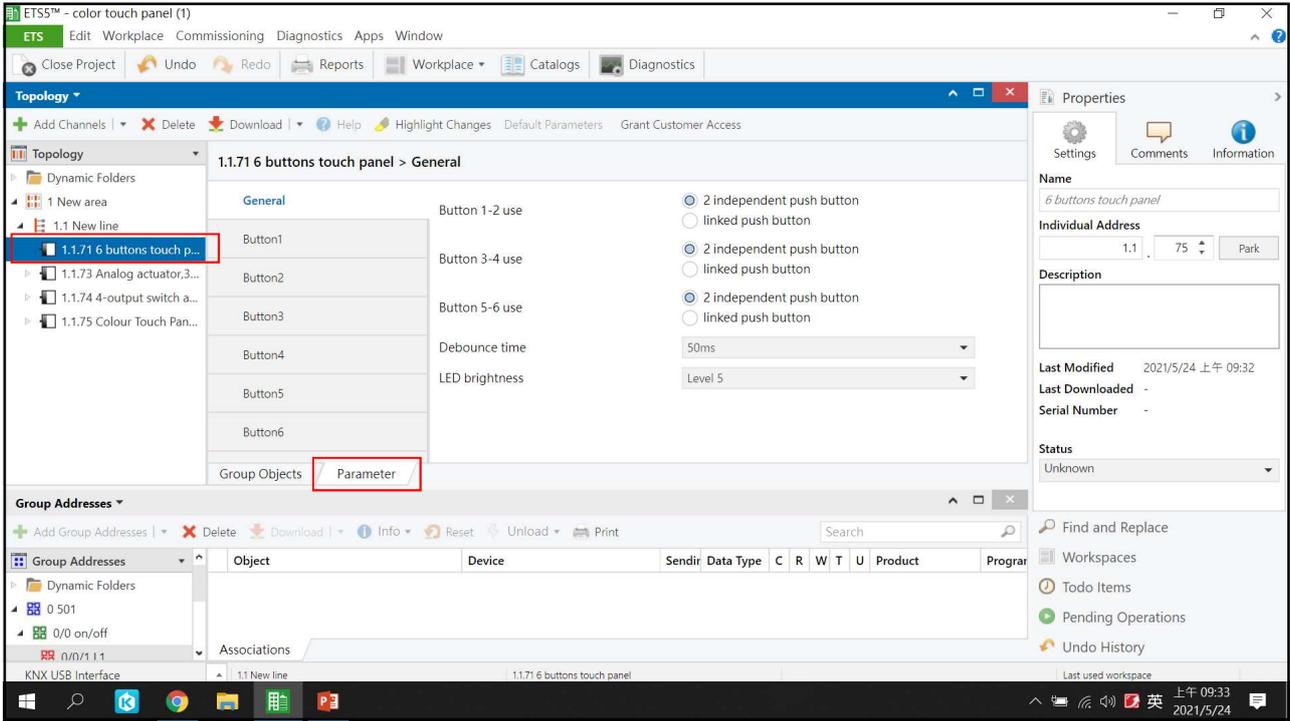


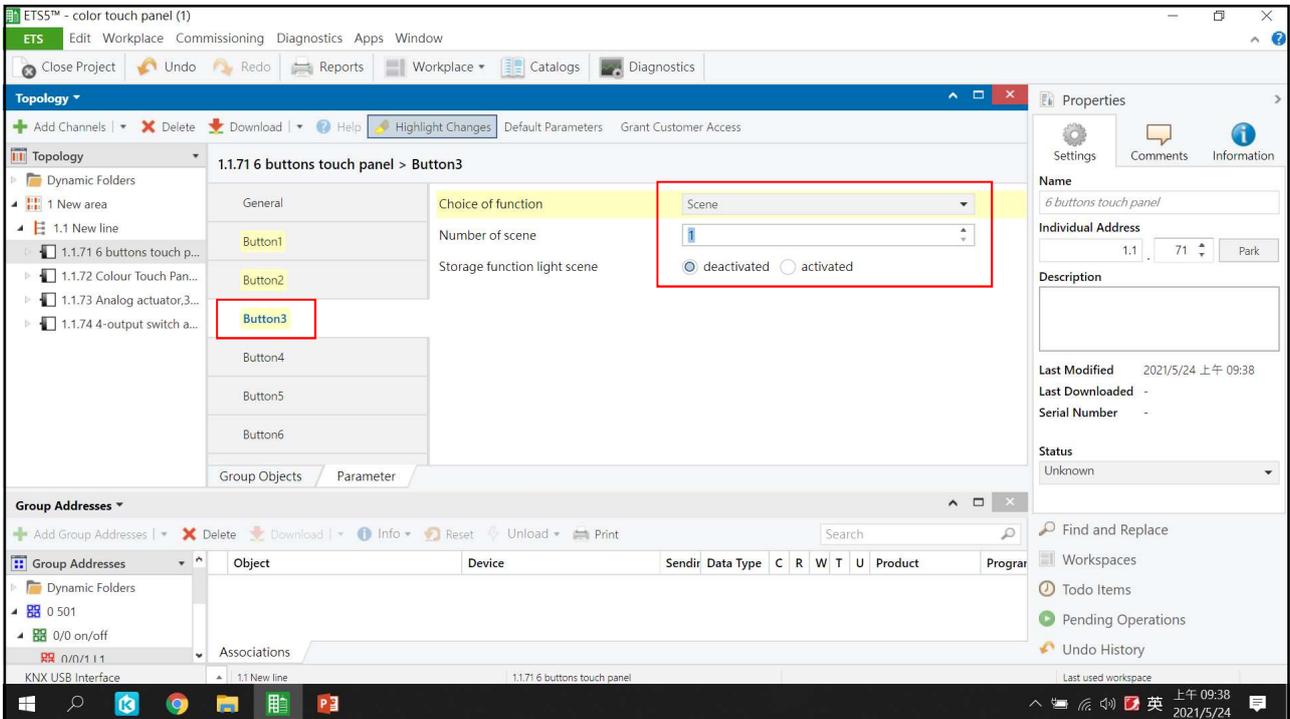
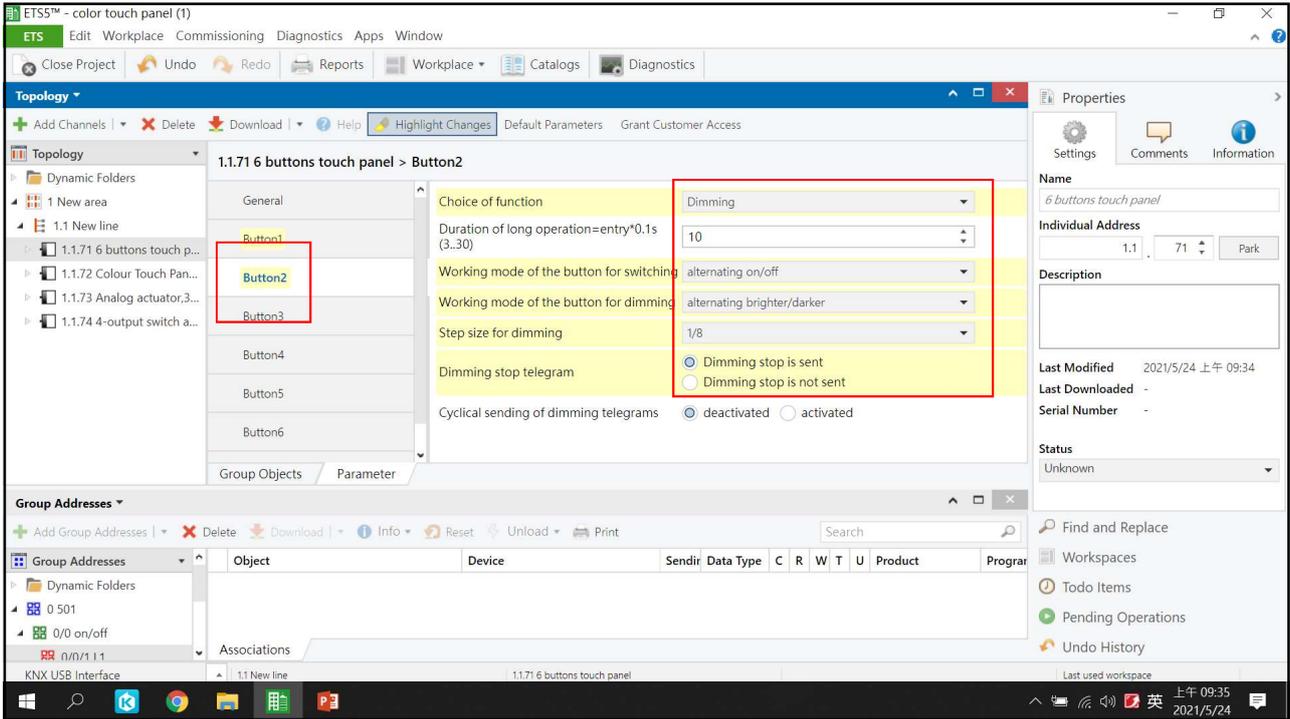


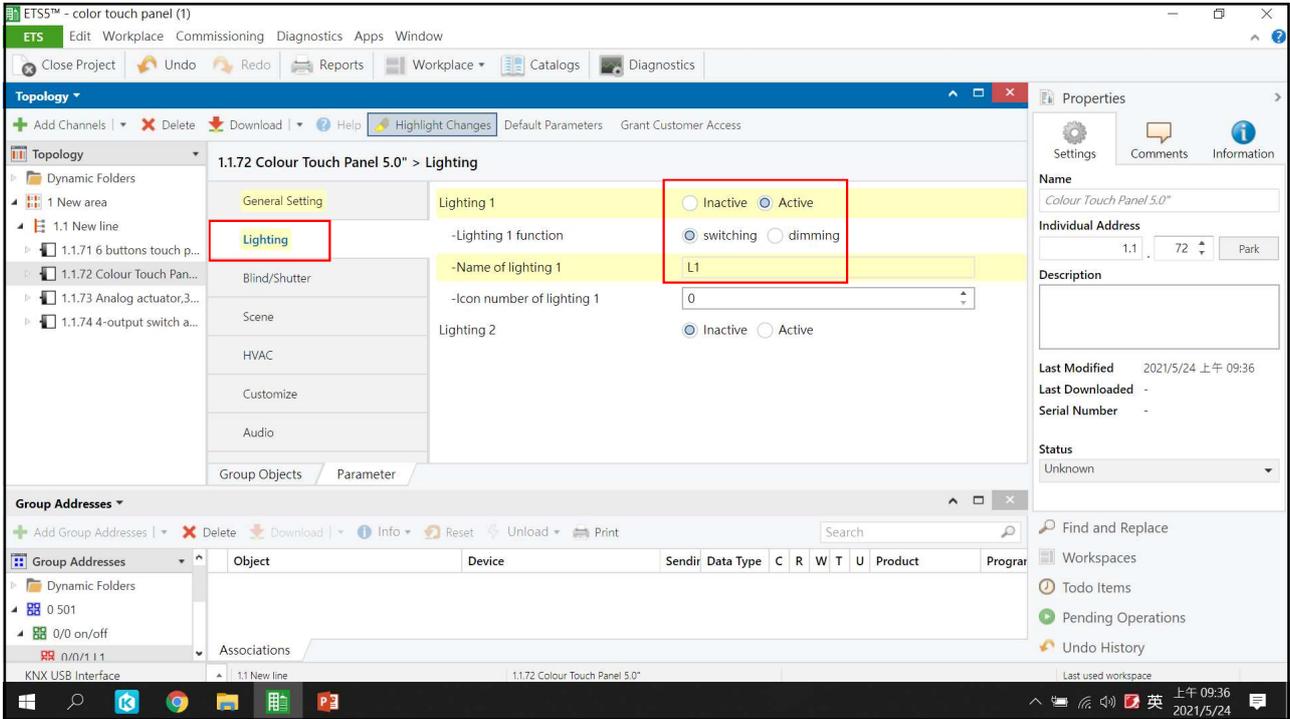
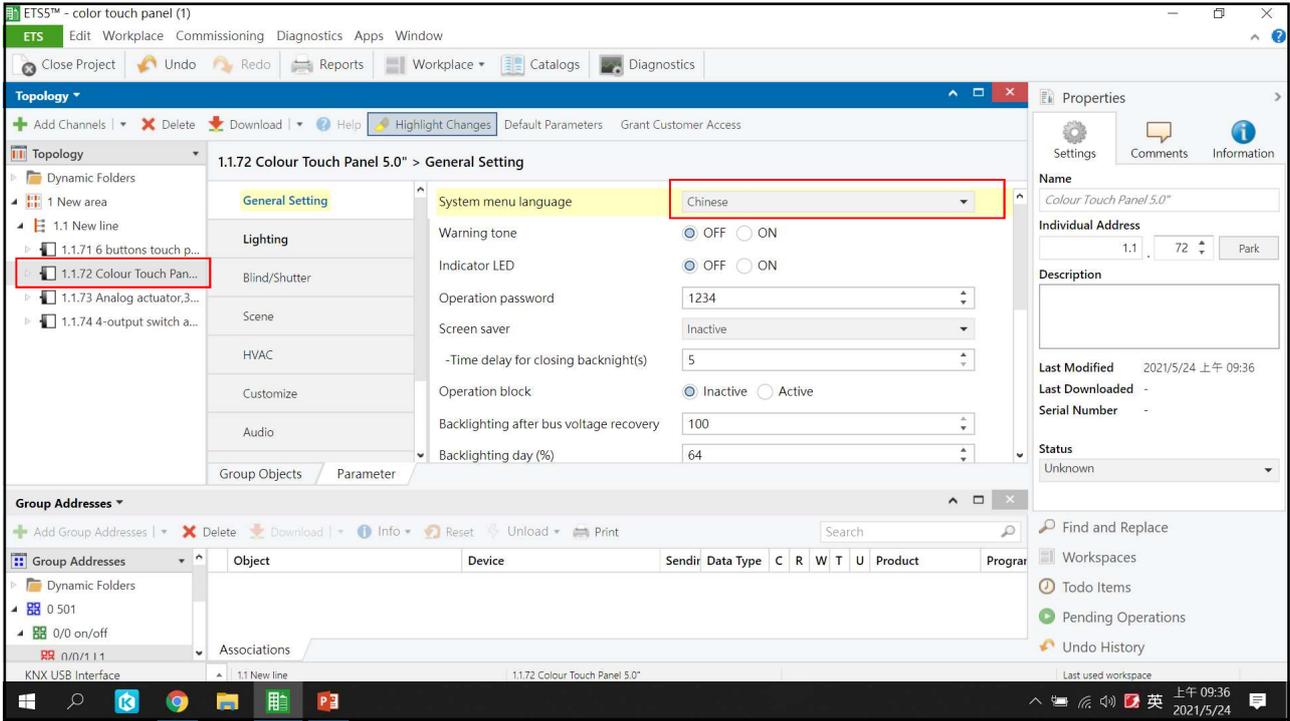


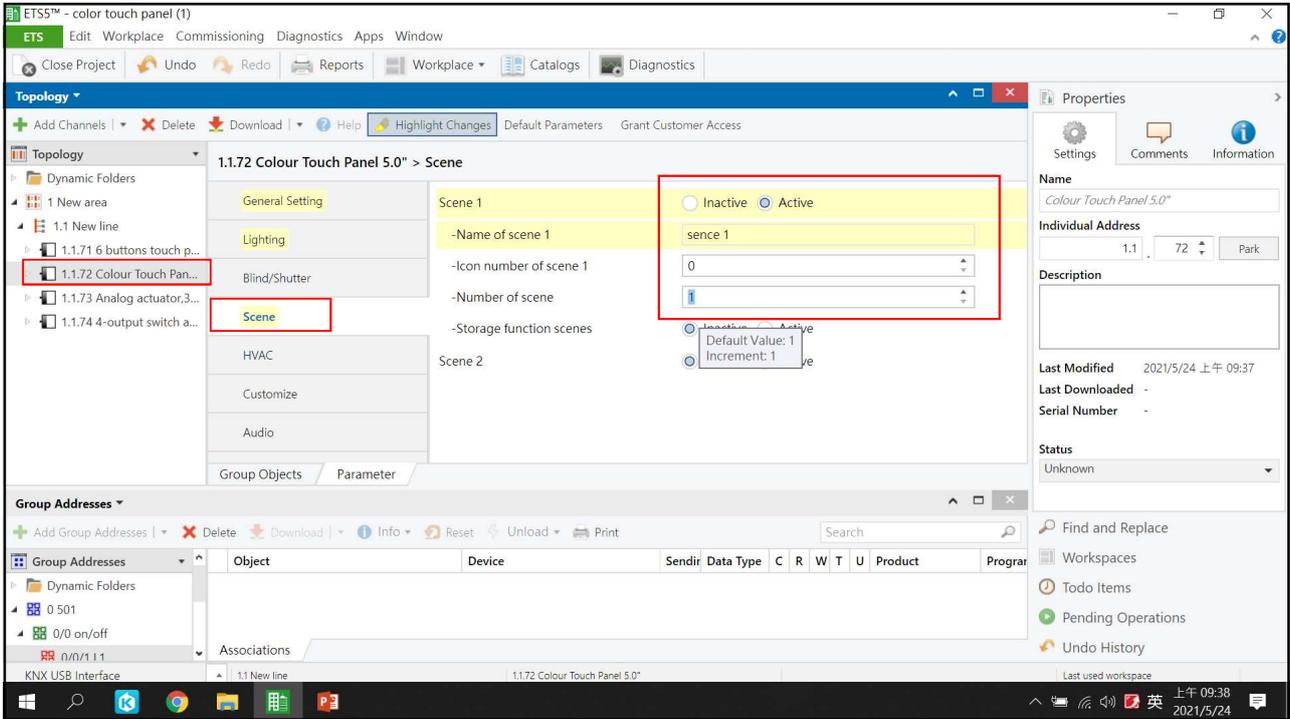
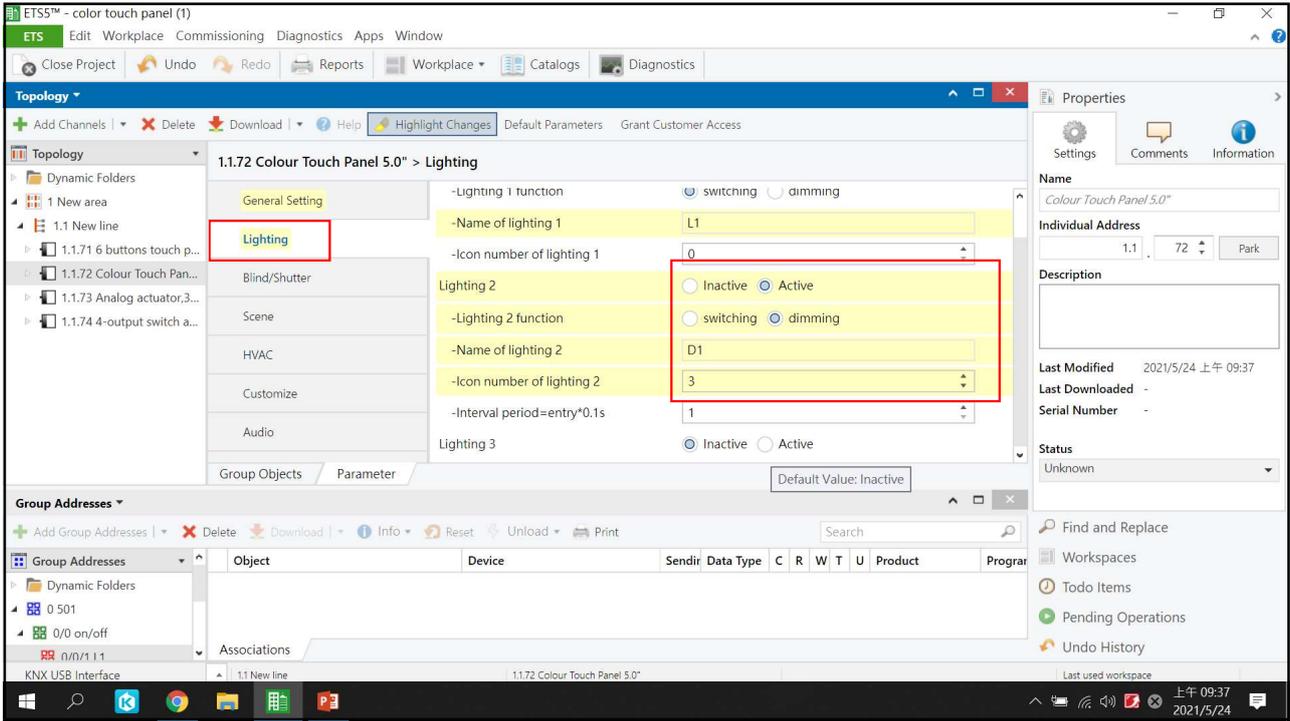


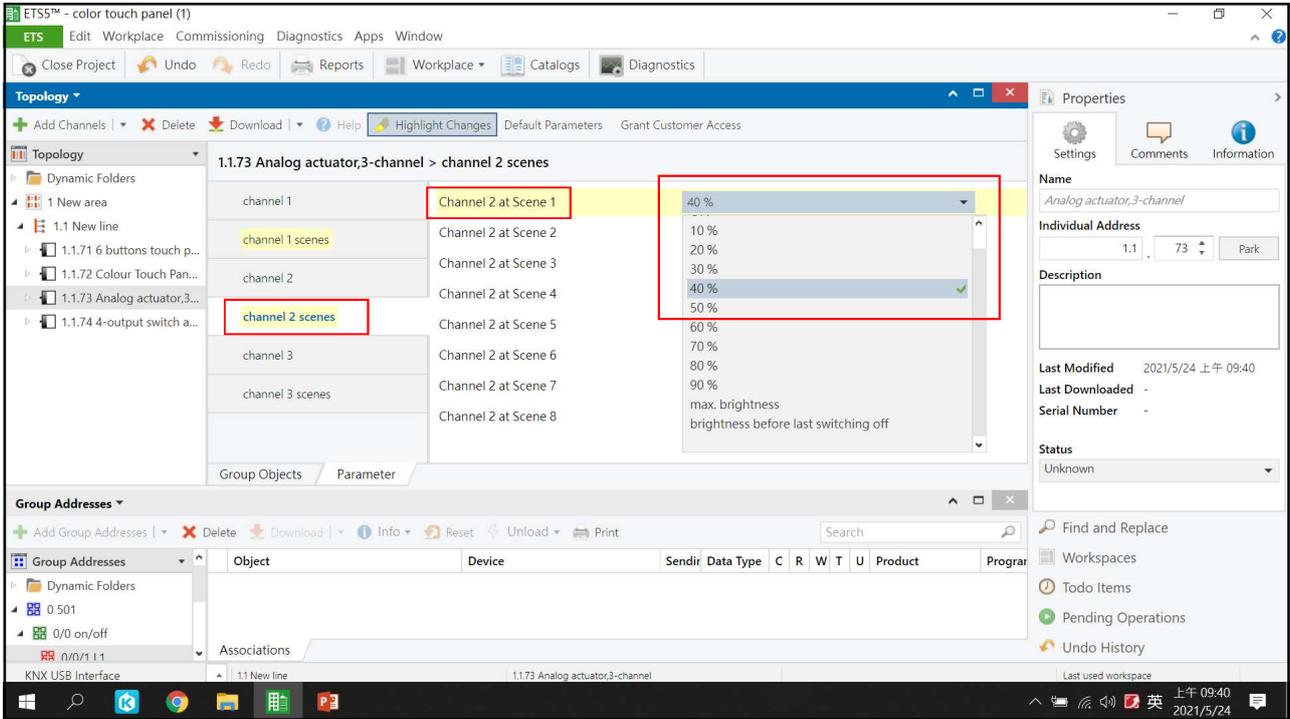
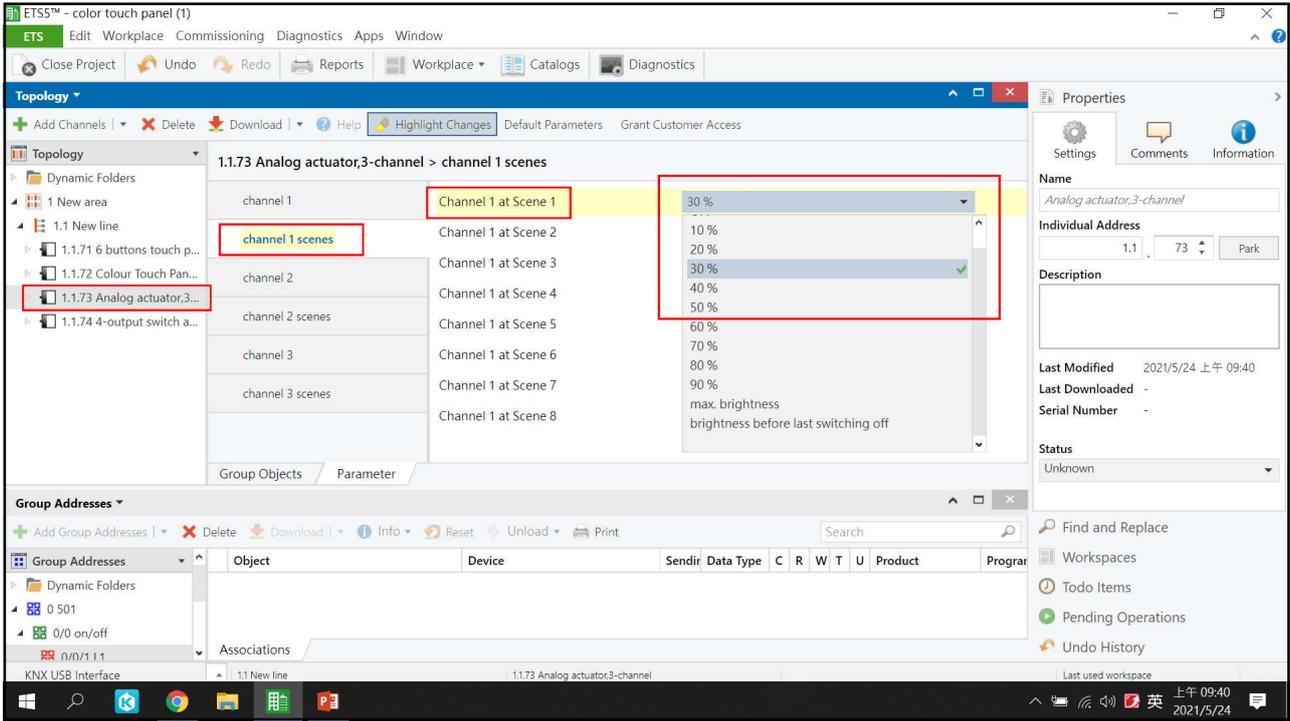


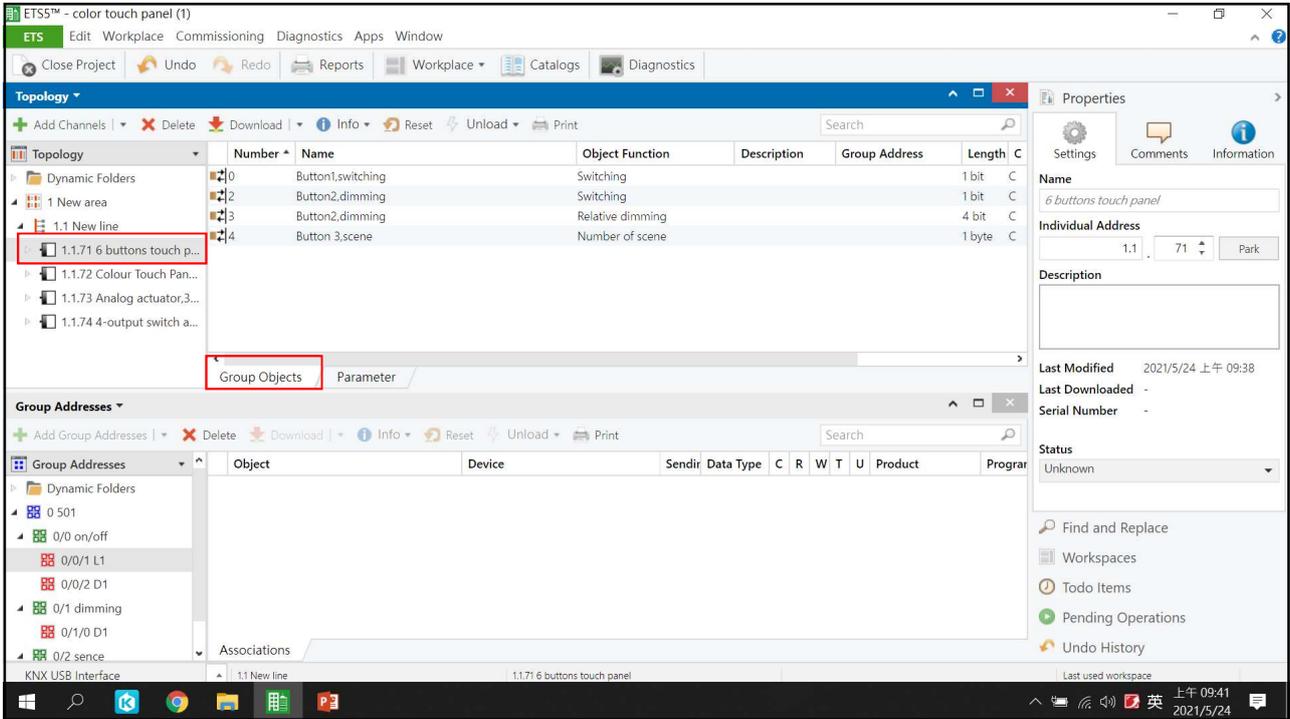
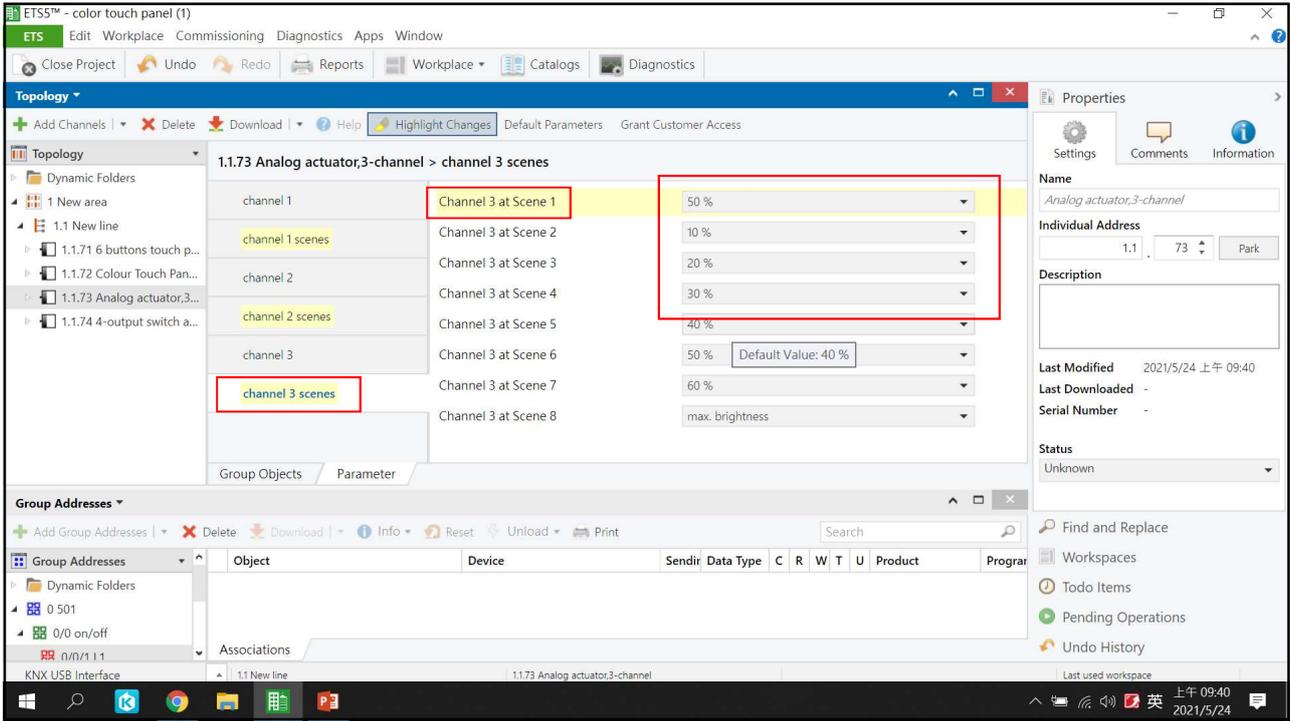












The screenshot shows the ETS software interface with the 'Topology' table selected. The table contains the following data:

Number	Name	Object Function	Description	Group Address	Length	C
0	Button1,switching	Switching	L1	0/0/1	1 bit	C
2	Button2,dimming	Switching	D1	0/0/2	1 bit	C
3	Button2,dimming	Relative dimming			4 bit	C
4	Button 3.scene	Number of scene			1 byte	C

The 'Group Addresses' table below shows the configuration for the selected object:

Object	Device	Sendir	Data Type	C	R	W	T	U	Product	Program
0: Button1,switching - Switching	1.171 6 buttons touch panel	S	switch	C	-	W	T	-	6 buttons touch pa...	6 button

The 'Properties' panel on the right shows details for 'Button1,switching', including Name, Description (L1), Priority (Low), and various Flags.

The screenshot shows the ETS software interface with the 'Topology' table selected. The table contains the following data:

Number	Name	Object Function	Description	Group Address	Length	C
0	Button1,switching	Switching	L1	0/0/1	1 bit	C
2	Button2,dimming	Switching	D1	0/0/2	1 bit	C
3	Button2,dimming	Relative dimming			4 bit	C
4	Button 3.scene	Number of scene			1 byte	C

The 'Group Addresses' table below shows the configuration for the selected object:

Object	Device	Sendir	Data Type	C	R	W	T	U	Product	Program
2: Button2,dimming - Switching	1.171 6 buttons touch panel	S	switch	C	-	W	T	-	6 buttons touch pa...	6 button

The 'Properties' panel on the right shows details for 'Button2,dimming', including Name, Description (D1), Priority (Low), and various Flags.

The screenshot shows the ETS software interface for a 'color touch panel'. The 'Topology' table is as follows:

Number	Name	Object Function	Description	Group Address	Length	C
0	Button1,switching	Switching	L1	0/0/1	1 bit	C
2	Button2,dimming	Switching	D1	0/0/2	1 bit	C
3	Button2,dimming	Relative dimming	D1 (4bit)	0/1/0	4 bit	C
4	Button 3.scene	Number of scene	S1 D1 30%+D2 40...0/2/0		1 byte	C

The 'Group Addresses' table shows the configuration for the selected object:

Object	Device	Sendir	Data Type	C	R	W	T	U	Product	Program
0/1 dimming	1.171 6 buttons touch panel	S	dimming.c...	C	-	-	T	-	6 buttons touch pa...	6 button

The 'Properties' panel on the right shows the configuration for 'Button2,dimming':

- Name: Button2,dimming
- Description: D1 (4bit)
- Priority: Low
- Flags: Communication, Read, Write, Transmit, Update, Read On Init
- Data Type: (empty)

The screenshot shows the ETS software interface for a 'color touch panel'. The 'Topology' table is as follows:

Number	Name	Object Function	Description	Group Address	Length	C
0	Button1,switching	Switching	L1	0/0/1	1 bit	C
2	Button2,dimming	Switching	D1	0/0/2	1 bit	C
3	Button2,dimming	Relative dimming	D1	0/1/0	4 bit	C
4	Button 3.scene	Number of scene	S1 D1 30%+D2 40...0/2/0		1 byte	C

The 'Group Addresses' table shows the configuration for the selected object:

Object	Device	Sendir	Data Type	C	R	W	T	U	Product	Program
0/2 sence	1.171 6 buttons touch panel	S		C	-	-	T	-	6 buttons touch pa...	6 button

The 'Properties' panel on the right shows the configuration for 'Button 3.scene':

- Name: Button 3.scene
- Description: S1 D1 30%+D2 40%+D3 50%
- Priority: Low
- Flags: Communication, Read, Write, Transmit, Update, Read On Init
- Data Type: (empty)

The screenshot shows the ETS (EIB Tool Software) interface for a 'color touch panel (1)'. The 'Topology' table is the central focus, with 'Lighting 1' selected. The 'Group Addresses' table below it shows the configuration for '0/0/1 L1'. The 'Properties' panel on the right shows details for 'Lighting 1'.

Number	Name	Object Function	Description	Group Address	Length	C
0	General	Day/Night mode			1 bit	C
3	General	Indoor actual temperature			2 bytes	C
5	Lighting 1	Switching	L1	0/0/1	1 bit	C
6	Lighting 1	Status			1 bit	C
8	Lighting 2	Switching			1 bit	C
9	Lighting 2	Brightness value			1 byte	C
10	Lighting 2	Absolute dimming			1 byte	C
71	Scene 1	Number of scene			1 byte	C

Object	Device	Sendir	Data Type	C	R	W	T	U	Product	Program
Lighting 1 - Switching	1.172 Colour Touch Panel 5.0"	S	switch	C	-	-	T	-	Colour Touch Panel... Colour T	
Button1.switching - Switching	1.171 6 buttons touch panel	S	switch	C	-	W	T	-	6 buttons touch pa...	6 button

Object	Device	Sendir	Data Type	C	R	W	T	U	Product	Program
Lighting 1 - Switching	1.172 Colour Touch Panel 5.0"	S	switch	C	-	-	T	-	Colour Touch Panel... Colour T	
Button1.switching - Switching	1.171 6 buttons touch panel	S	switch	C	-	W	T	-	6 buttons touch pa...	6 button

The screenshot shows the ETS software interface with 'Lighting 2' selected in the 'Topology' table. The 'Group Addresses' table below it shows the configuration for '0/0/2 D1'. The 'Properties' panel on the right shows details for 'Lighting 2'.

Number	Name	Object Function	Description	Group Address	Length	C
0	General	Day/Night mode			1 bit	C
3	General	Indoor actual temperature			2 bytes	C
5	Lighting 1	Switching	L1	0/0/1	1 bit	C
6	Lighting 1	Status			1 bit	C
8	Lighting 2	Switching	D1	0/0/2	1 bit	C
9	Lighting 2	Brightness value			1 byte	C
10	Lighting 2	Absolute dimming			1 byte	C
71	Scene 1	Number of scene			1 byte	C

Object	Device	Sendir	Data Type	C	R	W	T	U	Product	Program
Lighting 2 - Switching	1.172 Colour Touch Panel 5.0"	S	switch	C	-	-	T	-	Colour Touch Panel... Colour T	
Button2.dimming - Switching	1.171 6 buttons touch panel	S	switch	C	-	W	T	-	6 buttons touch pa...	6 button

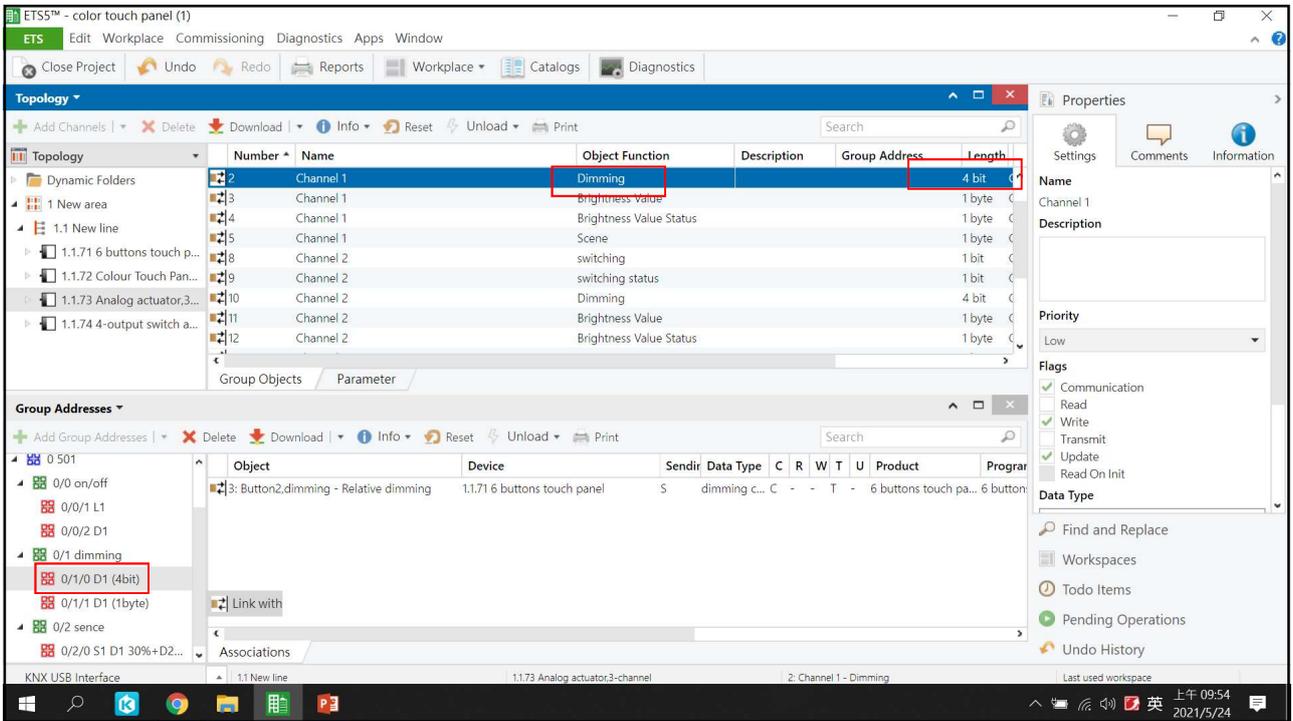
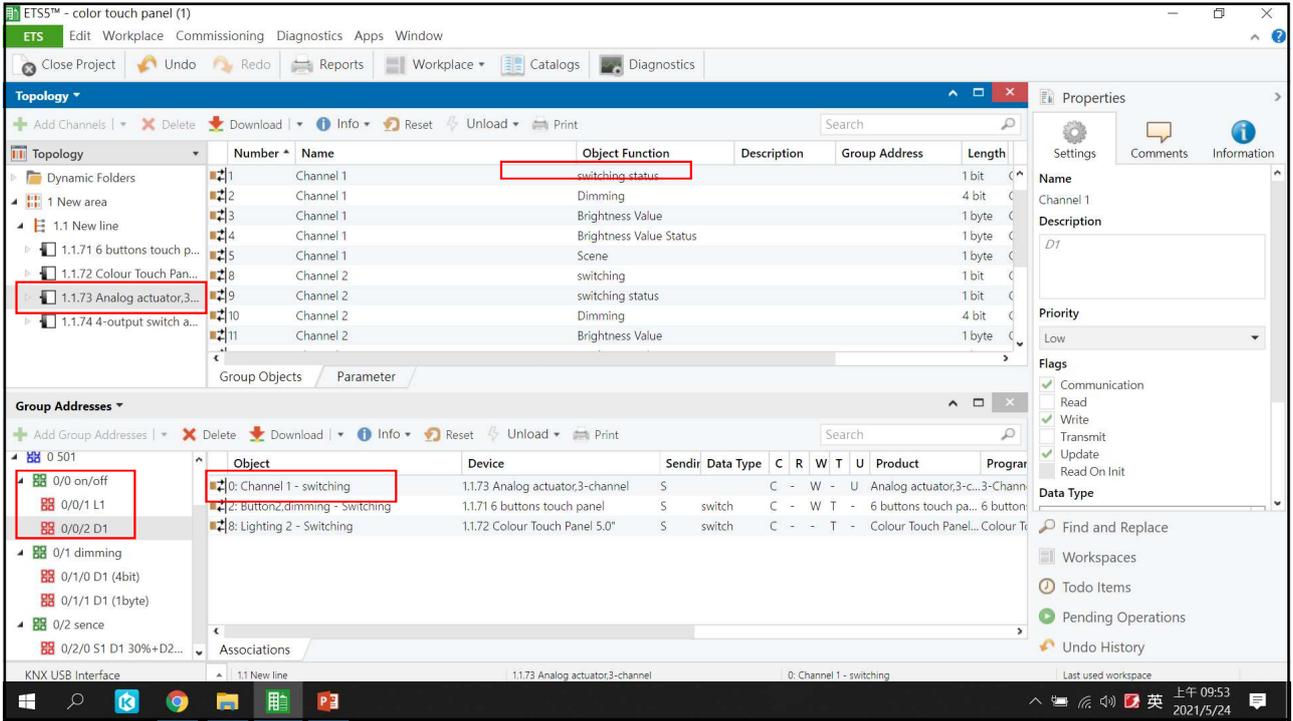
Object	Device	Sendir	Data Type	C	R	W	T	U	Product	Program
Lighting 2 - Switching	1.172 Colour Touch Panel 5.0"	S	switch	C	-	-	T	-	Colour Touch Panel... Colour T	
Button2.dimming - Switching	1.171 6 buttons touch panel	S	switch	C	-	W	T	-	6 buttons touch pa...	6 button

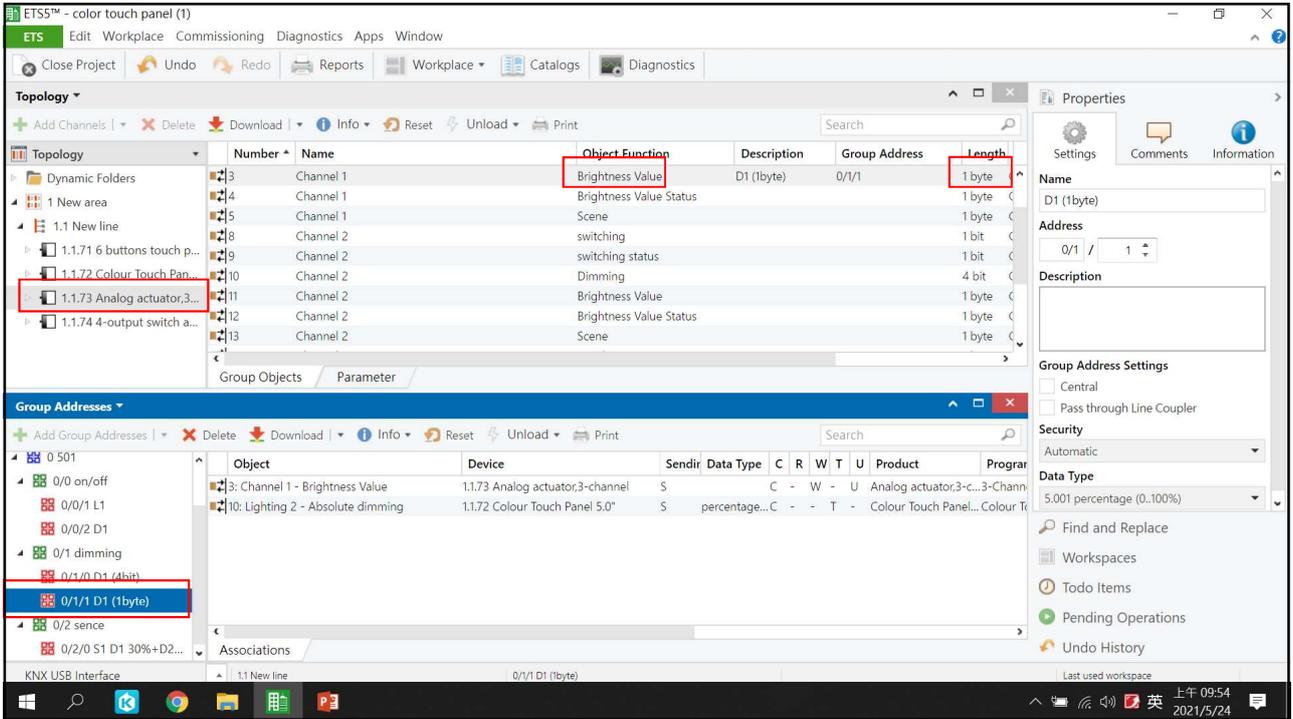
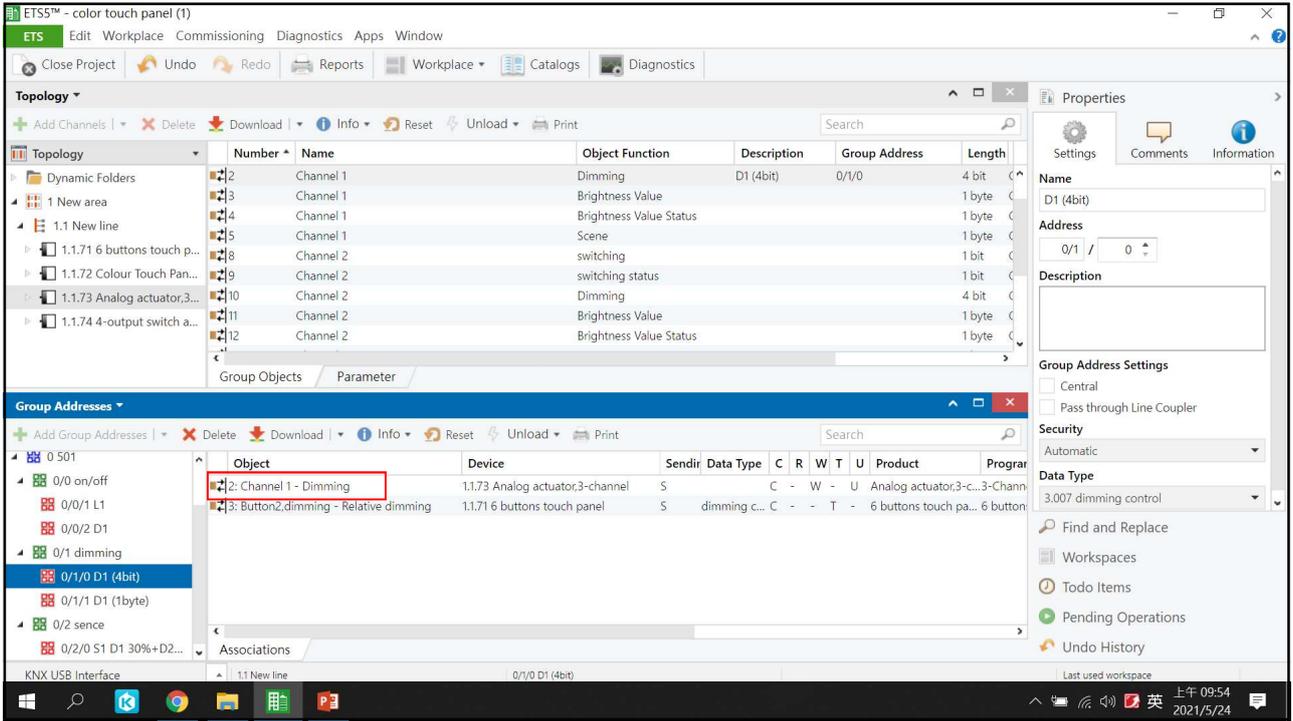
The screenshot shows the ETS5 software interface. The 'Topology' table is the central focus, listing various objects with their properties. The 'Absolute dimming' object is highlighted with a red box. The 'Group Addresses' window is also open, showing a list of addresses with '0/1/1 D1 (1byte)' highlighted. The 'Properties' window on the right shows details for the selected object, including its name 'D1 (1byte)' and address '0/1 / 1'.

Number	Name	Object Function	Description	Group Address	Length	C
0	General	Day/Night mode			1 bit	C
3	General	Indoor actual temperature			2 bytes	C
5	Lighting 1	Switching	L1	0/0/1	1 bit	C
6	Lighting 1	Status			1 bit	C
8	Lighting 2	Switching	D1	0/0/2	1 bit	C
9	Lighting 2	Brightness value			1 byte	C
10	Lighting 2	Absolute dimming			1 byte	C
71	Scene 1	Number of scene			1 byte	C

The screenshot shows the ETS5 software interface. The 'Topology' table is the central focus, listing various objects with their properties. The 'Scene 1' object is highlighted with a red box. The 'Group Addresses' window is also open, showing a list of addresses with '0/2/0 S1 D1 30%+D2...' highlighted. The 'Properties' window on the right shows details for the selected object, including its name 'Scene 1' and description 'S1 D1 30%+D2 40%+D3 50%'.

Number	Name	Object Function	Description	Group Address	Length	C
0	General	Day/Night mode			1 bit	C
3	General	Indoor actual temperature			2 bytes	C
5	Lighting 1	Switching	L1	0/0/1	1 bit	C
6	Lighting 1	Status			1 bit	C
8	Lighting 2	Switching	D1	0/0/2	1 bit	C
9	Lighting 2	Brightness value			1 byte	C
10	Lighting 2	Absolute dimming			1 byte	C
71	Scene 1	Number of scene	S1 D1 30%+D2 40...0/2/0		1 byte	C





The screenshot shows the ETS software interface for a 'color touch panel (1)'. The 'Topology' window displays a table of channels and their functions. The 'Group Addresses' window shows a list of objects and their associated devices. The 'Properties' window on the right shows details for the selected 'Channel 1 - Scene'.

Number	Name	Object Function	Description	Group Address	Length
4	Channel 1	Brightness Value Status			1 byte
5	Channel 1	Scene	S1 D1 30%+D2 40...0/2/0		1 byte
8	Channel 2	switching			1 bit
9	Channel 2	switching status			1 bit
10	Channel 2	Dimming			4 bit
11	Channel 2	Brightness Value			1 byte
12	Channel 2	Brightness Value Status			1 byte
13	Channel 2	Scene			1 byte
16	Channel 3	switching			1 bit

Object	Device	Sendir	Data Type	C	R	W	T	U	Product	Program
5: Channel 1 - Scene	1.173 Analog actuator;3-channel	S							Analog actuator;3-c...3-Chann	
4: Button 3.scene - Number of scene	1.171 6 buttons touch panel	S							6 buttons touch pa... 6 button	
71: Scene 1 - Number of scene	1.172 Colour Touch Panel 5.0"	S							Colour Touch Panel... Colour T	

Properties for Channel 1 - Scene:
Name: Channel 1
Description: S1 D1 30%+D2 40%+D3 50%
Priority: Low
Flags: Communication, Read, Write, Transmit, Update, Read On Init
Data Type: Find and Replace, Workspaces, Todo Items, Pending Operations, Undo History

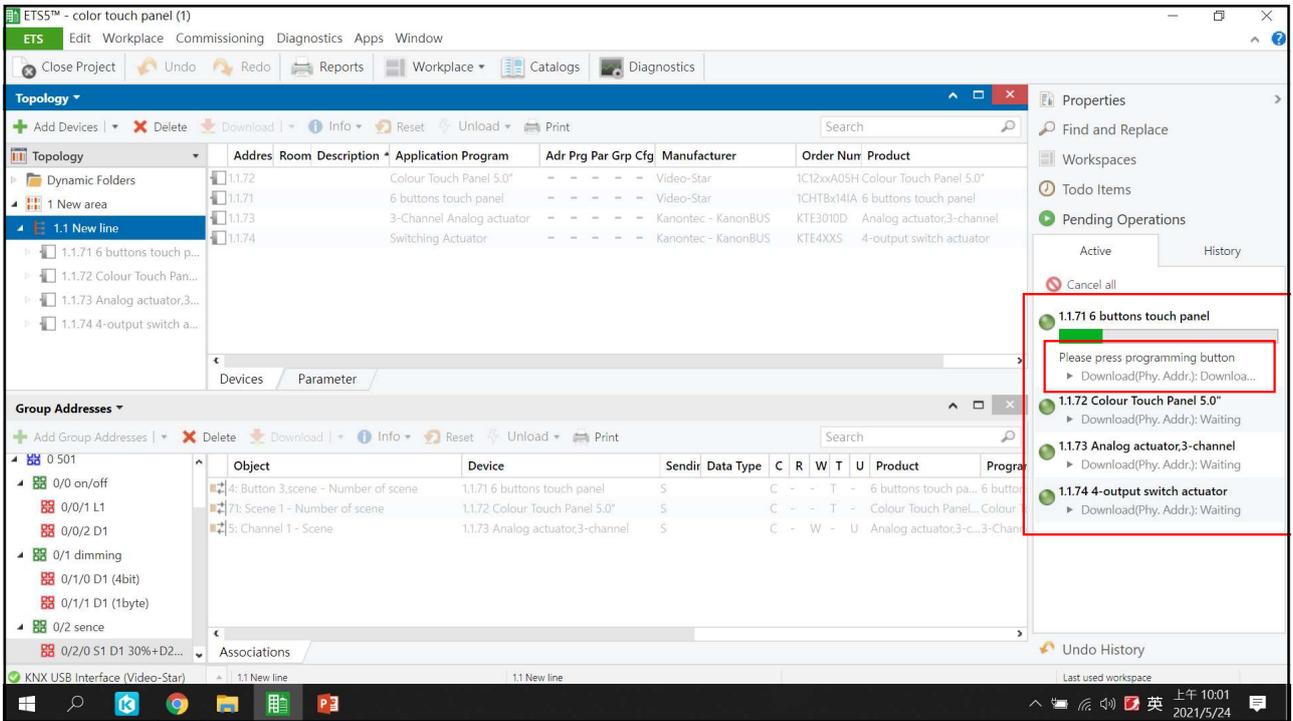
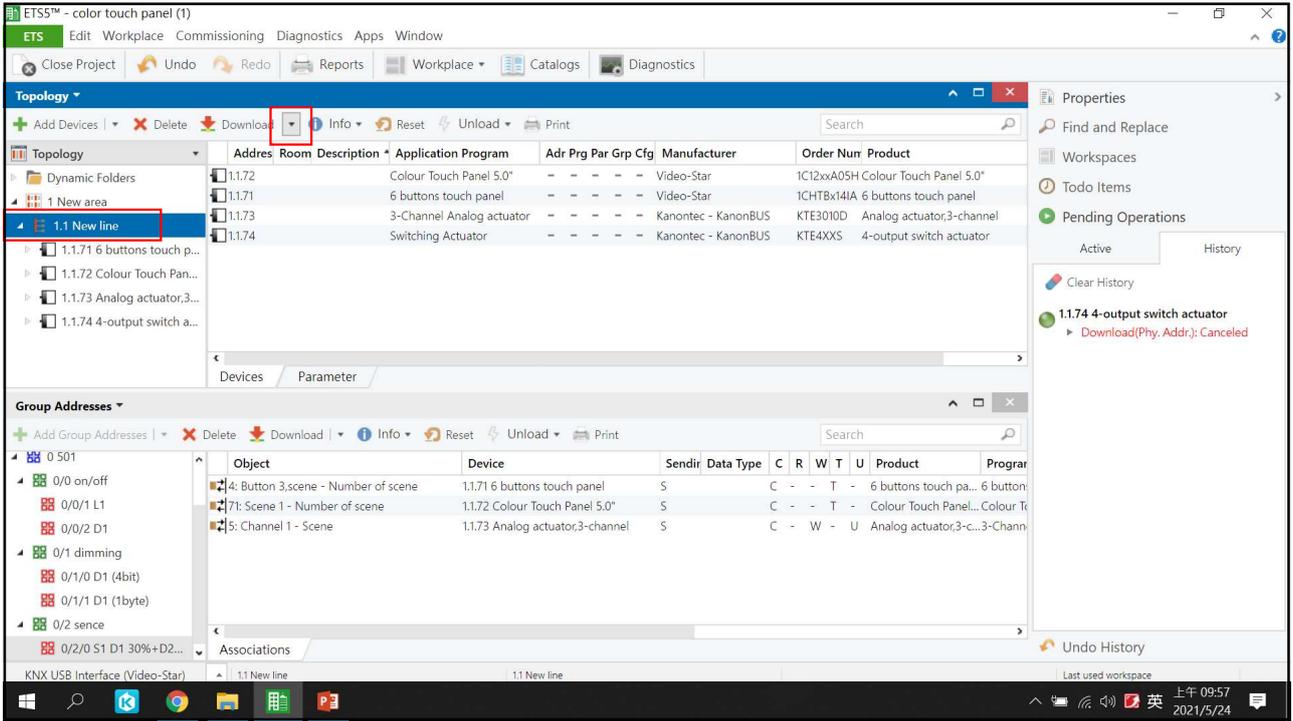
The screenshot shows the ETS software interface for a 'color touch panel (1)'. The 'Topology' window displays a table of channels and their functions. The 'Group Addresses' window shows a list of objects and their associated devices. The 'Properties' window on the right shows details for the selected 'Channel 2 - Scene'. A 'Download History' window is open on the right side of the interface.

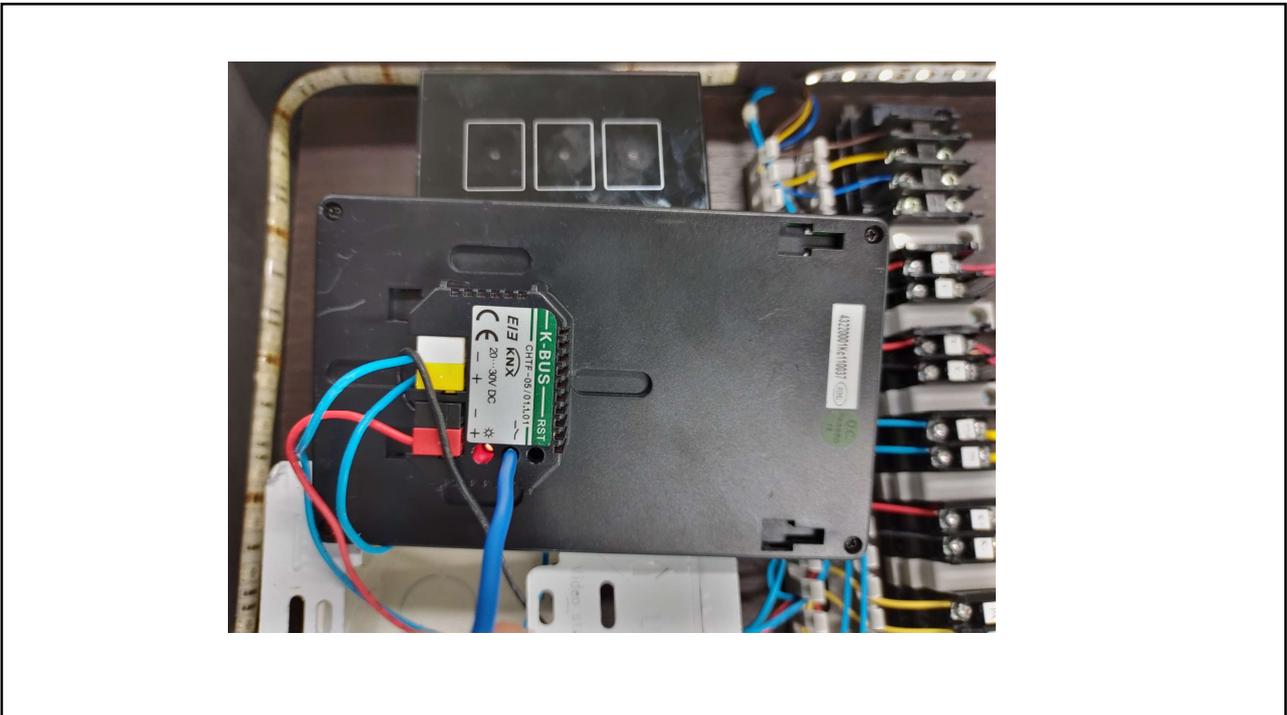
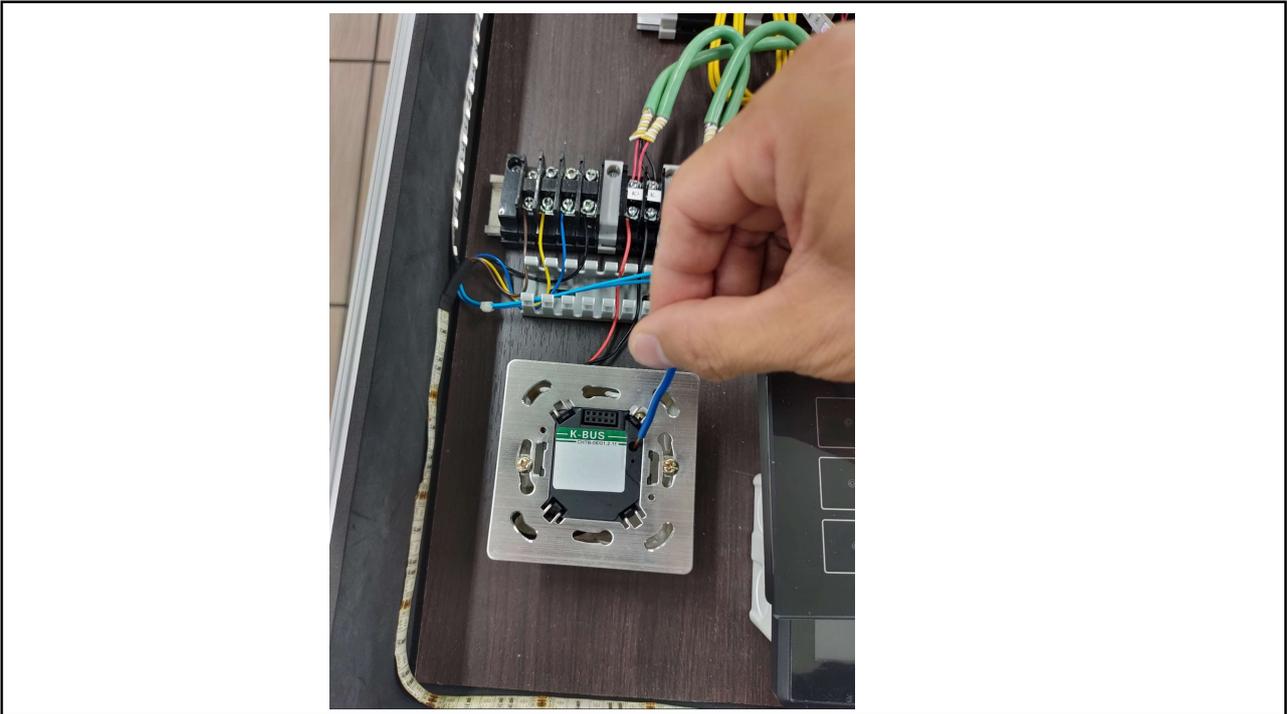
Number	Name	Object Function	Description	Group Address	Length
10	Channel 2	Dimming			4 bit
11	Channel 2	Brightness Value			1 byte
12	Channel 2	Brightness Value Status			1 byte
13	Channel 2	Scene			1 byte
16	Channel 3	switching			1 bit
17	Channel 3	switching status			1 bit
18	Channel 3	Dimming			4 bit
19	Channel 3	Brightness Value			1 byte
20	Channel 3	Brightness Value Status			1 byte

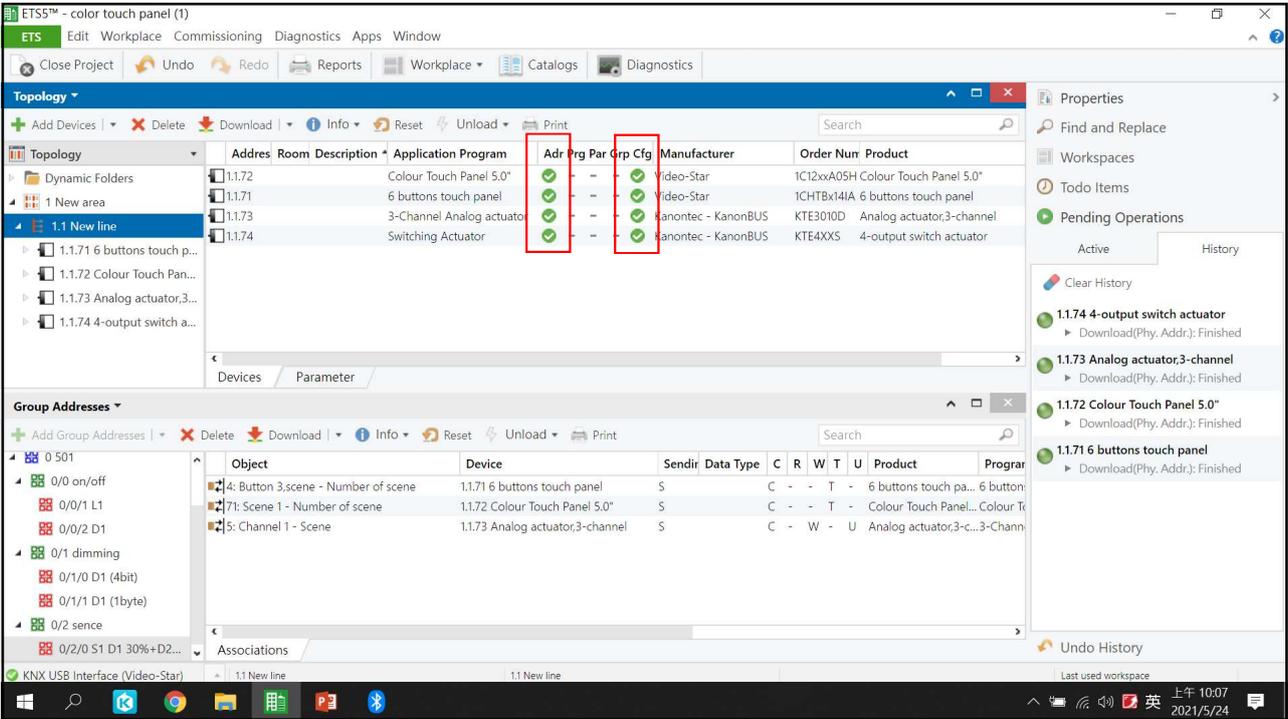
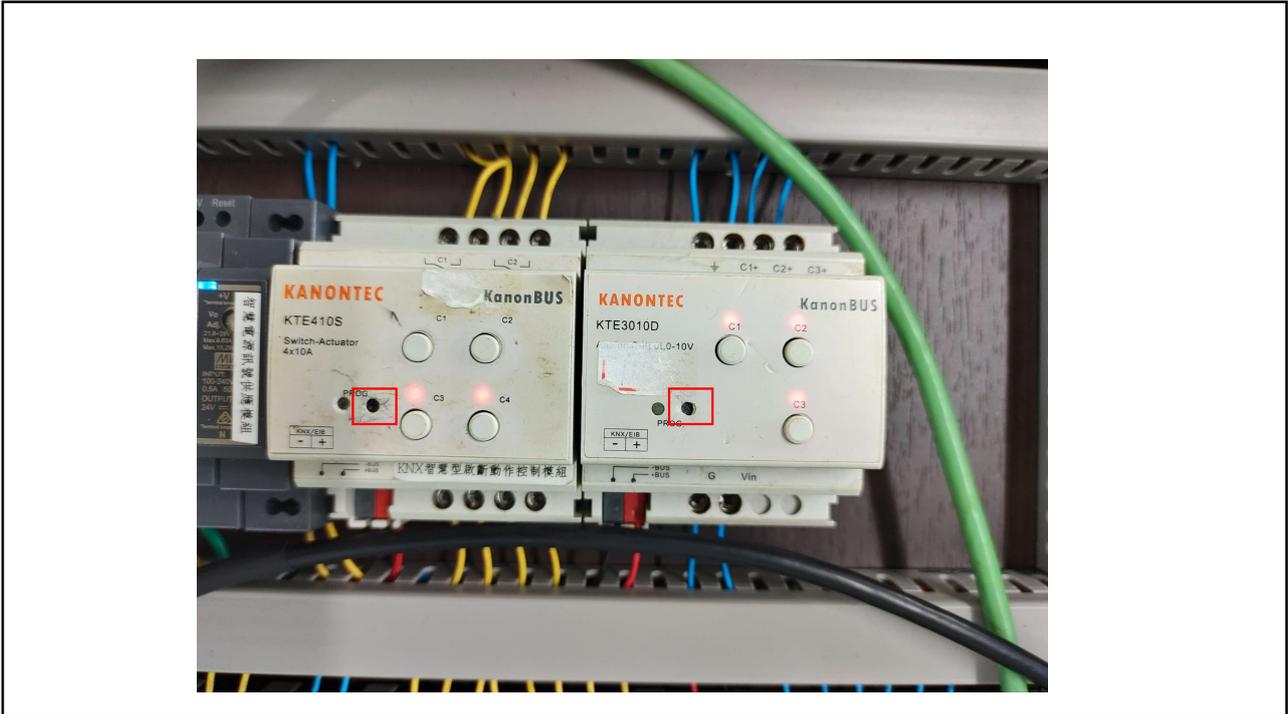
Object	Device	Sendir	Data Type	C	R	W	T	U	Product	Program
4: Button 3.scene - Number of scene	1.171 6 buttons touch panel	S							6 buttons touch pa... 6 button	
71: Scene 1 - Number of scene	1.172 Colour Touch Panel 5.0"	S							Colour Touch Panel... Colour T	
5: Channel 1 - Scene	1.173 Analog actuator;3-channel	S							Analog actuator;3-c...3-Chann	

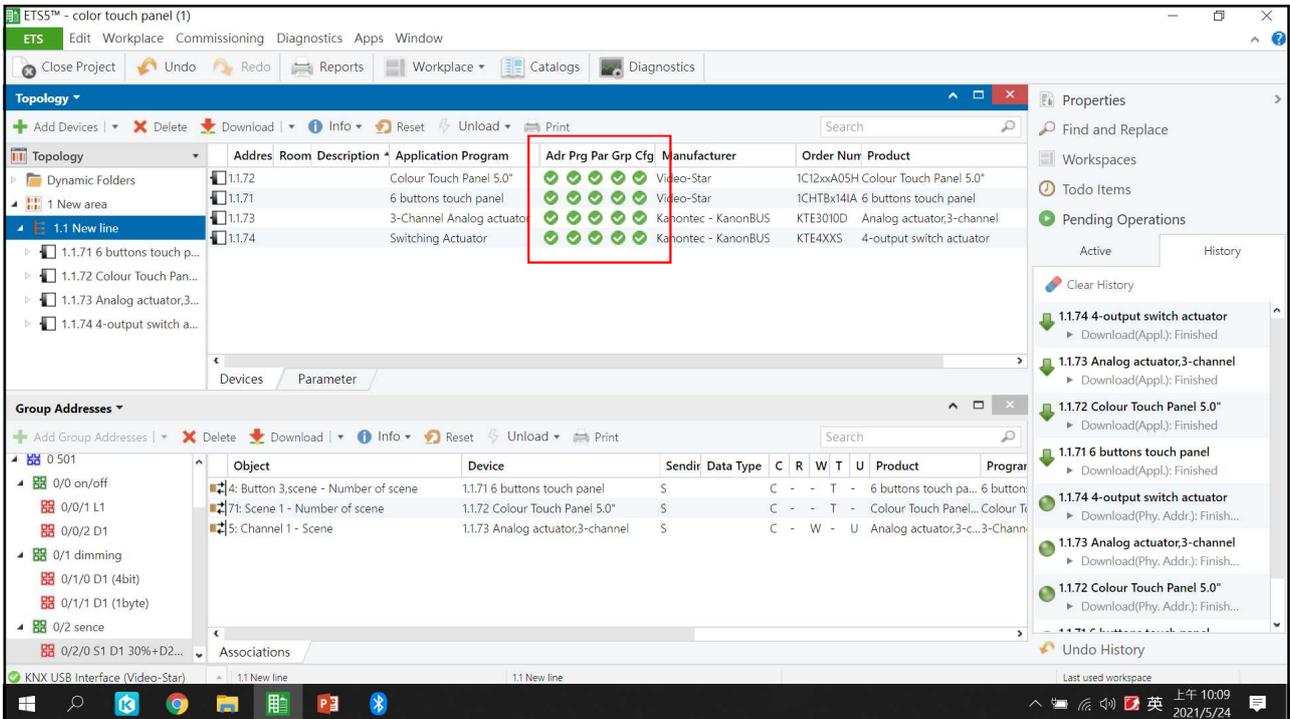
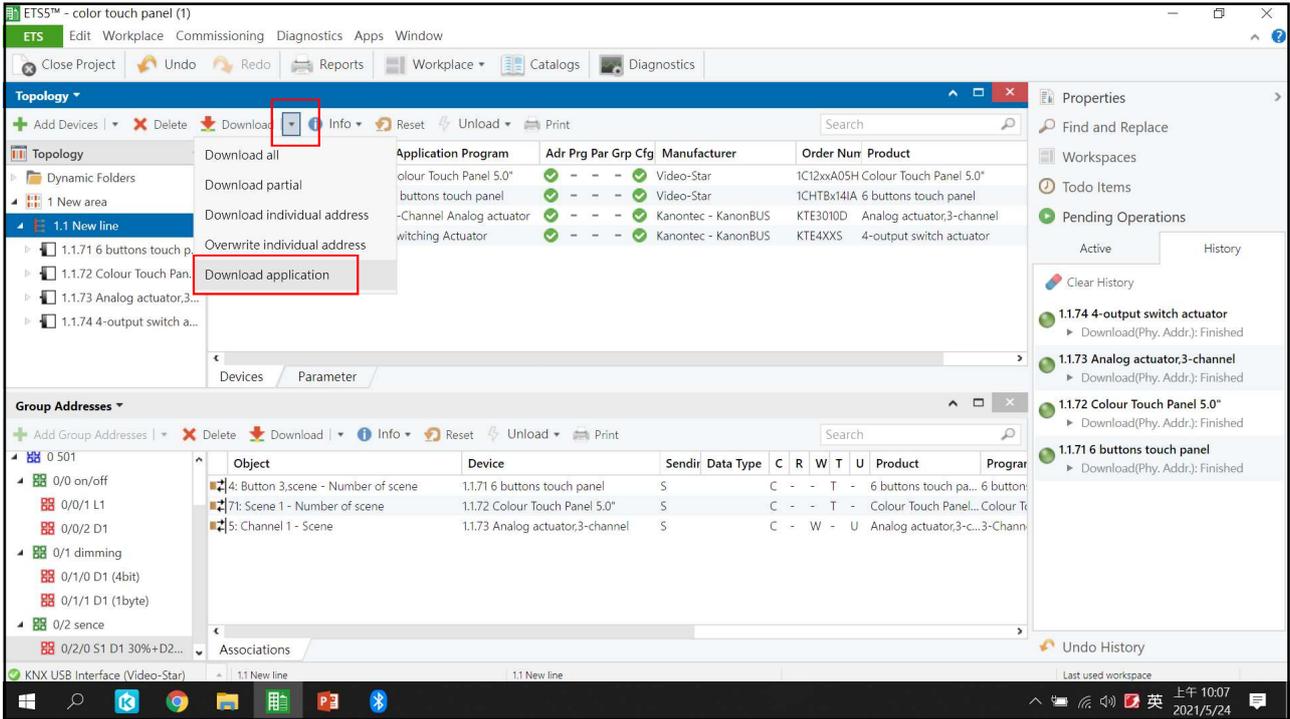
Properties for Channel 2 - Scene:
Name: Channel 2
Description: S1 D1 30%+D2 40%+D3 50%
Priority: Low
Flags: Communication, Read, Write, Transmit, Update, Read On Init
Data Type: Find and Replace, Workspaces, Todo Items, Pending Operations, Undo History

Download History:
Active: Clear History
History: 1.174 4-output switch actuator (Download(Appl.): Finished), 1.173 Analog actuator;3-channel (Download(Appl.): Finished), 1.172 Colour Touch Panel 5.0" (Download(Appl.): Finished), 1.171 6 buttons touch panel (Download(Appl.): Finished), 1.174 4-output switch actuator (Download(Phy. Addr.): Finish...), 1.173 Analog actuator;3-channel (Download(Phy. Addr.): Finish...), 1.172 Colour Touch Panel 5.0" (Download(Phy. Addr.): Finish...)









有瑕疵的開關動作



6 Button按鈕控制



彩色面板調光



情境動作



ETS5™ - color touch panel (1)

ETS Edit Workplace Commissioning Diagnostics Apps Window

Close Project Undo Redo Reports Workplace Catalogs Diagnostics

Topology

Number	Name	Object Function	Description	Group Address	Length
0	General	Day/Night mode			1 bit
3	General	Indoor actual temperature			2 bytes
6	Lighting 1	Status	L1	0/0/1	1 bit
8	Lighting 2	Brightness value	D1	0/0/2	1 byte
9	Lighting 2	Absolute dimming	D1 (1byte)	0/1/1	1 byte
10	Lighting 2	Number of scene	S1 D1 30%+D2 40...0/2/0		1 byte
71	Scene 1				

Group Addresses

Object	Device	Sendir	Data Type	C	R	W	T	U	Product	Program
0: Button1,switching - Switching	1.171 6 buttons touch panel	S	switch	C	-	W	T	-	6 buttons touch pa...	6 button
0/0/1 L1	1.172 Colour Touch Panel 5.0"	S	switch	C	-	-	T	-	Colour Touch Panel...	Colour To
0/0/2 D1	1.174 4-output switch actuator	S	switch	C	-	W	-	-	4-output switch act...	Switching
0/1 dimming	6: Lighting 1 - Status	S	switch	C	-	W	-	-	Colour Touch Panel...	Colour To

彩色面板的狀態Status要記得拉進來，這樣面板上的顯示狀態才會跟著開關執行器同步動作

ETS5™ - color touch panel (1)

ETS Edit Workplace Commissioning Diagnostics Apps Window

Close Project Undo Redo Reports Workplace Catalogs Diagnostics

Topology

Number	Name	Object Function	Description	Group Address	Length
0	Channel 1	switching	D1	0/0/2	1 bit
1	Channel 1	switching status	D1	0/0/2	1 bit
2	Channel 1	Dimming	D1 (4bit)	0/1/0	4 bit
3	Channel 1	Brightness Value	D1 (1byte)	0/1/1	1 byte
4	Channel 1	Brightness Value Status			1 byte
5	Channel 1	Scene	S1 D1 30%+D2 40...0/2/0		1 byte
8	Channel 2	switching			1 bit
9	Channel 2	switching status			1 bit
10	Channel 2	Dimming			4 bit

Group Addresses

Object	Device	Sendir	Data Type	C	R	W	T	U	Product	Program
2: Button2,dimming - Switching	1.171 6 buttons touch panel	S	switch	C	-	W	T	-	6 buttons touch pa...	6 button
1: Channel 1 - switching status	1.173 Analog actuator,3-channel	S	switch	C	R	-	T	U	Analog actuator,3-c...	3-Chann
8: Lighting 2 - Switching	1.172 Colour Touch Panel 5.0"	S	switch	C	-	-	T	-	Colour Touch Panel...	Colour To
0: Channel 1 - switching	1.173 Analog actuator,3-channel	S	switch	C	-	W	-	U	Analog actuator,3-c...	3-Chann

ETS5™ - color touch panel (1)

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Topology

Number	Name	Object Function	Description	Group Address	Length
2	Channel 1	Dimming	D1 (4bit)	0/1/0	4 bit
3	Channel 1	Brightness Value	D1 (1byte)	0/1/1	1 byte
4	Channel 1	Brightness Value Status	D1 (1byte)	0/1/1	1 byte
5	Channel 1	scene	S1 D1 30%+D2 40...0/2/0		1 byte
8	Channel 2	switching			1 bit
9	Channel 2	switching status			1 bit
10	Channel 2	Dimming			4 bit
11	Channel 2	Brightness Value			1 byte
12	Channel 2	Brightness Value Status			1 byte

Group Addresses

Object	Device	Sendir	Data Type	C	R	W	T	U	Product	Program
4: Channel 1 - Brightness Value Status	1.173 Analog actuator,3-channel	S		C	R	-	T	U	Analog actuator,3-c...3-Chann	
10: Lighting 2 - Absolute dimming	1.172 Colour Touch Panel 5.0"	S	percentage...	C	-	-	T	-	Colour Touch Panel...Colour T	
3: Channel 1 - Brightness Value	1.173 Analog actuator,3-channel	S		C	-	W	-	U	Analog actuator,3-c...3-Chann	

Properties

Find and Replace

Workspaces

Todo Items

Pending Operations

Active History

Clear History

1.172 Colour Touch Panel 5.0"
Download(Appl.): Finished

1.173 Analog actuator,3-channel
Download(Appl.): Finished

1.174 4-output switch actuator
Download(Appl.): Finished

1.173 Analog actuator,3-channel
Download(Appl.): Finished

1.172 Colour Touch Panel 5.0"
Download(Appl.): Finished

1.171 6 buttons touch panel
Download(Appl.): Finished

1.174 4-output switch actuator
Download(Phy. Addr.): Finish...

Undo History

KNX USB Interface (Video-Star)

1.173 Analog actuator,3-channel

4: Channel 1 - Brightness Value Status

Last used workspace

下午 12:21
2021/5/24

調光控制器的狀態(Staus)要記得拉進來，這樣LED的顯示狀態才會正確動作

正確的開關動作

