新產品與應用技術介紹
KNX & Building Automation

March 2022

Mac Tu

MEAN WELL

- KNX Intro
- Product category and Roadmap
- KNX Data Secure
- KNX-DALI Gateway: DLC-02-KN

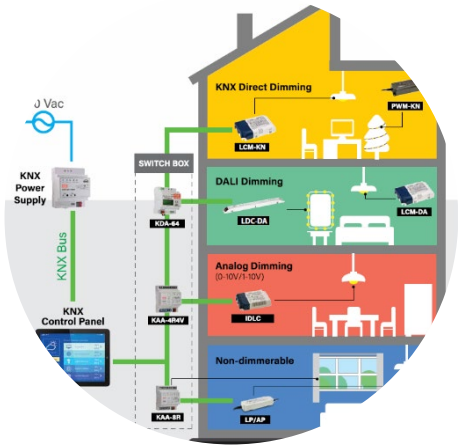
Why Choose KNX Product?

• International Standard

- The only home and building control standard running global certification schemes
- Open platform for any manufacturer to develop

• Reliability

- Product compliance checked at neutral third-party test laboratories.
- Standardized connector prevents misconnection
- Standardized cable to ensure transmission quality



• Endless flexibility

- Support all systems in the building
- Easy to change existing setting
- Scene function to provide max. comfortability

• Software

- One PC software tool for Design, Configuration, Diagnostics
- Multi-language
- Easy management from various devices

KNX Product Overview

Bus Power Supply		KNX-40E-1280(D) 1280mA	KNX Actuator		4ch Dimming actuator: KAA-4R4V-S 0-10V
		KNX-20E-640 640mA			8ch Universal actuator: KAA-8R-S Logic
Interface		KNX-USB Interface KSI-01U	LED Driver		CC Mode output with KNX dimming LCM-25/40/60KN series CC
		Line Coupler KSC-01L			CV PWM output with KNX dimming PWM-60/120/200KN series CV PWM
		KNX-IP Router KSR-01IP	KNX to DALI Gateway		DLC-02-KN DALI 2

Blind/Shutter Control
Lighting Control
Push Button Interface
CV Constant Voltage Driving Mode
PWM PWM Style Output Mode
Logic Logic Function
Heating Control
CC Constant Current Driving Mode
0-10V DC 0-10V Dimming Control

KNX Roadmap

System Device

KNX Power

KNX-20E-640

640mA

KNX-40E-1280(D)

1280mA with diagnostic

Interface

KSI-01U

KNX-USB Interface

KSC-01L

Line Coupler

KSR-01IP

KNX-IP Router

KNX->DALI Gateway

DLC-02-KN

Actuator

KNX Actuator

KAA-4R4V-S

4ch Dimming actuator (secure version)

KAA-8R-S

8ch Universal actuator (secure version)

LED Driver

LCM-25/40/60KN

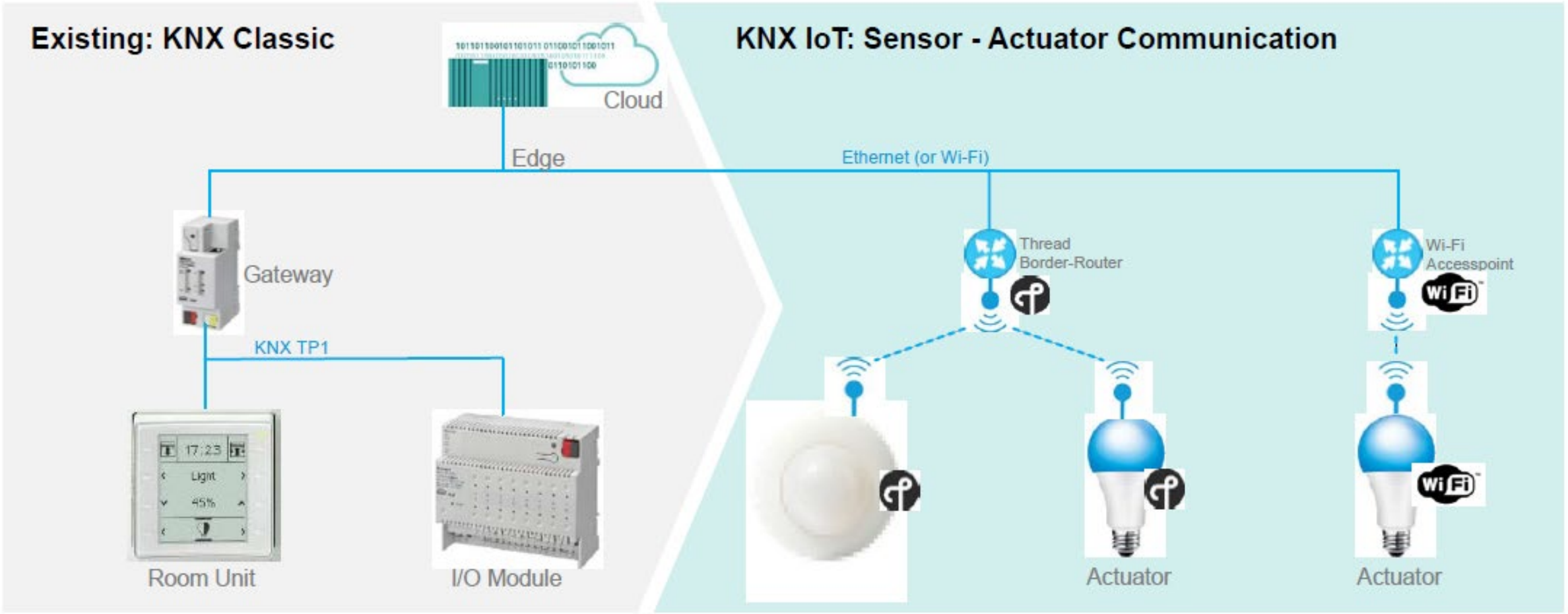
CC Mode output with KNX dimming

PWM-60/120/200KN

CV PWM output with KNX dimming
(secure version: PWM-200KN)

KNX IoT with Thread

THREAD | KNX IoT with Thread Network Topology



- Source : KNX Thread webinar

KNX Data Secure Models

- PWM-200KN
- KAA-8R-S
- KAA-4R4V-S

What is KNX Data Secure?

KNX Data Secure signs and encrypts the communication telegrams in the KNX bus network to avoid unauthorized access or manipulation.
Therefore, KNX Secure products can prevent hacker attack scenarios, such as communication content (sniffing), repeated communication (replay attack) or tampering (man in the middle attack).

What is the security level used in KNX Data Secure?

Based on ISO 18033-3 standardized security algorithm, AES 128-bit encryption.

AES encryption is commonly used in Wi-Fi router router.

Additional information: Other communications of MW products such as DALI, PMBus, CANBus are not encrypted

What is Device Certificate

Device certificate is a 36-character string. The purpose is to enable Data Secure on ETS for the first time. Therefore, ETS will first read the device certificate and use the built-in camera of the laptop to read the QR code: FDSK (Factory Device Setup Key) and import to ETS

The device certificate is an easy-to-remove label placed on the front of the device. After installation, the label must be removed from the device and stored safely to prevent unauthorized personnel from obtaining it to avoid information security crisis

DLC-02-KN Key Features

- Comply with IEC 62386 DALI-2 ,Part 101/Part 103
- Support DALI DT8 device (TC, RGB, RGBW, XY-coordinate).
  Expect new firmware will be released in Q2
- Support Self-contained emergency (part 202).
- 2 independent DALI Bus. Up to 128 control gears. Input device must be KNX.
- 4 programmable relays, can be used as an electrical switch
- 16 sets of Effect. Each Effect cycle supports 32 steps.
- Built-in timer IC, commission schedule can be set through ETS
- Mean Well DLC software: for upgrade DLC-02-KN DALI firmware.

DT8 Color Control

- Color control type
  TC, RGB, RGBW, XY-coordinate

- The function is included in
  ECG / Group / Scene / Effect / Timer

Colour control type	Colour Temperature
Colour value on DALI System Failure	○ no action ◉ define colour value
Colour value	6000 K
Colour value on ECG Power On	○ last colour value ◉ define colour value
Colour value	4000 K
Switch-on behavior	○ Keep last object value ◉ Use defined value
Switch-on colour value	2700 K
Colour temperature object format	◉ 2-bytes Colour Temperature(DPT7.600) ○ 1-byte Percentage(DPT5.001)
Sending colour value status	at change
Colour changing fading time via dimming	4.0s
Colour temperature range setting by	◉ Scan or Reinstall function on DCA APP ○ defined

Self-Contained Emergency

- Self-contained means that the luminaire contains the control gear and battery (or they are placed next to the luminaire)
- The control gear includes self-testing of the lamp, battery, drive circuit and charging circuit.
- Optional features include automatic periodic self-testing
- The main principle is to turn on the lamp when the mains is off.
- There are two types of tests that emergency control gear must implement: Function test and Duration test.

ECG Device Type	Self Contained Battery Lamp(DT1)	
Value in emergency mode	50	%
Prolong time on recovery	0	Minutes
Function test interval	2	Days
Duration test interval	2	Weeks
Test execution time	7	Days

Relay Control

- Switch ON/OFF for Small Home appliances, Lighting without dimming…
- 5A/250Vac
- Total 4 relays can be controlled.
- Relay behavior can be parameterized when KNX Bus power on, or DLC-02-KN AC power on.

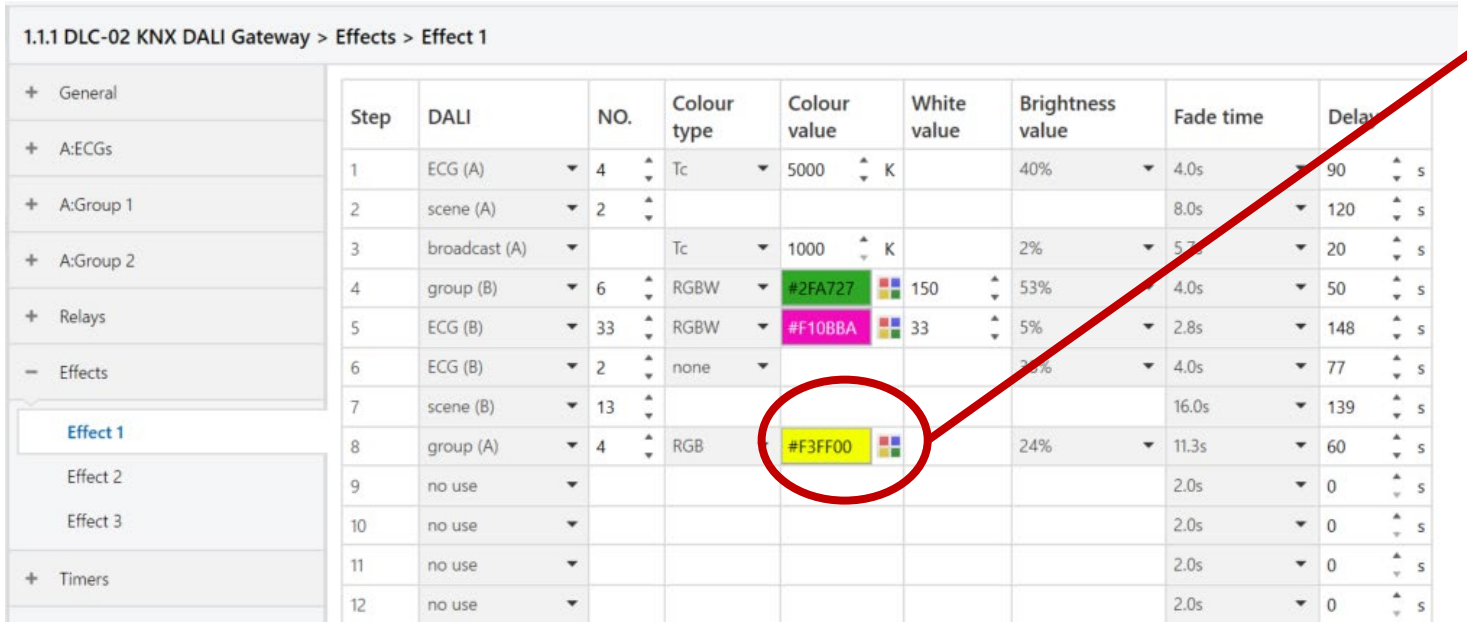
Output mode	normally opened / normally closed
On delay	8 Seconds
Off delay	5 Seconds
Central function	✓
Send status	at change
Send status cyclic(0=not active)	0 Seconds
Additional inverted status	
Behavior at locking	on
Behavior at unlocking	off
Priority/Forced control	1Bit priority ON
Release time for forced control(0=not active)	1 Minutes
Behavior after forced control	off
Behavior after KNX Bus power up	off
Behavior after AC power on	previous status

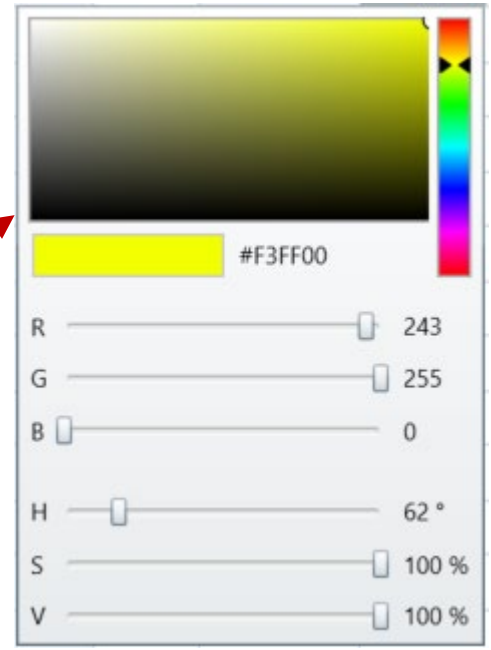
Effect

- Effect is a series of brightness values or color gradients.
- Shop, Bar, Restaurant, Hotel, Sauna, Entertainment…

Effect

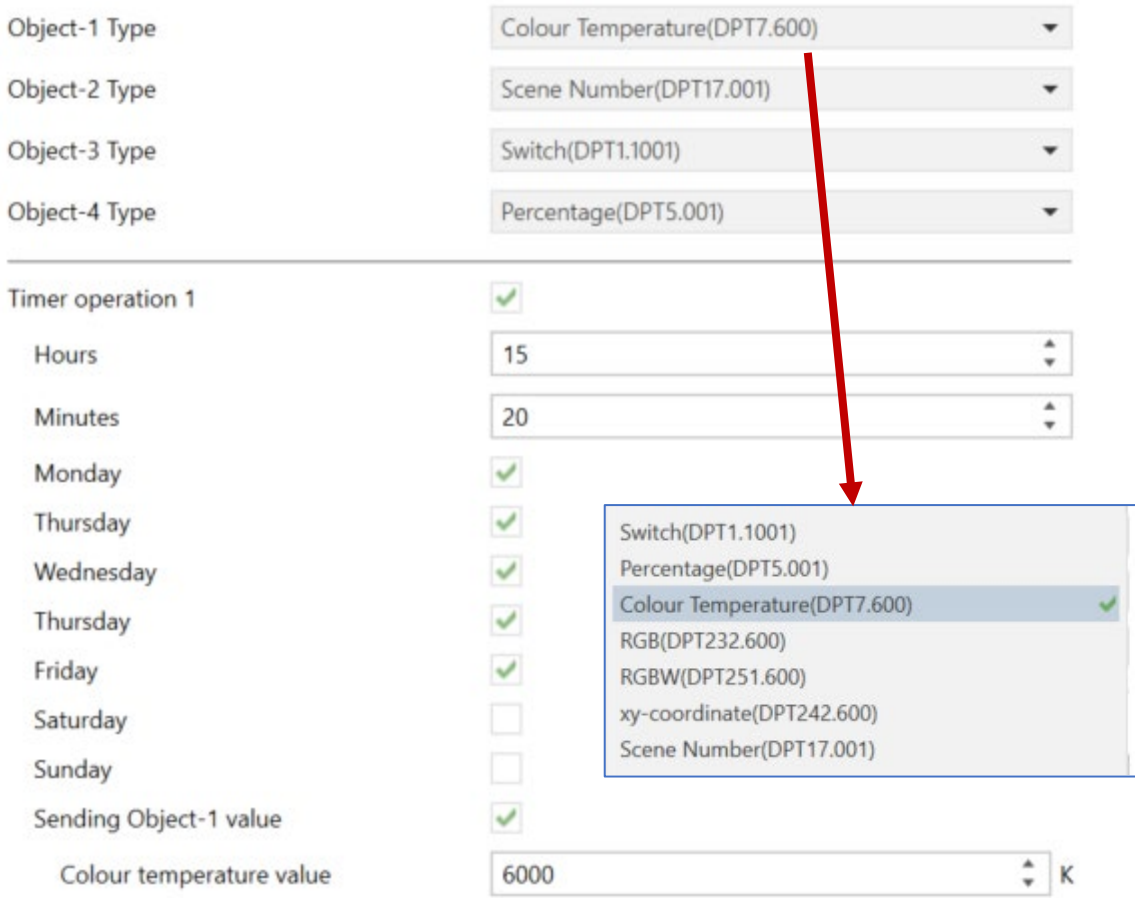
- Total 16 Effect. Each effect has max 32 steps.
- Each step can have a delay with 0~65535s (18 Hours)
- ECG / Group / Broadcast / Scene
- Repeat steps cycle in 0-255 times (0 is endless).
- Additionally, a End step can be added at the end of last cycle.





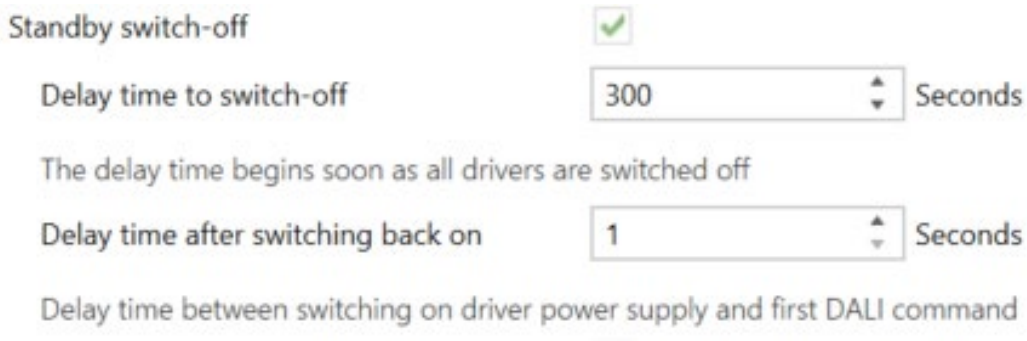
Timer

- For regular events, actions can be scheduled from Timer. (e.g. office, shop, warehouse…)
- 4 timer can be set. Each timer can set 6 operations on specific time.
- Max 4 objects can be linked for each operation.
- 6 different objects can be chosen.



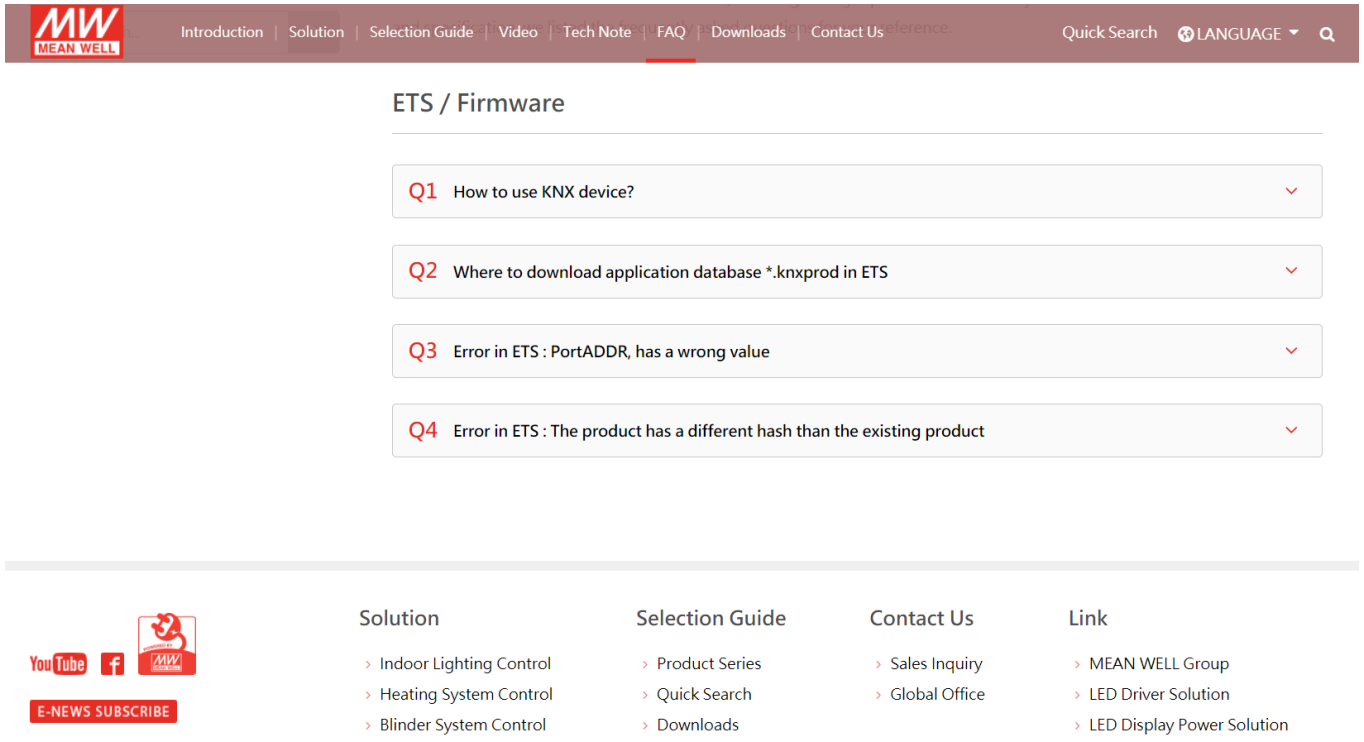
Standby Switch Off

- If switch off a LED driver by DALI command, standby power consumption of the driver is <0.5W
- With a large number of drivers in a building, this leads to a not inconsiderable energy requirement
- The “Standby Switch Off ” function saves energy by switching off the supply voltage of drivers when they are all in standby (DALI switch off).
- May use this function with KAA-8R-S or KAA-4R4V-S, to cut off input of LED driver.



KNX Mini Website

- http://building.meanwell.com/
- English/German/Chinese
- Providing FAQ, Technical article, Tutorial Videos, ETS application database...etc.



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★★★★★ 4.8 • 12 則評分

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