

## KNX TP Driver

TY-K-TURN





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Tyba Home Limited, Unit 3, Jubilee Way, Faversham, Kent, ME13 8GD, UK  
+44 (0) 20 3907 6877 [www.tybahome.com](http://www.tybahome.com)

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## **Product Modifications**

Date	Version	Modifications
19/06/2023	0.5	Introduction of HVAC Modes

#### Document Revisions

Date	Version	Document Changes
19/06/2023	1.0	Initial draft



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## **1 Preface**

### **1.1 Description of the User**

This User Guide is intended for KNX system integrators installing Turn 2 as part of a wider KNX system.



## **2 Product Description**

### **2.1 Intended Use**

The Turn 2 KNX Bus Connector (TY-B-KNX) is configured for use within a KNX system via the KNX ETS configuration software.

The driver has been tested for compatibility with ETS versions 5 and 6.

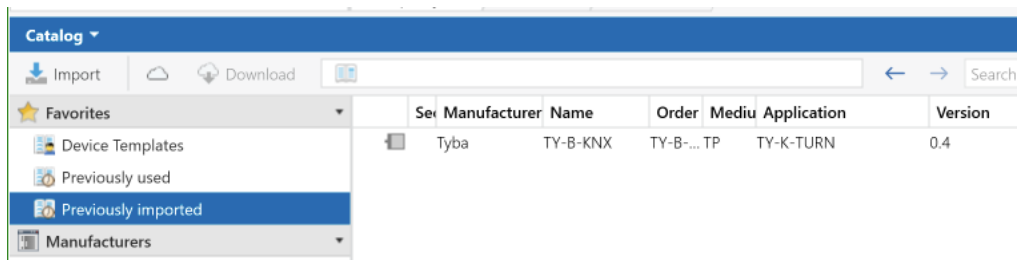
### **2.2 Product Compliance**

This product is certified and tested against the KNX standard, currently version 2.1.



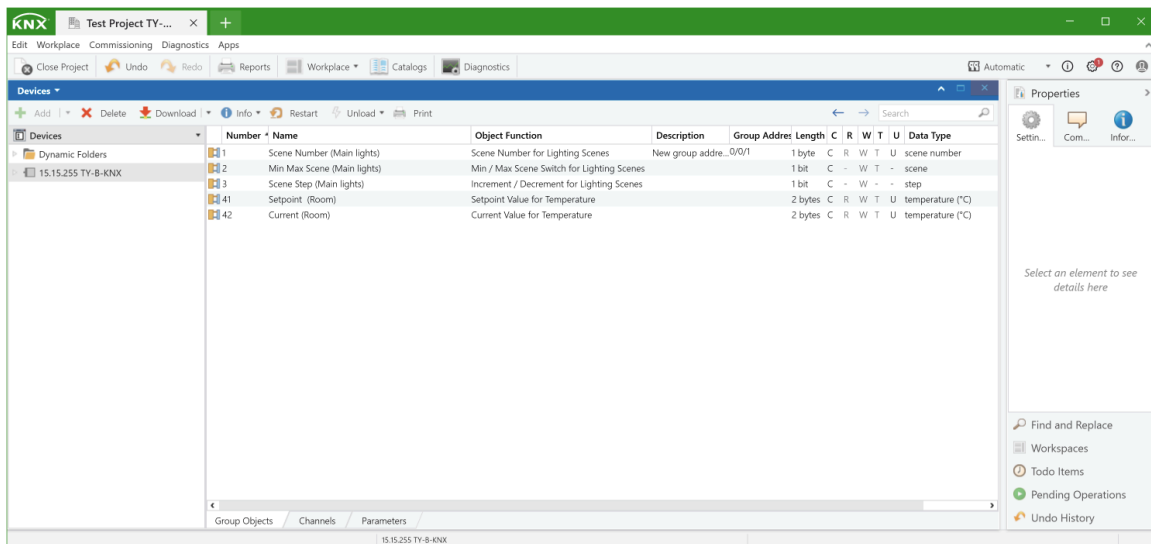
### 3 Installation

The KNX ETS Driver (.knxprod file) can be obtained from the Tyba website (<https://tybahome.com/resources>) and imported into ETS via the Import functionality of the Catalog window:

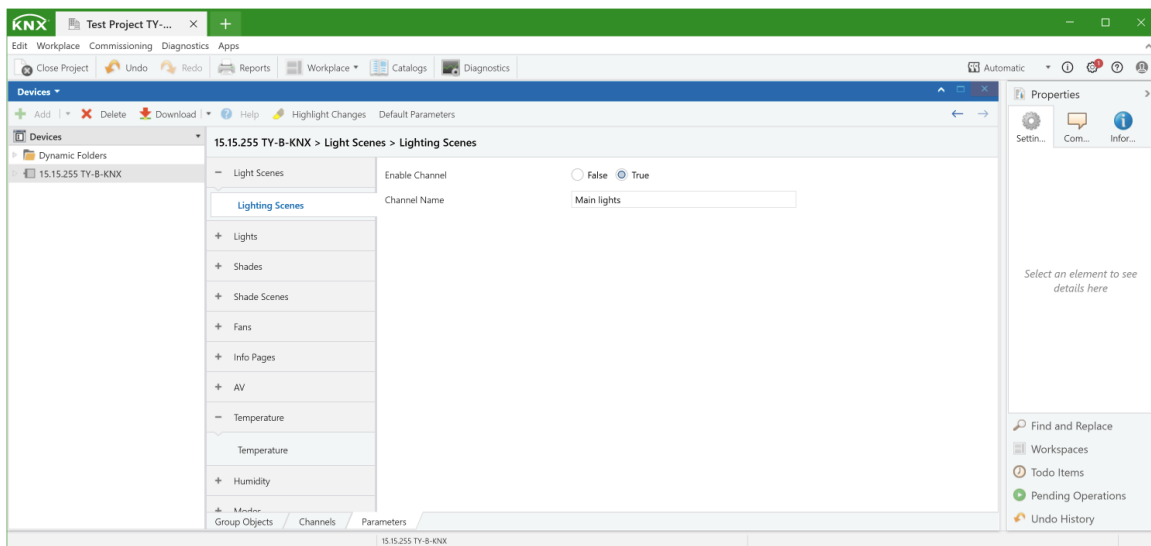


## 4 Setup

In all cases, the Turn 2 KNX driver is configured for KNX integration via the KNX ETS software. Functionality is exposed through typed Group Objects (“datapoints”) which are enabled/disabled via the ‘Parameters’ tab for a Turn 2 device (TB-B-KNX).



CONFIGURED GROUP OBJECTS FOR LIGHT SCENES AND TEMPERATURE CONTROL



CONFIGURING LIGHTING SCENES AS ENABLED, INCLUDING A NAME

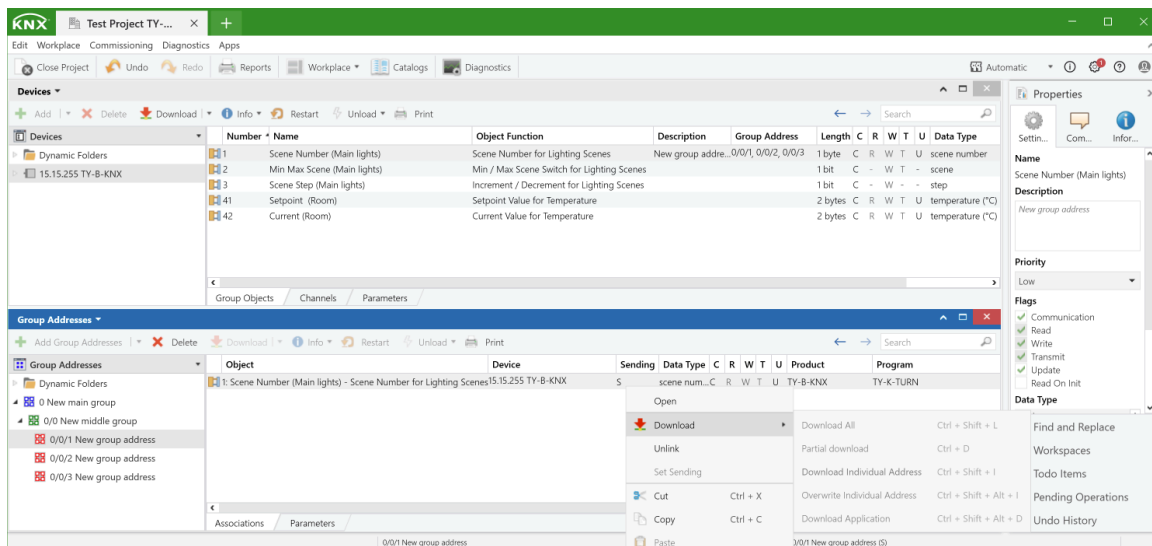


## 4.1 Input / Output Group Objects

Most Group Objects used within the Turn 2 KNX Driver are bi-directional – they are used both to receive and transmit values to/from Turn 2. There are some one-way exceptions to this, such as ‘Info’ group objects which Turn 2 devices use to display information only.

Bi-directional Group objects contain flags for both Read/Update as well as Write/Transmit – i.e., all C, R, W, T and U flags are present.

ETS allows Group Objects to appear in any number of group addresses (within which the Group Object will receive update events) but may transmit its value to only one group – this is the “sending” group. Whether a Group Object will transmit to a group is shown and controlled by the “Sending” flag shown for the group object within a group.



The screenshot shows the ETS software interface. The 'Devices' pane on the left lists a device '15.15.255 TY-B-KNX'. The main pane displays a table of Group Objects for this device:

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type
1	Scene Number (Main lights)	Scene Number for Lighting Scenes	New group address...	0/0/1, 0/0/2, 0/0/3	1 byte	C	R	W	T	U	scene number
2	Min Max Scene (Main lights)	Min / Max Scene Switch for Lighting Scenes			1 bit	C	-	W	T	-	scene
3	Scene Step (Main lights)	Increment / Decrement for Lighting Scenes			1 bit	C	-	W	T	-	step
41	Setpoint (Room)	Setpoint Value for Temperature			2 bytes	C	R	W	T	U	temperature (°C)
42	Current (Room)	Current Value for Temperature			2 bytes	C	R	W	T	U	temperature (°C)

The 'Group Addresses' pane at the bottom shows a table with columns: Object, Device, Sending, Data Type, C, R, W, T, U, Product, Program. The first row shows 'Scene Number (Main lights) - Scene Number for Lighting Scenes' for device '15.15.255 TY-B-KNX'. The 'Sending' column contains an 'S', indicating it is the sending group. A right-click context menu is open over the 'S', showing options like 'Open', 'Download', 'Unlink', 'Set Sending', 'Cut', 'Copy', and 'Paste'.

A GROUP OBJECT ASSOCIATED WITH 3 GROUP ADDRESSES. THE ‘S’ IN THE “SENDING” COLUMN DENOTES THIS AS THE SENDING GROUP, WHICH CAN BE CHANGED WITHIN THE ETS CONTEXT MENU (RIGHT-CLICK)

## 4.2 Tyba App Configuration

### NOTICE

The document covers only configuration of the KNX Bus Connector driver (TY-B-KNX), not configuration of the Turn 2 device itself. Configured Group Objects will have no effect if they do not correlate with a configured page on the Turn 2 UI.

Generally, there will be a one-to-one correlation between pages configured using the Tyba App and Group Objects configured via ETS for the KNX Bus Connector driver



However, there is no technical requirement for these to match. A configured UI (using the Tyba app) may include pages for which no Group Object is configured. This is still a valid setup, suggesting that Turn 2 integrates with an alternative control system in addition to KNX.

### 4.3 Group Object overview

The below sections briefly describe the typical usage of the available Group Objects within the Turn 2 KNX TP Driver.

#### 4.3.1 Lighting Scenes

Contains 3 Group objects:

- **scene number** – Turn 2 supports up to 8 scenes in addition to “off” (scene 1)
- **min/max scene** – a single-bit Group Object whose value is 0 (Scene A) when scene number is 0, value 1 (Scene B) in all other cases. When writing, setting this to 0 (Scene A) sets the “off” scene. Writing 1 (Scene B) sets Turn 2 to the highest configured scene number (in Tyba App).
- **increment/decrement** – write-only Group Object for fine-grain control of the scene number.

#### 4.3.2 Lights

The driver supports up to 5 lights, each with 2 Group Objects:

- **% absolute value** to control the brightness
- **On / off**, whose value is 0 (Off) if the absolute % value is 0, 1 (On) otherwise. Writing “on” to this Group Object will set the brightness to 100%.

#### 4.3.3 Shades

The driver supports a maximum of 5 shades, each with 3 Group Objects:

- **% absolute position**
- **Up / down**, whose value is 0 (Up) if the absolute % value is 0, 1 (Down) otherwise. Writing “down” to this Group Object will set the absolute position to 100%.
- **Increment / decrement** – a write-only Group Object to provide fine-grain control of the shade position.

#### 4.3.4 Shade Scenes

Similar to Light Scenes, with identical Group Objects.

#### 4.3.5 Fans

Similar to Shades, with identical Group Objects. There is maximum of just one fan page, unlike shades.

#### 4.3.6 Info Pages

A collection of up to 3 write-only Group Objects:

- **Air Quality** – a ppm Group Object that will display on the Turn 2 GUI
- **Air Pressure** – a Pa Group object that will display on the Turn 2 GUI
- **Humidity** – a % humidity Group Object that will display value on the Turn 2 GUI.  
Not to be confused with controllable Humidity Group Objects (below)

#### 4.3.7 AV

The Turn 2 KNX TP Driver currently supports a subset of AV functionality. Control of playback metadata (album / artist) and artwork is currently not supported.

7 supported Group Objects:

- **% absolute volume**
- **Increment / Decrement for volume**
- **Play** – a switch Group object for whether the media is in playback
- **Pause** – a switch Group object for whether the playback (if true) is paused
- **Skip** – a write-only step Group Object. 0 = previous, 1 = next.
- **Mute** – a switch Group Object
- **Source Select** – a scene number Group Object indicating the currently selected source (as configured in Tyba App), max 8 sources + 'none' (scene 0)

#### 4.3.8 Temperature

2 Celsius Group Objects representing the current setpoint and current actual temperature. Note that the setpoint Group object always functions in both directions (read and write). However, the current temperature Group Object has 2 modes, depending on Tyba app configuration:

- **Internal Temperature mode** – The current temperature is determined by an internal sensor within Turn 2 housing. The current temperature Group Object will receive values from Turn 2. However, Turn 2 will not display any values sent from KNX on this Group Object.
- **External Temperature mode** – The current temperature is determined by the control system (KNX). Turn 2 will display values written to the Group Object but will not report any values to KNX on the current temperature Group Object.



#### 4.3.9 Humidity

2 Group Objects, both to control a humidity setpoint only. Current humidity value can be transmitted to Turn 2 via the 'Info Pages' Group Objects (see above).

- **Absolute setpoint value** – absolute % humidity setpoint value
- **Increment / Decrement** – for fine-tuning the setpoint value

#### 4.3.10 Modes

Turn 2 provides 3 alternatives for control of 'modes'. Each of the following options are mutually exclusive:

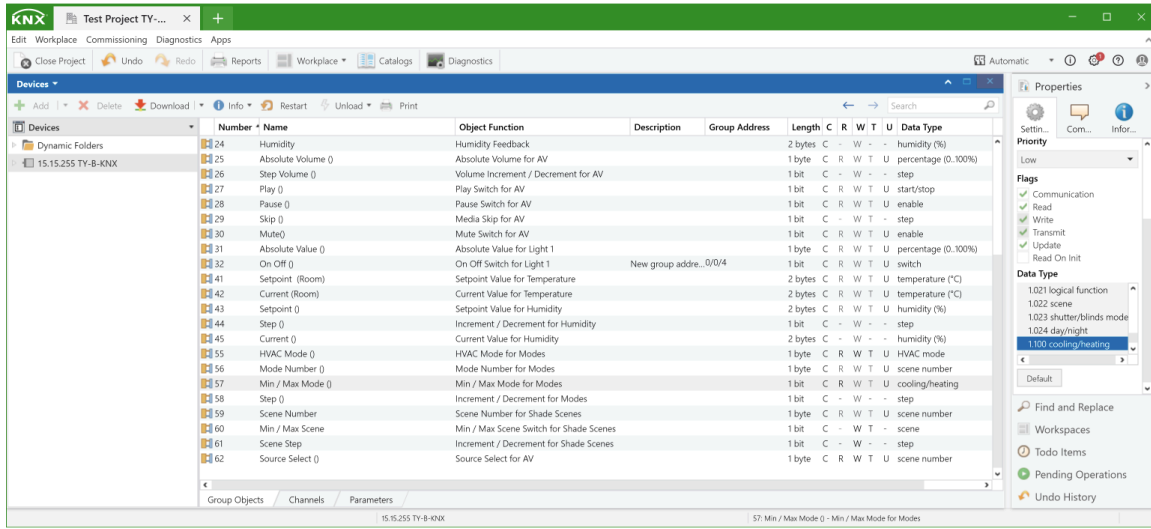
- **Custom modes** – integrators should use the 'mode number' Group Object (a scene number) to read/write mode value. Turn allows up to 8 modes (+ off), the value will therefore be 0-8.

In this configuration, the 'Min / Max Mode' group object will be 0 (sceneA) when the scene number is 0, it will be 1 (sceneB) otherwise. Writing 'Min / Max Mode' to 1 in this mode will set Turn 2 to the highest configured mode number configured via the Tyba App.

### **NOTICE**

The 'HVAC Mode' Group Object should not be used in this configuration.

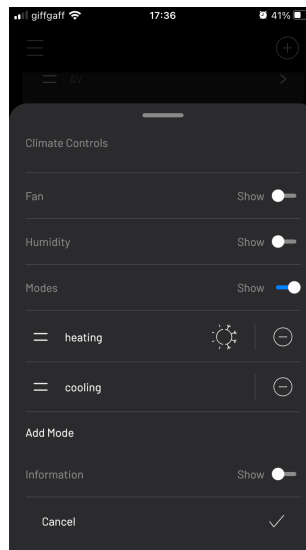
- **Heating / Cooling** – also applicable for any other off/on configuration. In this configuration, only 'Min / Max Mode' Group Object should be used. It's value will be 0/Off for "Cooling" (or the "off state) and 1/On for "Heating" (or the "On" state). Note that in ETS the 'Data Type' for this Group Object can be changed to any other 1-bit type, if desired, including 1.100 (cooling/heating).



CHANGING THE TYPE OF THE MIN / MAX MODE GROUP OBJECT TO COOLING/HEATING

## NOTICE

It is critical that the Turn 2 device be configured, using the Tyba App, with just 2 modes when using this configuration. If using Cooling/Heating, the first scene should be "Cooling", the second "Heating".



TYBA APP CONFIGURATION FOR COOLING / HEATING

## NOTICE

The 'HVAC Mode' and 'Mode Number' Group Objects should not be used in this configuration.

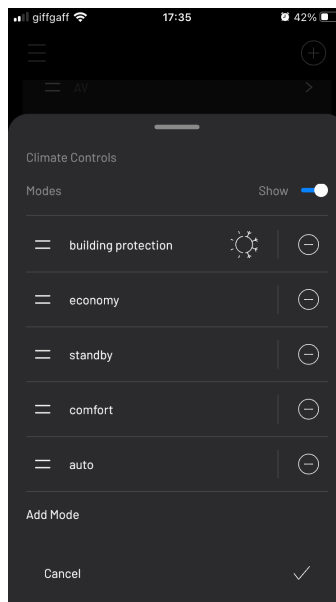
- **HVAC Mode** – in this configuration, the ‘HVAC Mode’ Group Object should be used to read/write the desired mode, using standard KNX HVAC modes.

## NOTICE

It is critical that the Turn 2 device be configured, using the Tyba App, with mode names matching KNX standard modes, in the correct order, as follows:

- Auto
- Comfort
- Standby
- Economy
- Building protection

It is permissible to use less than 5 modes, but the modes **MUST** start with auto and be contiguous – you must not create gaps in the above list. i.e., it is permissible to remove economy and building protection, for example, but not just economy (as this creates a gap).



TYBA APP CONFIGURATION FOR ALL HVAC MODES

## NOTICE

The ‘Mode Number’ and ‘Min / Max Mode’ Group Objects should not be used in this configuration.



## **5 Maintenance**

From time to time, Tyba Home may release a new version of this driver. The most up-to-date version is always available on the Tyba Home website (<https://tybahome.com/resources>).