



## *KNX Thermostat Keeper*

### **1. Intro**

There are several KNX thermostats that, when rebooted (due to a KNX power supply reset, programming, etc.), they lose their previous configuration. This can cause various issues, such as changing the previously configured setpoint to the 'default' one while no one is at home, potentially causing discomfort for the customer upon their arrival. This driver introduces a 'monitoring' tool for tracking the KNX status and recording the thermostat settings when everything is normal. When the driver detects a KNX bus offline, it will save this data until the KNX is online again. After detecting that the bus is online, it will wait for a configurable time before restoring all the previous configurations.

#### **Features:**

- Four options for monitoring the KNX system (see the docs for more info):
  - ✓ KNX Tunneling Gateway Status
  - ✓ KNX Bus Power Sensing
  - ✓ Polling Group Address
  - ✓ Manual
- Saves thermostats settings across Control4 reboots.
- Configurable time between the online event and the thermostats restore.
- Save on History Agent the different events.
- Available events triggering for custom programming, such as KNX Online, KNX Offline, Thermostats restored events.
- Several instances of this driver could be used on the project: An instance of the driver should be use in each KNX line of the project.

### **2. Properties**

- *Cloud Status*: Current status of the driver license.
- *Automatic Updates*: Enable driver automatics updates (Recommended!)
- *MAC*: MAC address of the director.
- *Driver*: Driver name.

- *Driver Version*: Current driver version.
- *Driver Information*: Last debug information.
- *Current Status*: Important information about the current status of the driver.
- *Debug Mode*: If On, driver will print debug information on Lua output.
- *Thermostats*: Here you can select the thermostats you want to record. **All the thermostats should be on the same KNX line (if you have several lines, an instance of this driver should be used per line).**
- *Restore Settings Time Delay[s]*: The time, in seconds, between the Online status and the restoration of the thermostat's settings. It is recommended to set it to a couple of minutes to ensure the stability of the KNX bus.
- *KNX Status Sensing*: You can select four ways of “sensing” the KNX line status:
  - *KNX Tunneling Gateway Status*
  - *KNX Bus Power Sensing*
  - *Polling Group Address*
  - *Manual*

#### Refer to “6. KNX Status Sensing Methods

This driver is intended to bring some sensing methods option so you can choose whatever it suits you better. Every method has its own advantages and disadvantages. Test them to make sure it fulfils your needs. If you have any further doubt do not hesitate to contact **Barbini.dev**.

” to more information.

- *KNX Tunneling Gateway*: (Available when “KNX Tunneling Gateway Status” is selected) Here you can select the Tunneling Gateway driver to monitor.
- *KNX Gateway Bound*: (Available when “Polling Group Address” is selected) Read Only. This field displays the name of the KNX gateway driver to which the driver is connected for sending read requests of the group address.
- *Group Address to Poll [DPT\_1]*: (Available when “Polling Group Address” is selected) Here, you need to set a KNX group address with a size of 1 bit (designed this way to avoid overloading the KNX bus) to periodically send a read request. The specific value of this group address is not important; the only requirement is that the 'read' flag is activated.
- *Polling Time[s]*: (Available when “Polling Group Address” is selected) The time, in seconds, between each polling. This value should be set reasonably to detect an offline status without

overloading the KNX bus. If the KNX system has high traffic, it is recommended to conduct some tests to determine the optimal value.

- *Max. Response Time[ms]*: (Available when “Polling Group Address” is selected) The maximum time, in milliseconds, that the driver will wait for the polling response before considering it a timeout. This value should not be changed unless you are experiencing delays in the KNX bus response. **TIP**: Check the debug output to see the polling response time.

### 3. Actions

- *1 KNX Online [Manual Only]*: You can use this button to force KNX status Online when Manual mode is selected.
- *2 KNX Offline [Manual Only]*: You can use this button to force KNX status Offline when Manual mode is selected.

### 4. Commands

- *KNX Online [Manual Only]*: This command allows you to force KNX status Online when Manual mode is selected.
- *KNX Offline [Manual Only]*: This command allows you to force KNX status Offline when Manual mode is selected.

### 5. Events

- ❖ *1 KNX Online*: It will be triggered when the KNX system is considered Online.
- ❖ *2 KNX Offline*: It will be triggered when the KNX system is considered Offline.
- ❖ *3 Thermostats Restored*: It will be triggered when the thermostats settings were restored.

### 5. Driver Variables

- ❖ *KNX\_STATUS*: Values: ONLINE, OFFLINE, UNDEFINED

### 6. KNX Status Sensing Methods

This driver is intended to bring some sensing methods option so you can choose whatever it suits you better. Every method has its own advantages and disadvantages. Test them to make sure it fulfils your needs. If you have any further doubt do not hesitate to contact **Barbini.dev**.

### **6.1 KNX Tunneling Gateway Status:**

KNX tunneling gateways are TCP/IP connections that the Control4 driver can monitor based on the gateway's response. This option enables you to select the KNX tunneling driver you are using and track changes in the status of the driver's gateway.

Please note that the behavior of the 'connection status' on the Tunneling driver may vary depending on factors such as the device characteristics, the duration of offline events, and the behavior of the Control4 KNX Tunneling driver in detecting online/offline status.

Advantage:

- + Quite easy to set up the driver
- + No physical devices and connections are needed.
- + No KNX configuration required.

Disadvantages:

- The behavior of the KNX Tunneling devices may vary between brands and models.
- The Control4 KNX Tunneling driver may not detect and “offline” status if the KNX power outage was noticeably short. Do tests to be sure.
- This method is sensing the KNX status “indirectly”.

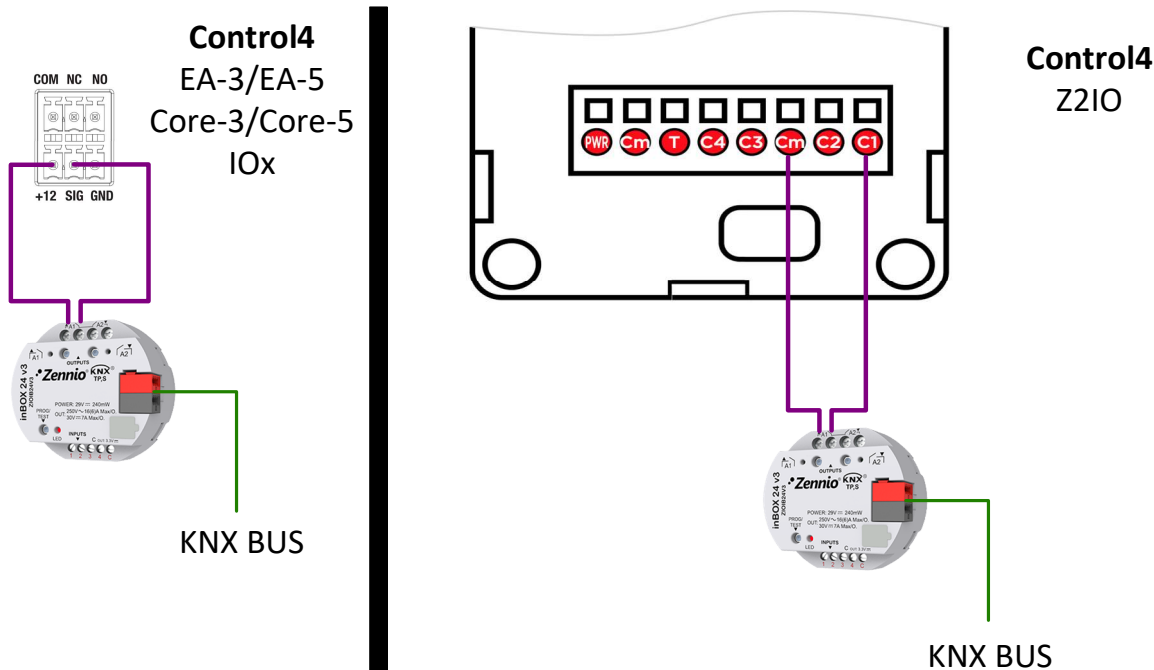
### **6.2 KNX Bus Power Sensing:**

This method allows you to use a Control4 contact sensor input to sense the KNX status. For that you will need to dedicate a KNX relay for this purpose, and must be configured in KNX this way:

- The relay output must be configured as “Normal Open” mode.
- The relay output must be set to “Close” when the device is powered on (and it will be “Open” when the devices is powered off).
- It must not be controllable with group address (you can use feedback group address for troubleshooting purpose if you want).

Then the relay contacts must be connected to a Control4 contact sensor, and make the proper connections within the driver in Composer Connections tab.

Here there are some schematics examples of the relay/sensor connections:



Advantage:

- + Control4 sense the KNX status “directly”.
- + It won't depend on KNX interface/router communication.

Disadvantages:

- A dedicated KNX relay for this purpose is needed.
- A physical connection between Control4 and KNX is needed.
- Basic KNX configurations must be made.

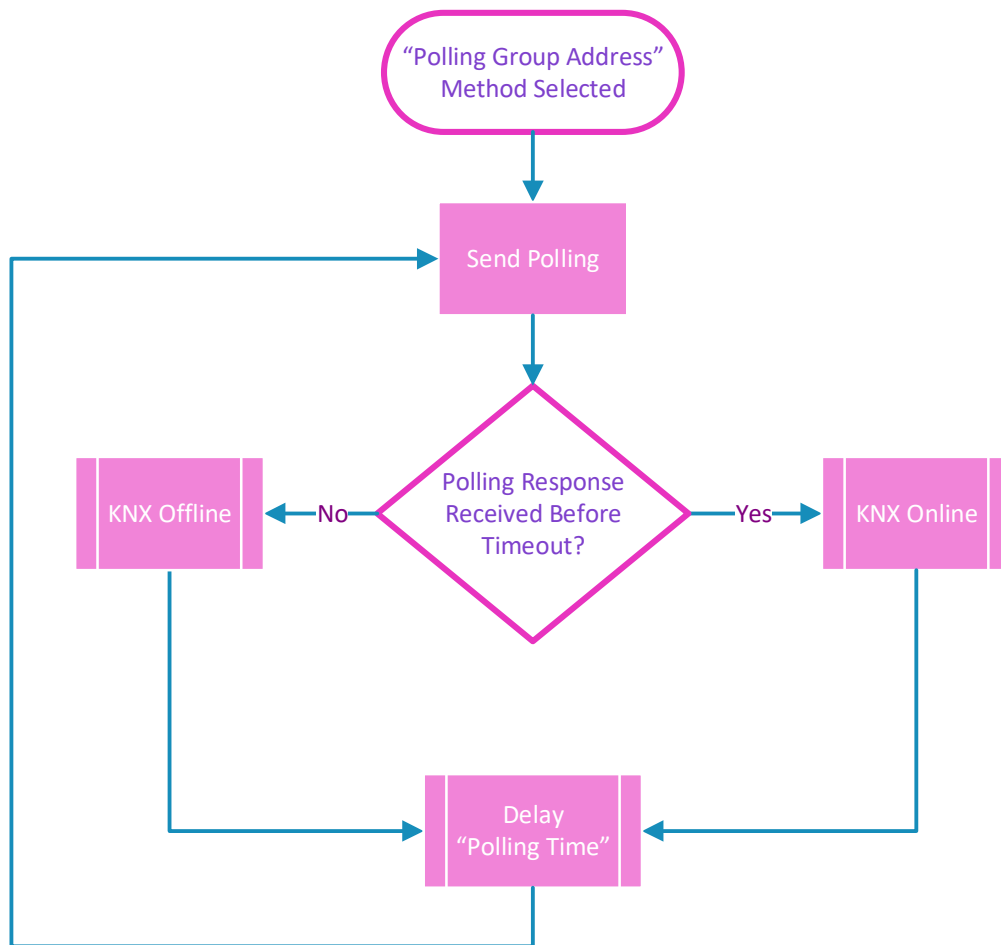
### 6.3 Polling Group Address:

This method allows you to configure the driver to poll the KNX periodically. If a polling response fails, it will be considered the KNX system offline.

You need to choose a DPT1 group address (GA) that must have the “read” flag enabled to be able to respond to read requests. This GA does not need to be a dedicated one, it could be used for another driver (e.g.: light switch feedback GA) as long as making a completely read request won't affect the bus (for example, to trigger KNX logics).

Note that this method works with Control4 **Tunneling and Routing** drivers.

Here you can see a basic flowchart showing this logic:



**Advantage:**

- + No physical devices and connections are needed.
- + Works with both, Tunneling and Routing gateways.

**Disadvantages:**

- The driver needs to periodically send and receive data from the KNX bus.
- This method is sensing the KNX status "indirectly".
- If the gateway has too many data income, it could cause a delayed request response and therefore to be consider the system offline. On this case, the "Max. Response Time" property must be changed.

**6.4 Manual:**

This method allows you to manually change the KNX status. This is useful when you want to trigger the KNX conditions regarding to external factors that are not considered in this driver.

## **7. Limitations**

These are the current driver limitations:

- If you have selected an indirect method, there may be scenarios of false offline detection (such as a networking problem that interrupts communication with the KNX bus, resulting in the driver considering it as KNX offline) or missing a true offline status (for example, if you have configured an exceedingly long polling time, the driver may not recognize if the KNX bus experiences a reboot in the middle). **It is recommended to conduct testing when using indirect methods.**
- The driver may not detect a reset of an individual thermostat (e.g., programming changes, KNX reset via ETS, unplugging and plugging it back in) or a group of thermostats due to a line branch reconnection. Instructions for Handling Changes on KNX Thermostats:
  1. If you are planning to make changes to the KNX thermostats, such as modifying parameters or partially interfering with KNX connections, it is recommended to switch the driver to 'MANUAL' mode.
  2. Set the KNX to manual Online mode to save all the current data before making any changes.
  3. Set the KNX to manual Offline mode to keep all the current data.
  4. Once you have completed the required work on the devices, set the KNX driver to Manual Online mode again to restore all the saved data.
  5. Afterward, you can switch back to the previous sensing mode to continue normal operation.
- The driver is unable to reset a 'Hold Until' date and time on the thermostats, as capturing that information is currently not supported.

## **Warranty and disclaimer**

**Barbini.dev** provide drivers tested as much as possible. However, due to the highly variants of systems setups and the constant changing of the electronics systems, updates and/or modifications may be required to fixing bugs or improve the driver functionality.

Many of our drivers interact with systems APIs (like Control4 and/or any other 3<sup>rd</sup> party system). Therefore, if any API changes, the driver may stop functioning correctly. **Barbini.dev** cannot guarantee long-term functionality of any driver developed that uses APIs. **Barbini.dev** has the right to repair, provide updates, or discontinue a driver at any time. These repairs or updates could be free or required additional expenses. Despite the above, our efforts will always be to maintain the drivers as long as possible and free of charge of upgrades as much as possible.

## ***Trial and Showroom Licenses***

All the drivers have 10 days of trial, allowing dealers to test the features of any driver in a customer project before purchasing it. The trial automatically begins when a driver is installed in a project.

We enable all the Showroom licenses to have unlimited access to the drivers.

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