

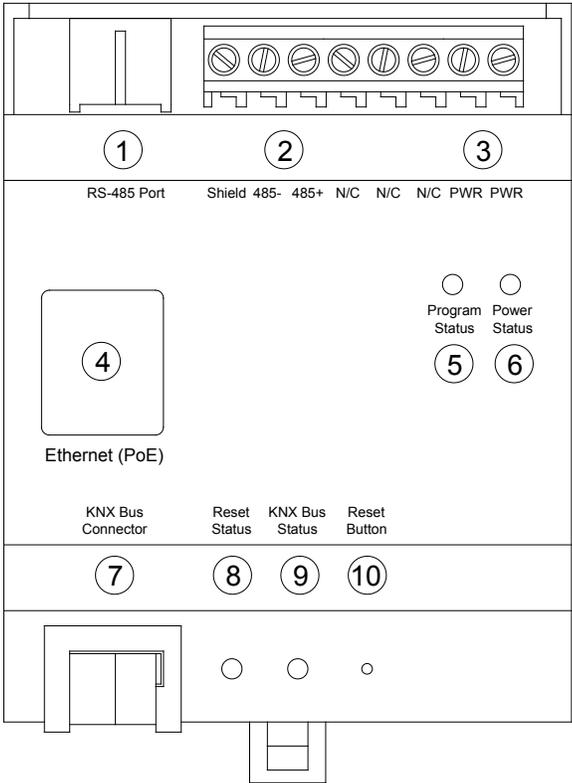
Model 97A00-1 KNX Gateway

Description

The HAI by Leviton KNX Gateway allows an HAI controller (Omni LTe, Omni Ile, OmniPro II, Lumina, and Lumina Pro) to communicate with and control KNX devices on the bus. Lighting, temperature and energy management, and motors (window coverings, shades, shutters, etc.) are among the many KNX devices that can be controlled. The KNX Gateway provides an interface between the HAI controller and the KNX network by mapping specific data points of each KNX device to a unit or thermostat number on the HAI controller.

Overview

The following is an overview of the inputs and outputs on the KNX Gateway:

KNX Gateway Top View			
 <p>The diagram shows the top view of the KNX Gateway with the following components labeled:</p> <ul style="list-style-type: none"> 1: RS-485 Port (RJ-25 modular connector) 2: RS-485 Terminals (Shield, 485-, 485+, N/C, N/C, N/C, PWR, PWR) 3: Power Terminals (PWR, PWR) 4: Ethernet (PoE) Port 5: Program Status LED 6: Power Status LED 7: KNX Bus Connector 8: Reset Status LED 9: KNX Bus Status LED 10: Reset Button 	1	RS-485 Modular Port	RJ-25 modular connector which provides an RS-485 serial interface to the HAI controller.
	2	RS-485 Terminals	The 485+ and 485- terminals can be used as an alternative to the RS-485 Modular Port.
	3	Power Terminals	The PWR terminals can be used as an alternative or backup to the PoE Ethernet Port.
	4	Ethernet (PoE) Port	Provides a connection to the local network for configuring the KNX Gateway using its built-in web interface. It also allows the KNX Gateway to be powered when using a Power Sourcing Equipment (PSE) device, such as a PoE network switch, hub, or power injector.
	5	Program Status LED	The Program Status LED is illuminated during a firmware update, flashes when it is first powered up (while it checks for a new firmware update), and it is turned off while it is in normal operation mode.
	6	Power Status LED	The Power Status LED is illuminated when the KNX Gateway is powered using either the PoE Ethernet Port or by providing 12-24V AC/DC to the PWR terminals.
	7	KNX Bus Connector	Connects the KNX Gateway to the KNX bus.
	8	Reset Status LED	The Reset Status LED provides status while operating the Reset Button.
	9	KNX Bus Status LED	The KNX Bus Status LED is used to monitor the KNX Bus interface. The LED is illuminated when there is proper voltage on the bus and the LED is turned off when the voltage on the bus is $\leq 18V$.
	10	Reset Button	The Reset Button is used to reset the KNX Gateway to its factory default settings.

Installation

Install the KNX Gateway as follows:

1. Connect the KNX Gateway to the KNX bus using the KNX Bus Connector.
2. Connect the KNX Gateway to a serial port on the HAI controller. The interface between the KNX Gateway and the HAI controller utilizes an RS-485 serial connection.
 - a. Connect the supplied straight-through modular cable (i.e. opposite from a standard telephone cable) to the RS-485 Modular Port on the KNX Gateway. Note: the pin out for this cable is Pin 1 to Pin 1, Pin 2 to Pin 2, Pin 3 to Pin 3, and Pin 4 to Pin 4. Alternatively, the terminals marked 485+ (Pin 5 on the modular connector), 485- (Pin 4 on the modular connector), and Shield (optional) can be used.
 - b. Connect the other end of the modular cable to one of the built-in serial ports on the HAI controller. Configure the serial interface on the HAI controller for RS-485 communications by moving the corresponding interface jumper (JP1-JP5) to the "485" position.
3. Power the KNX Gateway and connect it to the local network. When connecting the KNX Gateway to the network, it can also be powered using a Power Sourcing Equipment (PSE) device, such as a PoE network switch, hub, or power injector which provides the power. A Cat-5 or better (4-pair) cable is required. Run the Cat-5 cable between the location of a PoE network switch, hub, or power injector and the location of the KNX Gateway and plug it into the Ethernet (PoE) Port.

Alternatively, the KNX Gateway can be powered using the two terminals marked "PWR". When powering the KNX Gateway using the PWR terminals, use a 12-24 Volt AC or DC power supply. The PWR terminals are not polarity sensitive.

Configuring the KNX Gateway

It is important that the KNX programmer make available all of the device parameters that you will need. This is especially important in the case of thermostats since not all of the features for a standalone thermostat would need to be configured (e.g. setpoints being set remotely). If the KNX programmer does not assign this feature a Group Address, you will not be able to associate it with the HAI controller through the KNX Gateway.

To set up the KNX Gateway mapping, it is recommended that you obtain a "Group Addresses Details Report" from the KNX programmer. This can be printed from ETS4 software through the Print function.

The configuration for the KNX Gateway is performed through a built-in web interface. To access the web interface:

1. Configure the network settings of the KNX Gateway. By default, the IP address of the KNX Gateway is set to 192.168.0.4. Based on your current network configuration, there are several methods to initially access the device.
 - a. If your local network is using the 192.168.0.X subnet and IP address 192.168.0.4 is available (no other device on the network is using this IP address), you can access the web interface directly by opening a web browser and entering the IP address (i.e. 192.168.0.4) into the address bar.
 - i. If the IP address is already used by another device, you can locate the device with this address and physically remove it from the network, change its IP address, or use a crossover cable and change your computers IP address to match the subnet.
 - b. If your network uses a different IP subnet (e.g. 192.168.1.X), you will need to change your computers IP address to match the subnet and use a crossover cable for initial configuration.
2. Once your computer is on the same subnet as the KNX Gateway, you can access the web interface by opening a web browser and entering the IP address into the address bar (i.e. 192.168.0.4).

Adding Devices into the KNX Gateway

Once the HAI controller is configured for KNX (see “HAI Controller Setup” in this document) and you have a list of the Group Address Detail, you can begin to add devices into the KNX Gateway. Press the “Configuration Page” button.

Configuration Page: Allows you to add KNX devices (as defined in the “Group Addresses Details Report” from the ETS software), assign HAI Opcodes, and map them to units on the HAI controller. It also allows you to make a backup of the configuration file and restore from a previous backup of a configuration file.

Below is a brief description of the fields on the Configuration Page of the KNX Gateway:

Enable: This box must be selected to enter anything in the current line. If you uncheck this selection after you have entered a device, it will be removed when the Update Configuration operation is performed.

Description: Enter a user friendly name for identifying the device/function.

KNX Type: Enter the data type that the selected device uses. Options are 1 bit (on/off), 6 bit (scene), 1 byte (dimmer value), or 2 byte (temperature).

KNX ID: This is a placeholder for the table. It is recommended that this value is incremented sequentially (0, 1, 2, etc.).

KNX Function: The function determines the device’s capabilities. Options are Read, Write, or Read and Write.

KNX Main-Group: The main group of KNX devices which identifies the KNX devices.

KNX Mid-Group: The mid group address of KNX devices which further identifies KNX devices.

KNX Sub-Group: The sub group and final identifying address of the device on the KNX system.

HAI Opcode: The HAI function/command assigned to the device for either the unit or the thermostat.

HAI ID: The address assigned to the device in the HAI system.

Adding a Unit (Dimmer, Relay, or Motor)

For example, Unit 1 will control Relay 1 on a 4-Relay Actuator. In the HAI controller, give Unit 1 a name (such as Relay 1) and change the House Code format to KNX. Save the changes in your file and write Names and Setup to the HAI controller.

On the KNX Gateway:

Enable	Description	Knx Type	Knx Id	Knx Function	KnxMainGr...	KnxMidGroup	KnxSubGro...	HAI Opcode	HAI Id
<input checked="" type="checkbox"/>	Relay 1	1-1 bit (on/off)	0	3-Read-Write	1	0	1	01-Unit	1
<input type="checkbox"/>									
<input type="checkbox"/>									

1. Check the Enable box for the first line.
2. Give the association a description (e.g. Relay 1).
3. Set the KNX Type to “1 – 1 bit (on/off)” since this is a device that will simply turn on and off.
4. Since this is the first device added, set the KNX ID to “0”.
5. The KNX function is assigned “3 –Read-Write” so that the unit can be commanded and so that it can report its status (the device must be set up on the KNX system to allow for both control and status).
6. From the Group Address Report, you can determine the assigned address for the device. In this example, the device is assigned an address of 1/0/1 (Main-Group/Mid-Group/Sub-Group) so each should be configured accordingly.
7. Set the HAI OpCode for On/Off functionality “01-Unit”.
8. Set the HAI ID to match the unit number on the controller. In this case, it is Unit 1
9. Click the “Update Configuration” button to write the changes to the KNX Gateway

You should now be able to control the KNX device through the HAI controller.

Adding a Thermostat

The thermostat setup is very similar as adding a unit, except that each parameter of a thermostat that will be controlled or viewed must be setup and individually mapped in the KNX Gateway. In this example, data points have been added for the Current Temperature, the Heating Set Point, and the Mode (Heating or Cooling).

On the KNX Gateway:

Enable	Description	Knx Type	Knx Id	Knx Function	KnxMainGr...	KnxMidGroup	KnxSubGro...	HAI Opcode	HAI Id
<input checked="" type="checkbox"/>	Current Temp	4-2 byte (temperature)	1	1-Read	1	0	4	10-Therm Current	1
<input checked="" type="checkbox"/>	Heat Setpoint	4-2 byte (temperature)	2	3-Read-Write	1	0	5	20-Therm Heat Set	1
<input checked="" type="checkbox"/>	Heat/Cool	1-1 bit (on/off)	3	3-Read-Write	1	0	6	41-Therm Heat	1
<input type="checkbox"/>									

1. Check the Enable box for the next available line.
2. Give the association a description (e.g. Current Temp).
3. Set the KNX Type to “4 – 2 byte (temperature)”.
4. Since this is the second device added, KNX ID is set to “1”.
5. The KNX function is assigned “1 –Read” since the current temperature is reported and cannot be commanded.
6. From the Group Address Report, you can determine the assigned address for the device. In this example, the device is assigned an address of 1/0/4 (Main-Group/Mid-Group/Sub-Group) so each should be configured accordingly.
7. Set the HAI OpCode for “10-Therm Current”.
8. Set the HAI ID to match the thermostat address on the controller. In this case, it is Thermostat 1.
9. Click the “Update Configuration” button to write the changes to the KNX Gateway.

For the rest of the items, follow the steps as above but replace the key parameters as shown to match the devices properties as well as their KNX addresses. Once all of the changes are made, click the “Update Configuration” button to write the changes to the KNX Gateway.

Backup Configuration: Allows you to create a backup for the configuration file that is stored in the KNX Gateway. This file will be useful if you ever need to replace the KNX Gateway or reset it to its factory default settings.

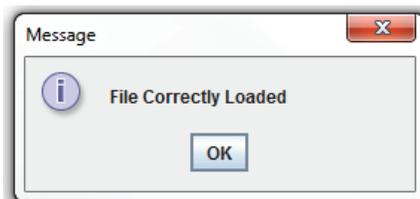
- a. Press the “Backup Configuration” button.
- b. Enter a file name and browse to the folder location where the file will be stored.
- c. Click the “Save” button.

The file is stored in comma-separated values (CSV) format.

Restore Configuration: Allows you to restore the configuration of a KNX Gateway from a previously backed up configuration file. This is useful if you needed to replace the KNX Gateway or reset it to its factory default settings.

- a. Press the “Restore Configuration” button.
- b. Browse to the folder location where the file is stored and select it.
- c. Click the “Open” button.

When the process is complete, a confirmation dialog is displayed. Click the “OK” button. The configuration has been updated.



Press the “Update Configuration” button to store the configuration in the KNX Gateway.

HAI Controller Setup

To configure the KNX Gateway, the HAI controller must be utilizing controller firmware 3.11 or later:

1. Configure the serial port on the HAI controller where the KNX Gateway is connected to “KNX Gateway”.
2. Any units or thermostats that will be associated with the KNX system must be changed to use “KNX”. For units, this means changing the House Code Format to “KNX” (this affects a group of 16 unit numbers) and for thermostats and temperature devices, this means changing the Protocol Address for each thermostat to “KNX”.

Resetting to Factory Default

To reset the KNX Gateway to its factory default configuration:

1. Make sure that the KNX bus is plugged into the KNX Bus Connector and the KNX Bus Status LED is illuminated.
2. Press the Reset Button momentarily to illuminate the Reset Status LED. Press the Reset Button again.
3. The factory default configuration is complete when the Reset Status LED is turned back off.
4. Cycle power to the KNX Gateway.