1.0 Introduction

The InsightHome is a multi-function communication device that provides an overall view of system performance for residential power monitoring systems. It also provides a communications gateway between a network of Xanbus™-enabled devices and Modbus devices. Operators can configure the InsightHome system and monitor performance with third party software packages and building management systems.

1.1 Overview

The InsightHome is a wall mounted device that can be configured to monitor and control power systems. It is equipped with a variety of inputs and outputs that can be used to interface with other devices in a building. The InsightHome provides real-time monitoring of power usage, allowing operators to identify areas of inefficiency and take corrective action.

1.2 System Components

The InsightHome system includes the following components:

- **Power Module:** This module provides the necessary power for the InsightHome system and includes a power adapter and a power cord.
- **Ethernet Module:** This module provides network connectivity to the InsightHome system.
- **Serial Module:** This module provides serial connectivity to the InsightHome system.
- **Input and Output Modules:** These modules provide additional connectivity for the InsightHome system.

1.3 Installation

The InsightHome system is designed to be mounted on a wall using a mounting bracket. The mounting bracket is included with the system. The mounting bracket is designed to be located near the power source to ensure proper connectivity.

1.4 Configuration

The InsightHome system is configured using a configuration tool provided by the manufacturer. The configuration tool allows operators to configure the system to meet their specific needs.

1.5 Maintenance

The InsightHome system requires periodic maintenance to ensure proper operation. This includes checking the power module for proper operation and checking the network connection for proper connectivity.

1.6 Troubleshooting

If the InsightHome system is not operating properly, the following steps should be taken:

- Check the power module for proper operation.
- Check the network connection for proper connectivity.
- Check the configuration settings for proper configuration.

2.0 Material List

- **InsightHome unit:**
  - not shown: 12-pin connector (see 12-Pin Connector Pinouts)
  - not supplied: Ethernet cable (CAT5e)

- **Power adapter:**
  - Manufacturer: CUI
  - P/N: SM16-12-V-05
  - Description: AC-DC Power Supply, 12Vdc Output Voltage, 1.8Adc Output Current

3.0 Physical Features

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power port</td>
</tr>
<tr>
<td>2</td>
<td>Xanbus port</td>
</tr>
<tr>
<td>3</td>
<td>Ethernet port</td>
</tr>
<tr>
<td>4</td>
<td>12-pin port (see 12-Pin Connector Pinouts)</td>
</tr>
<tr>
<td>5</td>
<td>USB port</td>
</tr>
<tr>
<td>6</td>
<td>Power button</td>
</tr>
<tr>
<td>7</td>
<td>The “Y” in InsightHome is an LED indicator used for signaling device status.</td>
</tr>
</tbody>
</table>

**LED**

- **Green Blink:** Device is booting up or logging data to internal memory when flashing.
- **Orange Solid:** Devices on the Power system have events to report.

Other features of the InsightHome include:
- A real-time clock, non-volatile memory, firmware storage and upgrade capability, and cloud storage capability. For more information, see the Owner’s Guide (go to https://solar.schneider-electric.com > InsightHome and InsightFacility Edge Devices > Downloads).

2.0 Material List

- **InsightHome unit:**
  - not shown: 12-pin connector (see 12-Pin Connector Pinouts)
  - not supplied: Ethernet cable (CAT5e)

- **Power adapter:**
  - Manufacturer: CUI
  - P/N: SM16-12-V-05
  - Description: AC-DC Power Supply, 12Vdc Output Voltage, 1.8Adc Output Current

NOTES:
- Recycle the packaging box.
- The Wi-Fi password is printed on the InsightHome unit.
4.0 12-Pin Connector Pinouts

Connect Modbus wires to pins 7, 9, and 11, and then complete the following steps using InsightLocal:

<table>
<thead>
<tr>
<th>1</th>
<th>Do Not Connect</th>
<th>Do Not Connect</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Do Not Connect</td>
<td>Do Not Connect</td>
</tr>
<tr>
<td>4</td>
<td>Digital Input 2 (12VDC)</td>
<td>Do Not Connect</td>
</tr>
<tr>
<td>6</td>
<td>CAN-L ISO</td>
<td>CAN-H ISO</td>
</tr>
</tbody>
</table>

5.0 Choosing a Location

Figure 1 Location choices

- Choose a clean, dry, easily accessible location indoors.
- If you mount the InsightHome on a wall, the recommended height is at eye-level so that you can clearly see the LED indicator and have easy access to the data and communication ports.
- All of the ports on the InsightHome are accessible from the bottom of the device when mounted on a wall. Clearance of at least 2 inches (50 mm) below the device is needed to allow for the bending radius of cables that connect to the InsightHome.
- You should not run cables through conduits that can be exposed to lightning strikes. The following are recommended maximum cable lengths in an InsightHome system:
  - 131 feet (40 m) Total Xanbus network
  - 328 feet (100 m) Router to InsightHome
  - 164 feet (50 m) Modbus Master (RS 485) to InsightHome

6.0 Mounting the InsightHome

- Using the mounting diagram that shipped with your product, mark the mounting holes on the wall with a pencil.
- Insert the two anchors and mounting screws supplied in the marked locations on the wall, leaving a space of about ¼ inch (6 mm) between the wall and screw head.
- If you are mounting the InsightHome on concrete, the supplied anchors and mounting screws are not suitable. Use two mounting screws that are equivalent to #6 screws.
- Place the InsightHome on the mounting screws, and confirm a snug fit.

Note: Before placing the InsightHome, you may want to take a photograph of the label on the back, as it includes important password information.

7.0 Connecting the InsightHome to the Xanbus Network

7.1 Network Sizing Guidelines

<table>
<thead>
<tr>
<th>Xanbus Networks</th>
<th>InsightHome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Total Connected XW Pro and MPPT Charge Controllers*</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

7.2 Xanbus Installation Rules

- Connect the InsightHome to the Xanbus network using daisy chain configuration.
- Xanbus components can be arranged in any order.
- The InsightHome must be one end of the network. See illustration in the next column.

NOTICE

EQUIPMENT DAMAGE

- Do not connect a Xanbus cable plug into the ethernet port on the InsightHome.
- Connect only to Xanbus ports and use a network terminator on the end device in the daisy chain.
- Failure to follow these instructions can result in equipment damage.

8.0 Turning the InsightHome On (or Off)

Before turning on the InsightHome, you must connect it to a power source - either:

- by using an AC/DC adapter (not supplied, see Material List for specifications)
- by connecting it to a (B) Xanbus network

WARNING

HAZARD OF ELECTRIC SHOCK AND FIRE

Connect only to Safety Extra Low Voltage (SELV) circuits and limited power sources. Failure to follow these instructions can result in death, serious injury, or equipment damage.

WARNING

UNINTENDED OPERATION HAZARD

Xanbus is a valid power source for the InsightHome, however, if you use Xanbus for the first time set-up the InsightHome clock will override the other Xanbus devices’ clocks and could trigger unintentional time-based events, such as a generator starting. Ensure that you set the InsightHome clock and time zone before performing any other commissioning steps, refer to the Owner’s Guide for instructions. Failure to follow these instructions can result in death, serious injury, or equipment damage.
11.0 Logging in to InsightLocal

NOTE: The gateway device’s internal wireless access point uses the 192.168.100.x subnet. If the local area network uses the same subnet, a conflict will occur when trying to access the Internet.

1. If you have connected the InsightHome via Wi-Fi Access Point, go to the IP address https://192.168.100.1 to access the web user interface.

2. If you have connected the InsightHome via Ethernet or Wi-Fi Station, use the following steps:
   a. Insert a blank USB drive into the InsightHomeUSB port. NOTE: Ensure there are no firmware upgrade files on this USB drive.
   b. After the InsightHome beeps twice, remove the USB drive.
   c. Insert the USB drive into your laptop USB port.
   d. Copy the HTML file to your laptop.
   e. Remove the USB drive from your laptop.
   f. Open the HTML file and click the link to the IP address of the InsightHome.

3. Bookmark this address. Important: The web address is a locally and privately assigned (LAN) device address.

4. Select your username. Select Admin.

NOTE: A maximum of two Admin users can be logged in to one InsightHome at the same time. For more information, see InsightHome Owner’s Guide (document number 990-91410).

5. Enter your Password. The initial password is Admin123.

6. Important: When prompted, it is required that you change the initial password immediately to protect the device from unauthorized users and to enable changes to device settings. Passwords must:
   - Be between 10-12 characters in length
   - Contain at least one upper case character
   - Contain at least one lower case character
   - Contain at least one digit
   - Contain at least one symbol

NOTE: To perform administrative functions such as a firmware update, set User Name to Admin. Settings are disabled until the initial password is changed.

7. Change the InsightHome SSID and network password:
   a. Go to Setup > Network > Wi-Fi Access Point Settings
   b. (Optional) Replace the current Wi-Fi network name under the SSID field with an appropriate name. You are limited to 64 alphanumeric characters including symbols.
   c. Replace the current password under the Password field with your own password.

   Passwords must:
   - Be between 10-12 characters in length
   - Contain at least one upper case character
   - Contain at least one lower case character
   - Contain at least one digit
   - Contain at least one symbol

---

10.0 Connecting via Wi-Fi Access Point (AP)

NOTE: This procedure is not about connecting to a local area network (LAN) via Wi-Fi. It is possible to connect to the InsightHome web app via its Wi-Fi Access Point. The following are the prerequisites:
- Laptop with Microsoft® Windows® 7 or later, Mac OS® X 10.4.8 or later
- Wi-Fi setting for the laptop is enabled
- Web browser such as Google Chrome™ 78.x or later, Microsoft® Windows® Internet Explorer® 11.476 or later, Safari® 5.x or later, Firefox® 110.0.1 (64-bit) or later
- JavaScript and cookies must be enabled in your web browser.

1. Make sure the laptop and InsightHome are turned on.
2. Enable Wi-Fi on the laptop, if not already.
3. Open Wi-Fi Settings, then look for and connect to the InsightHome SSID. For example, you may look for something similar to InsightHome_fe800b below.
4. Enter the Password when prompted.
   NOTE: The password is printed on a label on the back panel of the InsightHome unit.
5. Proceed to Logging in to InsightLocal (IP address: 192.168.100.1).

---

9.0 Connecting the InsightHome to the Internet via Ethernet

Before connecting a computer and router to the InsightHome, make sure it meets the following prerequisites.
- Microsoft® Windows® 7 or later, Mac OS® X 10.4.8 or later
- Internet Explorer® 11.476 or later, Google Chrome™ 78.x or later, Safari® 5.x or later
- JavaScript and cookies must be enabled in your web browser.
- Router - the network router must be able to supply DHCP addresses automatically to connected devices. If your network router does not support automatic DHCP, refer to your network router’s user guide or contact your system administrator.

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**NOTICE**

**EQUIPMENT DAMAGE**
- For a complete list of prerequisites, see the Owner’s Guide.
- Do not connect an Ethernet cable from the InsightHome to the MODEM port on the network router.
- Do not connect an Ethernet cable plug into a LAN port on the InsightHome.

Failure to follow these instructions can result in equipment damage.

1. Make sure the computer and network router are turned on and the InsightHome is not turned on. Make sure the network router selected has DHCP enabled.
2. Connect an Ethernet cable between the computer’s network port and a LAN port on the router.
3. Connect an Ethernet cable between a LAN port on the router and the Ethernet port on the InsightHome.
12.0 Using InsightMobile and InsightCloud

Refer to the Owner’s guide for information about using InsightCloud or connecting to your system with the InsightMobile App.

13.0 Installing Upgrades Remotely

1. Go to Setup > Configuration > Firmware Upgrade.

2. Download the firmware package.
   a. Click Get package. This will take you to the InsightHome product webpage.
   b. From the product webpage, go to DOWNLOADS > Firmware.
   c. Search for the latest firmware package from the list and click to begin downloading.
   d. Unzip the firmware package.
   e. Save the .epkg file to a local directory.
   f. Go back to the Setup > Configuration > Firmware Upgrade page.
   g. Click Upload package.
   h. Search and select the firmware package (.epkg file) you saved in a local directory from the InsightHome product webpage.
   i. Click Open from the Windows dialog. The upgrade begins automatically.
   j. After the firmware package is transferred to the InsightHome, progress is indicated in percentage, and a message screen indicates when the file transfer has been completed successfully.
   k. When prompted, restart the InsightHome.

14.0 Connecting and Configuring Modbus Devices

NOTE: For Modbus map information, contact Schneider Electric.

Connect Modbus wires to pins 7, 9, and 11 (see Physical Features), and then complete the following steps using InsightLocal:

For more information about connecting a power meter, see Power Meter Connection (optional) on page 1 and Power Meter Configuration on page 1.

To connect a Modbus device:

1. Go to Setup > Configuration > Modbus Settings.
2. Complete the Serial Port setup and then click Apply.
4. Under Range, enter a Modbus address range and then click Detect.
5. Go to Devices and then click the device image to select the device.
6. Go to Configuration and configure the device settings under Basic and Advanced. Each device type will have different settings to configure. Refer to the device's Installation and Operation manuals for configuration information. Repeat steps 5 and 6 for each device.

FCC Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For Modbus settings, see “Modbus Settings” on page 1 and “Default Settings” on page 1.

15.0 Electrical Specifications

NOTE: Specifications subject to change without prior notice.

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consumption</td>
<td>2 W average / 10 W peak</td>
</tr>
<tr>
<td>AC/DC adapter</td>
<td>Input: 100-240 V AC, 50-60 Hz, 0.48 A.</td>
</tr>
<tr>
<td></td>
<td>Output: 12 V DC, 1.6 A, 5.5 mm outer, 2.1 mm center-positive jack.</td>
</tr>
<tr>
<td></td>
<td>NOTE: Required when used with the Conext SW.</td>
</tr>
<tr>
<td>Xanbus</td>
<td>When connected to XW Pro, XW+, Conext SW, or MPPT providing network power</td>
</tr>
<tr>
<td>Operation Frequency</td>
<td>2412-2417 MHz (Europe) 2414-2462 MHz (N. America)</td>
</tr>
<tr>
<td>Max. radio frequency power transmitted</td>
<td>17.06 dBm (E.I.R.P., Declaration for EU)</td>
</tr>
</tbody>
</table>

16.0 Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web-based user interface</td>
<td>Google Chrome 78.x or later, Microsoft Windows Internet Explorer 11.476 or later, Safari 5.x or later, Microsoft Windows 7 or later, Mac OS X 10.4.8, or later, Firefox 110.0.1 (64-bit) or later</td>
</tr>
<tr>
<td>Remote firmware upgrades</td>
<td>Yes (InsightHome and connected Xanbus devices)</td>
</tr>
</tbody>
</table>

17.0 Physical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (device only)</td>
<td>220 g (0.5 lb)</td>
</tr>
<tr>
<td>IP rating / Mounting Location</td>
<td>IP 26, NEMA 1, indoor only</td>
</tr>
<tr>
<td>Status Display</td>
<td>1 x LED</td>
</tr>
<tr>
<td>Temperature</td>
<td>Operating: 32 to 113 °F (0 to 45 °C) Storage: -40 to 185 °F (-40 to 85 °C) Maximum case temperature: 140 °F (60 °C)</td>
</tr>
<tr>
<td>Humidity</td>
<td>Operating: &lt; 95%, non-condensing Storage: &lt; 95%</td>
</tr>
</tbody>
</table>
18.0 Regulatory

Safety: EN 62368-1

EMC emissions:
- EN 61000-6-3
- EN 55032
- EN 301 489-1, -17
- FCC part 15B
- IEC-61000-3-2

EMC immunity:
- EN 61000-6-1
- EN 55035
- EN 301 489-1, -17

Substances / environmental:
- RoHS

FCC ID:
- Contains 2ADDL-CONEXTGWY

IC ID:
- Contains 24209-CONEXTGWY

Part number: 865-0330

18.1 FCC Regulatory Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Note: changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

18.1.1 RF Exposure Compliance

This equipment complies with the FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

18.1.2 Supplier’s Declaration of Conformity

47 CFR § 2.1077 Compliance Information

Trade Name/Model Number: InsightHome
Part No.: 865-0330

Responsible Party – U.S. Contact Information
Schneider Electric
70 Mechanic Street
Foxborough, Massachusetts 02035
United States
https://se.com

FCC Compliance Statement
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

18.2 ISED Regulatory Compliance

This device contains licence-exempt transmitter(s) that comply with Innovation, Science and Economic Development Canada’s licence-exempt RSS(s).

Operation is subject to the following two conditions:
1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L’émetteur exempt de licence contenu dans le présent appareil est conforme aux CNR d’Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L’exploitation est autorisée aux deux conditions suivantes:
1. L’appareil ne doit pas produire de brouillage.
2. L’appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d’en compromettre le fonctionnement.

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body.

Cet équipement est conforme aux limites d’exposition aux radiations IC CNR-102 établies pour un environnement non contrôlé. Cet émetteur ne doit pas être situé ou fonctionner conjointement avec une autre antenne ou un autre émetteur. Cet équipement doit être installé et utilisé avec une distance minimale de 20 cm entre le radiateur et votre corps.

CAN ICES-3 (B)/NMB-3(B)

18.3 Simplified EU Declaration of Conformity

Hereby, Schneider Electric declares that the radio equipment type 865-0329 is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: https://se.com

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