

# X47.CE Product Guide

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## Overview and General Concepts

The X47.CE Universal Relay Pack (PN 201-147.CE) is an INNCOM Integrated Room Automation System (IRAS) device designed for guestroom controls. The X47.CE provides five relay outputs used to switch a variety of loads, including fan coil units (FCU) and light-duty general loads. The X47.CE can integrate with and receive data from multiple points throughout the IRAS using low-voltage wired communication (S5bus) or radio frequency (RF) communication (when connected to a PC502). The X47.CE is a 220-240 VAC line power controller.



Figure 1. X47.CE

## Features

- Controls a full range of FCU systems, complex light-duty lighting circuits, and other guestroom applications from 24–277VAC
- Supports three communication modes: S5bus, IR, and RF
- Installs inside FCU/HVAC enclosures
- Connects to remote thermistor (04-1096, 04-1096.MOD 04-1095) for external temperature sensing (+/- 1%temperature accuracy at 25°C)
- Enclosed to protect sensitive circuitry
- Complies with agency-approved recommendations for worldwide usage

**X47.CE FCU Controller:** In combination with the INNCOM e4 Smart Digital Thermostat, the X47.CE FCU controller is a feature-rich, cost-saving energy management tool. Communication using RF or INNCOM's IR Eye5 Infrared Transceiver adds to its installation versatility. (See the References section of this document for information on INNCOM's Energy Management System.)

**Safety:** The X47.CE is intended for indoor use only. To comply with industry standards in the U.S., Canada, Europe, and Asia, the device is equipped with an enclosure that protects the relays and circuitry from the environmental. The X47.CE can be installed in a NEMA-type electrical box in the field and is permanently wired according to guidelines from the National Electrical Code. The X47.CE has agency approval from FCC, IC, CE Mark, and CQC.

## Technical Overview

The X47.CE has five power relays and a local logic controller card combined in one assembly. Other features include

- Blade connectors for 220VAC–240VAC
- Four screw openings in the bottom enclosure for mounting in a NEMA enclosure

**LED:** The X47.CE has one diagnostic LED, which will blink on and off to indicate activity. It also signals during startup and the commissioning process (see below).

**Headers:** The X47.CE contains the following headers:

- H1: In Circuit Programming Header
- H2: Digital Input/Output 0V or 5V
- H3/4: External temperature sensor headers; Pin 1, 2-GND, Pin 3-10k NTC
- H5 IR Eye5 header
- H6: 100VAC power and relay output header
- H8: Analog output header; Pin 1-GND, Pin 2 Analog output 0–10VDC, Pin 3 Analog output 0–10VDC
- H9: 5 pin S5bus I/O header
- H10: ES1 header
- H11: RS485 adapter header (PN 203-250)

**Relays:** Tables 1 and 2 show the Relay Output specifications for the X47.CE; Table 3 shows the relay functions for typical applications.

**Table 1: X47.CE Relay Output Specifications,  
220-240VAC Input model**

	<b>Rating</b>	<b>Pin Assignment</b>
K1	3A, 277VAC Gen. Purpose 3.6FLA, 21.6LRA	P8
K2	3A, 277VAC, Gen. Purpose, 2.2FLA, 13.2LRA, 0.7A sealed, 7A inrush	P9
K3	3A, 277VAC, Gen. Purpose, 2.2FLA, 13.2LRA, 0.7A sealed, 7A inrush	P10
K4	3A, 277VAC, Gen. Purpose, 2.2FLA, 13.2LRA, 0.7A sealed, 7A inrush	P2
K5	3A, 277VAC, Gen. Purpose, 2.2FLA, 13.2LRA, 0.7A sealed, 7A inrush	P3
Common 1	K1, K2, K3	P5
Common 2	K4, K5	P4

**Table 2. X47.CE Relay Functions for  
Typical Installations**

	<b>4 Pipe, 3 Fan, Heat/Cool FCU</b>	<b>2 Pipe, 3 Fan, Cool Only FCU</b>	<b>Heat Pump, 2 Fan 2<sup>nd</sup> Stage Heat</b>	<b>Heat Pump, 3 Fan Speeds</b>	<b>PTAC, 2 Fan with Heat Strip</b>
K1	High Fan	High Fan	High Fan	High Fan	High Fan
K2	Medium Fan	Medium Fan	W2 2 <sup>nd</sup> Stage Heat	Medium Fan	Not Connected
K3	Low Fan	Low Fan	Low Fan	Low Fan	Low Fan
K4	Cool Signal	Cool Signal	Y-Compressor	Y-Compressor	Y-Compressor
K5	Heat Signal	Not Connected	B/O-Reversing Valve	B/O-Reversing Valve	W-Heat

## Installation

### **CAUTION!**



- The X47.CE installer must be a trained, experienced service technician.
- All wiring must comply with local codes and ordinances.
- The X47.CE is intended for indoor use only.
- Failure to follow the instructions provided with the product could damage the product or cause a hazardous condition.
- The ratings given in the instructions and on the product should be checked to make sure the product is suitable for the application. Table 1 gives relay functions for the line-power version;-Table 2 provides relay functions for typical installations.

#### **To install the X47.CE:**

- Use four 6/32 1/2" sheet metal screws to mount the X47.CE inside a NEMA enclosure or FCU using the four screw holes in the bottom enclosure.
- See Figure 2 for line-voltage and 24VAC power supply connectors
- See Figure 3 for X47.CE headers

**Note:** The instructions above describe the typical installation of the X47.CE.

## Commissioning

To participate in the network, the X47.CE must be commissioned by teaching it identification information. The following commissioning instructions use an X47.CE connected to a PC502 on the S5bus (for 2.4 GHz wireless RF communications) and an E529 thermostat:

1. Power up the X47.CE (LED blinks rapidly).
2. Enter the Service Mode on the e529 thermostat (press and hold the °F/°C button; press and release the OFF/AUTO button; press and release the DISPLAY button; release the °F/°C button).
3. On the E529 LCD, scroll to **Adr** and press OFF/AUTO.
4. Set the address to teach the X47.CE (typically 14).
5. Press OFF/AUTO. The display will show **bnd**.
6. Use a small point (e.g., the end of a straightened paper clip) to press the Bind switch on the X47.CE once. This sends a Bind request toward the thermostat.

7. The thermostat will send a Bind offer to the X47.CE. If it is accepted, the thermostat will buzz loudly. The X47.CE will reset.
8. Test the X47.CE functionality.

After binding, use the E529 to set Room ID, PAN ID and RF Channel. See property-specific instructions for further guidance.

## Wiring Specifications

Figure 1 shows the X47.CE line-voltage connectors; Figure 2 shows the headers; and Figure 3 shows a typical connection to a Fan Coil Unit

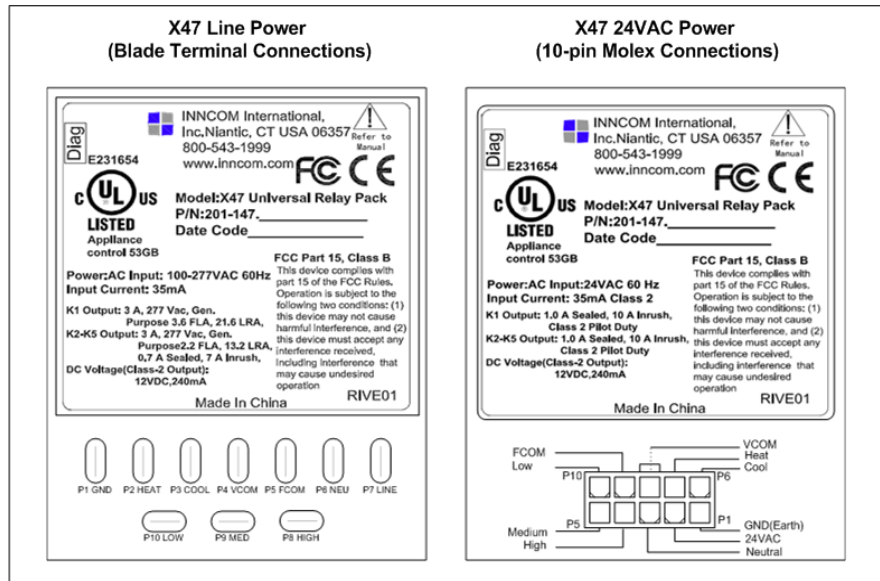
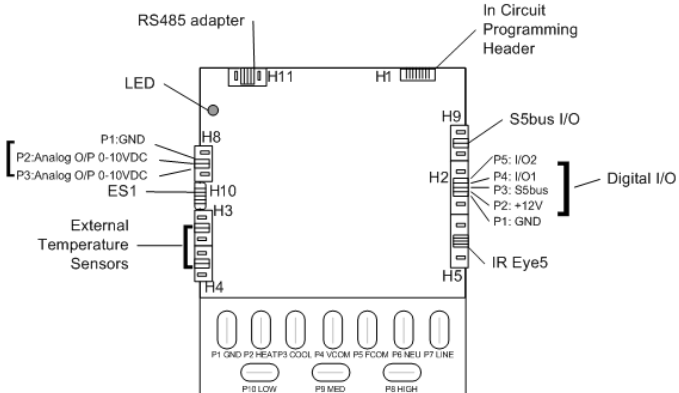


Figure 2 Connectors

**Line-Voltage Connections:** The phase, neutral, earth, and relay output connections are defined on the product label.



**Low-Voltage Power/Communications Connection:** The X47.CE can provide 12VDC 240mA output class-2 power and S5bus for IRAS devices.

Figure 3 X47.CE headers

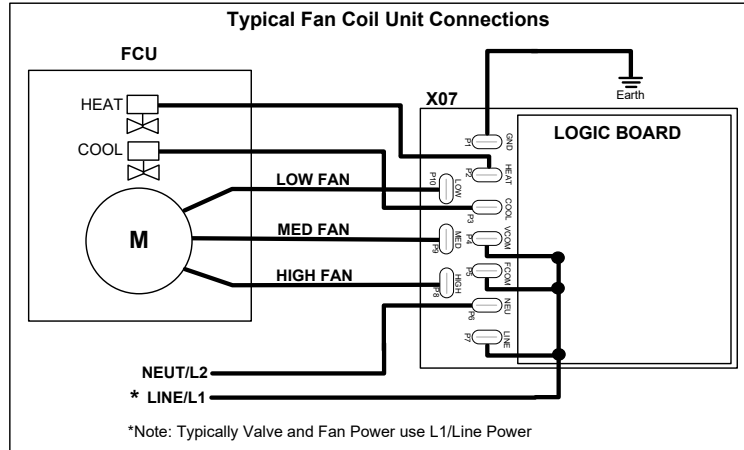


Figure 4 Typical FCU Connections

## Technical Specifications

Table 4. Technical Specifications

<b>201-147.CE Class-2 Output Voltage/Power</b>	12VDC, 240mA (See table below to determine final output power)
<b>Parameter Memory</b>	Non-volatile
<b>Temperature range, Operating Storage</b>	32 to 140 degrees F (0 to 40 degrees C) -40 to 158 degrees F (-40 to 70 degrees C) 15 to 99 percent RH
<b>Mounting</b>	4 hole mounting 6/32" bit, 1/2" screw
<b>Dimensions</b>	2 3/4" W x 3 1/2" H (excluding screw tabs) x 1 1/2" D (at deepest part) 70 mm W x 88 mm H x 38 mm D
<b>Approvals</b>	FCC, IC, CE MARK, CCC

Current consumption is determined using the following formula: 30mA + (n × 20mA) where 30mA is the current consumption of the logic board and n= the number of actuated relays.

Table 5. Current Consumption

<b>Configuration</b>	<b>Maximum Load (including logic board)</b>
All relays actuated	130mA

**Note:** Current consumption values of the X47.CE with actuated relays should be deducted from class-2 output power rating in Table 1 in order not to overdrive the power supply. The X47.CE should not be used to provide more than 70mA of external class-2 power.

## Ordering Specifications

**Table 6: X47.CE Ordering**

Model #	Description
201-147.CE	X47.CE 220-240VAC 50/60Hz w/ 5 relay actuator and Power Supply, HVAC Logic, Grey Housing

**Table 7: X47.CE Harness Ordering**

Model #	Description
62-1464.R	X47.CE 24VAC Harness
62-1465.B	X47.CE Low-voltage cable (H3, H4, H8, H9)
62-1511.A	X47.CE Low-voltage cable (H2, H5)

No harness is supplied for the X47.CE with line voltage power supply option.

**Table 8: Thermistor Ordering**

Model #	Description
04-1094.MOD	External Thermistor
04-1096	Ruggedized Thermistor

**Table 9: RS-485 Adapter Ordering**

Model #	Description
203-250	RS-485 Communication Module



## References

INNCOM's Standalone Energy Management System  
e4 Smart Digital Thermostat Model e528  
e529 Users Guide  
X47.CE Programming Application Note

## Document Revision History

REVISION	DATE ISSUED	REASON
1.0	30-Aug-2013	First issue
2.0	14-Nov-2013	Added Ordering tables; revised binding procedure
3.0	17-Mar-2016	Rebrand as per Honeywell Standards

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