X47 Universal Relay Pack Datasheet

This document contains information that is the proprietary and confidential property of INNCOM International Inc. By acceptance hereof, each recipient agrees to use the information contained herein only for the purpose anticipated by INNCOM, and not to disclose to others, copy or reproduce, any part hereof without the written consent of INNCOM. The recipient agrees to return this document to INNCOM immediately upon request.



Contents

Overview 2
Application 2
    Features 2
Technical Overview 2
Installation 3
Commissioning 4
Technical Specifications 5
Ordering Specifications 5
FCC Statement 5
Document Revision History 6

Copyright 2013 INNCOM by Honeywell

Overview

The X47 series of HVAC controllers are part of INNCOM's Integrated Room Automation System (IRAS) device designed for guestroom controls. The X47 series provides five relay outputs used to switch a variety of HVAC loads, including fan coil units (FCU). The X47 can integrate with and receive data from multiple points throughout the IRAS using low-voltage wired communication (S5bus), infrared (IR) communication (when connected to IR Eye 5), or radio frequency (RF) communication (when connected to a PC502). The X47 comes in 24VAC (low-power) or 100-277VAC (line-power) versions.

Application

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) for external temperature sensing (+/- 1%temperature accuracy at 25°C)
- Enclosed to protect sensitive circuitry
- Models available that Comply with agency-approved recommendations for worldwide usage

X47 FCU Controller: In combination with the INNCOM e4, MODEVA, and Elements Smart Digital Thermostats, the X47 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 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 can be installed in a NEMA-type electrical box in the field and is permanently wired according to the guidelines of the National Electrical Code. The X47 has agency approval from UL, FCC, IC, and CE Mark.

Technical Overview

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

- Blade connectors for 110VAC–2277VAC option; 10-pin Molex connector for 24VAC option
- Low voltage connection headers that provide 12VDC output and low-voltage control signals
- Four screw openings in the bottom enclosure for mounting in a NEMA enclosure

LED: The X47 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 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
- H6:24VAC or 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; Table 3 shows the relay functions for typical applications.

Table 1: X47 Relay Output Specifications, 110-277VAC Input model

	Rating	Pin Assignment
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	P3

Copyright 2013 INNCOM by Honeywell

	Rating	Pin Assignment
K5	3A, 277VAC, Gen. Purpose, 2.2FLA, 13.2LRA, 0.7A sealed, 7A inrush	P2
Common 1	K1, K2, K3	P5
Common 2	K4, K5	P4

Table 2: X47 Relay Output Specifications, 220-240VAC (X47.CE) Input model

	Rating	Pin Assignment
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, K5	3A, 277VAC, Gen. Purpose, 2.2FLA, 13.2LRA, 0.7A sealed, 7A inrush	P3, P2

Table 3: X47 Relay Output Specifications, 24VAC Input model

	Typical Operation	Pin Assignment
K1	1.0A Sealed, 10A inrush, class-2 pilot Duty	P4
K2	1.0A Sealed, 10A inrush, class-2 pilot duty	P5
K3	1.0A Sealed, 10A inrush, class-2 pilot duty	P10
K4	1.0A Sealed, 10A inrush, class-2 pilot duty	P6
K5	1.0A Sealed, 10A inrush, class-2 pilot duty	P7
Common 1	K1, K2, K3	P9
Common 2	K4, K5	P8

Table 4. X47 Relay Functions for Typical Installations

	4 Pipe, 3 Fan, Heat/Cool FCU	2 Pipe, 3 Fan, Cool Only FCU	Heat Pump, 2 Fan 2nd Stage Heat	Heat Pump, 3 Fan Speeds	PTAC, 2 Fan with Heat Strip
K1	High Fan	High Fan	High Fan	High Fan	High Fan
K2	Medium Fan	Medium Fan	W2 2nd 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 installer must be a trained, experienced service technician.
- All wiring must comply with local codes and ordinances.
- The X47 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 gives the ratings for the low-power model. Table 3 provides relay functions for typical installations.

To install the X47:

- Use four 6/32 ½" sheet metal screws to mount the X47 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 headers

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

Copyright 2013 INNCOM by Honeywell

Commissioning

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

1. Power up the X47 (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 (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 once. This sends a Bind request toward the thermostat.
7. The thermostat will send a Bind offer to the X47. If it is accepted, the thermostat will buzz loudly. The X47 will reset.
8. Test the X47 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 line-voltage and 24VAC connectors; Figure 2 shows the headers; and Figure 3 shows a typical connection to a Fan Coil Unit.

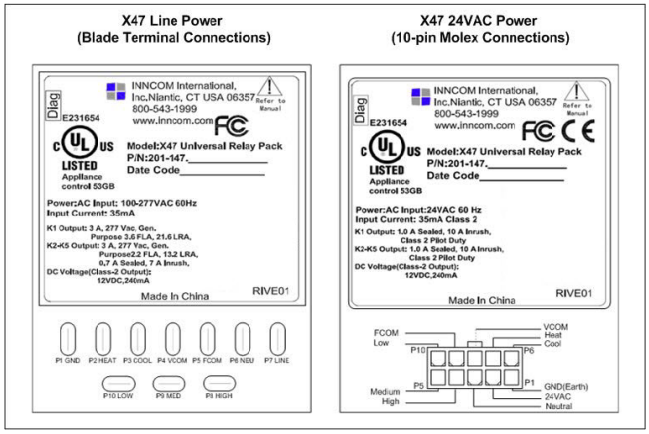


Figure 1 Connectors

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

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

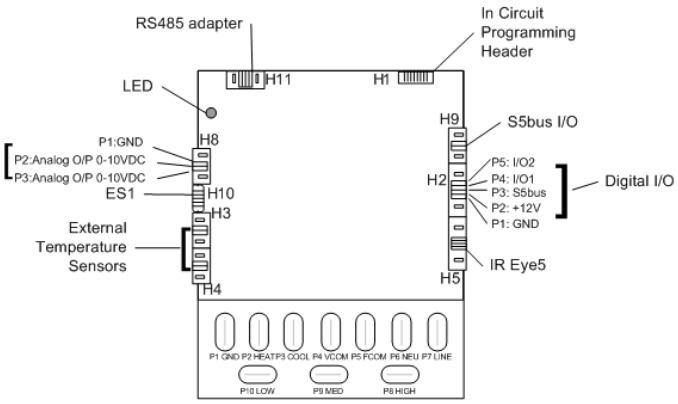


Figure 2 X47 headers

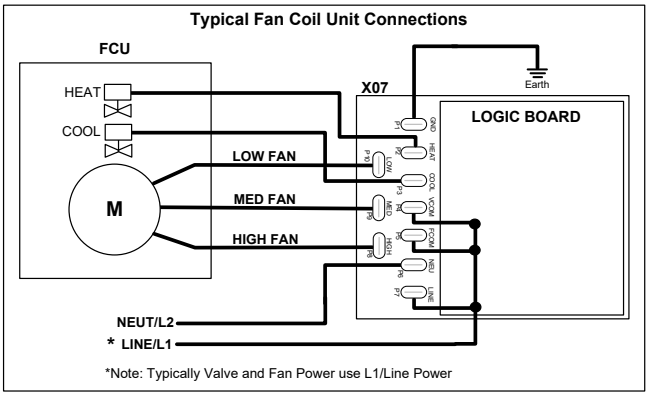


Figure 3 Typical FCU Connections

Copyright 2013 INNCOM by Honeywell

Technical Specifications

Table 4. Technical Specifications

201-147-A3L6-RXGR Class-2 Output Voltage/Power	12VDC, 240mA (See table below to determine final output power)
201-B1L6-RXGR / 201-147.CE.P Class-2 Output Voltage/Power	12VDC, 200mA
Parameter Memory	Non-volatile
Temperature range, Operating Storage	32 to 140 °F (0 to 40 °C) -40 to 158 °F (-40 to 70 °C) 15 to 99 percent RH
Mounting	4 hole mounting 6/32" bit, ½" screw
Dimensions	2 ¾" W x 3 ½" H (excluding screw tabs) x 1 ½" D (at deepest part) 70 mm W x 88 mm H x 38 mm D
Approvals	cULus, FCC Part15B/ICES-003, CE* * For 201-147-A3L6-RXGRP only.

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

Configuration	Maximum Load (including logic board)
All relays actuated	130mA

Note: Current consumption values of the X47 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 should not be used to provide more than 70mA of external class-2 power.

Ordering Specifications

Table 6: X47 Ordering

Model #	Description
201-147-A3L6-RXGRP	X47 24VAC 50/60Hz 5 relay actuator and Power Supply, HVAC Logic, Grey Housing
201-147-B1L6-RXGRP	X47 100-277VAC 50/60Hz w/ 5 relay actuator and Power Supply, HVAC Logic, Grey Housing
201-147.CE.P	X47 220-240VAC 50/60Hz w/ 5 relay actuator and Power Supply, HVAC Logic, Grey Housing

Table 7: X47 Harness Ordering

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

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

Table 8: Thermistor Ordering

Model #	Description
04-1094.MOD	External Thermistor
04-1095	Ruggedized Thermistor

FCC 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.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Copyright 2013 INNCOM by Honeywell

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	12-May-2017	Added X47.CE Model for CE Mark applications
3.1	22-Jan-2026	Edited pin designations, heat and cool. Amendments for FCC and added FCC Statement

Honeywell Automation and Control Solutions
ECC – Building Control Systems
T: +1.860.739.4468 F: +1.860.739.4460
solutions@inncom.com www.inncom.com