

X45B Controller Card Product Guide

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Overview and General Concepts

The X45B Controller Card (Figure 1) is a CBL32 universal multi-functional controller device that is the sum of the commonly used I/O across the legacy X05B, X529, and modern X47. It is used with the X06 Remote HVAC Controller and in other applications. The X45B logic is managed by an attached MCM1 Logic Board.

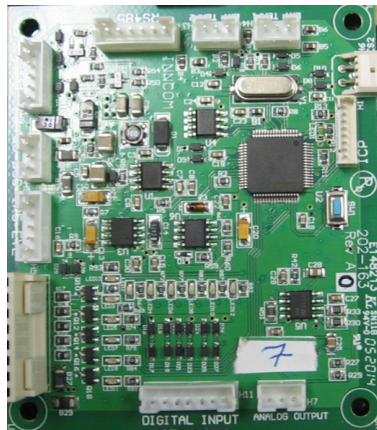


Figure 1 X45B Controller Card

Application

As a component of the guestroom Energy Management System, the X45B Controller Card receives control signals from the guestroom's Smart Digital Thermostat or other in-room control devices through a low-voltage wired connection or through an infrared (IR) wireless connection when used in conjunction with the INNCOM Eye5 IR transceiver. The control signal triggers the X45B Controller Card to open or close the appropriate relay contact on the X06 Controller, with a corresponding response from the guestroom's HVAC unit or other devices.

Features

- S5bus hardened against over voltage
- 2 analog inputs for remote thermistor (pin 1 GND, pin2 GND, pin3 AIN)
- Analog outputs 0-10VDC
- IR5 Header
- System 5 Header (pin1 GND, pin2 12VDC, pin 3 S5bus, pin4 I/O1, pin5 I/O2)
- X06 relay chassis interface (8-pin connector)
- RS485 network interface header
- Status LED for each relay
- 6 digital input header, with status LED

1 Operational Characteristics

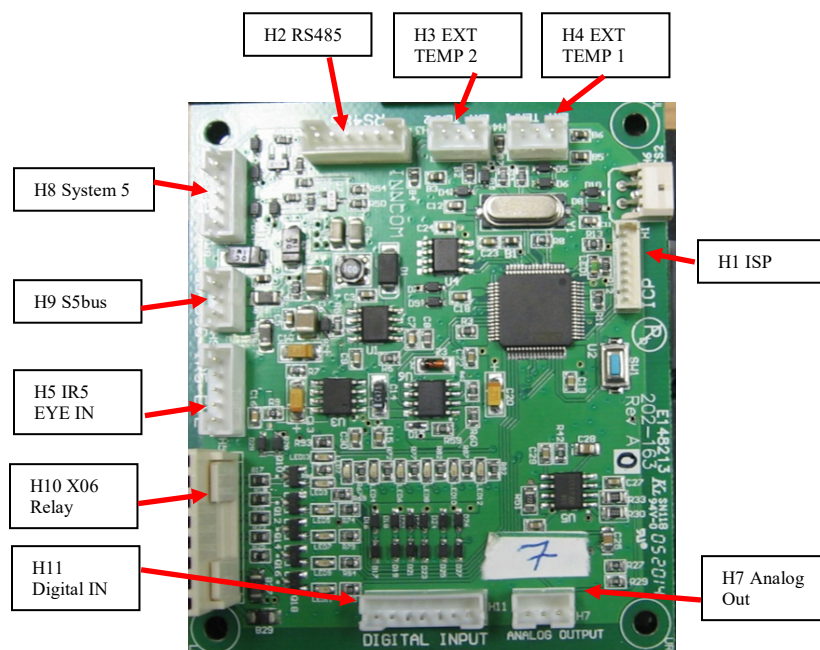
The X45B-X06 is a relay assembly containing a universal power supply. It is used to increase and enhance the output capability of other INNCOM products such as an e4 Digital Thermostat. It is intended for use with

- PTAC, heat pump and FCU actuator
- Five channel light controller
- Master contactor

The X45B communicates with the e4 through a wired connection (S5) or RS-485(requires external adapter 203-250) or through an Infrared (RF) wireless connection when used in conjunction with the Eye5 IR transceiver.

In addition, X45B supports two external temperature sensors, two analog outputs, seven digital inputs and two general purpose I/Os which can be used as UART interface for communication.

Headers



X45B Input Specification

H1-ISP Programming Header

Pin	Signal	Function
1	GND	Power
2	VCC	Power (+3.3V)
3	SCI2_TX	Transmit
4	SCI2_RX	Receive
5	NRST	Reset
6	SWO	Oscillator
7	SWCLK	Clock
8	SWDIO	power

H2—Analog Output

Pin	Signal	Function
1	GND	Power
2	3.3VDC	Power (+3.3V)
3	RS485_TX	Transmit
4	RS485_RX	Receive
5	RS485_TXE	Reset
6	SWO	Oscillator

H3—EXT Temp 2

Pin	Signal	Function
1	GND	Ground
2	GND	Power
3	EXT Temp 2	Transmit

H4—EXT Temp 1

Pin	Signal	Function
1	GND	Ground
2	GND	Power
3	EXT Temp 1	Transmit

H5—IR5 Eye Input

Pin	Signal	Function
1	GND	Ground
2	AGC	Automatic Gain Control
3	12VDC	Power
4	IR5TX	Transmit
5	IR5RX	Receive

H6—ES2

Pin	Signal	Function
1	GND	Ground
2	12VDC	Power
3	S5bus	Communication bus
4	SCLK	Clock
5	SDATA	Data

H7—Analog Output

Pin	Signal	Function
1	GND	Ground
2	Analog Output	Automatic Gain Control
3	Analog Output	Power

H8—System 5

Pin	Signal	Function
1	GND	Ground
2	12VDC	Power
3	S5bus	Communication bus
4	I/O 1	GPIO (dry contact input, digital output, UART)
5	I/O 2	GPIO (dry contact input, digital output, UART)

H9—S5bus

Pin	Signal	Function
1	GND	Ground
2	12VDC	Power
3	S5bus	Communication bus

Load Ratings

X06	Input	K1–K6 Relay Output (N.C.)	K1–K6 Relay Output (N.O.)
General Purpose Load	120-277VAC 60 Hz, 110mA	30A, 240AC, GP 30A, 30VDC 1½ HP 250 VAC 20A, 277VAC, GP	40A, 240VAC, Res 2HP 250VAC 30A, 277VAC

1.1 Installation**When installing this product**

1. Read instructions carefully. Failure to follow them could damage the product or create a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for the application.
3. Employ only a trained, experienced service technician for installation.
4. After installation is complete, check product operation as provided with instructions.

The X06-X45B comes assembled in a plastic mounting base and power supply enclosure and requires no assembly. X45B card is snapped on top of the X06's universal power supply cover (Part # 53-0195). The X06 is mounted inside a NEMA type enclosure using the mounting holes shown in Figure 4.

X06 Line Voltage Connections

The X06 output relays use ¼" Spade terminals to connect AC power, earth ground, and wiring to the equipment being controlled. Wiring should be at a minimum 18 gauge stranded rated for 600VAC.

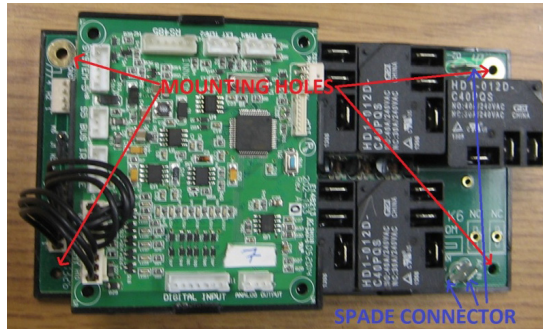


Figure 4: X06-X45B Assembly

The Mounting Holes are 0.137" in diameter

Use UL listed female ¼" connectors. Figure 4 shows spade connectors for connection.

- Input power is connected to the X06 at the AC IN Line1 and Line2 terminals.
- Earth ground must be connected to the X06 at the EARTH GND terminal or at one of the alternate earth ground plated mounting holes.
- Controlled equipment is connected to the X06 Output Relays "NO" and "COM" terminals. These relays are normally open. A harness is provided (INNCOM P/N 62-1498) with the X06 that connects all relay "COM" terminals to the AC IN Line 2 terminal.

CAUTION



- Disconnect AC power supply before beginning to prevent electrical shock or equipment damage.
- For use with copper wiring only. All wiring must comply with local codes and ordinances.
- The X06-X45B assembly must be installed in an appropriate NEMA type enclosure for line voltage safety.
- The X06-X45B is intended for INDOOR use only.

Low Voltage Connection

- X45B can be used in standalone application if relays are not needed. X45B is powered by external power supply in that case.
- Section 2.2.4 describes headers available on X45B. Use appropriate cable for the header including S5 bus.

2 Size

X45B	75.7mm x 65.54mm x 1.6mm (PWB size)
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2.1 Mounting and Orientation

With X06	H10 towards H1 header of X06 as in below picture. (X06 housing part # 53-0195)
Standalone	Extrusion Rail (part # 53-2060)

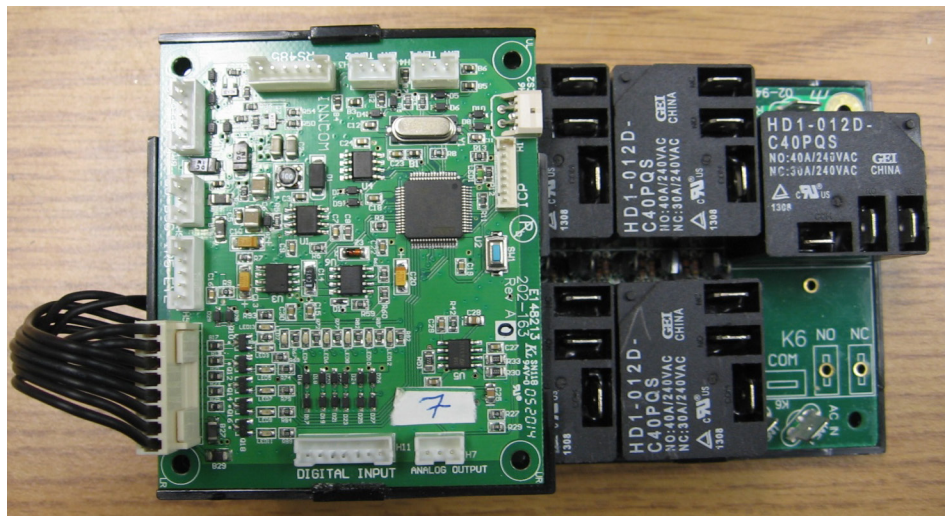


Figure 5: X45B with X06

Ordering Information

Model #	Description
201-163	X45B Control Board
62-1486-A	X45B S5bus 3-Wire Harness
A03.5337-1510-A.20	Eye5 IR Module with 20" cable
62-1516-A	7-pin Pigtail for H7
62-1449	8-pin Pigtail for H1
62-1466	4-pin Pigtail for H8

Specifications

Power	12VDC, 70 mA
Operating Environment	40 to 150 °F (5 to 65 °C), 15-99% RH
Mounting	3" (76 mm) mounting rail
Dimensions	3" L x 2 1/2" W x 1/2" D 76 mm L x 63 mm W x 12 mm D

Approvals

IC	ICES-003 Issue Class B Digital Apparatus emissions requirements (Canada)
CE	EN 61000-3-2:2006/A1:2009/A2:2009 Limits for harmonic current emissions EN 61000-3-3:2008 Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current up to and including 16A EN61000-6-3:2007/A1:2011 Emissions requirements for residential, commercial and light-industrial environments - Generic EN 61000-6-1:2007 Immunity for residential, commercial and light-industrial environments - Generic
RoHS	EN 50581
FCC	Part 15

Document Revision History

Revision	Date issued	Reason for change
First Issue	03-Jan-2014	First Draft
V1.0	17-Aug-2017	Reformat as per Honeywell Branding Guidelines

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