USER MANUAL

CB-KEYPAD-208-T

CONTROLBRIDGE DESKTOP KEYPAD

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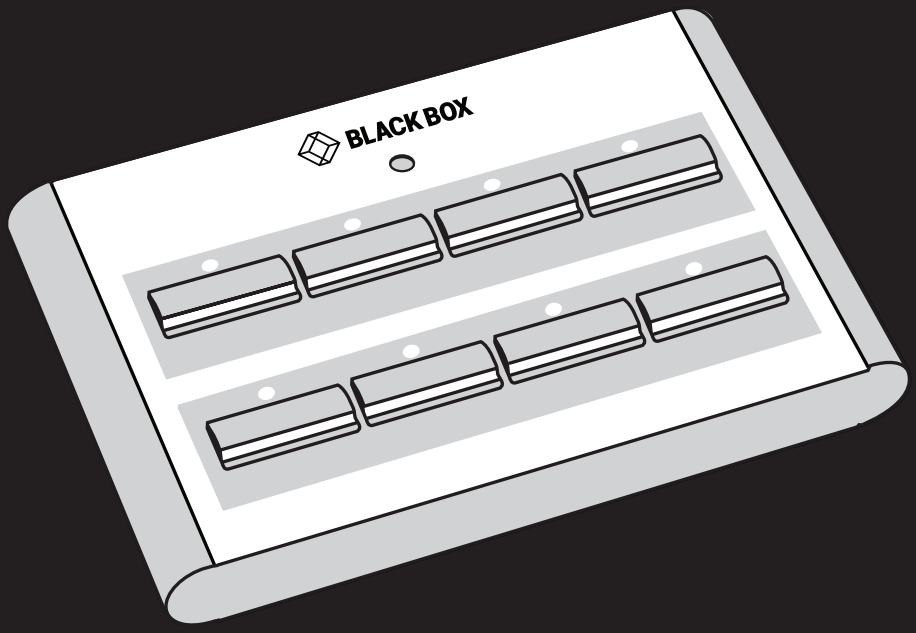


BLACK BOX®

TABLE OF CONTENTS

CHAPTER 1: SPECIFICATIONS

1.1 GENERAL SPECIFICATIONS

TABLE 1-1. SPECIFICATIONS

SPECIFICATION	DESCRIPTION
Buttons Layout	(8) buttons
Indicators	(8) LEDs
System Connection	RS-485, 4-pin connector 4-pin 3.5-mm Phoenix connector
Power Supply	24-VDC ±20%, 3 W
Enclosure	Stainless steel
Dimensions	3.5"H x 5.5"W x 0.8"D (9 x 14.1 x 2 cm)
Weight	0.9 lb. (0.4 kg)
Operating Temperature	50 to 104° F (10 to 40° C)
Humidity	10 to 90% noncondensing
Surge Protection	15 KV ESD

1.2 DIMENSIONAL DIAGRAMS

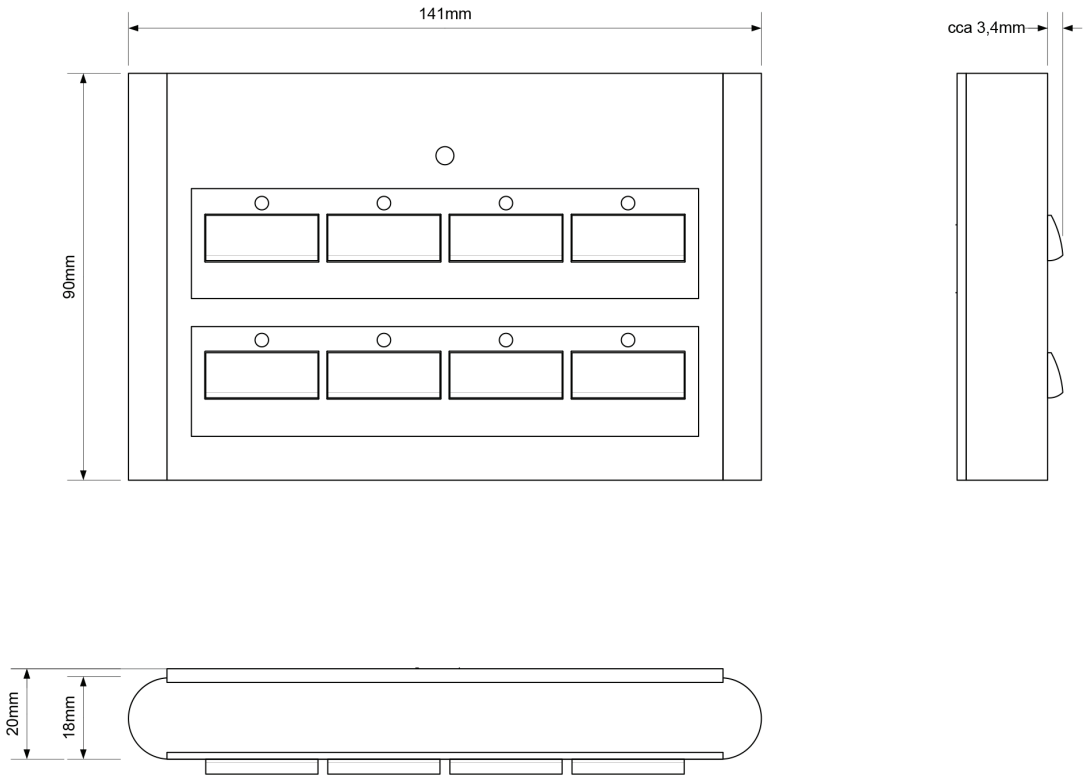


FIGURE 1-1. DIMENSIONAL DIAGRAMS

CHAPTER 2: OVERVIEW

2.1 INTRODUCTION

Control room systems with this tabletop keypad. The ControlBridge Keypad - Desktop, 8-Button is constructed of stainless steel. It provides eight buttons and programmable indication. Button labels can be engraved on the plastic strips on the front panel. This full-function console keypad may be used as a dedicated wired control panel for audio, video and operating environment functions.

The keypad's built-in IR receiver enables you to use the panel in the room where ControlBridge is installed, without installing a separate IR receiver.

2.2 FEATURES

- 8 buttons
- Programmable LED indication for each button
- Front panel plastic strips for custom engraved button labels for final installation
- Built-in IR sensor for ControlBridge link
- Stainless steel
- Tabletop installation

2.3 PROGRAMMING

All keypads are programmed using the ControlBridge Builder programming tool.

CHAPTER 3: FRONT PANEL

The front panel has eight buttons and eight indication LEDs as shown in the following diagram.

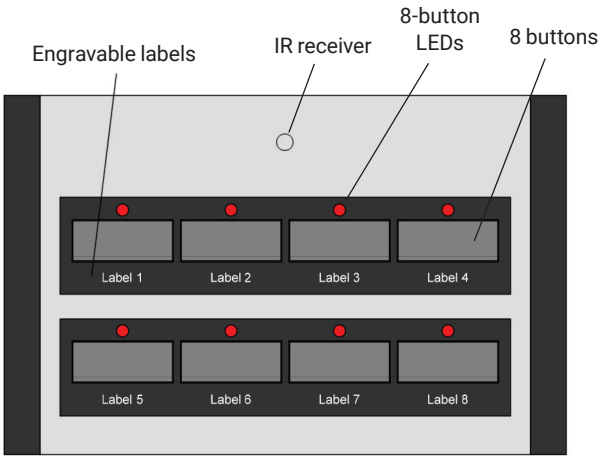


FIGURE 3-1. FRONT PANELOF THE KEYPAD

Button LEDs and their ON or OFF state are controlled by special programming commands from the controller.

Brightness of indication LEDs and backlight can be set by special programming commands from the controller.

In the upper part of the front panel, there is a sensor for the built-in IR receiver. It enables you to use the panel in the room where ControlBridge is installed, without installing a separate IR receiver.

CHAPTER 4: BUTTON LABELS

The CB-KEYPAD-208-T uses the separate plastic strip on the front panel for customized engraved labels for all buttons.

1. Engrave the labels on the rear surface of the plastic strips on the front panel. Recommended fonts are Nimbus, Trebuchet, Verdana or Arial, 9 points size, bold.

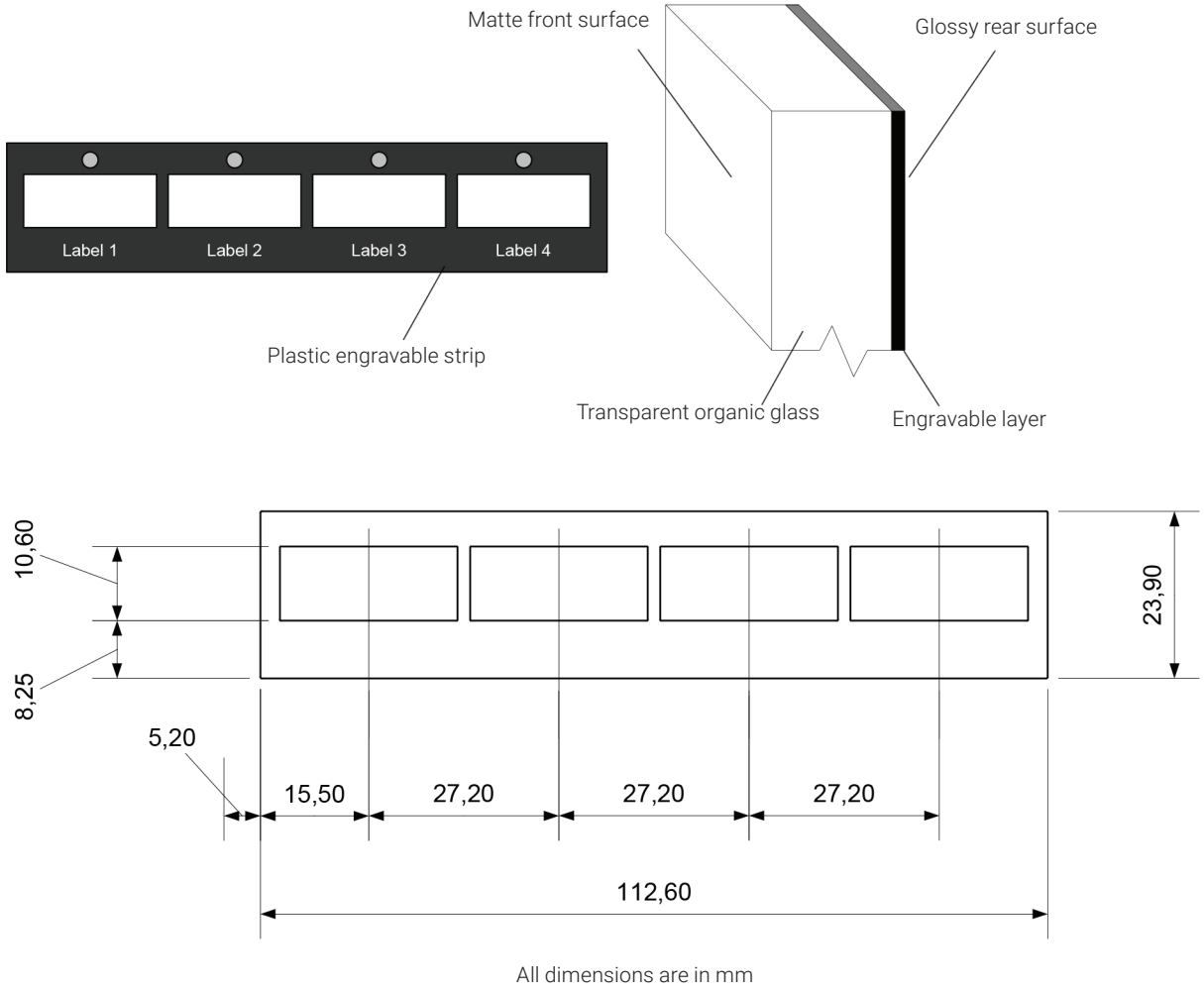


FIGURE 4-1. BUTTON LABELS DIMENSIONS

2. Clean and degrease the rear glossy part of engraved strips using denatured alcohol.

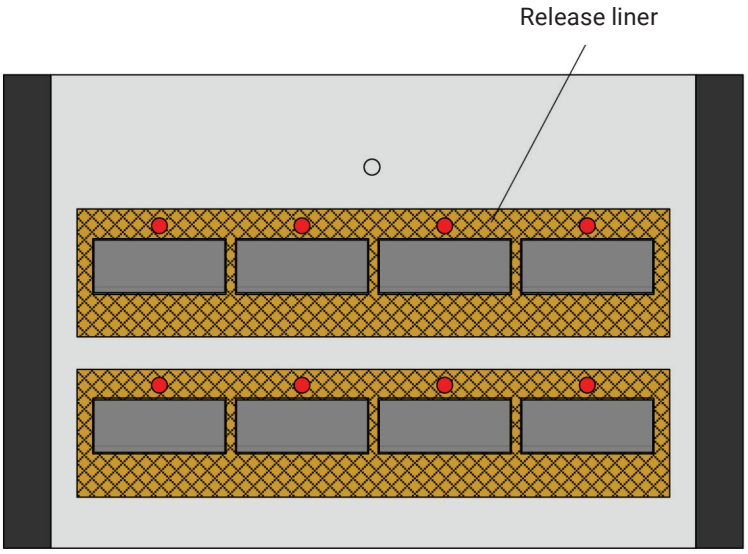


FIGURE 4-2. KEYPAD

3. Remove the release liner from the top part of the keypad.
4. Place the engraved front panel on the keypad, make sure that the buttons can be pushed easily and then press the panel to stick to the keypad.

NOTE: Be as precise as possible, because it is very difficult to remove the panel once it has been glued.

CHAPTER 5: ADDRESSING

5.1 ADDRESSING BUTTONS

5.1.1 ADDRESSING RULES

The ADDRESS of the buttons and LEDs of the keypad can be set in the range 0 to 207. The default button panel ADDRESS is 1.

The BUTTON_ID transmitted by the panel is the LINK number used in the programming for button identification. The BUTTON_LED_ID is LED identification for ButtonLed commands. Both values depend on the button (LED) position and on a keyboard ADDRESS too. BUTTON_ID is calculated according to the formulas described below.

BUTTON_ ID = (32 * ADDRESS) + Button Code

BUTTON_LED_ID = (32 * ADDRESS) + Button LED Code

The lowest BUTTON_ID is generated by the button in the upper left corner; the highest BUTTON_ID is generated by the button in the lower right corner.

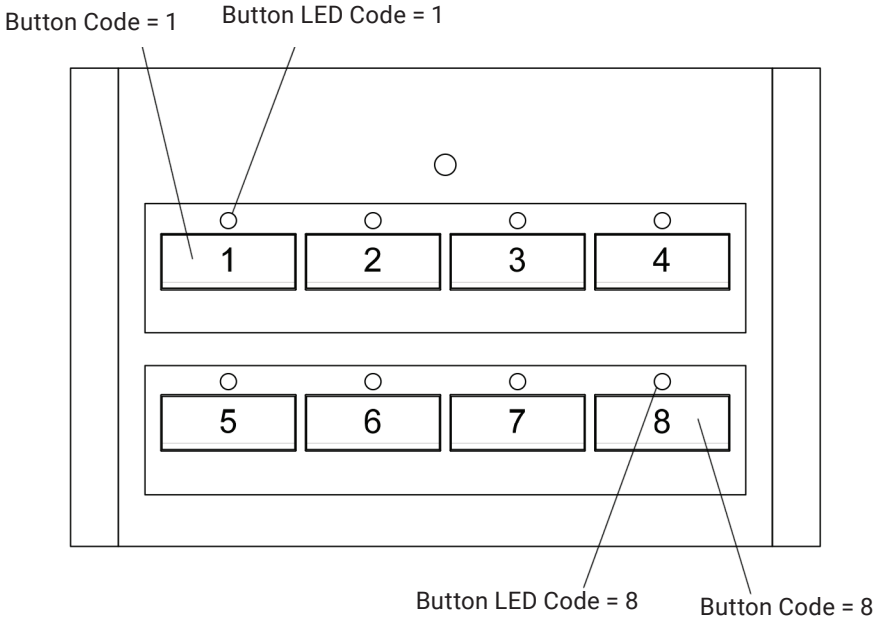


FIGURE 5-1. BUTTON ID RANGE

In the table below, Button ID range for some addresses is shown.

TABLE 5-1. BUTTON ID RANGE

ADDRESS	BUTTON_ID RANGE	BUTTON_LED_ID RANGE
0	1	8
1	33	40
2	65	72.
…		
207	6625	6632

5.1.2 SETTING UP KEYPAD BUTTONS ADDRESS

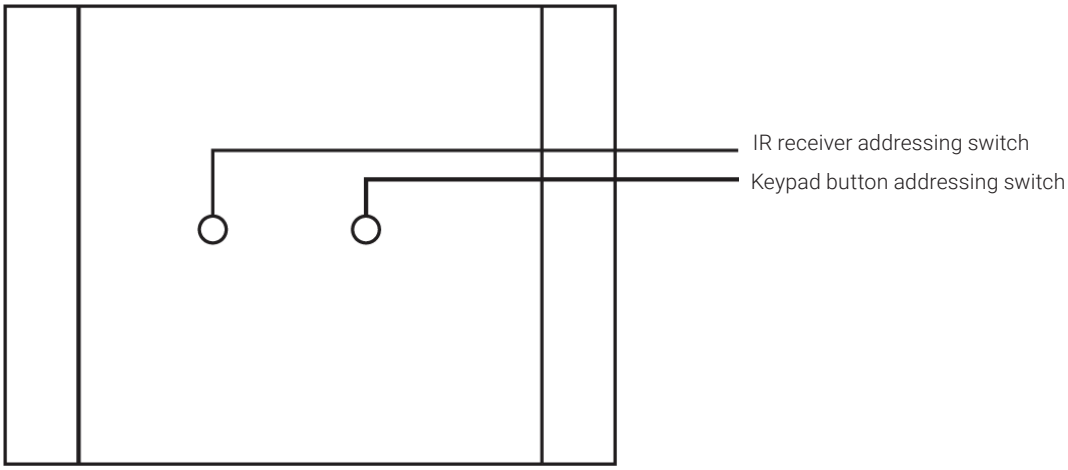


FIGURE 5-2. KEYPAD BUTTON ADDRESSING SWITCH

1. Push the keypad button addressing switch on the rear side of keypad using a small screwdriver or wire; backlight LEDs are switched off to indicate Set Address Mode.
2. Button LEDs indicate ADDRESS in binary code—Button 1 bit 0, Button 2 bit 1 etc. Push buttons to toggle address bits to the requested value of ADDRESS.
3. Push the keypad button addressing switch to save an ADDRESS to non-volatile memory and to enter keyboard Standard Mode. Backlight LEDs switch on to indicate Standard Mode.

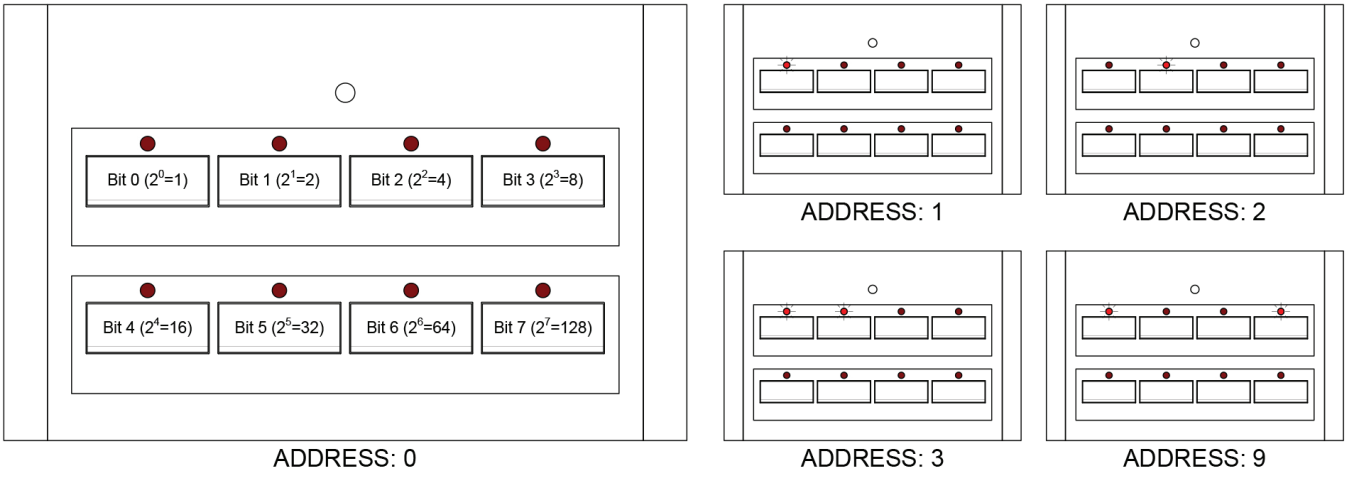


FIGURE 5-3. BUTTON ADDRESSES

5.1.3 TROUBLESHOOTING

Flashing backlight LEDs indicate a non-volatile memory ERROR. Try the Power OFF – Power ON sequence to restart the device and set the ADDRESS again.

5.2 ADDRESSING THE BUILT-IN IR RECEIVER

5.2.1 ADDRESSING RULES

You can add an offset to a BUTTON_ID sent by the control panel using the IR receiver built into the keypad. It can be very helpful in multi-room installation—the same ControlBridge can be identified in each room. That means one panel can initiate different actions in different rooms—see an example in the picture on the next page.

The Remote Control sends codes from 1001 to 1064 (1001 to 1032 without Fn button, 1033 to 1064 with Fn button)

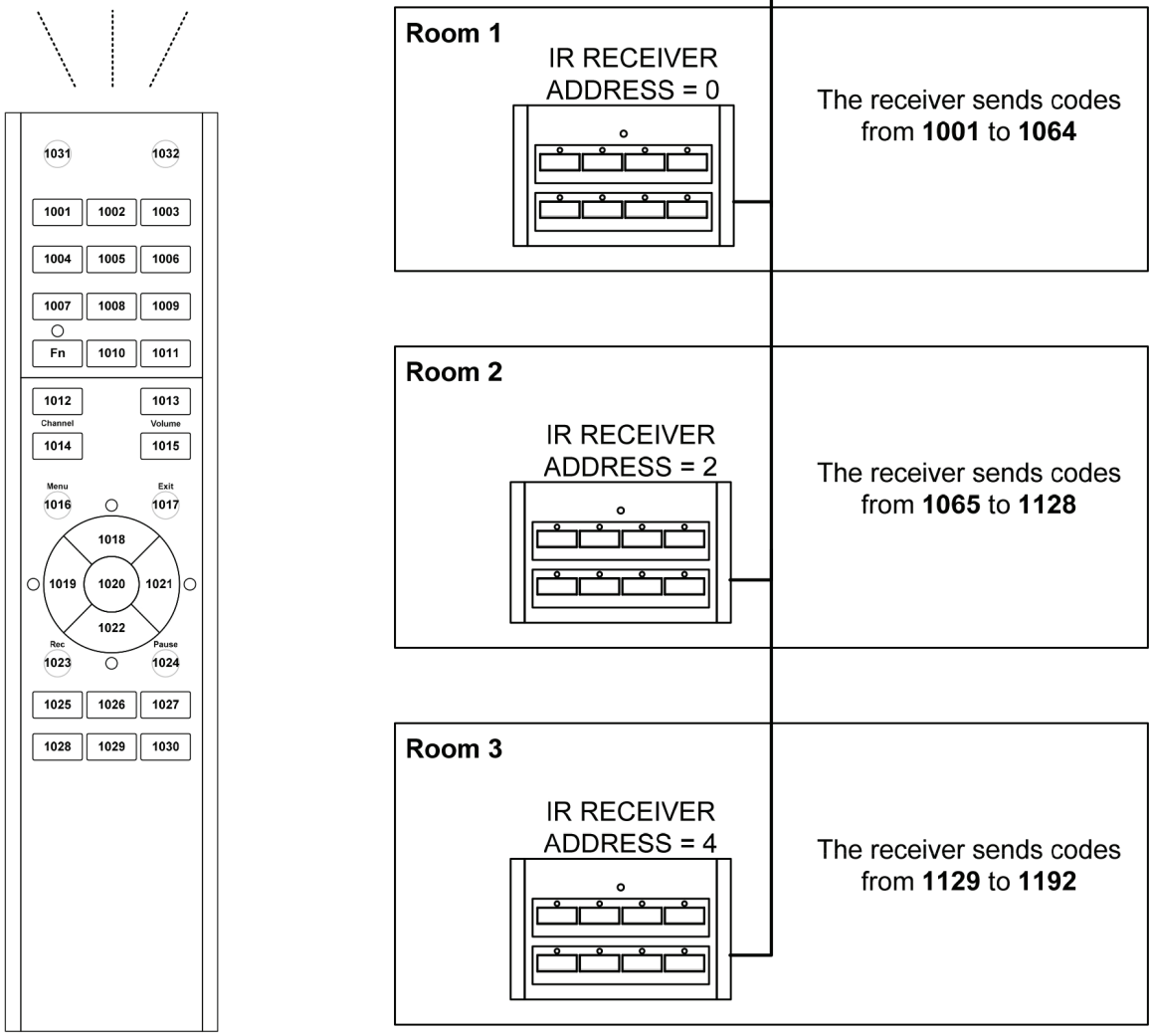


FIGURE 5-4. ADDRESSING WITH THE IR REMOTE CONTROL

The BUTTON_ID sent by IR Receiver 485 to the control unit is the BUTTON_ID sent by the IR wireless control panel with an added OFFSET value. Button ID and OFFSET values are calculated according to the formulas shown next.

BUTTON_ID (IR Receiver 485) = Offset + BUTTON_ID (IR wireless control panel)

Offset = 32 * ADDRESS

5.2.2 SETTING UP IR RECEIVER ADDRESS

The address of the receiver can be set up by the Address Switch.

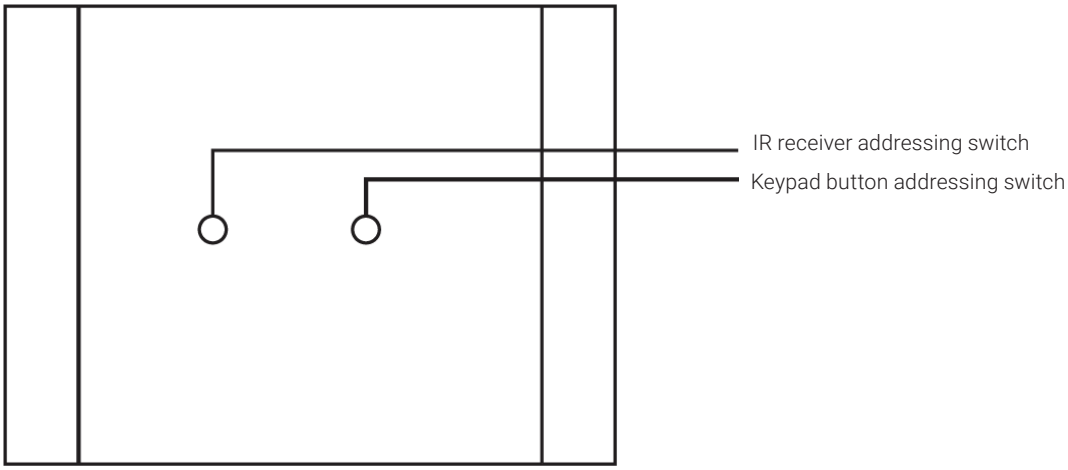


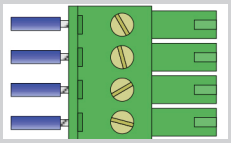
FIGURE 5-5. IR RECEIVER ADDRESSING SWITCH

1. Push the IR receiver addressing switch on the rear side of the keypad using a small screwdriver or wire; backlight LEDs switch off to indicate Set Address Mode.
2. Button LEDs indicate an ADDRESS in binary code—Button 1 bit 0, Button 2 bit 1 etc… Push buttons to toggle address bits to the requested value of the ADDRESS (this is the same as in addressing keypad buttons, see above).
3. Push the keypad button addressing switch to save an ADDRESS to non-volatile memory and to enter keyboard Standard Mode—backlight LEDs are switched on to indicate Standard Mode.

CHAPTER 6: CONNECTING

The keypad is connected to the system by a 4-pin connector. The connector pinout is described in the table below.

TABLE 6-1. 4-PIN CONNECTOR PINOUT

PIN	SIGNAL	DESCRIPTION	PHOENIX 4-PIN CONNECTOR, 3.5-MM
1	+24	Power +24 VDC	
2	G	Ground	
3	A+	RS-485 Data +.	
4	B-	RS-485 Data -	

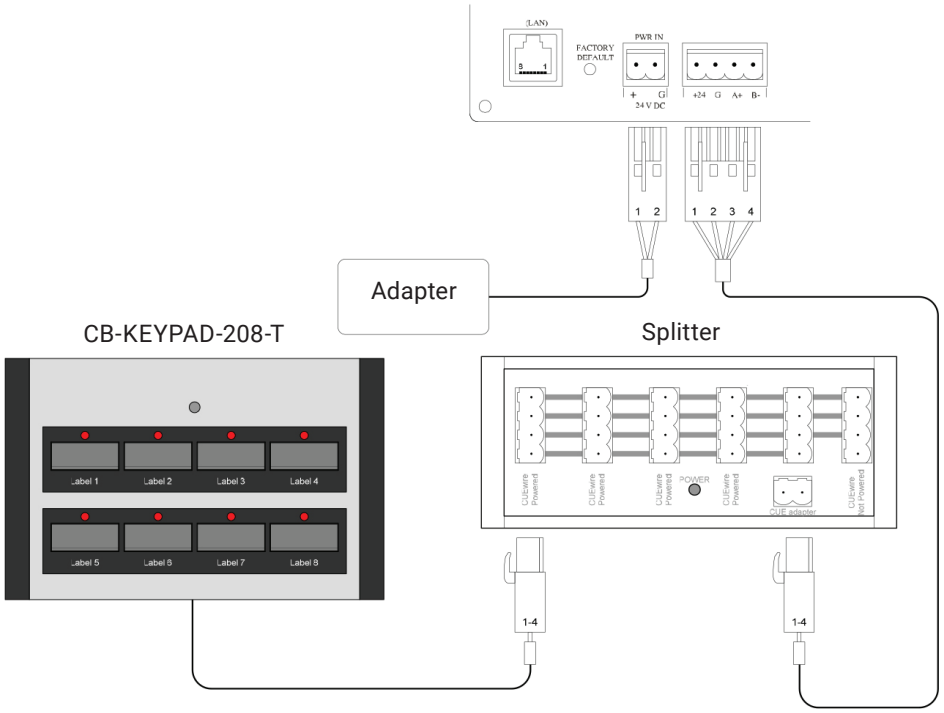


FIGURE 6-1. EXAMPLE CONNECTION

APPENDIX A: REGULATORY INFORMATION

A.1 FCC STATEMENT

This equipment generates, uses, and can radiate radio-frequency energy, and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

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

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

APPENDIX A: REGULATORY INFORMATION

A.2 NOM STATEMENT

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las lineas de energia.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objectos liquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
    A: El cable de poder o el contacto ha sido dañado; u
    B: Objectos han caído o líquido ha sido derramado dentro del aparato; o
    C: El aparato ha sido expuesto a la lluvia; o
    D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
    E: El aparato ha sido tirado o su cubierta ha sido dañada.

APPENDIX B: DISCLAIMER/TRADEMARKS

B.1 DISCLAIMER

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