



# CMIR-882

8×8 Bi-directional Infrared Matrix



Operation Manual



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## SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply.

Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.

## REVISION HISTORY

VERSION NO.	DATE DD/MM/YY	SUMMARY OF CHANGE
VS0	26/03/12	Updated format/diagrams
VR0	30/04/12	Preliminary Release
VS1	24/07/12	IR Codes/RS-232 updated
VR2	02/11/12	Updated RS-232 Command table B



# CONTENTS

<b>1. Introduction</b> .....	1
<b>2. Applications</b> .....	1
<b>3. Package Contents</b> .....	1
<b>4. System Requirements</b> .....	1
<b>5. Features</b> .....	2
<b>6. Operation Controls and Functions</b> .....	3
6.1 Front Panel .....	3
6.2 Rear Panel.....	4
6.3 Remote Control.....	5
6.4 IR Data Codes .....	6
6.5 DIP Switch Settings .....	6
6.6 IR Cable Pin Assignment.....	7
6.7 RS-232 Pin Assignment .....	7
6.8 RS-232 Commands A .....	8
6.9 RS-232 Commands B.....	8
<b>7. Connection Diagram</b> .....	9
<b>8. Specifications</b> .....	11
<b>9. Acronyms</b> .....	12





## 1. INTRODUCTION

The Bi-directional Infrared Matrix is designed to work alongside the 8×8 HDMI matrix, providing control of up to 8 source devices from up to 8 display locations. Using the original or programmable remote controls, source devices such as DVD/Blu-ray players or satellite/set-top boxes can be controlled from any location.

## 2. APPLICATIONS

- Control multiple sources and displays via bi-directional Infrared signals
- Extending the range of existing systems
- Long distance Infrared control

## 3. PACKAGE CONTENTS

- 8×8 Bi-directional Infrared Matrix
- Remote Control (CR110) with battery
- 5V/2.6A DC Power Adaptor
- 9×IR Extender cables
- 9×IR Blaster cables
- Operation Manual

## 4. SYSTEM REQUIREMENTS

IR controllable Source equipment (e.g. DVD or Blu-ray players), IR controllable Display/ TV/monitors and HDMI/video matrix devices.

## 5. FEATURES

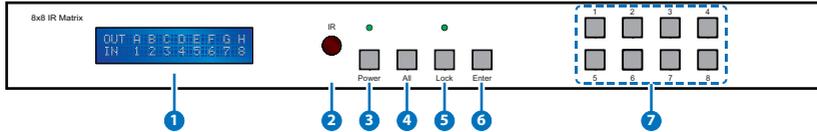
- Supports independent IR input and output selection and control
- Supports an IR frequency range of 30 kHz~50 kHz
- Use your existing remote controls or programmable/universal remote controls
- Supports bi-directional IR from input and output locations
- Supports RS-232 control, IR remote control and on-panel control
- 1U size design

Note:

1. *This device does not support the sending of audio/video signals, it only transmits and receives infra-red signals.*
2. *Both the IR Extender and Blaster support a frequency of 30~50 kHz.*

## 6. OPERATION CONTROLS AND FUNCTIONS

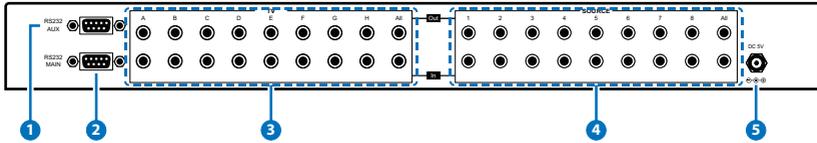
### 6.1 Front Panel



- 1 **LCM:** Displays the setting information of each input and output setting.
- 2 **IR:** IR Receiver window (accepts the remote control signal of this device only).
- 3 **Power:** Press this button to power the device on/off. The LED will illuminate green when the power is on, red when it is in 'Standby' mode.
- 4 **All:** Press this button to select all IR output with one IR input signal. The sequence should be: ALL→Number Key→ENTER.
- 5 **Lock:** Press this button to lock all the buttons on the panel; press again to unlock. The LED will illuminate green when locked.
- 6 **Enter:** Press this button to confirm when changing a setting. If this button is not pressed within 20 seconds the selection is cancelled.
- 7 **1~8/A~H:** Use these buttons to select which source is selected for control in each output location. Press a number key to select from TV A to TV H channels and press a number key again to select from Source 1 to Source 8 channels. Press 'Enter' to confirm the selection.

*Note: Press 'All', 'Enter' and '1' together to switch the RS-232 baud rate to 9600 bps or press 'All', 'Enter' and '2' together to switch baud rate to 19200 bps. The LCM will display the current baud rate setting for few seconds.*

## 6.2 Rear Panel



- 1 RS-232 AUX:** Connect to a device that can be controlled (via D-Sub 9-pin male cable) by RS-232 commands e.g. the 8x8 HDMI Matrix.
- 2 RS-232 MAIN:** Connect to a PC or control system with D-Sub 9-pin male cable for the transmission of RS-232 commands.
- 3 TV In A~H:** Connect to the supplied IR extender cables for IR signal reception, the signal will be relayed to the designated source device via the IR Blaster. Ensure that the remote being used is within the direct line-of-sight of the IR extenders.

**TV In All:** Connect to a single IR extender cable for IR signal reception, the signal will be relayed to all Source outputs (1~8) at the same time. Ensure that the remote being used is within the direct line-of-sight of the IR extender.

**TV Out A~H:** Connect to the supplied IR blaster cables for IR signal transmission, IR signals will be relayed from the designated Source IR extender. Place the IR blasters in direct line-of-sight of the equipment to be controlled.

**TV Out All:** Connect to a single IR blaster cable for IR signal transmission, IR signals will be relayed from all Source inputs (1~8) at the same time. Place the IR blaster in direct line-of-sight of the equipment to be controlled.
- 4 Source In 1~8:** Connect to the supplied IR extender cables for IR signal reception, the signal will be relayed to the designated TV output device via the IR Blaster. Ensure that the remote being used is within the direct line-of-sight of the IR extenders.

**Source In All:** Connect to a single IR extender cable for IR signal reception, the signal will be relayed to all TV outputs (A~H) at the same time. Ensure that the remote being used is within the direct line-of-sight of the IR extender.

**Source Out 1~8:** Connect to the supplied IR blaster cables for IR signal transmission, IR signals will be relayed from the designated TV output IR extender. Place the IR blasters in direct line-of-sight of the equipment to be controlled.

**Source Out All:** Connect to a single IR blaster cable for IR signal transmission, IR signals will be relayed from all TV outputs (A~H) at the same time. Place the IR blaster in direct line-of-sight of the equipment to be controlled.

- 5 DC 5V:** Plug the 5V DC power supply into the unit and connect the adaptor to an AC outlet.

### 6.3 Remote Control

The remote control's settings can be controlled with the four DIP switches on the back of the unit (under the battery compartment cover). When all the DIP switches are set to ON (↑↑↑↑) the remote control is able to control all the input settings for all outputs. For example, to set Output A to relay commands from Input 5 press Button A to select Output A and then press Button 5 to select Input 5, Output A will switch to Input 5.

The Remote Control can also be set to limit the Input selection to only one Output, allowing different remote control units to perform input selection individually for each output port i.e. a single zone (refer to *Section 6.4 - IR Custom codes* and *Section 6.5 DIP Switch Settings* for details). For example, when all DIP switches are set to OFF (↓↓↓↓), this setting limits input selections to only Output A. Therefore, when setting Output A to input 3 only Button 3 needs to be pressed to switch to that input.



## 6.4 IR Custom Codes

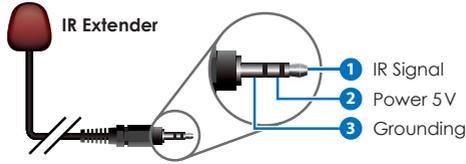
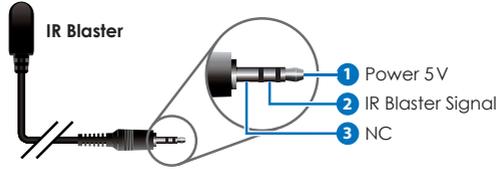
NO.	CUSTOM CODE	NO.	CUSTOM CODE
1	88	A	8A
2	8C	B	8E
3	90	C	92
4	85	D	C6
5	C2	E	99
6	9C	F	98
7	D8	G	84
8	87	H	97

## 6.5 DIP Switch Settings

OUTPUT SELECTION	DIP SWITCH	CUSTOM CODE
Output A	↓↓↓↓	807F
Output B	↑↓↓↓	807B
Output C	↓↑↓↓	8077
Output D	↑↑↓↓	8073
Output E	↓↓↑↓	803F
Output F	↑↓↑↓	803B
Output G	↓↑↑↓	8037
Output H	↑↑↑↓	8033



## 6.6 IR Cable Pin Assignment



## 6.7 RS-232 Pin Assignment

IR MATRIX	
PIN	Assignment
1	NC
2	Tx
3	Rx
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

→

←

REMOTE CONTROL CONSOLE	
PIN	Assignment
1	NC
2	Rx
3	Tx
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

Baud Rate: 19200 bps/A or 9600bps/B

Data Bit: 8-bit

Parity: None

Stop Bit: 1-bit

Flow Control: None

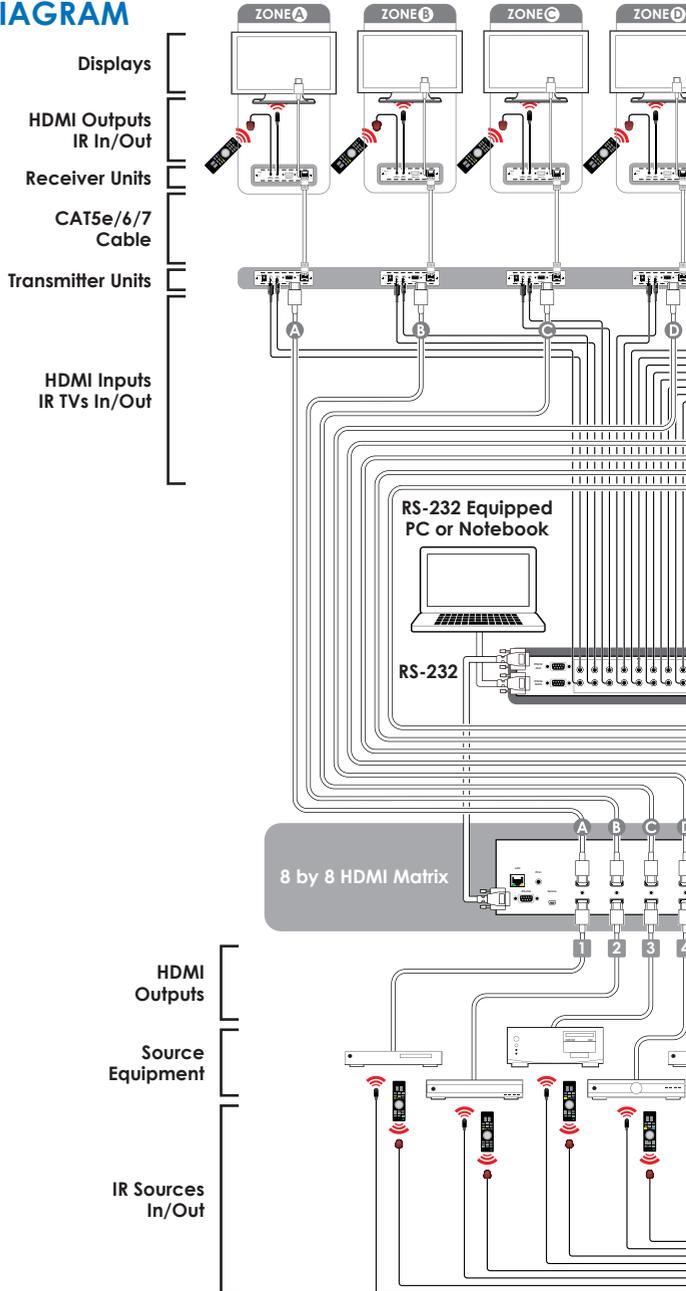
## 6.8 RS-232 Commands A

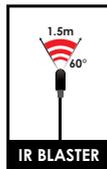
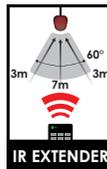
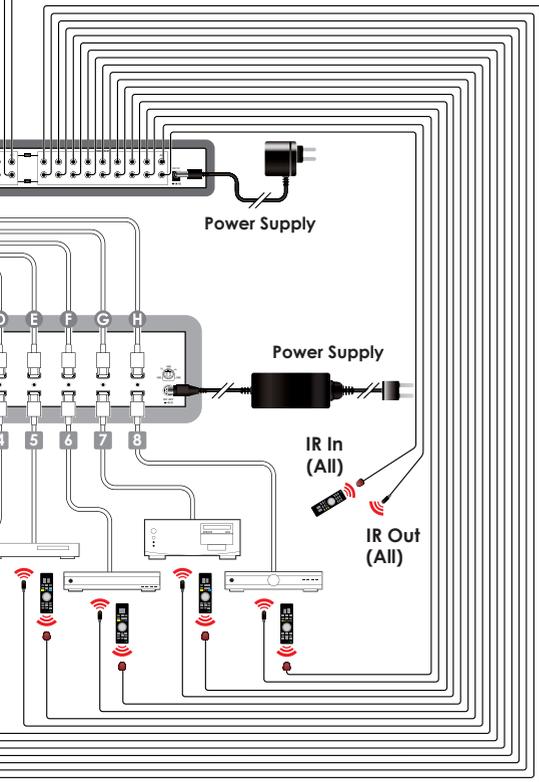
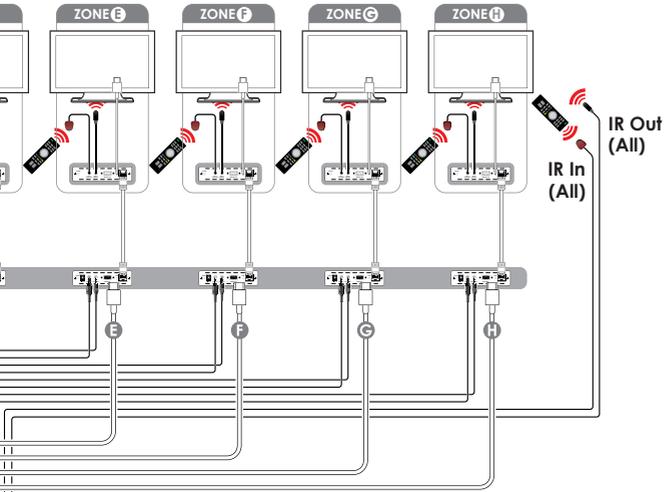
COMMAND	DESCRIPTION
<b>A1~A8</b>	Switch output A to 1~8
<b>B1~B8</b>	Switch output B to 1~8
<b>C1~C8</b>	Switch output C to 1~8
<b>D1~D8</b>	Switch output D to 1~8
<b>E1~E8</b>	Switch output E to 1~8
<b>F1~F8</b>	Switch output F to 1~8
<b>G1~G8</b>	Switch output G to 1~8
<b>H1~H8</b>	Switch output H to 1~8
<b>ABCD...1~ABCD...8</b>	Switch output ABCD... To 1~8 at the sam Time
<b>P0</b>	Power off
<b>P1</b>	Power on
<b>I1~I8</b>	Switch all the output to 1~8
<b>ST</b>	Display the current matrix status and f/w version
<b>RS</b>	System reset to A1, B2, C3, D4, E5, F6, G7, H8
<b>?</b>	Display all available commands

## 6.9 RS-232 Commands B

COMMAND	ACTION
<b>POWER 00</b>	Power Off (standby)
<b>POWER 01</b>	Power On
<b>PORT 11~18</b>	Output A select Input 1~8
<b>PORT 21~28</b>	Output B select Input 1~8
<b>PORT 31~38</b>	Output C select Input 1~8
<b>PORT 41~48</b>	Output D select Input 1~8
<b>PORT 51~58</b>	Output E select Input 1~8
<b>PORT 61~68</b>	Output F select Input 1~8
<b>PORT 71~78</b>	Output G select Input 1~8
<b>PORT 81~88</b>	Output H select Input 1~8

## 7. CONNECTION DIAGRAM







## 8. SPECIFICATIONS

<b>IR Frequency</b>	30 kHz to 50 kHz
<b>Source Ports</b>	8×Independent IR Extenders, 1×All IR Extender Control, 8×Independent IR Blasters, 1×All IR Blaster Control
<b>TV Ports</b>	8×Independent IR Extenders, 1×All IR Extender Control, 8×Independent IR Blasters, 1×All IR Blaster Control
<b>Power Supply</b>	5 V/2.6 A DC (US/EU standards, CE/FCC/ UL certified)
<b>ESD Protection</b>	Human body model: ±8kV (air-gap discharge) ±4kV (contact discharge)
<b>Dimensions</b>	432 mm (W)×174 mm (D)×44 mm (H)
<b>Weight</b>	2,206 g
<b>Chassis Material</b>	Aluminum
<b>Silkscreen Color</b>	Black
<b>Operating Temperature</b>	0 °C~40 °C/32 °F~104 °F
<b>Storage temperature</b>	-20 °C~60 °C/-4 °F~140 °F
<b>Relative Humidity</b>	20~90% RH (non-condensing)
<b>Power Consumption</b>	1 W

## 9. ACRONYMS

ACRONYM	COMPLETE TERM
IR	Infrared
LCM	Liquid Crystal Module









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