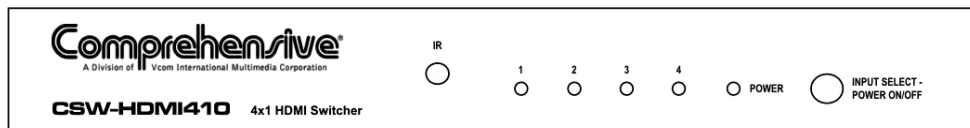
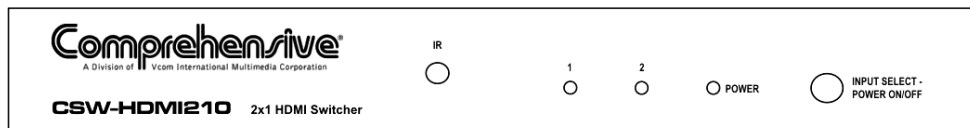


# Comprehensive®

A Division of Vcom International Multimedia Corporation



## Instruction Manual

### **CSW-HDMI210 & CSW-HDMI410 HDMI Switchers**



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## **1.0 INTRODUCTION**

Thanks for purchasing this CSW-HDMI210 or CSW-HDMI410 HDMI Switcher from Comprehensive. These HDMI Switchers are designed to provide a way to select and switch up to 4 HDMI inputs without signal degradation or loss of encryption.

### **1.1 Liability Statement**

Every effort has been made to ensure that this product is free of errors. Comprehensive cannot be held liable for the use of this hardware or any direct or indirect consequential damages arising from its use. It is the responsibility of the user of the hardware to check that it is suitable for his/her requirements and that it is installed correctly. All rights reserved. No parts of this manual may be reproduced or transmitted by any form or means electronic or mechanical, including photocopying, recording or by any information storage or retrieval system without the written consent of the publisher.

Comprehensive reserves the right to revise any of its hardware and software following its policy to modify and/or improve its products where necessary or desirable. This statement does not affect the legal rights of the user in any way.

All third party trademarks and copyrights are recognised. The Comprehensive logo is the registered Trademarks of Comprehensive. All other trademarks are the property of their respective holders.

### **1.2 FEATURES**

The Comprehensive CSW series of HDMI Switchers have many features that enable them to perform in a superior manner. Among these features you will find:

- Switches from 2 or 4 HDMI sources
- Supports 480i, 480p, 720p, 1080i and 1080p resolution
- HDMI Certified by Silicon Images ATC Laboratory
- Supports DDWG standard for HDMI compliant monitors
- HDCP Compliant. RoHS Compliant
- IR Remote Control Capability
- RS-232 Control Port Provided

## 2.0 SPECIFICATIONS

<b>Performance</b>	
HDTV Resolutions	480p, 720p, 1080i, 1080p
Standard TV Resolution	480i
Maximum Cable Distance	Input: 50 Feet Max, Outputs: 50 feet Max
<b>I/O Connectors</b>	
Inputs	2, or 4 HDMI TMDS
Output	HDMI, TMDS x1 (All Models)
<b>Mechanical</b>	
Dimensions (H-W-D)	CSW-HDMI210 1.1"x8.7"x2.8" (28x220x71mm) CSW-HDMI410 1.1"x8.7"x2.8" (28x220x71mm)
Weight	CSW-HDMI210 1.0 lbs (480g) CSW-HDMI410 1.0 lbs (480g)
<b>Warranty</b>	
Limited Warranty	2 Years Parts and Labor
<b>Environmental</b>	
Operating Temperature	+0 to +40° C (+32° to 104° F)
Operating Humidity	10% to 85% (Non-condensing)
Storage Temperature	-20° to +60° (+20° to +140° F)
Storage Humidity	10% to 85% (Non-condensing)
<b>Remote Control</b>	
Serial Interface	RS-232
Infrared	IR Remote Included
<b>Warranty</b>	
Limited Warranty	2 Years Parts and Labor
<b>Power Requirements</b>	
External Power Supply	5VDC@2A
<b>Regulatory Approvals</b>	
Distribution Amplifier	FCC, CE, RoHS, HDMI ATC
Power Supplies	UL, CE, CSA, CEC, RoHS
<b>Accessories Included</b>	
1x AC Power Adapter	US, UK or Euro Type
1x Remote Control	IR Type
1x Instruction Manual	
Remote Mtg. Kit	CSW-HDMI210, CSW-HDMI410
<b>Product Item Number</b>	
CSW-HDMI210	2x1 HDMI Routing Switcher
CSW-HDMI410	4x1 HDMI Routing Switcher
<b>Optional Accessory</b>	
1x Extended IR Sensor	Remote IR sensor Module

### 3.0 CHECKING PACKAGE CONTENTS

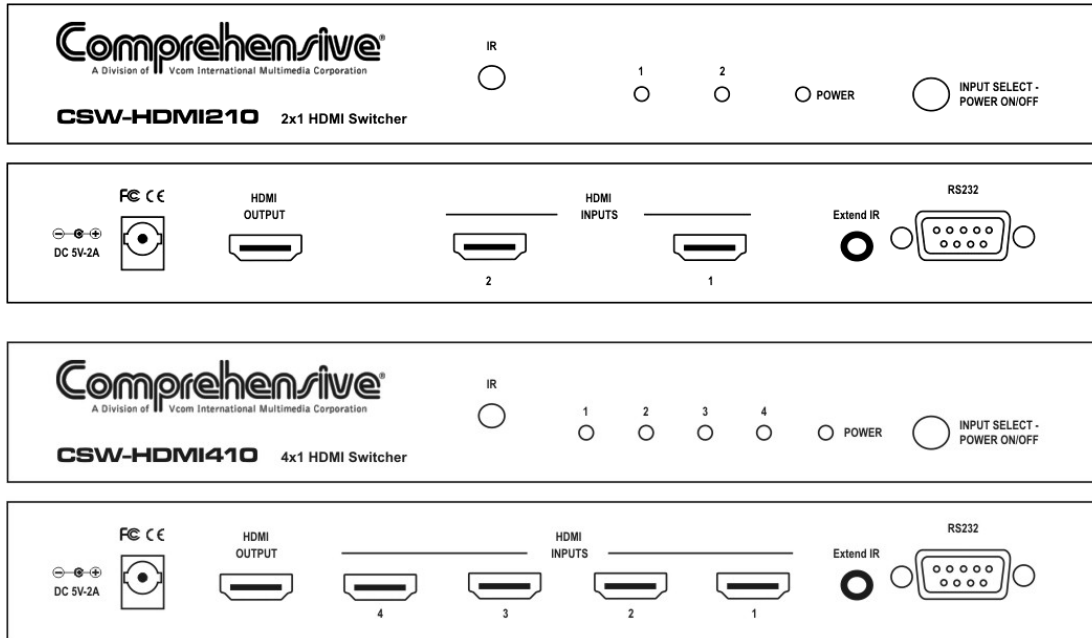
Before attempting to use this unit, please check the packaging and make certain the following items are contained in the shipping carton:

- 1 ea HDMI Switcher
- 1 ea 5 VDC Power Adapter
- 1 ea IR Remote Control
- 1 ea Remote Mounting Kit
- 1 ea Instruction Manual

**Note:** *Please retain the original packing material should the need ever arise to return the unit. If you find any items are missing, contact your reseller or Comprehensive immediately. Have the Model Number, Serial Number and Invoice available for reference when you call.*

## 4.0 CONNECTING THE HARDWARE

For reference purposes, the units are depicted below in relative scale. Please study the drawings below and become familiar with the location of the controls, status LEDs, signal inputs, signal output and the power input.



Connect an HDMI approved cable, no more than 50 feet in length, from each of the HDMI sources to the inputs of the switcher. Next, connect the output of the switcher to the destination device using an HDMI approved cable no more than 50 feet long\*. Connect the extended IR remote cable if desired and lastly, connect the power adapter, first to the switcher and then to the AC source.

*\*Note: Proper operation of HDMI switchers depend on the use of the highest quality cables available. A Cable providing low loss, high bandwidth signal handling is the recommended cable for use with all Comprehensive HDMI products. The distance specification of 50 feet is for HDMI signals up to 1080i resolution but cannot be guaranteed unless highest quality cables are used throughout the system.*

## 5.0 OPERATING THE UNIT

Power and input selection are controlled from one multi-purpose switch. To turn the switcher on, press the Input Select – Power On/Off switch. Once the unit is in the operating state, pressing the switch causes the input selection to advance each time it is pressed. (An LED will light to show which input is active.) Once the highest input number is reached, pressing the switch again will select input number 1. Pressing and holding the switch for two (2) seconds will cause the unit to power off. For greater flexibility, an Infrared remote control is also

provided. In the case of the remote, there are separate buttons for the power and input sources. Point the remote control at the unit and press the power button to turn the switcher on or off. Press the appropriate input select button to cause the desired input to appear on the switcher's output.

### 5.1 OPERATION USING THE OPTIONAL EXTENDED IR MODULE

An optional IR extender accessory is available for those situations requiring the switcher to be mounted in a location where direct line-of-sight is not available. If you have purchased the optional IR extension module, connect it to the rear of the unit and position the module in a manner that allows the furnished remote to be pointed at it without any obstructions between the remote and the extended IR module. The Module is shipped with a 6 foot interconnect cable. Longer length cables are available up to 50 Feet.

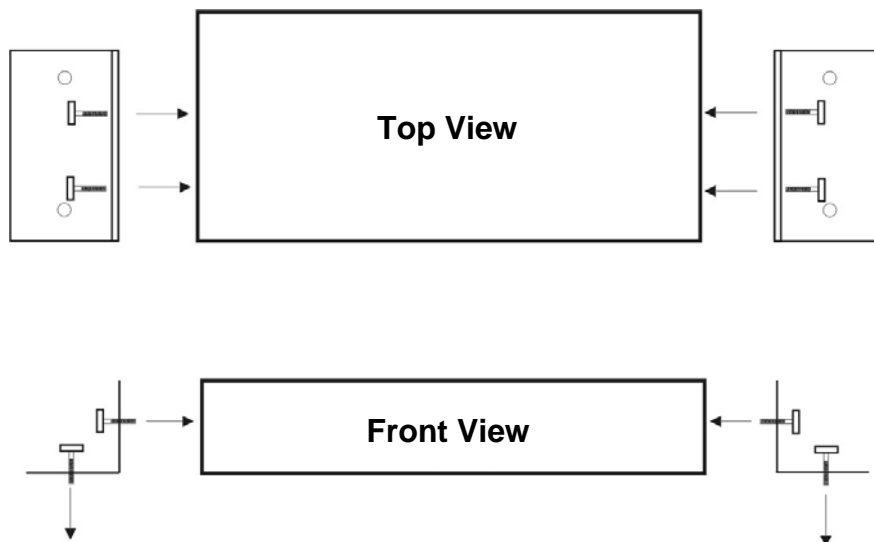
Operation using the extended IR module accessory is the same as with the standard IR remote capability.

### 6.0 INSTALLATION OF MOUNTING COMPONENTS

The CSW-HDMI210 and CSW-HDMI410 switchers can be mounted on any flat surface.

#### Mounting the CSW-HDMI210 or CSW-HDMI410 Switchers

Attach the two "L" shaped mounting brackets to the product using the furnished hardware and then attach the combined assembly to the desired location.



Note that the holes on the brackets are offset to allow easier mounting to the flat surface after you've attached the brackets to the switcher.

## **7.0 TROUBLESHOOTING**

In the event of problems, first make certain that the input and output cables are no more than 50 feet long (for signals to 1080i resolution) and are of the highest possible quality. Next, make certain that the Switcher is receiving power.

If all is well in these areas, remember that HDMI devices communicate with one another so the source devices and destination device must be fully HDMI capable. In addition, HDCP encryption requires additional processing which also is dependent on the equipment you have connected to the sources and destination device. If you experience problems using the HDMI Switcher, you should attempt to determine what is wrong by attaching each of the source devices – one at a time – directly to the destination device using the same cables you are using with the expanded system. This is a way of determining if the problem is due to bad cables or a problem with the other devices. If you are unable to obtain a signal using this simplified path, suspect the cables, the source device(s) or the destination device.

After trying the above suggestions should the problem persist, contact your dealer for additional suggestions before contacting Comprehensive. Should the dealer's technical personnel be unable to assist you, contact Comprehensive at 800-526-0242 or via Fax at 201-814-0510.

## **8.0 LIMITED WARRANTY**

Comprehensive warrants that for a period of 2 years from date of original purchase, our products will be free from defects in material and workmanship under normal use and service. This warranty covers defective material or workmanship only and does not apply to misuse, use under extreme conditions, products that have been opened or serviced by anyone other than Comprehensive, products improperly used or installed, fire, flood damage or any acts of nature.

A Return Authorization (RA) number must be obtained from your place of purchase before the unit is returned and must be accompanied by a dated written proof of purchase. All material must be shipped at the expense and risk of the owner. Units under warranty deemed to be defective will be shipped back to the buyer or dealer freight paid. Contact Comprehensive customer service at 800-526-0242, or [customerservice@comprehensiveinc.com](mailto:customerservice@comprehensiveinc.com).

Comprehensive's obligation under this warranty will be limited, at the sole discretion of Comprehensive, to either repair or replacement of defective unit, including free parts and labor. In no event shall Comprehensive be responsible for any incidental or consequential damages or loss of profits or goodwill.

## 9.0 REGULATORY COMPLIANCE

The Comprehensive CSW series HDMI Switchers have been tested for compliance with appropriate FCC and CE rules and regulations and are also RoHS compliant.

The Power Adaptor/Supplies have been tested for compliance with UL, CE, CEC and CSA rules and regulations and are also RoHS compliant.

## 10.0 APPENDIX A: RS-232 CODE INFORMATION

### Transmission Format:

Baud Rate: 57600 BPS  
 Data Byte: 8 bits  
 Parity: None  
 Stop Bit: 1

### Modem Cable Pinouts:

Switcher End			Controller End	
Pin	Definition		Pin	Definition
1	NC		1	NC
3	TxD	→	2	RxD
2	RxD	←	3	TxD
4	NC		4	NC
5	GND		5	GND
6	NC		6	NC
7	NC		7	NC
8	NC		8	NC
9	NC		9	NC

### 2X1 Commands:

Command Code	Description
0x01	Port 1 On
0x02	Port 2 On
0x05	Power On/Off

#### 4X1 Commands:

Command Code	Description
0x01	Port 1 On
0x02	Port 2 On
0x03	Port 3 On
0x04	Port 4 On
0x05	Power On/Off



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