OPERATING MANUAL

FOR

HDMI 2.0 SWITCHER (4K)

(ML- 41HDARC-H2)
(ML- 81HDARC-H2)

Milestone Electronics Pvt. Ltd.

HDMI 2.0 SWITCHER

HDMI SWITCHER by Milestone is a device that allows consumer to share multiple HDMI devices such as computers, laptops, DVD player, DVR, camera, with single projector or monitor or TV, providing single display having HDMI Ports. The features of the HDMI switcher can enable the device to act as a home entertainment box that can output upto 8 channel high quality audio signal for best audio effects.

Models available

ML 41HD-ARC-H2	4 HDMI Inputs with 1 HDMI output (ARC enabled) & 2 Audio outputs with EDID management.
ML 81HD-ARC-H2	8 HDMI Inputs with 1 HDMI output (ARC enabled) & 2 Audio outputs with EDID management.

Features

INSTALLATION	Easy to install – plug and play kind. ● HDTV Compatible. ● Can work with DVI inputs & outputs ● Uses Equalization & re-clocking technology.
SHARING	4/8 Inputs with single projector or monitor or TV
COMPATIBILITY	Fully compatible to 4K HD Ports. 4Kx2K@60Hz. 4:4:4 & supports 3 D format. Support EDID management.
CONTROL OPTIONS	Channels Controlled by · Individual Local keypad ● Build in IR Remote with IR Extender connector ● RS232C interface. ● IP, RS422/RS485 interface (optional). ● Active I/P selected automatically in auto mode with fall back feature. ● Scan mode & Manual mode also present
AUDIO FEATURES	● Analog (Stereo) & 8 Channel Digital Audio output (SPDIF) provided for connecting to Audio amplifier. ● HDMI output is ARC enabled or disabled which allows Audio Return functions
BATTERY BACKUP MEMORY	● Battery Backup memory enables booting at power ON with last channel selected before power OFF.
INDICATION	LED indication for working set & SCAN Mode
CEC	Supports CEC functions.

SPECIFICATIONS

MODEL	ML 41HD-ARC-H2	ML 81HD-ARC-H2
INPUT CONNECTORS (HDMI)	4	8
OUTPUT CONNECTOR (HDMI)	1	1
OUTPUT CONNECTORS (AUDIO)	EP x 1 TOSLINK x1	EP x 1 TOSLINK x1
DIP SWITCH	8 BIT	8 BIT
KEYPAD SELECTION	1 to 4	1 to 8
BUILT IN IR REMOTE	Yes	Yes
IR EXTENDER CONNECTOR FOR REMOTE SENSOR	EP × 1	EP × 1
RS 232 INTERFACE	D9F × 1	D9F × 1
MAINS INPUT (DC)	5V/1A	5V/2A
DIMENSION TABLE TOP (mm)	182 x125x50	310 x125x50
WEIGHT	1000 g	1500 g
OPERATING MODE		
1) MANUAL	Yes	Yes
2) AUTO WITH AUTO FALL BACK	Yes	Yes
3) SCAN		
4) RS232	Yes	Yes
5) BUILT IN IR REMOTE	Yes Yes	Yes Yes
CLAMP FOR 1U RACK MOUNTABLE	--	Optional

OPERATION

- **Operating Mode Selection:** Rear Panel has DIP Switch to Select Auto, Scan & Manual Mode. These modes are set before powering ON the unit. Refer Table 3.

- **Manual Mode** – (DIP Switch 6 & 7 OFF)

  Selection of channel is done through front panel keypad, built in IR Remote & RS232. In manual mode Scan & Auto are disabled.

- **Auto Mode –** (DIP Switch 7 ON & 6 OFF)

  In Auto mode whenever cable is inserted in Input Channel, that channel gets selected automatically. If 2 inputs are connected, & if 1 input is removed, the selection automatically shifts to other active channel (priory sequence 1 to 8). In this mode, selection can also be done through front panel switches, IR Remote & RS232.

- **Scan Mode:** (DIP Switch 6 ON & 7 OFF)

  Indicated by SCAN LED on Front Panel. Active I/P is scanned automatically. PWR ON the unit & confirm for the SCAN LED ON. Scanning time for each channel is 20 seconds (default).
  To stop scanning, press any channel key from the remote keypad. To start scanning again, press scan Key from the remote keypad of IR. Front Panel has LED to indicate Scan mode status.

The Scan time can be set anytime using DIP Switch. The set time will remain stored in memory inside even after Power OFF.
Follow the following procedure

1) PWR OFF the unit.
2) Set the DIP switch for the required scan time as per Table 1.
3) Press key No.1 from the front panel.
4) Keeping the key no.1 pressed PWR ON the unit
5) If the timer is set properly Scan LED will start blinking.
6) PWR OFF the unit.
7) Set the DIP Switch as per requirement mentioned in DIP Switch.
8) PWR ON the unit (with scan mode ON).
9) The active I/Ps will start scanning depending on the time set.

In this mode Auto, Front Keypad selection & RS232 are all disabled. Selection (manual & scan) is possible only through IR Remote.

TABLE 1

DIP Switch (1□ON, 0□OFF)

1 2 3 4	**TIME**
0 0 0 0	20 Secs
1 0 0 0	10 Secs
0 1 0 0	20 Secs
1 1 0 0	30 Secs
0 0 1 0	40 Secs
1 0 1 0	50 Secs
0 1 1 0	60 Secs
1 1 1 0	70 Secs
0 0 0 1	80 Secs
1 0 0 1	90 Secs
:	:
:	:
0 1 1 1	140 Secs

1 1 1 1	150 Secs

- **RS232 Interface**

  D9 female connector from rear panel is used for selecting the switcher through RS232C Interface.

  The pin configurations are as per table 4.

TABLE 4

D-9 FEMALE	SIGNAL
2	Tx (OUT)
3	Rx (IN)
5	GRD

Communication parameters are 9600 baud, no parity, 8-bit and 1 stop bit.The simple commands used for selecting the channels are as per table 5.

TABLE 5

CHANNEL	ASCI I	HEX
CHANNEL1	1!	31, 21
CHANNEL 2	2!	32, 21
CHANNEL 3	3!	33, 21
CHANNEL 4	4!	34, 21
:	:	:
CHANNEL 8	8!	38, 21

Whenever any channel is selected, respective LED lights up & also the following RS232C command is send via Tx line of RS232 as per table 6.

TABLE 6

CHANNEL	ASCII CODES
CHANNEL1	MUXA1PORT 1
CHANNEL 2	MUXA2PORT 2
CHANNEL 3	MUXA3PORT 3
CHANNEL 4	MUXA4PORT 4
CHANNEL5	MUXB1PORT 5

CHANNEL 6	MUXB2PORT 6
CHANNEL 7	MUXB3PORT 7
CHANNEL 8	MUXB4PORT 8

- **IR Interface (Remote)**: - The Switcher has IR sensor on the front panel. IR-8 Remote is provided with the equipment to select the channels. On the rear side one EP Connector (IR.EXT) is provided for connecting IR sensor cable (optional) which can be extended upto 30Mts.

- **DIP SWITCH**

  DIP Switch is used in 2 different ways.

  For setting the Scan time in Scan mode once (as per TABLE 1)

  After setting the Scan time, the same DIP switch is used to Select different modes as indicated in the table below (Table 2 & Table 3)

TABLE-2

DIP Switch	**1**	**2 3**	**4 5**	**6**	**7**	**8**
	ARC	AUDIO	EDID	SCAN	AUTO	--

TABLE-3 (0-OFF, 1-ON)

1 ARC	**2 3 Audio Pass**	**4 5 EDID**	**6 7 MODE**	**8**
0 ARC OFF	0 0 PASS	0 0 4K@60Hz	0 0 Manual	-
1 ARC ON	1 0 2.1	1 0 720P@60Hz	1 0 Scan	
	0 1 5.1	0 1 4K@30Hz	0 1 Auto	
		1 1 1080P@60Hz	1 1 Scan	

AT POWER ON

A) In Auto & Manual Mode at Power ON

a) Channel is selected as per last selected channel when power went OFF.

b) Depending on the DIP switch all the parameters are set accordingly.

B) In SCAN Mode, at Power ON Scanning starts from Channel 1 to Channel 4/8 (only active inputs).

---x---x---x---x---