Content

Important

Thank you for purchasing Movcam Dark Tower system. Please read this user manual carefully before using the product. This manual contains specifications and important information in regard to Dark Tower and its functions.

Limited warranty service is provided when the product is properly handled according to the instructions below.

However, the warranty dose not cover damages caused by the following situations:

- where change of parts or repair is conducted by unauthorized person,

- where the damage is caused by accidents, including but not limited to lightning, leaking, exposure to rain or damp environment.

- where power supply or adaptor does not comply with the instructions here.

- where the serial number on the product/warranty label is changed or removed.

⚠ Caution

- The product cannot be exposed in dripping or splashing environment

- The receiver（RX box） / transmitter (TX box) must be put on solid flat and steady surface

- Do not block the air chute on top of the product nor put any heavy object on the product

- The RX box/TX box should be stored in places with good ventilation, and avoid direct sunlight or heat.

- To avoid the risk of fire or electric shock hazards, do not expose the product to rain or moist environment.

- Movcam reserves the right to any changes on the product or user manual without prior notice.

Notice：

- Malfunction like video or audio output failure might occur when the product is used in the following situations

1. The product is put on concrete wall,

2. The product is put too close to fridge or metal parts,

3. The product is used in small crowded space

● The product has passed tests and conform with safety regulations. But in certain situation, radio interference might occur. Should this happen, please increase the distance between the TX box and the RX box.

Product Introduction

The Dark Tower system is a very effective video transmission unit for live broadcast and film shooting but without the complicated cable connection. It is easy and simple to set up the whole system.

General Info

Dark Tower is mainly composed of one transmitter (TX) unit and one receiver (RX) unit.

Specifications

Items	Specs
Frequency range	From 5G(RX) and 2.4G(TX) *In accordance with different RF rules in different countries*
Wide Band	100MHz
Video formats	1080p 23.98/24/25/30/50/60 1080psf 23.98/24/25 1080i 50/59.94/60 720p 50/59.94/60 576p 576i 480p 480i
Audio format	PCM, DTS-HD, Dolby TrueHD
Transmission distance	2300ft(Line of sight)
TX Unit	
Antenna	external antenna 5G x 2pcs , 2.4G CHIP antenna
transmission power	2.4G:2dBm, 5G:18dBm MAX
function interface	SDI in, SDI out, Mini USB, MBUS, DC IN, antenna, Power ON/OFF
Mounting	1/4" hotshoe mount
OLED screen	channel info; video status; battery info
power supply	11.5-17V DC in

power consumption	7-8W
net weight	400g (including antennas)
dimension	142.5x76x24.3mm
temperature	-10℃ to 50℃(operating); -40℃ to 80℃(storage)
RX Unit	
antenna	external antenna (RX)5G x 5pcs, (TX)2.4G x 1pcs
reception sensitivity	70dBm
transmission power	2.4G:2dBm
Function interface	SDI out x2, HDMI out, Mini USB, MBUS, DC IN, antenna; Power ON/OFF
mounting	1/4" hotshoe mount
OLED screen	channel info, signal intensity, power info
power supply	11.5-17V DC power, or V-mount battery
power consumption	7-8W
net weight	800g （including antennas)
dimension	135x90x50mm
temperature	-10℃ to 50℃(operating); -40℃ to 80℃(storage)

Movcam reserves the right to any changes on the product without prior notice.

Product Features:

- Uncompressed 3G/HD/SD-SDI transmission, Uncompressed SDI signal can be up to 1080p50/60

- Less than 1 frame delay in transmission

  There is no noticeable video delay. So the product can be used as real time monitor on site

- Transmission distance 2000ft

  In actual shooting , transmission distance might vary due to the shooting environment, radio condition, and building.

- license-free frequency range

  Wireless frequency range among 5.1-5.9GHz，2.4G ISM frequency does not require license

- support group broadcast

  Support one TX to multi RXs connection. Operators can set up channels to pair up the TX and different RXs.

- Built-in fan

  TX box has a efficient fan built inside with low noise
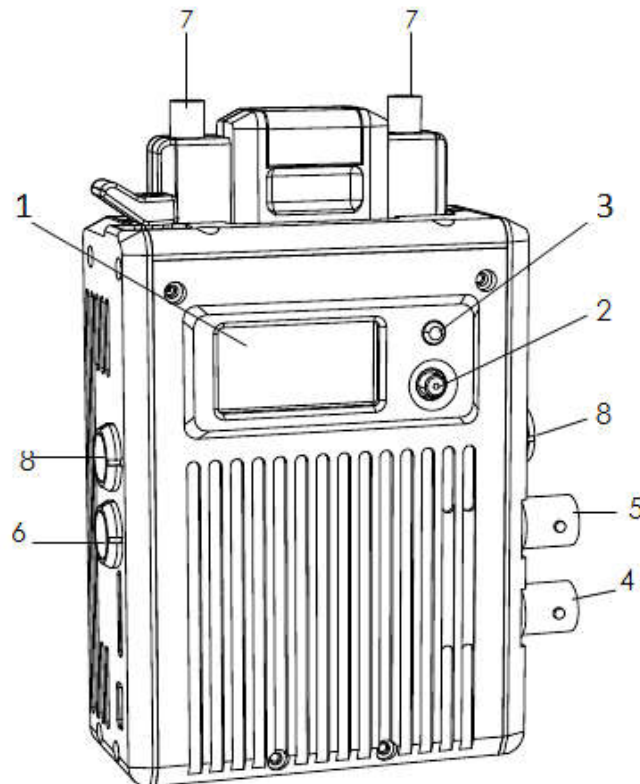
- AES 128 encryption

- OLED display screen

- full metal cover for TX and RX boxes

- easy and quick connection
 The TX card can start working right after being put in the TX box. No software setting is required.

Mechanical Structure Info
  TX Unit

TX box	
1	OLED Display screen
	for channel info, video status, signal intensity, and power info
2	Multi-direction switch
	for channel switch, menu operation
3	Power ON/OFF
	Turn on / off the TX unit
4	SDI IN
	Connect to the SDI port on camera
5	SDI OUT
	connect to other SDI equipment if need be
6	DC IN
	Support 11.5-17V
7	antenna mounts x 2
	to mount antenna
8	MBUS

RX Unit
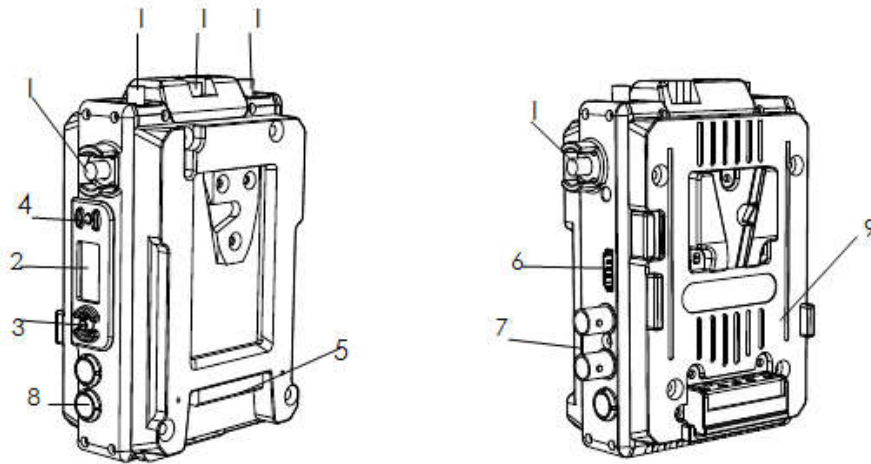
	RX box
1	antenna mounts x5
	to mount antennas
2	OLED Display screen
	for channel info, audio info, signal intensity, and power info
3	multi-direction switch
	for channel select, menu operation
4	Power ON/OFF
	Turn on/off RX
5	battery power out
	to power up external equipment
6	HDMI OUT
	to connect HDMI monitor or other equipment
7	SDI OUT x2
	to connect to SDI monitor or other equipment
8	DC IN

	support 11.5-17V power	
9	battery bracket	
	for V-mount battery	

Dark Tower Operation Instructions

DT wireless system consists of the TX Unit(includes TX card and TX box)， the RX unit and 7x pcs external antennas. Please follow the steps below for proper setup and channel pairing settings.

1. Firstly, drop the red TX card into the TX box, and secure the antennas on top of the TX card and that of the RX box. Then, connect to the power supply and turn on the RX and TX respectively.

2. Connect 2.4G wireless communication between the TX and the RX units.

1）On the main menu page of the TX, click on **RF Setting** to go to the next page and select **Channel** on this page. The product has 9 channel options under 2.4G communication. Select the channel you want.

2）Repeat the above 2.1)operation on RX unit. Select the same channel as that on the TX unit to

connect the TX and the RX.

3. When signal bar appears on the RX screen, it means that the TX box and RX box are connected successfully. The information displayed on the screen now is the channel number and signal intensity.

4. Connect and pair 5.8G wireless communication between the TX and RX. Only after 2.4 G connection succeeds can we start connection and pairing under 5.8G

1) On the main menu page of the TX box, Click on **WFP Setting** to enter the next menu page and select **Channel** on this page. The product has 12 channel options under 5.8G. Select your channel, and then go back to the main menu page.

2) Repeat the above operation (Step3.1)on the RX box, select the same channel as the TX box and then go back to the main menu page.

3) On the main menu page of TX box, click on **WFP Setting** to enter the next menu page. double-click on **Pair** on this page,

Repeat the same on the RX box. (On the main menu page of TX box, click on **WFP Setting** to enter the next menu page. Double-click on **Pair** on this page.)

And Wait.

4) When the TX screen reads **Done** and **Other**, while the RX screen reads **Done**, it means pairing succeeds between TX box and RX box under 5.8G.

5. Go back to the main menu page. Connect the HDSDI input port of TX box with the camera SDI port, Black Tower is ready for video transmission.

6. In case multiple RXs are required to work simultaneously for the shooting, turn off the power of the above RX box after successful pairing at step 3.4) ,then Click on **Other** on the TX

screen. Get the second RX ready by turning it on, then repeat the above steps 3.2), 3.3), 3.4).to get a new pairing established. Repeat this section to establish more connection and pairing.

Trouble shooting

In case RX cannot transmit video to monitor properly, please first refer to the following chart for possible reasons and solutions.

	Malfunction and possible reasons	Solutions
	Continuous display of "waiting for connection"	
	TX is not powered	Turn on TX power
	TX or RX is not properly placed	Place TX or RX properly on even surface
	Distance between TX & RX is too far away	Shorten the distance
	Walls between TX and RX	Reduce the concrete wall blocks between them
	too many obstacles between TX & RX	reduce the obstacles between RX and TX
	other TX is working on the same channel	Turn off the other TX or change channel
OSD info on Display screen	**Cannot receive video signal**	
	TX is not properly connected to camera	USE SDI cable to connect TX and camera
	camera vedio is not on	turn on camera video
	TX cable is not connected properly	Re-plug the cable properly
	malfunction of TX	Re-start TX
	Cable problem between TX and camera output	Change new SDI cable
	player does not support output resolution format	Switch video resolution to other formats
	monitor does not support HDCP certificate	Change to HDCP certified Monitor
	no signal to RX or monitor	
	RX is off	RX Turn on RX
	RX and monitor are not connected	Connect RX to the monitor via SDI/HDMI input cable
IMAGE	monitor is not on SDI / HDMI input	Switch monitor to SDI/HDMI input
	bad cable contact to RX or to the monitor	Re-plug the SDI/HDMI cable
	The monitor is in standby mode	Switch the monitor to operation mode

malfunction of RX	Re-start RX
No image on the monitor	
connection failure between RX box and cable	Reconnect the cable between the RX and monitor
RX box malfunction	Re-start RX box
RX failure	please contact your dealer
abnormal colors on the monitor screen	
bad contact between RX and monitor	Re-plug the TX box and monitor via HDMI cable
bad connect of TX SDI cable	Re-plug the SDI cable to the TX
Abnormal operation of TX or RX	Re-start TX or RX

FCC   statement

The device has been tested and complies with Section 15 of the FCC rules for class B digital devices.

These restrictions are intended to provide reasonable protection against harmful interference in residential installations. This equipment produces, uses and may radiate radio frequency energy, which, if not installed and used in accordance with the instructions, may cause harmful interference with radio communications.

However, there is no guarantee that no interference will occur in a particular installation. If the device does cause harmful interference to radio or television reception, this can be determined by turning the device off and on. It is recommended that the user attempt to correct the interference

by one or more of the following measures: - adjust or reposition the receiving antenna. Increase the distance between the device and the receiver. Connect the device to a different circuit connected to the receiver. Consult distributors or experienced radio/TV technicians for assistance. To ensure continued compliance, any changes or modifications that are not expressly approved by the responsible compliance party may invalidate the user's authority to operate the equipment.(Only use shielded interface cables when connecting computer or external equipment).

FCC Radiation Exposure Declaration

This device complies with FCC RF radiation exposure limits specified for uncontrolled environments. The transmitter shall not be located or operated in conjunction with any other antenna or transmitter. This device complies with section 15 of the FCC rules.

The operation meets the following two conditions:

1) the equipment will not produce harmful interference.
2) the equipment must be subject to any interference received, including interference that may result in accidental operation.

Cautions!

The manufacturer is not responsible for radio or television interference or other failure caused by unauthorized modifications to the product.

Such modifications may invalidate the user's authority to operate the device.