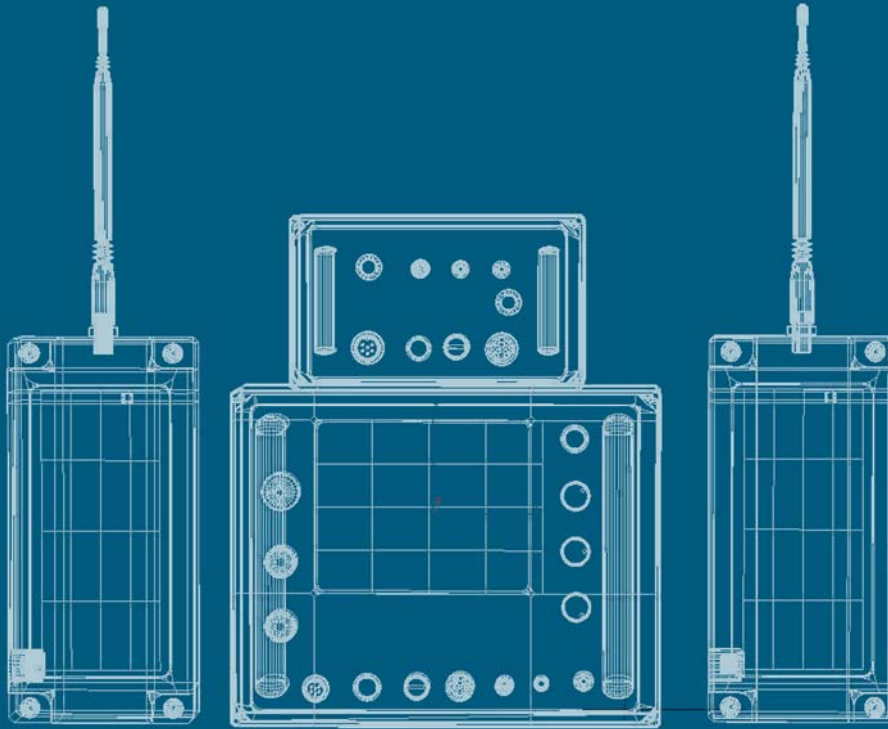




Digital MicroVision

Technical Manual



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1 Introduction

1.1 Warnings and Information

Throughout the manual the following symbols are used:



Indicates a warning. Failure to follow these instructions will result in serious injury, damage to equipment or incorrect operation of equipment.



Indicates a note. This indicates important information that should be followed to ensure correct operation of the unit.

1.2 General Description

The CDL Digital MicroVision is a 2.4GHz long range video transmission system.

The new digital encoding method vastly improves video quality and eliminates ghosting effects found on many Analogue systems.

The built in screen on the receive unit allows the user to tune through 8 Preset Channels and select video output mode(PAL/NTSC).

The range of the system is dependant on several factors, but not limited to, antenna height, antenna type, atmospheric conditions, Line of Sight and RF interference (from other 2.4GHz sources).

The Digital MicroVision makes use of the same technology as DVB-T Television commonly known as Freeview. This technology vastly improves both the picture quality and the range of the video link.

2 Cables, Connections and Controls

2.1 Transmit Base Unit



Figure 1 - TX Base Unit

Item	Name	Description
1	Channel	Channel Select Switch
2	S-Video	S-Video Input Connector
3	Audio	Audio Input BNC Connector
4	Video	Composite Video Input BNC Connector
5	NTSC/PAL	NTSC/PAL Mode Selection
6	Composite/S-Video	Composite/ S-Video Input Type Selection
7	Mains	Mains Power Input Connector
8	On/Off	On/Off Switch
9	T1A	1A Fuse
10	Tx	Deck Cable Connector

Table 2.1 - TX Base Unit Controls and Connections

2.2 Receive Base Unit



Figure 2 - RX Base Unit

	Name	Description
1	ON SCREEN DISPLAY	Joystick with Up/Down/Left/Right Control for Menu Navigation
2	ENTER	Open Menu, Select and Enter Button
3	BACK	Exit Menu, Back level Button
4	Mains	110-240VAC Mains Input
5	On/Off	On/Off Switch
6	T1A	1A Fuse
7	Rx	Deck cable connector
8	S-Video	S-Video output
9	Audio	Audio Output
10	Video	Composite video output
11	Bright	Brightness for the Built in screen
12	Colour	Colour control for the Built in screen
13	Screen	On/off switch for the built in screen

Table 2.2 - TX Base Unit Controls and Connections

2.3 Mains Cable for TX and RX Units

Pin	Function
1	Earth
2	Neutral
3	Live
4	NC
5	NC
6	NC

Table 2.3 - Mains Cable Wiring

2.4 TX Side Deck Cable

Pin	Function
1	Audio GND
2	Audio Signal
3	Composite Video Ground
4	Composite Video Signal
5	Power Ground
6	+12VDC
7	Data Up
8	Data Down
9	S-Video Y
10	S-Video GND
11	S-Video C
12	S-Video GND

Table 2.4 - TX Cable Wiring

2.5 RX Side Deck Cable

Pin	Function
1	Signal GND
2	Signal
3	NC
4	NC
5	NC
6	NC
7	NC
8	NC

Table 2.5 - RX Cable Wiring

2.6 Setup and Installation.

The CDL MicroVision system will give improved performance if the system components (particularly the RF units) are installed correctly. RF units should be mounted with antennae in a vertical position away from large metal structures. For vessel installation, an RF mast will always give improved performance. The height of the mast should be as high as possible as this is directly proportional to the maximum range.

The control units are fitted with rubber feet on both the base and back of the case to protect the hard anodized housing from damage. The RF units have a 73° angle 'V' machined into the back which assists in locating the housing against metal tubing (masts etc). The units can be mounted using the stainless steel U-bolts provided with each system.

All housings are ruggedized and O-ring sealed against the ingress of moisture. If any housing has to be opened, it should be ensured that a small amount of grease is applied to the O-ring before reassembly.

During set-up it should be noted that video interference may occur if the transmitter and receiver units are used in close proximity to each other.

2.7 Built-in LCD Monitor

The DMV Rx Control unit contains a built in LCD monitor. This unit is primarily used during the installation phase of operation in order to check that the system is functioning correctly. The screen is also used to access on the on screen menu which allows the user to select video format, preset channel and other features.

The built in monitor is a high quality 5.6" display which is internally powered from the RX control unit and will accept both PAL and NTSC signals.

2.8 Antennas

As standard, the TX and RX Radio units are fitted with -3dBm Omni-directional antenna which correctly positioned can give ranges of up to 12km. The standard antenna can also be replaced by many other 2.4GHz antenna including high gain omni-directional and high gain directional antenna which will dramatically improve the signal reception.

2.9 DMV Tx Interface Setup

2.9.1 DMV Tx Interface Channel Selection

Both the TX and RX sections have 8 preset channels, to change the channel on the transmit side follow the following steps;

1. Change the Channel to Desired Preset
2. Wait 5 seconds approx for the unit to restart.
3. The unit is now tuned to the selected frequency.

2.9.2 DMV Tx Video Mode Selection

The video format is changed by the Video Mode Switch on the TX Base unit. Simply select the desired input.

2.9.3 Changing TX Unit Video input

1. Power the unit off and connect the video cable to the required connection on the TX Base unit
2. Select the correct video mode on the Video Mode Switch
3. Power up the unit.



The Video source input needs to be selected on the DMV Tx Interface unit only. The RX side will output in both composite and S-Video at the same time.

2.10 DMV Rx Display Unit Setup

The receive unit is configured using an on screen menu and is navigated through using the Joystick, Enter and Back buttons.

On first powering up the DMV Rx Display the screen will display a test card, to enter the system menu press the Enter button.

The onscreen menu allows the following functions to be changed or configured.

1. Preset Channel Selection
2. Video Standard Output (PAL or NTSC)
3. Startup Tune Preset (Selects which preset the unit should attempt to tune to on power up)
4. Startup Volume.

The on screen navigation is very intuitive, the below diagrams show the layout of the menus.

X	Presets	Setup	
01	Channel 1		2405.0 MHz 8M
02	Channel 2		2415.0 MHz 8M
03	Channel 3		2425.0 MHz 8M
04	Channel 4		2435.0 MHz 8M
05	Channel 5		2445.0 MHz 8M
06	Channel 6		2455.0 MHz 8M
07	Channel 7		2465.0 MHz 8M
08	Channel 8		2475.0 MHz 8M

On Screen Menu - Preset Tab

X	Presets	Setup	
	Video standard		625 PAL
	Startup tune preset		1
	Startup Volume %		50

Save Restore

On Screen Menu – Setup Tab

2.10.1 Channel Selection on RX Unit

The preset channels can be selected without the need to restart the unit.

To tune the unit in to a new preset follow the below steps;

1. Press the Enter button to bring up the on screen display. The OSD will be on the "Preset" tab
2. Move the toggle switch down until the preset channel you wish to select is highlighted in red
3. Press the enter button to select the channel
4. The bottom of the screen will display "Tuning..." to indicate it is trying to find the signal
5. Once the unit is tuned, press the back button twice to exit out of the menu system.

2.10.2 Video Mode Selection on RX Unit

1. Press the Enter button to bring up the on screen display. The OSD will be on the "Preset" tab
2. Move the navigation switch to the right one time to move to the "Setup" tab.
3. Move the navigation switch down until to highlight the "Video Standard" item.
4. Press the navigation button either left or right to select either PAL or NTSC
5. The unit will prompt you to save and restart.
6. Press the navigation button down to highlight save and press enter
7. Now restart the unit by turning the Mains Power Switch off and on again.

Channel Frequencies

The Digital MicroVision has 8 preset channels on both the TX and RX ends and these are programmed in as default.

The receive end uses a down converter to step the frequency down from the 2.4GHz range to the range that is accepted by the receive units tuner. The down converter uses a highly accurate 1.8GHz Local Oscillator therefore the frequencies at the receive end are exactly 1.8GHz less than those transmitted.

The standard preset frequencies are shown below.

<i>TX Preset</i>	<i>TX Frequency (MHz)</i>	<i>RX Preset</i>	<i>RX Frequency (MHz)</i>
1	2405	1	605
2	2415	2	615
3	2425	3	625
4	2435	4	635
5	2445	5	645
6	2455	6	655
7	2465	7	665
8	2475	8	675

Table 2.6 - Standard Preset Frequencies

3 Technical Specifications

Antenna Impedance	50 ohm
Transmitter Frequency	250-2700 MHz
Tx Power Output	400mW (max)
Multi-channel Options	8 selectable Channels
Channel Bandwidth	6,7,8 MHz (Selectable dependant on quality requirements)
Video Coding	MPEG2 4-8Mbit/s
Audio Coding	MPEG2 Audio, 128Kbit/s
Modulation Technique	QPSK (Quadrature Phase Shift Keying)
Maximum Range	15km approx (-3dBm Antenna) 20km approx (-9dBm Antenna)
Operating Voltage	110-240VAC
Power Rating:	TX: 10 watt approx RX: 16 watt approx
Video/Audio Connections:	
Video Input/Output	1x BNC Connector, 1x S-Video
Audio Input/Output	1x BNC Connector

Table 3.1 - Technical Specifications

4 Contacting CDL

4.1 By Phone

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In case of faults or queries please contact the Development personnel in the first instance.