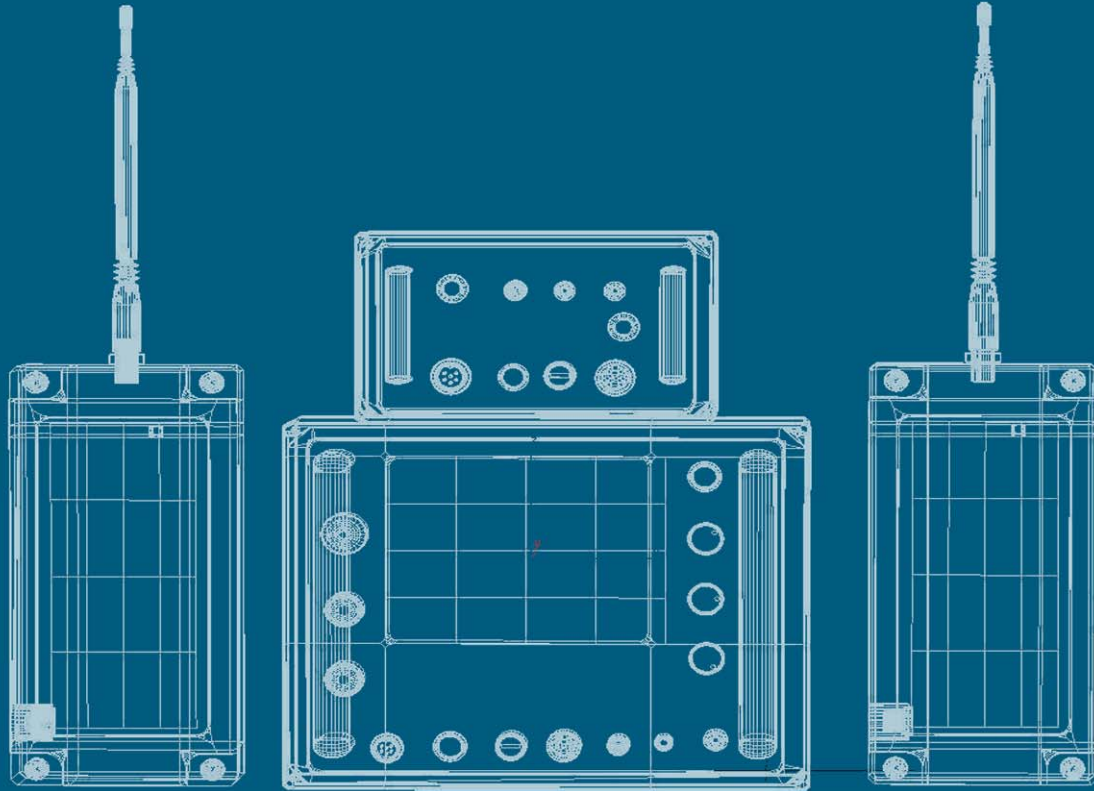




MicroVision

Technical Manual



CDL
Silverfield House
Claymore Drive
Aberdeen
AB23 8GD

Tel: +44 (0) 1224 706655
Fax: +44 (0) 1224 709840
Web: www.cd ltd.net
Email: info@cd ltd.net

Document Rev A



Table of Content

1. Introduction

1.1 General description

2. Specifications

2.1 Tx specifications

2.2 Rx specifications

Installation

- 3.1 Installation diagram
- 3.2 Survey and installation
- 3.3 Built-in LCD monitor
- 3.4 Antennas
- 3.5 Power requirements
- 3.6 RF unit LEDs
- 3.7 Testing
- 3.8 Channel selection

Connections

- 4.1 Power cable wiring
- 4.2 Power/signal cable wiring 6 way Binder

Contacting CDL

- 5.1 By Phone
- 5.2 By Email
- 5.3 Out of Hours

1. Introduction

1.1 General description



The CDL MicroVision is a long range full colour video transmission system. System features are as follows:

- **Small size**
- **Low cost**
- **Built-In 5.6" monitor**
- **Sealed rugged housings for offshore use**
- **Licence-free operation**
- **Multi-channel (up to 4 simultaneous channels)**
- **1 audio channel**
- **Internal power booster**

2. Specifications

2.1 Tx specifications



Antenna Impedence	50 ohm
Transmitter Frequency:	2.4GHz-2.4835GHz
Tx Power Output:	100mW (max)
Oscillator:	PLL (Phase Locked Loop)
Channel Bandwidth:	10 MHz
Operating Temperature:	-25 to +60°C
Video Input:	Typical 1V p-p
Audio Input:	3V p-p
Modulation Technique:	Frequency Modulation (FM)
Pre-emphasis:	CCIR-PAL-405-01
Operating Voltage:	12V dc / 85-264 ac
Protection:	IP67
Power requirements	<10W
TX Module (246*118*70mm)	2.3kg
TX Control (168*100*97mm)	1.7kg

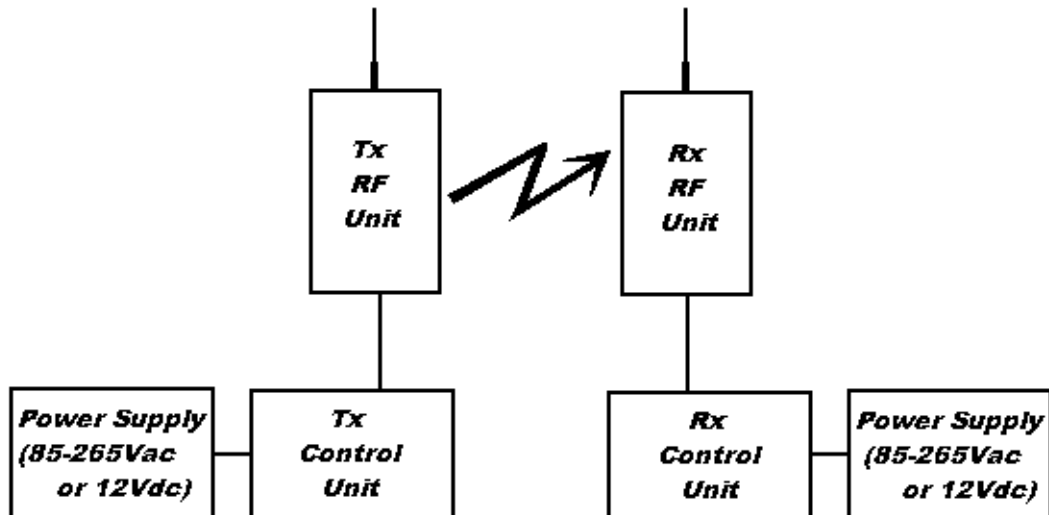
2.2 Rx specifications



Antenna Impedence	50 ohm
Receiver Frequency:	2.4GHz-2.4835GHz
Oscillator:	PLL (Phase Locked Loop)
Channel Bandwidth:	10 MHz
Operating Temperature:	-25 to +60°C
Video Output:	1V p-p
Audio Output:	3V p-p
Modulation Technique:	Frequency Modulation (FM)
Pre-emphasis:	CCIR-PAL-405-01
Operating Voltage:	12V dc / 85-264 ac
Protection:	IP67
Power requirements (500mW version)	<10W
RX Module (198*95*33mm)	1.0kg
RX Control (240*180*90mm)	3.6kg
RX System in case (370*180*90mm)	12kg
Complete System in case (640*390*360mm)	27kg

3. Installation

3.1 Installation Diagram



3.2 Survey 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 anodised 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 ruggedised 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. If this occurs, attenuators may be fitted to cure the problem.

3.3 Built-in LCD monitor

The MicroVision Rx control unit contains a built in LCD monitor. This unit is primarily intended to ease the installation process by reducing the number of interlinked pieces of equipment needed to make the system functional. External monitors can give installation difficulties because of differences in power and video format requirements.

The built –in LCD monitor is a high quality 5.6" display which is internally powered from the Rx control unit and will accept the PAL video format.

3.4 Antennas

To further increase range capability, directional antennae can be fitted. These antennae incorporate more RF gain and reduce multipath interference. Attaching a high gain antenna to the transmitter will remove the MPT type approval, this should only be done with non-licensed systems. However any Rx unit can be fitted with a directional antenna and the improvements in system performance will still be considerable.

Because of the reasonably wide bandwidth of the MicroVision it is advisable to keep the Tx antenna at least 3m from any data antenna being used in the area.

IMPORTANT NOTE: Always disconnect power from the transmitter before connecting the antenna. Failure to do so will cause the Tx output stage to overload and cause damage to the Tx unit. The cause of this failure will be obvious to the manufacturer and will invalidate the warranty.

3.5 Power requirements

The mains power supply fitted to the MicroVision control units is a universal switch mode type which will accept any ac voltage between 85Vac and 265Vac. A DC voltage of 12V may also be applied directly on different pins to allow battery powered operation of the unit.

3.6 RF unit LEDs

Tx LED

The Tx RF housing has a single LED indicator visible under the label. This LED illuminates when power is applied.

3.7 Testing

The MicroVision system should be tested before use at all times. Full factory acceptance testing can be done at any time by CDL. This involves measuring RF power output and receiver sensitivity as well as performance checks on antennae and current consumption checks. Obviously this level of testing requires specialized test equipment and should only be done on a 12 monthly basis unless a deterioration in performance is noticed.

A basic pre-installation test procedure is detailed below, this procedure requires no special test equipment but will still provide a detailed check of all system functions.

MicroVison Checkout Procedure

Inspect all equipment housings for signs of mechanical damage.

Inspect all connectors for bent pins, damage or dirt. Clean and grease if necessary.

Place Rx RF and Rx control unit on the workbench, connect power cable and power/signal cable.

Switch on power and check that 'CDLtd MicroVision' message is displayed in RF power meter window.

Choose a site to mount the Tx end which is as far from the Rx as possible.

Ensure that Tx antenna is fitted to the RF unit.

Connect power cable and power/signal cable.

Connect a video signal to the Tx control unit (camera or VCR).

Switch on LCD screen on Rx control unit and check for valid picture.

If picture distortion is evident due to swamping (too much signal), try removing antenna from Rx unit.

Check audio option if fitted by applying an audio signal to the Tx end and adjusting volume control at Rx end.

Switch on time/date stamp at Tx end and check Rx output.

3.8 Channel selection

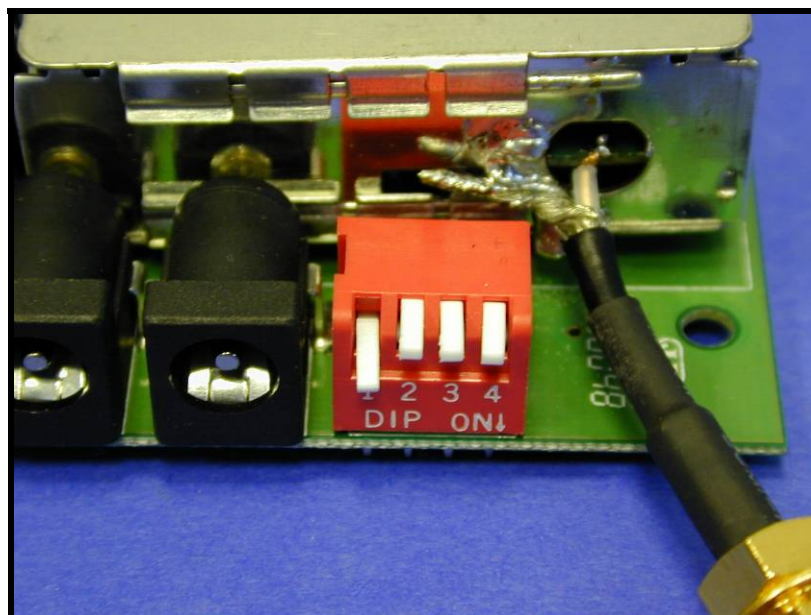
Both Tx and Rx RF units contain a bank of four DIP switches which allow the user to select channels.

In order to access these switches, it is necessary to open the RF modules by removing the four M4 cap screws from the rear of the housing, and carefully opening the housing.

To select a channel, depress the appropriate DIP switch. Each Tx unit should only have one DIP switch depressed in order to operate correctly.

For normal operation, each corresponding Rx unit should have the same single DIP switch depressed.

If the Rx unit has more than one switch depressed, the unit will scan those channels selected and display any signals found at two second intervals.



4. Connections

4.1 Power cable wiring

<u>Pin number</u>	<u>Function</u>
1	Earth
2	Neutral
3	Live
4	GND
5	+12Vdc
6	NC

4.2 Power/signal cable wiring 6way Binder

<u>Pin number</u>	<u>Function</u>
1	Audio GND
2	Audio Signal
3	Video GND
4	Video Signal
5	GND
6	+12Vdc

5.0 Contacting CDL

5.1 BY PHONE

Tel: +44 (0) 1224 706655
Fax: +44 (0) 1224 709840
Web: www.cd ltd.net

5.2 BY EMAIL

Colin Crichton	cc@cd ltd.net
Gary Crichton	gc@cd ltd.net
Nick Murray	nm@cd ltd.net
Craig Spy	cs@cd ltd.net
Mads Fogh	mf@cd ltd.net

5.3 OUT OF HOURS

Out of hours contact numbers

Craig Spy (Development Engineer)	(mobile)	-	+44 (0) 7890 643243
Mads Fogh (Development Supervisor)	(mobile)	-	+44 (0) 7595 357197
Colin Crichton (CEO)	(mobile)	-	+44 (0) 7803 034261
Gary Crichton (Technical Director)	(mobile)	-	+44 (0) 7803 909128
Nick J. Murray (Production Director)	(mobile)	-	+44 (0) 7711 505805
Murray Leys (Production Manager)	(mobile)	-	+44 (0) 7801 431986

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