MicroLite 1.5
HD COFDM Wireless Camera Transmission System

The MicroLite Wireless Camera Transmission System is a highly portable professional grade MPEG 4 COFDM HD wireless camera transmission link capable of providing high quality video at distances over two miles line of sight, and operating at latency levels as low as 70 ms.

At the heart of the MicroLite HD system is the MicroLite HD Transmitter whose size, weight and performance makes it ideal for UAV, sports, live newsgathering, reality-based programs, EFP/OB, point-of-view, and any type of live event coverage. The transmitter features HD/SD-SDI and HDMI inputs with COFDM transmission in a small, lightweight chassis, and delivering up to 250 mW of power in a small package.

The MicroLite is a compelling choice when broadcast quality, exceptional range, and reliability are required. IMT’s COFDM technology ensures the transmission of uninterrupted, live TV pictures over long ranges, despite the effects of foliage, challenging terrain, buildings, and other common non-line-of-sight limitations.

Twelve easily selected presets make it simple to change channels and other operating parameters on the fly. The MicroLite may be configured or remotely controlled by the built-in Wi-Fi Web server. An Android or iOS device will see the MicroLite and automatically open the control browser.

The MicroLite Receiver is a dual diversity COFDM receiver that uses maximal-ratio combining technology to enable the MicroLite system to support Line-of-Sight (LOS) as well as Non-Line-of-Sight (NLOS) applications. The MicroLite receiver comes in an ultra-small, self-contained package perfect for discrete installations. With no block down converters and complicated interconnects, the MicroLite has been adopted where quick, reliable, and simple usage is required. The MicroLite Receiver features MPEG-4/ MPEG-2 auto-detect video and embedded audio decoding. This technology provides a highly reliable decode solution in demanding portable applications.

Applications
- Sporting Events
- Event Coverage
- ENG/SNG/OB – Electronic News Gathering
- Reality based production

Transmitter Options
- S-Bus, RS232, and RS485 for control

Receiver Options
- Range Extension Kit
- VClip or AB Battery Mounts

Key Features
- Range over 2 miles Line-of-Sight
- HDMI and SDI camera inputs
- HDMI and SDI video outputs
- Internal ISM and GPS anti-jam filter
- Broadcast-quality video transmission
- Licensed and ISM frequencies
- Low latency <70 ms
- Wi-Fi Remote Control
- Transceiver for Telemetry Data
- Wi-Fi Web based configuration and control
- Available a’ la carte or in preconfigured application-specific kits.
**TRANSMITTER SPECIFICATIONS**

### RF Performance

<table>
<thead>
<tr>
<th>Base Model Number</th>
<th>Frequency (GHz)</th>
<th>Power Out (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>23ML2</td>
<td>2.0 - 2.5</td>
<td>250</td>
</tr>
<tr>
<td>33ML2</td>
<td>3.1 - 3.5</td>
<td>250</td>
</tr>
<tr>
<td>55ML2</td>
<td>5.0 - 6.0</td>
<td>250</td>
</tr>
<tr>
<td>23/55ML2</td>
<td>2.0 - 2.5</td>
<td>250</td>
</tr>
<tr>
<td></td>
<td>5.1 - 6.0</td>
<td>250</td>
</tr>
</tbody>
</table>

### Tuning Step Size
- 250 kHz step size

**Frequency stability**
- ±10 ppm

### Modulation Modes

- **DVI-T (Standard)**
  - Bandwidth: 5, 6, 7, & 8 MHz
  - Constellation: QPSK, 16QAM

- **DVB-T (Optional)**
  - Bandwidth: 5, 6, 7, & 8 MHz
  - Constellation: QPSK, 16QAM

- **LMS-T (Optional)**
  - Bandwidth: 3, 4, 5, 6, 7, & 8 MHz
  - Constellation: QPSK, 16QAM

### MPEG Encoder

- **Video**
  - Video Coding: MPEG-4 Part 10/H.264
  - HD/SD SDI
  - Video Formats: 720p 24/25/59.94/60
  - 1080i 24/25/59.94/60

- **Audio**
  - Audio Input: Embedded, SDI/HDMI
  - Audio Coding: MPEG1 (Layer II)
  - Audio Sample Rate: 48 KHz

### Control

- **Local**
  - OLED/Joystick
  - Wireless
  - Wi-Fi
  - 2.4 GHz ISM Band
  - Android/iOS Web

- **900MHz**
  - Transceiver ISM Band
  - RS485/422
  - S-Bus

### Web Page

- **Settings**
  - Frequency
  - Bandwidth
  - Modulation

- **Status**
  - Power, Frequency
  - Battery Run Time Meter

- **Alarms**
  - Power
  - Video
  - Battery

### Power Requirements

- **Input Range**
  - 6.5 – 17 volts DC
  - Integrated Battery Adapter

- **Power Consumption**
  - < 8 Watts

### Environmental

- **Temperature**
  - Full specification: -10° to +50° C (14° to 122° F) Ambient
  - Storage: -40° to +80° C (104° to 176° F)
  - Humidity: 0 to 95% non-condensing

- **Altitude**
  - Operating: 20,000 ft. (6,000 m)
  - Storage: 50,000 ft. (15,000 m)

### Physical Characteristics

- **Size**
  - 4.04 (D) x 2.25 (W) x 1.31 (H) inches
  - 102 (D) x 57 (W) x 33 (H) mm

- **Weight**
  - < 6.5 ounces (185 grams)
Transmitter Connectors

<table>
<thead>
<tr>
<th>Reference</th>
<th>Name</th>
<th>Description</th>
<th>Physical Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RF Output</td>
<td>N-Male</td>
<td>SMA-Male</td>
</tr>
<tr>
<td>2</td>
<td>Video In #1</td>
<td>SDI</td>
<td>BNC-Male</td>
</tr>
<tr>
<td>3</td>
<td>Video In #2</td>
<td>HDMI</td>
<td>HDMI</td>
</tr>
<tr>
<td>4</td>
<td>Power In</td>
<td>6 – 17 VDC</td>
<td>Battery Plate</td>
</tr>
<tr>
<td>5</td>
<td>Audio In</td>
<td>Embedded - SDI/HDMI</td>
<td>BNC-Male/HDMI</td>
</tr>
<tr>
<td>6</td>
<td>Data</td>
<td>RS232</td>
<td>LEMO</td>
</tr>
<tr>
<td>7</td>
<td>900 MHz RF</td>
<td>900 MHz RF</td>
<td>SMA Male</td>
</tr>
<tr>
<td>8</td>
<td>900 MHz Data</td>
<td>External Control Data</td>
<td>LEMO</td>
</tr>
<tr>
<td>9</td>
<td>Wi-Fi</td>
<td>Remote Control</td>
<td>Embedded</td>
</tr>
</tbody>
</table>

Wi-Fi Control
RECEIVER SPECIFICATIONS

RF Performance
- Bands: 5.8GHz ISM band
  Other bands available

Modulation
- Modulation Formats: COFDM (DVB-T 2K)
- Bandwidth: 6 MHz, 7 MHz, and 8 MHz
- Nonstandard BW: 1.25, 2.6 and 5 MHz (optional)

Supported Video Formats

High Definition
- SMPTE 292M 120
- SMPTE 296M
- SMPTE 274M
  720p: 23.98/24/50
  1080i: 59.94
  1080p: 23.98/24/50

Standard Definition
- SMPTE 259M 31.656
- NTSC: 720 x 480i SMPTE244
- PAL: 720 x 576i ECE6179-5

Audio Input/Output
- Analog Audio Channels: 1 Stereo or 2 Mono Standard
- Analog Audio Level: IVP-p single ended into 10kQ
- Embedded Channels: 2

System
- Low Latency Mode: < 4 frames for I and P formats
- < 5 frames for PSF formats
- User Data: RS232 300-115k Baud
- Remote Control: RS232 or Ethernet (Rx)

Audio Input/Output
- Embedded: SDI
  SD SMPTE 272M,
  HD SMPTE 299M
- 48kHz 16-bit stereo linear PCM
- Local Control: Push Button/LED
- Preset: 12 user configurable presets through windows GUI.

Power Requirements

Input Range
- +9 - +28 volts DC

Power Consumption
- 12 Watts

Physical Characteristics

Size
- 6.75 (L) x 8.34 (W) x 1.5 (H) inches
- 17.15 (L) x 21.18 (W) x 3.81 (H) cm

Weight
- < 2.8 pounds (1276 grams)

Environmental

Temperature Range
- Full specification: -10°C to +50°C (14°F to 122°F) Ambient
- Storage: -40°C to +80°C (104°F to 176°F)
- Humidity: 0 to 95% non-condensing

Receiver Connectors

<table>
<thead>
<tr>
<th>Reference</th>
<th>Device Label</th>
<th>Description</th>
<th>Connector Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Left / Right</td>
<td>Audio Output</td>
<td>RCA Jacks (2)</td>
</tr>
<tr>
<td>2</td>
<td>Video</td>
<td>Composite Out Only (Not HD)</td>
<td>BNC</td>
</tr>
<tr>
<td>3</td>
<td>Video</td>
<td>SDI Video Output</td>
<td>BNC</td>
</tr>
<tr>
<td>4</td>
<td>Video ASI</td>
<td>ASI Video Output</td>
<td>BNC</td>
</tr>
<tr>
<td>5</td>
<td>Remote/User Data</td>
<td>Remote/User Data</td>
<td>RS-232</td>
</tr>
<tr>
<td>6</td>
<td>(No Label)</td>
<td>VIP and Remote Control</td>
<td>RJ-45</td>
</tr>
<tr>
<td>7</td>
<td>DC In 11-28V dc</td>
<td>Power Input</td>
<td>Power Jack</td>
</tr>
</tbody>
</table>
## Receiver Outline

![Receiver Diagram]

## Kit Component Part Numbers

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Part Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>922-B982-01A-R</td>
<td>Cable USB RS-232 EMBED 10CM LED; FTDI US232R-10-BULK</td>
</tr>
<tr>
<td>922-B983-01A-R</td>
<td>Null Modem Cable DB-9F to DB-9F</td>
</tr>
<tr>
<td>922-P047-01A-R</td>
<td>Cable, MMCR, Battery Adapter to Universal Power Adapter</td>
</tr>
<tr>
<td>616-00079-000-RE</td>
<td>Battery, Lithium-Ion Battery Pack, 7.4 V 2200mAh</td>
</tr>
<tr>
<td>616-00076-00A-RE</td>
<td>Charger, Dual Battery Charger</td>
</tr>
<tr>
<td>863-E0053-001-R</td>
<td>Cable Micro USB B TO USB A, 1.5M</td>
</tr>
<tr>
<td>940-SSC2-01A-RE</td>
<td>Soft Case, 14”L x 11”W x 2.6”H (35.5 x 28 x 6.6 cm)</td>
</tr>
<tr>
<td>922-B1177-01A</td>
<td>Cable, Super Slim High-Speed HDMI Cable M-M (1 foot)</td>
</tr>
<tr>
<td>921-B437-01A</td>
<td>Cable, 1.0/2.3 DIN to BNC Male, 18”; L-2.5CHD, 3G/HD-SDI</td>
</tr>
<tr>
<td>691-00442-00A</td>
<td>Right Angle Bracket with Vertical and Horizontal Flash Shoe, ML2</td>
</tr>
<tr>
<td>865-00083-000</td>
<td>Multifunction Ball Head with Removable Top &amp; Bottom Shoe Mount</td>
</tr>
<tr>
<td>940-MLSU-02-R</td>
<td>Microlite 2 Mini Kit Foam Insert</td>
</tr>
<tr>
<td>922-B1064-01B-R</td>
<td>Power Cable, XLR4M-B to DC 5.5mm OD/2.5mm ID Plug</td>
</tr>
<tr>
<td>922-B1061-01B-R</td>
<td>Cable, DC Power Supply to XLR4F-B, 12 VDC 4.2A</td>
</tr>
<tr>
<td>922-B989-03A-R</td>
<td>CABLE, RJ-45 to RJ-45 CAT SE, 36”</td>
</tr>
<tr>
<td>511-G4003-003-R</td>
<td>N-Male TO N-Male Barrel Adapter</td>
</tr>
<tr>
<td>922-B1119-01A-R</td>
<td>Cable, D-Tap to DC Power Jack</td>
</tr>
</tbody>
</table>
Included in MicroLite Kit
- Two Type N 6 dBi Omni Antennas
- AC Power Cable
- Programming Adapter Cable
- Configuration Cable
- 1/4"-20 Tripod Receiver
- 5/8" Tripod Receiver

Optional Accessories
Extended Range Receiver Antennas
- Achieve 2 miles Line of Sight
- Two 12 dBi gain directional antennas
- Two Flexible Adapters