

# PD2 Digital Transmitter

COFDM Transmitter Module

Model PD2-TX-5000S 5 Watt Output

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The most important thing we build is trust

**COBHAM**



## how to contact COBHAM

For operator and troubleshooting information, customers are encouraged to refer to the details in this manual. For additional clarification or instruction, or to order parts, contact COBHAM.

Customer Service is available Monday through Friday between the hours of 9:00 AM and 5:00 PM EST at:

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## FCC information

The following information is provided as a service to our law enforcement customers who require a Part 90 station license for video surveillance operations using the 2450 to 2483.5 MHz band.

You will need to provide two documents:

- Form 600 (the application form)
- Form 159 (the filing fee form)

Forms can be obtained from the FCC on their website at: [www.fcc.gov](http://www.fcc.gov)

You can also contact the FCC using their FAX back service at: (888) 418-3676 Additional instructions are available by telephone at: (888) 225-5322

The filing fee form is returned to: Federal Communications Commission

1270 Fairfield Road  
Gettysburg, PA 17325-7245

FCC ID #H25PD2TX5000S

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## manual conventions



**NOTE:** Describes special issues you should be aware of while using a particular function.



**WARNING:** Calls out situations in which equipment could be damaged or a process could be incorrectly implemented, but in which operator safety is not a factor.



**TIP:** Describes application hints.

## RF EXPOSURE STATEMENT

A separation distance of at least 30 cm must be maintained between the antenna and the body of the user or nearby persons. When the unit is used consistent with the previous notice, it conforms to the requirements of FCC Rules and regulations, sections 1.1307 & 2.19091, as required by section 90.1217.



**WARNING:** Use of antennas with gain above 2.1 dBi may exceed Maximum Permissible Exposure (MPE) limits.



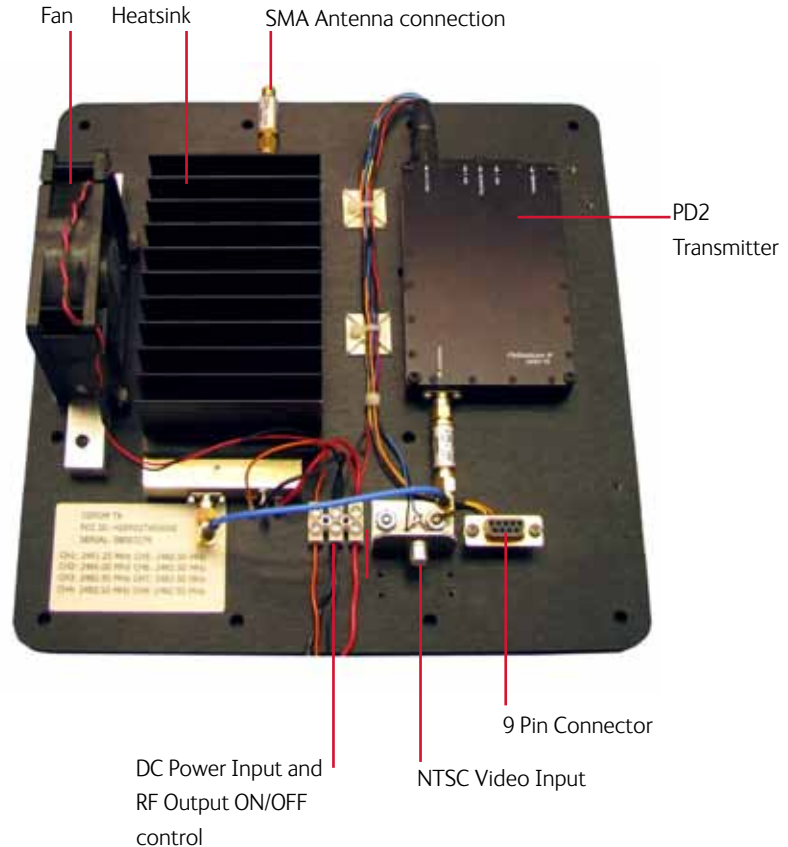
**NOTE:** This device is for occupational use only. Occupational users are those persons who are exposed as a consequence of their employment, provided these persons are fully aware of and exercise control over their exposure

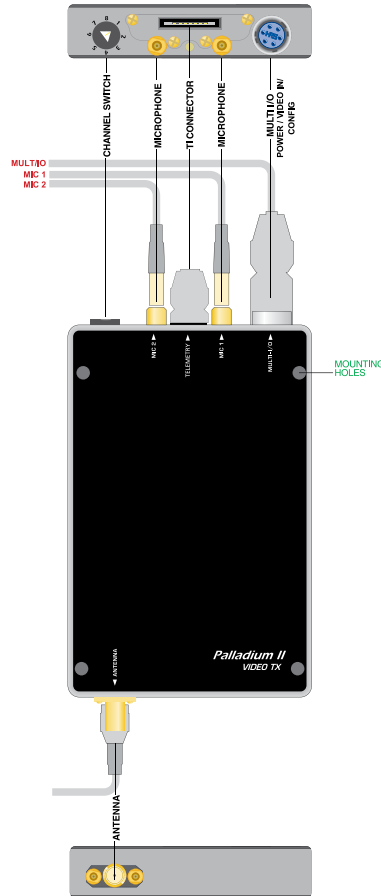
## INTRODUCTION

The Palladium II Series of digital video transmitters provide exceptional video quality in high multipath environments. They are ideal for use inside buildings, in urban areas, and in other applications where multipath would normally cause video tearing or breakup.

All Palladium II Series transmitters are designed for spectrum-efficient 2.5 MHz channel spacing. Approximately 400 carriers are used to transmit video and two channels of voice and data. Palladium transmitters may be located on adjacent channels without a guard band. AES 128-bit encryption ensures users of secure communications.

The Palladium 5000S is a small, modular transmitter with a 5W RF power output. It's ideal for OEM concealments and short to mid-range robotic and UAV applications. The package is only 10" x 10" x 3.625". All connections are conveniently located. The Palladium 5000S incorporates a power amplifier bringing total power output to 5W.





## Using your Palladium II Transmitter

Follow the instructions given in the Quick Start section on pages 6-7. When power is first applied to the Palladium, the unit reverts to the indicated channel and RF ON state. The Alarm LED may be ON, which indicates that there is no active video input.

## Changing your Transmitter Configuration

The Palladium Transmitter can store up to 8 different configurations, which can be selected with the Channel Control. The frequency channels are preprogrammed please contact your local Sales Manager for more information

## Top Controls/Connectors

- Multi-I/O Connector
- Data Chaining & Control Connector.
- Audio 2 (left) and Audio 1 (right/mono) LEMO Conn. These connectors provide the audio input connections to the transmitter. Either one or two audio inputs can be used with the Palladium II Transmitter.
- Frequency Channel Controller
  - Fmin = 1 (2451.25 MHz)
  - Fmid = 2 (2466.00 MHz)
  - Fmax = 3-8 (2482.50 MHz)

## Bottom Controls/Connector

- SMA Antenna connection

## QUICK START

### Complete these steps:

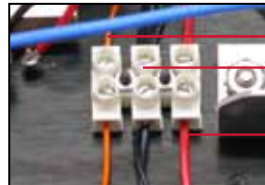
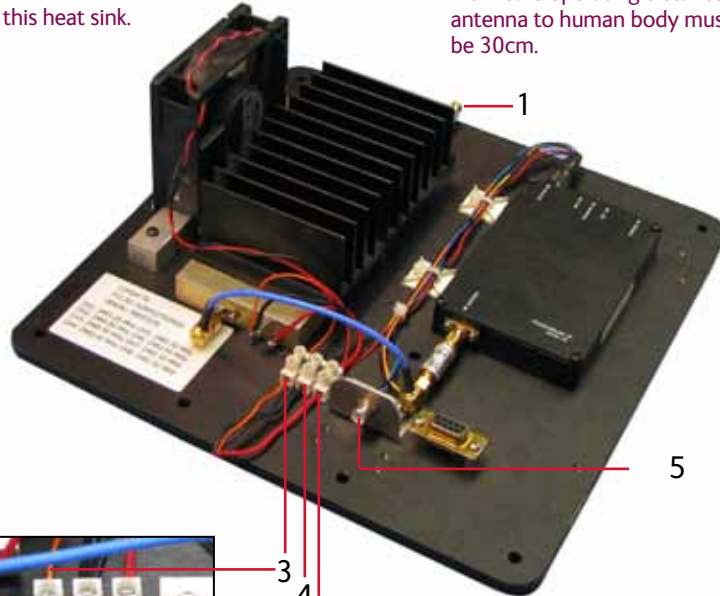
1. Connect the transmitter antenna to the SMA connector on the Palladium unit (see photo right).
2. Attach a 12 VDC power source (capable of 7 amp output current) to the power block (red) as shown to the right. The input voltage is 12 VDC nom.
3. Connect a TTL logic source to the power block (orange) as shown to turn on the amplifier. This is the ON/OFF control for the RF amp.  
RF/ON = TTL1      RF/OFF = TTL0
4. Attach the common return of both supplies to the (black) power center block
5. Attach your camera video input (75 ohm composite video source in PAL or NTSC) to the video RCA connector (see photo to the right).
6. Apply the necessary power to your camera and turn ON.



**NOTE:** Palladium TX-5000A Modules feature a heat sink for proper heat dissipation. For optimal performance, do not block air flow over the fins of this heat sink.



**WARNING:** Do not connect the antenna without a suitable 50 ohm load attached. The maximum safe operating distance, antenna to human body must be 30cm.



**NOTE:** Device is polarity sensitive. Connect DC power only as shown above; black to black (-), red to red (+).

## Physical

Unit Dimensions (approx.)	10 " x 10" x 3.625 (not including connectors)
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## Environmental

Operational Temp	-30 degrees C to 50 degrees C
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## Power

Input Voltage	12 VDC nominal
Power Consumption	75w

## Control

PC Control Interface	RS-232.
Memory	8 configurations 3 Factory programmed frequencies

## Video Encoding

Compression Standard	MPEG-2 w/ non-DVB modes, MPEG-4 DVB-T Compliant
Chrominance Profile	4:2:0
Line Standard	PAL 625 or NTSC 525
Horizontal Resolution	704, 528, 480, 352 pixels (528 as standard)
Vertical Resolution	576 (625 lines) or 480 (525 lines)
Video Bitrates	1Mbps to 10 Mbps
Video Latency	End to end delay of 54 milliseconds

## SPECIFICATIONS

### Audio Encoding

Input	Stereo or Dual Mono pair
Bitrates	28 kbps to 72 kbps depending on configuration
Sampling Frequency	32 kHz, 16 kHz or 8kHz
THD	< 0.1% max
Response	20Hz to 15kHz, +/- 0.25dB depending on configuration
Crosstalk	> 55 dB min
S/N	60 dB RMS

### Composite Video Input

Standards	NTSC (with and without pedestal) or PAL
Specification	Rec. ITU-R BT.470-4
Connector	Hirose
Composite PAL and NTSC decoding	Eight-bit comb filtering composite decoder

### Analog Audio

Analog Audio Input	+10 dBu
Nominal Level	+4 dBu

### Scrambling

Scrambling type	Fixed key scrambling system Algorithms offered include AES.
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### COFDM RF output

Output Frequency	Band Dependent
Occupied Bandwidth	2.44 MHz
Power	5000 mW
Connector	SMA
COFDM Standard	Proprietary, 2.5 MHz channel bandwidth



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## Contact Information

**Toll-Free 1 800 233 8639**

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(T) 603-880-4411

A complete listing of Contact Individuals can be located on our website at: [www.cobham.com/tcs](http://www.cobham.com/tcs)

## Cobham Tactical Communications and Surveillance

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