

Palladium II Digital

COFDM Transmitter

Model Pd2-TX-1000 1W Output

COBHAM

The most important thing we build is trust



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.

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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 20 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 & Regulations, sections 1.1307 & 2.1091, as required by section 90.1217.



CAUTION! Use of antennas with gain above 2.1 dBi may exceed Maximum Permissible Exposure (MPE) limits.



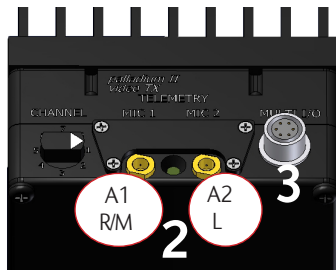
NOTE: This device is for occupational use only. Occupational users are those persons who are exposed as a consequence of their employment, provided these persons are fully aware of and exercise control over their exposure.



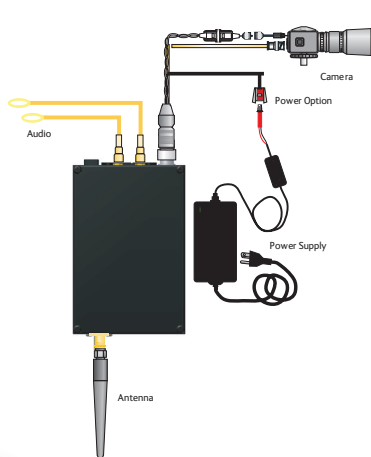
NOTE: DO not allow the device to directly contact the skin due to warm operating temperatures.

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QUICK START



Palladium Transmitter, Top View



Typical Wiring Configuration

Complete these steps:

1. Connect the transmitter antenna to the SMA connector on the Palladium unit.
2. If you plan to use audio, connect one or two microphones to the Audio 1 and/or Audio 2 LEMO connectors. If using monaural, use Audio 1.
3. Connect power and video input via the Multi I/O cable to the 6-pin Hirose connector:
 - a. Attach your camera video input (75 ohm composite video source in PAL or NTSC) to the Multi I/O cable BNC connector.
 - b. Apply the necessary power to your camera (use supplied cable or external source) and turn ON.
 - c. Attach a 12 VDC power source to the Multi I/O cable via the Molex connector. The input voltage range is from 10 to 16 VDC.



WARNING: Do not apply power to the transmitter unless an antenna or non-radiating load is connected to the Antenna SMA connector.

Thermal Issues

Proper heat sink mounting is recommended for optimal performance. See page 8 for heat sinking instructions.

- 4 Set to the required configuration as indicated by the channel numbers. Refer to the Programming section on page 10 for more information on channel settings. Your Transmitter is now operational. Confirm its signal with your Palladium Receiver.

Accessories

- 12 VDC 2.5A Power Supply & AC Line Cord
- Microphone, Body-Worn, (2)
- Power & Video Cable
- Camera Power Cable (2.1 mm plug)
- DC Power Cable, flying lead
- Camera Power Cable, flying lead
- Programming Cable
- Antenna, ANT2A
- 16-Pin Data Chaining & Control Connector Cable
- Transport Case



Palladium Pd2-TX-1000 Transmitter,
Front View

INTRODUCTION



Palladium Pd2-TX-1000
1 Watt Digital Transmitter

Palladium II

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 offer three bandwidth modes: DVB-T (6, 7, 8 MHz), Narrow (2.5 MHz), and Ultra Narrow (1.25 MHz) channel spacing. DVB-T utilizes 2000 carriers to transmit video and two channels of voice and data. Palladium II transmitters may be located on adjacent channels without a guard band. AES 128-bit encryption ensures users of secure communications.

The Palladium 1000 is a small transmitter with a 1 Watt RF power output. This unit is ideal for concealments and shorter range robotic and UAV applications. The package is only 4.2" x 2.8" x 2.5" (approximate dimensions not including connectors). Power consumption is 29 Watts maximum. All connections are conveniently located off the ends of the unit. The unit is water-resistant if mounted with its SMA connector pointing directly upward (with antenna connected).

Using your Palladium II Transmitter

Follow the instructions given in the Quick Start section on pages 4-5. 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

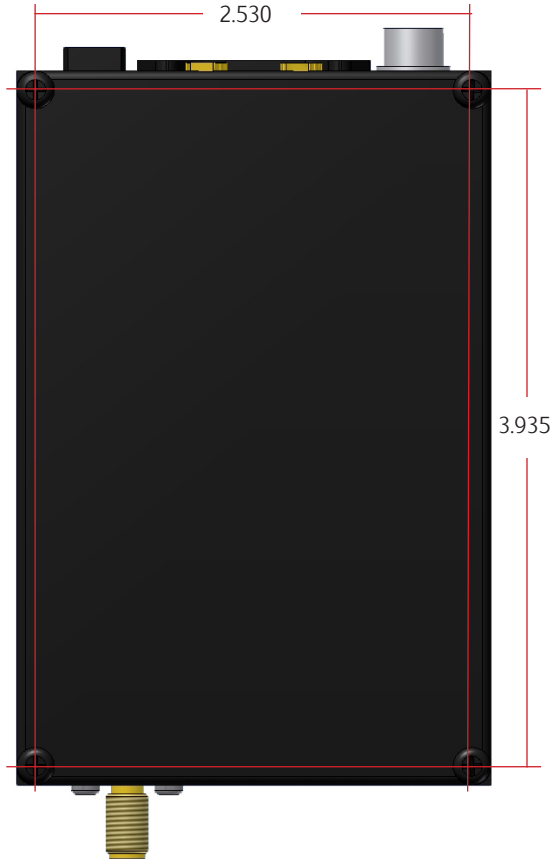
The Palladium Transmitter can store up to 8 different configurations, which can be selected with the Channel Control. Each of these configurations are programmed into the transmitter by the factory at the time of order.

To cycle through your preconfigured channels rotate the knob to the next setting.



NOTE: FCC 90.203 (e) prohibits anyone other than the manufacturer, qualified service or maintenance personnel from altering the frequency programming of the transmitter. Please contact the factory for additional information regarding programming frequencies.

HEAT SINK



Palladium 1000 Heat Sink

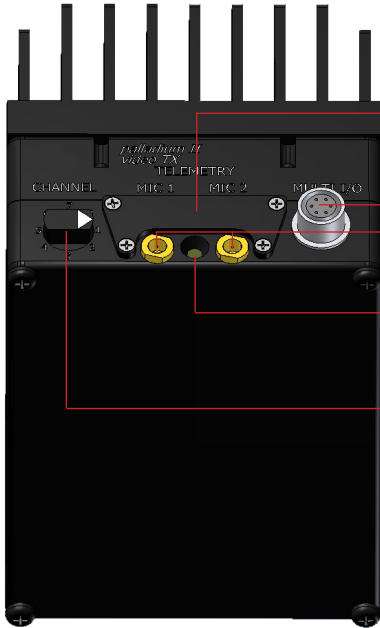
The Palladium 1000 is supplied with a heat sink attached. DO NOT remove the heat sink unless you have an alternate mounting surface that will dissipate the heat properly.



WARNING: The Palladium 1000 may become too hot to touch without a proper heatsink attached, such as the one supplied. Damage to internal components may occur if operated beyond the recommended temperature range. If placed in an enclosure, proper ventilation and mounting is required. If designing a custom heatsink, keep the transmitter chassis temperature at 50°C or less. The transmitter must be mounted to a heatsink on the transmitter's "blank side" as shown on page 8.



Controls/Connectors



Data Chaining & Control Connector This connector is normally covered.

Multi-I/O Connector The Multi-I/O Connector is covered on page 11.

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.

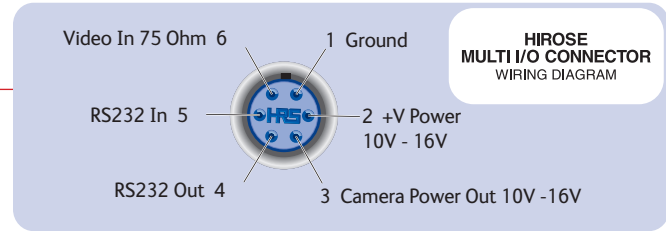
ALARM LED This red LED indicates a valid video signal is not present.

Channel Switch This rotary switch selects from up to eight preprogrammed configurations.

Transmitter Antenna Connector (SMA) This connector attaches to the transmitter antenna and carries the RF output signal. Always ensure the transmitter antenna is attached before operating the Palladium Transmitter.



Multi I/O Connector (6-pin Hirose) This connector provides connections for the DC Power Input, DC Camera Power, Programming, and 75 Ohm Composite Video Signal.



Programming

Frequency and channel configurations are programmed into the transmitter by the factory at the time of order.



NOTE: FCC 90.203 (e) prohibits anyone other than the manufacturer, qualified service or maintenance personnel from altering the frequency programming of the transmitter. Please contact the factory for additional information regarding programming frequencies.

SPECIFICATIONS

Physical

Unit Dimensions not including heatsink or connectors (approx.)	4.25" x 2.75" x 1.25" (10.8 cm x 7.0 cm x 3.2 cm)
Unit Dimensions including heatsink and connectors (approx.)	4.75" x 2.75" x 2.5" (10.8 cm x 7.0 cm x 6.3 cm)

Weight

Weight without heatsink	9 oz (0.26 kg)
Weight including heatsink	1 lb 3 oz (0.54 kg)

Environmental

Operational Temp	-10 degrees C to 50 degrees C
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Power

Input Voltage	10 to 16 VDC
Power Consumption	Fully Operational ~ 29 W max., Sleep Mode < 0.5 W

Control

PC Control Interface	RS-232.
Memory	Eight user-programmable configurations

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

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	1.22/2.44 MHz
Power	1 Watt
Connector	SMA
COFDM Standard	Proprietary, 2.5 MHz channel bandwidth.
DVB-T	6, 7, 8 MHz Bandwidth

Contact Information

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

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