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EYE-View™ EV-TX-3000 Owner's Manual

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SAFETY NOTICES

- I. **THIS DEVICE IS FOR PART 90 LICENSED OR EXPORT USE ONLY.** Equipment may be operated only with a Part 90 license issued by the FCC. The user is responsible for operating the equipment in compliance with FCC rules. Operation of this equipment without a valid FCC license could result in the issuance of fines to the user, or the seizure of the equipment.
- II. This product is intended for use in occupational/controlled conditions, where users have full knowledge of their exposure and can exercise control over their exposure to meet FCC limits. This device is not authorized for general population, consumer or any other use.
- III. This is NOT an intrinsically safe device. Do not take into area where intrinsic safety is required. Bodily harm may result if warning is ignored.
- IV. **DURING INSTALLATION, DO NOT OPERATE TRANSMITTER WITHOUT ANTENNA CONNECTED TO ANTENNA PORT.** Failure to do so will result in damage to the unit and void the warranty.
- V. The transmitter is FCC approved under FCC ID: OPH-EV3000. Changes or modifications not expressly approved by K&A Wireless, LLC will void the user's authority to operate the equipment.

- VI. This product must be professionally installed. Additional installation instructions will be provided to professional installers to insure compliance with RF exposure requirements and must be for occupational use only and cannot be used in public applications.
- VII. The radio and its antenna is required to be mounted and kept at least 20 cm away from any part of the user's torso or head and must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC NOTICE

The equipment has been tested and found to comply with the limits of a CLASS B device pursuant to PART 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference.

Emission designator for the EV-TX-3000 series transmitter unit is: 16M5.

The transmitter label is shown below. Please confirm that the label on the transmitter is conforms to the label shown. Any transmitters having a non-conforming label will be in violation of the license.

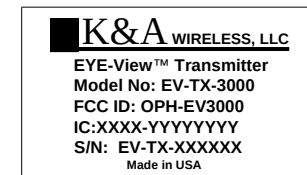


Figure 1. FCC label on every EV-TX-3000 series unit.

PARTS LIST

The EV-3000 series Analog Video Transmission system comes complete with the following items:

1. EV-TX-3000 series transmitter
2. TX-S-2018-MMCX-RTA antenna

The transmitter operation can be confirmed by using a EV-RX-2000 series receiver unit from K&A. This receiver series displays the video images on an NTSC compatible (PAL compatible, if your camera source is PAL) monitor.

Additional accessories available through K&A Wireless:

1. Dipole antenna for receiver
2. 12-dB panel antenna for receiver
3. 5-dB vehicle-mounted antenna with magnetic base for receiver
4. 7-dB vehicle mounted antenna for receiver
5. 9-dB vehicle-mounted antenna for receiver
6. 11-dB vehicle mounted antenna for receiver

PRODUCT DESCRIPTION

The EV-TX-3000 series transmitter is a two-channel analog FM, video transmitter operating in the 2.4 GHz ISM band. The EV-TX-3000 series provides a cost effective solution to long-range transmission available for industrial, government/municipality or for export applications.

The ISM band is a harmonized band and is available worldwide. In the US, however, the EV-TX-3000 series

transmitter is designated for PART 90 use and requires a license to be obtained by the end user.

In addition to the enhanced performance, the EV-TX-3000 series provides a rudimentary security feature, which decreases the ability of unwanted parties from receiving and re-broadcasting the transmitted signal. Keep in mind that with the addition of the security feature, the receiver and transmitter will not work with off-the-shelf transmission systems.

Transmitter

The EV-TX-3000 series transmitter is shown in Figure 1. The transmitter is packaged for integration inside a camera only. It has four (4) wires available - two wires (black - and red +) for power, two (2) wires for video (yellow + and purple -) and a channel change wire (ground for channel 2, open for channel 1). ***The system must be installed to operate at a minimum of 20 cm away from all persons.***



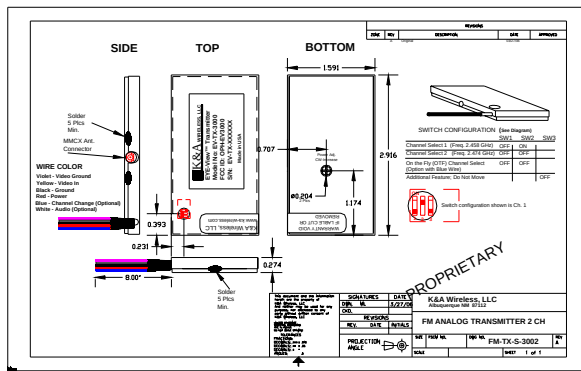


Figure 2. Photo and K&A drawing for EV-TX-3000.

The transmitter is supplied with a K&A antenna (part #: TX-S-2018-MMCX-RTA) to comply with FCC regulations, as shown in Figure 2. Any attempt to operate the system without an antenna or an antenna that is not approved by K&A, in writing, will result in damage to the system and will nullify any warranty and MAY VIOLATE FCC LICENSE AGREEMENT.

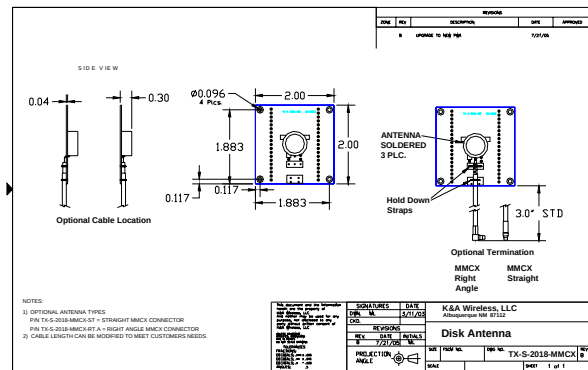


Figure 3. K&A drawing for antenna provided with EV-TX-3000 series transmitter.

Transmitter Installation

The transmitter is designed to be integrated into your camera system. To install the transmitter, connect the red wire to the battery (or regulator output), connect the black wire to ground or the negative terminal of your battery (or regulator output).

For the video connection, you should have requested either a high-Z or low-Z video input. This is the termination setting. If a low-Z input is required (this is in cases where the camera is directly tied to the transmitter with no other connections), the transmitter will measure approximately 75ohms at the video leads. In this case, confirm that the voltage coming from the camera does not exceed 1Vp-p. **FAILURE TO DO SO WILL VIOLATE FCC LICENSE APPROVAL.**

In cases where a high-Z setting is requested, (when the camera is required to drive a monitor and a transmitter without any video buffer amplifiers in the camera), the video input on the transmitter will measure approximately 1kOhm. In this case, confirm that both the monitor (or load) is connected and the transmitter is also connected. Measure the impedance of the parallel combination and confirm that it measures approximately 75ohm. Connect the video to the camera (confirm that the yellow transmitter video wire is connected to the positive video connection on the camera). In this case, confirm that the video level at the transmitter does not exceed 1Vp-p. **FAILURE TO DO SO WILL VIOLATE FCC LICENSE APPROVAL.**

Apply power to the camera and confirm that the camera is functional. Apply power to the transmitter and you should have a picture on the receiver unit (K&A EV-RX-2XXX series receiver units). If there is not picture, see the troubleshooting section of this manual. Additional documentation may be provided for specific installations.

SPECIFICATIONS

Specifications for the EV-TX-3000 SERIES

RF	
Operating Frequencies	2458 MHz Channel 1 2474 MHz Channel 2
Frequency Stability	+/- 0.005%
Output Power	10-900 mW factory set (+10 to 29.2 dBm)
Output Impedance	50 ohms MMCX Female Connector
Modulation	Direct Wideband FM
Modulation Designators	2 Channel Transmitters 16M5F3F
Spurious and Harmonics	less than 35 dBc
Video	
Formats	NTSC or PAL
Pre-Emphasis	CCIR 405-1
Frequency Response	<10 Hz to 5.5 MHz (+/-3dB)
Video Input Levels and Impedances	1 Volt Pk/Pk @75 ohms (Transmitter Terminated) 1 Volt Pk/Pk @ 6K ohms (Customer Terminated)
Distortion	Less than 2% for all types
Modulation Sense	Positive Input increases Frequency (Negative Sense Available)
Audio (optional)	
Audio Modulation	Direct FM
Audio Input	0 dBV input for maximum deviation

Level	(+/- 150KHz)
Audio Input Impedance	15 K ohms unbalanced nominal
Sub-carrier Frequency	6 MHz
Sub-carrier Level	-20 dBc nominal (Less Than 40 dBc NO Audio Option)
Modulation Sensitivity	100 KHz per Volt
Distortion	less than 2% THD
Input Power	
Input Voltage	4 to 24 volts DC (30 volt surge)
Input Current	225 mA @ 12 Volts DC (typical @ 750mW)
Input Power	2.7 watts nominal (750mW RF output power)
Reverse Polarity Protection	Resettable Fused DC Input current limited to 1.5A @ 25 Degrees C DC Input current limited to 30 ma during accidental polarity reversal @ 24 VDC in.
Low Battery Shutdown	Adjustable 4 to 20 Volts DC
Microprocessor ON/OFF	Open Drain/Collector (Low for Shutdown)
Environmental	
Operating Temperature	-20 to +60 C (Case Temperature)
Humidity	95% Non-Condensing
Mechanical	
Size	2.92 X 1.30 X 0.30 inches
Weight	1.5 Ounces
Other	
FCC ID	OPH-EV-3000

TROUBLESHOOTING

