

Architectural and Engineering Specification SR-5840D-8 Short Range Wireless Video and Data Transmission Systems

1. MANUFACTURER:

1.1. CONTACT INFORMATION:

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1.2. QUALITY AND MANUFACTURING:

- 1.2.1. The manufacturer providing the specified product shall be certified to comply with the requirements of ISO 9001-2000.
- 1.2.2. Equipment shall be current standard production units and shall have been in production for a minimum of six months.
- 1.2.3. Product design and manufacturing shall be in conformance with the safety specifications of UL 2044.

2. SYSTEM DESCRIPTION:

A fully assembled, factory tested and certified system will have the following features:

- 2.1. Point-to-point wireless transmission of up to eight (8) separate, user selectable video channels of full-motion, real time video that can be broadcast in standard color or monochrome video and one RS422 data channel.
- 2.2. The system transmission and reception shall not be affected by extreme weather conditions.
- 2.3. The system shall be provided complete with transmitter with integral antenna, receiver with integral antenna, coaxial cables, all AC/DC power adapters, mounting hardware, and installation and operation manuals.
- 2.4. The wireless system shall not require a user license to operate.

3. PRODUCT SPECIFICATIONS:

The wireless system shall meet or exceed the following design and performance specifications.

3.1. Operational Features:

- 3.1.1. The system shall operate in the 5.733-5.866 GHz frequency range. Additionally, the system shall have eight (8) frequency channels of operation, which shall be user field selectable.

- 3.1.2. The system shall provide picture quality equivalent to 1,000 lines of resolution.
 - 3.1.3. The system shall transmit broadcast NTSC (PAL version optional) color and EIA monochrome video signals over line-of-sight distances up to four thousand (4,000) feet. The system's inputs and outputs shall be fully compatible with NTSC color and EIA-170 monochrome video signals and EIA-330 CCTV signals.
 - 3.1.4. The system shall employ channel lock VCO, shall not require a pathway license and must be FCC certified in compliance with CFR Title 47, Part 15.249 limits and IC RSS210 limits in Canada.
 - 3.1.5. The system shall employ one RS422 data channel with a frequency band of 902~928 MHz.
 - 3.1.6. The system shall allow for flexible receiver antenna alignment to provide reliable and clear video in difficult installations. The transmitter and receiver shall both utilize a circular-polarized microstrip antenna to provide tolerance against signal deterioration in extreme weather conditions.
 - 3.1.7. The system shall utilize FM modulation to provide immunity from signal deterioration in extreme weather conditions and shall not be subject to interference from power lines, telephone or radio links, generators or vehicles. Two-stage filtering shall be employed in the system to minimize unauthorized reception.
 - 3.1.8. An LED on the transmitter and receiver shall indicate power on, a second LED on the transmitter and receiver BNC connectors shall indicate composite video signal presence. The transmitter and receiver shall both have a push button test pattern generator to indicate proper antenna alignment and overall system performance capability.
 - 3.1.9. The transmitter and receiver shall have a terminal strip connector with wire clamps for input power.
 - 3.1.10. The NEMA 4X enclosures shall be provided with a mast mount bracket for mounting on 2" minimum diameter mast.
- 3.2. System Transmitter:
- 3.2.1. Pre-emphasis complies to: ITR and CCIR, 405-1.
 - 3.2.2. Frequency accuracy: 50 ppm, -20 degrees Celsius to +45 degrees Celsius (-4 degrees Fahrenheit to +113 degrees Fahrenheit).
 - 3.2.3. Effective radiated power: 50,000 μ V/meter.
 - 3.2.4. Attack time: Less than 5 milliseconds.
 - 3.2.5. Spurious & Harmonics: Less than -60 dBc.
 - 3.2.6. Control data signals shall be provided for bi-directional differential data conforming to EIA RS-485 signal levels and drive capabilities.
 - 3.2.6.1. "+TX", "-TX" shall designate the control data lines connected to the RS-485 output within the system.
 - 3.2.7. Control data protocol support shall include Pelco D and Pelco P codes without the use of additional protocol convertor hardware.

- 3.2.7.1. Additional protocols, including NTCIP 1205:2001, may be supported using additional protocol convertor hardware.
- 3.2.8. Power input and operational performance shall be in conformance with the following specifications:
 - 3.2.8.1. Power input shall be less than 100 Watts with all options installed and operating.
 - 3.2.8.2. An optional thermostatically controlled heater and blower AC operating voltage and frequency shall be 85 VAC to 264 VAC @ 1.4 A and 60Hz +/- 3Hz for the heater element.
 - 3.2.8.3. The system transmitter shall have reverse polarity protection and shall be supplied with 11-16 VDC @ 500mA wall transformer (standard).
- 3.3. System Receiver:
 - 3.3.1. Input sensitivity: -70 dBm.
 - 3.3.2. Noise (total system): <4 dB.
 - 3.3.3. Frequency accuracy: 0.02%, -20° C to +45° C (-4 degrees Fahrenheit to +113 degrees Fahrenheit).
 - 3.3.4. Spurious & Harmonics: Less than -60 dBc.
 - 3.3.5. Control data signals shall be provided for bi-directional differential data conforming to EIA RS-485 signal levels and drive capabilities.
 - 3.3.5.1. "+RX", "-RX" shall designate the control data lines connected to the RS-485 output within the system.
 - 3.3.6. Control data protocol support shall include Pelco D and Pelco P codes without the use of additional protocol convertor hardware.
 - 3.3.6.1. Additional protocols, including NTCIP 1205:2001, may be supported using additional protocol convertor hardware.
 - 3.3.7. Power input and operational performance shall be in conformance with the following specifications:
 - 3.3.7.1. Power input shall be less than 100 Watts with all options installed and operating.
 - 3.3.7.2. An optional thermostatically controlled heater and blower AC operating voltage and frequency shall be 85 VAC to 264 VAC @ 1.4 A and 60Hz +/- 3Hz.
 - 3.3.7.3. The system receiver shall have reverse polarity protection and shall be supplied with 11-16 VDC @ 500mA wall transformer (standard).
- 3.4. Antennas:
 - 3.4.1. The transmitter shall have a unique output connector for mating to the integral circular-polarized microstrip antenna and one 75 Ohm BNC type connector and shall accept NTSC composite video signals 1.0 V P-P.
 - 3.4.2. The receiver shall have a unique input connector for mating to the integral circular-polarized microstrip antenna and one 75 Ohm BNC type connector that provides NTSC standard output, EIA-170, 1.0 V P-P.

3.4.3. Both transmitter and receiver antennas shall have a 160 degree 3dB gain beamwidth and a front to back ratio of ≥ 20 dB.

3.5. Mechanical:

3.5.1. Interface connectors shall be weatherproof and corrosion resistant BNC style or other similar connector.

3.5.2. Transmitter and receiver weight shall not exceed six (6) pounds in weight.

3.5.3. Nominal transmitter and receiver dimensions shall each be 11.3" H x 9.3" W x 5.3" D or less.

3.6. Environmental:

3.6.1. The system shall conform to the following environmental and mechanical specifications:

3.6.1.1. Operational temperature range shall be from -20 degrees Celsius to +45 degrees Celsius.

3.6.1.2. Immunity to vibration shall be consistent with the specifications of NEMA TS-2 section 2.1.9.

3.6.1.3. Immunity to shock shall be consistent with the specifications of NEMA TS-2 section 2.1.10.

3.6.1.4. Immunity to water spray shall be consistent with the specifications of NEMA 250 section 5.7.

3.6.1.5. Immunity to corrosion shall be consistent with the specifications of NEMA 250 sections 5.9 and 5.10.

3.6.1.6. Electromagnetic radiation shall be within the limits set by FCC Regulations 47 CFR Part 15 for Class A devices.

3.6.2. The system transmitter and receiver shall be supplied in weatherproof, non-metallic, NEMA 4X enclosures. The transmitter and receiver NEMA 4X enclosures shall operate in a non-condensing humidity of up to 90%.