

The most important thing we build is trust.

## XR Series Receiver



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# Revision History

| Version | Date     | Main Changes from Previous version | Created by |
|---------|----------|------------------------------------|------------|
| X1      | 04/25/05 | Initial Release                    | TM         |
| X2      | 02/24/10 | Change doc format                  | RM         |
|         |          |                                    |            |

## 1. Introduction

The XR Series of receivers from GMS, are advanced technology microwave receivers capable of operation at 1.7 – 6.0 GHz. The XR Series demodulates one video and two audio signals from a composite analog RF source. The XR Series is fully synthesized and operated at 16 pre-programmed channels. The Channel Select is controlled by a microprocessor and a 16 position rotary switch sets the desired channel. The XR includes an LED display for representation of power and signal strength to facilitate path alignment.

The XR Series features a Pre-select Band Pass Filter and integral Low Noise Amplifier at the RF input with a nominal noise figure of 5 dB. The XR employs dual SAW filters at the IF stage for enhanced adjacent channel interference rejection. Two buffered video output signals and two balanced audio outputs are provided at a DB 15 connector. NTSC and PAL standards are available. Small size, lower power consumption and serial port control make the XR series ideal for use in remote applications.

## 2. Functional Description

### 2.1 Power

Power requirements are +11 to +15 VDC at 250-350 mA. Connection to the receiver is made through the DB-15 connector .

### 2.2 RF

The XR Series Receivers have a nominal sensitivity of -78 dBm for a 36 dB S/N (weighted) with a dynamic range of 75 dB and a 5 dB overall noise figure. The RF signal is supplied to the receiver through the SMA connector (J4).

### 2.3 Audio

The XR Series Receivers have two audio channels. Each channel provides a balanced audio level of +9dBm (maximum) into 600 ohms. Both audio channels are output through the DB-15 connector. Audio gain of each output is independently adjustable via internal pots.

### 2.4 Video

XR Series Receivers have one video channel. The video has two buffered outputs. Each output is 1 Vpp into 75 ohms. Video level of both outputs is simultaneously adjustable via an internal pot. Video is accessible through the DB-15 connector .

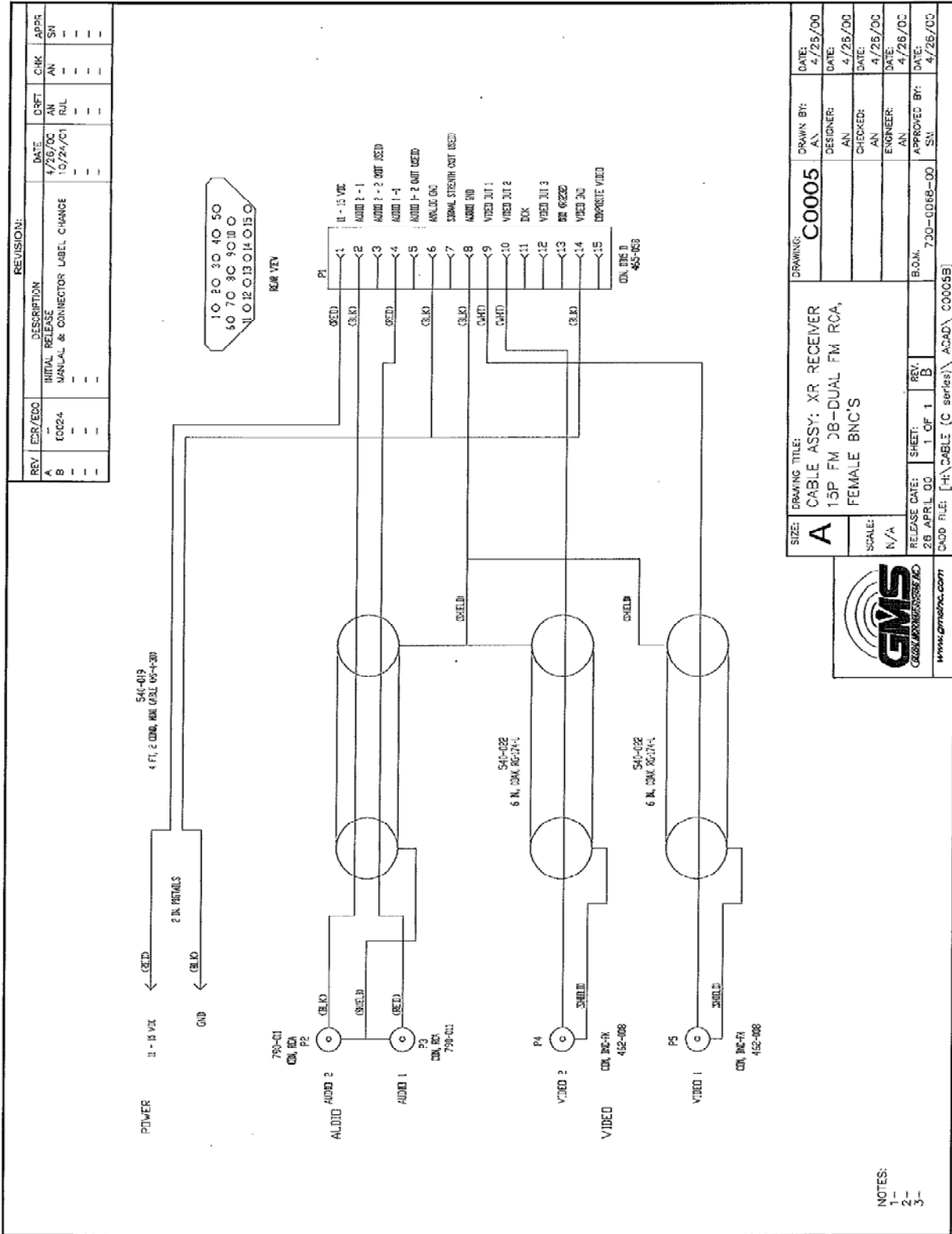
### 2.5 Serial Port Interface

TTL level synchronous serial interface is provided as an option on all XR Series Receives. Access to this interface is provided through the DB-15 connector.

### 3. Specifications for XR Series Frequency Agile Receivers

|     |                               |  |
|-----|-------------------------------|--|
| 3.1 | <b>RF</b>                     |  |
|     | Frequency Range               | 1.7 – 6.0 GHz standard<br><b>(Consult factory for additional frequencies)</b>                                  |
|     | Frequency Stability           | 0.005%   |
|     | Noise Figure                  | 5 dB typical   |
|     | Dynamic Range                 | 75 dB  |
|     | Sensitivity                   | -80 dBm  |
|     | Input Impedance               | 50 $\Omega$  |
| 3.2 | <b>Power</b>                  |  |
|     | Voltage                       | 11 to 15 VDC   |
|     | Current                       | 400 mA typical   |
| 3.3 | <b>Video</b>                  |  |
|     | Output Impedance              | 75 $\Omega$  |
|     | Output Level                  | 1 volt (peak to peak)  |
|     | De-emphasis                   | Per CCIR 525/625 line  |
|     | Frequency Response            | 10 Hz – 10 MHz with video LPF<br><b>(Meets or exceeds EIA/TIA 250-C end to end performance specifications)</b> |
| 3.4 | <b>Environment</b>            |  |
|     | Temperature Range             | -20° to +70°   |
|     | Humidity                      | 0 to 100% non-condensing   |
| 3.5 | <b>Audio</b>                  |  |
|     | Sub-carriers Available        | 4.83, 5.8, 6.0, 6.2, 6.5, 6.8, 7.02, 7.5, 8.3, 8.5, .59 MHz (any two)  |
|     | Output Impedance              | 600 $\Omega$ balanced  |
|     | Output Level                  | +9 dBm<br><b>(Meets or exceeds EIA/TIA 250-C end to end performance specifications)</b>                        |
| 3.6 | <b>Mechanical</b>             |  |
|     | Size                          | 3.25" X 4.25" X 0.75" (10.4 cu. in>)   |
|     | Weight                        | 8 oz/227 g   |
|     | RF Input Connector            | J2, SMA  |
|     | A/V/Power Connector           | J1, DB-15  |
|     | Pinout: 1: $\pm$ 11 to 15 VDC | 8: Audio GND   |
|     | 2: Audio 2 Low                | 9: Video out 1   |
|     | 3: Audio 2 High               | 10: Video out 2  |
|     | 4: Audio 1 Low                | 11: Digital clock  |
|     | 5: Audio 1 High               | 12: Video out 3  |
|     | 6: Analog GND                 | 13: Digital I/O  |
|     | 7: Signal Strength            | 14: Video GND  |
|     |                               | 15: Comp Video Out   |

# Appendix A - Cable Assembly



| REVISION: |         |                                 |          |
|-----------|---------|---------------------------------|----------|
| REV.      | EXP/EDD | DESCRIPTION                     | DATE     |
| A         | ---     | INITIAL RELEASE                 | 4/26/00  |
| B         | ---     | MANUAL & CONNECTOR LABEL CHANGE | 10/24/01 |
| ---       | ---     | ---                             | ---      |
| ---       | ---     | ---                             | ---      |

| REV. | CHK | DRFT | CHK | APPR |
|------|-----|------|-----|------|
| ---  | --- | ---  | --- | ---  |
| ---  | --- | ---  | --- | ---  |
| ---  | --- | ---  | --- | ---  |

|  |                             |                        |                      |
|--|-----------------------------|------------------------|----------------------|
| SIZE: <b>A</b>                                     | DRAWING TITLE: <b>C0005</b> | DRAWN BY: <b>AN</b>    | DATE: <b>4/26/00</b> |
| SCALE: <b>N/A</b>                                  | CABLE ASSY: XR RECEIVER     | DESIGNER: <b>AN</b>    | DATE: <b>4/26/00</b> |
| RELEASE DATE: <b>28 APRIL 00</b>                   | 15P FM DB-DUAL FM RCA,      | CHECKED: <b>AN</b>     | DATE: <b>4/26/00</b> |
| SHEET: <b>1 OF 1</b>                               | FEMALE BNC'S                | ENGINEER: <b>AN</b>    | DATE: <b>4/26/00</b> |
| REV: <b>B</b>                                      |                             | APPROVED BY: <b>AN</b> | DATE: <b>4/26/00</b> |
| QUO FILE: <b>[H:\CABLE (C series)\ACAD\C0005B]</b> |                             | B.O.M.:                | DATE: <b>4/26/00</b> |



- NOTES:  
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