

# **READ THIS FIRST!**

## **Save Time and Avoid Damage!**

We realize that you will want to start installing your new equipment right away. But, you will save time and avoid costly damage by taking a few moments to review the following helpful information before you proceed.

### **1. Installation and Cable Connections**

Before turning the power on, consult the "Installation" section of this manual to obtain specific advice about cable connections, switch settings and jumper configurations.

### **2. Operation**

See the "Operation" section for proper use of your new equipment.

### **3. Calibration**

All Ross Video Terminal Equipment is factory calibrated. Adjustment of sealed calibration components or any repairs to this unit, are to be performed by an authorized Ross Video technician. Unauthorized repairs will void your Warranty.

### **In Case of Problems**

If you encounter any problems with the installation of this unit, please call our Customer Service Department at (613) 652-4886, 24 hours a day, 7 days a week.

Advice is available, without charge, for the life of this equipment, not just for the warranty period.

**SMA-8018**  
**Serial Monitoring Amplifier**  
**USER'S MANUAL**

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## SMA-8018 • Serial Monitoring Amplifier – User’s Manual

- Ross Part Number: **DM-8018-02**
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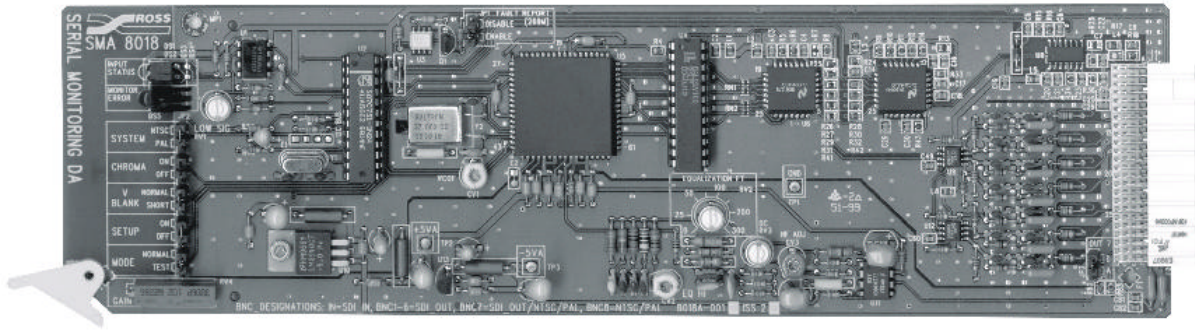
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## Introduction

The SMA-8018 Component Monitoring Amplifier provides a convenient and cost effective solution to signal distribution and picture monitoring requirements in serial component (4:2:2) systems. The complete unit occupies only a single card slot in a standard Ross digital rack frame. Ten modules may be mounted in the 2-RU frame.

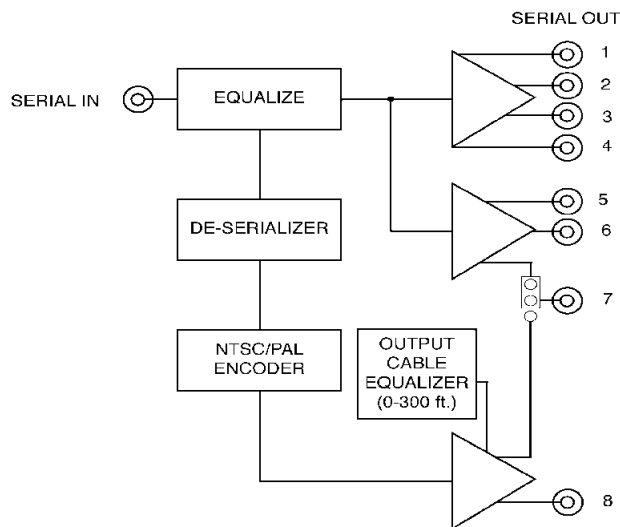
This equipment includes a 6 or 7 output serial distribution amplifier with re-clocking, as well as an exceptionally good cable equalizer for the serial input to give error-free performance with up to 1000 ft (305 meters) of 8281 cable. A component digital to analog composite converter provides 1 or 2 composite analog monitoring outputs. NTSC or PAL monitoring may be selected.

The analog monitoring outputs can be set to monochrome if desired. In the absence of an input signal, a color black monitoring output is produced. Moving a jumper to the TEST position can produce a 75% color bar pattern. Vertical interval blanking width is jumper selectable for either normal width or narrow width to allow the passage of all vertical interval signals.

Of special interest is the inclusion of an adjustable analog cable equalizer for the monitoring signal. This can be set to equalize 8281 type of output cables of up to 300 ft (90 meters) in length thus ensuring that the monitoring signal is delivered to the destination without chroma loss.

Indicators are provided to confirm adequate serial input signal strength and monitoring errors.

**SMA-8018 Block Diagram**



## Features

- Auto reclocking of serial digital input
- Input equalization for up to 1000 ft (300 meters) of cable
- Six or seven serial digital outputs
- One or two NTSC or PAL analog monitoring outputs
- Excellent chroma modulation accuracy
- Cable equalization for monitor outputs
- 10 modules fit into a 2 RU frame
- Input level detection

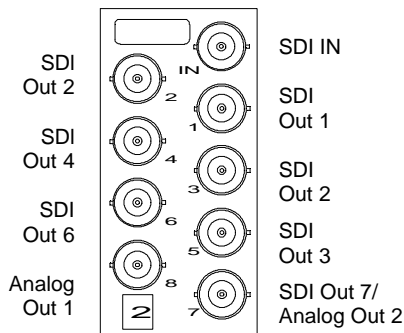
## Installation

### 1) Cables

Connect the input and output cables. The input is internally terminated in 75 ohms. The BNC connectors on the rear of the frame are marked for distribution amplifiers having eight outputs. However, in the case of the SMA-8018, there are six or seven outputs of serial digital and one or two analog composite video outputs. It is not necessary to terminate unused outputs.

Refer to the following.

### Cable Connections



### 2) Set Jumpers

Set the jumper plugs to determine the nature of the analog output signal.

|              |      |   |
|--------------|------|---|
| SYSTEM (JP2) | PAL  | For 625 line systems  |
|              | NTSC | For 525 line systems  |
| CHROMA (JP2) | ON   | The normal position   |
|              | OFF  | Used to output luminance only for the best picture on a monochrome monitor. |

|                    |         |  |
|--------------------|---------|--|
| V BLANK (JP2)      | NORMAL  | Deletes all vertical interval information signals (20-line blanking).  |
|                    | SHORT   | Passes all vertical interval signals occurring after the post equalizing pulses. If setup is ON, the signal will be non-standard because setup will be applied to the vertical interval. |
| SETUP (JP2)        | ON      | For NTSC in North America  |
|                    | OFF     | For all other systems  |
| MODE (JP2)         | NORMAL  | Normal operation   |
|                    | TEST    | Produces an analog color bar output. This may be useful for monitor alignment.   |
| OUT 7 (JP3)        | D       | Output 7 will have a serial digital output.  |
|                    | A       | Output 7 will have a composite analog output.  |
| FAULT REPORT (JP1) | DISABLE | SMPTE 269M Fault Report is disabled.   |
|                    | ENABLE  | SMPTE 269M Fault Report is enabled.  |

### 3) *Final User Setup*

Set the analog output EQUALIZATION (RV2) adjustment for the cable length used between the amplifier and destination. Plug the board into the frame and apply power.

The equalization control is calibrated for 8281 cable. For other types of cable, put the board on the extender, apply a D1 color bar signal and using a scope, set the EQUALIZATION adjustment for correct chroma level at the destination.

4) *Check that the green INPUT STATUS LED is on and the MONITOR ERROR LED is off, indicating a suitable input signal. The amplifier should be functioning properly.*

### Operation

The only customer-operated controls are GAIN (RV4) and EQ (RV2) for the analog video output.

The GAIN control has been factory-adjusted for correct output level and should not need adjustment in the field. The front edge of the module has several LED indicators, which show the current status of the amplifier. The meaning of the LED indicators when lit is as follows:

#### INPUT STATUS

- |       |  |
|-------|--|
| Green | When lit means that the input signal is suitable for achieving error-free performance. That is, it is within the capability of the cable equalizer and re-clocking circuit to restore the signal.                                      |
| Red   | This indicates that the input signal is too low or absent. In some circumstances the signal may still be restored correctly but the circuits will be working close to the limit of their capability and reliability cannot be assured. |

#### MONITOR ERROR

This indicator identifies if there is a problem with the input signal or in the analog conversion section of the card. There are three states for this indication.

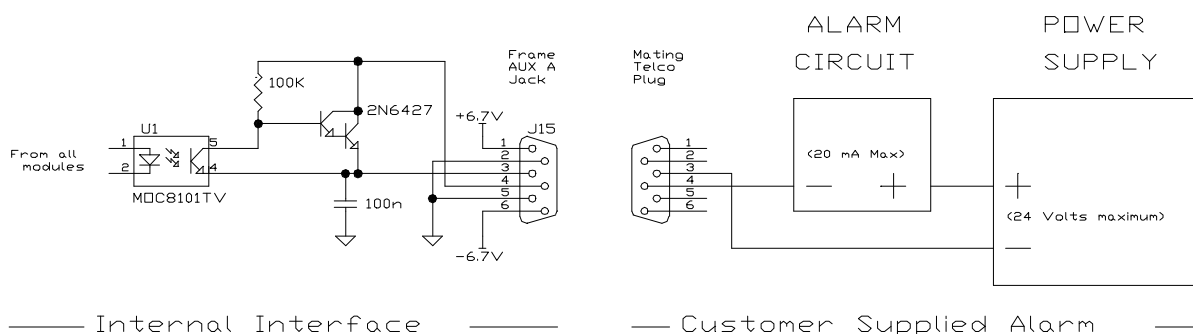
- |                                |   |
|--------------------------------|---|
| STEADY RED                     | The signal is present, but not the proper format (e.g. Composite Digital). (During this condition, the SMA 8018 provides an internally generated black burst signal to the analog outputs.) |
| FLASHING RED<br>50% duty cycle | There is no input signal.<br>(During this condition the SMA 8018 provides an internally generated black burst signal to the analog outputs.)  |
| FLASHING RED<br>10% duty cycle | The monitoring amp is in the "TEST" mode.<br>(In this mode the SMA 8018 provides an internally generated color bar signal to the analog outputs.)   |

## Fault Reporting Capability

Fault reporting in the SMPTE 269M standard is available on this card. This is a simple system, which can indicate that one, or more of the modules in the rack frame has encountered a fault or abnormal condition. Each rack frame has a "telco" connector, which can be connected to an external "contact closure" type of alarm system. A customer-devised system of lights can be used to trace a fault to a rack cabinet, rack frame, then a particular card. For more information on designing such a system, refer to SMPTE document ANSI/SMPTE 269M - 1994.

If the FAULT REPORT jumper (JP1) is enabled, the output will be a steady low signal if there is no power in the module. The output will pulse at a field rate if the input signal is very low or absent. In all other situations, the output is open (high impedance).

All frame modules having fault reporting capability are connected in parallel to the "telco" connector.



GENERAL ARRANGEMENT - SMPTE 269M ALARM REPORTING

## Maintenance and Repair

Routine maintenance is not required. If the module does not appear to be working properly, return it to Ross Video Ltd. for repair. All Ross digital distribution products are covered by a generous 5-year warranty and will be repaired without charge for materials or labor in this period. See "Ross Gear Terminal Equipment - Warranty and Repair Policy" in this manual.

## Specifications

|                                  |   |
|----------------------------------|---|
| <b>Serial Video Input</b>        | Standard SMPTE 259M-C; 270 Mb/s 525/625 Lines               |
|                                  | Input Impedance 75 $\Omega$ , terminating                   |
|                                  | Return loss > 22 dB to 300 MHz                              |
|                                  | Common Mode Rejection 4 V p-p @ 60 Hz                       |
| <b>Serial Video Outputs</b>      | Equalization Automatic, up to 31 dB                         |
|                                  | Number of outputs 6 or 7 (jumper selectable)                |
|                                  | Standard SMPTE 259M-C; 270 Mb/s 525/625 Lines               |
|                                  | Output Impedance 75 $\Omega$                                |
|                                  | Output return loss  |
|                                  | Outputs 1-6 > 18 dB to 270 MHz                              |
|                                  | Outputs 7 > 17 dB to 270 MHz                                |
|                                  | Signal Level 800 mV $\pm$ 10%                               |
|                                  | DC Offset 0 V ( $\pm$ 0.5 V)                                |
|                                  | Rise & Fall Times 800 pS ( $\pm$ 15%)<br>(20 - 80 %)        |
| Overshoot < 8%                   |   |
| <b>Analog Monitoring Outputs</b> | Number of outputs 1 or 2 (jumper selectable)                |
|                                  | Output Impedance 75 $\Omega$                                |
|                                  | Output return loss > 35 dB to 5 MHz                         |
|                                  | Output Isolation > 38 dB to 5 MHz                           |
|                                  | Signal Level 1V p-p $\pm$ 5%                                |
|                                  | DC Offset < $\pm$ 50 mV                                     |
|                                  | Frequency Response $\pm$ 0.05 to 4.2 MHz<br>-0.6 dB @ 5 MHz |
|                                  | Differential Phase < 0.8 degrees                            |
|                                  | Differential Gain < 1.8%                                    |
|                                  | Group delay $\pm$ 10 ns to 5.5 MHz                          |
|                                  | RMS noise (unweighted) -54 dB 0 - 5.0 MHz.                  |
| <b>Power Consumption</b>         | 3.9 W   |

Specifications are subject to change without notification.

## Ordering Information

|          |   |
|----------|---|
| SMA-8018 | Serial Monitoring Amplifier                     |
| DFR-8104 | Digital Products Frame (1 RU, Holds 4 modules)  |
| DFR-8110 | Digital Products Frame (2 RU, Holds 10 modules) |
| PS-8101  | Power Supply (85-250 volts)                     |
| EXT-8100 | Extender Board                                  |
| DM-8018  | Additional User's Manual for SMA-8018           |

**Note:** All Ross Video Limited terminal equipment frames include one power supply. A redundant power supply may be installed in all two-rack unit frames if required. One User's manual is supplied with each frame.

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## Ross Gear Terminal Equipment • Warranty and Repair Policy

This **Ross Gear Terminal Equipment** product is warranted to be free of any defect with respect to performance, quality, reliability and workmanship for a period of **FIVE (5)** years from the date of shipment from our factory.

In the event that your **Ross Gear** product proves to be defective in any way during this warranty period, we will gladly repair or replace this piece of equipment with a unit of equal or superior performance characteristics.

Should you find that this **Ross Gear** product has failed after your warranty period has expired, we will repair your defective piece of equipment for as long as suitable replacement components are available. You, the owner, will bear any labor and/or component costs incurred in the repair or refurbishment of said equipment, beyond the **FIVE (5)** year warranty period.

Should your **Ross Gear** product be of our **Digital Terminal Equipment** product line, a power supply, or carries any surface mount devices, proves to be defective, we would ask that your piece of equipment be repaired by an authorized **Ross Video Limited** factory representative. Any attempt to repair this product by anyone other than an authorized **Ross Video Limited** factory representative, will void your warranty.

If this is a manual for a **Ross Gear** product of our **Digital Terminal Equipment** product line, a power supply, or piece of equipment which carries surface mount devices, you will find it provides all pertinent information for the safe installation and operation of your Ross Gear product.

If this is a manual for a **Ross Gear** product from our **Analog Terminal Equipment** product line, you will find it provides all pertinent information for the safe installation and operation of your **Ross Gear** product. Included in this manual if this product does not carry any surface mount devices, you will also find schematics, bills of materials and layout drawings. These are provided for your convenience, should you find it necessary to perform discretionary field repair or modifications to your **Ross Gear** product.

**Ross Video Limited** reserves the right to assess any modifications or repairs made by you and decide whether they fall within warranty limitations, should you decide to return your **Ross Gear** product for repair.

In no event shall **Ross Video Limited** be liable for direct, indirect, special, incidental, or consequential damages (including loss of profits) incurred by the use of this product. Implied warranties are expressly limited to the duration of this warranty.

### **In Case of Problems:**

Should any problem arise with your **Ross Gear Terminal Equipment Product**, please contact our **Customer Service Department** at **613-652-4886**, 24 hours a day, 7 days a week.

A Return Material Authorization number (RMA) will be issued to you, as well as specific shipping instructions, should you wish our factory to repair your **Ross Gear** product. A temporary replacement, if required, will be made available for a nominal charge. Any shipping costs incurred, will be the responsibility of you, the customer. All products shipped to you from **Ross Video Limited**, will be shipped collect.

**Ross Gear Terminal Equipment** product advice is available without charge for the life of this equipment, not just the warranty period.