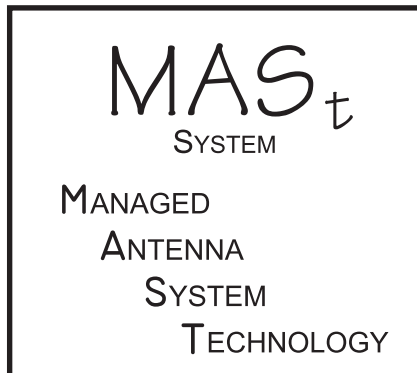




**Audio Specialties Group
Products Division**

**MAS-502
MAS-Rack System Controller
Technical Specifications**



Audio Specialties Group and any of its vendors, dealers or representatives forbid the use of this product in any way that is contrary to FCC Regulations.

Utilizing this product in a manner which is contrary to FCC Regulations is expressly forbidden.

Maintaining power levels to within FCC regulations is the sole responsibility of the user.

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1.1 Introduction

The MAS-502 Master Module is a 2-HP wide power-supply/controller which supplies the MAS-Rack series of Antenna Management modules with DC power and centralized control data. Optional IP based remote control/status monitoring is also supported by the MAS-502.

1.2 Features

All active MAS-Rack modules connect to a MAS-502 with a 5-Wire MAS-BUS cable. This cable carries RS-485 Data and unregulated 24V DC power along the rear-panel of the frame. Each module must have a unique ID of 0-15 to allow the RS-485 Data to recognize each module. This ID is set internally, at the factory but can be changed in the field should alterations to the system be needed. The MAS-BUS cabling must not exceed 2-meters due to voltage drop on the power wires. However, the RS-485 data is not ground referenced which enables modules to be spread across a facility while maintaining connectivity and isolation to the MAS-502 if the modules are locally powered.

Redundant power option is via a 4-pin connector which allows an alternate 24V DC source to back-up the internal supply.

The MAS-502 provides four MAS-BUS outputs identified as A,B,D,C. While the RS-485 data is common to all outputs, The DC voltage is an individually fused source with separate on/off control and status monitoring. Rear-panel LED indicators identify active DC outputs. Front panel switches and indicators allow outputs to be enabled and monitored.

Remote control capability is via RJ-45 IP based connectivity to a computer running a WEB-Browser such as Internet Explorer™.

2.1 Precautions

2.1.1 Explanations



Identifies important performance information



Identifies safety information

Note

Identifies important operator actions

2.1.2 Environmental



Do not expose the MAS-502 to rain or direct sunlight.



Maintain proper ventilation for temperature specification.

2.1.3 Electrical

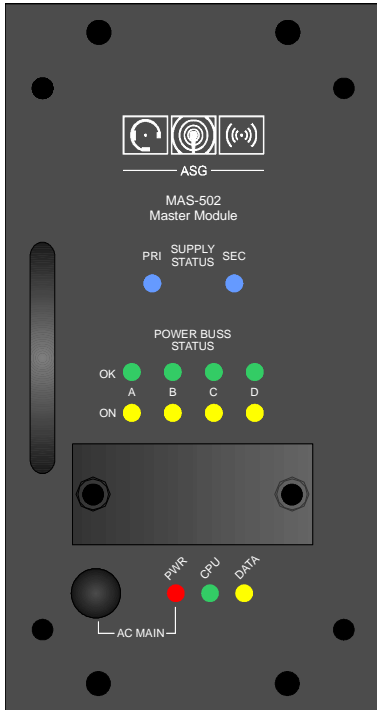


Use care when connecting the MAS-Bus cables. They are polarized, however, with sufficient force applied, they can be seated in reverse.



The MAS-502 is ventilated from the right side to the top of the chassis. The right side of the MAS-502 must remain unobstructed.

2.2 Front Panel Layout



2.2.1 Front Panel DIP Switches

Switch #1	Output A Enable
Switch #2	Output B Enable
Switch #3	Output C Enable
Switch #4	Output D Enable
Switch #5	Future
Switch #6	Disable IP Remote (Up or On position disables) Factory Default = Off
Switch #7	RS-485 Enable (Up or On position enables) Factory Default = Off
Switch #8	Microprocessor Reset. Factory Default = Off

The Reset Switch should be in the down position for normal operation. To reset the microcontroller, move the switch up to the "ON" position. The switch should then be moved back to the "OFF" position, however, if it is left in the "ON" position, normal operation will resume after a 1-second pause.

2.2.2 Front Panel Indicators

There are thirteen indicators on the front panel. All indicators are microprocessor controlled and may serve multiple purposes. Below is a list of the indicator functions.

#1 SUPPLY STATUS PRI (Blue)

Indicates the status of the primary internal 120V AC power circuitry. This indicator is driven by an sampling of the power supply voltage and is set to monitor a range of voltages. A steady state indicates power is within acceptable levels. The off condition indicates a complete loss of voltage. A low-voltage condition is indicated by a slow-flashing state. An over-voltage condition is indicated by a fast-flashing state.

#2 SUPPLY STATUS SEC (Blue)

Indicates the status of the secondary external 24V DC power input. This indicator is driven by an external voltage input and is set to monitor a range of voltages. A steady state indicates power is within acceptable levels. The off condition indicates a complete loss of voltage. A low-voltage condition is indicated by a slow-flashing state. An over-voltage condition is indicated by a fast-flashing state.

#3 POWER BUS STATUS A-ON (Yellow)

Illuminates if front panel DIP switch #1 is in the "ON" position.

#4 POWER BUS STATUS B-ON (Yellow)

Illuminates if front panel DIP switch #2 is in the "ON" position.

#5 POWER BUS STATUS C-ON (Yellow)

Illuminates if front panel DIP switch #3 is in the "ON" position.

#6 POWER BUS STATUS D-ON (Yellow)

Illuminates if front panel DIP switch #4 is in the "ON" position.

#7 POWER BUS STATUS A-OK (Green)

Illuminates if the power for Bus-A is good (Voltage present). Flashes if the power for Bus-A is not present but is supposed to be on (fail mode). Indicator is off if the power for Bus-A is not present and is not enabled by the user.

#8 POWER BUS STATUS B-OK (Green)

Illuminates if the power for Bus-B is good (Voltage present). Flashes if the power for Bus-B is not present but is supposed to be on (fail mode). Indicator is off if the power for Bus-B is not present and is not enabled by the user.

#9 POWER BUS STATUS C-OK (Green)

Illuminates if the power for Bus-C is good (Voltage present). Flashes if the power for Bus-C is not present but is supposed to be on (fail mode). Indicator is off if the power for Bus-C is not present and is not enabled by the user.

#10 POWER BUS STATUS A-OK (Green)

Illuminates if the power for Bus-D is good (Voltage present). Flashes if the power for Bus-D is not present but is supposed to be on (fail mode). Indicator is off if the power for Bus-C is not present and is not enabled by the user.

#11 POWER (Red)

Illuminates when the microprocessor recognizes proper supply voltages.

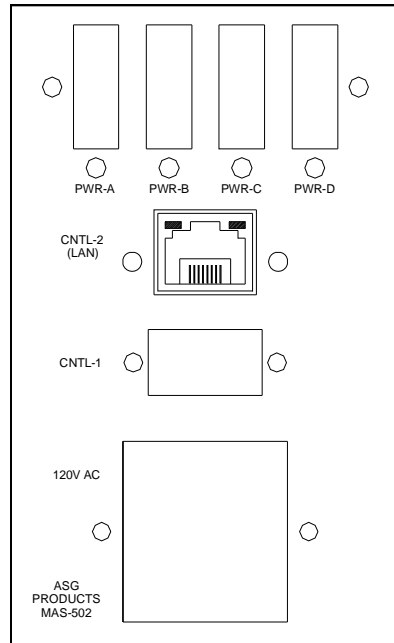
#12 CPU (Green)

CPU Run indication. Flashes to indicate health of the microprocessor

#13 DATA (Yellow)

Illuminates to indicate a proper Ethernet/network connection for remote control. (This indicator will not illuminate if the remote control/status option is not installed).

2.3 Rear Panel Layout



The MAS-502 provides four, individual DC power outputs.

These are identified as:

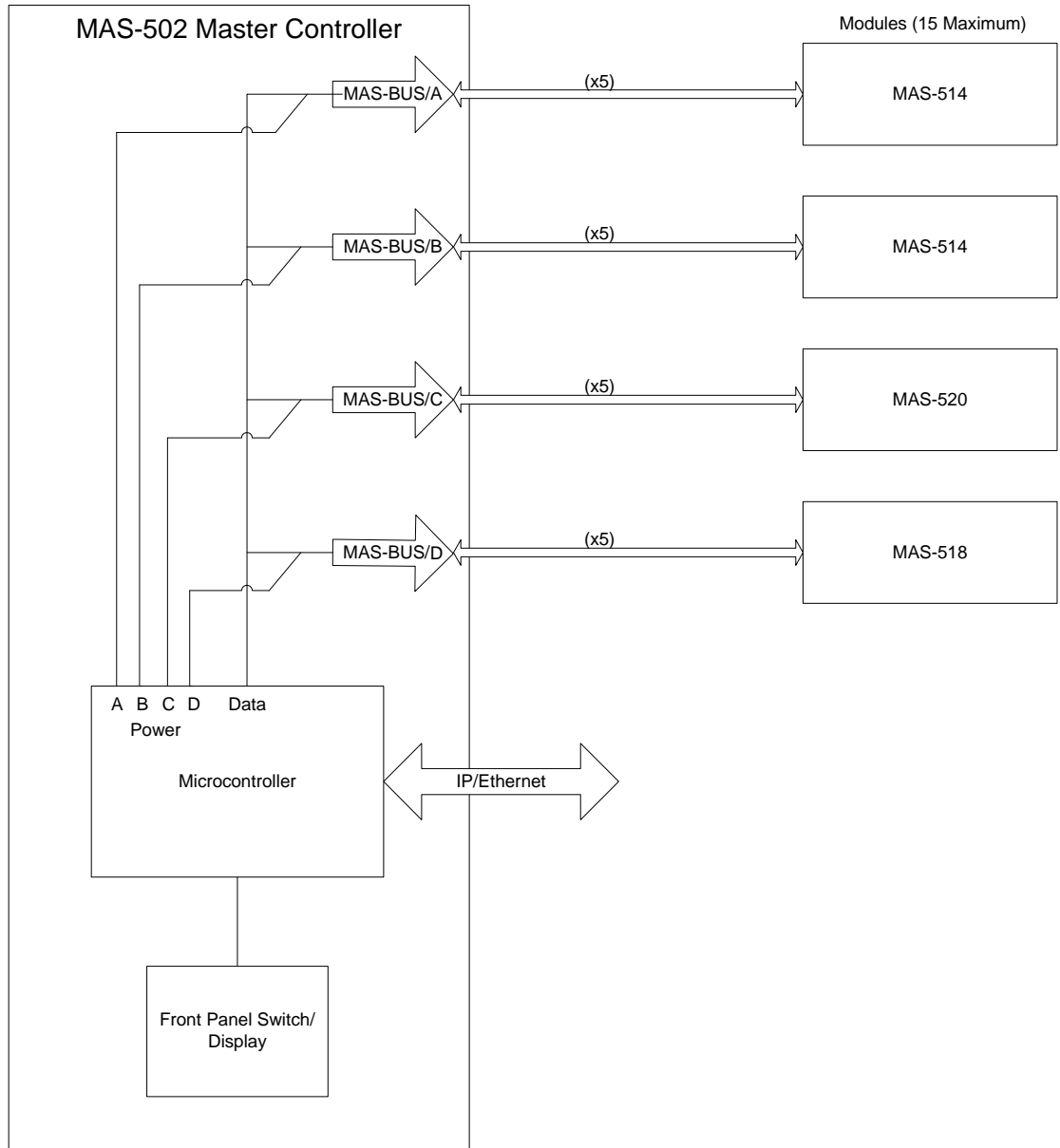
PWR-A
PWR-B
PWR-C
PWR-D

Four mechanical relays are used to enable each individual output. Each output is equipped with an auto-reset fuse set to trip at 1850mA. This is more than sufficient to energize the largest current demand modules in the MAS-Rack series. The total available combined output current is 2200mA. For example, with four 300mA modules, total current consumption is 1200mA. Each output is fuse protected so a failure in a module that causes excessive current draw will not affect the other outputs.

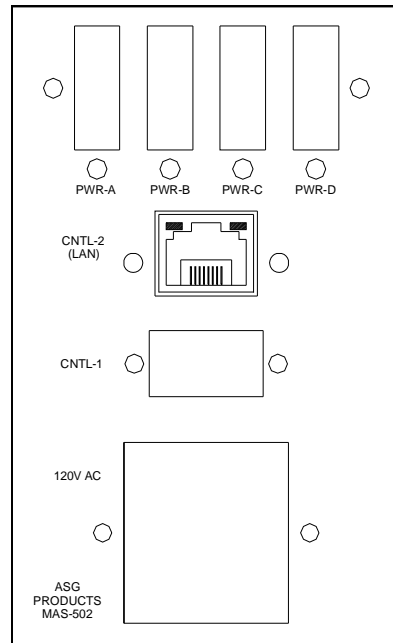
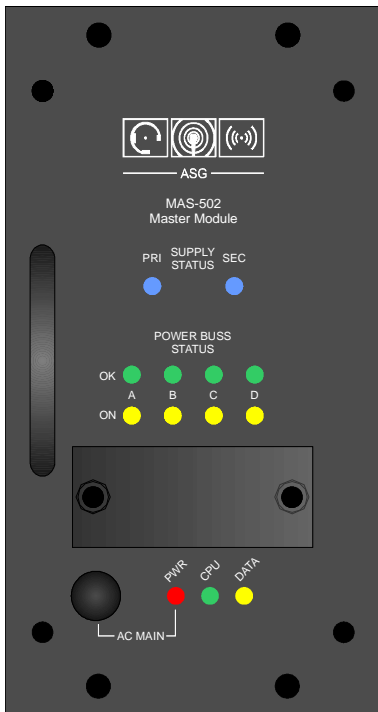
MAS-BUSS Cabling.

Each MAS-Rack system is pre-configured at the factory for proper power load distribution. Each module is connected to the MAS-502 with a factory provided MAS-BUS cable of required length. Maximum distance a module can be located from the frame is 10 feet for normal operation. If an active/powered module needs to be located greater than 2-meters from the MAS-502, then the RS-485 data must be terminated in the module. This is done by internal jumper settings on each module. In normal operation, the termination is provided by the MAS-502. The maximum length for the RS-485 is 100-Meters. Remote DC Power must also be provided at the module location. Details for local powering of modules can be found in the Technical Specifications document for each module.

SYSTEM BLOCK DIAGRAM



Section **3**
Panel Layout



Connector Detail

4.1 Connector Pin Assignment

4.1.1 MAS-BUS Connector Pin Assignment

Pin #	Function
1	Data Ground
2	RS-485 Data +
3	RS-485 Data -
4	+20-24V DC, current limited.
5	Power Ground

4.1.2 CNTL-1: DB-9 Female, Firmware Uploading

1	NC
2	RS-232 TX-D
3	RS-232 RX-D
4	NC
5	Ground

4.1.3 CNTL-2 (LAN): RJ-45 (Ethernet), Remote Control

1	Data
2	Data
3	Data
4	
5	
6	Data
7	
8	

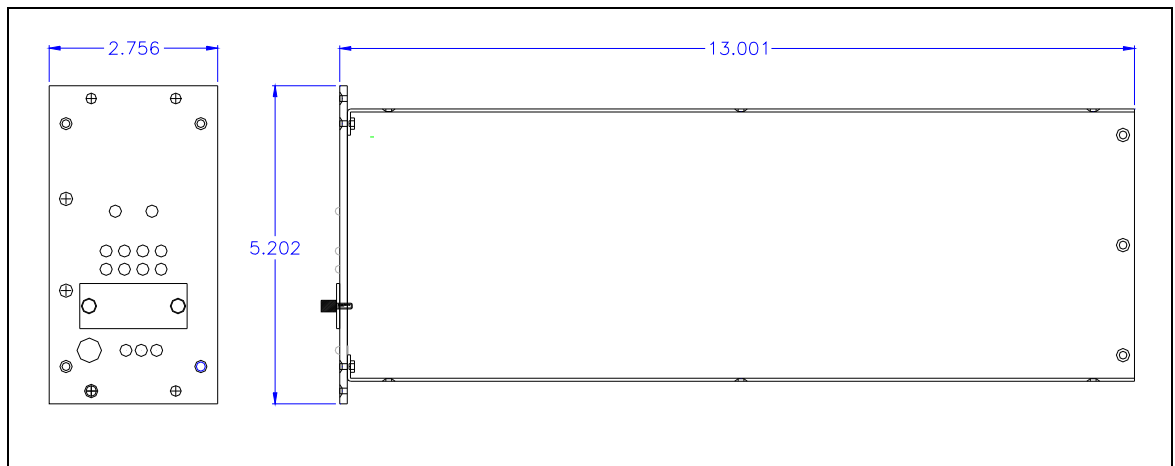
Specifications subject to change without notice.

4.2 Operational Conditions

Temperature 20 Degrees Celsius to 60 Degrees Celsius

Although the MAS-502 is equipped with forced air cooling, it is only required in high ambient temperature or maximum current-use applications.

4.3 Mechanical



4.3 Electrical Specifications

120V AC Primary Voltage. (NOT RATED FOR 220V)

4A Slow Blow Fuse

20 to 60 Watts depending on modules being powered.

Specifications subject to change without notice.