User Manual

SIG-1 Communication Bridge
Serial to Internet Gateway

Ascentic™
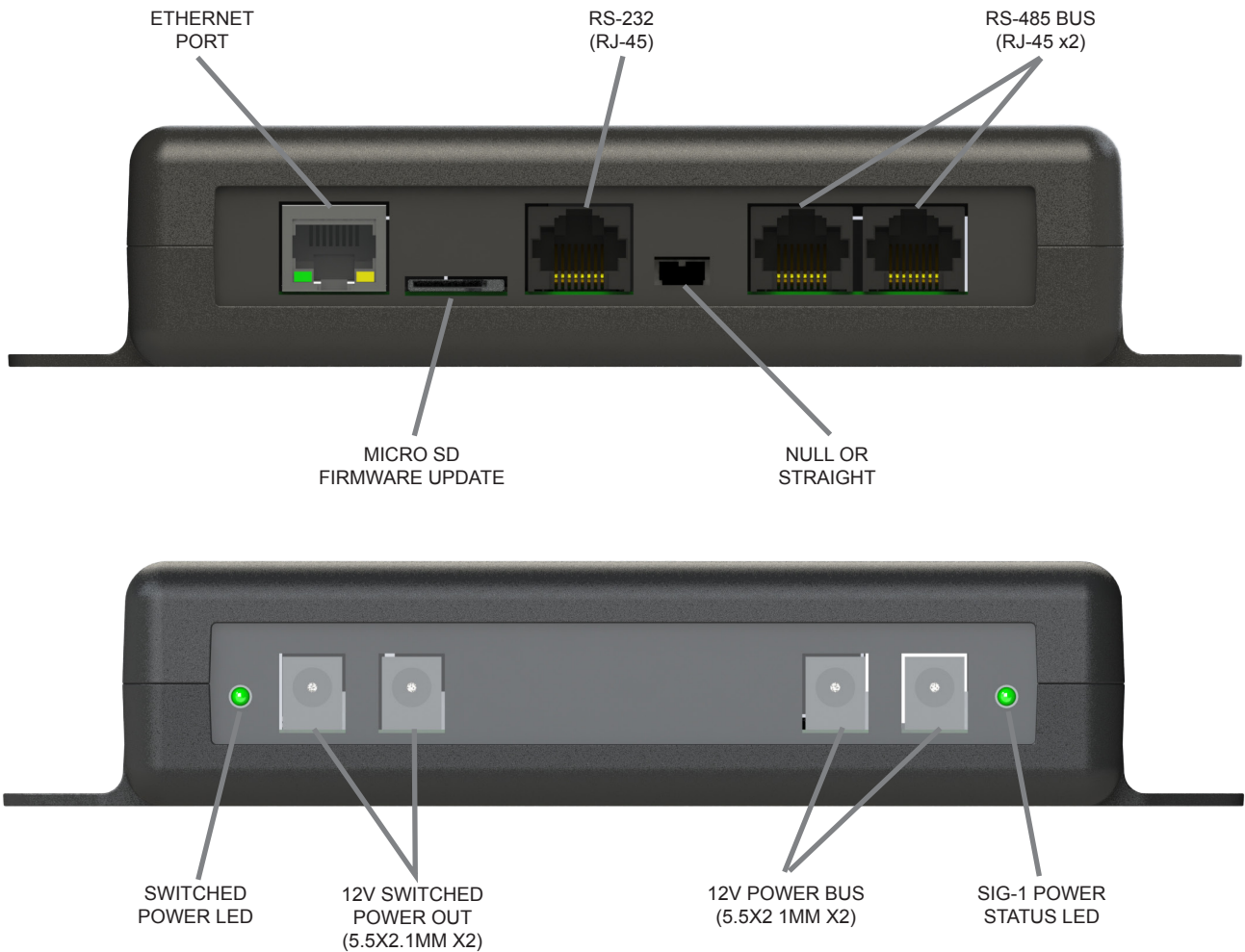RETAIL ENGINEERING
by Audio Authority®

Introduction

The SIG-1 Communication Bridge facilitates the communication between serially-connected devices (RS-232 and/or RS-485) and your network. Telnet network communication allows for monitoring, control, and power cycling of a connected system. The SIG-1 mounts directly to a flat surface using the mounted flanges.

Features

- Serves as a communication bridge between serial devices and network portal devices.
- Enables control of a system via Telnet
- Records time-stamped activity logs of all serial traffic for a session
- Provides switched power to +12V DC devices up to 7A
- Measures and reports current draw for the connected devices
- Logs any known RS-485 or RS-232 commands for remote analysis
- Configurable via serial commands or text file on a microSD card.

ETHERNET PORT

RS-232 (RJ-45)

RS-485 BUS (RJ-45 x2)

MICRO SD FIRMWARE UPDATE

NULL OR STRAIGHT

SWITCHED POWER LED

12V SWITCHED POWER OUT (5.5X2.1MM X2)

12V POWER BUS (5.5X2 1MM X2)

SIG-1 POWER STATUS LED

MicroSD Configuration

The SIG-0 accepts configuration commands from a microSD card on boot.

• Create an empty text file in the root directory of a microSD Card titled 'AacConfig.txt'

• In the AacConfig file, add any configuration commands you would normally send via RS-232 in Configuration mode as a new line (see above).

• Insert the microSD Card into the unpowered device, then apply power. The configuration will then be loaded into flash memory on boot until the microSD is removed.

Firmware Update Process

microSD

• Copy new firmware ".FWU" file onto a blank microSD Card (FAT)

• Insert Firmware Update SD into the device with device power disconnected

• Apply power to device, monitoring the power LED Indicator

• When power LED indicator returns to a slow blink, update is complete

• To verify the firmware update, send the firmware version query listed in the Commands List (see above) and ensure response matches the firmware version expected.

Communication

The SIG-1 Communication Bridge has the default device ID 254. It can send and receive serial commands via RS-485 at 57600 Baud, 8-N-1, and Half-Duplex; and via RS-232 at 115200 Baud, 8-N-1, and Full-Duplex. The device may be set for Null or Straight using the switch located between the RS-232 port and the RS-485 bus. Both ports utilize a modular RJ-45 jack with the following pinouts:

RS-485 Pinout:

Pin #	Function	Pin #	Function
P1	Orange White - Ground	P5	Blue White - Switched Power Bus (12V Dev Only)
P2	Orange - Ground	P6	Green - Data B Negative
P3	Green White - Data A Positive	P7	Brown White - Ground
P4	Blue - Switched Power Bus (12V Devices Only)	P8	Brown - Ground

RS-232 Pinout:

Pin #	Function	Pin #	Function
P1	Orange White - Ground	P5	+12V DC Power
P2	Orange - Ground	P6	Green - RX or TX
P3	Green White - TX or RX	P7	Brown White - Ground
P4	+12V DC Power	P8	Brown - Ground

Commands

Name	Description	Format	Response
Query Link Status	Ethernet Link UP/DOWN	[DEV=254;NET;LINK?]	[DEV=254;NET;LINK=UP]
Query IP Address	Returns the SIG-0's current IP Address	[DEV=254;NET;LINK;IP?]	[DEV=254;NET;LINK; IP=10.0.0.2]
Reset Defaults	Resets the SIG-0 to factory defaults	[DEV=254;RESET;DEFAULT]	n/a
Reboot Device	Reboots the SIG-0 to implement change	[DEV=254;REBOOT]	n/a

Quick Start Instructions

- Connect the SIG-1 device to RS-232 and/or RS-485 devices. Connect +12V power out to any devices that are not connected to, or able to be powered by, the RS-485 bus.

- Connect the SIG-1 device to a known-working network port, then power on the device. The SIG-1 will power up other devices after a few seconds.

- Communicate with the SIG-1 Device, as well as interact with other devices.

- From the Telnet connection, send a log query command to the SIG-1 to have it respond with the next available log entry. Repeat until the log is empty.

Troubleshooting

No RS-232 communication:

- Ensure connections are fully seated.
- Ensure devices are using correct protocol settings.
- Ensure the Null/Straight selector is set correctly.

No Ethernet Connectivity Lights

- Ensure connections are fully seated.
- Ensure end device is powered on with Ethernet enabled.
- Power cycle devices to clear previous TCP connections.

LED periodically blinks fast
### (No TCP Socket connection)

- Ensure connections are fully seated.
- Ensure both the SIG-0 and End Devices have been configured correctly.
- Power cycle devices to clear out previous TCP connections.*

  Some devices have a limitation on the number of connected TCP clients, and may require a delay period or reboot to clear.

Example System:

SIG-1 Bridge Between RS-232 and Network

This Display uses audio to attract and communicate. It leverages the MH6 MediaHub's multiple audio output options to demonstrate a variety of products. Each of the four audio output jacks can play either digital or analog audio, depending on the requirements of the device. The Ethernet port interfaces with the network to receive commands and output analytics; with the added capability to control and monitor the system remotely. The sound bar connects directly to an RS-485 port and is visually highlighted by a lit platform.

Content Network

MH-6-4K
(Front and Back)

SIG-1

12V DC Power Supply

Control Network

Sound Bars
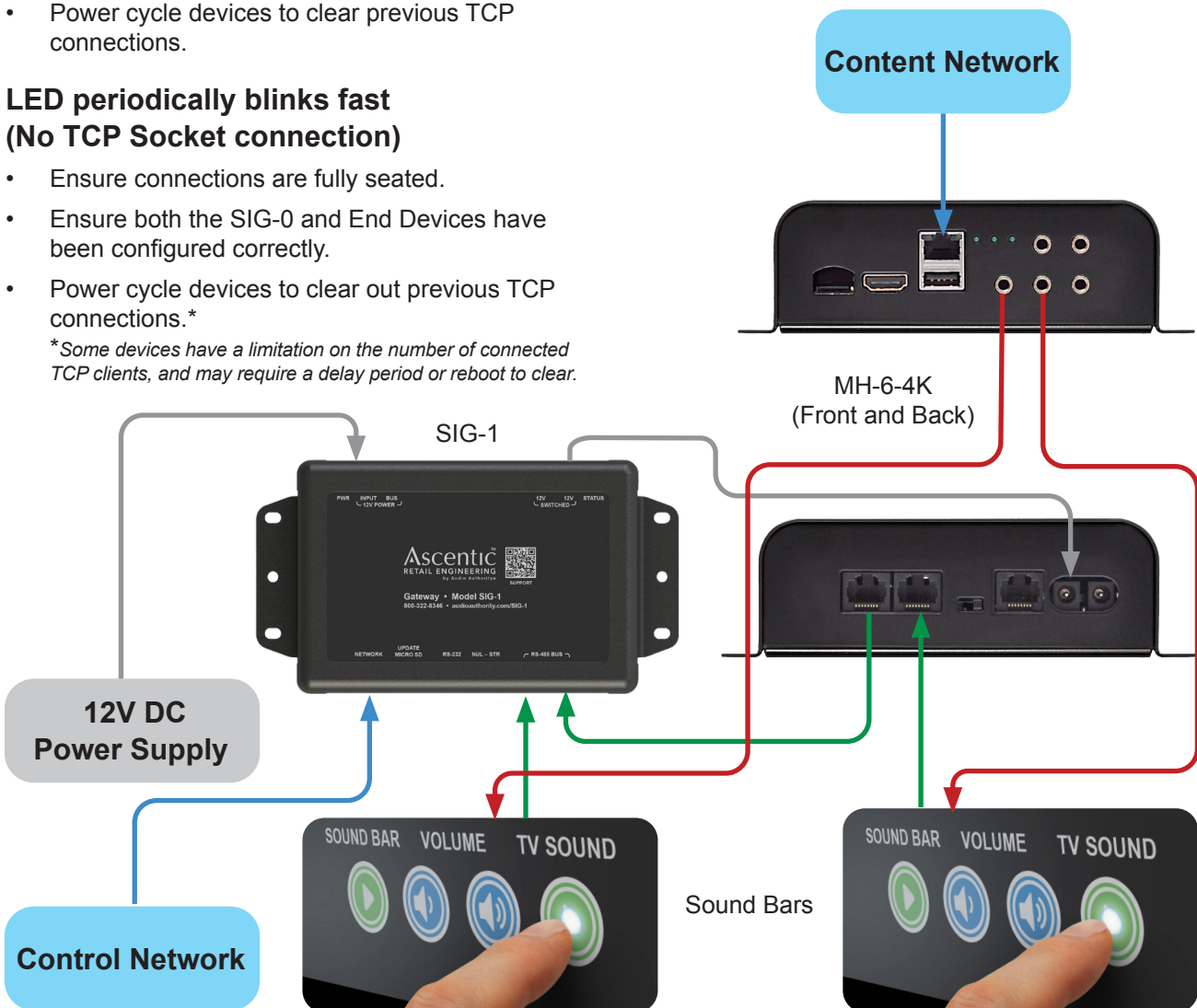
Product Specifications

Inputs and Outputs

Standard Inputs: 1x microSD Card
Standard Outputs: 2x Switched Power Bus (5.5 x 2.1mm barrel jacks)
Standard In/Out:
  1x RS-232 Port w/ Null/Straight Switch (RJ45)
  1x Ethernet Port (RJ45)
  2x RS-485 Ports with Switched Power (RJ45)
Indicators: 1x Green Power Heartbeat/Connection Indicator, 1x Green Status Indicator

Power Input Specification

Power Entry Port: 2x Barrel Jack Connectors (5.5 x 2.1mm, bussed, Center Positive)
Voltage: 12VDC

Mechanical Details

Case Type: AAC Universal Case, Molded ABS
Case Dimensions (Inches, WxLxH): 7.5 x 4.1 x 1.5
Case Dimensions (millimeters, WxLxH): 190 x 104 x 38
Mounting Locations: Molded Flanges
  2x 0.165" (4.5mm) Diameter centerline holes
  4x 0.165" x 0.28" (4.5mm x 7mm) Slots
  1.0" (25.4mm) Above/Below centerline holes