



Model 5132 Party-Line Interface Module



Model 5132S Party-Line Interface Module Front Panel

The Model 5132 Party-Line Interface Module is a compact, self-contained unit for use in custom broadcast, live-performance, and general party-line intercom applications. The module provides a high-quality 2-channel party-line to analog line-level (“4-wire”) audio signal interface in an easy to use yet technically sophisticated package. The module’s basic functions include two channels of 2-wire-to-4-wire conversion with auto-null capability, input and output level metering, a +28 volt DC party-line power source with two channels of 200 ohm intercom audio termination, and DC output control and status monitoring. With the internal party-line power source enabled, beltpack user devices can be directly connected. Alternately, the Model 5132 can be connected into an existing party-line system that includes a power source and intercom audio terminations. Two sets of 4-wire analog inputs and outputs interface the Model 5132 with a variety of external audio transport, intercom, and infrastructure equipment. Module operation requires only an externally-provided source of 12 volts DC. Advanced features include remote control and monitoring capability.

Applications for the Model 5132 include sports broadcasting booth packages, remote news gathering “fly packs,” stadium audio/video interface (I/O) locations, and government/corporate/performance space/aerospace test infrastructure projects. The number of Model 5132 modules used in a project can vary widely—from one to dozens. And in each case the performance will be completely “pro” with audio, reliability, and installation flexibility matching that of larger-scale products. Typical applications will find the Model 5132’s 4-wire audio inputs and outputs being interfaced with fiber-optical transport modules, matrix intercom systems, and audio/video routers. The flexibility

of the Model 5132’s party-line intercom interface allows connection either directly to intercom beltpack devices or into an existing party-line intercom system.

The Model 5132 provides a full-featured 2-channel interface which includes two 2-wire-to-4-wire hybrid circuits with automatic nulling capability. The analog hybrid circuitry provides excellent audio quality and high return-loss. Audio level meters provide confirmation of system performance during setup and operation. The Model 5132’s 2-wire party-line interface is accessible using a 3-pin male XLR connector. This allows industry-standard party-line intercom user beltpacks to be directly interfaced. With a maximum output current of 180 milliamperes, up to three of the popular RTS® BP325 devices can be directly connected. Devices from Clear-Com® are also compatible.

For applications with an existing party-line intercom system the Model 5132 is also directly compatible. The internal power source and 200 ohm terminations can be disabled by selecting the appropriate operating mode by way of a pushbutton switch on the Model 5132’s front panel.

All line-level audio inputs and outputs were carefully designed for use in permanent as well as field applications. Filtering on the inputs minimizes the chance that radio frequency (RF) energy will interfere with audio input sources. Other components were included to address ESD (“static”) and DC over-voltage conditions. The DC power input is protected from accidental polarity reversal.

For operation, the Model 5132 only requires connection of analog audio inputs and outputs, along with an external source of nominal 12 volts DC. The acceptable input voltage range is 10 to 18, allowing a variety of power sources to be utilized. Internal power supply circuitry within the Model 5132 creates the voltages required for the analog and digital circuitry.

Standard connectors are used throughout the Model 5132. The user-accessible party-line intercom connection is made using a 3-pin male XLR connector. Line-level audio input and output connections are made using 5-position, 0.1-inch “header” connectors. The DC power input and data bus connections use a 4-position, 0.1-inch header. Low-cost IDC (insulation displacement) mating connectors allow simple interconnection with the audio input, audio output, and DC/data signals.

For compliance with international broadcast audio level standards two versions of the Model 5132 are available. The Model 5132S supports SMPTE® audio levels where the analog audio reference level is +4 dBu. The Model 5132E supports applications that require European Broadcast Union (EBU) compliance with an analog audio reference level of 0 dBu.

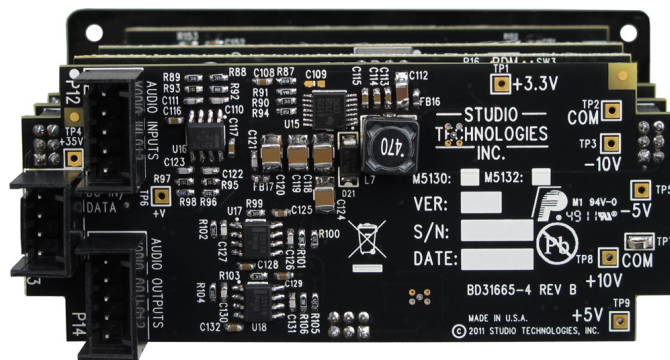
Model 5132 Party-Line Interface Modules do not include a mounting enclosure or chassis. They are intended for mounting in custom 19-inch rack panels, equipment boxes, broadcast furniture, “NEMA” I/O boxes, or other specialized settings. It is expected that integration firms will create applications that use Model 5132 modules as part of complete broadcast, production, corporate, and government solutions.

Party-Line Interface

The Model 5132’s party-line interface is very flexible, offering excellent performance when operating both “stand alone” or interconnected with an existing intercom system. When enabled, the party-line intercom power supply circuitry provides a low-noise, current-limited source with a nominal 28 volt DC output. Termination networks provide the required 200 ohm impedance for the audio signals associated with the two party-line intercom channels. With these features the Model 5132’s party-line intercom interface is essentially identical to that created by stand-alone intercom power supplies or powered master stations.

Two LEDs, located on the Model 5132’s front panel, provide an indication of the power source’s on/off state and the condition of the DC voltage present on pin 2. Logic circuitry contained within the Model 5132 monitors the voltage on pin 2. When the Model 5132 is providing intercom power this function will monitor pin 2 for a low-voltage/over-current condition. If detected, the DC output will automatically enter a protection mode. Once the fault condition is removed normal operation will again resume. When an external source of intercom power is present the pin 2 status LED offers the user a simple “go/no go” indication for rapid troubleshooting.

An auto 4-wire mute function is active whenever the Model 5132’s operating mode has been set to support external party-line intercom power. (In this case an external source of DC voltage and 200 ohm terminations is necessary for correct operation.) The auto 4-wire mute function helps to ensure that the Model 5132’s audio interface circuitry will remain stable in “real-world” situations. This unique feature makes certain that objectionable audio signals, such as oscillations and “squeals,” will not be sent to the



that hum, noise, or interfacing issues will occur. The two Model 5132 versions allow compatibility with equipment that supports SMPTE (+4 dBu) and EBU (0 dBu) analog audio level standards.

Indicators

The Model 5132 contains four 5-segment LED level meters. Two meters display the level of the signals being received from the party-line channels and two display the level being sent to the party-line channels. At the time of installation and setup the meters are invaluable in helping to confirm correct operation. During normal operation the meters offer rapid confirmation of the audio signals flowing into and out of the module. Four additional LED indicators are

also provided offering status indications of the party-line DC power, pin 2 status, auto null, and remote control data functions.

Pro Audio Quality

The Model 5132's audio circuitry was designed in the spirit of professional audio equipment rather than that found in typical party-line intercom gear. High-performance components are used throughout, providing low-distortion, low-noise, and high headroom. The party-line DC power source offers a unique level of performance—its ability to deliver power while maintaining audio quality is simply unmatched.

Model 5132 Specifications

General Audio:

Frequency Response (analog input to party-line interface):

- 3.0 dB @ 80 Hz
- 2.5 dB @ 100 Hz
- 2.3 dB @ 20 kHz
- 3.0 dB @ 24 kHz

Distortion (THD+N, measured at 1 kHz, analog input to party-line interface):

- Party-Line Interface Pin 2: 0.06%
- Party-Line Interface Pin 3: 0.02%

Signal-to-Noise Ratio (measured at 1 kHz, analog input to party-line interface):

- Party-Line Interface Pin 2: 60 dB
- Party-Line Interface Pin 3: 86 dB

Audio Inputs: 2

Type: analog, electronically balanced, capacitor-coupled, 20 k ohms

Nominal Level: +4 dBu (Model 5132S), 0 dBu (Model 5132E)

Maximum Level: +24 dBu

Audio Outputs: 2

Type: analog, electronically balanced, capacitor-coupled, intended to drive balanced loads of 2 k ohms or greater

Nominal Level: +4 dBu (Model 5132S), 0 dBu (Model 5132E)

Maximum Level: +24 dBu into 10 k ohms

Source Impedance: 200 ohms, nominal, differential

Party-Line Intercom Interface:

Type: 2-channel party-line, unbalanced (common on pin 1, DC modulated with channel 1 audio on pin 2, channel 2 audio on pin 3)

Compatibility: single- and dual-channel intercom system and user devices from vendors such as RTS® and Clear-Com®

Nominal Audio Level: -10 dBu

Maximum Audio Output Level:

Pin 2: +9 dBu with +23 dBu (Model 5132S) on audio input

Pin 3: +10 dBu with +24 dBu (Model 5132S) on audio input

DC Output Voltage (pin 2 to pin 1): 28 volts nominal, selectable on/off

DC Output Current (pin 2 to pin 1): 180 milliamperes maximum
Impedance (pin 2 to pin 1; pin 3 to pin 1), local party-line power enabled: 200 ohms, nominal

Impedance (pin 2 to pin 1; pin 3 to pin 1), local party-line power disabled: >10 k ohms

Hybrids: 2

Topology: 3-section analog circuitry compensates for resistive, inductive, and capacitive 2-wire party-line loads

Nulling Method: automatic upon user initiation, processor implements digital control of analog circuitry; settings stored in non-volatile memory

Nulling Line Impedance Range: 120 to 240 ohms

Nulling Cable Length Range: 0 to 3500 feet

Trans-Hybrid Loss: >45 dB, typical at 1 kHz

Meters: 4, 5-segment LED, modified VU ballistics

Remote Control Capability: audio level monitoring, pin 2 DC output status, auto null activation

Connectors:

Party-Line Intercom: 3-pin male XLR

Audio Inputs and Outputs: 2, 5-position male header, AMP® MTA-100-series, part number 2-644486-5

DC Input/Data: 4-position male header, AMP MTA-100-series, part number 2-644486-4

Power Requirement: 12 volts DC nominal, 800 mA max; acceptable range 10-18 volts DC, 950 mA max at 10 volts

Dimensions (Overall):

3.75 inches wide (9.5 cm)

1.69 inches high (4.3 cm)

2.30 inches deep (5.8 cm)

Mounting: requires custom implementation; no mounting method provided

Weight: 0.2 pounds (91 g)

Specifications subject to change without notice.

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