GENERAL REQUIREMENTS

PURPOSE

The main station is the heart of the partyline intercom system. The purpose of the intercom system is to allow multiple users to coordinate real-time production by establishing bi-directional audio paths between users. Each edge device shall connect to the main station on an available port.

CAPACITY

The main station shall support four ports of analog AIO 4-wire and four ports of analog 2-Wire. Auto nulling capability (echo cancellation) shall be available on 2-Wire interfaces. It must have the availability to support up to 40 IP devices (Dante & AES70) with up to 16 partylines. Ethernet connectivity is available through copper or fiber connections. The main station shall support up to eight keypanels dependent upon product licensing.

SCALABILITY

A single main station shall be available in five licensed configurations: Analog and Analog Plus configurations (main station options for analog only partyline systems). Basic, Intermediate and Advanced digital configurations (Dante & AES70); Software upgrades allow for increased capacity and functionality as needs evolve. Intermediate and Advanced configurations support both analog and digital connectivity.

FORM FACTOR

A compact main station is required to fit in a compact 1RU enclosure, which means it can be mounted in a standard 19-inch equipment rack. Minimum dimensions requirements are as follows: 19" w/ rack ears (17.56" w/o rack ears) W x 1.7" H x 7.72" D (including connectors) / (482.6 mm w/ rack ears [446.1 mm w/o rack ears] W x 43.7 mm H x 196.1 mm D [including connectors])

AMBIENT OPERATING TEMPERATURE

The main station shall have built-in cooling based on forced air circulation to allow it to operate at an ambient temperature up to 0° C – 45° C (32° F – 113° F).

MECHANICAL STRUCTURE

The main station shall have a front-panel user interface featuring a color display capable of displaying information about the unit, two rotary encoders with push-function, a full numeric keypad with backlight, channel controls, mic, and speaker. The rear of the unit shall have the set of connectors specified below.

FRONT PANEL FEATURES

FRONT PANEL DISPLAY PROPERTIES

The display shall have the active area of at least 120 mm x 19 mm. The resolution must is 4.7 pixels per mm (approximately 120 dpi), with the ability to reproduce a minimum of 65536 colors. The luminance of the display shall be user-adjustable up to the maximum rating, which is no less than 12,500 Candela per square meter of display, when all pixels are set to show white. The display technology shall be TFT. Display viewing angle shall be 80 degrees, vertically and horizontally.

FRONT PANEL DISPLAY GUI

The features of the main station shall be available through an icon-driven Graphical User Interface (GUI) where individual user-configurable functions are selectable from hierarchically organized menus. Up to seven icons may be displayed on any single menu. It is possible for the user to navigate through the menus and select individual items using the rotary knobs and/or the keypad.

FRONT PANEL KEYPAD

The keypad shall have all the digits from 0 to 9 plus two extra keys for clear and select functions. The keypad shall have selectable blue and white backlight.

CHANNEL CONTROLS

The main station shall have keys for Listen, Call, and Talk with backlight and shall be similar in material and "touch-and-feel", including amount of tactile feedback to the keys on the keypad. The rotary encoder for volume/program shall be similar to the rotary encoders located next to the keypad.

FRONT PANEL MIC

The main station shall have electrical connector for a front panel microphone. The design shall be for electret only with the following requirements. Frequency response 100Hz to 15,000Hz. Open Circuit Voltage 4.5mV (-47dB)/Pascal @ 1 kHz. Dynamic Range 102dB. Power Requirements 1.5 to 9VDC. Current Consumption <500µA. Panel Microphone Connector Type TRS, ¼-inch phone jack with threaded female metal bushing.

FRONT PANEL SPEAKER

The main station shall have a built-in front speaker for listening to audio communication with the following requirements. Frequency range is 200 Hz to 7300 Hz, flatness plus or minus 3 dB across that range.

FRONT PANEL HEADSET CONNECTOR

The main station shall have a front-panel headset XLR connector with the following optional genders: four-pin male, four-pin female, five-pin female. The five-pin male shall have an additional sixth pin; an extra center pin is provided for PTT. The microphone portion shall self-sense dynamic or electret microphones. Each main station version equipped with the required headset connector shall be available by individual part number.

REAR FEATURES

POWER CONNECTORS

The main station shall have one independent universal power supply input for 100-240 VAC on the rear. The connector shall support locking power cables, to prevent them from falling out.

TWO-WIRE CONNECTORS

The main station shall have four locking female three-pin XLR connectors for analog 2-wire, compliant with single- and dual-channel formats supporting RTS, Clear-Com, and Audiocom wiring formats. 2-wire ports shall operate independently, and be able to operate in different modes.

PROGRAM INPUTS

The main station shall have two locking female three-pin XLR connectors for program input with differential RX/TX audio signal format.

STAGE ANNOUNCEMENT OUTPUT

The main station shall have one male locking 3-pin XLR connector for stage announce output with differential RX/TX audio signal format.

FOUR-WIRE AUDIO PORTS

The main station shall have four RJ-45 connectors for analog input and output. The wiring shall support external audio and data sources. Support for TIF devices shall be available.

GENERAL PURPOSE INPUT/OUTPUT

A 24-terminal GPIO shall be available on the rear of the main station having four internal relays and four opto-coupled inputs. The main station shall include one matching connector. The connector shall have a locking device to prevent it from falling out. The inputs shall be opto-coupled, for an external power source rated 5-12 VDC. The relays shall have common, normally-open, and normally-closed contacts capable of 1.0 Amp at 48 VDC.

CONTROL-PORT RJ-45

An RJ-45 Ethernet connector shall be available for connection of a laptop or PC running control software.

CONNECTOR FOR VOIP

An RJ-45 Ethernet connector shall be available for RVON devices. The unit has capacity for up to four simultaneous VoIP channels with G.711, G.729ab, and G.722 codecs supported.

HIGH-QUALITY AUDIO OVER IP, RJ45 AND SFP

There must be a total of two RJ45 connectors and two provisions for SFP, to send and receive high-quality audio over IP (Dante & AES70).