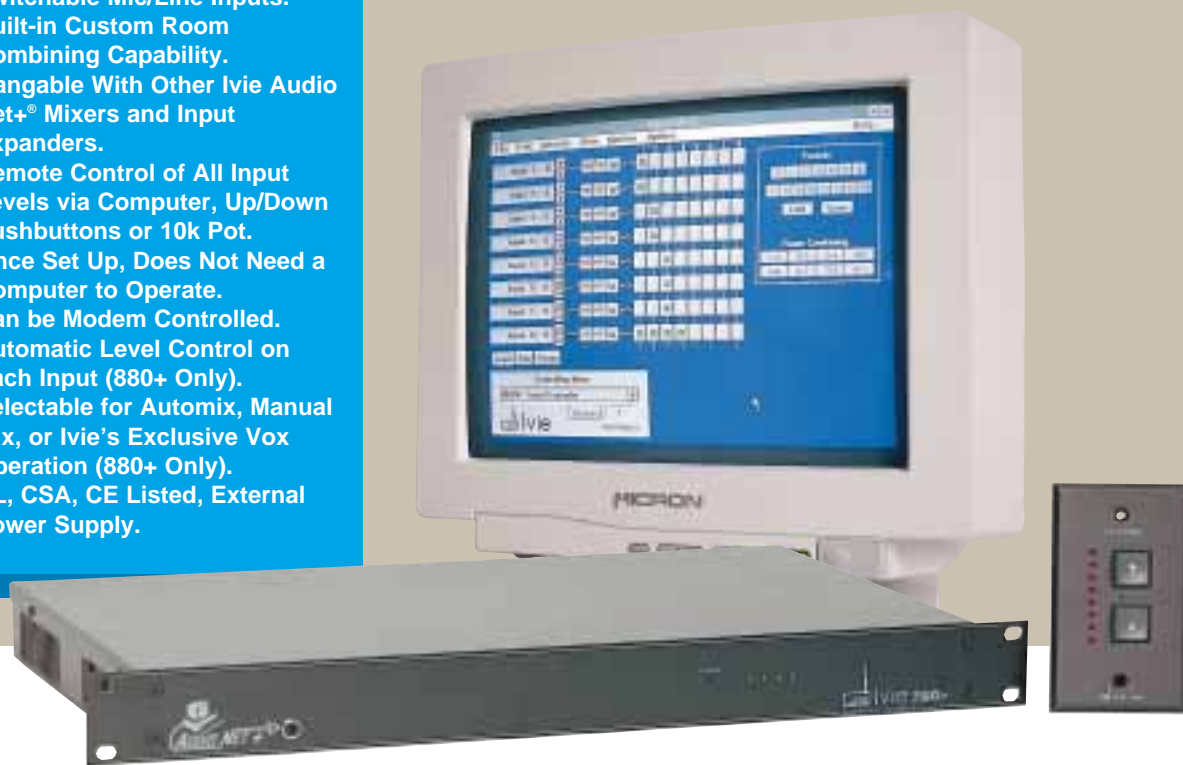# ivie
Technologies, Inc.

780+ & 880+ PROGRAMMABLE INPUT EXPANDERS & CONTROL SYSTEMS

Special Features

- **8 Channel Input Expander with Switchable Mic/Line Inputs.**
- **Built-in Custom Room Combining Capability.**
- **Gangable With Other Ivie Audio Net+® Mixers and Input Expanders.**
- **Remote Control of All Input Levels via Computer, Up/Down Pushbuttons or 10k Pot.**
- **Once Set Up, Does Not Need a Computer to Operate.**
- **Can be Modem Controlled.**
- **Automatic Level Control on Each Input (880+ Only).**
- **Selectable for Automix, Manual Mix, or Ivie's Exclusive Vox Operation (880+ Only).**
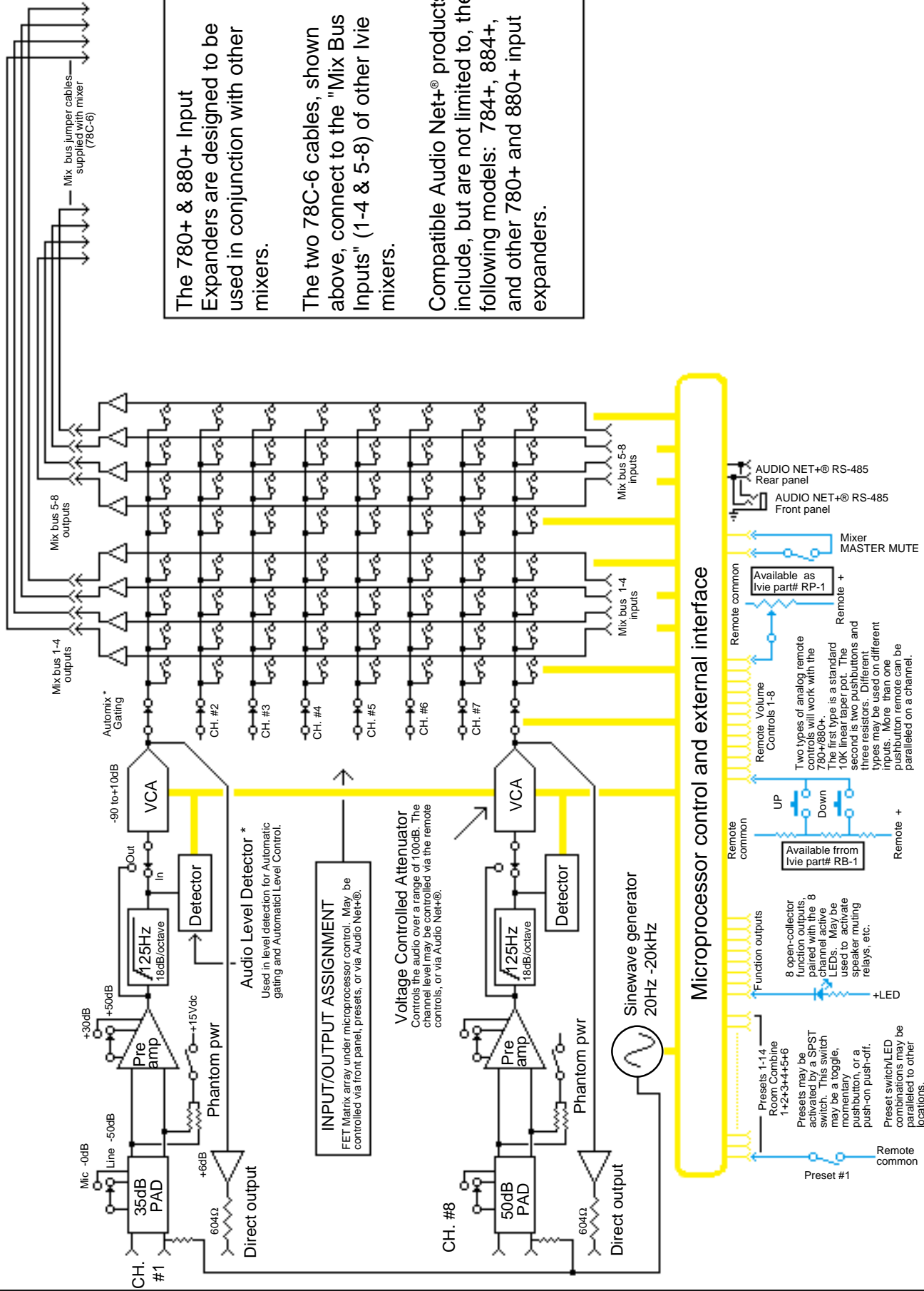- **UL, CSA, CE Listed, External Power Supply.**

The 780+ and 880+ Programmable Input Expanders continue the tradition of user friendly, highly flexible and easily programmable Audio Net+® products. The 780+ and 880+ are not intended to be used alone, but are intended to be ganged with other Ivie Audio Net+® matrix mixers to increase the number of inputs available. Manual (780+) inputs can be ganged with automatic inputs, or vice versa to provide many possible combinations of input architecture. The 780+ and 880+ Input Expanders are compatible with all matrix mixers in the Ivie family including the 784+, 884+. The same Windows® based software that controls other Ivie Audio Net+® products can be used to program the 780+ and 880+ Input Expanders.

Built-in self test diagnostics, sine wave generator, and 15 powerful preset memories add to the power and flexibility of the 780+ and 880+. Built-in custom room combining capability is standard.

- **Eight Inputs. Automatic Level Control and Automatic Gating on 880+**
- **Password Security**
- **Does Not Require Host Computer to Operate**
- **Built-in Room Combining Capability**
- **Presets Control All Functions: Input Bus Assignments, Levels, Combining, Remote Configuration etc.**
- **Custom Room Combining Features**

- **All Remote Controls are DC**
- **Uses Same Windows® Software as Other Ivie Audio Net+® Products.**
- **Phoenix Type Connectors for Reduced Installation Time.**
- **Individually Switched Phantom Power on Each Input.**
- **RS-232 & RS485 Control Ports Standard**

780+ & 880+ MIXER INPUT EXPANDER BLOCK DIAGRAM

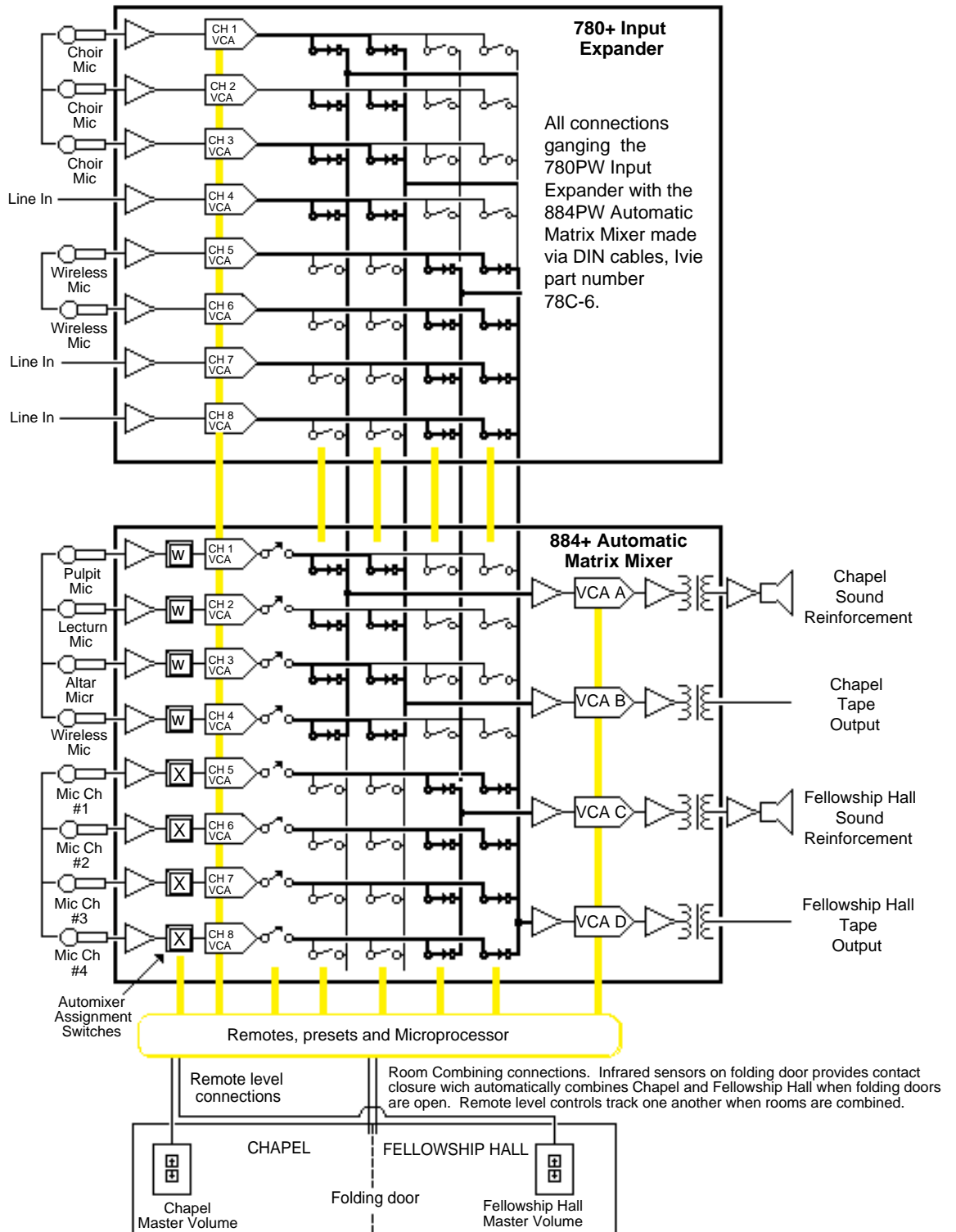Mix bus jumper cables
supplied with mixer
(78C-6)

The 780+ & 880+ Input Expanders are designed to be used in conjunction with other mixers.

The two 78C-6 cables, shown above, connect to the "Mix Bus Inputs" (1-4 & 5-8) of other Ivie mixers.

Compatible Audio Net+® products include, but are not limited to, the following models: 784+, 884+, and other 780+ and 880+ input expanders.

* Available only on 880+

Mix bus 5-8 outputs

Mix bus 5-8 inputs

Mix bus 1-4 outputs

Mix bus 1-4 inputs

Automix *
Gating

CH. #2
CH. #3
CH. #4
CH. #5
CH. #6
CH. #7

-90 to+10dB

VCA

VCA

Out
In

Detector

Detector

125Hz
18dB/octave

125Hz
18dB/octave

Audio Level Detector *
Used in level detection for Automatic gating and Automaticl Level Control.

INPUT/OUTPUT ASSIGNMENT
FET Matrix array under microprocessor control. May be controlled via front panel, presets, or via Audio Net+®.

Voltage Controlled Attenuator
Controls the audio over a range of 100dB. The channel level may be controlled via the remote controls, or via Audio Net+®.

Sinewave generator
20Hz -20kHz

Microprocessor control and external interface

AUDIO NET+® RS-485
Rear panel

AUDIO NET+® RS-485
Front panel

Mixer
MASTER MUTE

Available as
Ivie part# RP-1

Remote common
Remote +

Remote Volume
Controls 1-8

Two types of analog remote controls will work with the 780+/880+.
The first type is a standard 10K linear taper pot. The second is two pushbuttons and three resistors. Different types may be used on different inputs. More than one pushbutton remote can be paralleled on a channel.

Remote common

UP
Down

Available from
Ivie part# RB-1

Remote +

Function outputs

8 open-collector function outputs, paired with the 8 channel active LEDs. May be used to activate speaker muting relays, etc.

+LED

Presets 1-14
Room Combine
1+2+3+4+5+6

Presets may be activated by a SPST switch. This switch may be a toggle, momentary pushbutton, or a push-on push-off.

Preset switch/LED combinations may be paralleled to other locations.

Remote common

Preset #1

NOTE! ALL PRESETS, REMOTE CONTROLS, COMBINE SWITCHES, AND MIXER MASTER MUTE ARE DC CONTROL LINES.

CH.
#1

Mic -0dB
Line -50dB

35dB
PAD

Pre
amp

+30dB
+50dB

+15Vdc

Phantom pwr

+6dB

604Ω

Direct output

CH. #8

50dB
PAD

Pre
amp

Phantom pwr

604Ω

Direct output

One Ivie 884+ configured as two 4 X1 automixers, one for the Chapel and one for the Fellowship hall, ganged with a 780+ to provide eight, additional non-gated inputs .

780+ Input Expander

Choir Mic — CH 1 VCA
Choir Mic — CH 2 VCA
Choir Mic — CH 3 VCA
Line In — CH 4 VCA
Wireless Mic — CH 5 VCA
Wireless Mic — CH 6 VCA
Line In — CH 7 VCA
Line In — CH 8 VCA

All connections ganging the 780PW Input Expander with the 884PW Automatic Matrix Mixer made via DIN cables, Ivie part number 78C-6.

884+ Automatic Matrix Mixer

Pulpit Mic — W — CH 1 VCA
Lecturn Mic — W — CH 2 VCA
Altar Micr — W — CH 3 VCA
Wireless Mic — W — CH 4 VCA
Mic Ch #1 — X — CH 5 VCA
Mic Ch #2 — X — CH 6 VCA
Mic Ch #3 — X — CH 7 VCA
Mic Ch #4 — X — CH 8 VCA

Automixer Assignment Switches

VCA A — Chapel Sound Reinforcement
VCA B — Chapel Tape Output
VCA C — Fellowship Hall Sound Reinforcement
VCA D — Fellowship Hall Tape Output

Remotes, presets and Microprocessor

Remote level connections

Room Combining connections. Infrared sensors on folding door provides contact closure wich automatically combines Chapel and Fellowship Hall when folding doors are open. Remote level controls track one another when rooms are combined.

CHAPEL   FELLOWSHIP HALL

Folding door

Chapel Master Volume

Fellowship Hall Master Volume

Application: In the application shown, a 780+ Input Expander has been ganged with an 884+ Automatic Matrix Mixer to provide eight additional channels of non-gated input. Had gating and automatic level control been required, an 880+ Input Expander would have been used instead of the 780+. The automatic level control provided on each input channel of the 884+ is activated for the gated microphones in the chapel. Automatic room combining is provided by a contact closure activated by infrared sensors on the folding door separating the Chapel and Fellowship hall. Opening the door combines the rooms. The remote controls are the inexpensive RB-1, push button remote volume controls from Ivie.

FRONT PANEL

The 880+/780+ front panel has a "Channel Active" LED for each of the eight input channels, an Audio Net+® RS485 jack, an Audio Net+® RS232 DB-9 serial connector, and three RS232 communication status lights. Access to the Audio Net+® RS485 buss is also available on the rear panel. An advantage of the Ivie Audio Net+® protocol is that an 880/780+ can be accessed over a phone line via modem. In this manner, remote programming and control are possible, as well as system troubleshooting and verification of system configuration. When multiple Audio Net+® compatible mixers in a rack are looped together via their rear panel Audio Net+® connectors, a computer (or modem) connected to any one mixer will allow all mixers to be accessed.

REAR PANEL

As with other Ivie Audio Net+® products, ease of wiring is a primary concern. All system connections are made using clearly labeled, Phoenix type connectors. No attachment of XLR, or any other type connectors, to incoming lines is necessary. Wires need only be stripped, plugged into the appropriate socket, and the screw tightened. These connectors allow the installer to pre-wire racks, and if necessary, remove units without disconnecting the wires. For ganging mixers and input expanders together, connections are made with mini DIN cables which are available directly from Ivie. Wiring simplicity and speed are assured.

Programming the 780+ and 880+ Input Expanders by computer is simple. All you need is a standard Windows 95/98 based PC (faster is better) equipped with a mouse, a serial port, and VGA graphics.

You can directly access the 880/780+ from your standard PC using a straight serial cable from your PC's serial port to the units front-panel serial connector. If longer control runs are needed, you can connect your PC to Ivie's Model 78-232A (RS232 to RS 485 adapter), which can extend separation between the mixer and the PC by up to 4000 feet. One of the standard setup screens is shown as an illustration. It graphically illustrates the inputs and mix bus assignments in a matrix configuration. To connect an input to a particular mix bus, simply "push" the appropriate button. A button is "pushed" by placing the mouse cursor on the button and clicking the mouse. Buttons which have been "pushed" are visually indicated, so the entire setup can be identified at a glance.

COMPUTER SCREEN

The graphic user interface makes setup quick, accurate, and intuitive, and a single computer can control multiple mixers. Input levels can be adjusted, ranges can be set, and rooms or zones can be combined or uncombined just as easily. Entire setup configurations can be stored as one of the 15 available presets, and presets can be activated remotely by the touch of a button, or via low voltage, DC lines.

The 780+ and 880+ do require a computer for setup, but once they are configured, they can operate without the use of a computer. Either unit, however, can be accessed by a computer at any time using Ivie's ANSW™ software to monitor or make adjustments. Modem access is as easy as direct access. Unauthorized tampering can be prevented through "password" security. The 780+ and 880+ are also capable of interface with touch panel control systems such as AMX® and Crestron®.

SPECIFICATIONS

Frequency Response: ±1dB 30Hz to 20kHz.

Equivalent Input Noise: -125dBm with no weighting.

Input channel common mode rejection: greater than 90dB @ 20kHz
Inputs: electronically balanced, switchable between microphone and line level inputs.

Input Impedance: microphone – 50-600 ohms (actual 2.1kΩ) line – 40kΩ (actual 40kΩ).

Phantom Power Voltage: +15VDC.

Channel Attenuation/Isolation: greater than -90dB @ 1kHz.
Greater than -80dB @ 20kHz.

Channel Cross Talk: greater than -90dB@ 1kHz.
greater than -70dB @ 20kHz

Direct Outputs: Unbalanced (actual impedance = 604Ω).

Total Harmonic Distortion: Less than .01% 30Hz to 20kHz.

Maximum Gain: 64dB, input to mix bus.

Size: 1 3/4" H x 19" W x 10" D.

Weight: 11 Lbs. with External Power Supply

Shipping Weight: 15 Lbs.