



# VOCAL INTELLIGIBILITY PROCESSOR

## OPERATING MANUAL

# INTRODUCTION

ISP Technologies patented VIP™ (Vocal Intelligibility Processor™) was developed to enhance vocal clarity for sound systems in difficult listening environments like night clubs, restaurants, and any other venue where enhanced intelligibility is desirable. The VIP is based on ISP Technologies patented Time Vector Processing dynamics processing control circuit. The VIP incorporates ISP Technologies VIP algorithm that dynamically boosts vocals in sport event broadcast audio. The VIP is designed to be inserted at line level between the source selection and power amplification section of the sound system. The VIP requires a fixed reference level signal to operate correctly and is shipped from the factory set at  $Obdu = .775VRMS$ . The VIP will dynamically track the voice band in broadcast program material and will enhance the vocal intelligibility in real time. The VIP also includes an onboard DE-SSER to deemphasize overly sibilant vocals and will also operate to attenuate the annoying squeaky tennis shoes in basketball broadcast material. Please read this manual carefully for a through explanation of the VIP and its functions.

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## IMPORTANT SAFETY INSTRUCTIONS

### **Please read the following very carefully before operating this unit**

- Read ALL instructions carefully before using this unit. Keep these instructions for future reference. Heed all warnings and follow all instructions.
- Do not use this unit near water, in the rain, or where there is moisture. If this warning is ignored a serious electrical shock or death may occur.
- Do not attempt to service this unit. No user serviceable parts inside. Refer servicing to qualified, ISP approved personnel. Servicing is required when the unit is damaged in any way, such as power adaptor is damaged, liquid has been spilled into the unit, the unit has been exposed to rain or moisture, does not operate normally, or has been dropped.
- Care should be taken to avoid spilling any foreign objects or liquid into this unit. Avoid exposure of this equipment to dripping or splashing and ensure that no objects filled with liquid, such as vases, are placed on the equipment.
- Only use accessories or attachments that are specified by the manufacturer.
- Failure to follow these instructions may void the warranty.



NO USER SERVICABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED ISP TECHNOLOGIES SERVICE PERSONNEL.

The lightning bolt triangle is used to alert the user to the risk of electric shock.

The exclamation point triangle is used to alert the user to important operating or maintenance instructions.

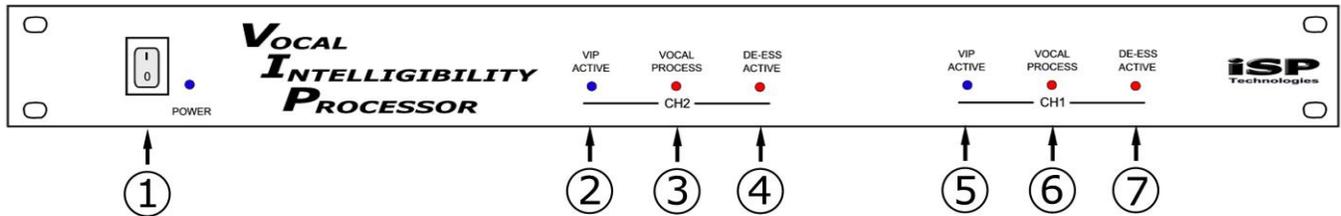


## POWER REQUIREMENTS

This unit requires the connection of the external AC Power Adaptor to a 120 volt AC outlet. Do not attempt to connect this unit to any power source other than the one supplied with the VIP. The VIP will typically draw on the order of 650 milliamps of current off the AC line when in use.

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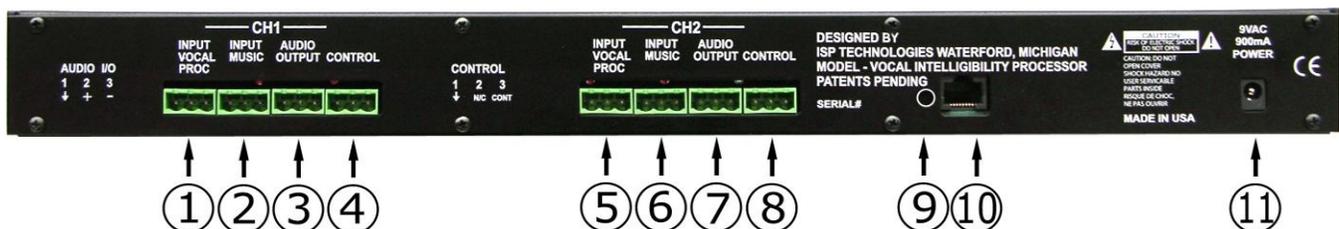
# VIP FRONT PANEL



1. **Power Switch**
2. **CH2 VIP ACTIVE LED** indicates when the Vocal Enhancement circuit is switched ON and Active.
3. **CH2 VOCAL PROCESS** indicates when the Vocal Enhancement circuit is processing the input signal.
4. **CH2 DE-ESS** indicates when the DE-ESSOR is actively attenuating the high frequency spectrum.
5. **CH1 VIP ACTIVE LED** indicates when the Vocal Enhancement circuit is switched ON and Active.
6. **CH1 VOCAL PROCESS** indicates when the Vocal Enhancement circuit is processing the input signal.
7. **CH2 DE-ESS** indicates when the DE-ESSOR is actively attenuating the high frequency spectrum.

**NOTE:** The VIP has two independent channels of processing that can be switched independent of each other. THE VIP requires a fixed input reference level and ships from the factory set at 0dbu = .775VRMS. Input levels should be set for a nominal 0dbu level in order for the VIP to correctly track the input signals amplitude and frequencies. Misalignment of the nominal input reference level will either cause the VIP to not operate on the input signal, if the input level is low, or if the input level is too high the VIP will not operate dynamically causing the vocal enhancement and DE-ESSOR to remain in the minimum or maximum dynamic setting.

# VIP REAR PANEL



1. Channel 1 Vocal Process Input
2. Channel 1 Music Input
3. Channel 1 Audio Output
4. Channel 1 Control Port
5. Channel 2 Vocal Process Input

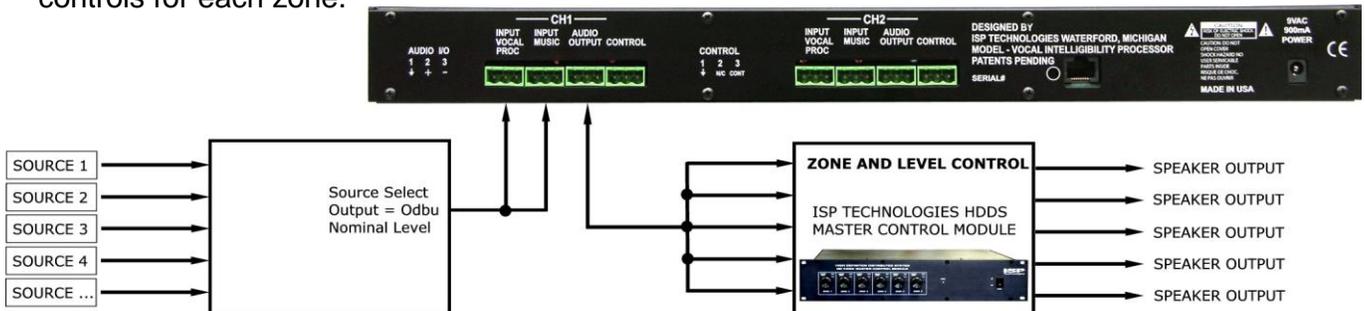
6. Channel 2 Music Input
7. Channel 2 Audio Output
8. Channel 2 Control Port
9. Selector Switch for selection of 7 or 7-8 control with Zone Pro ZC remote
10. Input Port for remote switching using Zone Pro ZC expander connection
11. 9VAC external adaptor connection

## VIP OPERATION

The VIP is based on ISP Technologies VIP algorithm to track the voice band audio at the Vocal Process Input and will dynamically emphasize dialog in broadcast audio. The VIP also includes a built in high quality DE-ESSOR circuit to dynamically provide de-emphasis of overly sibilant sports anouncers and will also reduce the squeak of tennis shoes on the court in basketball broadcast. The combination will provide an 8db to 10db improvement in articulation of voice in sports audio broadcast. The VIP internally divides the audio into multiple frequency bands and will dynamically process these individual bands for emphasis and or de-emphasis based on the VIP algorithm and then re-combine the frequency bands providing a composite processed signal output. The VIP requires a specified nominal signal reference level in order to provide accurate processing. The VIP ships from the factory set for a 0dbu = .775VRMS nominal reference level. This means the typical input signal level should be approximately .775RMS. Most broadcast audio over cable or satellite will have a nominal signal reference level that can vary slightly during commercials and also between different channels. The VIP will operate properly within a +/-3db window.

## VIP CONNECTIONS

Both channel 1 and channel 2 have separate inputs and outputs and can be controlled or switched independantly. The VIP provides a music input for background music playback. The music input is passed un-altered to the output and allows selection between music playback and enhanced sport audio broadcast playback. If the final playback system has separate signals for sports audio and music, such as a juke box for music, connect each input signal to the required input Euroblock connector for channel 1 and or channel 2. If a the system includes a front end source selection and a single audio signal for input to the VIP connect this signal to both the Vocal Process Input and Music Input. This allows the VIP to be switched ON to process the sports broadcast audio and OFF to pass the music audio signal without VIP processing. All audio connections are fully balanced with pin out connections being the same as an XLR audio connection with pin1 = GROUND, pin 2 = POSITIVE, and pin 3 = NEGATIVE. The diagram below shows connection of Channel 1 of the VIP to a front end Source Selector with a fixed 0dbu = .775VRMS output connected to both Vocal Process and Music INPUTS on the VIP. The VIP will provide an output signal at 0dbu, which is then connected to multiple inputs on the ISP HDDS Master Control Module providing multiple zone outputs with VCA level controls for each zone.



# VIP CONTROL SWITCHING

The VIP can be controlled or switched between Music IN and Vocal Process IN by two options either through the channel 1, channel 2 control port connection or by the RJ45 connector on the rear panel. The external control connectors shown on the back panel as number 4 and 8 are Euroblock style connectors and allow for an external switch contact between pin 1 and pin 3 of the Euroblock connector. This connection is a “pull to ground” connection and will also accept a logic control with open collector logic interface. The voltage at pin 3 will sit at 8 volts and is pulled high by an internal pull up resistor of 10k ohms.

The RJ45 connector is designed to interface with systems using a dbx ZonePRO for source selection and will plug into the expansion IN connection on a ZC controller. The VIP will read the voltage output from the ZC controller and will switch to the MUSIC INPUT when the ZC is in setting 7-8 or setting 8 based in the internal switch next to the RJ45 on the back of the VIP. The rear panel has a small hole shown as “9” on the back panel picture to select the internal switch setting. Push the switch IN for Music in both 7 and 8 setting on the ZC, switch OUT for Music in just setting 8.

## VIP SPECIFICATIONS

<b>INPUT IMPEDANCE</b>	60k ohms balanced input
<b>OUTPUT IMPEDANCE</b>	200 ohms balanced
<b>MAXIMUM INPUT SIGNAL</b>	+19dBu
<b>INPUT / OUTPUT / CONTROL CONNECTORS</b>	Euroblock
<b>NOISE FLOOR</b>	-95dBu
<b>DYNAMIC RANGE</b>	110db A WTD
<b>DISTORTION</b>	.01%
<b>FREQUENCY RESPONSE</b>	20Hz – 20KHz = +0 / -.5dB Music Mode
<b>DIMENSIONS</b>	19” W x 1.75” H x 7” D
<b>WEIGHT</b>	4 LBS

Note: 0dbu = .775 vrms

**The VIP is covered under US Patent 7,532,730  
Other US Patents Pending.**

# WARRANTY AND SERVICE

The Internal Circuitry is fully guaranteed to be free of defects under normal use and service for a period of three years from the date of purchase.

Any damage resulting from the misuse or the failure to follow the precautions and instructions will void the warranty.

In the event that the unit needs to be repaired, please return the unit to ISP Technologies directly. Simply repack the unit, send a copy of the original receipt, a note stating the problem, your contact information and send it to:

ISP Technologies, LLC  
5479 Perry Drive Unit B  
Waterford, MI 48329  
Attn: Repair Dept.

All shipping charges must be fully prepaid.

ISP will not be responsible for any damages incurred in shipping of any unit. Any claim will need to be settled with the shipping company.

The warranty will be voided if the serial number has been tampered with in any way. The warranty card must also be filled out and returned in order to activate the warranty.

Should you have any questions for the repair department prior to returning the product please call 248-673-7790

**NOTE:**

**dbx and ZonePRO are trademarks of Harman Corporation. ISP is not affiliated with Harman Corporation.**



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