



PS 29 DUAL CHANNEL BELTPACK



USER MANUAL

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This product is designed and manufactured by:

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1.0 GENERAL DESCRIPTION

The PS 29 is a portable dual channel intercom station. It is housed in a strong ABS case provided with a steel belt clip.

On the front panel the unit has, for each channel A and B separately, a Volume (listen level) control, a TALK push button with LED indicator and a CALL push button with LED indicator.

On the rear panel are two XLR-3 connectors for the intercom connection cables (two 'party lines') and an XLR-4 connector for the headset. Optionally an XLR-6 headset connector can be fitted, allowing to hear channel A at the left headset can and channel B at the right headset can ("binaural use").

On the side panel are a side tone trimmer and a buzzer volume trimmer.

Special attention has been paid to the intelligibility of speech. By applying low noise / high speed op-amps, a speech presence filter and propriety high power bridged headphone amplifiers, communication is very comfortable even in environments with a high level of background noise.

The unique ASL call system provides both a flashing red LED and a very distinctive sound signal. A momentary push of the Call button makes the red LED flash whilst holding the button for 2 seconds activates the Call sound signal. The volume of this sound signal (the buzzer) can be adjusted at the side panel.

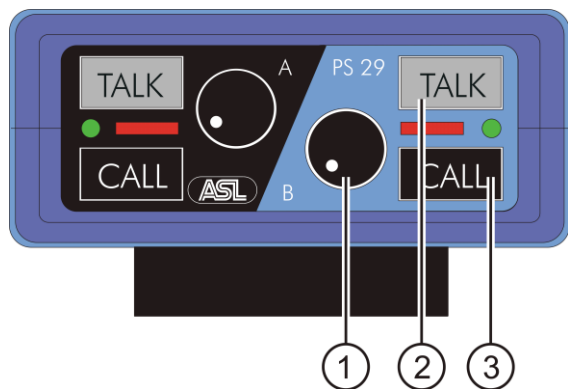
Fully electronic switching increases reliability and allows for 'soft' microphone on switching (latched or momentary) and Remote Mic Mute facility

2.0 INSTALLATION

This PS 29 will form a part of an existing or new intercom system. The necessary DC voltages are derived from the intercom master station or power supply, via the intercom connection cables.

To connect the PS 29 to the intercom party lines use professional flexible microphone cable with 2 wires and 1 shield only. The PS 29 is fully protected against wiring mistakes (reverse power) or short circuit in the interconnecting cables.

3.0 FRONT PANEL CONTROLS



1 VOLUME control knobs

These knobs are for adjusting the listen levels, for each channel separately.

2 TALK buttons

These buttons allow talking to each channel separately or to both channels simultaneously. When a TALK button is switched on, its large green LED is lit.

Momentary switching:

When a TALK button is pushed and held, the microphone signal is sent to the referring intercom channel until the button is released

Latched switching:

When a TALK button is pushed shortly it is electronically latched and the microphone signal is sent to the referring intercom channel. When pushed again the TALK button switches Off.

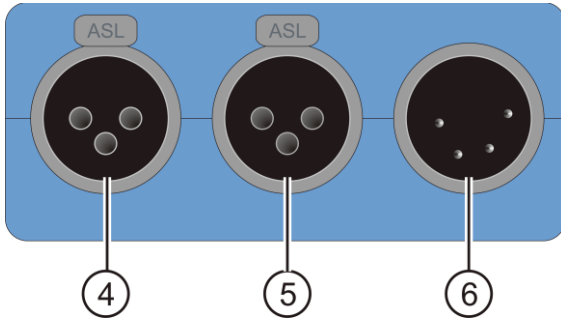
Mic Mute when latched On:

After a so-called Mic Mute signal has been received from a master station or power supply, the connection between microphone and intercom channel is interrupted. By pushing the TALK button, the connection is restored and one can talk to the intercom channel again.

3 CALL buttons

By pushing one of this buttons the Call function is activated for the referring party line channel. With a momentary push a Call signal is sent to all intercom stations connected to that channel. The Call LED's on this PS 29 and all stations connected to the same party line start flashing. By keeping the Call button pushed for 2 seconds the Call Buzzers are activated, provided the buzzers are not muted by a Buzzer Mute signal received from a Pro Series master station or power supply.

4.0 REAR PANEL CONNECTORS



- 4 **LINE connector channel A**
- 5 **LINE connector channel B**

These XLR-3 connectors are for connecting the PS 29 to intercom party lines.

Pin assignments:

- Pin 1: 0V / ground shield
- Pin 2: +30V DC power wire
- Pin 3: audio wire

6 HEADSET connector

This XLR-4 connector is for connecting a headset to the PS 29 beltpack. The impedance of the headset can must be minimum 200 ohms; in case the headset has 2 cans in parallel, the impedance of each can must be minimum 400 ohms.

Pin assignments:

- Pin 1: shield mic. (GND)
- Pin 2: mic. +
- Pin 3: phones +
- Pin 4: phones –

As an option, the PS 29 can be fitted with a XLR-6 headset connector, allowing to hear channel A on the left headset can and channel B on the right headset can (“binaural use”).

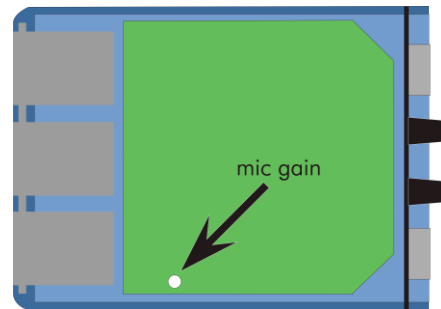
5.0 INTERNAL CONTROLS

MIC GAIN trimmer

One has to open the PS 29 by removing the 4 screws at the underside. The trimmer is situated on the lower PCB board.

To increase the gain, turn clockwise.

To decrease the gain, turn counter clockwise.



6.0 SIDE PANEL CONNECTORS

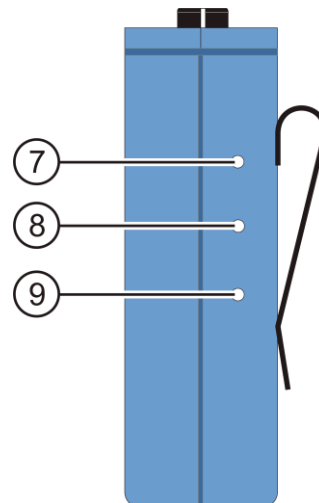
- 7 **SIDE TONE trimmer channel A**
- 8 **SIDE TONE trimmer channel B**

With trimmers #7 and #8 one adjusts the level of your voice as you hear it in your headset, for each channel separately.

Adjustment procedure:

- Turn trimmer fully clockwise
- Switch the microphones of all (speaker) stations connected to the referring party line channel off
- Push the Talk button of the referring channel and turn up its listen level
- Speak into the headset microphone
- Adjust the listen level by turning the side tone trimmer

The trimmers operating area is between fully clockwise and minimum level. Adjusting the side tone does not affect the level of your voice as heard by the other stations on the referring party line channel.



9 BUZZER VOLUME trimmer

With this trimmer one adjusts the volume of the internal buzzer. The buzzer is muted if a Buzzer Mute signal has been received from a Pro Series master station or power supply.

7.0 TECHNICAL SPECIFICATIONS PS 29

System

Dynamic range: 80 dB (1 kHz, THD<1%)
 Frequency response: 200 Hz - 15 kHz (-3 dB)
 Call signal: 2.8 mA
 Call signal threshold (receive): +2.4V DC
 Operation voltage: 24 – 32 V DC
 Power interrupt time (mic mute): 0.1 sec

Intercom Line

Impedance: 350 Ω (1 kHz) / 2.2 kΩ (DC)
 Audio level: nom. -18 dBu, max. 0 dBu

Mic pre-amp

Gain: 40 – 60 dB (adjustable internally)
 Presence filter: +6 dB at 5 kHz
 Power to electret mic: +9V DC

Side Tone

Rejection: 0 – 30 dB adjustable

Buzzer

Max. SPL: 85 dBA

Headphone Driver Amps

Max. load: 200 Ω
 Max output level:
 monaural: 16 Vrms @ 200Ω
 binaural: 2x 10,3 Vrms @ 400 Ω
 Max output power:
 monaural: 1.3 Wrms @ 200 Ω
 binaural: 2x 0.27 Wrms @ 400 Ω

PS 29 Power Consumption

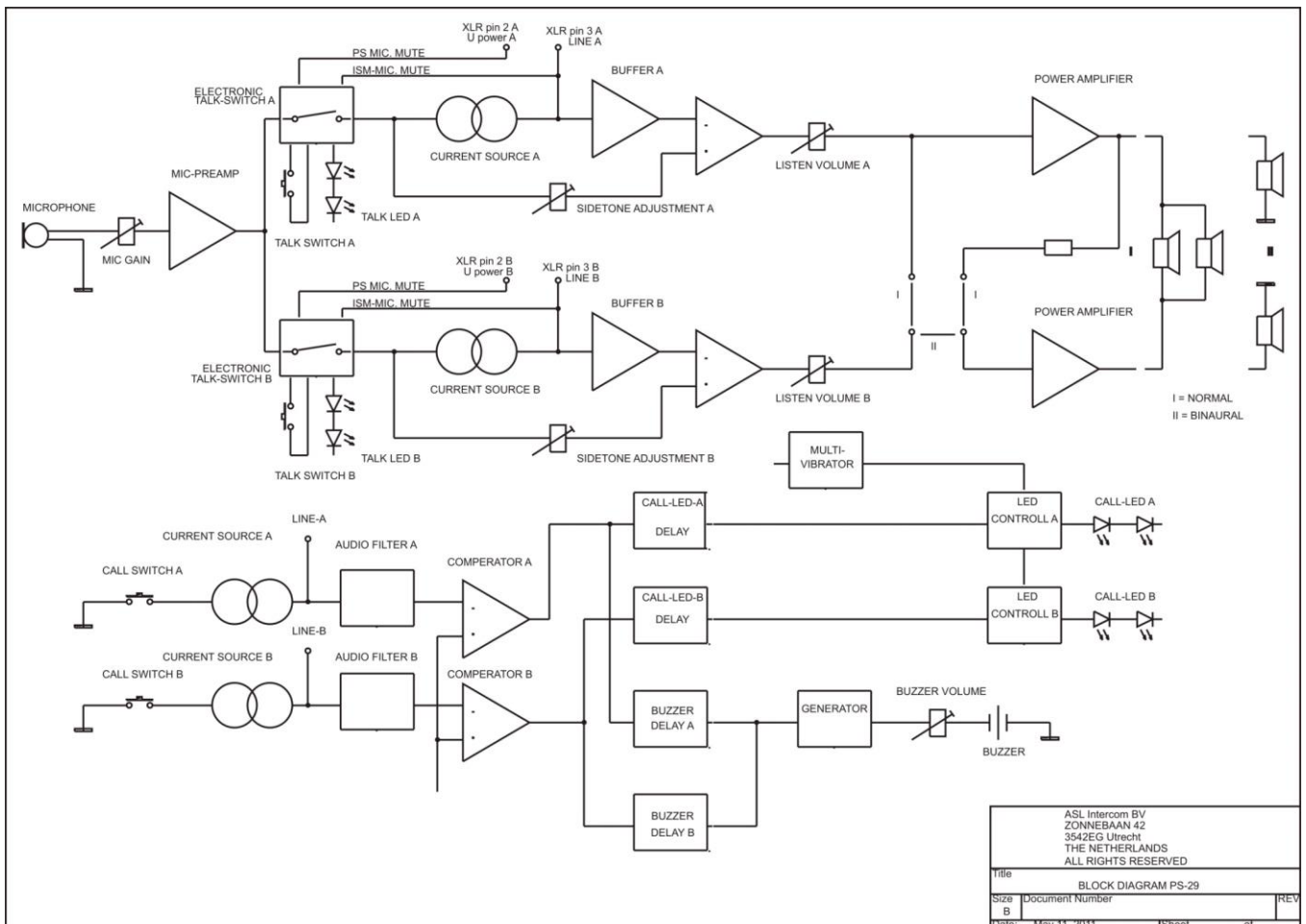
Current (at 30V DC):
 30 mA quiescent,
 45 mA at signaling
 170 mA at max. output + signaling

PS 29 Dimensions & Weight

Width: 90 mm / Height: 50 mm (incl.clip)
 Depth: 124 mm / Weight: 350 grams

*0 dBu defined as 775 mV into open circuit.
 ASL reserves the right to alter specifications
 without prior notice*

8.0 BLOCK DIAGRAM PS 29



ASL Intercom BV ZONNEBAAN 42 3542EG Utrecht THE NETHERLANDS ALL RIGHTS RESERVED		
Title	BLOCK DIAGRAM PS-29	
Size	Document Number	REV
Date	May 11, 2011	Sheet 01

9.0 PART LINE, TECHNICAL CONCEPT

User stations and power supplies in an ASL intercom system are connected via one or several 'party lines'. A party line offers two way ('full duplex') communication and consists of standard microphone (multi-pair) cable. One wire is used as an audio line, one as a power line and the screen of the cable functions as earth/return.

Current drive is used for signal transfer. Each station utilizes a current amplifier to amplify the microphone signal. That signal is put on the common audio line. Due to the constant line impedance, a signal voltage is developed which can be further amplified and sent to the headphones or loudspeakers. (The line impedance is situated in the power supply between XLR pin 3 and 1)

This principle has three advantages:

- the use of a single audio line allows several stations to talk and listen simultaneously
- due to the high bridging impedance offered by each station, the number of stations on the party line has no influence on the level of the communications audio signal
- power and audio to the intercom stations use the same cable

Also the Call signal is sent as a current, on the audio wire. It develops a DC potential over the line impedance which is sensed by each intercom station and interpreted as a Call signal.

10.0 CABLING

The intercom lines (the 'party lines') in an ASL analog intercom system are of the shielded two-conductor microphone cable type. The intercom line connectors are of the XLR-3 type. Audio and Call signals are on XLR pin 3, DC power is on XLR pin 2. XLR pin 1 is connected to the cable shield which functions as the common return for audio and power.

The audio signal is transferred in an unbalanced way (see 'Party Line, Technical Concept').

To avoid earth loops (hum), the possible effect of electromagnetic fields and to minimize power loss, certain rules have to be obeyed when installing the cabling of an intercom system :

Use high quality cable

Use high quality microphone cable (shielded two conductor cable, minimum 2x 0.30 mm²). In case multi-pair microphone cable is used, there should be an overall shield and each pair should consist of two conductors (minimum 2x 0.15 mm²) with separate shield

Use flexible cable

Use flexible single and multi-pair microphone cable instead of cable with solid cores, especially when the cable is subjected to bending during operation or installation.

Cable screens to XLR pin 1

The screen of each separate microphone cable and/or the screen of each single pair in a multi-pair cable, should be connected to pin 1 of each XLR-3 connector. Do not connect these screens to the metal housing of ASL units or XLR-3 wall boxes. See section 'Earthing Concept'.

Connect metal cable trunks, wall boxes and overall multi-pair cable screens to clean earth

Metal cable trunks, metal wall boxes and overall multi-pair cable screens should be interconnected and, at the 'central earth point' in the intercom network only, be connected to a clean earth or a safety earth. See section 'Earthing Concept'.

Keep metal connection boxes and cable trunks or pipes isolated from other metal parts

Metal trunks or pipes for intercom cables and metal connection boxes should be mounted in such a way that they are isolated from any other metal housing or construction part.

Keep cables parallel as much as possible

When two (multi channel) units in a network are connected by more than one cable, make sure that these cables are parallel to each other over the whole distance between those units. When using multi-pair cable, parallelism is ensured in the best possible way.

Avoid closed loops

Always avoid that intercom cables are making a closed loop. So-called 'ring intercom' should not physically be cabled as a ring..

Keep cables away from electromagnetic sources

Keep intercom cables away from high energy cables, e.g. 115/230/400V mains power or dimmer controlled feeds for spotlights. Intercom cables should cross high energy cables at an angle of 90° only. Intercom cables should never be in the same trunks as energy cables.

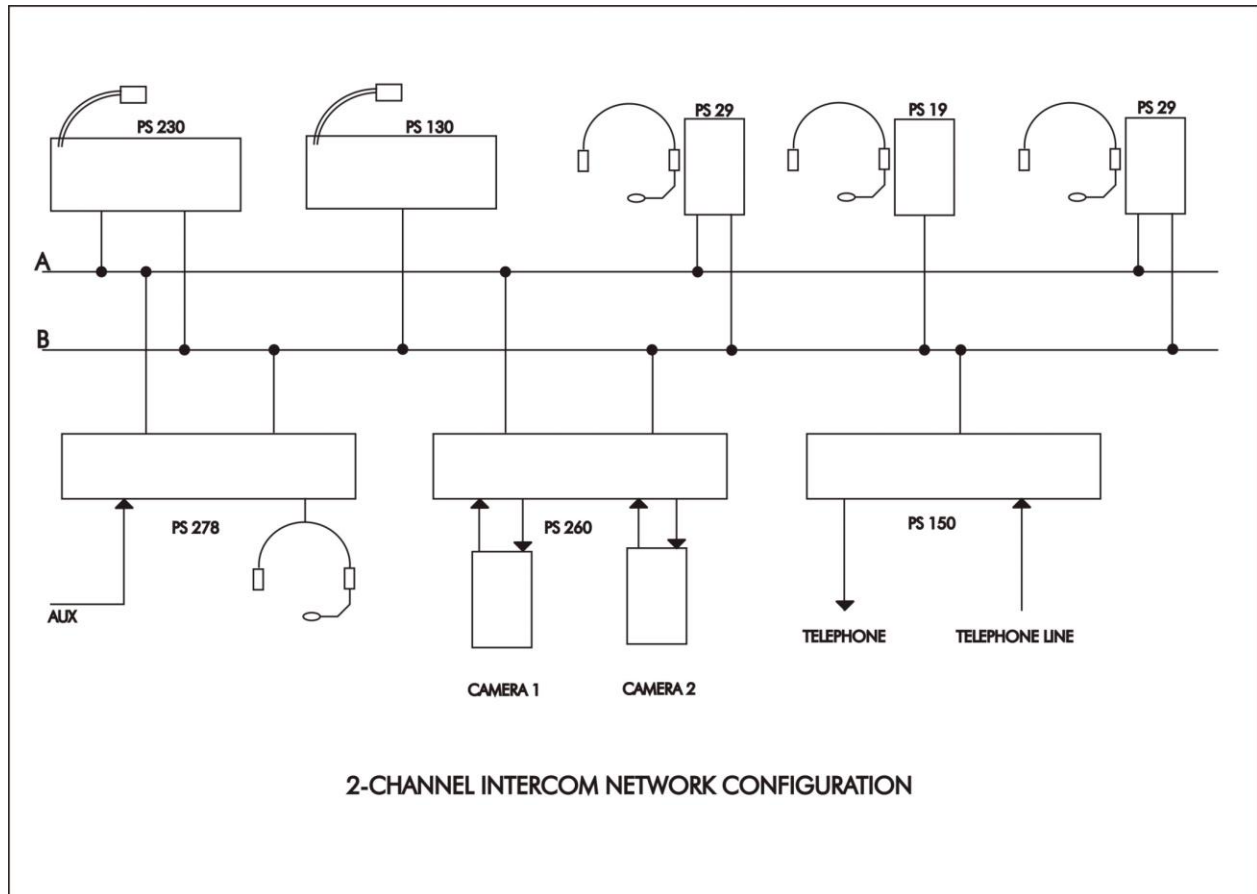
Place power supply in a central position

In case of a system powered by a separate power supply: In order to diminish power losses, place the power supply as close as possible to where most power consumption occurs, in other words most user stations are placed.

ASL powered units to a 'clean' mains outlet

Master stations or power supplies should be connected to a mains outlet with a clean earth. Other audio equipment may be connected to this mains outlet, but avoid using an outlet which also powers dimmer controlled lighting systems.

11.0 SYSTEM CONFIGURATION



12.0 EARTHING CONCEPT

