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PRO SERIES

USER MANUAL

FOR THE

PS 680

SIX CHANNEL POWER SUPPLY
WITH AUX MATRIX



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1.0 GENERAL DESCRIPTION

The PS 680 is designed to be a six channel power supply in an ASL intercom system and can be used in portable as well as fixed applications. It incorporates two adjustable auxiliary program signal inputs with a auxiliary matrix and uses only 1U of 19" rack space.

The unit is very versatile and ideal for use in applications where standard microphone cable is available and ease of setup is of paramount importance.

The intercom line power supply is fully protected and can drive at least 40 beltpacks or 20 speaker stations, or a combination, operating at full power.

For each channel separately, the intercom line impedance circuitry is installed.

Fully electronic switching increases reliability and allows for remote Mic Mute facility.

All microphones of the stations connected to the PS 680 can be muted by pushing a single front panel button.

The Aux input at the rear panel, allows injecting external audio signals of line or mic level into the intercom audio line. When 'mic level' is selected, +30V phantom power is available at the Aux input connector.

2.0 UNPACKING

The shipping carton contains the parts listed below.

- * The PS 680
- * Mains power cable
- * Spare fuses
- * User manual

If any are missing contact your dealer.

With the PS 680 will be a small packet of spare fuses. Please keep them in a safe place. There is also one spare fuse included in the mains inlet.

ASL has taken great care to ensure that this product reaches you in flawless condition.

After unpacking the unit please inspect for any physical damage to the unit, and retain the shipping carton and relevant packing materials for use should the unit need returning.

If any damage has occurred, please notify your dealer immediately so that a written claim can be initiated. Please also refer to the guarantee section of this manual.

3.0 MECHANICAL INSTALLATION

A vertical rack space of 1U (1.75", 44mm) is required for the PS 680. It is not necessary to provide rear support by extra bracing or shelving.

Adequate ventilation must be provided by allowing sufficient space around the sides and rear of the unit to ensure free circulation of air. Forced cooling is not required.

The power supply regulators are mounted inside the unit, and after a period of time it will feel warm to the touch. This is quite normal, and should be no cause for alarm.

4.0 MAINS POWER

The PS 680 may be connected to the mains power outlet to which other audio equipment is connected. The outlet should have a clean earth. Avoid using mains power outlets which also power dimmer controlled lighting equipment.

Before connecting the unit to its AC power source, check that the mains voltage, the unit accepts any AC voltage from 90 - 240 Volts, 50 - 60 Hz.

WARNING
This appliance must be earthed

4.0 MAINS POWER continued

IMPORTANT

The wires in this mains lead are colour coded in accordance

with the following code:

green and yellow	
Earth / safety ground	
blue	
	Neutral
brown	
	Live

- The wire which is coloured brown must be connected to the terminal which is marked with the letter "L" or coloured red.

Those units that are supplied to the North American market will have an integral moulded 3 pin connector which is provided to satisfy required local standards.

As the colours of the wires in the mains lead may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

- The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked with the letter "E", or by the earth symbol which is \perp or coloured green.
- The wire which is coloured blue must be connected to the terminal which is marked with the letter "N" or coloured black.

4.1 SAFETY EARTHING

The green-and-yellow wire of the mains cord must always be connected to the electrical installation safety earth or ground. It is essential for personal safety as well for proper operation of the PS 680 and the other connected stations. This wire is internally connected to all exposed metal surfaces and any rack framework into which this unit might be mounted is assumed to be connected to the same grounding circuit.

The PS 680 employs professionally designed audio input and output circuits which do not require the disconnection of any safety earth for the avoidance of hum loops.

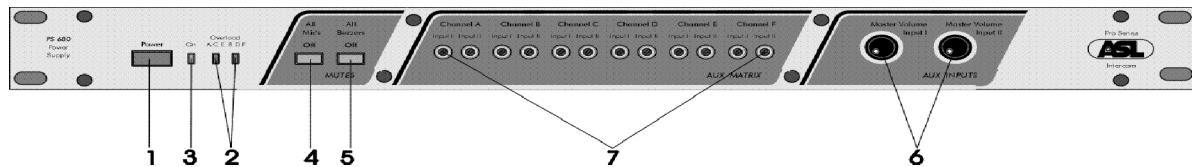
4.2 POWERING UP

Powering up procedure:

- Make sure that the red power switch on the left side of the front panel is OFF.
- Connect the power cord to the rear of the station.
- Plug the other end of the power cord into a PROPERLY GROUNDED outlet.
- Turn on the power with the red button. The red overload LEDs will light up for about 3 seconds, then extinguishes and then the green power LED will go on, indicating the station is active.

See for further installation and operation the concerning sections.

5.0 FRONT PANEL CONTROLS



1 POWER ON/OFF switch

Mains power push button for switching ON and OFF the internal power supply.

2 OVERLOAD LEDS

These LED's illuminate if the internal power supply has shut off line power due to overload. If the internal power supply is overloaded (too many user stations are connected or short-circuit in the interconnecting cables or thermal overload), it activates a circuit-breaker which immediately shuts off line power. This circuit breaker resets automatically 3 seconds after the overload situation is terminated, restoring line power automatically. During short-circuit, the overload LED extinguishes very shortly every 3 seconds. During thermal overload the LED burns continuously. This overload LED also comes on every time you switch on the main power.

3 POWER LED

This LED illuminates if line power is supplied by the internal power supply.

4 ALL MIC'S ON/OFF button

With this pushbutton all microphones of the connected stations can be muted.

5 ALL BUZZERS ON/OFF button

With this button all buzzers of the connected stations can be muted.

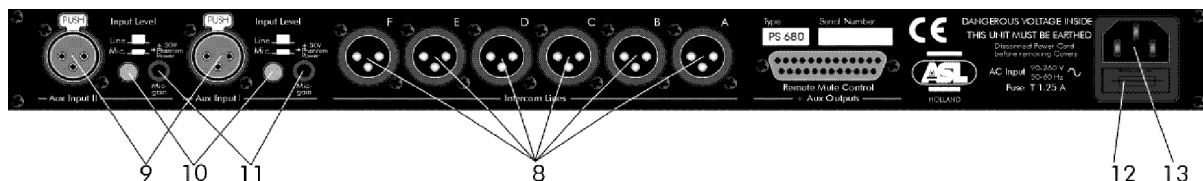
6 AUX VOLUME control knobs

These knobs adjust the master level of the aux (I & II) input signals before these are routed to the matrix.

7 AUX MATRIX trimmers

These trimmers control the volume of each AUX input as sent to that specific channel.

6.0 REAR PANEL CONTROLS & CONNECTORS



8 A & B LINE connectors

These XLR-3 type connectors are for connecting user stations, via standard microphone cable. There are two connectors for channel A and two connectors for channel B.

Pin assignments :

1. 0 V / ground shield
2. +30 V power wire
3. audio wire

9 AUX INPUT connectors

This XLR-3 type aux input is electronically balanced and accepts audio levels between -18dBu to +22dBu on line level, and -38dBu to +2dBu on mic level.

Pin assignments :

1. 0V / ground
2. Signal +
3. Signal -

When mic level is selected, a +30V DC phantom power is supplied to pins 2 and 3.

10 MIC / LINE SWITCHES

With these switches the sensitivity of each AUX input can be chosen, Mic level or Line level. When mic level is selected, a +30V DC phantom power is supplied to pins 2 and 3.

11 MIC GAIN

When Mic level is selected this trimmer adjusts the sensitivity of the AUX input.

10 FUSE

This fuse protects the PS 680 against severe internal damage, in case of malfunction in the power section. To remove the fuse the mains cord must be removed.

It is most important to place the correct fuse in the holder :

mains voltage
fuse
90 - 240 VAC T 1250 mA

Spare fuses will be found in the small packet supplied with the unit.

6.0 REAR PANEL CONTROLS & CONNECTORS continued

11 MAINS INLET

IEC Mains connector. For correct wiring and operation refer to section 4.0.

12 REMOTE MUTE CONTROL AND AUX OUTPUTS

On this connector are available :

- Mic mute controls for each channel separately
- Buzzer mute controls for each channel separately
- Mic mute control for all channels
- Buzzer mute control for all channels
- The unbalanced AUX signals
- Ground (0Volts, pin 1 of each XLR)
- +30 Volts power (each channel summed)

To activate a mute, connect the desired pin(s) of the D-25 connector (12-25) to ground (1, 2, 4 or 6).

The unbalanced AUX are available on pins 3 and 5, the signal is the preamplified AUX input signal taken after the master volume controls (6), before it is sent to the matrix.

Use high impedance loads only ! Minimum of 20 K ohms. Lower loads may disrupt the AUX signals to the intercom lines.

Pin layout of the D-25 :

1	Ground	(0V)
2	Ground	(0V)
3	Unbalanced AUX signal AUX 2	
4	Ground	(0V)
5	Unbalanced AUX signal AUX 1	
6	Ground	(0V)
7	+30 Volts	(maximum load of 1A !)
8	not used	
9	+30 Volts	
10	not used	
11	+ 9 Volts	(maximum load of 50 mA !)
12	Buzzer mute all channels	(connect to ground as long as needed to activate)
13	Mic mute all channels	(connect to ground momentary to activate)
14	Buzzer mute channel A	(connect to ground as long as needed to activate)
15	Mic mute channel F	(connect to ground momentary to activate)
16	Buzzer mute channel B	(connect to ground as long as needed to activate)
17	Mic mute channel E	(connect to ground momentary to activate)
18	Buzzer mute channel C	(connect to ground as long as needed to activate)
19	Mic mute channel D	(connect to ground momentary to activate)
20	Buzzer mute channel D	(connect to ground as long as needed to activate)
21	Mic mute channel C	(connect to ground momentary to activate)
22	Buzzer mute channel E	(connect to ground as long as needed to activate)
23	Mic mute channel B	(connect to ground momentary to activate)
24	Buzzer mute channel F	(connect to ground as long as needed to activate)
25	Mic mute channel A	(connect to ground momentary to activate)

! Please note that the +9 Volt supply is NOT shortcircuit protected !

7.0 CABLING

For the PRO Series Intercom system the interconnecting cables are of the shielded two-conductor microphone cable type and 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 shield of the cable which functions as the common return for audio and power.

Since the audio signal is transferred in an **unbalanced** * way, certain rules have to be obeyed when installing the cables of an intercom network. This in order to avoid earth loops and to minimize power loss and the possible effect of electromagnetic fields.

These rules are:

p Use high quality (multipair) cable.

For interconnecting user stations, power supplies and accessories in an ASL Intercom network, use high quality shielded two-conductor (minimum 2x 0.30 mm²) microphone cable only.

In case of a multi channel intercom network, use high quality microphone 'multipair' cable only, each pair consisting of two conductors (minimum 2x 0.15 mm²) with separate shield. Multipair cable should have an overall shield as well.

p Use flexible cables.

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

p Separate cable screen to XLR pin 1.

The screen of each separate microphone cable and/or the screen of each single pair in a multipair cable, should be connected to pin 1 of each XLR-3 connector. Do not connect this cable screen to the metal housing of the connector or to metal wall boxes (outlets). See last page for Earthing Concept.

p Cable trunks, connection boxes and overall multipair cable screen to clean earth.

Metal cable trunks, metal connection boxes and overall multipair cable screen should be interconnected and, at one point (the 'central earthing point') in the intercom network only, be connected to a clean earth or a safety earth. See last page for Earthing Concept.

p Keep metal connection boxes and cable trunks isolated from other metal parts.

Metal housings for intercom cables and connectors should be mounted in such a way that they are isolated from other metal cable and connector housings and from any other metal construction parts.

p 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 multipair cable, parallelism is ensured in the best possible way.

p Avoid closed loops.

Always avoid that cables are making a loop. So-called 'ring intercom' should not physically be cabled as a ring. All cable routes should have a 'star' configuration, with the central earthing point (usually close to the power supply position) as the center of the star.

p Keep cables away from electromagnetic sources.

Keep intercom cables away from high energy cables, e.g. 110/220/380V mains power or dimmer controlled feeds for spotlights. Intercom cables should cross with energy cables in an angle of 90° only. Intercom cables should never be in the same (metal) trunks with energy cables.

p Place power supplies in a central position.

In order to avoid unacceptable power losses, place the power supplies as close as possible to where most power consumption occurs or, in other words, most user stations are placed.

p Connect ASL power supply to a 'clean' mains outlet.

The ASL power supply may be connected to the mains power outlet to which other audio equipment is connected. Avoid using mains outlets which also power dimmer controlled lighting systems.

In case of more complex installations, don't hesitate to contact us. Please send us a block diagram of the planned network with a list of all user stations and their positions, and we are happy to advise you on cabling lay out.

* See Party Line, Technical Concept

8.0 PARTY LINE, TECHNICAL CONCEPT

ASL's PRO Series offers a complete two way ('full duplex') communications system. Users of the system are connected via a 'party line'. Master stations (with built-in power supply), belt-packs, speaker stations and power supplies are interconnected via standard microphone 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 utilises a current amplifier to amplify the microphone signal and place it on the common audio line where, due to the constant line impedance (situated in the power supply between XLR pin 3 and 1), a signal voltage is developed which can be further amplified and sent to headphones or loudspeakers.

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 line' has no influence on the level of the communications signal.
- power and audio to the intercom stations use the same cable.

The Call signal is also sent as a current on the audio line. It develops a DC potential over the line impedance which will be sensed by each station and interpreted as a Call signal.

9.0 GUARANTEE

This unit is warranted by ASL Intercom to the original end-user purchaser against defects in workmanship and materials in its manufacture for a period of one year from the date of shipment to the end-user.

Faults arising from misuse, unauthorised modifications or accidents are not covered by this warranty. If the unit is faulty, it should be sent in its original packing to the supplier or your local ASL dealer, with shipping prepaid. A note must be included stating the faults found and a copy of the original suppliers invoice.

THIS PRODUCT WAS DESIGNED, DEVELOPED AND MANUFACTURED BY:

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10.0 TECHNICAL SPECIFICATIONS PS 680

POWER SUPPLY

mains voltage range	90 - 240 V AC, 50 - 60 Hz
DC output voltage	+30 V +/-5% DC
ripple and noise	< 11 mV rms
max. output current	2 A continuous, 3 A peak (each channel) 4 A continues, 6 A peak (total)
circuit-breaker delay time	0.2 sec.
automatic reset time	3.0 sec.

AUX INPUT

input impedance	30 Kohms (balanced line level) 4.6 Kohms (balanced mic level)
nominal input level	-18 dBu to +6 dBu (line level) -38 dBu to -14 dBu (mic level)
max. input level	+22 dBu (line level) +2 dBu (mic level)
phantom power	+30 V DC (mic level selected)

DIMENSIONS AND WEIGHT

width	19" (483 mm)
height	1U (44.5 mm)
depth	250 mm
weight	2 Kg

GENERAL SYSTEM SPECIFICATIONS

intercom line impedance	350 ohms (1kHz) 2.2 Kohms (DC)
intercom line audio level	nom. -18 dBu max. +4 dBu
dynamic range	80 dB
call send signal	+2.8 mA
call receive signal threshold	+2.4 V DC
supply voltage	+30 V DC (12 V to 32 V)
mic mute power interrupt time	0.1 sec

Note: 0 dBu = 775 mV into open circuit.

ASL reserve the right to alter specifications without further notice.