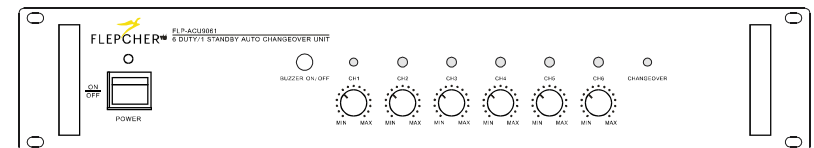




User Manual



FLP-ACU9061
6 DUTY/1 STANDBY AUTO CHANGEOVER UNIT



www.flepcher.com

Please read this user manual carefully before operation.

INTRODUCTION

It offers a great flexibility and simplicity in cabling for auto amplifier fault changeover system with its combination of amplifier fault sensor modules and changeover panel in a box.

Changeover are performed at both input and output sections, making it suitable for application in a matrix system. At any one time, only a failed duty unit shall be replaced by a standby amp to avoid overloading.

- With microcomputer detection system , realize auto amplifier fault changeover
- High sensitivity and accurate fault detection function , less than 2 seconds for changeover time
- Cater for 6 duty and 1 standby
- Expandable for 1 standby to cater for more than 6 duty amps
- Overloading protection by allowing only a single take over
- Prioritized changeover which higher numbered amplifier shall be preferred for take over if more than two units are down
- Changeover at input and output section simultaneously , suitable for matrix system installations.
- Signal input with open/link button , making connection of sources easier
- Individual channel status indicators: "ON" , "OFF" and "FLASH".
- With buzzer alert switch function ,can switch on/off
- With volume control function for 6 individual channel

TECHNICAL SPECIFICATIONS

Model	FLP-ACU9061
Operating voltage	DC 24V
Power consumption	10W
Input signal	6 channels unbalance line signal or balance signal
Input impedance	10K Ohm
Audio output gain	Can adjust on front panel
Detection line	70/100V line
Detection level	50 V rms min
Failure detection time	500ms
Failure recovery time	500ms
Duty amp indicator status	"ON","OFF","FLASH"
Standby amp/changeover indicator status	"ON","FLASH"
Changeover alert	Buzzer with switch
Zone load rating	1000 W 70V / 100V line
Changeover section	Input and output simultaneously
Net Weight	3.5kg
Gross Weight	4kg
Dimensions (W x D x H)	485 x 370 x 88 mm

Specifications are subject to change without notice.

TESTING THE INSTALLATIONS

POWER UP

With all cablings for audio source input and output, amplifier input and output channels connected, switch on the power for the unit. Please use regulated 24V DC with min 0.5A rating. Unregulated power supply may cause fault to the unit.

Once the power is on, all channels are working under normal status, can adjust every channel's volume to suitable position on unit panel. Remember all amplifiers shall be switched on and turned the volume to maximum.

TEST INDIVIDUAL WORKING FUNCTION

TEST STEPS	OBSERVATIONS
Switch off the power of the amplifier at Channel 1.	CH1 indicator changed from "ON" to "FLASH", CHANGEOVER indicator also changed from "ON" to "FLASH". And the buzzer shall be activated & alarmed if under switch on status. This action shall take a maximum time of 2 seconds
Switch on the power of the amplifier 1.	The channel shall return to normal mode with indicator "ON" as well as buzzer being silenced.

Repeat the above steps for Channel 2 to 6

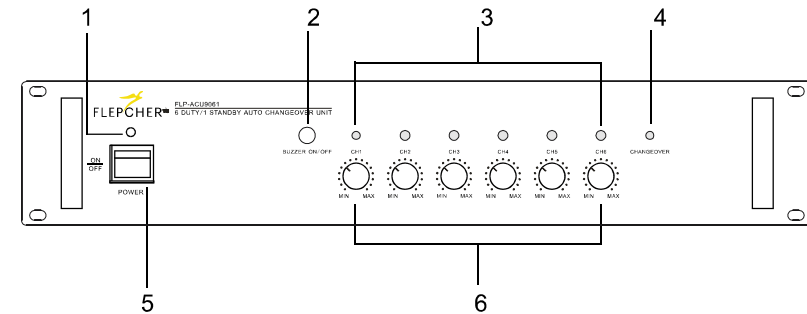
TEST PRIORITY WORKING FUNCTION

TEST STEPS	OBSERVATIONS
Switch off the power of the amplifier at Channel 1.	CH1 indicator changed from "ON" to "FLASH", CHANGEOVER indicator also changed from "ON" to "FLASH". And the buzzer shall be activated & alarmed if under switch on status. This action shall take a maximum time of 2 seconds
Switch off the power of the amplifier at Channel 2.	CH1 indicator changed from "FLASH" to "OFF", CHANGEOVER indicator kept "FLASH". CH2 indicator changed from "ON" to "FLASH".
Switch off the power of the amplifier at Channel 3.	CH2 indicator changed from "FLASH" to "OFF", CHANGEOVER indicator kept "FLASH". CH3 indicator changed from "ON" to "FLASH".

Repeat the above steps with CH4 switched off while the previous ones still at OFF position. You shall observe the same pattern at the indicators in sequence.

After channel 6, switch on the power amp in sequence from CH6 to 1 and the observations shall be as opposite to the earlier procedures

FRONT PANEL



1. POWER INDICATOR

Under working status, the power indicator is on..

2. BUZZER ON/OFF

When switch on, the faulty channel is detected, the buzzer shall be activated and alarmed, and the alarm can be switched off.
When switch off, the faulty channel is detected, but the buzzer shall not be activated.

3. DUTY AMP 1,2,3,4,5,6 INDICATOR

The duty amp indicator "ON" means the channel is working normally and has not been taken over by standby amp.
The duty amp indicator "OFF" means the channel is working abnormally and has not been taken over by standby amp, since the priority duty amp has occupied the standby amp.
The duty amp indicator "FLASH" means the channel is working abnormally and has been taken over by standby amp.

4. STANDBY AMP/CHANGEOVER INDICATOR

The standby amp/changeover indicator "ON" means standby amp has not taken over.
The standby amp/changeover indicator "FLASH" means standby amp has taken over.

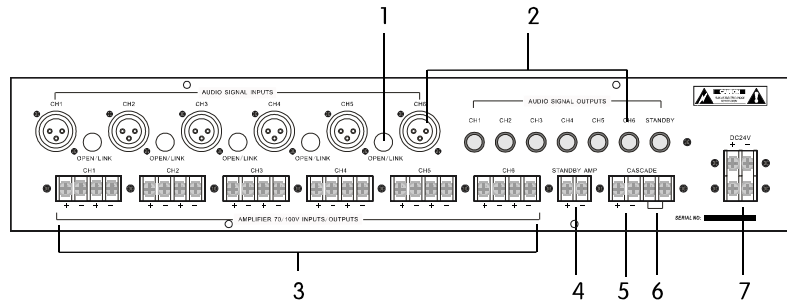
5. POWER ON/OFF

Power switch on/off .

6. VOLUME CONTROL OF DUTY AMP 1,2,3,4,5,6

Use to control the 6 channel to suitable volume, generally the volume on duty amp panel should be turned maximum.

REAR PANEL



1. SIGNAL OPEN/LINK BUTTON

Pressing the button shall link the input source from one channel to the other. Use this only when two or more amplifiers share common input source. For matrix system, some zones may have different sources, thereby please release the button to open status to input different source.

2. AUDIO SIGNAL INPUTS / OUTPUTS

Audio output from pre-amplifier mixer is connected to this port at "Input" terminals before link it to the amplifier audio input via "Output" terminals. Signal ground shall be joint together as they are common. If all amplifiers share a common source, terminate only at channel 1 and utilise the signal button to join all the input terminals. Please refer to the chapter "Connecting Input Source"

3. AMPLIFIER 70V/100V INPUTS/OUTPUTS

Connect outputs from amplifiers to the "Input" and the "Output" terminal shall then be connected to speaker zone selectors.

4. STANDBY AMPLIFIER OUTPUT TERMINALS

This port is connected to the output from standby amplifier.

5. CASCADE

Two FLP-ACU9061 can be used when only a standby amplifier is available to serve more than 6 duty amplifiers, connect the "+" to "+", "-" to "-" to cascade two units.

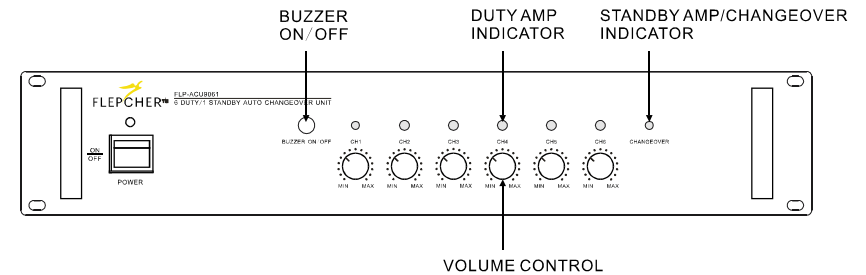
6. PRIORITY SETTING

When cascading two units, the short-circuited connection made by thin wire to set the priority.

7. DC24V INPUT

This equipment operated under DC 24V.

FAULT DETECTIONS



HOW IT WORKS

FLP-ACU9061 is by comparing the amplifier's input & output signal to judge whether has the faulty amplifiers, since the amplifier has a certain amplification factor. And it is recommended to turn the volume to be maximum on all amplifier panel to ensure the detection level.

INDICATIONS

Every duty & standby amp have indicators to show their status, CH1,CH2,CH3,CH4,CH5,CH6 are corresponding with 6 channel duty amp. CHANGEOVER is corresponding with standby amp.

The duty amp indicator "ON" means the channel is working normally and has not been taken over by standby amp.

The duty amp indicator "OFF" means the channel is working abnormally and has not been taken over by standby amp, since the priority duty amp has occupied the standby amp.

The duty amp indicator "FLASH" means the channel is working abnormally and has been taken over by standby amp.

The standby amp/changeover indicator "ON" means standby amp has not taken over.
The standby amp/changeover indicator "FLASH" means standby amp has taken over.

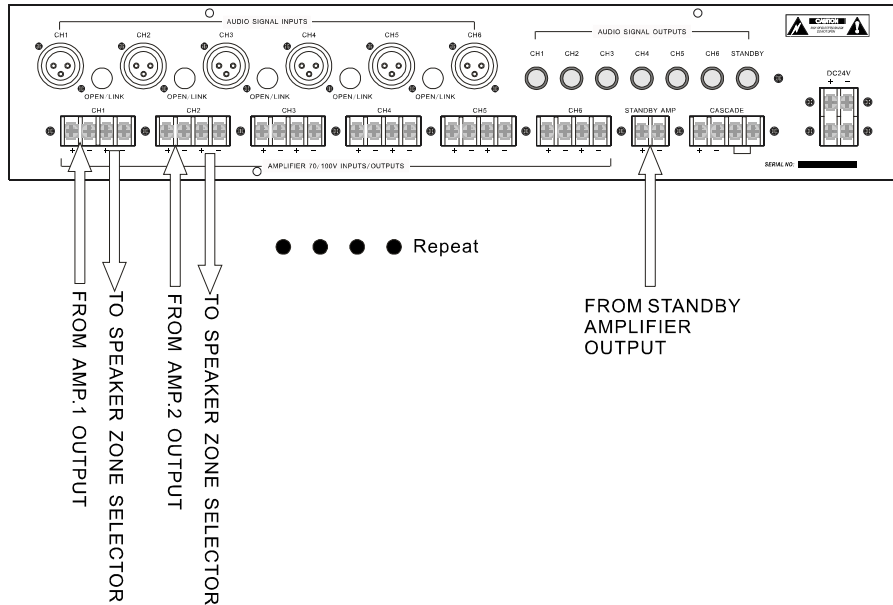
There is any unused & disconnected channel shall also be regarded as normal channel, and changeover shall not take over

Only a single takeover is allowed to prevent overloading of standby amp. Preference shall be given to unit with higher number for takeover. ie. When CH2 and CH4 are faulty, CH4 shall be allowed for takeover. For cascading mode, please refer to section "CASCADING FLP-ACU9061", when CH3,CH8, CH12 are faulty,CH12 shall be allowed for takeover.

CHANGEOVER ALERT

Buzzer used to alarm for changeover, it can be controlled to be activated or not by BUZZER ON/OFF. When switch on, the faulty channel is detected, the buzzer shall be activated and alarmed, and the alarm can be switched off. When switch off, the faulty channel is detected, but the buzzer shall not be activated.

CONNECTING THE UNIT - AMP INPUTS - OUTPUTS



When connecting output of amplifiers to the FLP-ACU9061, polarity must be observed.

Each output of the amplifier must be connected to the unit. A disconnected amplifier channel shall be regarded as a normal channel and a changeover shall not take over.

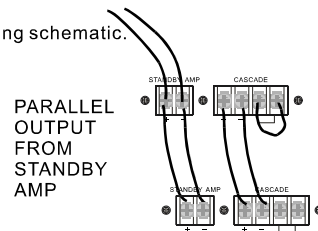
CASCADING FLP-ACU9061

When cascading two FLP-ACU9061, please refer the connecting schematic.

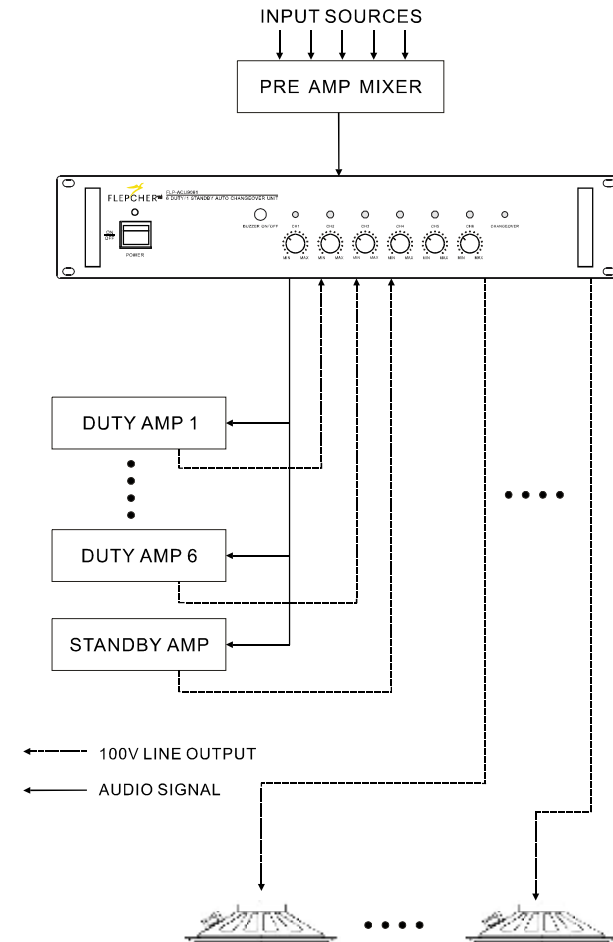
Parallel output from standby amp, connect the "+" to "+", "-" to "-" to cascade two units, the polarity must be observed.

Seen in the schematic, the upper unit has priority, because of the short-circuited connection.

And which unit you need priority, just short-circuit the priority terminals. And the channels of priority changeover can be regarded as CH7, CH8, CH9, CH10, CH11, CH12.



GENERAL SCHEMATIC 1 : SINGLE SOURCE SETUP

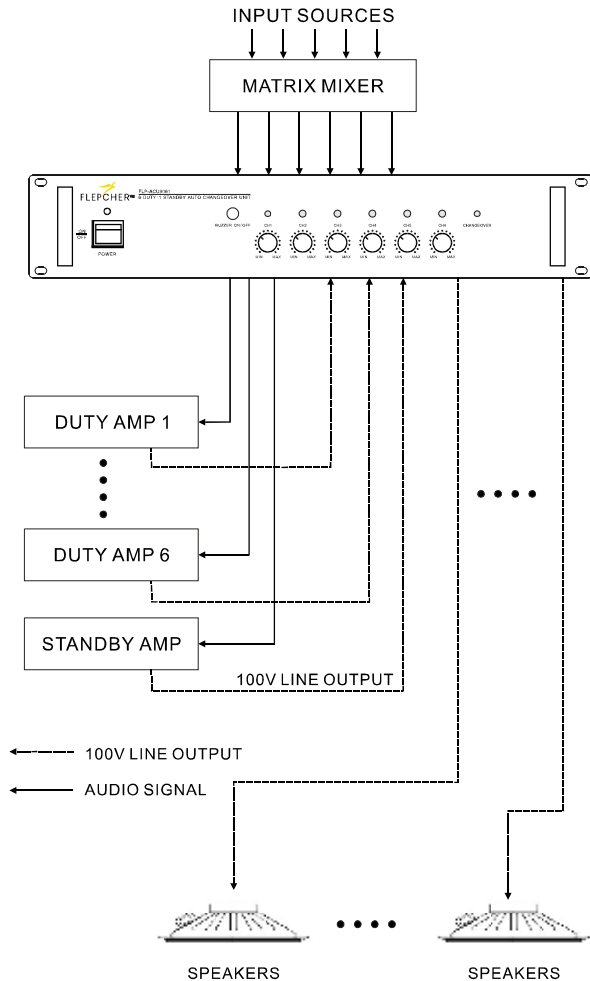


The above schematic is typical for single audio source application.

When inputting a single audio source to changeover, press the OPEN/LINK button to LINK status, then all channels share a common source.

Please cascade two FLP-ACU9061 when only a single standby power amplifier is available to serve more than 6 duty power amplifiers.

GENERAL SCHEMATIC 2 : MULTIPLE SOURCE SETUP

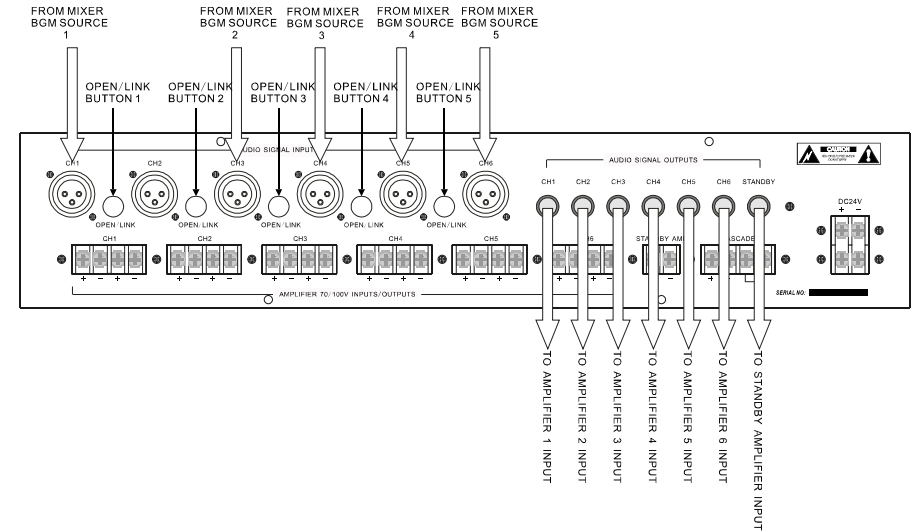


The above schematic is typical for multiple audio source application

When inputting the multiple audio source to changeover, press the OPEN/LINK button to OPEN status, then all channels input different source.

Please cascade two FLP-ACU9061 when only a single standby power amplifier is available to serve more than 6 duty power amplifiers.

CONNECTING THE UNIT - AUDIO INPUTS / OUTPUTS



The above shall be for a setup of :

Amplifier 1 and 2 with same input source ; thus only input port of channel 1 is connected. The OPEN/LINK BUTTON 1 is pressed to LINK status.

Amplifier 3, 4, 5 and 6 shall have separate BGM source and their outputs shall be connected to the respective amplifier inputs. OPEN/LINK BUTTON 2, 3, 4 and 5 shall be at OPEN status.

IF ONLY A SOURCE IS TO BE CONNECTED TO ALL AMPLIFIERS :

In the case that a single source is used for the whole installation, connect only to channel 1 and set all the OPEN/LINK BUTTON to LINK status.

NOTE :

Input and Output signal from FLP-ACU9061 shall have unity gain. Therefore a single source shall be limited to max 6 output channels. If a source were to be connected to more than 6 amplifiers, it is recommended that a distribution amplifier is used before connecting it to the FLP-ACU9061 input port.

Having a source connected directly to more than 6 amplifiers may cause impedance drop, probably causing distorted sound quality as well as signal drop.