

PROTECH®

3CH PRESS MIXER

FS-302P

Operating Instructions

Before operating the unit, please read this manual thoroughly and retain it for future reference.



Attention on safety

Please guard.

The case where it is used by professional Tec commodity common optional AC is contained.

It explains the guard without fail to prevent the damage to harm and the property to the person and other people who use it beforehand as follows.

- It divides in the following table, and it explains the level of harm and the damage caused when a usage wrong as the content of the display is disregarded is done.

	Warning	The column of this display is "The possibility of owing the death or the serious injury, etc. is assumed" content.
	Attention	The column of this display is "The possibility that only the possibility or the physical loss or damage in which the trouble is owed occurs is assumed" content.

- It divides by the following picture display, and it explains the kind of the guarded content. (The following are one picture display example.)

	Such a picture display is an attentive "Attention rousing" content that wants to hold.
	Such a picture display is "Prohibition" content that cannot be done.
	Such a picture display is "Compulsion" content executed without fail.

About the installation








Warning

	It doesn't put it on an unstable place.		A heavy thing is not put on the power supply code.		It doesn't set it up in the water place.
Prohibition		Prohibition		Water place use prohibition	

About the processing in abnormal circumstances



Warning

	When this machine is dropped or is damaged, the power on/off switch is cut.		When water etc. enter in this machine, the power on/off switch is cut.		When the foreign body enters in this machine, the power on/off switch is cut.
The power supply is pulled out.	The power supply is pulled out.	The power supply is pulled out.	The power supply is pulled out.	The power supply is pulled out.	The power supply is pulled out.
	Smoke has risen, and when it is abnormal of hearing a strange smell and the sound etc. the power on/off switch is cut.		When the power supply code hurts, it exchanges it.		
The power supply is pulled out.	Compulsion				

About use

 Warning

<p>Neither a container where water entered on this machine nor a small metallic thing are put.</p> <p></p> <p>Prohibition</p>	<p>The foreign body is not inserted, and not dropped from the opening of the equipment.</p> <p></p> <p>Prohibition</p>	<p>This machine is not remodeled.</p> <p></p> <p>Resolution prohibition</p>
<p>It doesn't use it in the water place.</p> <p></p> <p>Water place use prohibition</p>	<p>Neither the back cap, the cabinet nor the cover, etc. of this machine are removed.</p> <p></p> <p>Resolution prohibition</p>	<p>It is done to wet the equipment and watertight.</p> <p></p> <p>Prohibition</p>

About use

 Attention

About maintenance

<p>A heavy thing is not put on this machine.</p> <p></p> <p>Prohibition</p>	<p>It doesn't take this machine.</p> <p></p> <p>Prohibition</p>	<p>When maintaining it, the switch is turned off for safety.</p> <p></p> <p>The power supply is pulled out.</p>
<p>When not using it, the power supply is pulled out for safety.</p> <p></p> <p>The power supply is pulled out.</p>	<p>The power supply is pulled out, and an external code is removed when moving.</p> <p></p> <p>The power supply is pulled out.</p>	<p>The consultation of an internal cleaning is : to the shop about once a year.</p> <p></p> <p>Compulsion</p>

About after-sales service

Our product is a free repair guarantee of one year.
(I hope the carriage etc. in the customer's share.)

It does to a repair for a fee for the commodity that passes a free guaranteed term.

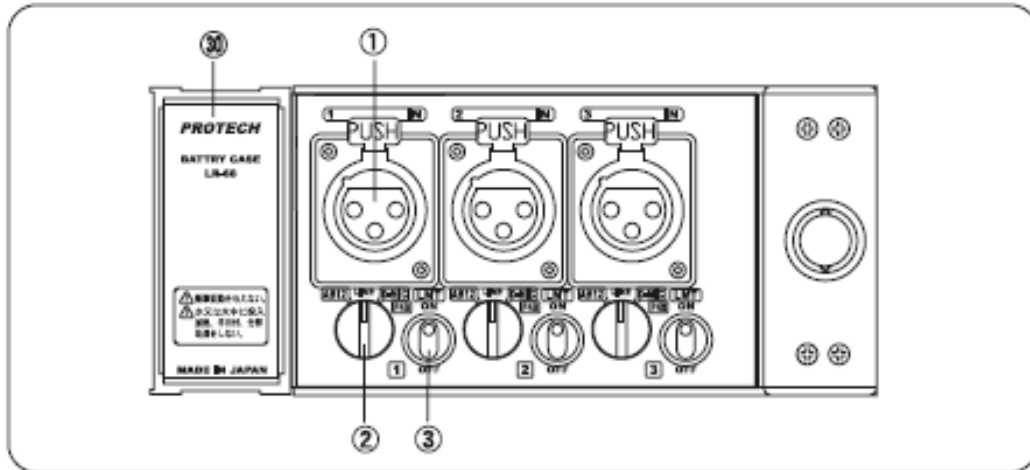
Please request the repair to the shop or our support center of purchase.

Contents

Attention on safety	2-3
Name and operation of each part	5-11
Input panel (Left side panel)	5
Main panel (Front panel)	6-8
Output panel (Right side panel)	9-10
Battery holder	11
Main operation instructions	12-20
Removal and attachment of battery case	12
Power ON/OFF and confirmation of remain capacity of battery	13
Select the kind of input audio signal	14
Connect audio output to recorder	15-16
Adjust output level	17-18
Recording	19-20
Option	21
Block Diagram	22
Outside View	23
Main Specifications	24

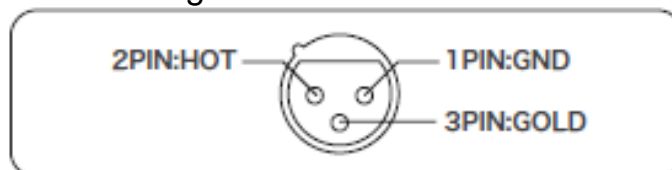
Name and operation of each part

Input panel (Left side panel)



- (1) Input connector Canon XLR 3pin
FS-302P A type: Female
FS-302P B type: Male

Pin assignment Canon 3P female



- (2) Input select switch

AB12 : Set to this position when A-B12 microphone (Sennheiser MKH416T) is used.

LINE : Set to this position for the input of line level

D-MIC : Set to this position when dynamic microphone is used.

P48 : Set to this position when phantom 48V microphone is used.

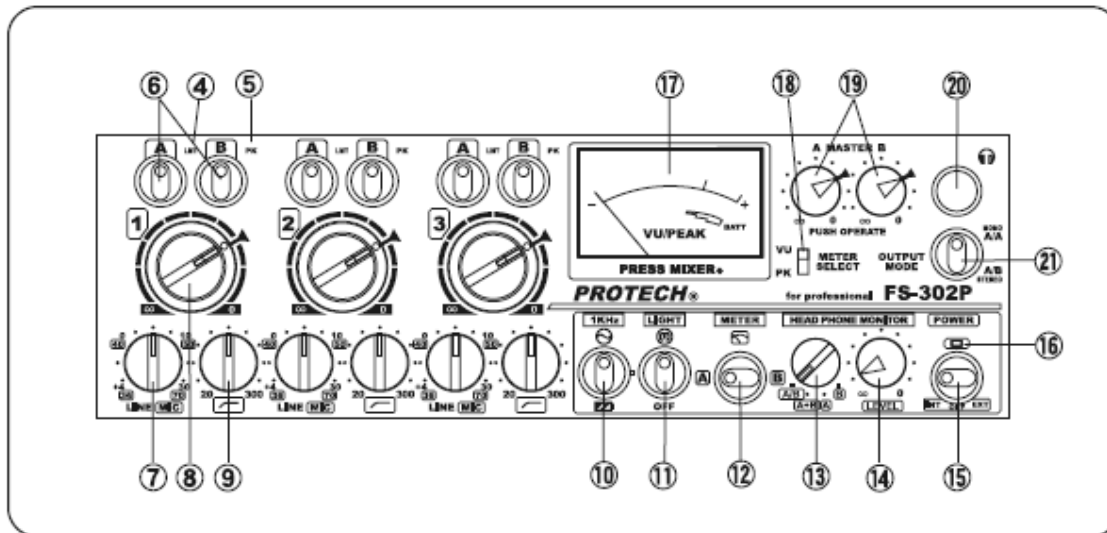
- (3) Hyper limiter switch

ON/OFF switch of the hyper limiter equipped to each channel independently.

(Note) Switch off the hyper limiter and adjust trim volume and master volume.

Switch on it after the level adjustment finished.

Main panel (Front panel)



(4) Hyper limiter LED

LED to indicate ON status of the hyper limiter. Operator can confirm the ON/OFF status on the front panel.

(5) Overload (PK) LED

It lights up every channel when the level becomes over load status in the moment.

(6) Output select switch

It is the select switch to mix the signal adjusted every channel to AOUT or BOUT.

(7) MIC/LINE Trim volume

It is the adjustment volume to take the input by the right level. It can adjust the audio level input by the microphone from minimum -70dBm to maximum -36dBm . It is variable from -30dBm to $+4\text{dBm}$ for LINE input.

(8) CH master volume (with LED indicator)

It is the volume which adjusts a mixing level every each channel. If the light switch is ON, top of the volume lights on and adjustment can be done in the darkness.

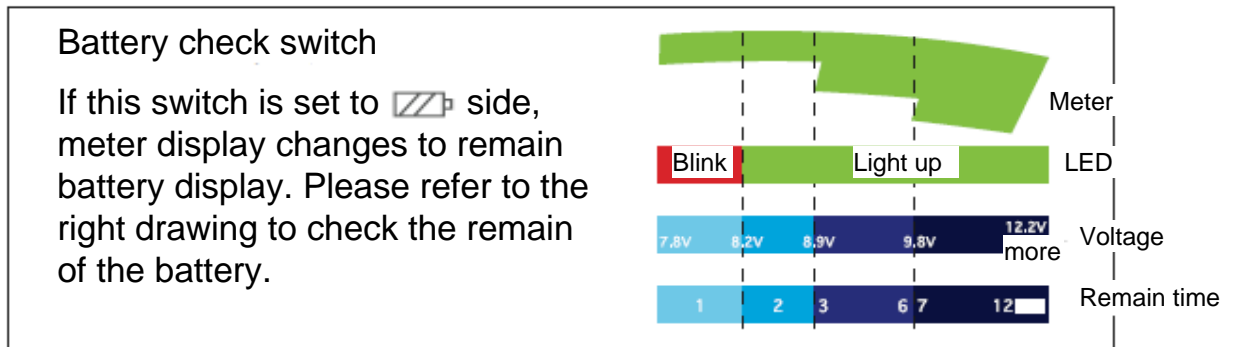
(9) LOW CUT adjustment volume

It is the volume which adjusts the cut-off frequency to cut the low band of the wind noise and so on. By monitoring with the headphone and so on, adjust it between 20 - 300 Hz.

Main panel (Front panel)

(10) 1kHz/Battery check switch

Set this switch to ☺ side. 1 kHz reference signal is output to main and sub output.



(11) Light switch

If this switch is set to ☺ position, LED and back light of each channel light up, and the operation becomes easy in the darkness.

(12) Meter change switch

It is the switch to change meter display to A channel output or B channel output.

(13) Headphone select switch

It is the switch to select the monitor signal output to standard headphone jack (20) and mini headphone jack (22). It becomes stereo in A/B mode, MIX of A and B in A+B mode and monaural in A mode or B mode.

(14) Headphone monitor level volume

It is the volume to adjust monitor level selected by the headphone select switch (13).

(15) POW switch


If It is set to INT, power is supplied from inside (battery box of the back side). If it is set to EXT, power is supplied from Canon 4pin DC12V input connector (28).

(16) POW display LED

It lights up when POW switch (15) is set to INT (internal power) or EXT (external power) and power is on. This display has the voltage check function and it starts blinking if the power voltage becomes lower than 8.2V to warn of the battery capacity lack.

Main panel (Front panel)

(17) VU/PEAK meter

AOUT or BOUT can be monitored with 1 meter by meter change switch (12). VU and PEAK are changeable by VU/PEAK switch (18). When VU/PEAK switch (18) is set to VU, the meter becomes VU and scale is upper side $-20 \sim +3\text{dB}$. When it is changed to PK side, it becomes PEAK PROGRAM meter and scale is lower side $-60\text{dB} \sim 0\text{dB}$. When 1kHz/Battery check switch (10) is set to  , this meter displays battery level.

(Note) Reference level is 0dB in VU and +4/0/-20/-60dB in PEAK set by Master output select switch (23) at -20dB .

(18) Meter change switch

This is the switch to change VU/PEAK meter (17) to VU meter or PEAK meter.

(19) Master volume

This is the master volume to adjust output level, and A, B are independent. It is push-lock type not to be turned carelessly. When adjustment is necessary, the volume rushes out by pushing, and adjustment can be done easily. After adjustment, please push it again.

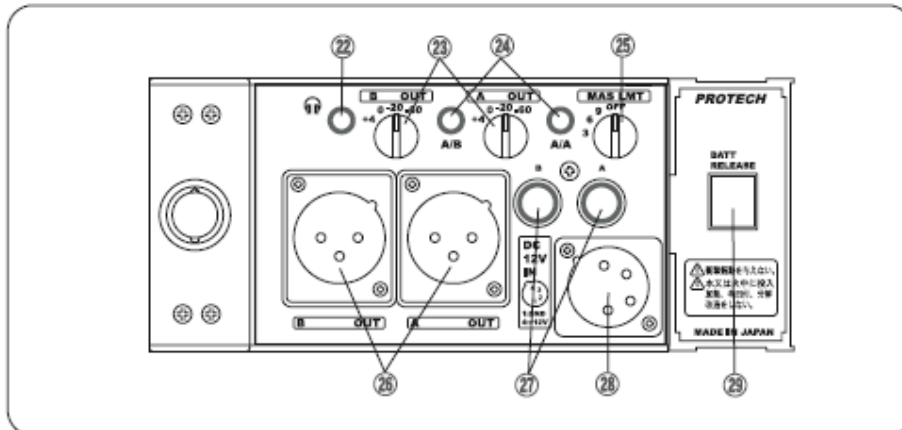
(20) Standard headphone jack

This is the headphone for standard plug ($\phi 6.3$). It can monitor the audio signal set by (13)(14).

(21) Output change switch

This is the switch to change the output to A/A (monaural) or A/B (stereo).

Output panel (Right side panel)



(22) Mini headphone jack

This is the headphone for mini plug ($\phi 3.5$). It can monitor the audio signal together with the standard headphone jack (20) at the same time.

(23) Master output change switch

This is the switch to change the master output level from +4/0/-20/-60dB. As it can be set A/B independently, please set it according to the connected recorder.

(24) Sub output connector

This is stereo mini jack output connector ($\phi 3.5$). Output is 2 channels, A/A and A/B. Output level is fixed to -10dBV .

(25) Master limiter switch

This is the switch to change the mixed signal of AOUT and BOUT to 4 steps, OFF/+9/+6/+3. 2 channels are built-in and both of A/B can correspond to excessive input.

Output panel (Right side panel)

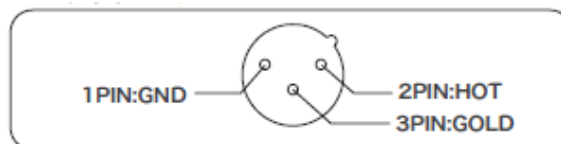
(26) Master output connector Canon XLR 3pin

FS-302P A type: Male

FS-302P B type: Female

Reference output level of each channel can be changed from +4/0/-20/-60dB by master output change switch (23).

Pin assignment Canon 3P Male



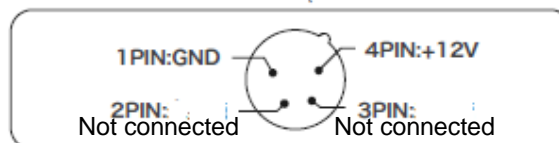
(27) Sub output connector (RCA)

L/R are output by RCA connector. Output level is fixed to -10dBV to fit in with the consumer type recorder.

(28) Canon 4pin DC12V input connector

This is external power input connector, Canon 4pin. When power is supplied from this connector, change POW switch (15) to EXT side. Input voltage is DC9~18V.

Pin assignment Canon 4P Male



Battery Holder

(29) Battery case release button

By pushing this button, the battery case (30) can be taken out.

(30) Battery case (LR-68)

It is a battery case to use by putting 8 double A (unit 3) batteries (LR-6).

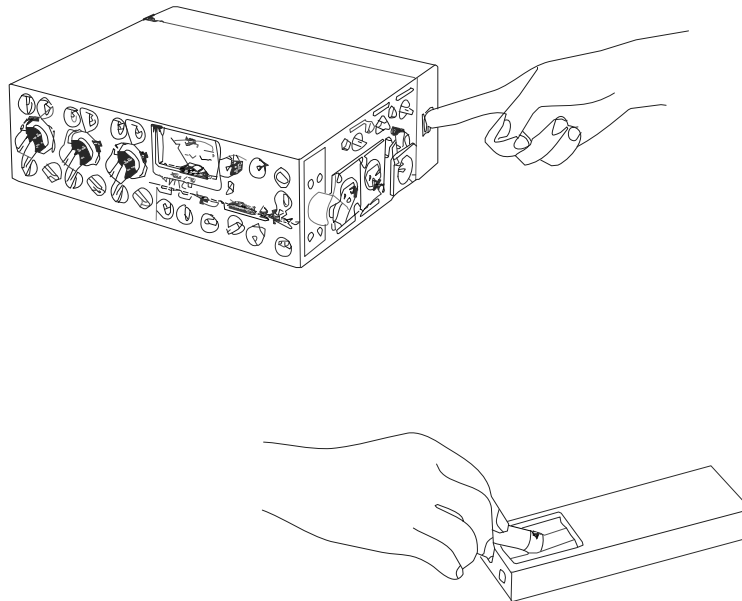
Main operation instructions

Removal and attachment of the battery case

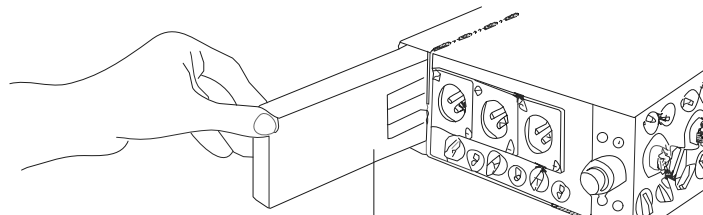
1. Push BATT RELEASE button and take out a battery case.

Put 8 double A (unit 3) batteries in the right direction to the battery case

(note) When external power is used, input power to Canon 4pin input connector.



2. Insert a battery case into the main unit careful of the direction and push it until there is a sound with a click.



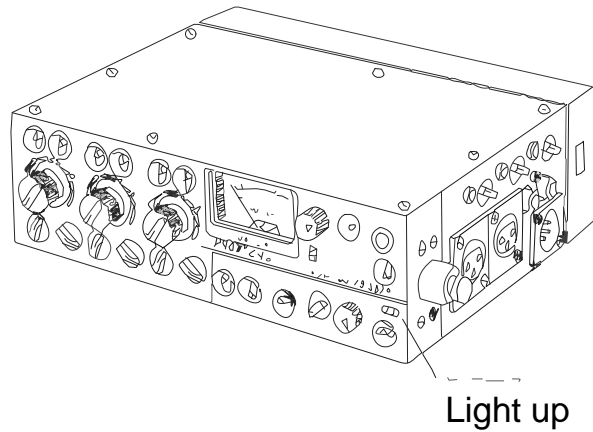
Set the side which the battery can be seen to the main unit side and insert it.

3. Confirm that a battery case is locked at this time.

Power ON/OFF and confirmation of remain capacity of battery

1. Set POW SW in the right side of the front panel to INT(left side) and confirm that POW LED lights up.

When the external power is used, set POW SW to EXT (right side).

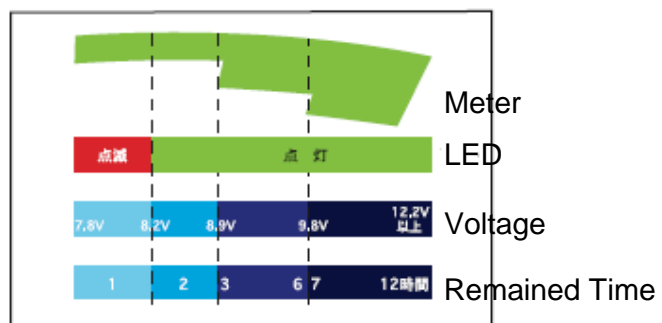


2. The meter of L/BATT displays BAT remaining amount when BAT CHECK SW is set to battery side.

Equal to or more than 7 hours are usable if the green rightmost bar has a needle.



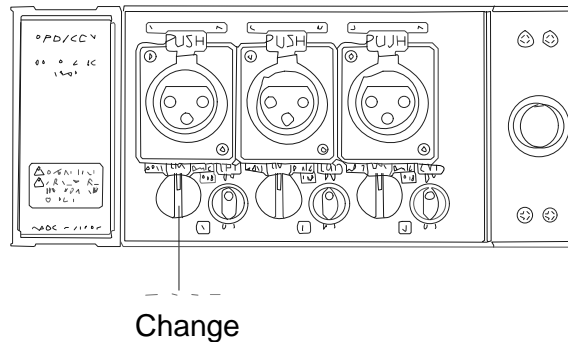
Set the switch to low position



■ Select the kind of input audio signal

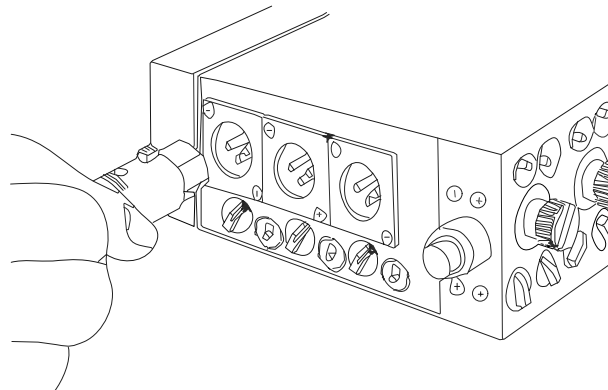
1. When input LINE level audio, set the input change control to LINE.
2. When use P48 phantom power type condenser microphone, set the input change control to P48 in the left side.

When A-B12 type condenser microphone (Sennheiser 426, etc), set the input change control to AB12.



3. When use dynamic microphone which doesn't need a power, set the change control to D-MIC.

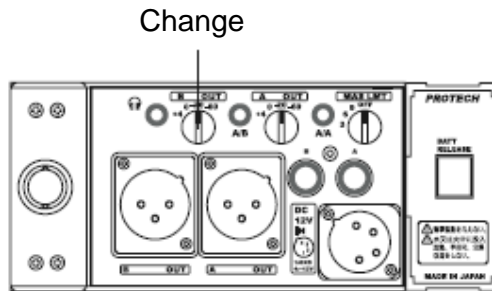
Connect with the Cannon 3 pin cable if the input choice finished.



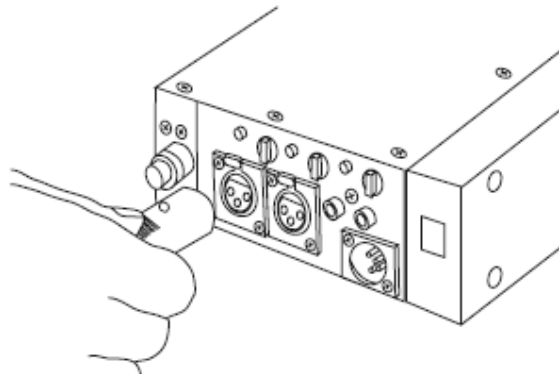
■ Connect audio output to recorder

1. To connect an audio output with the recorder, connect it with the recorder with the Cannon 3 pin cable from OUTA, OUTB in the right. Adjust A/BOU output setting to the input setting of a recorder.

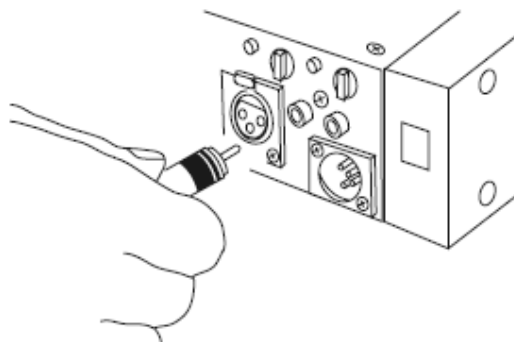
Ex.: When the recorder of LINE input is +4dB, set OUTA, OUTB to +4dB.



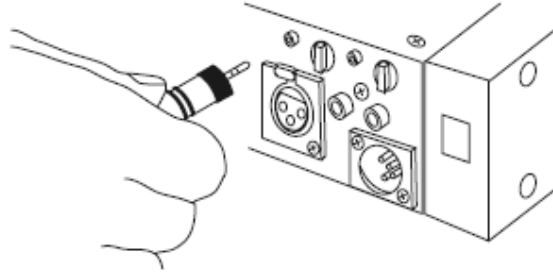
2. Connect Cannon cable with AOUT, BOUT.



3. When use DECK of the RCA input, connect with RCA A, B.

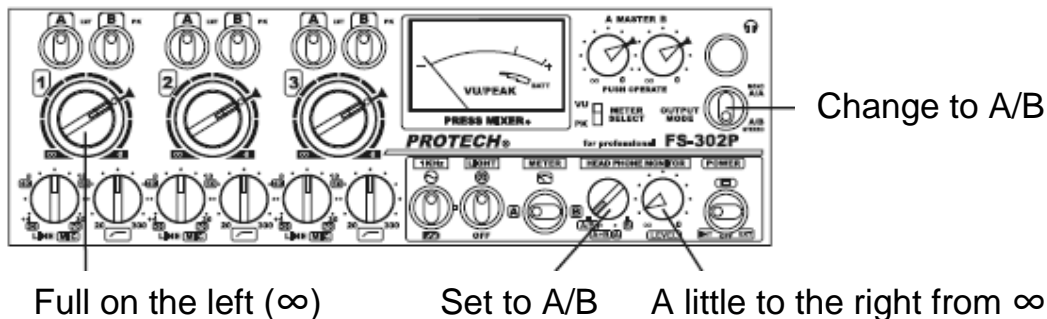


4. When use DECK of stereo mini input such as DAT, MD, connect with A/A or A/B.

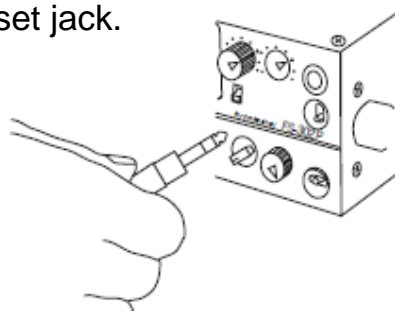


Adjust output level

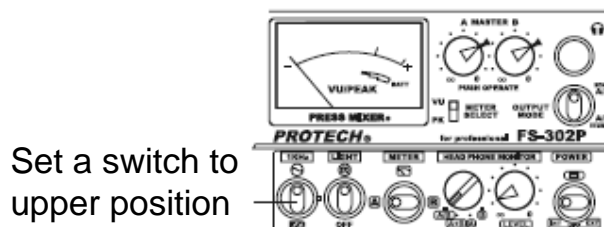
1. Turn the master volume of all the channels to the full on the left and set it to ∞ . Set Head Phone Monitor in the right of the front panel to A/B, and change the output to A/B and adjust a little to the right from ∞ LEVEL.



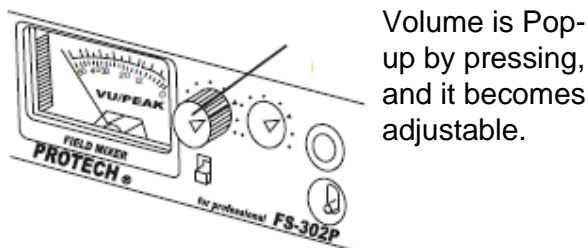
2. Insert a headphone into the headset jack.



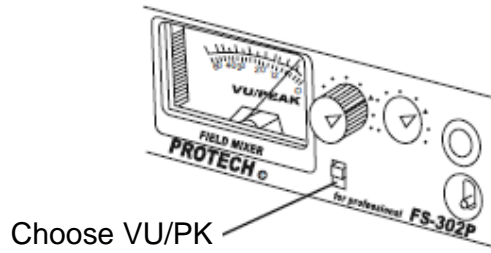
3. Turn the 1 kHz switch of the front panel on. Change METER SELECT to VU or PEAK.



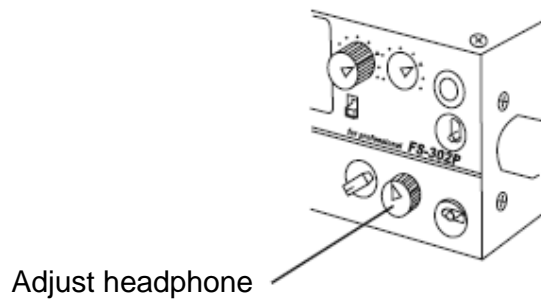
4. Adjust MASTER A,B to OVU if it is VU and to -20 dB if it is PEAK.



5. The level can be more correctly adjusted by choosing the meter which the connecting recorder adopts.



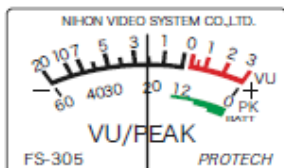
6. Adjust a headphone level to become moderate volume.



7. Adjust the input level of the connected recorder to the right level.

Note) If the meter is PEAK meter, set the level to -20 dB.

FS-302P meter



Recorder side meter (Digital)

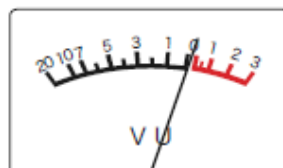


Note) If the meter is VU, set the level to 0VU.

FS-302P meter



Recorder side meter (VU)

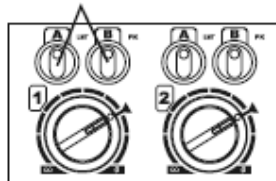


8. Turn OFF 1KHz after adjustment.

Recording

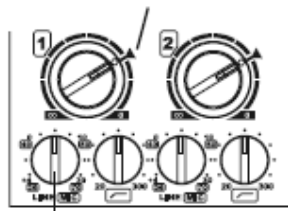
1. Set the output select SW of CH1 to A or B.

Output select SW



2. Set the master volume to the red mark, input the audio signal and confirm if the meter moves or not.
3. Turn OFF LIMITER switch and adjust the meter with the MIC/LINE trim to move in the correct level.

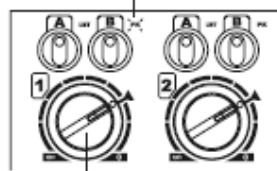
Set to the red mark



Adjust

4. It is better to adjust that PK LED lights up when the volume is high. But, the correct level is different by the source. Please make adjustment carefully. Adjust the slight adjustment of the level with the master volume.

Light up sometimes.

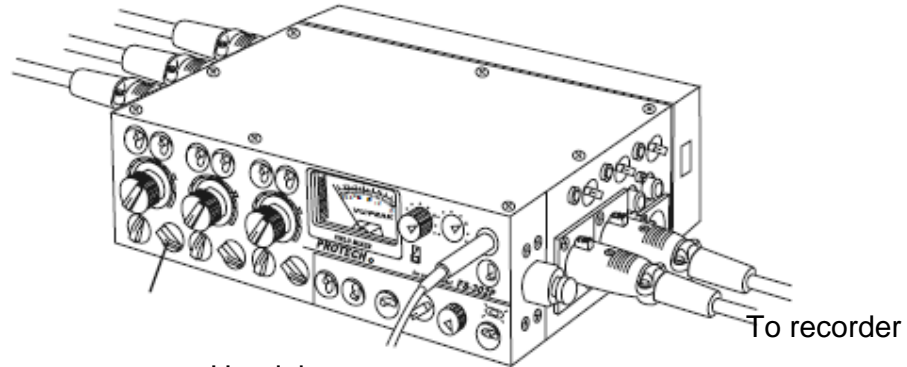


Adjust

5. Connect with microphones and a recorder and adjust a level. After adjustment, while monitoring with the headphone, make recording.

When you feel the wind noise and so on, make adjustment while turning a continuation low-cut volume from 20Hz to 300Hz (right) and confirming an effect with the headphone.

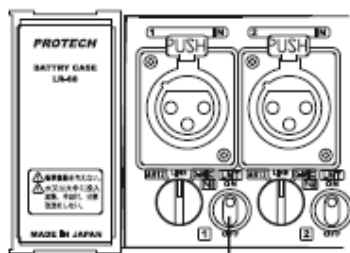
To microphone



Headphone

6. If you use the input limiter which can be turned ON/OFF on each channel and the output limiter which can be set to 4 steps of OFF/ +9 / +6 / +3 dB to the whole after mixing by the sound to record every time, the recording which suppressed an excessive input naturally is possible.

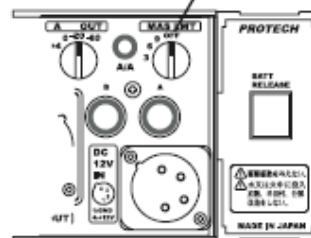
Input Limiter



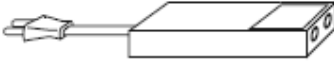
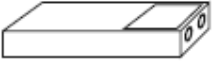
Set a switch to upper position.

Output Limiter

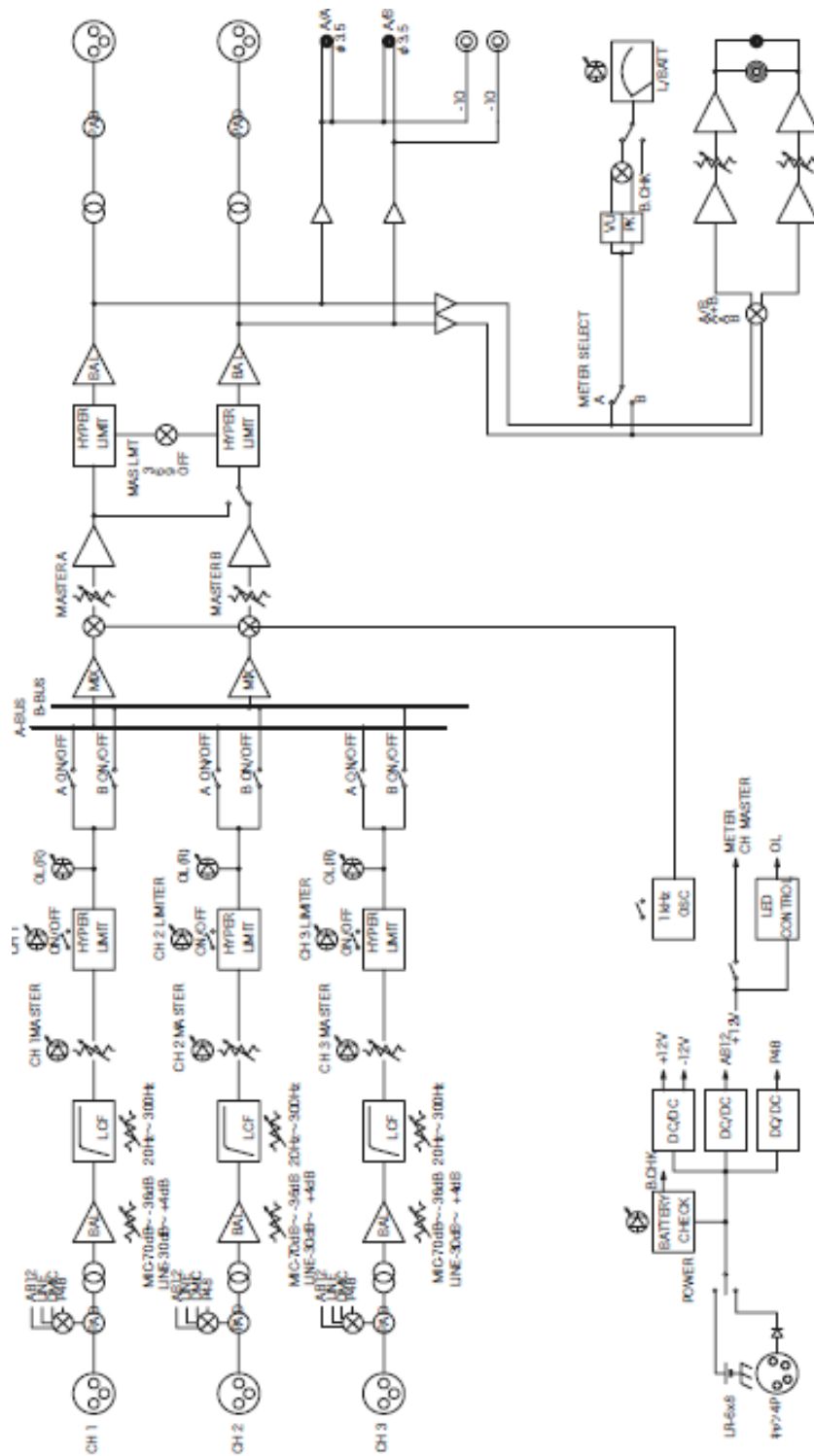
Select a step



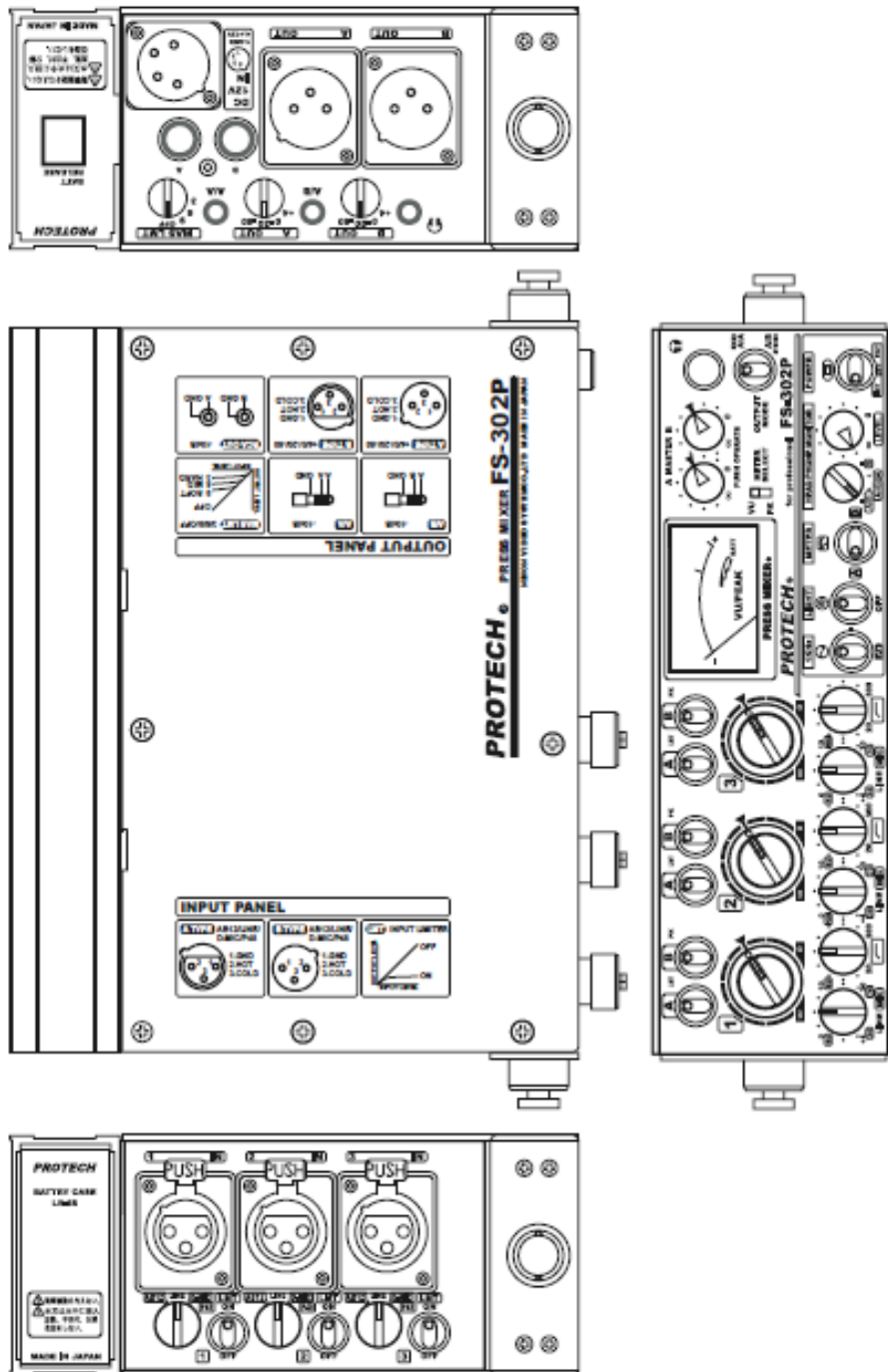
Option

 <p>AC-FS5</p>	 <p>LR-68</p>
<p>Direct AC power supply</p> <p>It can be attached to the AA battery box adaptor which is supplied as the standard accessory of FS-302P.</p>	<p>Slide battery case</p> <p>It is AA battery case which is supplied as the standard accessory of FS-302P.</p>

Block Diagram



Outside View



Main Specifications

FS-302P Specifications

Input part	Audio	XLR 3pin (male) x3 (B type)
	Input level	Microphone: -70dBm to -36dBm variable continuously Line: -30dBm to +4dBm variable continuously
	Impeadance	600 ohm \pm 10%
	DC	XLR 4pin (male) x1
Output part	Master audio output	XLR 3pin (female) A/B x each1 (B type)
	Sub audio output	RCA L/R x each1
	Headphone monitor	3.5 ϕ stereo mini jack x2
		6.3 ϕ stereo standard jack x1
		3.5 ϕ stereo mini jack x1
	Maximum output	A/B +24dBm
	Audio output level	A OUT 4,0,-20,-60dBm
		B OUT 4,0,-20,-60dBm
		Transformer output which fits in with the 600 ohm load
		Unbalanced output
RCA OUT (A/B) -10dBs		
MONI OUT -6dBs		
General characteristic	Frequency characteristic	Line 50Hz - 15KHz \pm 1.0dB
		MONI 50Hz - 15 \pm 3.0dB
	S/N	Equal to or more than 54dB (at -70dBm input)
Equal to or more than 64dB (at +4dBm input)		
MONI equal to or more than 60dB (30kHz L, P, F use, input 600 ohm branch)		
Distortion percentage	Microphone and line: Equal to or less than 0.2 %	
	MONI : Equal to or less than 2% (50Hz - 60Hz)	
Built-in circuit	Voice control	FRQ 250 - 8KHz
		LEVEL -12dB - +12dB
		Independent adjustment and ON/OFF can be done at each channel.
	Phantom power supply	P-48V(+48V) and A-B12V are equipped in each channel
		Total 30mA of maximum supply current for 3ch
	H.P.F.	20 - 300Hz, -12dB/oct Frequency variable continuously
	Oscillater	1kHz
	Audio level meter	VU/Peak meter switchable type
		It is possible to select VU/Peak meter for each channel.
	Limiter	Each input-side independent 3 systems
Independent ON/OFF possible		
Output channel: 2 systems At the same time, OFF/+9/+6/+2 changing is possible.		
Power	Battery	Unit 3 dry battery slide case (LR6 x8)
		BP90 battery
	External DC input	DC9V - 18V Max. 0.5A
Power consumption	approx. 0.3A	
General	Temperature	Operation From 0 degree C to 40 degree C
		Storage From -20 degree C to 50 degree C
	Weight	approx. 1.5kg
	Dimension	180x60x154mm (WxHxD)
(including battery holder)		
Accessory	Unit 3 dry battery holder, carrying case	