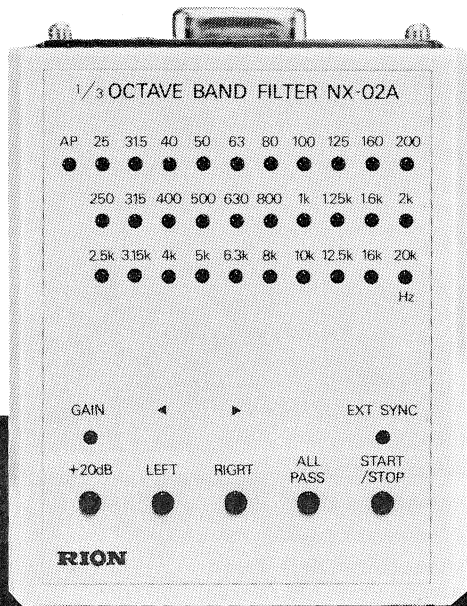


# $\frac{1}{3}$ OCTAVE FILTER UNIT



# NX-02A

# INSTRUCTION MANUAL



**RION CO., LTD.**  
**TOKYO JAPAN**

## CONTENTS

---

### **1/3 Octave Filter Unit Model NX-02A**

<b>1. Description</b> .....	<b>2</b>
<b>2. Features</b> .....	<b>2</b>
<b>3. Nomenclature and functions</b> .....	<b>3</b>
<b>4. Measurement preparations.</b> .....	<b>4</b>
<b>5. Measurement</b> .....	<b>5</b>
<b>6. Specifications</b> .....	<b>10</b>

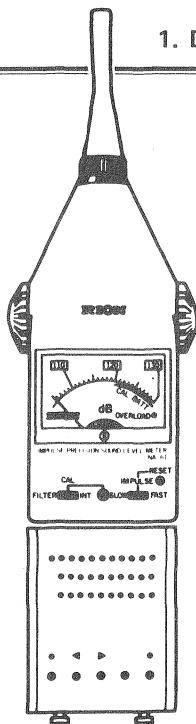
**Thank you very much for purchasing a RION 1/3 Octave Filter Unit Model NX-02A. Read this instruction manual carefully before using your 1/3 Octave Filter Unit so you will fully understand the unit's functions and proper handling. Proper use will enhance the value and prolong the life of your Model NX-02A.**

# 1/3 OCTAVE FILTER UNIT NX-02A

## Instruction Manual

### 1. Description / 2. Features

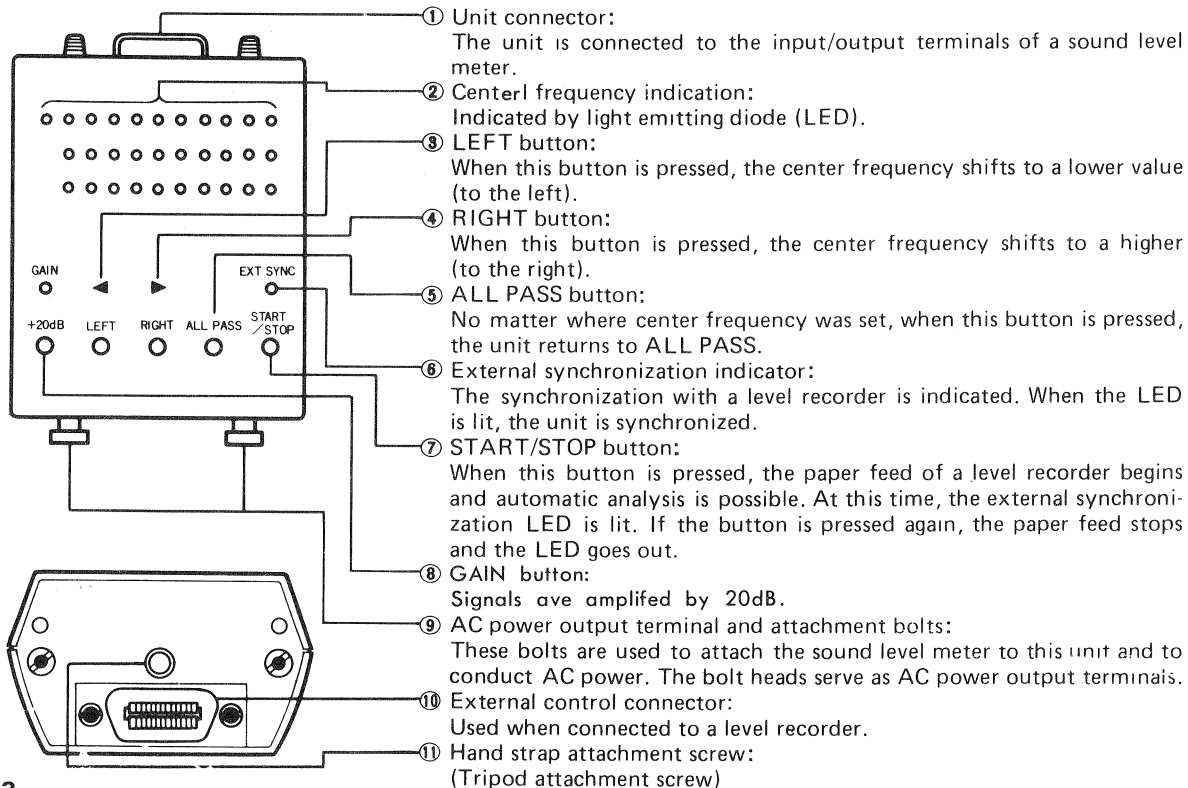
---



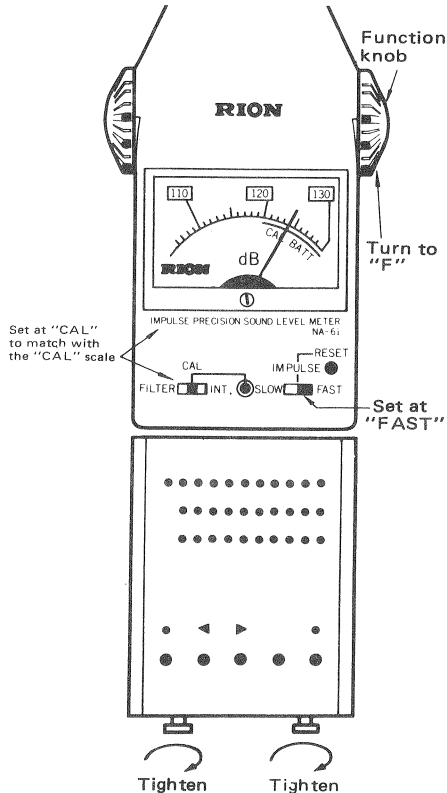
This unit is a 1/3 octave filter unit that meets the requirements of IEC and ANSI Standards. When used with a Sound Level Meter Model NA-20, Precision Sound Level Meter Model NA-60 or Model NA-61, frequency analysis can be made for the central frequency 25 to 20,000Hz (30 bands). The unit is hand-operated and only the frequency to be measured is selected by operating the unit's push button switches. Direct meter readings at the band level can be made in the same way as the sound level by operation of the sound level meter switch. Moreover, when a level recorder is also used, automatic frequency analysis recording is possible.

1. Frequency analysis over the wide range of 25 to 20,000Hz (30 bands) is possible.
2. This unit can be directly connected to a sound level meter to provide simultaneous input/output. Extension cords are unnecessary.
3. Smooth frequency selections are all electronically made with push buttons. Furthermore, returning to ALL PASS while taking measurements is done with one touch by pressing the ALL PASS button.
4. Frequency analysis is usually done with the sound level meter "FLAT", however, this unit also permits "A weighting characteristic" analysis.
5. Automatic frequency analysis recording can be synchronized with a level recorder.
6. The power supply is from the sound level meter and nothing more is necessary.
7. GAIN function enables you to read out lower sound pressure level because signals are amplified by 20dB.

### 3. Nomenclature and Functions



## 4. Measurement Preparations



### 4-1 Connecting to a Sound Level Meter

To attach NX-02 to a sound level meter, plug the unit connector ① into the input/output terminal at the sound level meter and tighten the attachment bolts.

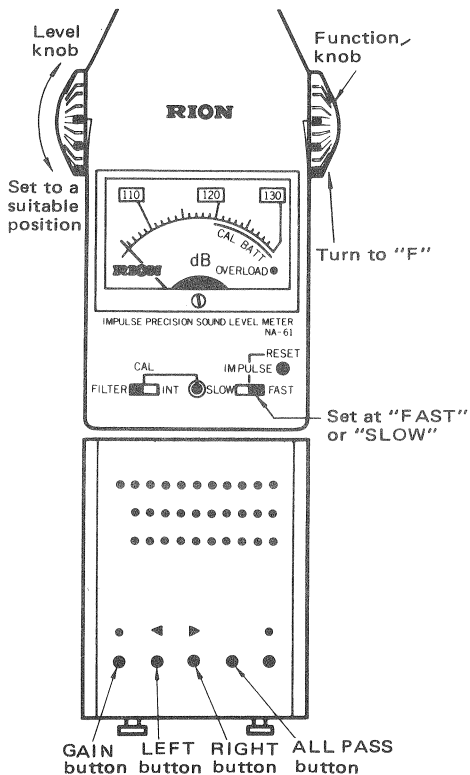
### 4-2 Tripod use

A large tripod must be used and the unit is mounted on the tripod with the attachment screw in the base of this unit.

### 4-3 Calibration

The sound level meter is calibrated as follows: Turn the function knob to "F". Set the FILTER-CAL-INT switch to "CAL", the meter dynamic characteristics selector switch to "FAST". Adjust the sensitivity adjustment until the pointer indicates CAL. This completes the calibration of this unit with the sound level meter.

## 5. Measurement

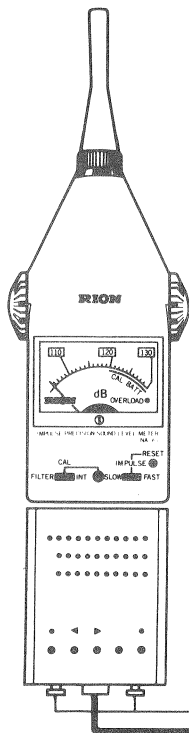


### 5-1 Hand-operated analysis

Press the unit's ALL PASS button (the LED will light). Turn the sound level meter function knob to "F", set the FILTER-CAL-INT switch to "FILTER" and adjust the level knob to bring the meter deflection to a suitable location. The value that is indicated is the ALL PASS level.

Next, press the RIGHT button and read 25Hz (LED is lit) band level. If the band level is low, correct the reading by adjusting the sound level meter level knob. Successively press the RIGHT button to read each band level.

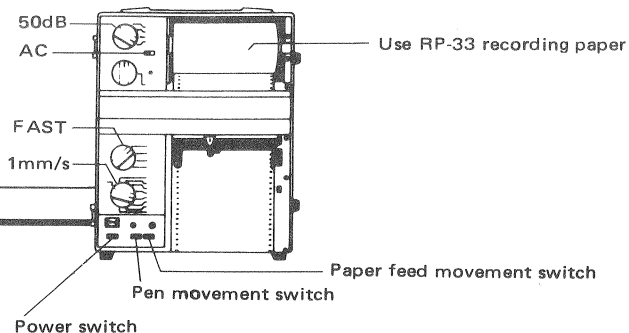
To reconfirm the all pass level while taking measurements, simply press the ALL PASS button. No matter where the center frequency is located, the unit will return to ALL PASS. Furthermore, to move the frequency to be analyzed from a higher to a lower frequency (for example lower than 20,000Hz), successively press the LEFT button.



## 5-2 Automatic Analysis Recording

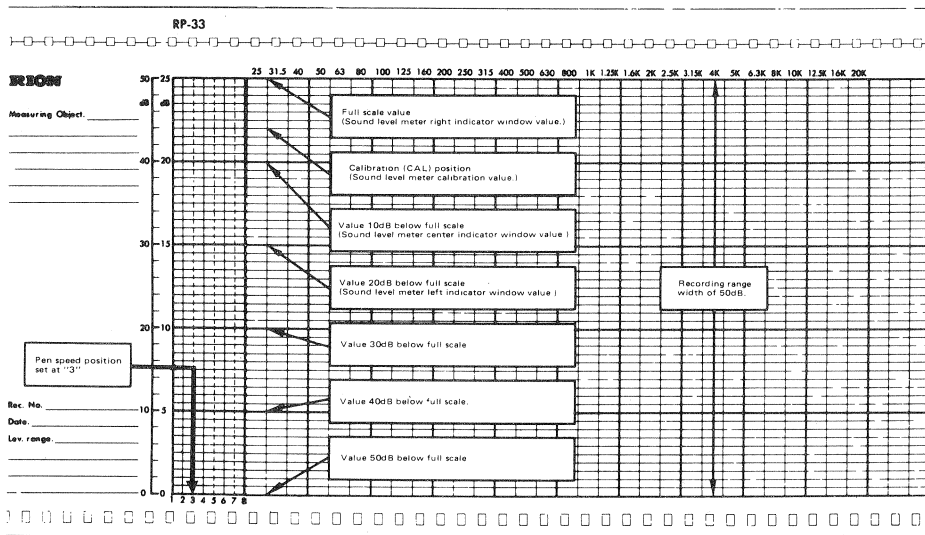
Automatic frequency analysis recording is possible if this unit is connected to a Level Recorder Model LR-04. The procedure is as follows:

- 1 This unit is connected to a sound level meter. (Refer to section 4, Measurement Preparations.)
- 2 The Level Recorder Model LR-04 is connected to the AC output terminal ⑨ of this unit.
- 3 The external control connector of this unit ⑩ is attached to the remote control terminal of the level recorder.
- 4 The various level recorder switches are set as follows:
  - \* Record range width selector – “50dB”
  - \* Input power selector switch – “AC”
  - \* Pen dynamic characteristic selector switch – “FAST”
  - \* Paper feed speed selector switch – 1mm/s
  - \* Pen movement switch – ON (press)
  - \* Paper feed movement switch – OFF (press)
  - \* Power switch – ON (press)

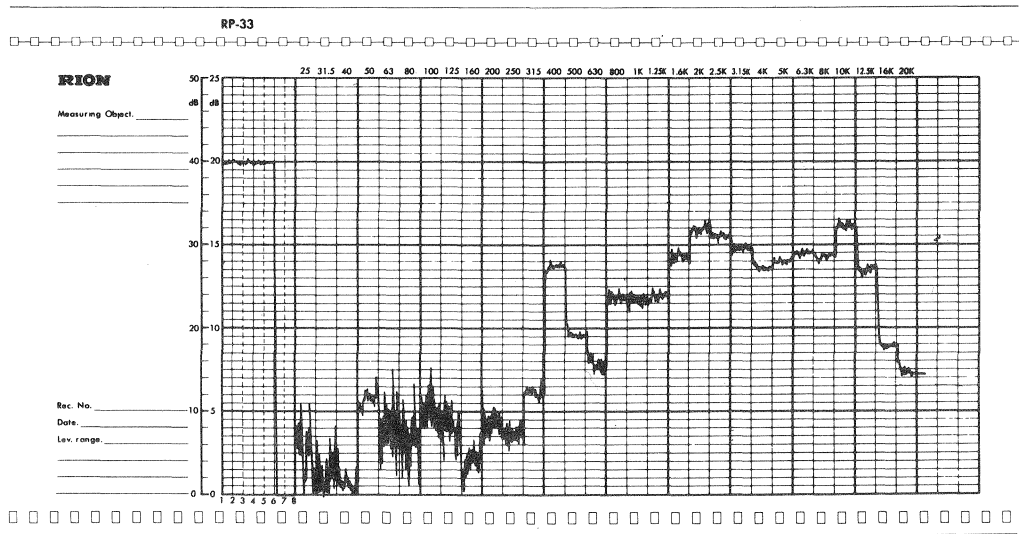


- 
- 5 Set the filter unit of this unit.
    - \* Press the ALL PASS button. ⑤  
(The LED will light.)
    - \* Set the START/STOP button ⑦ to STOP (the external synchronization indicator LED ⑥ will go out.)
  - 6 Calibrate the sound level meter. (Refer to section 4-3, Calibration.) Turn the level recorder adjustment knob for 6dB below full scale according to the charts of next page.
  - 7 Change the FILTER-CAL-INT switch of the sound level meter from "CAL" to "FILTER" and adjust the level knob until the pointer deflection is in a suitable position.
  - 8 Use RP-33 level recorder recording paper and set the pen at position "3" as is done in the charts of next page.
  - 9 Set the START/STOP button ⑦ of this unit to START. (The external synchronization indicator LED ⑥ will come on.)  
Begin analysis, and the level recorder paper feed will automatically stop when the analysis ends. Afterwards, repeat steps 8 and 9.
  - 10 After completing analysis, the sound classification, date, location, weather and other miscellaneous information should be annotated on the recording paper.





CAL position and pen start position.



Recording example for Model LR-04 operation  
 when connected to Model NX-02A.

## 6. Specifications

---

- **Applicable standards** : ANSI S1.11-1966 Class III, IEC Pub 225:1966
- **Center frequencies** : 25, 31.5, 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400, 500, 300, 800, 1K, 1.25K, 1.6K, 2K, 2.5K, 3.15K, 4K, 5K, 6.3K, 8K, 10K, 12.5K, 16K, 20K, and ALL PASS.
- **Measurement range** : Over 50dB
- **Center frequency selection** : Hand-operated (push button) or synchronized with a level recorder which can select the desired filter with an external digital code.
- **Center frequency indication** : 31 light emitting diode (LED) indicators
- **Power supply** : Provided by the sound level meter.
- **Dimensions and weight** : 5 × 10 × 8cm, 370g



No.03281 93-09