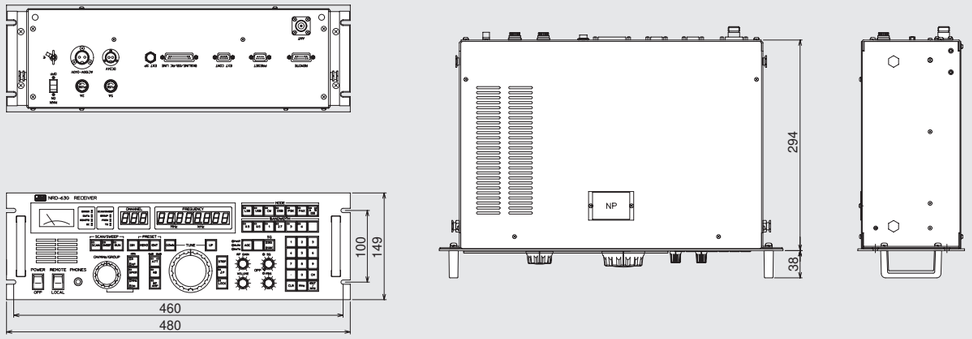
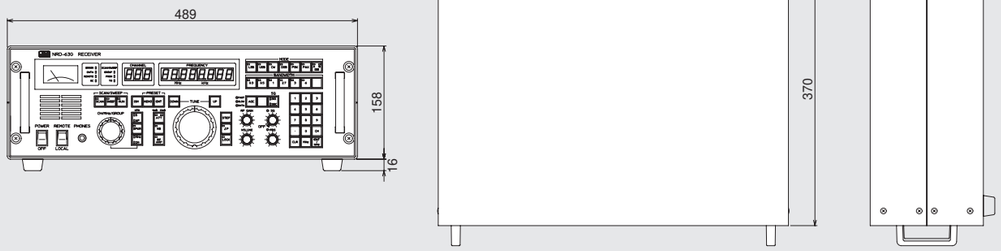
Dimensions

(mm)

Schematic diagram



Desktop type



⚠ Notice Read the “Instruction Manual” before using the equipment to ensure safe operation.

• Specifications may be subject to change without notice.

For further information, contact:

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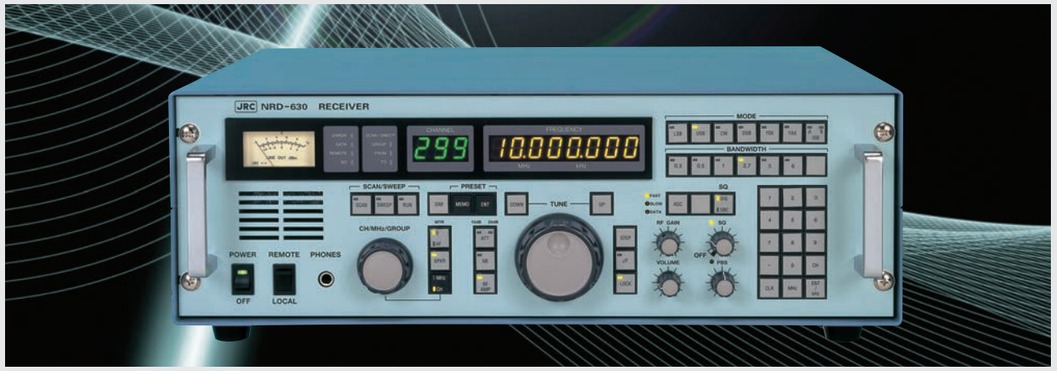
JRC

MF/HF RECEIVER
NRD-630

JRC *Japan Radio Co., Ltd.*

NRD-630



Outline

The NRD-630 is a short to medium-wave receiver developed with cutting-edge digital technologies, which can be used for coast, land and marine stations (excluding obliged vessels). Stability is improved by combining high-end OCXO (Oven Controlled Xtal Oscillator) and DDS (Digital Synthesizer) circuits, making it suitable for not only SSB communication but also for data transmission and facsimile reception.

Features

●Digital signal processing by DSP

Along with the IF filter, frequencies lower than the third IF are subjected to digital signal processing performed by a 32-bit floating point DSP. This enables signal processing with high precision calculation and very wide dynamic range, resulting in high quality signal reproduction with little distortion.

●Adoption of High-end OCXO

Adoption of high-end OCXO (Oven Controlled Xtal Oscillator) significantly reduces the warm-up time (approx.1/5 that of our previous product), and enables stability at 0.2 ppm.

●Adoption of High-end DDSIC

The high-end DDS (Direct Digital Symthesizer) IC provides high-speed and smooth 1Hz step tuning.

●Adoption of FIR Filter

FIR (Finite Impulse Response) filter is used as the IF filter for frequencies above 2.7 kHz, thereby significantly reducing the group delay distortion. As a result, the filter properties that can support high-speed data transmission are achieved in addition to a clear tone.

●Full Tuning for All Frequency Bands

The electronic automatic tuning circuit deployed as input tuning circuit can select the target wave and its peripheral signals so as to significantly improve the effective sensitivity.

●Measures Against Static

A noise blanker and AF filter are provided as standard for removal of noise due to pulses generated by rain/snowfall, and for improving the S/N ratio of static-ridden signals, respectively.

●Preset Channels for 300 Waves

Settings of 300 waves of reception frequency, receiving modes, bandwidths, AGCs and attenuators are stored in the built-in memory to be retrieved at any time.

●Worldwide & Multi Power Source

Adaptable for AC at 85-264 V (no switchover required) and also for DC at +24 V (negative grounding).When simultaneously provided with AC and DC, AC is selected first. Switchover between AC and DC is performed automatically.

Specifications

- **Frequency Range**
  90 kHz to 29.999999 MHz (1 Hz steps)
- **Receiving System**
  Triple super-heterodyne system
  1st IF: 70.455 MHz
  2nd IF: 455 kHz
  3rd IF: 17 kHz
- **Modes**
  CW (A1A), MCW (A2A, H2A), DSB (A3E), USB/LSB (R3E, H3E, J3E, J2D), FSK (F1B, J2B), FAX (F3C), ISB (B8E, B9W)
- **Sensitivity**

Frequency \ Mode	CW	DSB	SSB
90 kHz to 1599.999 kHz	10 µV or less	30 µV or less	—
1600 kHz to 29.999999 MHz	2 µV or less	6 µV or less	3 µV or less

Bandwidth: 3 kHz; output: 100 mW
CW: (S+N)/N=20 dB
DSB: (S+N)/N=20 dB, 1 kHz, 30% modulation
SSB: (S+N+D)/(N+D)=20 dB

In the case of DSC/NBDP:
The character error rate at 1 µV input voltage is below 1 x 10^{-2}
Provided that reception mode is FSK and bandwidth is 0.3 kHz

- **Selectivity**

Bandwidth \ Attenuation	6-dB bandwidth	60-dB bandwidth
6 kHz	4.5 kHz to 7.0 kHz	14 kHz or less
3 kHz	2.7 kHz to 3.3 kHz	4.4 kHz or less
2.7 kHz	2.4 kHz to 3.0 kHz	4.1 kHz or less
1 kHz	1.0 kHz to 1.5 kHz	3.0 kHz or less
0.5 kHz	0.45 kHz to 0.6 kHz	2.0 kHz or less
0.3 kHz	0.27 kHz to 0.3 kHz	1.1 kHz or less

- **Spurious Response**
  Image rejection ratio: 70 dB or more
  IF rejection ratio: 80 dB or more
- **Effective Blocking**
  When an unwanted signal at a spacing of more than 4 kHz from the desired signal is applied to the desired signal input voltage of 10 µV, the unwanted signal input voltage that suppresses the output of the desired signal by 3 dB is 10 mV or more.
- **Number of Preset Channels**
  300 channels (frequency, mode, bandwidth, AGC and ATT)
- **Frequency Display**
  LED display in 8 digits (10 MHz-1 Hz digits)
- **Tuning Method**
  A tuning knob, Up/Down switch and numeric keypad are provided for frequency input.
- **Frequency Stability**
  Within ±0.2 ppm
- **Overall Distortion**
  The ratio of 1000 Hz output to its unwanted frequency component is 20 dB or more under condition where output level is set to 0dBm(Line Output) by an input level of 30 µV.
- **Group Delay**
  500 µsec or less at the modulation frequency at 300 Hz-3000 Hz (USB, 3 kHz, AF filter are in the Off state)
- **AGC Characteristic**
  The variation of the low frequency output for the antenna input of 3 µV to 100 mV is 10 dB or less.
- **Conducted Spurious Emission**
  The power emitted from the antenna terminal is 4 nW or lower.
- **Nominal RF Input Impedance**
  50 Ω unbalanced
- **High Frequency Attenuator**
  20 dB/10 dB
- **PBS (Pass Band Shift) Variation**
  ±2.0 kHz (when selecting 6 kHz)
- **Variable Range of BFO and Clarifier**
  BFO: ±9.999 kHz (1 Hz step)
  Clarifier: ±200 Hz (1 Hz step)
- **Audio Frequency Output**
  Internal speaker output: 1 W or more
  External speaker output: 1 W or more (8 Ω unbalanced)
  Headphone output: 10 mW or more (600 Ω unbalanced)
- **Line Output**
  -20 dBm to +10 dBm (600 Ω balanced)
- **Power Requirements**
  DC: +24 V (operable -25 and +35%); 30 W or less
  AC: 85-264 V; 40 VA or less
  Single-phase 50/60 Hz
  AC/DC automatic switchover (automatic switchover to DC power source when AC power source turns off)
- **Operation Conditions**
  Preheat time: 1 min.
  Temperature range: between -15 and +55 °C
  Relative humidity: 90% (at +40 °C, without condensation)
- **Dimensions & Weight**
  Dimensions: H149 x W480 x D294 mm (excluding projections)
  Weight: 6.0 kg or less