

ASTRO-103 TECHNICAL SPECIFICATIONS

GENERAL

Frequency Range*

100M Band	1.8- 2.0	MHz
80M Band	3.5- 4.0	MHz
40M Band	7.0- 7.5	MHz
30M Band	10.0-10.5	MHz
20M Band	14.0-14.5	MHz
17M Band	18.0-18.5	MHz
15M Band	21.0-21.5	MHz
12M Band	24.5-25.0	MHz
10M Band	28.0-29.099	MHz

*Approximately 50 to 100 kHz Overrange on Each Band

Frequency Control:

Two high stability independent PTO's (permeability tuned oscillators) double shielded and switchable.

Frequency Readout:

Six digit LED from internal counter

Passband Display:

8 LED "dots" depicting passband width and position from 0.5 to 2.7 kHz

Frequency Stability:

Within 100 Hz during any 30 minute period after warm-up.

Modes:

USB/LSB/CW/CWN/RTTY (CWN requires optional CW Filter) Full or Semi Break-in on CW In RTTY Mode LSB and the Narrow Filter are automatically selected.

Power Requirements:

13.6 VDC (11-15 VDC range) at 1.8 amps Receive; 19 amps peak Transmit

Input/Output Impedance:

50 ohms unbalanced

RECEIVER

Sensitivity:

$-35\mu\text{V}$ for 100B $\frac{S+N}{N}$

Selectivity: (normal)

16 pole crystal filtering 2.7 kHz at -60dB; 3.78 kHz at -100dB. Shape factor 1.4:1

Selectivity (Passband Tuning):

Continuously variable width and position. One 8 pole filter may be moved in cascade through the passband of a second 8 pole filter to provide a 16 pole cut-off at the high or low end of the passband. Width and position indicated by LED's

Selectivity (CWN)—Optional

With the optional 8 pole 400 Hz bandwidth filter replacing the moveable filter, the equivalent of a 14 pole filter is obtained which may also be moved through the 8 pole base passband by the Passband Tuning Control.

Notch Filter:

Provides 30dB typical notch attenuation from .4 to 3.0 kHz

Noise Floor:

Typically -132dBm

Dynamic Range

AGC dynamic range greater than 100dB

Third Order Intercept

Better than +15dBm

Image Rejection:

Better than 70dB

IF Rejection:

Better than 60dB

Noise Blanker:

Sophisticated impulse type with independent AGC and FET blanking gate. Adds no undesirable cross modulation when operating.

R.I.T. (Receiver Incremental Tuning):

Provides receiver shift of approximately ± 1.5 kHz independent of transmitter.

Metering:

"S" units 1 to 9 and to +60dB above S0 (S0 = 50 μvolts)

AGC Decay:

Continuously variable hold time from zero to several seconds

Gain Set:

Both RF and IF gain controls provided. Continuously variable to greatly improve dynamics in presence of high level interference.

TRANSMITTER

RF Input Power:

235 watts all modes, all bands

RF Output Power:

100 watts all bands all modes—limited by ALC to 100 watts PEP or CW

Duty Cycle:

100% for voice or CW. 50% for RTTY or facsimile unless small external blower used.

VSWR Shutdown:

Full power up to VSWR = 1.7:1. Approximate limit rates as follows:

VSWR	Percent Power
1.5	100%
2.0	80%
3.0	60%
∞	25%

Full protection for output devices

Carrier Suppression:

Better than 50dB

Sideband Suppression:

Better than 60dB

Harmonic and Spurious Suppression

45 to 60dB

Third Order Distortion Products:

Better than 34dB down

Metering:

Forward power in watts, PEP. Reflected power in watts PEP + 10 ALC

Speech Compression:

Up to 12dB. Compression level set by Mic Gain Control

CW Shaping:

Switch selectable. Approximately 5ms rise and decay in "SOFT" position 1.0ms in "HARD" position

VOX-PTT:

Internally adjustable

Audio Frequency Response:

300-3000 Hz

Microphone Impedance

47K ohms

PHYSICAL

Controls:

Power On/Off/AF Gain/RF Gain
IF Gain/AGC Decay
Passband Tuning
Mic Gain
Notch Filter
Meter Selector FWD/REFL/ALC
PTO Tuning A and B
PTO Mode, A, B, or AB or BA, or EXT
RIT
MODE
Band Switch
VOX/PTT
NR—On/Off
Speech Processor On/Off
CW Break-in, full or semi
CW pulse, Hard or Soft
Indicators:
LED Frequency Readout
PTO in use Indicators
Passband width and position Indicators
RIT "on" indicator

Front Panel Connectors:

MIC/KEY (phone jack)

Rear Panel Connectors:

13.6 VDC input
External Relay (linear keying) RCA
Key jack, RCA jack
External modulation RCA jack, for RTTY
External LO, RCA jack
Fuse
Antenna Connector, UHF type
External Speaker, phone jack
Ground Lug
Receiver Antenna Switch—Ext./Normal
Ext. Receive Antenna, RCA jack

Dimensions:

14.25" (36.2 cm) W. x 6.375" (16.2 cm) H. x 13.25" (33.7 cm) D

Weight:

23.5 pounds (10.6 kg)

ENVIRONMENT

Temperature Range:

Operating: -20°C to +50°C
Storage: -30°C to +70°

Humidity:

95% non-hydroscopic glass epoxy boards

Shock and Vibration:

Meets all applicable EIA specifications for vehicular environments

ACCESSORIES

PSU-6A Power Supply with Speaker

Provides 13.6 VDC at 20A peak regulated output from 115/230 VAC, 50/60 Hz at 6A/3A peak AC input. Height and color scheme to match transceiver

COMPATIBLE PRODUCTS

- ST-2B Antenna Tuner (2 kw)
- ST-3B Antenna Tuner (200 watts)
- 1500ZA 1500 watt Linear Amplifier

Specifications subject to change without notice.

Printed in U.S.A. 8/80-2M

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