

# SKANTI HF RECEIVER... FUNCTIONAL IN EVERY DETAIL





# SKANTI R 8003 -



R 8003 is a high performance LF/MF/HF receiver covering the frequency range from 10 kHz to 30 MHz. It is designed to meet today's need for reliable and efficient communication, and it is based on knowledge collected from many years of successful HF design. The SKANTI R 8003 offers a flexible and economical solution.

## Easy Operation

The receiver is operated from a sealed membrane keyboard which has a carefully designed layout with single function buttons and a precision flywheel tuning knob for fast search.

## Reception Modes

The reception modes of the SKANTI R 8003 include single side band USB, LSB, ISB, double sideband AM, CW morse telegraphy, and FSK signals with front panel selectable mark and space frequencies, as well as data rate for the built-in demodulator.

## Filters

Four IF bandwidths, a BFO adjustment, Pass Band Shift facilities, and a Notch Filter provide enhanced quality of the received signal.

## User Programmable

Programming Facilities of the receiver include:

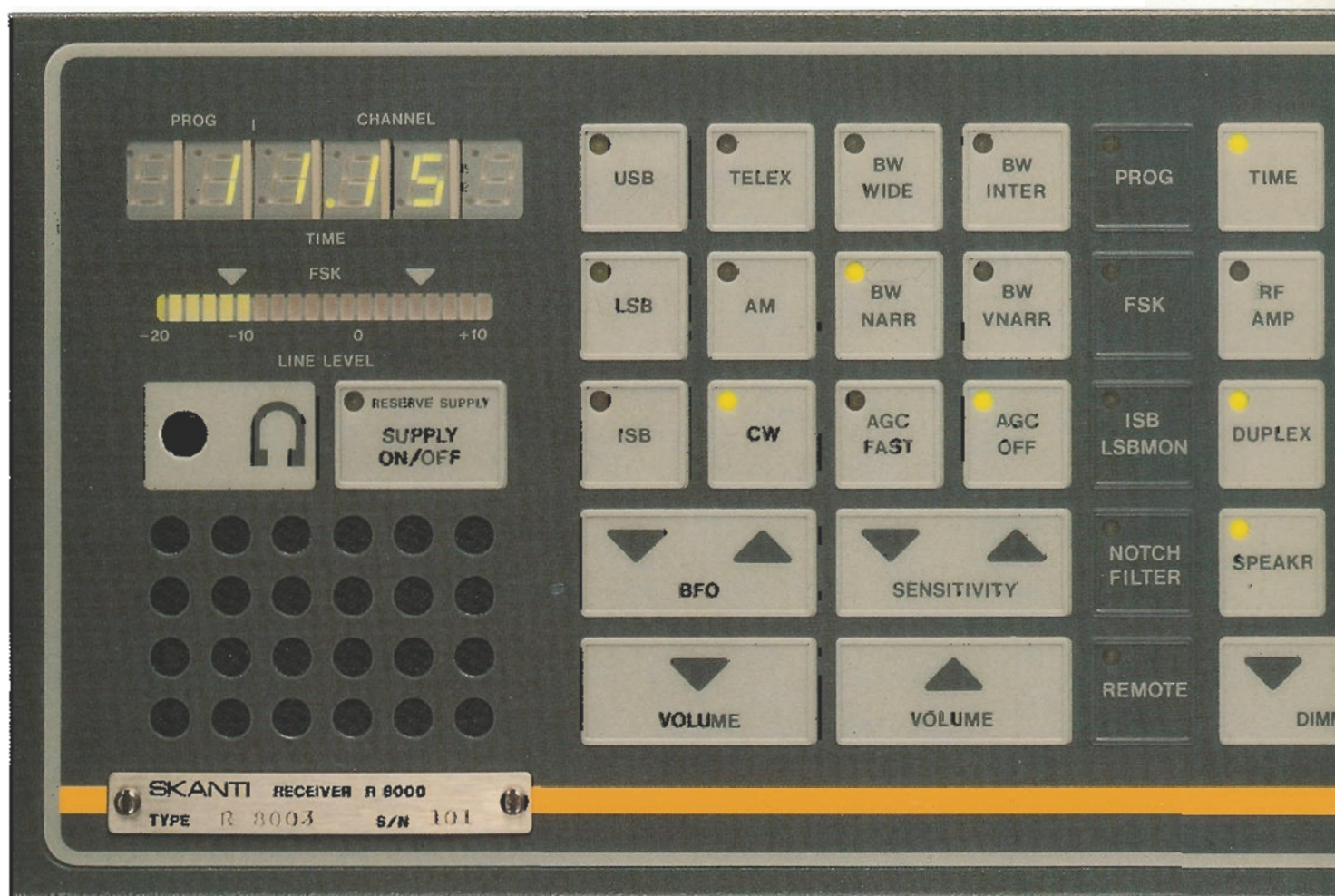
399 User Programmable Channels with a complete set-up for each channel.

40 Scanning Programmes with individually adjustable parameters, such as start and stop for channel scanning or frequency sweep, dwell time, and trigger source for scan hold which can be: speech controlled squelch, signal strength or an external signal.

40 Time Programmes controlled by the built-in real time quartz clock which can recall channels or scanning programmes in 24 or 1' hours' cycle.

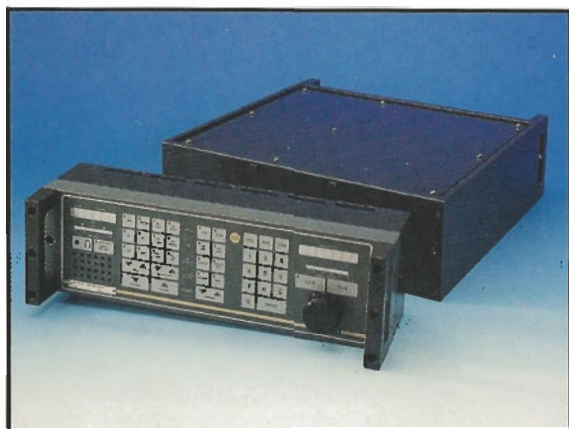
## User Configurable

In addition to the programming facilities the receiver has user configurable functions which make it easy to implement limitations or change it for a specific application. The user configurable parameters include: Disabling of functions, default filter – and AGC settings for each reception mode, Scan Hold polarity as well as remote control settings and priority.





# MODERN HF TECHNOLOGY



The two-unit R 8003 has a separate Control Unit which is connected by a single multicable to the Receiver Unit.



R 8003 design provides excellent installation flexibility.

## Two-unit Design

The Control Unit and the Receiver Unit can be installed together or separated up to 100 metres. Brackets for installation of either unit in 19" racks are included.

## Rugged Construction

The Receiver is designed for use in harsh environments and has been subjected to extensive environmental testing including temperature, humidity, and vibrations.

The sealed membrane keyboard which is impervious to dust and water further increases the reliability and durability of the Receiver.



# TECHNOLOGY AT ITS BEST

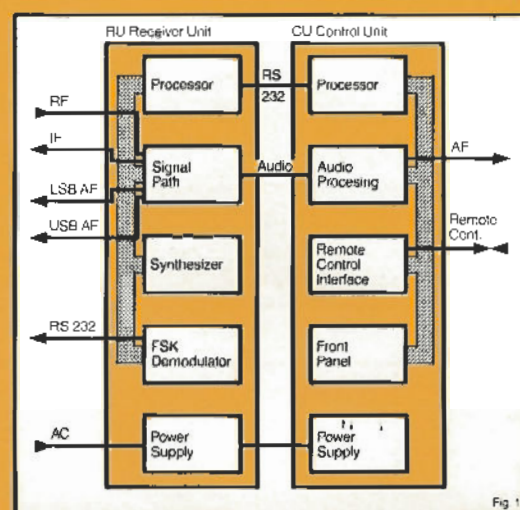
## R 8003 Modular Concept (Fig. 1)

The two-unit design and the modular construction provide flexible installation and easy maintenance of the R 8003.

The Control Unit houses both numeric and bargraph displays, keyboard, loudspeaker, control modules, and the remote control interface.

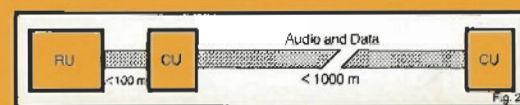
The Receiver Unit contains the power supply and RF circuits in addition to the built-in FSK demodulator.

A faulty module is easily identified by the selftest programme and exchange of modules does not require any realignments.



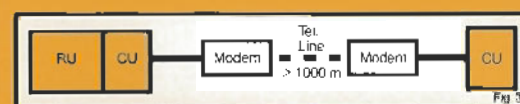
## Extended Local Control (Fig. 2)

The unique two-unit design, enabling up to 100 metres separation between the Receiver Unit and the Control Unit, can be further extended by up to 1000 metres utilizing the built-in RS 485 serial interface for connection of a second Control Unit.



## Remote Controlled Receiver (Fig. 3)

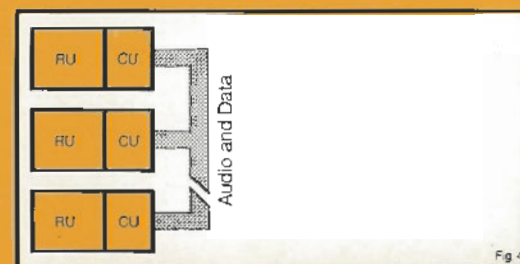
The RS 232 interface can be used for remote control of the receiver through telephone line modems for transmission of the data signals. All functions except ON/OFF are remotely controllable.



## Remote Controlling (Fig. 4)

In a network system the serial RS 485 interface and the individual addressing capability allow any Control Unit to act as a master for any receiver in the net. If a Control Unit is used in this way, its own individual receiver will continue its operation unchanged during remote control.

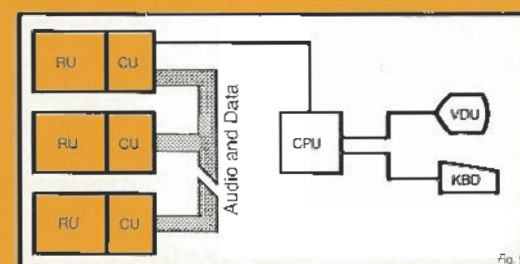
Diversity operation forms part of the remote control facilities.



## Computer Control (Fig. 5)

The RS 232 C interface and the remote control protocol provide computer compatibility for integration of the receivers into automated systems.

The advanced remote control facilities of the SKANTI R 8003 can be combined to meet a variety of special system applications.



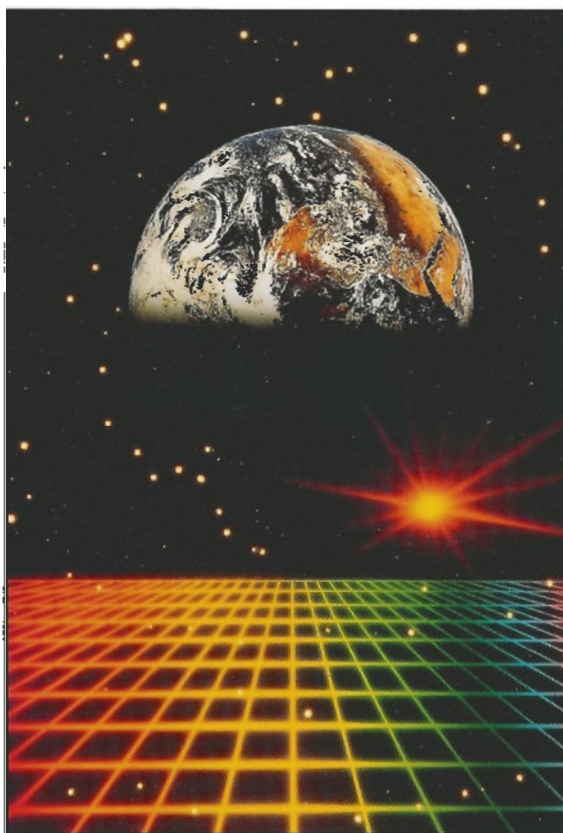
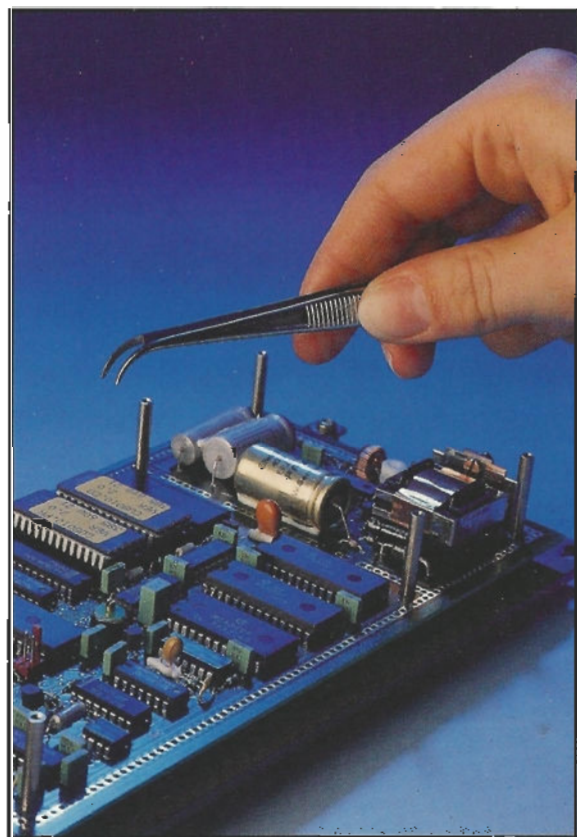



# NO LIMITS...

 **SKANTI** is a Danish company with more than 20 years experience in the field of advanced development and production of HF radio communication equipment.

SKANTI has a wide range of communication equipment for land-based and maritime applications of which 95% is exported to all parts of the world.

Among our customers are military, police, customs, and PTT authorities as well as civil aviation, international organizations, diplomatic services, oil companies, commercial Point to Point users, and thousands of ship owners.



 **SKANTI** invests intensively in product development which, combined with its accumulated experience, ensures optimal utilization of the very latest technology.

Modern production facilities and an efficient quality management give SKANTI equipment a very attractive price/performance ratio.

Modular designed equipment with computer technology provides flexible solutions to a large number of demanding system applications.

# TECHNICAL DATA

## Frequency Range

100 kHz to 30 MHz  
(10 kHz to 100 kHz with reduced performance)

## Frequency Resolution

10 Hz

## Frequency Selection

Flywheel tuning knob with selectable tuning rate.  
Direct keyboard entry.  
Recall of 399 user programmable channels.  
Automatic scanning.  
Remote control.

## Tuning Rate

10 Hz, 100 Hz, 1000 Hz, user programmable.

## Frequency Presentation

Yellow LED display.

## Frequency Stability

1.5 ppm, 0 to +40 deg.C.  
0.8 ppm, -20 to +40 deg.C (optional)  
0.4 ppm, 0 to +40 deg.C (optional)  
Aging less than 1 ppm/year

## Operating Modes

USB (upper sideband J3E, R3E, H3E)  
LSB (lower sideband J3E, R3E, H3E)  
ISB (independent sideband B8E, B7B, B9W)  
AM (double sideband A3E, H3E)  
TELEX (F1B with internal or external AFSK demodulator)  
CW (A1A)

## Antenna Impedance

50 ohms.  
Optional below 4 MHz: High Impedance, 10 ohm+250 pF (internally selectable)

## Input Protection

30 V EMF for up to 15 min.

## Input Selectivity

Eleven pre-set band pass filters, automatically selected.

## IF Selectivity

	6 dB	60 dB
USB:	350 Hz to 2700 Hz	-400 Hz and 3400 Hz
LSB:	-350 Hz to -2700 Hz	400 Hz and -3400 Hz
ISB, USB:	350 Hz to 2700 Hz	-400 Hz and 3400 Hz
LSB:	-350 Hz to -2700 Hz	400 Hz and -3400 Hz

TELEX, AM, CW:

Wide:	+/-3000 Hz	+/-10000 Hz
Intermediate:	+/-1200 Hz	+/- 1900 Hz
Narrow:	+/- 400 Hz	+/- 850 Hz
Very Narrow:	+/- 125 Hz	+/- 500 Hz

PBS (Pass Band Shift) facility in USB and LSB modes

## Sensitivity

Antenna input (EMF) for 10 dB SINAD, 50 ohm antenna:  
SSB (350-2700 Hz): 0.8 uV  
AM (+/-3000 Hz): 5.0 uV, m 30%  
CW (+/- 400 Hz): 0.56 uV  
When RF AMP is selected, the sensitivity is increased by approx. 6 dB.

## Intermodulation:

Two 100 dBuV signals 30 kHz/60 kHz off tune produce less output than an equivalent input signal of 30 dB uV.

## Cross Modulation.

An unwanted signal 118 dB uV/30%-400 Hz more than 20 kHz off tune produces cross modulation below -30 dB relative to a wanted signal of 60 dB uV (SSB).

## Blocking

With a wanted signal giving 20 dB SINAD, an unwanted signal 20 kHz off tune 80 dB above the

wanted signal level will affect the output level by less than 3 dB or cause a reduction in SINAD of less than 6 dB (SSB).

With a wanted signal 60 dBuV, an unwanted signal 20 kHz off tune 110 dBuV will affect the output level by less than 3 dB or cause a reduction of SINAD of less than 6 dB (SSB).

## Image Rejection

Greater than 80 dB

## IF Rejection

Greater than 90 dB

## Spurious Response Rejection

Greater than 80 dB below 4 MHz  
Greater than 70 dB above 4 MHz

## Internally Generated Spurious Signals

Less than 5 dB SINAD (SSB)

## Spurious Emissions

Less than 25 pW/50 ohm at antenna connector

## RF Amplifier

0 dB or 10 dB

## RF Attenuator

0 dB or 20 dB

## Automatic Gain Control

Less than 5 dB change in output for 100 dB input signal variation from 20 dB sensitivity level (SSB).  
Attack time: 2 ms.  
Recovery time, FAST: 0.3 s.  
SLOW: 3 s.

## BFO/BPS Range

+/-3 kHz in 100 Hz steps

## Audio Subcarrier Frequency in TELEX mode:

1500 Hz - 2500 Hz user configurable in 100 Hz steps

## Audio Squelch

Speech operated

## Notch Filter:

30 dB. Adjustable in the range 300-3000 Hz.  
Digital readout of notch frequency

## FSK Demodulator

Mark and space frequency: user selectable in the range 1000-3000 Hz  
Data rate: 50-750 baud  
Polarity: Normal/Reverse  
Data output: Enable/Disable  
Parameters are front panel selectable.  
Output level: CCITT Rec. V28  
Diversity: Signals from two receivers can be combined.

## Scanning

Up to 40 user-programmable scanning programs.  
Dwell time: 0.1-25 s.  
Hold time: 0-99 s.  
Scan hold sources: squelch, signal threshold, or external signal.  
Scanning types:  
Consecutive Channel Scanning: All channels between a start channel number and a stop channel number are scanned.  
Frequency Scanning: The frequency range between a start channel and a stop channel is scanned with the selected frequency step size (10 Hz to 99.99 kHz). Receiver control settings for the scanning sequence are governed by those of the start channel.  
Sequential Channel Scanning: a freely chosen sequence of channel numbers are scanned. Channels may be temporarily skipped from a sequential scanning program during scanning.  
Linking: Scanning programs can be interlinked.

## Time Programming

Up to 40 user programmable time programs.  
Time cycles: 1 hour and 24 hours.  
Action types: Recall of channel, return to previous setting, recall of scanning program, start of scanning, call of another time program.

## User Configuration

Password protected facility for configuration changes from the front panel.

## Metering

LED bar-graphs indicate signal strength and line output level/FSK mark and space frequencies.

## IF Output:

1.4 MHz (with BW Wide +/-3000 Hz)  
Nominal 20 mV in 50 ohms

## Line Outputs

Separate outputs for USB, LSB (ISB mode) and monitored channel, internally adjustable up to +10 dBm/600 ohm, balanced. Distortion less than 1%.

## Audio Output Power

Internal loudspeaker 0.5 W at less than 5% distortion  
External loudspeaker 4 W/8 ohms at less than 5% distortion  
Headphones 10 mW/8 ohms-3 kohms

## Extended Local Control

Control Unit may be placed up to 100 meter from Receiver Unit using an 8 twisted pair cable. Data rates of 300, 600, 1200 or 2400 bauds dependent on the cable length.

## Full Remote Control

Serial interface compatible with EIA standards RS-232C and RS-485. Selectable data format and data rate in the range 300 to 9600 baud. Up to 32 receivers may be connected in a group. Any receiver control unit may act as a master to control any of the receivers in the group.

## Self-Test

Automatically or manually stepped self-test function with 31 tests.

## Power Supply

110-120/220-240 V AC 50-60 Hz and 24 V DC with automatic changeover to DC on failure of the AC mains supply.

## Supply Voltage Variations

DC: -10% to +30%  
AC: +/- 10%. AC Frequency: +/- 5%

## Power Consumption

24 V DC: approx. 40W  
AC mains: approx. 50 VA

## Full Performance Temperature Range

0 to +40 deg.C

## Operating Temperature Range

-20 to +55 deg.C

## Environmental Specifications

Complies with CEPT and MPT 1204

## Dimensions and Weight

Height: 132.5 mm  
Width: 432 mm (482 mm incl. brackets for 19" rack mounting)  
Depth: 553 mm (incl. handles)  
Depth into rack: 506 mm (incl. rear side clearance)  
Depth, Control Unit only: 135 mm (incl. handles)  
Depth, Receiver Unit only: 418 mm  
Weight: approx. 16 kg

Specifications subject to change without notice.

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## Trendsetters in Radio Communications

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