



A de-luxe portable radio for home and travel receiving all types of transmissions: Standard broadcast and FM bands, international short wave and amateur broadcasts, citizens' band, SSB, marine/weather bands and special broadcasts.

T 1000 CD

The T 1000 CD is a portable receiver for world-wide reception and represents a further development of the famous T 1000 universal receiver. Even on first contact, the performance of the T 1000 CD will show its superiority over conventional sets. As a matter of fact, its receiving performance can only be measured by the engineering standards applied to commercial receivers, i.e. the type of sets used in message centres or weather stations. The T 1000 CD is capable of receiving practically any transmission throughout the world and, thanks to its compactness, can be carried about and used anywhere.

Thus it is a receiver for home and office use as well as a de-luxe piece of equipment for voyages, safaris or caravanning. These features explain why the T 1000 CD is today used all over the world, especially where first-hand information is a necessity such as in embassies, consulates, and press agencies. The T 1000 CD is robust and reliable throughout. Its design and workmanship meet the extreme conditions under which this set is frequently required to operate in the tropics as well as in arctic regions. Neither air humidity nor shocks will affect its operation.

With a total of 13 wave bands, the T 1000 CD covers nearly all transmitter frequencies: radio programmes, amateur radio traffic, radio telephony, telegraphy, and sea weather service. In all ranges, this set has been developed for particularly high receiving performance at good image rejection. The set includes two completely independent tuners, one for amplitude modulation (long, medium and short wave) and one for frequency modulation (ultra short wave).

In developing this set, special attention was paid to its short-wave section. On 8 wave bands the complete short-wave spectrum ranging from 1.6 to 30 MHz can be received without exception. The drum tuner with its gold-plated contacts guarantees optimum recurrence and tuning accuracy when transmitters must be re-located in the AM sector.

Large, conveniently placed scales facilitate reading of the frequencies, an electronic bandspread (short-wave magnifier) permits accurate tuning in of stations which are very close together. Numerous practical features help to

improve reception under difficult conditions. Just as in stationary receivers, all controls and connections are neatly and conveniently grouped as a complete operating panel on the front of the set.

Power is normally supplied by 8 mono-cells. An additional battery illuminates the dial. For external power supply, an AC/DC adaptor (TN 1000) can be built into the T 1000 CD. This permits connection to 6–12 and 24 v DC power sources and 90–130 or 150–240 v AC power sources.

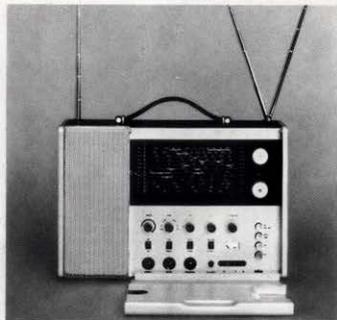
Three telescopic antennas and a built-in ferrite antenna are optimally designed for the various receiving ranges. In addition, outdoor antennas may be connected at any time.

Moreover, on sailing boats and yachts, the T 1000 CD set serves as a reliable navigational device for direction finding, position plotting and homing. For this purpose, the PV 1000 adaptor and the PK 1000 cross-type ferrite antenna in combination with a radio compass are connected to the receiver as accessories.

On board, the T 1000 CD with the TN 1000 mains adaptor, can be operated on the vessels' power supply and the chassis safely batted down.

As in all Braun products, styling strictly complies with functional requirements. Its very appearance classifies the T 1000 CD as a thoroughly studied top-grade set. It is just big enough to accommodate the sophisticated electronics, all space consuming features and superfluous knick-knacks having been deliberately eliminated.

The photo on the inner pages of this brochure shows the T 1000 CD in its actual size.



Details

Protective cover

The T 1000 CD has a removable metal cover for the protection of its scales and controls. Inside this cover is a compartment for transmission tables, operating manuals or personal notes.

«On-off» switch

The T 1000 CD set is fully transistorized and therefore requires no warm-up.

«Line-battery» switch

The set can be operated on monocytes (8 batteries of 1.5 v each and one for scale illumination) or, after installing the TN 1000 mains adaptor, by plugging it into AC or DC mains outlets. For battery operation, the sliding switch must be on «battery»; when operating from an external power source, on «line».

«Volume» control

The «volume» control knob controls the loudness level. By pulling this knob, an a-f tone filter for 1000 Hz is switched on to suppress loud background noise or other interference. Thus only the 800–1100 Hz range remains audible. In addition, this range can be further adjusted by means of the «tone» control knob.

Function selectors

The three lower ones of the four pushbuttons provided are used to select the required mode of operation: AM or FM reception, tape or record reproduction. The top pushbutton marked «afc/ferr. ant.» has a dual function: on FM reception it switches on the Automatic Frequency Control ensuring optimum tuning-in of the transmitter; on AM, it switches on the built-in ferrite antenna.

Antennas

Apart from the built-in ferrite antenna (for long, medium, and short wave 8) the T 1000 CD features an orientable $\lambda/2$ antenna for FM reception consisting of two extractable rods and a 6' long telescopic antenna for short-wave reception. In addition, external antennas may be connected for all ranges. The «ant.-tuning» control to the left of the four sockets serves to adjust the AM external antennas.

Transmission scales

The AM and FM ranges are completely independent of each other and have their own scales and separate drives. This considerably facilitates locating and finding of transmitters, especially in the short-wave range. In all ranges, the tuning deviation is less than 1 percent.

Drum-type range selector

Apart from the VHF range, the set features 8 short-, 2 medium-, and 2 long-wave ranges which can be selected by means of a drum-type range selector provided on the side of the set. This selector is equipped with gold-plated contacts and ensures optimum accuracy of recurrence and tuning precision.

«Tone» control

This permits changing the sound impression to suit the listener's taste. For more clarity of speech and for better reception of weak or disturbed transmissions, low-pitched sounds can be attenuated by pulling this knob.

«Bfo» control

Some short-wave transmissions are not received as radio telephony but as unmodulated telegraphy. By means of the beat frequency oscillator, these signals can be received with the T 1000 CD (as opposed to conventional receivers). For short-wave amateurs: with the aid of the «bfo», single-sideband reception is possible.

«Mgc» control

«Mgc» (manual gain control) eliminates the automatic gain control, i.e. amplification is adjustable manually. This, for instance, is of importance in telegraphy reception and direction finding where the operator must know exactly how field intensity of the transmitter changes with the rotation of the cross-type ferrite antenna.

«El.-bandspread» control (short-wave magnifier)

Short-wave reception requires extremely sensitive tuning which is difficult to accomplish with the conventional transmitter rotary knob. For this reason, the T 1000 CD incorporates an electronic bandspread by means of which small sections of the scale can be scanned accurately.

«Sharp-broad» control

Short-wave reception requires optimum selectivity. To this end, the IF bandwidth can be changed, i.e. from «broad» (± 3 kHz) to «sharp» (± 1 kHz).

«Dial on / batt. c.» pushbutton

On depressing this pushbutton, scale illumination is switched on. Supply is from a separate battery. On depressing this pushbutton, the indicator also shows whether the batteries have sufficient life or whether they must be replaced.

Field intensity indicator

This indicator has two functions:
a) The instrument shows the field intensity of an incoming signal. With optimum tuning, the pointer is deflected as much to the right as possible. In direction finding, the indicator is used for accurate location of minima and for sense finding.
b) If, on depressing the «dial-light» pushbutton, the pointer is deflected into the coloured section, battery life is still sufficient.

«Speaker» connection socket

To meet high standards, the set has sufficient output to drive additional speakers. The «speaker» socket is for connection of external speakers with 5 Ω impedance. (The built-in speaker is disconnected automatically when inserting in the loudspeaker plug.)

«Phones» connection socket

Headphones help when listening to weak stations or when there is noise in the room. For this purpose the T 1000 CD has a special socket. When plugging in the headphone the built-in loudspeaker is disconnected automatically.

«Phono/tape» socket

A special DIN socket has been provided for the connection of tape recorder and record player. During AM and FM radio reception, a tape recorder can record the desired transmissions. For playback, via the same socket, depress the «phono/tape» pushbutton.

Mounting

The underside of the T 1000 CD has two threaded bores for screws. By this means, the set can be mounted securely and safely (e.g. on yachts and boats).



The Electron Age 100 years of progress in electronics

Technical data

AM radio unit

AM ranges:	Wave ranges:	AM sensitivity:	Image rejection:
LW 2	130 — 240 kHz	9.0 μ V	> 60 dB
LW 1	230 — 440 kHz	9.0 μ V	> 60 dB
MW 2	470 — 950 kHz	5.0 μ V	> 60 dB
MW 1	900 — 1 650 kHz	5.0 μ V	> 60 dB
SW 8	1 600 — 3 450 kHz	4.0 μ V	60 dB
SW 7	3 400 — 5 600 kHz	2.0 μ V	60 dB
SW 6	5 500 — 8 600 kHz	2.0 μ V	40 dB
SW 5	8 500 — 12 100 kHz	2.0 μ V	36 dB
SW 4	12 000 — 16 100 kHz	2.0 μ V	30 dB
SW 3	16 000 — 20 100 kHz	2.0 μ V	30 dB
SW 2	20 000 — 25 100 kHz	2.0 μ V	25 dB
SW 1	25 000 — 30 000 kHz	3.0 μ V	17 dB

Intermediate frequency 455 kHz

Bandwidth AM narrow \pm 1 kHz
wide \pm 3 kHz

FM Radio unit

Ultra short-wave range 87–108 MHz
Intermediate frequency 10.7 MHz
Modulation distortion < 1%
Sensitivity 1.7 μ V
Limiting point approx. 2 μ V
IHF selectivity 38 dB

a-f unit

Transmission range 50 — 15 000 Hz
with tone filter 800 — 1 100 Hz
Continuous power 1.3 Watt
Music power 1.6 Watt
Distortion factor \leq 1% to 1.2 Watt
Signal-to-noise ratio 55 dB
Maximum low-frequency
damping 13 dB/100 Hz
Maximum high-frequency
damping 13 dB/10 kHz

Connections

Dipole antenna 240 Ω , AM antenna,
ground, tape/phono, headphones,
external speaker, direction finder
(the latter requires installation of the
necessary socket)
Mains adaptor 110, 220 v AC voltage
6–12, 24 v DC voltage

Complement

21 Transistors
6 germanium diodes
4 silicon diodes
VHF circuits 4 HF — 10 IF
AM circuits 3 HF — 8 IF with bfo

Special equipment

Suitable for battery and mains operation
2 separate receiving units for FM and
AM reception
Double telescopic antennas for FM
Separate drive for FM and AM
Flywheel drive
Automatic Frequency Control
Built-in ferrite antenna and super long

telescopic antenna
AM antenna adjustment.
Short-wave bandsread
Sharp-broad control (IF and a-f)
BFO for receiving unmodulated tele-
graphy and single-sideband transmissions.
After the automatic system has been
switched off, continuous manual control
of HF and IF gain is possible.
Field intensity indicator
Indicator for checking batteries
Separate battery for dial illumination

Casing

Upper and lower side covered in
leatherette; sides, front panel and
speaker cover in matt anodized alumi-
nium. Rear panel and battery com-
partment in knock-resistant plastics.
The front cover, also in matt anodized
aluminium, is removable.

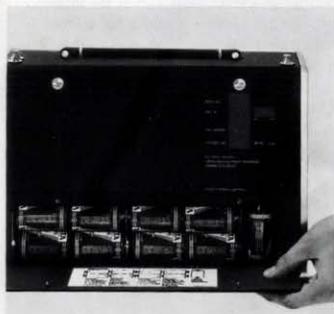
Dimensions

34 x 11 x 22 cm = 1' 1.4" x 4.4" x 8.8"
(w x h x d)
Weight with batteries: 8.1 kgs = 17.86 lbs

Technical data (remarks)

Modulation distortion factor in VHF
range at 1000 Hz and 40 kHz deviation
and 1 mv antenna voltage.
Sensitivity to 30 dB signal-to-noise ratio
measured with 40 kHz deviation at
1000 Hz.

IHF selectivity according to «IHF
Standard Methods of Measurements
for Tuners» for 400 kHz spacing between
transmitters at a modulation frequency
of 1000 Hz for 1mv antenna voltage.
AM sensitivity (10 dB signal-to-noise
ratio) and image rejection measured
with IF bandwidth control in the
«sharp» position, tone control on left
stop, artificial antenna 400 Ω 200 pf.



Mechanical and electrical construction

The T 1000 CD set comprises two independent receiver units for FM and AM reception, each with its own circuitry. These two units are connected to a common a-f portion. It is, in particular, this layout which ensures optimum performance of the IF amplifiers.

The various easy-to-exchange components of the T 1000 CD are:

- Input portion for FM
- Input portion for AM (drum-type tuner featuring 12 ranges — gold-plated contacts)
- IF module for the two amplifier circuits
- AF module
- Front panel for control elements.

The FM input portion comprises a built-in telescopic double antenna with 2 rotatable $\lambda/4$ rods and a symmetrical 240 Ω input for external antennas. Tuning of the FM portion is effected by means of a quadruple variable capacitor. Three tunable HF circuits and a low-noise AF 106 mesa transistor in the preselector stage ensure maximum amplification.

The FM-IF amplifier (10.7 MHz) is of the four-stage type and features 10 fixed tuned circuits. Together with the FM-HF

portion, this ensures maximum amplification.

For AM reception, the T 1000 CD incorporates an extra-long telescopic antenna (30 kHz—1.6 MHz), a ferrite antenna (130 kHz—3.4 MHz) and a controllable input for an external antenna (130 kHz—30 MHz).

The heart of the T 1000 CD is the 12-band drum-type tuner. The segments with coils and capacitors for the various ranges are linked up directly with the amplifier transistors through gold-plated contacts.

Short electric paths, subdivision of the SW frequency spectrum into 8 ranges, use of the latest materials for the cores in the HF circuits and the fact that an AF 106 transistor is used also in the AM-HF preselector stage, afford excellent sensitivity, high precision of recurrence and tuning accuracy in all ranges.

The AM-IF amplifier for 455 kHz is of the three-stage type and has seven tuned circuits. The use of two separate diodes for demodulation and generation of control voltage improves the efficiency of the demodulator, affording considerably

better control of the first IF stage and the HF preselector stage. In addition, control voltage for the tuning indicator is derived from here thus permitting instrumental tuning even with manual gain control (This is important for direction finding because automatic gain control is in this case eliminated and a constant sensitivity of the T 1000 CD is adjusted by means of manual gain control, thereby permitting full utilization of the direction finding antenna's characteristics).

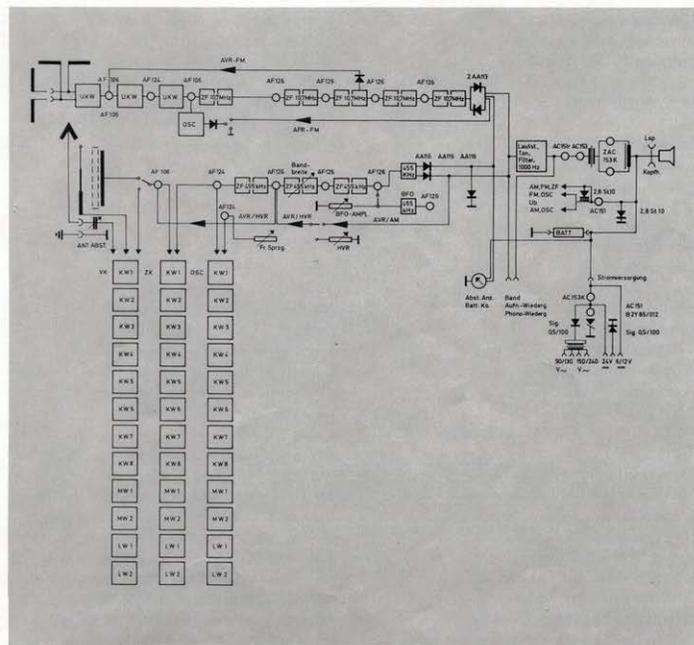
Sharp-broad control improves selectivity. Reception bandwidths ± 1 kHz in the «sharp», ± 3.0 kHz in the «broad» position.

An ingenious combination of capacitive coupling at ± 1 kHz and, in addition, inductive coupling at ± 3.0 kHz ensures absolute symmetry of the two transmission curves. The beat frequency oscillator with its circuit of stable frequency is for receiving unmodulated telegraphy and single-sideband transmissions. In telegraphy reception a beat frequency within the range of audibility is formed by means of the bfo and further amplified in the a-f section. In single-sideband reception, the bfo signal is mixed with the single-sideband signal in the final IF transistor.

The a-f amplifier of the T 1000 CD is of the three-stage type and incorporates a low-noise AC 151 preselector stage transistor at input delivering 1.3 watts. Without being too high, this output suffices for all types of uses. In conjunction with electronic voltage stabilization, optimum utilization of the batteries at uniform receiving performance is ensured (up to 50% rated voltage).

For additional control, the a-f section, apart from volume control, features continuous high frequency damping, a push-pull switch for filtering out low frequencies, and a tone filter also operated by a push-pull switch (pass band 800—1100 Hz).

The mains adaptor which can be installed in the set permits connection to virtually any AC or DC power supply.

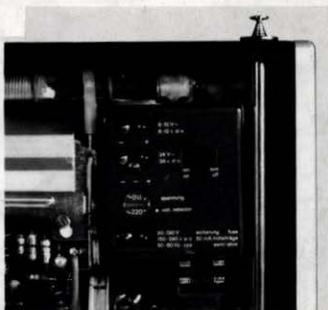


Accessories, direction finding equipment

With the appropriate accessories, the T 1000 CD can be used as a navigational aid on yachts, motor boats and sailing craft.

Along all the ocean coasts, radio beacon stations, by emitting radio signals in the 250 to 415 kHz wave bands, help coastal shipping in finding their bearings. The exact position and identifiable signal of each radio beacon station are shown on nautical charts and transmission schedules. These signals can be received on the T 1000 CD.

In taking one's own bearings, or in locating a destination, the direction of one or several radio beacons must be defined. For this purpose, the PK 1000 antenna is mounted on a bearing compass or a graduated disc and connected to the T 1000 CD by means of the PV 1000 adaptor. This direction finder comprises two independently functioning antenna rods, one for finding the position line on which radio beacon and antenna are located and the other functioning as a sense antenna and displaced by 90°. Owing to the high directional characteristics of the ferrite rods and the high selectivity of the T 1000 CD, turning of the cross-type antenna makes it possible to locate a very exact minimum. After sense finding, this gives one the exact direction of the radio beacon station from which the signals are being received. The intersection of two or several position lines drawn through the radio beacon shows one's own position on a nautical chart.



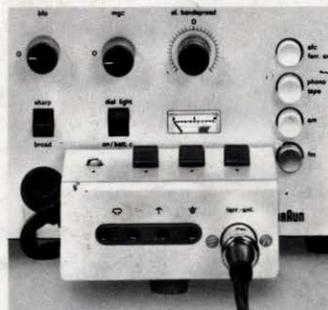
TN 1000 mains supply unit

For power supply to the T 1000 CD from external mains. The TN 1000 mains adaptor can be connected to AC voltage 50–60 Hz of 90–130 v (voltage selector position: 110 v) and to 150–240 v (voltage selector position: 220 v), DC voltage 6–12 and 24 v.



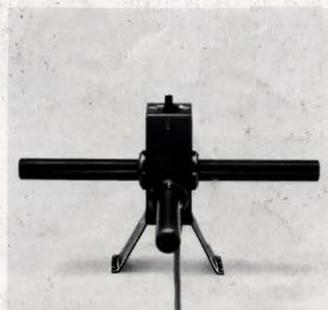
KH 100 headphones

One pair of headphones, specially suited for the T 1000 CD. On plugging the headphones into the «phones» socket, the speaker of the T 1000 CD is automatically switched off.



PV 1000 direction finding adaptor

An adaptor for connecting the ferrite antennas (e.g. Braun PK 1000) to the T 1000 CD. Change-over is possible from radio to DF reception, from minimum to a reference voltage and to sense finding.



PK 1000 cross-type ferrite antenna

A ferrite turnstile antenna for plugging it into a commercial type DF compass. Its simplicity of operation saves a great deal of time. The change-over feature of this turnstile direction finder dispenses with having to turn the direction finder several times together with the compass for sense finding.

All specifications and features as of July 1969
Subject to change without notice

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