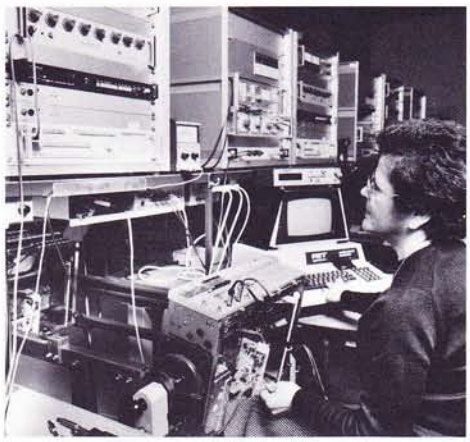
STUDER

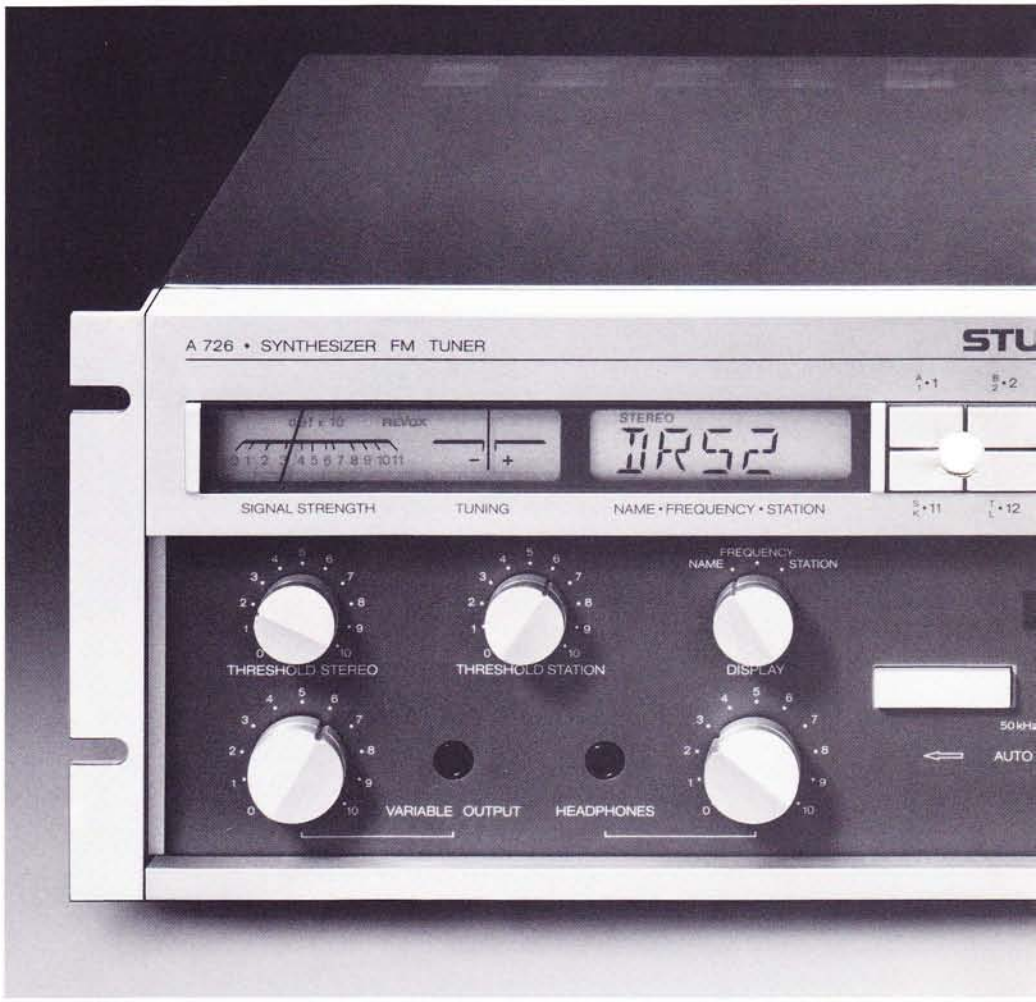
A726 PROFESSIONAL SYNTHESIZER-FM-MONITOR-TUNER

STUDER A726
the professional FM monitor tuner

The monitoring and quality control of FM radio broadcasts imposes exacting requirements because it is essential to know, how the listener ultimately receives the programs that have been produced with elaborate quality efforts. There is no alternative: professional quality must also be extended to the monitor tuner.
This is why STUDER builds an FM tuner that fully satisfies the requirements of professional users just like all other STUDER audio systems in world-wide use by radio broadcasting, television and recording studios.



Superb manufacturing quality through subassembly technology and comprehensive final inspection.



Easy, convenient to operate because of separately grouped primary and secondary front-panel controls. O

Exceptional receiver technology and computer convenience

Drawing on the many year's of experience in the design and construction of first-quality synthesizer tuners, a new state-of-the-art FM tuner, the A726, has been developed. However, it is more than simply a technical evolution of the successful A176. The new A726 now combines the advantages of proven, low-distortion receiver technology and digital computer software which considerably enhances its functionality. Because the central control operates via serial command and data bus links, the internal wiring is greatly simplified, a technique which further enhances the operational reliability.

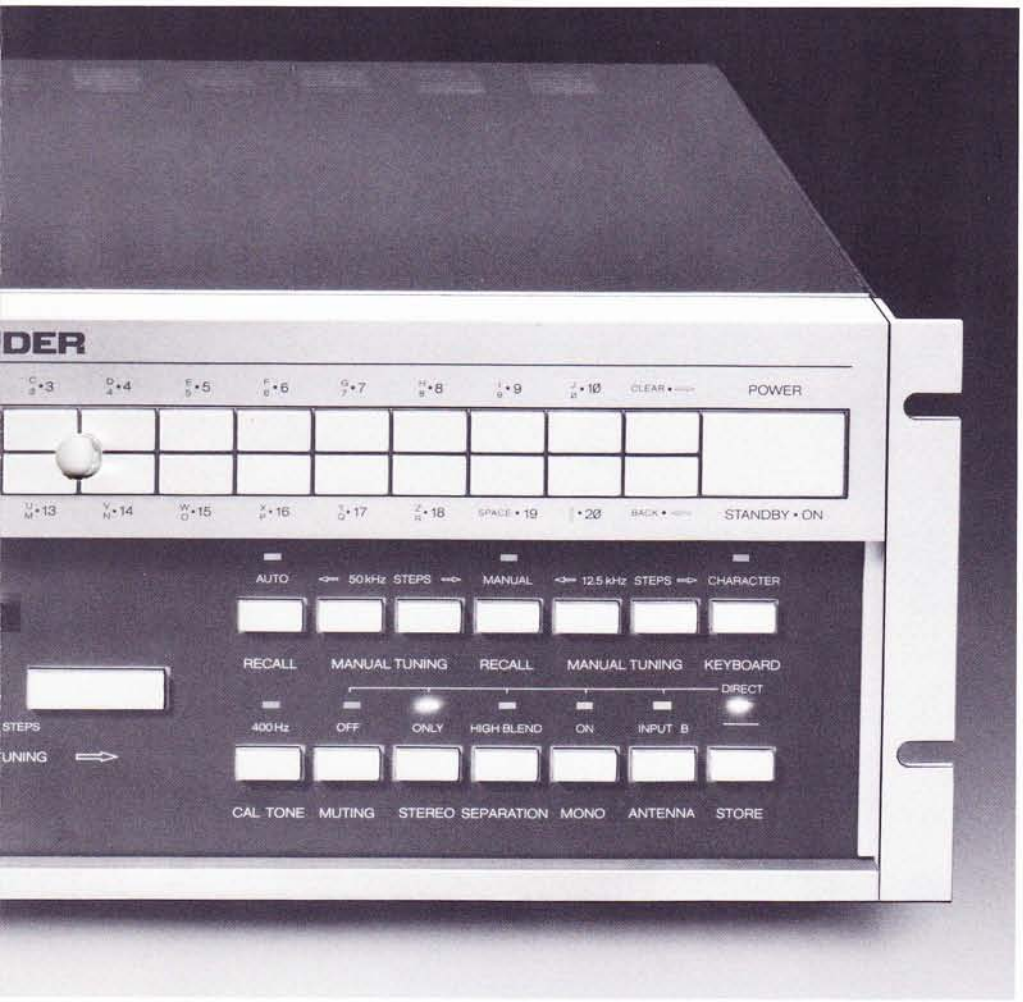
Synthesizer, microcomputer, and electronic memory for an advanced operating concept

The FM tuner A726 has been designed for convenient push-button station selection. All secondary operator controls for programming the station selector keys are arranged in the lower section of the front panel and can be protected with a tinted plastic cover.
Reducing the primary operator controls to a slim row of 20 station selector keys, 2 scan buttons and a Standby/On power button imposes no limitations – to the contrary. Totally new facilities have been incorporated in the convenient and easy-to-use push button operating concept. For each programmed frequency not only the station name but all specific operating parameters can be stored. Simply tune to a station by pressing the corresponding selector button and all previously programmed station parameters are automatically generated.
These parameters are entered with the aid of function keys. The station frequencies and names can be conveniently entered with the alphanumeric keyboard. No buffer battery is required for saving the parameters of the 20 programmed stations in the event of a power failure.

Liquid crystal multifunction display and meaningful tuning indicators

To match its sophisticated electronics, the A726 FM tuner has been equipped with tuning indicators that are in fact precision measuring instruments. These analog instruments provide accurate information concerning the signal strength

Professional, low-distortion receiver technology for excellent selectivity and stereo channel separation



ly the keys in the upper operating and display field are used after programming.

and tuning. The received signal is indicated logarithmically over an extremely wide range. The 7-digit, alphanumeric LC display indicates either the tuned frequency, the station name, or the selector key number (1 to 20).
The display also provides status information of important functions such as enter, stereo mode, muting, and antenna rotor movement (option).

Station tuning: convenient and flexible

One of the basic advantages of digital tuning with a frequency synthesizer is the repeatably high tuning accuracy, regardless of the station selection method. The very high tuning accuracy is derived directly from 4-MHz quartz reference. With maximum channel resolution of 12.5 kHz, the so-called channel pattern tuning is extremely accurate and therefore captures all special channels without tuning error!

Despite these capabilities, push button tuning remains convenient yet flexible: manual tuning in 50 or 12.5 kHz steps; with direct digital frequency input via keyboard and automatic complementation of the 12.5 and 25 kHz steps; AUTOmatic search in either direction, or recall from memory with station selector keys (resolution also 12.5 kHz). The programmed stations can also be read out in either scanning direction with the simple push of a button (memory scan).

LC multifunction display

NAME • FREQUENCY • STATION

LC display: frequency

NAME • FREQUENCY • STATION

LC display: station name

NAME • FREQUENCY • STATION

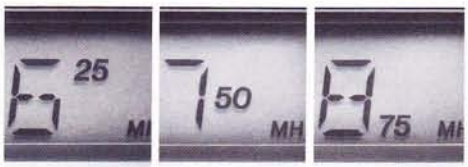
LC display: station number

NAME • FREQUENCY • STATION

LC display: manual input

NAME • FREQUENCY • STATION

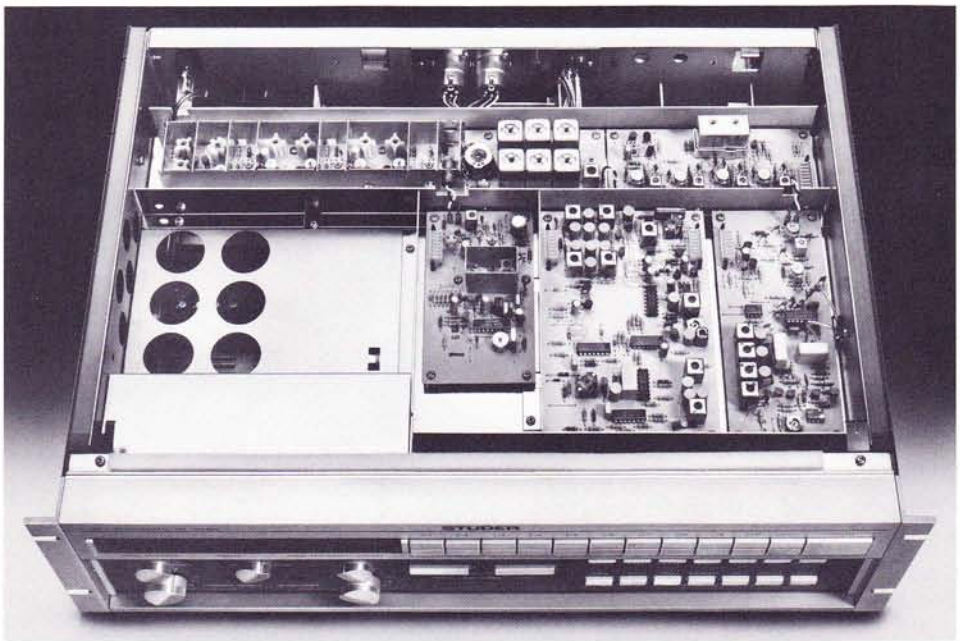
LC display: automatic station selection



CY • STATION Y • STATION CY • STATION

The automatically generated trailing digits indicate 12.5 kHz steps (e.g. 104.9625 MHz).

- 20 Stations, user-programmable frequency, name and tuning mode
- Microcomputer for frequency synthesizer and control functions
- Balanced and floating line outputs



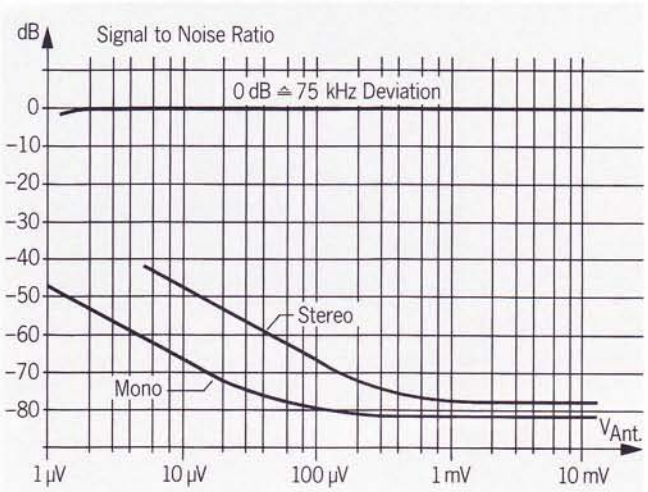
With the RF screens raised, the clean arrangement of the receiver electronics becomes visible.

Highly accurate frequency synthesizer tuning

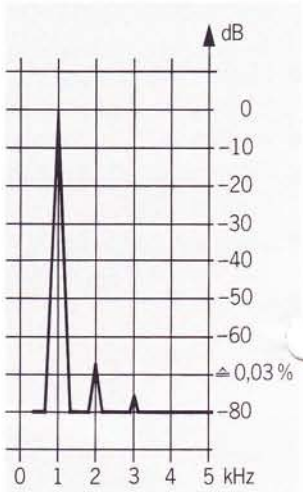
- Tuning range from 87.5000 to 108.0000 MHz, sweepable in channel pattern steps of 12.5 kHz.
- Frequency synthesizer with quartz reference, accuracy ± 0.002 % (± 20 ppm).
- LSI synthesizer circuit with two phase discriminators, microprocessor-controlled, programmed for optimum lock-in and high spectrum clearness of oscillator frequency in the holding range.
- Tuning modes:
  Automatic wrap-around search in 50 kHz channel pattern in either direction.
  Frequency steps for 50 and 12.5 kHz channel pattern, step-by-step and continous search.
  Digital frequency input in 12.5 kHz channel pattern with automatic complementation of low-order value.

Microcomputer system control and static data memory

- Microcomputer 8440 (NMOS; 4 k x 8 bits), with serial hardware interface.
- Matrix scan for all push button functions.



Signal-to-noise ratio (mono and stereo) as a function of the antenna signal voltage.



Distortion spectrum, measured with 1 mV antenna voltage, 40 kHz deviation, stereo L = R, 1 kHz.

- Static data storage (no battery required) in external EA-ROM (100 x 14 bits) for frequencies, station names, mode, status, etc.

6-way tuned RF input section, balanced mixer and passive IF filter

- Coaxial antenna inputs (IEC); identical input for switch-selectable second antenna (option).
- RF input section with band-pass filter 87 ... 108 MHz, 2 RF preselector stages and 6-way tuning by means of 18 double tuning diodes for high overdriving immunity.
- High-quality balanced mixer.
- Complete IF selection concentrated in phaselinear 8-section IF filter (Thomson-Butterworth). Passive design for maximum long-time stability.
- Integrated wide-band IF amplifier. Separate AGC amplifier for accurate signal strength indication, extremely wide measuring range (0 ... 110 dBf; logarithmic) for reliable interpolation of reception conditions.
- Accurate and sensitive tuning indication with separate discriminator.

Digital coincidence demodulator and PLL stereo decoder

- Digital FM coincidence demodulator. This circuit arrangement combines the advantages of conventional demodulators (e.g. high signal-to-noise ratio) with those of digital design such as extreme bandwidth, long-time stability and extremely low distortion. The coincidence demodulator works with a coaxial delay line (68.18 nsec).
- Multiplex demodulation of exceptional quality with discrete PLL decoder (no decoder IC).
- Wide-band filter for 19 kHz pilot signal for maximum phase linearity. A narrow-band loop filter ensures excellent selectivity.

- Dual push-pull switching demodulator for maximum channel separation and extremely low harmonics spectrum.
- MPX noise filter that does not affect AF frequency response.
- Highly effective suppression of noise frequencies above 53 kHz prior to stereo decoding (100 kHz low-pass filter / Cauer low-pass filter with 4 attenuation peaks / band-pass filter 23 ... 53 kHz / 114 kHz bias trap).

First-quality AF section for purest audio reproduction

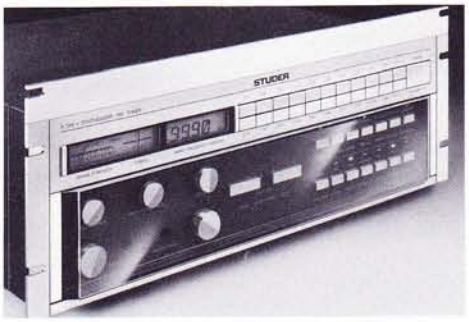
- Excellent pilot signal rejection by separate 19 kHz band rejection filter.
- Sophisticated 15 kHz low-pass filter at decoder output for purest audio reproduction (without residual MPX signals; important for tape monitor recordings with noise reduction systems).
- Unbalanced AF outputs via Cinch and DIN sockets plus socket-type variable output on front panel.
- Headphones monitor output on front panel with separate volume control.
- Built-in 400 Hz calibration oscillator.
- De-emphasis 50 µs (optionally convertible to 75 µs).
- Output for indication of multipath radio interference (option, BNC).
- Output for multiplex signal (option).

Balanced and floating line outputs

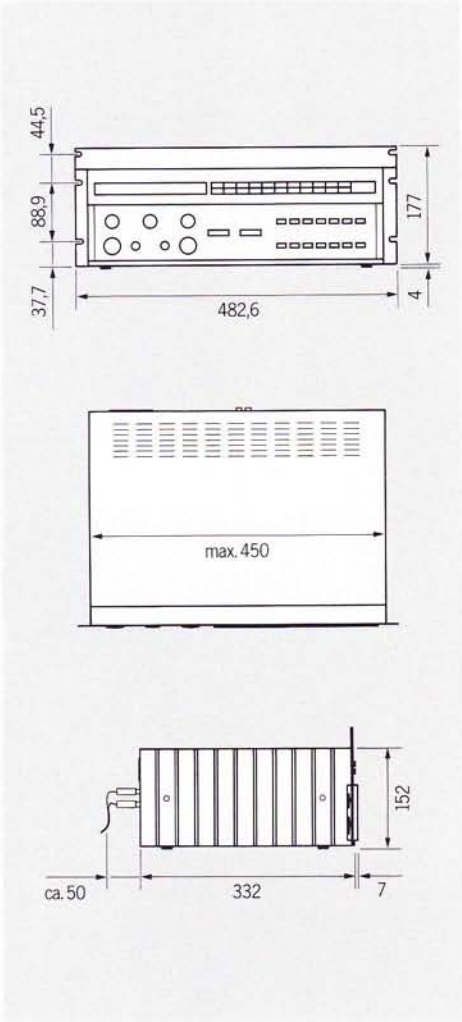
The A726 is designed for professional environments and can be connected without problems. High-quality balancing amplifiers supply floating line level. Unrestricted application flexibility is ensured by additional unbalanced, fixed, and variable AF outputs.

Remote control terminals

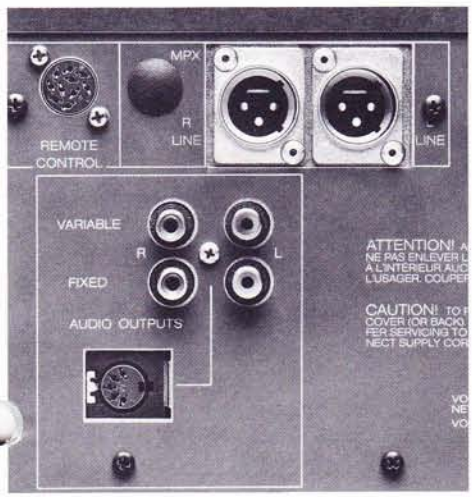
- Input for cable-type remote control of the following functions:
  stations 1 to 5
  memory scan (for calling up all stored stations).
  Power on/off (standby).
- Output for remote power application to an additional unit.



For 19" rack mounting, a mask (for blanking up to 4 height units) is supplied with the tuner.
A tinted plastic cover for the secondary control panel section is available as an accessory.



All dimensions in mm



Neat layout of connector panel with professional-type AF sockets for line level, balanced and floating.

Ordering information

STUDER A726 with XLR-3-M connectors
No. 60.087.26001

Technical Data
STUDER A726

Tuning range:	87.50 to 108.00 MHz Frequency input via keyboard, 12.5 kHz channel pattern; 50 or 12.5 kHz STEPS push buttons; automatic search in 50 kHz channel pattern
Station preselection:	20 station selector keys, user-programmable for 12.5 kHz channel pattern. Programmable parameters: frequency, name, and tuning mode
Accuracy of quartz reference:	± 0,002 %
LC Displays:	Frequency: 7 digits Station name: 4 digits
Absolute sensitivity:	0,5 µV measured at 75 ohm antenna input for a signal-to-noise ratio of 26 dB relative to 40 kHz deviation
Useable sensitivity:	Mono: 2 µV Stereo: 20 µV (measured at 75 ohm antenna input for a signal-to-noise ratio of 46 dB relative to 40 kHz deviation)
Image rejection ratio:	110 dB, Δf = 2 x fIF
IF rejection ratio:	110 dB, fIF
Spurious response rejection ratio:	110 dB, fIF/2
Capture ratio:	0,8 dB, measured at 1mV/75 ohm antenna input for a deviation of 40 kHz, 30 dB S/N ratio
Static selectivity:	80 dB, wanted signal 100 µV on 75 ohms, interfering signal 1 mV on 75 ohms, modulated to 40 kHz deviation
AM rejection ratio:	72 dB, relative to 75 kHz deviation, 30 % AM, 400 Hz, and 1 mV antenna voltage at 75 ohm input
Frequency response:	30 Hz to 15 kHz ± 1 dB, measured with an input signal of 1 mV/75 ohms modulated to 40 kHz deviation
De-emphasis:	50 µs (European version), 75 µs (US version)
Total harmonic distortion:	0,07 % with an input signal of 1mV/75 ohms, 1kHz and 40 kHz deviation, mono and stereo L = R
Signal-to-noise ratio:	75 dB, 30 Hz ... 15 kHz, linear, relative to 75 kHz deviation and an input signal of 1 mV/75 ohms
Stereo separation:	100 Hz ... 10 kHz >40 dB 1 kHz >43 dB relative to 75 kHz deviation and an input signal of 1 mV/75 ohms
Pilot signal and subcarrier suppression: (including all harmonics)	70 dB, 15 kHz ... 300 kHz linear, relative to 75 kHz deviation and an antenna input of 1 mV/75 ohms
Trigger THRESHOLD STATION:	2 ... 20 µV on 75 ohm antenna input, adjustable with potentiometer THRESHOLD STATION
Trigger THRESHOLD STEREO:	5 ... 350 µV on 75 ohm antenna input, adjustable with potentiometer THRESHOLD STEREO
Antenna inputs:	75 ohms coaxial
AF outputs:	
Output FIXED:	(Phone-sockets) Ri <500 ohms Rl > 10 kohms
Output voltage:	2V at 400 Hz and 75 kHz deviation
Output VARIABLE:	(Jack-socket) Ri < 6 kohms Rl >10 kohms (Phono-sockets) Ri < 1,5 kohms Rl >10 kohms
Balanced output:	1.55 V/600 ohms at 40 kHz deviation (1 kHz), level adjustment with internal potentiometer from 1.55 V up to 4.4 V, Ri <50 ohms, Rl 600 ohms
Output voltage limit:	8.8 V/600 ohms (+21 dB)
Output PHONES:	Ri 220 ohms, output voltage 6 V at 400 Hz and 75 kHz deviation
Remote Power On:	6-pole socket with DC supply, controllable internal or external (10 V)
Socket for remote control via cable:	10-pole socket, controllable functions: station selector keys 1 to 5, SCAN UP/DOWN and POWER OFF
Power requirements:	Europe: 100/120/140/200/220/240 V AC, ± 10 %, switchable Canada/USA: 115 V AC, ± 10 %
Power frequency:	50 ... 60 Hz
Power consumption:	30 W
Weight:	8.5 kg
Options:	Antenna input switch A to B De-emphasis 75 µs
Ambient temperature range:	+10 ... +40 degree C (50 ... 105 degree F)
Relative humidity:	Class F, DIN 40040

Designed and Manufactured in Switzerland

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