



32620

Country of origin:  
GDR

## DATA SUMMARY

**Organisation:** Hauptverwaltung Aufklärung des MfS.  
(HV A Ministry of Security) Abt. VIII.

**Design/Manufacturer:** Space Research Institute.  
(Speziellen Bereich des Instituts für Kosmosforschung (IKF)).

**Year of Introduction:** 1983.

**Purpose:** Speech and Morse generator for number stations.

**Input:** Punched paper tape CCITT-2, RS-232 or keyboard.

**Memory capacity:** Approximately 3791 numbers.

**Speech output:** 70-110 words per minute.  
Standard 100 wpm.

**Vocal range:** Original and 10% high or low pitch.

**Morse output:**

**AF tone:** 800, 1000 or 1200Hz. Level: 0 - +6dBm.

**Speed:** 30-240wpm. Standard 53wpm at 1000Hz.

**Keying output:** Potential free contact.

**Display:** 7 segment LED.

**Keyboard:** 25 buttons.

**Major components:** U880 microprocessor, 2kByte CMOS-RAM, program stored in two EPROMS, exchangeable speech module with 48KByte EPROM, K 572 MA 1A D/A converter.

**Power Supply:** AC mains with 12V DC battery backup and 2.4V NiCad battery for CMOS RAM backup.

**Consumption:** 22W.

**Size (mm):** Height 135, length 290, width 260.

**Weight:** 7.1 kg.

**Accessories:** Speech module, paper tape reader, AC mains cable.

## References:

- Without the photographs, documents, scans and detailed info, kindly provided by Detlev Vreisleben, DC7KG, Germany, this chapter would not have been possible.
- Photographs and information on the 32028 courtesy Crypto Museum, Holland.
- Technical description: Gerät 32620, Sprach-Morsegenerator, 1176-0.1KB, 02-1985.
- Technical description: Gerät 32621, Programmierhilfe für die Geräte des Typs 32620. 1209-0KB, 02-1985

## REMARKS

32620 was a digital speech and Morse generator, developed for the East German HV A MfS, used for preparation and transmission of groups of five number messages from a control centre via a short wave transmitter to agents, the well known 'number stations'.

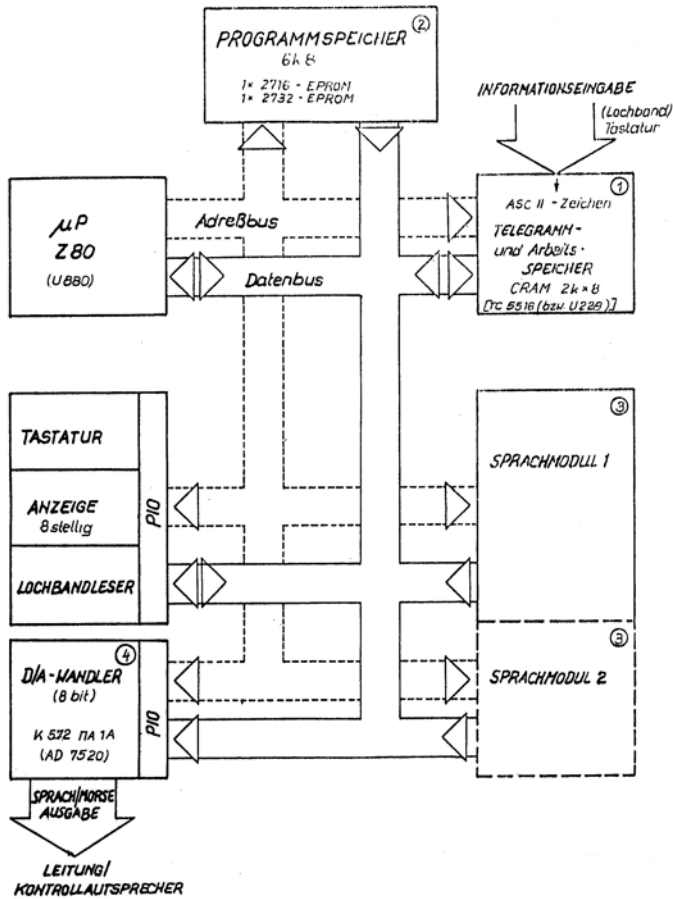
It accepted messages in the form of encoded data via a built-in punched paper tape reader with standard teletype Murray code (CCITT-2), RS-232 serial data or a keyboard. The input data was stored in a CMOS RAM in ASCII format. The whole process was controlled by a U880 microprocessor (East German version of the Zilog Z80). When activated, it translated this data into digitally stored human speech or in Morse code.

The primary application was automatic transmission of five number words with speech in any language or in Morse, via a short wave transmitter. It was also used by the intelligence services of other Warsaw Pact countries, including the Soviet Union (USSR), and friendly nations such as Cuba; it was used well into the 1990s.

The 32620 speech/Morse generator and associated 32621 programmer replaced the 32028, a functionally similar mechanical analogue machine, affectionately known as Schnatterinchen (Cacklerina). Developed in 1964/1965, it used short pieces of audio tape mounted on circular discs as the storage medium as opposed to the 32620 where the female voice was digitally stored in a replaceable language module.



**32620 with top and side covers removed showing the internal construction.**



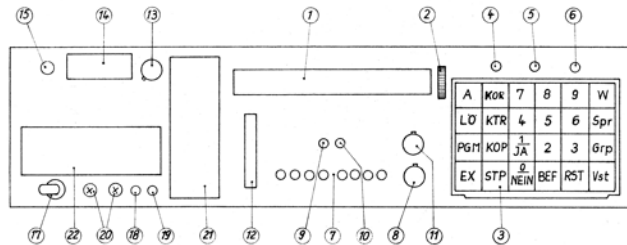
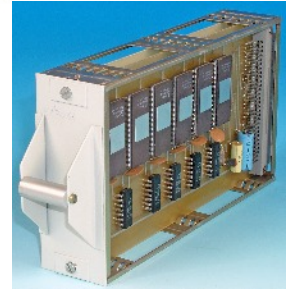
Block diagram of the digital speech and Morse generator 32620 based on a U880 microprocessor.

Language module.



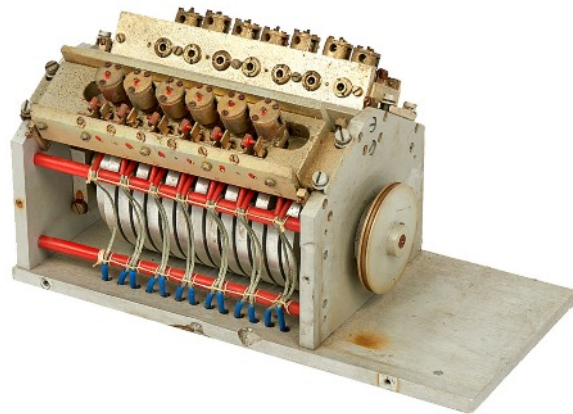
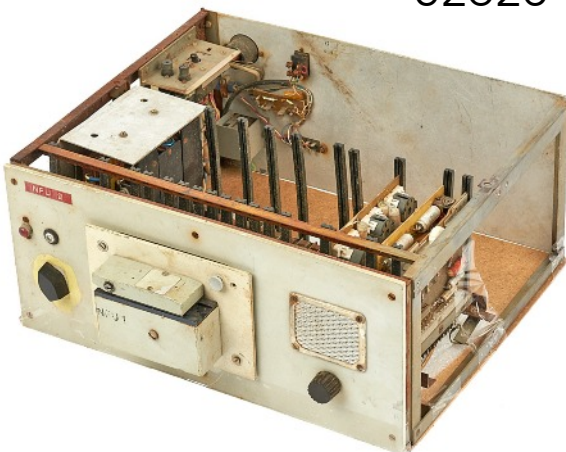
Rear view of 32620 showing the location of the exchangeable language module. (Sprachmodul)

Exchangeable language module with 48KByte EPROM memory (right). It contained 13 words (about 16 seconds) of speech.



Front panel drawing of the 32621 programmer which was used to program an exchangeable language module.

32028 'Snatterinchen'.



The 32028 was the original automatic number station voice, in which each word was recorded onto a short piece of audio tape, which was in turn installed on one of the 13 wheels of a drum. The here pictured incomplete model which survived was recovered from scrap container. The 32028, affectionately named 'Schnatterinchen' (Cacklerina), was an analogue mechanical speech generator, developed and built in 1964/1965 by the Institut für Kosmosforschung (Space Research Institute) in East Germany. It was named after a popular TV character and used for sending Control centre-to-Agent messages – commonly encrypted with a One-Time Pad – as endless strings of seemingly random numbers, read by a female voice, and broadcast by the so-called numbers stations. It was also known as project 32028 and 'Telegrafie-NF-Analog-umsetzer'. The device replaced a small army of female speakers that had previously been reading the number-based messages live in a small studio, recording it on tape for broadcasting later on.

At the heart of the machine was a motor-driven drum shown in the image on the right. It had 13 discs, or wheels, that were mounted on a common axis. A piece of 12-14 cm Ferro-magnetic audio tape was glued to the circumference of each wheel. At the top were 13 magnetic heads that picked up the audio from the revolving tapes, arranged as two rows with 6 and 7 heads respectively.

The discs could be seen as 13 individual audio tracks, each holding one number (0-9), the word Achtung (attention), Trennung (space) and Ende (end). Each magnetic head was wired individually at the rear side, allowing an amplifier with an electronic input selector, to pick the desired track. (Information and photos courtesy Crypto Museum Eindhoven, Holland.)