

Infrared IV Country of origin: GDR

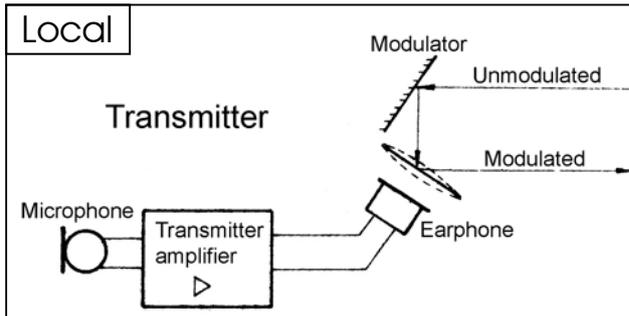
Passive infrared equipment.

DATA SUMMARY

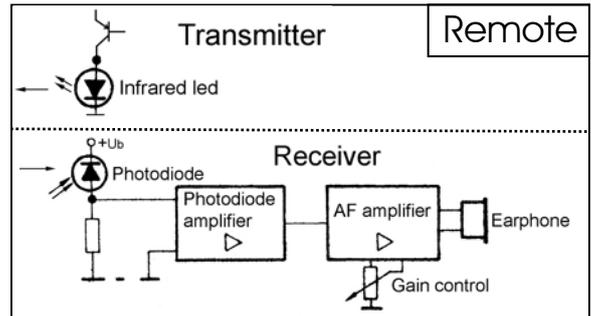
Organisation: MfS HV A.
Development/design: VEB Carl Zeiss, Jena.
Manufacturer: OTS; VEB Carl Zeiss, Jena.
Year of Introduction: Probably late 1970s onwards.
Purpose: Overhearing and later cross-border agents communication.

REMARKS

Passive infrared communication was initially developed for inconspicuous overhearing. It was based on an acoustic-optical modulator devised and patented in the GDR. The first passive infrared transmitter was the 'Rostock', later replaced by the JO-4.01. Two way cross-border communication of this system by agents was possible after the separate receiver of the JO-4.01 became available. Though the range of this system was limited compared to active infrared communication, the main feature was the very difficult detection of the local transmitter when the remote transmitter beam was switched off.

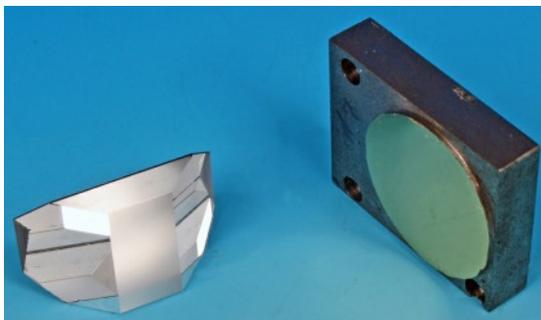


Block diagram of the 'local' side of the link showing the principle of a passive infrared transmitter used in the 'Rostock' and later JO-4.01. The infrared beam received from the remote set was reflected and modulated by a diaphragm. The diaphragm was acoustically coupled to a modified earphone, driven by a microphone amplifier.



Block diagram of the 'remote' side of a passive infrared link with an unmodulated infrared transmitter (top) and receiver (bottom). This could have been a 'Neiße' or later a JO-4.02 or JO-4.03 which had both the possibility to talk back to the local JO-4.01 when fitted with the separate receiver unit.

'Rostock'



'Rostock' was the first passive infrared device developed by OTS. (right). Shown left are the principle parts: a prism and the diaphragm, which modulated the reflected light beam. The remote station was a 'Neiße' (below).



'Neiße'



'Neiße' was used in combination with the 'Rostock' passive infrared set. Seen from front (left) and rear (right). It radiated an unmodulated infrared beam and received the modulated reflected beam.



References:

- All photos and detailed information for compiling this chapter was kindly provided by Detlev Vreisleben, DC7KG, Germany. Without Detlev's assistance this chapter would not have been possible!



Mirror and diaphragm assembly of the JO-4.01. When placed behind a window pane it could transmit conversations in that room.

JO-4.01



JO-4.01 was a passive infrared set with a range of about 500m. It was the successor of the 'Rostock' and operated in combination with a JO-4.02 or JO-4.03 at the other side of a link. Though originally used for transmitting in one direction only, optionally a separate receiver unit (left) could be bolted to the left hand side allowing two way conversation, primarily for use by agents.



Rear view of JO-4.01 (left) and separate receiver unit (right).



View of disassembled main assemblies of a JO-4.01.



(12) Ausschließungspatent
Erteilt gemäß § 18 Absatz 2
Patentgesetz der DDR
vom 27. 10. 1983
in Übereinstimmung mit den entsprechenden
Festlegungen im Einigungsvertrag

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Behördeneigentum

DEUTSCHES PATENTAMT

(21) DD G 02 F / 249 202 7 (22) 29.03.83 (45) 07.05.92

(71) VEB Carl Zeiss Jena, Carl-Zeiss-Straße 1, O - 6900 Jena, DE
(72) Böttcher, Margit, Dipl.-Phys.; Würzberger, Heinz, Dr.-Ing., DE
(73) Jenoptik Carl Zeiss JENA GmbH, Carl-Zeiss-Straße 1, O - 6900 Jena, DE

(54) Akusto-optischer Modulator hoher Brennweite

(57) Die Erfindung betrifft einen akusto-optischen Modulator mit einer hohen Brennweite zur Fernübertragung von Informationen mittels akusto-optischer Modulation eines Trägersignals. Sie findet insbesondere bei Lichttelefonen ihre Anwendung. Ziel der Erfindung ist, die Schaffung eines akusto-optischen Modulators mit einer solchen hohen Brennweite, daß eine Übertragung des modulierten Lichtsignals über eine große Entfernung ohne zusätzliche Übertragungsmittel erfolgen kann. Es ist die Aufgabe zu lösen, den Träger für die Membran so zu gestalten, daß die Membran hocheben aufliegt. Dies erfolgt, indem als Träger ein Hohlzylinder verwendet wird, an dessen einer Stirnseite eine vom Innendurchmesser des Hohlzylinders begrenzte Spannfläche und durch eine Nut von dieser getrennt eine vom Außendurchmesser des Hohlzylinders begrenzte Klebefläche vorhanden sind, wobei die Klebefläche im Vergleich zur Spannfläche in axialer Richtung zurückgesetzt ist. Fig. 1

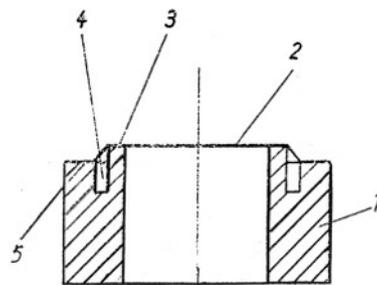


Fig. 1

The passive infrared principle was laid down in a secret GDR patent, which was published after the fall of the Berlin Wall (left).