

PNVX 211Y PRODUCT FAMILY

Secure Telephone **PNVX 2118**
Speech Encryptor **PNVX 2111**
Crypto Switch **PNVX 2116**



Philips
Crypto



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Secure Telephone PNVX 2118

This is a secure telephone terminal for desktop use which can be connected directly to the Public Services Telephone Network (PSTN) or to a PBX with analogue lines within a Private Network. The terminal can also be used as a portable telephone when connected via the line-interface unit of a car telephone. It can also be used for data transmission, such as digital fax and PC applications via the RS232-C interface. The terminal is mains powered with a universal power supply (8 V) and an optional 9,5V - 15V version is available which can be battery powered.

Speech Encryptor PNVX 2111

The PNVX 2111 encrypts voice-only transmission of cellular car phones *. It is connected between the handset and base unit, and can be installed in the boot, in which case it is powered from the car's battery. The Speech Encryptor is operated through a remote control unit which can be conveniently mounted on a car's dashboard. It comprises two pushbuttons and two indicator LEDs.

Crypto Switch PNVX 2116

The Crypto Switch is used with the Secure Telephone PNVX 2118 or the Speech Encryptor PNVX 2111 to

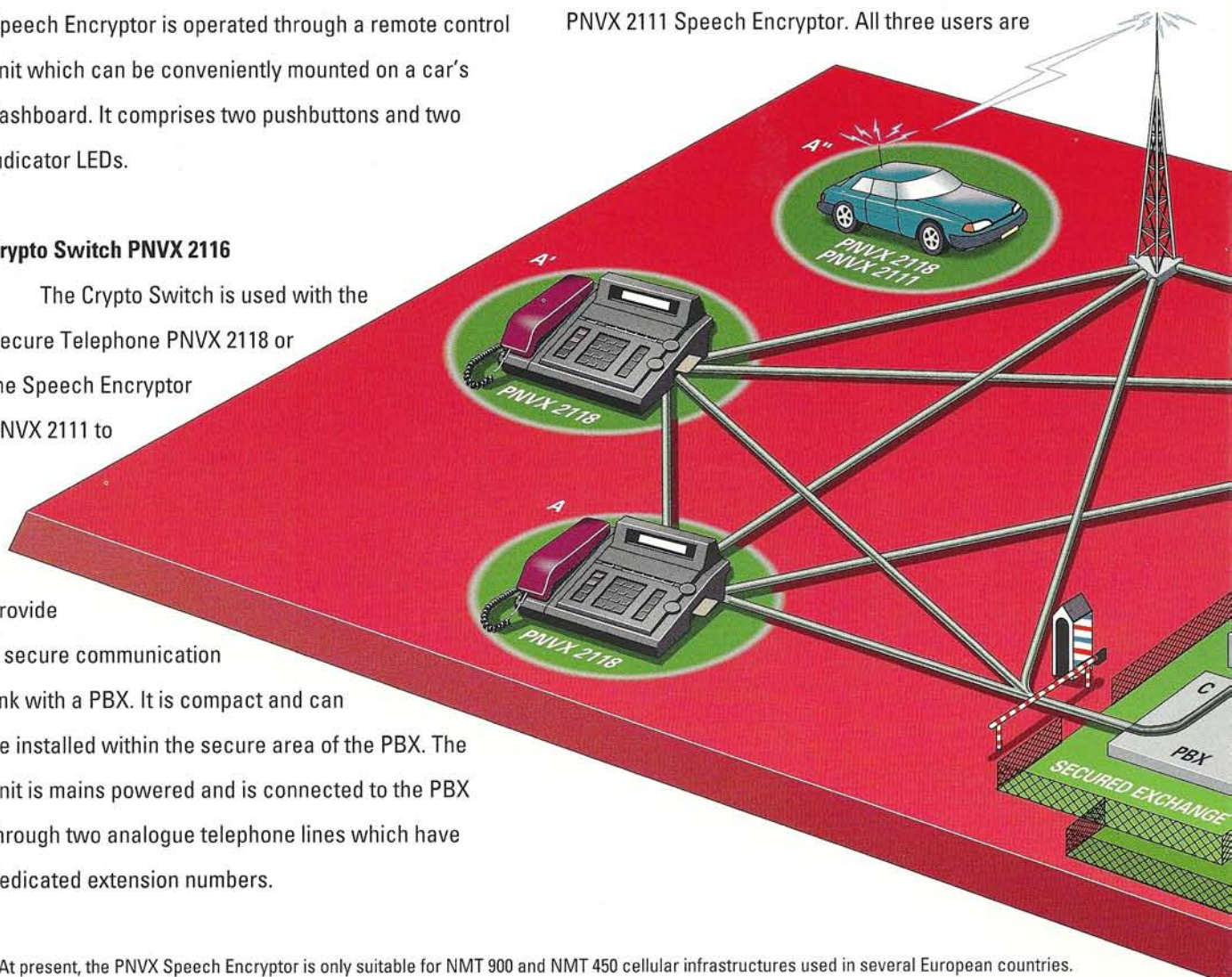
provide a secure communication link with a PBX. It is compact and can be installed within the secure area of the PBX. The unit is mains powered and is connected to the PBX through two analogue telephone lines which have dedicated extension numbers.

The PNVX 2116 functions as follows:

When an incoming call occurs, it is detected by the Crypto Switch and both extensions go off-hook automatically. In this state the unit bypasses the DTMF signal and will make the desired connection to the called party, as described on the next page. A secure line is only established between the calling party and the PNVX 2116 Crypto Switch in the PBX if the former is using a PNVX 2118 telephone or carphone with a PNVX 2111 Speech Encryptor. So far, the connection between the PBX and the called party is otherwise unsecured. When a call is completed and either or both parties hang up, the Crypto Switch returns to its quiescent state.

General System Description

The figure below illustrates the system concept. A and A' are users each with a PNVX 2118 Secure Telephone and A'' with a carphone provided with a PNVX 2111 Speech Encryptor. All three users are



* At present, the PNVX Speech Encryptor is only suitable for NMT 900 and NMT 450 cellular infrastructures used in several European countries.

connected to an unsecured PSTN. B and B" are users with a normal telephone connected into a Crypto Switch secured PBX. User B' requires unconditionally secure end-to-end communication and therefore also uses a PNVX 2118 Secure Telephone which is connected within a private network to an unsecured PBX, in turn connected to the PSTN.

Secure end-to-end communication within user group 1 (A, A', A" and B') is possible because each has a crypto terminal. Secure end-to-end communication between user group 1 and user group 2 (B and B") is not possible since the latter users have non-encrypted telephones. However, it is possible to secure communication between user group 1 and either or both of the PBXs by installing one or more PNVX 2116 Crypto Switches. This is most important for the more vulnerable cellular communication of user A". In the example, only the lower of the two PBXs is equipped with Crypto Switches.

The system functions as follows:

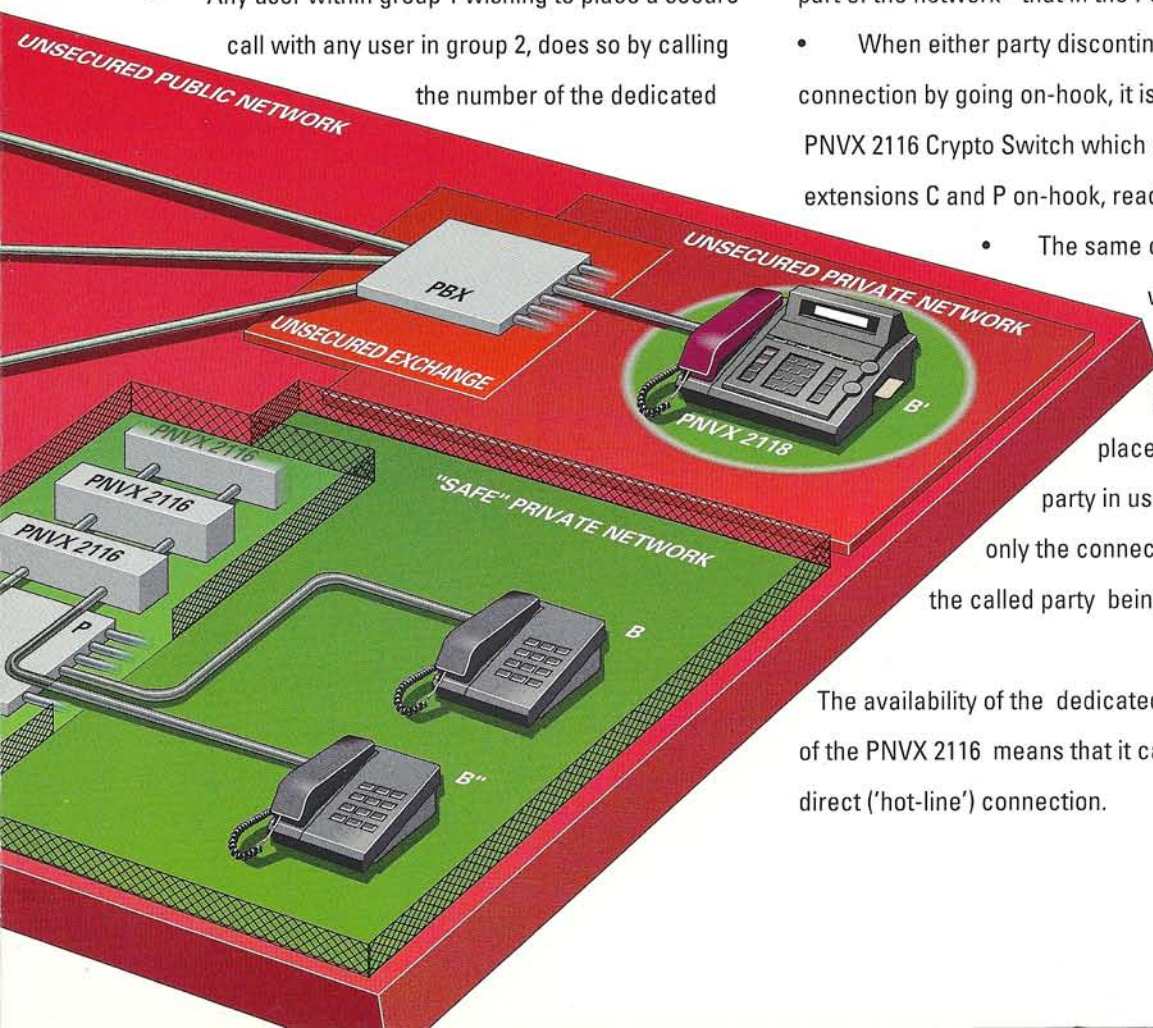
- Any user within group 1 wishing to place a secure call with any user in group 2, does so by calling the number of the dedicated

extension C which automatically goes off-hook, followed by extension P going off-hook.

- The caller hears a second dial tone which indicates that the Crypto Switch is ready for interconnection of the call. The caller then dials the number of either of the users in group 2, which when answered results in an unsecured connection between the two parties.
- The caller can then secure the connection between himself and the PBX by pressing the encryption button on his terminal. This activates synchronization which normally takes about 12 seconds during which the called party hears the digitally recorded message "Please wait; one part of this connection is being secured. You may speak after the tone". Once the connection between the two parties has been secured, both hear a two-tone signal and they can talk securely. The line between the PBX and the called party is here considered to be "safe" since it is within a company's private network. The use of encryption therefore ensures that the most vulnerable part of the network - that in the PSTN - is secured.
- When either party discontinues the secure connection by going on-hook, it is detected by the PNVX 2116 Crypto Switch which automatically puts extensions C and P on-hook, ready for the next call.

- The same connection procedure will occur in reverse if either party in user group 2 wishes to place a secure call to any party in user group 1, with still only the connection between C and the called party being secured.

The availability of the dedicated extension numbers of the PNVX 2116 means that it can also be used for a direct ('hot-line') connection.



This document briefly describes three additional voice encryption products to the Philips Crypto range. They are part of a family employing the unique cryptographic technology concept of Philips.

The products concerned are:

- Secure Telephone PNVX 2118
- Speech Encryptor PNVX 2111
- Crypto Switch PNVX 2116

Combining these products in various configurations can efficiently fulfil the voice communication security requirements of most users.

Technical data

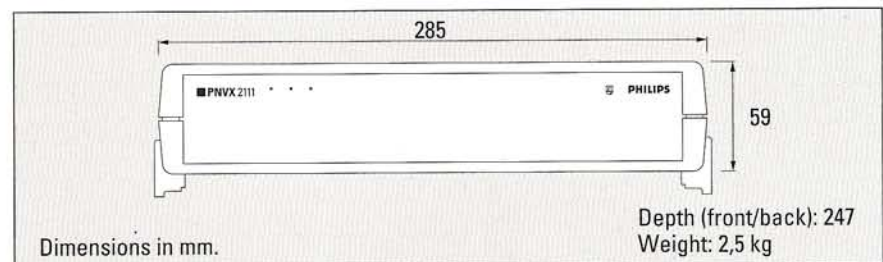
PNVX 2118

- Application:
- desktop: stand-alone; replaces standard analogue telephone
 - automatic switched public/private networks and leased lines
 - connected to line-interface suitable for car telephone
- User facilities:
- voice and data encryption
 - feature phone
- Voice modes
- crypto voice: 2400, 4800 and 9600 bit/s
- Data modes
- synchronous: 2400, 4800 and 9600 bit/s (optional asynchronous)
- Power
- external power supply 220 V or 110 V AC
 - direct power input 8V DC (9,5V - 15V DC optional)
 - power dissipation 12 VA

For more detailed specifications, please ask for document nr. 9922 154 19181

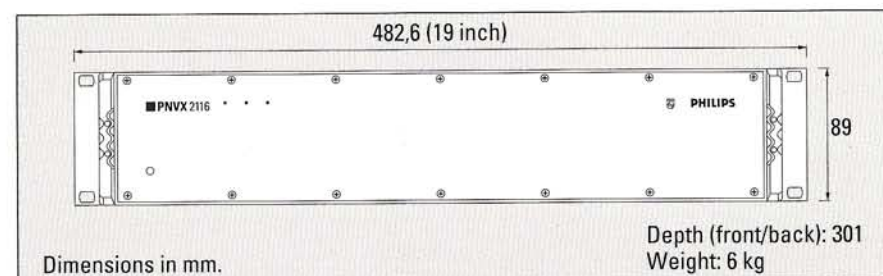
PNVX 2111

- Application:
- connected to car telephone via junction box between handset and base unit
 - adjustable to most types car telephone of the NMT 450 and 900 cellular telephone networks
- User facilities
- voice encryption, interoperable with PNVX 2118 and 2116
 - handsfree operation (optional)
- Voice mode
- crypto voice: 4800 bit/s
- Power
- 9,5V - 15V DC (car battery)
 - power dissipation 12 VA



PNVX 2116

- Application:
- stand-alone unit connected to two dedicated analogue extensions of a digital PBX
 - adjustable to most types digital PBX's for analogue AB-lines
- User facilities:
- voice encryption for the part of the connection between the PBX and a PNVX 2118 or 2111
- Voice modes
- 2400, 4800 and 9600 bit/s
- Power
- external power supply 220V or 110V AC
 - direct power 8V DC
 - power dissipation 24 VA



The PNVX 211Y family uses "high-end" Philips proprietary algorithms in hardware and the off-line Key management system PKMX 2000.

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Document Nr. 9922 154 19331

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