

PHILIPS USFA BV

HIGH-GRADE COMPACT CRYPTO SYSTEM MINIFLEX UA8036

Operating instructions

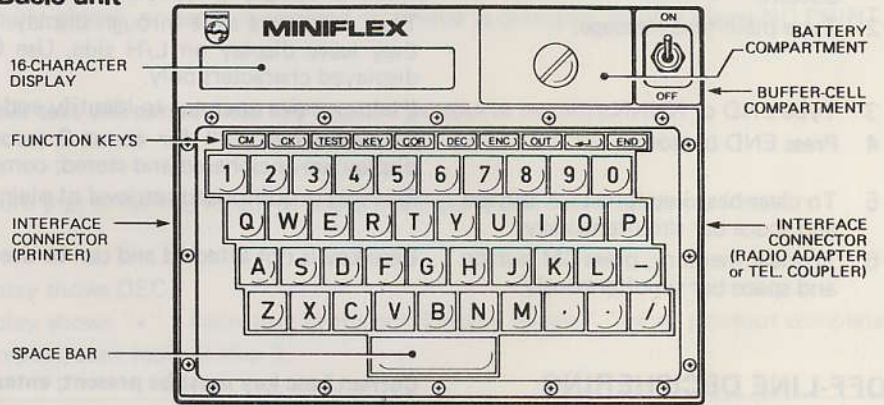
FUNCTION KEYS

- CM = Clear memory
- CK = Clear base key
- TEST = Self-test
- KEY = Enter base key
- COR = Correction (shift right)
- DEC = Decipher
- ENC = Encipher
- OUT = Read out memory contents
- ← = Line feed/CR (for printer)
- END = End of selected function

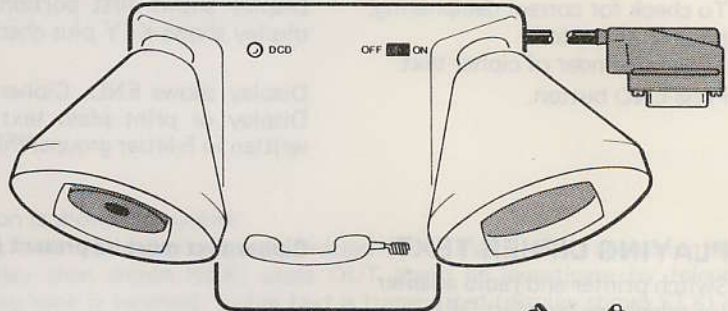
STATUS DISPLAYS

- STX = Start of text
- ETX = End of text
- EOT = End of transmission
- KEY = Entry of base key
- NO KEY = Base key incorrect
- CLEAR MEM = Text memory being cleared
- CLEAR KEY = Base key being erased
- NAK = No acknowledgement from remote station
- REP = Repetition of sync attempt
- ENC = Enciphering mode
- DEC = Deciphering mode
- CAN = Transmission cancelled
- "" = Ready
- ALARM = Error in cipher generator
- FULL MEM = Memory almost full (< 20 characters left)
- "" (flashing) = Flat battery
- M (flashing) = Text in memory
- NO PRINT = Printer lid open or printer faulty
- EEEE = Faulty control
- *
- * = Microprocessor busy; no other operation possible
- 1 to 7 (incl "all 0" and "all *") = Steps of self-test procedure

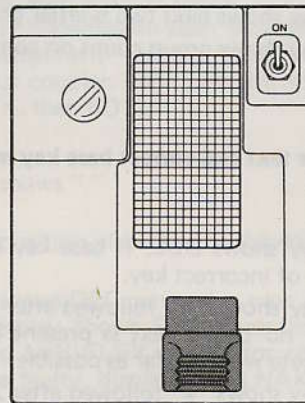
Basic unit



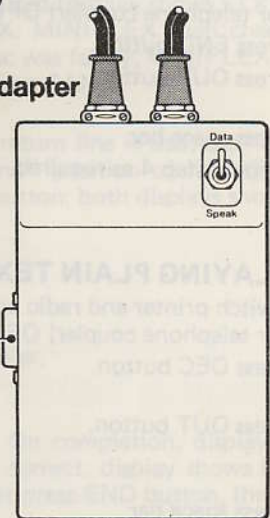
Telephone coupler



Printer



Radio adapter



3-0010-0

Operating instructions

ENTERING BASE KEY

- 1 Switch MINIFLEX ON.
- 2 Press KEY button.
- 3 Type in base key.
- 4 Press END button.

Auto self-test of control and cipher generator. After 1 second, display shows "." to denote "no fault," or ALARM or EEEE to denote fault condition.

Display shows KEY.

Base key consists of 20 alphanumeric characters, 1 fill-in character and a 3-character "selective-call" or "all-call" code. All alpha characters are valid, plus numerals 1 to 6. Invalid numerals and symbols are ignored. MINIFLEX accepts 24 characters only.

Display shows 5-character group corresponding to base key. If group differs from that in key list, repeat steps 2 and 3. Base key is now stored and cannot be retrieved.

ENCIPHERING PLAIN TEXT

- 1 Enter base key and press ENC button.
- 2 Type plain-text message.
- 3 Type END or NNNN.
- 4 Press END button.
- 5 To clear base key, press CK button and space bar simultaneously.
- 6 To clear memory, press CM button and space bar simultaneously.

Display shows ENC plus 5-character group; message will be enciphered using key whose check-group is displayed.

Text characters shift through display. Characters are not enciphered and stored until they leave display on L/H side. Use COR button (shift right) and retype to correct displayed characters only.

(Helps receive operator to identify end of message text).

Display shows "*" for about 2 seconds, followed by "." Characters remaining on display are enciphered and stored; complete message is now stored as cipher text.

Prevents unauthorised retrieval of plain text.

Base key is not affected and can be used again.

OFF-LINE DECIPHERING

- 1 Press DEC button.
- 2 Type at least 8 groups, with spaces.
- 3 To check for correct deciphering, press OUT button.
- 4 Type remainder of cipher text.
- 5 Press END button.

Correct base key must be present; enter if necessary.

Display shows DEC.

Characters are displayed as typed. Flashing display denotes format fault.

Display shows first portion of plain text. If incorrect base key has been entered, display shows KEY plus check-group of incorrect key.

Display shows END. Cipher text is stored. No further 5-letter groups can be added. Display or print plain text as appropriate. To prevent transmission of plain text written in 5-letter groups, this information cannot be transmitted.

DISPLAYING CIPHER TEXT

- 1 Switch printer and radio adapter (or telephone coupler) OFF.
- 2 Press END button.
- 3 Press OUT button.
- 4 Press space bar.
- 5 Repeat step 4 as required.

Cipher text must be present in memory.

Display shows "."

Display shows first two 5-letter groups of cipher text. (If display shows ".", no cipher text is present in memory).

Display shows next two 5-letter groups.

Display shows group count on completion. To repeat, start again at step 3.

DISPLAYING PLAIN TEXT

- 1 Switch printer and radio adapter (or telephone coupler) OFF.
- 2 Press DEC button.
- 3 Press OUT button.
- 4 Press space bar.
- 5 Repeat step 4 as required.

Cipher text and correct base key must be present in memory.

Display shows DEC. If base key is incorrect, display shows DEC followed by check-group of incorrect key.

Display shows "*" followed after 2 seconds by first line of plain text. If display shows NAK, no cipher text is present in memory. Microprocessor prevents display of incomplete words as far as possible.

Display shows "*" followed after 2 seconds by second line of plain text.

Display shows "*" to denote end of text. Press space bar again to return MINIFLEX to "ready" state (display shows "."). To repeat, start again at step 3.

STANDBY MODE

Whenever the display contents remain unchanged for one minute, MINIFLEX automatically adopts the standby mode to conserve battery power. In this mode the memories are sustained for approx. 2 weeks by means of alkaline cells and the display is blank, except for flashing M if text is stored in memory. To resume normal operation, press space bar. Display then shows last operating mode and last character sequence.

Printer

PRINTING CIPHER TEXT

Cipher text must be present in memory.

- 1 Switch radio adapter (or telephone coupler) OFF.
- 2 Open printer lid and turn black wheel to advance paper about 10cm. Close lid and switch printer ON.
- 3 Press END button.
- 4 Press OUT button.
- 5 Switch printer OFF; tear off paper.

Ensure that remaining length of paper is adequate and that it advances freely.

Display shows "*" Complete cipher text prints out. When printout is complete, printer stops and display shows "." If printer battery is flat, or printer lid is not properly closed, or paper is jammed, or printer is defective, display shows NO PRINT.

PRINTING PLAIN TEXT

Cipher text and correct base key must be present in memory.

- 1 Switch radio adapter (or telephone coupler) OFF.
- 2 Open printer lid and turn black wheel to advance paper about 10cm. Close lid and switch printer ON.
- 3 Press DEC button.
- 4 Press OUT button.
- 5 Switch printer OFF; tear off paper.

Ensure that remaining length of paper is adequate and that it advances freely.

Display shows DEC.

Display shows "*" Plain text prints out. Display shows "." when printout complete.

To repeat, start again at step 2.

Telephone coupler

TRANSMITTING VIA TELEPHONE COUPLER

- 1 Enter base key and encipher message.
- 2 Switch telephone coupler ON.
- 3 Advise remote subscriber by phone that you intend to transmit data. Wait for "I'm ready" and insert handset into coupler.
- 4 Press OUT button.

See NOTE below.

Correct position is shown on coupler.

Display shows "*" Enquiry tone transmitted (15 s max). If no answering tone is received, display then shows NAK; press OUT again or investigate by telephone. After answering tone is received, cipher text is transmitted (display shows STX). When cipher text has been transmitted, display shows ETX. MINIFLEX then checks for correct sync. If all correct, display shows EOT; if sync was faulty, MINIFLEX makes two more attempts, then cancels transmission and displays CAN.

- 5 Verify by telephone that message was received.

To repeat, start again at step 4.

NOTE: If transmission path includes a satellite, or if return line is bad, use "without acknowledgement" facility (both operators select "no" position of "ackn" switch in base of coupler. Send operator then presses OUT button; both displays show STX, then ETX, then EOT).

RECEIVING VIA TELEPHONE COUPLER

- 1 When requested by telephone, switch MINIFLEX ON.
- 2 Advise sender "ready to receive" and insert handset into coupler.
- 3 Switch coupler ON, **then** press DEC button on MINIFLEX (correct sequence is important for proper functioning)
- 4 Switch coupler OFF. Advise sender by telephone: "message received".

Display shows "."

Correct position of handset is shown on telephone coupler.

Display shows DEC; answering tone is sent to sender.

When display shows STX, reception is in progress. On completion, display shows ETX and MINIFLEX checks for correct sync. If all correct, display shows EOT. If sync was faulty, display shows NAK. For new attempt press END button, then DEC.

Radio adapter

TRANSMITTING VIA RADIO ADAPTER

- 1 Enter base key and encipher message.
- 2 Set SPEAK/DATA switch on radio adapter to SPEAK position. Advise receiver(s) that you intend to send data; wait for "I'm ready."
- 3 Set SPEAK/DATA switch to DATA.
- 4 Press OUT button on MINIFLEX.
- 5 Set SPEAK/DATA switch to SPEAK and verify that message was received.

Display shows "*" then STX, denoting start of transmission. (In selective-call mode, enquiry tone is transmitted for 15 seconds before data transmission begins.) On completion, display shows ETX, then EOT.

RECEIVING VIA RADIO ADAPTER

- 1 When requested by transmitting station, switch MINIFLEX ON.
- 2 Set SPEAK/DATA switch on radio adapter to SPEAK and advise "ready to receive"
- 3 Set SPEAK/DATA switch to DATA, then press MINIFLEX DEC button (correct sequence is important for proper functioning).
- 4 Select SPEAK position and advise "message received".

Display shows "*"

Display shows DEC.

Data reception has started when display shows STX. On completion, display shows ETX and MINIFLEX checks for correct sync. If all correct, display shows EOT. If sync was faulty, display shows NAK.

For new attempt, press END button and repeat step 3.

SELECTIVE-CALL/ ALL-CALL FACILITY (with radio adapter only)

Selective-call mode

An internal switch (not accessible to operator) provides a "selective-call/all-call" facility.

Selective-call codes must be agreed upon among users. Each code consists of three characters which are entered as the last three characters of the base key.

Messages encrypted with this key will be handled by receiving units as follows:

- in units with same SCM characters in base key, and in units with no base key entered, message will be received and stored.
- in units with different SCM characters in base key, message will be received but erased immediately.

All-call mode

Messages encrypted with 666 as the last three characters of the base key will be received and stored by all units in the system.

RECEIVING IN SELECTIVE-CALL MODE

- 1 Switch radio adapter ON and press MINIFLEX DEC button.
- 2 To revert to normal operation, hold END button down until display shows DEC.

Display shows DEC. If no message is received within one minute, MINIFLEX adopts "waiting" mode; display alternates between blank (10 seconds) and DEC (2 seconds). When message is received during active phase, MINIFLEX reacts as follows:

- if SCM code matches that of sender, or if no base key has been entered, display shows STX during reception, then ETX followed by EOT. If message is not retrieved within one minute, unit reverts to standby mode and displays flashing M to denote "message in memory". Subsequent messages are rejected.
- if SCM code does not match that of sender, display shows STX, then ETX; message is erased immediately. Display then alternates (10 seconds blank, 2 seconds DEC) whilst MINIFLEX awaits next message.

Display shows DEC, followed by "*", then "." After one minute, MINIFLEX adopts standby mode and further reception is blocked. To revert to "selective-call" mode, start again at step 1.

Changing batteries

Loosen screw on battery compartment and lift out battery holder. Fit new batteries, observing correct polarity. Replace battery holder and tighten screw. Normal operation is resumed automatically.

NOTE: Three subminiature buffer cells are incorporated to prevent loss of memory contents and operating mode during replacement of main batteries. To avoid excessive drain on these cells, the period between removal of the old batteries and insertion of the new ones should be as short as possible. To change the buffer cells, remove the circular screw-cap located on the R/H side adjacent to the ON/OFF switch.