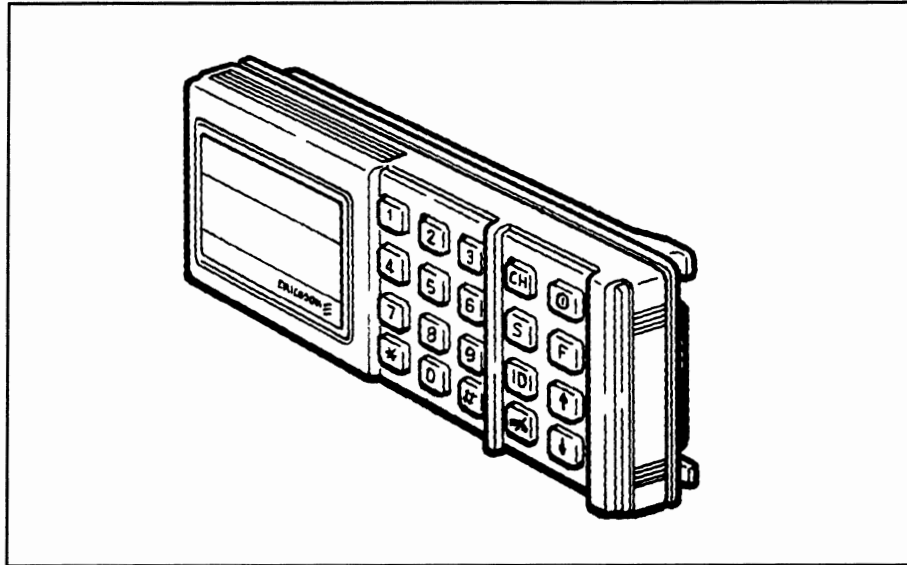


Service Control Unit



Control Unit for radio station C700

General

The service functions are automatically available when a certain *Service Control Unit* is connected to C700. This control unit's colour is **WHITE**, otherwise it looks the same as the ordinary control unit.

The Service Control Unit may always be connected to the C700, regardless which program version the radio station has installed.

Notice:

The Service Control Unit must NOT be connected to the radio station F800, as this will damage the Service Control Unit seriously.

A special designed test equipment is available for the F800.

Network signalling is not allowed in service mode.

The Service Control Unit is always coded "D".

The Article Number of the Service Control Unit appears from the summary on page 2 in this chapter.

Service– and testing functions for C700

General

In this document the service– and testing functions for C700 are described. The functions, which are meant to be used both as production test and service as well as development facilities, are called service functions.

The service functions are automatically available when a *Service Control Unit* is connected to C700. (The Service Control Unit can also be simulated by a testing computer.)

With a service control unit the following functions are obtainable:

- Resetting of the locking code (Ericsson Protection Code).
- Radio Controlling; Choice of Tx–and Rx–frequencies, establish connection of the receiver, transmitting and releasing etc.
- Control of fault reports.
- Testing parts of the hardware.

Please Observe that normal network signalling NOT can be performed when the radio station is in service mode.

Connection

The service mode is automatically activated when a Service Control Unit is connected to C700. "SERVICE" is indicated in the display. If the radio station does not enter the service mode, switch the station off. When the display is blanked, switch the station on again.

Indication

Normal

The display of the control unit indicates either the Tx–or Rx–frequency in hundreds of Hz, preceded by a T or R. If anything goes wrong the display indicates:

- "R0" or "T0" = > The frequency is out of the band.
- "TMO" = > The frequency synthesizer is not locked within 40 ms.

RSSI

If the RSSI, received signal strength indication, is chosen (F205#) it is presented furthest to the right in the display.

The signal strength is indicated by the figure 0, 1 or 2.

Function codes

General

Concerning the *function codes 201 and 202* the frequencies can be specified with arbitrary number of figures. The radio station will round off to the nearest frequency within the band by itself. For example will F201*8# lead to a frequency adjustment of 80 MHz on a 80 MHz radio station (C702). If the frequency is specified to zero (0) it implies the Tx- and Rx-frequencies are set at the same value.

Basic functions

F201*rr...r#	Define receiving frequency and start receiving. Decimal point shall not be entered.
F201#	Start receiving (opens the loudspeaker and connects the speech path) and/or display the receiving frequency. Interrupted by release.
F202*tt..t#	Define the transmitting frequency. Decimal point shall not be entered
F202#	Display the transmitting frequency.
F203#	Zero adjustment of the protection lock.
F204*m#	Set the assert mode temporarily to m. m = 1 => fault reports to the serial port during time of operation. m = 4 => display buffer contents when full.
F205#	Start display of received signal strength. Interrupted by release.
F207*n#	FFSK transmitting. n=0 => Interrupt FFSK transmitting. n=1 => Only character one. n=2 => Only character zero. n=3 => Alternating (character one/character zero). May also be interrupted by release.
F208#	Start receiving FFSK. Display received signals: Undefined => X None => - Zero => 0 Character 1 => 1 Alternating => 2 Interrupted by release.
F209*ffff#	Tone transmitting (also CCIR) of the defined frequency ffff. Range: 36 - 4095 Hz. Interrupted by release.

Basic functions, continued

F210*ffff#	Tone receiving (also CCIR). Defined frequency ffff is recorded and the display indicates: No tone with specified frequency = > 0 Specified frequency received = > 1 Interrupted by release.
F211*m#	V24-loop test. Transmits on the text port and receives on the data port. The result is shown on the display. A loop-plug is used, see Table 9.6 F211# = > Normal value (DSR-DTR) m=0 = > No DSR-DTR is tested. m=1 = > DSR-DTR is tested. Fault reports, see Table 9.5
F212*m#	V24-loop test. Transmits on the data port and receives on the text port. The result is shown on the display. A loop-plug is used, see Table 9.6 F212# = > Normal value (NO DSR-DTR) m=0 = > No DSR-DTR is tested. m=1 = > DSR-DTR is tested. Fault reports, see Table 9.5
F213#	Display input ports on the logic board (IN1-IN4). The printout is updated at alteration.
F214#	Display input ports on the communication board (P1.I/O - P6.I/O). The printout is updated at alteration.
F215*p#	Influence output port p on the logic board. p=0 = > Deactivate all ports p=1 = > Activate port OUT1 p=2 = > Activate port OUT2
F216*p#	Influence output port p on the communication board. p=0 = > Deactivate all ports. p=1 = > Activate port P1.I/O p=2 = > Activate port P2.I/O p=3 = > Activate port P3.I/O p=4 = > Activate port P4.I/O p=5 = > Activate port P5.I/O (Strapable) p=6 = > Activate port P6.I/O (Strapable)
F217*n#	On (n = 1) / Off (n = 0) switching of output to the control unit
F218*nn#	Direct volume adjustment. nn = volume state (0-14).
F219*m#	Test of RAM, m indicates memory block. m=0 = > Address 00000-0FFFF m=4 = > Address 40000-4FFFF m=6 = > Address 60000-6FFFF m=8 = > Address 80000-8FFFF

Production functions

F280*n#	Quick adjustment of Rx- and Tx-frequencies. n = 1 => Low frequency. n = 2 => Medium frequency. n = 3 => High frequency. The adjustment is performed for the radio band in use.
F281*n#	Adjustment of the radio band in use. (used by F280). n = 0 => Get from code PROM (if nothing else is specified) n = 1 => 80 MHz band. n = 2 => 160 MHz band. n = 3 => 200 MHz band. n = 4 => 450 MHz band. n = 5 => 900 MHz band.
F281#	Display the radio band in use.
F282*m#	Put a duplex flag in the radio block (unqualified). m = 0 => Get from code PROM (if nothing else is specified) m = 1 => Simplex. m = 2 => Duplex.
F282#	Display adjustment (Simplex/Duplex).
F283*m#	Set relay mode. m = 0 => Interruption of relay mode. m = 1 => Carrier controlled relay mode. m = 2 => Forced open relay mode.
F283#	Interruption of relay mode.

Common function codes (MRS)

Table 9.1 Available function codes at service.

Syntax	Function
F-/-	Transmit "Who-has-called?" – code
F0#	External call indication on/off
F1*ch. group No.#	Change channel group*)
F2#	Squelch on/off
F3#	Transmit block on/off
F4#	Paging *)
F5#	Code lock *)
F7#	Display "Who-has-called?" *)
F9#	Scanning of alarm transmitter on/off
F15*nnnnn#	Start listening for subscriber number nnnnn
F15#	Stop listening for subscriber number
F25#	Control unit light on/off *)
F26#	Set volume strength *)
F35#	Change transmitter output power *)
F51*n*n#	Set abbreviated number *)
F52*n#	Display abbreviated number *)
F53*n#	Set group number 1 *)
F54*n#	Set group number 2 *)
F55*n#	Set group number 3 *)
F56#	Display group number 1-3. Step with up/down buttons *)
F60#	Scanning carrier, open monitoring *)
F70#	Save function settings *)
F77*n#	Set destination for status *)
F78*n#	Display destination for status *)
F79*g*n*n#	Exchange of protection code *)
F80*i#	Set temporarily individual number *)
F81#	Display temporarily individual number *)
F82*n#	Set ordinary call number *)
F83#	Display ordinary call number *)
F84*n#	Set variable call number *)
F85#	Display variable call number *)
F91*n#	Set paging number *)
F92#	Display paging number *)
F93*n#	Set ordinary alarm transmitter number *)
F94*n#	Set temporarily alarm transmitter number *)
F95*n#	Set test number *)
F96#	Read alarm transmitter number *)

*) See the User's Manual for C700 MRS.

Available function codes at service, continued

F100#	Test of the display of the Control Unit.
F120#	Display basic program version.
F140#	Display serial number.
F150*p*u#	Binding a physical port to a logic unit.
F151*p*b*cp#	Change communication parameters.
F159#	Return to factory defined parameters.
FS sss #	Save status code *)
FS #	Display status code *)
S #	Transmit status code *)
0 #	Repete latest call *)
0 # #	Repete latest telephone call *)
nnnnn #	Telephone call *)

*) See the User's Manual for C700 MRS.

Physical port – logic unit

The connector P801 (V24) includes two physical ports (pin 4–5 and pin 12–13). These ports can be set up for many different logic devices. Table 9.2 shows all predefined logic devices with their numbers and protocols and examples of recommended equipment. Table 9.3 shows a summary of communication parameters.

Table 9.2 Summary of the logic devices which can be defined to the two physical ports.

No.	Logic unit	Protocol	Accessories
1	Printer	Ericsson	EPU 40
2	Printer	Ericsson	
4	Terminal	MASC **)	
5	Terminal	MASC **)	MDT 100
6	VT100 terminal	ANSI	
7	VT100 terminal	ANSI	
8	Text display	Ericsson	EDU 40
9	Text display	Ericsson	EDU 40

**) Mobitex ASynchronous Communication

The difference between logic devices number 1 and 2 (Tables 9.4 and 9.5) is that the communication parameters are configurable for number 2. The same is valid for number 4 and 5, where the parameters are configurable for number 5.

Logic devices number 6 and 7 have no differences between the protocols, neither between number 8 and 9.

Display binding between physical port and logic unit

Enter F150 * 1 #. This will show the logic unit defined to port 1.

For example, if the display shows 1 2 it means that port 1 is defined to printer EPU 40, where the communication parameters *may* be set to other than default.

Binding a physical port to a logic unit

Enter F150 * *physical port* * *logic unit* # .

Example: connect a text display to port 2

Enter F150 * 2 * 8 # .

OBSERVE: To save the binding the radio station must be shut off and then restarted !

Communication parameters

Table 9.3 Summary of communication parameters

Logic devices	Configurable parameters	Baud	Bits/character	Parity	Stop bits
1	No	2400	8	0	1
2	Yes	2400	8	0	1
4	No	1200	7	2	1
5	Yes	2400	8	0	1
6	No	9600	8	0	1
7	No	9600	8	0	1
8	No	1200	8	0	1
9	No	1200	8	0	1

These values are default when the radio modem is delivered from the factory. Note that the communication parameters can differ if the radio station is coded for a specific customer.

Communication parameter syntax

Table 9.4 Communication parameter syntax

Baud rate	Syntax
110	1
600	6
1200	12
2400	24
4800	48
9600	96
Bits/character	
7	7
8	8
Parity	
None	0
Odd	1
Even	2
Stop bits	
1	1
2	2

Display communication parameters

Enter F151 * 1 #. This will show the parameters of port 1.

For example, if the display shows 1 24 801 it means;
port 1 2400 baud 8 bits/character no parity 1 stop bit

Set communication parameters

Setting the communication parameters demand for logic devices number 2 or 5 to be selected.

Enter F150 * *physical port* * 2 or 5 # .

Enter F151 * *physical port* * *baud* * *bits/character* *parity* *stop bits* #.

PLEASE OBSERVE: To save the binding the radio station must be shut off and then restarted !

Return to factory defined parameters

Enter F159 #. Switch off and on. Both physical ports are now set to the factory defined set-up.

V24 loop test

With the function code F211*m# the V24-loop test is performed. It transmits on the text port and receives on the data port. The result is shown on the display.

A loop-plug is used, see Table 9.6

F211# => Normal value (DSR-DTR)

m=0 => No DSR-DTR is tested.

m=1 => DSR-DTR is tested.

Fault reports, see Table 9.5

With the function code F212*m# an alternative V24-loop test is performed. Transmitting occurs on the data port and receiving on the text port. The result is shown on the display.

A loop-plug is used, see Table 9.6

F212# => Normal value (NO DSR-DTR)

m=0 => No DSR-DTR is tested.

m=1 => DSR-DTR is tested.

Fault reports, see Table 9.5

Table 9.5 Results in the V24-test.

Display	Result
V24 OK	Testing successful.
V24 E0	Time-out. No data received within specified time.
V24 E1	Incorrect input parameters to the test function.
V24 E2	Received data don't match transmitted data.
V24 E3	Unable to open V24 port for receiving.
V24 E4	Unable to open V24 port for transmitting.
V24 E5	Unable to start receiving.
V24 E6	Unable to start transmitting.

Loop-plug for V24 loop test

Table 9.6 Interconnection of pins in the V24-connector (P801).

Signal	P801 (pin)	Note
TXD1.O	3	Pin 3 and 10 are interconnected
RXD2.I	10	
TXD2.O	11	Pin 11 and 2 are interconnected
RXD1.I	2	
DTR1.O	5	Pin 5 and 12 are interconnected
DSR2.I	12	
DTR2.O	13	Pin 13 and 4 are interconnected
DSR1.I	4	