

EuroRoute for The United Kingdom

Installation & Programming Guide



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Section 1: EuroRoute Register Index	5
Section 2: Glossary of Terms	7
Section 3: Hardware Installation	9
Section 4: Initialisation and Loading Factory Defaults	13
Section 5: General Notes on Programming	15
Section 6: System Wide Data	19
Section 7: Line and Trunk Options	23
Section 8: Search Tables	31
Section 9: Security Access Registers	35
Section 10: Route Register Programming	37
Section 11: Route String Programming	41
Section 12: Route and Line Peg Counters	49
Section 13: Call Home Well	51
Appendix A: System Information	55
Appendix B: Programming Options	57
Index	61

Table of Contents

EuroRoute Register Index

<u>REGISTER</u>	<u>DEFAULT</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
002 T	1	Called Party Programming Enable/Disable	19
003 T	0	Call Home Route to Use	51
004 T	0	Call Home Wait for Access Code	51
005 T	3	Call Home Wait for Carrier	52
011 T	*	Carrier Presentation Time for Modem	19
014 T	0	Call Home Enable/Disable	52
100 T	2	Rotary/MF4 Dialling Type	23
102 T	4	MF4 Dialling Rate 1	23
103 T	2	On-Hook Time	23
105 T	0	Time Between Release and Reseizure	24
106 T	5	Flash Generation Timer	24
108 T	2	Dial Tone Delay Timer	24
109 T	4	User Dial Tone	24
111 T	2	Inter-Digit Time Out for Subscriber Side	25
112 T	2	Inter-Digit Time Out on 0+ (National) Calls	25
113 T	2	Inter-Digit Time Out on 00+ (International) Calls	25
114 T	4	Time Between Outgoing Rotary Digits	25
119 T	0	Off-Hook, Route and Cost Centre Tones	26
120 T	4	Incoming Call Detection	26
121 T	4	Inter-Ring Timing	26
122 T	#	Repeat Call Attempt	27
123 T	8	EuroRoute Operation on Off-Hook	27
124 T	0	Specify Default Route	27
126 T	0	PABX (Centrex) Enable/Disable	28
127 T	0	Time to Auto-Answer	28
128 T	6	Wait for Access/Security Code Timer	28
129 T	9	Security Code Lockout Timer	29
130 T	3	Off-Hook Recognition Timer	29
132 T	0	Digit Recognition on Outgoing Calls	29
R52 T	3	Number of Cost Centre Code Digits	37
R54 T	1	Cost Centre Code Type	37
R58 T	8, *, *, *	Action on Call Failure	38
R59 T	0	MF4 Digit Detector Guard Timer	38
R60 T	6	MF4 Dialling Rate 2	39
R61 T	*	MF4 Dialling Rate 3	39
R72 T	3	Number of Cost Centre Code Digits	37
R74 T	1	Cost Centre Code Type	37
R78 T	*	Action on Call Failure	38
R79 T	0	MF4 Digit Detector Guard Timer	38
R80 T	6	MF4 Dialling Rate 2	39
R81 T	*	MF4 Dialling Rate 3	39
700-797	Blank	100 Three Digit Abbreviated Dialling Bins	20
600	Blank	Call Home Number	52
602	5346 (SF)	Machine Identifier	19
603	#0*	Remote MF4 Security Code	35
604	23302*	Terminal Program Security Code	35
606	#1*	Remote Access Code	36
608	Blank	Call Home Date/Time	53
609	#0*	Local Program Security Code	36
6r1	Blank	Access Number for Carrier Telephone Network	45
6r2	Blank	Authorisation Number	46
6r3	Blank	Dummy Cost Centre Code	46
6r4	Blank	User Defined Route String Register	46
615	#862#0727		41
625 - 635	#862#07327		41
645	#862#073427		41
655 - 685	#862#07327		41
6r7	Blank	Register Dialed Out By *7 Token	46
6r8	Blank	Register Dialed Out By *8 Token	47
6r9	Blank	Register Dialed Out By *9 Token	47
802	00*1.#4#9*3		32
803	141**.,147#7,1#9#9*0,*#9#9*0,#02*#C,#0*#9#7,#0#9#9*0		32
804	1470**.,1471#3,1571#6,#0*#9#9#2		32
805	0#9#9#9#9*1,17070#6		32
808	#4#9#9#9#9#9#9#6		32
811	00#9#9#9#9#9#9#9#7,0#9#9#9#9#9#9#9#6		32
812 - 845	Blank		32

Glossary of Terms

✓	Indicates the Default for the register.
♪	Represents a burst of 400 Hertz tone generated by the SMarT-1 and transmitted over the phone to the subscriber.
ACS	Access Control Sequence.
Centrex	A business telephone service provided by the PSTN that gives the subscriber unique telephone features, similar to the features provided by a PABX.
Destination Number	The destination number is the number that is dialled to reach the called party.
Exchange Line	The physical connection between a telephone service subscriber and the PSTN that provides the telephone service.
Force Route	The route can not be changed to another route by any means once the decision has been made in the search tables.
Hz	Hertz.
LED	Light Emitting Diode.
mA	milliamperes.
MF4 Dialling	MF4 tone dialling.
ms	milliseconds.
PABX	Private Automatic Branch Exchange.
pps	pulses per second.
Prefer Route	The route may be rerouted by another prefer, select or force Action Code.
PSTN	Public Switched Telephone Network.
Rotary Dialling	Pulse dialling.
Route	A Route is a set of preprogrammed dialling rules that can include access codes to be used to place a telephone call over a particular service or carrier. A Route is chosen by matching dialled digits with a template in the Search Tables. If a Route in the EuroRoute is compared to a Route (trunk group) in a PSTN or a PABX /Centrex Exchange, then it may be helpful to think of the EuroRoute Route as a dialling rule, and not a physical trunk group.
Search Tables	The Search Tables are a set of templates and action codes-- one action code per template. User dialled digits are compared with the templates in the Search Tables. If a match is found, the action corresponding to the matching action code is executed. An action code may choose a route, deny a call, assert the end of expected digits, etc.
sec	second.
Select Route	The route can not be rerouted by any means, like the forced route. The digits dialled by the subscriber are moved to the select digits buffer for the current search table, and the digits moved are not dialled as part of the destination number.

Glossary of Terms

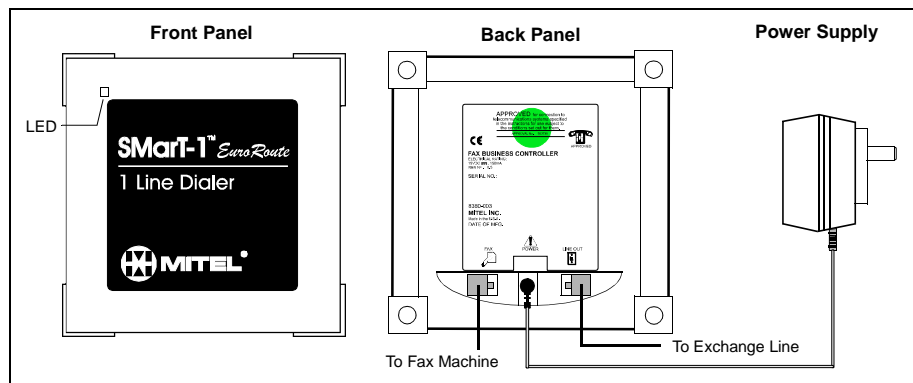
Hardware Installation

Description

The EuroRoute package consists of:

- 1 EuroRoute
- 1 Line Cord with Socket
- 1 Line Cord with Plug
- Mounting Hardware (Two Metal Clips, Two Wood Screws, Two Nylon Anchors)
- 1 Power Supply
- 1 Important Product and Safety Information document
- 4 Hook and Loop fasteners.

The following illustration shows the front and back view of the EuroRoute and the power supply.

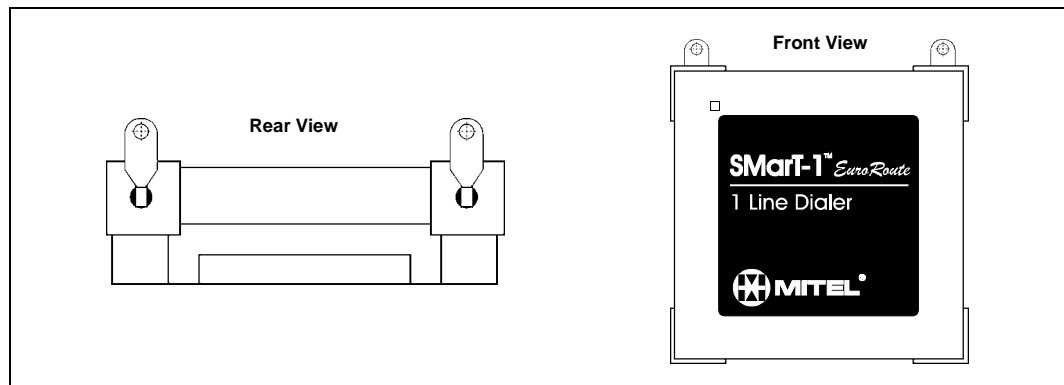


Mounting the EuroRoute

The EuroRoute can be placed on a desk or other flat surface, or mounted vertically using the clips and associated hardware supplied. Avoid placing the EuroRoute in areas where severe temperature exists, such as direct air flow from a heating duct, baseboard heaters, or direct sunlight. This product is not intended for outdoor use.

Vertical Mounting

Before mounting the EuroRoute to a wall, attach the metal clips to the top of the EuroRoute by pushing the elevated part of the metal clip into the screw hole. Once the metal clips are attached, the installer can apply 3/4" #6 pan-head screws into pre-made holes in the wall. When attaching the EuroRoute to a plaster wall, insert the nylon anchors into the pre-made holes before applying the 3/4" #6 pan-head screws. The illustration below illustrates the positioning of the clips.

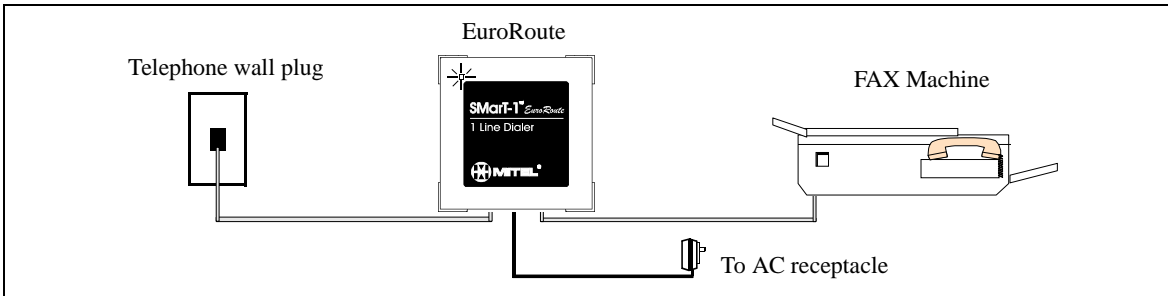


Hardware Installation

Connecting the EuroRoute

Connecting the EuroRoute Directly to the Exchange Line

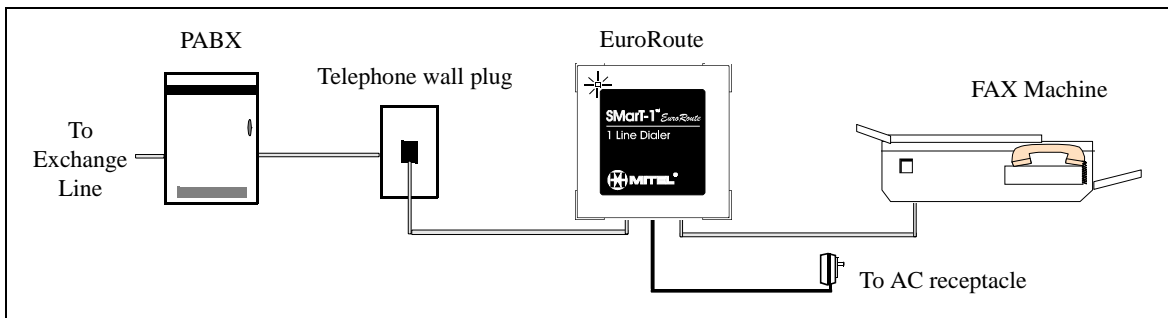
- Using the supplied cables, connect the EuroRoute connector marked “LINE” to the wall outlet.
- Connect the connector marked “FAX” to the FAX machine or telephone.
- Plug the right angle connector from the power supply to the Power input on the EuroRoute.
- The unit is now ready to power up.



Note that the EuroRoute only uses the “A” and “B” wires for a single connection to the exchange line.

Connecting the EuroRoute through a PABX

- Using the supplied cables, connect the EuroRoute connector marked “FAX” to the FAX machine or telephone.
- Connect the plug marked “LINE” to the telephone wall plug.
- Plug the right angle connector from the power supply to the Power input on the EuroRoute.
- The unit is now ready to power up.



Warning:

- Do not attempt to connect the EuroRoute during FAX transmissions.
- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations.
- Use caution when installing or modifying telephone lines.



INSTRUCTIONS

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

Powering up

The EuroRoute comes with a power supply. This is the only power supply which will operate the EuroRoute reliably. Do not attempt to operate this unit with any other power supply. Plug the right angle connector into the EuroRoute, then plug the power supply into a standard 230 VAC wall outlet.

Power Failure/Interruption

If a power failure occurs, the EuroRoute will allow calls to be made but will not route the calls.

During a mains power interruption, a one way audio condition may be experienced by either subscriber on calls that are in progress. If this condition occurs, please hang up and re-try the call.

LED Status


LED Condition	Description
Not illuminated	No power
Green, Continuous	Line in use
Green, Slow Flashing	Line Split
Green, Fast Flashing	Incoming Call
Orange, Continuous	EEPROM writing
Red, Continuous	Power indication

Error Status (LED)

LED Pattern	Description
Red, Slow Flashing	System Fault
Red, Fast Flashing	Memory Fault †

† May be cleared by *-initialising the EuroRoute.

Error Status (Tone)

Tone with off hook	Description
	Read Only Memory (RAM) Checksum error †

† A RAM Checksum error occurs when a periodic database integrity check fails, meaning that the database is corrupted. The error may be cleared by *-initialising the EuroRoute.

Hardware Installation

Hardware Specifications

<u>Ringer Impedance</u>	15k min
<u>Ring Sensitivity</u> (25 Hz):	20 VAC min
<u>Off-hook Current</u>	15 mA min, 60 mA max
<u>Battery Feed</u>	
Open Circuit	15 VDC nominal
Constant Current	25 mA min, 30 mA max
Short Circuit Current	30 mA max
<u>MF4 Receiver</u>	
Level	-22 dBm min, +2 max composite
Twist	-6 min +6 max, composite dB
Time between tones	40 ms min
<u>Rotary Receiver</u> (Rate)	8 min, 12 max (pps)
<u>MF4 Sender</u>	
Levels dBV(ZR)	$VF_L = -11 \text{ dBm} \pm 2 \text{ dB}$ $VF_H = -9 \text{ dBm} \pm 2 \text{ dB}$ $1 \text{ dB} < (VF_H - VF_L) < 4 \text{ dB}$
Twist	70 ms min
Duration (programmable)	10 pps, 33/66 ms
<u>Rotary Sender</u>	V.21 CCITT, 300 baud
<u>Modem (internal)</u>	
<u>AC Operating Range</u>	
AC Line	230 VAC, +/- 10%, 50 Hz, 50 mA Max
Temperature	0° to 45 °C
Humidity	0% to 85%
Holdover	100 ms typical
<u>Jacks</u>	
DC Power	2.5 mm
Equipment	RJ11 to RJ11
<u>Mechanical</u>	
Weight:	Main Unit: 910 g PSU: 295 g
Dimensions:	Approx. 141mm x 141mm x 49mm, 5.6" x 5.6" x 2"
Mounting	Vertical or Horizontal Surface
<u>Regulatory Conformity</u>	
Safety	EN60950
Emissions	EN50081-1, Class B
Immunity	EN50082-1
Network	TBR21

Note 1

Although this equipment can use either loop disconnect or MF4 signalling, only the performance of MF4 signalling is subject to regulatory requirements for correct operation. It is therefore strongly recommended that the equipment be set to use MF4 signalling for access to public or private emergency services. MF4 signalling also provides faster call set up.

Note 2

The equipment has been approved to commission decision CTR21 for pan-European single terminal connection to the Public Switched Telephone Network (PSTN). However, due to differences between the individual PSTNs provided in different countries, the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point.

In the event of problems, you should contact your equipment supplier in the first instance.

Note 3

This product should work in a satisfactory manner when used in the countries listed in the European Telecommunications Standard Institute (ETSI) Guide EG 201 121, and the countries specified below:

- Germany,
- Greece,
- Portugal,
- Spain and
- Switzerland.

Ordering Information

UK

EuroRoute Dialer	8380-003-FBCXTX
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Other Components

Euro Power Supply	8380-024
Exchange Line Spare Cables:	
RJ11 plug to RJ11 plug	8380-036
Important Product and Safety Information	8380-900-031-BA
Mounting Clips (Bag of 50)	8380-043




Hardware Installation


Initialisation and Loading Factory Defaults

Prior to Installation

At this point you should have made the proper PABX/Centrex or Exchange Line and subscriber connections as outlined in Section 3.

Initialising a EuroRoute

- 1.** Connect an MF4 instrument to the subscriber side of the EuroRoute. There must be a PABX/Centrex Line port, simulated PABX/Centrex Line port or an Exchange Line present on the Line side of the EuroRoute.
- 2.** With the power to the EuroRoute disconnected, go off-hook. While holding down the * key on the MF4 set you will hear a continuous tone. Reconnect the power to the EuroRoute. When the power is applied, there will be a “click” sound heard from the EuroRoute as it disconnects (splits) from the PABX/Centrex or Exchange Line side.
- 3.** Continue to hold the * key for 20 seconds or more after applying power to the EuroRoute (See **Note** below).
- 4.** Release the * key. The unit should respond immediately with a short  from the handset. There could be , depending on the previous EuroRoute condition. If  is not heard, return to Step 2 and start over. The tone indicates that the EuroRoute is initialised and remains in programming mode.

Inactivity in programming mode for more than two minutes will automatically exit programming mode. There will be  after 60 seconds of inactivity in programming.
- 5.** To exit programming mode dial **987**, then go on-hook.
- 6. Do not disconnect the power** from the EuroRoute, until at least 10 seconds have expired after exiting programming mode. During this period, any programming in the EuroRoute is being stored into the EuroRoute's nonvolatile memory. Disconnecting the power prematurely will result in a loss of programming, and a checksum error (See page 11).

Note:

When you press the * key, and IF YOU HEAR reorder tone from the PABX/Centrex, Exchange Line, or customer equipment, the telephone may be connected to the wrong side of the EuroRoute.

Initialisation and Loading Factory Defaults

General Notes on Programming

Local Programming With an MF4 Telephone

MF4 tones can be used to program the EuroRoute. The Default programming code is # 0 * (Register 609). To exit programming mode and save data, dial 987, then hang-up. Going on-hook without using the 987 command to exit from programming mode or remaining inactive in programming mode for more then two minutes will cause the EuroRoute to quit programming mode without saving changes.

Carrier tone will be heard for the duration of the 011 register (default is 10 seconds) before MF4 programming mode is entered. Setting the 011 register to a value of 0 will disable the modem and allow you to enter MF4 programming mode directly.

Note:

Do not disconnect the power from the EuroRoute, until at least 10 seconds have expired after exiting programming mode. During this period, any programming in the EuroRoute is being stored into the EuroRoute's memory. Disconnecting the power prematurely will result in a loss of programming, and a checksum error (See page 11).


Terminating Variable Length Entries

To terminate a variable length entry (Abbreviated Dialling, Cost Centre Codes, 6rX strings, etc.) use ##. The entry will be made automatically if you do not enter the ## within the time specified by the interdigit timer (Register 111 by Default 4 seconds).




Acknowledgment Tones

While programming the EuroRoute with an MF4 telephone, you will hear tones that indicate correct entries, incorrect entries and programming time-outs. In general, after each correct entry, the EuroRoute will respond with two tones.


If You Hear

 means that the command you have entered has been recognised as being valid (correct), i.e. you entered # 0 *.

If You Hear

 means that the entry you have made has been accepted. This occurs after a parameter has received all the digits it needs to complete programming, or if you have entered ## on a variable length parameter. For example: if you dial 100 you will hear , if you then dial 2 you will hear .

If You Hear

 will be heard, if you remain inactive in the programming mode for more than sixty seconds. After two minutes of inactivity, you will automatically exit programming mode and any changes made will be lost.

Note:

If  is heard while the FAX machine or phone is first taken off hook, a Ram Checksum Error has occurred (See page 11).

If You Hear

 (long) means you have made an incorrect programming entry.

Note: In the event of an invalid entry wait for the four tones to stop and then retry the entry. No data will be accepted by the EuroRoute for an incorrect programming entry.

General Notes on Programming

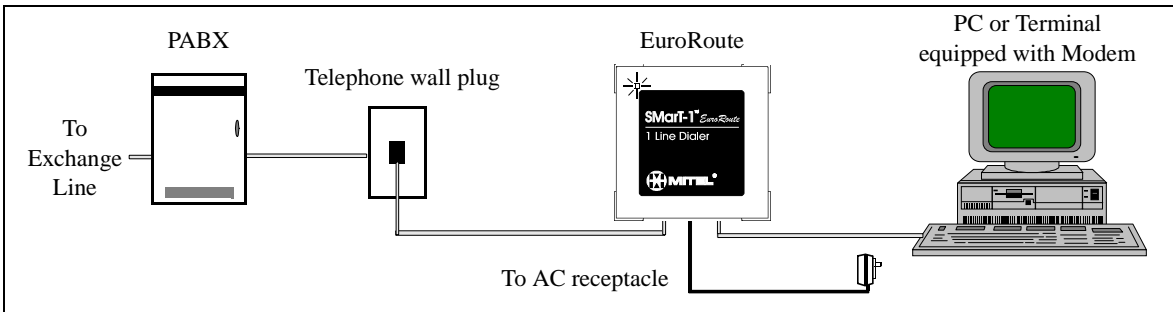
Programming With a Terminal

All local and remote terminal programming will be done with a **V.21 300** baud modem. Programming begins at **V.21 300** baud, and if a carrier is not detected from the caller within the time specified in the **011** Register, the EuroRoute will default back to MF4 mode programming. Refer to Figure A.5 on page 55 for valid EuroRoute inputs.

Local Programming

The line side of the modem is connected to the telephone wall plug with a local-adaptor cable. There must be a PABX/Centrex line port, or simulated PABX/Centrex line port present on the line-out side of the EuroRoute. The user then has the modem seize the line and dial #0*, Register **609** default password, which initiates local mode programming. If the password found in Register **609** matches the password dialed by the modem, the EuroRoute enters into programming mode. If no modem carrier is detected by the EuroRoute after **T** seconds, as specified in Register **011**, the EuroRoute will default to MF4 programming mode. The following screen appears upon entering modem programming mode.

```
8380 REV 138-XX COPYRIGHT 1991-1996 MITEL INC. ALL RIGHTS RESERVED.
Serial Number BC00000000
ENTERING PROG. MODE
V>
```



Remote Programming

The user dials the EuroRoute and waits for an answer.

Modem Programming Mode	
If the FAX machine answers:	If the EuroRoute auto-answers:
The user enters programming mode by: <ul style="list-style-type: none"> matching an entry in Register 606 during the “quiet time”; waiting for “CONNECT”, and then matching an entry in Register 604 	The user enters programming mode by: <ul style="list-style-type: none"> matching an entry in Register 606; waiting for “CONNECT”, and then matching an entry in Register 604.

MF4 Programming Mode	
If the FAX machine answers:	If the EuroRoute auto-answers:
The user enters programming mode by: <ul style="list-style-type: none"> matching an entry in Register 606 during the “quiet time”; waiting for carrier tone to end, and then matching an entry in Register 603. 	The user enters programming mode by: <ul style="list-style-type: none"> matching an entry in Register 606; waiting for carrier tone to end, and then matching an entry in Register 603.

For detailed information on how to program the EuroRoute remotely or locally, refer to the **Security Access Registers** section in this manual (refer to page 35).

Note:

The modem carrier presented by the EuroRoute is very similar to an answer tone presented by the FAX machine after it has answered an incoming call.

Valid and Invalid Entries

Each time you enter a valid command, the EuroRoute will automatically space to the next entry point waiting for more input. If you make an invalid entry, you will see a question mark.

P>? (*indicates an incorrect entry*)

P> (*indicates a correct entry*)

Special Functions

Special Function Commands allow access to specific data in the EuroRoute. You must be in the programming mode to use these commands.

Commands	Definition
902	Data confirmation mode. After each 3 digit prefix the EuroRoute will display programmed data
942 903	Load default data. Delete all other existing programming, then reloads default data
942 904	Clear all Search Tables (801-815, 821-830, 841-845)
942 906	Enter Clone Master Mode
907	Return to data programming mode from data confirmation mode
961	Display Power-on Counter (Displays the number of times that the EuroRoute has been powered on since it was last * initialised)
967	Display Route and Line peg data
942 968	Block Initialisation: 0 = Off, 1 = On
942 969	Reset the peg counter
970	Display the EuroRoute serial number during local or remote modem programming
980	Internal Clock Setting (MMDDHHMM)
987	Exit programming mode

Emergency Numbers

If the PABX Register is disabled (Register **126** set to **0**), the emergency numbers 112 and 999 will be dialled out directly toward the exchange line, regardless of any other programming in the EuroRoute. If the PABX is enabled (Register **126** set to **1**), the PABX Access code stored in Search Tables **841-845** must be dialled before the Emergency code, and then the digit or digits stored in Search Tables **841-845** will be output on the exchange line side before the emergency digits are output, regardless of any other programming in the EuroRoute.

General Notes on Programming

System Wide Data

General

You may want to change System Wide Data if the Default data does not meet your requirements. For example, when default data is loaded, MF4 dialling is enabled. If rotary dialling is required, the defaulted data will need to be changed.

Called Party Programming Enable/Disable

You can specify whether a called party may enter into programming mode after a call is originated from a line attached to the EuroRoute.

Register	T =
002 T	0 for disable 1 for enable ✓

Note:

If Centrex is enabled and the subscriber dials a local call (does not dial the Centrex digit(s), they will not be able to enter Called Party Programming, but will remain in a cut through state.

Carrier Presentation Time for Modem

You can specify the time the internal V.21 300 baud modem will present carrier and try to establish communication before the EuroRoute defaults back to MF4 mode programming.

Register	T =
011 T	0 for modem disabled 1 for 1 second 2 for 2 seconds 3 for 3 seconds 4 for 4 seconds 5 for 5 seconds 6 for 6 seconds 7 for 7 seconds 8 for 8 seconds 9 for 9 seconds * for 10 seconds ✓

Machine Identifier

The Machine Identifier option is used to uniquely identify a EuroRoute.

Register	XX =
602 XX	The machine ID must be entered as ASCII Hex and can be up to 40 characters. (5346)✓

Refer to the ASCII Hex chart in Appendix A, for programming characters.

System Wide Data

Setting Up Abbreviated Dialling, Method 1

This method of programming abbreviated dialling is used while in programming mode.

Register	NNDKMM...MM =	
7NNDKMM...MM	NN	Bin location, 00 - 97
	D	Must always be set to 0
	K	0 for force the call to Route 0 1 for force the call to Route 1 2 for force the call to Route 2 3 for force the call to Route 3 4 for force the call to Route 4 5 for force the call to Route 5 6 for force the call to Route 6 7 for force the call to Route 7 8 for use of Search Tables for instructions 9 for immediate dialling (no routing)
	MM...MM	Telephone number to be dialled

Example:

Assuming that by using Method 1, 700 has been assigned the number 0800123456. The number can be addressed in the following manner:

- User goes off-hook
- User dials #*00.

The EuroRoute will then dial out 0800123456.

Setting up a Abbreviated Dialling, Method 2

This method of programming abbreviated dialling is used after an installation is complete. All calls will be screened because DK (as outlined previously) is automatically set to 08. The following example assumes the user abbreviated dialling programming code is #2*.

Step	Dial	Description
1	#2*	User abbreviated dialling programming code
2	NN	Bin location, 00 - 97
3	MM..MM	Telephone number to be dialled
4	##	Enters the information into the EuroRoute's memory
5		Repeat steps 2 - 4 until all numbers are entered
6	987	Exits from programming mode

Example:

Assuming that by using Method 2, **00** has been assigned the number **0800123456**. The number can be addressed in the following manner:

- User goes off-hook
- User dials **#*00**.

The EuroRoute will then dial out **0800123456**.

Note:

Do not disconnect the power from the EuroRoute, until at least 10 seconds have expired after exiting programming mode. During this period, any programming in the EuroRoute is being stored into the EuroRoute's memory. Disconnecting the power prematurely will result in a loss of programming, and a checksum error (See page 11).

System Wide Data

Line and Trunk Options

General

When programming line and trunk options, note that the trunk is not related to Route 1, it may use Route 2, etc.

Line and Trunk refer to the physical line that is supplied by your PSTN. Route refers to the way the EuroRoute will attempt to route the call through the Exchange Line by using a set of predefined dialling rules (refer to Access Control Sequence).

All Line and Trunk entries have a predetermined length. When you enter the Line and Trunk option (i.e. **100**), followed by a one digit value, the EuroRoute will automatically accept the entry.

Rotary/MF4 Dialling Type

This option controls whether the EuroRoute will dial loop start rotary or loop start MF4 to the Exchange side of the EuroRoute.

Register	T =
100 T	0 for loop start, Rotary 2 for loop start, MF4 ✓

MF4 Dialling Rate 1

This option controls the default rate at which MF4 digits are dialled to the Exchange side from the EuroRoute. The default MF4 Dialling Rate may be changed by using ACS tokens in the **6R5** Registers, which consult the **R60/R80** (refer to page 39) and the **R61/R81** (refer to page 39) Registers.

Register	T =
102 T	3 for 70 ms (fast) * for 140 ms 4 for 80 ms ✓ # for 150 ms 5 for 90 ms C for 160 ms 6 for 100 ms D for 170 ms 7 for 110 ms E for 180 ms 8 for 120 ms F for 190 ms (slow)

On-hook Time

An on-hook is determined by the absence of loop current on the line from the Exchange, for the specified amount of time.

Register	T =
103 T	0 for 150 ms 6 for 460 ms 1 for 260 ms 7 for 500 ms 2 for 300 ms ✓ 8 for 700 ms 3 for 340 ms 9 for 1100 ms 4 for 380 ms * for 1300 ms 5 for 420 ms # for 2500 ms

Line and Trunk Options

Time Between Trunk Release and Next Attempt to Connect

This option controls the length of time that the EuroRoute will remain on-hook (in the idle state) prior to going back off-hook and re-dialling when it performs a drop and re-seize.

Register	T =	
105 T	0 for 5.5 seconds ✓	5 for 8.0 seconds
	1 for 6.0 seconds	6 for 8.5 seconds
	2 for 6.5 seconds	7 for 9.0 seconds
	3 for 7.0 seconds	8 for 9.5 seconds
	4 for 7.5 seconds	9 for 10 seconds
	5 for 4.5 seconds	

Flash Generation Timer

The Flash Generation Timer governs the duration of time that the Access Control Sequence token *09 will flash the PABX or Centrex line, upon the execution of the token.

Register	T =	
106 T	0 for 200 ms	6 for 1400 ms
	1 for 400 ms	7 for 1600 ms
	2 for 600 ms	8 for 1800 ms
	3 for 800 ms	9 for 2000 ms
	4 for 1000 ms	* for 2300 ms
	5 for 1200 ms ✓	# for 2500 ms

Dial Tone Delay Timer

This option controls the amount of time following the recognition of an off-hook condition, when the EuroRoute will refuse or ignore any user dialed digits. This option can be used to avoid false digits due to Exchange-relay bounce, etc.

Register	T =	
108 T	0 for none	4 for 400 ms
	1 for 100 ms	5 for 500 ms
	2 for 200 ms ✓	6 for 600 ms
	3 for 300 ms	7 for 700 ms

User Dial Tone

This option controls what the customer will hear when they go off-hook.

Register	T =
109 T	1 for internal dial tone
	4 for dial tone from the Exchange Line ✓

Note that if Register 109 1, then 119 must be set to a 0, 2, 4 or a 6.

Inter-Digit Time Out for Subscriber Side

The Inter-digit time out is a specified amount of time that the user is given to enter each dialled digit (except for calls beginning with 0+ and 00+) before the EuroRoute will stop accepting the digits. Each time a digit is dialled, the timer starts over again.

Register	T =	
111 T	0 for no time-out	6 for 12 seconds
	1 for 2 seconds	7 for 14 seconds
	2 for 4 seconds ✓	8 for 16 seconds
	3 for 6 seconds	9 for 18 seconds
	4 for 8 seconds	* for 20 seconds
	5 for 10 seconds	# for 22 seconds

Inter-Digit Time Out on 0+ (National) Calls

The Inter-digit time out is a specified amount of time that the user is given to enter each dialled digit for calls beginning with 0 before the EuroRoute will stop accepting the digits. Each time a digit is dialled after dialling 0, the timer starts over again.

Register	T =	
112 T	0 for no time-out	6 for 12 seconds
	1 for 2 seconds	7 for 14 seconds
	2 for 4 seconds ✓	8 for 16 seconds
	3 for 6 seconds	9 for 18 seconds
	4 for 8 seconds	* for 20 seconds
	5 for 10 seconds	# for 22 seconds

Inter-Digit Time Out on 00+ (International) Calls

The Inter-digit time out is a specified amount of time that the user is given to enter each dialled digit for calls beginning with 00 before the EuroRoute will stop accepting the digits. Each time a digit is dialled after dialling 00, the timer starts over again.

Register	T =	
113 T	0 for no time-out	6 for 12 seconds
	1 for 2 seconds	7 for 14 seconds
	2 for 4 seconds ✓	8 for 16 seconds
	3 for 6 seconds	9 for 18 seconds
	4 for 8 seconds	* for 20 seconds
	5 for 10 seconds	# for 22 seconds

Time Between Outgoing Rotary Digits

The amount of time between each rotary digit dialled by the EuroRoute is programmable.

Register	T =	
114 T	3 for 700 ms	6 for 1000 ms
	4 for 800 ms ✓	7 for 1100 ms
	5 for 900 ms	8 for 1200 ms

Line and Trunk Options

Off-Hook, Route and Cost Centre Code Tones

You can specify if various tones will be heard that are related to the call's progress. The tone is 200 ms long. If the Off-Hook Tone is enabled and internal dial tone has been programmed, the Off-Hook Tone will be 300 ms long, followed by no dial tone. The tones are controlled as follows:

Register	T =
119 T	0 for no tones ✓ 1 for Off-hook tone enabled 2 for Cost Centre Code tone enabled [†] 3 for Off-hook and Cost Centre Code tones enabled [†] 4 for Route tone enabled ^{††} 5 for Off-hook and Route tones enabled ^{††} 6 for Cost Centre Code and Route tones enabled ^{†††} 7 for Off-hook, Cost Centre Code and Route tones enabled ^{†††}

[†] One tone is supplied after the destination number (to prompt for the Cost Centre Code), and one tone is supplied after the Cost Centre Code (if Cost Centre Codes are allowed in the Cost Centre Type Register **R54/74**).

^{††} One tone is supplied after the destination number if Route 0 is used. Two tones are supplied if any other route is used.

^{†††} One tone is supplied after the destination number if Route 0 is used. Two tones if any other route is used, and one tone at the end of the Cost Centre Code (if Cost Centre Codes are allowed in the Cost Centre Code Type Register **R54/74**).

Incoming Call Detection

You can specify the EuroRoute's sensitivity to incoming ringing on a scale of 0 to 9 (where 0 is the most sensitive and 9 the least sensitive). If the setting is too sensitive, outgoing calls may not be routed. If the setting is not sensitive enough, the EuroRoute may not detect incoming calls, treating them as outgoing calls. This condition will result a one way audio transmission. It should not be necessary to change the default value for normal operation.

Register	T =
120 T	0 for most sensitive through 9 for least sensitive. (4)✓

Inter-Ring Timing

When the EuroRoute detects incoming ringing, the ringing is validated by measuring the inter-ring timing. For example, if the standard of incoming ringing is two seconds on and four seconds off, the inter-ring timing is the time in which a ring burst ends and another one begins. Once the second ring burst begins, the timer is reset.

Register	T =
121 T	0 for no inter-ring timing 1 for 1 second 2 for 2 seconds 3 for 3 seconds 4 for 4 seconds ✓ 5 for 5 seconds 6 for 6 seconds 7 for 7 seconds 8 for 8 seconds 9 for 9 seconds

Repeat Call Attempt

The number of retries for a call attempt is programmable, with 15 retries being the highest number allowed.

Register	T =
122 T	0 for no retries 1 for 1 retry 2 for 2 retries 3 for 3 retries 4 for 4 retries 5 for 5 retries 6 for 6 retries 7 for 7 retries 8 for 8 retries 9 for 9 retries * for 10 retries # for 15 retries ✓

EuroRoute Operation on Off-Hook

The EuroRoute can be programmed to perform a variety of operations upon off-hook. The operations are dialling direct, dialling using hot line and dialling using Search Tables.

Register	T =
123 T	0 for immediately dial the Default Route defined by register 124 (hot line operation) 8 for active EuroRoute ✓ 9 for inactive EuroRoute

Note 1: If 123 = 0, the EuroRoute *will not allow emergency numbers to be dialled*, nor will the EuroRoute allow * initialisation or MF4 programming.

Specify Default Route

The Default Route option is used for the following reasons: providing an ACS for the hot line feature, executing without picking an ACS and executing the specified route after an inter-digit time out.

Register	T =
124 T	0 for Route 0 (615) ✓ 1 for Route 1 (625) 2 for Route 2 (635) 3 for Route 3 (645) 4 for Route 4 (655) 5 for Route 5 (665) 6 for Route 6 (675) 7 for Route 7 (685)

Line and Trunk Options

PABX/Centrex Enable/Disable

This option controls whether the user will first dial a PABX/Centrex digit before dialling the destination number.

Register	T =
126 T	0 for disable ✓ 1 for enable

Note:

The EuroRoute handles PABX/Centrex calls differently than MITEL SMART-1 Call Controllers. The EuroRoute enables PABX/Centrex in **126**, and programming the PABX/Centrex trunk Access Code(s) in the PABX/Centrex screening tables **841** through **845**. For further information see page 34.

Time to Auto-Answer

The EuroRoute can automatically answer an incoming call for remote programming purposes.

Register	T =
127 T	0 for disable ✓ 1 for 10 seconds 2 for 20 seconds 3 for 30 seconds 4 for 40 seconds 5 for 50 seconds 6 for 60 seconds 7 for 70 seconds 8 for 80 seconds 9 for 90 seconds * for 100 seconds # for 110 seconds

Wait for Access/Security Code Timer

This register specifies the time in which an access code (programmed in the **606** Register on page 36) or a security code (programmed in the **603** Register on page 35) must be entered on a trunk after the EuroRoute auto-answers. If time-out occurs the trunk will be locked for a period of time defined by Register **129**. The time to wait for a password can be changed as follows:

Register	T =
128 T	0 for disable 1 for 10 seconds 2 for 20 seconds 3 for 30 seconds 4 for 40 seconds 5 for 50 seconds 6 for 60 seconds ✓ 7 for 70 seconds 8 for 80 seconds 9 for 90 seconds * for 100 seconds # for 110 seconds

Security Code Lockout Timer

If a security code is entered incorrectly, the line is locked out by the EuroRoute. During this period, the ability for the EuroRoute to auto-answer is blocked. Lockout expires when the subscriber side goes off-hook or when the time defined by this register is met.

Register	T =	
129 T	0 for disable	6 for 60 seconds
	1 for 10 seconds	7 for 70 seconds
	2 for 20 seconds	8 for 80 seconds
	3 for 30 seconds	9 for 90 seconds ✓
	4 for 40 seconds	* for 100 seconds
	5 for 50 seconds	# for 110 seconds

Off-hook Recognition Timer

An off-hook is determined by the detection of Exchange loop current by the EuroRoute with the specified amount of time.

Register	T =	
130 T	0 for 20 ms	6 for 120 ms
	1 for 20 ms	7 for 140 ms
	2 for 40 ms	8 for 160 ms
	3 for 60 ms ✓	9 for 180 ms
	4 for 80 ms	* for 200 ms
	5 for 100 ms	# for 220 ms

Digit Recognition on Outgoing Calls

The EuroRoute can be programmed to allow or ignore MF4 and/or rotary outgoing user-dialled digits.

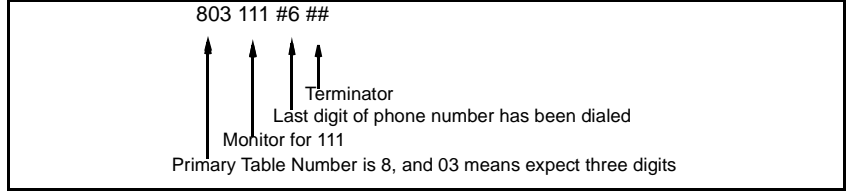
Register	T =
132 T	0 for allowing MF4 and rotary 10 pps ✓
	1 for ignoring all rotary dialling
	2 for ignoring all MF4 dialling
	3 for ignoring all dialling
	5 for supplying reorder tone to the subscriber on rotary dialling
	6 for supplying reorder tone to the subscriber on MF4 dialling
	7 for supplying reorder tone to the subscriber on all dialling

Line and Trunk Options

Search Tables

Primary, Alternate and PABX/Centrex Search Tables

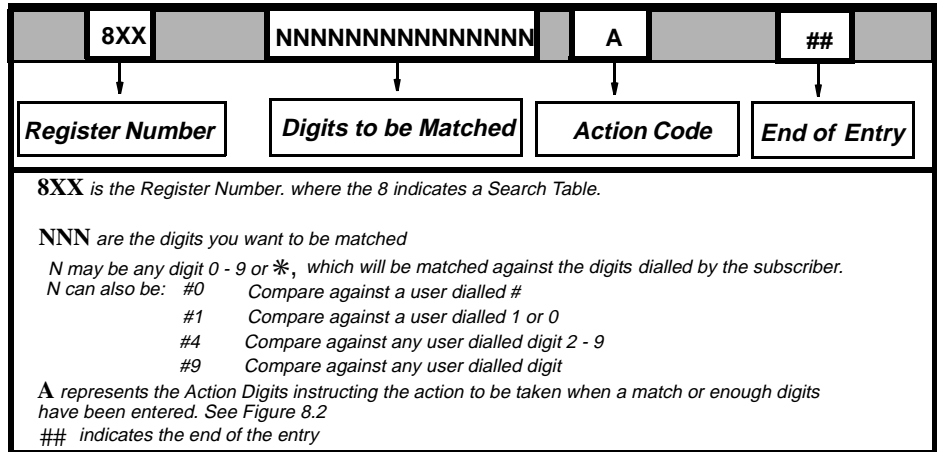
Search Tables consist of a three digit prefix always beginning with an '8' followed by two digits indicating the length of the digit string. The next digits specify the number for the EuroRoute to monitor, followed by an action digit which tells the EuroRoute what to do once the string has been detected. For example:



Search Tables can be used to provide call control (Toll Control) and routing information. Digits dialled by a caller are screened from 1 to 15 digits for Primary and Alternate, depending on the Search Table you select. They can be subject to an action (as described in Figure 8.1).

The EuroRoute provides 35 tables: 15 Primary, 15 Alternate and 5 PABX/Centrex tables. The tables are numbered **801 - 815** (Primary), **821 - 835** (Alternate), and **841 - 845** (PABX/Centrex).

Figure 8.1 Search Table Format



Search Tables

Digits in a Table

When selecting a Search Table you must enter enough digits to fill the Search Template in the Search Table selected. For example, if you select Primary Search Table **815**, you must enter 15 digits to fill the Search Template. Consult the following tables for the number of digits you must enter in each Search Table plus an Action Code.

Primary	Alternate	PABX/ Centrex	Digits To Enter	Action Code
801	821	841	1	Pages 33, 34
802	822	842	2	Pages 33, 34
803	823	843	3	Pages 33, 34
804	824	844	4	Pages 33, 34
805	825	845	5	Pages 33, 34
806	826		6	Page 33
807	827		7	Page 33
808	828		8	Page 33
809	829		9	Page 33
810	830		10	Page 33
811	831		11	Page 33
812	832		12	Page 33
813	833		13	Page 33
814	834		14	Page 33
815	835		15	Page 33

Figure 8.2 Action Codes For Primary Search Tables 801-815

<p>0.....Prefer Route 0 1.....Prefer Route 1 2.....Prefer Route 2 3.....Prefer Route 3 4.....Prefer Route 4 5.....Prefer Route 5 6.....Prefer Route 6 7.....Prefer Route 7</p> <p>*0.....Force Route 0 *1.....Force Route 1 *2.....Force Route 2 *3.....Force Route 3 *4.....Force Route 4 *5.....Force Route 5 *6.....Force Route 6 *7.....Force Route 7</p> <p>90.....Select Route 0 91.....Select Route 1 92.....Select Route 2 93.....Select Route 3 94.....Select Route 4 95.....Select Route 5 96.....Select Route 6 97.....Select Route 7</p> <p>**.....Move digits dialled so far to the select digits buffer; restart screening in the Primary Search Tables (801-815)</p> <p>#*.....Move digits dialled so far to the select digits buffer; restart screening in the Alternate Search Tables (821-835)</p>	<p>#0.....Move digits dialled so far to the select digits buffer, clear the destination buffer and return dial tone to the subscriber side; restart screening in the Primary Search Tables (801- 815)</p> <p>#1.....Deny #2.....Speed call trigger #3.....Dial digits and through connect #5.....Absorb digits and through connect #6.....End of destination digits #7.....Wait for more digits (do nothing) #8.....Move digits dialled so far to the select digits buffer, clear the destination buffer and return dial tone to the subscriber side; restart screening in the Alternate Search Tables (821- 835) #9.....Delete entry from the Search Tables #C.....User speed call programming entry ##.....End of Search Table entry</p> <p>80.....Prefer Route 0; drop destination digits dialled so far; restart screening in the Alternate Search Tables (821-835) 81.....Prefer Route 1; drop destination digits dialled so far; restart screening in the Alternate Search Tables (821-835) 82.....Prefer Route 2; drop destination digits dialled so far; restart screening in the Alternate Search Tables (821-835) 83.....Prefer Route 3; drop destination digits dialled so far; restart screening in the Alternate Search Tables (821-835) 84.....Prefer Route 4; drop destination digits dialled so far; restart screening in the Alternate Search Tables (821-835) 85.....Prefer Route 5; drop destination digits dialled so far; restart screening in the Alternate Search Tables (821-835) 86.....Prefer Route 6; drop destination digits dialled so far; restart screening in the Alternate Search Tables (821-835) 87.....Prefer Route 7; drop destination digits dialled so far; restart screening in the Alternate Search Tables (821-835)</p>
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Figure 8.3 Action Codes For Alternate Search Tables 821-835

<p>0.....Prefer Route 0 1.....Prefer Route 1 2.....Prefer Route 2 3.....Prefer Route 3 4.....Prefer Route 4 5.....Prefer Route 5 6.....Prefer Route 6 7.....Prefer Route 7</p> <p>*0.....Force Route 0 *1.....Force Route 1 *2.....Force Route 2 *3.....Force Route 3 *4.....Force Route 4 *5.....Force Route 5 *6.....Force Route 6 *7.....Force Route 7</p> <p>90.....Select Route 0 91.....Select Route 1 92.....Select Route 2 93.....Select Route 3 94.....Select Route 4 95.....Select Route 5 96.....Select Route 6 97.....Select Route 7</p>	<p>**.....Move digits dialled so far to the select digits buffer</p> <p>#1.....Deny #2.....Speed call trigger #3.....Dial digits and through connect #5.....Absorb digits and through connect #6.....End of destination digits #7.....Wait for more digits (do nothing) #8.....Move digits dialled so far to the select digits buffer, clear the destination buffer and return dial tone to the subscriber side; restart screening in the Alternate Search Tables (821-835) #9.....Delete entry from the Search Tables #C.....User speed call programming entry ##.....End of Search Table entry</p>
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PABX/Centrex Search Tables 841-845

- A failure to match any Search Table Code or a fifth digit dialled without a match will result in reorder being returned to the subscriber side.
- A EuroRoute can have multiple PABX/Centrex codes of differing lengths, but none longer than 5 digits.
- If the EuroRoute is installed behind a PABX or on a Centrex line, these tables must be enabled by Register **126** and programmed to distinguish between PABX/Centrex extension numbers and trunk access code digits.

Figure 8.4 PABX/Centrex Search Tables 841-845

Code	Action Code Digits Description
89	Send digits entered so far to the PABX or Centrex line, then allow PABX/Centrex dial tone to be heard by the FAX machine; continue to screen in the Primary Search Tables
8*	Send digits entered so far to the PABX or Centrex line, then allow PABX/Centrex dial tone to be heard by the FAX machine; continue to screen in the Alternate Search Tables
#3	Dial digits entered so far and through connect; no routing
#6	End of PABX/Centrex code; move digits entered so far to select digits buffer; clear destination buffer; return dial tone to subscriber side; restart screening in the Primary Search Tables (801-815)
#7	Do nothing (wait for more digits)
#8	End of PABX/Centrex code, move digits entered so far to select digits buffer; clear destination buffer; return dial tone to the subscriber side; restart screening in the Alternate Search Tables (821-835)

PABX/Centrex Examples

Example One

The user will first dial the digit 9 to access an out-going trunk. The EuroRoute will dial the digit 9 to the exchange side. Dial tone will be heard by the user, and the remaining digits will be screened in Search Tables 801 through 815. If the user dials a digit other than 9, the EuroRoute will directly dial the digits to the exchange side.

- 841 9 89##
- 841 #9 #3##

Example Two

The user will first dial the digit 9 to access an out-going trunk. The digit 9 will be stored in the Select Digits Buffer. Dial tone will be heard by the user, and the remaining digits will be screened in Search Tables 801 through 815. If the user dials a digit other than 9, the EuroRoute will directly dial the digits.

- 841 9 #6##
- 841 #9 #3##
- Each 6r5 being used should begin with #862#06 followed by the remaining tokens.

Select Digit Buffers

The Select Digits Buffers are three temporary storage areas where subscriber-entered digits can be moved. The digits are moved by use of either a select route or an action code in the search tables. When a route is “selected” or an Action Code containing a “move digits to select digits buffer” is executed, all the digits currently in the destination buffer are moved to the select digits buffer for the search table currently in use. Digits can only be moved to a specific select digits buffer once during a call, any additional attempts to move digits will be ignored. The digits in the select digits buffers can be output to the network by the “#06,” “#07” or “#08” ACS tokens.

Security Access Registers

General

For your convenience, several methods of programming the EuroRoute are available. The EuroRoute can be programmed locally or remotely. Refer to Register **609**, on page 36, for a description on how to program the EuroRoute locally. For programming the EuroRoute remotely, refer to Register **606** (Remote Access Code), then to Register **603** (Remote MF4 Security Code) and finally to Register **604** (Remote Terminal Security Code).

Each string entry must be terminated with a “##”.

Remote MF4 Security Code

A security code should be entered by an incoming caller to program the EuroRoute. The EuroRoute will auto-answer the incoming call (see Register **127** on page 28), and expect an access code to be entered, followed by the Remote MF4 Security Code. To enter a code, program as follows:

Register	XX =
603 XX	XX = the digits to be dialed, up to 80 digits, for entering MF4 programming mode. (#0*) ✓

Once the auto-answer timer has expired (see page 28) the EuroRoute will send an MF4 “1” to the remote point, to confirm that the EuroRoute has answered the call. The confirmation tone will not be heard if the call is manually answered on the FAX side of the EuroRoute. The EuroRoute will then search for the Remote Access Code.

If the Remote Access Code (Register **606**) is entered incorrectly, the user has up to the time specified in the **128** Register to enter it correctly. If the Access Code is not entered within the time specified, lockout will occur for a period of time defined by Register **129** (if the subscriber is on-hook).

When a match is detected in the Remote Access Code Register, the EuroRoute will split and terminate, leaving the FAX machine ignored on the subscriber side. Modem carrier tone will then be presented for the period specified by the **011** Register. Once modem carrier tone is removed, the user will then be prompted by the EuroRoute sending an MF4 B, to enter the **603** Remote MF4 Security Code. Once a match is found, the EuroRoute will send an MF4 “A” to the remote point and enter MF4 programming mode. Should the EuroRoute not receive a match in the string of digits, a lock out period will occur for a period of time defined by Register **129**.

If the subscriber side is off-hook, when a password is entered incorrectly, the EuroRoute will hang up the Exchange Line side and process the call so that the FAX machine may operate. If the FAX machine goes off hook during a lockout period, the EuroRoute will leave lockout and allow the FAX to process a call. The EuroRoute keeps the Exchange Line side seized during lockout, which denies all incoming calls for a period of time defined by Register **129**. If the **603** Register is empty, this method of entering programming is not available.

Terminal Program Security Code

MITEL recommends entering a unique security code for terminal programming access to the EuroRoute. This can be programmed as follows:

Register	XX =
604 XX	XX = the ASCII code equivalent entered from a terminal to enter programming mode; this code must be entered in ASCII hex (maximum 40 character); refer to Appendix A; (23302*) ✓

Security Access Registers

Remote Access Code

The contents of the **606** Register can be used for entering modem programming mode remotely. After the FAX machine answers, the remote user must wait for the “quiet time” between the FAX tone, and then send a string of digits that will match the contents of the **606** Register. If the EuroRoute auto-answers it will send an MF4 “1” to the remote point to confirm that the EuroRoute has answered the call, and that the FAX machine is split away. The confirmation tone will not be heard if the call is manually answered on the FAX side of the EuroRoute. If the EuroRoute detects a match, modem carrier tone will be presented to the remote point for the predetermined time defined in the **011** Register (see page 19). If the modem connects, the EuroRoute will expect to receive a string of digits that will match those of the contents of the **604** Register (see page 35). Once the string of digits are confirmed, modem programming mode is entered.

If the modem fails to connect, the EuroRoute will send an MF4 “B” to the remote point, and then expect to receive a string of digits that will match those of the contents of the **603** Register.

If the **606** Register is empty, all remote programming access becomes unavailable.

Register	XX =
606 XX	XX = the digits to be dialled in order to gain access remotely (maximum of 80 digits); (#1*)✓

Note:

When doing unattended modem programming to access a EuroRoute remotely, the local device should continuously send the Remote Access Code to the remote EuroRoute. This method of sending the Remote Access Code is done to make certain that the Remote Access Code is sent during the silent period (between the FAX tones) of the FAX machine. The remote EuroRoute confirms the Remote Access Code by finding a match in the **606** Register.

Local Security Code

The contents of the **609** Register will contain the security code for entering programming mode locally. Upon an off hook condition, the user dialled digits are screened. If the digits dialled by the user are matched with the contents of this register, modem carrier tone will be presented. Upon connection, modem programming mode is entered. If the modem fails to connect after the specified time defined by the **011** Register (see page 19), the EuroRoute will enter MF4 programming mode. The user may then continue to program with an MF4 instrument.

For further information on local programming, turn to page 16.

Register	XX =
609 XX	XX = the digits to be dialled from the FAX side of the EuroRoute in order to enter programming mode locally (maximum of 80 digits); (#0*)✓

Note:

MITEL recommends entering a unique access code for programming access to the EuroRoute.

Route Register Programming

General

Routing refers to how the EuroRoute will complete a call through the PSTN.

Routes

A Route is a set of preprogrammed dialling rules that can include access codes to be used to place a telephone call over a particular services or carrier. A Route is chosen by matching dialled digits with a template in the Primary Search Tables. If a Route in the EuroRoute is compared with a Route (Trunk Group) in a PSTN or PABX/Centrex line, then it may be helpful to think of a EuroRoute Route as a 'virtual route'.

The EuroRoute has 8 Routes (6r5 = 615, 625, 635, 645, 655, 665, 675, 685). Route numbering starts at 0 and ends at 7.

Number of Cost Centre Code Digits

You can specify the number of cost centre code digits you expect the caller to dial before accessing each route. This can be done as follows:

Registers R52 and R72			
Route Number	Enter	Default	T=
Route 0	152T	3	Number of Cost Centre Code digits 1 - 9, with * for 10
Route 1	252T	3	
Route 2	352T	3	
Route 3	452T	3	
Route 4	172T	3	
Route 5	272T	3	
Route 6	372T	3	
Route 7	472T	3	
To simultaneously program Routes 0 - 3, enter 552T To simultaneously program Routes 4 - 7, enter 572T			

Cost Centre Code Type

You can specify the type of cost centre code you expect on each route as follows:

Registers R54 and R74			
Route Number	Enter	Default	T=
Route 0	154T	1	0 = Flexible codes; wait for 6 second time-out, then continue 1 = No Cost Centre codes 2 = Fixed length code per R52 3 = Fixed length code per R52 ; wait for 6 second time-out and then go to 6R3 when no code is entered
Route 1	254T	1	
Route 2	354T	1	
Route 3	454T	1	
Route 4	174T	1	
Route 5	274T	1	
Route 6	374T	1	
Route 7	474T	1	
To simultaneously program Routes 0 - 3, enter 554T To simultaneously program Routes 4 - 7, enter 574T			

Route Register Programming

Action on Call Failure

You can specify the action resulting from a call failure (as programmed in the Access Control Sequence on page 41).

Registers R58 and R78			
Route Number	Enter	Default	T=
Route 0	158T	8	0 = Redial on route 0
Route 1	258T	*	1 = Redial on route 1
Route 2	358T	*	2 = Redial on route 2
Route 3	458T	*	3 = Redial on route 3
Route 4	178T	*	4 = Redial on route 4
Route 5	278T	*	5 = Redial on route 5
Route 6	378T	*	6 = Redial on route 6
Route 7	478T	*	7 = Redial on route 7
			8 = Reorder tone
			9 = Redial the same route once; then give reorder tone
			* = Redial the same route twice; then give reorder tone
			# = Redial the same route thrice then give reorder tone
			C = Redial the same route once; then go to route 0
			D = Redial the same route twice; then go to route 0
			E = Redial the same route thrice; then go to route 0
			F = Reorder tone
To simultaneously program Routes 0 - 3, enter 558T			
To simultaneously program Routes 4 - 7, enter 578T			

Note:

The maximum number of call-retry attempts that the EuroRoute will allow is 5. It is also true for Route changes in the Search Tables (see page 31) and with the execution of token *08 in the ACS (see page 41).

MF4 Digit Detector Guard Timer

You can specify the MF4 guard timer by programming a #1CD token in any 6R5 ACS. This register sets the minimum length of time that the ACS token #1CD must see an MF4 digit, in order for the token to determine whether the digit is valid.

Registers R59 and R79			
Route Number	Enter	Default	T=
Route 0	159T	0	0 for 40 ms
Route 1	259T	0	1 for 40 ms
Route 2	359T	0	2 for 50 ms
Route 3	459T	0	3 for 60 ms
Route 4	179T	0	4 for 70 ms
Route 5	279T	0	5 for 80 ms
Route 6	379T	0	6 for 90 ms
Route 7	479T	0	7 for 100 ms
			8 for 110 ms
			9 for 120 ms
To simultaneously program Routes 0 - 3, enter 559T			
To simultaneously program Routes 4 - 7, enter 579T			

MF4 Dialling Rate 2

You can specify up to three different MF4 dialling rates in an ACS, using the ACS tokens *1,*2 and *3. Also see Register **102** on page 23, and **R61/81** on page 39. The MF4 dialling rate used by the *2 can be set as follows:

Registers R60 and R80			
<i>Route Number</i>	<i>Enter</i>	<i>Default</i>	<i>T=</i>
Route 0	160T	6	3 = 70 ms
Route 1	260T	6	4 = 80 ms
Route 2	360T	6	5 = 90 ms
Route 3	460T	6	6 = 100 ms
Route 4	180T	6	7 = 110 ms
Route 5	280T	6	8 = 120 ms
Route 6	380T	6	
Route 7	480T	6	

To simultaneously program Routes 0 - 3, enter **560T**
 To simultaneously program Routes 4 - 7, enter **580T**

MF4 Dialling Rate 3

You can specify up to three different MF4 dialling rates in an ACS, using the ACS tokens *1,*2 and *3. See also **102** on page 23, and **R60/80** on page 39. The MF4 dialling rate used by the *3 can be set by:

Registers R61 and R81			
<i>Route Number</i>	<i>Enter</i>	<i>Default</i>	<i>T=</i>
Route 0	161T	*	3 = 70 ms
Route 1	261T	*	4 = 80 ms
Route 2	361T	*	5 = 90 ms
Route 3	461T	*	6 = 100 ms
Route 4	181T	*	7 = 110 ms
Route 5	281T	*	8 = 120 ms
Route 6	381T	*	
Route 7	481T	*	

To simultaneously program Routes 0 - 3, enter **561T**
 To simultaneously program Routes 4 - 7, enter **581T**

Route Register Programming

Route String Programming

Route String Relationships

The following tables explain the Route relationships to 6r1, 6r2, 6r3, 6r4, 6r5, 6r7, 6r8, and 6r9.

Route	Access Code	Customer ID	Dummy Code	ACS	User Defined Route Strings			
0 - 7	6R1	6R2	6R3	6R5	6R4	6R7	6R8	6R9
0	611	612	613	615	614	617	618	619
1	621	622	623	625	624	627	628	629
2	631	632	633	635	634	637	638	639
3	641	642	643	645	644	647	648	649
4	651	652	653	655	654	657	658	659
5	661	662	663	665	664	667	668	669
6	671	672	673	675	674	677	678	679
7	681	682	683	685	684	687	688	689

Access Control Sequences (6r5)

Access Control Sequences tell the EuroRoute how to access a specific carrier telephone network. Calls are routed here after a match in the Search Tables. Each entry (6r5) can be any sequence of commands. There are a maximum of 80 characters per entry.

0.....Dial a 0	*7.....Dial the contents of Register 6r7 (refer to page 46)
1.....Dial a 1	*8.....Dial the contents of Register 6r8 (refer to page 47)
2.....Dial the destination number (up to 106 digits)	*9.....Dial the contents of Register 6r9 (refer to page 47)
3.....Dial the Route Access Code (Register 6r1)	#0*.....Dial a * (MF4)
4.....Dial the Authorisation Number (Register 6r2)	#00.....Dial a # (MF4)
5.....Dial the Cost Centre Code (up to 22 digits)	#01.....Dial a # if the last digit dialled out was not a #
7.....Through connect (finished dialling)	#02.....Wait for Cost Centre Code (does not dial the code)
8.....Change to MF4 dialling	#03.....Wait for end of destination digits
9.....Dial contents of Register 6r4	#06.....Dial the PABX/Centrex select digits buffer
D.....Character string (refer to page 42)	#07.....Dial the Primary select digits buffer
*06N.....Wait the value of "N" x 100 ms	#08.....Dial the Alternate select digits buffer
*07N.....Wait the value of "N" x 1 second	#1CD.....MF4 digit detector †††
*08.....Drop and re seize Exchange Line	#25B.....Pause for the "B" time and then continue †
*09.....Hook flash to PABX/Centrex (refer to page 24)	#3AB.....570 - 680 Hz tone detector †
*1.....Set MF4 dialling rate #1 via Register 102	#4AB.....440 Hz tone detector †
*2.....Set MF4 dialling rate #2 via Register R60/R80	#5AB.....425 Hz local tone detector †
*3.....Set MF4 dialling rate #3 via Register R61/R81	#6AB.....400 Hz tone detector †
*4XY.....Set tone for programmed tone detector ††	#7AB.....350 - 620 Hz tone detector †
*5XNN.....Set Callback (refer to page 40)	#8AB.....330 + 440 Hz special/second dial tone detector †
	#CAB.....2100 Hz broad band tone detector †
	##*AB.....Programmable tone detector ††
† Refer to Table on page 42 for dial tone timer parameters.	
†† Both the *4XY and the ##*AB tokens must be used together. Refer to page 44 for a programming example.	
††† Refer to page 43 for the description of the MF4 tone detector.	

Route String Programming

Example:

- **615 #56227** is the Default on Route 0 (**615**). The ACS string is made up of:
#562 Wait for 200 ms of 425 Hz dial tone, for up to 4 seconds
2 Dial destination number
7 Through connect

A and B Dial Tone Timers

The EuroRoute expects a certain minimum duration of dial tone to occur within a specified time, before attempting to dial. This is specified by A and B timers as shown below. If the duration of dial tone does not occur (or does not occur within the time specified in B) the EuroRoute will redial if the "A" value is 0-4, or it can assume the dial tone is present, but can not be detected and will continue to dial out if the "A" value is 5-9.

	A Length of Time Dial Tone Must Exist	B Time Dial Tone Must Occur In (in seconds)
0	Minimum	2 for 4 9 for 18
1	200 ms	3 for 6 * for 20
2	400 ms	4 for 8 # for 22
3	1.0 sec	5 for 10 C for 24
4	2.55 sec	6 for 12 D for 26
5	Minimum	7 for 14 E for 28
6	200 ms	8 for 16 F for 30
7	400 ms	
8	1.0 sec	
9	2.55 sec	

Character String

The EuroRoute has an Access Control Sequence (ACS) Token that allows character strings to be contained in the ACS. This token may be used in the **6r5** ACS string.

Example:

- In the string: D1234D
D is the ACS Token (it must appear before and after the string)
1234 are the digits that are dialled.

Programmable 100 ms Wait Timer

The ***06n** tells the EuroRoute wait for "n" x 100 ms.

Programmable 1 Second Wait Timer

The ***07n** tells the EuroRoute wait for "n" x 1 second.

MF4 Digit Detector

The ACS token **#1CD** will be used to define the MF4 tone that is to be detected (Table C) and to set the maximum time that the detector will wait for the presence of the tone (Table D). **R59/R79** is used to set the MF4 guard timing (refer to page 38). The MF4 digit detector is able to:

- Look for the network to generate a specific MF4 tone
- Look for the specific MF4 tone to be detected (MF4 guard timing)
- Look for up to 20 seconds for detection of this digit
- Detect the specific MF4 tone and continue or do not detect the specific MF4 tone and fail the call sequence.

Table C		Table D	
C Value	MF4 Tone	D Value	Wait Time (sec)
0	0	0	2
1	1	1	2
2	2	2	4
3	3	3	6
4	4	4	8
5	5	5	10
6	6	6	12
7	7	7	14
8	8	8	16
9	9	9	18
* or A	*	*	20
# or B	#	C	24
C	A	D	26
D	B	E	28
E	C	F	30
F	D		

Note:

Do not use the **#1CD** tone detector at a time in the ACS when digits are expected from the subscriber side.

Example:

- 259 5
- 625 **3#1D827**
 - 3** Dial the contents of **621**
 - #1D8** Wait 16 seconds to detect the MF4 digit "B"
 - 2** Dial the destination number
 - 7** Through connect

Route String Programming

Programmable Tone Detector

The tone detector provides center frequency selection with an approximate 7 percent window of frequency detection granularity around the center frequency. The ***4XY** token must be used before the **#*AB** token in order to initiate the programmable detector.

- *4XY** Selects the frequency for the programmable detector.
- #*AB** Selects the programmable tone detector (for AB values, see page 42.)

XY	Frequency selected
00 - 09	Defaults to 100 Hz
10 - 23	1000 Hz - 2300 Hz (100 Hz intervals)
24 - 99	240 Hz - 990 Hz (10 Hz intervals)

Example:

- 625 ***410#*5127**
 - *4** Set programmable tone detector frequency
 - 10** Look for 1000 Hz frequency
 - #*** Enable programmable tone detector
 - 51** Where 5 is the A value (wait for a minimum amount of dial tone) and 1 is the B value (2 seconds)
 - 2** Dial destination number
 - 7** Through connect

Callback Token

When the token ***5XNN** is encountered in the ACS, the EuroRoute disconnects the Exchange Line side and starts a timer. During the predetermined duration of the timer (see values below), the EuroRoute will wait for incoming ringing. Once the ringing is detected, the remaining ACS tokens are executed. If the timer expires due to no incoming ringing being detected, the EuroRoute will provide the subscriber with reorder tone. While the timer is activated, the EuroRoute can provide a 400Hz tone back to the subscriber side at a **1 second on** and **7 seconds off** cycle, until the incoming ringing is detected or the timer is expired (see values below).

Token	XNN =
*5XNN	X = 0 no audible tone heard by the subscriber side X = 1 audible tone heard by the subscriber side NN = 00-99 "wait for ringing" seconds

Example:

- 625 **#5623*072*5099#46127##**
 - #562** Wait for 200 ms of 425 Hz dial tone, for up to 4 seconds
 - 3** Dial the contents of 621
 - *072** Pause for two seconds
 - *5025** Drop the Exchange side of the line in order to wait for incoming ringing for up to 25 seconds
 - #461** Answers the Exchange line upon detection of incoming ringing (looks for 200 ms of 440 Hz for up to 2 seconds)
 - 2** Dial destination number
 - 7** Through connect

Callback Disconnect Sequence

The EuroRoute has the ability to send terminating characters, for instance an MF4 #, to clear the local PTT line after a routed call has been made. After the user hangs up the telephone, the PTT line will be disconnected for the time specified by the **103** register (On-hook Timing). The PTT line will then be reseeded, and the terminating characters will be dialled.

Any of the tokens that are listed in the following table may be used to access the terminating characters or used as terminating characters.

Tokens and their Definitions
0 for dial a 0
1 for dial a 1
2 for dial the destination number (up to 106 digits)
3 for dial the Route Access Code (Register 6r1)
4 for dial the Authorisation Number (Register 6r2)
5 for dial the Cost Centre Code (up to 22 digits)
8 for change to MF4 dialling
9 for dial contents of Register 6r4
*7 for dial the contents of Register 6r7 (refer to page 46)
*8 for dial the contents of Register 6r8 (refer to page 47)
*9 for dial the contents of Register 6r9 (refer to page 47)
#0* for dial a * (MF4)
#00 for dial a # (MF4)
#01 for dial a # if the last digit dialled out was not a #
#06 for dial the PABX/Centrex select digits buffer
#07 for dial the Primary select digits buffer
#08 for dial the Alternate select digits buffer

Example:

- **625 #562279** the ACS string will:
 - #562** Wait for 200 ms of 425 Hz dial tone, for up to 4 seconds
 - 2** Dial destination number
 - 7** Through connect
 - 9** Dial the contents of **6R4** after the phone is hung up.

Access Number for Carrier Telephone Network

When programmed, this access number will be output on calls routed as a Carrier connection that requires an access number to be dialled out before allowing access. This Register is dialled out by using the "3" ACS token. The Default value for all Routes is blank. This entry can be a maximum of 80 digits and can be done as follows:

Register	r =	XX =
6r1 XX	1 for Route 0 2 for Route 1 3 for Route 2 4 for Route 3	5 for Route 4 6 for Route 5 7 for Route 6 8 for Route 7 Maximum of 80 digits (Blank) ✓

Note that this register should end with a ##, which indicates that the string is finished.

Route String Programming

Authorisation Number

You can enter an authorisation number that can be output automatically to access a Carrier. The entry can be a maximum of 80 digits. This Register is dialled out by using the "4" ACS token.

Register	r =	XX =	
6r2 XX	1 for Route 0 2 for Route 1 3 for Route 2 4 for Route 3	5 for Route 4 6 for Route 5 7 for Route 6 8 for Route 7	Maximum of 80 digits (Blank) ✓

Note that this register should end with a ##, which indicates that the string is finished.

Dummy Cost Centre Code

You can program a Dummy Cost Centre Code that will substitute an Cost Centre Code, if a complete Cost Centre Code is not dialled by the user (see Register **R54/74** on page 37). The entry can be a maximum of 80 digits. This Register is dialled out by using the "5" ACS token.

Register	r =	XX =	
6r3 XX	1 for Route 0 2 for Route 1 3 for Route 2 4 for Route 3	5 for Route 4 6 for Route 5 7 for Route 6 8 for Route 7	Maximum of 80 digits (Blank) ✓

Note that this register should end with a ##, which indicates that the string is finished.

User Defined Route String Register

You can program a number to be dialled out in the ACS. The entry can be a maximum of 80 digits. This Register is dialled out by the "9" ACS token:

Register	r =	XX =	
6r4 XX	1 for Route 0 2 for Route 1 3 for Route 2 4 for Route 3	5 for Route 4 6 for Route 5 7 for Route 6 8 for Route 7	Maximum of 80 digits (Blank) ✓

Note that this register should end with a ##, which indicates that the string is finished.

User Defined Route String Register

You can program a number to be used as a Route String Register. This Register is dialled out by the "*7" ACS token:

Register	r =	XX =	
6r7 XX	1 for Route 0 2 for Route 1 3 for Route 2 4 for Route 3	5 for Route 4 6 for Route 5 7 for Route 6 8 for Route 7	Maximum of 80 digits (Blank) ✓

Note that this register should end with a ##, which indicates that the string is finished.

User Defined Route String Register

You can program a number to be used as a Route String Register. This Register is dialled out by the “*8” ACS token:

Register	r =	XX =
*8 XX	1 for Route 0 2 for Route 1 3 for Route 2 4 for Route 3	5 for Route 4 6 for Route 5 7 for Route 6 8 for Route 7
		Maximum of 80 digits (Blank) ✓

Note that this register should end with a ##, which indicates that the string is finished.

User Defined Route String Register

You can program a number to be used as a Route String Register. This Register is dialled out by the “*9” ACS token:

Register	r =	XX =
*9 XX	1 for Route 0 2 for Route 1 3 for Route 2 4 for Route 3	5 for Route 4 6 for Route 5 7 for Route 6 8 for Route 7
		Maximum of 80 digits (Blank) ✓

Note that this register should end with a ##, which indicates that the string is finished.

Route String Programming

Route and Line Peg Counters

Route and Line Peg Counters

Peg counters determine the number of times a route or trunk has had successful and unsuccessful calls.

Route Peg Counter

The Route Peg Counter logs the number of times the route has had successful and unsuccessful calls. The counter has a log range of 0-9999. If the counter should reach the range of 9999, a “rollover” will not occur. The information will remain in the counter buffer until the command **942 969** is used while in programming mode, or the EuroRoute is programmed back to the factory defaults. To view the logged information, while in modem programming mode, enter the command **967**. The counter will not reset when using the command of **967**. Programming with any MF4 instrument is not supported.

Route	Usage	Fail
-----	-----	-----
0	0000	0000
1	0000	0000
2	0000	0000
3	0000	0000
4	0000	0000
5	0000	0000
6	0000	0000
7	0000	0000
None	0000	0000

Note: The *Usage* column will count the number of times that a route has successfully executed. The *Fail* column will count the number of times that a call has been sent to a route, but has failed to detect dial tone or EuroRoute reorder is heard by the user.

Line Peg Counter

The Line Peg Counter logs the number of times the line has had successful and unsuccessful calls. The counter has a log range of 0-9999. If the counter should reach the range of 9999, a “rollover” will not occur. The information will remain in the counter buffer until the command **942 969** is used while in programming mode, or the EuroRoute is programmed back to the factory defaults. To view the logged information, while in modem programming mode, enter the command of **967**. The counter will not reset when using the command of **967**. Programming with any MF4 instrument is not supported.

Line	Usage	Fail
-----	-----	-----
1	0000	0000

Note: The *Usage* column will count the number of times that the line has successfully completed a call. The *Fail* column will count the number of times that a call has been sent to a route, but has failed to detect dial tone or EuroRoute reorder is heard by the user.

Route and Line Peg Counters

Power-on Peg Counter

The Power-on Counter is a four digit (decimal) counter which is incremented whenever the EuroRoute is powered on. This counter can only be zeroed by * initialising the EuroRoute. The command may only be used while in terminal or remote-modem programming. Enter the command **961**, and a four digit number will be displayed indicating the number of power-ups that have occurred since the last * initialisation.

```
>961 0003
```

Call Home Well

General Description

At a given time on either a given day of each month or daily, the EuroRoute will originate a call by using a specific route or by dialling a specific number directly. After dialling the Call Home Well number, the EuroRoute will wait for a programmed delay, send the trunk number as an MF4 digit and wait for a programmed time for the Remote Access code (Register **606**), or it will send modem originate (V.21 channel 1) tone. While originate tone is being sent and the EuroRoute does not see modem answer (V.21 channel 2) carrier from the far end within a programmed time, it will send an MF4 B tone when the timer expires.

If neither the Remote Access code nor the answer carrier is received within the programmed times, the EuroRoute will be locked out for the time specified by Register **129** and will then go idle.

Each string entry must be terminated with a “###”.

Call Home Route to Use

You can specify the route which the EuroRoute will use when it calls home.

Register	T =
003 T	0 for direct dial MF4 using number in Register 600 ✓ 1 for execute Route 0 (615) 2 for execute Route 1 (625) 3 for execute Route 2 (635) 4 for execute Route 3 (645) 5 for execute Route 4 (655) 6 for execute Route 5 (665) 7 for execute Route 6 (675) 8 for execute Route 7 (685) 9 for direct dial rotary using number in Register 600

Call Home Wait for Access Code

This register is used to select the amount of time before the EuroRoute will wait for the access code in the **604** Register before providing origination tone.

Register	T =
004 T	0 for no delay ✓ 1 for 10 seconds 2 for 20 seconds 3 for 30 seconds 4 for 40 seconds 5 for 50 seconds 6 for 60 seconds 7 for 70 seconds 8 for 80 seconds 9 for send modem originate tone immediately (bypass the Access Code) and start the timer in Register 005

Call Home Well

Call Home Wait for Carrier

This register is used to select the amount of time that the originating modem will wait for the called modem to answer before giving up and looking for an MF4 programming entry code.

Register	T =
005 T	0 for less than one second, then wait for MF4 Security Code 1 for 10 seconds 2 for 20 seconds 3 for 30 seconds ✓ 4 for 40 seconds 5 for 50 seconds 6 for 60 seconds 7 for 70 seconds 8 for 80 seconds 9 for 90 seconds

Note:

Omitting the wait for Access Code and putting out the modem originate tone immediately (**004 = 9**) is useful for calls in which a modem answers the line directly.

A delay introduced by Register **004** may be used for calls that are answered manually. After completing either dialling or the Access Control Sequence, the EuroRoute will wait for a period of time defined by Register **004**, then send its trunk number as an MF4 digit and wait for a period of time defined by Register **128** for the remote end to enter the Access Code (**606**). If the Access Code is incorrect, the EuroRoute will lockout for a period of time defined by Register **129** (the default is 90 seconds). If the Access Code is correct, the EuroRoute applies modem originate tone for the time defined by Register **005**.

After the EuroRoute applies modem originate tone, the EuroRoute can go into either modem or MF4 remote programming mode (see remote programming information in Section 9). If the EuroRoute and the remote modems connect and the Terminal Security Code (**604**) is input, modem programming will be entered. If the carrier presentation time expires, the EuroRoute will prompt the programmer for the MF4 Security Code (**603**) by sending an MF4 B.

If the trunk is busy at the time of Call Home, the EuroRoute will wait for the trunk to be freed up. Once the EuroRoute has started a Call Home session, either direct dialed or routed, it has fulfilled its obligation to Call Home, whether the call is answered or not.

Call Home Enable/Disable

You can control whether the EuroRoute will Call Home.

Register	T =
014 T	0 for Call Home disabled ✓ 1 for Call Home enabled

Call Home Number

This register stores the pre-defined telephone number that will be used by the EuroRoute to Call Home (**003 = 0 or 9**, in order to be used). The Call Home feature is disabled when this register is blank:

Register	XX =
600 nnn	nnn = the Call Home telephone number. (Blank) ✓

Call Home Date/Time

This register defines the date and time that the EuroRoute should Call Home. The Call Home feature is not executed when this register is blank or has an incorrect day or time:

Register	XX =
608 DDHHMM	DD = day of the month (00-31) (Blank) ✓ 00 = daily calls 01-31 = monthly calls HH = hour of the day (00-23) MM = minutes of the hour (00-59)

Internal Clock Setting

This register sets the EuroRoute's internal clock:

Register	XX =
980 MMDDHHMM	MM = month DD = day of the month HH = hours MM = minutes

Call Home Examples

Example One

This example sets a EuroRoute to Call Home every day at 2300 hours. The EuroRoute will send modem tone immediately, so that as soon as the remote end answers it can be connected to a modem. When the CONNECT message is displayed, a valid terminal password can be entered, in order to start the programming session.

The EuroRoute will auto-answer after the time defined in the **127** Register is expired, and it will immediately put out modem tone for the time defined in the **005** Register. After the EuroRoute connects, it will wait for the time defined by the **128** Register, and if the EuroRoute connects wait for the Terminal Security Code (Register **604**). If the time defined by the **128** Register has expired, you will be unable to enter a password.

- 003 0 Direct dial the contents of Register **600**
- 004 9 Send modem originate tone immediately
- 005 3 Thirty seconds of modem tone
- 014 1 Call Home enabled
- 980 MMDDHHMM System Clock
- 600 08001234567 ## Call Home Number
- 608 002300 ## Call Home daily at 2300 hours
- 128 6 EuroRoute will wait 60 seconds for the Terminal Security Code
- 129 0 Lockout is disabled after failure.

Example Two

This example sets a EuroRoute to Call Home on the first day of each month at 2215 hours, using Route 7. In order to start the modem, the Remote Access Code (Register **606**) will have to be entered (it will act as an MF4 modem wake-up code). When the CONNECT message is displayed, a valid terminal password can be entered, in order to start the programming session.

The EuroRoute will auto-answer after the time defined by the **127** Register is expired, after which time it will expect the Remote Access Code before the time defined by the **128** Register expires. If the time defined by the **128** Register expires, you will be unable to enter the Access Code. If the Access Code is entered, the EuroRoute will put out modem tone for the time defined by the **128** Register, and if the EuroRoute connects then it will wait for the Terminal Security Code (Register **604**). If the time defined by the **128** Register expires, you will be unable to enter the Terminal Security Code.

- 003 8 Call Home using Route 7 (ACS 685)
- 004 0 No delay before Remote Access Code expected
- 005 3 Thirty seconds of modem tone
- 014 1 Call Home enabled
- 980 MMDDHHMM System Clock
- 681 08001234567 ## Call Home Number
- 685 #80237## Route 7 dialing rule
- 608 012215## Date and time to Call Home
- 128 3 EuroRoute will ring for 60 seconds
- 129 0 Lockout is disabled after failure.

System Information

Figure A.5 Legal EuroRoute Inputs

From a Standard MF4 Phone	From Terminal	MF4 Conversion
0 through 9	0 through 9	0 through 9
#, *	#, *	#, *
	A or a	*
	B or b	#
	C or c	A
	D or d	B
	E or e	C
	F or f	D (if it is within a string)
	Space	#

Fourth Column Digits From a Terminal

You can program the EuroRoute to dial out the Fourth Column MF4 digits A, B, C, D. These can be programmed from a terminal by:

Enter
C0 for A
C1 for B
C2 for C
C3 for D

Figure A.6 ASCII Codes

CHAR.	HEX CODE	CHAR.	HEX CODE	CHAR.	HEX CODE	CHAR.	HEX CODE
NUL	00	SP	20	@	40	,	60
SOH	01	!	21	A	41	a	61
STX	02	”	22	B	42	b	62
ETX	03	#	23	C	43	c	63
EOT	04	\$	24	D	44	d	64
ENQ	05	%	25	E	45	e	65
ACK	06	&	26	F	46	f	66
BEL	07	'	27	G	47	g	67
BS	08	(	28	H	48	h	68
HT	09	)	29	I	49	i	69
LF	0A	*	2A	J	4A	j	6A
VT	0B	+	2B	K	4B	k	6B
FF	0C	,	2C	L	4C	l	6C
CR	0D	-	2D	M	4D	m	6D
SO	0E	/	2E	N	4E	n	6E
SI	0F		2F	O	4F	o	6F
DLE	10	0	30	P	50	p	70
DC1	11	1	31	Q	51	q	71
DC2	12	2	32	R	52	r	72
DC3	13	3	33	S	53	s	73
DC4	14	4	34	T	54	t	74
NAK	15	5	35	U	55	u	75
SYN	16	6	36	V	56	v	76
ETB	17	7	37	W	57	w	77
CAN	18	8	38	X	58	x	78
EM	19	9	39	Y	59	y	79
SUB	1A	:	3A	Z	5A	z	7A
ESC	1B	;	3B	[	5B	{	7B
FS	1C	<	3C	\	5C	|	7C
GS	1D	=	3D	]	5D	}	7D
RS	1E	>	3E	^	5E	~	7E
US	1F	?	3F	-	5F	DEL	7F

Programming Options

To Initiate a Local Tandem Mode

At the local site (using a terminal and a tandem capable Controller), enter the PROGRAMMING MODE, then the TANDEM MODE commands **942 908**. The Controller will self-prompt on the screen. It will ask which line to use and acknowledge receipt of the dial tone, at which time the number to be dialled is entered. The user may pick up the associated phone at this point to talk to someone at the remote location. Once the remote EuroRoute or the FAX machine has answered, enter the Remote Access Code. The default Remote Access Code is **#1***. If the modem is enabled in the EuroRoute, modem carrier tone will be presented for a period specified by the **011** Register. Once the modem carrier tone stops, the Remote MF4 Security Code must be entered before entering Tandem Mode. Upon a successful match, an acknowledge tone will be sent back to the local site from the remote EuroRoute.

The **last** command to the remote EuroRoute should be **987** in order to exit program mode in the remote EuroRoute. Failure to do so, will result in the remote EuroRoute telephone line timing out of the programming mode, which will lock up (for two minutes) that telephone line from receiving incoming calls.

Acknowledgment Characters

While programming the EuroRoute with a terminal remotely from Tandem mode, you will see characters that specify correct entries and incorrect entries. In general, after each correct entry, the EuroRoute will respond with an "F" character.

If You See - C

"C" means that the command you have entered has been recognised as valid (correct), i.e. you entered **902**.

If You See - F

"F" means that the entry you have made has been accepted. This occurs after a parameter has all the digits it needs to complete programming, or you entered ## on a variable length parameter indicating completion of the entry. For example, if you dial **100** you will see "C", then dial **2** and you will see "F".

If You See - E

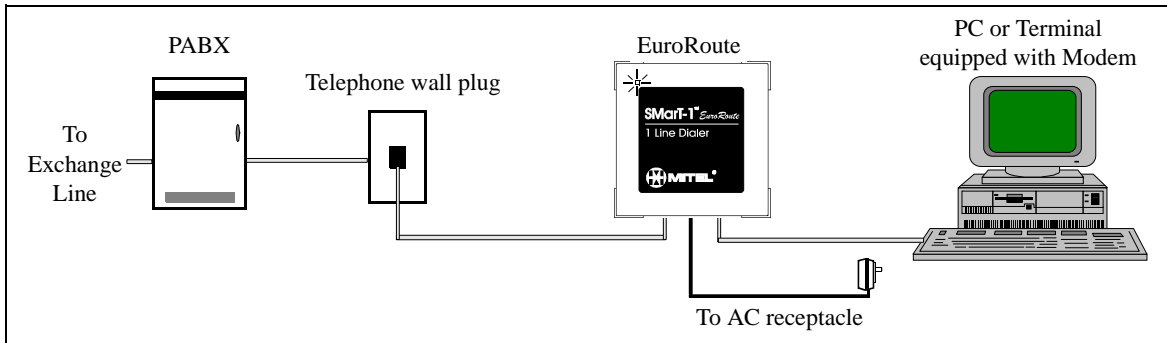
"E" will be seen, if you have made an incorrect programming entry.

Note: In the event of an invalid entry, try the entry again. No data was accepted by the EuroRoute for that entry.

Programming Options

Data Verification

Data Verification confirms the contents of a EuroRoute's database. Data Verification does not alter the contents of the EuroRoute's database and is intended to be used with a terminal, or PC access with a **V.21 300** baud modem as shown below.



Conditions

To use Data Verification, the EuroRoute must be fully operational and both the terminal and the modem must be set at a 300 baud rate.

You only need to enter **902** once. If you do not exceed the two minute programming timer, or manually exit Data Verification, you will remain in Data Verification.

Modem Programming Trouble Shooting

Local Programming

- When trying to connect locally to the EuroRoute, the modem responds 'NO DIALTONE':
 - 1) Verify that the line side of the modem is connected to the FAX side of the EuroRoute.
 - 2) Verify that either a Exchange Line simulator or a Exchange Line is connected to the line side of the EuroRoute.
 - 3) If a Exchange Line simulator is being used, it is necessary to set your extended results register not to look for dial tone. This is done by entering **ATX0** at the modem command state for Hayes® compatible modems.
- When trying to connect locally to the EuroRoute, the modem responds 'NO CARRIER' or no response is seen:
 - 1) Verify that the line side of the modem is connected to the FAX side of the EuroRoute.
 - 2) Verify that either a Exchange Line simulator or a PABX/Centrex line is connected to the line side of the EuroRoute.
 - 3) If you are using a modem that supports error-control communications, the error control must be disabled. This is done by entering **AT&Q0** at the modem command state for Hayes® compatible modems, and by entering **ATM0** for US Robotics modems.
 - 4) If you are using a modem that supports multiple communication protocols, you must lock the protocol to V.21. This is done by entering **ATB15N0S37=3** at the modem command state for Hayes® compatible modems, and by entering **ATB0F1** for US Robotics modems.

Remote Programming

- When you try to connect remotely to the EuroRoute the modem responds 'NO CARRIER' or no response is seen:
 - 1) Verify that the EuroRoute or the FAX machine is answering the call.
 - 2) Verify that the Remote MF4 Security Code (**#1***) is being sent during a silent period after the FAX or EuroRoute auto-answers.
 - 3) If you are using a modem that supports error-control communications, it must be set for asynchronous mode. This is done by entering AT&Q0 at the modem command state for Hayes® compatible modems.
 - 4) If you are using a modem that supports multiple communication protocols, you must lock the protocol to V.21. This is done by entering ATB15N0S37=3 at the modem command state for Hayes® compatible modems, and by entering ATB0F1 for US Robotics modems.
- Method of having the modem send the Remote MF4 Security Code if the EuroRoute auto-answers:

Using the modem string “ATDTXXXXXXX,,,,,#1*,” where XXXXXXXX represents the telephone number to dial. Each ',' will insert a 2 second delay before dialling the **#1***, so the telephone number will be dialled, then the modem will wait 14 seconds. The modem will then send the security code and try to connect. The number of 2 second waits that have to be used depends on the delays in the network, the amount of time specified to wait before auto-answering (Register **127**). The example shown should work if Register **127** is set to a **1**.
- Method of having the modem send the Remote Access Code if the FAX machine auto-answers:

Using the modem string “ADTDXXXXXX,,,,,#1*, #1*, #1*”, where XXXXXXXX represents the telephone number to dial; the “**#1*, #1***” at the end of the modem string sends the default access code; waits 2 seconds, and then sends the code again; waits 2 seconds, and then send the code again. This sequence should allow 1 set of access codes to be sent during the silent period (between FAX tones) of the FAX machine. Each “,” will insert a 2 second delay before dialling the “**#1***” Remote Access Code. The number of “2 second waits” that have to be used depends on the delays in the network, and the specified wait before the FAX machine answers the call. The **011** register should be set to the maximum value of * to attempt this method of access.

Note:

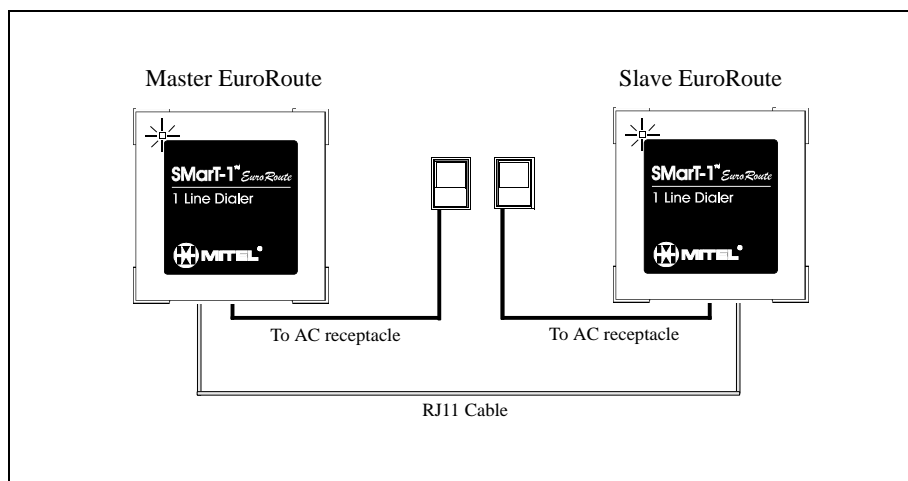
There are modems that will use different commands to set up asynchronous mode, or other options, than the Hayes® compatible modems. If the AT commands in the trouble shooting section result in an error message appearing on the monitor, then consult the programming guide for the modem that is being used, for the appropriate AT commands.

Programming Options




Cloning the EuroRoute

Multiple EuroRoutes can be programmed to operate identically by using a method called "Cloning". One EuroRoute is programmed (referred to as the Master) and then connected to a second EuroRoute that you wish to program, using a standard RJ11 cable (8380-036). The Cloning method can only be used with EuroRoutes of the same Revision.

The illustration below explains the configuration that is needed to use the Cloning feature.



Cloning Procedure

- Connect the power to the Master EuroRoute
- Using an MF4 phone, enter program mode by entering #0*.
- Modem tone will be heard followed by a .
- Enter **942** (you will hear ) and then enter **906** (you will hear ) to enter Clone Master Mode.
- Hang up the telephone. The Master EuroRoute will remain in Clone Master Mode after the telephone is hung up.
- Verify that the LED on the Master EuroRoute is flashing green. The flashing green LED indicates that the Master EuroRoute is in Clone Master Mode.
- Connect the line marked "LINE OUT" on the Master EuroRoute to the line marked "FAX" of the Slave EuroRoute with the RJ11 cable. The line marked "LINE OUT" on the Slave EuroRoute must be open.
- Power up the Slave EuroRoute.
- Verify that the LED on the Slave EuroRoute is flashing green.
- Wait approximately 5 minutes for the cloning process to complete.
- When the clone is complete, the Slave EuroRoute LED will turn solid red and the Master EuroRoute will flash green. If the clone failed, then the Slave EuroRoute LED will turn solid red and the Master EuroRoute will flash red. To retry a failed cloning attempt, simply power down the Slave EuroRoute, and then reapply power to the unit.
- Another cloning session may be started once the Slave EuroRoute LED is solid red. Remove the Slave EuroRoute that was successfully cloned, and replace it with a new Slave EuroRoute. This process may be continued as many times as desired.
- The only way that the Master EuroRoute can exit Clone Master Mode is to power down the unit.

Index

A

Access Control Sequences 41
Access Number for Carrier
 Telephone Network 45
Acknowledgment
 Characters 57
 Tones 15
Action on Call Failure 38
ASCII Codes 56
Authorisation Number 46

C

Callback 44
Call Failure Action 38
Call Home
 Date/Time 53
 Enable/Disable 52
 Examples 53
 Number 52
 Route to Use 51
 Wait for Access Code 51
 Wait for Carrier 52
Called Party Programming 19
Character String 42
Clock Setting 53
Cost Centre Code
 Dummy Account Code 46
 Number of Digits 37
 Type 37

D

Default Route 27
Dial Tone 24
Digit Recognition on Outgoing Calls 29
Digits in a Search Table 32

E

Callback 44
Error Status
 LED 11
 Tone 11

F

Fourth Column Digits from a Terminal 55

G

Glossary 7

H

Hardware Specifications 12

I

Incoming Call Detection 26
Initialisation 13
Interdigit Time Out
 Other Calls 25
 0+ Calls 25
 00+ Calls 25

L

LED Status 11
Legal EuroRoute Inputs 55

M

Machine Identifier 19
MF4 Dialling
 Rate 1 23
 Rate 2 39
 Rate 3 39
Modem Programming Trouble Shooting 58
Mounting 9

O

Off-hook Operation 27
Ordering Information 13

P

PABX/Centrex
 Enable/Disable 28
 Examples 34
 Search Tables 841-845 34
Peg Counters
 Line 49
 Power-on 50
 Route 49
Power Failure/Interruption 11
Powering up 11
Programmable Tone Detector 44

Index

Programming
 Data Verification 58
 Local 16
 Remote 16
 With a Terminal 16

100 MSec Wait 42
Tones for Routes/Cost Centre Codes 26

R

Register Index 5
Repeat Call Attempt 27
Rotary/MF4 Dialling Type 23
Route String
 Four 47
 One 46
 Three 47
 Two 46
Route String Relationships 41

S

Search Tables 31
Security Code
 Local 36
 Remote 36
 Remote MF4 35
 Terminal 35
Security Code Lockout Timer 29
Select Digit Buffers 34
Speed Calls
 Setting Up, Method 1 20
 Setting Up, Method 2 21

T

Tandem Mode 57
Terminating Variable Length Entries 15
Timers
 A and B Dial Tone 42
 Access/Security Code 28
 Auto-Answer 28
 Between Outgoing Rotary Digits 25
 Carrier Presentation for Modem 19
 Dial Tone Delay 24
 Digit Detector Guard 38
 Flash Generation 24
 Inter-Ring 26
 Off-hook 29
 On-hook 23
 Trunk Release and Connection 24
 1 Second Wait 42