4.3.4 - Equipment Constitution Menu

The Equipment Constitution menu (Figure 4.2) is related to the previous menu. It provides read access to the equipment constitution and to some information items relative to PQM 2100 Cards.

The menu screen is as follows:

```
PQM2100 (C) SAT 1996
Eqpt constitution->
```

Access to the Card Information sub-menu below is gained by pressing ➢.
Card information sub-menu
This sub-menu provides the capability of displaying the equipment constitution from the screens below.

```
Equipment constitution:
1-Rx ASI Int.->
```

The ⩓ and ⩔ keys provide access the Card information sub-menus, which are arranged circularly and in the following order:

`1-Rx ASI->`	ASI Rx Int Card
or	
`1-34 Mbit/s G703 Int.->`	34 Mbit/s G.703 Rx Int Card
or	
`1-45 Mbit/s G703 Int.->`	45 Mbit/s G.703 Rx Int Card
or	
`1-M2P Rx Int.->`	M2P Interface Card (RS422)
`2-QAM Encoder->`	DVB QAM Encoder Card
`3-QAM Modulator->`	QAM Modulator Card
`4-No card`	Empty slot
or	
`4-VHF1 IF-RF Converter->` (`VHF2 or UHF`)	IF-RF converter when it is supervised and managed by the software via the I^2C® bus,
`Display Keypad->`	Keypad/Display Card
`O & M->`	Supervision and Management Card

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Card information screen

```
O&M
Code: K5617959
```

The ⮝ and ⮟ keys provide access the Card information screens, which are arranged circularly and in the following order:

`Code`	Manufacturer's part number,
`Release number`	Card management specifications (Operating Index (2 charact.) and Version (2 charact.)),
`Serial number`	Card serial number,
`Date of Fab.`	Date of manufacture,
`Date of Gar.`	End of guarantee date,
`Soft vers. (*)`	Card software version,
`Eth. (**)`	Ethernet Address.

(*) This information is specific to the O & M and Keypad/Display Cards and the external IF-RF Converter Unit when it is supervised and managed by the software via the I^2C® bus.

(**) This information is specific to the Ethernet O & M.

The table after gives Card positions and available Card combinations:

Slot	Cards	Possible Combinaisons																												
1	ASI Rx Int.	X	X	X	X	X	X	X	X	X																				
	34 Mbit/s G.703 Rx Int.										X	X	X	X	X	X	X	X	X											
	45 Mbit/s G.703 Rx Int.																			X	X	X	X	X						
	M2P Int. (RS422)																								X	X	X	X		
2	DVB QAM Encoder	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	QAM Modulator - IF = 36 MHz 5.5 to 7 Mbaud	X	X	X	X					X	X	X	X							X	X	X	X							
	QAM Modulator - IF = 36.15 MHz 5.5 to 7 Mbaud					X								X										X						
	QAM Modulator - IF = 44 MHz 4 to 5.2 Mbaud						X	X	X	X					X	X	X	X							X	X	X	X		
4	IF-RF converter - VHF 1 (managed)	X					X			X				X					X						X					
	IF-RF converter - VHF 1 (managed)		X					X			X				X					X						X				
	IF-RF converter - UHF (managed)			X					X			X				X					X						X			
	Empty (IF-RF converter not managed)				X	X				X				X	X			X				X	X					X		

(*): When the external IF-RF converter is supervised and managed via the keypad/display supervisory software via the I^2C® bus, it is considered as a Card incorporated within the PQM 2100 Modulator Unit in slot 4.
When the external IF-RF converter is not supervised and managed by the software, slot 4 is empty.

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4.3.5 - Maintenance Menu

The Maintenance menu is related to the previous menu. It provides the capability of displaying and/or changing PQM 2100 Modulator Unit maintenance operations, depending on the operator's user class:

1) Reset Cards

2) Nyquist Filtering,

3) CW Mode,

4) Link test (MPEG2 test frame),

5) Link test (Data on TEST IN),

The above functions are described in Sub-section 5.4.

The display screen for this menu is as follows:

```
PQM2100 (C) SAT 1996
Maintenance mode->
```

Press ➢ to gain access to the Reset Cards screen.

1) Reset Cards

This function allows all unit Cards to be reset from the following Reset cards screen:

```
Maintenance mode:
Reset cards->
```

Access to the Reset cards display or change screen below is gained by pressing ➢.

```
RESET CARDS:
OFF (or ON)
```

This parameter can only be changed by operators having the user class **User** (indicated by the presence of a cursor).

OFF is the selection by default (cards no-reset).

Press ⋏ or ⋎ to change from "OFF" to "ON" (cards reset).

Press ENTER to accept card reset ; upon card reset completion, the parameter returns automatically to "OFF" and the "Reset Cards" menu again is displayed.

Press ⋏ or ⋎ to change the selected Card reset option from "ON" to "OFF", or vice versa, then press **ENTER** to accept.

2) Nyquist Filtering

This function controls selection of full or square root Nyquist filtering from the following Nyquist Filtering screen:

```
Maintenance mode:
Full Nyquist filtering->
```

The Nyquist filtering change screen below is selected by pressing ➢.

```
Full Nyquist filtering:
ON (or OFF)
```

This parameter can only be changed by operators having the user class **User** (indicated by the presence of a cursor).

Press the ⋏ or ⋎ keys to select the desired filtering type by changing from Full Nyquist Filtering ("ON") to Square root Nyquist Filtering ("OFF") or vice versa, then press **ENTER** to accept.

3) Pure Carrier (CW) Mode

This function provides the capability of checking for link establishment and measuring transmitter output power. The following CW Mode screen allows the function to be displayed or activated.

```
Maintenance mode:
CW Mode->
```

Access to the CW Mode change screen below is gained by pressing ➢.

```
CW Mode:
ON (or OFF)
```

This parameter can only be changed by operators having the user class **User** (indicated by the presence of a cursor).

Press ⋏ or ⋎ to select PQM 2100 generation of a pure carrier wave by toggling from "OFF" (modulated carrier) to "ON" (pure carrier), or vice versa, then press **ENTER** to accept.

4) Link Test (MPEG2 Test Frame)

This function allows an MPEG2 test frame (FAW and binary zeros) internally generated by the PQM 2100 Unit to be transmitted for detection by the demodulator. This function allows link performance testing after Reed-Solomon encoding. The following Fixed Tx data (MPEG2 test frame) screen allows the function to be displayed or activated.

```
Maintenance mode:
Fixed Tx data->
```

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Access to the Fixed Tx data change screen below is gained by pressing ➢.

```
Fixed Tx data:
ON (or OFF)
```

This parameter can only be changed by operators having the user class **User** (indicated by the presence of a cursor).

Press ⋏ or ⋎ to activate PQM 2100 link testing (Fixed Tx data) by toggling from "ON" to "OFF" or vice versa, then pressing **ENTER** to accept, and return to the link test (Fixed Tx data) screen. Upon pressing the ENTER key and provided that the Fixed Tx data link test is activated, the link test (with data on TEST IN) command is deactivated (if initially active).

5) Link Test (Data on TEST IN)

The function provides the capability of transmitting a random test pattern from the Test port, together with its associated clock signal, without scrambling, Reed-Solomon encoding, and interleaving. The test pattern is detected at the receiving end and recovered before de-interleaving. Link error rate performance can thus be monitored. The Link test (data on TEST IN) screen allows the function to be displayed or activated.

```
Maintenance mode:
Data on TEST IN->
```

Access to the Link test (data on TEST IN) change screen below is gained by pressing ➢.

```
Data on TEST IN:
ON (or OFF)
```

This parameter can only be changed by operators having the user class **User** (indicated by the presence of a cursor).

Press ⋏ or ⋎ to activate link testing (data on TEST IN) by toggling from "ON" to "OFF" or vice versa. Then press **ENTER** to accept and return to the Link Test (data on TEST IN) screen. Upon pressing the ENTER key, and provided that the link test command (data on TEST IN) has been activated, the Fixed Tx data link test is deactivated (if initially active).

4.3.6 - Password Modification Menu

The Password modification menu allows the password to be modified.

The display screen for this menu is as follows:

```
PQM2100 (C) SAT 1996
Password modification-->
```

Access to the Password modification screen below is gained by pressing ➢.

```
Enter OLD PASSWORD
********
```

Enter the password using the ➢, ➢, ➢ and ➢ keys, and accept. If no password has been added, press ENTER.

1) Incorrect Password

The following screen is displayed:

```
Access denied
Press any key
```

Pressing any key returns to the Password modification menu. **The operator must have the user class Observer.**

2) Correct password

The following screen is displayed:

```
Enter NEW PASSWORD
********
```

The password consists of 4 to 8 characters corresponding to the ➢, ➢, ➢ and ➢ keys. Pressing each key causes an asterisk (*) to be displayed on screen.
Press ENTER for validation.

Note: Just press ENTER for use without a password.

The password is correct

The following screen is displayed:

```
Confirm NEW PASSWORD
********
```

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If the password entered is different from the new password, the following screen is displayed:

```
Wrong PASSWORD
Press any key
```

Pressing any key returns to the Password modification menu.

The password is incorrect

The password is incorrect if the number of characters entered is other than "0" (operation without a password), less than 4 or greater than 8 (warning beep). The following screen is displayed:

```
Enter 4 of 8 characters
Press any key
```

Pressing any key returns to the Password modification menu.

IMPORTANT: If an operator has forgotten his passwords, call the manufacturer or an authorized representative.

4.3.7 - Utilities Menu

The Utilities menu provides the capability of displaying and/or changing IP address and Community Strings of the System Manager as well as resetting the PQM 2100 without having to switch the power on and off, depending on the operator's user class.

The **Utilities** menu consists of five menus which are accessible from a pull-down menu (see figure 4.1).

The menus are arranged circularly in the following order:

- IP Manager Address,
- IP Back-up Address,
- Manager Community Name,
- Back-up Community Name,
- Warm Reset.

The display screen for this menu is as follows:

```
PQM2100 (C) SAT 1996
Utilities->
```

Press ➢ to gain access to the IP Manager Address screen.

1) IP Manager Address

This function allows the user to set the IP address of the system manager:

```
Utilities:
IP Manager Address->
```

Access to the IP Manager Address display or change screen below is gained by pressing ➢.

```
IP Manager Address:
xyz.xyz.xyz.xyz
```

This address can only be changed by operators having the user class **User** (indicated by the presence of a cursor). The IP Manager Address consists of a serie of four 3-digit groups (x, y and z) separed by a point. These digits can have the following values:

- "x" 0, 1 or 2,
- "y" 0 to 9,
- "z" 0 to 9.

Note: The user can only enter digit values between 0 and 255 for each group.

Press ➢ or ➢ to increase or decrease digit value, ➢ or ➢ to move to the previous or next digit, then press **ENTER** to accept.

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2) IP Back-Up Address

The function allows the user to set the IP address of the back-up system manager:

```
Utilities:
IP Back-Up Address->
```

Access to the IP Back-Up Address display or change screen below is gained by pressing ➢.

```
IP Back-Up Address:
xyz.xyz.xyz.xyz
```

This address can only be changed by operators having the user class **User** (indicated by the presence of a cursor). The IP Back-up Address consists of a serie of four 3-digit groups (x, y and z) separed by a point. These digits can have the following values:

- "x" 0, 1 or 2,
- "y" 0 to 9,
- "z" 0 to 9.

Note: The user can only enter digit values between 0 and 255 for each group.

Press ➢ or ➢ to increase or decrease digit value, ➢ or ➢ to move to the previous or next digit, then press **ENTER** to accept.

3) Manager Community Name

The function allows the user to access parameters equipment by the system manager via the SNMP protocole:

```
Utilities:
Manager Community Name->
```

The Community Name screen below is selected by pressing ➢.

```
Manager Community Name:
abcdef--------
```

This parameter can only be changed by operators having the user class **User** (indicated by the presence of a cursor).

Press the ➢ or ➢ keys to scroll up or down the parameter characters in alphanumerical order and to select the character "_". Press the ➢ or ➢ keys to move to the previous or next character, then press **ENTER** to accept. The last character different from '-' is considered as the end of the system manager community name.

4) Back-up Community Name

The function allows the user to access parameters equipment by the back-up system manager via the SNMP protocol:

```
Utilities:
Back-Up Community Name->
```

The Community Name screen below is selected by pressing ➢.

```
Back-Up Community Name:
abcdef--------
```

This parameter can only be changed by operators having the user class **User** (indicated by the presence of a cursor).

Press the ➢ or ➢ keys to scroll up or down the parameter characters in alphanumerical order and to select the character "_". Press the ➢ or ➢ keys to move to the previous or next character, then press **ENTER** to accept. The last character different from '-' is considered as the end of the back-up system manager community name.

5) Warm Reset

This function provides the capability of resetting the PQM 2100 without cutting the link. The following Warm Reset screen allows the function to be displayed or activated.

```
Utilities:
Warm Reset->
```

Access to the Warm Reset screen below is gained by pressing ➢.

```
Warm Reset:
OFF (or ON)
```

OFF is the selection by default.

This parameter can only be changed by operators having the user class **User** (indicated by the presence of a cursor).

Press ➢ or ➢ to select "OFF" or "ON".

OFF Press **ENTER** to accept and to cause return to the previously selected screen:

```
Utilities:
Warm Reset->
```

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ON Press **ENTER** to reset the equipment and to display the following screen:

```
Reset in progress...
```

This screen indicates that the equipment is running its warm reset (self-tests). The reset of the equipment takes about 2 minutes.

When the equipment warm reset is completed, the following screen is displayed:

```
PQM2100 (C) SAT 1996
Press any key for access
```

Then, follow instructions given in § 4.2.

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SECTION 5

MAINTENANCE

5.1 - Preventive Maintenance

No preventive maintenance is applicable to the PQM 2100 Modulator Unit.

5.2 - Corrective Maintenance

Policy

Corrective maintenance is restricted to PQM 2100 Unit replacement.

Maintenance Facilities

The PQM 2100 Unit continuously produces information to which the operator can gain access via:

- alarm and status LEDs,
- relay contact alarms,
- keypad/display supervisory software,
- PC-based supervisory software.

IMPORTANT: When the equipment is used in an Ethernet network, the O & M Card network address and the equipment network address (IP address) may be displayed via the equipment constitution menu (see Sub-section 4.3.4).

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5.3 - Front Panel LEDs

The four front panel LEDs provide the following indications:

Red Maj Alm LED

- when lit: major alarm initiation upon detection of one of the following events:
  - Converter alarm,
  - 34 Mbit/s clock alarm,
  - 45 Mbit/s clock alarm,
  - Loss of Frame Alignment on line,
  - Rx Int Card bit rate PLL alarm,
  - MPEG2 Frame Alignment Loss,
  - MPEG2 Frame uncorrected by Reed/Solomon encoder,
  - Encoder input signal clock fail,
  - MPEG2 Frame non compliance,
  - Encoder bit rate PLL Alarm,
  - Encoder symbol rate PLL Alarm,
  - Converter port fail,
  - Converter alarm,
  - Converter PLL alarm,
  - RF output signal fail,
  - RF output level variation > ± 5 dB,
- when unlit: major alarm inactive.

Red Min Alm LED

- when lit: minor alarm initiation upon detection of one of the following events:
  - G.703 input signal fail,
  - Converter interface clock signal failure,
  - RF output level variation > ± 2 dB,
- when unlit: minor alarm inactive.

Note: These alarms are given by default but can be configured by PC in case the supervision is the RS232 local supevision.

Yellow TEST LED

- when lit: test in progress (see Sub-section 5.4),
- when unlit: normal operation.

Green ON LED

- when lit: mains and tertiary voltage on,
- when unlit: mains or tertiary voltage off.

5.4- Test Functions

Test functions provide the following capabilities:

- modulator reset,
- modulator performance testing,
- link establishment test,
- transmitter output power measurement,
- link testing,
- bit error rate measurement.

The above functions may be configured via the software through one of the following interfaces:

- keypad/display interface,
- RS-232 interface,
- or ETHERNET interface.

Reset Cards Function

The function provides the capability of resetting all PQM 2100 QAM Modulator.

Nyquist Filtering Function

The I, Q and Clk signals may be applied to a constellation analyzer for testing. Filtering is performed by the sole modulator, with the remaining circuits being considered to be disconnected.

NOTE: A link needs essentially one equivalent Nyquist filtering for optimized transmission performance. Filtering includes a receiving section (demodulator with square-root Nyquist filter) and a transmitting section (modulator with square-root Nyquist filter).

Pure Carrier Function

The function provides the capability of checking pure carrier characteristics (including transmitter output power, noise, spurious signals).

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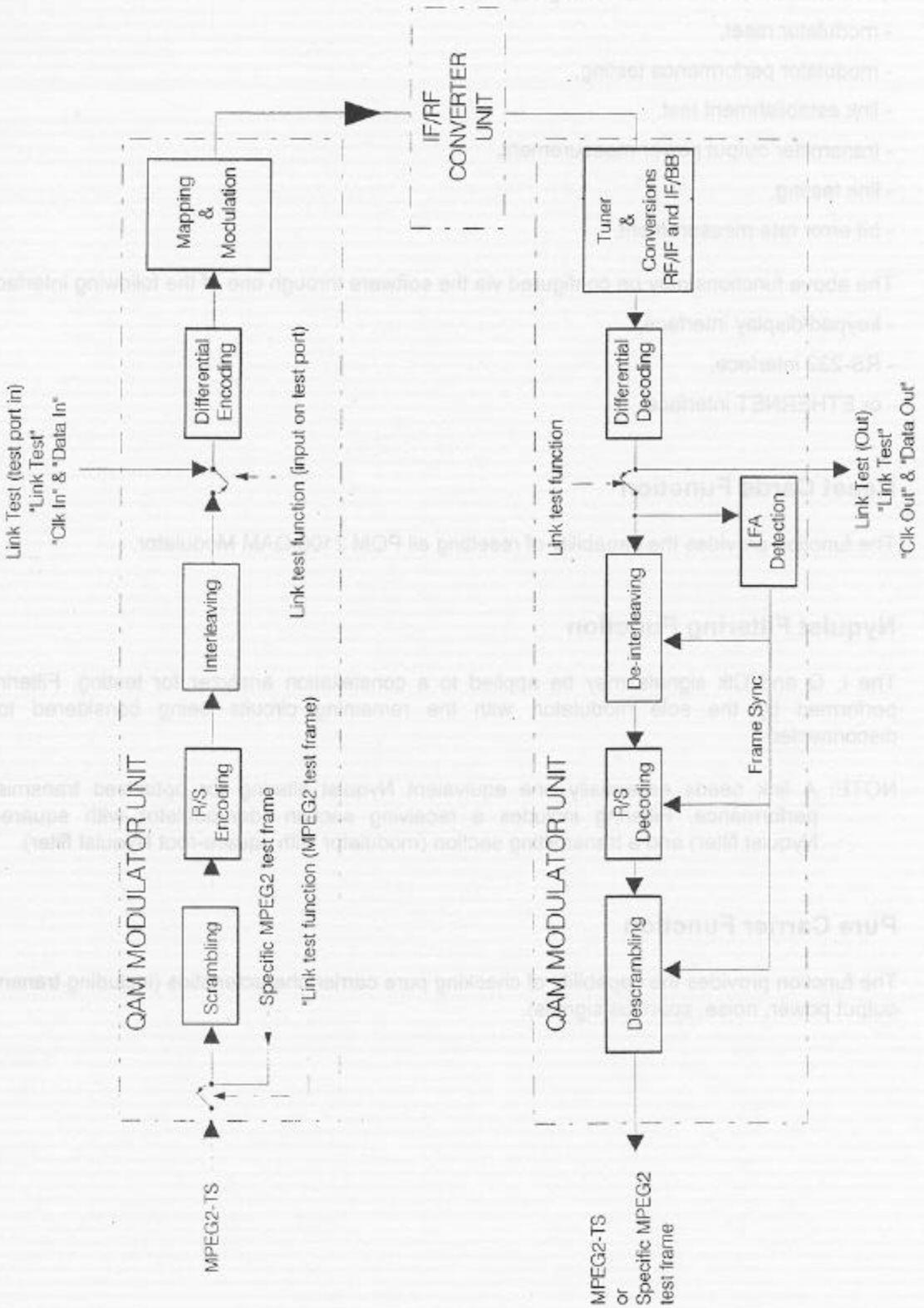

Figure 5.1 - Link Test Function Schematics

Link Test (Fixed Transmitter Data) Function

This function allows transmission of a special MPEG2 test frame (Frame Alignment Word (FAW) and binary zeros) for detection at the receiving end (demodulator). It allows testing of the link performance including:

- scrambler,
- Reed-Solomon encoder,
- interleaver,
- symbol mapping,
- modulator.

Nota : Special test frame synchronization can be performed as follows:
- using a clock sent on serial or parallel input,
- or using a 38 MHz internal clock. The bit rate must be set at 38 Mbit/s. For the Demodulator configuration, the symbol rate value is well-defined by reading the output frequency of "Clock Test" Unit front panel connector.

Use of test results by the receiving-end synchronization, de-interleaver, Reed-Solomon decoder, and descrambler functions depends on the demodulator type used.

Note: The above facilities are provided by the SAT DIVIMOD product range.

Link Test (Input on Test Port) Function

The function allows transmission of a random test pattern and the associated clock signal to the Data In and Clk In rear panel test ports, without processing by the Reed-Solomon encoder nor interleaving.

The test pattern is detected at the receiving end before de-interleaving.

Use of test results depends on the demodulator type used.

Note: The above facilities are provided by the SAT DIVIMOD product range.

Link bit error rate performance can be measured using this function.

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APPENDIX

IF-RF CONVERTERS

CONTENTS

Pages

APPENDIX: IF-RF CONVERTERS

CONTENTS A-3

1 - General Information A-5

2 -Specifications A-6

2.1 - Electrical Specifications A-6
2.2 - Mechanical Specifications A-8

3 - Overview A-9

4 - Start-Up A-9

4.1 - Connections A-9
4.2 - Clock A-10
4.3 - Programming A-10

5 - Maintenance A-11

6 - Connector Pin Assignments (External Rear Views) A-11

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1 - General Information

The IF-RF Converter Units provide conversion of (36 MHz) IF signals. They consist of 19-inch rack-mounting 1-unit high units.

The three Units correspond to the VHF or UHF output frequency bands:

- 950030 VHF1 (108 - 240 MHz),
- 950031 VHF2 (240 - 470 MHz),
- 950040 UHF (470 - 862 MHz).

The Units have the following specifications:

- suited to 19-inch rack-mounting,
- output frequency agility,
- high RF output level,

They support:

- an IF input,
- a reference clock input,
- a reference clock output,
- an I^2C® I/O interface bus,
- an RF Output,
- une prise de test à -20 dB typique,
- un réglage fin du niveau de sortie par potentiomètre.

They are equipped with a microcontroller and the following parameters can be programmed via the associated PQM 2100 Modulator Unit:

- output frequency,
- RF output level,
- output signal disable (également possible par le bus d'interface E/R),
- (internal or external) reference clock.

Clock inputs and outputs are used for synchronizing all IF-RF converters in a system. This allows the effects of intermodulation on the networks (HRC and IRC systems) to be minimized.

The IF-RF converters comply with current European directives: ECM 89/336/CEE and 73/23/CEE Low Voltage.

They are equipped with a level detection module.

A major alarm is initiated and the IF-RF converter unit is disabled upon detection of:

- variations in output signal level by more than ± 5 dB,
- loss of oscillator synchronization,
- mains (230-240 VAC or 120 VAC) power supply or tertiary voltage (24 or 5V) failure.

A minor alarm is initiated upon detection of:

- variations in output signal level by more than ± 2 dB,
- in the external clock mode, external clock failure (the IF-RF converter switches to the internal clock mode).

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2 - Specifications

2.1 - Electrical Specifications

Description	Specifications (1) Min	Typical	Max.	Unit	Note
IF Input					
IF input frequency		36		MHz	8 MHz bandwidth
Nominal input level	-11	-10	-9	dBm	
Input impedance		75		Ω	
Return loss	20			dB	For Fe = 36 ± 5 MHz
RF Output					
Output frequency VHF1 model VHF2 model UHF model	108 240 470		240 470 862	MHz MHz MHz	
Nominal output level (for Ne = -10 dBµV)	+3		+6	dBm	
Programmed output level adjustment	-20		0	dB	in 1 dB steps (3)
Output level stability [5 to 45°C]			± 0.5	dB	
Output frequency programming steps		62.5		kHz	
Output frequency accuracy			± 5	ppm	synchronization to external source
Output frequency stability			± 5	ppm	synchronization to external source
Channel spectrum occupancy			8	MHz	depending on Baud rate
Output impedance		75		Ω	
Return loss in the output filter band 108/240 MHz model 240/470 MHz model 470/862 MHz model	 16 16 16			 dB dB dB	 (2) (2) (2)
Channel ripple			1	dB	peak to peak
Spurious radiation [108 to 862 MHz]	60			dB	
IM3 channel at 0 dBm method using 2 equal output carriers	60			dB	(4)
Reverse intermodulation	60	70		dBc	Lout = +3 dBm and Pout = -17 dBm (5)
Squelch protection	50			dB	
Channel group delay		10	15	ns	associated with filter F12 p to p
Phase Noise	110	112		dBc	at 100 kHz from the carrier
Dual band phase noise	-45	-50		dBc	from 25 kHz to 4 MHz

.../...

Description	Specifications (1) Min	Typical	Max.	Unit	Note
.../...					
Noise power at ± 12 MHz from the carrier at ± 16 MHz from the carrier at ± 48 MHz from the carrier	 -140 -144 -148			 dBm/Hz dBm/Hz dBm/Hz	 at Lout = +3 dBm
Test output	-23	-20	-17	dB	
Power supply					
Power supply voltage		230-240		V AC	can be switched to 120 V AC
Frequency		50		Hz	
Power consumption at 230-240 VAC		24		W	
To EMC standards					
Mains interference NF EN 50081 - 1 NF EN 55022	Class B				
Electrostatic discharge NF EN 50082 - 1	Severity 2: criterion A Severity 4: criterion C				contact discharge
Electrical safety NF EN 50083 - 1					1 fuse on phase
Susceptibility IEC 801 - 3	Level 2				
Mains transients IEC 801 - 4	Level 2				
Temperature					
Storage temperature range	-20		+70	°C	
Operating temperature range without irreversible damage	-5		+50	°C	
Operating temperature range (guaranteed specifications)	+5		+45	°C	
Storage relative humidity			95	%	RH at +25°C
Operating relative humidity			85	%	RH at +25°C

Note	
1	The "min" and "max" specifications are guaranteed at 25°C
2	Outside channel ZS ≥ 10 dB
3	Step accuracy ≤ 0.5 dB

4	Output attenuator = 0 dB
5	A power Pe signal is applied at the output

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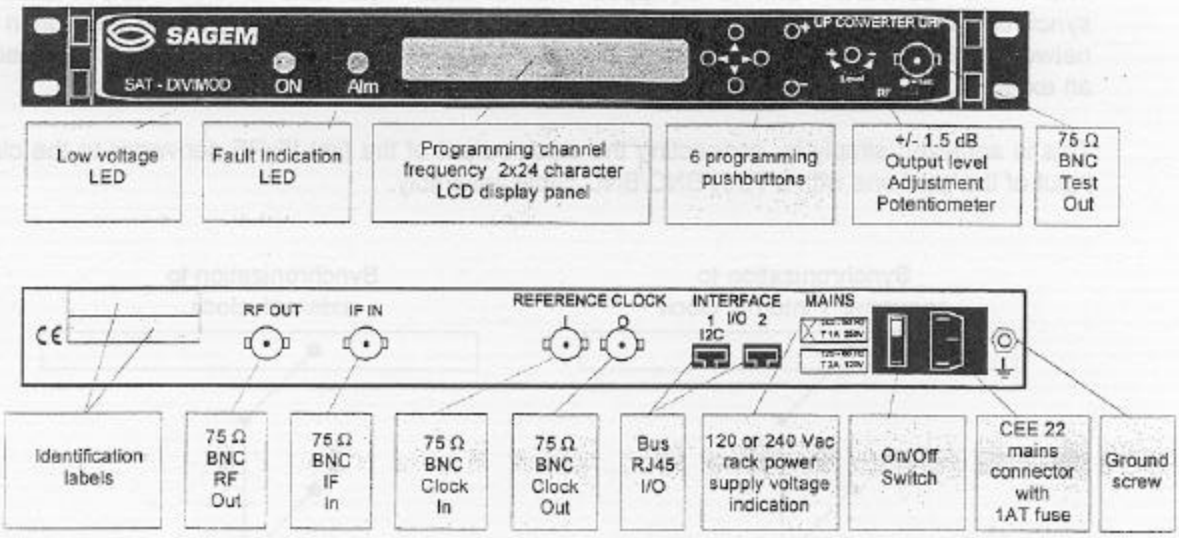
2.2 - Mechanical Specifications

Mechanical construction	: 19-inch 1-unit high rack-mounting unit
Overall dimensions	: 483 x 470 x 44 mm
Weight	: 7 kg
Sealing	: IP 20 B to NF EN 60529
Connectors: 230-240 VAC supply	: CEE 22 female connector
Output RF Test Output	: 75 Ω BNC
IF input - clock in and out	: 75 Ω BNC
I/O Interface	: RJ 45 female connector

3 - Overview



4 - Start-up

4.1 - Connections

Check on the unit rear cover that the IF-RF converter is compatible with the station power supply (120 VAC or 230-240 VAC).

- Mount the Unit into the rack.
- It is recommended to leave one unit of rack height between the IF-RF converters to allow heat dissipation and easier wiring.
- Secure the Unit to the rack vertical members with four screws.
- Terminate the test output with 75 Ω,
- Connect the IF input to the PQM 2100 Unit.
- Connect the RF output to the multiplexer.
- Connect the RJ45 interface connector 1 to the PQM 2100 Unit.
- Connect the unit to the 230-240 VAC or 120 VAC power supply as indicated on the Unit rear cover.
- Switch the IF-RF Converter Unit on.

Note: The IF-RF Converter must be switched on before the QAM Modulator, so that the latter can identify it.

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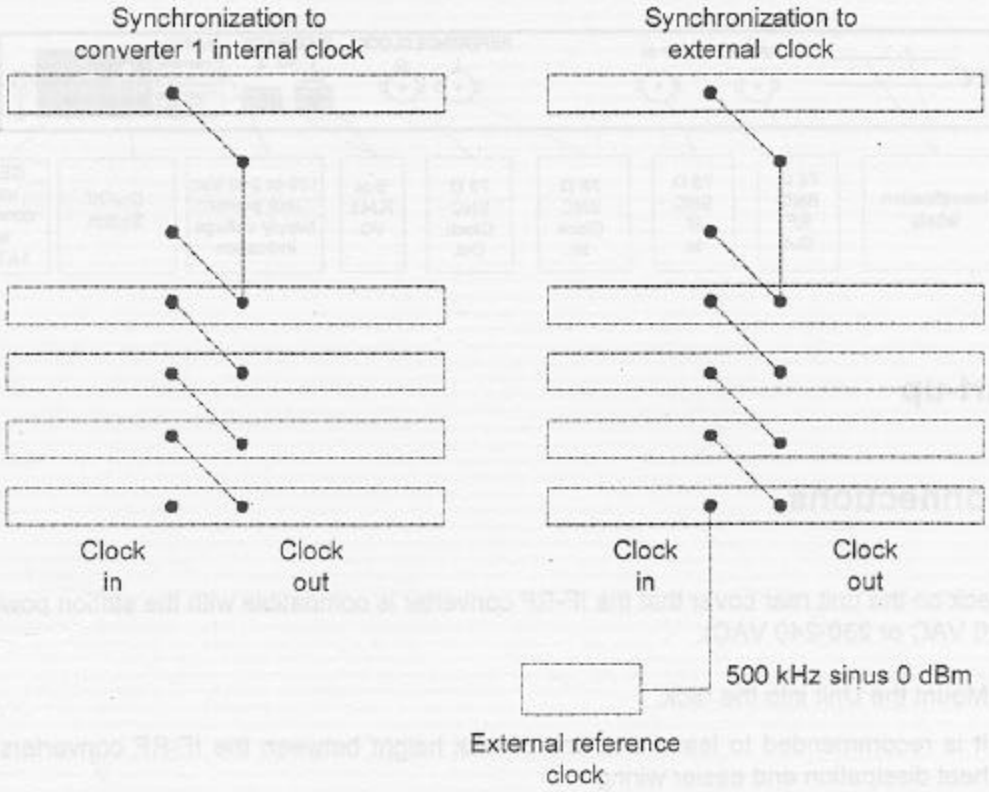
4.2 - Clock

The IF-RF Converter Unit is equipped with a clock input and a clock output allowing synchronization of all IF-RF converters in a rack. This allows the effects of intermodulation in the networks (HCR and IRC systems) to be minimized. All IF-RF converters may be synchronized to an external 500 kHz sinusoidal 0 dBm clock or to the clock output of only one of them.

This is achieved simply by connecting the clock output of the first IF-RF converter to the clock input of the next one with a 75 Ω BNC/BNC cable assembly.



Warning: In order to operate in external synchronization mode, the IF-RF converters must be programmed to operate in the external clock mode, rather than in the internal clock mode, which is the default mode.
In the external clock mode, failure of the clock causes the system to switch to the internal clock mode and a minor alarm to be initiated.

4.3 - Programming

The IF-RF converter parameter values may be changed via the PQM 2100 Modulator Unit, through the rear cover I²C® bus.

NOTE: The IF-RF Converter Unit front cover keypad is inoperative.

5 - Maintenance

The IF-RF Converter Unit front cover supports the following two LEDs:

- green LED marked ON which, when lit, indicates that mains power supply voltage (230 VAC - 240 VAC or 120 VAC) and tertiary voltages (+24 V and +5 V) are on,
- red LED marked Alm which when lit indicates that a major alarm has been initiated.

Note: When the major alarm (Alm) LED is lit, the "equipment failure" message is displayed on the front cover screen.

The IF-RF Converter Unit major and minor alarms may be displayed via the PQM 2100 QAM modulator operating system.

In the event of an IF input signal failure or an equipment failure, the IF-RF Converter Unit detects an output level drop by -5 dB and the Alm LED is lit. The Unit resets automatically. If the fault persists, the unit displays the message "equipment failure" and switches to the idle mode. In this event, switch the IF-RF Converter Unit off and check for the presence of the IF signal. When power is switched back on, all information items relative to the IF-RF Converter Unit that are stored in the QAM Modulator memory are transferred to the IF-RF Converter Unit.

If, after checking for IF signal presence, the IF-RF Converter Unit continues to detect an incorrect output level, replace the defective Unit.

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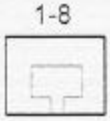
6 - Connector Pin Assignmetns (External Rear Views)

I/O INTERFACES
No. 1 (RJ45)

1 : NC		
2 : Ground		
3 : NC		
4 : NC		
5 : NC		
6 : ENA	I^2C® BUS	
7 : SDA	I^2C® BUS	
8 : SCL	I^2C® BUS	

I/O INTERFACES
No. 2 (RJ45)



1 : +5 Vcc		
2 : Masse		
3 : NC		
4 : MS_EN_SI	Enabling/Disabling	TTL
5 : RST	Reset	TTL
6 : RXD	Serial input	TTL
7 : TXD	Serial output	TTL
8 : WDO	Watchdog output	TTL