

**HITACHI**  
Inspire the Next



Encoder para TV Digital  
**Manual de Operação**

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# AM2102 - Modular Broadcast Encoder

## User Manual



## Table of Contents

|   |    |
|---|----|
| 1. Document Overview .....                    | 7  |
| 1.1. Document identification .....            | 7  |
| 1.2. Disclaimer .....                         | 7  |
| 1.3. Copyrights .....                         | 7  |
| 1.4. Precautions .....                        | 8  |
| 2. Product Overview .....                     | 10 |
| 2.1. Package Contents .....                   | 10 |
| 2.2. Front View .....                         | 11 |
| 2.3. Rear View .....                          | 12 |
| 2.4. Power Switch .....                       | 13 |
| 2.5. I/O Base Interfaces .....                | 14 |
| 2.5.1. I/O Alarm Connector .....              | 14 |
| 2.6. Extended Interfaces .....                | 16 |
| 2.6.1. Extended ASI/SDI Interfaces .....      | 17 |
| 2.6.2. Extended AES Audio Interfaces .....    | 18 |
| 2.6.3. Extended Analog Audio Interfaces ..... | 20 |
| 2.7. Serial Number .....                      | 22 |
| 2.8. Ventilation .....                        | 23 |
| 3. Installation .....                         | 24 |
| 3.1. Hardware setup .....                     | 24 |
| 3.2. Quick start .....                        | 25 |
| 4. User's Interfaces .....                    | 26 |
| 4.1. Configuration tools .....                | 26 |
| 4.2. Front Panel .....                        | 26 |
| 4.2.1. Status LED .....                       | 26 |
| 4.2.2. LCD .....                              | 27 |
| 4.2.3. TFT .....                              | 27 |
| 4.2.4. Keypad .....                           | 27 |
| 4.2.5. Menu .....                             | 27 |
| 4.3. Web GUI .....                            | 32 |
| 4.3.1. Access setup .....                     | 32 |
| 4.3.2. Web GUI Overview .....                 | 33 |
| 4.3.3. Status Tab .....                       | 34 |
| 4.3.4. Channel Tab .....                      | 34 |
| 4.3.5. Remuxer Tab .....                      | 35 |
| 4.3.6. System Tab .....                       | 37 |
| 5. Settings .....                             | 39 |
| 5.1. Preset Settings .....                    | 39 |
| 5.1.1. Global .....                           | 39 |
| 5.1.2. TS .....                               | 39 |
| 5.1.3. Output ASI .....                       | 41 |
| 5.1.4. Output IP .....                        | 41 |
| 5.1.5. Video .....                            | 42 |
| 5.1.6. Audio .....                            | 45 |
| 5.1.7. Data .....                             | 49 |
| 5.2. Remuxer Settings .....                   | 52 |
| 5.2.1. Global .....                           | 52 |
| 5.2.2. Output ASI .....                       | 52 |
| 5.2.3. Output IP .....                        | 53 |
| 5.2.4. Input TS .....                         | 54 |
| 5.3. System Settings .....                    | 54 |

|   |     |
|---|-----|
| 5.3.1. System - Overview .....          | 54  |
| 5.3.2. System - Time .....              | 54  |
| 5.3.3. System - Network Interface ..... | 54  |
| 5.3.4. System - Network VLAN .....      | 55  |
| 5.3.5. System - Network Route .....     | 55  |
| 5.3.6. System - Automation .....        | 56  |
| 5.3.7. System - Logos .....             | 56  |
| 5.3.8. System - Alarms .....            | 57  |
| 5.3.9. System - Logs .....              | 58  |
| 5.3.10. System - SNMP Trap Target ..... | 58  |
| 5.3.11. System - SNMP Password .....    | 59  |
| 5.3.12. System - StatMux .....          | 59  |
| 6. Specific Operations .....            | 60  |
| 6.1. Installing License .....           | 60  |
| 6.2. Firmware management .....          | 60  |
| 6.3. Recovery .....                     | 61  |
| A. MIB User Guide .....                 | 63  |
| A.1. SNMP overview .....                | 63  |
| A.2. MIB overview .....                 | 64  |
| A.2.1. Main nodes .....                 | 65  |
| A.2.2. Preset editing guidelines .....  | 68  |
| A.3. MIB use cases .....                | 69  |
| A.3.1. System .....                     | 69  |
| A.3.2. Channel Presets .....            | 73  |
| A.3.3. Remuxer Presets .....            | 82  |
| B. Simple RPC Guide .....               | 86  |
| B.1. Overview .....                     | 86  |
| B.2. Command list .....                 | 86  |
| B.2.1. System .....                     | 86  |
| B.2.2. Channel .....                    | 87  |
| B.2.3. Remuxer .....                    | 87  |
| C. Appendix .....                       | 89  |
| C.1. Product's specification .....      | 89  |
| C.1.1. Notes .....                      | 101 |
| C.2. Warranty .....                     | 102 |
| C.3. Normative Reference .....          | 103 |
| C.4. Glossary .....                     | 104 |
| C.5. Support and Resources .....        | 107 |

## List of Figures

|  |    |
|--|----|
| 2.1. Front View Interface .....                        | 11 |
| 2.2. Rear View Interface .....                         | 12 |
| 2.3. Power Switch .....                                | 13 |
| 2.4. I/O Base Interface .....                          | 14 |
| 2.5. I/O Base Alarm Connector Pinout .....             | 15 |
| 2.6. Extended ASI/SDI Interfaces .....                 | 17 |
| 2.7. Extended AES Audio Interfaces .....               | 18 |
| 2.8. Extended AES Audio Connector Pinout .....         | 19 |
| 2.9. Extended Analog Audio Interfaces .....            | 20 |
| 2.10. Extended Analog Audio Connector Pinout .....     | 21 |
| 2.11. Serial Number and Production Code Markings ..... | 22 |
| 2.12. Cool air intakes on the front panel .....        | 23 |
| 2.13. Warm air outputs on the rear panel .....         | 23 |
| 4.1. Front Panel sub-elements' identification .....    | 26 |
| 4.2. Log into the web server .....                     | 33 |
| 4.3. Web Interface .....                               | 33 |
| 4.4. Web Interface - Status Tab .....                  | 34 |
| 4.5. Web Interface - Channel Tab .....                 | 34 |
| 4.6. Web Interface - Remuxer Tab .....                 | 36 |
| 4.7. Web Interface - System Tab .....                  | 37 |
| 4.8. Simple setting edition .....                      | 38 |
| 4.9. Table setting edition .....                       | 38 |

## List of Tables

|  |    |
|--|----|
| 1.1. Document Identification .....                     | 7  |
| 2.1. Front View Interface .....                        | 11 |
| 2.2. Rear View Interface .....                         | 12 |
| 2.3. Power Switch .....                                | 13 |
| 2.4. I/O Base Interface .....                          | 14 |
| 2.5. I/O Base Alarm Connector Pinout description ..... | 15 |
| 2.6. Extended ASI/SDI Interfaces .....                 | 17 |
| 2.7. Extended AES Audio Interfaces .....               | 18 |
| 2.8. Extended Analog Audio Interfaces .....            | 20 |
| 4.1. Status LED .....                                  | 27 |
| 4.2. Front Panel Menu - Main .....                     | 27 |
| 4.3. Front Panel Menu - Service Main .....             | 30 |
| 4.4. Front Panel Menu - Service Remuxer .....          | 31 |
| 4.5. Web Interface - Channel Tab Settings .....        | 35 |
| 4.6. Web Interface - Remuxer Tab Settings .....        | 36 |
| 4.7. Web Interface - System Tab Settings .....         | 37 |
| 5.1. Global .....                                      | 39 |
| 5.2. TS .....  | 39 |
| 5.3. DVB compliance .....                              | 40 |
| 5.4. Carrier ID .....                                  | 40 |
| 5.5. ATSC .....  | 41 |
| 5.6. Output ASI .....                                  | 41 |
| 5.7. Output IP .....                                   | 41 |
| 5.8. Video .....                                       | 42 |
| 5.9. MPEG-4 AVC .....                                  | 43 |
| 5.10. MPEG-4 AVC-I .....                               | 44 |
| 5.11. MPEG-2 .....                                     | 44 |
| 5.12. Audio .....                                      | 45 |
| 5.13. MPEG Layer2 .....                                | 46 |
| 5.14. AAC .....  | 46 |
| 5.15. Dolby Digital .....                              | 47 |
| 5.16. Data .....                                       | 49 |
| 5.17. Teletext and VBI teletext descriptor .....       | 49 |
| 5.18. Teletext and VBI teletext filter .....           | 49 |
| 5.19. VBI .....  | 49 |
| 5.20. DVB Subtitles .....                              | 50 |
| 5.21. DVB Subtitles descriptor .....                   | 50 |
| 5.22. SMPTE-2028 .....                                 | 50 |
| 5.23. SCTE-35 source .....                             | 51 |
| 5.24. SCTE-35 SDI source .....                         | 51 |
| 5.25. SCTE-35 GPI source .....                         | 51 |
| 5.26. STD-B24 .....                                    | 51 |
| 5.27. Global .....                                     | 52 |
| 5.28. DVB compliance .....                             | 52 |
| 5.29. Carrier ID .....                                 | 52 |
| 5.30. Output ASI .....                                 | 52 |
| 5.31. Output IP .....                                  | 53 |
| 5.32. Input TS .....                                   | 54 |
| 5.33. Overview .....                                   | 54 |
| 5.34. Time .....                                       | 54 |
| 5.35. Interface .....                                  | 54 |

---

|   |     |
|---|-----|
| 5.36. VLAN .....  | 55  |
| 5.37. Route .....   | 55  |
| 5.38. Automation .....  | 56  |
| 5.39. Logos .....   | 56  |
| 5.40. Alarms names .....  | 57  |
| 5.41. Alarms actions .....  | 57  |
| 5.42. Logs names .....  | 58  |
| 5.43. Logs levels .....   | 58  |
| 5.44. Trap target .....   | 58  |
| 5.45. Passwords .....   | 59  |
| 5.46. StatMux .....   | 59  |
| A.1. Quality/Latency mapping .....                                    | 74  |
| A.2. Supported PCM layouts .....                                      | 80  |
| A.3. Channel to index mapping .....                                   | 80  |
| A.4. SDI pair to index mapping .....                                  | 81  |
| C.1. Specification - Identification .....                             | 89  |
| C.2. Specification - Physical .....                                   | 89  |
| C.3. Specification - Environmental and Power .....                    | 89  |
| C.4. Specification - Certifications .....                             | 89  |
| C.5. Specification - Video Input .....                                | 90  |
| C.6. Specification - Audio Input .....                                | 91  |
| C.7. Specification - Data Input .....                                 | 92  |
| C.8. Specification - Black Burst-3Level and ASI Synchronization ..... | 92  |
| C.9. Specification - Filter .....                                     | 92  |
| C.10. Specification - Video Processing .....                          | 93  |
| C.11. Specification - PIP Processing .....                            | 94  |
| C.12. Specification - Audio Processing .....                          | 95  |
| C.13. Specification - Data Processing .....                           | 95  |
| C.14. Specification - Muxer .....                                     | 96  |
| C.15. Specification - Output .....                                    | 96  |
| C.16. Specification - Configuration and management interfaces .....   | 96  |
| C.17. Specification - System .....                                    | 98  |
| C.18. Specification - Licenses .....                                  | 99  |
| C.19. Normative reference .....                                       | 103 |
| C.20. Glossary .....  | 104 |

# 1. Document Overview

## 1.1. Document identification

**Table 1.1. Document Identification**

|                    |   |
|--------------------|---|
| Title              | AM2102 - Modular Broadcast Encoder - User Manual      |
| Revision Number    | 1.0   |
| Description        | Document for firmware release 2.0.7.0 (build 27.0.12) |
| Date of Issue      | 2016-01-05  |
| Document Reference | UM-AM2102-FW2.0.7.0-REV1.0                            |

## 1.2. Disclaimer

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## 1.3. Copyrights

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The glossary of this document is partially extracted from the Wikipedia encyclopedia.

## Trademarks

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## 1.4. Precautions

Only qualified persons are authorized to carry out maintenance on this device.

Read the Users' Manual carefully, and follow the correct procedure when setting up the device.

Do not open your AM2102 or attempt to disassemble or modify it, unless instructed by an ATEME representative. To avoid any risk of electrical shock, fire, short-circuiting or dangerous emissions, never insert any metallic object into the enclosure. Your AM2102 contains no user-serviceable parts. If it appears to be malfunctioning, have it inspected by a qualified ATEME Technical Support representative.

Never expose your device to rain, use it near water, or in damp or wet conditions. Never place objects containing liquids on the AM2102, as they may spill into its openings; doing so increases the risk of electrical shock, short-circuiting, fire or personal injury.

Basic electrical safety precautions should be followed to protect you from harm and the system from damage:

- Be aware of where the On/Off power switch is situated on the chassis; as well as the rack's emergency power off-switch. Check also where the disconnection switch or electrical outlet is located.
- Do not work alone when working with high voltage components.
- Power should always be disconnected from the system before opening it. When disconnecting the power, you should first power down the system and unplug the power cords of the power supply.
- Ground pin shall be connected to earth for safe operation.

For the 220VAC version:

- Only the provided power supply cord must be used to power the AM2102. This power supply cord includes a grounding plug and it must be plugged into a grounded electrical outlet. If you should use a different power supply cord, make sure it is compatible with your locale electrical power supply.
- The mains plug (or the mains plugs for dual plug version) is used as the disconnect device and shall be easily accessible.

For the 48VDC version:

- The internal fuse of the DC filter board shall be replaced by a 5x20mm medium-acting 8A 250V fuse, like LittleFuse 234 series.
- The rear connector is used as the disconnect device and shall be easily accessible.

**Warning**

This product contains a lithium battery. The lithium battery may explode if it is incorrectly replaced. This battery must be replaced only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

## 2. Product Overview

### 2.1. Package Contents

Before continuing, please check the contents of the product package. This product package should contain the following items:

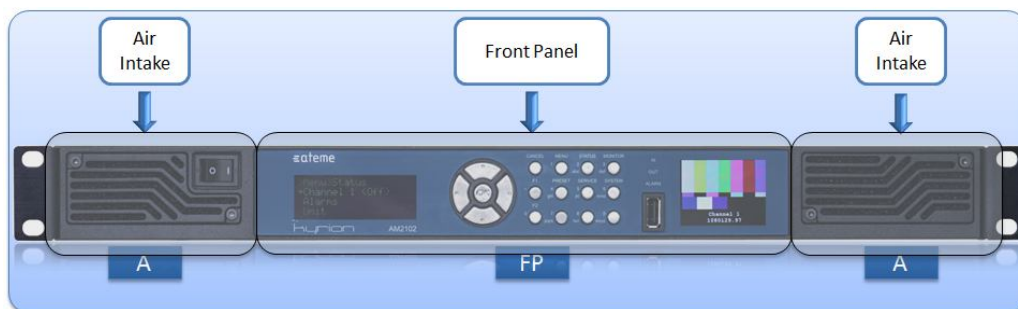
- One (1) AM2102,
- One (1) Power Cord,
- One (1) CD ROM,
- This User's Manual.

If anything is missing, please contact your place of purchase.

## 2.2. Front View

This figure describes the front interface of the AM2102.

**Figure 2.1. Front View Interface**



**Table 2.1. Front View Interface**

|    |             |
|----|-------------|
| FP | Front Panel |
| A  | Air Intakes |

Front Panel Interfaces FP are described in Section 4.2, “Front Panel ”

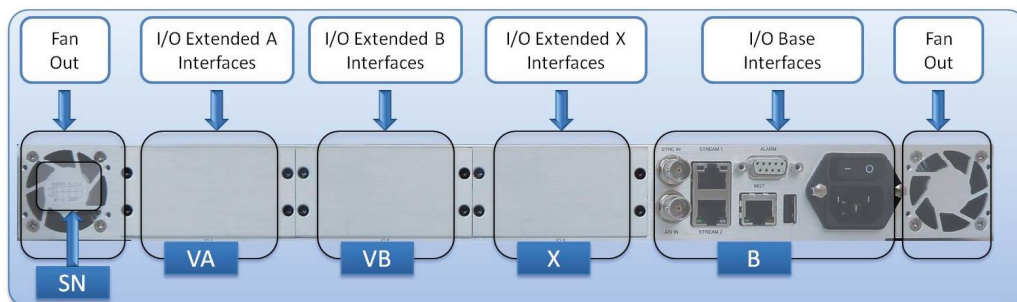
Ventilation using Air Intakes A is described in Section 2.8, “Ventilation ”

## 2.3. Rear View

This figure describes the generic rear interfaces of the AM2102.

Depending on your exact model and the options purchased, the extended slots may contain additional connectors which will be described in the next paragraphs.

**Figure 2.2. Rear View Interface**



**Table 2.2. Rear View Interface**

|    |                                |
|----|--------------------------------|
| B  | I/O Base Interfaces            |
| X  | I/O Extended X Interfaces      |
| VA | I/O Extended A Interfaces      |
| VB | I/O Extended B Interfaces      |
| SN | Serial Number and Product Code |

## 2.4. Power Switch

This figure describes the location of the Power switch of the AM2102.

**Figure 2.3. Power Switch**



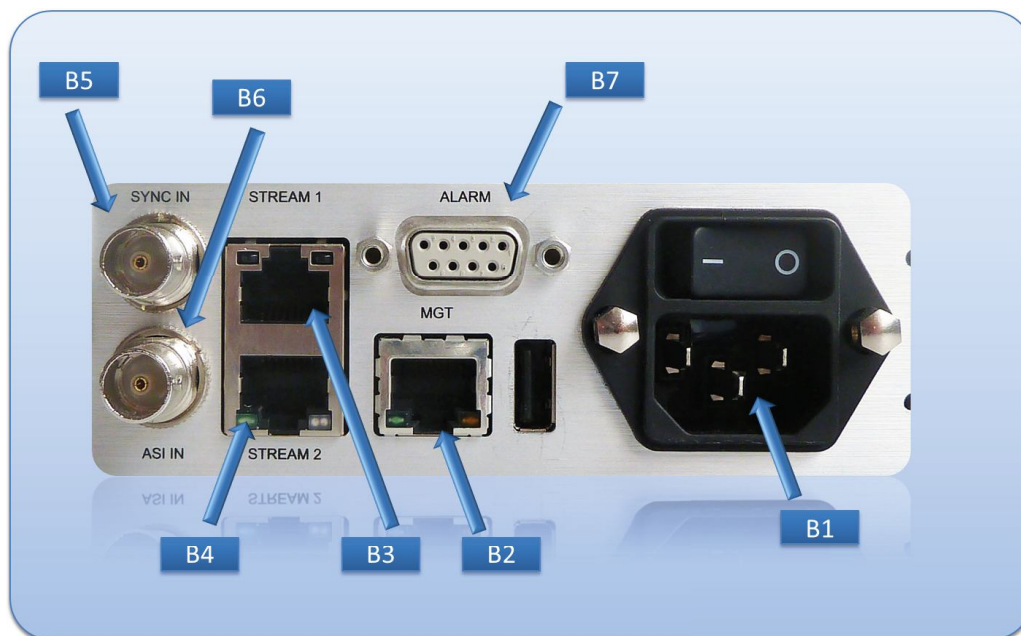
**Table 2.3. Power Switch**

|    |              |  |
|----|--------------|--|
| P1 | Power Switch | Use this switch to turn ON the unit. Switch it back to the original position to turn OFF the unit. |
|----|--------------|--|

## 2.5. I/O Base Interfaces

This figure describes the I/O Base interfaces of the AM2102.

**Figure 2.4. I/O Base Interface**



**Table 2.4. I/O Base Interface**

|    |                             |   |
|----|-----------------------------|---|
| B1 | AC Inlet (~AC)              | Connect the provided cable to this inlet. The unit auto detects AC voltage.   |
| B2 | MGT Ethernet Connector      | This dedicated Ethernet connector allows administration of the unit via the web GUI or SNMP. This interface is a 1000Base-T Ethernet port (1Gbps).  |
| B3 | STREAM Ethernet Connector 1 | This Ethernet connector is dedicated for streaming encoded video over IP. This interface is a Gigabit Ethernet port (1Gbps).  |
| B4 | STREAM Ethernet Connector 2 | Same as [B3].   |
| B5 | SYNC In Connector           | This BNC Connector is dedicated to synchronize the unit with an external reference signal. The supported signal standards are black burst and tri-level. It can also be used to input ASI stream. |
| B6 | ASI In Connector            | This BNC Connector is dedicated to input ASI stream.  |
| B7 | ALARM Connector             | This DB9 connector is dedicated to input and output discrete signals.   |

### 2.5.1. I/O Alarm Connector

The AM2102 provides the user with 4 external GPIOs : 2x IN and 2x OUT.

GPO are dry-loops based on electro-mechanical relays, AC/DC 1A / 24V max.

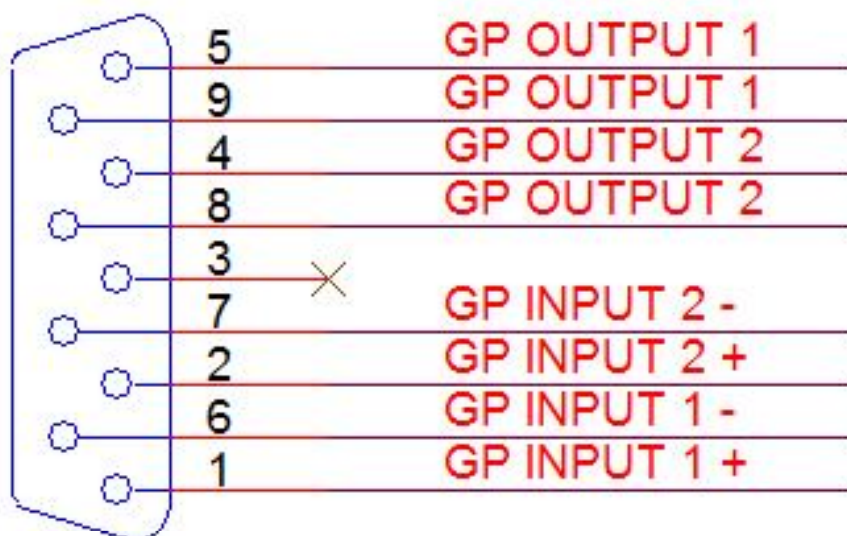
GPI are opto-isolated DC inputs, 5V to 24V HIGH input threshold.

Both have a 2KV isolation with the platform mechanical and electrical ground.

GPO dry-loops default to OFF (opened) when the unit is powered-up.

Those GPIOs are available on a 9 points female Sub-D connector :

**Figure 2.5. I/O Base Alarm Connector Pinout**



**Table 2.5. I/O Base Alarm Connector Pinout description**

| Pin | Function   |
|-----|--|
| 1   | GPI 1 + (first GP positive input, to be used with GPI 1-)                |
| 2   | GPI 2+ (second GP positive input, to be used with GPI 2-)                |
| 3   | NC (not used and not connected)  |
| 4   | GPO 2a (first connection of second GP dry loop, to be used with GPO 2b)  |
| 5   | GPO 1a (first connection of first GP dry loop, to be used with GPO 1b)   |
| 6   | GPI 1- (first GP negative input, to be used with GPI 1+)                 |
| 7   | GPI 2- (second GP negative input, to be used with GPI 2+)                |
| 8   | GPO 2b (second connection of second GP dry loop, to be used with GPO 2a) |
| 9   | GPO 1b (second connection of first GP dry loop, to be used with GPO 1a)  |



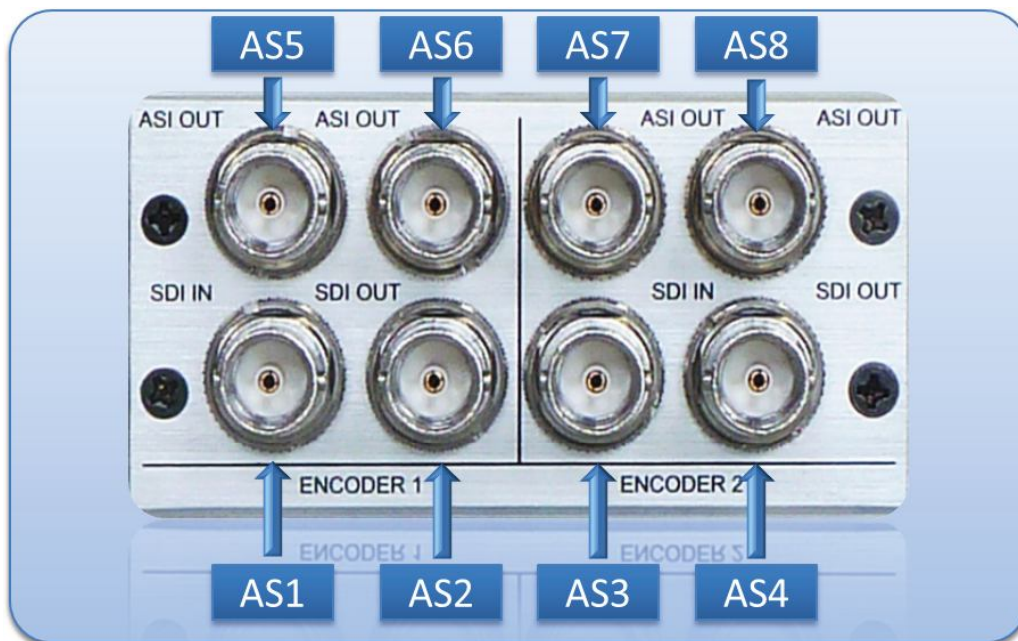
## 2.6. Extended Interfaces

Depending of the hardware options that you've purchased, some of the interfaces may be accessible on I/O Extended Interfaces ([X], [VA], [VB]).

## 2.6.1. Extended ASI/SDI Interfaces

Next figure describes the ASI/SDI extended interface of the AM2102.

**Figure 2.6. Extended ASI/SDI Interfaces**



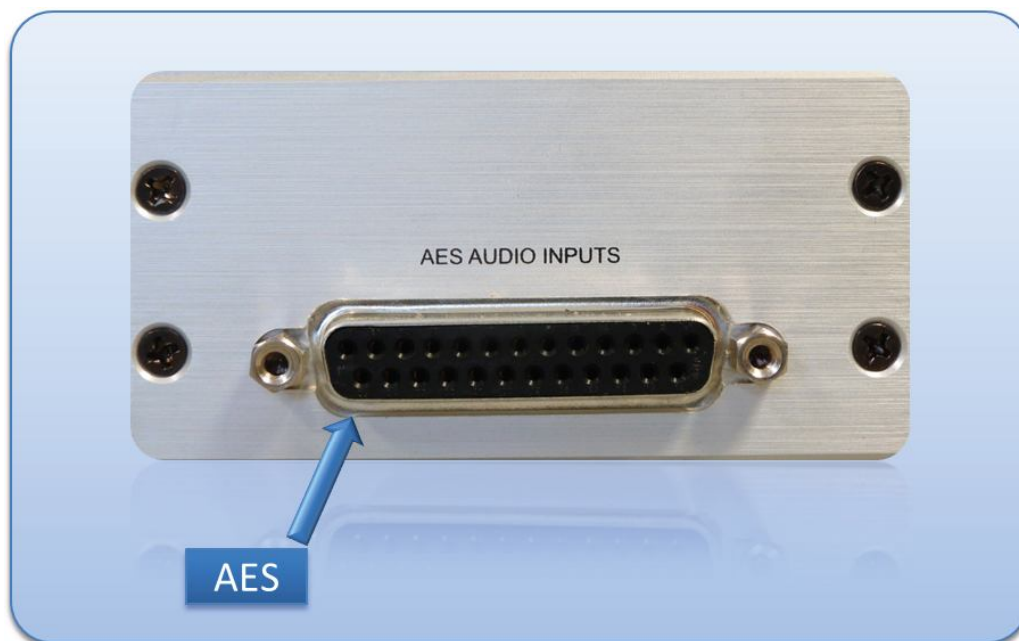
**Table 2.6. Extended ASI/SDI Interfaces**

|            |                      |   |
|------------|----------------------|---|
| AS1        | Channel 1 SDI Input  | Use this BNC connector to input the channel 1 SDI video signal into the AM2102. |
| AS2        | Channel 1 SDI Output | This connector output a monitoring copy of the channel 1 SDI input.             |
| AS3        | Channel 2 SDI Input  | Use this BNC connector to input the channel 2 SDI video signal into the AM2102. |
| AS4        | Channel 2 SDI Output | This connector output a monitoring copy of the channel 2 SDI input.             |
| AS5<br>AS6 | Channel 1 ASI Output | Use this BNC connector to output the channel 1 encoded bitstream.               |
| AS7<br>AS8 | Channel 2 ASI Output | Use this BNC connector to output the channel 2 encoded bitstream.               |

## 2.6.2. Extended AES Audio Interfaces

This figure describes the AES Audio extended interface of the AM2102.

**Figure 2.7. Extended AES Audio Interfaces**



**Table 2.7. Extended AES Audio Interfaces**

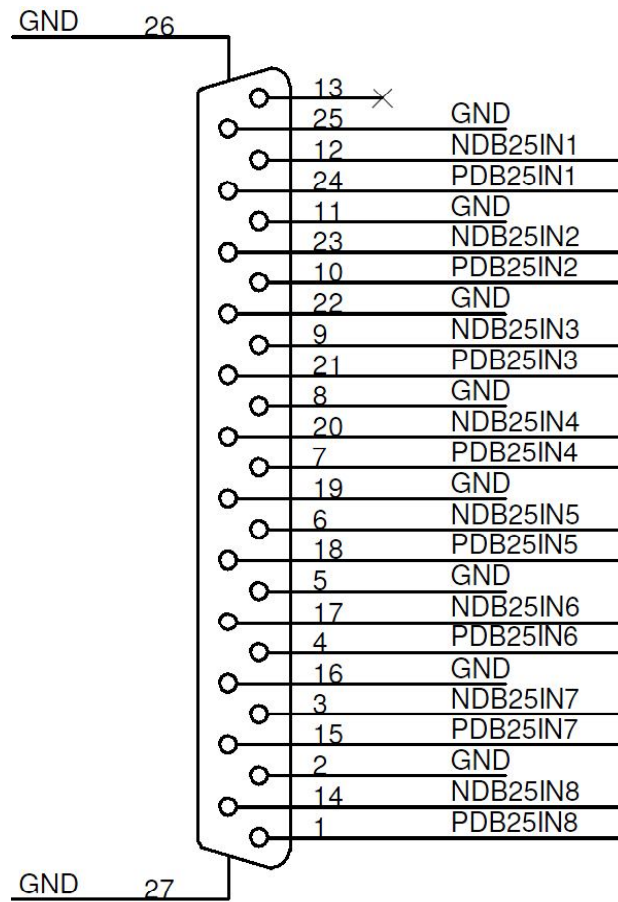
|     |                 |   |
|-----|-----------------|---|
| AES | AES Audio Input | Use this DB25 connector to input up to 8 AES audio pairs. |
|-----|-----------------|---|



### Note

In the System/Extension boards menu of the web GUI, the AES Audio Extended Interface board is identified as "AUDIO AES".

**Figure 2.8. Extended AES Audio Connector Pinout**



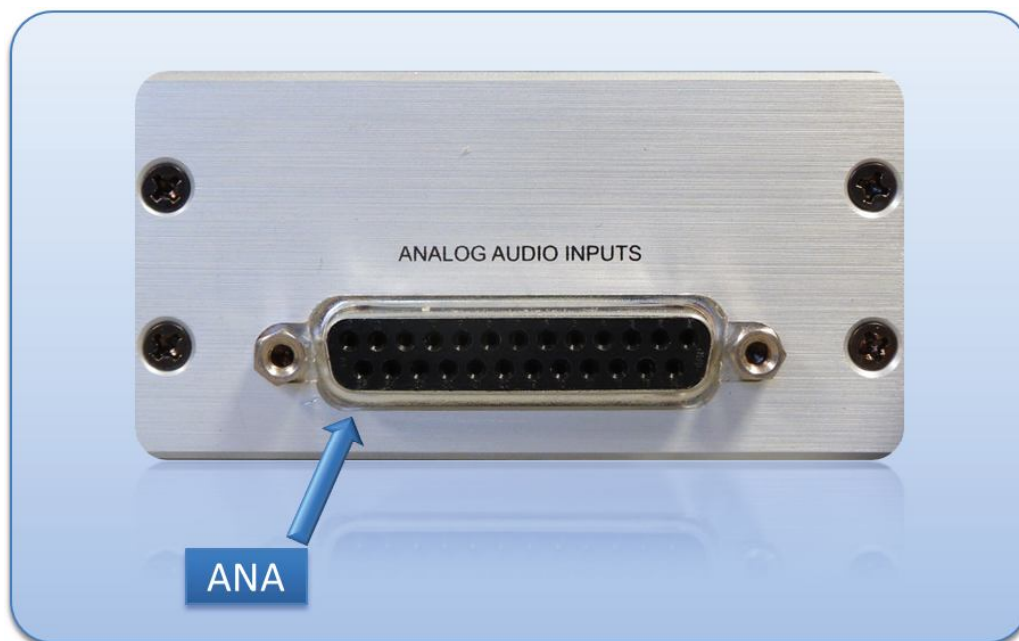
**Note**

To input audio with XLR connectors, use the XLR to DB25 cable provided separately (Ref: AEXT-CBL).

## 2.6.3. Extended Analog Audio Interfaces

This figure describes the Analog Audio extended interface of the AM2102.

**Figure 2.9. Extended Analog Audio Interfaces**



**Table 2.8. Extended Analog Audio Interfaces**

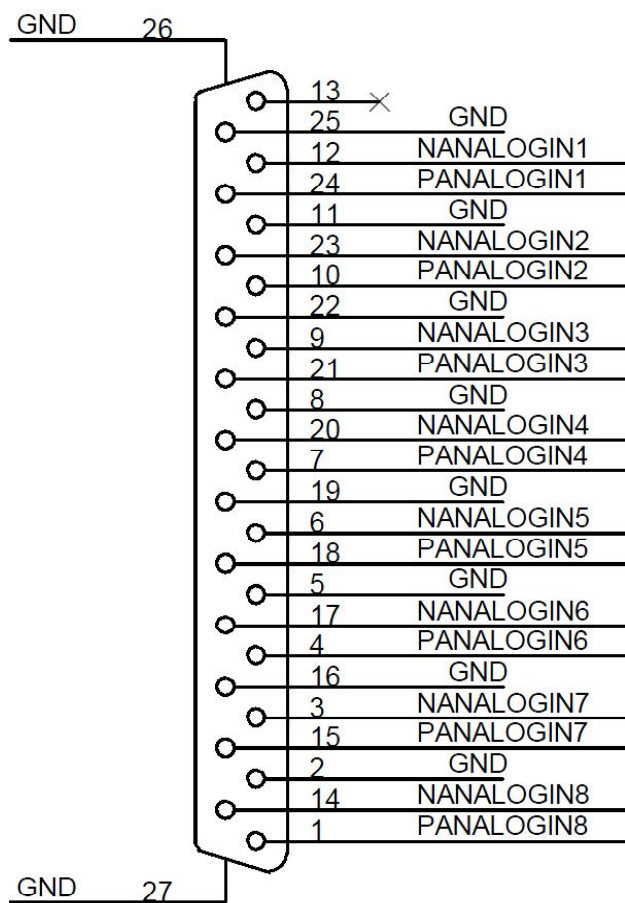
|     |                    |  |
|-----|--------------------|--|
| ANA | Analog Audio Input | Use this DB25 connector to input up to 4 analog audio pairs. |
|-----|--------------------|--|



### Note

In the System/Extension boards menu of the web GUI, the Analog Audio Extended Interface board is identified as "AUDIO ANALOG".

**Figure 2.10. Extended Analog Audio Connector Pinout**



**Note**

To input audio with XLR connectors, use the XLR to DB25 cable provided separately (Ref: AEXT-CBL).

## 2.7. Serial Number

Serial Number and Production Code Markings are located in the rear side [SN].

**Figure 2.11. Serial Number and Production Code Markings**



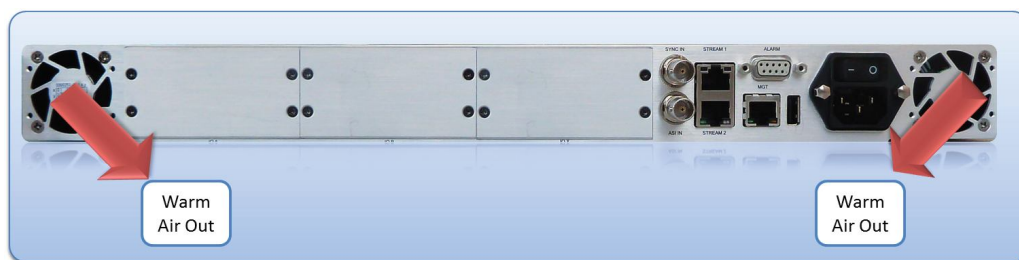
## 2.8. Ventilation

Air ventilation prevents abnormal temperature rises inside the unit. Next figures show cool air intakes and warm air outputs.

**Figure 2.12. Cool air intakes on the front panel**



**Figure 2.13. Warm air outputs on the rear panel**



Place the AM2102 in a well-ventilated space, and allow ideally up to 10cm of free space on all sides of the AM2102 so increasing air circulation and cooling.



### Warning

Never obstruct air intakes and outtakes. Beware of 19" bays doors, if any.



## 3. Installation

### 3.1. Hardware setup

#### Step 1: Unpack and install the AM2102

Unpack your AM2102 unit and install it.

- For Stand Alone installations, place the unit on a stable surface. It requires clearance above and on each side to allow for cooling.
- Alternatively, for Rack installations, mount the unit in a standard 19-inch rack. The AM2102 requires 1U of vertical space.



#### Note

Note for Rack installations: Carefully slide the AM2102 into a shelf space in the rack. Use your equipment rack's screws to secure the device in place, in the rack.

#### Step 2: Connect the power

Connect the AM2102 input power [B1] to a power outlet using the provided power cord.

#### Step 3: Connect to Ethernet

Connect the network cables to Ethernet interfaces.

- The Stream interfaces [B3] and [B4] should be plugged into your broadcast network
- The MGT interface [B2] should be plugged into your supervision network



#### Note

If you do not have different networks, using the streaming port to do both broadcasting and administration is possible. This is not recommended for production phases.

#### Step 4: Connect SDI input

Connect the SDI input cables to [X1] (see Section 2.3, “Rear View”).

#### Step 5: Power up

Power up the AM2102, switching the 0/1 button [P1] into the position 1.

- After a few seconds, a BOOTING message should appear on the LCD.
- The front panel selection menu appears when the unit is up and running.

## 3.2. Quick start

### Step 1: Configure management IP address

Use the front panel to configure the MGT IP address of the AM2102: [AM2102 IP address] (System -> Network -> MGT -> IP).

### Step 2: Open a web browser

On a computer connected to the same network, launch your favorite web browser and browse to [http://\[AM2102 IP address\]](http://[AM2102 IP address]).

### Step 3: Configure the AM2102

Go to the Channel 1 tab, configure the TS bitrate, the video format and an output, click on 'Apply'.

### Step 4: Start the AM2102

Go to the Status tab, click on 'Start'.

## 4. User's Interfaces

### 4.1. Configuration tools

There are 3 different ways to configure your AM2102:

- Front Panel access (see Section 4.2, “ Front Panel ”),
- Web interface (see Section 4.3, “ Web GUI ”),
- SNMP.

The web interface provides access to all the parameters but need a network connection to be used. The Front Panel interface provides access to all the operational parameters and most of the system ones. Choose the most appropriate way depending on your overall system's design.

### 4.2. Front Panel

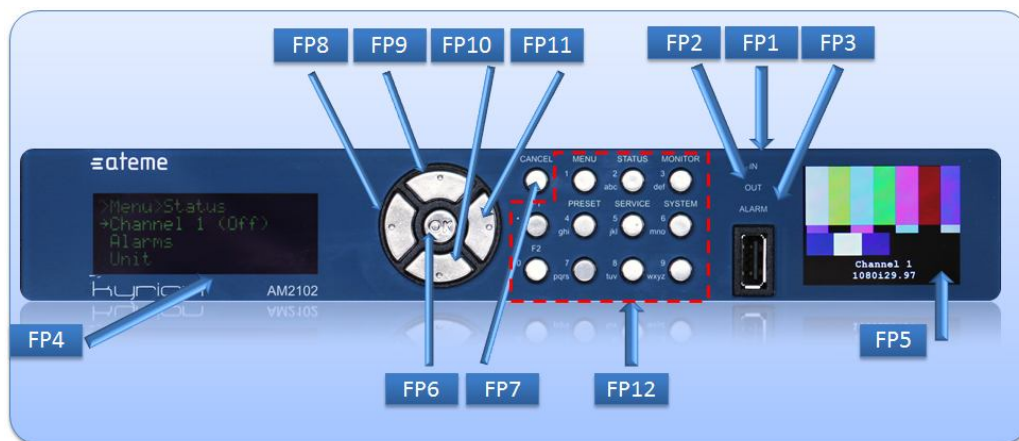
The AM2102 has a local LCD and keypad interface allowing a simple management of the unit.

The control buttons and LCD provide an easy method of setting the network interface addresses and default gateway parameters directly from the front of the AM2102 System without using a management computer.

No IT knowledge is required and the AM2102 can be up and running in minutes.

Next figure describes the front panel sub-elements' identification.

**Figure 4.1. Front Panel sub-elements' identification**



#### 4.2.1. Status LED

The AM2102 comes with a complete range of LEDs that report the device status.

**Table 4.1. Status LED**

|     |       |   |
|-----|-------|---|
| FP1 | IN    | Off: AM2102 idle<br>Solid Green: Valid input signal<br>Solid Orange: No input signal  |
| FP2 | OUT   | Off: AM2102 idle<br>Solid Green: Valid output signal<br>Solid Orange: Invalid output signal   |
| FP3 | ALARM | Off: No Status<br>Solid Green: AM2102 hardware is OK<br>Solid Red: AM2102 hardware error or malfunction detected<br>Solid Orange: Warning |

## 4.2.2. LCD

The LCD [FP4] displays some status information and configuration menus.

## 4.2.3. TFT

The TFT [FP5] displays the video input signal and its format.

## 4.2.4. Keypad

The Keypad is used for configuration when navigating the local setup menu of the AM2102.

Use the directional keys, [FP8] to [FP11], to navigate through the different menus.

Use the 'OK' key [FP6] to validate changes and the 'Cancel' key [FP7] to cancel any action.

Depending on the context, use the extended keys [FP12] to enter characters, numbers or as a shortcut to some menus.

## 4.2.5. Menu

This chapter lists all the parameters that can be set through the front panel interface. Some are not accessible depending on your product or the licenses that you purchased.

See the product specification in annexes to check capability of your product.

**Table 4.2. Front Panel Menu - Main**

|        |           |        |         |
|--------|-----------|--------|---------|
| Status | Channel 1 | TS     | -       |
|        |           | Output | -       |
|        |           | Video  | format  |
|        |           |        | bitrate |
|        |           | Audio  | format  |
|        |           |        | bitrate |
|        | Remuxer   | TS     | -       |
|        | Alarms    | clear  | -       |

|         |                  |   |                         |
|---------|------------------|---|-------------------------|
|         | Unit             | Temperature                                     | -                       |
|         |                  | Uptime  | -                       |
| Monitor | Channel          | -   | -                       |
|         | SD Aspect Ratio  | -   | -                       |
|         | Audio monitoring | CH 1 pairs 1-4                                  | SDI source              |
|         |                  | CH 1 pairs 5-8                                  | SDI source              |
|         |                  | AES pairs 1-4                                   | AES interface source    |
|         |                  | AES pairs 5-8                                   | AES interface source    |
|         |                  | ANA pairs 1-4                                   | ANALOG interface source |
| Presets | Channel 1        | Started   | Yes/No                  |
|         |                  | Load From Slot                                  | -                       |
|         |                  | Save To Slot                                    | -                       |
|         |                  | Load From USB                                   | -                       |
|         |                  | Save To USB                                     | -                       |
|         | Remuxer          | Started   | Yes/No                  |
|         |                  | Load From Slot                                  | -                       |
|         |                  | Save To Slot                                    | -                       |
| Service | Name             | -   | -                       |
|         | Main             | Table 4.3, "Front Panel Menu - Service Main"    | -                       |
|         | Remuxer name     | -   | -                       |
|         | Remuxer cfg      | Table 4.4, "Front Panel Menu - Service Remuxer" | -                       |
| System  | Network          | MGT   | Mode                    |
|         |                  |   | IP                      |
|         |                  |   | Net Mask                |
|         |                  |   | Speed                   |
|         |                  | Stream 1  | (same as MGT)           |
|         |                  | Stream 2  | (same as MGT)           |
|         |                  | Default Gateway                                 | -                       |
|         |                  | Reset Routes                                    | -                       |
|         | Reboot           | -   | -                       |
|         | Software         | Version   | -                       |
|         |                  | Build   | -                       |
|         |                  | Update from USB                                 | -                       |
|         | Hardware         | SN  | -                       |
|         |                  | slots description and status                    | -                       |
|         | License          | -   | -                       |
|         | BISS-E           | ID  | -                       |

---

|  |                   |   |   |
|--|-------------------|---|---|
|  | Screen timeout    | - |   |
|  | F1 Key Assignment | - | - |
|  | F2 Key Assignment | - | - |
|  | Name              | - | - |

**Table 4.3. Front Panel Menu - Service Main**

|              |                 |                  |  |
|--------------|-----------------|------------------|--|
| Service Main | Quality/Latency | -                |  |
|              |                 | Bitrate (kbps)   |  |
|              | TS              | BISS             | mode<br>key                                |
|              |                 | Standard         |  |
|              |                 | Min Null (kbps)  |  |
|              |                 | PAT              | TS id<br>period                            |
|              |                 | PMT              | PID<br>Program number<br>Period<br>PCR PID |
|              |                 | CAT              | Period                                     |
|              |                 | Packet Size      |  |
|              |                 | SI/PSIP Tables   |  |
|              |                 | DVB-SI Tables    |  |
|              |                 | ATSC-PSIP Tables |  |
|              | Output          | ASI              |  |
|              |                 | Ip 1             |  |
|              | Video           | Input            | Format<br>Connector<br>Autosense           |
|              |                 | Format           |  |
|              |                 | Processing       |  |
|              |                 | MPEG-4 AVC       |  |
|              |                 | MPEG-2           |  |
|              |                 | TS PID           |  |
|              |                 | BISS             |  |
|              |                 | Stream ID        |  |
|              | Audio 1         | Enabled          |  |
|              |                 | Format           |  |
|              |                 | MPEG Layer 2     |  |
|              |                 | AAC              |  |
|              |                 | Dolby Digital    |  |
|              |                 | Passthrough      |  |
|              |                 | Input            |  |

|  |        |               |  |
|--|--------|---------------|--|
|  |        | TS            |  |
|  |        | Processing    |  |
|  | Data 1 | Enabled       |  |
|  |        | Input         |  |
|  |        | Processing    |  |
|  |        | Format        |  |
|  |        | Teletext      |  |
|  |        | VBI           |  |
|  |        | SCTE-35       |  |
|  |        | DVB Subtitles |  |
|  |        | SMPTE-2038    |  |
|  |        | STD-B24       |  |
|  |        | TS            |  |

**Table 4.4. Front Panel Menu - Service Remuxer**

|                 |         |                       |              |
|-----------------|---------|-----------------------|--------------|
| Service Remuxer | Enabled | Yes/No                |              |
|                 | TS      | Standard              |              |
|                 |         | Packet Size           |              |
|                 |         | Bitrate (kbps)        |              |
|                 |         | Table Bitrate (kbps)  |              |
|                 |         | Enable SI/PSIP tables |              |
|                 |         | SI tables             | Network ID   |
|                 |         |                       | Network Name |
|                 |         |                       | Carrier ID   |
|                 | Output  | ASI                   | Enabled      |
|                 |         | IP                    |              |



## 4.3. Web GUI

With the web-based interface you have access to all configurable parameters.

### 4.3.1. Access setup

#### Ethernet connection

Connect the AM2102 MGT interface B2 to an Ethernet connection.

You can either:

- use a cross-over Ethernet cable to connect the devices directly to the controlling computer,
- use straight through Ethernet cables to connect the devices to a hub or switch.

Configure both the management computer and AM2102 to be on the same subnet. To do this, two solutions are possible:

- change the IP address of the management computer to 192.168.128.2 (for example) and the netmask to 255.255.255.0
- or change the AM2102 network parameters to match your network architecture (see Section 3.2, “Quick start”).



#### Note

To access the AM2102 web-based interface, start any web browser and browse to <http://192.168.128.1>. This is the Factory default IP address of the MGT port.

#### Log into the web server

First of all, you will have to log into the web server. To do so, enter the following URL in your browser: [http://\[AM2102 IP Address\]](http://[AM2102 IP Address]).

Depending on the AM2102 configuration, a pop-up may appear, asking for a Login and a Password (see Figure 4.2, “Log into the web server”). In this case, login is 'admin' and the factory default password is 'admin'.



#### Note

Only the password can be modified. Login is always 'admin'.



#### Warning

Password and login are case sensitive.

Login protection and the associated password can be configured in the System tab of the web interface (see Section 4.3.6, “System Tab”).

**Figure 4.2. Log into the web server****Note**

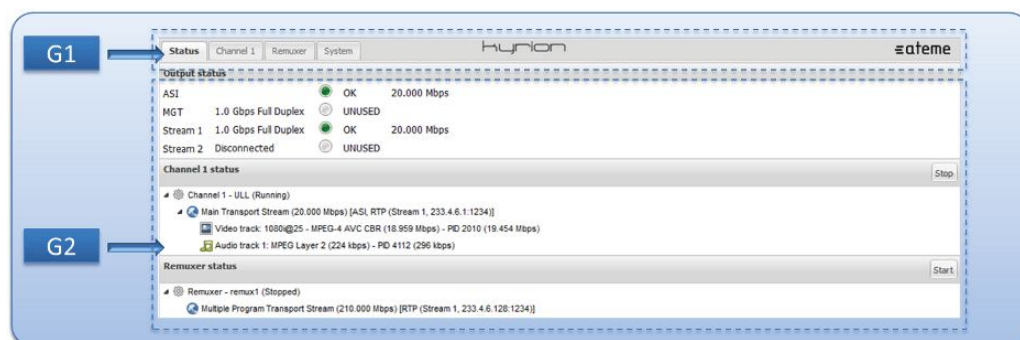
The login dialog box will be displayed in your OS language. It may differ from the above figure.

## 4.3.2. Web GUI Overview

Once logged in, the web server of the AM2102 will display its management environment.

This environment is divided into 2 main areas:

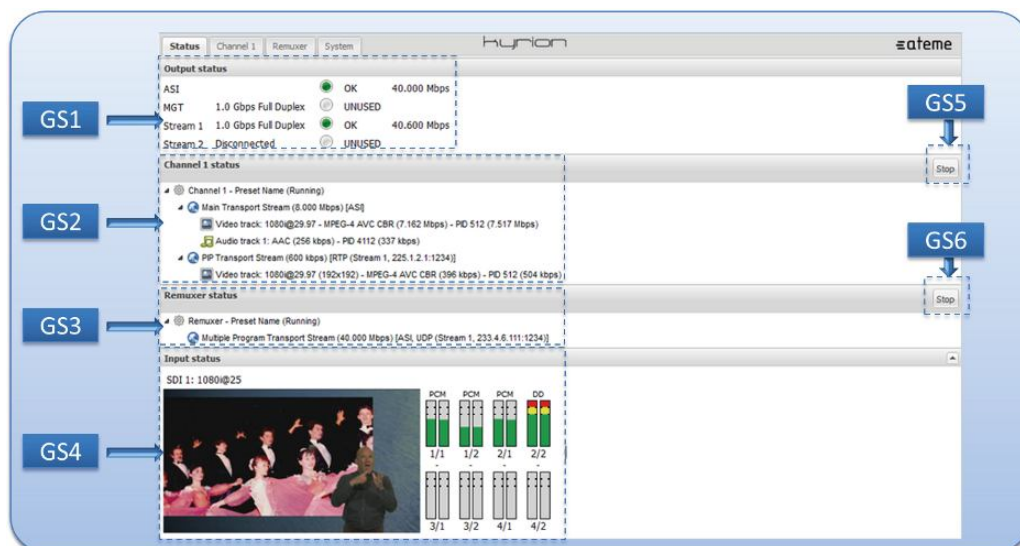
- Navigation bar G1. Use this navigation bar to access all configurable parameters. Clicking on each Tab of this navigation bar will update the Active Area located just below.
- Active Area G2. Displays the parameters associated with the current Tab.

**Figure 4.3. Web Interface**

### 4.3.3. Status Tab

This Tab is used to monitor the status of the AM2102 channels.

**Figure 4.4. Web Interface - Status Tab**

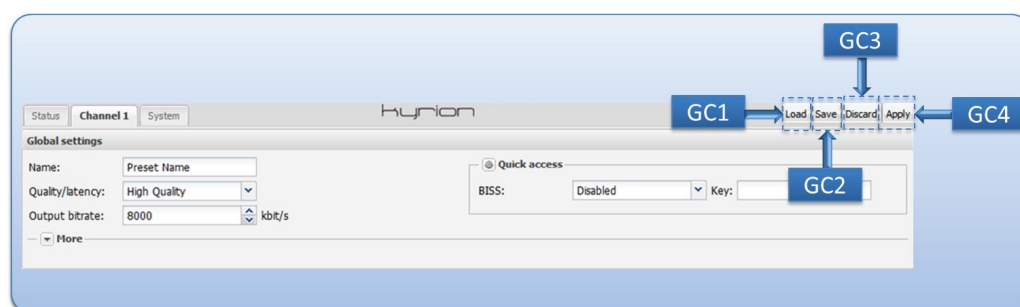


- [GS1]: Outputs state summary.
- [GS2]: Channel state summary.
- [GS3]: Remuxer state summary.
- [GS4]: Inputs state summary.
- [GS5]: Button used to Start or Stop a channel.
- [GS6]: Button used to Start or Stop remuxer.

### 4.3.4. Channel Tab

This Tab allows the user to view, configure, import and export the settings associated to a channel. Each channel is managed independently of the others.

**Figure 4.5. Web Interface - Channel Tab**



- [GC1]: Button used to load a preset into the web GUI editor. The preset can be loaded from a file, from slots stored on the AM2102 or from a preset using factory settings. This action does not disrupt nor reconfigure the AM2102.
- [GC2]: Button used to save the content of the web GUI editor to a file or to a slot stored on the AM2102.
- [GC3]: Button used to discard non applied changes done in the web GUI editor. After this action, the web GUI editor will show the settings that are being used by the AM2102.
- [GC4]: Button used to apply changes done in the web GUI editor. After this action, the AM2102 will use the new settings.

**Table 4.5. Web Interface - Channel Tab Settings**

|                 |  |
|-----------------|--|
| Global settings | Settings that apply to the whole transport stream (e.g. Quality/latency trade-off, TS bitrate, BISS)   |
| Output settings | Settings that apply to the output (e.g. ASI, DVB-S, IP)  |
| Video settings  | Settings that apply to the video acquisition and stream (e.g. SDI input format, codec, Closed caption) |
| Audio settings  | Settings that apply to the audio acquisition and stream (e.g. SDI group/pair, codec)                   |
| Data settings   | Settings that apply to the data stream (e.g. Teletext properties, DVB subtitles)                       |

**Note**

You can safely navigate away from this tab without losing your changes even if some of them are not yet applied.

**Note**

Not yet applied changes are visually identified by a light orange outline.

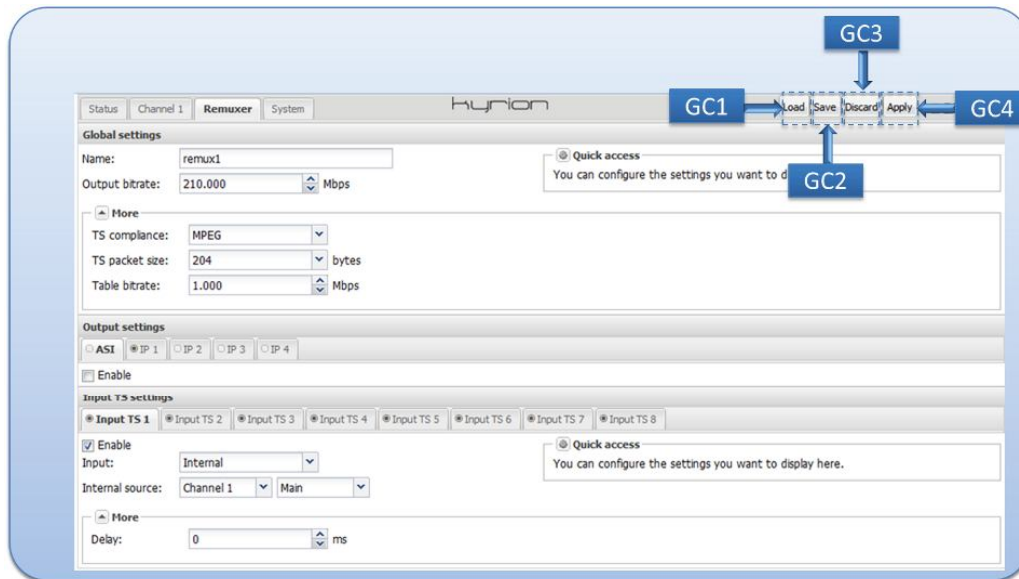
**Note**

If you want to import a preset from a file to a slot, you can load it using [GC1], then save it using [GC2]. Afterward, you may optionally use the discard button [GC3] to show the settings the AM2102 is using.

### 4.3.5. Remuxer Tab

This Tab allows the user to view, configure, import and export the settings associated to the remuxer.

**Figure 4.6. Web Interface - Remuxer Tab**



- [GC1]: Button used to load a preset into the web GUI editor. The preset can be loaded from a file, from slots stored on the AM2102 or from a preset using factory settings. This action does not disrupt nor reconfigure the remuxer.
- [GC2]: Button used to save the content of the web GUI editor to a file or to a slot stored on the AM2102.
- [GC3]: Button used to discard non applied changes done in the web GUI editor. After this action, the web GUI editor will show the settings that are being used by the remuxer.
- [GC4]: Button used to apply changes done in the web GUI editor. After this action, the remuxer will use the new settings.

**Table 4.6. Web Interface - Remuxer Tab Settings**

|                   |   |
|-------------------|---|
| Global settings   | Settings that apply to the whole transport stream (e.g. TS bitrate, compliance) |
| Output settings   | Settings that apply to the output (e.g. ASI, IP)                                |
| Input TS settings | Settings that apply to the input Transport Stream (e.g. sources, delay)         |



### Note

You can safely navigate away from this tab without losing your changes even if some of them are not yet applied.



### Note

Not yet applied changes are visually identified by a light orange outline.

**Note**

If you want to import a preset from a file to a slot, you can load it using [GC1], then save it using [GC2]. Afterward, you may optionally use the discard button [GC3] to show the settings the remuxer is using.

## 4.3.6. System Tab

This tab allows you to configure the system settings, monitor and manage the equipment.

**Figure 4.7. Web Interface - System Tab**

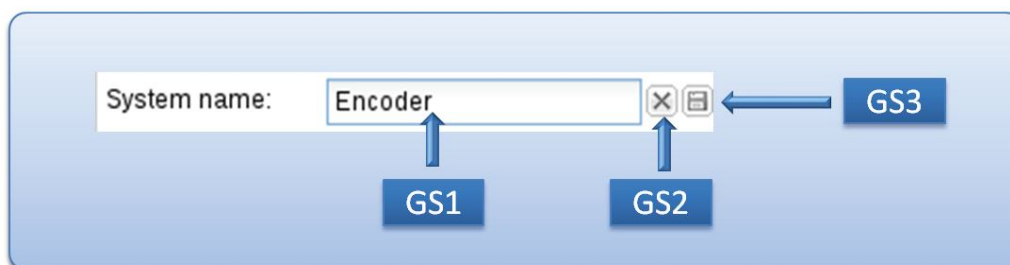


**Table 4.7. Web Interface - System Tab Settings**

|                  |   |
|------------------|---|
| Overview         | General information about the unit.   |
| Time             | Time settings (Time, GMT offset, NTP server).   |
| Network          | Network settings (Network interface, VLAN, route).  |
| Automation       | Automation management.  |
| Logos            | Logo management.  |
| Alarms           | Alarms settings.  |
| SNMP             | SNMP settings (Trap targets, SNMP passwords, MIB download).                                 |
| StatMux          | StatMux settings.   |
| Firmware         | Firmware management (Upgrade, backup, backup restoration).                                  |
| Licenses         | Licenses management.  |
| Extension boards | List of connected extension boards.   |
| Troubleshooting  | Access to information needed to resolve issues (current alarms, logs, debug package, etc.). |

## Simple setting edition

Figure 4.8. Simple setting edition

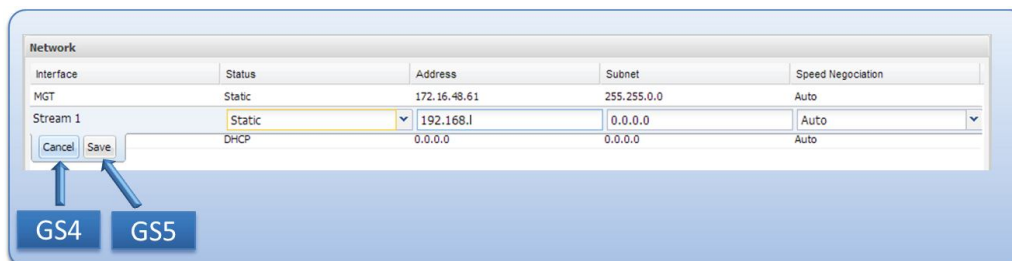


To edit a simple setting, you can:

- Click on [GS1] to enter the edition mode. The buttons [GS2] and [GS3] appear.
- Update the value in [GS1].
- Click on [GS3] to apply your change or on [GS2] to cancel your change. The buttons [GS2] and [GS3] disappear.

## Table setting edition

Figure 4.9. Table setting edition



To edit one or multiple settings of a line in a table:

- Click on the setting you want to edit. The buttons [GS4] and [GS5] appear. They apply for the whole line.
- Update the values on the line.
- Click on [GS5] to apply your changes or on [GS4] to cancel them.

## 5. Settings

This chapter lists all configurable parameters that can be set through the GUI Interface. Some are not accessible depending on your product or the licenses that you purchased.

See the product specification in annexes to check capability of your product.

### 5.1. Preset Settings

#### 5.1.1. Global

**Table 5.1. Global**

| Parameter       | Value   | Note                     |
|-----------------|---|--------------------------|
| Name            | (String)  | Preset name              |
| Quality/latency | High Quality<br>Reduced Latency<br>Low Latency<br>Ultra Low Latency<br>Custom (Advanced)<br>Custom (Expert) | -                        |
| Output bitrate  | Bitrate of the output TS  | -                        |
| BISS mode       | Disabled<br>1<br>E  | -                        |
| BISS Key        | (Hexadecimal number)  | When BISS mode is 1 or E |

#### 5.1.2. TS

**Table 5.2. TS**

| Parameter                | Value  | Note |
|--------------------------|--|------|
| TS occupancy             | Static/Full<br>Dynamic/Adjustable                              | -    |
| TS occupancy bitrate     | (number)   | -    |
| TS occupancy min bitrate | (number)   | -    |
| TS compliance            | MPEG<br>DVB<br>ATSC<br>ISDB<br>SBTV D FullSeg<br>SBTV D OneSeg | -    |
| TS packet size           | 188  | -    |



|                       |   |   |
|-----------------------|---|---|
|                       | 204   |   |
| Null bitrate          | (number)                                      | - |
| PMT PID               | (number)                                      | - |
| Program number        | (number)                                      | - |
| PMT PCR PID           | (number)                                      | - |
| PAT TS ID             | (number)                                      | - |
| PAT period            | (number)                                      | - |
| PMT period            | (number)                                      | - |
| CAT period            | (number)                                      | - |
| Insert PCR on RAP     | -   | - |
| Enable SI/PSIP tables | -   | - |
| Clock source          | Video input<br>Internal<br>External Reference | - |

## DVB/ISDB/SBTVD compliance

These settings are available when 'TS conformance' is one of DVB, ISDB or SBTVD (Full/one-seg) and SI tables are enabled.

**Table 5.3. DVB compliance**

| Parameter        | Value    | Note |
|------------------|----------|------|
| Network ID       | (number) | -    |
| Network name     | (string) | -    |
| Service name     | (string) | -    |
| Service provider | (string) | -    |

**Table 5.4. Carrier ID**

| Parameter    | Value         | Note |
|--------------|---------------|------|
| Format       | 02            | -    |
| Manufacturer | (string)      | -    |
| Serial       | (string)      | -    |
| Identifier   | (string)      | -    |
| Telephone    | (string)      | -    |
| Information  | (string)      | -    |
| Longitude    | (real number) | -    |
| Latitude     | (real number) | -    |

## ATSC compliance

These settings are available when 'TS conformance' is ATSC and PSIP tables are enabled.

**Table 5.5. ATSC**

| Parameter          | Value   | Note |
|--------------------|---|------|
| Delivery           | None<br>Cable<br>Terrestrial                                | -    |
| Channel short name | (string)  | -    |
| Channel major      | (number)  | -    |
| Channel minor      | (number)  | -    |
| Modulation         | None<br>Analog<br>SCTE-1<br>SCTE-2<br>8VSB<br>16VSB<br>User | -    |

### 5.1.3. Output ASI

**Table 5.6. Output ASI**

| Parameter | Value | Note |
|-----------|-------|------|
| Enable    | -     | -    |

### 5.1.4. Output IP

**Table 5.7. Output IP**

| Parameter        | Value                               | Note                      |
|------------------|-------------------------------------|---------------------------|
| Enable           | -                                   | -                         |
| Main interface   | MGT<br>Stream 1<br>Stream 2         | -                         |
| Main IP          | (IP address)                        | -                         |
| Main port        | (number)                            | -                         |
| Backup interface | None<br>MGT<br>Stream 1<br>Stream 2 | -                         |
| Backup IP        | (IP address)                        | -                         |
| Backup port      | (number)                            | -                         |
| Protocol         | UDP<br>RTP                          | -                         |
| FEC              | None<br>1D<br>2D                    | Only when Protocol is RTP |

|                    |              |                           |
|--------------------|--------------|---------------------------|
| Columns            | (number)     | Only when FEC is 1D or 2D |
| Rows               | (number)     | Only when FEC is 1D or 2D |
| Steps              | (number)     | Only when FEC is 1D or 2D |
| TS packet count    | (number)     | -                         |
| Multicast TTL      | (number)     | -                         |
| Spoofing enable    | -            | -                         |
| Spoofing address   | (IP address) | -                         |
| Strip null packets | -            | -                         |
| TOS                | (number)     | -                         |

## 5.1.5. Video

**Table 5.8. Video**

| Parameter                | Value  | Note |
|--------------------------|--|------|
| Codec                    | MPEG-4 AVC<br>MPEG-4 AVC-I<br>MPEG-2   | -    |
| Input                    | 525i<br>625i<br>720p@50<br>720p@59.94<br>720p@60<br>1080i@25<br>1080i@29.97<br>1080i@30<br>1080psf@23.976<br>1080psf@24<br>1080psf@25<br>1080p@23.976<br>1080p@24<br>1080p@25<br>1080p@29.97<br>1080p@30 |      |
| Video PID                | (number)   | -    |
| Rate control             | CBR<br>VBR - Quality Capped<br>VBR - StatMuxed<br>VBR - Rate Capped  | -    |
| Emulation mode           | Black<br>Pattern<br>Freeze<br>Custom<br>Mute   | -    |
| Emulation moving pattern | -  | -    |
| Force emulation          | -  | -    |

|                                  |  |   |
|----------------------------------|--|---|
| Resize                           | -  | - |
| Denoise                          | None<br>Low<br>Medium<br>High                            | - |
| IVTC                             | -  | - |
| Logo name                        | (string)   | - |
| Logo X                           | (number)   | - |
| Logo Y                           | (number)   | - |
| GOP Size                         | (number)   | - |
| GOP B Frames                     | (number)   | - |
| GOP Closed                       | -  | - |
| GOP Fixed                        | -  | - |
| Aspect ratio                     | SDI (16:9 fallback)<br>SDI (4:3 fallback)<br>16:9<br>4:9 | - |
| Enable CC                        | -  | - |
| Caption service descriptor       | -  | - |
| Type                             | cc608<br>cc708   | - |
| service                          | (number)   | - |
| Wide                             | -  | - |
| Easy reader                      | -  | - |
| Clear BISS                       | -  | - |
| Full range                       | -  | - |
| CPB Size                         | (number)   | - |
| Disable adaptive GOP structures  | -  | - |
| Enable psychovisual enhancements | -  | - |

## Auto sense

The auto sense functionality allows the encoded stream to dynamically adapt to a video input format change, e.g. if the video input changes from 625i to 720p50 the AM2102 will adapt to encode a 720p50 stream. However it imposes some constraints on the configuration. Among others:

- The video bitrate must be compatible with all video formats (minimum h.264 video bitrate is multiplied by 4).
- All resize resolutions are not available.

**Table 5.9. MPEG-4 AVC**

| Parameter | Value  | Note |
|-----------|--|------|
| Profile   | Baseline (4:2:0 8-bit)<br>Main (4:2:0 8-bit) | -    |

|                             |   |   |
|-----------------------------|---|---|
|                             | High (4:2:0 8-bit)<br>High 10 (4:2:0 10-bit)<br>High 4:2:2 (8-bit)<br>High 4:2:2 (10-bit) |   |
| Interlacing mode            | Automatic<br>Frame<br>Field Only<br>PAFF<br>MBAFF<br>MBAFF and PAFF                       | - |
| Deblocking                  | -   | - |
| Deblocking strength         | (number)  | - |
| Scaling matrices            | Flat<br>Default   | - |
| Allow CABAC                 | -   | - |
| Allow hierarchical B frames | -   | - |
| Allow HRD informations      | -   | - |
| Enable AFD bar data SEI     | -   | - |
| Enable picture timing SEI   | -   | - |

**Table 5.10. MPEG-4 AVC-I**

| Parameter                 | Value   | Note |
|---------------------------|---|------|
| Profile                   | High 10 intra<br>High 4:2:2 intra                                   | -    |
| Interlacing mode          | Automatic<br>Frame<br>Field Only<br>PAFF<br>MBAFF<br>MBAFF and PAFF | -    |
| Deblocking                | -   | -    |
| Deblocking strength       | (number)  | -    |
| Scaling matrices          | Flat<br>Default   | -    |
| Allow CABAC               | -   | -    |
| Allow HRD informations    | -   | -    |
| Enable AFD bar data SEI   | -   | -    |
| Enable picture timing SEI | -   | -    |

**Table 5.11. MPEG-2**

| Parameter | Value                                | Note |
|-----------|--------------------------------------|------|
| Profile   | Main<br>4:2:2 (using 4:2:0)<br>4:2:2 | -    |

|                             |   |   |
|-----------------------------|---|---|
| Interlacing mode            | Automatic<br>Frame<br>Field Only<br>MBAFF<br>Frame and Field<br>Frame and MBAFF<br>Field and MBAFF<br>Frame and Field and MBAFF | - |
| Allow dual prime            | -   | - |
| Enable SMPTE-328M time code | -   | - |

## 5.1.6. Audio

**Table 5.12. Audio**

| Parameter                                 | Value  | Note  |
|---|--|---|
| Codec                                     | MPEG Layer2<br>AAC LC (MPEG-4)<br>AAC LC (MPEG-2)<br>AAC HEv1<br>AAC HEv2<br>Dolby Digital<br>Dolby Digital Plus<br>Pass-through | -   |
| Non pass-through mode                     | Mono<br>Dual-mono<br>Stereo<br>5.1<br>From Dolby E   | Only when pass-through is not selected                  |
| Pass-through type                         | Dolby Digital<br>Dolby Digital Plus<br>Dolby E<br>AES3/SMPTE-302M  | Only when pass-through is selected                      |
| Dolby Digital (Plus) pass-through bitrate | (number)   | Only when pass-through Dolby Digital (Plus) is selected |
| Dolby E/SMPTE-302M pass-through size      | 16<br>20<br>24   | Only when pass-through Dolby E/SMPTE-302M is selected   |
| SMPTE-302M pass-through pair count        | 1<br>2<br>3<br>4   | Only when pass-through SMPTE-302M is selected           |
| Bitrate                                   | (number)   | -   |
| Input type                                | SDI<br>Analog<br>AES   | -   |
| SDI mono/front/auxiliary/rear             | (group/pair)   | Only when input type SDI is selected                    |

|                                  |   |   |
|----------------------------------|---|---|
| Analog mono/front/auxiliary/rear | (XLR)   | Only when input type Analog is selected |
| Level                            | 24dBu@0dBFS<br>22dBu@0dBFS<br>18dBu@0dBFS<br>-10dBu@-20dBFS             | Only when input type Analog is selected |
| AES mono/front/auxiliary/rear    | (XLR)   | Only when input type AES is selected    |
| Language code                    | -   | -                                       |
| Language type                    | None<br>Clean effects<br>Hearing Impaired<br>Visual Impaired Commentary | -                                       |
| Emulation mode                   | Silence<br>Sine 440Hz<br>Noise  | -                                       |
| Emulation forced                 | -   | -                                       |
| Delay                            | (real number)   | -                                       |
| Gain                             | (real number)   | -                                       |
| Clear BISS                       | -   | -                                       |
| Stream identifier descriptor     | -   | -                                       |
| Component tag                    | (number)  | -                                       |
| Component descriptor             | -   | -                                       |
| Component tag                    | (number)  | -                                       |
| Stream content                   | (number)  | -                                       |
| Type                             | (number)  | -                                       |
| Language                         | -   | -                                       |
| Text                             | (string)  | -                                       |
| Audio Supplementary descriptor   | -   | -                                       |
| Mix type                         | Supplementary stream<br>Independent stream                              | -                                       |
| Editorial classification         | 0..31   | -                                       |
| Language                         | -   | -                                       |
| Text                             | (string)  | -                                       |

Table 5.13. MPEG Layer2

| Parameter     | Value | Note |
|---------------|-------|------|
| Copyright bit | -     | -    |
| Original bit  | -     | -    |

Table 5.14. AAC

| Parameter | Value | Note |
|-----------|-------|------|
|-----------|-------|------|

|             |   |   |
|-------------|---|---|
| TNS allowed | - | - |
| MS allowed  | - | - |

**Table 5.15. Dolby Digital**

| Parameter            | Value  | Note  |
|----------------------|--|---|
| Metadata             | User<br>Dolby E<br>Ancillary   | -   |
| Program              | (number)   | Only when ancillary metadata is selected            |
| Reversion mode       | Last used metadata<br>Last host settings   | Only when ancillary or Dolby E metadata is selected |
| Metadata overwrite   | None<br>Compression profile<br>Dialog normalization<br>Both  | Only when ancillary or Dolby E metadata is selected |
| Bitstream mode       | Complete<br>Music<br>Visually impaired<br>Hearing impaired<br>Dialogue<br>Commentary<br>Emergency<br>Karaoke | -   |
| Dialog normalization | (number)   | -   |
| A/D converter        | Standard<br>HDCD   | -   |
| Peak mixing level    | (number)   | -   |
| Room type            | Unspecified<br>Small<br>Large  | -   |
| Line mode            | Unspecified<br>Film standard<br>Film light<br>Music standard<br>Music light<br>Speech                        | -   |
| RF mode              | Unspecified<br>Small<br>Large  | -   |
| Line mode            | Unspecified<br>Film standard<br>Film light<br>Music standard<br>Music light<br>Speech                        | -   |



|                           |  |   |
|---------------------------|--|---|
| Copyright bit             | -  | - |
| Original flag             | -  | - |
| Dolby Digital surround EX | Unspecified<br>Enabled<br>Disabled                           | - |
| Dolby headphone mode      | Unspecified<br>Enabled<br>Disabled                           | - |
| Downmix preference        | Unspecified<br>Stereo<br>Dolby prologic<br>Dolby prologic II | - |
| Lt/Rt center mix level    | 3.0<br>1.5<br>0<br>-1.5<br>-3.0<br>-4.5<br>-6.0<br>-infinity | - |
| Lt/Rt surround mix level  | -1.5<br>-3.0<br>-4.5<br>-6.0<br>-infinity                    | - |
| Lo/Ro center mix level    | 3.0<br>1.5<br>0<br>-1.5<br>-3.0<br>-4.5<br>-6.0<br>-infinity | - |
| Lo/Ro surround mix level  | -1.5<br>-3.0<br>-4.5<br>-6.0<br>-infinity                    | - |
| DC highpass filter        | -  | - |
| Bandwidth lowpass filter  | -  | - |
| Digital deemphasis        | -  | - |
| LFE lowpass filter        | -  | - |
| 90 degree phase shift     | -  | - |
| 3 dB attenuation          | -  | - |

## 5.1.7. Data

**Table 5.16. Data**

| Parameter                    | Value  | Note |
|------------------------------|--|------|
| Enable                       | -  | -    |
| Type                         | Teletext<br>VBI<br>SCTE-35<br>DVB Subtitles<br>SMPTE-2038<br>STD-B24 | -    |
| Data PID                     | (number)   | -    |
| Delay                        | (real number)  | -    |
| Clear BISS                   | -  | -    |
| Stream identifier descriptor | -  | -    |
| Component tag                | (number)   | -    |
| Component descriptor         | -  | -    |
| Component tag                | (number)   | -    |
| Stream content               | (number)   | -    |
| Type                         | (number)   | -    |
| Language                     | -  | -    |
| Text                         | (string)   | -    |

**Table 5.17. Teletext and VBI teletext descriptor**

| Parameter     | Value   | Note |
|---------------|---|------|
| Enable        | -   | -    |
| Description   | Initial<br>Subtitle<br>Additional Information<br>Program Schedule<br>Hearing Impaired | -    |
| Page          | (number)  | -    |
| Language code | -   | -    |

**Table 5.18. Teletext and VBI teletext filter**

| Parameter | Value                       | Note |
|-----------|-----------------------------|------|
| Enable    | -                           | -    |
| Field 1   | (pass/dismiss per VBI line) | -    |
| Field 2   | (pass/dismiss per VBI line) | -    |

**Table 5.19. VBI**

| Parameter | Value | Note |
|-----------|-------|------|
|-----------|-------|------|

|                |   |   |
|----------------|---|---|
| Allow WSS      | - | - |
| Allow VPS      | - | - |
| Allow VITC     | - | - |
| Allow Teletext | - | - |

**Table 5.20. DVB Subtitles**

| Parameter                 | Value                       | Note |
|---------------------------|-----------------------------|------|
| Input                     | IP<br>ASI                   | -    |
| IP source interface       | MGT<br>Stream 1<br>Stream 2 | -    |
| IP source type            | Multicast<br>Unicast        | -    |
| IP source address         | (IP address)                | -    |
| IP source port            | (number)                    | -    |
| ASI source                | SYNC Input<br>ASI Input     | -    |
| TS stream PID             | (number)                    | -    |
| TS stream PCR PID         | (number)                    | -    |
| TS stream maximum bitrate | (number)                    | -    |

**Table 5.21. DVB Subtitles descriptor**

| Parameter      | Value  | Note |
|----------------|--|------|
| Enable         | -  | -    |
| Type           | Normal<br>Normal 4:3<br>Normal 16:9<br>Normal 2.21:1<br>Normal HD<br>Hearing Impaired<br>Hearing Impaired 4:3<br>Hearing Impaired 16:9<br>Hearing Impaired 2.21:1<br>Hearing Impaired HD | -    |
| Language code  | -  | -    |
| Composition ID | (number)   | -    |
| Ancillary ID   | (number)   | -    |

**Table 5.22. SMPTE-2028**

| Parameter   | Value    | Note |
|-------------|----------|------|
| Max bitrate | (number) | -    |
| Packet      | -        | -    |

|      |          |   |
|------|----------|---|
| Line | (number) | - |
| DID  | (number) | - |
| SDID | (number) | - |

**Table 5.23. SCTE-35 source**

| Parameter | Value | Note          |
|-----------|-------|---------------|
| Enable    | -     | -             |
| Source    | SDI   | From SCTE-104 |
|           | GPI   | -             |

**Table 5.24. SCTE-35 SDI source**

| Parameter            | Value | Note                                |
|----------------------|-------|-------------------------------------|
| AS index filter      | -     | Up to 4 values separated by a comma |
| DPI PID index filter | -     | Up to 4 values separated by a comma |

**Table 5.25. SCTE-35 GPI source**

| Parameter                | Value             | Note |
|--------------------------|-------------------|------|
| Command source           | Disabled          | -    |
|                          | GPI1              | -    |
|                          | GPI2              | -    |
| Command type             | Insert            | -    |
| Insert Type              | Out Of Network    | -    |
|                          | Return To Network | -    |
| Insert Event Id          | (number)          | -    |
| Insert Pre-Roll          | [4000-95443717]   | ms   |
| Insert Immediate         | -                 | -    |
| Insert Break Duration    | [4000-95443717]   | ms   |
| Insert Auto Return       | -                 | -    |
| Insert Unique Program Id | [0-65535]         | -    |
| Insert Avail num         | [0-255]           | -    |
| Insert Avails Expected   | [0-255]           | -    |

**Table 5.26. STD-B24**

| Parameter   | Value    | Note |
|-------------|----------|------|
| Enable      | -        | -    |
| Max Bitrate | [20-200] | kbps |

## 5.2. Remuxer Settings

### 5.2.1. Global

Table 5.27. Global

| Parameter             | Value       | Note        |
|-----------------------|-------------|-------------|
| Name                  | (String)    | Preset name |
| Output Bitrate        | -           | -           |
| TS compliance         | MPEG<br>DVB | -           |
| TS packet size        | 188<br>204  | -           |
| Table Bitrate         | -           | -           |
| Enable SI/PSIP tables | -           | -           |

### DVB compliance

These settings are available when 'TS conformance' is DVB and SI tables are enabled.

Table 5.28. DVB compliance

| Parameter    | Value    | Note |
|--------------|----------|------|
| Network ID   | (number) | -    |
| Network name | (string) | -    |

Table 5.29. Carrier ID

| Parameter    | Value         | Note |
|--------------|---------------|------|
| Format       | 02            | -    |
| Manufacturer | (string)      | -    |
| Serial       | (string)      | -    |
| Identifier   | (string)      | -    |
| Telephone    | (string)      | -    |
| Information  | (string)      | -    |
| Longitude    | (real number) | -    |
| Latitude     | (real number) | -    |

### 5.2.2. Output ASI

Table 5.30. Output ASI

| Parameter | Value | Note |
|-----------|-------|------|
|-----------|-------|------|

|        |   |   |
|--------|---|---|
| Enable | - | - |
|--------|---|---|

### 5.2.3. Output IP

**Table 5.31. Output IP**

| Parameter          | Value                               | Note                       |
|--------------------|-------------------------------------|----------------------------|
| Enable             | -                                   | -                          |
| Main interface     | MGT<br>Stream 1<br>Stream 2         | -                          |
| Main IP            | (IP address)                        | -                          |
| Main port          | (number)                            | -                          |
| Backup interface   | None<br>MGT<br>Stream 1<br>Stream 2 | -                          |
| Backup IP          | (IP address)                        | -                          |
| Backup port        | (number)                            | -                          |
| Protocol           | UDP                                 | -                          |
|                    | RTP                                 | -                          |
|                    | Zixi                                | -                          |
| FEC                | None<br>1D<br>2D                    | Only when Protocol is RTP  |
| Columns            | (number)                            | Only when FEC is 1D or 2D  |
| Rows               | (number)                            | Only when FEC is 1D or 2D  |
| Steps              | (number)                            | Only when FEC is 1D or 2D  |
| Channel name       | (string)                            | Only when Protocol is Zixi |
| Latency            | (number)                            | Only when Protocol is Zixi |
| Adaptive           | -                                   | Only when Protocol is Zixi |
| TS packet count    | (number)                            | -                          |
| Multicast TTL      | (number)                            | -                          |
| Spoofing enable    | -                                   | -                          |
| Spoofing address   | (IP address)                        | -                          |
| Strip null packets | -                                   | -                          |
| TOS                | (number)                            | -                          |

## 5.2.4. Input TS

**Table 5.32. Input TS**

| Parameter       | Value                               | Note  |
|-----------------|-------------------------------------|---|
| Enable          | -                                   | -   |
| Input           | ASI<br>Internal                     | -   |
| ASI Source      | SYNC Input<br>ASI Input             | Only when Input ASI is selected   |
| Internal Source | Channel 1 - Main<br>Channel 1 - PIP | Only when Input Internal is selected  |
| Delay           | -                                   | Delay in ms added to the TS input before remuxing, to compensate for the latency added by previous muxers |

## 5.3. System Settings

Next sections list the system parameters that can be modified through the web GUI interface.

### 5.3.1. System - Overview

**Table 5.33. Overview**

| Parameter        | Value    | Note |
|------------------|----------|------|
| System name      | (string) | -    |
| BISS injected ID | -        | -    |
| GUI password     | -        | -    |

### 5.3.2. System - Time

**Table 5.34. Time**

| Parameter          | Value        | Note |
|--------------------|--------------|------|
| System time        | (time)       | -    |
| GMT offset         | (number)     | -    |
| NTP server enable  | -            | -    |
| NTP server address | (IP address) | -    |

### 5.3.3. System - Network Interface

**Table 5.35. Interface**

| Parameter | Value | Note |
|-----------|-------|------|
|-----------|-------|------|

|                   |  |   |
|-------------------|--|---|
| Interface         | MGT<br>Stream 1<br>Stream 2  | - |
| Status            | Disable<br>Static<br>DHCP  | - |
| Address           | (IP address)   | - |
| Netmask           | (netmask)  | - |
| Speed negotiation | Auto<br>10 Mbps Half Duplex<br>10 Mbps Full Duplex<br>100 Mbps Half Duplex<br>100 Mbps Full Duplex<br>1.0 Gbps Half Duplex<br>1.0 Gbps Full Duplex | - |

### 5.3.4. System - Network VLAN

**Table 5.36. VLAN**

| Parameter | Value                       | Note |
|-----------|-----------------------------|------|
| Status    | Disable<br>Static<br>DHCP   | -    |
| Interface | MGT<br>Stream 1<br>Stream 2 | -    |
| ID        | (number)                    | -    |
| Address   | (IP address)                | -    |
| Netmask   | (netmask)                   | -    |
| Priority  | (number)                    | -    |

### 5.3.5. System - Network Route

**Table 5.37. Route**

| Parameter   | Value                              | Note |
|-------------|------------------------------------|------|
| Type        | Disable<br>Default<br>Host<br>Net  | -    |
| Interface   | Any<br>MGT<br>Stream 1<br>Stream 2 | -    |
| Destination | (IP address)                       | -    |



|         |              |   |
|---------|--------------|---|
| Netmask | (netmask)    | - |
| Gateway | (IP address) | - |

## 5.3.6. System - Automation

**Table 5.38. Automation**

| Parameter    | Value                              | Note                             |
|--------------|------------------------------------|----------------------------------|
| Target       | Disabled<br>Channel 1<br>Channel 2 | -                                |
| Video format | -                                  | All supported input video format |
| Preset       | Slot 1 .. Slot 128                 | -                                |

[enable] tickbox to enable/disable the automation functionality.

[Add rule] button to create an automation rule.

When enabled the automation functionality will look for a rule matching the SDI input video format and then will load its corresponding channel preset.



### Note

Channel auto sense and system automation are different functionalities. Auto sense will follow the SDI input video format and modify the preset as little as necessary to encode the new input video format (e.g. the audio and data ES will not be impacted). Automation will load a new channel preset following the SDI input video format change.

## 5.3.7. System - Logos

**Table 5.39. Logos**

| Parameter | Value | Note |
|-----------|-------|------|
| File Name | -     | -    |
| Size      | -     | -    |
| Delete    | -     | -    |

[Add Logo] button opens a browser to select a picture file to upload.



### Warning

Only BMP 24 and 32-bit files are supported.

When used as a logo on the video, the maximum resolution is 512x256 pixels. The alpha channel if present (32-bit files) is used to do the transparency, otherwise the logo will be fully opaque.

When used as a custom emulation pattern, the maximum resolution is 1920x1080 pixels. The alpha channel if present (32-bit files) is ignored.

## 5.3.8. System - Alarms

**Table 5.40. Alarms names**

| Alarm name                        |  |
|-----------------------------------|--|
| Audio Signal Inactive             |  |
| Audio Signal Incompatible         |  |
| Audio Signal Missing              |  |
| Audio Decoding Failure            |  |
| Audio Signal Invalid Dolby E      |  |
| Data Signal Missing               |  |
| Output Network Link Down          |  |
| Output Zixi Connection Failure    |  |
| TS Input Signal Missing           |  |
| Video Signal Inactive             |  |
| Video Signal Incompatible         |  |
| Video Signal Missing              |  |
| Clock Signal Incompatible         |  |
| Clock Signal Missing              |  |
| Modulator External Clock Missing  |  |
| Modulator Hardware Failure        |  |
| Modulator Mute                    |  |
| Modulator TS Input Signal Missing |  |
| System Ethernet Link Down         |  |
| System Fan                        |  |
| System Hardware                   |  |
| System Hardware Extension         |  |
| System Overheat                   |  |
| System Power Supply Unit          |  |

**Table 5.41. Alarms actions**

| Parameter | Value  | Note |
|-----------|--|------|
| Name      | -  | -    |
| Level     | Disabled<br>Information<br>Warning<br>Critical | -    |
| Delay     | (number)                                       | ms   |

|           |  |   |
|-----------|--|---|
| GPO 1     | None<br>Activate<br>Activate for Channel 1<br>Activate for Channel 2 | - |
| GPO 2     | None<br>Activate<br>Activate for Channel 1<br>Activate for Channel 2 | - |
| SNMP Trap | Disabled<br>Enabled  | - |

### 5.3.9. System - Logs

**Table 5.42. Logs names**

| Log name                        |  |
|---------------------------------|--|
| Engine Configuration            |  |
| Engine Configuration Auto Sense |  |
| Engine Failure                  |  |
| Engine Start                    |  |
| Engine Stop                     |  |
| System Reboot                   |  |
| System Start                    |  |
| System Stop                     |  |

**Table 5.43. Logs levels**

| Parameter | Value  | Note |
|-----------|--|------|
| Name      | -  | -    |
| Level     | Disabled<br>Information<br>Warning<br>Critical | -    |

### 5.3.10. System - SNMP Trap Target

**Table 5.44. Trap target**

| Parameter | Value                                | Note |
|-----------|--------------------------------------|------|
| Use       | -                                    | -    |
| Type      | SNMP v2 trap<br>SNMP v2 notification | -    |
| Address   | (IP address)                         | -    |
| Port      | (number)                             | -    |

### 5.3.11. System - SNMP Password

**Table 5.45. Passwords**

| Parameter  | Value | Note |
|------------|-------|------|
| Read only  | -     | -    |
| Write only | -     | -    |

### 5.3.12. System - StatMux

**Table 5.46. StatMux**

| Parameter | Value    | Note |
|-----------|----------|------|
| Port      | (number) | -    |

## 6. Specific Operations

### 6.1. Installing License

In the web GUI, go to the System tab and click License.

The upper section is used to update the license settings.

To do so, click the Update button. A pop-up should appear asking for a license file. Click on the Browse button to point to it and click Ok to proceed with the update, or Cancel to abort.

After a few seconds, a pop-up should appear, asking you to wait while the update process is running. Wait until this pop-up disappears.



#### Note

License files are specific files provided by ATEME support. They should bear the extension ".lic" and are bound to a specific unit Serial Number. If the file does not meet these requirements, it will be rejected.

The lower section is a summary of the licensed features with their status:

- 'Yes': A valid license file has been provided and the feature is available for use.
- 'No': The feature is disabled.
- 'Value': The feature is enabled and its limit is set to 'Value'

### 6.2. Firmware management

In the web GUI, go to the System tab and click Firmware.

This panel is dedicated to firmware management. From here, you can, install a new firmware version, make a backup of your current version or restore your backup version.

It is always a good idea to make a backup of a known good functioning system version. It can be useful to recover from situations requiring a Factory Reset for example or coming back from an update not fully fulfilling your needs.

#### Firmware update

Click Update. A pop-up should appear asking for the update package file. Click on the Browse button to point to it and click Ok to proceed with the update, or Cancel to abort.

After a few seconds, a pop-up should appear, asking you to wait while the update process is running. Wait until this pop-up disappears.

**Note**

You can confirm that the upgrade process completed successfully by checking that the displayed Current Version number is the one expected.

**Note**

Update packages are specific files provided by ATEME support. They should bear the extension ".pkg". Other files will be rejected.

## Firmware backup

Click Backup, and press Yes in the pop-up asking you to confirm you really want to save your current system version. The Backup button is disabled until the backup is done.

**Note**

You can confirm that the backup process completed successfully by checking that the Current Backup version number matches the Current Version's one.

## Firmware restore

Click Restore, and press Yes in the pop-up asking you to confirm you really want to restore the last saved system version.

After a few seconds, a pop-up should appear, asking you to wait while the restore process is running. Wait until this pop-up disappears.

**Note**

You can confirm that the restore process completed successfully by checking that the Current Version number matches the Current Backup's one.

## 6.3. Recovery

If the web GUI becomes unreachable (and you are sure this is not a network problem) or the AM2102 keeps rebooting by itself without allowing you to do anything, it may be due to a corrupted file or settings incompatibility between 2 versions preventing the system to boot normally.

To recover from such a situation, the AM2102 has a maintenance menu accessible during the boot process via the front panel FP. It allows a purging of some parts of the system.

Follow the steps below to access the maintenance menu:

- Step 1: Turn on your AM2102 or restart it if it's already on.

- Step 2: Watch for a Maintenance message displayed on FP5 after a few seconds.
- Step 3: Quickly press the validation key (see Section 4.2, “ Front Panel ”) to enter the Maintenance menu.

Available options are:

- Continue: Exit the maintenance menu and continue booting normally.
- Reset Config: Erase all service configuration parameters.

The "Reset Config" function is useful when a newly installed version crashes on boot because of an incompatibility with the previous settings.

Only the service configuration parameters will be lost. The firmware version and system parameters will stay the same.

This is the first thing to try.

- Backup System: Performs a backup of the current firmware version. Same function as Firmware Backup described in Section 6.2, “ Firmware management ”.
- Restore System: Restores a previously saved system version.

If the current system version gets corrupted for some reason, restoring an older version can make the system usable again allowing you to take control of the web interface.

- Restore Factory: Restores the system to its factory version.

It will reset everything including: services configuration settings, firmware version and system parameters.

# Appendix A. MIB User Guide

## A.1. SNMP overview

This section applies to the AM2102 version 2.0.7.0 (build 27.0.12). It is a guide for interfacing the AM2102 via a NMS, or through simple SNMP commands. The MIB of the AM2102 can be used to control, configure, and monitor the unit. Everything that can be done through the web GUI can also be done through SNMP.



### Note

All the examples provided in this section are using command-line applications *snmpget* and *snmpset*, part of the Open Source Net-SNMP software package which is available for all major Operating Systems. Graphical MIB browser software can also be used alternatively. This guide is not intended to cover the usage of these softwares that are only used to illustrate our MIB implementation. For more details about these softwares, please refer to their respective documentations. In all examples here below the keyword "\$HOST" represents the IP address of the AM2102 interface through which SNMP commands are performed. To reproduce the example, one shall replace this keyword by the effective IP address of the AM2102 to be controlled.



### Note

All the MIB variables are commented in the MIB itself.

## Ethernet interface

All the ethernet interfaces of the AM2102 can be used to drive the unit through SNMP. Nevertheless, it is highly recommended to use the "Management" interface as using Stream1/2 may interfere with the decoding process.

## Protocol

SNMP version V2.C is supported.

## Requests

The AM2102 listens to incoming SNMP requests on the standard SNMP port 161 (not configurable). GET, GET-NEXT, GET-BULK and SET requests are supported.

## Traps

Traps can be sent to notify transitions between variable states, such as alarms. Traps can be sent simultaneously to up to 4 targets, on a user-specified port (although standard SNMP port 162 is recommended). All enabled traps are sent to all targets: enabled traps are configurable at the system level, not on a per-target basis.



## Request rate

The AM2102 will process up to 300 requests per second. Walking through the entire MIB may thus take hundreds of seconds.

## Communities

Community string provide a basic right access mechanism. Two community strings are defined: "public" is associated to Read-Only variables, "private" is associated to Read-Write variables. Those strings can be overridden. Please refer to Section A.3.1.6, “ Configuring communities and traps ” for more information.

## A.2. MIB overview

Parameters application is equivalent to Front Panel : they are instantly applied, there is no need to send a validation request. There is no possibility to prepare several parameters that should be applied at the same time.

Every node and leaf follow the same naming convention : it is the concatenation of its parent node name with the current parameter name. For example, kyrion2StatusInputBitrate leaf is located in kyrion2StatusInput node, which is itself located in the kyrion2Status node. Thanks to this naming convention, equivalences between Front Panel parameters and SNMP nodes are easily found.

## A.2.1. Main nodes

AM2102 MIB is organized in fifteen nodes which description is hereinafter given.

```
.
|-- kyrion2Conformance      (OID 1.3.6.1.4.1.27338.4.1)
|-- kyrion2Unit             (OID 1.3.6.1.4.1.27338.4.2)
|-- kyrion2Channel          (OID 1.3.6.1.4.1.27338.4.3)
|-- kyrion2Software         (OID 1.3.6.1.4.1.27338.4.4)
|-- kyrion2Hardware         (OID 1.3.6.1.4.1.27338.4.5)
|-- kyrion2Network          (OID 1.3.6.1.4.1.27338.4.6)
|-- kyrion2Biss             (OID 1.3.6.1.4.1.27338.4.7)
|-- kyrion2Time             (OID 1.3.6.1.4.1.27338.4.8)
|-- kyrion2Snmp             (OID 1.3.6.1.4.1.27338.4.9)
|-- kyrion2Web              (OID 1.3.6.1.4.1.27338.4.10)
|-- kyrion2Event            (OID 1.3.6.1.4.1.27338.4.11)
|-- kyrion2StatMux          (OID 1.3.6.1.4.1.27338.4.12)
|-- kyrion2Preset           (OID 1.3.6.1.4.1.27338.4.13)
|-- kyrion2License          (OID 1.3.6.1.4.1.27338.4.14)
|-- kyrion2Remuxer          (OID 1.3.6.1.4.1.27338.4.15)
```

### kyrion2Conformance (OID 1.3.6.1.4.1.27338.4.1)

The AM2102 only exports full compliance group. Please refer to RFC 2580 for more information on that topic.

### kyrion2Unit (OID 1.3.6.1.4.1.27338.4.2)

This node contains information related to the physical unit, such as unit Serial Number (RO), Name (RW) and Model (RO).



#### Note

The "model" node can be used to identify a unit in an unit farm, by following the process described in Section A.3.1.1, "Identification process".

### kyrion2Channel (OID 1.3.6.1.4.1.27338.4.3)

This node is targeted at channel management, and is organized in three sub-nodes:

- kyrion2ChannelCommand (OID 1.3.6.1.4.1.27338.4.3.1) allows to load/save a preset for a channel from/to one of the configuration slots. This is equivalent to the "load/save" Web GUI buttons described in Section 4.3.4, "Channel Tab". It also allows you to start or stop a channel as the Web GUI buttons described in Section 4.3.3, "Status Tab".
- kyrion2ChannelStatus (OID 1.3.6.1.4.1.27338.4.3.2) is used to retrieve information on the encoding itself which can not be easily estimated from or given by the configuration, such as TS current bitrate or encoded input video format. As Web GUI channel summary described in Section 4.3.3, "Status Tab".
- kyrion2ChannelCfg (OID 1.3.6.1.4.1.27338.4.3.3) is used to modify the running configuration. For instance, this is the appropriate node for setting the video codec type, the PIDs or the audio mapping.

### **kyrion2Software (OID 1.3.6.1.4.1.27338.4.4)**

Contains information related to the firmwares installed as "current" or "backup" on the unit. It also allows to send the reboot command to the unit.

### **kyrion2Hardware (OID 1.3.6.1.4.1.27338.4.5)**

Contains hardware related information, such as temperature, fan status, power supply status, ethernet interfaces connection status or SDI input video format.

### **kyrion2Network (OID 1.3.6.1.4.1.27338.4.6)**

Allows to configure / retrieve information about ethernet connection and routes. Sub-node kyrion2NetworkConnection (OID 1.3.6.1.4.1.27338.4.6.1) is used to configure network connections (including VLANs), while sub-node kyrion2NetworkRoute (OID 1.3.6.1.4.1.27338.4.6.2) is used to manage routes. This node is equivalent to the network tab in Section 4.3.6, "System Tab" in the web GUI. Please refer to Section A.3.1.7, "Configuring network interfaces" and Section A.3.1.8, "Configuring routes" for more information.

### **kyrion2Biss (OID 1.3.6.1.4.1.27338.4.7)**

Used to specify injected IDs. Please note that these fields are Write-Only, but belong to the Read-Write community. The AM2102 can hold two injected IDs.

### **kyrion2Time (OID 1.3.6.1.4.1.27338.4.8)**

Used to set or get the current date.

### **kyrion2Snmp (OID 1.3.6.1.4.1.27338.4.9)**

Used to control community passwords, trap targets, and MIB variables associated to trap sending. Equivalent to the SNMP tab in Section 4.3.6, "System Tab" in the web GUI. Please refer to Section A.3.1.6, "Configuring communities and traps" for more information.

### **kyrion2Web (OID 1.3.6.1.4.1.27338.4.10)**

Used to configure authentication for the web GUI. Equivalent to the GUI password in overview tab in Section 4.3.6, "System Tab" in the web GUI.

### **kyrion2Event (OID 1.3.6.1.4.1.27338.4.11)**

Used to retrieve log events.

### **kyrion2StatMux (OID 1.3.6.1.4.1.27338.4.12)**

Used to configure the statmux port to send orders to. Equivalent to the StatMux tab in Section 4.3.6, "System Tab" in the web GUI.

### kyrion2Preset (OID 1.3.6.1.4.1.27338.4.13)

This node is related to preset management. It lists all the configuration slots stored in the unit, and can also be used to edit the slot name. Please note that this node can neither be used to view nor edit configuration slot content, but only its name. Viewing/editing the content can be performed through node kyrion2Channel (OID 1.3.6.1.4.1.27338.4.3).

### kyrion2Licenses (OID 1.3.6.1.4.1.27338.4.14)

List all the possible licenses and their state (present or not) on the unit.

### kyrion2Remuxer (OID 1.3.6.1.4.1.27338.4.15)

This node is targeted at remuxer management, and as kyrion2Channel is organized in three sub-nodes:

- kyrion2RemuxerCommand (OID 1.3.6.1.4.1.27338.4.15.2) allows to load/save a preset for a remuxer from one of the configuration slot. This equivalent to the Web GUI tab "load/save" described in the Remuxer Tab. It also allows you to start or stop the remuxer as Web GUI buttons described in Section 4.3.3, "Status Tab".
- kyrion2RemuxerStatus (OID 1.3.6.1.4.1.27338.4.15.3) is used to retrieve information on the remuxing itself.
- kyrion2RemuxerCfg (OID 1.3.6.1.4.1.27338.4.15.4) is used to modify the running remuxer configuration. For instance, this is the appropriate node for setting the input TS source, the TS bitrate or the outputs.

## A.2.2. Preset editing guidelines

All of the active configuration preset settings are located under the kyrion2ChannelCfgTs node. During the development phase, the web GUI is a valuable tool to check if the the SNMP commands have been accepted by the encoder or not.

The GUI periodically (about once per 30s) checks the encoder configuration. When a difference is detected, it will show a popup saying:

« Another user has modified the settings (web GUI, SNMP or Front Panel). Do you want to refresh with the new settings? »

- Clicking Yes tells the GUI to flush its local data and reload the encoder parameters.
- Clicking No tells the GUI to do nothing. In this case, the GUI will keep its local data unchanged but will outline with an orange box any parameters that are different from the real ones.

Since the GUI refresh is periodical and asynchronous from SNMP commands, you could have to hit 'Yes' multiple times before having all the parameters really loaded into the web GUI.

You can manually force the GUI to resync with the encoder by refreshing the web page (F5 key on most browsers).

Clicking Apply on the web GUI send all the parameters to the encoder and update the MIB with the new settings. This is a good way to come back to a valid MIB state if needed.

Each time a MIB parameter under the kyrion2ChannelCfgTs node is changed, the encoder checks if the whole configuration is valid. If yes, it is applied and the web GUI will be notified on its next refresh period. If not, the encoder do nothing but waiting for the next SNMP command.

Lots of parameters are linked to each others. A simple example is the resize setting:

- With a valid configuration without any resize, if we look the kyrion2ChannelCfgTsEsVideoProcessingResize table, we have: isEnabled=False, Width=0, Height=0
- Send a SnmpSet(isEnabled=True), we have: isEnabled=True, Width=0, Height=0 (Resize 0x0 is not a valid setting, the configuration is rejected, nothing happens)
- Send a SnmpSet(Width=320), we have: isEnabled=True, Width=320, Height=0 (Resize 320x0 is not a valid setting, the configuration is rejected, nothing happens)
- Send a SnmpSet(Height=240), we have: isEnabled=True, Width=320, Height=240 (Resize 320x240 is a valid setting, the configuration is accepted, go to the web GUI, refresh the page, the new resize is correctly displayed)

When the SNMP configuration is in an invalid state, you can check the kyrion2ChannelCfgStatus table. If the setting combination would have lead to an error popup on the web GUI, the same message will be reflected here. Unfortunately, not all error are logged to this table. With the resize example above, the encoder will silently disable the resize setting until a valid combination is entered.

## A.3. MIB use cases

### A.3.1. System

#### A.3.1.1. Identification process

The model name and serial number can be retrieved through the nodes `kyrion2UnitName` and `kyrion2UnitSerialNumber`.

The following example shows the identification process of a AM2102.

```
snmpget -v2c -c public $HOST \  
    ATEME-KYRION2-MIB::kyrion2UnitName.0  
#ATEME-KYRION2-MIB::kyrion2UnitName.0 = STRING: encoder-5  
  
snmpget -v2c -c public $HOST \  
    ATEME-KYRION2-MIB::kyrion2UnitSerialNumber.0  
#ATEME-KYRION2-MIB::kyrion2UnitSerialNumber.0 = STRING: 1234-56789
```

#### A.3.1.2. Reading encoding state

The encoding state can be retrieved through `kyrion2ChannelStatus` table.

The following example reads whether channel 1 and channel 2 are running or not:

```
snmpget -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelStatusIsRunning.1  
#ATEME-KYRION2-MIB::kyrion2ChannelStatusIsRunning.1 = INTEGER: true(1)  
  
snmpget -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelStatusIsRunning.2  
#ATEME-KYRION2-MIB::kyrion2ChannelStatusIsRunning.2 = INTEGER: false(2)
```

#### A.3.1.3. Starting/Stopping a channel

Controlling channel encoding state is performed through `kyrion2ChannelCommand` table.

The following example starts the channel 1 and stops the channel 2.

```
snmpset -v2c -c private $HOST ATEME-KYRION2-MIB::kyrion2ChannelCommandAction.1 i 4  
#ATEME-KYRION2-MIB::kyrion2ChannelCommandAction.1 = INTEGER: start(4)  
  
snmpset -v2c -c private $HOST ATEME-KYRION2-MIB::kyrion2ChannelCommandAction.2 i 5  
#ATEME-KYRION2-MIB::kyrion2ChannelCommandAction.2 = INTEGER: stop(5)
```

### A.3.1.4. Starting/Stopping the remuxer

Controlling the remuxer state is performed through kyrion2RemuxerCommand table.

The following example starts the remuxer and stops it.

```
snmpset -v2c -c private $HOST ATEME-KYRION2-MIB::kyrion2RemuxerCommandAction.1 i 4
#ATEME-KYRION2-MIB::kyrion2RemuxerCommandAction.1 = INTEGER: start(4)

snmpset -v2c -c private $HOST ATEME-KYRION2-MIB::kyrion2RemuxerCommandAction.1 i 5
#ATEME-KYRION2-MIB::kyrion2RemuxerCommandAction.2 = INTEGER: stop(5)
```

### A.3.1.5. Rebooting the system

The system may have to be restarted, either on support request or for some specific operations to be applied. To perform this, the value reboot(2) must be written into kyrion2SoftwareCommandAction.

The following example performs a reboot.

```
snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2SoftwareCommandAction.0 i 2
#ATEME-KYRION2-MIB::kyrion2SoftwareCommandAction.0 = INTEGER: reboot(2)
```

### A.3.1.6. Configuring communities and traps

SNMP community strings can be changed through the nodes kyrion2SnmpCommunityReadOnly and kyrion2SnmpCommunityReadWrite.

The following example replaces both read-only and read-write communities.



#### Warning

Once the community strings have been changed you will need to update the community argument of your snmp tool.

```
snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2SnmpCommunityReadOnly.0 s "read-only"
#ATEME-KYRION2-MIB::kyrion2SnmpCommunityReadOnly.0 = STRING: read-only

snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2SnmpCommunityReadWrite.0 s "read/write"
#ATEME-KYRION2-MIB::kyrion2SnmpCommunityReadWrite.0 = STRING: read/write
```

The AM2102 can send SNMP traps on pre-defined events to up to four targets. The trap targets are defined in the list kyrion2SnmpManager.

**Warning**

This list is automatically reorganized so that enabled targets are located on the lowest indexes. Performing several changes in a single SNMP commands has thus an undefined behaviour.

The following example empties the list of trap targets, and adds 172.16.1.22:1256 as a new target.

```
snmpset -v2c -c private $HOST ATEME-KYRION2-MIB::kyrion2SnmpManagerIsEnabled.1 i 2
#ATEME-KYRION2-MIB::kyrion2SnmpManagerIsEnabled.1 = INTEGER: false(2)

snmpset -v2c -c private $HOST ATEME-KYRION2-MIB::kyrion2SnmpManagerIsEnabled.1 i 2
#ATEME-KYRION2-MIB::kyrion2SnmpManagerIsEnabled.1 = INTEGER: false(2)

snmpset -v2c -c private $HOST ATEME-KYRION2-MIB::kyrion2SnmpManagerIsEnabled.1 i 2
#ATEME-KYRION2-MIB::kyrion2SnmpManagerIsEnabled.1 = INTEGER: false(2)

snmpset -v2c -c private $HOST ATEME-KYRION2-MIB::kyrion2SnmpManagerIsEnabled.1 i 1
#ATEME-KYRION2-MIB::kyrion2SnmpManagerIsEnabled.1 = INTEGER: true(1)

snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2SnmpManagerAddress.1 d 172.16.1.22
#ATEME-KYRION2-MIB::kyrion2SnmpManagerAddress.1 = Hex-STRING: AC 10 01 16

snmpset -v2c -c private $HOST ATEME-KYRION2-MIB::kyrion2SnmpManagerPort.1 u 1256
#ATEME-KYRION2-MIB::kyrion2SnmpManagerPort.1 = Gauge32: 1256

snmpset -v2c -c private 10.81.4.2 ATEME-KYRION2-MIB::kyrion2SnmpManagerType.1 i 1
#ATEME-KYRION2-MIB::kyrion2SnmpManagerType.1 = INTEGER: trapV2(1)
```

### A.3.1.7. Configuring network interfaces

Configuring the network interfaces (for both LAN and VLAN) is performed through kyrion2NetworkConnection. The first three rows of this table (Management, Stream1 and Stream2) correspond to physical interfaces, while the other entries correspond to VLAN.

**Note**

Physical interfaces are identified by kyrion2NetworkConnectionCard values, 0 is "MGT", 1 is "Stream 1", 2 is "Stream 2".

**Warning**

This list is automatically reorganized so that the enabled VLAN are located on the lowest indexes starting at index 4. Performing several changes in a single SNMP command has thus an undefined behaviour.

**Warning**

The application of the network configuration does not require a reboot. Modifying the interface used for SNMP configuration can thus lead to SNMP connection loss.



The following example configures Stream 2 IP address to 10.16.127.221/16:

```
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2NetworkConnectionIsEnabled.3 i 1  
#ATEME-KYRION2-MIB::kyrion2NetworkConnectionIsEnabled.3 = INTEGER: true(1)  
  
snmpset -v2c -c private $HOST ATEME-KYRION2-MIB::kyrion2NetworkConnectionIsDhcp.3 i 2  
#ATEME-KYRION2-MIB::kyrion2NetworkConnectionIsDhcp.3 = INTEGER: false(2)  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2NetworkConnectionAddress.3 d 10.16.127.221  
#ATEME-KYRION2-MIB::kyrion2NetworkConnectionAddress.3 = Hex-STRING: 0A 10 7F DD  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2NetworkConnectionNetmask.3 d 255.255.0.0  
#ATEME-KYRION2-MIB::kyrion2NetworkConnectionNetmask.3 = Hex-STRING: FF FF 00 00
```

The following example adds a VLAN on stream 2 with IP address 10.16.128.3/24 and id 10:

```
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2NetworkConnectionCard.4 i 2  
#ATEME-KYRION2-MIB::kyrion2NetworkConnectionCard.4 = INTEGER: 2  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2NetworkConnectionIsDhcp.4 i 2  
#ATEME-KYRION2-MIB::kyrion2NetworkConnectionIsDhcp.4 = INTEGER: false(2)  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2NetworkConnectionAddress.4 d 10.16.128.3  
#ATEME-KYRION2-MIB::kyrion2NetworkConnectionAddress.4 = Hex-STRING: 0A 10 80 03  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2NetworkConnectionNetmask.4 d 255.255.255.0  
#ATEME-KYRION2-MIB::kyrion2NetworkConnectionNetmask.4 = Hex-STRING: FF FF FF 00  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2NetworkConnectionIsVlanEnabled.4 i 1  
#ATEME-KYRION2-MIB::kyrion2NetworkConnectionIsVlanEnabled.4 = INTEGER: true(1)  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2NetworkConnectionVlanId.4 i 10  
#ATEME-KYRION2-MIB::kyrion2NetworkConnectionVlanId.4 = INTEGER: 10  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2NetworkConnectionIsEnabled.4 i 1  
#ATEME-KYRION2-MIB::kyrion2NetworkConnectionIsEnabled.4 = INTEGER: true(1)
```

### A.3.1.8. Configuring routes

Configuring IP routes is performed through kyrion2NetworkRoute.



### Warning

This list is automatically reorganized so that the enabled routes are located on the lowest indexes. Performing several changes in a single SNMP command has thus an undefined behaviour.

The following example configures streams targeting 172.16.127.219/32 on any interfaces to be routed to 172.16.127.248.

```
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2NetworkRouteAddress.2 d 172.16.127.219  
#ATEME-KYRION2-MIB::kyrion2NetworkRouteAddress.2 = Hex-STRING: AC 10 7F DB  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2NetworkRouteNetmask.2 d 0.0.0.0  
#ATEME-KYRION2-MIB::kyrion2NetworkRouteNetmask.2 = Hex-STRING: 00 00 00 00  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2NetworkRouteGateway.2 d 172.16.127.248  
#ATEME-KYRION2-MIB::kyrion2NetworkRouteGateway.2 = Hex-STRING: AC 10 7F F8  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2NetworkRouteIsEnabled.2 i 1  
#ATEME-KYRION2-MIB::kyrion2NetworkRouteIsEnabled.2 = INTEGER: true(1)
```

## A.3.2. Channel Presets

### A.3.2.1. Loading/saving channel presets

A AM2102 channel configuration is called a "preset". Presets are stored in indexed "slots". These slots must be seen as copies at a given instant of a configuration.

There is also a virtual preset slot called "Active configuration" which:

- contains the configuration that will be used when the encoder is running.
- is the only one that that can be directly browsed or edited through SNMP.

Copy of the active configuration to a slot can be done with the 'Save' command.

Copy of a preset stored into a slot to the active configuration can be done with the 'Load' command.

To load a preset, the index of the preset to be loaded must be written in kyrion2ChannelCommandLoadPreset. Once it is done, the action load(2) must be written in kyrion2ChannelCommandAction.

Saving a preset follows the same logic: the preset index must be written in kyrion2ChannelCommandSavePreset, then the action save(3) must be written in kyrion2ChannelCommandAction.



### Warning

Presets are 1-indexed in the Web GUI and 0-indexed in kyrion2ChannelCommandLoadPreset and kyrion2ChannelCommandSavePreset tables.

The following example reads the name of preset #3, loads it to channel 1 active configuration, and stores it in slot #5.

```
snmpget -v2c -c public $HOST ATEME-KYRION2-MIB::kyrion2PresetPresetName.3
#ATEME-KYRION2-MIB::kyrion2PresetPresetName.3 = STRING: my preset 3

snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2ChannelCommandLoadPreset.1 i 2
#ATEME-KYRION2-MIB::kyrion2ChannelCommandLoadPreset.1 = INTEGER: 2

snmpset -v2c -c private $HOST ATEME-KYRION2-MIB::kyrion2ChannelCommandAction.1 i 2
#ATEME-KYRION2-MIB::kyrion2ChannelCommandAction.1 = INTEGER: load(2)

snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2ChannelCommandSavePreset.1 i 4
#ATEME-KYRION2-MIB::kyrion2ChannelCommandSavePreset.1 = INTEGER: 4

snmpset -v2c -c private $HOST ATEME-KYRION2-MIB::kyrion2ChannelCommandAction.1 i 3
#ATEME-KYRION2-MIB::kyrion2ChannelCommandAction.1 = INTEGER: save(3)

snmpget -v2c -c public $HOST ATEME-KYRION2-MIB::kyrion2PresetPresetName.5
#ATEME-KYRION2-MIB::kyrion2PresetPresetName.5 = STRING: my preset 3
```

### A.3.2.2. Configuring quality/latency tradeoff

Controlling channel quality/latency tradeoff is performed through kyrion2ChannelCfgTsTable.

**Table A.1. Quality/Latency mapping**

| Quality/latency   | TsQualityLatencyTradeOff |
|-------------------|--------------------------|
| Best Quality      | n0(2)                    |
| High Quality      | n2(4)                    |
| Reduced Latency   | n3(5)                    |
| Low Latency       | n4(6)                    |
| Ultra Low Latency | n5(8)                    |
| Custom (Advanced) | customAdvanced(7)        |
| Custom (Expert)   | custom(1)                |

The following example sets the channel 1 quality/latency tradeoff to 'Low Latency'.

```
snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsQualityLatencyTradeOff.1.1 i 6
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsQualityLatencyTradeOff.1.1 = INTEGER: n4(6)
```

### A.3.2.3. Configuring TS global settings

Controlling TS settings is performed through kyrion2ChannelCfgTsTs sub-tree.

The main entry is kyrion2ChannelCfgTsTs table. It contains the main parameters like the bitrate or the compliance.

Compliance specific parameters can then be configured through kyrion2ChannelCfgTsTsAtsc sub-tree for ATSC or kyrion2ChannelCfgTsTsDvb sub-tree for the other standards.

The remaining tables are used to set non compliance specific parameters like PMT/PCR PID or period, BISS mode and key, etc...

The following example sets the channel 1 TS bitrate to 20Mbps and switches the compliance to ATSC. (Remember that only Dolby Digital/Dolby Digital Plus audio tracks are allowed with ATSC, check kyrion2ChannelCfgStatusMessage if the switch does not occur on the web GUI)

Then it enables PSIP tables, writes ATEME to the VCT channel name and sets the PMT PID to 'Auto' and the PCR PID to 200.

```
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsTsBitRate.1.1 i 20000000  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsTsBitRate.1.1 = INTEGER: 20000000  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsTsStandard.1.1 i 3  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsTsStandard.1.1 = INTEGER: atsc(3)  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsTsAreNonPsiTablesEnabled.1.1 i 1  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsTsAreNonPsiTablesEnabled.1.1 =  
#    INTEGER: true(1)  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsTsAtscVctChannelShortName.1.1 s ATEME  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsTsAtscVctChannelShortName.1.1 = STRING: ATEME  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsTsPmtPid.1.1 i 0  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsTsPmtPid.1.1 = INTEGER: 0  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsTsPmtPcrPid.1.1 i 200  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsTsPmtPcrPid.1.1 = INTEGER: 200
```

#### A.3.2.4. Configuring BISS

BISS encryption must be enabled at TS level through kyrion2ChannelCfgTsTsBiss.

It can then be enabled/disabled for each PID individually.

The following example enables BISS mode 1 encryption on channel 1, sets the key to '0123456789AB', enables encryption of the video track and disables encryption of the audio 1 track.

```
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsTsBissMode.1.1 i 2  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsTsBissMode.1.1 = INTEGER: n1(2)  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsTsBissKey.1.1 s 0123456789AB  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsTsBissKey.1.1 = STRING: 0123456789AB  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsVideoTsBissIsEnabled.1.1.1 i 1  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsVideoTsBissIsEnabled.1.1.1 =  
#    INTEGER: true(1)  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioTsBissIsEnabled.1.1.1 i 2  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioTsBissIsEnabled.1.1.1 =  
#    INTEGER: false(2)
```

### A.3.2.5. Configuring IP outputs

Configuring IP outputs is performed through kyrion2ChannelCfgTsOutputIp.

The main entry is the kyrion2ChannelCfgTsOutputIpTable table. It contains the generic parameters associated to each IP outputs.

The second important entry is the kyrion2ChannelCfgTsOutputIpDestination table. It contains the main and backup parameters.



#### Note

Both kyrion2ChannelCfgTsOutputIpsEnabled and kyrion2ChannelCfgTsOutputIpDestinationIsEnabled must be set for an ip output to be active.

The following example enables IP3/Main output with multicast address 225.10.10.1, port 5000, protocol UDP.

```
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsOutputIpProtocol.1.1.3 i 1  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsOutputIpProtocol.1.1.3 = INTEGER: udp(1)  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsOutputIpDestinationAddress.1.1.3.1 \  
    d 225.10.10.1  
# ATEME-KYRION2-MIB::kyrion2ChannelCfgTsOutputIpDestinationAddress.1.1.3.1 =  
#   Hex-STRING: E1 0A 0A 01  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsOutputIpDestinationPort.1.1.3.1 u 5000  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsOutputIpDestinationPort.1.1.3.1 =  
#   Gauge32: 5000  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsOutputIpIsEnabled.1.1.3 i 1  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsOutputIpIsEnabled.1.1.3 = INTEGER: true(1)  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsOutputIpDestinationIsEnabled.1.1.3.1 i 1  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsOutputIpDestinationIsEnabled.1.1.3.1 =  
#   INTEGER: true(1)
```

### A.3.2.6. Configuring video

Configuring video is performed through kyrion2ChannelCfgTsEsVideo sub-tree.

The main entry is the kyrion2ChannelCfgTsEsVideo table. It allows to choose the video codec.



#### Note

The video track cannot be disabled. Use kyrion2ChannelCfgTsIsEnabled to control whether the PIP channel must be enabled or not. The main channel can never be disabled.

Then comes the kyrion2ChannelCfgTsEsVideoInput sub-tree, which allows to configure the SDI input format, autosense and video emulation settings.

Then, depending of the selected codec, the following sub-trees allow to configure codec specific parameters:

- kyrion2ChannelCfgTsEsVideoH264
- kyrion2ChannelCfgTsEsVideoMpeg2

And finally:

- kyrion2ChannelCfgTsEsVideoProcessing sub-tree allows to configure some video processing features like resize, denoising or logo.
- kyrion2ChannelCfgTsEsVideoTs sub-tree allows to configure TS level data like PID or descriptors.

In the following example, we will configure the video channel 1 to encode a 1080i@29.97 video at 15Mbps.

First, configure the codec:

**Note**

AVC-I is not a codec, it is a MPEG-4 profile.

```
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsVideoFormat.1.1.1 i 1  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsVideoFormat.1.1.1 = INTEGER: h264(1)
```

Then, set the video input format to 1080i@29.97, set the video emulation to black with moving pattern enabled.

```
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsVideoInputSdiFormat.1.1.1 i 7  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsVideoInputSdiFormat.1.1.1 =  
#    INTEGER: n1080i2997(7)  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsVideoInputEmulationMode.1.1.1 i 1  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsVideoInputEmulationMode.1.1.1 =  
#    INTEGER: black(1)  
  
snmpset -v2c -c private $HOST ATEME-KYRION2-MIB::  
    kyrion2ChannelCfgTsEsVideoInputEmulationIsMovingPatternEnabled.1.1.1 i 1  
#ATEME-KYRION2-MIB::  
#    kyrion2ChannelCfgTsEsVideoInputEmulationIsMovingPatternEnabled.1.1.1 = \  
#    INTEGER: true(1)
```

Then, configure the profile, Main 4:2:0 8-bit in this sample:

**Note**

Bit depth selection is done through kyrion2ChannelCfgTsEsVideoH264ToolsBitDepth.

```
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsVideoH264Profile.1.1.1 i 2  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsVideoH264Profile.1.1.1 = INTEGER: main(2)  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsVideoH264ToolsBitDepth.1.1.1 i 1  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsVideoH264ToolsBitDepth.1.1.1 =  
#    INTEGER: n8(1)
```

Then, configure the rate control mode, CBR at 15Mbps:

**Note**

Ensure that either the TS bitrate is enough or set to 'Auto' or the encoder will silently drop the request and revert the video bitrate to 'Auto'.

```
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsVideoH264RateControlMode.1.1.1 i 1  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsVideoH264RateControlMode.1.1.1 =  
#    INTEGER: cbr(1)  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsVideoH264RateControlCbrBitRate.1.1.1 \  
    i 15000000  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsVideoH264ToolsBitDepth.1.1.1 =  
#    INTEGER: n8(1)
```

Then, configure the GOP size to 30:

```
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsVideoH264GopSizeMax.1.1.1 i 30  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsVideoH264GopSizeMax.1.1.1 = INTEGER: 30
```

And finally, set the video PID to 300:

```
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsVideoTsPid.1.1.1 i 300  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsVideoTsPid.1.1.1 = INTEGER: 300
```

### A.3.2.7. Configuring audio

Configuring audio is performed through kyrion2ChannelCfgTsEsAudio.

The main entry is the kyrion2ChannelCfgTsEsAudio table. It allows to enable an audio track and choose its format.

Then comes the kyrion2ChannelCfgTsEsAudioInput sub-tree, which allows to select the audio input source.

Then, depending of the selected format, the following tables allow to configure codec specific parameters:

- kyrion2ChannelCfgTsEsAudioMpegL2
- kyrion2ChannelCfgTsEsAudioAac
- kyrion2ChannelCfgTsEsAudioAc3
- kyrion2ChannelCfgTsEsAudioSmpTE302m

And finally:

- kyrion2ChannelCfgTsEsAudioProcessing allows to configure processing filters like delay or gain.
- kyrion2ChannelCfgTsEsAudioTs sub-tree allows to configure TS level data like PID or descriptors.

In the following example, we will add, step by step, a new 5.1 Dolby Digital Plus audio track, as audio 3, and encoded from a SDI/PCM source.

- First, enable the third track and choose the Dolby Digital format:



```
snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioFormat.1.1.3 i 4
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioFormat.1.1.3 = INTEGER: ac3(4)

snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioIsEnabled.1.1.3 i 1
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioIsEnabled.1.1.3 = INTEGER: true(1)
```

- Then, select the input source:

```
snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioInputFormat.1.1.3 i 1
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioInputFormat.1.1.3 = INTEGER: pcm(1)

snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioInputSource.1.1.3 i 1
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioInputSource.1.1.3 = INTEGER: sdi(1)
```

- Since it is a PCM source, next step is to provide the channel layout:

The only supported layouts are given in the table below.

**Table A.2. Supported PCM layouts**

| Channel Mode | PcmCount | PcmLayout   |
|--------------|----------|-------------|
| Mono         | 1        | mono(1)     |
| Dual-mono    | 2        | dualMono(3) |
| Stereo       | 2        | stereo(2)   |
| 5.1          | 6        | n3f2bLfe(4) |

So, for a 5.1 track, write:

```
snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioInputPcmCount.1.1.3 i 6
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioInputPcmCount.1.1.3 = INTEGER: 6

snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioInputPcmLayout.1.1.3 i 4
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioInputPcmLayout.1.1.3 =
#    INTEGER: n3f2bLfe(4)
```

- Since it is a SDI source, we must configure the channel mapping:

Channels and SDI pairs mapping are given in the tables below.

**Table A.3. Channel to index mapping**

| Channel | SdiEntriesIdx |
|---------|---------------|
| Left    | 1             |

|                |   |
|----------------|---|
| Right          | 2 |
| Center         | 3 |
| Lfe            | 4 |
| Left surround  | 5 |
| Right surround | 6 |

**Table A.4. SDI pair to index mapping**

| Pair       | SdiEntriesEntries |
|------------|-------------------|
| Grp1 Ch1&2 | 0-1               |
| Grp1 Ch3&4 | 2-3               |
| Grp2 Ch1&2 | 4-5               |
| Grp2 Ch3&4 | 6-7               |
| Grp3 Ch1&2 | 8-9               |
| Grp3 Ch3&4 | 10-11             |
| Grp4 Ch1&2 | 12-13             |
| Grp4 Ch3&4 | 14-15             |

The following sample maps Grp2/Ch1&2 to {L,R}, Grp2/Ch3&4 to {C,Lfe} and Grp3/Ch1&2 to {Ls,Rs}.

```
snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioInputSdiEntriesEntries.1.1.3.1 i 4
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioInputSdiEntriesEntries.1.1.3.1 =
#    INTEGER: 4

snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioInputSdiEntriesEntries.1.1.3.2 i 5
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioInputSdiEntriesEntries.1.1.3.2 =
#    INTEGER: 5

snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioInputSdiEntriesEntries.1.1.3.3 i 6
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioInputSdiEntriesEntries.1.1.3.3 =
#    INTEGER: 6

snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioInputSdiEntriesEntries.1.1.3.4 i 7
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioInputSdiEntriesEntries.1.1.3.4 =
#    INTEGER: 7

snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioInputSdiEntriesEntries.1.1.3.5 i 8
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioInputSdiEntriesEntries.1.1.3.5 =
#    INTEGER: 8

snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioInputSdiEntriesEntries.1.1.3.6 i 9
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioInputSdiEntriesEntries.1.1.3.6 =
#    INTEGER: 9
```

- Then, configure the codec:



### Note

kyrion2ChannelCfgTsEsAudioAc3Mode is reserved for later use. In the current implementation, the channel mode is defined by the input layout.

The following sample sets the bitrate to 320kbps, switches the codec to 'Enhanced' mode (Dobly Digital Plus), switches the metadata source to 'User Defined' and sets the dialog normalization value to -10dB.

```
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioAc3BitRate.1.1.3 i 320000  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioAc3BitRate.1.1.3 = INTEGER: 320000  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioAc3IsEnhanced.1.1.3 i 1  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioAc3IsEnhanced.1.1.3 =  
#    INTEGER: true(1)  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioAc3MetadataSourceSource.1.1.3.1 i 2  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioAc3MetadataSourceSource.1.1.3.1 =  
#    INTEGER: user(2)  
  
snmpset -v2c -c private $HOST ATEME-KYRION2-MIB::  
    kyrion2ChannelCfgTsEsAudioAc3InformationDialogNormalization.1.1.3 i -10  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioAc3InformationDialogNormalization.1.1.3  
#    = INTEGER: -10
```

- And finally set the PID and add an audio language descriptor:



### Note

For the PID, the value 0 means 'Auto'.

```
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioTsPid.1.1.3 i 200  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioTsPid.1.1.3 = INTEGER: 200  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioTsIso639LanguageCode.1.1.3 s eng  
#ATEME-KYRION2-MIB::kyrion2ChannelCfgTsEsAudioTsIso639LanguageCode.1.1.3 =  
#    STRING: eng
```

## A.3.3. Remuxer Presets

### A.3.3.1. Loading/saving remuxer presets

This is done in the same way as loading/saving a channel preset but with using:

- kyrion2RemuxerCommandSavePreset for save index
- kyrion2RemuxerCommandLoadPreset for load index
- and kyrion2RemuxerCommandAction for command

See Section A.3.2.1, “ Loading/saving channel presets ”

The following example reads the name of preset #3, loads it to remuxer 1 active configuration, and stores it in slot #5.

```
snmpset -v2c -c public $HOST ATEME-KYRION2-MIB::kyrion2PresetRemuxerPresetName.3
#ATEME-KYRION2-MIB::kyrion2PresetRemuxerPresetName.3 = STRING: my preset 3

snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2RemuxerCommandLoadPreset.1 i 2
#ATEME-KYRION2-MIB::kyrion2RemuxerCommandLoadPreset.1 = INTEGER: 2

snmpset -v2c -c private $HOST ATEME-KYRION2-MIB::kyrion2RemuxerCommandAction.1 i 2
#ATEME-KYRION2-MIB::kyrion2RemuxerCommandAction.1 = INTEGER: load(2)

snmpset -v2c -c private $HOST \
    ATEME-KYRION2-MIB::kyrion2RemuxerCommandSavePreset.1 i 4
#ATEME-KYRION2-MIB::kyrion2RemuxerCommandSavePreset.1 = INTEGER: 4

snmpset -v2c -c private $HOST ATEME-KYRION2-MIB::kyrion2RemuxerCommandAction.1 i 3
#ATEME-KYRION2-MIB::kyrion2RemuxerCommandAction.1 = INTEGER: save(3)

snmpget -v2c -c public $HOST ATEME-KYRION2-MIB::kyrion2PresetRemuxerPresetName.5
#ATEME-KYRION2-MIB::kyrion2PresetRemuxerPresetName.5 = STRING: my preset 3
```

### A.3.3.2. Configuring TS global settings

Controlling remuxer TS settings is performed through kyrion2RemuxerCfgTsTs sub-tree.

The main entry is kyrion2RemuxerCfgTsTs table. It contains the main parameters like the bitrate or the compliance.

Compliance specific parameters can then be configured through kyrion2RemuxerCfgTsTsDvb sub-tree.

The following example sets remuxer TS bitrate to 20Mbps and switches the compliance to DVB. Then it enables PSIP tables and carrier ID and writes ATEME to the information field.

```
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsTsBitRate.1.1 i 20000000  
#ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsTsBitRate.1.1 = INTEGER: 20000000  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsTsStandard.1.1 i 2  
#ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsTsStandard.1.1 = INTEGER: atsc(3)  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsTsAreNonPsiTablesEnabled.1.1 i 1  
#ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsTsAreNonPsiTablesEnabled.1.1 = \  
#    INTEGER: true(1)  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsTsDvbNitCarrierIdIsEnabled.1.1 i 1  
#ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsTsDvbNitCarrierIdIsEnabled.1.1 = \  
#    INTEGER: true(1)  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsTsDvbNitCarrierIdInformation.1.1 s ATEME  
#ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsTsDvbNitCarrierIdInformation.1.1 =  
#    STRING: ATEME
```

### A.3.3.3. Configuring IP outputs

This is done in the same way as configuring a channel IP output but with using:

- kyrion2RemuxerCfgTsOutputIp as the main entry.
- kyrion2RemuxerCfgTsOutputIpDestination table for main/backup parameters.

See Section A.3.2.5, “Configuring IP outputs”

The following example enables IP3/Main output with multicast address 225.10.10.1, port 5000 and UDP protocol:

```
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsOutputIpProtocol.1.1.3 i 1  
#ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsOutputIpProtocol.1.1.3 = INTEGER: udp(1)  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsOutputIpDestinationAddress.1.1.3.1 \  
    d 225.10.10.1  
# ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsOutputIpDestinationAddress.1.1.3.1 =  
#   Hex-STRING: E1 0A 0A 01  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsOutputIpDestinationPort.1.1.3.1 u 5000  
#ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsOutputIpDestinationPort.1.1.3.1 =  
#   Gauge32: 5000  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsOutputIpIsEnabled.1.1.3 i 1  
#ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsOutputIpIsEnabled.1.1.3 = INTEGER: true(1)  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsOutputIpDestinationIsEnabled.1.1.3.1 i 1  
#ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsOutputIpDestinationIsEnabled.1.1.3.1 =  
#   INTEGER: true(1)
```

### A.3.3.4. Configuring TS inputs

Controlling TS input settings is performed through kyrion2RemuxerCfgTsInput sub-tree.

The main entry is kyrion2RemuxerCfgTsInput table which allows to enable/disable an input and select the source.

Source specific parameters can then be configured through kyrion2RemuxerCfgTsInputAsi or kyrion2RemuxerCfgTsInputInternal tables.

The following example enables TS 3 input and switches the source to ASI on SYNC connector:

```
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsInputIsEnabled.1.1.3 i 1  
#ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsInputIsEnabled.1.1.3 = INTEGER: udp(1)  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsInputSource.1.1.3 i 1  
#ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsInputSource.1.1.3 = INTEGER: asi(1)  
  
snmpset -v2c -c private $HOST \  
    ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsInputAsiChannel.1.1.3 i 1  
#ATEME-KYRION2-MIB::kyrion2RemuxerCfgTsInputAsiChannel.1.1.3 = INTEGER: asiSyncIn(1)
```

## Appendix B. Simple RPC Guide

### B.1. Overview

This section is a guide for interfacing the AM2102 via simple HTTP requests (GET or POST) in addition to SNMP when a file upload or download is needed.



#### Note

All the examples provided in this section are using the command-line application *wget*, which is available for all major Operating Systems. The keyword "\$HOST" represents the IP address of the AM2102 interface through which commands are performed, "\$INDEX" represents an index starting at 0 and "\$FILE" represents a file name. To reproduce the example, one shall replace those keywords by the effective values.

### Authentication

The Simple RPC interface uses the authentication configuration of the web GUI interface.

### B.2. Command list

#### B.2.1. System

##### B.2.1.1. Firmware update

Update the firmware using the update package file \$FILE:

```
wget --post-file=$FILE \  
  --header 'Content-Disposition: attachment; filename=update.pkg' \  
  http://$HOST/simple-rpc/system/setFirmware
```

##### B.2.1.2. License update

Update the license using the license file \$FILE:

```
wget --post-file=$FILE \  
  --header 'Content-Disposition: attachment; filename=license.lic' \  
  http://$HOST/simple-rpc/system/setLicense
```

## B.2.2. Channel

### B.2.2.1. Active configuration

Import the file \$FILE into the active configuration of the channel indexed by \$INDEX (0 based):

```
wget --post-file=$FILE http://$HOST/simple-rpc/channels/$INDEX/setPreset
```

Export the active configuration of the channel indexed by \$INDEX (0 based) to the file \$FILE:

```
wget -O $FILE http://$HOST/simple-rpc/channels/$INDEX/getPreset
```

### B.2.2.2. Preset

Export the slot preset indexed by \$INDEX (0 based) to the file \$FILE:

```
wget -O $FILE http://$HOST/simple-rpc/presets/channel/getSlot/$INDEX
```

Export the factory preset to the file \$FILE:

```
wget -O $FILE http://$HOST/simple-rpc/presets/channel/getFactory
```

Import the file \$FILE into the slot preset indexed by \$INDEX (0 based):

```
wget --post-file=$FILE http://$HOST/simple-rpc/presets/channel/setSlot/$INDEX
```

## B.2.3. Remuxer

### B.2.3.1. Active configuration

Import the file \$FILE into the active configuration of the remuxer:

```
wget --post-file=$FILE http://$HOST/simple-rpc/remuxers/0/setPreset
```

Export the active configuration of the remuxer to the file \$FILE:

```
wget -O $FILE http://$HOST/simple-rpc/remuxers/0/getPreset
```



### B.2.3.2. Preset

Export the slot preset indexed by \$INDEX (0 based) to the file \$FILE:

```
wget -O $FILE http://$HOST/simple-rpc/presets/remuxer/getSlot/$INDEX
```

Export the factory preset to the file \$FILE:

```
wget -O $FILE http://$HOST/simple-rpc/presets/remuxer/getFactory
```

Import the file \$FILE into the slot preset indexed by \$INDEX (0 based):

```
wget --post-file=$FILE http://$HOST/simple-rpc/presets/remuxer/setSlot/$INDEX
```

## Appendix C. Appendix

### C.1. Product's specification

**Table C.1. Specification - Identification**

|              |        |
|--------------|--------|
| Product Name | AM2102 |
|--------------|--------|

**Table C.2. Specification - Physical**

|            |                                  |
|------------|----------------------------------|
| Dimensions | 19" 1-RU                         |
|            | 482x44x519 mm / 19"x1.73"x 20,4" |
| Weight     | min: 6.4 kg/14.1 lbs             |
|            | max: 7.3 kg/17 lbs               |

**Table C.3. Specification - Environmental and Power**

|                       |                                     |
|-----------------------|-------------------------------------|
| Cooling               | Cooling air flow from front to back |
| Operating Temperature | 5 °C to 40 °C / +41 °F +104 °F      |
| Storage Temperature   | -20 °C to 70 °C / -4 °F to +158 °F  |
| Operating humidity    | 5 to 90% (non condensing)           |
| Input Voltage Range   | 100-240VAC, 50/60Hz                 |
|                       | 40-60V DC                           |
| Typical Consumption   | 90 W single channel                 |

**Table C.4. Specification - Certifications**

|                                |  |
|--------------------------------|--|
| Environmental                  | ROHS   |
| ECM Compliance (Europe)        | EN 55022:2006 + A1:2007<br>EN 55024:1998 + A1:2001 + A2:2003<br>EN 61000-3-2:2006 + A1:2009 + A2:2009<br>EN 61000-3-3:2008 |
|                                | FCC Part 15, ICES-003 - Digital Apparatus Ed 2004  |
| ECM Compliance (US and Canada) |  |
| Electrical Safety              | CEI 60950-1: 2005 / EN 60950-1: 2006 (CB Certificate)  |

**Table C.5. Specification - Video Input**

| Function               | Values   | Requires          |
|------------------------|--|-------------------|
| Input number           | 1 or 2 SDI inputs - 3G Level A or Level B-DL                                   |                   |
| Format                 | 1080p 23.97fps / 24 fps / 25fps / 29.97fps / 30fps / 50fps / 59.94 fps / 60fps | 1080p License (3) |
|                        | 1080psf 23.97fps / 24fps / 25fps   | HD License        |
|                        | 1080i 25fps / 29.97fps / 30fps   | HD License        |
|                        | 720p 50fps / 59.94fps / 60fps  | HD License        |
|                        | 625i 25fps   |                   |
|                        | 525i 29.97fps  |                   |
| Probe                  | Probe input  |                   |
| Video robustness       | SD dynamical change of aspect ratio support                                    |                   |
| Input format switching | Video format switch following the SDI video input format (Auto sense)          |                   |
|                        | Preset switch following the SDI video input format (Automation)                |                   |
| Genlock                | Blackburst and tri-level support   |                   |
| Emulation              | Black  |                   |
|                        | Pattern / Moving pattern   |                   |
|                        | Disable  |                   |
|                        | User defined pattern   |                   |
|                        | Last picture replay  | Default mode      |
|                        | Force emulation (dynamically reconfigurable)                                   |                   |

**Table C.6. Specification - Audio Input**

| Function                     | Values   | Requires                  |
|------------------------------|--|---------------------------|
| Source                       | SDI embedded (up to 16 per SDI input)  |                           |
|                              | AES (8 AES pairs per AES board)  | AES board                 |
|                              | Analog (4 analog pairs per analog board)                                     | Analog board              |
| Analog Input Characteristics | Input level up to 24 dBu   |                           |
|                              | Left-Right gain difference < 0.1dB   |                           |
|                              | Frequency response 20Hz – 20kHz < 0.7dB                                      |                           |
|                              | ITU-R weighted noise: Peak < -66.2 dB / Mean < -68.4 dB                      |                           |
|                              | Inter channel crosstalk 20Hz – 20kHz > 75.9 dB whole band / > 94.5 dB @ 1kHz |                           |
|                              | Phase difference between stereo pairs 20Hz – 20kHz < 1°                      |                           |
| Format                       | PCM mono / stereo / dual mono / 5.1  |                           |
|                              | Dolby E (decoding and pass-through)  | DolbyE License for decode |
|                              | Dolby Digital / Dolby Digital Plus (pass-through)                            |                           |
|                              | AES3 (pass-through)  |                           |
| Selection                    | Group/Pair SDI embedded  |                           |
|                              | XLR external AES   | AES board                 |
|                              | XLR external analog  | Analog board              |
| Emulation                    | Silence  |                           |
|                              | White noise  |                           |
|                              | Sine 440Hz   |                           |
|                              | Force the emulation (dynamically reconfigurable) of audio signal             |                           |
| Signaling                    | Language identifier  |                           |
|                              | Audio type description   |                           |

**Table C.7. Specification - Data Input**

| Function | Values   | Requires |
|----------|--|----------|
| VBI      | VITC (IEC-60461), WSS (ITU-R BT.1119-2)                      |          |
|          | VPS (ETS 300 231-1998), WST (ITU-R BT.653-3)                 |          |
|          | Close Caption (CEA/EIA-608-D)                                |          |
|          | Teletext (ETSI EN 300 706)                                   |          |
|          | Video Index (RP 186)   |          |
| ANC      | ATC (SMPTE 12M-2)  |          |
|          | AFD (SMPTE 2016M-1)  |          |
|          | Close Caption - EIA 608 (SMPTE 334-2), EIA 708 (SMPTE 334-1) |          |
|          | Teletext - OP47  |          |
|          | Teletext/VPS - SMPTE 2031M                                   |          |
|          | VANC - SMPTE 2038  |          |
|          | SCTE104 - SMPTE 2010   |          |

**Table C.8. Specification - Black Burst-3Level and ASI Synchronization**

|  |
|--|
| Black Burst/3Level and ASI Synchronization are not supported on AM2102 |
|--|

**Table C.9. Specification - Filter**

| Function           | Values  | Requires         |
|--------------------|---|------------------|
| Video filtering    | Resize: 4/5, 3/4, 2/3, 1/2 , CIF/SIF, QCIF, SQCIF | Crop 704 support |
|                    | PIP resize: CIF/SIF, QCIF, SQCIF, 192x192, 96x96  | PIP License      |
|                    | Logo insertion                                    |                  |
|                    | Denoiser (3 levels : Low, Medium and High)        |                  |
| Audio filtering    | Resampling 48kHz                                  |                  |
|                    | Gain (+/- 30dB)                                   |                  |
|                    | Delay (+/- 500ms)                                 |                  |
| Teletext filtering | Field line selection                              |                  |

**Table C.10. Specification - Video Processing**

| Function          | Values  | Requires                            |
|-------------------|---|-------------------------------------|
| Profil MPEG-4 AVC | Baseline 4:2:0 8 bits   | MPEG4 License                       |
|                   | Main, High 4:2:0 8 bits   | MPEG4 License                       |
|                   | High 4:2:2 8 bits   | MPEG4 & 422 Licenses                |
|                   | Frame / Field / PAFF / MBAFF selection  |                                     |
|                   | CABAC / CAVLC selection   |                                     |
| Profil MPEG-2     | Main, High 4:2:0 8 bits   | MPEG2 License                       |
|                   | High 4:2:2 8 bits   | MPEG2 License                       |
| Core Generation   | Generation 5  |                                     |
| Rate Control      | CBR   |                                     |
|                   | VBR - Quality capped  |                                     |
|                   | VBR - Statmuxed   | StatMux License                     |
|                   | VBR - Rate capped   | SCI License                         |
| Bitrate           | MPEG-2: up to 100Mbps (420 is limited to 80Mbps)  |                                     |
|                   | MPEG-4: 0.8Mbps to 35Mbps   | Bitrate License                     |
| Gop               | 0-255   |                                     |
| Preset            | Custom Adv. & Exp., Best, High Quality, Reduced Latency, Low latency, Ultra Low Latency | Ultra Low Latency License (2) / (3) |

**Table C.11. Specification - PIP Processing**

| Function     | Values  | Requires                      |
|--------------|---|-------------------------------|
| Profil H.264 | Baseline, Main, High 4:2:0 8 bits   | PIP & MPEG4 Licenses          |
|              | High 4:2:2 8 bits   | PIP & MPEG4 & 422 Licenses    |
| Profil MPEG2 | Main, High 4:2:0 8 bits , High 4:2:2 8 bits   | PIP & MPEG2 Licenses          |
| Rate Control | CBR, VBR - Quality capped   |                               |
|              | VBR - Statmuxed   | StatMux License               |
|              | VBR - Rate capped   | SCI License                   |
| Bitrate      | MPEG-2, MPEG-4: up to 4Mbps   |                               |
| Preset       | Custom Adv. & Exp., Best, High Quality, Reduced Latency, Low latency, Ultra Low Latency | Ultra Low Latency License (3) |

**Table C.12. Specification - Audio Processing**

| Function         | Values  | Requires             |
|------------------|---|----------------------|
| Number of tracks | Up to 36 per video service                        | Audio Number License |
| Codec            | MPEG1-LII [32-384kbs]                             | Default codec        |
|                  | MPEG2-AAC-LC [16-512kbs]                          | AAC License          |
|                  | MPEG4-AAC-LC [16-512kbs]                          | AAC License          |
|                  | MPEG4-AAC-HE [16-96kbs]                           | AAC License          |
|                  | MPEG4-AAC-HEv2 [8-48kbs]                          | AACHEv2 License      |
|                  | DolbyE pass-through (up to 24 bits)               |                      |
|                  | Dolby Digital / Dolby Digital Plus (pass-through) |                      |
|                  | DolbyE decoding to Dolby Digital / Dolby Digital+ | DolbyE & AC3 License |
|                  | Dolby Digital / Dolby Digital+ encoding           | AC3 License          |

**Table C.13. Specification - Data Processing**

| Function          | Values   | Requires        |
|-------------------|--|-----------------|
| SCTE35            | SCTE104 (VANC/SDI) to SCTE35 (TS)                                    | (1)             |
|                   | GPI to SCTE35 (TS)   |                 |
| SCTE35 capacity   | Up to 32 messages per video frame                                    |                 |
| SCTE104 filtering | Using AS index or DPI PID index                                      |                 |
| Aspect Ratio      | RP 186 to Video ES Aspect ratio                                      |                 |
|                   | WSS to Video ES Aspect ratio and or to PID WSS (as WSS pass-through) |                 |
|                   | AFD to Video ES Aspect ratio   |                 |
| TimeCode          | SMPTE-12M (VANC/SDI) to SMPTE-328M (TS)                              |                 |
|                   | IEC-60461 (VBI/SDI) to SMPTE-328M (TS)                               |                 |
| STD-B24           | Close Caption to STD-B24 (ABNT NBR 15606)                            |                 |
| DVB Subtitle      | EN 300-743   | DVB Sub License |
|                   | ASI Input support  | DVB Sub License |



**Table C.14. Specification - Muxer**

| Function       | Values                                  | Requires     |
|----------------|---|--------------|
| MPEG2-TS       | Output mode CBR / VBR                   |              |
|                | Packet size 188/204                     |              |
|                | PID setting for Video, Audio, Data      |              |
|                | Video bitrate constrained by TS bitrate |              |
|                | Bitrate up to 210 Mbps                  |              |
| BISS           | Biss 0/1/E support                      | BISS License |
|                | BISS disabling control at ES level      | BISS License |
| DVB Carrier ID | Carrier ID descriptor support           |              |
| Flexibility    | Dynamical change of TS PID              |              |
|                | Dynamical change of BISS-1/E key        |              |
| Conformance    | MPEG / DVB / ATSC / ISDB / SBTVD        |              |

**Table C.15. Specification - Output**

| Function      | Values                                   | Requires    |
|---------------|--|-------------|
| IP            | 1 MGT interface                          |             |
|               | 2 Stream interfaces                      |             |
| ASI           | 4 Outputs (2 per channel if dual)        |             |
| SDI           | 1 SDI loopback (per channel)             |             |
| Network       | Backup stream                            |             |
|               | Multi-network (4 target streams)         |             |
|               | VLAN TAG                                 |             |
|               | Route Table Editor                       |             |
|               | Multi Gateway                            |             |
|               | User defined TOS support                 |             |
|               | Source Address Spoofing                  |             |
| Flexibility   | Dynamical change of output configuration |             |
| Protocol      | UDP / RTP                                |             |
|               | FEC (SMPTE2022) - 1D and 2D FEC support  | FEC License |
| IP Protection | SMPTE-2022 Hitless for RTP backup stream | FEC License |

**Table C.16. Specification - Configuration and management interfaces**

| Function    | Values  | Requires |
|-------------|---|----------|
| SNMP        | SNMP (MIB v2c) with remote SNMP supervisor                  |          |
| Web GUI     | Embedded web-server configuration                           |          |
| Front Panel | Front panel with LCD/alphanumeric keypad/Direct access keys |          |
|             | USB for configuration import/export                         |          |
|             | USB for software update                                     |          |

|  |   |     |
|--|---|-----|
|  | Video monitoring on Front panel video display |     |
|  | Audio monitoring on Front panel video display |     |
|  | Video monitoring on WebGUI                    | (3) |
|  | Audio monitoring on WebGUI                    | (3) |

**Table C.17. Specification - System**

| Function      | Values  | Requires |
|---------------|---|----------|
| Time          | Time update   |          |
|               | NTP server support (high precision option)                                |          |
|               | GMT offset support  |          |
| Alarms        | Individual trap support   |          |
|               | SNMP trap support   |          |
|               | GPO action on alarm   |          |
|               | Alarm message time filtering  |          |
| Password      | SNMP R & RW, WebGui   |          |
| Firmware      | Firmware update   |          |
|               | Backup firmware save & restore  |          |
|               | License update  |          |
| Front panel   | Backlight timeout of LCD & video displays can be configured               |          |
| OEM           | Front panel boot message and WebGUI banner                                |          |
| MIB           | MIB package (including changelog) is embedded                             |          |
| Configuration | Export & Import 128 files   |          |
|               | Backward and partially forward compatibility of the encoder configuration |          |
| GPI           | 2 Inputs  |          |
| GPO           | 2 Outputs   |          |

**Table C.18. Specification - Licenses**

| License Name                   | Max Value |
|--------------------------------|-----------|
| MPEG-2 video encoding support  | 1 to 2    |
| MPEG-4 video encoding support  | 1 to 2    |
| H.264 4:2:2 support            | 1 to 2    |
| HD video support               | 1 to 2    |
| 1080p input format support     | 1 to 2    |
| Audio mono channel support     | 1 to 32   |
| AAC-LC & AAC-HEv1 support      | -         |
| AAC HEv2 support               | -         |
| AC3 audio encoding support     | 1 to 4    |
| Dolby E audio decoding support | 1 to 4    |
| VBR - Statmuxed support        | 1 to 2    |
| VBR - Rate capped support      | 1 to 2    |
| PIP support                    | 1 to 2    |
| Pro-MPEG FEC support           | 1 to 4    |
| BISS-1/E support               | 1 to 2    |
| DVB Subtitle support           | 1 to 2    |
| One-Seg support                | 1 to 2    |
| Ultra Low Latency support      | -         |
| TS Remux support               | New       |



## C.1.1. Notes

(1) SCTE-104 messages must respect the following restrictions when they are used to generate SCTE-35:

- They should use the `multiple_operation_message()` format. All `single_operation_message()` are discarded.
- They should contain only one operation per `multiple_operation_message()`. If more than one operation is present in the same `multiple_operation_message()`, the following ones are discarded.
- They should contain only `splice_null_request_data()` and `splice_request_data()` operations. Other operations are discarded.

(2) MPEG-4 Minimum bitrate is limited to 3.2Mbps with Low Latency or Ultra Low Latency Presets

(3) ReMux License or 1080p License or Ultra Low Latency Preset or WebGUI Thumbnails are available only with Encoder board Type 3

## C.2. Warranty

ATEME warranties your AM2102 against any defect in material and workmanship, under normal use, for the period designated on your warranty certificate. In the event this product is found to be defective within the warranty period, ATEME may, at its will, repair or replace the defective AM2102.

This warranty is void if:

- The AM2102 was operated/stored in abnormal use or maintenance conditions;
- The AM2102 is repaired, modified or altered, unless such repair, modification or alteration is expressly authorized in writing by ATEME;
- The AM2102 was subjected to abuse, neglect, lightning strike, electrical fault, improper packaging or accident;
- The AM2102 was installed improperly;
- The Serial Number of the AM2102 is defaced or missing;
- The broken part is a non ATEME approved replacement part;
- The tamper seal on the AM2102 casing is broken.

ATEME and its suppliers accept no liability for any loss of service during the use of this device, or for any of the problems caused as a result.

ATEME will not, under any circumstances, be liable to direct, uncommon or consequential damages such as, but not limited to, damage or loss of property or equipment, loss of profits or revenues, cost of replacement goods, or expense or inconvenience caused by service interruptions.

Any loss, corruption or destruction of data while using an ATEME AM2102 is the sole responsibility of the user, and under no circumstances will ATEME be held liable for the recovery or restoration of this data.

Under no circumstances will any person be entitled to any sum greater than the purchase price paid for the AM2102.

To obtain warranty service, call ATEME Technical Support. You will be asked to provide your ATEME product's Serial Number, and you may be asked to furnish proof of purchase to confirm that the AM2102 is still under warranty.

All AM2102 returned to ATEME must be securely packaged in their original box and shipped with postage prepaid.

## C.3. Normative Reference

**Table C.19. Normative reference**

| Subject                                | Reference   |
|--|---|
| Ancillary AFDBarData                   | SMPTE 2016M-1/3   |
| Ancillary ATC                          | SMPTE 12M-2   |
| Ancillary Audio HD                     | SMPTE 299M  |
| Ancillary Audio SD                     | SMPTE 272M  |
| Ancillary cc608                        | SMPTE 334-2   |
| Ancillary cc708                        | SMPTE 334-1   |
| Ancillary DvbScte                      | SMPTE 2031M   |
| Ancillary SCTE-104                     | SMPTE 2010  |
| Ancillary Video Payload Identification | SMPTE 352M  |
| Audio Embedded in SD-SDI               | SMPTE 272M  |
| Audio Embedded in HD-SDI               | SMPTE 299   |
| BISS                                   | Tech 3290 (EBU)   |
| HD-SDI                                 | SMPTE 292   |
| MPEG-2 TS                              | ISO/IEC 13818-1   |
| MPEG-2 TS PID Teletext                 | ETSI EN 300 472 (DVB, ISDB, SBTVD) -<br>Specifications for embedding teletext into TS |
| MPEG-2 TS PID VBI                      | ETSI EN 301 775 (DVB, ISDB, SBTVD)  |
| MPEG-2 Video                           | ISO/IEC 13818-2   |
| MPEG-2 Video time code User Data       | SMPTE 328M  |
| MPEG-2 Video/MPEG-4 AVC AFD            | ETSI TS 101 154 (Annex B) / A/53 part 4   |
| MPEG-2 Video/MPEG-4 AVC CC             | ETSI TS 101 154 (Annex B) / A/53 part 4   |
| MPEG-4 AVC                             | ISO/IEC 14496-10  |
| SD-SDI                                 | SMPTE 259M  |
| Teletext                               | ETSI EN 300 706 (DVB, ISDB, SBTVD)<br>- Specifications of the teletext syntax         |
| VBI cc608                              | CEA/EIA-608-D (625i/525i)   |
| VBI VITC                               | IEC-60461 (625i/525i)   |
| VBI VPS                                | ETS 300 231-1998 (625i)   |
| VBI WSS                                | ITU-R BT.1119-2 and ETSI EN 300 294<br>(625i) / IEC 61880 Ed. 1.0 b:1998 (525i)       |
| VBI WST                                | ITU-R BT.653-3 (625i)   |



## C.4. Glossary

**Table C.20. Glossary**

|               |   |
|---------------|---|
| 3:2 pull-down | Process of converting 24 frame/s material to 29.97 frame/s.   |
| 422/420       | Sampling method. In 420 sampling, chrominance components have half the horizontal and vertical resolution of luminance component. In 422 sampling, chrominance components have half the horizontal resolution of luminance component  |
| ASI           | Asynchronous Serial Interface   |
| BISS          | Basic Interoperable Scrambling System. Non-proprietary encryption from EBU (Tech3290).  |
| CABAC         | Context-based Adaptive Binary Arithmetic Coding   |
| CAVLC         | Context Adaptive Variable Length Coding   |
| Chrominance   | Color difference component  |
| EBU           | European Broadcasting Union   |
| FEC           | Forward Error Correction. System of error control for data transmission where the sender adds redundant data (error-correcting code) to its messages. The receiver can check the accuracy of the transmission and eventually correct errors.  |
| FTP           | File Transfer Protocol. Protocol used to transfer files over a TCP/IP network.  |
| GOP           | <p>Group Of Pictures. In MPEG video encoding, a group of pictures, or GOP, specifies the order in which intra-frames and inter-frames are arranged.</p> <p>The GOP is a group of successive pictures within a MPEG-coded film and/or video stream. Each MPEG-coded film and/or video stream consists of successive GOPs. From the MPEG pictures contained in it the visible frames are generated.</p> <p>A GOP can contain the following picture types:</p> <p>I-picture and/or I-Frame (English intra coded picture) reference picture, corresponds to a fixed image and is independent of other picture types. Each GOP begins with this type of picture.</p> <p>P-picture and/or P-Frame (English predictive coded picture) contains difference information from the preceding I or P-Frame.</p> <p>B-picture and/or B-Frame (English bidirectional predictive coded pictures) contain difference information from the preceding and/or following I or P-Frame.</p> <p>D-picture and/or D-Frame (English DC direct coded picture) serves the fast advance.</p> <p>A GOP always begins with an I-Frame. Afterwards several P-Frames follow, in each case with some frames distance. In the remaining gaps are B-Frames. With the next I-Frame a new GOP begins.</p> |
| GUI           | Graphical User Interface.   |
| HDTV          | High Definition Television  |
| IEC           | International Electrotechnical Committee  |
| IP            | Internet Protocol   |
| ISO           | International Standards Organisation  |
| ITU-R         | International Telecommunications Union - Radiocommunications Study Groups   |
| ITU-T         | International Telecommunications Union - Telecommunications Standardisation Sector  |
| MGT           | Management  |
| MIB           | Management information base stems from the OSI/ISO Network management model and is a type of database used to manage the devices in a communications network. It comprises a collection of objects in a (virtual) database used to manage entities (such as routers and switches) in a network.   |

|              |   |
|--------------|---|
|              | <p>Objects in the MIB are defined using a subset of Abstract Syntax Notation One (ASN.1) called Structure of Management Information Version 2 (SMIV2) RFC 2578. The software that performs the parsing is an MIB compiler.</p> <p>The database is hierarchical (tree structured) and entries are addressed through object identifiers. Internet documentation RFCs discuss MIBs, notably RFC 1155, Structure and Identification of Management Information for TCP/IP based internets, and its two companions, RFC 1213, Management Information Base for Network Management of TCP/IP-based internets, and RFC 1157, A Simple Network Management Protocol.</p> |
| Null packets | Some transmission schemes, such as those in ATSC and DVB, impose strict constant bitrate requirements on the transport stream. In order to ensure that the stream maintains a constant bitrate, a Multiplexer may need to insert some additional packets. The PID 0x1FFF is reserved for this purpose. The payload of null packets may contain any data at all, and the receiver is expected to ignore its contents   |
| Packet       | A packet is the basic unit of data in a transport stream. It consists of a sync byte, whose value is 0x47, followed by three one-bit flags and a 13-bit PID. This is followed by a 4-bit continuity counter. Additional optional transport fields, as signaled in the optional adaptation field, may follow. The rest of the packet consists of payload. Packets are most often 188 bytes in length, but some transport streams consist of 204-byte packets which end in 16 bytes of Reed-Solomon error correction data. The 188-byte packet size was originally chosen for compatibility with ATM systems.   |
| PAT          | PAT stands for Program Association Table. The PAT lists PIDs for all PMTs in the stream. Packets containing PAT information always have PID 0x0.  |
| PCR          | To assist the decoder in presenting programs on time, at the right speed, and with synchronization, programs usually periodically provide a Program Clock Reference, or PCR, on one of the PIDs in the program.   |
| PID          | Each table or elementary stream in a transport stream is identified by a 13-bit PID. A demultiplexer extracts elementary streams from the transport stream in part by looking for packets identified by the same PID. In most applications, Time-division multiplexing will be used to decide how often a particular PID appears in the transport stream.   |
| PIP          | Picture in Picture. Low resolution stream proceeded from a main resolution input.   |
| PMT          | Program Map Tables, or PMTs, contain information about programs. For each program, there is a PMT, with the PMT for each program appearing on its own PID. The PMTs describe which PIDs contain data relevant to the program. PMTs also provide metadata about the streams in their constituent PIDs. For example, if a program contains an MPEG-2 video stream, the PMT will list this PID, describe it as a video stream, and provide the type of video that it contains (in this case, MPEG-2). The PMT may also contain additional descriptors providing data about its constituent streams.  |
| Programs     | Transport stream has a concept of programs, which are groups of one or more PIDs that are related to each other. For instance, a transport stream used in digital television might contain three programs, to represent three television channels. Suppose each channel consists of one video stream, one or two audio streams, and any necessary metadata. A receiver wishing to tune to a particular channel merely has to decode the payload of the PIDs associated with its program. It can discard the contents of all other PIDs.   |
| RTP          | Real Time Protocol, a transport protocol for real-time data   |
| SDI          | Serial Digital I/O  |
| SMPTE        | Society of Motion Picture and Television Engineers  |
| SNMP         | SNMP, a communication protocol between management stations (consoles, for example) and managed objects, (such as routers, gateways, and switches) makes use of MIBs. Components controlled by the management console need a so-called SNMP agent -- a software module that can communicate with the SNMP manager.   |

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|    | SNMP uses a specified set of commands and queries. An MIB should contain information on these commands and on the target objects (controllable entities or potential sources of status information) with a view to tuning the network transport to the current needs. |
| TS | Transport Stream  |

## C.5. Support and Resources

### Contact Technical Support

Before You Contact Technical Support:

- Read the manuals.
- Try to isolate the problem or to reproduce it many times.
- Make sure that all of the cables are correctly and firmly attached.

If you have asked yourself all of the pertinent questions in the troubleshooting checklist, and you still can't get your AM2102 to work properly, contact us via the provided link.

ATEME Technical Support - [support@ateme.com](mailto:support@ateme.com)

Before contacting us, make sure that you have a physical access to your AM2102 and that you have the following information on hand:

- Your AM2102's Serial Number
- Names of any other devices installed in your system (Router's brands, specific equipments, etc.)

### Online Resources

Visit this link for more information and documentation about ATEME and ATEME products.

<http://www.ateme.com/>

### Customer Service

ATEME Customer Service provides assistance with product information, sales, registration, and other non-technical issues.

To find out how to contact ATEME Customer Service, please visit <http://www.ateme.com/> for your region or country and click Contact Us.