



Snell  
Advanced  
Media

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# User Instruction Manual

## **IQMBG80**

3G/HD/SD-SDI Media Biometrics Generator

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# 1 Introduction

## 1.1 Description

The IQMBG80 generates media biometrics signatures containing vital video and audio information from up to 8 independent SDI inputs and transmits them over an Ethernet IP link.

Grass Valley Media Biometrics takes the ‘fingerprinting’ concept a step further by using advanced techniques to both identify media and discover content errors regardless of the content and, in most cases, the processing that has been applied to the content.

IQMBG80 Media Biometrics generators are designed to provide a low barrier to entry for customers wishing to integrate the system into their existing workflows. Handling up to 8 SDI inputs in a space efficient single width modular form factor allows media biometrics signatures to be cost-effectively transmitted to either a Media Biometrics SigMA based system, or a downstream IQSAM00 module for analysis and error reporting.

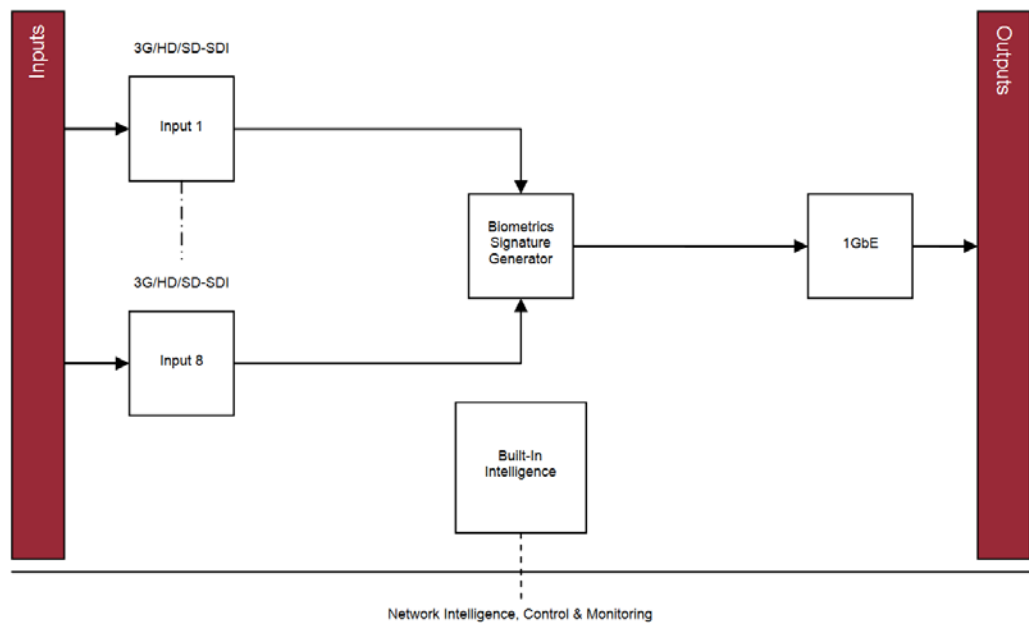


Figure 1 IQMBG80 Block diagram

## 1.2 Order Codes

The following order codes are available.

### 1.2.1 IQH3B

Order codes for the IQH3B enclosure:

<b>IQMBG8000-1B3</b>	3G/HD/SD-SDI Media Biometrics Generator. 8 SDI inputs (HD-BNC), Ethernet Output.
<b>IQMBG8000B-RP</b>	IQMBG8000 rear only
<b>IQMBG8001-1B3</b>	3G/HD/SD-SDI Media Biometrics Generator. 6 SDI inputs (BNC), Ethernet Output.
<b>IQMBG8001B-RP</b>	IQMBG8001 rear only
<b>IQMBG8002-2B3</b>	3G/HD/SD-SDI Media Biometrics Generator. 8 SDI inputs (BNC), Ethernet Output.
<b>IQMBG8002B-RP</b>	IQMBG8002 rear only
<b>IQMBG80-NR</b>	No rear

### 1.2.2 IQH3A/1A

Order codes for the IQH3A and IQH1A enclosures:

<b>IQMBG8000-1A3</b>	3G/HD/SD-SDI Media Biometrics Generator. 8 SDI inputs (HD-BNC), Ethernet Output.
<b>IQMBG8000A-RP</b>	IQMBG8000 rear only
<b>IQMBG8001-1A3</b>	3G/HD/SD-SDI Media Biometrics Generator. 6 SDI inputs (BNC), Ethernet Output.
<b>IQMBG8001A-RP</b>	IQMBG8001 rear only
<b>IQMBG8002-2A3</b>	3G/HD/SD-SDI Media Biometrics Generator. 8 SDI inputs (BNC), Ethernet Output.
<b>IQMBG8002A-RP</b>	IQMBG8002 rear only
<b>IQMBG80-NR</b>	No rear

### 1.3 Rear Panel View

This section contains the available rear panels.

#### 1.3.1 IQMBG8000-1B3, IQMBG8000-1A3

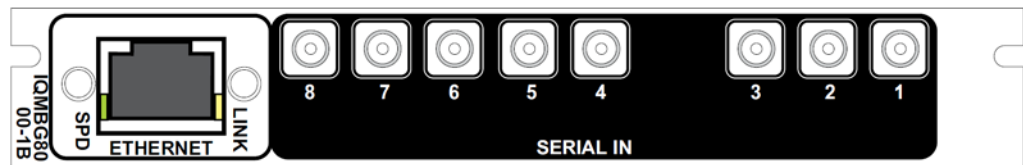


Figure 2 IQMBG8000-1B3, IQMBG8000-1A3

#### 1.3.2 IQMBG8001-1A3, IQMBG8001-1B3

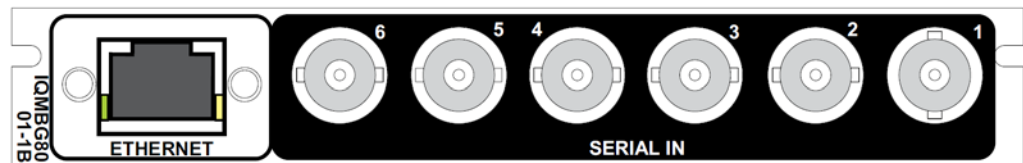


Figure 3 IQMBG8001-1A3, IQMBG8001-1B3

#### 1.3.3 IQMBG8002-2A3, IQMBG8002-2B3

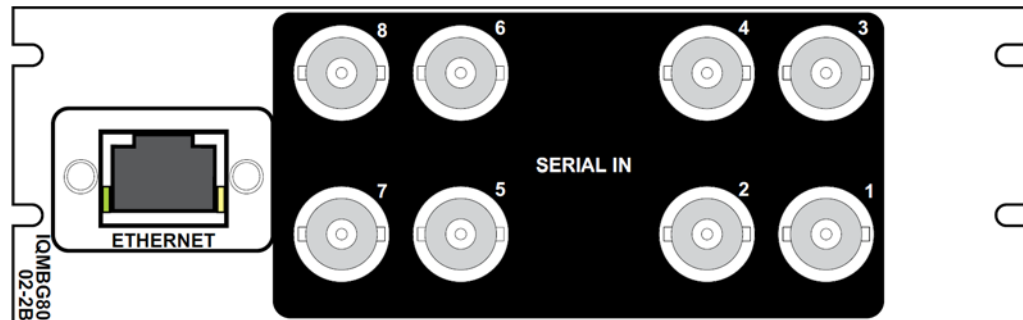


Figure 4 IQMBG8002-2A3, IQMBG8002-2B3

### 1.4 Enclosures

IQMBG80 can only be fitted in the following enclosures, shown below:

**Important:** Although IQ modules are interchangeable between enclosures, their rear panels are enclosure specific. An IQH3B enclosure accepts modules with either “A” or “B” order codes. An IQH3A or IQH1A enclosure accepts modules with “A” order codes only. See page 5.

#### IQH3B-S-0, IQH3B-S-P



Figure 5 IQH3B-S-0, IQH3B-S-P

**Note:** The IQH3B enclosure provides two internal analog reference inputs. These inputs are applicable to modules with “B” order codes only.

#### IQH1A-S-P



Figure 6 IQH1A-S-P

#### IQH3A-S-0, IQH3A-S-P



Figure 7 IQH3A-S-0, IQH1A-S-P

#### IQH3A-E-0, IQH3A-E-P, IQH3A-0-P



Figure 8 IQH3A-E-0, IQH3A-E-P, IGH3A-0-P

#### IQH1A-S-P



Figure 9 IQH1A-S-P

## 1.5 Feature Summary

This module provides the following features:

- Generates Media Biometric signatures from up to 8 SDI inputs and transmits them over an IP link for analysis by other Media Biometrics enabled units
- Signatures contain video data and 16 channels of audio data, transmitted frame by frame
- Dedicated IP streaming output connection
- Standards supported:
  - 3G-SDI to SMPTE 424M/425M level A/B compatible
  - HD-SDI to SMPTE292M/274M/296M
  - SD-SDI to SMPTE259M-C
  - 1G Ethernet IP to IEEE 802.3
- RollCall control and monitoring compatible with standard logging and reporting features

### 1.5.1 Why Should You Choose This Module?

- Grass Valley's media biometrics technology quickly and easily detects any media errors in the system and provides measurements and alerts to work in harmony with Network management systems
- Full RollCall and SNMP compatibility allows easy integration with Grass Valley, or third party, network management systems providing an all-inclusive monitoring and control solution



## 2 Technical Specification

This section contains technical information for the IQMBG80 module.

<b>Signal Inputs</b>	
SDI Inputs	8
Electrical	3Gbit/s SDI, SMPTE 424M (425M-level A) 1.5Gbit/s HD-SDI, SMPTE 292M 270 Mbit/s SDI, SMPTE 259M-C
Connector/Format	HD-BNC/BNC 75ohm panel jack on standard Grass Valley connector panel
Input Cable Length	Up to 80 m Belden 1694A @ 3 Gbit/s Up to 150 m Belden 1694A @ 1.5 Gbit/s Up to 250 m Belden 1694A @ 270 Mbit/s
<b>Signal Outputs</b>	
Ethernet	Up to 8 media biometric signatures
Electrical	10/100/1000 baseT Ethernet to IEEE 802.3
Connector/Format	RJ45 panel jack on standard Grass Valley connector panel
<b>Indicators</b>	
CPU	OK (Green flashing)
Input 1 to 8	OK (Green) Error (Red)
<b>RollCall Features</b>	
Reporting & Logging Information Window	Input Loss; Input Line Standard Video Input Status
RollTrack Index	Up to 16 RollTrack destinations
RollTrack Sources	Unused, Input state
Factory Default	Resets all module settings to factory specified default values and clears memories
Default Settings	Resets all module settings to factory specified defaults but does not clear memories
Restart	Software restart of the module
Module Information	Reports following module information: Software version, Serial number, Build number, Operating System version, Firmware version, PCB version
<b>Electrical</b>	
Standards supported	1080/50p - Type A only, 1080/59p - Type A only, 1080/60p - Type A only, 750(720)/60p, 750(720)/59p, 750(720)/50p, 1125(1080)/29i, 1125(1080)/30p*, 1125(1080)/29p*, 1125(1080)/25i, 1125(1080)/25p*, 1125(1080)/24p*, 1125(1080)/23p*, 525(480)/29i, 625(576)/25i
Startup Time	25 Seconds
Module Power Consumption	13.5 W Max (A frame) 13.5 LU Max (B frame)

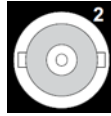
## 3 Connections

This section contains information on the module connectors.

### 3.1 SDI Input



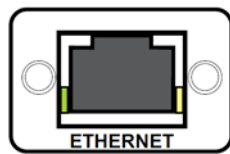
8 x 3G/HD/SD-SDI interfaces provided using 75R HD-BNC connectors depending on module fitted.



6 or 8 x 3G/HD/SD-SDI interfaces provided using 75R BNC connectors depending on module fitted.

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### 3.2 1GbE Ethernet



1 x 10/100/1000 baseT IEEE802.3 interface provided using an RJ45 interface

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## 4 Card Edge LEDs

The LEDs on the edge of the module indicate its operating status.

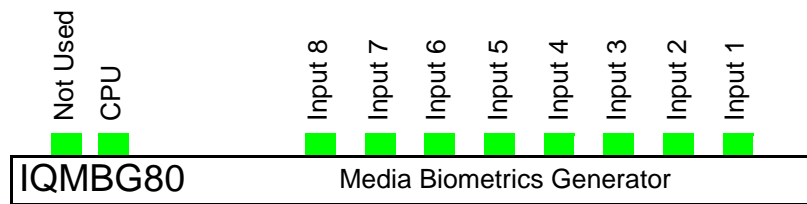


Figure 10 Card Edge LEDs

LED	Color	Description
CPU	Green flashing	OK when flashing
Input 1 to 8	Green Red	Input OK Input Error

# 5 RollCall Control Panel

This section contains information on using the IQMBG80 module with RollCall.

## 5.1 Information Window

The information window appears in the upper-right corner of each screen and displays basic information about the input standards of the IQMBG80 modules.

When **SDI 1 - 4** is selected from the Information Window radio button inputs 1 to 4 are displayed in the Information Window and when **SDI 5 - 8** is selected inputs 5 to 8 are displayed as shown in the example below:

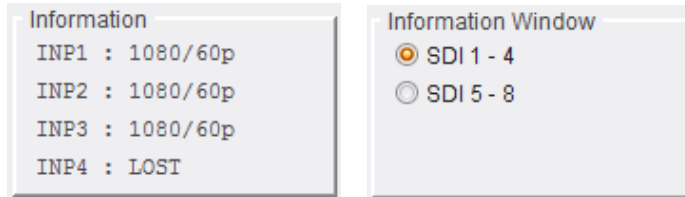


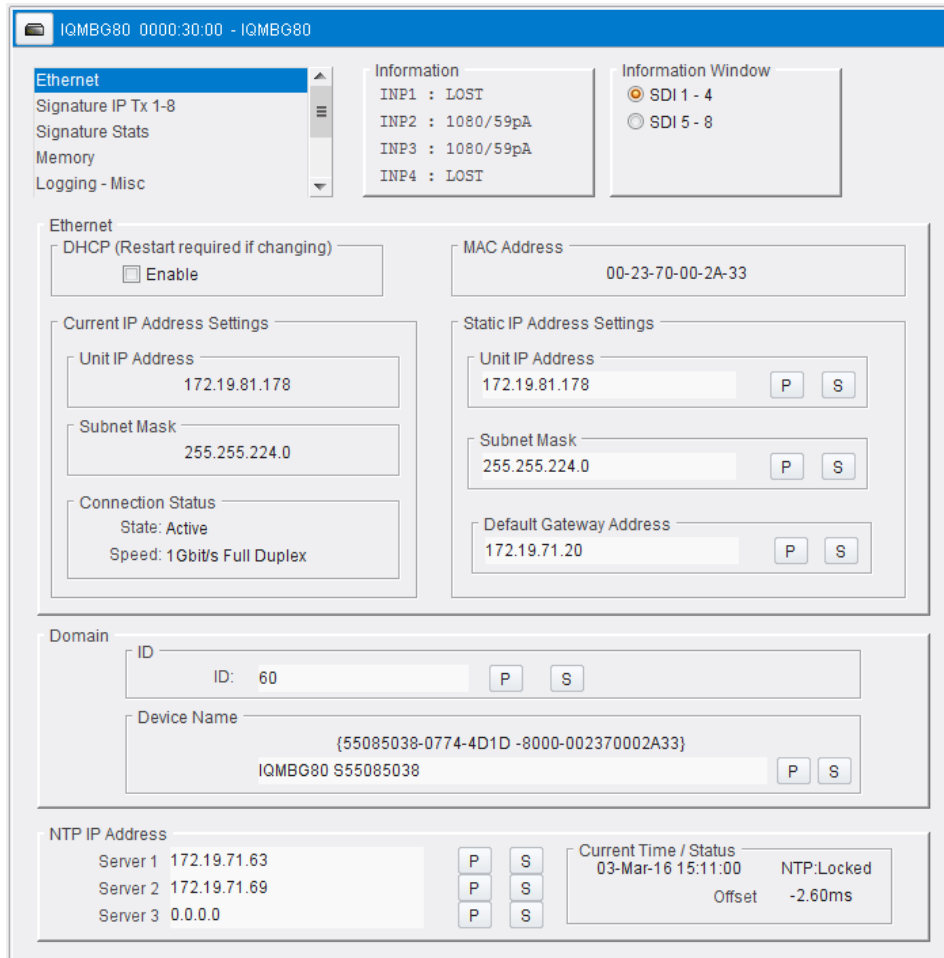
Figure 11 Video input and reference status

Name	Status	Description
<b>INP1:</b> to <b>INP8:</b>	<b>1080/60p</b>	Displays the input standards of video inputs 1 to 4 and 5 to 8 Valid input signal received and detected video standard of input signal displayed.
	<b>LOST</b>	No input signal received.

Table 1 Video input Standard

## 5.2 Ethernet

The **Ethernet** screen enables networking functions to be configured and displays the status of the IP connection.



**Figure 12 Ethernet**

**Note:**

- The network administrator should be able to give the correct setting for these controls.
- The IQMBG80 module must be restarted for the IP settings to take effect, see section 5.8.1.

### 5.2.1 Ethernet Settings

#### 5.2.1.1 DHCP Tick Box

Tick the **Enable** tick box to automatically set the IP address details from the network DHCP server. DHCP is enabled by default.

**Note:**

The IQMBG80 module must be restarted for the IP settings to take effect, see section 5.8.1.

#### 5.2.1.2 Current IP Address Settings

Displays the current **Unit IP Address** and **Subnet Mask**.

#### 5.2.1.3 MAC Address

Displays the IQMBG80 module MAC address. The MAC address is read only and cannot be changed.

### 5.2.1.4 Static IP Address Settings

The IQMBG80 ships with the following default IP address settings:

- **Unit IP address:** 192.168.1.1
- **Subnet Mask:** 255.255.0.0
- **Default Gateway Address:** 0.0.0.0

The IP address details are only used when the DHCP **Enable** box is unticked.

Enter the Unit IP address details in the text box and click on the **S** button to save the new setting. Clicking on the **P** button will return the setting to its default value.

**Note:** The IQMBG80 module must be restarted for the IP settings to take effect, see section 5.8.1.

### 5.2.2 Domain

RollCall+ uses Domains to partition a network. Only those nodes on the same domain can communicate with one another. A domain is uniquely identified with number and a friendly name/alias.

- **ID** - Domain ID (Identifier)
- **Device Name** - the default device name is IQMBG80 SXXXXXXXXX where XXXXXXXXX is the serial number of the IQMBG80

Enter the Domain ID number in the text box and click the **S** button to save the new setting.

- To reset the Domain ID to the default value of **201** click on the **P** button.
- To reset the Device Name to the default value shown above click on the **P** button.

### 5.2.3 Status

The status pane provides information about the network status such as packets sent, received, dropped, bad, etc.

### 5.3 Signature IP Tx 1-8

The **Signature IP Tx** screen is used to configure the sources generating signatures for use by IQSAM00 modules.

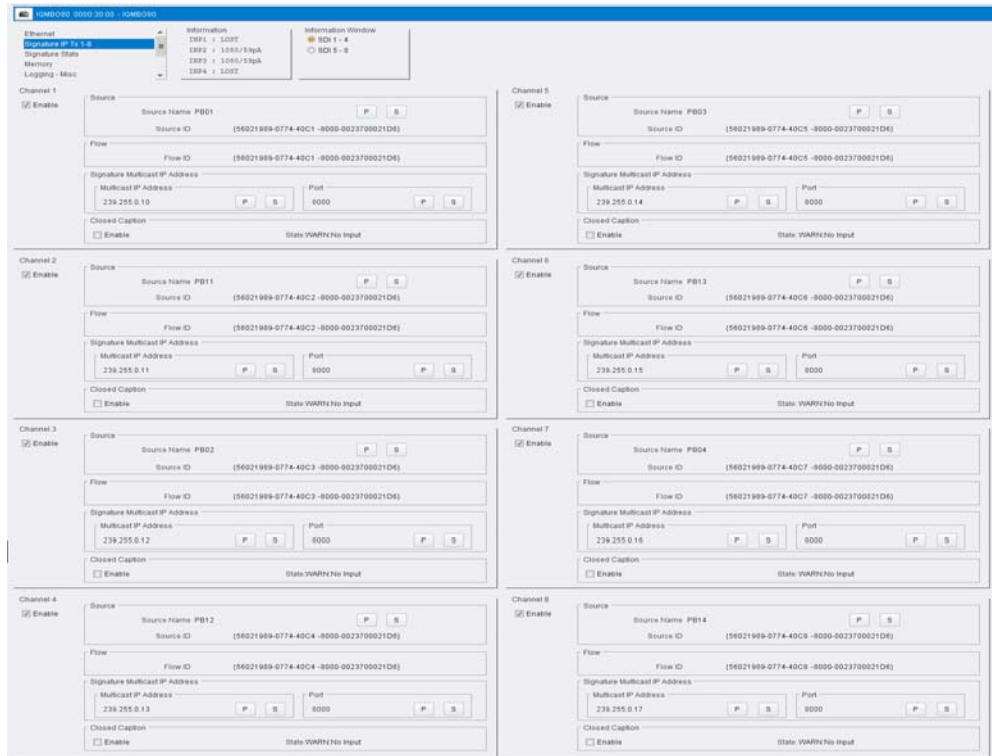


Figure 13 Signature IP Tx 1-8

#### 5.3.1 Channel Tick Box

All channels are configured in the same way.

Tick the channel **Enable** box to enable that channel to be configured and transmit the channel biometric signature.

##### 5.3.1.1 Source

Sets the friendly name for the source input channel so it can be easily recognized on the network.

##### 5.3.1.2 Flow

Displays the Flow ID.

##### 5.3.1.3 Signature Multicast IP Address

Sets the Multicast IP address and Port number that the Signature data is broadcast on.

If any of them are changed the user must click the **Take** button in the **Update Multicast IP Addr and Ports** panel to use the modified Multicast IP address and/or Port.

##### 5.3.1.4 Closed Captions

Tick the **Enable** box to enable closed caption signal generation on this channel.

The state of the closed caption signature generator is displayed to the right of the Enable box. Possible values are:

- **OK**
- **WARN:No Input** - No input found.
- **WARN:No CC** - No closed captions found.

## 5.4 Signature Stats

The **Signature Stats** screen displays statistics for the signatures being transmitted by the IQMBG80 unit.

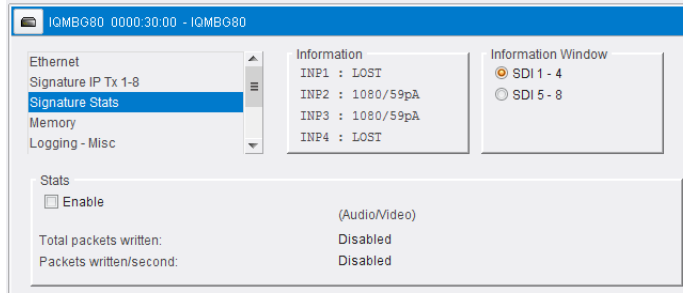


Figure 14 Signature Stats

### 5.4.1 Enable Tick Box

Tick the **Enable** tick box to display the IQMBG80 signature statistics.

Statistics	Description
<b>Audio/Video</b>	
Total packets written	Displays the total number of audio/video signature packets written since the enable box was ticked. If the IQMBG80 unit is restarted the stats will be reset to zero.
Packets written/second	Displays the current number of audio/video signature packets written per second.



### 5.5 Memory 1-16

The **Memory 1-16** screen enables up to 16 setups to be saved and recalled later. Default memory names can be changed to provide more meaningful descriptions.

**Note:** You can store and recall all control in a user memory except for Ethernet and RollTrack Memories.

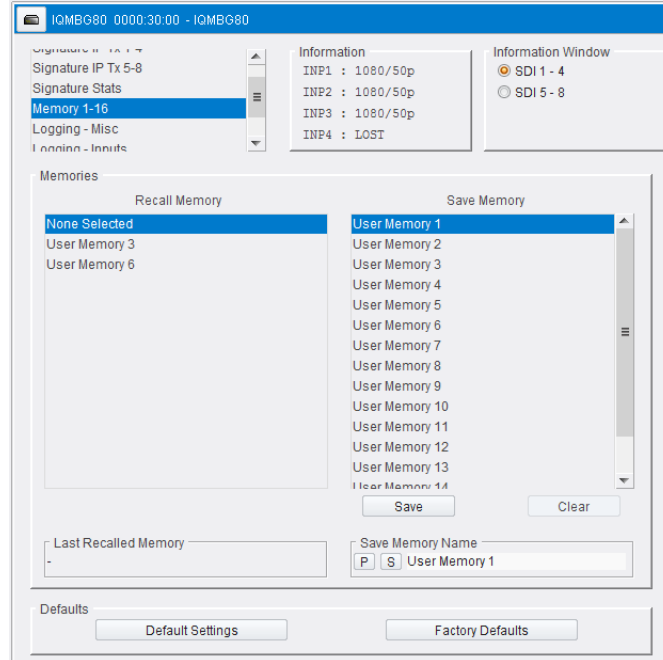


Figure 15 Memory overview

#### 5.5.1 Saving Memory Settings

- In the Save Memory column, select a memory location and click Save. The current settings are saved and the memory appears in the Recall Memory column.

#### 5.5.2 Changing a Memory Name

- In the Save Memory Name field, type the new memory name and click **S** to set. To return the memory to its preset value, click **P**.

#### 5.5.3 Recalling a Memory

The Recall Memory list recalls the settings saved in a memory location. The Last Recalled Memory box shows the most recently recalled memory.

To recall a memory:

- In the Recall Memory column, select the memory you want to recall. The recalled settings are applied and the memory name appears under Last Recalled Memory.

**Note:** Memories do not recall log field states, such as whether a log value is enabled or disabled.

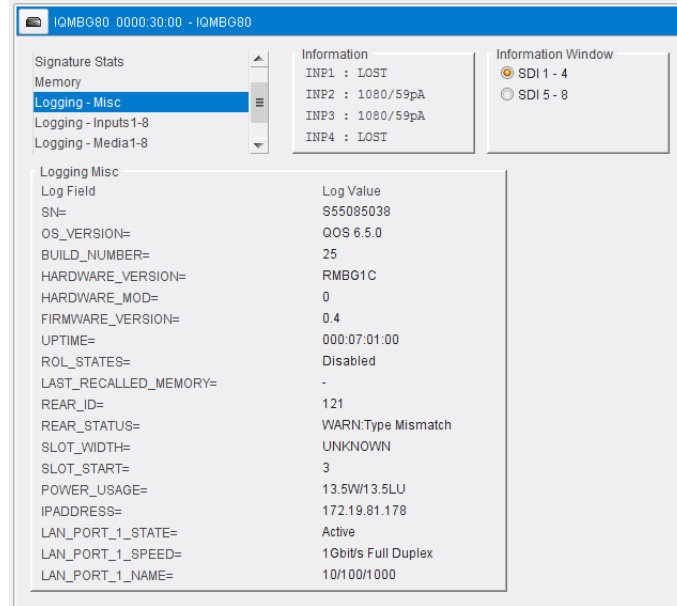
#### 5.5.4 Last Recalled Memory

The Last Recalled Memory box shows the most recently recalled memory.

## 5.6 Logging

### 5.6.1 Logging - Misc

The **Logging - Misc** screen displays current unit and status information. The checkboxes are used to disable or enable logging of the individual parameters.



**Figure 16 Logging - Misc**

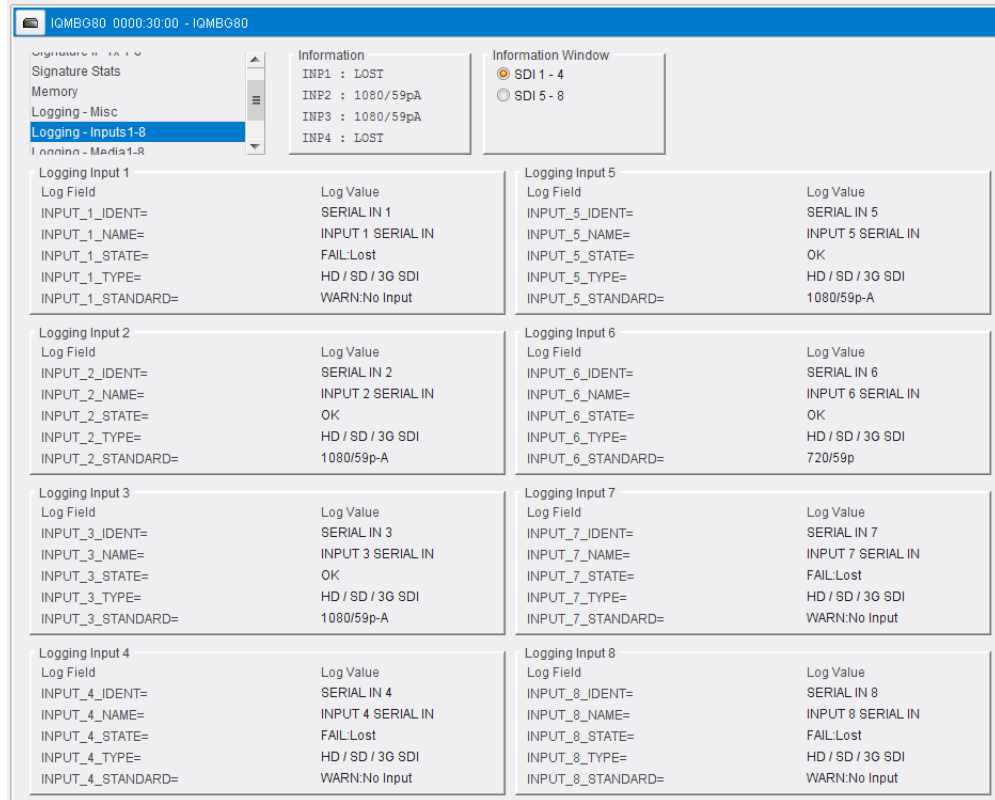
The following options are available:

Log field	Description
SN=	Displays the module serial number, which consists of an S followed by eight digits.
OS_VERSION=	Displays the operating system name and version.
BUILD_NUMBER=	Displays the build number.
HARDWARE_VERSION=	Displays the hardware version number.
HARDWARE_MOD=	Displays the hardware modification number.
FIRMWARE_VERSION=	Displays the firmware version number.
UPTIME=	Displays the time since the last restart in the format ddd:hh:mm:ss.
ROL_STATES=	Displays the RollCall status. Valid values are: <ul style="list-style-type: none"> <li>• <b>OK</b></li> <li>• <b>FAIL:n</b> where n is the RollTrack index (or indices) which are failing</li> <li>• <b>Disabled</b></li> </ul>
LAST_RECALLED_MEMORY=	Displays the last recalled memory.
REAR_ID=	Displays the code number of the rear fitted
REAR_STATUS=	Displays the status of the rear where it can be determined
SLOT_WIDTH=	Displays the slot width. IQMBG80 units are available in single and double width
SLOT_START=	Displays the slot in the rack where IQMBG80 is located

Log field	Description
POWER_USAGE=	Displays the power usage in: <ul style="list-style-type: none"><li>• <b>Watts</b> (A-type rack)</li></ul> or <ul style="list-style-type: none"><li>• <b>Load Units</b> (B-type rack).</li></ul> <b>Note:</b> this not a live power reading, it is a maximum power rating
IPADDRESS=	Displays the unit IP address
LAN_PORT_1_STATE=	Displays the LAN port state: <ul style="list-style-type: none"><li>• <b>Active</b></li><li>• <b>Inactive</b></li></ul>
LAN_PORT_1_SPEED=	Displays unit LAN Speed for example: 1Gbit/s Full Duplex
LAN_PORT_1_NAME=	Displays the unit LAN port name for example: 10/100/1000

### 5.6.2 Logging - Inputs

The **Logging - Inputs** screen displays current input information. The checkboxes are used to disable or enable logging of the individual parameters.



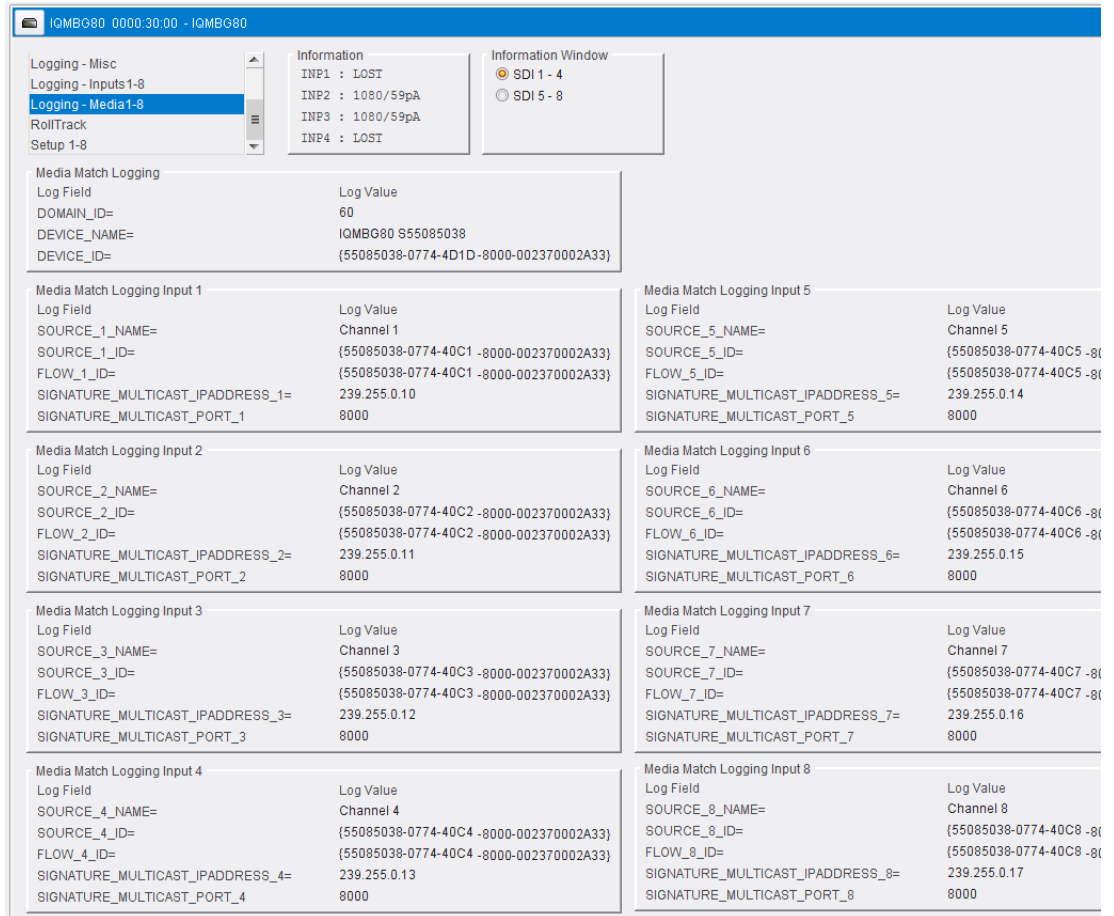
**Figure 17 Logging - inputs**

The following options are available:

Log field	Description
INPUT_n_IDENT=	Displays the identifier of the input.
INPUT_n_NAME=	Displays the name of the input.
INPUT_n_STATE=	Displays the status of the input. Valid values are: <ul style="list-style-type: none"> <li>• <b>FAIL:Lost</b></li> <li>• <b>OK</b></li> </ul>
INPUT_n_TYPE=	Displays the type for the input. (HD/SD/3G SDI).
INPUT_n_STANDAR=	Displays the standard for the input. Valid values are: <ul style="list-style-type: none"> <li>• <b>UNKNOWN</b></li> <li>• <b>Standard</b> (525/29I, 625/25I, 1125/29I, 750/59P etc...)</li> </ul>

### 5.6.3 Logging - Media 1-8

The **Logging - Media 1-8** screen displays current media match information. The checkboxes are used to disable or enable logging of the individual parameters.



**Figure 18 Logging - Media 1-8**

The following options are available:

Log field	Description
<b>Media Match Logging</b>	
DOMAIN_ID=	Displays the unit domain ID
DEVICE_NAME=	Displays the unit device name
DEVICE_ID=	Displays the unit Device ID
<b>Media Match Logging Input X (X = 1 to 8)</b>	
SOURCE_X_NAME=	Displays the input source name.
SOURCE_X_ID=	Displays the input source ID.
FLOW_X_ID=	Displays the input source flow ID.
SIGNATURE_MULTICAST_IPADDRESS_X=	Displays the input signature multicast IP address.
SIGNATURE_MULTICAST_PORT_X=	Displays the input signature multicast port number.

## 5.7 RollTrack

This enables information to be sent, through the RollCall™ network, to other compatible units connected on the same network.

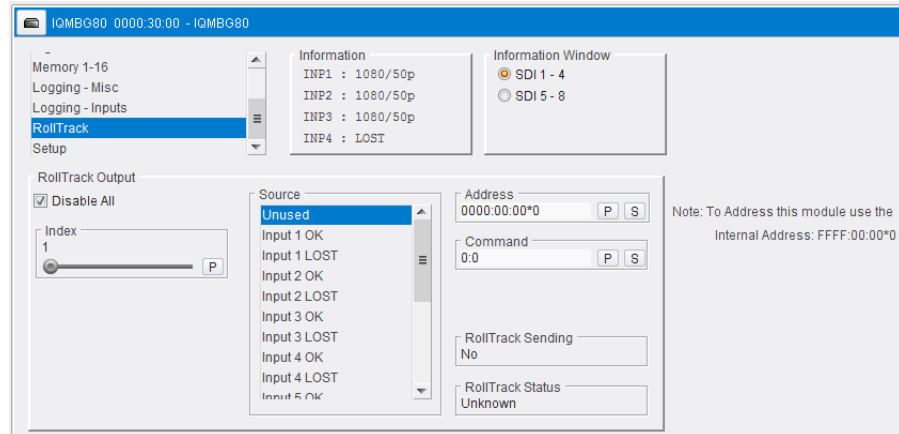


Figure 19 RollTrack

The following options are available.

### 5.7.1 Disable All

When checked, RollTrack messages are disabled from the unit however the unit stills reflects the message states in this mode.

### 5.7.2 RollTrack Index

The slider allows all of the available RollTrack triggers to be browsed. Click on a relevant source of information to be used as the trigger for the transmission of data via the rolltrack mechanism. The **P** button selects the default preset value. When no source is selected, it displays **Unused**.

### 5.7.3 RollTrack Source

Select the source of information that triggers the transmission of data. Select the RollTrack source from the list. When no source is selected, it displays **Unused**.

RollTrack Source	Description
Unused	No RollTracks sent
Input n OK	Input 1 is good
Input n Lost	Input 1 is bad

### 5.7.4 RollTrack Address

This item sets the address of the selected destination unit.

To change the address, type the new destination into the text area and then select the **S** button to save the selection. Clicking the **P** button returns to the default preset destination.

The RollTrack address consists of four sets of numbers, for example, 0000:10:01\*99:

- The first set (0000) is the network segment code number.
- The second set (10) is the number identifying the (enclosure/mainframe) unit.
- The third set (01) is the slot number in the unit
- The fourth set (99) is a user-configurable number that is a unique identification number for the destination unit in a multi-unit system. This ensures that only the correct unit responds to the command. If left at 00, an incorrectly fitted unit can respond inappropriately.

**Note:**

A segment address of FFFF is the module itself. For example, FFFF:00:00 addresses the RollTrack to itself.

### 5.7.5 RollTrack Command

This item sends a command to the selected destination unit.

It is possible to change this command by typing a code in the text area and then selecting the **S** button to save the selection. Clicking the **P** button returns to the default preset command.

The RollTrack command consists of two sets of numbers, for example: 84:156:

- The first number (84) is the actual RollTrack command.
- The second number (156) is the value sent with the RollTrack command.

### 5.7.6 RollTrack Sending

A message appears here when the unit is actively sending a RollTrack command. Available RollTrack Sending messages are:

String	A string value is always being sent.
Number	A number value is always being sent.
No	The message is not being sent
Yes	The message is being sent.
Internal Type Error	Inconsistent behavior. Please contact your local Grass Valley agent.

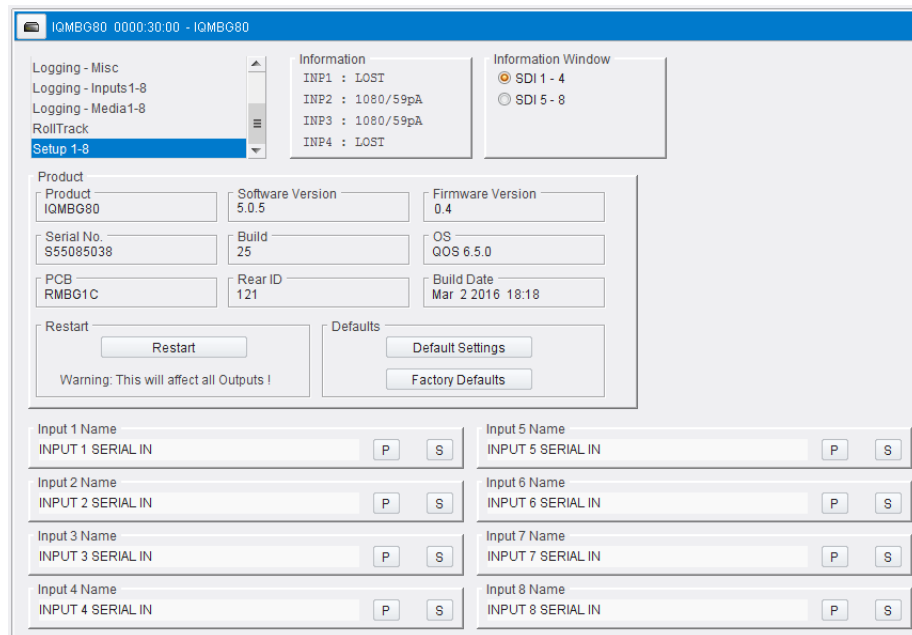
### 5.7.7 RollTrack Status

A message appears here to indicate the status of the currently selected RollTrack index. Available RollTrack Status messages are:

OK	RollTrack message sent and received OK
Unknown	RollTrack message has been sent but it has not yet completed
Timeout	RollTrack message sent but acknowledgement not received. This could be because the destination unit is not at the location specified.
Bad	RollTrack message has not been correctly acknowledged at the destination unit. This could be because the destination unit is not of the type specified.
Disabled	RollTrack sending is disabled.

## 5.8 Setup

The Setup screen display basic information about the module, for example, the serial number and software versions. Use the functions on the screen to restart the module or return all settings to their factory or default settings.



**Figure 20 Setup**

The available settings are:

- **Product** - The name of the module.
- **Software Version** - The currently installed software version number.
- **Firmware Version** - The currently installed firmware version number.
- **Serial No** - The module serial number.
- **Build** - The factory build number. This number identifies all parameters of the module.
- **OS** - The operating system version number.
- **PCB** - The Printed Circuit Board revision number.
- **Rear ID** - The type identification number of the rear panel that has been detected by the IQMBG80.
- **Build Date**- The factory build date in the format MMM DD YYYY HH:MM.

### 5.8.1 Restart Unit

This setting reboots the unit by powering it down and then powering it up. This restores the power-up settings and will produce a interruption to the signatures.

**Important:**

Restarting the module will affect all signatures.

### 5.8.2 Default Settings

The Default Settings button enables module settings to be reset to their factory defaults, leaving user memories intact.



### 5.8.3 Factory Defaults

The Factory Defaults button enables the module settings to be reset to their factory defaults. This operation can take a few seconds to implement.

**Note:** Resetting the module to its factory defaults also clears all the saved memory settings.

### 5.8.4 Input n Name

Displays the Input names.

- To change the input name, type the new name into the text area and then select the **S** button to save the name. Selecting the **P** button returns to the default input name.