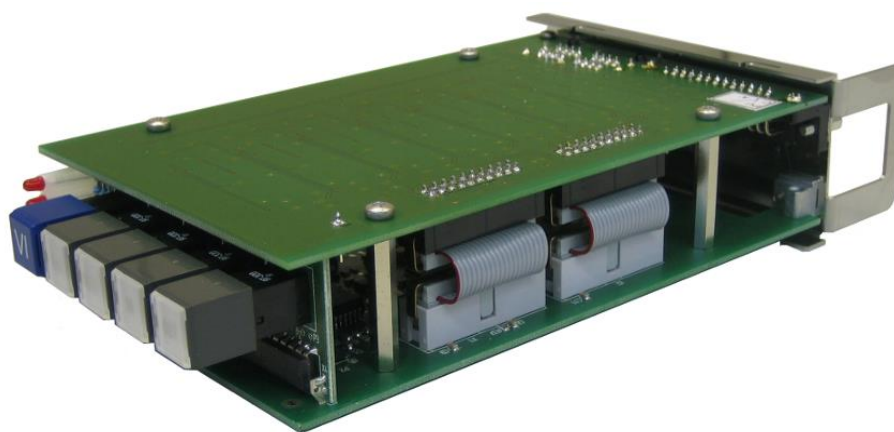




RUB VI

LTC or IRIG Time Code Distribution Amplifier



Functional Description and Specifications
Supplement to the "Installation & Systems Manual RUBIDIUM SERIES"
Version: 3.2
December 2, 2020





CONTENTS

A1	REVISION HISTORY	
A2	COPYRIGHT	
A3	GENERAL REMARKS	
1	MODULE VI	6
1.1	DESCRIPTION	6
1.2	LTC OR IRIG-B	6
1.3	REAR PANEL AND CONNECTIONS	7
1.4	SPECIFICATIONS	8
1.5	TYPICAL APPLICATION DIAGRAMS	9
1.5.1	Example of an LTC Distribution System, 12 Outputs	9
1.5.2	Example of a Redundant IRIG-B Distribution System, 18 Outputs	9
1.6	SOFTWARE UPDATE	10
2	OPERATING DESCRIPTION	11
2.1	FUNCTIONAL OVERVIEW	11
2.2	MONITORING AND STATUS INFORMATION	12
2.3	SIGNAL CHANGEOVER	14
2.4	ERRORS AND ALARMS	15
3	STATUS MONITOR	18
3.1	STATUS MONITOR BY THE IE MODULE	18
3.2	STATUS MONITOR BY A PC PROGRAM	19
3.3	SYSTEM STATUS	20
3.4	STATUS OF FAN AND POWER SUPPLIES	22
4	THE RUBIDIUM CONFIGURATION TOOLS	23
4.1	THE RUBIDIUM CONFIGURATION PC PROGRAM	23
4.2	THE RUBIDIUM SERIES HTTP SERVER	24
4.3	“FUNCTIONS“	25
4.4	“KEYS“: KEYS, LAMPS AND LEDS	26
4.5	“DISTRIBUTION“: SET-UP THE CHANGEOVER AND ALARM CHARACTERISTICS	28
4.6	“SYSTEM“: IDENTIFICATION, RESET, SNMP, FAN CONTROL	30



A1 Revision History

No.	Date	Subject
0.n		Preliminary documents, changes without notice.
1.0	November 08, 2005	First released document.
1.1	January 16, 2006	Revised.
2.0	December 07, 2006	Revised.
3.0	May 31, 2011	Completely revised.
3.1	September 3, 2019	Changed address of Plura Europe GmbH.
3.2	November 30, 2020	Re-formatted in new design.

A2 Copyright

Copyright © Plura Europe GmbH 2002-2019. All rights reserved. No part of this publication may be reproduced, translated into another language, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without the prior written consent of Plura Europe GmbH.

Printed in Germany.

Technical changes are reserved.

All brand and product names mentioned herein are used for identification purposes only and are trademarks or registered trademarks of their respective holders.

Information in this publication replaces all previously published information. Plura Europe GmbH assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein.

For further information please contact your local dealer or:

Plura Europe GmbH
 Binger Weg 12
 D- 55437 Ockenheim
 Phone: +49 6725 918 006-70
 Fax: +49 6725 918 006-77
 E-Mail: info@plurainc.com
 Internet: <https://www.plurainc.com>



A3 General Remarks

This manual is a supplement to the "Installation & Systems Manual RUBIDIUM SERIES". Please read the below listed chapters of the "Installation & Systems Manual RUBIDIUM SERIES", as these chapters are necessary for the safe and proper use of the Rubidium module "VI".

- A3 Warranty,
- A4 Unpacking/Shipping/Repackaging Information,
- A5 Safety Instructions,
- A6 Certifications & Compliances,
- Plug-In a Module,
- Remove a Module.



1 Module VI

1.1 Description

This module distributes and amplifies one input to six LTC (EBU/SMPTE) or IRIG time code outputs. A seventh spare output stage together with a changeover relay at each of the six outputs enables completely redundant output signals. Each output stage is monitored for signal failures. Alarm outputs are available as SNMP, GPI OUT, LEDs and lamps.

A **PC** or the **RUB IE** module is required for the configuration of this module.

The front panel label **VI** visibly identifies where each module is located. The serial number is located on the bottom side of the lower circuit board of each module.

The standard hardware of this module has all of the following key features:

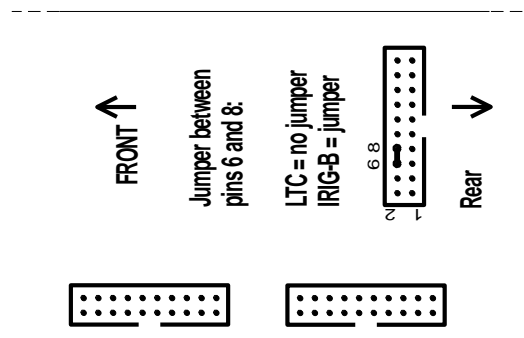
- “Hot Swapping”, i.e. it is possible to insert or remove a module without interrupting the operation of other modules in this frame.
- Failure relay, connected to the FAIL_A and FAIL_B pins of the **RLC** connector at the rear of the frame.
- RS232 and TC_link (RLC connector) interfaces to have access to the internal bus of the chassis.
- Four programmable function keys, lamps and LEDs on the front panel (RUB1 version only).
- Flash memory containing the firmware, so configuration and updates are possible via a PC connection. You can download the latest version of the program from:

<https://www.plurainc.com>.

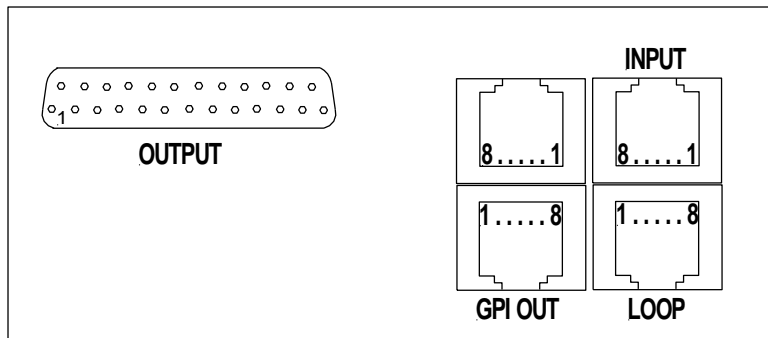
- One LTC/IRIG input.
- Six independent LTC/IRIG outputs plus one spare output, individually monitored.
- Changeover relays enable completely redundant output signals.
- Alarm outputs indicating failures and warnings: Lamps and LEDs (RUB1 version only), GPI OUTs and SNMP traps.

1.2 LTC or IRIG-B

The module reads and monitors LTC or IRIG-B. According to your application please select the correct type of time code by setting or removing a jumper at the lower circuit board. This configuration already will be done if you add a small note (LTC/IRIG-B) at your order.



1.3 Rear Panel and Connections



Pin assignments

INPUT / LOOP RJ45 jack
3: SIG_IN_A
6: SIG_IN_B
4: GND
All other: Not connected

GPI OUT RJ45 jack
1: GND 8: GPI_4
2: GPI_1 3: GPI_5
6: GPI_2 4: GPI_6
5: GPI_3 7: GPI_7

OUTPUT DSUB25F female
1: GND 3: GND 5: GND 7: GND 9: GND 11: GND
2: OUT1_A 4: OUT2_A 6: OUT3_A 8: OUT4_A 10: OUT5_A 12: OUT6_A
14: OUT1_B 16: OUT2_B 18: OUT3_B 20: OUT4_B 22: OUT5_B 24: OUT6_B
15: GND 17: GND 19: GND 21: GND 23: GND 25: GND

Signal descriptions

GND	Signal ground.
SIG_IN_A, SIG_IN_B	Balanced LTC or IRIG input.
OUT1...6_A, OUT2...6_B	Balanced LTC or IRIG outputs.
GPI_1 ... GPI_7	Output signals indicating failures.



1.4 Specifications

LTC input

Format	According to ANSI/SMPTE 12M-1-2008, balanced signals
Input impedance	18 kΩ
Signal level	100 mV _{p-p} - 5 V _{p-p} , auto-ranging
Frequency	19 - 33 frames/s

IRIG input

Format	IRIG-B123 according to IRIG STANDARD 200-98 or according to AFNOR NF S 87-500, amplitude modulated carrier signal with 1 kHz carrier frequency, balanced signals
Input impedance	18 kΩ
Signal level	100 mV _{p-p} - 5 V _{p-p} , mark amplitude, auto-ranging

LTC or IRIG outputs

Format	According to signal input, balanced signals
Output impedance	< 50 Ω
Gain	1 ± 1 %

GPI_1 – GPI_7

Output specification	<p>Open Collector output of an NPN Darlington transistor. Max. power dissipation: 200 mW.</p> <p>“High” state: external pull-up needed to a positive power source of less than or equal to 30 VDC, typically 1 kΩ when connected to an external +5 VDC power source.</p> <p>“Low” state: output switched to GND. Maximum collector current = 200 mA DC, not fused.</p> <p>Collector-emitter saturation voltage: @100 mA: typ. 0.9 V (≤ 1.1 V).</p>
----------------------	---

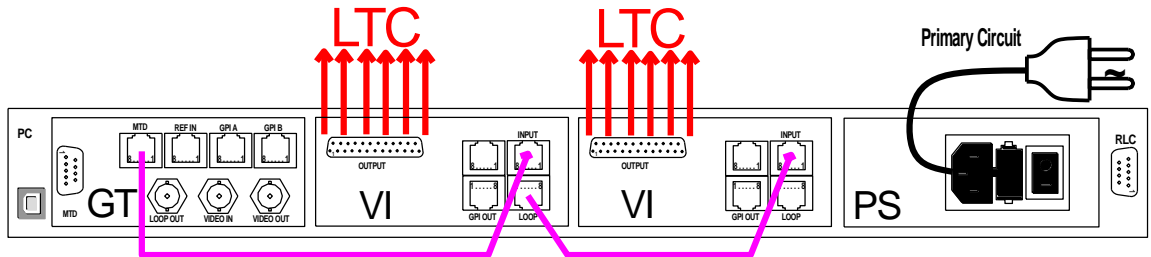
Others

Operating voltage	12 - 30 VDC
Power consumption	max. 1.6 W (GPI_1 – GPI_7 unconnected)
Weight	0.5 kg approx.
Dimensions	Standard circuit board (W x D): 100 x 160 mm/3.94 x 6.30 inch Rear panel: Rub H1: 103 x 44 mm / 4.06 x 1.73 inch Rub H3: 8HP, 3RU
Environmental characteristics, operating	Temperature: 5 °C to 40 °C Relative humidity: 30 % to 85 %, non-condensing
Environmental characteristics, non-operating	Temperature: -10 °C to +60 °C Relative humidity: 5 % to 95 %, non-condensing

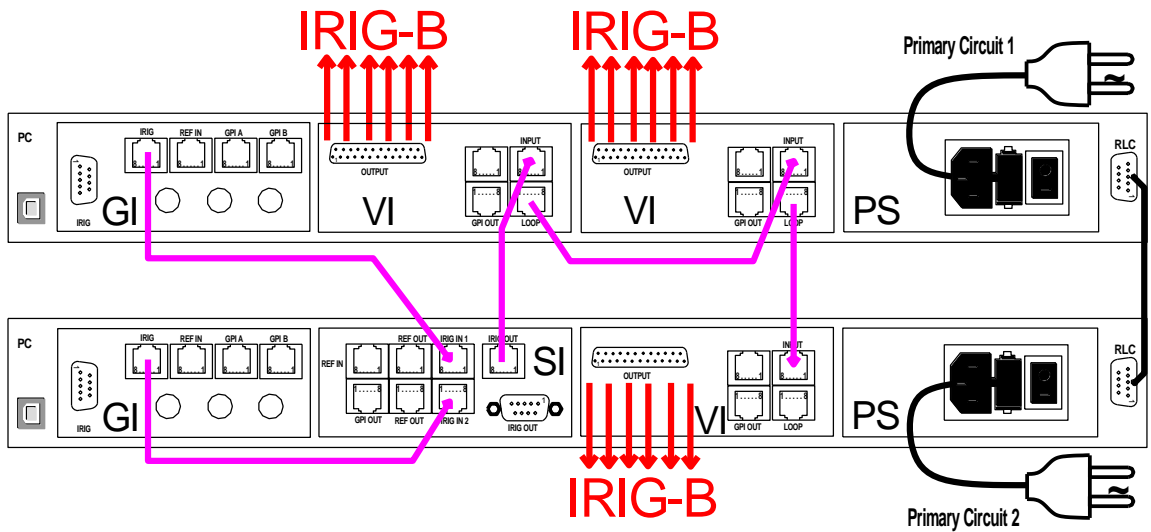


1.5 Typical Application Diagrams

1.5.1 Example of an LTC Distribution System, 12 Outputs



1.5.2 Example of a Redundant IRIG-B Distribution System, 18 Outputs



1.6 Software Update

Software updates require a (windows operating system) computer and the "RUBIDIUM CONFIGURATION" program. You can download the latest version of the program from:

<https://www.plurainc.com>.

Please check the **PC** connector at your RUBIDIUM housing: There is an USB or RS232 (with a DSUB9 connector) interface installed. You now need the same interface at your computer.

The new firmware should already be stored as a **.tcf** file at your computer.

Please now execute the following steps:

1. Connect your computer to the **PC** connector of that RUBIDIUM frame where the module has been plugged.

In case of an RS232 interface: Use a straight (1:1) connection between the **PC** connector at the RUBIDIUM frame and the RS232 of the computer.

In case of an USB interface: Use a USB A-B cable between your computer and the RUBIDIUM frame.

Switch on the power of all units.

2. Execute "Rubidium Config.exe" on your computer. Select the "Port" according to the interface (USB, RS232) you are using.
3. Select the module (unit 1, 2, 3 ...).
4. Select "Flash Update" in the *File* menu.
5. Open the **.tcf**-file. Standard name: "Rubidium VI version.tcf".
"version" stands for a revision no., e.g. 2.11.12.
Click the OK button, update starts. Click the OK button at the end.
6. Update is finished now. We recommend checking module's configuration utilizing the "RUBIDIUM CONFIGURATION" program.

During the flash update the operation of the module stops!

The changeover relays will switch to their default position, the spare output functionality will not be available during the flash update.

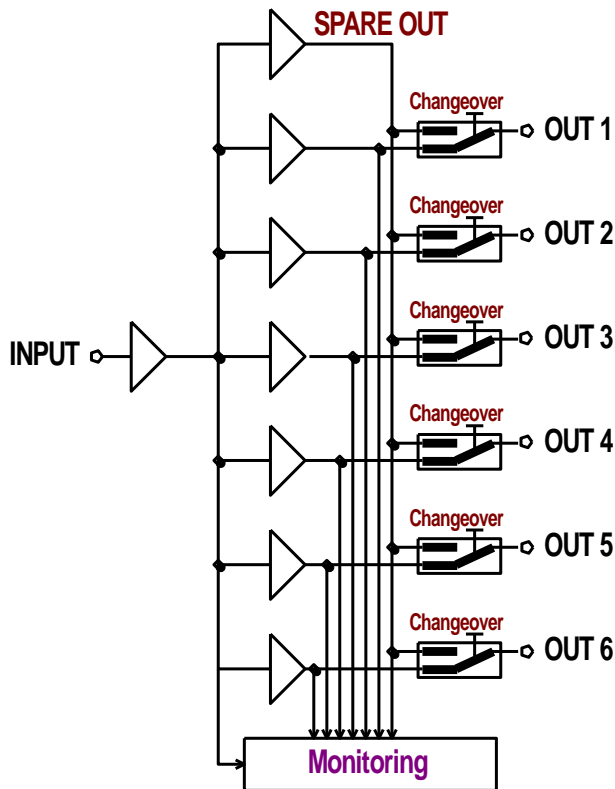


2 Operating Description

2.1 Functional Overview

The basic functions are:

- LTC or IRIG signal distribution: One input to six outputs.
- Input and output monitoring.



The monitoring part outputs the following status:

- Input signal status.
- Time decoded out of the input signal.
- Status of each output channel.
- State of all changeover relays.
- Error counters and error indications.
- Event monitor.
- Alarm signals.

PC programs are available for free: Configuration of the module = **RubidiumConfig.exe**, status monitor = **RubStatSE.exe**.

The RUBIDIUM SERIES HTTP server, located in the **Rub IE** module, enables the configuration of the module and offers a status monitor as well.



2.2 Monitoring and Status Information

This module monitors the signals at the seven output stages with respect to frequency, minimum amplitude (see chapter “Specifications” as well), and plausible time data.

An error detected at the spare output could be considered as an error of the signal input.

There is a changeover relay at each of the six outputs. If an error is detected at an output stage, the spare signal can be switched to the corresponding output.

The Status Monitor gives you all the relevant information.

Signal status if no input signal is connected:

System Status							
input signal status	time-out	format	IRIG-B	time	00 : 00 : 00		
input signal received	no						
	channel 1	channel 2	channel 3	channel 4	channel 5	channel 6	spare
status	ok	ok	ok	ok	ok	ok	fail
changeover relay	open	open	open	open	open	open	
GPI alarm	-	-	-	-	-	-	-
errors	0	0	0	0	0	0	0
alarms	0	0	0	0	0	0	0

Signal status if the input signal fails:

System Status							
input signal status	time-out	format	IRIG-B	time	13 : 17 : 06		
input signal received	yes						
	channel 1	channel 2	channel 3	channel 4	channel 5	channel 6	spare
status	fail	fail	fail	fail	fail	fail	fail
changeover relay	open	open	open	open	open	open	
GPI alarm	set	set	set	set	set	set	set
errors	1	1	1	1	1	1	1
alarms	1	1	1	1	1	1	1

Signal status if one output stage fails:

System Status							
input signal status	OK	format	IRIG-B	time	13 : 13 : 56		
input signal received	yes						
	channel 1	channel 2	channel 3	channel 4	channel 5	channel 6	spare
status	ok	ok	ok	ok	fail	ok	ok
changeover relay	open	open	open	open	closed	open	
GPI alarm	-	-	-	-	set	-	-
errors	0	0	0	0	1	0	0
alarms	0	0	0	0	1	0	0



Signal status during normal operation:

System Status							
input signal status	OK	format	IRIG-B	time	13:13:56		
input signal received	yes						
	channel 1	channel 2	channel 3	channel 4	channel 5	channel 6	spare
status	ok	ok	ok	ok	ok	ok	ok
changeover relay	open	open	open	open	open	open	
GPI alarm	-	-	-	-	-	-	-
errors	0	0	0	0	0	0	0
alarms	0	0	0	0	0	0	0

status: Informs about the current status of each output stage: 'ok' or 'fail'.

- fail** of LTC: No signal at all or LTC with incorrect time addresses.
Spare output stage: Signal failure for one second or more.
Channel 1 to *channel 6* output stages: Signal failure for two seconds or more.
- fail** of IRIG-B: No signal at all or IRIG with wrong data format.
Spare output stage: Signal failure for four second or more.
Channel 1 to *channel 6* output stages: Signal failure for five seconds or more.



2.3 Signal Changeover

With the default set-up (“Factory Settings”), the changeover relays operate in the automatic mode. After the power has turned on all the relays have their contacts open.

Utilizing the **Distribution** function with one of the configuration tools, you can switch between automatic and manual changeover. In the manual mode you can open or close the contacts at will. Regardless of automatic or manual mode not more than one changeover each second will be allowed. Each relay can individually be set into one of the following modes:

- Changeover Relay**
- Auto**
- Open**
- Close**

Auto

- After the power has turned on the monitor accepts a three minutes warm-up period of the signal source. If no input signal can be detected during this time, an error will be indicated but no alarm will be raised. After this period or after once a signal has been detected the monitoring and changeover procedure starts.

Display at status monitor: “input signal status OK/time-out/data error”
 “input signal received yes/no”

- An error at the spare output stage will not affect the changeover relays.
- The changeover relay will open its contacts if no error can be detected at both the spare output and the corresponding channel output stages.
- The changeover relay will close its contacts if the spare output stage has no fault, but the corresponding channel output fails, provided that the maximum number of simultaneous changeover switching has not been reached.

Max. Simultaneous Changeover Switching: If several output stages have a failure and the corresponding changeover relays close their contacts, the spare output stage will drive all these output channels. This set-up restricts the simultaneous changeover switching to a maximum value (1 to 6).

Display at status monitor: “number of activated changeover relays 0 – 6”

Manual modes: Open or Close

- The automatic mode is switched off.
- The relay is forced to open or close its contacts regardless of any signal status and regardless of the maximum number of simultaneous changeover switching.

The status monitor informs about the last changeover

changeover events:	
automatic	0
manual	2
last event	manual open 1
time since last event	00001:06:07

Please refer to chapter “System Status” for details.



2.4 Errors and Alarms

Overview

Each output stage has its own status, error counter, alarm counter, GPI output, and SNMP trap functionality. GPI_1 to GPI_6 are assigned to output stages 1 to 6, GPI_7 is assigned to the spare output (or input). An SNMP trap which belongs to a certain output stage contains the corresponding number.

	channel 1	channel 2	channel 3	channel 4	channel 5	channel 6	spare
status	ok	ok	ok	ok	ok	ok	ok
changeover relay	open	open	open	open	open	open	
GPI alarm	-	-	-	-	-	-	-
errors	0	0	0	0	0	0	0
alarms	0	0	0	0	0	0	0

The GPI outputs and SNMP traps can individually be enabled or disabled by configuration.

	channel 1	channel 2	channel 3	channel 4	channel 5	channel 6	spare
changeover relay	auto	auto	auto	auto	auto	auto	
GPI alarm output	enabled	enabled	enabled	enabled	enabled	enabled	enabled
SNMP traps	enabled	enabled	enabled	enabled	enabled	enabled	enabled

Additionally, there are two overall counters: “total number of errors” and “total number of alarms”. Any count value > 0 will be indicated by an LED or lamp at the module and/or by an SNMP trap.

total number of errors	0
total number of alarms	0

Errors

Any error detected on a signal always leads to the following error indications:

At the status monitor

- The “total number of errors” counter shows the sum of all individual errors. A count value of > 0 indicates that at least one error has been detected. Maximum value = 65,535.
- Each output stage has its individual error counter. Maximum value = 65,535.
- Each output stage has its individual status showing ‘fail’ in case of an error.

RUB1 modules, i.e. modules plugged to an H1, D1, Q1, S1, or T1 chassis

- The LED in the “Error” function lights up as long as the “total number of errors” counter has a count value > 0.

Depending on configuration an SNMP trap can be sent: An individual *Signal Failure* trap and/or a *System Error* trap. Please notice section **SNMP Traps** below.



Alarms

Each output stage has its individual alarm counter and GPI output. Any error will become an alarm if the corresponding GPI is enabled. Each GPI can individually be enabled or disabled by configuration.

If GPI is enabled, an error will lead to the following alarms:

At the status monitor

- The “total number of alarms” counter shows the sum of all individual alarms. A count value of > 0 indicates that at least one alarm has been raised. Maximum value = 65,535.
- Each output stage has its individual alarm counter. Maximum value = 65,535.
- GPI output: The corresponding GPI becomes active.

RUB1 modules, i.e. modules plugged to an H1, D1, Q1, S1, or T1 chassis

- The lamp/key in the “Fail/Counter Clear ” function lights up as long as the “total number of alarms” counter has a count value > 0.

Depending on configuration an SNMP trap can be sent: *System Failure*. Please notice section **SNMP Traps** below.

SNMP Traps

SNMP functionality for a RUBIDIUM system requires the installation of the **RUB IE** module with option **S** (SNMP).

Utilizing one of the configuration tools, SNMP traps can be enabled and disabled at the **System** page (please refer to chapter “‘System’: Identification, Reset, SNMP, Fan Control”). The “Any Trap” checkbox in general controls the SNMP traps functionality. Furthermore, there are checkboxes corresponding to the different types of traps.

Recommended configuration: Check the “Any Trap” and “System Failure” checkboxes.

The *Changeover* and *Signal Failure* traps belong to a certain output stage. These traps contain the corresponding number. Utilizing one of the configuration tools, these traps can be disabled individually by checking the corresponding “disable” checkbox at the **Distribution** page.

Changeover

Check the “Changeover” checkbox

This trap indicates any automatic or manual switching of a relay. This trap includes the number of the output channel and the kind of switching. Each channel can have this trap feature disabled.

System Error

Check the “System Error” checkbox

Active, as long as the “total number of errors” counter has a count value > 0.

This trap feature becomes active in any event of an error. This trap will be repeated in an 8 hours interval as long as the alarm condition is present.



System FailureCheck the "System Failure" checkbox

Active, as long as the "total number of alarms" counter has a count value > 0.

This trap feature becomes active in any event of those errors which simultaneously raise a GPI alarm, i.e. the "disable" checkbox is not checked. This trap will be repeated in an 8 hours interval as long as the alarm condition is present.

Signal FailureCheck the "Signal Failure" checkbox

This trap indicates an error at one of the output stages (1 to 7). This trap includes the number of the output channel. Each channel can have this trap feature disabled. This trap will be repeated in an 8 hours interval as long as the alarm condition is present.

Error and Alarm Reset

The following error indications are self resettable (reset, if no errors are present):

- The individual **status bits at the status monitor**.
- **GPI outputs**.
- The **Signal Failure** SNMP traps.

The following error indications remain as long as the overall counters have count values > 0:

"total number of errors" > 0	"total number of failures" > 0
<ul style="list-style-type: none"> • LED with Error function. • SNMP trap System Error. 	<ul style="list-style-type: none"> • Lamp with Fail function. • SNMP trap System Failure.

A reset of these counters and – at the same time – a reset of all individual error counters can be done by:

Keystroke

RUB1 modules, i.e. modules plugged to a H1, D1, Q1, S1, or T1 chassis, offer four programmable keys. The following functions are provided for a reset:

Function	Description	Recommended Key
Counter Clear	Resets all error counters to zero.	F1: FAIL
Reset	Complete reset of error counters and status.	F2: RESET

Configuration

Utilizing one of the configuration tools, a complete reset of error counters and status can be done clicking the "Error Reset" button at the **Distribution** page.

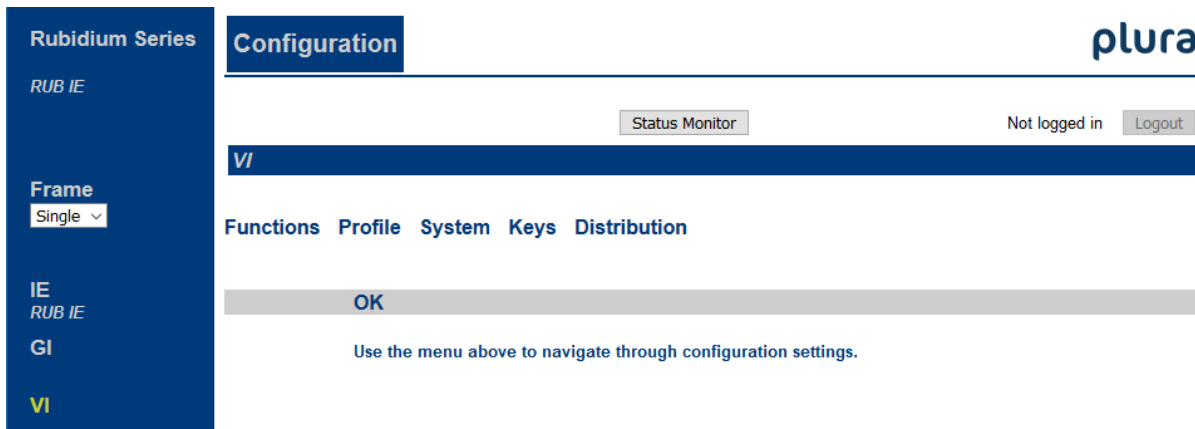


3 Status Monitor

3.1 Status Monitor by the IE Module

The RUBIDIUM SERIES HTTP server, located in the **RUB IE** module, offers a status monitor. Please refer to the “Functional Descriptions and Specifications IE” manual for a detailed description of how to access the RUBIDIUM SERIES system and how to open the RUBIDIUM homepage.

- At the RUBIDIUM homepage click on “Configuration” to open the **Configuration** page.



- Click on **VI** on the left.
- Click on the button **Status Monitor** to open the “VI” status monitor.

Requirements:

- Please have Java Runtime Environment 1.6.0 or higher installed (for example download at www.java.com).
- Java should be installed as a browser plug-in (a Windows installation will do this automatically if you download Java from the source mentioned above).
- The Status Monitor works with all operating systems which support Java.



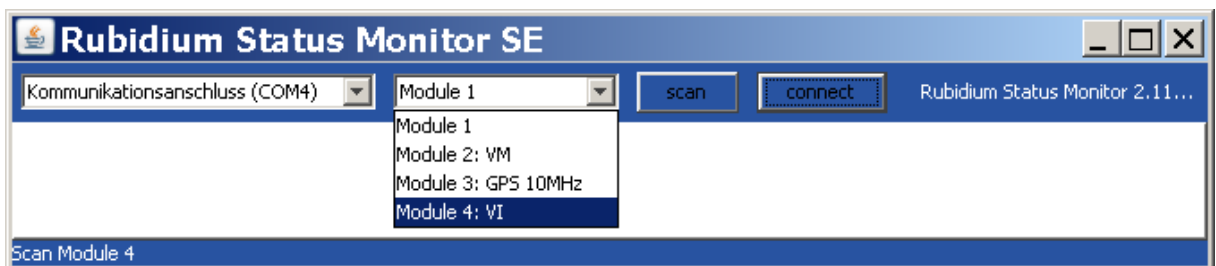
3.2 Status Monitor by a PC Program



The PC program **RubStatSE.exe** uses the **PC** interface (RS232 or USB) of the RUBIDIUM housing. This program is part of the “Rubidium Series, config software” packet you can download at:

<https://www.plurainc.com>.

Execute this program, select the COM port or USB connection and press the **scan** button to get a list of the modules plugged to this housing. Select the module and press the **connect** button.



Requirements:

- Please have Java Runtime Environment 1.6.0 or higher installed (for example download at www.java.com).
- For a Windows operating system: Please follow the description of **RubStatSE_Readme.txt**.
- For a Linux operating system: Available on request.



3.3 System Status

This module monitors the signals at the seven output stages with respect to frequency, minimum amplitude, and plausible time data.

The status monitor informs about the state of each output stage and about the state of the whole system.

Rubidium Status Monitor SE

Kommunikationsanschluss (COM4) | Module 2: VI | scan | disconnect | Rubidium Status Monitor 2.1...

System | Fan Monitor

System Set-up

VI set-up OK
 GPI alarm output low active
 maximum number of simultaneous changeover switching 6

	channel 1	channel 2	channel 3	channel 4	channel 5	channel 6	spare
changeover relay	auto	auto	auto	auto	auto	auto	
GPI alarm output	enabled	enabled	enabled	enabled	enabled	enabled	enabled
SNMP traps	enabled	enabled	enabled	enabled	enabled	enabled	enabled

System Status

input signal status OK format IRIG-B time 13:13:56
 input signal received yes

	channel 1	channel 2	channel 3	channel 4	channel 5	channel 6	spare
led OPER	on	lamp 1	off				
led SIGNAL	on	lamp 2	off				
led SET	on	lamp 3	on				
led ERROR	off	lamp 4	on				

total number of errors 0
 total number of alarms 0
 number of activated changeover relays 0

	channel 1	channel 2	channel 3	channel 4	channel 5	channel 6	spare
status	ok	ok	ok	ok	ok	ok	ok
changeover relay	open	open	open	open	open	open	
GPI alarm	-	-	-	-	-	-	-
errors	0	0	0	0	0	0	0
alarms	0	0	0	0	0	0	0

changeover events:
 automatic 0
 manual 0
 last event -
 time since last event 00000:00:00

Module version 2.11.16.0 (VI)



System Set-up reflects the current set-up as selected by a configuration tool:

set.up	'OK' or 'failure'. This is the result of the power-on check. In case of a failure all settings have been reset to the default values automatically.
GPI alarm output	'low active' or 'high active'.
maximum number of simultaneous changeover switching	1 ... 6.
For each channel: Channel 1 to 6 + spare:	
changeover relay	'auto' or 'open' or 'close'. Indicates the operating mode of each relay.
GPI alarm output	'enabled' or 'disabled'.
SNMP traps	'enabled' or 'disabled'.

System Status shows all relevant status information:

input signal status	'OK'/'time-out'/'data error'	format	'LTC'/'IRIG-B'	time	HH:MM:SS
input signal received	'yes' or 'no'. Monitoring and changeover procedure starts if at least once a valid signal has been detected.				
led OPER	'on'/'off'. 'on' if the module is operating.				
led SIGNAL	'on'/'off'. 'on' if a valid input signal has been detected once.				
led SET	'on'/'off'. 'on' during connection with "RUBIDIUM CONFIGURATION".				
led ERROR	'on'/'off'. 'on' if any error has been detected (total number of errors > 0).				
lamp 1	'on'/'off'. 'on' if any alarm has been set (total number of alarms > 0).				
lamp 2	'on'/'off'. No function.				
lamp 3	'on'/'off'. 'on' if input signal is present (IN) – corresponds to the spare output.				
lamp 4	'on'/'off'. 'on' if all the six output signals are present (OUT).				
total number of errors	0 – 65 535. Current value of the overall error counter.				
total number of alarms	0 – 65 535. Current value of the overall alarm counter.				
number of activated changeover relays	0 – 6.				
For each channel: Channel 1 to 6 + spare:					
status	'ok' or 'fail'. Indicates the current signal status.				
changeover relay	'open' or 'closed'. Current state of the relay (channel 1 - 6).				
GPI alarm output	'-' or 'set'. Indicates the current state of the GPI alarm.				
errors	0 – 65 535. Current value of the individual error counter.				
alarms	0 – 65 535. Current value of the individual alarm counter.				
changeover events:	Reports about the last changeover. Reset of these data by key FAIL or RESET or button ERROR RESET of a configuration tool.				
automatic	0 – 65 535. Counts the automatic changeover events since last RESET.				
manual	0 – 65 535. Counts the manual changeover events since last RESET.				
last event	Indicates the kind of the last event: automatic/manual – open/close.				
time since last event	00000:00:00 [HHHHH:MM:SS]. Time elapsed since last changeover.				



3.4 Status of Fan and Power Supplies

This module – as all configurable RUBIDIUM modules – is able to monitor the fan and power supplies which are plugged to the same housing as “VI”.

The screenshot shows the 'Rubidium Status Monitor SE' application window. The title bar includes the application name and standard window controls. Below the title bar, there are dropdown menus for 'Kommunikationsanschluss (COM4)' and 'Module 3: VI', along with 'scan' and 'disconnect' buttons. The main content area is divided into several sections:

- System / Fan Monitor:** Shows a tree view with 'System' and 'Fan Monitor' selected.
- Frame:** A table listing system frame details.

housing	H1 (or D1, Q1, S1, T1)
fan and ps monitoring	yes
port monitoring	yes
fan failure	no
ps failure	no
fans and ps monitored by	this unit
- Port:** A table listing port status.

detected	yes
failure	no
address	1
termination	on
- Fan 1:** A table listing Fan 1 status.

detected	yes
failure	no
fan fault	no
alarm	no
temp	35 °C
- Fan 2:** A table listing Fan 2 status.

detected	no
failure	no
fan fault	no
alarm	no
temp	0 °C
- Power Supply 1:** A table listing Power Supply 1 status.

detected	yes
failure	no
alarm	no
temp	34 °C
24V output	23,9 V
24V at frame	23,7 V
- Power Supply 2:** A table listing Power Supply 2 status.

detected	no
failure	no
alarm	no
temp	0 °C
24V output	0,0 V
24V at frame	0,0 V

The bottom status bar indicates 'Module version 2.11.12.0 (VI)'.

Please refer to the document “Installation & Systems Manual RUBIDIUM SERIES” for a detailed description.



4 The Rubidium Configuration Tools

4.1 The Rubidium Configuration PC Program

Please refer to the

“Installation & Systems Manual RUBIDIUM SERIES”

for a general description of this program and how to install it. In this document please notice the following subchapters:

- Overview
- Installation
- Connection to RUBIDIUM SERIES Chassis
- Starting the Program
- Store, Load and Update the Configuration on your PC
- The “Profile” Tab: Store and Load Configurations on the Module

The program RUBIDIUM CONFIGURATION uses various tab cards. With one click on the button **Configure** all available and currently activated tabs of this specific module are displayed.

Any changes at a tab will immediately be stored at the module. If you enter a number or a text press the **tabulator key** at the PC’s keyboard afterwards.



4.2 The Rubidium Series HTTP Server

The RUBIDIUM SERIES HTTP server is located in the **RUB IE** module. A 10/100Base-T Ethernet connection and a web browser allow access to the RUBIDIUM system.

Please refer to the

“Installation & Systems Manual RUBIDIUM SERIES”

for a functional overview and for an installation description of this program. You will find the chapter “The RUBIDIUM SERIES HTTP Server” and its subchapters:

- Overview, Connecting the IE Module
- IP Configuration, the Rubidium Homepage
- Access to a RUBIDIUM SERIES Module
- The “Profile” Page: Store and Load Configurations on the Module or on the PC

As soon as a communication to a single module has been established, the **Configuration** page gives a list of all links to those pages which are actually enabled for a configuration.

Changes at a page will not be stored at the module automatically. At the bottom of each page there are two buttons which should be used to store or load the module’s configuration:

Button **Save To Module**:

- Click on this button to transfer all settings on this page to the module.

Button **Reload From Module**:

- Click on this button to load the current configuration of the module.



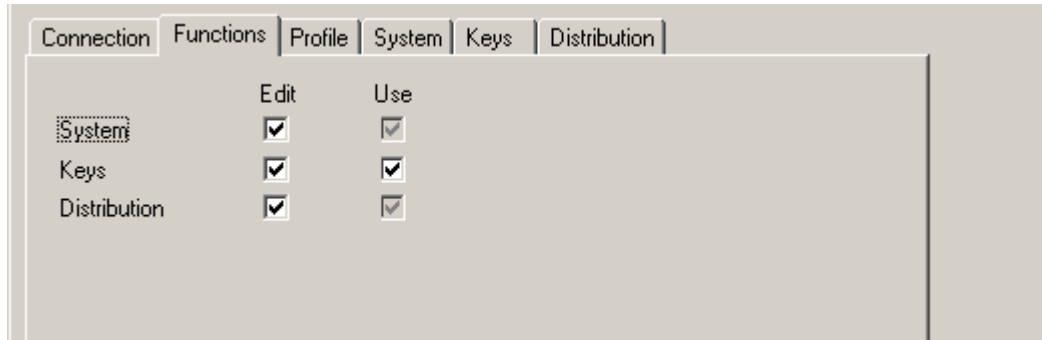
Every time you click on the blue button which indicates the module under configuration a **Reload** will be done automatically.



4.3 “Functions“

Click on **Functions** to see all applicable tabs/pages listed, and to activate or deactivate tabs/pages.

For example (screen shot of the PC program tab):



A tab/page reflects a function of the module. The columns **Edit** and **Use** determine whether the function in the module is activated/deactivated and whether user configuration of that specific function is allowed or not.

Click on the applicable **Edit** and/or **Use** check boxes to activate/deactivate a function:

Edit	Use	
		Function is deactivated, the tab/page is not visible.
√	√	Function is activated, the tab/page is visible and configurable.
	√	Function is activated but the tab/page not visible and therefore not configurable.

- We suggest that you deactivate the **Use** check boxes of all functions you are presently not using.
- We suggest that you deactivate the **Edit** check boxes of all functions you are presently not configuring. That avoids unintentional operating and malfunctions.

List of tabs/functions:

- Profile** Store and Load Configurations on the Module (*)
- System** Identification, Reset, SNMP, Fan Control
- Keys** Keys, Lamps and LEDs
- Distribution** Set-Up the Changeover and Alarm Characteristics

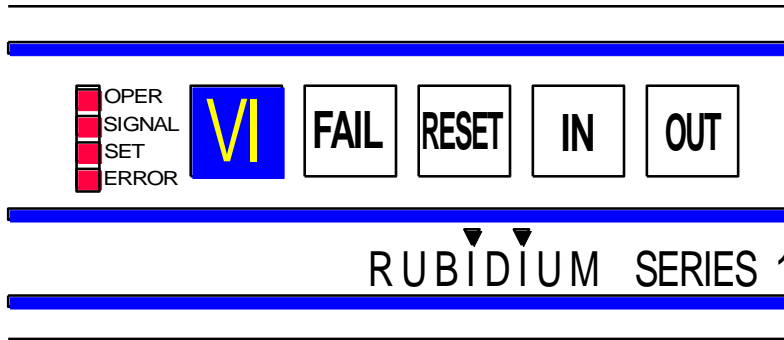
(*) refer to “Installation & Systems Manual RUBIDIUM SERIES”



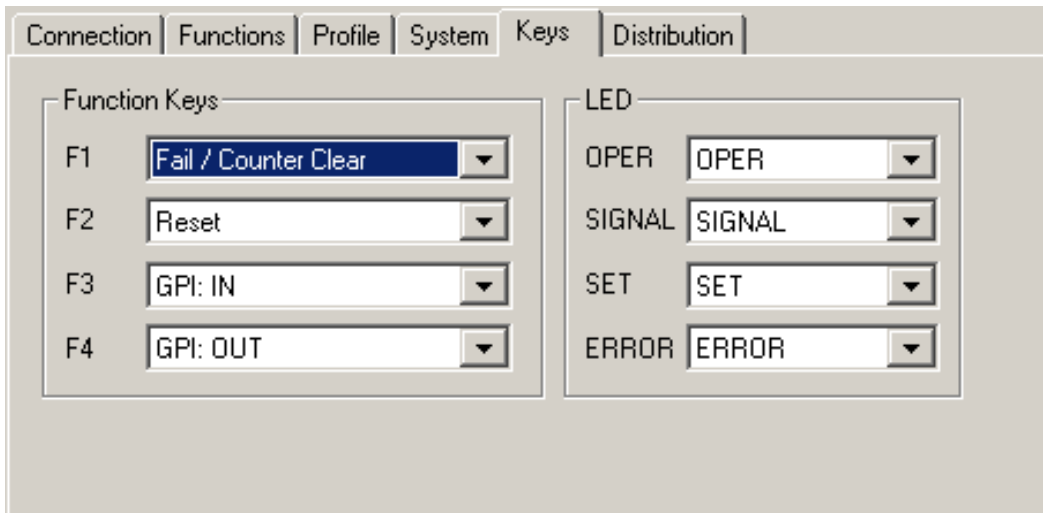
4.4 “Keys“: Keys, Lamps and LEDs

RUB1 modules have four illuminated buttons (keys and lamps) and four LEDs (Light Emitting Diodes). Basically, the functions of these in- and outputs are programmable.

*Some functions presented by the configuration tool maybe assigned to special options, and therefore are not applicable with the standard firmware. For further information please contact **Plura**.*



Configuration (example shows a screen shot of the PC program tab):



The following functions for the **keys** have been assigned:

Function	Description	Recommended key
Fail / Counter Clear	Resets all error counters and changeover event information. This function includes a function for the lamp as well – see below.	F1: FAIL
Reset	Complete reset: Error counters, status and relays, changeover event information.	F2: RESET

The following functions for the **lamps** have been assigned:

Function	Description	Recommended lamp
Fail / Counter Clear	Lights up if any alarm has been set (total number of alarms > 0). Reset by key FAIL or RESET or button ERROR RESET of a configuration tool.	F1: FAIL
Lamp: IN	Lights up if an input signal is present (or spare output signal is present).	F3: IN
Lamp: OUT	Lights up if all output signals at channels 1 to 6 are present.	F4: OUT

The following functions for the **LEDs** have been assigned:

Function	Description	Recommended LED
OPER	Lights up during normal operating.	OPER
SIGNAL	Lights up if an input signal has been detected once.	SIGNAL
SET	Lights up during connection with the PC program "RUBIDIUM CONFIGURATION".	SET
ERROR	Lights up if any error has been detected (total number of errors > 0). Reset by key FAIL or RESET or button ERROR RESET of a configuration tool.	ERROR

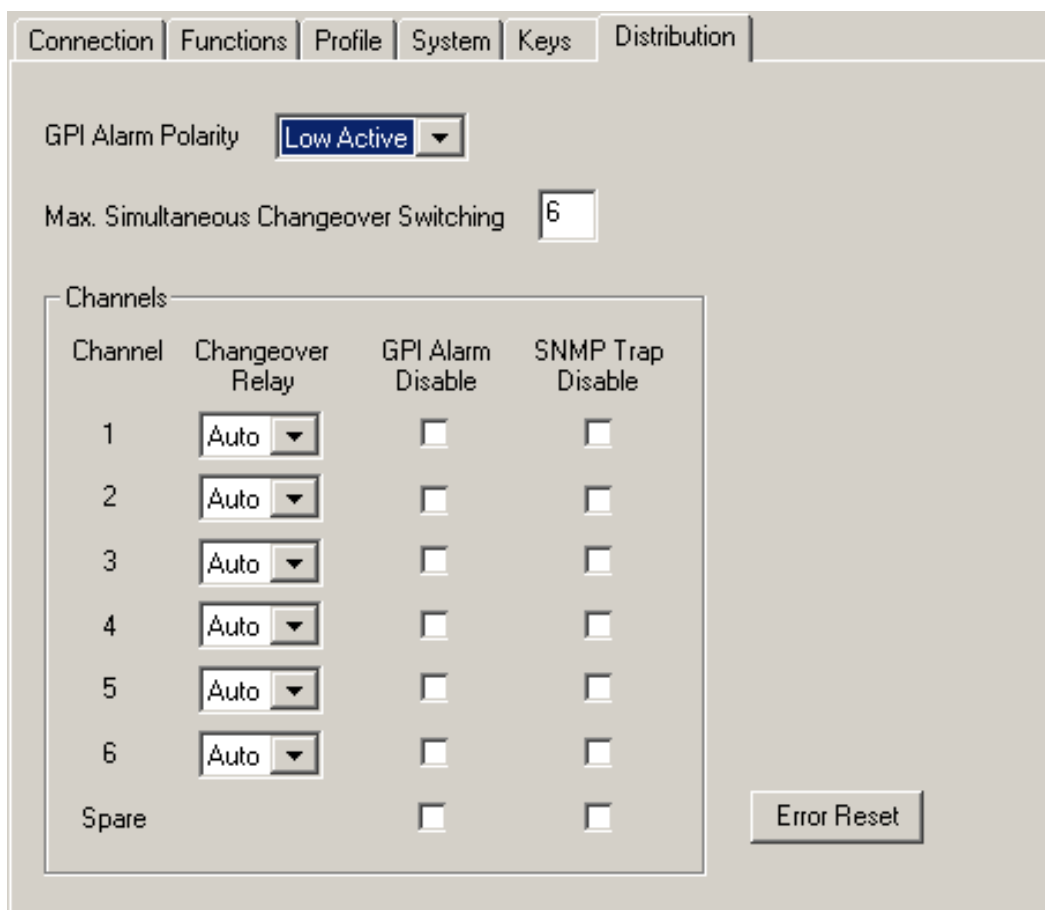


4.5 “Distribution“: Set-Up the Changeover and Alarm Characteristics

“VI” monitors the signals at seven output stages: Six signal outputs + one spare output. There are changeover relays at each of the six outputs. If a signal output fails, a changeover to the spare output via relay can be done.

The “Distribution” function allows the configuration of the changeover and of the alarms.

Configuration (example shows a screen shot of the PC program tab):



GPI Alarm Polarity

The GPI_1 to GPI_7 alarm outputs can be selected as **Low Active** or **High Active**.

Max. Simultaneous Changeover Switching

Having the automatic mode selected for an output channel, the changeover relay switches in case of a failure. If a second output fails (and a third ...) a simultaneous switching means that the spare output will drive more than one channel. This can be restricted to a maximum value (**1 to 6**). Select this parameter according to your application.

Channels

Each output stage except the spare output has a changeover relay. The operating mode of each relay can be selected individually:

- Auto** Automatic changeover in case of a failure.
- Open** Opens the contacts regardless of any failure.
- Close** Closes the contacts regardless of any failure.

Each output stage including the spare output can raise alarms: As a GPI output and/or SNMP trap. These alarms can individually be disabled: "**GPI Alarm Disable**" and "**SNMP Trap Disable**".

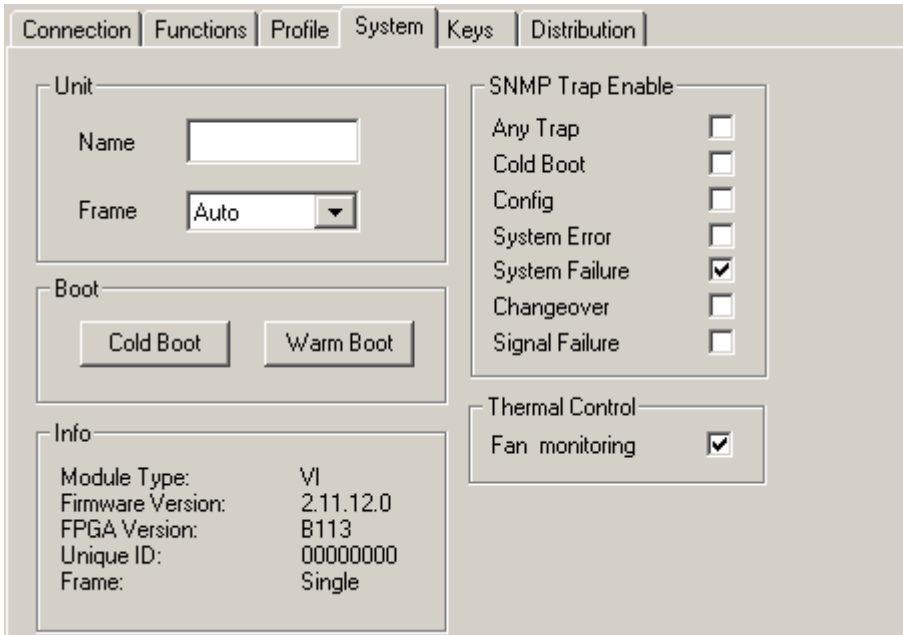
Error Reset

Click this button to reset all error counters and error status and changeover event data – identical to pressing the FAIL key.



4.6 “System“: Identification, Reset, SNMP, Fan Control

Configuration (example shows a screen shot of the PC program tab):



Unit

- Name:** The connected module can get a name. You may enter, change, or verify this name at this window.
- Frame:** Modules in a network can be uniquely identified by a frame number and the module’s position within the frame. In a single frame system, you may select “Single” or “Auto” at this set-up. If a system is built-up of more than one frame, each frame has to receive a unique address (adjusted at the fan module). If you select “Auto”, the module will request this frame number automatically and will show it on the info box. Likewise, it is possible to select a frame number manually.

Boot

- Cold Boot:** Do a cold boot of the module.
- Warm Boot:** Do a warm boot of the module.

Info

Displays module’s status information.

SNMP Trap Enable

Activate the “Any Trap” check box to enable the SNMP functionality in general. If not checked, this module will not send any SNMP traps. The individual traps can be enabled/disabled by a click on the corresponding check box. Please notice the chapter “Alarms by SNMP Traps” as well.

Thermal Control

At least one module of each frame should have the fan monitoring activated. This enables the power supply monitoring – for power supplies within this frame - as well.





Contact Us



Corporate Offices:
Plura Broadcast, Inc.
Ph: +1-602-944-1044
Sales@plurainc.com



Plura Europe GmbH
Ph: +49-6725-918006-70
Sales@plurainc.com

GERMANY



Plura MEA
Ph: +971-50-715-9625
Sales@plurainc.com



Plura Asia
Ph: +82-10-6688-8826
Sales@plurainc.com

S. KOREA

