

Functional Description and Specifications

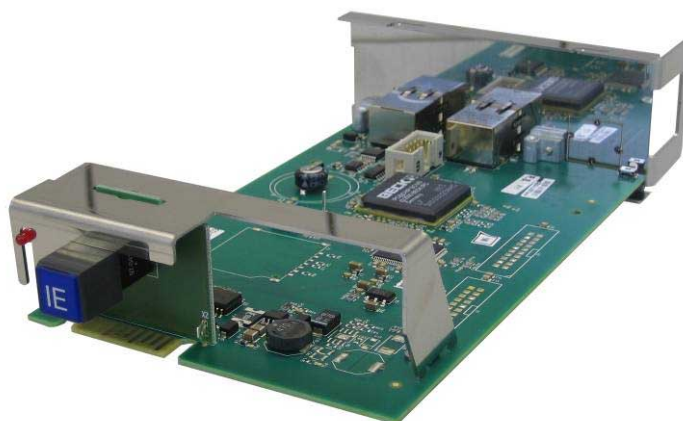
Version: 2.0

February 24, 2011

IE

Interface Ethernet of the RUBIDIUM SERIES System

Supplement to the “Installation & Systems Manual RUBIDIUM SERIES”



Alpermann+Velte

Alpermann+Velte

CONTENTS

A1	REVISION HISTORY	
A2	COPYRIGHT	
A3	GENERAL REMARKS	
1	DESCRIPTION	4
2	REAR PANEL, CONNECTIONS, SPECIFICATIONS	5
3	THE RUBIDIUM SERIES HTTP SERVER	6
3.1.1	Overview, Connecting the IE Module	6
3.1.2	IP Configuration, the Rubidium Homepage	7
3.1.3	Browser Requirements	8
3.1.4	Access to a RUBIDIUM SERIES Module	9
3.1.5	User Management and IE Status Information	10
4	SOFTWARE UPDATE	12
5	OPTIONS	13

A1 Revision History

No.	Date	Subject
0.n		Preliminary documents, changes without notice.
1.0	January 10, 2005	First released document
1.1	June 28, 2005	Specification revised. IP configuration and Software Update renewed, Browser requirements added
1.2	August 23, 2005	Changes in Software Update description and Configuration
1.3	August 11, 2006	Revised. New chapter "Access to a RUBIDIUM SERIES Module".
1.4	August 23, 2006	Revised.
1.5	October 17, 2007	Chapter "Software Update": How to change options added.
1.6	March 25, 2010	Revised. Chapter "Options" added.
2.0	February 24, 2011	Hardware version 2. Revised.

A2 Copyright

Copyright © Alpermann+Velte Electronic Engineering GmbH 2002. 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 Alpermann+Velte Electronic Engineering 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. Alpermann+Velte Electronic Engineering 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:

Alpermann+Velte

Electronic Engineering GmbH

Otto-Hahn-Str. 42

D-42369 Wuppertal

Phone: ++49 - (0)202 - 244 111 0

Fax: ++49 - (0)202 - 244 111 5

E-Mail: info@alpermann-velte.com

Internet: <http://www.alpermann-velte.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 "IE".

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

1 Description

The Alpermann+Velte Rubidium series "IE" module is a stand alone Ethernet "mini server". This unit offers the users of our Rubidium systems the possibility to remotely configure connected "RUB" modules (via our internal bus connections "TC_link"). Other optional functions include SNMP communication of status, data and failure reports. Also the IE module can be upgraded to a NTP time server so that additionally any time base present on the "TC_link" internal bus (for example from a real-time time code generator or a GPS receiver) can be used as a real time source for the built-in NTP Time server.

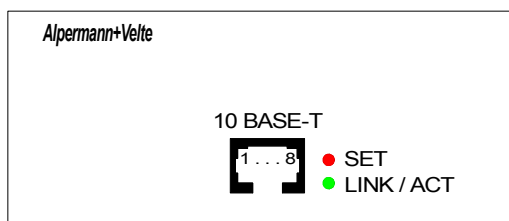
The front panel label **IE** visibly identifies where each module is located. The serial number is located on the bottom side of the lower circuit board of each module. Initial set-up or configuration of this module is not provided for standard operations. The integrated HTTP server is located in a flash memory and can get a flash update.

Survey of the basic features:

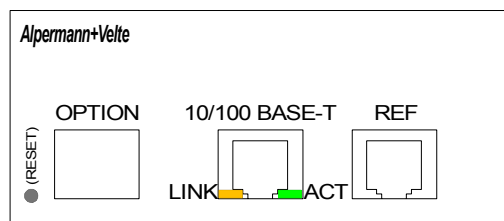
- 10/100Base-T Ethernet with integrated WEB server.
- "Hot Swapping", i.e. it is possible to insert or remove a module without interrupting the operation of other modules in this frame.
- Failure relay, connected to the FAIL_A and FAIL_B pins of the **RLC** connector at the rear of the frame.
- RS232 and TC_link (RLC connector) interfaces to have access to the internal bus of the chassis.
- Red LED (OPER) at the front panel indicates that the module is ready.
- Hardware version 1:
 - Red LED (SET) at the rear panel indicates access to this module via Ethernet.
 - Green LED (LINK/ACT) at the rear panel lights up during link and flashes during activity.
- Hardware version 2 (since March 2011):
 - Orange-coloured LED (LINK) – integrated in the RJ45 jack at the rear panel – lights up if connection to the Ethernet network has been established.
 - Green LED (ACT) – integrated in the RJ45 jack at the rear panel – flashes during Ethernet activity.

2 Rear Panel, Connections, Specifications

Rear of RUB1 IE – Version 1



Rear of RUB1 IE – Version 2



Operating voltage	12 - 30 VDC
Power consumption	Version 1: ≤ 2.7 W Version 2: ≤ 1.8 W
Weight	0.3 kg approx.
Mechanical	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: 4HP, 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
Ethernet connector	Version 1: RJ45 10 BASE-T Version 2: RJ45 10/100 BASE-T
Ethernet	10/100Base-T
REF connector (version 2 only)	1 I/O – depending on option 2 I/O – depending on option 3 n. c. 4 GND 5 24 VDC OUT (200 mA reversibly fused) 6 n. c. 7 GND 8 n. c.
RESET (version 2 only)	Through a small hole (Ø 2.6 mm) you can reach a RESET button. Pressing this button will do a cold boot of the module.

3 The RUBIDIUM SERIES HTTP Server

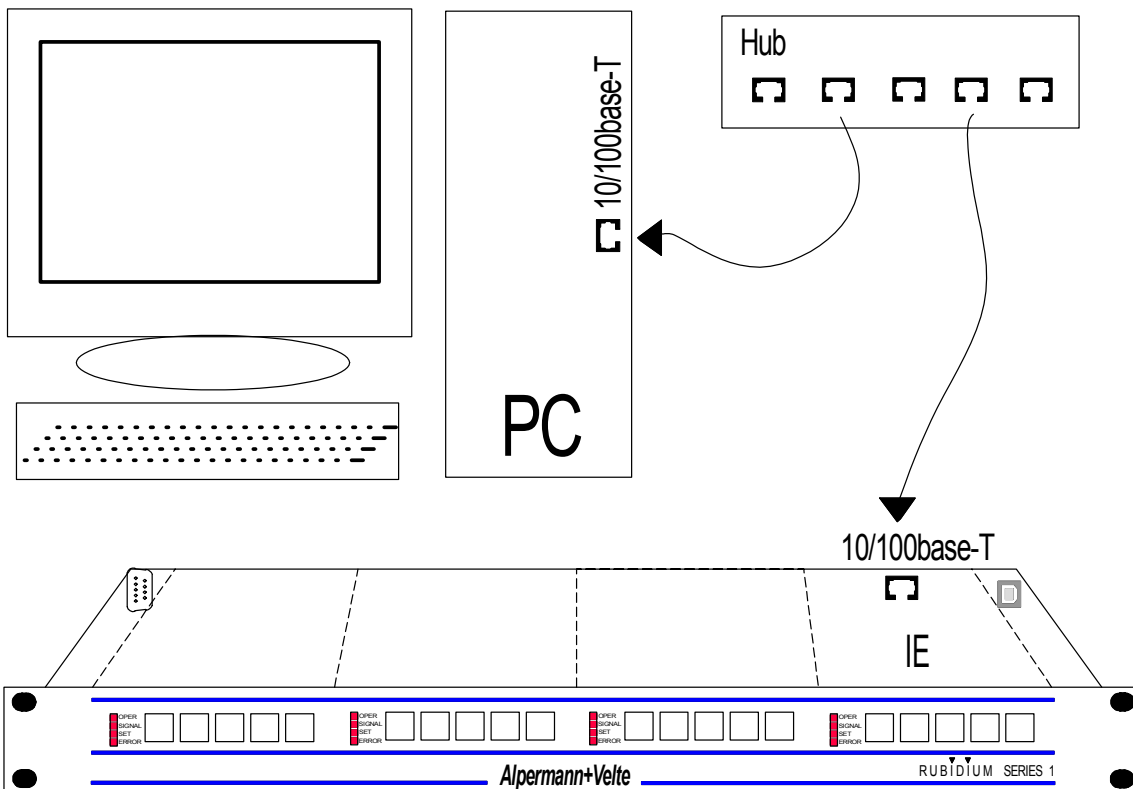
Short descriptions, for detailed information please notice the "Installation & Systems Manual RUBIDIUM SERIES" as well as the manuals of the configurable hardware modules.

3.1.1 Overview, Connecting the IE Module

The RUBIDIUM SERIES HTTP server was developed so that users have a uniform and easy set-up of all configurable hardware modules.

The HTTP server is located in the **IE** module and can be accessed via 10/100Base-T Ethernet and a web-browser.

- The **IE** module has a RJ45 connector for Ethernet interface. Connect a straight CAT5 cable if you use a hub or a switch. Use a crossover cable if you connect to the Ethernet card of your computer directly.

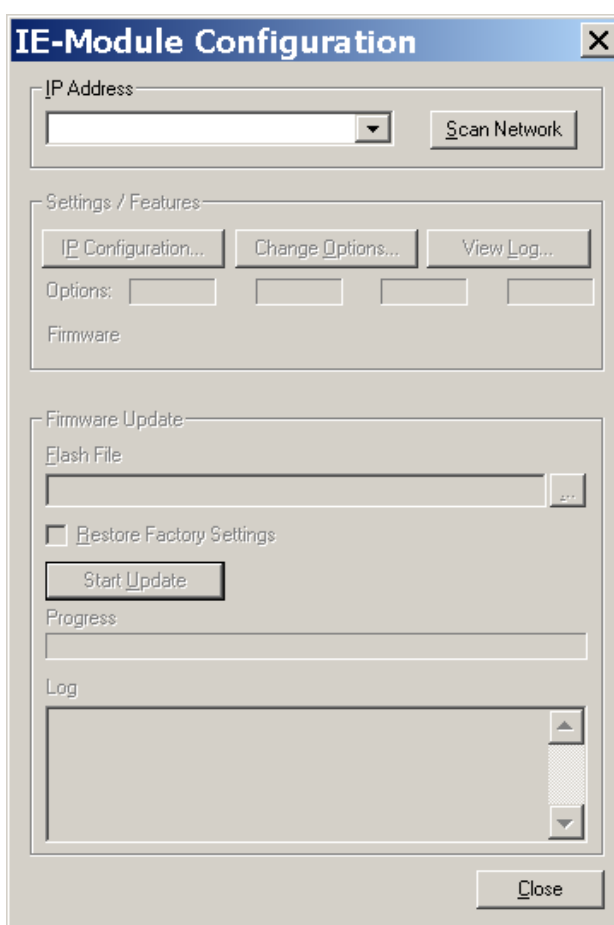


3.1.2 IP Configuration, the Rubidium Homepage

To configure the **IE** module, it is necessary that both the module and the PC are connected to the same network as shown above. If you have a firewall running, please disable it or make the UDP port 8001 available for incoming and outgoing traffic.

The **Rubidium Config** program is part of the delivery.

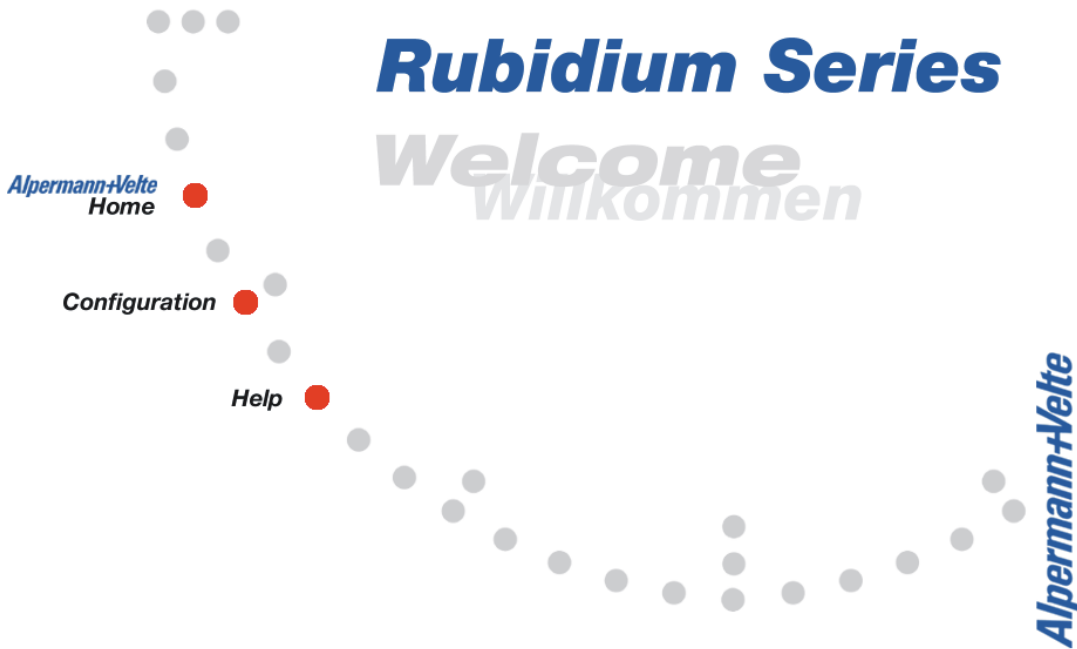
- Please copy this program to your computer.
- Turn on the power of all units.
- Start the "**Rubidium Config.exe**" program.
- Now choose "IE Module Configuration..." from the "Tools" menu. The following screen will appear:



- Press "Scan Network" to search for **IE** modules. All **IE** modules in the local network will be listed in the select box.
- Now choose the module from the list, click on "IP Configuration..." and adjust the parameters DHCP, IP, Netmask and Gateway, then click "Config".
- The IP configuration now is complete.
- Close the "IP Configuration" dialog. A new network scan is started automatically and the configured IP address will be shown in the list.
- Now you can close all dialogs.

Functional Description and Specifications IE

- To open the RUBIDIUM homepage, start an Internet Browser and type in the IP address of the **IE** module in the location bar.



- Place a direct link on your PC desktop to have an easy access to the RUBIDIUM SERIES system.

3.1.3 Browser Requirements

There is a feature included in the web configuration that allows you to save profile settings to a file or to upload them. When you want to upload a file, the browser has to be able to log on with the `http://username:password@example.com` syntax. When using Microsoft Internet Explorer, this feature might be disabled. As described in the knowledge base article 834489 from Microsoft (it can be found at <http://support.microsoft.com/kb/834489>), you have to do the following changes to the registry to enable the feature:

In the registry key **[HKEY_CURRENT_USER\Software\Microsoft\Internet Explorer\Main\FeatureControl\FEATURE_HTTP_USERNAME_PASSWORD_DISABLE]** create the DWORD values "**ieexplore.exe**" and "**explorer.exe**" and set their value data to **0**.

3.1.4 Access to a RUBIDIUM SERIES Module

Click on "Configuration" at the RUBIDIUM homepage to open the **Configuration** page.

Rubidium Series

● Configuration



Identify the single module: it is located at a specific position in a chassis (frame). In case that more than one frame is building a system (connected by the RS485 bus of the **RLC** connector) you have to select the number of the frame from the **Frame** drop-down list. Select "Single Frame" if only one frame is involved. The HTTP server now searches for all modules of the selected frame.

All modules found will be indicated by its type in the blue buttons.

Example: Module of type **GPS 10 MHz** as "unit 1", **GB** as "unit 2", and **SV** as "unit 3".
Numbering front view - left to right.

Rubidium Series

● Configuration



1: GPS 10MHz - GPS 10MHz

OK

Use the menu to navigate through configuration settings.

Functions
Profile
System
Keys
GPS Receiver

Click on a blue button to establish a communication to this single module. It opens a page with a list of all the links which correspond to all the available functions.

A click on **Rubidium Series** terminates the connection to the module and returns to the RUBIDIUM homepage.

Functional Description and Specifications IE

3.1.5 User Management and IE Status Information

If it is the first time that you click on a link to a specific function you have to pass the **LOGIN**:

Functions
Profile
System
Link

Login

User

Password

Login

The password of the "admin" user (administrator) is "admin".

You can add, modify or delete other users.

Click on the red dot beside **Configuration** or on the tiny blue IE button or – in case of IE version 2 – on the large blue IE button to open the user management and to have a look at the IE status information:

Rubidium Series

Monitoring IE Frame: Single Frame

GPS 10 MHz GB SV IE

4: IE - IE

Add User
Modify User
Delete User
Version

OK

Use the menu to navigate through configuration settings.

Add user:

Add User

Add User

User Name

Password

Repeat Password

Add User Reload Help

Modify user:

Modify User

Modify User

User List

Password

Repeat Password

Modify User Reload Help

Delete user:

Add User Modify User Delete User Version	Delete User		
	Delete User		
	User List	admin ▾	
	Delete User	Reload	Help

Version: Display status information

Add User Modify User Delete User Version	Version	
	Config:	2.11.8
	Firmware:	2.11.8
	RTOS:	1.40
	Hardware:	3.4.4.3
	Options	
	Statusmonitor:	yes
	SNMP:	no
	NTP Server:	no
	NTP Client:	no
	MTD:	no
	OPT:	-
	Status Ethernet	
	IP Address:	192.168.0.53
	Subnet Mask:	255.255.255.0
	Gateway Address:	192.168.0.254
	DHCP:	yes
	MAC Address:	00-30-56-A2-94-3A
	Status NTP Server	
	NTP Stratum:	n/a
	NTP Reference:	n/a

4 Software Update

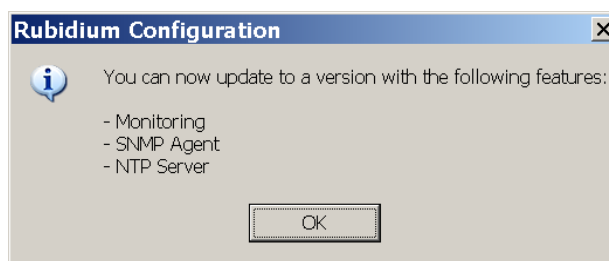
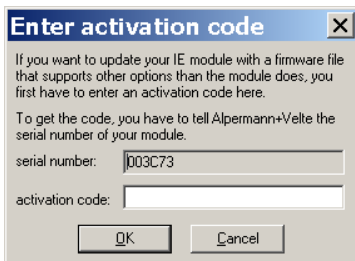
Software updates require a (windows operating system) PC computer with the PC program "RUBIDIUM CONFIGURATION", and an Ethernet interface (**IE** module and computer connected to the same network). When using a firewall, ensure that the PC can connect to the module on TCP ports 20, 21, 23 and 954 and on UDP ports 123, 161 and 8001 for both incoming and outgoing traffic.

Please execute the following steps:

1. Be sure that the **IE** module and the PC are connected to the same network and that they can reach each other at the ports listed above. Disable any firewall that might block the **Rubidium Config** program.
2. Start "Rubidium Config.exe".
3. Choose "IE Module Configuration..." from the "Tools" menu.
4. Press "Scan network" and choose the module from the list.

If you do not want to change **IE** module's options please proceed with step 5.

If you want to change **IE** module's options an activation code will be needed. Click the "Change Options ..." button. A serial number will be shown. This number together with the information about all options the **IE** module should have, *Alpermann+Velte* will send you the activation code. Please type this code in the corresponding window. Press the "OK" button.



Press the "OK" button.

5. Click the Browse ("...") button to search for the Flash File.
6. Press "Start Update".
7. After the "update complete" message has appeared, the update is done.
8. To check the firmware version, open the RUBIDIUM homepage, click "Configuration", then click the red dot, choose "Version" from the menu and log in. Here you get information about the version numbers and installed options of your IE module

5 Options

IE-C NTP Client

The IE module communicates via Ethernet with an NTP server, receives a time & date reference, and synchronizes this way RUBIDIUM modules.

Please refer to the "NTP Client" manual.

This option cannot be combined with other options.

IE-M MTD_oE

The IE module communicates via Ethernet with MTD_oE devices like displays, studio clocks, and MTD control units. It transfers a time & date reference and MTD data received via TC_link from an MTD generator.

Please refer to the "MTD System" manual.

This option cannot be combined with other options, but it includes IE-N.

IE-N NTP Server

The IE module becomes a time & date reference for other devices in this network.

Please refer to the "NTP Server" manual.

This option may be combined with option IE-S.

IE-S SNMP Agent

The IE module can be used as an SNMP Network Element. You can easily monitor and control the RUBIDIUM system using centralized network management software.

Please refer to the "SNMP Agent" manual.

This option may be combined with option IE-N.