# NetBiter<sup>®</sup> webSCADA 3 User Manual

**Revision 3.10** 





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<b>Revision</b> L	ist
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Revision	Date	Author	Chapter	Description
1.00	04-10-06	JOAK	All	First released version
1.10	04-12-12	JOAK		Added support for more datatypes
2.0	05-03-15	JOAK		New functionality, firmware release 2.0
2.01	05-06-20	JOAK	4.4, 4.8	Minor web-page updates
3.0	06-06-20	JOAK	All	New functionality, firmware release 3.10
3.01	06-10-23	JOAK	3.3.1, 4.2, 4.4.1, 5.3.3, 5.7.1	New functionality, firmware release 3.11
3.02	07-01-10	JOAK	4.6, 5.1, 5.2, 5.7	New functionality, firmware release 3.12
3.10	07-02-19	JOAK	1.3.5	New hardware revision, 1.4x

# Preface

The data and illustrations found in this document are not binding. We reserve the right to modify our products in line with our policy of continuous product development. The information in this document is subject to change without notice and should not be considered a commitment by IntelliCom Innovation AB. IntelliCom Innovation AB assumes no responsibility for any errors that may appear in this document.

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# Warranty and support

To obtain fast and simple support for your NetBiter products, please use our Internet support service at <u>http://www.intellicom.se/support</u>. Here you will find the latest documentation, configuration utilities, drivers etc. You can also contact our support at <u>support@intellicom.se</u>.

### **Product return**

If you experience any problems with a NetBiter device and wish to have it repaired or exchanged, you'll need to follow these steps:

- Obtain a Product Return Number, PRN, from <u>http://www.intellicom.se/support</u>. To get this number you'll need to provide some information about the problem you have, contact information etc.
- Print the "PRN Acknowledge side" and send it to IntelliCom together with the product. Make sure the PRN is visible on the outside of the package, and that the delivery is pre-paid, otherwise the delivery won't be accepted by IntelliCom. Also provide evidence of original purchase.
- If the faulty product is covered by the 12-month warranty, IntelliCom will repair or exchange the unit and return it within three weeks. If the product is not covered by Warranty, IntelliCom will respond with a cost estimation for repairing the unit.



# Terminology

Term	Extract	Description
TCP/IP	Transmission Control Protocol/ Internet Protocol	TCP (Transmission Control Protocol) is a set of rules used along with the Internet Protocol (IP) to send data in the form of message units between computers over the Internet.
HTTP	Hyper Text Transfer Protocol	HTTP is a set of rules for exchanging files (text, graphic images, sound, video, and other multimedia files) on the Web.
DHCP	Dynamic Host Configuration Protocol	DHCP is a standard protocol that automates the process of configuring network hosts by allowing hosts to obtain IP addresses and configuration parameters
Gateway		A device that makes it possible to transfer data between networks of different kind, e.g. Modbus/RTU and Modbus/TCP.
Template		Describes a Modbus slave device, as a collection of groups and parameters.
Device		A Modbus slave unit that is connected to the webSCADA.



This symbol indicates important information or useful instructions on how to use the product.



# 1 About the NetBiter Modbus Gateway

# 1.1 General

This application note describes how to create a configuration in the NetBiter® webSCADA module. The NetBiter® webSCADA module acts as a bridge from Modbus TCP to Modbus RTU, making it possible for a Modbus TCP based controller to connect with Modbus RTU based devices. The NetBiter® webSCADA is a device designed that is not only designed to provide the bridging function, but to also handle alarm management, data-logging as well as providing a web-based user interface for accessing data.

#### Some webSCADA features

- Graphical interface that is easy to work with.
- Support for device templates to allow easy and flexible management of configurations.
- Advanced modem handling, with support for GSM/GPRS modems as well as analogue (PSTN) modems.
- Improved alarm handling, now with alarm history and SNMP support.
- Language support.
- Support for sending log-files with email.



The NetBiter Modbus Gateway supports an RS-232 connection through a 9-pole DSUB or RS-485 through an RJ12 connector. It also supports 10/100Mbps Ethernet through a standard Ethernet connector (RJ-45). It can be configured via a user-friendly web-interface or by using the NetBiter Config utility.



# 1.2 Mounting





**B** – Snap off

- 1 Snap the NetBiter on to the DIN-rail (as described on picture A above).
- 2 Connect the Ethernet cable to the RJ45 connector.
- 3 Connect the ModbusRTU network to the DSUB connector (RS-232) or the 6-pole RJ12 connector (RS-485).
- 4 Connect the Power Supply and apply power.
- 5 Now you can start using the Gateway. Use the "NetBiter Config Utility" to configure the IP address and other network settings. See section 2.1 for further information.



### The default IP address of the NetBiter is 10.200.1.1

Please change this IP-address to a valid address in your network. Also, make sure not to power up more than one network attached NetBiter before IP-address is changed or DHCP enabled.



# 1.3 Connectors

### 1.3.1 ModbusRTU or Modem interface, RS-232

The 9-pole DSUB, male connector on the NetBiter unit contains an RS-232 interface. This port can be used to connect to any equipment with an RS-232 interface.



Pin number	Function
1	CD (Carrier Detect)
2	Rx (Receive)
3	Tx (Transmit)
4	DTR (Data Terminal Ready)
5	GND
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	RI (Ring Indicator)





### **1.3.2** Ethernet interface

The Ethernet interface supports 10/100Mbps, using a standard RJ-45 connector.



### **1.3.3 Power supply connection**

The NetBiter can be powered by a 9-32VAC/DC supply (Power requirement 1.7W).

### **1.3.4** Digital inputs

The digital inputs are opto-isolated, and can accept a **10-24VDC** signal for logic HIGH input. For logic LOW the voltage should be in the range **0-2VDC**.

The status of the inputs can be read in the Gateway Internal Registers (if enabled). See section 5.2.1 for more information.



### 1.3.5 RS232/RS485 interface

Pin number	Function
24	Vin+
23	Vin- (Ground connection)
22	Digital input 2+
21	Digital input 1+
20	Digital input Common
19	No Connect
18	No Connect
17	RS-232 Receive (Input)
16	RS-232 Transmit (Output)
15	Common
14	RS-485 Line A
13	RS-485 Line B



# **1.4 LED Indicators**

	8	A	сом	хт	RX	сом	NO	СОМ	DI 1	DI 2	Vin -	Vin+
	RS-	485		RS-2	32	Re	lay		DI			
									М	odule	e Statu	is 😐
	<b>NetBiter</b> <sup>®</sup> Serial Link Status • Activity/Collision •							is •				
						k						
											LIN	ĸ
			RS-2	32						ЕТНЕ	RNET	

### LED description

Name	Colour	Function			
Module Status	OFF	No power			
	Green	Module is running in normal mode			
	Orange	During boot-up			
Serial Link Status	Flashing Green	Serial Packet receive			
	Flashing Red	Serial Packet transmit			
	Orange	During boot-up			
Ethernet	Flashing Green	Ethernet Packet received			
Activity/Collision	Flashing Red	Ethernet Collision detected			
Link	OFF	No Ethernet Link detected			
	Green	Ethernet network detected, 10Mbps			
	Orange	Ethernet network detected, 100Mbps			



# 2 Getting started

# 2.1 Configure the NetBiter IP-address

### 2.1.1 About the NetBiter Config utility

The NetBiter Config utility is a PC-based configuration utility to set TCP/IP network settings in the NetBiter. This utility has the ability to scan the Ethernet network for connected NetBiter devices and let the user set IP-address, net mask, gateway, DNS and hostname for each unit.

### 2.1.2 Installation

#### System Requirements

- Pentium 133 MHz or higher
- 5 Mb of free space on the hard drive
- Win 95/98/ME/NT/2000/XP
- Network Interface Card (Ethernet)

#### **Installation Procedure**

There are two methods to install the NetBiter Config utility; either download it from the IntelliCom website or use the installation CD-ROM.

- Using the CD-ROM: Run "Setup-NetBiterConfig.exe" and follow the instructions.
- From website: Download the self-extracting installation package "Setup-NetBiterConfig.exe" from <a href="http://www.intellicom.se/support">http://www.intellicom.se/support</a> and run it.

### 2.1.3 Scanning for connected devices

First ensure that you have connected the NetBiter units you want to install on the same Ethernet network as the PC is connected to. Use standard Ethernet cables, straight-through or crossover cable depending on how you connect to the device. See pictures below for details.

#### Connecting the NetBiter to a hub or Switch





### Connecting the NetBiter directly to a PC



When the NetBiter Config utility is started, it will scan the Ethernet network for NetBiter devices. All detected devices will be presented in a list in the main window. If you want to force a new scan for devices, you can press the "**Scan**" button.

N	Netbiter (	Config v1.2					
	IP	∆ SN	GW	DHCP	Version	Туре	MAC
	10.200.1.1	255.255.255.0	0.0.0	Off	3.00.2	webSCADA	00-30-11-FB-03-5B
100	Advanced	Options					Scan Exit

**IP:** The IP address of the NetBiter

SN: The subnet mask

GW: The default gateway

DHCP: Dynamically assigned IP address On/Off

Version: Firmware version

Type: Product type (webSCADA-Modbus)

MAC: The Ethernet MAC address



Use the "Advanced Options" button to enable the NetBiter Config DHCP Server. This is useful when you have set DHCP to "On" in the NetBiter, but don't have a DHCP-server available on the network.



### 2.1.4 Changing IP settings

To change the IP settings on a detected device, double-click on the device you want to configure in the list of devices. This will open up a dialog where you can enter the desired IP configuration.

To obtain the necessary information about IP address, subnet mask etc. please contact your network administrator.

NB Configure: 00	)-30-11-FB-03-5B	×
Ethernet configura	tion	
IP address:	10 . 10 . 10 . 35	DHCP
		O On
Subnet mask:	255 . 255 . 255 . 0	⊙ Off
Default gateway:	10 . 10 . 10 . 1	
Primary DNS:	0.0.0.0	
Secondary DNS:	0.0.0.0	
Hostname:	webSCADA	
Password:		Change password
New password:		
		Set Cancel

#### **DO NOT SET DHCP TO "ON" IF YOU DON'T HAVE A DHCP-SERVER** AVAILABLE ON THE NETWORK.

Host Name: Here you can enter a hostname of your device (optional).

**IP Address:** The IP address of the NetBiter.

Netmask: The subnet mask

Gateway: The default gateway

Primary DNS: The primary Domain Name Server (optional)

Secondary DNS: The secondary Domain Name Server (optional)

The default password for authentication of the new settings is "admin".

Pressing "Set" will cause the NetBiter device to reboot and after that the new settings will be enabled.



You can test the new settings by opening a web-browser and enter the IP you assigned to the device. If you selected DHCP and want to know what IP your device have been assigned, you can do a new scan with the NetBiter Config utility to view the new network configuration.



# 2.2 Log in

Open a web browser (Internet Explorer for example) and enter the IP address you have set on the NetBiter unit with the NetBiter Config utility. For example, if you entered the address 10.10.10.35 then you should enter the text below in the address field of the browser and press enter.

http://10.10.10.35

Now you should see the login screen:



To be able to configure the Gateway you should enter "**admin**" in the user-name box. The default password is "**admin**".

### You can later change the default password to something else (recommended).

This will be described in section <u>Users</u>.



If you have problems to log in and you are sure that your password is correct, make sure that "Caps Lock" is not enabled on your keyboard.



# **3** Web-page overview

### **3.1** Browser requirements

The web-pages are optimized for Internet Explorer 6.0 and Mozilla Firefox. Other browsers can work as well, but the web-pages might appear differently. **The browser must be JAVA enabled, to use pages with JAVA content (like the graph page).** If it's not, please visit <u>www.java.com</u> to download a JAVA-plugin for your browser.

The picture below shows the welcome screen which is shown when you first log into the module.



# 3.2 Menu overview

To navigate on the web-pages, use the menu items available: Select Page(Go), Status, Alarm, Log, Configuration and Setup.





### 3.2.1 Configuration menu

When you choose the **Configuration** menu, a sub menu will appear:

NetBiter®	👌 webSCADA
Logged in as: Administrator	Intellicom HQ
Select page 🔽 🔽 GO Status Alarm Log Configuration Setup About	
Templates Devices Pages Alarm Log Bindings	

- The "**Templates**" configuration sub-menu will be used to create, edit and backup templates for your devices.
- On the "Devices" screen you define the devices which you connect to the webSCADA.
- On the "**Pages**" screen you create and edit the structure of the presentation web-pages and also select parameters to be presented.
- The "Alarm" screen can be used to enable/disable SMS/Email/SNMP alarms, and also to create and modify alarm parameters.
- On the "**Log**" configuration screen it's possible to configure the behaviour of the log-file, and also create/modify log-parameters.
- The "**Bindings**" configuration screen makes it possible to enable automatic parameter "copying" from one Modbus slave to another at a configurable interval.

### 3.2.2 Setup menu

When you choose the **Setup** menu, a sub menu will appear:

NetBiter <sup>®</sup>	webSCADA
Logged in as: Administrator	NetBiter online demo
Select page 🛛 🔽 GO Status Alarm Log Configuration (Setup) About	
Users Modbus Modem Regional E-Mail SNMP Webserver Ethernet Backup Firmware	

- The "Users" screen is where all things related to user management are handled.
- The "Modbus" screen handles all ModbusRTU and ModbusTCP configuration.
- The "Modem" screen handles all modem configurations (Analogue, GSM, GPRS, dial-up, dial-in).
- The "**Regional**" settings screen configures things like date/time and generic module information.
- The "E-mail" screen configures all that is needed to send emails from the webSCADA.
- The "SNMP" screen makes it possible to configure SNMP trap properties.
- The "Webserver" screen can be used to define which port the webSCADA web-server should use.
- The "Ethernet" screen handles all TCP/IP configurations, like IP-address, DHCP, DNS etc.
- On the "**Backup**" screen it's possible to backup/restore all settings, and also do a factory reset of the webSCADA module.
- The "Firmware" screen can be used to download new firmware to the module.



# 3.3 Status

This page shows some status information about the Modbus interface. The Status screen is split into two columns, "Transparent queries" and "Internal queries". The Transparent fields shows information about requests that originate from a ModbusTCP master attached to the gateway, and the internal fields shows information about requests that originate from either internal applications (Log/Alarm) and WebPages.

Setup About Modbus/TCP messages	Other Modbus messages
Modbus/TCP messages 0	Other Modbus messages
Modbus/TCP messages	Other Modbus messages
0	3
-	
0	82356
0	364
0	0
0	0
0	0
0	233
	clear
	0 0 0 0

**Number of connections:** Indicates the number of open connections to a Modbus TCP master. Internal queries indicate number of pending queries from WebPages + the internal connection from (Alarm/Log) application.

Valid Responses: Counts valid responses from the Modbus/RTU slaves.

Serial Timeouts: The number of time-outs from attached slaves.

CRC Errors: The number of CRC errors on incoming Modbus/RTU responses.

**Buffer Overruns:** If an incoming Modbus/RTU response is larger than 300 bytes, this will cause the input buffer to overflow.

**Frame Errors:** If an incoming Modbus/RTU response has incorrect length or some other fault in the frame, this will cause a Frame Error.

Exception Responses: Counts all exception responses from the connected Modbus/RTU slaves.



### 3.3.1 Modem Status

The modem status field gives information about what state an attached modem is in.

- Connecting to Internet: Calling Internet Service Provider and negotiate for a connection.
- Waiting for incoming connection: The unit is waiting for an incoming call.
- Waiting for Event/Alarm: The unit is in standby mode, and when an alarm or event appear it will connect to Internet.
- Connection established: A connection to Internet is established and data will be sent.
- Incoming connection is in progress: There is an incoming call and correct baud rate, username and password is being verified.
- Modem disabled: Not possible to connect using the modem



# 3.4 Alarm

The Alarm page shows all active and unacknowledged alarms. It is also possible to select to view the status of all configured alarms. Use the button in the lower left area of the screen to toggle between the two modes.

Net	Biter®						la we	bSCADA
Logged in	as: Administrator	_						Intellicom HQ
Select pag	ge 🔽 😡	Status Alar	m Log	Configuration	Setup Ab	out		
Alarm St	ate Alarm History				_			
Ala	arm Status							
	Device			Description		Class	Status	Acknowledge
1	S1			Holding 1		1	Active	acknowledge
							acknowl	edge all show all

### 3.4.1 Alarm history

The "Alarm History" screen shows all alarms that have occurred. To clear this list, click the "clear history" button.

ged in a	as: Administrator					Intellicom
lect pag	e 🚩 😡	Status Alarm Log Con	figuration Setup About			
rm Sta	te Alarm History					
Ala	rm History					
	Device	Description	Time	Туре	Class	Additional
31	S1	Holding 1	2006-08-24 20:10:01	Sent OK	1	SNMP
30	S1	Holding 1	2006-08-24 20:08:21	Sent OK	1	SNMP
29	S1	Holding 1	2006-08-24 20:02:56	Sent OK	1	SNMP
28	S1	Holding 1	2006-08-24 18:11:20	Acked	1	Administrator
27			2006-08-24 16:47:42	Sent OK		masa@intellicom.se
26			2006-08-24 16:47:22	Sent OK		anca@intellicom.se
25	S1	Holding 1	2006-08-24 16:45:17	Sent OK	1	anca@intellicom.se
24	S1	Holding 1	2006-08-24 16:45:17	Sent OK	1	SNMP
23	S1	Holding 1	2006-08-24 16:45:07	Occured	1	2587
22	S1	Holding 1	2006-08-24 16:44:47	Normal	1	2



# 3.5 Log

From this page it's possible to download the log file from the webSCADA (if logging has been enabled). Simply click the "**download**" button to download/view the file, or click the "**clear**" button to remove all data from the log-file. To view the log-file as a graph, make sure that JAVA is installed on your computer. The graph will show all parameters in the log-file, but in the graph it's possible to select which parameters to show (by clicking on the square next to the parameter name).





# 4 Module Configuration

An important concept for the webSCADA is the usage of templates. This allows the user to define templates for different products and configurations, and then easily re-use and distribute them. A template contains properties for available parameters in a device of a certain type. These properties includes: Parameter Names, Modbus register types and addresses, data scaling and presentation.

See also Application Note AN-1003 for more details about how to create a configuration.

(Can be downloaded from support.intellicom.se).

# 4.1 Work-flow

Follow these steps to get your webSCADA operational:

- **1 Do all generic Setup**, like assigning an IP-address (Setup/Ethernet), add/modify users (Setup/Users), configure the Modbus interface (Setup/Modbus) and set date/time etc (Setup/Regional).
- 2 Create a template (Configuration/Templates). A Template consists of one or several groups, and each group is a collection of Modbus Parameters.
- **3 Define your Devices** (Configuration/Devices). A Device is simply a Modbus slave, with a unique Modbus address. For each Device, you apply a Template.
- 4 Create your Application! Now you can define your web-pages, alarms, log entries and bindings.

# 4.2 Create a template

Clicking on the "Configuration/Templates" link will bring up the following screen:

Net	:Biter <sup>®</sup>	🔓 webSCADA
Logged in	as: Administrator	Intellicom HQ
Select pa	e 🔽 🐨 Status Alarm Log Configuration Setup About	
Templat	s Devices Pages Alarm Log Bindings	
D	vice Templates	
	Description	
1	Modbus controller edit restore	backup delete
2	(New template) edit restore	backup delete
Chec	for new templates at netbiter.com	add template

To create a template, click the "add template" button. This will create a "New template" in the list, which you now can edit. This will bring up the "Edit Templates" page where it's possible to add new groups (a collection of parameters) and new Parameters. From this page it's also possible to backup, restore and delete templates.

Also check out the IntelliCom Template page, where Templates from different manufacturers will be published.





letBiter <sup>®</sup>		🔂 we	bSCAD
iged in as: Administrator			Intellicom
lect page 💌 🖸 GO Status Alarm Log Configuration Set	tup About		
mplates Devices Pages Alarm Log Bindings			
Edit Template			
Modbus controller		Rename	
🛨 Input register		Rename	Delete
🖻 Input Discrete		Rename	Delete
🖸 Discrete 1	Clone	Edit	Delete
🖸 Discrete 2	Clone	Edit	Delete
🖸 Discrete 3	Clone	Edit	Delete
Discrete 4	Clone	Edit	Delete
🖸 Discrete 5	Clone	Edit	Delete
🖸 Discrete 6	Clone	Edit	Delete
🖸 Discrete 7	Clone	Edit	Delete
Discrete 8	Clone	Edit	Delete
🖸 Discrete 9	Clone	Edit	Delete
🖸 Discrete 10	Clone	Edit	Delete
🔨 New parameter			
+ Coils		Rename	Delete
🛨 Holding register (Scaled)		Rename	Delete
± Alarm registers		Rename	Delete
± (new group)		Rename	Delete
🐑 New group			

When you have created a Group, and at least one parameter, it's possible to edit the Parameter by clicking the "edit" button. This will bring up the following screen (Edit Parameter):

elect page 💙 GO	Status Alarm Log	Configuration Setup About		
emplates Devices Pages	Alarm Log Bindings			
Edit Template				
🖸 Seneca 10 Digital Input Count	ter		rename	
+ General Settings	Edit Parameter		3 rename	delete
± Input Settings	Name	Counter 1	rename	delete
Input Values	Туре	Holding register	rename	delete
Counter 1	Address	3	edit	delete
Counter 2	Datatype	16 bit value	v edit	delete
Counter 3	Scaling		edit	delete
Counter 4	Offert		edit	delete
Counter 5	Unset		edit	delete
Counter 6	Mask		edit	delete
Counter 7	Presentation	Show as value	🚩 🛛 edit	delete
Counter 8	Enumeration		edit	delete
Counter 9	Number of decimals		edit	delete
Counter 10	Valid range	-	edit	delete
Input values [101]		save settings	cancel edit	delete
🤨 New parameter				
🔨 New group				



The "Edit Parameter" screen contains the following fields:

**Name** – Description of the parameter.

Type – Modbus type (Holding, Input, Coil, Discrete)

Address – Modbus address

Datatype - Defines the datatype of the Modbus register. Can be one of the following:

Unsigned 16 – 16-bit positive value Signed 16 – 16-bit value, with sign

Unsigned 32 - 32-bit positive value. Most significant word (register) on low address.

modbus reg	i		i	+1
Int32	1(MSB)	2	3	4(LSB)

Signed 32 - 32-bit value, with sign. Most significant word (register) on low address.

modbus reg	i		i+1			
Int32	1(MSB)	2	3	4(LSB)		

Unsigned 32 (swapped) - 32-bit positive value. Most significant word (register) on **high** address. modbus reg i i+1 Int32 (s) 3 4(LSB) 1(MSB) 2

Signed 32 (swapped) - 32-bit value, with sign. Most significant word (register) on **high** address.

moubusicg		<u> </u>	17.1	
Int32 (s)	3	4(LSB)	1(MSB)	2

Float – 32-bit floating point. (IEEE-754) Most significant word (register) on **low** address.

moubuorog				
Float	1(MSB)	2	3	4(LSB)

Float (swapped) - 32-bit floating point. (IEEE-754) Most significant word (register) on high address. modbus reg i i+1 Float (s) 3 4(LSB) 1(MSB) 2

Double - 64-bit floating point. (IEEE-754) Most significant word (register) on low address.

modbus reg	i		i+1		i+2		i+3	
Double	1(MSB)	2	3	4	5	6	7	8(LSB)

Double (swapped) - 64-bit floating point. (IEEE-754) Most significant word (register) on high address.modbus regii+1i+2i+3Double (s)78(LSB)56341(MSB)2

**Scaling -** The Modbus register value will be <u>divided</u> by the scale value before presented on the web-page, logged or compared with for alarm.

It will be <u>multiplied</u> with the scale value before value is written to a slave device.

#### **Examples:**

Modbus register value = 510, Scale value =  $10 \rightarrow 51,0$  will be viewed on web-page.

Modbus register value = 5118, Scale value =  $100 \rightarrow 51,18$  will be viewed on web-page.

Web-page input = 127,5 Scale value =  $10 \rightarrow 1275$  will be written to Modbus register.



**Offset** – The Modbus register value will be <u>subtracted</u> with the offset value before it is presented on the webpage, logged or compared with for alarm. If scaling is also in use it is done <u>before</u> the offset is subtracted.

The Offset value will be <u>added</u> to the value before value is written to a slave device. If scaling is also in use it is done <u>after</u> the offset is added.

**Mask** - Is used to mask out specific bits from the Modbus register, on the webpage the value is presented in binary. The Modbus register will be masked (logic and) and shifted to the right before the value is presented on the web-page, logged or compared with for alarm.

#### Examples:

Modbus register value = 214 (D6 hex), Mask = 240 (F0 hex)  $\rightarrow$  1101 (13) will be viewed on web-page.

Presentation - Defines how a value will be represented on a page. Available options are:

#### Show as value

This option will read from the address and present the result at the view-page.

#### Writeable value

This option reads the value from the address and presents it. There will be a set button next to the value at the view-page which makes it possible to write to the address.

#### Show with enumeration

This option will read the value from the address and present it with the corresponding enum string (See Enum below).

#### Writeable value with enumeration

This option will read the value from the address and present it with the corresponding enum string. There will be a drop down next to the value at the view-page where available enum strings will be selectable. A selected value will be written to the address.

**Enum** - here the enum variables is defined in following format [number]=[string]. Each enum is separated by a semi colon ';' with no blank spaces.

*Examples:* 0=Off;1=On 0=Sunday;1=Monday;2=Tuesday;3=Wednesday;4=Thursday;5=Friday;6=Saturday

Number of decimals – Defines how many decimals to use for this point.

**Valid range** – defines min and max value for a write parameter. If a user tries to enter a value outside the range, a warning message will appear.

When you are finished with the Template, continue to the Device Configuration.



# 4.3 Device configuration

Ne	tBiter®	👍 webSCADA
Logged ii	n as: Administrator	Intellicom HQ
Select p	age 🔽 🔽 GO Status Alarm Log Configuration Setup About	
Templat	tes Devices Pages Alarm Log Bindings	
	evice Configuration	
1	Modsim bolding	edit delete
2	Modsim Coils	edit delete
		add device

On the Device Configuration page, you define which Modbus slaves are attached to the webSCADA. To add a device, click the "**add device**" button. This will bring up the following screen:

iged in as: Administrator	
lect page 🕑 GO Status Alarm Log Configuration Setup	About
mplates Devices Pages Alarm Log Bindings	
Device	
Name	Modsim Coils
Template	Modbus controller
Modbus Slave Address	10

Name – A description of the device.

**Template** – Defines which template that should be associated with this device.

Modbus slave address – Defines the Modbus address of this device.

The next step is to create your webSCADA application, by defining the look of the web-pages and which alarms and log-parameters that should be available.



### 4.4 Pages

NetBiter®	👌 webSCADA
Logged in as: Administrator	Intellicom HQ
Select page 🛛 🔽 😡 Status Alarm Log Configuration Setup About	
Templates Devices Pages Alarm Log Bindings	
Page Configuration	
Description	
1 Building 1	edit delete
	add page

To create a new page, click the "**add page**" button. This will bring up the General Page Configuration:

elect page Configuration Setup About  mplates Devices Pages Alarm Log Bindings   General Page configuration   Picture (0/768 kbyte used): Page Name: Page	n as: Admini	istrator						Intellico
Implates       Devices       Pages       Alarm       Log       Bindings         Image: General Page configuration       Picture (0/768 kbyte used):       Page Name:       Building 1         Image: Device       Image: Device (0/768 kbyte used):       Page Name:       Building 1         Image: Device       Image: Device (0/768 kbyte used):       Page Name:       Building 1         Image: Device       Image: Device (0/768 kbyte used):       Page Name:       Page Name:         Image: Device       Image: Device (0/768 kbyte used):       Page Name:       Page Name:         Image: Device       Image: Device (0/768 kbyte used):       Image: Device (0/768 kbyte used):       Page Name:         Image: Device       Image: Device (0/768 kbyte used):       Image: Device (0/768 kbyte used):       Page Name:         Image: Device       Image: Device (0/768 kbyte used):       Image: Device (0/768 kbyte used):       Page Name:         Image: Device       Parameter       Image: Device (0/768 kbyte used):       Image: Device (0/768 kbyte used):       Image: Device (0/768 kbyte used):         Image: Device       Parameter       Image: Device (0/768 kbyte used):       Image: Device (0/768 kbyte used):       Image: Device (0/768 kbyte used):         Image: Device       Device       Parameter       Image: Device (0/768 kbyte used):       Image: Device (0/768 kby	age	CO CO	Status Al	arm Log	Configuration	Setup Abo	ut	
General Page configuration     Picture (0/768 kbyte used):     Browse     Page Name:     Building 1     Overview name:     Advanced overview name:     Advanced overview name:     Configuration Left Overview     Description     Description     Description     Description     Description     Serial timeouts     Internal registers     Serial timeouts     Internal registers	es Devic	es Pages	Alarm Log	Bindings				
General Page configuration         Picture (0/768 kbyte used):         Browse       Building 1         Overview name:       Advanced overview name:         Advanced overview name:       Advanced overview name:         Images then 50k and it needs to be in .gif, .png or .jpg format!       Set as start page         Conffiguration Left Overview       Set as start page         1       Discrete 4       Modsim holding         3       Serial timeouts       Internal registers         3       Serial timeouts       Internal registers         6       Internal registers       Serial timeouts	a manual Da		<b>4</b> 1					
Picture (0/768 kbyte used):       Page Name:         Upload       Clear         The picture can not be wider then 970px, larger then 50k and it needs to be in .gif, .png or .jpg format!       Advanced overview name:         Conffiguration Left Overview       Set as start page         1       Discrete 4       Modsim holding         2       Alarm 2       Modsim holding         3       Serial timeouts       Internal registers         4        Gerial timeouts         6	eneral Pa	ge configura	tion					
No Picture Available       Impload       Clear       Biowse       Building 1         The picture can not be wider then 870px, larger then 58k and it needs to be in .gif, .png or .jpg format!       Advanced overview name:         Image: Configuration Left Overview       Set as start page         Image: Configuration Left Overview       Parameter         Image: Configuration Left Overview       Modsim holding         Description       Device       Parameter         Image: Configuration Left Overview       Image: Configuration Left Overview       Image: Configuration Left Overview         Image: Configuration Left Overview       Image: Configuration Left Overview       Image: Configuration Left Overview         Image: Configuration Left Overview       Image: Configuration Left Overview       Image: Configuration Left Overview         Image: Configuration Left Overview       Image: Configuration Left Overview       Image: Configuration Left Overview         Image: Configuration Left Overview       Image: Configuration Left Overview       Image: Configuration Left Overview         Image: Configuration Left Overview       Image: Configuration Left Overview       Image: Configuration Left Overview         Image: Configuration Left Overview       Image: Configuration Left Overview       Image: Configuration Left Overview         Image: Configuration Left Overview       Image: Configuration Left Overview       Image: Configur				Picture (0/)	768 kbyte used):		Page Name:	
Available       upload       Cear         The picture can not be wider then 870px, Jarger then 50k and it needs to be in .gif, .png or .jpg format!       Advanced overview name:         set as start page       set as start page         Configuration Left Overview       Device       Parameter         1       Discrete 4       Modsim holding       Discrete 4       @         2       Alarm 2       Modsim holding       Alarm 2       @         3       Serial timeouts       Internal registers       Serial timeouts       @         4	No P	icture				Browse	Building 1 Overview name:	
Image: theness SUR and It needs to be in .gif, .png or .jpg format!       Advanced overview name:         set as start page	Avai	ilable		upload	clear			
set as start page Set as start page	A di	iduic		The picture larger then	can not be wider th 50k and it needs to	en 870px, be in .gif.	Advanced overview nam	ne:
set as start page         Description Left Overview         Description       Device       Parameter         1       Discrete 4       Modsim holding       Discrete 4       e         2       Alarm 2       Modsim holding       Alarm 2       e         3       Serial timeouts       Internal registers       Serial timeouts       e         4				.png or .jpg	format!			
2     Alarn 2     Modsim holding     Alarn 2     e       3     Serial timeouts     Internal registers     Serial timeouts     e       4		Discrete 4			Modsim bolding		Discrete 4	edit clea
3     Serial timeouts     Internal registers     Serial timeouts       4		Alarm 2			Modsim holding		Alarm 2	edit clea
4 5 6		Serial timeout	ts		Internal registers		Serial timeouts	edit clea
5 6								edit clea
6								edit clear
								edit clear
								edit clear
								edit clear
9								edit clear
10								edit clea
Configuration Right Overview			a ku i a u					
	onfigurati	YOD RIGHT OVE						
Description Device Deventer	onfigurati	Description	erview		Douiso		Davapactor	

On this page all page properties can be configured. A maximum of 20 Modbus points can be on each page.

Next step is to define where to display the parameters. Simply click the "edit" button on the position you want to work with.



### 4.4.1 Adding parameters to web-page

Now select the Device, Group and Parameter and enter a description for this parameter, and finish by clicking the "save settings" button. To check that everything is OK, go to the "Select page" menu, select the page you have been working with and hit the "Go" button. You can also define a "presentation format" and "presentation scaling" on this page.

**Presentation format** – You can select a different presentation for a value on the presentation pages.

- Default Value is presented as it is configured in the Device template.
- Hexadecimal Value is presented in hexadecimal form.
- Binary Value is presented in binary form.

**Presentation scaling** – You can add an additional scaling on the value before it is presented on the web-page.

The value will be <u>divided</u> by the scale value before presented on the web-page. It will be <u>multiplied</u> with the scale value before value is written to a slave device.

It is normally better to use the scaling in the Device template because that will also include logging and alarm.

websCAD
Intellicom
Modsim holding 💌
Alarm registers
Alarm 2 💌 🐺
Alarm 2
Decimal 💌
back save settings

#### 4.4.2 Picture

This option lets you choose a picture to be presented on the page. The picture must not be more than <u>870</u> <u>pixels wide</u> and must be in gif, jpg or png-format. The picture will be sent to the device when you press the "**Upload**" button. To remove a picture from the device, press the "**Clear**" button.



i

There are maximum 800kB available for pictures. On the General Page configuration section you can see how much space remains.



### 4.4.3 Page name

This field can be used to give the page a more descriptive name. Click the "**set as start page**" button if this page should be the first page to be presented when logging into the module.

It's also possible to change name on the Page menu (default "Overview" and "Advanced Overview").

	General Page configuration	Picture (0/768 kbyte used): Browse Upload Clear The picture can not be wider then 870px, larger then 50k and it needs to be in .gif, .png or .jpg format!	Page Name: Building 1 Overview name: Outdoor Parameters Advanced overview name:	
--	----------------------------	--	---	--

# 4.5 Alarm configuration

The NetBiter webSCADA can send alarm messages with email, SMS or SNMP (traps). (SMS alarms require an external GSM modem). The alarm functionality can be enabled/disabled on the Alarm configuration page.

A maximum of 64 alarm parameters can be configured.

						-	
igged in as: Adminis	trator	Alaum Log	Configuration	Catur	About		Intellicom
emplates Device	es Pages Alarm L	.og Bindings		Setup	HDOUL		
Alarm Settin	igs						
SMS Alarm (Requi	res external GSM modem)					🔵 Enable	📀 Disable
Email Alarm						💽 Enable	🔘 Disable
SNMP Alarm						💽 Enable	🔘 Disable
						sa	ve settings
Alarm Confi	guration						
	Description	i l			Device		
1	DI1 (0/1)				Internal registers	edit	delete



### 4.5.1 Defining alarms

To add an alarm point, click on the "**edit**" button in the Alarm Configuration list. This will bring you to the following screen. Here you need to select which parameter to use, and define the trigger operation that will activate the alarm. You also need to define some properties like alarm class (1-10), and what strings should be in the subject and message field of SMS/Email alarms.

ged in as: Administrator					In	tellicom
lect page 💌 🔽 😡	Status Alarm Log	Configuration	Setup /	About		
mplates Devices Pages	Alarm Log Bindings					
Parameter Select						
Device					Internal registers	~
Group					Digital inputs	~
Parameter					DI1 (0/1)	~
Alarm Trigger Operation	on					
Tria Op	Net French Les			15 14 13 12 11 10 9	8765432	1 0
ing on	Not Equal					
Alarm Properties						
Alarm Class					Class	1 💌
Description				DI1 (	(0/1)	
Subject			:	Internal registers		
Message			C	DI1 (0/1)		
SNMP Trap OID				.1.3.6	5.1.4.1.23312.1. 1	

- **Trig On** this configures the trig condition for the alarm parameter. It's possible to trigger on a Value (Higher than, Lower than, Equal to, Not Equal to, Change of Value) or on a bit-field (Any bit, Neither bit, All bits).
- Alarm class Can be used to set different priorities on the alarm (class 1-10)
- **Subject** Defines the text to be shown as Subject in the email/SMS
- Message The body of the alarm message
- **SNMP Trap OID** the last number in the SNMP OID that will be used when sending a SNMP trap. This can be used to uniquely identify the alarm. (**Mandatory**) (The other part of the OID can be defined on the SNMP setup screen).



# 4.6 Log configuration

NetBiter webSCADA can be used to log Modbus registers. All data is stored in a CSV-file that can be uploaded to a computer for further analysis in e.g. Excel. A maximum of 64 parameters can be configured.

To start logging, click the "**start**" button.

- **Estimated Log Time** gives an estimate about how long it takes to fill the log-file.
- Log interval defines the sample interval.
- Log type choose whether to stop logging when the log has reached its maximum, or to overwrite old values (circular log).
- Send log files with E-mail enable this if you want to send the log-files periodically with email. You can choose to send the log every hour, every day (will be sent around midnight) or every week (Sunday at midnight). You will also need to activate this function on each user that should receive the log-files.



The log-file that is stored in the NetBiter will contain historical data for a maximum of two periods as defined in the "Send log files with E-mail" property. I.e. if you set this to every day, the log-file in the NetBiter will keep a maximum of two days historical data.

See also **Setup/Regional** settings to make sure you have the correct settings for list separator and decimal symbol.

gged in as: Admi	nistrator			_		Intel	liCom HQ 🖰 Le
elect page	GO Stat	us Alarm Log	Configuration	Setup	About		
emplates Dev	ices Pages Alarm	Log Binding	S				
General I	.og Settings						
Estimated Log	lime						3 Day
Log Interval							10 sec 💌
Log Type						Circular logging (Old entries is ove	erwritten) 💌
Send log files v	ith E-mail						Disable 🛛 💙
							start stop
Log Para	motore						
LUgraia	Descrip	tion		_	Dev	ice	
1	Slav 1 Holdi	ing reg 5			Modsim	slav 1 ed	it delete
2	Slav 2 Inni	it reg 7			Modeim	slav 2	it delete

To add a log-point, click the "**add log parameter**" button, and then the "**edit**" button. This will bring you to the "Edit Log Entry" page.



letBiter®	webSCAD
gged in as: Administrator	Intellicom
elect page 🛛 🔽 😡 Status Alarm Log Configuration Setup About	
emplates Devices Pages Alarm Log Bindings	
Lill Edit Log Entry	
Device	Modsim holding 💌
Group	Holding register 💌
Parameter	Holding 2 🔽 👎
Description	Outdoor Temperature

Now you can select the Device/Group/Parameter you want to log, and also enter a description for this Log Entry. To finish, click the "**save settings**" button.

## 4.7 Bindings

Bindings are a feature that allows you to copy parameters from one Modbus device to another. To add a binding, click the "**add binding**" button.

Net	Bite	r®		👌 w	ebSCADA
Logged in	as: Administra	tor			Intellicom HQ
Select pag	ge 🚺	🖌 🖸 GO Status Alarm Log	Configuration Setup About		
Template	s Devices	Pages Alarm Log Binding	5		
Da	ta Bindings	Device	Group	Parameter	
	Source	Modsim holding	Holding register	Holding 1	
1	Dest	Modsim holding	Holding register	Holding 3	eur delete
					add binding

On the "Add Data Binding" screen you choose the Source and Destination parameter, and the interval for the copying of data.

nged in set Administrator	Intelliger
elect page 🕑 60 Status Alarm Log Configuration Setup Abo	ut
mplates Devices Pages Alarm Log <mark>Bindings</mark>	
Add Data Binding	
Source	
Device	Modsim holding
Group	Holding register
Parameter	Holding 1
Destination	
Device	Modsim holding 🏻 😭
Group	Holding register
Parameter	Holding 3 🛛
Copy interval	1 min 🕅



# 5 Module Setup

If you click on the Setup menu option, a sub menu will appear. Here you can do all necessary setup for things like user administration, modem settings and TCP/IP settings.

NetBiter®	webSCADA
Logged in as: Administrator	NetBiter online demo
Select page 🛛 🔽 GO Status Alarm Log Configuration Setup About	
Users Modbus Modem Regional E-Mail SNMP Webserver Ethernet Backup Firmware	

# 5.1 Users

If you press the "**Users**" link you will be transferred to the Users administration page. Here you can add, edit and remove users. To add a user, press the "**add user**" button, and to modify/remove a user click on the user you want to modify/remove.

<b>NetBiter</b> <sup>®</sup>	webSCADA
ogged in as: Administrator	Intellicom HC
Select page 🛛 🔽 GO Status Alarm Log Configuration Setup About	
sers Modbus Modem Regional E-Mail SNMP Webserver Ethernet Backup	
Users	
Administrator [admin]	Super Admin
Anders [anca]	Super Admin



ged in as: Administrator	Log Configuration Setup About	Intellicom HQ 🖰 Log
ers Modbus Modem Regional E-Mail	IMP Webserver Ethernet Backup Firmware	
Add User		
User ID		
Name		
E-mail		
Mobile		
Alarm Class	1	2 3 4 5 6 7 8 9 10
Receive log files with E-mail		Disable 🔽
Language		English
User Level		Read
Password	Change password:	
Repeat Password		

Here you can enter the User ID (used on the login screen), name, contact info and a password.

If an e-mail address is entered, then alarms will be sent to this address (if user is configured as an alarm recipient and e-mail alarm is enabled).

If a mobile number is entered, then SMS-alarms will be sent to this number (if user is configured as an alarm recipient and SMS-alarm is enabled).

To configure a user as an alarm-recipient, enable one or more of "Alarm classes" (Class 1-10).

#### The user will only receive alarms that match this selection.

The "**Receive log files via E-mail**" option configures whether this user will receive logs via Email or not. See Configuration/Log (section 4.6) for more details about this function.

The language selection defines which language will be used for this user.

The user level defines what the user can do on the web-pages:

Read: View pages but can't do any configuration or modify Modbus RegistersWrite: Can view pages and modify Modbus registers, acknowledge alarms.Admin: Read, Write and also configure the module (templates, devices, pages, alarms, log, and bindings)Super Admin: Read, Write, Admin and setup module like users, modem and modbus settings.



To add/edit users, you must be logged in as a user with Super admin access.



# 5.2 Modbus settings

If you press the Configuration/Modbus menu you will be presented with the following view:

ged in as: Administrator			Intellicom HQ 🖞	Lo
Hect page ✓ <u>CO</u> Status Alarm Log Configuration <u>Setup</u> / ers Modbus Modem Regional E-Mail SNMP Webserver Ethernet Ba	About ackup Firmware			
Serial Settings (Modbus RTU/ASCII)				
Transmission Mode			RTU	•
Slave Response Timeout			ms: 10	00
Physical Interface			EIA-485	~
Baudrate			115200 bps	•
Character Format		No Parity	🖌 1 Stop Bit	•
Extra delay between messages			ms: 0	
Character delimiter (0 = Standard modbus 3.5 Chars)			ms: 0	
Force function code 15 when writing single coil			Disable	•
Force function code 16 when writing single register			Disable	•
Ethernet Settings (Modbus TCP)				
Port Number			50	2
Gateway Register	Enable: 🔽		Address:	50
Server Idle Timeout	Enable: 🔽		Seconds: e	50
IP Authentication	Enable: 📃	IP Number:	•	
		Mask:	• • •	

#### Serial Settings (Modbus RTU/ASCII)

Transmission mode: Selects Modbus RTU or Modbus ASCII

**Slave Response Timeout:** The time that the module will wait for a response from a slave, before a Serial timeout will occur. (Default 1000 ms)

Physical Interface: EIA-485 or EIA-232

Baudrate: 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600 or 115200 bps.

Character Format: Select number of stop bits and if parity should be enabled (Odd, Even).

Delay between polls: time to delay between Modbus messages.

**Character delimiter:** Number of milliseconds between characters in the Modbus frame. Set to zero to use standard Modbus (3.5 characters)

**Force function code 15 when writing single coil:** If this option is Enabled, all writes to coils will be done with function code 15. (Useful if slaves don't support function code 05).

**Force function code 16 when writing single register:** If this option is Enabled, all writes to registers will be done with function code 16. (Useful if slaves don't support function code 06).



**Ethernet Settings (Modbus TCP)** 

Port number: Which port to use for Modbus TCP communication (502 default).

**Gateway Registers:** The address to the gateway internal registers (if enabled). See section 5.2.1 for details about the internal registers.

**Server Idle Timeout:** This parameter gives the idle timeout in seconds for the Modbus/TCP connection. If the Gateway doesn't receive any Modbus/TCP query within this time the connection will be closed. (Default value is 60 seconds).

**IP** Authentication: This can be used to configure the IP-number that is allowed to connect to the Gateway.



It is of great importance to ensure at the time of the procedure of assigning Modbus device addresses, that there are not two devices with the same address. In such a case, an abnormal behavior of the whole serial bus can occur, the Master being then in the impossibility to communicate with all present slaves on the bus.

### 5.2.1 Internal Registers

If Gateway registers are enabled, queries sent to that address will not be forwarded to the Serial Modbus/RTU network; the Gateway will respond to these queries by it self.

See Appendix B for a list of the internal registers.

#### Valid Modbus commands for internal registers:

Command	Name
3	Read Holding Registers
6	Preset Single Register
16	Preset Multiple Registers



The internal registers are also available as an "internal template", i.e. the registers can be used on presentation pages and as alarms/log entries.



# 5.3 Modem settings

On this page you setup an external modem (optional) that can be either a GSM/GPRS modem or an analogue modem (PSTN).

letBiter	🕤 webSCAD
ged in as: Administrator	Intellicom
lect page 🛛 🔽 🚱 Status Alarm Log Configur	ation Setup About
ers Modbus Modem Regional E-Mail SNMP Webserve	r Ethernet Backup
Modem Settings	
Modem type	GSM
Baudrate	9600 bps 💌
Pin code (Press button to test/enter pin code)	**** test pin code modem info
Test SMS (Phone Number)	send
Dial-up / GPRS Settings	
Dial-up	Enable 💌
Connection trigger	Connect on alarm/event 💌
Host to ping (Keepalive)	www.netbiter.net
Ping timer (Keepalive)	Every 10 min 💌
Access point name (APN)	internet.vodafone.net
Phone number	0859111101
Username	u00106187
Password	*****
Dial-in Settings	
Dial-in	Disable 💙
Local IP number (This unit)	10 • 10 • 10 • 36
Remote IP number	10 • 10 • 10 • 39
Username	admin
Password	*****

### 5.3.1 Generic modem settings

Start with selecting the correct type of modem attached (GSM, Analogue, GPRS). Also set the desired baudrate that the webSCADA should connect to the modem with.

In this section you can also enter a PIN-code for the GSM-modem. Clicking on the "modem info" button will bring up a screen with some details about the modem (Signal strength etc).



### 5.3.2 Dial-up/GPRS settings

In this section you find configuration to allow the webSCADA to connect to Internet using a modem.

**Connection trigger** – Specifies whether the webSCADA should always be connected to Internet using the modem, or only connect when there is an alarm or event.

**Host to ping** – address to the Host that the webSCADA will ping when sending keep-alive messages for the GPRS connection.

**Ping timer** – Specifies the interval for the keep-alive messages. (Set value as high as possible to avoid unnecessary GPRS traffic).

Access Point Name (APN) – This is the gateway for all GPRS traffic. Contact your GSM/GPRS operator for information about this.

Phone number – Phone number to dial (e.g. to an Internet Service Provider, ISP).

**User name** – This is the username your ISP have assigned to you.

**Password** – Password to log into the ISP network.

#### 5.3.3 Dial-in settings

The dial-in functionality can be used when someone wants to view the web-pages in the webSCADA over a modem-link.

**Local IP-number** – This is the IP-number of the webSCADA, which the remote client will see when creating the PPP-connection.

**Remote IP-number** – This is the IP-number that will be assigned to the remote client, when creating the PPP-connection.

Username – This is the login that the remote client will use when creating the PPP-connection.

Password - This is the password that the remote client will use when creating the PPP-connection.



If you want to view the web-pages on a slow link (like GSM/GPRS), there is a special low-bandwidth version of the pages available. Enable this functionality on the Setup/Webserver page.



# 5.4 Regional

The Regional page contains configuration for time and date, generic module information and also configuration for how the log file list separator and decimal symbol should be represented.

	Intellicom
lect page 🛛 🖌 🚱 Status Alarm Log Cor	figuration Setup About
ers Modbus Modem Regional E-Mail SNMP Web	server Ethernet Backup
Time and Date	
Date (yyyy-mm-dd)	2006 - 08 - 25
Time (hh:mm:ss)	12:33:32
Timezone	Central European Time Europe UTC + 1 hour
Network time protocol	🔘 Enable 🛛 Oisable
NTP server	pool.ntp.org
Update interval	1 hour
Log file	
Log file Log File (.csv) list separator	
Log File (.csv) list separator Log File (.csv) decimal symbol	
Log file Log File (.csv) list separator Log File (.csv) decimal symbol	
Log File (.csv) list separator Log File (.csv) decimal symbol	, M . M save settings
Log File Log File (.csv) list separator Log File (.csv) decimal symbol Module Information	, M , M save settings
Log File (.csv) list separator Log File (.csv) decimal symbol Module Information Location	, 💌 , 💌 save settings Intellicom HQ

### 5.4.1 Time and date

Configures the real-time clock on the module. The clock will continue to work during power-loss (max. 1 week). To use NTP (Network Time Protocol), enable it and enter an NTP-server (or use the default configuration). Also set the update interval (how often NTP will synchronise the time).

### 5.4.2 Numbers

**List separator** - Can be either colon (,) or semi-colon (;).

**Decimal Symbol** – Can be either dot (.) or colon(,).

The list separator and decimal symbol should be selected so it matches the configuration on the computer where the file will be analysed.



### 5.4.3 Module information

The "**Location**" string can be used to add information about where the module is located (address, building id etc.) This information will be viewed on all page-headers.

NetBiter®	webSCADA
Logged in as: Administrator	Intellicom HQ
Select page 🛛 🖌 GO Status Alarm Log Configuration Setup About	
Overview	

The "More information" field can be used to do notes about the installation.

# 5.5 Email Setup

aged in as: Administrator	Intellicom
elect page 🛛 🖌 GO Status Alarm Log Configuration Setup About	
ers Modbus Modem Regiona E-Mail SNMP Webserver Ethernet Backup	
SMTP Settings	
SMTP Server (IP-number or domain name)	10.10.12.225
SMTP Authentication	🔘 Enable 🛛 📀 Disable
Authentication method	auto 💌
Username	
Password	
Sender (Name of sender)	Netbiter51
Reply Path (E-mail address)	netbiter51@intellicom.se
Send test E-mail (E-mail address)	send

The following configuration properties are available:

- Sender From field in the alarm mail. Example "NetBiter"
- **Reply path** The E-mail address to send a mail to when someone reply on an alarm mail.
- **SMTP server** IP-number or domain name to the SMTP server that the module should use when sending E-mails. If domain name is used make sure that you have entered a DNS under the Network configuration.
- SMTP Authentication
  - Authentication method: Auto, plain, login or cram-MD5
  - Username
  - Password

### 5.5.1 SMTP Authentication

If the SMTP server require authentication you should enable SMTP Authentication. There are several types of authentication methods supported by the module:

- **auto** The module automatically select the best method supported by the SMTP server.
- **plain** a simple non-encrypted method supported by most SMTP servers.
- **login** a simple non-encrypted method supported by most SMTP servers.
- **cram-md5** a more secure login method where the username and password is encrypted. (This method is not supported by all SMTP servers).
- •

**Whether Solution** Note: auto will not work if only plain and login is supported by the SMTP server, because the module find these methods too insecure, in that case "login" or "plain" must be must be set explicit.

To verify the setup, use the Test E-mail functionality. Clicking on the "**send**" button will generate a test e-mail.



# 5.6 SNMP Setup

The SNMP Setup page contains configuration to be able to send SNMP traps.

- Host The SNMP manager to which SNMP traps should be sent
- Port The port number on the SNMP manager to which traps should be sent
- Community SNMP community used
- Enterprise OID The enterprise OID (Object Identifier) that should be used in the SNMP traps sent. This is the common part of the Enterprise OID that is the same for all traps sent from the webSCADA. Use the OID setting when configuring alarms to set a unique OID for each alarm.

letBiter®		6	webSCAD
gged in as: Administrator			Intellicom H
elect page 🛛 🔽 😡 Status Alarm Log Configuration Set	tup About		
ers Modbus Modem Regional E-Mail SNMP Webserver Ethern	et Backup		
SNMP Settings			
Host			ici-laek-lab.ici.se
Port			1620
Community			public
Enterprise OID		IntelliCom Default	1 2 6 1 4 1 22212 1



## 5.7 Web-server Setup

The Webserver Setup page contains a configuration to change the port number of the internal web-server in the webSCADA and also enable/disable the low bandwidth pages.

The Automatic logout time defines the time-interval before a user is logged out from the web-server.

ed in as: Administrator	IntelliCom HQ 🐴 Log
ect page 💌 GO Status Alarm Log Configuration Setup About	
Webserver port	80
.ight pages (used for low bandwidth)	🔿 Enable 💿 Disable
Automatic logout time	60 minutes 💌

*i*) Note: Changing the Webserver port will disable Webserver on default port 80.

### 5.7.1 Low bandwidth pages

When the low bandwidth pages are enabled, the user will be presented with the following view when logging into a module:

Mozilla Firefox	- 🗆 🛛
Eile Edit View Go Bookmarks Tools Help	
🔇 🚫 🔘 🂭 🏠 🔐 🕞 http://demo.intelicom.se/cgi-bin/resc 💎 🧿 🗔	
NetBiter® webSCADA	
Select page GO	
[Alarms (0 active)]	
[ Download log ]	
[ Normal (high bandwith) pages ]	
Done	🖸 🖸

Here it's possible to either view the parameter-page, alarms or download the log-file. It's also possible to go to the normal web-pages.



# 5.8 Ethernet (TCP/IP) settings

If you press the Configuration/Network link you will be presented with the following view:

letBiter®	👍 webSCAD
gged in as: Administrator	Intellicom
elect page 💌 🚱 Status Alarm Log Configuration Setup About	
ers Modbus Modem Regional E-Mail SNMP Webserver Ethernet Backup	
Ethernet Settings	
DHCP	🔘 Dynamic IP 🛛 💿 Static IP
Host Name	webSCADA
IP Address	10 • 10 • 10 • 89
Netmask	255 • 255 • 255 • 0
Gateway	10 • 10 • 10 • 1
Primary DNS	10 • 10 • 12 • 225
Secondary DNS	
	save settings

On this page you can view and change the TCP/IP network settings in the module. These settings are the same as the ones set by the NetBiter Config utility.

Dynamic IP: Select this if you have a DHCP server on your network and you want the IP address be assigned automatically by the server.

#### **DO NOT SELECT THE DYNAMIC IP OPTION IF YOU DON'T HAVE A DHCP SERVER AVAILABLE ON THE NETWORK.**

**Host Name:** Here you can enter a hostname of your device (if E-mail alarms should be used this field must contain something)

**IP** Address: The IP address of the NetBiter.

**Netmask:** The subnet mask

Gateway: The default gateway

**Primary DNS:** The primary Domain Name Server (**optional**)

Secondary DNS: The secondary Domain Name Server (optional)



# 5.9 Backup

The backup functionality makes it possible to backup and restore configurations.

	<b>_</b>
Logged in as: Administrator	Intellicom HC
Select page 🛛 🔽 😡 Status Alarm Log Configuration Setup About	
Users Modbus Modem Regional E-Mail SNMP Webserver Ethernet Backup	
Backup Settings Backup Settings To Local Hard Drive	backup
Restore module from backup	Browse restore
Reset To Factory Default Settings	reset

By pressing the backup button you will get a backup file that can be stored locally.

All configurations in the Module except Ethernet settings will be in the backup.

To upload a backup to a module, press the Browse button and select an .nbb file, then press restore. After restoring the configuration, you will be asked to restart the module.

To bring a module back to Factory default configuration, click the "**reset**" button.



# 5.10 Firmware

On the firmware page it's possible to download a new firmware image (.nbu file) or a patch file (.nbp).

NetBiter <sup>®</sup>	webSCADA
Logged in as: Administrator	NetBiter online demo
Select page 💌 GO Status Alarm Log Configuration Setup About	
Users Modbus Modem Regional E-Mail SNMP Webserver Ethernet Backup Firmware	
Select an WebScada update file (.nbu or .nbp)	Browse) update



# **APPENDIX A: SPECIFICATIONS**

Ethernet connection

10Base-T or 100Base-TX (IEEE 802.3). RJ45 connector.

#### Serial interfaces

EIA-232 with full modem control (RTS,CTS,DCD,DTR,DSR,RI) 300-115.200bps. 9-pole DSUB connector

EIA-485, 300-115.200bps. screw connector.

#### Power Supply

9-30 VAC/DC (1.7W)

#### Temperature range

Operating : - 40- 85 °C Storage : -40 – 85 °C

#### Humidity range

5-93% RH, non-condensing

### Cover material

Grey plastic, LEXAN 940, self-extinguishing acc. to UL94-V0

#### **Mounting option**

DIN rail (EN 50022)

#### **CE** certification

According to EN 50 081-2:1993 and EN 61000-6-2:1999



# **APPENDIX B: Internal registers**

Holding register	Name	Values	Options	Comment
1	Digital input 1 status	0 or 1		Read only
2	Digital input 2 status	0 or 1		Read only
	Serial Status (Modbus/TCP)			See section (3.3)
3	Number Active Connections	0-10		Read only
4	Number Active Internal Connections	0-10		Read only
5	Valid responses	0-65535		Can be cleared
6	Serial timeouts	0-65535		Can be cleared
7	CRC errors	0-65535		Can be cleared
8	Input Buffer overruns	0-65535		Can be cleared
9	Exception responses	0-65535		Can be cleared
	Serial Status (Buffered messages)			
10	Valid responses	0-65535		Can be cleared
11	Serial timeouts	0-65535		Can be cleared
12	CRC errors	0-65535		Can be cleared
13	Input Buffer overruns	0-65535		Can be cleared
14	Exception responses	0-65535		Can be cleared
	Serial Status (Internal requests and Webpages)			
15	Valid responses	0-65535		Can be cleared
16	Serial timeouts	0-65535		Can be cleared
17	CRC errors	0-65535		Can be cleared
18	Input Buffer overruns	0-65535		Can be cleared
19	Exception responses	0-65535		Can be cleared
	Configuration Registers			
20	Modbus/TCP Port	1-65535		Default port number is 502
21	Gateway Modbus address	(-1)-255		
		-1	Disabled	Default
		0 - 255	Enabled	
22	Modbus/TCP idle timeout	0-65535 (seconds)		Default 60 seconds
		0	Disabled	
		1 - 65525	Enabled	
23	Baudrate	0-9		
		0	300 bps.	
		1	600 bps.	
		2	1200 bps.	
		3	2400 bps.	
		4	4800 bps.	
		5	9600 bps.	
		6	19200 bps.	Default value



Holding	Name	Values	Options	Comment
Tegister		7	38400 bps	
		8	57600 bps	
		9	115200 bps.	
24	Parity	0-2		
		0	No parity	Default
-		1	Even parity	
		2	Odd parity	
25	Number of Stop bits	1-2		Default 1 stop bit
26	Slave timeout time	25-65535 (milliseconds)		Default 200 ms.
27	Physical interface	0-1		
		0	EIA-485 (RJ12)	Default
		1	EIA-232 (DSUB)	
	Authentication			
28	Valid IP address 1	0-255		First byte of IP address
		0	Disabled	IP address auth disabled
		1-255	Enabled	
29	Valid IP address 2	0-255	Enabled	Second byte of IP address
30	Valid IP address 3	0-255	Enabled	Third byte of IP address
31	Valid IP address 4	0-255	Enabled	Fourth byte of IP address
32	Mask for Valid IP address 1	0-255	Enabled	First byte of mask
33	Mask for Valid IP address 2	0-255	Enabled	Second byte of mask
34	Mask for Valid IP address 3	0-255	Enabled	Third byte of mask
35	Mask for Valid IP address 4	0-255	Enabled	Fourth byte of mask