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### ***Get started:***

Normally there is now need for changing any settings to get the system up running:

Check list:

1.

If the system is not deliver with power ( battery or adapter) Supply the system with DC power 10- 30 voltage, total continuous power consumption is 3 watt.

2.

If network SIM card is not installed by manufacturer. You will need to order a SIM card from a local supplier and insert this card in the slot for SIM card. See “**Unit 3 GPRS/LTE**” and APN and Appendix for connecting via local network cable.

When sim card is connected system should work without any further settings. Default sends data to <ftp://station.saiivas.net> user: (station number/name )pass: cu801 and internal FTP. 192.168.1.1, user: root, pass: cu801

3.

Data sending to exsternal FTP is by default set to a specific folder at SAIV AS FTP server. Address for this location is described on the product label. For changing this: See “FTP setup”

4.

Data sending to internal FTP is by default enabled and there is a 32Gbyte USB memory pen for storing data. Folder in root has to be /ctd

“Version 906ex fd” is only sending data to ctd folder, RDCP and sonar have not internal FTP ability yet.

When check list is completed.

Turn power on and use the Mag-Key to swipe the start and confirm label on the instrument.

### ***About CU801:***

The CU801\_WEB server is a unit for displaying data on a web page, based on measurement from SD204/208 and Td30xx station delivered from SAIV AS. Also able to add RDCP, OX sensor from AADI.

For access form World Wide Web (WWW) the CU801\_WEB server has to work together with a network router. The router can be a GPRS/LTE router for places without cable or ADSL router with cable.

The GSM/GPRS system has worldwide coverage with limitations. Normally areas without coverage are fare from coast line(about 5-10 km), high mountains and other none populated areas. The coverage area can be checked on numbers of web pages.

The CU801\_WEB need constant power. About 120mA. Replaceable built-in back-up battery will support the real-time clock if external power is interrupted or not connected. The programmed set-up will not be lost, even if the back-up battery is removed/discharged, only the real-time clock have to be set after change of back-up battery.

Each CU801\_WEB can be programmed from a web configuration page. Configurations options are station name, time, date, and also start/stop initiate on connected instrument.

The CU801\_WEB server uses TCP/IP(Transport Control Protocol / Internet Protocol ) number 192.168.1.2 gateway 192.168.1.1 network mask 255.255.255.0. It can be accessed from any browser on a LAN network without router; (only a hub/switch or crossover cable, the IP of your computer need to be in the same number series for example: 192.168.1.3) Address line in browser is in this case 192.168.1.2/data.htm.

### ***Specifications:***

**Dimensions:** CU 801\_WEB  
Length 111mm. Wide 72 mm Heigth 33 mm

**Weight:** 130g

**Power:** 10-24 VDC 1,5 – 2 Watt

**Data I/O:** 6 - RS232 ASCII code.  
Baud rate: 9600-115200  
7data, 1 , even parity  
8data, 1 , none parity

100 BASE-T Ethernet.

**CPU :** 16 bit , 80 Mhz , boot time 1 sek.



**Model: μPAC-7186EX-FD**

The system has tree units that have to work together.  
SD204/208/TD301 <-> CU801\_WEB <-> GPRS/LTE router.

### **Unit 1: SD204/SD208/TD301**

Before connecting the instrument to the CU801\_WEB server. The interval and the baud rate have to be set correctly.

Use Interval greater or equal to 20 second, less will not give the controller time to send FTP and accessing the controller will be often interrupted and it will behave slow.

48 lines is maximum before it starts to overwrite data if FTP is enable it will send data before start overwriting. The web page use FIFO "First in First out". A 1-hour interval will then give 2 days of data before it loses data on the web page. Number of lines can be changed from 3-48 lines.

RS232 communication: Baud rate can be changed, default is 9600, 7 data, 1 stop bit, Even parity.

Use operation manual for instrument for help and use the SD200w minisoft program for configuration, Latest version of SD200w is accessible from <http://station.saivas.net>

### **Unit 2: CU801\_webserver**

There is no critical adjustment on the CU801\_WEB server. It will work by default settings.

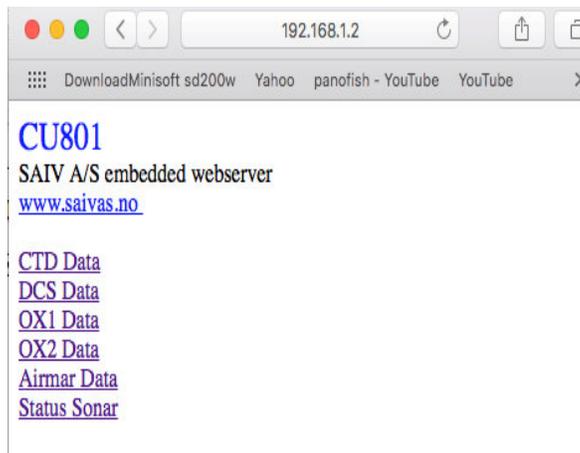
*Connect to the Cu801 internal index.htm webpage*

Wifi or Crossover cable or hub (see Appendix)

Wifi: Find the station number marked on controller e.x (station number = 17000068) in the wifi list, log in by password cu801(station number) e.x cu80117000068.

Type 192.168.1.2 in the address URL field of any browser.

Main page is being displayed:

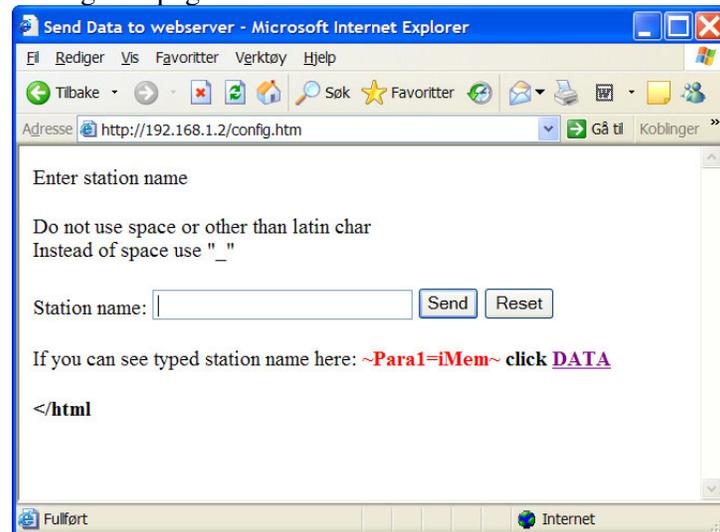


*Config: name change page*

192.168.1.2/config.htm

Router: "IP"/config.htm or "domain"/config.htm

Config.htm page:



Enter Station Name in the text box and use the send button for update the CU801\_web station name.

When successful the new name will be displayed in red coloured text. Use hyperlink "DATA" for accessing the data.htm page.

*Change number of lines (default 10)*

Change number of lines to for example 09: (Minimum = 03.)

[http://192.168.1.2/cgi-bin/CGI\\_GET?lines=09](http://192.168.1.2/cgi-bin/CGI_GET?lines=09)

The server confirm successful registration when it returns main page.

If FTP is enable data will be send every nine line.

*Set time:*

There is no page for this setting, use the browsers address line to set time.

[http://IP/cgi-bin/CGI\\_GET?Timeset=HH-MM-SS](http://IP/cgi-bin/CGI_GET?Timeset=HH-MM-SS)

The IP is the IP number for the specific CU801\_WEB server

For direct connection (crossover cable/hub) and set time 23/59/59:

[http://192.168.1.2/cgi-bin/CGI\\_GET?Timeset=23-59-59](http://192.168.1.2/cgi-bin/CGI_GET?Timeset=23-59-59)

*Set Date:*

There is no page for this setting, use the browsers address line to set date.

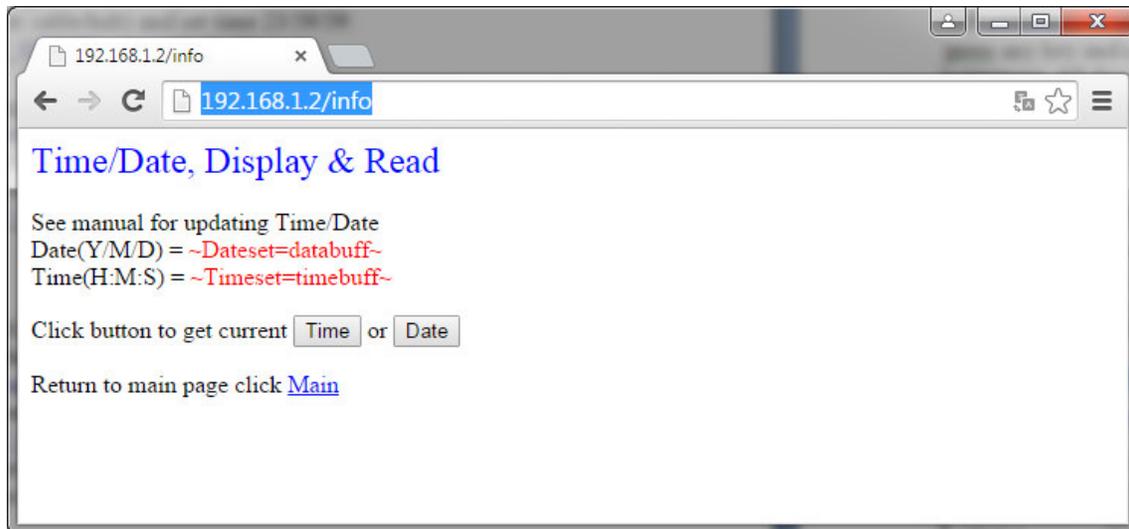
[http://IP/cgi-bin/CGI\\_GET?Dateset=YYYY-MM-DD](http://IP/cgi-bin/CGI_GET?Dateset=YYYY-MM-DD)

The IP is the IP number for the specific CU801\_WEB server

For direct connection (crossover cable/hub) and set date 2007/12/30:

[http://192.168.1.2/cgi-bin/CGI\\_GET?Dateset=2007-12-30](http://192.168.1.2/cgi-bin/CGI_GET?Dateset=2007-12-30)

For easy access type 192.168.1.2/info and then click TIME or Date button for change time in address line:



*Initiate the Instrument:*

If instrument need to be started or stopped.

There is no page for this, use the browsers address line for initiate.

[http://IP/cgi-bin/CGI\\_GET?Start =I](http://IP/cgi-bin/CGI_GET?Start =I)

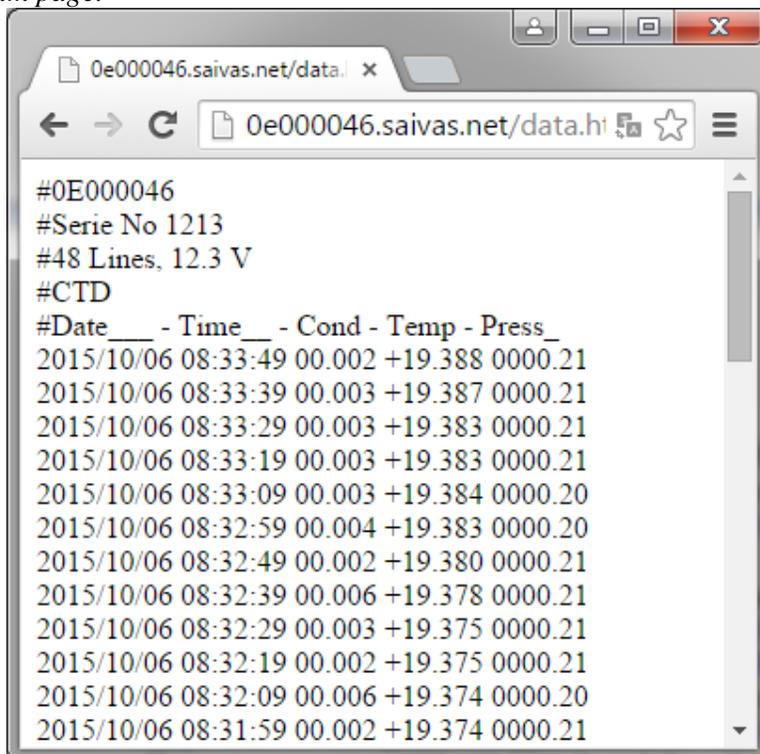
For direct connection (crossover cable/hub/switch)

[http://192.168.1.2/cgi-bin/CGI\\_GET?Start =I](http://192.168.1.2/cgi-bin/CGI_GET?Start =I)

There is no verification for start and stop of instrument. User has to see if new data is updated or not in the data.htm web page.

If there is no change try again.

*Data.htm page:*



```
#0E000046
#Serie No 1213
#48 Lines, 12.3 V
#CTD
#Date__ - Time__ - Cond - Temp - Press_
2015/10/06 08:33:49 00.002 +19.388 0000.21
2015/10/06 08:33:39 00.003 +19.387 0000.21
2015/10/06 08:33:29 00.003 +19.383 0000.21
2015/10/06 08:33:19 00.003 +19.383 0000.21
2015/10/06 08:33:09 00.003 +19.384 0000.20
2015/10/06 08:32:59 00.004 +19.383 0000.20
2015/10/06 08:32:49 00.002 +19.380 0000.21
2015/10/06 08:32:39 00.006 +19.378 0000.21
2015/10/06 08:32:29 00.003 +19.375 0000.21
2015/10/06 08:32:19 00.002 +19.375 0000.21
2015/10/06 08:32:09 00.006 +19.374 0000.20
2015/10/06 08:31:59 00.002 +19.374 0000.21
```

Line 1 # = Station name.

Line2 # = Serie number of the instrument attached

Line 3 # = Lines to be stored before overwrite, ( Instrument will store data until it is full, see manual for data storage) The system voltage is displayed, heady with use of battery power/solar cells

Line 4 # = Tells about the setup of the CTD.

Line 5 # = Header for data lines.

#### *Direct communication with the Instrument:*

It is possible to communicate directly with the Instrument by using the SD200w program from SAIV A/S.

#### **To open connection:**

If not familiar with the Minisoft sd200w, see manual for this.(download:

[http://station.saivas.net/manuals/SD208%20manual\\_total.pdf](http://station.saivas.net/manuals/SD208%20manual_total.pdf)) The newest version of minisoft can be downloaded her (station.saivas.net)

Under the “setup”-“comport” connection is a TCP/IP option, click this option and type the web address for CU801 and end it with “:10000” (for example: 192.168.1.2:1000)

Important: Look at the bottom right corner of the minisoft sd200w, a green led will be shown in front of the IP address. See also screenshot of minisd200w

press any key and a menu will be displayed. Use this to open communication with instrument. All function that is used inn sd200w will now be available.

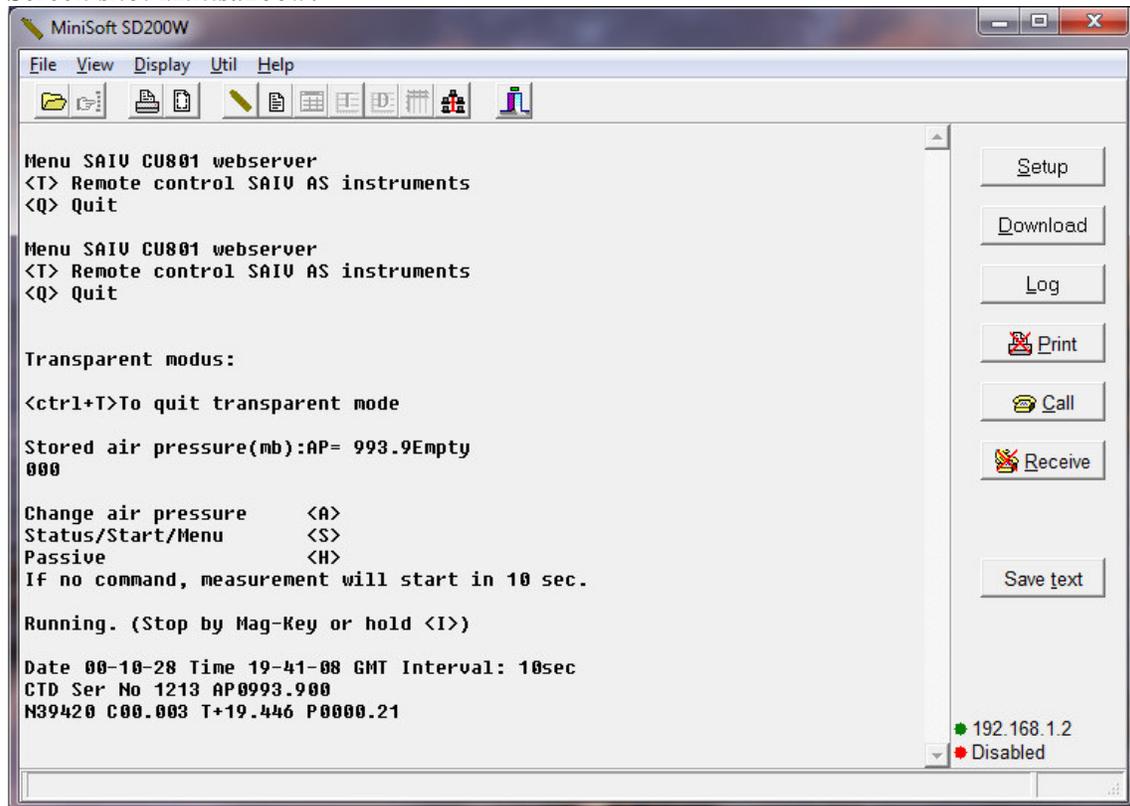
When transparent communication is active the web update stops. When <ctrl+T> is pressed the web update is active again. Remember to start the instrument before closing connection; else the web measurement will not be updated.

#### **Hidden menu:**

After main menu is displayed. Press <P> and than <L>. A menu will be displayed. Type <P> for programming menu. It possible to activate password on the html page form here.

Username default : Admin  
Password default : 12345 ( max 5 letter)  
To change password: use config.htm page.

**Screen shot Minisd200w:**



**Direct data collect with Minisoft sd200w:**

Click on the network icon in Minisoft program. Add “new” station

**Edit station**

Name: 0e000046

Station type: 801

Folder name: C:\stations\

Filename prefix: 0e000046

Station URL: 192.168.1.2

Use FTP:  Sync max days: All

Username:

Password:

Read interval:  min

Auto interval

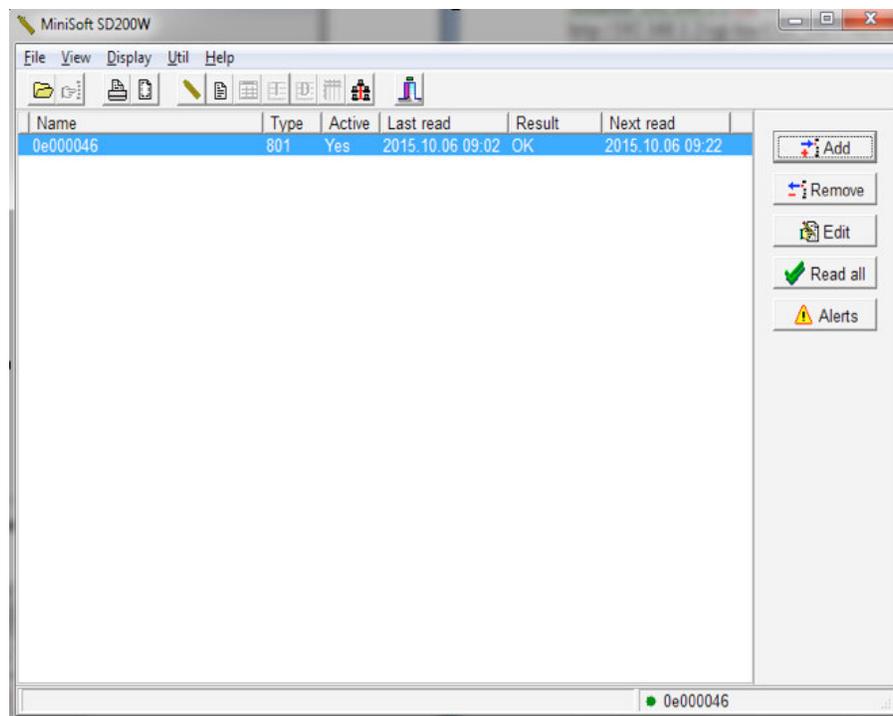
Active

Station type:

- Stand alone
- Reference
- Slave

OK Cancel

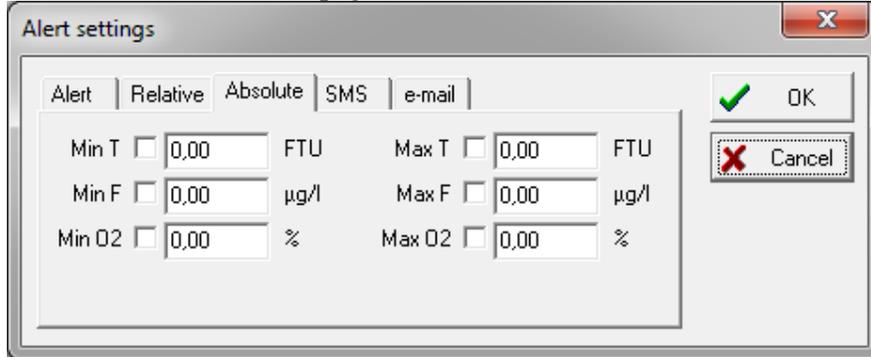
If password is activated by user ( see hidden menu) than username and password as to be added. Remember to activate the station. It possible to use time based collection or auto. Data will be stored as one TXT file in selected folder.





### ***Graph view and Alert (e-mail/sms)***

When having extra sensors as FTU (turbidity ) and OX (Oxygen) on the instrument it possible to view a graph of present Turbidity over time(right click with mouse on the station and activate graph) Alarm will be sent by e-mail or SMS(setup has to be done) if values goes higher or lower than set point. To access Alert setting, click on button for alert after clicking the network icon on main page ).



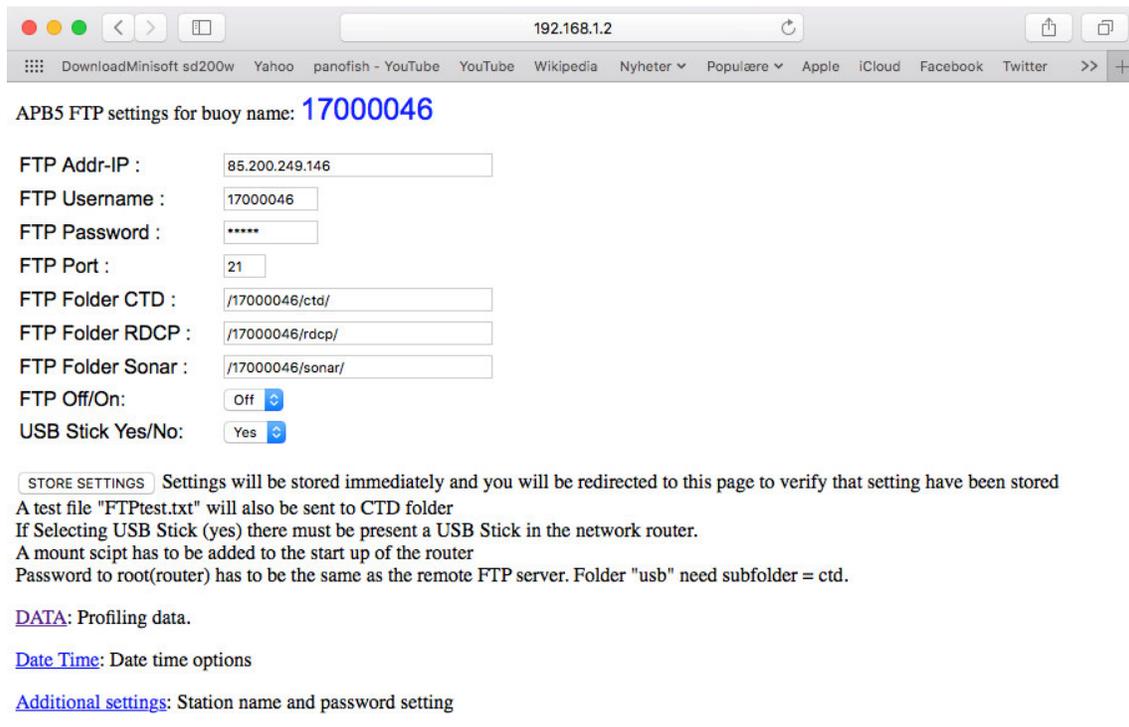
The image shows a dialog box titled "Alert settings" with a close button (X) in the top right corner. It has four tabs: "Alert", "Relative", "Absolute", "SMS", and "e-mail". The "Alert" tab is selected. The dialog contains two columns of input fields. The left column has three rows: "Min T" with a checkbox and a text box containing "0,00" and "FTU" to its right; "Min F" with a checkbox and a text box containing "0,00" and "µg/l" to its right; and "Min O2" with a checkbox and a text box containing "0,00" and "%" to its right. The right column has three rows: "Max T" with a checkbox and a text box containing "0,00" and "FTU" to its right; "Max F" with a checkbox and a text box containing "0,00" and "µg/l" to its right; and "Max O2" with a checkbox and a text box containing "0,00" and "%" to its right. In the top right corner of the dialog, there are two buttons: "OK" with a green checkmark icon and "Cancel" with a red X icon.

### ***External and Internal FTP setup: CUF***

FTP = File Transport Layer on the TCP/IP network

Address 192.168.1.2/cuf will redirect to

[http://192.168.1.2/cgi-bin/CGI\\_GET?APFTP=](http://192.168.1.2/cgi-bin/CGI_GET?APFTP=)



The image is a screenshot of a web browser window. The address bar shows "192.168.1.2". The browser's address bar contains several search engines: DownloadMinisoft sd200w, Yahoo, panofish - YouTube, YouTube, Wikipedia, Nyheter, Populære, Apple, iCloud, Facebook, and Twitter. The main content area displays "APB5 FTP settings for buoy name: 17000046". Below this, there are several form fields for configuring FTP settings: "FTP Addr-IP" (85.200.249.146), "FTP Username" (17000046), "FTP Password" (masked with asterisks), "FTP Port" (21), "FTP Folder CTD" (/17000046/ctd/), "FTP Folder RDCP" (/17000046/rdcp/), "FTP Folder Sonar" (/17000046/sonar/), "FTP Off/On:" (a dropdown menu set to "Off"), and "USB Stick Yes/No:" (a dropdown menu set to "Yes"). Below the form fields, there is a "STORE SETTINGS" button and a paragraph of instructions: "Settings will be stored immediately and you will be redirected to this page to verify that setting have been stored. A test file 'FTPtest.txt' will also be sent to CTD folder. If Selecting USB Stick (yes) there must be present a USB Stick in the network router. A mount script has to be added to the start up of the router. Password to root(router) has to be the same as the remote FTP server. Folder 'usb' need subfolder = ctd." Below the instructions, there are three links: "DATA: Profiling data.", "Date Time: Date time options", and "Additional settings: Station name and password setting".

FTP server has to be address with direct IP number not a DNS Name.

FTP folder is only needed for the sensor that is enabled.

Default settings will send data to “Station.saivas.net” at SAIV A/S. The server is a free of charge.

Data will be sent to FTP server when number of lines reaches, with one overlap.

When Store Settings is clicked the CU801 will send a test file to the FTP folder CTD.

Note: This will not work if the network cable is still hooked direct via a cross over cable to a PC/MAC. For testing this, a network switch has to be attached between to the router, CU801 and PC/MAC

### ***Internal FTP:***

This is a FTP server that is included in the LR77 LTE router. Default is a USB pen of 32Gbyte included in version 906 and above. And all settings is done.

If the USB pen need to be replaced is only need a “ctd” folder in the root, insert it and power up.

To access the internal USB, Use a client FTP program. e.x filezilla

Server = 192.168.1.1, user = root, password = cu801 ( password has to correspond with external password in accessible in the /cuf page.)

Default is root directory, here should a USB folder be accessible ( PS! if upgrade is made, this folder has to be created again)

If a USB memory pen is inserted and a script “mount /dev/sda1 /root/usb” is added to the start upscript of the router.

For manual, look up on google : LR77 v2 manual

### ***FTP File Format:***

The files a sent as plain TXT files. Name on the files are build as follow:

YYMMDDNN.txt

YY = Year

MM = Month

DD = Day

NN = file number that day, file number 0 to max 255 per day. Displayed as HEX, 00 to FF

The file system on your computer will also store the file date and time, this can also be used to arrange the incoming files.

### ***Adding more sensors:CUS***

For enable and disable sensor:

After connecting a new sensor to following Comport:

Inst:	Comport:	Baud
TD/CTD (SAIV)	= Com 3	9600, 7, 1, 1
Watchdog	= Com 4	9600, 8, 0, 1
RDCP (Aandreaa)	= Com 5	9600, 8, 0, 1
Optical OX (Aanderaa)	= Com 6	9600, 8, 0, 1
Optical OX / SONAR	= Com 7	9600, 8, 0, 1/57600, 8, 0, 1
GPS/ Wheater Station(AIRMAR)	= Com 8	4800, 8, 0, 1

Open page 192.168.1.2/cus will redirect to  
[http://192.168.1.2/cgi-bin/CGI\\_GET?cuset=](http://192.168.1.2/cgi-bin/CGI_GET?cuset=)

### ***Intervall: int***

If CTD/TD is not present and only a OX or Doppler is connect the interval has to be done from the CU801. To set this interval:

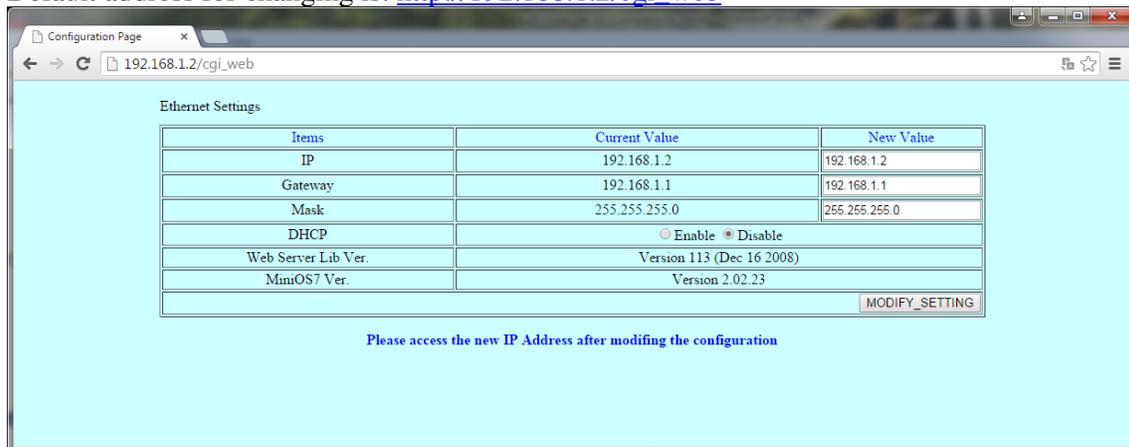
Open page 192.168.1.2/int



### ***Change IP address on Cu801:***

If CU801 is to be working on a different IP network it is possible to change IP number on the server. Be aware that change on this settings will give the router a different address and it will not work as default according to this manual. Remember to make a note when changing this address for later.

Default address for changing is: [http://192.168.1.2/cgi\\_web](http://192.168.1.2/cgi_web)



### Unit 3: GPRS/LTE router.

Any type of router can be used. The default IP is 192.168.1.2 Gateway is 192.168.1.1 and net mask is 255.255.255.0

Default TCP port is 80.

The CU801\_WEB server uses the 100 BASE-T Ethernet with a RJ-45 connector to send TCP traffic.

By use of a crossover Ethernet cable between the CU801\_WEB and the router there is no need of a hub/switch.

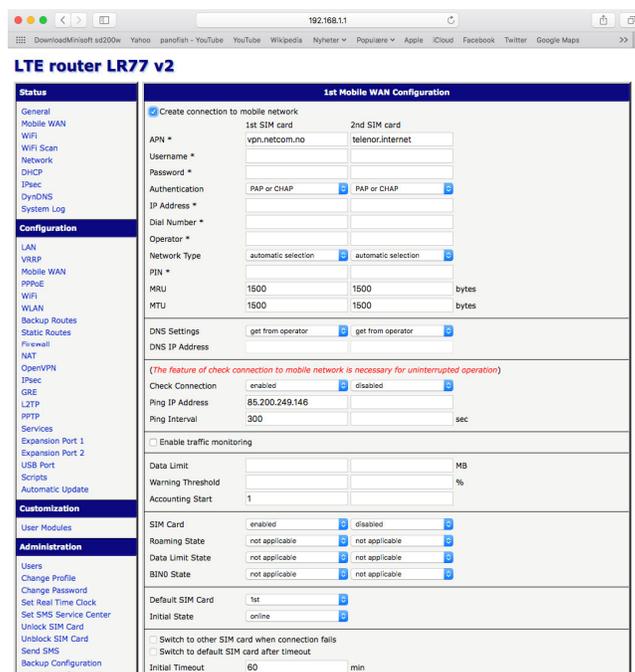
In our total product delivery we have chosen a GPRS/LTE router based on its size, stability and connection speed and has internal FTP server.

The chosen GPRS/LTE router is not covered in this manual, but the basic settings and name of configurations tools are the same for most routers. Use the router manual for additional information. Look up LR77 v2 manuel via google to see complete manual.

Insert mobile SIM card in SIM1 and access the router configuration web page.

By wifi connect to the GPRS/LTE router via address: 192.168.1.1 or

Connect the GPRS/LTE router to a hub/switch make sure that the IP number on your computer is 192.168.1.3/255. Type the default IP 192.168.1.1 in the browser address line:



Use **root** for user and **cu801** for password.

There are 3 important settings that have to be configured and some other for optional use.

1. Set the APN(Access point name) name (in the Mobile wan setting left menu under configuration)
2. Set the NAT(Network Address Translation) details (Route the CU801\_WEB IP through the router) Done default from manufacturer

*NAT configuration / already done from manufacturer. .*

Default public port "80" Private (CU801\_WEB) port "80" CU801\_WEB server IP address "192.168.1.2"

**UMTS router UR5**

**Status**

- General
- Mobile WAN
- Network
- DHCP
- IPsec
- DynDNS
- System Log

**Configuration**

- LAN
- VRRP
- Mobile WAN
- Backup Routes
- Firewall
- NAT
- OpenVPN
- IPsec
- GRE
- L2TP
- DynDNS
- NTP
- SNMP
- SMTP
- SMS
- Expansion Port
- USB Port
- Startup Script
- Up/Down Script
- Automatic Update

**Administration**

- Change Profile
- Change Password
- Set Real Time Clock
- Set SMS Service Center
- Unlock SIM Card
- Send SMS
- Backup Configuration
- Restore Configuration
- Update Firmware
- Reboot

**NAT Configuration**

Public Port	Private Port	Type	Server IP Address
80	80	TCP	192.168.1.2
10000	10000	TCP	192.168.1.2
10002	10002	TCP	192.168.1.2
		TCP	

Enable remote HTTP access on port 81

Enable remote FTP access on port 21

Enable remote Telnet access on port 23

Enable remote SNMP access on port 161

Send all remaining incoming packets to default server

Default Server IP Address

Masquerade outgoing packets

The system is now ready for use:

## APPENDIX WIFI connect :

### Cu801:

Turn on power. Find WIFI name ( station name e.x 17000XX) log on wifi network with password written on top of the router (have to open box)

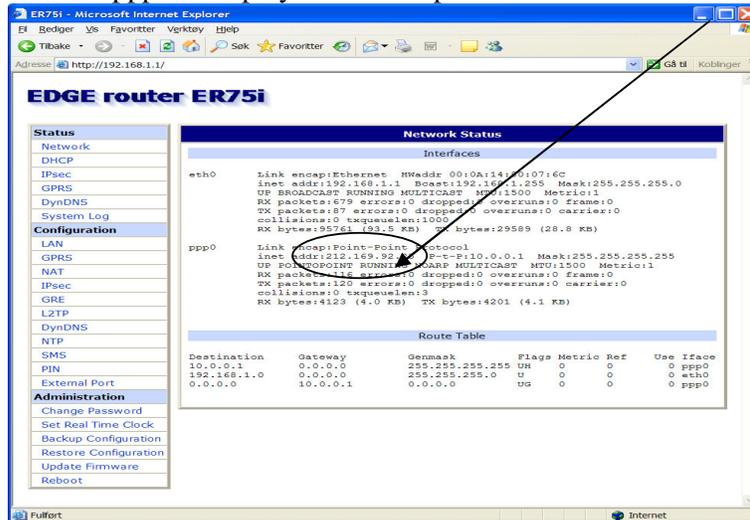
To access router: Type 192.168.1.1 in browser

To access web controller 192.168.1.2

### Public IP:

Public IP (static/dynamic) is only available from some Network suppliers and with a special APN.

To see the public IP. Click submenu Network in the Status menu. If GPRS is running the interface ppp0 is displayed with the public IP number.



In this case IP 212.169.92.25 Type 212.169.92.25/Data.htm in the address line in any browser to access the data.htm page.

The routers configuration page can be reached from internet with same IP, but has “:81” in the end, for example 212.169.92.25:81

Additional/optional setting:

### DynDns:

If the IP number is dynamic, it will be changed every time the GPRS reconnect.

To keep track of IP change there is a possibility of register the router at [www.dyndns.com](http://www.dyndns.com). To register is free and after getting a username, password and domain example “xxxx.homelinux.com” add the detail in the DynDns.

**DynDNS Configuration**

Enable DynDNS client

Hostname

Username

Password

The data.htm is now access able by [xxxxx.homelinux.com/data.htm](http://xxxxx.homelinux.com/data.htm)

**SMS under services:**

To get a message if the GPRS connection is down or reconnected.

The screenshot shows a web browser window with the address bar displaying '192.168.1.1/sms.cgi'. The page title is 'UMTS router UR5'. The interface is divided into three main sections: Status, Configuration, and Administration. The 'SMS Configuration' section is currently active and contains the following settings:

- Status:** General, Mobile WAN, Network, DHCP, IPsec, DynDNS, System Log.
- Configuration:** LAN, VRRP, Mobile WAN, Backup Routes, Firewall, NAT, OpenVPN, IPsec, GRE, L2TP, DynDNS, NTP, SNMP, SMTP, SMS, Expansion Port, USB Port, Startup Script, Up/Down Script, Automatic Update.
- Administration:** Change Profile, Change Password, Set Real Time Clock, Set SMS Service Center, Unlock SIM Card, Send SMS, Backup Configuration, Restore Configuration, Update Firmware, Reboot.

**SMS Configuration**

- Send SMS on power up
- Send SMS on connect to mobile network
- Send SMS on disconnect from mobile network
- Send SMS when datalimit is exceeded
- Send SMS when binary input on expansion port (BIN1-BIN4) is active
- Add timestamp to SMS

Phone Number 1:   
Phone Number 2:   
Phone Number 3:   
Unit ID \*:   
BIN1 - SMS \*:   
BIN2 - SMS \*:   
BIN3 - SMS \*:   
BIN4 - SMS \*:

Enable remote control via SMS

Phone Number 1:   
Phone Number 2:   
Phone Number 3:

Enable AT-SMS protocol on expansion port

Baudrate:

Enable AT-SMS protocol over TCP

TCP Port:

\* can be blank