

Getting started with your first data logger



Thank you for considering to use YDOC data loggers, an excellent choice for remote monitoring of hard to reach or off-grid locations. This document briefly describes how to prepare and configure your first data logger (In accomplishment we also want to refer you to chapter “Getting started” of the “YDOC Data Logger Manual”. You can download the latest manual from:

<http://www.ydoc.biz/download/YDOC-Datalogger Manual.pdf>

Step 1, Installing the configuration software.

Our low power data loggers can be configured with a built-in Terminal application. A terminal application is not that fancy as a built-in WebServer, but a WebServer does not make sense as our low power data loggers are in deep sleep most of the time and therefore not reachable by your browser. You can use the YDOC Terminal Emulator (Ms-Windows compatible) to local (USB) or remotely (TCP) configure an YDOC data logger.

Please install ydocTerminal on a PC you want to use for configuring the data logger.

You can download the latest ydocTerminal setup from:

<http://www.ydoc.biz/download/ydocterminalsetup.exe>

Step 2, Preparing your data logger.

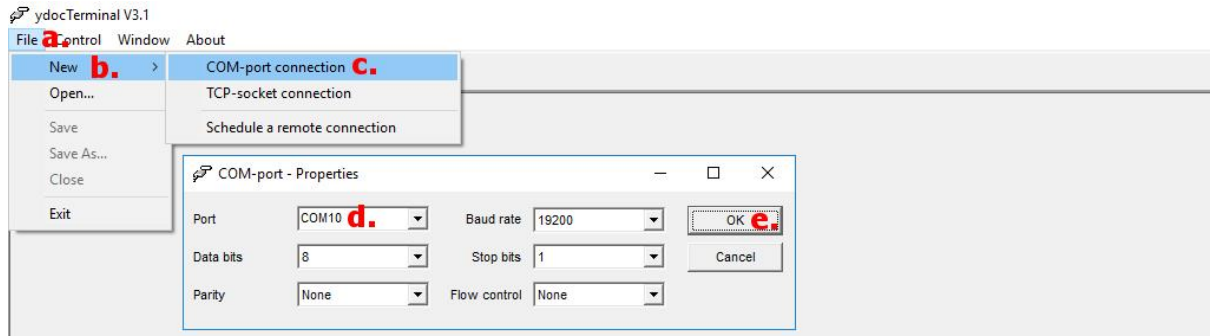


- a) Insert fully charged NiMH LSD AA batteries (GP Recyko or Sanyo/Panasonic Eneloop).
- b) Insert a SIM with cellular internet data subscription.
- c) Connect the power cable between cover and data logger main PCB.
- d) Connect an USB cable to a Windows PC for configuration.

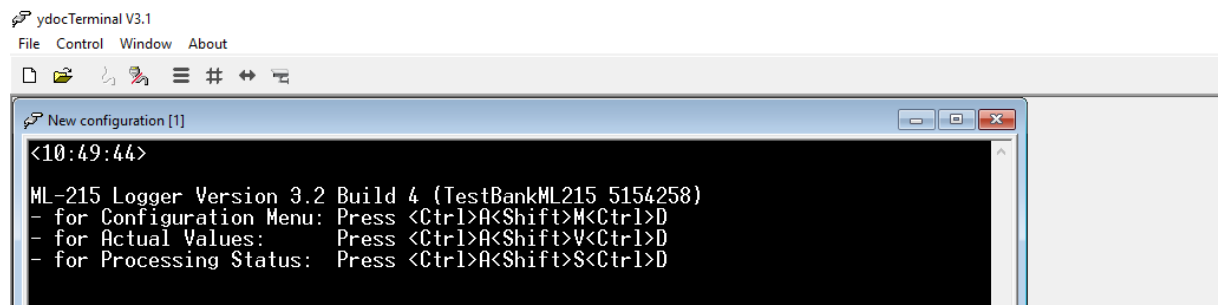
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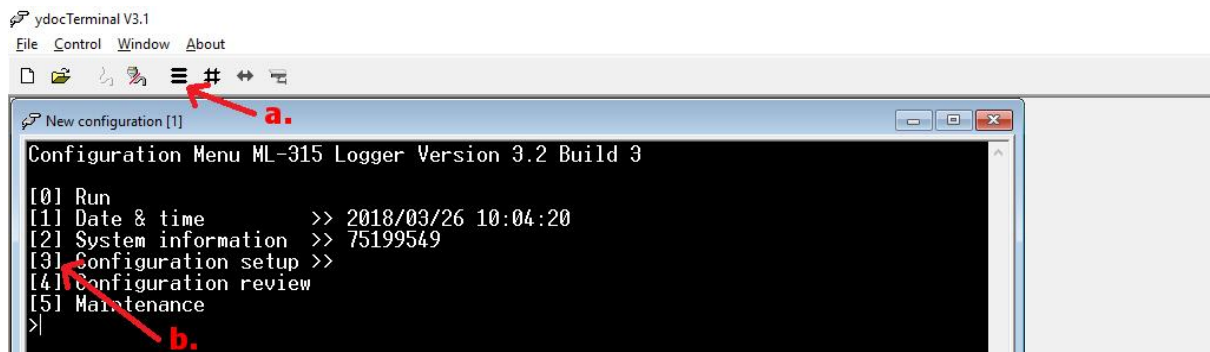
Step 3, Start configuring the data logger



- Start ydocTerminal and click 'File' in the 'Menu'-bar.
- Create a new terminal window by clicking 'New'
- The data logger USB driver will emulate a traditional Windows COM-port, so you have to choose: COM-port connection.
- Windows will assign a COM-port number to the data logger, please choose the one you think it could be.
- Click the 'OK'-button to connect to the data logger, a screen similar as below will appear.



Step 4, Put the data logger in configuration mode



- Click the "hamburger"-button or key combination <Ctrl>A<Shift>M<Ctrl>D on your keyboard to pop-up the 'Configuration'-menu.

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- b) In the 'Menu' click '3' with your mouse or 3 with your keyboard to pop-up the 'Configuration setup'-menu.

Step 5, Configure some general settings like system name and data log interval

```
Configuration setup
[0] Exit
[1] General settings      >>
[2] Modem settings
[3] NTP time update      >> Used
[4] Alarm messages      >> Not used
[5] Option boards       >> None
[6] Internal sensors    >> Internal
[7] Analog inputs      >> Not used
[8] Digital inputs     >> Not used
[9] Network signal sensor >> Not used
[A] Serial port        >> Not used
[B] Accessory port     >> Not used
[C] Derived channels    >> Used
[D] Modem output       >> Not used
[-] Wifi output        >> N/A
>
```

In the main 'Configuration-setup'-menu click '1' with your mouse or 1 with your keyboard to pop-up the 'General settings'-menu.

```
General settings
[0] Exit
[1] System name          >> Site-01
[2] Data log interval    >> 00:01:00
[3] Timestamp round down >> Not used
[4] Continuous alarm sampling >> Off
[5] Direct data output on data alarm >> Off
[6] Alarm output port    >> Disabled
[7] Deployment date and time >> 2018/03/26 10:18:32
[8] Daily operating time slot >> 24 hour
[9] Daily schedule time shift >> Not used
[A] Time zone            >> 0
[B] Summer time (daylight saving) >> Not used
>
```

- a) Choose [1] to specify a wished system name, .e.g. 'Site-01'
- b) Choose [2] to specify a data log interval (Note: Short intervals increase power consumption)
- c) Choose [A] to specify a time zone, which is 0 for the UK

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Step 6, Configure your mobile internet

```
Configuration setup
[0] Exit
[1] General settings      >>
[2] Modem settings
[3] NTP time update      >> Not used
[...]
```

In the main 'Configuration-setup'-menu choose [2] to go to the 'Modem settings'-menu and specify the name of the internet Access Point of your provider, along with (if required) the user name and password of the APN. For most providers this APN name is 'internet' without user name and password (Please ask your provider about the details).

```
Modem settings
[0] Exit
[1] Provider selection
[2] Network              >> 3G+2G fallback
[3] APN access point    >> internet
[4] APN username        >>
[5] APN password        >>
[6] APN authentication  >> PAP (plain)
[7] Network signal test >> Not done
[8] APN login test      >> Not done
>
```

Step 7, Specify an NTP-server

To make sure your data logger is always in sync with the correct time, its recommended to specify an NTP time-server. You can specify any NTP-server you like, but its recommended to use one in your region (e.g. south-america.pool.ntp.org).

```
Configuration setup
[0] Exit
[1] General settings      >>
[2] Modem settings
[3] NTP time update      >> Used
[...]
```

In the main 'Configuration-setup'-menu choose [2] to go to the 'NTP time update'-menu.

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Step 8, Add some internal parameters to log

Before connecting an external sensor (See step 12), it's recommend to log for trail purpose some internal sensors first (a/o battery voltages).

```
Configuration setup
[0] Exit
[1] General settings    >>
[2] Modem settings
[...
[6] Internal sensors    >> Internal
[...
[...]
```

To specify which internal sensors you want to log choose [6] from the main 'Configuration-setup'-menu.

Step 9, Define where you want to transfer log data to and how often

```
Configuration setup
[0] Exit
[1] General settings    >>
[2] Modem settings
[...
[D] Modem output        >> TCP
[...
[...]
```

Depending on the server you want to transfer your data to you can select several transfer protocols (FTP, HTTP, E-mail, MQTT or TCP) and file formats (TXT, CSV or JSON). In this example we will transfer the data in our native TXT format to an YDOC server using our secure TCP protocol. To specify TCP output settings choose [G] from the main 'Configuration-setup'-menu.

```
TCP settings
[0] Exit
[1] Name                >> TCP
[2] Send interval       >> 00:15:00
[3] Send delay          >> Not used
[4] Server              >> your-data-our-server.com
[5] Port                >> 37
[6] Security            >> Encryption(AES-128)
[7] Username            >> yourusername
[8] Password            >> *****
[...
[...]
```

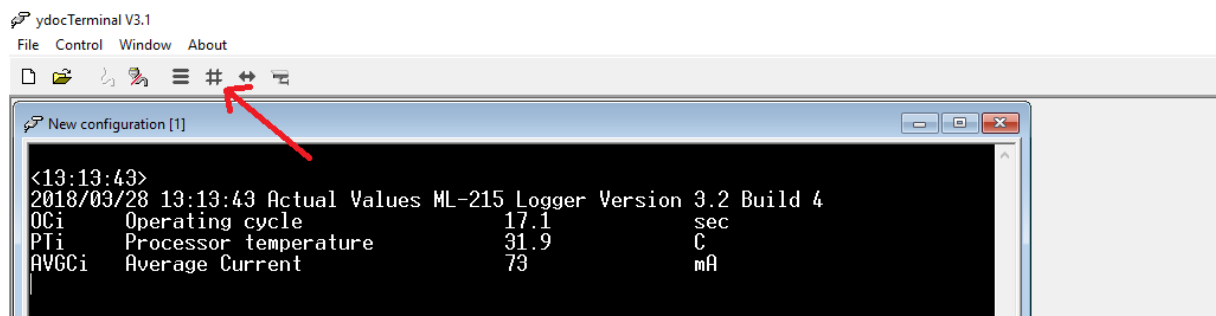
- Choose [2] to specify a send interval (Note: Short intervals increase power consumption)
- Choose [4] and specify the domain name of our server: collector.ydoc.biz
- Choose [7] and specify your user name and password on our server.

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Step 10, Put the data logger in running mode

To see your configuration at work the data logger has to be in running mode. You can put the data logger in running mode by pressing once or multiple times [0], depending on your depth in the configuration. The data logger also starts running after a certain time or automatically after power off/on.

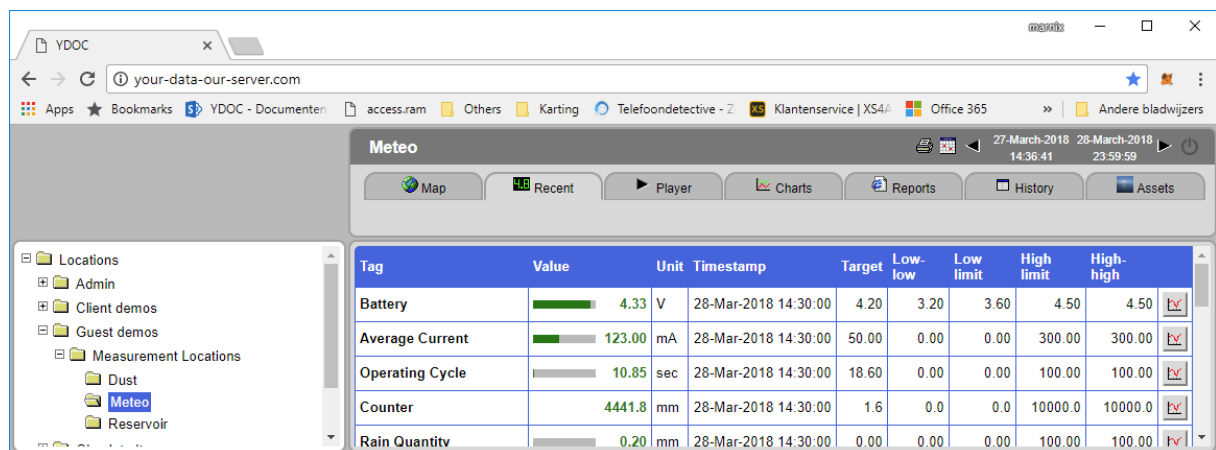


- a) To check if your sensors are sampled, click the “hashtag’-button or key combination <Ctrl>A<Shift>V<Ctrl>D to pop-up a list with the latest sampled values.

Step 11, Check if data is transferred to our server

If you have inserted a valid data SIM with enough (payed) balance, configured the correct APN and TCP-output settings.... Then after a while (depending on the data send interval) the data logger will transfer its log data to collector.ydoc.biz.

You can check it by using a browser (e.g. Chrome, Internet Explorer or Firefox) and visit www.your-data-our-server.com and login with user: yourusername and password: yourpassword



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Step 12, Connect an external SDI-12 sensor



The SDI-12 bus is designed to connect multiple SDI-12 sensors, the SDI-12 bus is a 3 wire bus..

- 1) Serial data wire, please connect to connector X2 pin 5.
- 2) 12VDC power wire, please connect to connector X4 pin 1.
- 3) Ground wire, please connect to connector X4 pin 3.

Step 13, Configure an SDI-12 sensor

We will use a TEKBOX TBSHT02 air temperature/humidity sensor as example.

Configuration setup

```
[0] Exit
[1] General settings      >>
[2] Modem settings
[...
[A] Serial port           >> Not used
[B] Accessory port        >> Not used
[...]
```

In the main 'Configuration-setup'-menu click 'A' with your mouse or A with your keyboard to pop-up the 'Serial port'-menu.

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```
Serial port
```

```
[0] Exit
[1] RS232 sensors
[2] RS485 sensors
[3] SDI12 sensors
>
```

Choose [3] to use the serial port in SDI-12 mode and to configure the sensor specific parameters.

```
SDI12 sensor
```

```
[0] Exit
[1] Name >> SDI12
[2] Port settings >> SDI12; 1200 Baud; Address 0
[3] Sensor power switch >> Enabled; Warm up 00:00:01
[4] Sample interval >> Data log interval
[5] Measurement command >> aC4!
[6] Request CRC usage >> No
[7] Parameter 1 >> RH
[8] Parameter 2 >> Tmp
[9] Parameter 3 >> Dew
[A] Parameter 4 >> Not used
[B] Parameter 5 >> Not used
[C] Parameter 6 >> Not used
[D] Parameter 7 >> Not used
[E] Parameter 8 >> Not used
[F] Parameter 9 >> Not used
[M] More parameters >> Not used
[R] Remove
>
```

- You should specify the SDI-12 command aC4! or aM4!, according to the TEKBOX TBSHT02 manual, to start a relative humidity, temperature and dewpoint measurement.
- According to the same manual, relative humidity is the first parameter, temperature the second and dewpoint the third.

To see your configuration at work the data logger has to be in running mode. You can put the data logger in running mode by pressing once or multiple times [0], depending on your depth in the configuration. The data logger also starts running after a certain time or automatically after power off/on.
