FA-Optimus V

Setup guide
using a PC terminal
rev. 20130322

Battery powered wireless sensor for indoor temperature, humidity and CO_2 measurements

The FA-Optimus V will not measure or transmit anything before it is setup correctly!

Tools required:
an Optimus V USB cable
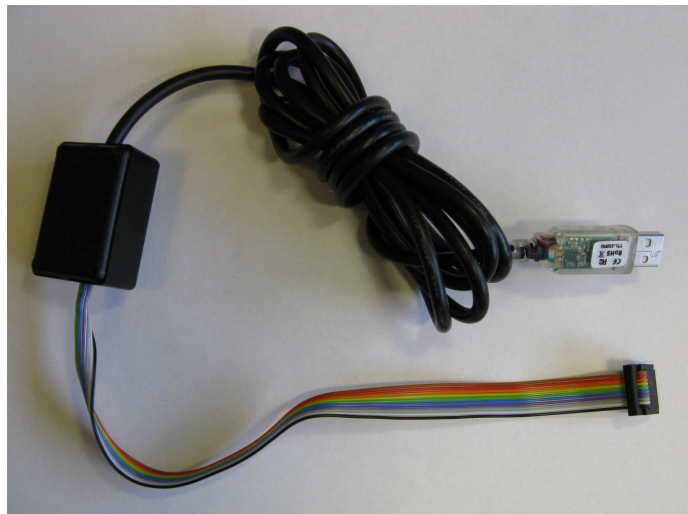a small Phillips screwdriver
a PC/MAC with a USB 2.0 port

Content

This setup guide contains the following:
- Terminal setup
- Optimus V setup
- Linking the Optimus V with an FA-40
- Troubleshooting
- List of setup parameters
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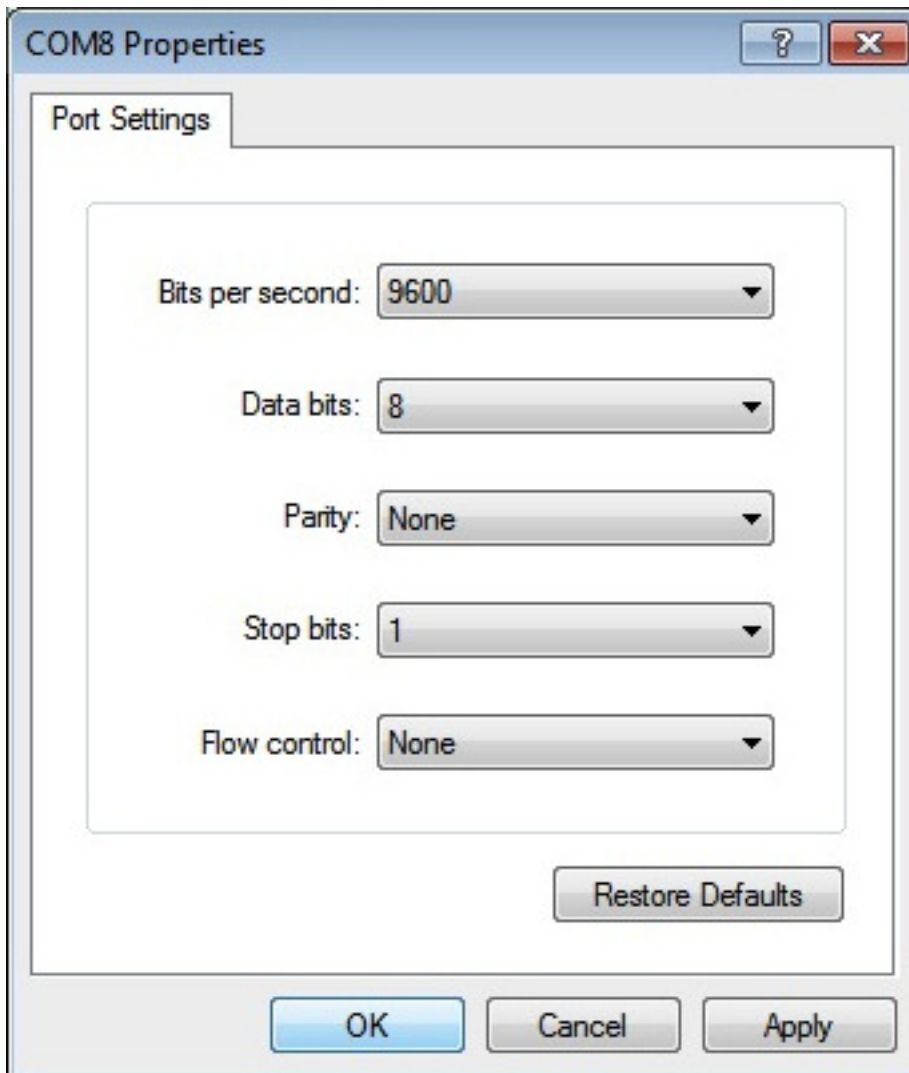## Terminal setup

Optimus USB-cable

1. Connect the USB-cable a PC. Your PC should recognize the USB-cable as a virtual COM port and will automatically install a driver. If not, a driver can be downloaded here: http://www.ftdichip.com/Drivers/VCP.htm.
2. In this guide we will be using the Hyperterminal on a PC. If you don't already have the Hyperterminal program installed on your PC, it can be downloaded here: http://files.digitizor.com/wp-content/uploads/2009/08/hyperterminal1.zip ('-' included)
Mac user can use MacWise. Other terminal-programs might also work correctly.
3. Unzip hyperterminal1.zip and execute the file 'hyperterminal.exe'.
4. Press OK until the "New Connection" window is displayed.
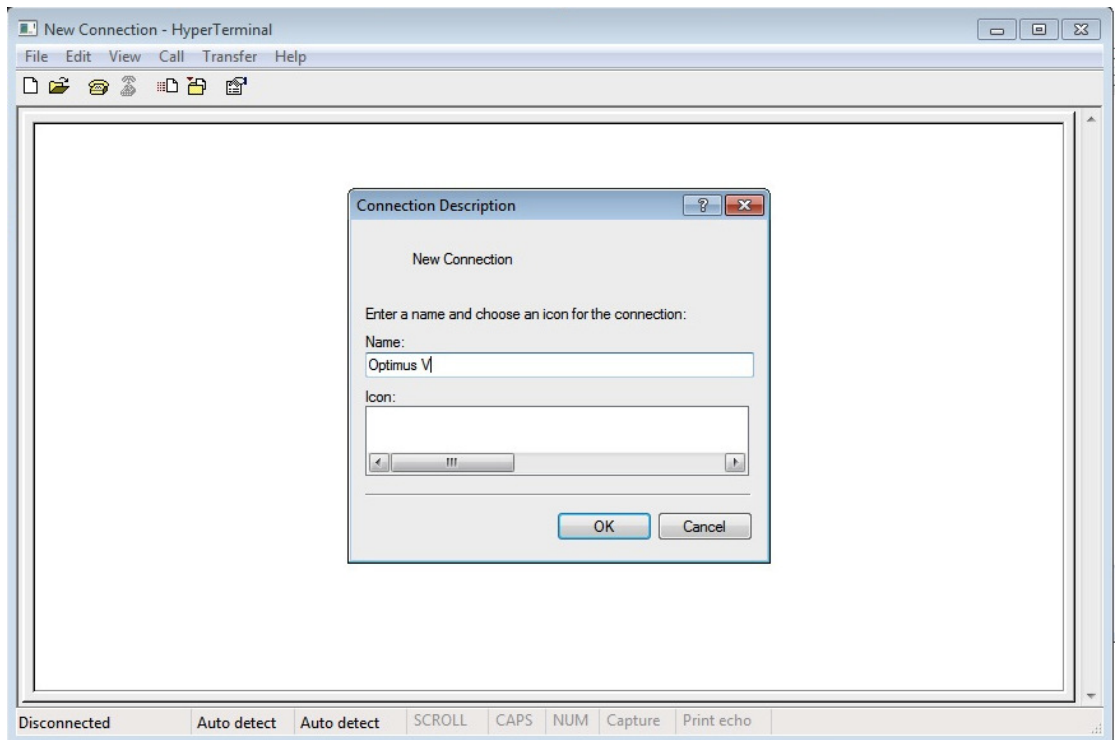
5. Name your connection, fx. "Optimus V" and press 'OK'.

6. Choose the correct COM port and press 'OK'.
    In this example the PC assigned the USB cable to COM8, but it can be assigned to another COM port. If your com port isn't displayed, check that the USB-cable is installed correctly and restart your PC.
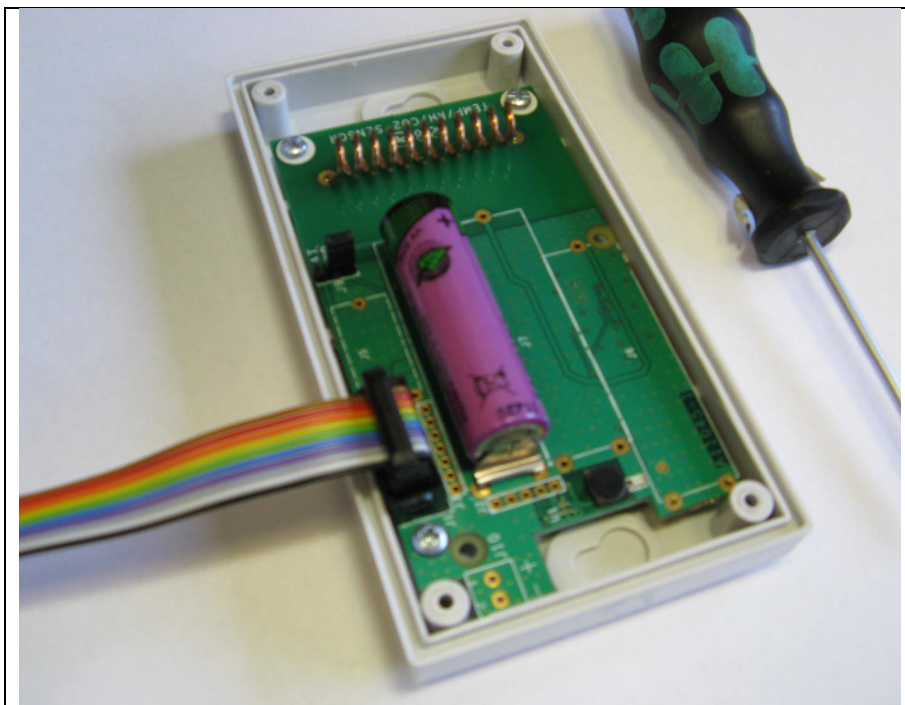7. Set the COM port properties as shown below and press 'OK'

An empty terminal screen should now appear.
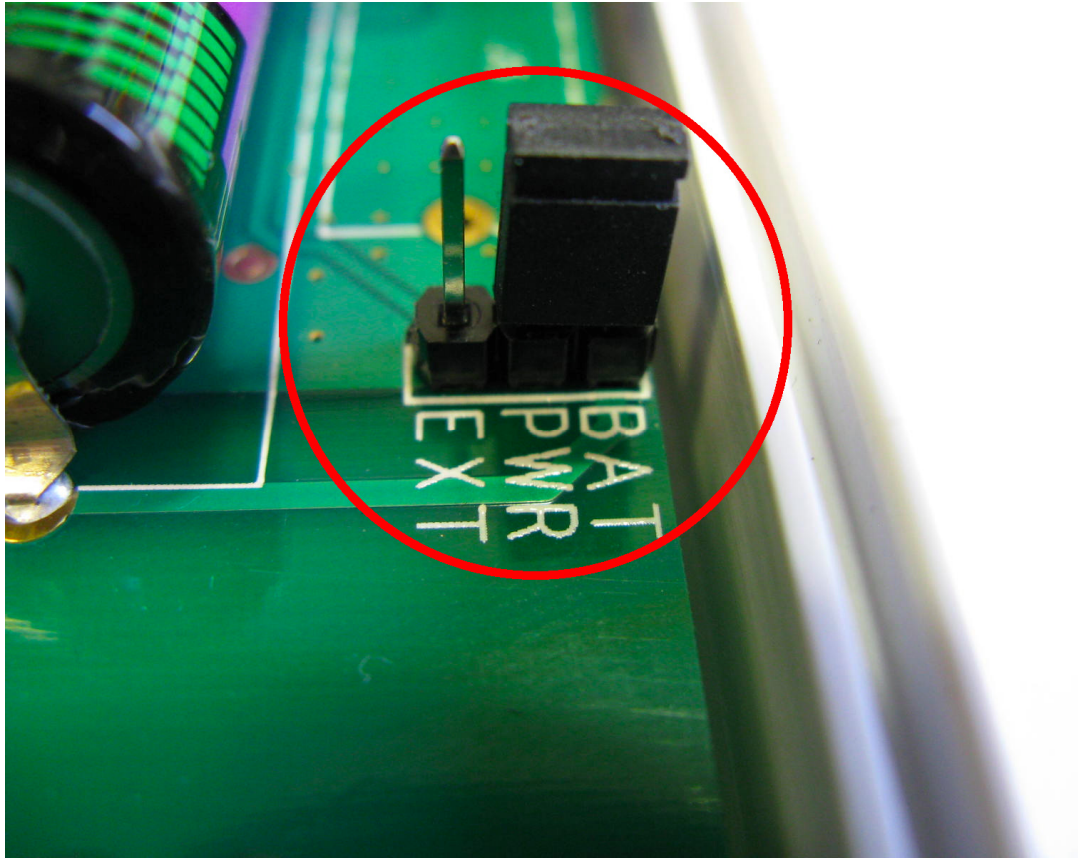Now, we will setup the Optimus V.

Optimus V setup
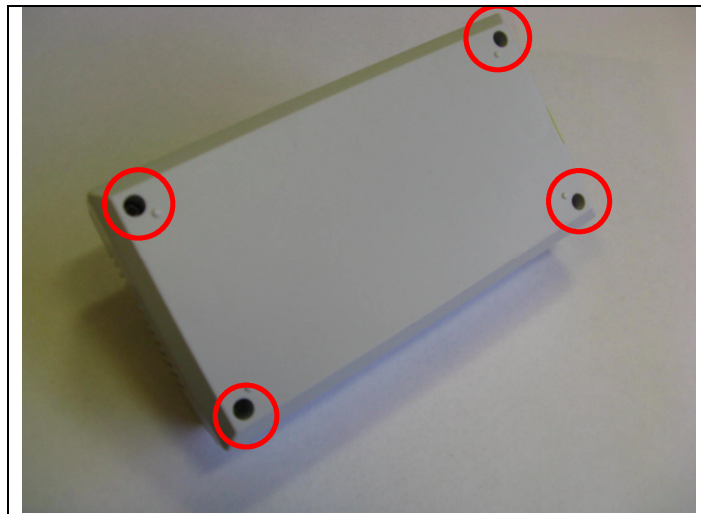
1. Remove the top-cover of the FA-Optimus V by removing the four screws at the bottom of the unit.

2. Connect the USB-cable to the FA-Optimus V.

CB Svendsen A/S | Kirke Vaerloesevej 22-24 | DK-3500 Vaerloese | Denmark | Phone: (+45) 4448 5286 | Fax: (+45) 4448 5784

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3. Locate the jumper J9 on the Optimus V. Place the jumper J9 to power up the unit according to your power source (battery or an external power source). Notice that the green LED will flash 3 times.
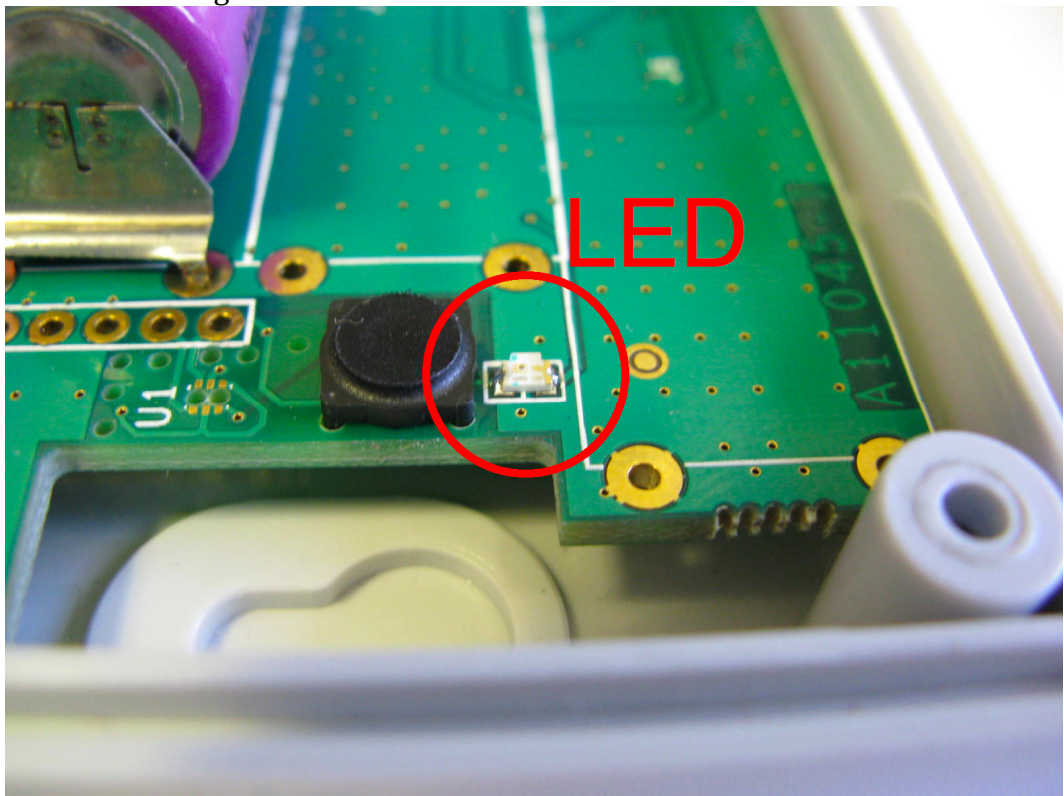
The message "FA-Optimus V loading, please wait…" should now popup on your terminal.
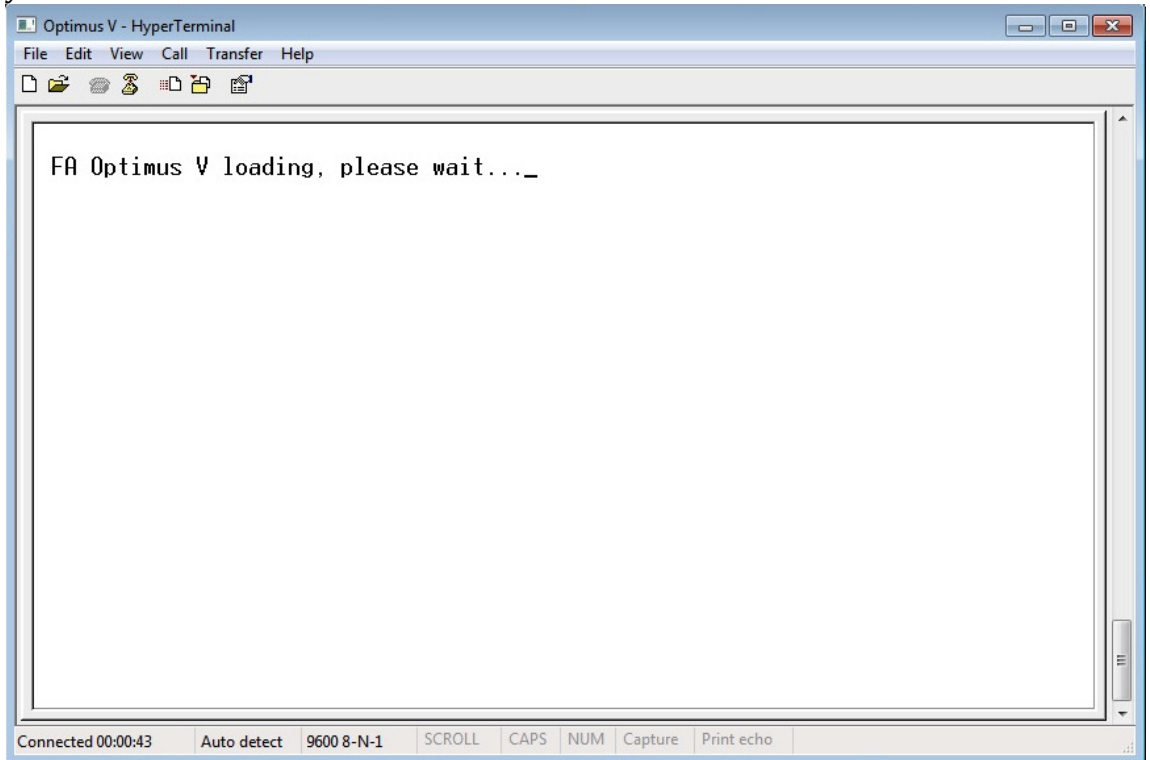
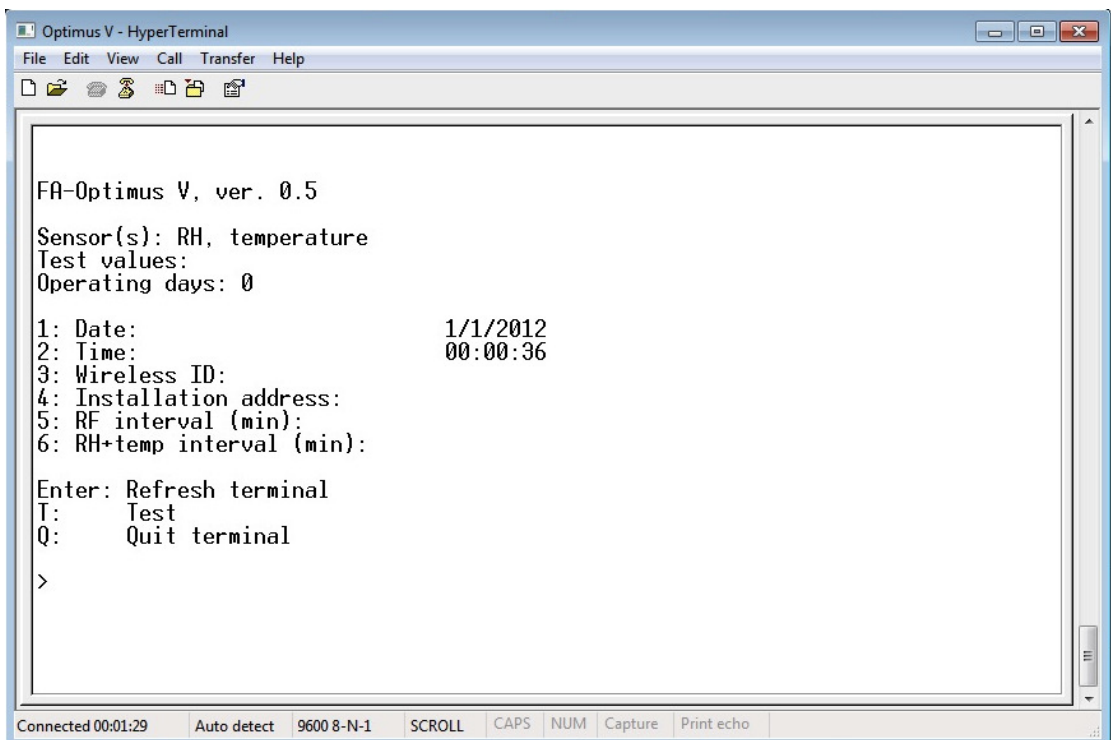4. Press 'ENTER' when Optimus V is ready (approx. 5 seconds), and the Optimus V menu should appear as shown below.

5. Setup the FA-Optimus V for your needs. Fx. press '3' followed by enter to set the wireless id of the Optimus. Be sure to set all parameters! This includes:
   - Wireless ID
   - Installation address
   - RF interval (min)
   - RH+temp interval (min)

   Date and time setup is NOT crucial for the Optimus V to work correctly, as is it the date and time stamp of the FA-40 that will be used for logging.
   If your Optimus V has a CO_2 sensor this will also be listed here. The CO_2 interval is fixed at measure interval of 15 minutes and cannot be changed by the user.
6. When done press the 'q' followed by enter, and the Optimus V will start it measurement cycle (if you forget this, it will actually start the measurement cycle automatically after 30 sec...)
7. Remove the USB cable from the unit.
8. Reassemble the Optimus V (The Optimus V must be assembled as shown on the front page of this document in order to prevent dust and rain to enter the unit).

Note: It is important to **use lowercase letters**, as the software will not accept upper case letters.

Redo the "Optimus V setup" starting on page 5 for all your Optimus V devices. That's it!

An example of a setup is shown in the figure below.

Linking the Optimus V with an FA-40

When you are done setting up all the Optimus V devices follow these steps, to setup the FA-40.

1. The first thing to do is to set up the FA-40 in E mode. This is done by sending an SMS to the FA-40 with the following code: NNNNM1MODEE for use on module 1, or NNNNM2MODEE for use on module 2. As the wireless ID's are linked to the modules as shown in the table below, change the modes according to your previous setup.

Module	Wireless ID range
M1	1-8
M2	9-16

An example setup is shown below:

10 Optimus V devices has been set up with the following wireless ID's: 1,2,3,4,5,6,7,8,9,10.
As the first 8 ID's are linked to module M1, send an SMS to the FA-40 with the following: NNNNM1MODEE.
The last two ID's are linked to module M2. This requires you to send an SMS with: NNNNM2MODEE.

Now you should be able to log data from the FA-40 device according to the manual.

Troubleshooting

- **The Optimus V will not display the menu when pressing 'Enter' on the keyboard.**
  - Is the jumper (J9) placed correctly according to your power source?
  - Does the USB connector flash a green LED when you press 'Enter' on your keyboard? If not:
    - Have you chosen the right COM port for the USB cable in the Hyperterminal? Check the Device Manager (enhedshåndtering) if in doubt.

    If this does not solve the problem, try to restart your PC with the USB cable inserted and try again.

- **The Optimus V will not flash its LED when power jumper (J9) placed**
  If the Optimus V is running and you remove the jumper and put it back in within a few seconds, the Optimus V will not restart. This is because the current consumption of the Optimus V is very low, so it will actually still be ON due to internal capacitors. If you need to restart your Optimus V remove the jumper, wait a while, and put it back in.

List of setup parameters

Parameter	Range	Description
Wireless ID	1-16	The ID range is extended to 1-250, however exceeding the 1-16 range is not recommended
Installation address	1-256	
RF interval	1-60 minutes	Determines how often the measured values will be transmitted to the FA-40
RH+temp interval	1-60 minutes	Determines how often humidity and temperature will be measured
CO_2 interval	-	Determines how often CO_2 will be measured. It is locked to 15 minutes and cannot be changed by user
Date and time	-	

List of terminal commands

Command	Description
Enter	Refreshes the terminal menu
"t"	This command performs a measurement on all sensors and displays it in the terminal (CO_2 value can be up to 15 min. old).
'q'	Quits the terminal and starts the measurement cycle according to the entered parameters
"clear memory"	This command resets the Optimus V to factory setting. The Optimus V will not measure or transmit anything after a "clear memory" command. It can be setup again using the terminal.
"reset days"	Resets the Operating counter to '0'.
"tx tone"	Test purpose

FA-Optimus V
Location table

FA-40:

Location: _____

Phone# / IP-address: _____

| Wireless ID	Installation address	Physical Location

Appendix A – How to retrieve Optimus data from a FA-40 unit

For larger systems, an IT system is provided and therefore the guide to setup the FA-40 unit will be described in the manual for that IT system.

For smaller systems, or for test purposes, the FA Readout software from CB Svendsen A/S can be used. The following guide describes how to retrieve data from the FA-40 using the FA Readout software.

The FlexLoggers in FA-40 Flex unit can be set up to log data from the Optimus devices. Below is given an example of a setup for 3 Optimus devices:
1. In FA Readout, click on **Write registers (F7)**. If there is no button, change mode in the settings tab.
2. Enable FlexLogger1 or FlexLogger2. As shown in the figure.
3. In the Logging time base field, you can choose the time interval between logs.
4. In the Data registers drop down menu, scroll down until the Optimus devices are listed. To add them to the FlexLogger, select the ones you want, and click add.
5. Supported values are[1]: Device ID, Temperature1, Humidity and CO2[2].
6. If you want a uniform setup, for each Optimus device, choose Device ID, Temperature1, Humidity and CO2 as shown in the figure.

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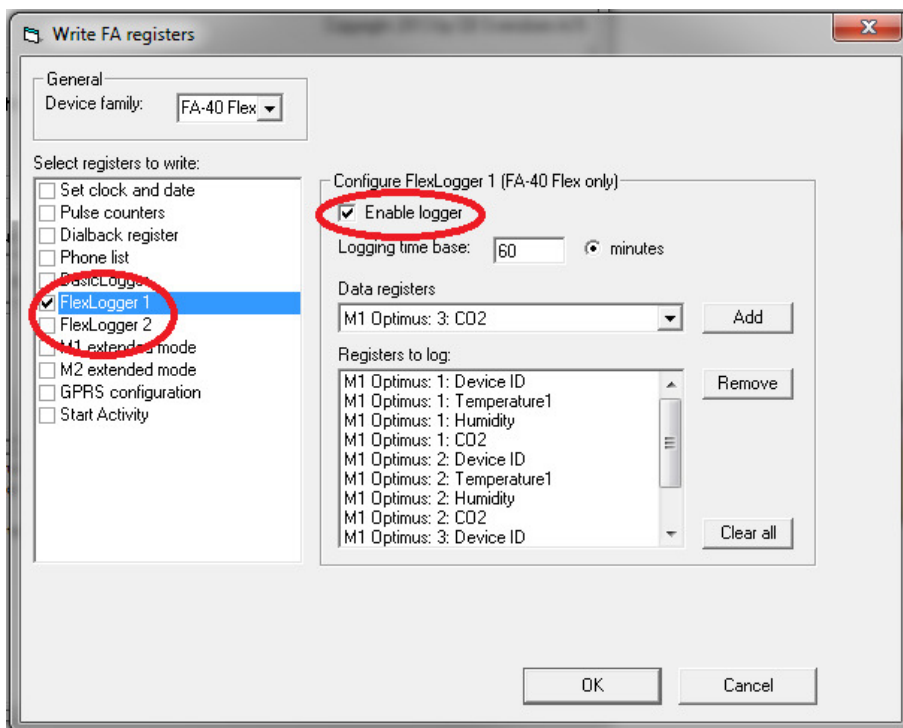
[1] Other values are used for future Optimus units.
[2] CO2 is only supported for Optimus units with a CO2 sensor installed.

Appendix B – Optimus LED status check

If you want to check if your Optimus unit is working properly, but don't have access to a PC-terminal, you can check the status of the Optimus by placing a jumper that will activate the green LED on the unit.

The Optimus must be setup via the terminal prior to this check to respond correctly.

To activate the LED status check, place a jumper in the onboard connector (PIN3 and PIN4) according to the pictures below:
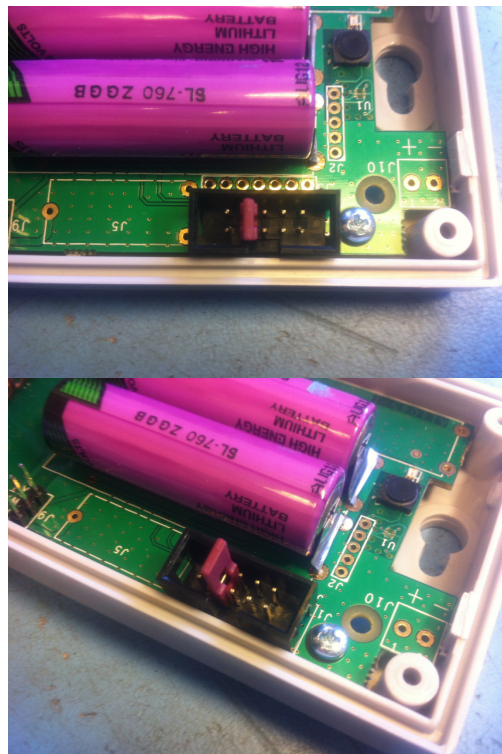
The onboard green LED will now respond as shown in table below:

Optimus action	LED response	Notes
Running	1 blink	Appears every 10-20 sec.
Measuring temp/rh	2 blinks	Appears according to measuring interval
Reading CO_2	3 blinks	Only if CO_2 sensor is installed
Transmitting	4 blinks	Appears according to transmit interval

REMOVE THE JUMPER after proper operation has been observed to preserve the batteries.

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