



# Manual

## Cellular communication problems

Version 1.1 (2019-05-23)

# INTRODUCTION

This manual is prepared to identify and solve cellular communication problems for third generation TAHMO stations which have the Em60G data logger . It is required to have Zentra Utility installed on your computer and to have to data logger connected to your computer over USB.

# CELLULAR TEST

The first step is always to do the cellular test. This will tell you whether your data logger has a sim card and whether the sim is broken. It will also tell you whether your host (target server) and APN are configured correctly.

Open the Zentra Utility and click on cellular test at the top right of the window.

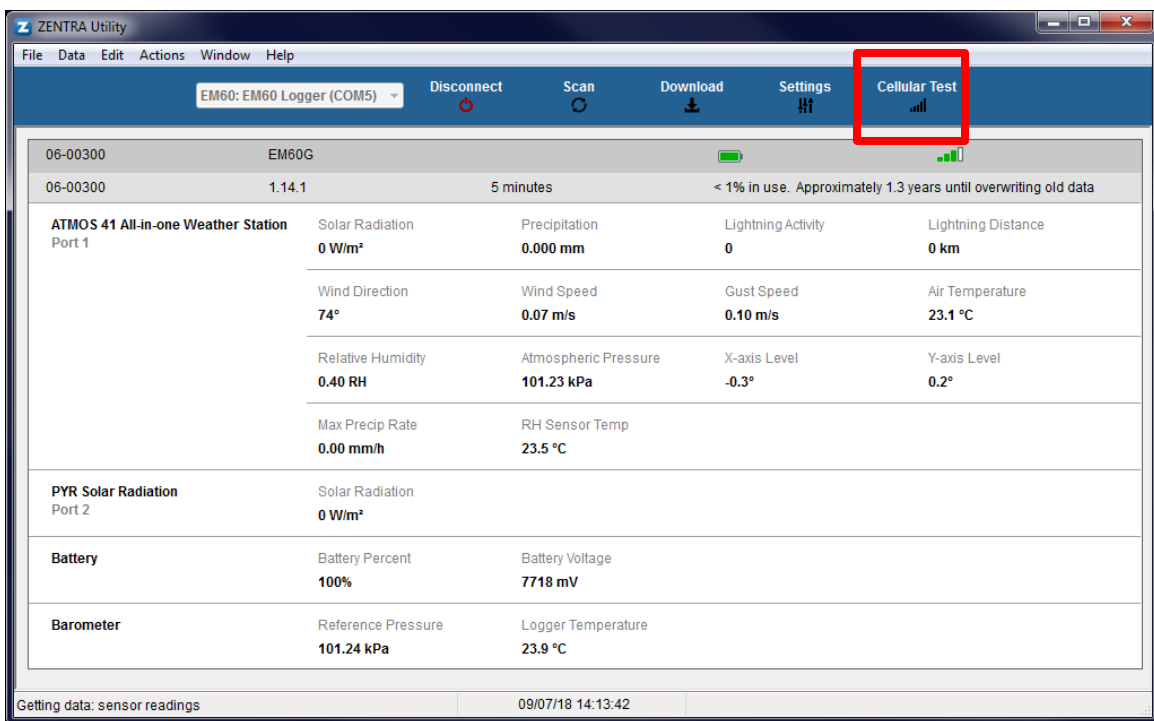


Figure 1: Zentra Utility

You will have this pop-up window here click the test button at the bottom right.

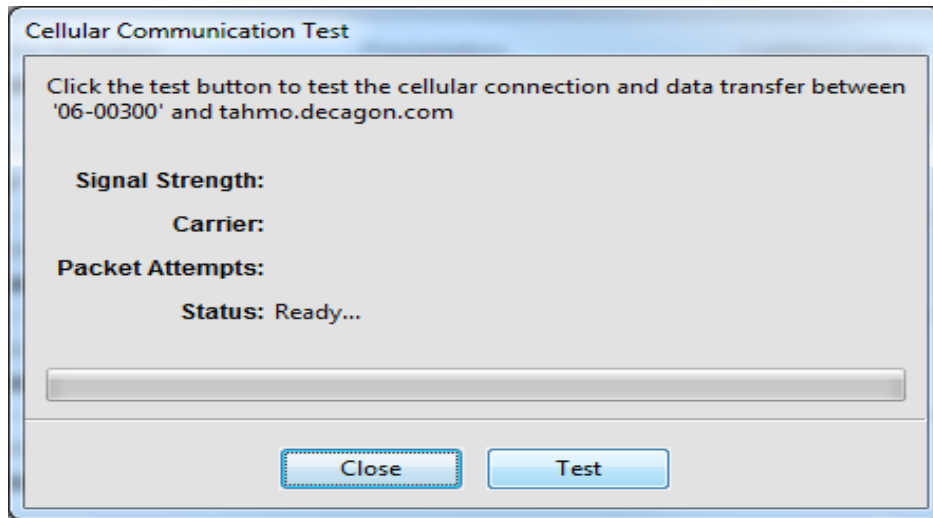


Figure 2: Cellular test window

The cellular test will now run and depending on the response you receive out of it there are different methods to resolve the issue. Check carefully which of the responses discussed below matches what you're seeing on your screen.

## CELLULAR TEST RESPONSES

### *Response: SIM Failed*

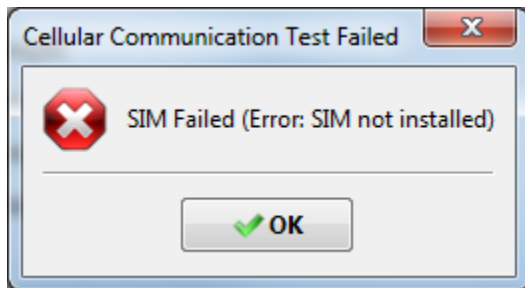


Figure 3: Sim failed error

If there is no sim card correctly installed or if it is broken then you will see the error in the screenshot above. The sim card is located at the back of the data logger board. Remove the four screws and carefully check if there's a sim card and that it's properly put in the sim slot.

# RESPONSE: FAILED TO START INTERNET CONNECTION

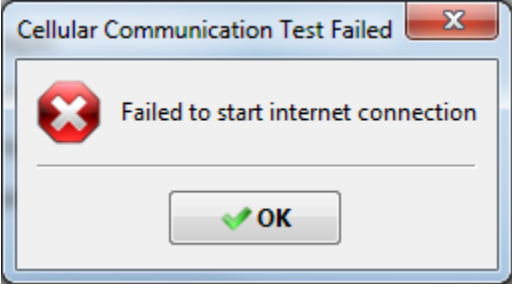


Figure 4: Failed to start internet connection error

This error message can be shown because of an inactive sim card or when the APN setting is not configured correctly.

You first have to check whether the APN that is configured on the data logger is correct for the sim card provider that you’re using. We do this by running the command “get -apn” within the terminal of Zentra Utility. For explanation on how to run terminal commands please check the last chapter of this manual.

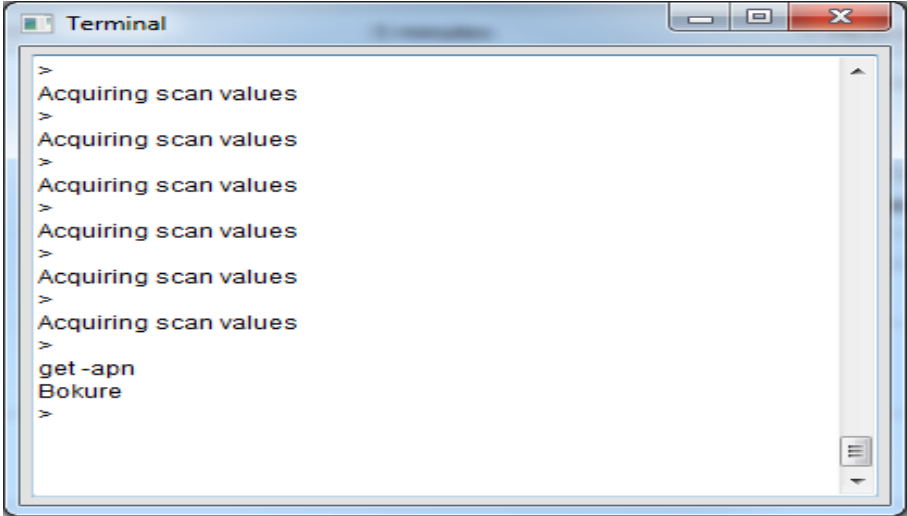


Figure 5: Get current APN setting

As you can see from the screenshot above this station has the apn name of Bokure ( I just gave it for this manual). You need to check whether the value you received is the correct setting according to table 1.

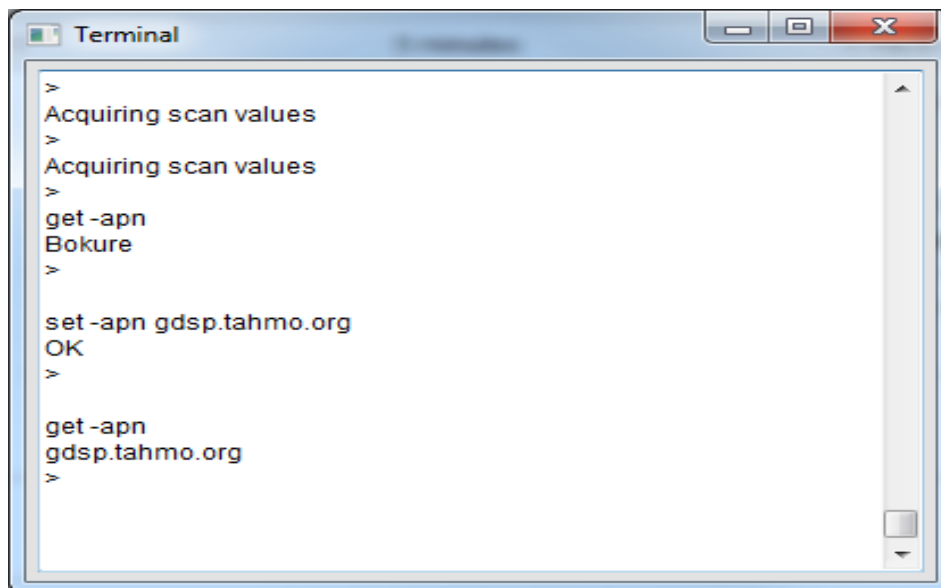
Please note that there are some exceptions to the countries listed in this table. You can always check the sim card physically to know which sim provider is being used.

Table 1: Sim card providers and APN settings

Sim card provider	APN value
<b>Vodafone M2M</b> Deprecated but still used in: Burkina Faso, Benin, Ghana, Kenya, Nigeria, Uganda, South Africa	gdsp.tahmo.org
<b>Podcast system F2M</b> Used in: Chad, Congo, Lesotho, Mali, Rwanda, Senegal, Tanzania, Togo, Zambia	data641003
<b>Aeris M2M</b> The new default sim card for TAHMO stations	iot-eu.aer.net
<b>Local SIM</b>	Check website of sim provider!

To change the APN setting in the datalogger you have to run the terminal command “set -apn *value*” write it like this “set *space* -apn *space* *value*” and then press enter on your keyboard (see terminal commands chapter for additional help).

If you want to set the correct APN value for Vodafone M2M simcards you would run the command “set -apn gdsp.tahmo.org” after which you should see the “OK” as response.



```
Terminal
>
Acquiring scan values
>
Acquiring scan values
>
get -apn
Bokure
>
set -apn gdsp.tahmo.org
OK
>
get -apn
gdsp.tahmo.org
>
```

Figure 6: Configure new APN setting

If you're sure that the APN is configured correctly and you still receive the “Failed to start internet connection” error then there's also the possibility that the sim card

has not been properly activated. If you use Vodafone M2M or Postcast F2M sim cards, please send an email to [h.f.hagenaars@tudelft.nl](mailto:h.f.hagenaars@tudelft.nl) in which you clearly state the SIM number (can be found on sim card) and that you request to verify whether the sim subscription is active.

## RESPONSE: CONNECTION QUALITY FAILED

If you see that the same response as figure 7 in which the status says “Connection Quality: Failed” there’s likely a problem with the server configuration or the sim card is inactive or out of credits.

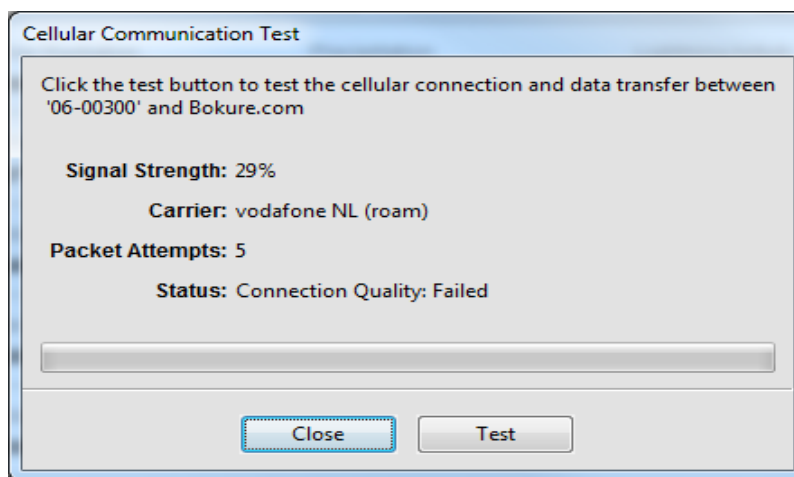


Figure 7: Cellular test failed

To check if this station has wrong server or host then you have to run the “get – server” terminal command (figure 8). This should return either a domain or IP address to which all data will be sent.

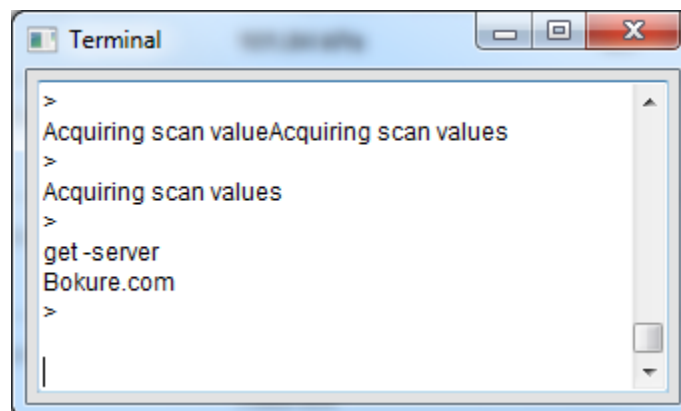


Figure 8: Get host (target server)

The correct value for the server depends on the country in which the station is located. The default value for the server is “tahmo.zentracloud.com” but we use different values in the following countries:

Table 2: Server values per country

Country	Server value
Uganda	154.72.192.141
Rwanda	rwandaproxy.datahmo.org
Zambia	zambiaproxy.datahmo.org
Other countries	tahmo.zentracloud.com

Please note that older stations may have the server setting “tahmo.decago.com” which will also work since it is linked to “tahmo.zentracloud.com”.

If you need to update the server value you can do so by running the terminal command “set -server value”. E.g. “set -server tahmo.zentracloud.com” (see figure 9).

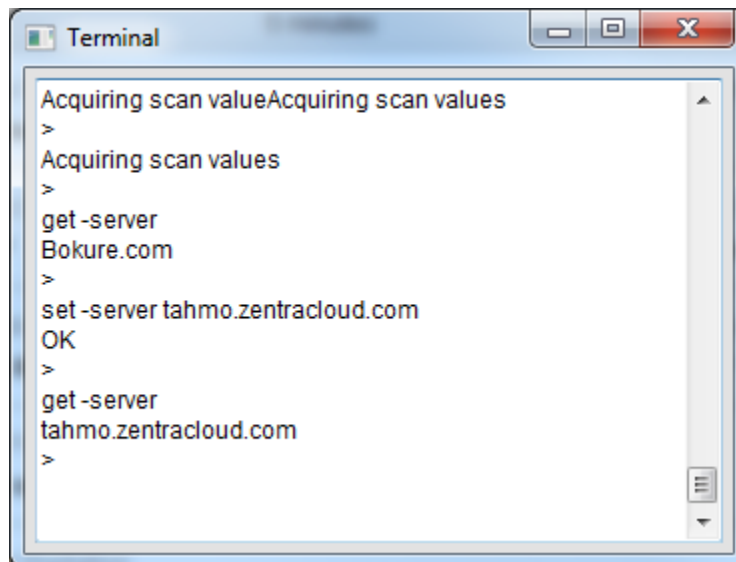


Figure 9: Configuring target server

## ADDITIONAL TROUBLESHOOTING

If you haven't been able to solve the cellular problem with the steps described in this manual then it's likely the GSM module is malfunctioning. Meter Group will require some additional troubleshooting information which can be retrieved by running terminal commands. The terminal commands that need to be run are:

```
gsm -init
gsm -init -debug
gsm -testcall
get -apn
get -server
get -authkey
```

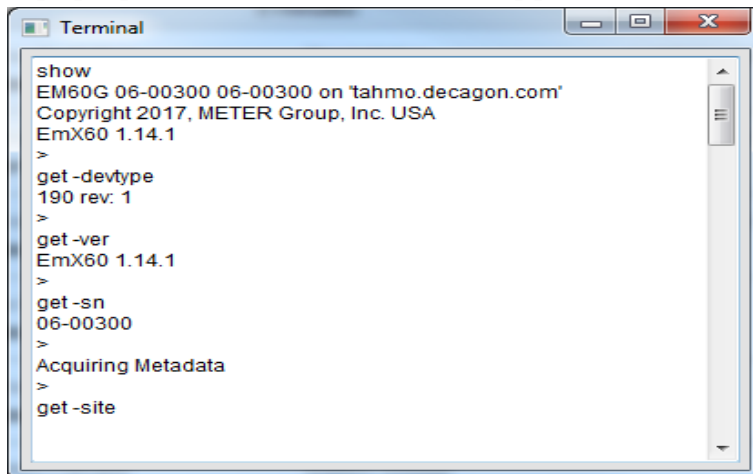
Please run these commands one-by-one and make a screenshot of the return values in your terminal. If you're unable to make a screenshot then just copy the text from the terminal towards a text file in notepad. A detailed guide on how to run these terminal commands is covered in the next chapter.



# TERMINAL COMMANDS

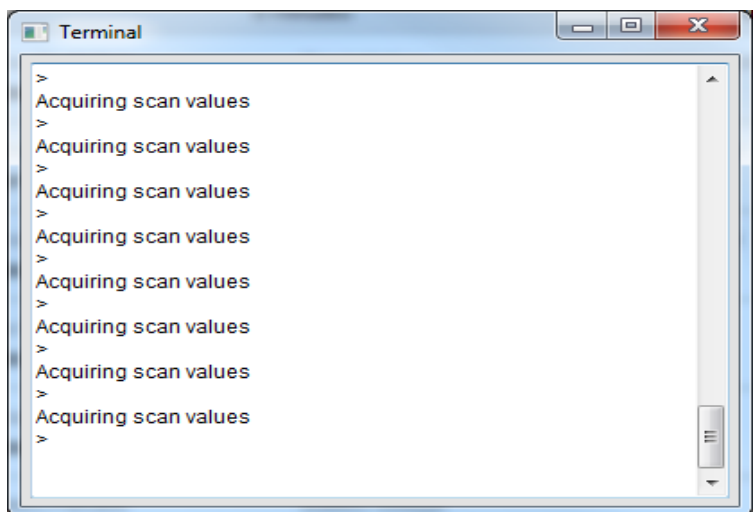
To open the terminal go to “window” at the top left of the Zentra Utility window and click on it then click on “show terminal”.

A pop up window like below will appear



```
Terminal
show
EM60G 06-00300 06-00300 on 'tahmo.decagon.com'
Copyright 2017, METER Group, Inc. USA
EmX60 1.14.1
>
get -devtype
190 rev: 1
>
get -ver
EmX60 1.14.1
>
get -sn
06-00300
>
Acquiring Metadata
>
get -site
```

If it is like this, then scroll your cursor down to the bottom.



```
Terminal
>
Acquiring scan values
>
Acquiring scan values
>
Acquiring scan values
>
Acquiring scan values
>
Acquiring scan values
>
Acquiring scan values
>
Acquiring scan values
>
Acquiring scan values
>
```

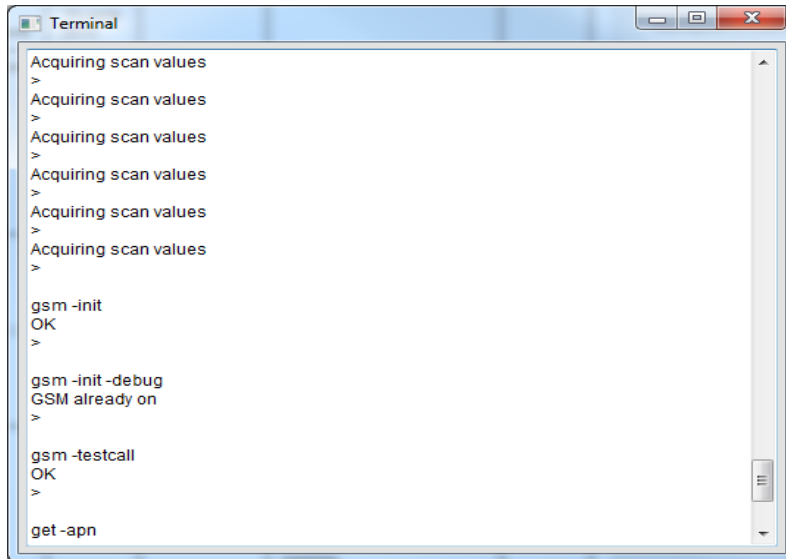
Put your cursor on a blank line under the last “>” sign and type in your command. For this tutorial we will follow all the commands that need to be run for the additional troubleshooting.

Enter the command “gsm -init” then press enter on your keyboard.

If the GSM module is ok, you will see “OK”.

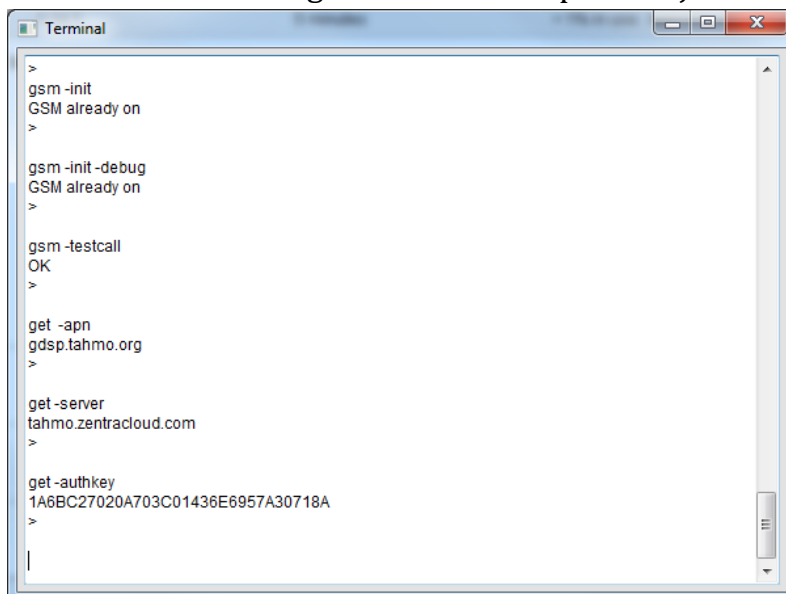
Then write “gsm -init -debug” then press enter on your keyboard

If the station is good you will see “GSM already on” continue one by one as you see in the screen shot below.



```
Terminal
Acquiring scan values
>
Acquiring scan values
>
Acquiring scan values
>
Acquiring scan values
>
Acquiring scan values
>
Acquiring scan values
>
Acquiring scan values
>
gsm -init
OK
>
gsm -init -debug
GSM already on
>
gsm -testcall
OK
>
get -apn
```

start not after this sign ">"but one step lower just like the screen shot



```
Terminal
>
gsm -init
GSM already on
>
gsm -init -debug
GSM already on
>
gsm -testcall
OK
>
get -apn
gdsp.tahmo.org
>
get -server
tahmo.zentracloud.com
>
get -authkey
1A6BC27020A703C01436E6957A30718A
>
|
```

Please note that the APN value and server values can be different from the ones displayed in this screenshot depending on the SIM card provider and the country where the station is installed.

Example : to write "gsm -init" write like this "gsm" then space then "-init" . without any space between this "-" sign and "init"