Diagnostic for the GCP-MG

Application Note 303

Draft Revision 1.0, November 2008

This Application Note describes how to perform Modbus communication diagnostic tasks for the *GCP-MG* gateway.

Prerequisites

- *modpoll* command line Modbus simulator. A free version can be downloaded from: http://www.modbusdriver.com/modpoll.html
- *ModScan32* from *WinTECH Software Design*. A trial version can be downloaded from: http://www.win-tech.com/html/demos.htm
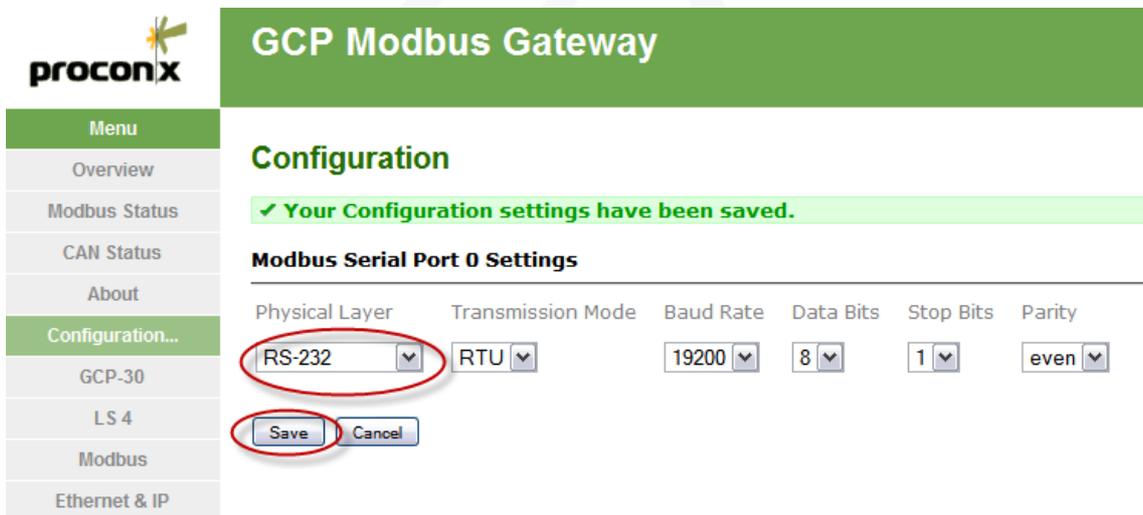
Test procedures

Testing Modbus RS-232

Connect the *GCP-MG* with a null-modem serial cable to the COM1 port of your PC. Please use a proper serial port and not a USB-serial converter.

> USB/serial converters are not recommended for Modbus RTU as they tend to introduce latencies which may be incompatible with Modbus RTU timing specifications.

Configure the *GCP-MG* for *Modbus RS-232* operation as shown in the following screen:
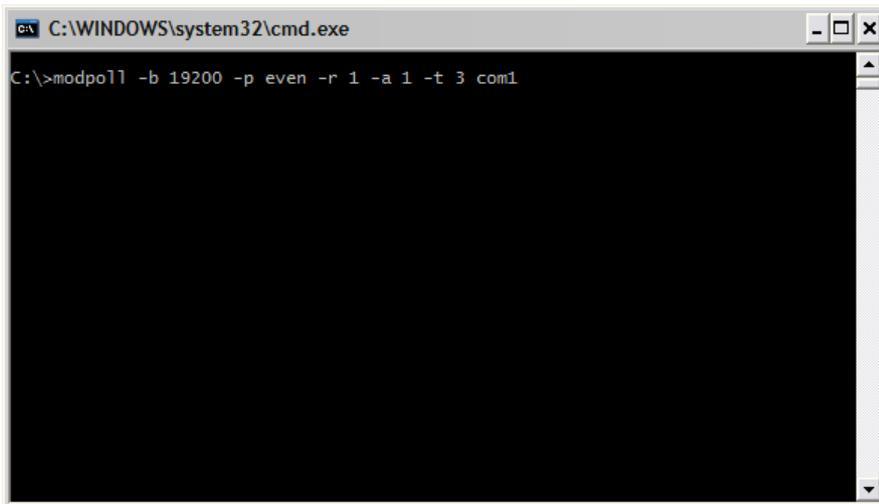

Make sure you store the settings by pressing the **Save** button.

Testing using the modpoll utility

Now run the modpoll utility on your PC from a command prompt window using the following command:

```
modpoll -b 19200 -p even -r 1 -t 3 -a 1 com1
```

```
C:\WINDOWS\system32\cmd.exe                                  _ □ ×
C:\>modpoll -b 19200 -p even -r 1 -a 1 -t 3 com1
```

The output should look like:

```
[1]: 0
Polling slave (Ctrl-C to stop) ...
```

You can select the *GCP-MG* you want to communicate with using the address parameter `-a`. For example to talk to GCP #2 change the `-a` parameter to `-a 2`.

If the *GCP-MG* is connected to the CAN bus, you can poll more than one register by adding the count parameter `-c`. For example to read all 100 registers in one go:

```
modpoll -b 19200 -p even -r 1 -t 3 -a 1 -c 100 com1
```

> modpoll offers quite a few configuration options. Run `modpoll -h` to get a help screen with usage information.

Testing using the ModScan32 utility

Start the *ModScan32* program from the Windows `Start` menu. The Modbus data form opens. Change the following parameters of the form to match the settings of the *GCP-MG* gateway:

`Address`
Should be the first Modbus address of the GCP-30 MUX data table which is `1`.

`Length`
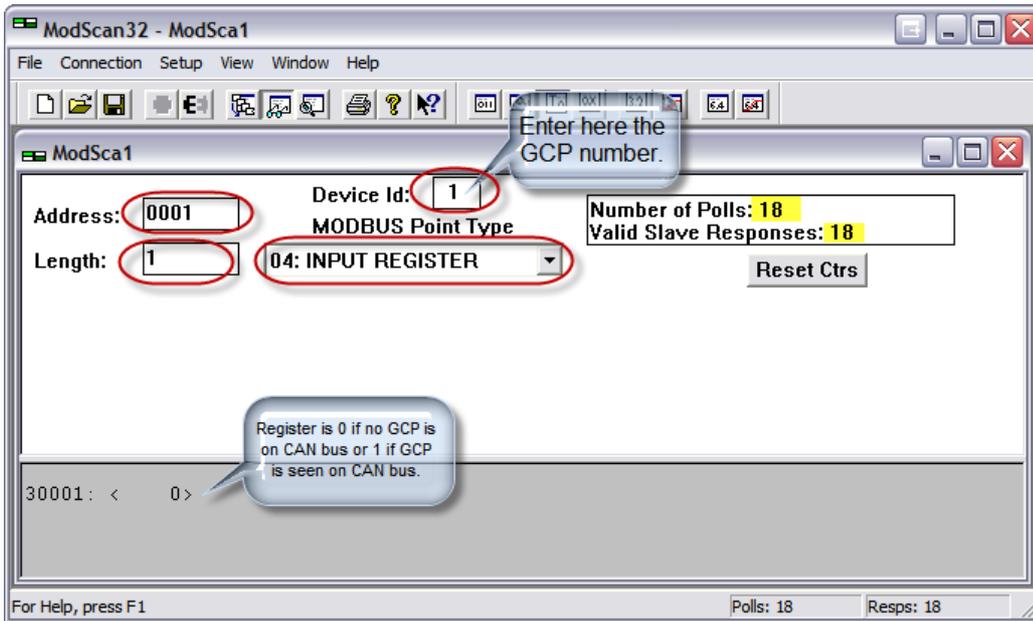Should initially be set to `1`. This can be increased to `100` once a GCP is connected to the CAN bus.

`Device Id`
Should match the ID of the GCP you want to communicate with.

Data table dropdown box
Select table `04 INPUT REGISTER` here.

For the first test the form should look like this:

From the *ModScan32* menu, select **Connection⊙Connect** to open the Connection Details dialog box as shown below.

Choose the **Direct Connection** for the serial port you intent to use. In this example we use COM1. Make sure that Baud Rate and Parity settings are correct.
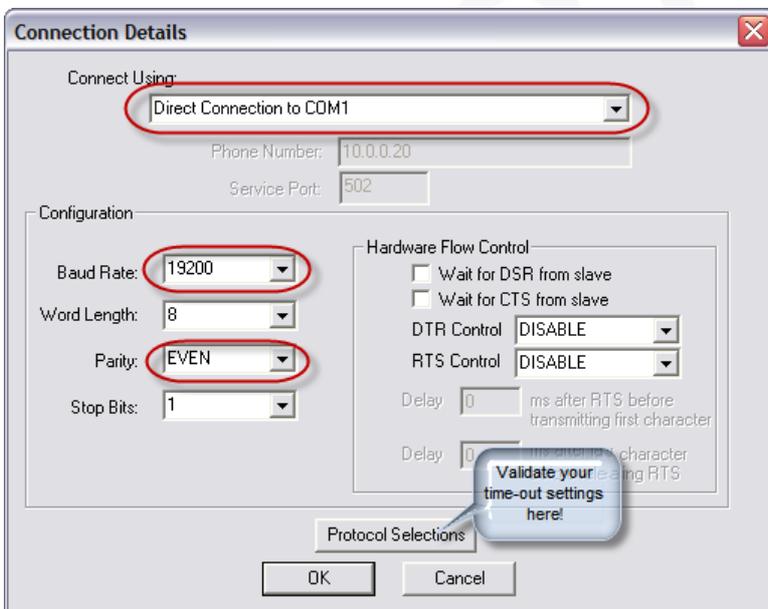

Press the **Protocol Selections** button to open the Modbus Protocol Selections dialog as shown below.

Select **RTU** and **1000** as time-out and press **OK**.
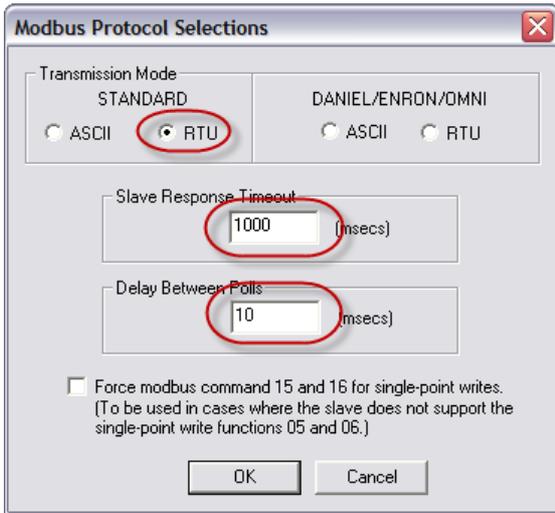
Press **OK** to close the `Connection Details` dialog and to start the Modbus.

You will see the `Number of Polls` counter increment and if communication is OK then the `Valid Slave Responses` counter should also increase like in this example below:
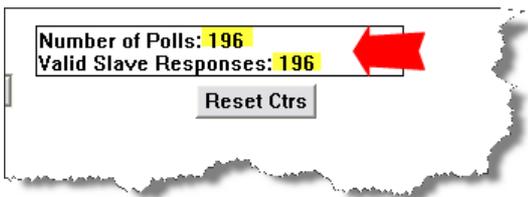
In case of errors *ModScan32* will show an error line in red color above the Modbus register area like shown below:
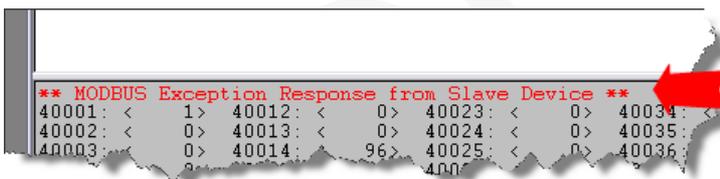
proconX and *FieldTalk* are trademarks of *proconX* Pty Ltd. All other product and brand names mentioned in this document may be trademarks or registered trademarks of their respective owners.

Disclaimer

proconX Pty Ltd makes no warranty for the use of its products, other than those expressly contained in the Company's standard warranty which is detailed in the Terms and Conditions located on the Company's Website. The Company assumes no responsibility for any errors which may appear in this document, reserves the right to change devices or specifications detailed herein at any time without notice, and does not make any commitment to update the information contained herein. No licenses to patents or other intellectual property of *proconX* are granted by the Company in connection with the sale of *proconX* products, expressly or by implication. *proconX* products are not authorized for use as critical components in life support devices or systems.

Support & product feedback

We provide an electronic support and feedback system for our *proconX* products. It can be accessed through the following web link:

http://www.proconx.com/support

Your feedback and comments are always welcome. It helps improving this product.

Contact

For further information about the *GCP-MG* product or this document please contact us at:

proconX Pty Ltd
PO Box 791
Sumner QLD 4074
Australia
Website: http://www.proconx.com/gcpmg