

Remote control with the GCP-MG

Application Note 302

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This Application Note describes how to perform remote control operations like genset start, stop and alarm reset using Modbus and the *GCP-MG* gateway.

Preparation

All devices have to be configured first to allow remote control as it is disabled by default. The GCP-30 unit also requires some hardwiring.

GCP-30 setup

Before being able to use remote control, please check that the GCP-30 unit has been parameterized accordingly. Refer to chapter *Interface* in your *GCP-30 Series Genset Control* manual.

- GCP-30 parameter 120 Control via COM X1X5 must be turned on
- Discrete input Automatic 2 (terminal 5) must be asserted.
- GCP-30 parameter 122 Ackn. F2,F3 via COM interf must be turned on if remote alarm acknowledgment is required.
- GCP-30 must be in Automatic mode (Automatic LED must be lit)

GCP-MG setup

Remote control needs to be enabled on the *GCP-MG* gateway for each device.

Use a web browser and point it to the IP address of your *GCP-MG* gateway. The overview page will appear.

To configure the Modbus access, enter the Configuration sub-menu and click on either the GCP-30 or LS 4 menu entry. This opens either the GCP-30 settings or the LS 4 settings.

For each device you require remote control, set to either control or monitored control as shown below. Save the configuration settings.

proconX **GCP Modbus Gateway**

Configuration

GCP-30 Modbus Access

GCP-30	CAN Id	Modbus Slave Id	Modbus Access	GCP-30	CAN Id	Modbus Slave Id	Modbus Access
#1	801	1	control	#9	809	9	read-only
#2	802	2	read-only	#10	810	10	read-only
#3	803	3	control	#11	811	11	read-only
#4	804	4	read-only	#12	812	12	read-only
#5	805	5	read-only	#13	813	13	read-only
#6	806	6	read-only	#14	814	14	read-only
#7	807	7	read-only	#15	815	15	read-only
#8	808	8	read-only	#16	816	16	read-only

Save Cancel

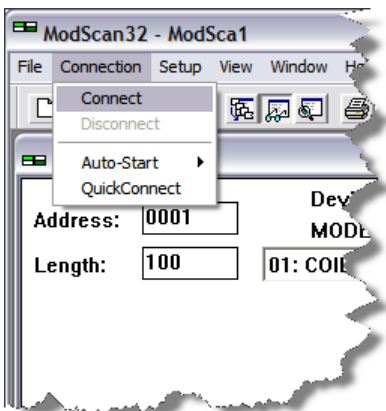


We suggest to set it to control first and once remote control has been tested to change it to monitored control if that function is required. It is easier to test with the less complex non-monitored control mode first.

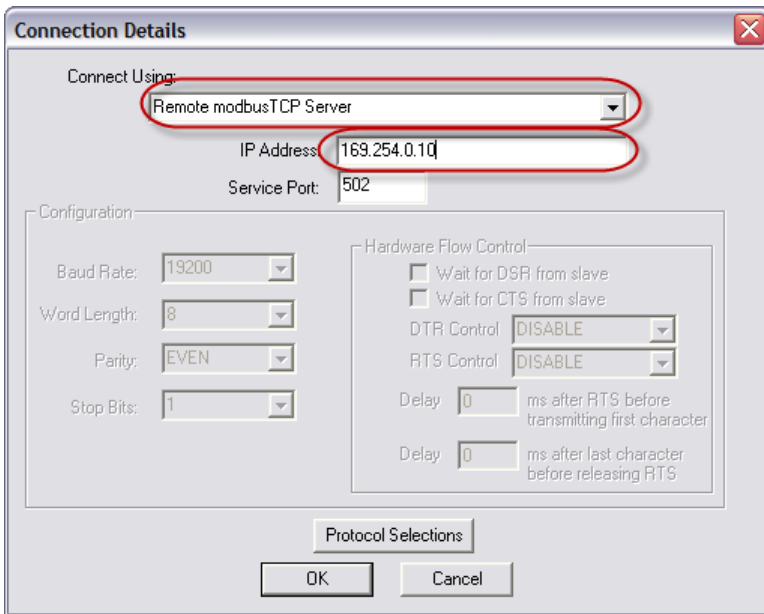
Testing

Use a Modbus simulator to test the remote control. We recommend to use the program *ModScan32* from *WinTECH Software Design*. The following examples are based on using *ModScan32*. A trial version can be downloaded from: <http://www.win-tech.com/html/demos.htm>

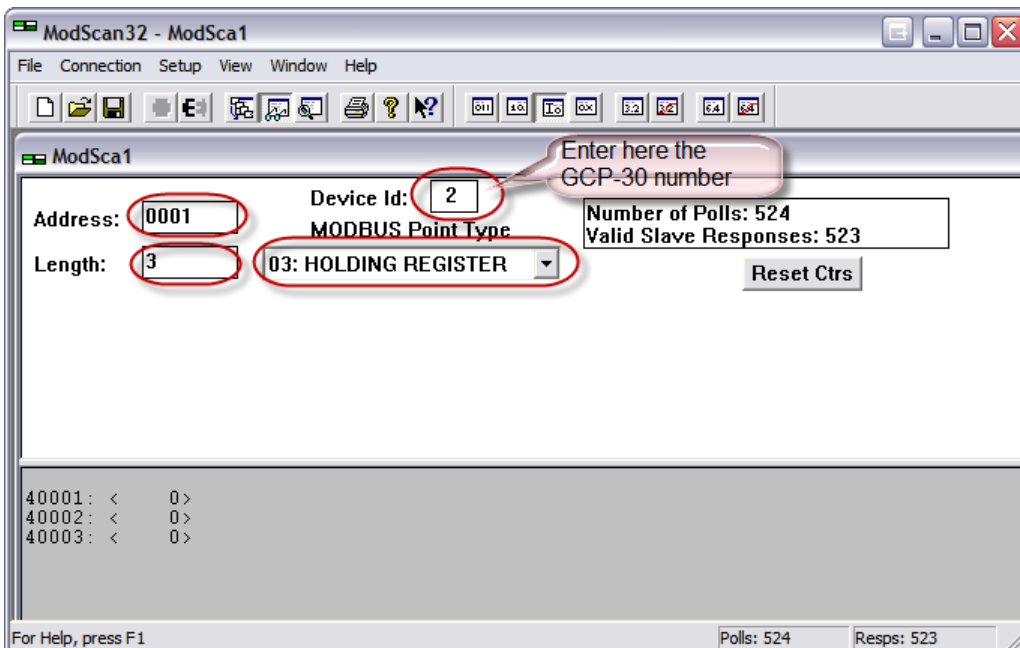
Start *ModScan32* and click on the **Connect** menu entry.



In the Connection Details dialog box, select **Remote modbusTCP Server** and enter the *GCP-MG*'s IP address.



Configure the *ModScan32* data form to point to the *GCP-30* remote control data table 4:0001 as shown below:

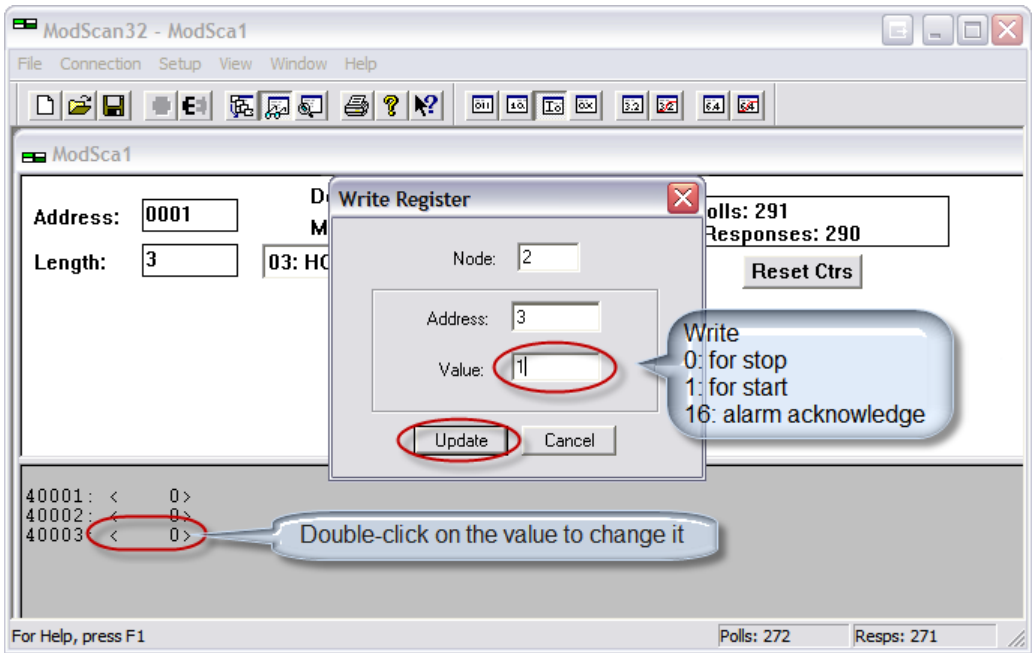


The control word at Modbus address 3 can be set to one of the following decimal values:

Decimal Value	Bit ^a	Function
0		Stop
1	1	Remote start
2	2	Alternative stop command (overrides start bit)
16	5	Alarm acknowledgment (edge triggered) combined with stop
17	5 and 1	Alarm acknowledgment (edge triggered) combined with remote start

^aThe least significant bit is numbered 1 not 0

Double-click on the value with address 40003 and enter a value from above table:



The GCP-30 start and stop commands are level triggered while the alarm acknowledgment is edge triggered. If you want to acknowledge alarms while keeping the genset running, you must do a *bitwise or* of the alarm reset bit and the start bit.

PLC program implementation

The following ladder logic example shows a recommended implementation:

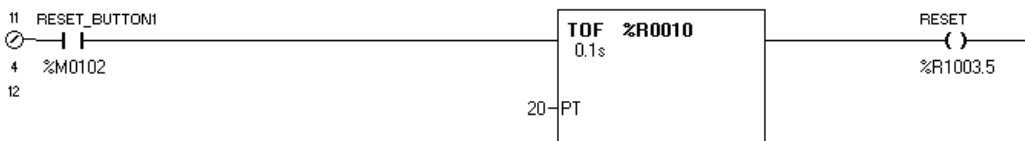
4 (* Start Gen *)



7 (* Stop Gen *)



10 (* Alarm Reset *)



Three buttons on a touch screen implement genset start, stop and alarm reset functions. The start button sets the remote start bit, the stop button resets the remote stop bit. The alarm reset button triggers a run-on timer which keeps output coil %R1003.5 asserted for 2 seconds and then resets this command bit. This makes sure that sure that the command bit is automatically reset and a raising edge generated.

Register %R1003 is mapped to the control word at Modbus address 3 and is transmitted every 100 ms to the gateway.

References

[GCP30] Woodward Governor Company, "GCP-30 Series Packages Genset Control – Configuration", Manual 37365A, February 2007

[LS4] Woodward Governor Company, "LS 4 Circuit Breaker Control – Manual", Manual 37105A, May 2004

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