



PolyGard®2

Communication Module Modbus RTU to TCP/IP

The module is designed for transmitting values from gas measuring systems or gas sensors to BMS or PLC systems that can be connected via Ethernet to a Modbus/IP-network.

APPLICATION

The TCP/IP Modbus module is code-transparent, and can be used for DGC06 as well as for DGC05 systems with appropriate parameterisation.

The connection to each local DGC-06 system must be within specified limits.

If all electrical wires for bus and power are connected correctly, communication from BMS to the controller via TCP/IP will start working.

There is no additional work to do, because the coupler automatically translates and transfers data in both ways.



Modbus RTU to TCP/IP Module

On TCP/IP side the user has to do:

- Use correct static IP address on IP side or use DHCP.
- Take the EPICS (Electronic Protocol Implementation Conformance Statement) of this module to implement it on BMS side.

The communication is realized by **Modbus** Interface of all devices of the PG or PG2/PX2 series **with option Modbus Interface**.

ORDER INFORMATION

XX-MODIP-XX - XXXX.X

OPTIONS

- BXXX.X Housing B
- BPS1.5 Housing incl. 24 V AC to VDC 1.5 A power supply
- BPS230 Housing incl. 230 V AC to 24 V DC power supply

SOFTWARE VERSIONS

- C6-MODIP-M3 pre-configured for AT03 Modbus interface
- C6-MODIP-M5 pre-configured for DGC05 Modbus interface
- C6-MODIP-M6 pre-configured for PG2 System



Ordering No. in DGC-06 Data sheet: DGC-06-X-X-XXXXXXXXX

EXAMPLE

Module for field installation to a DGC-06 Controller, without housing

Ordering number: C6-MODIP-M6-0000.0





PolyGard®2

Communication Module Modbus RTU to TCP/IP

SPECIFICATIONS

Electrical

Power supply	24 V DC (16 V DC to 30 V DC)
Power consumption	0.7 W, 50 mA
Fieldbus current	Max. 1.0 A
Over-voltage protection	Max. 35 V
Reverse polarity protection	Max. 30 V

Modbus RTU Side

Signal repeater bi-directional	Max. 900 m /2700 ft. segment length
--------------------------------	-------------------------------------

TCP/IP Side

Ethernet requirements	Max. 100 m /300 ft. per segment length
-----------------------	--

Environmental conditions

Humidity	15 – 95 % RH non condensing
Working temperature	-10 °C to +70 °C (14 °F to 158 °F)
Storage temperature	0 °C to +50 °C (32 °F to 122 °F)

Physical

Enclosure	Plastic housing ABS
Colour	RAL 7035
Protection class	IP 40
Weight	0.1 kg (0.2 lbs.)
Installation	Top hat rail installation
Connection	Spring type: 0.5 to 1.5 mm ² (AWG 22 to 16)
Dimensions (W x H x D)	36 x 86 x 56 mm (1.4 x 3.4 x 2.2 in.)

Physical (housing incl. power supply unit / field installation)

Enclosure	Plastic housing ABS
Colour	RAL 7035
Protection class	IP 55
Weight	1.5 kg (3.2 lbs.)
Installation	Wall / ceiling installation
Dimensions (W x H x D)	200 x 250 x 100 mm (7.9 x 9.8 x 3.9 in.)

Power supply unit for field installation

Power supply	110/230 VAC 50/60Hz
Alternate	24 VAC 50/60 Hz
Secondary	24 V DC, 4.5 A max. overload and short-circuit proof

Guidelines

Guidelines	EMC – Directive 2014/30/EU EN 61010-1:2010 ANSI/UL 61010-1 CAN/CSA-C22.2 No. 61010-1
Warranty	1 year on material



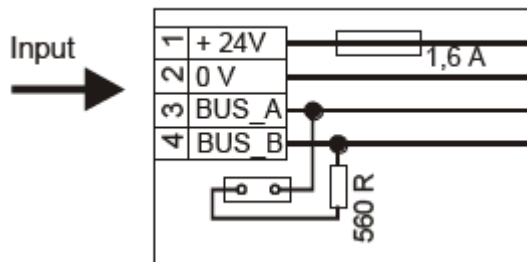


PolyGard®2

Communication Module Modbus RTU to TCP/IP

WIRING CONNECTION

Correct connection terminals of the target device:



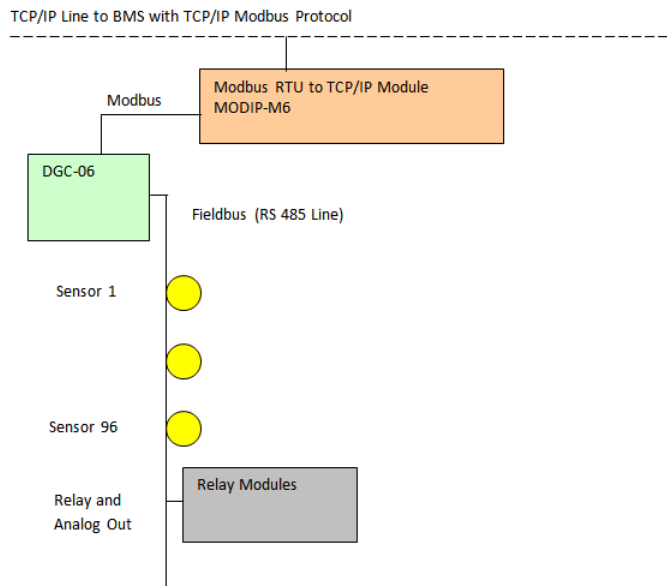
If all electrical wires for bus (from DGC06 terminals X1, 1 and 2) and power are connected correctly, communication from BMS over TCP/IP to controller will start working.

There is no additional work to do on controller side, because the coupler automatically translates and transfers data in both ways.

DEVELOPMENT

Each DGC-06 unit is connected to the sensors and output module via its own bus system. The DGC-06 provides these values at the X-Bus terminal via Modbus Interface.

For Example: Connection on DGC06:





PolyGard®2

Communication Module Modbus RTU to TCP/IP

INTEGRATION - WHAT'S TO DO FROM THE USERS SIDE

Since MODIP module is configured for Modbus TCP / IP, it uses the Modbus TCP / IP port 512 and cannot be configured via the Web interface, but only via Telnet.

TELNET ACTIVATION

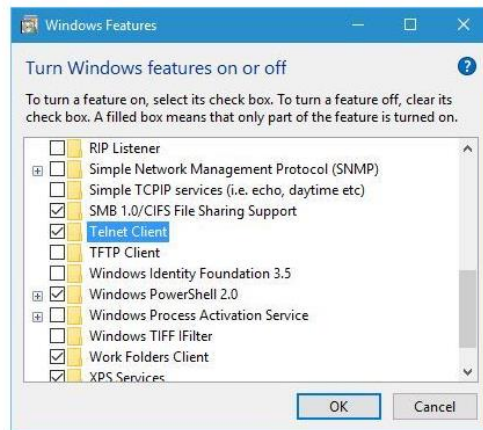
QUICK WAY

Activation of Telnet in Windows 10 & 7

The fastest way:

- a) Press **Windows Key + R** on your keyboard.
- b) Enter **OptionalFeatures** in **Execute** dialog box.
- c) Confirm with **Enter Key**.

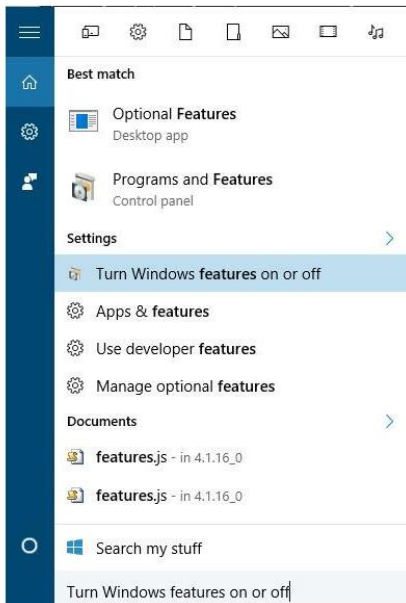
Tick the box for **Telnet Client** and confirm with **OK**.
The Telnet Client is installing. Please check thereafter, if Telnet can be used and is activated.



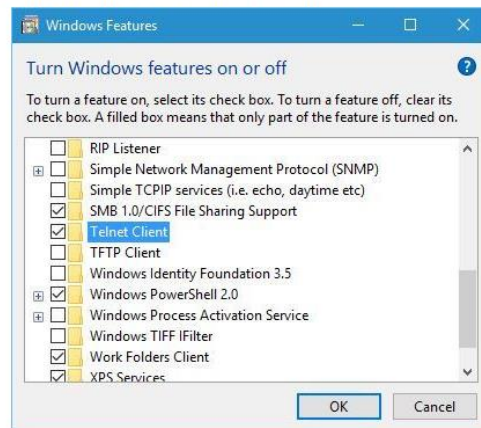
TELNET ACTIVATION

NORMAL WAY

1. Press **Windows Key + S** on your keyboard and enter features. Select **Turn Windows Features on or off**.



2. When **Windows Features** opens, scroll down and check **Telnet Client**. Click **OK** to install Telnet.





IMPORTANT: This is what an end-user (or installation) person has to do.

Install TCP/IP Network Node into End-User-Network.

The current IP Address is noted as sticker onto the module (Currently: 192.168.1.124).

The address is changeable per ARP and TELNET command:

If the IP address is not known or has to be integrated directly into another network, you have to start with step 1, otherwise start with step 4.

1. Open a windows command prompt (Start, Run, enter command or CMD depending on your operating system)
2. From the dos command prompt enter the IP address and MAC address as shown below:
C:\ARP -S 192.168.xxx.xxx 00-20-4A-xx-xx-xx
Note: The MAC address can be found on the top of the internal XPort module. To view it, remove the top cover.
3. Hit return
4. At the next command prompt telnet to the same IP address using port 1
e.g. C:\Telnet 192.168.xxx.xxx 1
5. Hit return (message 'failed to connect' should appear within 2 to 3 seconds).
6. At the next command prompt telnet to the same IP address using port 9999
C:\Telnet 192.168.xxx.xxx 9999
7. Hit return. You will be prompted to "Press Enter to go into Setup Mode"
8. Hit return again as soon as you see the prompt to access the configuration choices. The prompt will time out after ~ 3 seconds.
- 9.

```

C:\> Telnet 192.168.1.124
Modbus/TCP to RTU Bridge
MAC address 00204AF1E2F1
Software version 02.4 (080807) XPTEx

Press Enter to go into Setup Mode

Model: Device Server Plus+! (Firmware Code:XA)

Modbus/TCP to RTU Bridge Setup
1) Network/IP Settings:
   IP Address ..... 192.168.1.124
   Default Gateway ..... --- not set ---
   Netmask ..... 255.255.255.000
2) Serial & Mode Settings:
   Protocol ..... Modbus/RTU,Slave(s) attached
   Serial Interface ..... 9600,8,N,1,RS485
3) Modem/Configurable Pin Settings:
   CP1 ..... Not Used
   CP2 ..... Not Used
   CP3 ..... Not Used
4) Advanced Modbus Protocol settings:
   Slave Addr/Unit Id Source .. Modbus/TCP header
   Modbus Serial Broadcasts ... Disabled (Id=0 auto-mapped to 1)
   MB/TCP Exception Codes .... Yes (return 00AH and 00BH)
   Char, Message Timeout ..... 00050msec, 05000msec

D)default settings, S)ave, Q)uit without save
Select Command or parameter set (1..4) to change:
  
```





PolyGard®2

Communication Module BAC-06 for DGC-06 System

10. Select 1 for server configuration.
11. Manually enter the IP Address. This permanently assigns the IP address,
12. Manually enter the gateway address (optional)
13. Manually enter the host bits for the subnet mask

```

C:\> Telnet 192.168.1.124

D>default settings, S>ave, Q>uit without save
Select Command or parameter set <1..4> to change:

IP Address <192> .<168> .<001> 2.<124> 23
Set Gateway IP Address <N> N

Set Netmask <N for default> <Y> Y
<255> .<255> .<255> .<000>
Change telnet config password <N> N
  
```

14. Select 2 for Modbus RTU settings
15. It should be 1= Slave
16. It should be 1= Modbus RTU
17. It should be 3= RS485 2 wire
18. Manually enter serial parameters: Baud Rate, Data Bits, Parity, Stop bit

```

C:\> Telnet 192.168.1.124

D>default settings, S>ave, Q>uit without save
Select Command or parameter set <1..4> to change:

Attached Device <1=Slave 2=Master> <1>
Serial Protocol <1=Modbus/RTU 2=Modbus/ASCII> <1>
Interface Type <1=RS232 2=RS422/RS485+4-wire 3=RS485+2-wire> <3>
Enter serial parameters <9600,8,N,1> 19200,8,E,1
  
```

19. Select S to save and exit.

