# *N* neoptix T/GUARD-LINK – QUICK START GUIDE

This short form guide deals with the basic operation of your new T/Guard-Link (TGL) instrument. Here, you will find information about preparing the unit and doing initial measurements. The detailed reference instructions are given in the T/Guard User Guide, document # G1002Rxx (contact Neoptix for a copy).

To initially connect to your new TGL, you will need the following items:

- A 24VDC power supply (available as an option from Neoptix)
- A 2 meter serial cable (with DB9 connectors)[1]
- A 30 cm jumper cable, E0105 (included with the unit)
- A PC computer (Windows-XP, -Vista, -7 or -8) with:
  - A COM serial port[2]
  - Software, either:
    - HyperTerminal (or Tera Term)
    - OptiLink (formerly NeoLink).

Your new T/Guard comes calibrated and ready to use. Connect it to a suitable DC supply (20-28VDC). Although the unit does not have a power switch, it should come on after about 5 seconds. As this model does not have a display, the simplest way to confirm that the unit is powered up and running is to look inside the ST connectors, where a white light is present (flashing if more than one channel). By default, the unit is now in Modbus mode. The setup should look like this:
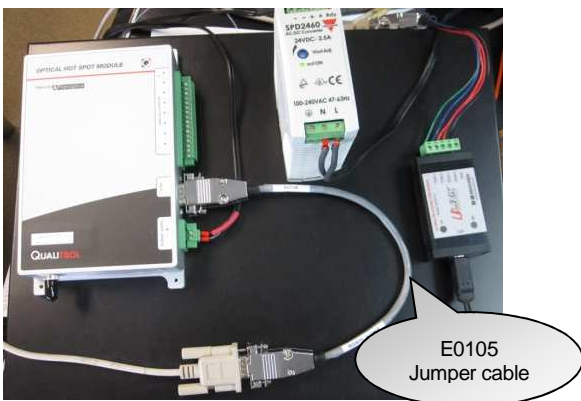
E0105
Jumper cable

Now turn off the unit, and insert the E0105 jumper cable directly on the TGL unit (DB9 connector); this cable will short pins 6 and 7 together and will force the unit to be in Neoptix native communication mode; this mode is required to configure the unit, such as setting the Modbus node address (default is "1"). Now we can use either HyperTerminal or NeoLink. Turn on the unit again.

[1] Pin out information of DB9 connector, on the TGL unit:

DB9		RS232	RS485 2W	RS485 4W
P I N O U T	1		GND	GND
	2	TX		
	3	RX		
	4			RX-
	5	GND	TXRX-	TX-
	6	*MB SW*	*MB SW*	*MB SW*
	7	*MB SW*	*MB SW*	*MB SW*
	8			RX+
	9		TXRX+	TX+

[2] Warning: Use a serial port that does not provide hardware character flow control, as this may interfere with the mode (Modbus and Neoptix protocols) control of your TGL.

As you are connected with HyperTerminal or NeoLink, it might be a good idea also to check and change the values of the analog output parameters "zero" and "span" (the default values -100°C and 400°C may need to be changed).

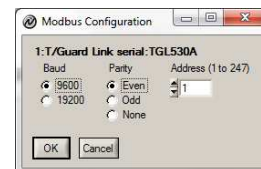## *Configuration with OptiLink*

When starting OptiLink, you should get this window:
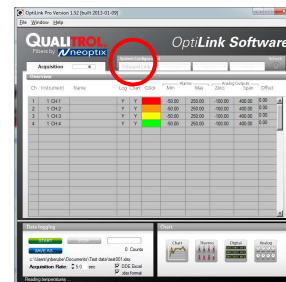
Click on "T/Guard Link" (T/Guard Link), and the following window pane will appear:
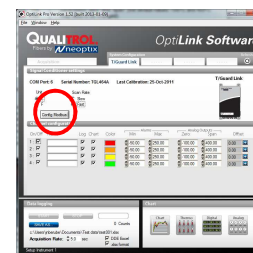
Click on the Config Modbus button. The following window appears:

Here you can set up your Modbus parameters. Default baud rate should be 9600 and parity even. Click OK to confirm your selection. You are now ready to use the system, using your Modbus parameters. Turn off the unit, and remove the "E0105 jumper cable", and connect your serial cable directly to the TGL unit. This is shown here:


Configuration with HyperTerminal

HyperTerminal is a standard Windows program (XP and previous versions[3]) that can be easily used to exercise your T/Guard thermometer. To use HyperTerminal you first set its properties as follows:

1- In the "Connection Description" window, enter a name that suits you, such as "Neoptix-TGL". Click OK.
2- In the next window, "Connect To", select COM1 (or another COM port, if you are planning to use another port than COM1) in the box called "Connect using". Click OK.
3- Then the COM1 Properties window will come up. As indicated above and as shown in the figure at right, set the port parameters to 9600 Baud, 1 Stop-Bit and No-Parity; Flow control must be set to None. Click OK.
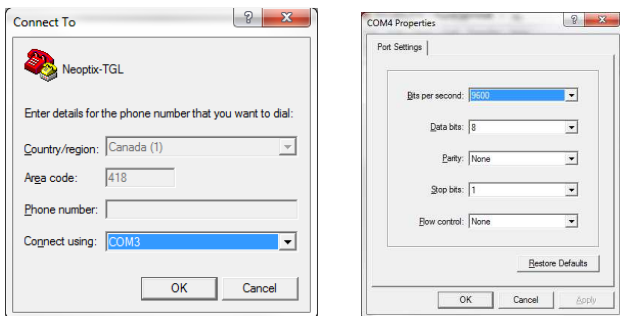
4- You are ready to go. Type "mb:? [ENTER] " to invoke help and test your setup. The following help menu should come up (typed characters are not echoed to you):
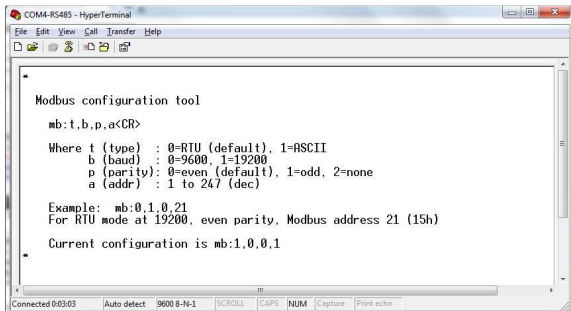
Issue a new "mb:" command with the parameters that complies with your configuration.

You are now ready to use your new system in Modbus mode. Turn off the unit, and remove the "jumper cable", and connect your serial cable directly to the TGL unit, as shown in the previous page.

Modbus register description

The following table gives the registers for the 8 temperatures (8 channels). Refer to the full T/Guard user guide (document G1002) for a complete list of registers. These registers are 16-bit read only holding registers, function 0x03.

| Address	Register (hex)	Name	Value
40033	0x20	Channel 1	Signed 16 bit integer (temperature 1 * 10)[4]
40034	0x21	Channel 2	Signed 16 bit integer (temperature 2 * 10)
40035	0x22	Channel 3	Signed 16 bit integer (temperature 3 * 10)
40036	0x23	Channel 4	Signed 16 bit integer (temperature 4 * 10)
40037	0x24	Channel 5	Signed 16 bit integer (temperature 5 * 10)
40038	0x25	Channel 6	Signed 16 bit integer (temperature 6 * 10)
40039	0x26	Channel 7	Signed 16 bit integer (temperature 7 * 10)
40040	0x27	Channel 8	Signed 16 bit integer (temperature 8 * 10)
40041	0x28	Internal tem	Signed 16 bit integer (T inside TGL * 10)

Using ModScan

ModScan[5] is a good and simple program that you can used to exercise Modbus links. Furthermore, it can also be used to perform some simple data logging.

Start ModScan; click Connection, and then Connect:
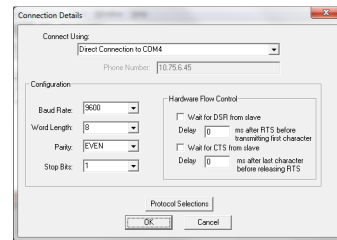
Click OK. Enter Address = 0033, and select 03: Holding Register mode. You following window should now be refreshed every second:
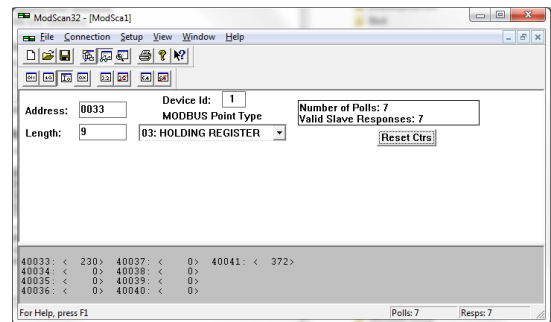
This terminates this short form guide; enjoy your new T/Guard-Link!

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[3] Vista and Win-7 users: HyperTerminal is not included with Vista or Win-7. However, an equivalent program (HTPE) can be downloaded (not free) at the following website: http://www.hilgraeve.com/htpe/download.html.
Tera Term is also an interesting option (free); see http://en.sourceforge.jp/projects/ttssh2/downloads/56100/teraterm-4.74.zip/.

[4] Real temperatures can be calculated by dividing the integer numbers by 10. If probe has no signal, the value of -9996 is returned (or –999.6^o); if a channel is disabled, the value of -9995 is returned (or –999.5^o).
[5] More information on ModScan can be found at http://www.win-tech.com/html/modscan32.htm.