




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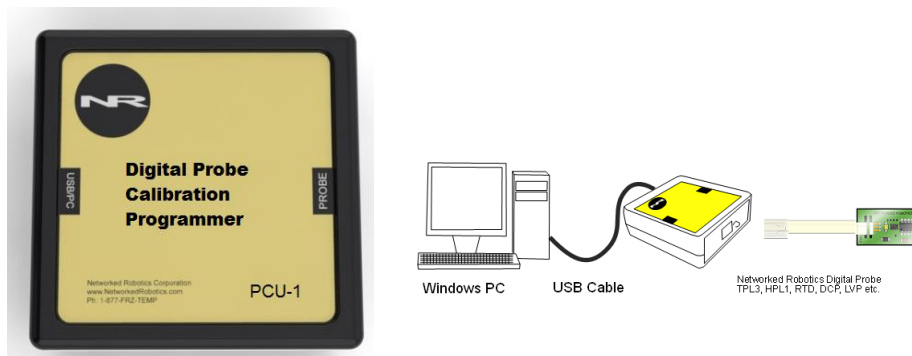
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## Digital Probe Calibration Programmer (#30010)

*This product is designed to enable the storage of calibration data inside Networked Robotics' digital temperature sensors. This feature enhances regulatory support for the Networked Robotics Tempurity™ System which is engineered for data collection and monitoring in FDA-regulated environments including the pharmaceutical, medical, and food industries.*

*This hardware product is used in association with the  "Digital Probe Calibration Programmer Wizard" software which can be downloaded from our web site and run on Windows® computers. It also allows probe descriptive data, including electronically embedded unique IDs, and measured values such as temperature, relative humidity, voltage and other parameter types, to be elicited and transferred to other Windows applications such as Microsoft Excel®.*

*This product supports all Networked Robotics digital sensors as described below.*



### Description

*Common uses of this product and its associated software may include 1) As part of the NIST-traceable regulatory calibration or installation qualification process in regulated environments 2) for inventory control - transferring or reading a list of digital probe unique IDs to Excel spreadsheets 3) to test probes independent of Networked Robotics' NTMS4 network hardware and/or Tempurity System software.*

*Calibration data can be stored inside and read from any Networked Robotics TPL3-series digital probe manufactured since 2005. TPL3-series digital temperature probes are used to collect temperatures from -80°C to 120°C. This product also works with some third-party digital temperature sensors manufactured by other vendors as described below.*

### About Networked Robotics' Unique IDs

Electronically embedded globally unique IDs are available in most of Networked Robotics' digital sensors. The IDs are assigned by different methods. This product supports the electronic reading of the following Networked Robotics probe types:

- TPL-3 series digital temperature probes (Product #30001 and #300012) - ID is assigned by Dallas-Maxim, the temperature-sensing chip manufacturer
- HPL-1 (Product #30009) digital humidity and temperature probe – ID is assigned by NR
- DCP (Product #30008) dry contact probe – ID is NR-assigned
- RTD (Product #30014) resistance temperature detector probe – ID is NR-assigned
- LVP (Product #30019) low voltage probe – ID is NR-assigned

Networked Robotics' direct connection products to scientific instruments, ACL and DCL-series digital power probes, and "streamer probe" products do not currently support electronically embedded unique IDs.

See the manual for each hardware product or interface for operational details.

## ***Packing List***

Included in the package are:

- (1) Digital Probe Calibration Programmer (PIU-1)
- (1) USB Cable


Networked Robotics' probes for calibration or testing must be obtained separately.

## ***Hardware Installation***

The Digital Probe Calibration Programmer connects to a PC using a USB 1.1 / USB 2.0 interface. Probes are connected to the programmer via the standard RJ-45 jack as shown in the diagram above.

You must download the "Digital Probe Calibration Program Wizard" software, a Windows® application, from our download page at [www.networkedrobotics.com/download](http://www.networkedrobotics.com/download).

Installation of the USB driver is often an automatic process and is similar to the process of installing other USB hardware however in some cases you may need to install the Windows USB driver manually. USB driver manual installation instructions are listed below however in most

cases the driver will load automatically and you should skip to the  Networked Robotics' Digital Probe Calibration Programmer Wizard Software section below.

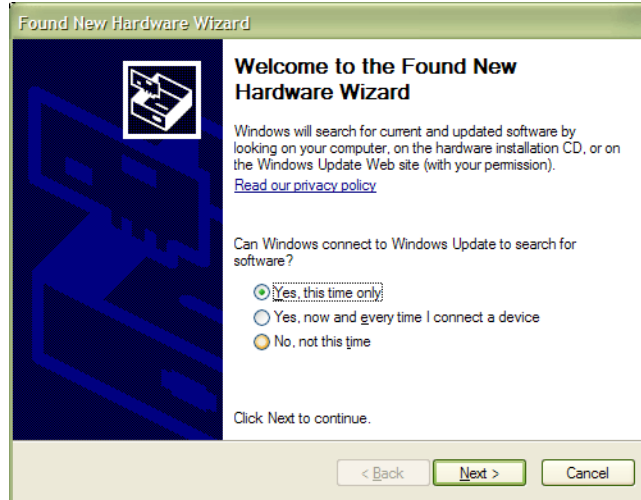
## ***Driver Installation***

The computer should be connected to the internet the first time you plug in the calibration programmer hardware into a USB port. You will only have to go through this driver installation once.

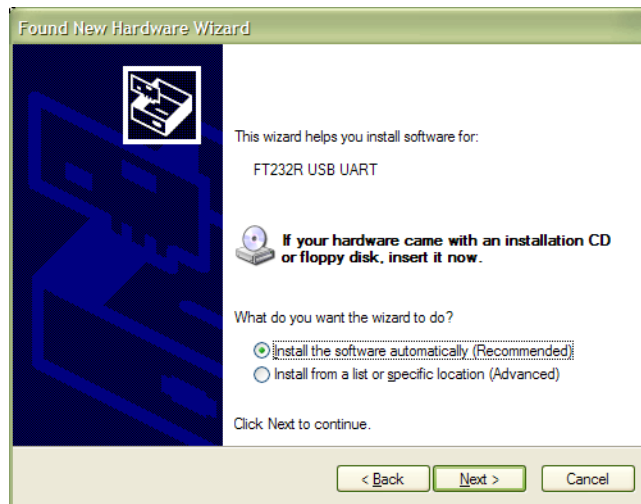
The screenshots below are relevant to the Windows XP® operating system.

Connect the programmer to an open USB port on your PC using the supplied USB cable. Windows will alert you that it has found a new hardware: "FT USB UART". The first time you have connected the Digital Probe Programmer the Windows New Hardware Wizard will launch and ask if you want to allow Windows to search for a driver automatically. Select "Yes, this time only" and click "next". See the screens below:

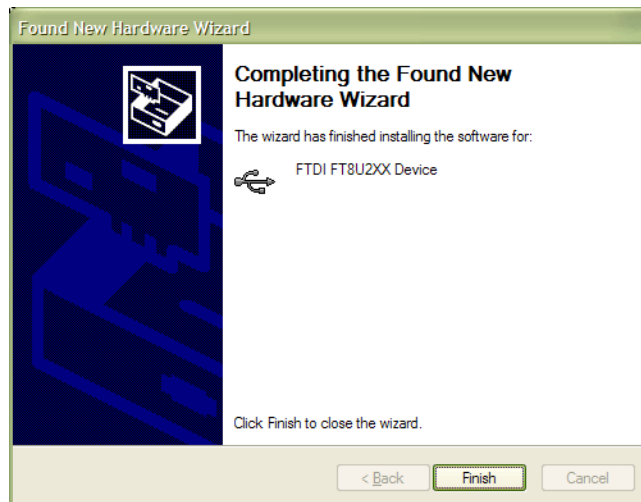




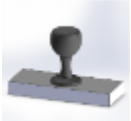
On the next screen, select “Install the software automatically” and click “next”.



It may take a minute or so, but the system should eventually fetch and install the correct drivers and you will get a screen similar to the following:



Click “finish”, and Windows will go thru one more driver install for the “USB serial port.” Just select the same search options as above. When this is done you may see a small popup from your system tray informing you that your new hardware is ready to use. You are now ready to download and launch the Digital Probe Calibration Programmer Wizard Software.



## **Networked Robotics’ Digital Probe Calibration Programmer Wizard Software**

### **Download the Software**

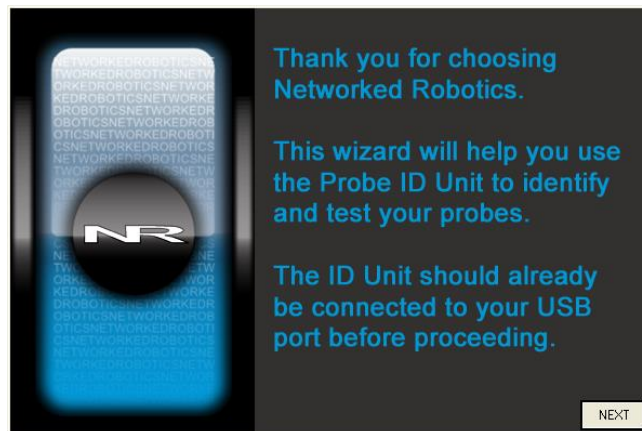
Download the “Probe Calibration Programmer Wizard” software from the Networked Robotics web site at [www.networkedrobotics.com/download](http://www.networkedrobotics.com/download) and then click on the icon to download. Once downloaded double-click on the icon to run the wizard.

### **Using the Digital Probe Calibration Programmer Wizard Software**

Connect one of your Networked Robotics sensors to the port labeled “probe” on the programmer. Some digital probes may require connections to their intended source in order for a valid ID to be read, for example the RTD probe requires a connection to a PT-100 RTD element. In general the probe must be ready for data acquisition in order for the ID, calibration data, and other information to be read.



The photo to the right shows CAT5 cable that is connected to a Networked Robotics RTD probe (RTD not shown). All of our digital probe products plug directly into the “probe” port. Next, double click on the Digital Probe Calibration Programmer Wizard program icon. Follow the prompts. Then click on the “Query” button. The software will query your probe and display relevant ID, firmware version, and a current measurement. To refresh the information simply hit the “query” button again. To read from a new probe, unplug the existing probe, plug the new plug in, and hit the “query” button. If probes are not reading as expected you may wish to restart the program and try again.

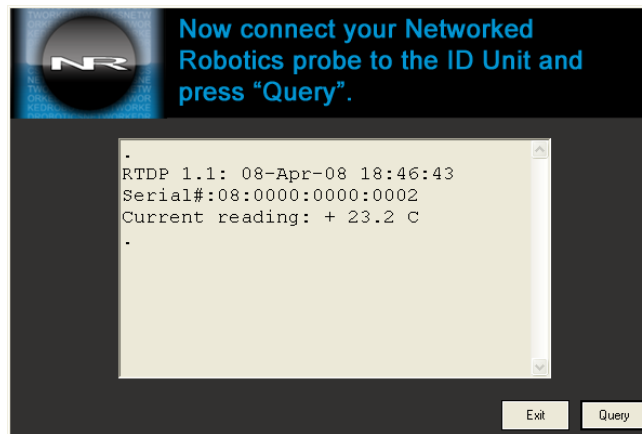


Some sample reports from relative humidity and alarm contact probes are:

```
HPL3 1.0: 25-Apr-07 21:54:00
Serial#:04:0000:0000:0101
Current reading: + 25.5 C, 52.9 %
```

```
DCP 1.0: 26-Jul-07 11:26:43
Serial#:07:0000:0000:100A
Current reading: +000.0 C
```

The below is an example screenshot when the Digital Probe Programmer hardware is connected to a Networked Robotics RTD probe.

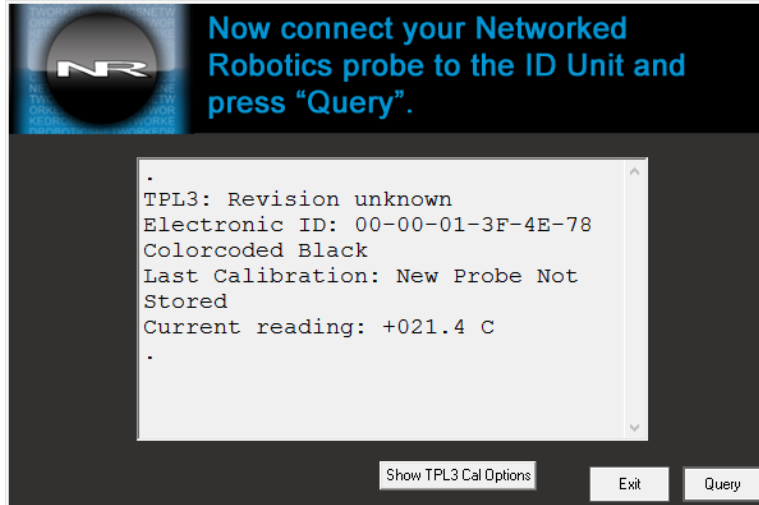


### **Transferring Embedded IDs to Excel or Other Applications**

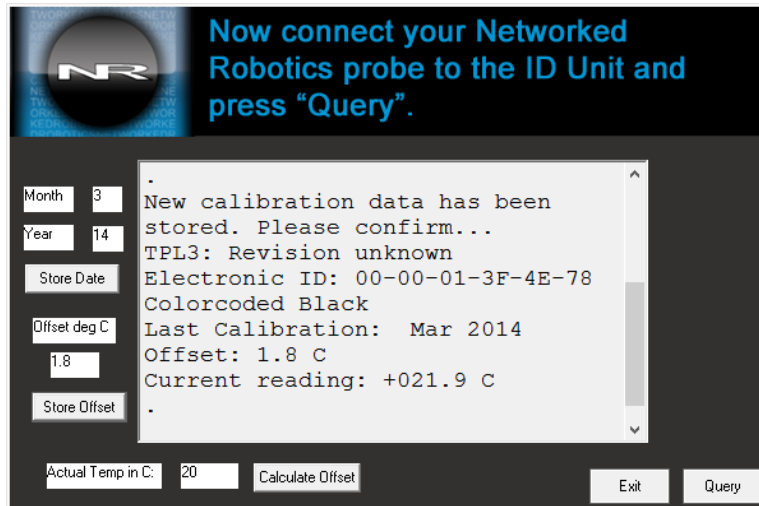
You can use your mouse to highlight any portion of the screen, including the probe embedded ID, or data values, and then right-click and choose the “Copy” option. You can then Paste into other applications, including Microsoft Excel.

### ***Calculating and Programming Electronic Calibration Data in Networked Robotics’ TPL3-series Digital Temperature Probes***

The figure below shows a “query” from a TPL3-series digital temperature probe that is newly manufactured. A unique ID, which is the electronic ID of the Dallas/Maxim chip used to measure temperature, is displayed. “New Probe not Stored” indicator is listed for the calibration date. No last calibration date has been entered yet for this digital sensor. Once calibration data is programmed, the unit can never be restored to “New Probe not Stored” status. Electronic IDs are permanent and can never be changed. If you examine this probe, you will see colored banding at the sensor head, and at the RJ-11 plug that connects to Networked Robotics NTMS4 network hardware. The color of this banding corresponds to the last digit of the electronic unique ID. See the TPL3 digital temperature probe manual for the full color code.



The below shows the probe once calibration data has been stored.



### Automatically Calculating Temperature Offset

The offset of the calibration can be calculated automatically. To do this enter the ambient temperature to which the probe is currently exposed (for example 0.1) in the field “Actual Temp in degrees C”. The offset is automatically calculated from the last reading as indicated by the “Current Reading:” line of the display window. A previous “query” must have been executed in order for the offset to be calculated. The calculated offset is entered into the field based on the last query and the actual temperature.

## Reference

### Connection

*This module should only be connected to personal computers, and the probe port should only be connected to Networked Robotics measurement probes of any type. Do not attempt to connect the Probe Programmer to any Ethernet connection or to Networked Robotics’ NTMS network hardware.*

## **Probe Serial Numbers and Firmware Revision**

The format of the serial number varies slightly between Networked Robotics' device types. Probes with firmware are also capable of reporting their revision numbers and date of compilation to the unit.

**Digital temperature probes** TPL-3-series probes contain hexadecimal serial numbers of the form: 28-XX-XX-XX-XX-XX-XX-XX, where XX is an 8 bit hexadecimal number from 00 to FF. Note that TP1 and TPL3-series probes do not have a firmware revision number, so "Revision unknown" will be displayed. This is normal and not a cause for alarm.

**Dry Contact Probes (DCP)** have hexadecimal based serial numbers of the form: 07:XXXX:XXXX:XXXX, where XXXX is a 16 bit hexadecimal number from 0000 to FFFF.

**Humidity/Temperature Probes (HPL)** have hexadecimal based serial numbers very similar to the DCP. They are of the form: 04:XXXX:XXXX:XXXX, where XXXX is a 16 bit hexadecimal number from 0000 to FFFF

**Resistive Temperature Detector Probes (RTD)** have hexadecimal based serial number of the form 08:XXXX:XXXX:XXXX, where XXXX is a 16 bit hexadecimal number from 0000 to FFFF.

**Streamer Probes:** IDs to be announced.

As new probe types become available from Networked Robotics, IDs will follow the form: YY:XXXX:XXXX:XXXX as above where YY is the probe type and the Xs are serial number digits in hexadecimal form.

## **Product History**

This unit was formerly called the "Probe ID Unit". Previous versions were able to read the unique IDs in our digital probes and were able to elicit readings, but at that time was not capable of programming probes with calibration data.

## **Compatibility with non-Networked Robotics Measurement Products**

The Networked Robotics' Probe Calibration Programmer hardware is capable of storing calibration data and reading electronic IDs from digital temperature probes manufactured by Embedded Data Systems™.

## **Physical Specifications**

Weight:	56 grams (2.0 ounces)
Length:	67.22 mm (2.647 inches)
Width:	66.22 mm (2.607 inches)
Height:	28 mm (1.102 inches)

## **Support**

If you need assistance with your Digital Probe Calibration Programmer, contact Networked Robotics by phone at 877-FRZ-TEMP (877-379-8367) or by email at [support@networkedrobotics.com](mailto:support@networkedrobotics.com)