T301 – QUICK START GUIDE

WARNINGS

To use the "Rugged Connect" software, a USB driver must be installed. The easiest way to do this is to insure you are connected to the Internet the first time you connect the T301 to your PC; that way, the required driver will be automatically downloaded and installed.

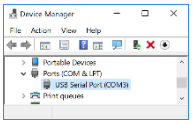
Introduction

This short form guide deals with the basic operation of your new T301™ instrument. Here, you will find information about preparing the unit and doing initial measurements. The detailed reference instructions are given in the T301 User Guide, document # MAN0005; to get a copy, visit this website https://www.ruggedmonitoring.com/downloads; you will need to request a user password.

To initially connect to your new T301, you will need the following items:

- A USB cable (included with the unit)
- A microSD card, to allow logging in the T301 instrument
- A 24 VDC power supply (1 A minimum; 20-48 VDC range)
- To read logs, a microSD card reader is required. Files can also be transferred to a PC via Rugged Connect
- To simplify parameter entry, the use of the **Rugged Connect** software is mandatory You will need a PC computer (Windows-10 is recommended; minimum is Windows-7)
- An Internet connection (first time only).

Your new T301 comes calibrated and ready to use. Connect it to a suitable 24 VDC supply and to a USB port on your PC. To use the "Rugged Connect" software, the installation of a FTDI serial driver is required; normally, Windows will install this driver with no intervention from your part; once this installation is done, you will get a short message confirming its successful installation ('FT230X Basic UART is set up and ready to go'). If you have trouble with this driver, follow these recommendations:



Start the Device Manager Windows app, and select the "Ports" section, as follows:

Right click on the "USB Serial Port" entry select "Update driver". In the next window, select "Search automatically for updated driver software". In most cases, this will solve your driver problem.

If this driver download procedure does not work, you should download the driver from this site (https://www.ftdichip.com/Drivers/VCP.htm), and install it by double-clicking it.

You can now make your first measurements with your new T301 instrument.

Making your first measurements

Immediately after a power-on (by connecting it to a 24 VDC power supply), you will get 8-second splash screens with some instrument information. Then, temperatures will be displayed, at a refresh rate of about 1 to 4 seconds (---.-- will be displayed if no probe is found for that channel); 6 channels are displayed sequentially, up to 4 times. A blank reading indicates that this channel is disabled; see next section for information on how to enable a channel.

Warning: When using probes, make sure their ST connector are clean; use alcohol to clean if required.

Warning: Always keep caps on probe ST connectors and on instrument ST connectors, when not used.

If you want to explore more options, you can:

- Use the Rugged Connect software; see next section
- Explore more menu items on the T301. You can click through 6 menu screens using the Menu button to navigate to the next screen.

T301 menu screens

Press the MENU key to cycle through menus or to return from a sub-menu. Use the 2 arrow keys to toggle the value of a blinking configurable parameter. The OK key can be used to enter a menu, cycle through the screens or cycle through the configurable parameters.

Temperature screen

This is main default screen; it will scroll to display up to 24 temperatures; the red led above the display indicates the channel number. You can use the arrow keys to scroll faster.

Menu Info

1- Model number and number of optical channels
2- Firmware version and T301 serial number
3- Calibration date
4- Self-test result.

Menu Setup

1- DATE, to set current date
2- TIME, to set current time
3- HOLD, to set "Hold last good" parameter
4- AGC, to enable / disable automatic gain
5- LOG ENABLE, to enable / disable data logging
6- LOG RATE, to set the logging rate.

Menu Channels

1- ENABLE, to enable / disable optical channels
2- SIGNAL, to display the % power signal for each channel.

Menu Signal

This shows the % signal strength for each optical channel.

Menu Serial Port

1- PROTOCOL, to select a serial protocol
2- BAUD RATE, to set the serial port baud rate
3- PARITY, to set the communication parity
4- ADDRESS, to set the device address.

Menu Alarm

This allows to reset any latched alarms, if any.

Temperature logging on a microSD card

First, you must insert a formatted (must be FAT32 or exFAT) microSD card into the card slot (left side of the T301). The logging rate and enabling of logging must be done from the Setup screen (see above). To start the logging process, simply press the Log (OK) button on the instrument panel; logging is confirmed by the blue led.

To read your logs, use Rugged Connect. Alternatively, remove the card and insert it an appropriate adapter to read it using a USB port on your PC. Use your Excel app to see your logged data.

File format is fixed as follows: yymmdd_hhmmss.csv, with tab delimitation.

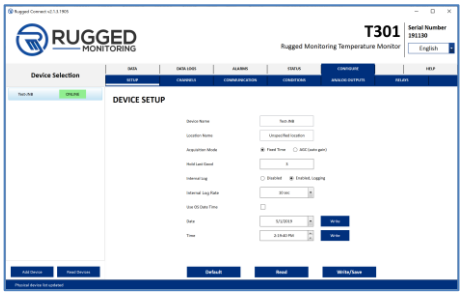
Using the Rugged Connect software

Rugged Connect can be used to perform these functions:

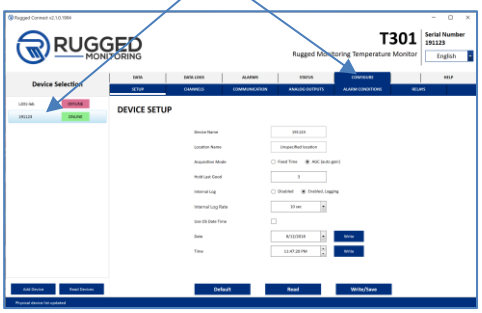
- Manage channels (enable/disable, channel names, offset, etc.)
- Manage Analog outputs (if this option is present)
- Manage relays and alarms (set points, etc.)
- Serial port parameters (Modbus)
- Logging temperatures to a PC file (.csv)
- Graphing temperatures
- Import/Export of instrument configurations
- Support for up to 6 instruments (each one with its own USB port)
- Instrument configuration can be worked on, even if it is not connected in real-time (virtual device).

To get a copy, visit this website https://www.ruggedmonitoring.com/downloads; you will need to request a user password. Install it on your PC. Make sure you are using version 2 of Rugged Connect.

When you start **Rugged Connect**, you can select languages. Then, the USB ports are scanned to find any connected instruments, a list is given in the left pane, as shown here (here, as an example, only one instrument is found):



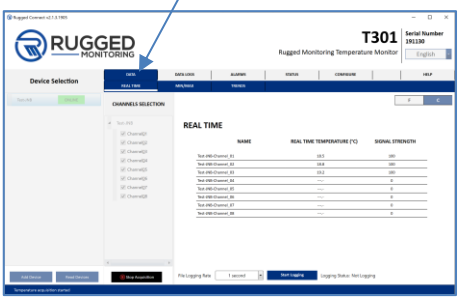
From the left pane, click on the instrument you want to see in Rugged Connect and then CONFIGURE. This brings you to the CONFIGURE mode:



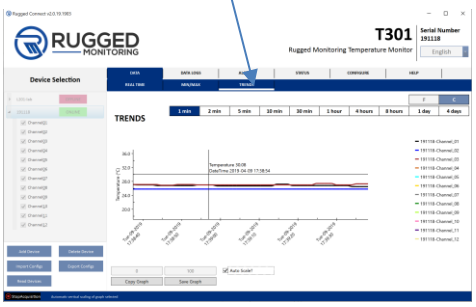
Additionally, you can experiment with other panes, such as analog output parameters, relays, alarms, log file download, etc.

To save your new parameters, remember to click on the “Write / Save” button found at the bottom of the Configuration window.

Rugged Connect also allows you to visualize temperatures in table format. To see this, click on DATA, and you will get this tabulated temperature window:



And if you select DATA and TRENDS”, a graph is displayed:



Information regarding analog outputs.

Analog outputs are available as an option.

If you are going to use the optional analog output plugin, you will need to use **Rugged Connect** to configure it. You can select 0-5 V, 0-10 V, 4-20 mA or 0-20 mA. In addition, you can assign any of the 8 analog outputs to any of the temperature sensor channel; you can also assign an analog output to multiple sensor channels, to output the minimum or maximum temperature found on these channels, and so forth.

You can experiment with these windows, to discover many useful features.

This terminates this short form guide. For more details, you are encouraged to consult the T301 user guide, part number MAN0005. This guide and the short form guide MAN0007 should be consulted if you want to use features such as the webserver and communication protocols. Enjoy your new T301!

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