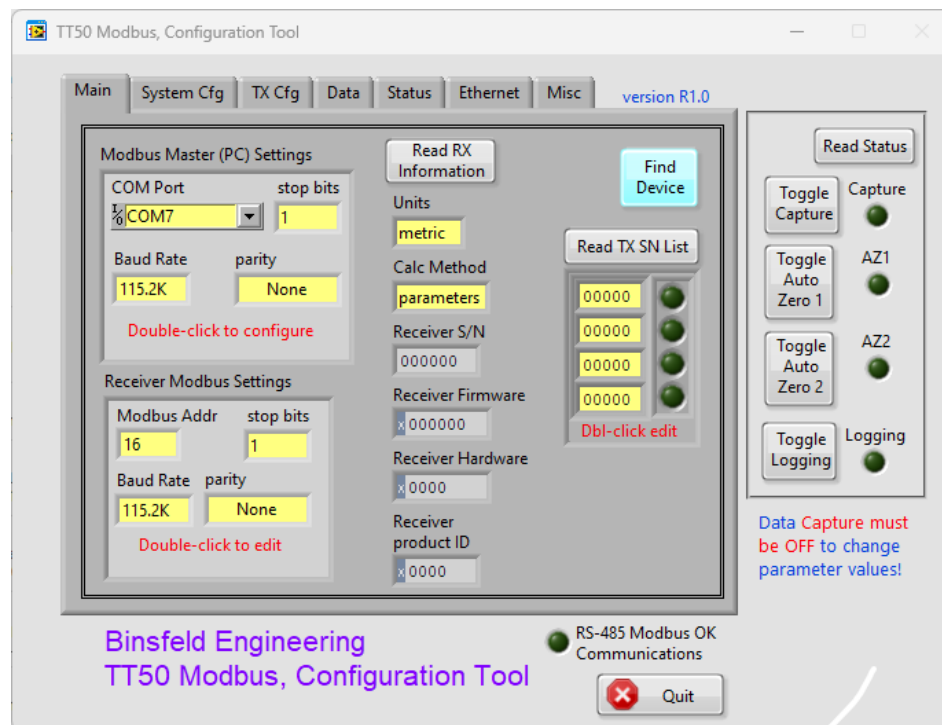


# TorqueTrak 50 Modbus Configuration Tool User Manual



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# 1 OVERVIEW

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The TT50 Modbus Configuration Tool is a LabVIEW-based program used to configure and to read output data from the TT50 Shaft Power Meter system.

The Tool incorporates five user interface screens:

- Main
- System Configuration
- Transmitter Configuration
- Data
- Status
- Ethernet
- Miscellaneous

Universal notes:

- ***Choose units (English or metric) on the Main screen to set the units for parameters on all tabs. Note that changing units does not convert or change values.***
- Yellow windows are for user input.
- Gray windows present calculated or predetermined values.
- Some parameters are limited to preset values which will be presented in a drop-down menu.
- Every screen includes toggle buttons for
  - Starting/stopping data capture
  - Turning AutoZero on/off for each strain channel
  - Starting/stopping data logging
- Every screen includes RS485 Modbus status indicator: The RS-485 Modbus indicator is ON after successful Modbus message transfer and OFF if the transfer fails. It remains in its last state until the next message transfer is complete.
- Data capture must be off to change parameters. Click the Toggle Capture button to toggle on/off. Click the Read Status button to update the status indicators.

Click the Quit icon to close the program

Generally, tabs have Read and sometimes Write buttons. Use the Read and Write buttons as necessary to read present values and write new values. It is good practice to follow writes with a read to make sure that the new value was accepted.

AutoZero Execute and Dead Weight Reference Capture buttons can require up to 10 seconds to complete. Do not click other buttons for 10 seconds after clicking these buttons.

Details for each screen are included in the following sections.

## 2 MAIN SCREEN

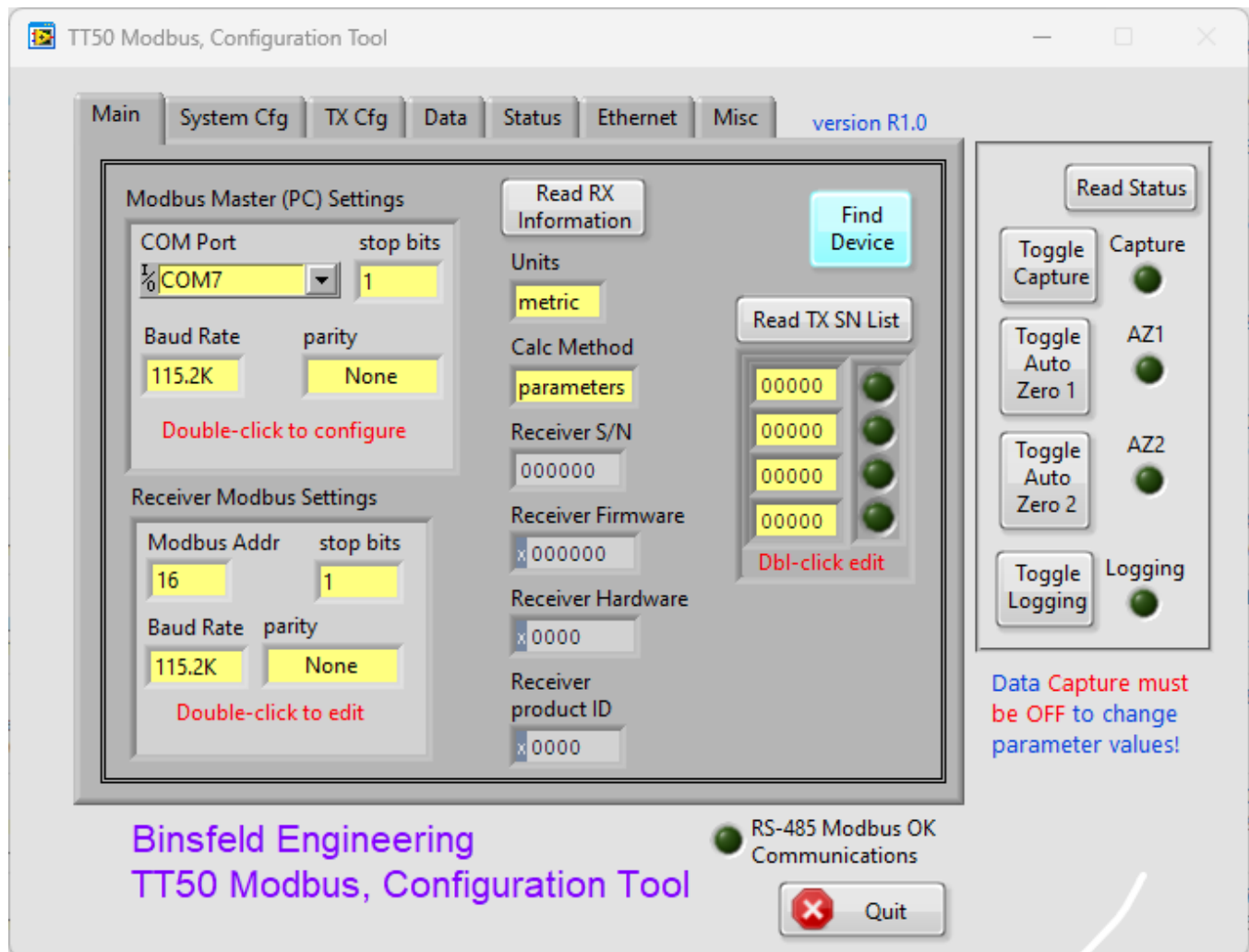


Figure 1: Main Screen Layout

The Main screen is used for:

- Setting Modbus interface parameters
- Selecting units (English or metric)
- Reading the transmitter serial numbers

### 3 SYSTEM CONFIGURATION SCREEN

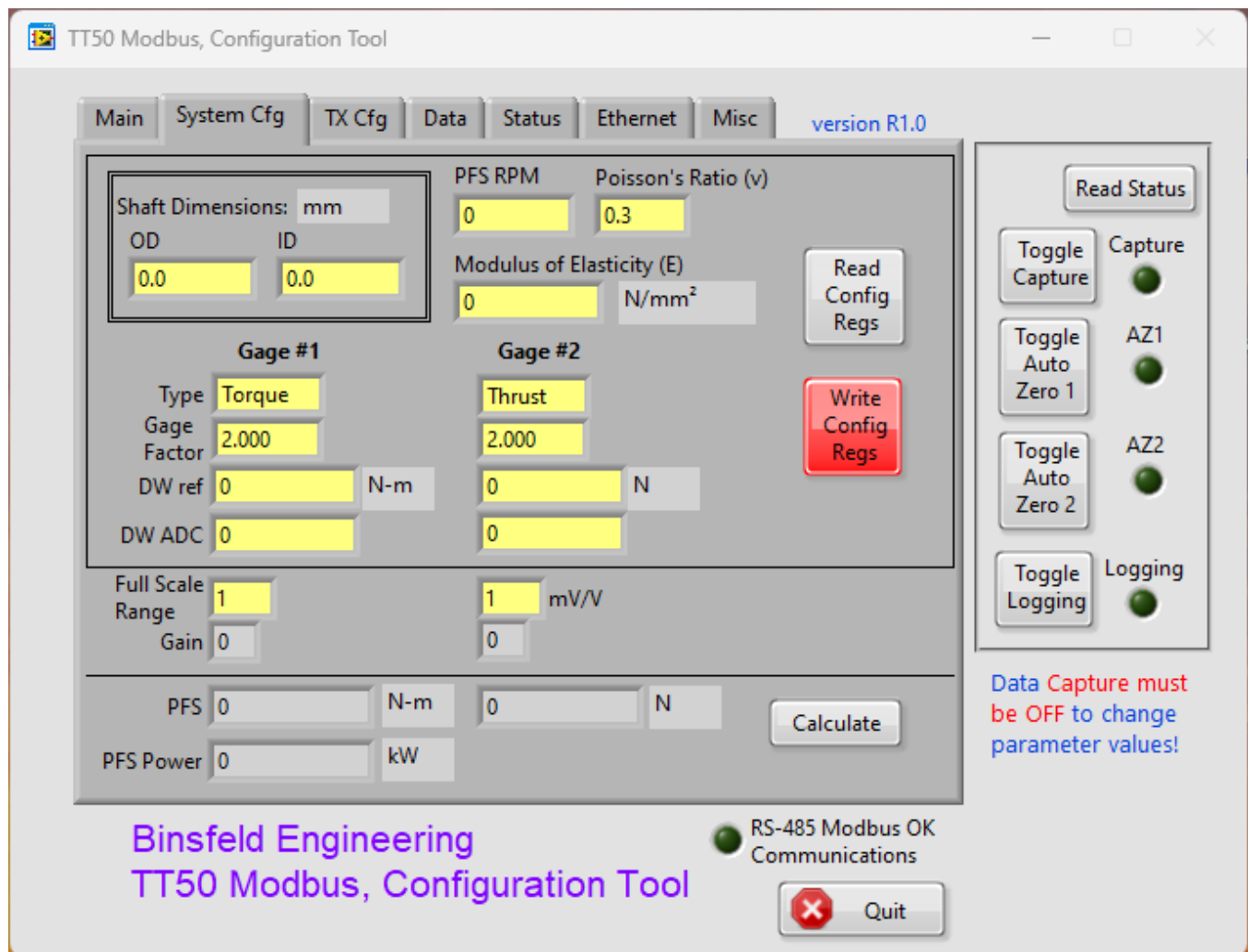


Figure 2: System Configuration Screen Layout

The System Configuration screen is used for:

- Entering shaft and sensor parameters
- Select measurement type (torque or thrust)
- Entering positive full scale RPM value (PFS RPM)
- Entering dead weight (DW) calibration values
- Calculate positive full scale torque, thrust and power (based on entered values)

Click the Read Config Regs button to read present parameter values from the receiver.

Click the Write Config Regs button to write recently modified parameter values to the receiver.

## 4 TRANSMITTER CONFIGURATION SCREEN

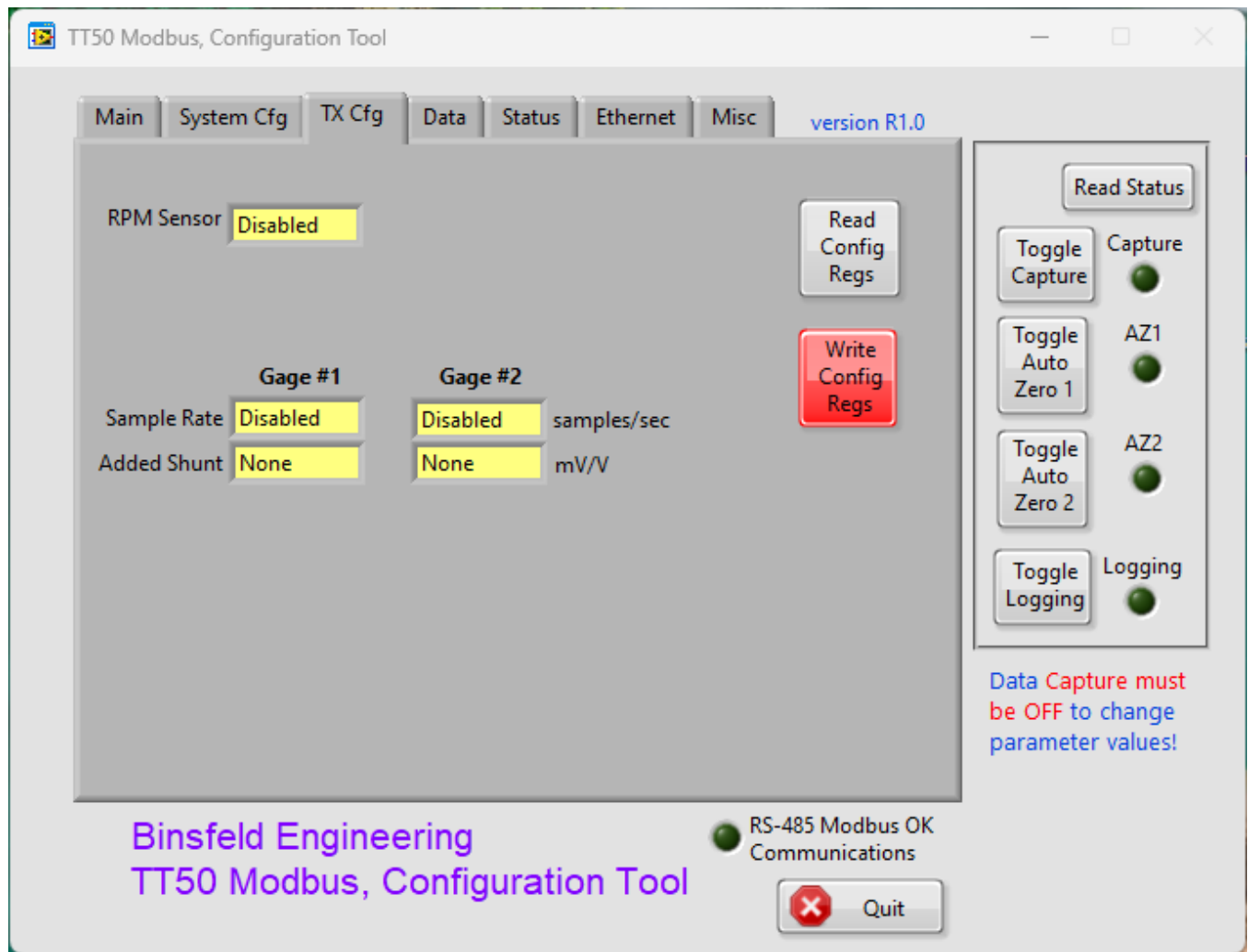


Figure 3: Transmitter Configuration Screen Layout

The Transmitter Configuration screen is used for:

- Activating/deactivating RPM sensor
- Setting RPM sensor values
- Setting the strain channel sample rates (from preset values)
- Activating/deactivating shunt function (to simulate a load on the strain sensor)

## 5 DATA SCREEN

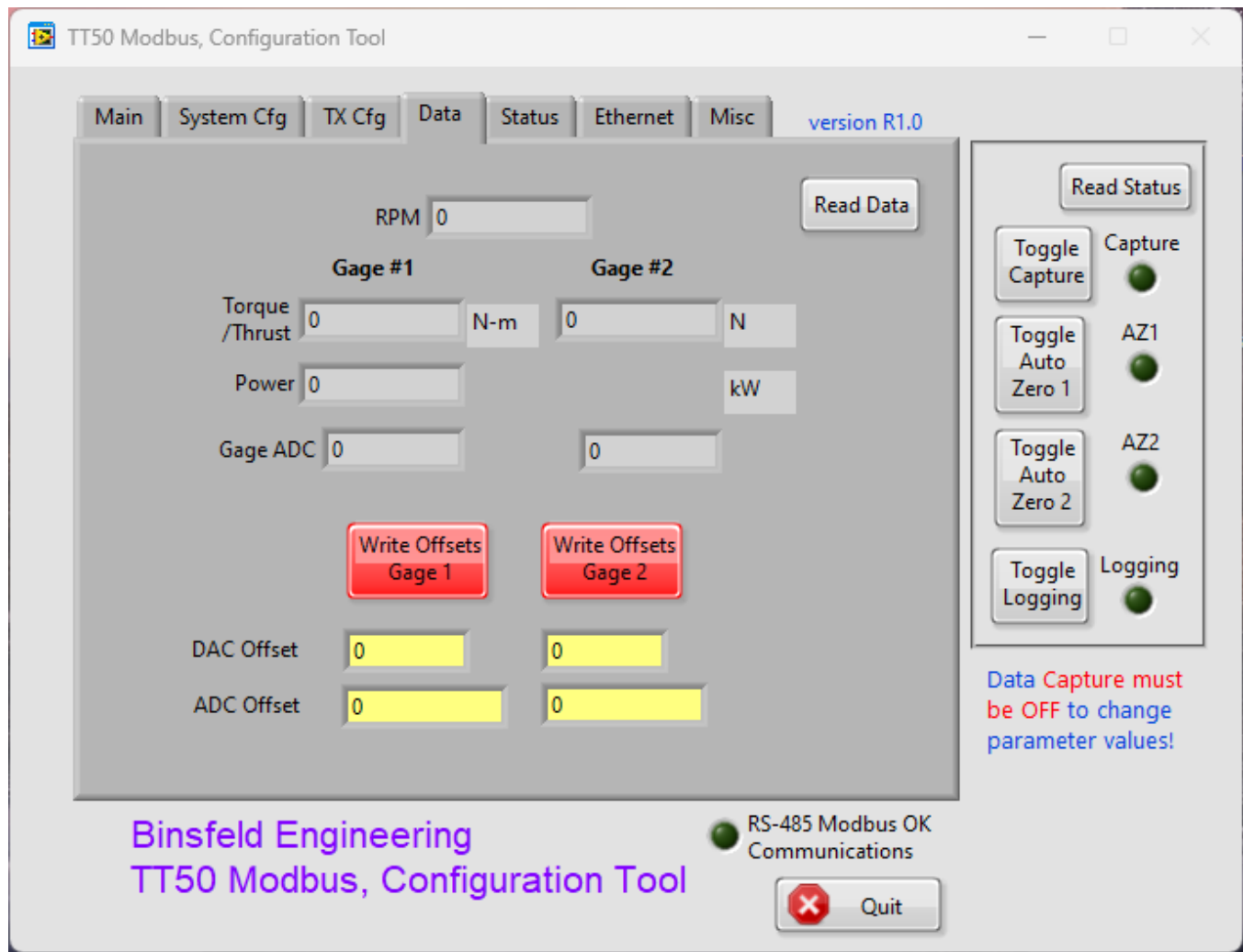


Figure 4: Data Screen Layout

The Data screen is used for:

- Viewing measured values
- Setting offset values (to 'zero' strain sensor readings)

# 6 STATUS SCREEN

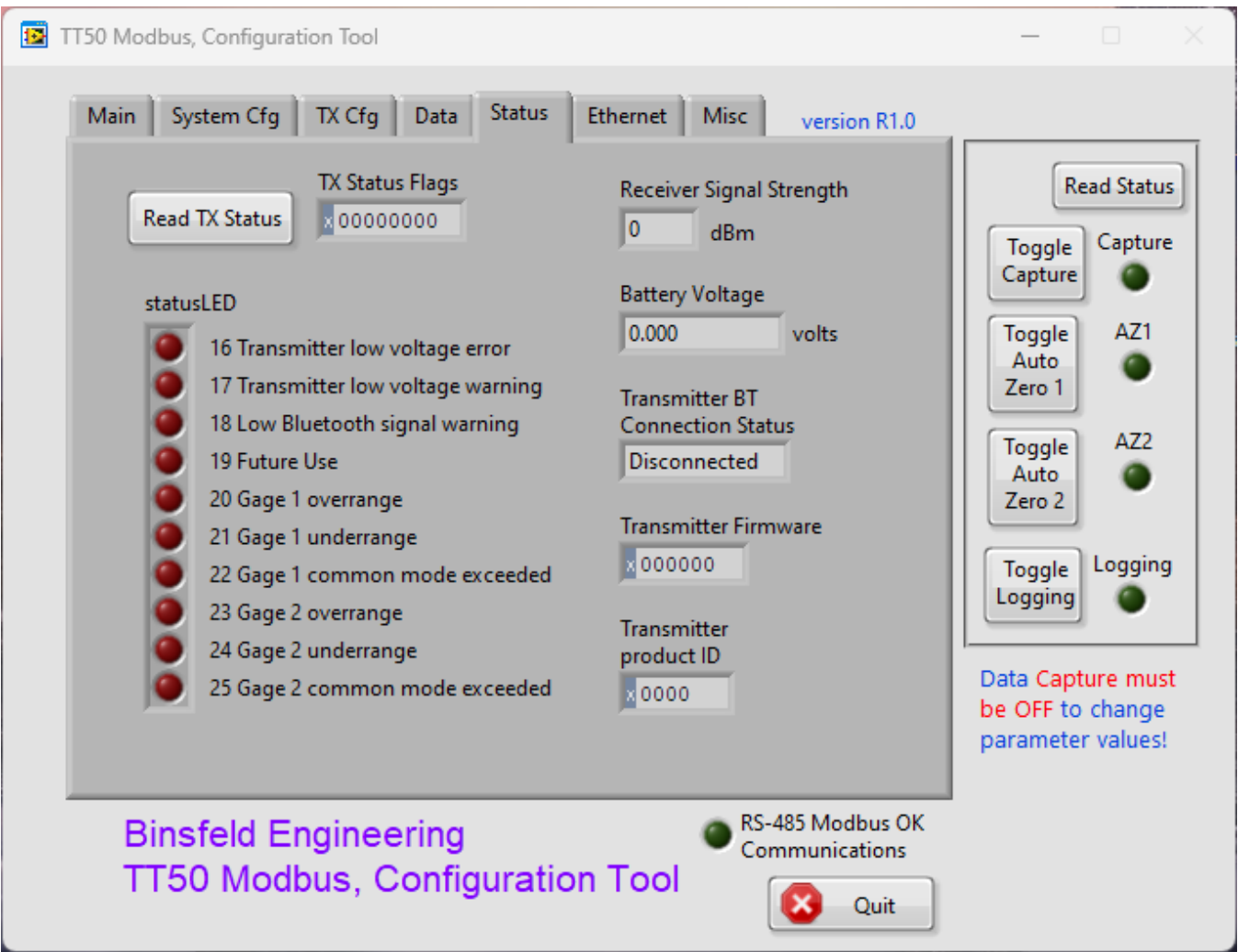


Figure 5: Status Screen Layout

The Status screen is used for viewing fault indicators and other information useful for troubleshooting.

## 7 ETHERNET SCREEN

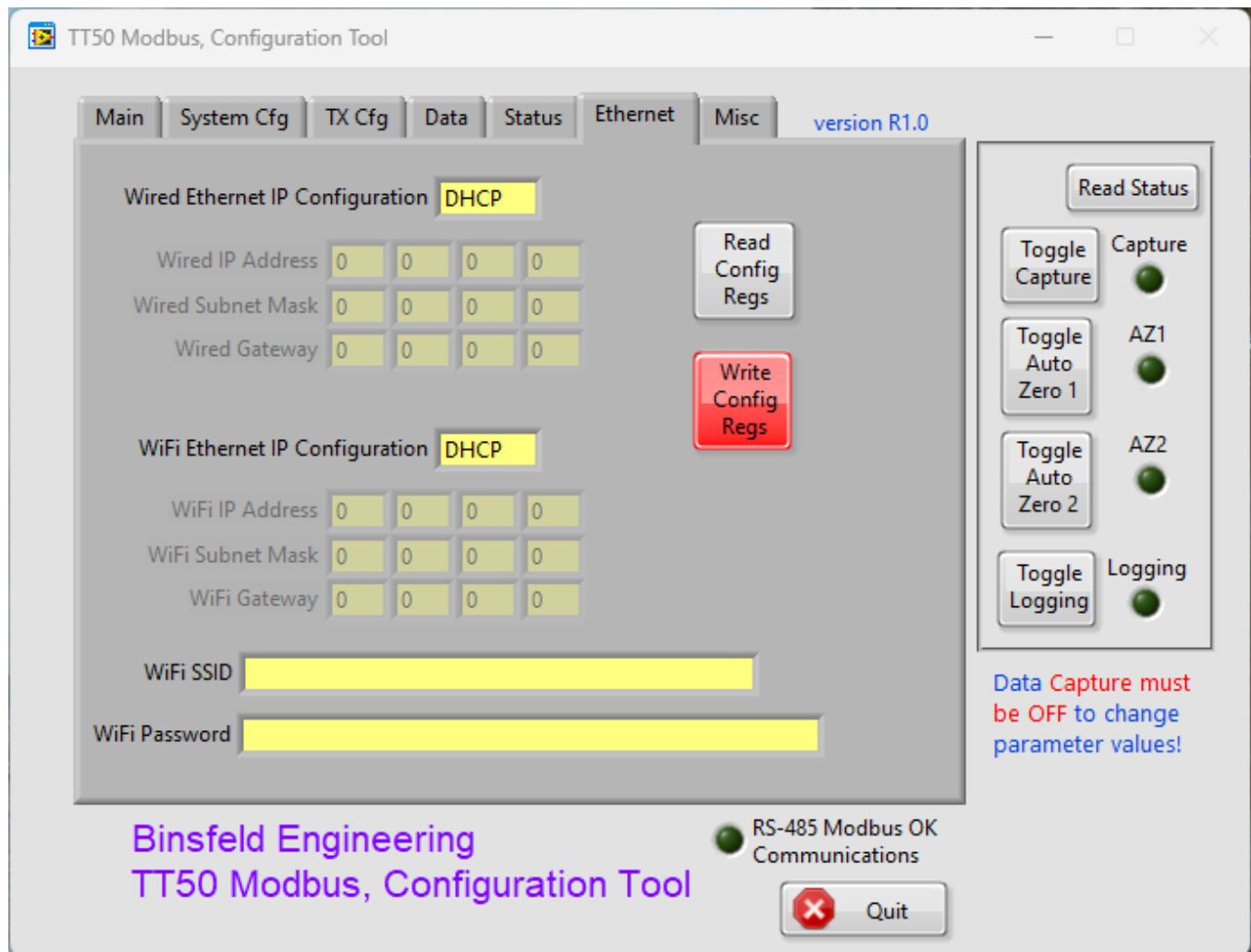


Figure 6: Ethernet Screen Layout

The Ethernet screen is used to configure the wired and wireless interface.

When entering values into the WiFi SSID and WiFi Password boxes, make sure the cursor starts from the far left, and click anywhere on the screen when done. CAUTION: DO NOT hit the Enter key because it places a line feed character at the end of the string.

## 8 MISCELLANEOUS SCREEN

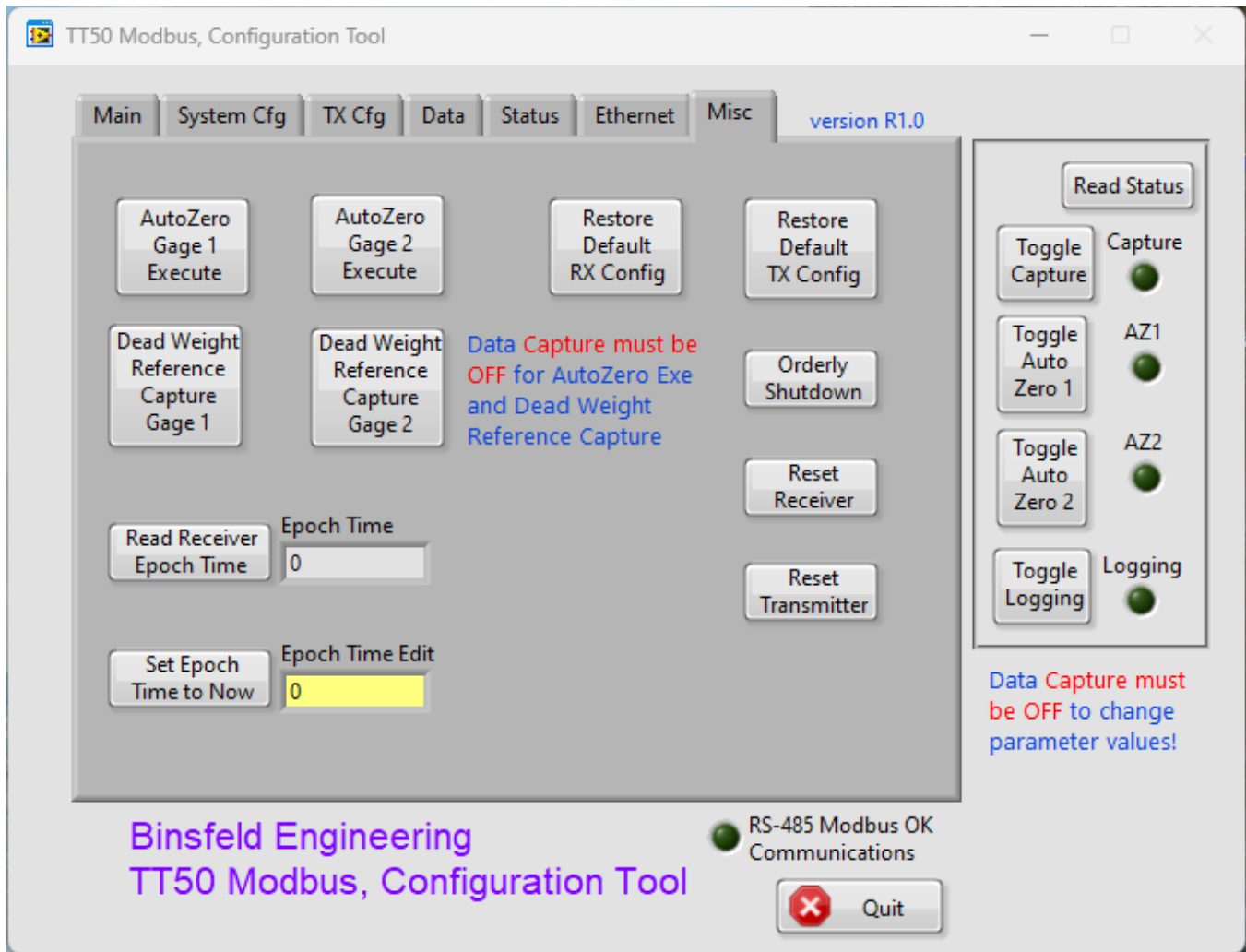


Figure 7: Miscellaneous Screen Layout

The Miscellaneous screen includes buttons for:

- Performing AutoZero on each strain channel
- Capturing Dead Weight reference readings for each strain channel
- Restoring RX50 Receiver and TX50 Transmitter default settings
- Shutting down the TT50 Shaft Power Meter
- Resetting (soft restart of) the RX50 Receiver and TX50 Transmitter
- Epoch time is the number of seconds elapsed from some reference date and time. The RX50 default reference time is January 1st, 2023 GMT.

## 9 COMMUNICATIONS INTERFACE

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Bi-directional RS-485 Modbus RTU communications are supported with a Modbus master device but are not required. The TT50 does not require any data to be received from a master device so no communications errors are declared if there is nothing connected to the RS-485 connector. A Modbus master is required to configure parameters such as gain, baud rate and sample rate. The Modbus ASCII transmission mode is not supported.

Generally, communication configuration should be required only once during installation. If the default parameters don't need to be changed then configuration during installation may not be required. The default parameter settings are:

Table 1: Default configuration parameters

|                      |        |
|----------------------|--------|
| Modbus slave address | 16     |
| Baud rate            | 115.2K |
| Parity               | None   |
| Stop bits            | 1      |