

Michigan Scientific Wheel Force Transducer Set-up Quick Guide

Rev 1.0

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1. Install tires onto Rim Adapters
2. Assemble Adapters to Transducer. Bolt tightening torques below for LW12.8 models. For other models refer to manual.
 - M10 bolts with Solid or 2 –piece Aluminum(AL) Adapters and Stainless Steel or Titanium Hubs, bolt tightening torque 81 N.m
 - 3/8" bolts with Solid (or 2-piece) AL Rim adapters, tightening torque 54 N.m, 3/8" bolts with Stainless Steel or titanium hub adapters tightening torque 68 N.m
 - Welded AL Rim Adapters tightening torque 37 N.m
3. Balance WFT/tire assemblies
4. Install WFT/tire assemblies onto car.
5. For non-steer wheels, mount Slip ring Stator rod vertical with magnetic restraint package (MVSR). Use tape to re-enforce magnet.
6. For Steering wheels, use SAC, fabricate over the wheel bracket, or perform correction with steer Stator Rod Correction Equations in the manual. Slip Ring Stator should be vertical. (If vertical is not possible, measure the angle and enter into CT2 webpage.)
7. Connect CT2s to 9-36 VDC, and stack CT2s. (White wire is power high. Black wire is power ground.) Only 1 power cable is required for a stack of CT2s.
8. Route slip ring cables into cab and connect to CT2s.
9. Power on CT2, press MODE button to enter SET-UP mode, and set Position button on each CT2 according to location of WFT on vehicle
10. Press SHUNT button to perform shunt calibration of WFT. Fault light should not come on.
11. Hoist vehicle, press ZERO button, and rotate each WFT 2 revolutions to zero WFTs. Perform Zero on SAC if using SAC. (Press and hold SAC button 2 seconds while stator rod is vertical and wheels are straight ahead.)
12. Switch CT2 to RUN mode. Connect Ethernet cable between any CT2 and laptop. Change computer static IP address to 192.168.0.100. Open web browser (Chrome preferred) and enter webpage 192.168.0.28. CT2 embedded webpage should open.
13. Enter desired Measurement Origin. Enter value "a" to move measurement origin to tire center or hub face. Leave RR as "0". Hit update at bottom of page. For identical measurement origin change for all 4 wheels, check 'Update All' box before hitting Update.

14. Select desired Coordinate System. Right Hand Rule is usually preferred.
15. For CAN signal output, set-up .dbc file in CT2 webpage. Enter Baud Rate (should be 1,000,000 Mbps). Enter desired Output rate (sample rate). Select desired units (Metric or English). Select proper CAN termination (one box checked per CAN Bus). Ensure all Message IDs are unique. Click Update button. Then 'SAVE TO DISK' and save to laptop. If 'SAVE TO DISK' button does not appear, copy .dbc file text, paste into Notepad application and save to laptop. Then change file extension to .dbc
16. For CAN outputs, in data acquisition, load .dbc file into data acquisition. Ensure sample rate and Baud rate are set the same as in CT2. Make sure termination resistor is turned on in data acquisition.
17. For Analog signal outputs set-up data acquisition according to Quick Reference Calibration Sheets provided.

Troubleshooting:

If all signals are at zero, just rotate the wheels by rotating them on hoist or driving the vehicle. All WFT signals are held at zero until encoder index pulse is seen by CT2 (this will happen if CT2 power is cycled).