Prepared William Yang	Title TDC FVT4 Test Station Setup Manual		
Approved	Date 29/07/2018	Revision 1.0	File on File Server

TDC FVT4 Test Station Setup Manual

KICKMAKER®

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REVISION HISTORY

Version	Date	Author	Comment
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1. Purpose

This document will introduce how to setup the hardware and software in TDC FVT4 station.

2. Scope

This file only applicable to all related personnel who want to setup or using TDC FVT4 station.

3. Abbreviations and Explanation

- AOI: Automatically optical inspection.
- TSI: Top side inspection.
- ICT: In circuit test.
- FVT: Functional verification test.
- FNI: Final inspection.
- OBA: Open box audit.
- FPY: First pass yield.
- TE: Test Engineer.
- A-B-A: Exchange experiment for Defected component
- LSL: Lower Specification Limit
- USL: Upper Specification Limit
- GRR: Gauge Repeatability and Reproducibility
- ANOVA: analysis of variance

4. TDC FVT4 Test Station Instruction

4.1. FVT4 instruction

FVT4 test station is a special test station for Michelin TDC product and the major function includes:

A. FW Flash.
B. Charging check
C. Bluetooth Check
D. RF ID Check
E. Trad Depth Calibration (Distance Calibration)
F. Pressure Calibration (Cancel it due to new pressure sensor was very precise).
G. Trad Depth test
H. Pressure test

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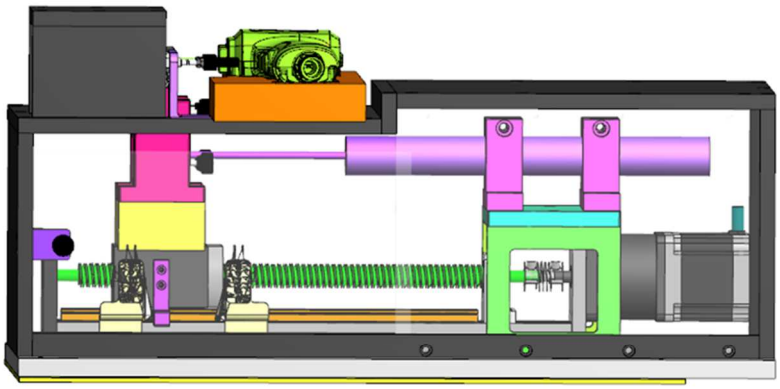
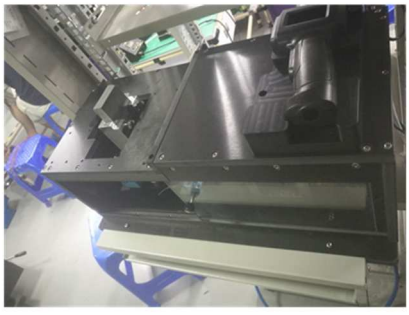
4.2. FVT4 3D View

Front View

Rear View

Tread Depth Calibration / Test Part mechanical construction





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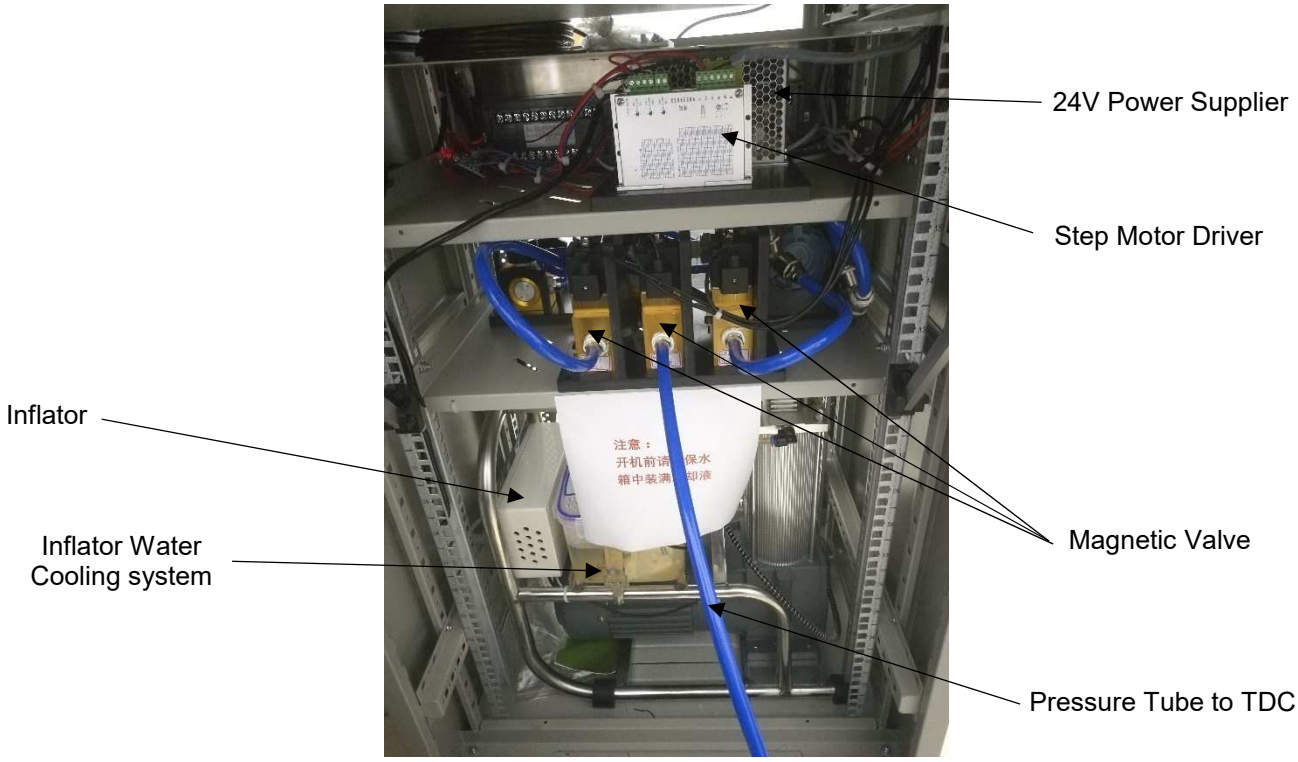
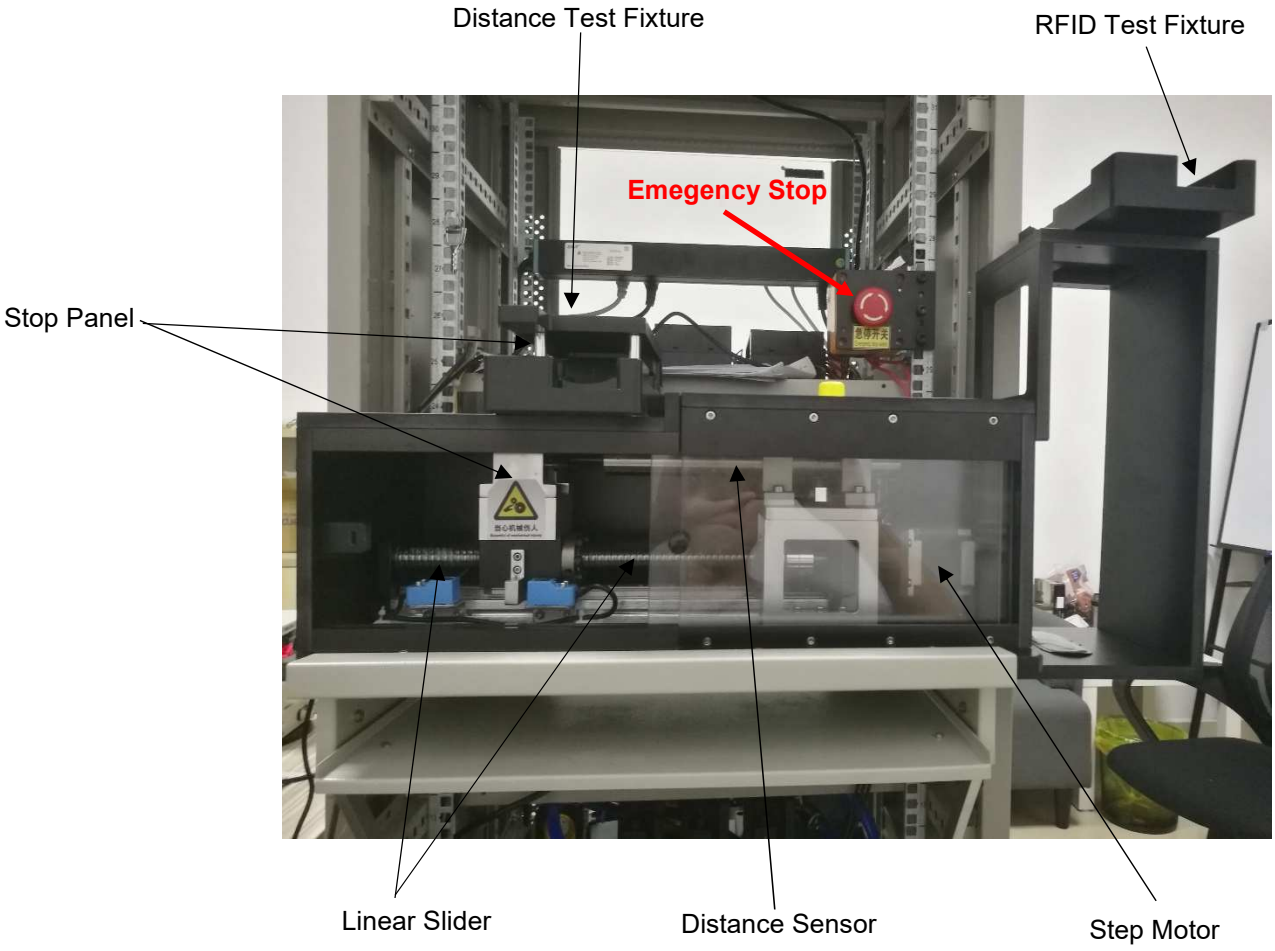
4.3. Component Location





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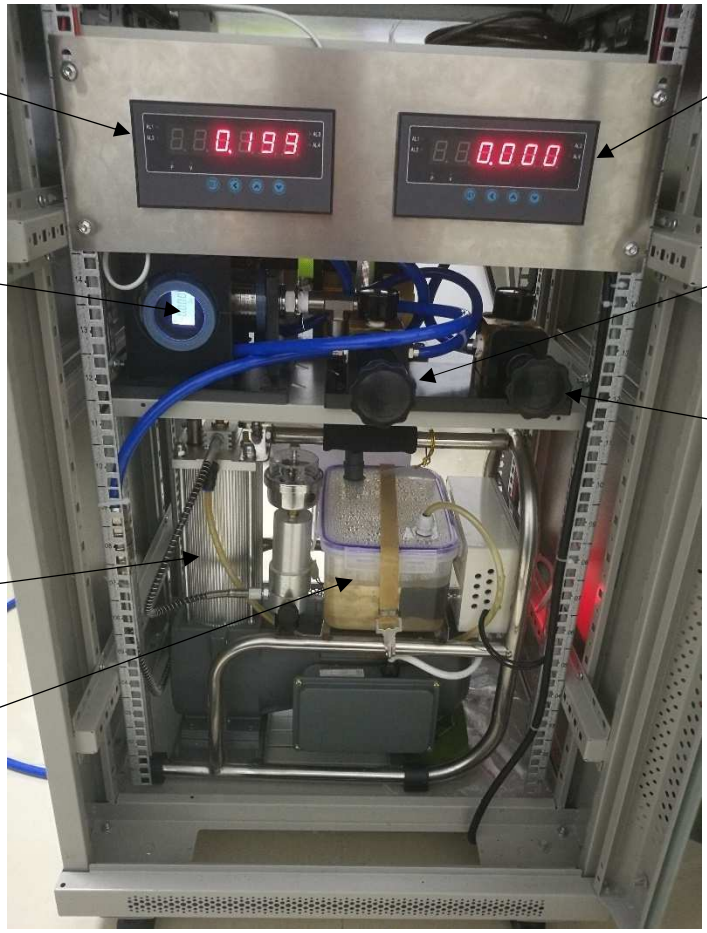

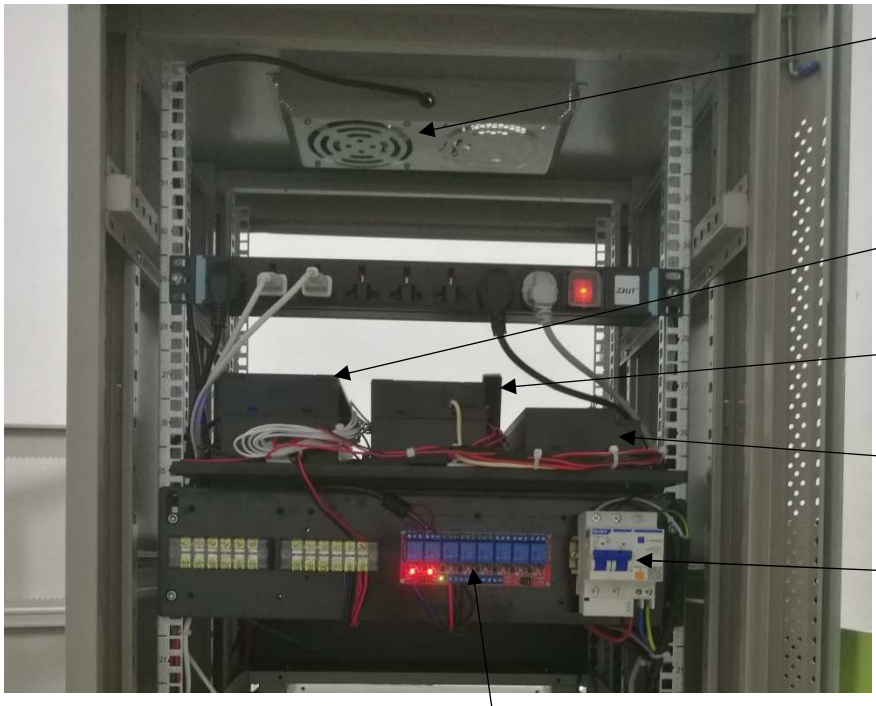

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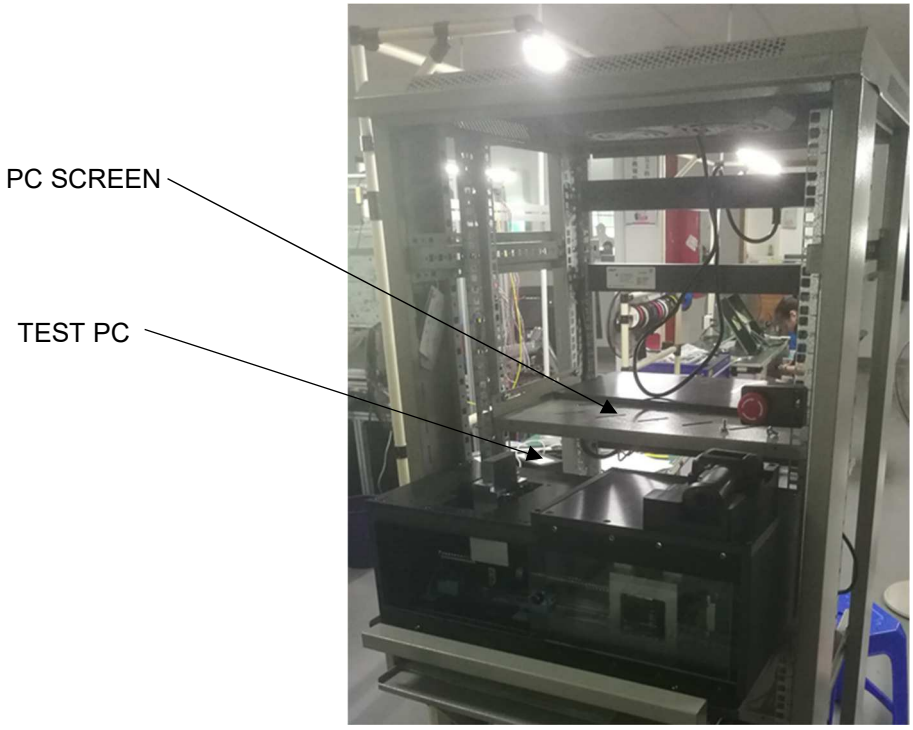
5. Hardware Installation

5.1. Test PC Install

A. Put the PC and screen in test station



A. Connect the two USB cable to PC's normal USB port.

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6. Software Installation

6.1. Install TDC_FVT4 Software package.

1. Please install TDC_FVT4_V1.0_Software_Installation.exe.

6.2. Install necessary software package.

1. Please install Microsoft Visual C++ 2017 Redistributable.
   You can get it from folder . \KICKMAKER\TDC\FVT4\V1.0\Package\ after software package installed or download from internet.
2. Please install STM32 ST-LINK Utility_v3.4.0
   You can get it from folder . \KICKMAKER\TDC\FVT4\V1.0\Tools\ after software package installed or download from internet.

6.3. Intall Driver

1. Install Test bench driver.
2. Install USB-RS485 driver.
3. Install ST-LINK V2 Driver
4. Install BT-Dongle Driver

You can found all of drivers from \KICKMAKER\TDC\FVT4\V1.0\Drivers\ after software package installed

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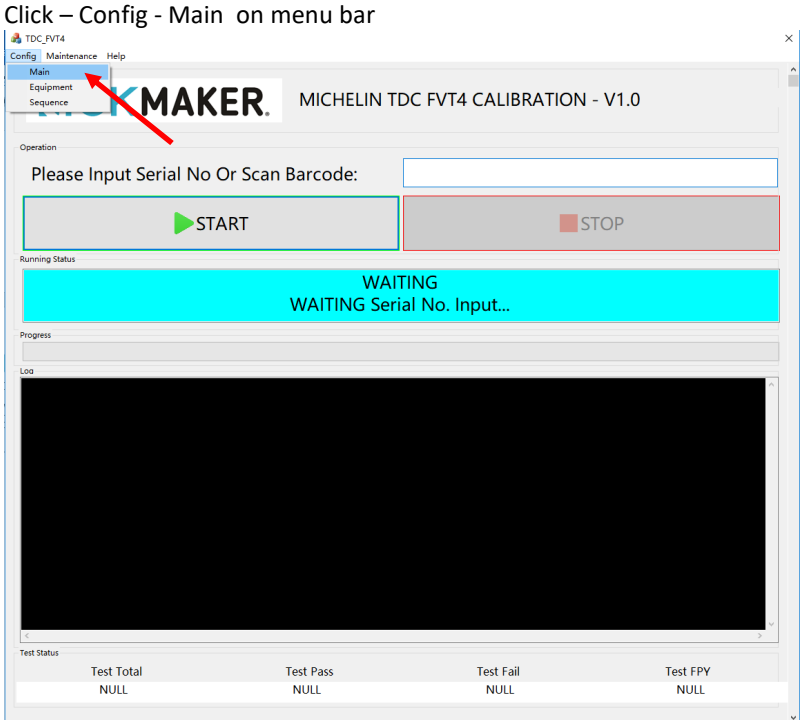
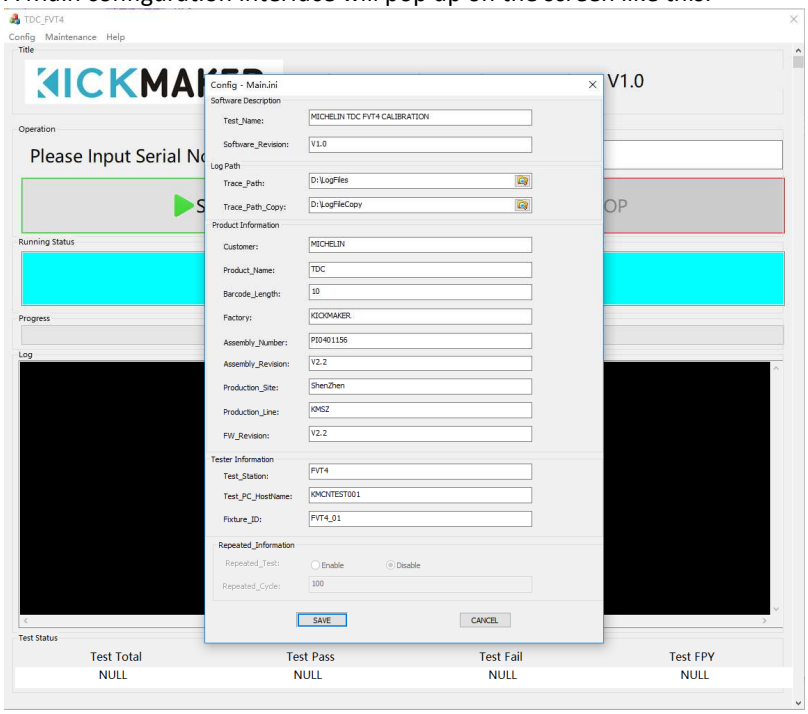
7. Software Configuration

7.1. Setting MAIN configuration

1. Open test software.
2. Click – Config - Main on menu bar



3. A Main configuration interface will pop up on the screen like this:



4. Please setting each main parameter base on actually situations.
   The parameter with “Trace_Path” and “Trace_Path_Copy” will save storage the log files, please make sure you setting a correct / existing folder, or the test software will cannot running.
5. After all parameter setting, please click SAVE button to save and exit Main configuration interface.

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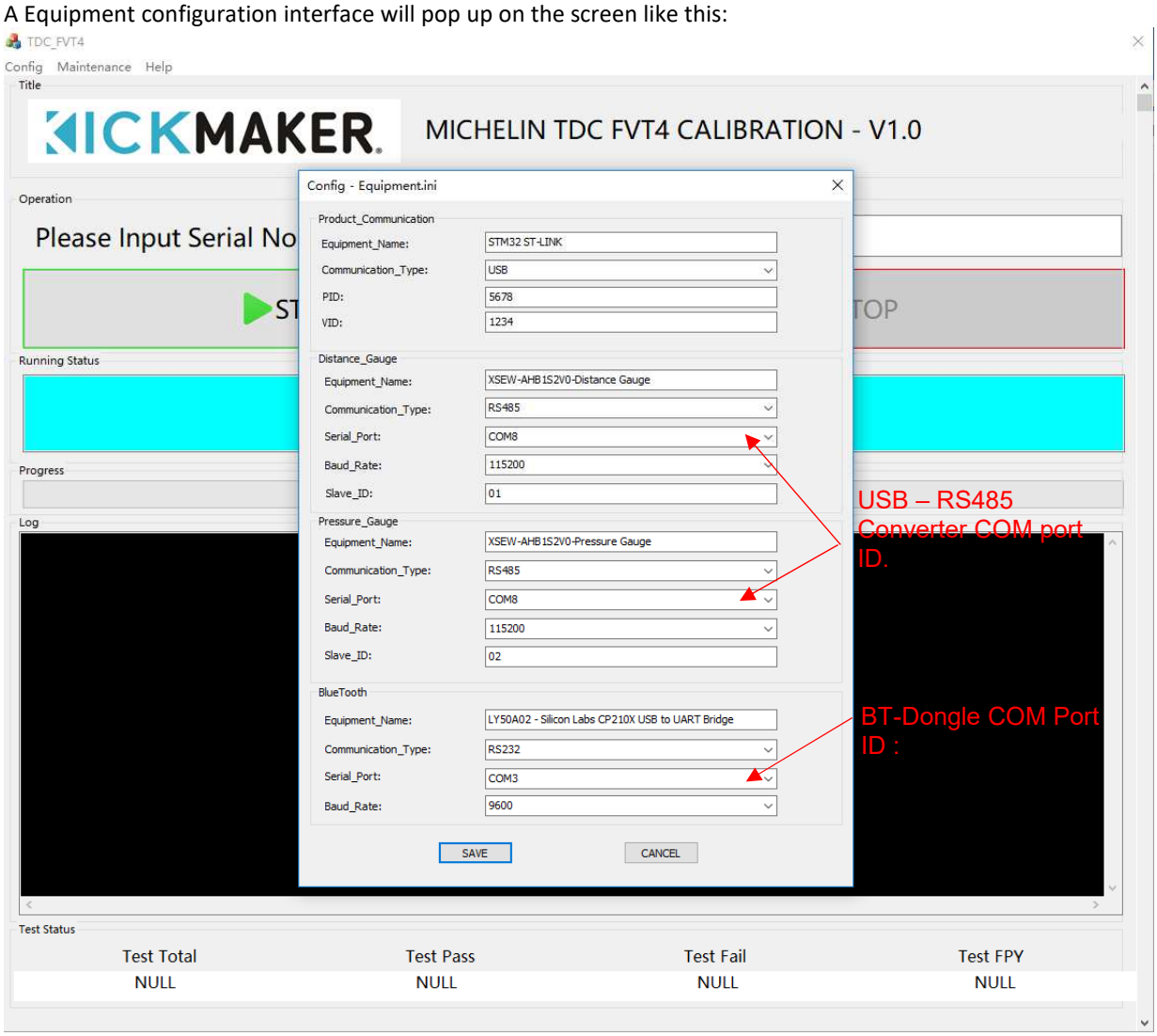
7.2. Setting Equipment configuration

1. Click – Config - Equipment on menu bar in test software interface
2. A Equipment configuration interface will pop up on the screen like this:



3. Please setting each main parameter base on actually situations.
   A. Only USB-RS485 converter COM port and BT-Dongle COM port ID need update base on actually situations, no need update other parameter.
   B. Distance gauge and Pressure gauge will use same COM port, but Slave_ID different.
4. After all parameter set corrected, please click SAVE button to save and exit configuration interface.

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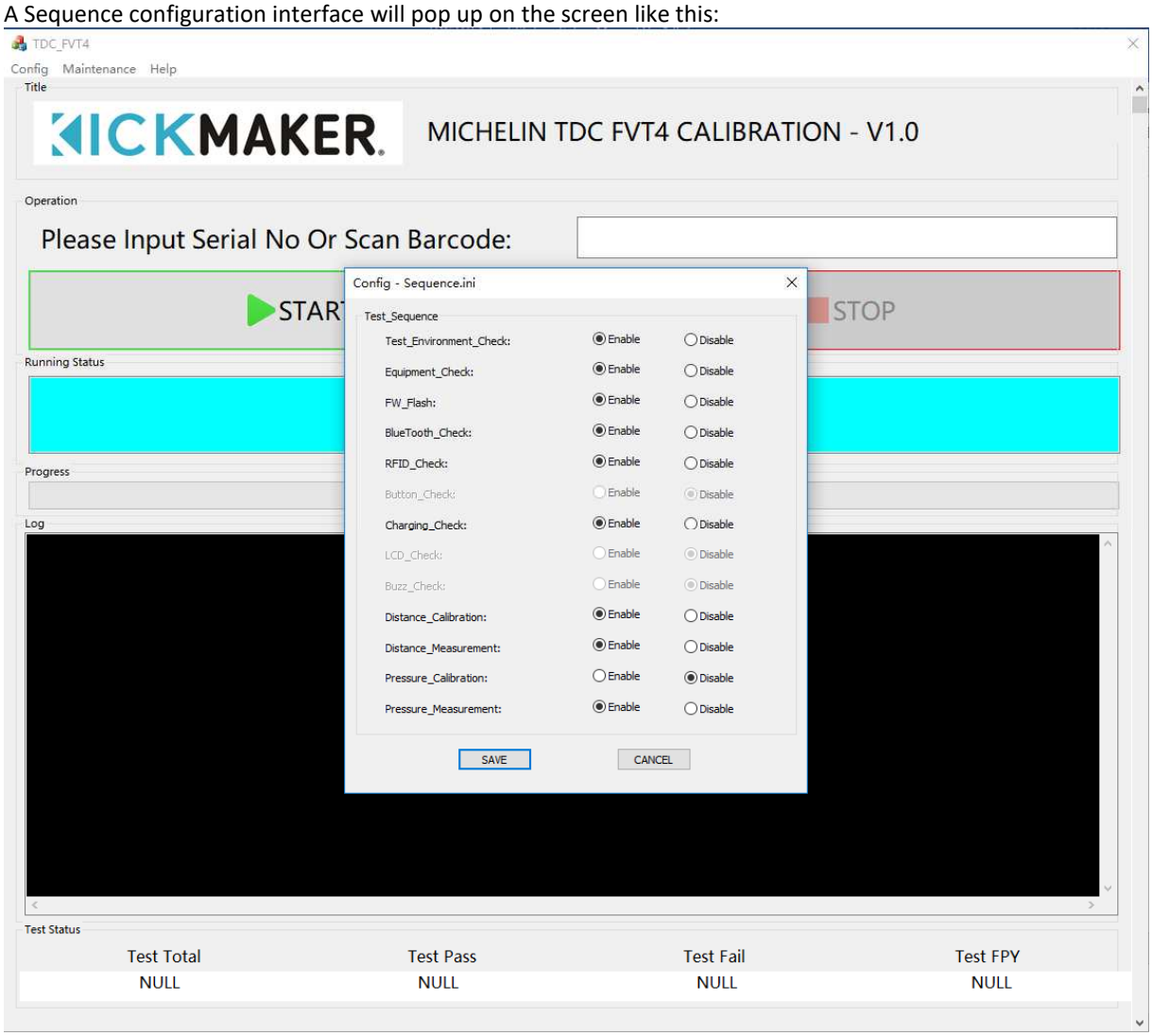
7.3. Setting Test Sequence configuration

1. Click – Config - Sequence on menu bar in test software interface
2. A Sequence configuration interface will pop up on the screen like this:



3. Please setting each main parameter base on actually situations.
   A. For Mass production, please make sure every available test step setting to “Enable”.
4. After all parameter set corrected, please click SAVE button to save and exit configuration interface.

7.4. Manual setting by open configuration file.

Except setting the parameter in test software interface, you also can be setting each parameter by open Config file in folder:
C:\KICKMAKER\TDC\FVT4\V1.0\Config\

WARNING: Don’t change anything without authorized by KICKAMER test team.

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8. Test Station Check

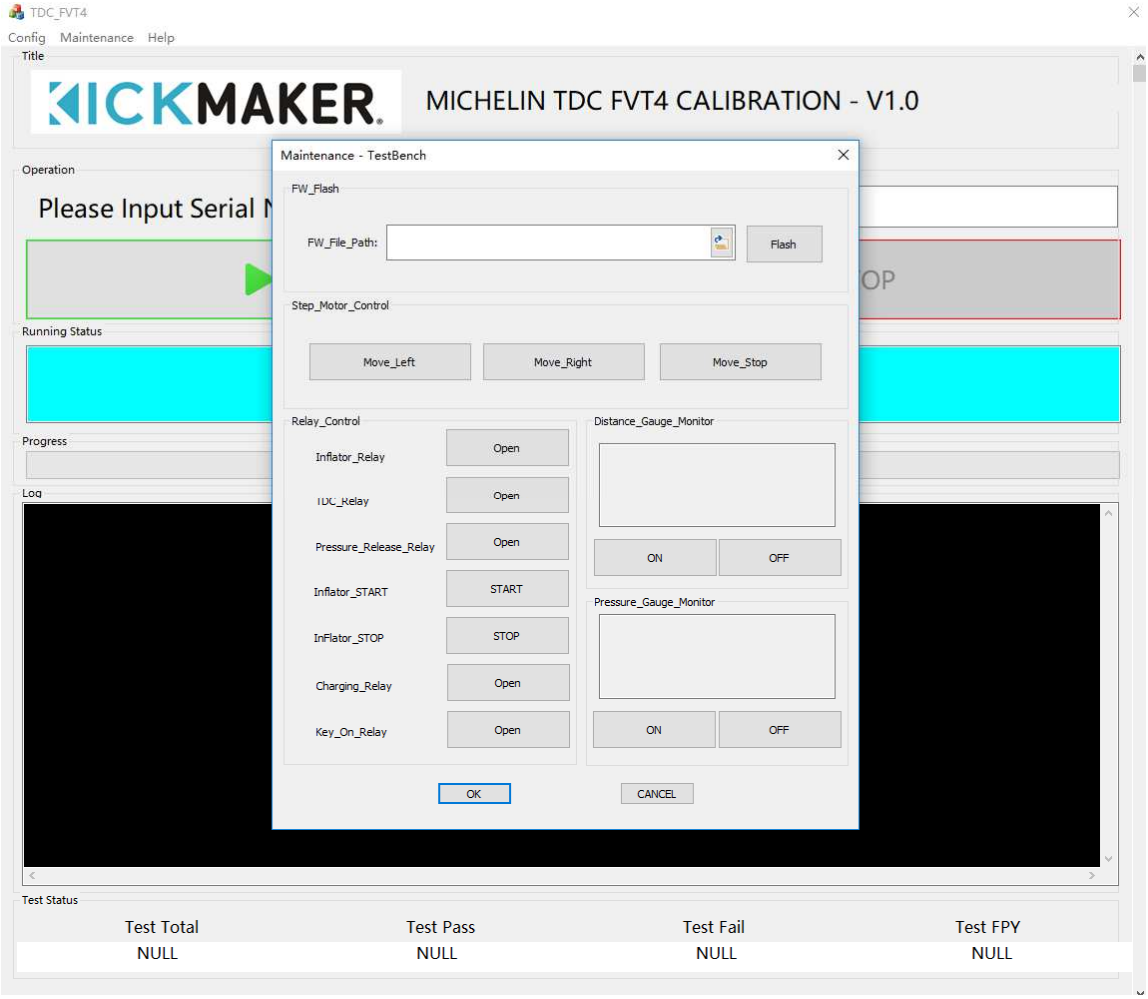
8.1. Power on test station.

1. Power on main power switcher
2. Power on test bench.
3. Pull – out Emergency Stop Button.

WARNING: If you found any abnormal, please push down Emergency Stop Button without any hesitate, test station will power down after Emergency Stop Button push down.

8.2. Test Station Function Manual Check

1. Open test software and click Maintenance – TestBench in Menu bar.
2. A test bench maintenance interface will pop up on screen :



3. Check step motor and linear slider.
   Click Move_Left / Move_Right button, the linear slider should move to left and right.
   Click Move_Stop button, the linear slider should stop moving.
4. Check distance gauge
   Click ON button in Distance_Gauge_Monitor, the distance value should display in Distance_Gauge_Monitor area.
5. Check pressure gauge
   Click ON button in Pressure_Gauge_Monitor, the distance value should display in Pressure_Gauge_Monitor area.
6. Check High pressure

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A. Click OPEN with Inflator relay, then click Inflator_Start, the Inflator should be running. Then you can see the value in Pressure_Gauge_Monitor increase till 14 bar.
B. Connect TDC pressure air tube to TDC product, then click TDC_Relay Open button, the high pressure will connect to TDC, the TDC will show the actually pressure value.
C. Click Inflator_Stop button, inflaotr will stop.

7. Check pressure release.
   Click Pressure_Release_Relay on button, the high pressure will released, you can see the value in Pressure_Gauge_Monitor dropping.
8. Check TDC Charging.
   A. Connect the TDC by Type-C cable.
   B. Then click Charging_Relay Open button.
   C. You can see the TDC begin charging.
9. Check TDC power on.
   A. Connect the TDC by Type-C cable
   B. Power off TDC.
   C. Click Key_On_Relay.
   D. The TDC will automatic power on.
10. Flashing check
    A. Select a FW file by click open in FW_File_Path.
    B. Click FLASH button.
    C. Test station will flash FW by ST-Link V2.

8.3. Begin to do test.

If every check result was pass, we can begin to do test.
If check result was failed, please check Hardware / Software setting till problem solved.

9. Reference document

MICHELIN TDC Project Hardware Test Plan_V1.1_03122018.pdf
TDC FVT4 Calibration Test Fixture Specification Ver1.0.pdf
FVT4_Calibration_Electric_Design_V3.pdf