mSPECIFY™ User Guide

RT Automation

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I. Introduction

Welcome to the mSPECIFY™ User Guide. This manual will provide you basic instructions on how to implement and use the mSPECIFY™ software system.

This software may be utilized by the User to configure the hardware and software parameters for the MeasureOHM® System. Use of this software is subject to the End Users License Agreement (EULA) which is located on our website at www.measureohm.com.

II. Reference Documents

- **MeasureOHM® End User License Agreement (EULA)**, RT Automation
- **Installing MySQL ODBC Driver,** RT Automation
- **Adding and Registering MSSTDFMT.DLL (Windows 7/8 OS)**, RT Automation
- **MeasureOHM® User Guide,** RT Automation

III. Necessary Components

The following components are necessary in order to run the mSPECIFY™ system:

1. The software, identified as mSPECIFY.EXE, which is included on the Installation CD that was provided with your order. This software may also be downloaded from our website at www.measureohm.com.

2. The MySQL ODBC driver must be loaded on your test computer.

- If you are running Windows XP, you must load the MySQL 3.5.1 Driver, 32 bit driver
- If you are running Windows 7 OR Windows 8, you must load the MySQL 5.1 Driver, 32 bit driver
- Note that in both cases, you MUST load the 32 bit driver MySQL driver even if your operating system is 64 bit.
- Other operation systems are NOT supported

3. Your computer that is used to run the software MUST be connected to the Internet. There is an interchange of material data between the computer and the MySQL Server. If the interchange of data is slow and/or interrupted, the program may not run correctly or timeout.

4. Port 3306 on your gateway must be open. This Port is utilized by the MySQL ODBC driver.

5. You must have a valid User Code that is provided as part of your License Agreement with the MeasureOHM® Hardware and Software system.

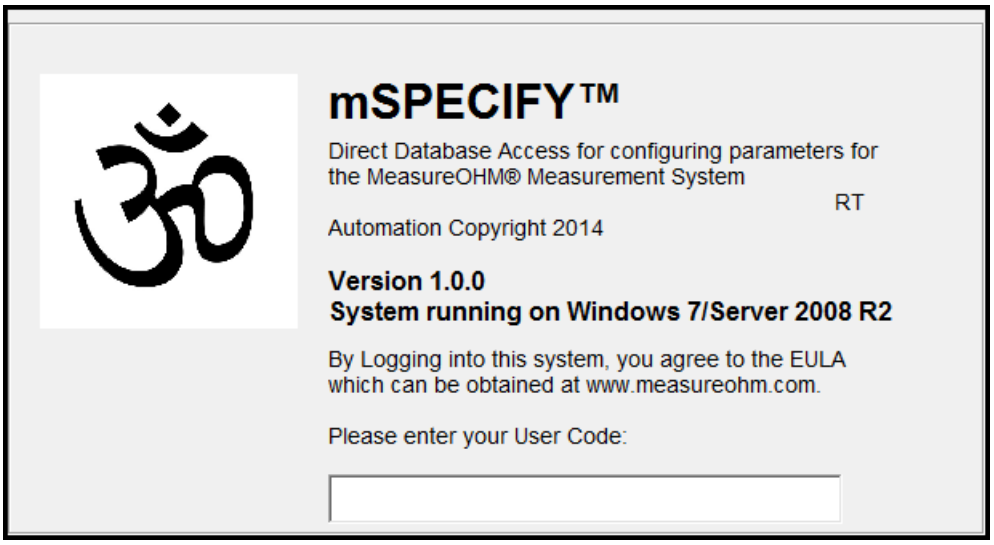
IV. Running the Program

In order to run the program, it must be copied from the media that it was provided to you on (i.e. on a CD-ROM and/or USB Flash Drive) to the Desktop of the computer you intend to run it on.

Warning: The program WILL NOT execute if you try to run it directly from the CD-ROM drive.

Once the program is on the computer Desktop, you can double click the mSPECIFY™ Program Icon to execute it. A splash screen similar to the one shown appears when the program is run. The current software will only run on Windows XP, Windows 7, and/or Windows 8. Previous versions of the Windows Operating System are NOT supported.

In order to run the software, enter your User Code at the Splash Screen as shown.

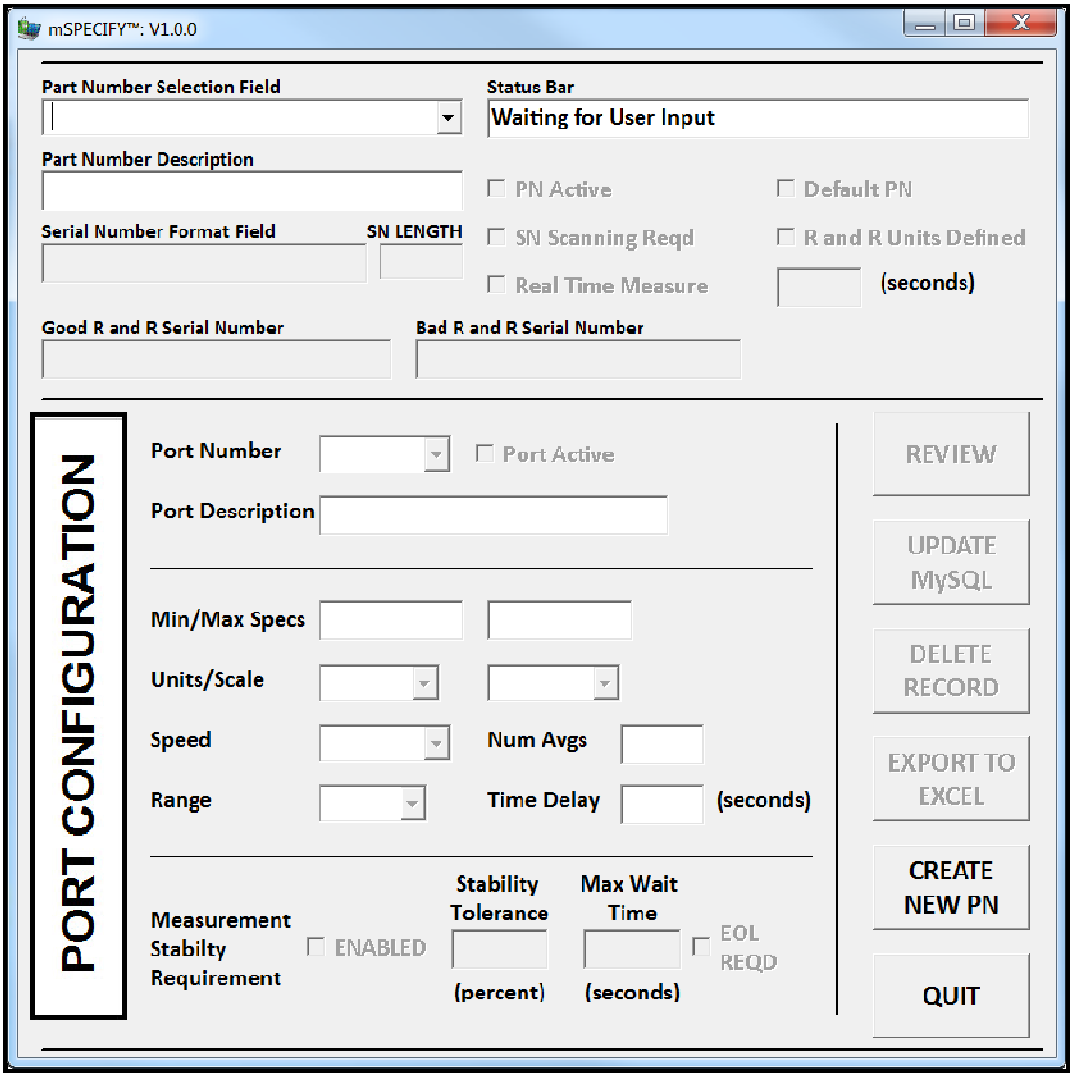


V. Software Startup

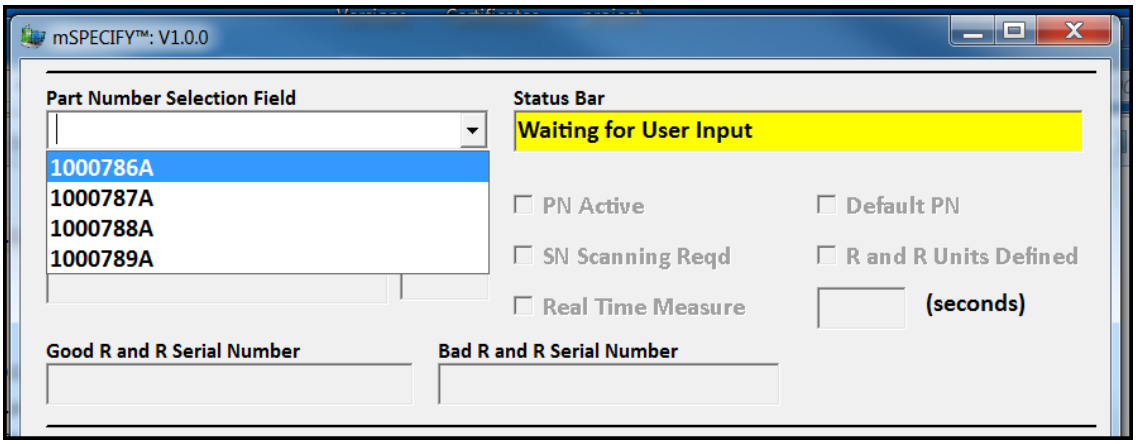
At the startup of the software, the User has three options:

1. An existing part number may be selected from the Part Number Selection Field
2. A new Part Number may be created from the Create New PN button
3. The program may be terminated by selecting the QUIT button

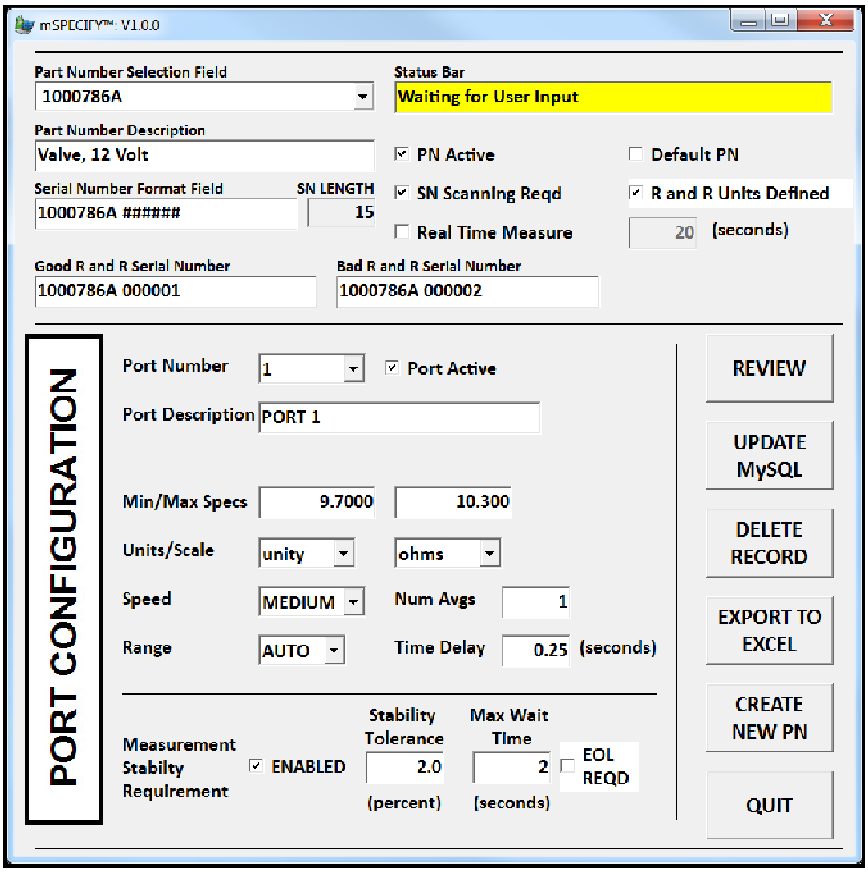
All the other fields are non-selectable at this time.



The following provides an example where the User selected the Part Number Selection Field. In this case, four part numbers have been developed and stored using the mSPECIFY™ Software system. Any of these part numbers may be selected and loaded into the software for review and modification.

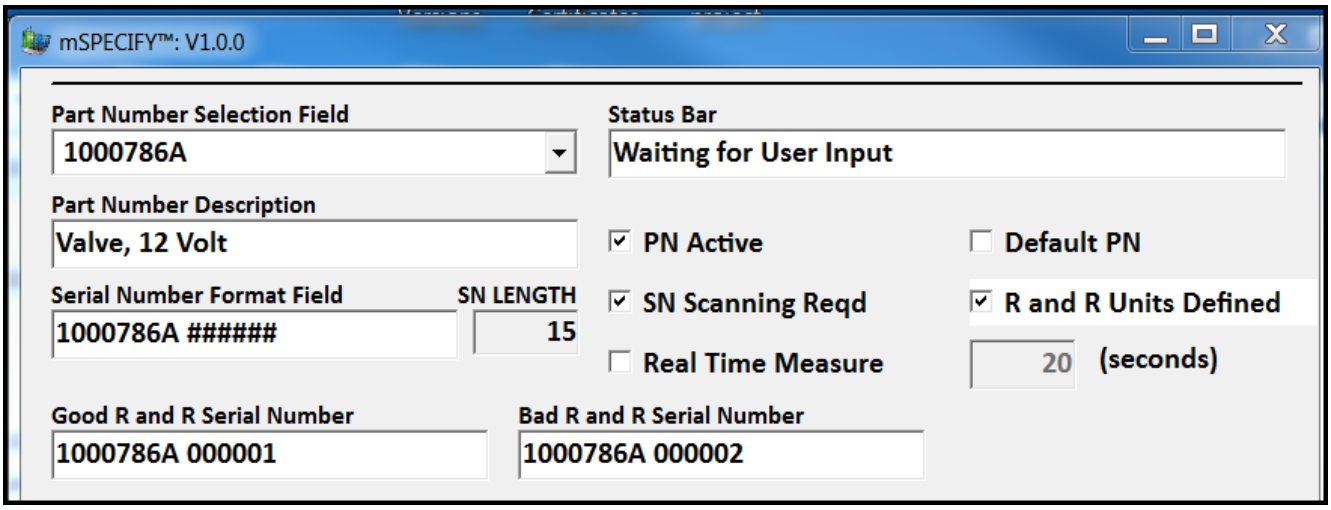


The following screen shot illustrates the case where the User has selected an existing (stored) part number 1000786A. The mSPECIFY™ software reads the stored information from the MySQL database and displays it on the screen for the User for review and modification (if so desired) by the User.



VI. Part Number Options

The purpose of this section is to summarize the fields and options associated with the Part Number configuration. These options are located at the top of the screen as illustrated in the figure below.



Part Number Selection Field

This field is utilized for selecting a stored part number. This part number, after selecting and loaded by the software, may be EDITED by the User. The part number is limited to 3 to 25 characters, and must consist of [A-Z], [0-9], the dash character, and the space character.

Part Number Description

This allows the User to enter and store a description for the part number. There are no restrictions on the format and is limited to 0 to 25 characters.

Serial Number Format Field

This field allows for a dynamic serial number to be defined for the part number. The length of the serial number is limited to 35 characters. The following formatting rules apply to the serial number format string:

- # = number [0-9]
- = upper case alpha character [A-Z]
- $ = alphanumeric, i.e. any character in the set of [0-9] and [A-Z]
- ASCII character code 32 = space
- [A-Z] = specific alpha character
- [0 - 9] = specific number

PN Active

This checkbox sets the Part Number as being Active (checked) or Inactive (not checked). If the part is Inactive, then it will not show up when the MeasureOHM® software is run.

Default PN

The mSPECIFY™ software allows one (and only one) part number to be defined as the DEFAULT part number. If a DEFAULT part number is defined, the MeasureOHM® will automatically load this part number when run. If there is only one part number (active) part number defined -- then it is automatically loaded even if it is not defined as the default PN.

SN Scanning Reqd

This checkbox Enables or Disables the Bar Code scanning feature of the software. When this feature is enabled, the Serial Number Format Field becomes active. This feature implements bar code scanning as part of the MeasureOHM® software. A valid serial number (meeting the requirements of the Serial Number format field) must be entered within the MeasureOHM® software in order for a test to be conducted. This feature allows the MeasureOHM™ port readings to be linked and stored to a part serial number.

Real Time Measure

This checkbox Enables the Auto Measure feature of the MeasureOHM® software. The time period between the automatic measurements are specified by the time period in the text box to the right of the Auto Measure checkbox. The allowable value of the time period must be between 5 and 120 seconds. These real time measurements are NOT compared to the specification limits prescribed. They are taken and displayed to the software user to give an advance look at the expected readings that the measurement system is expected to read.

R and R Units Defined

This checkbox enables the entry of the Good and Bad R and R Serial Numbers. If enabled, the MeasureOHM® will automatically identify a unit as a Good (or Bad) R and R test unit if that particular serial number is entered at the time of testing.

The use of Good and Bad R and R test units is a good method of setting up your test system. These units are typically utilized at the beginning and end of shift. It helps to identify that a particular test system configuration is working properly. In order for the R and R Unit algorithm to be utilized, the SN Scanning Reqd must be enabled.

Good R and R Serial Number

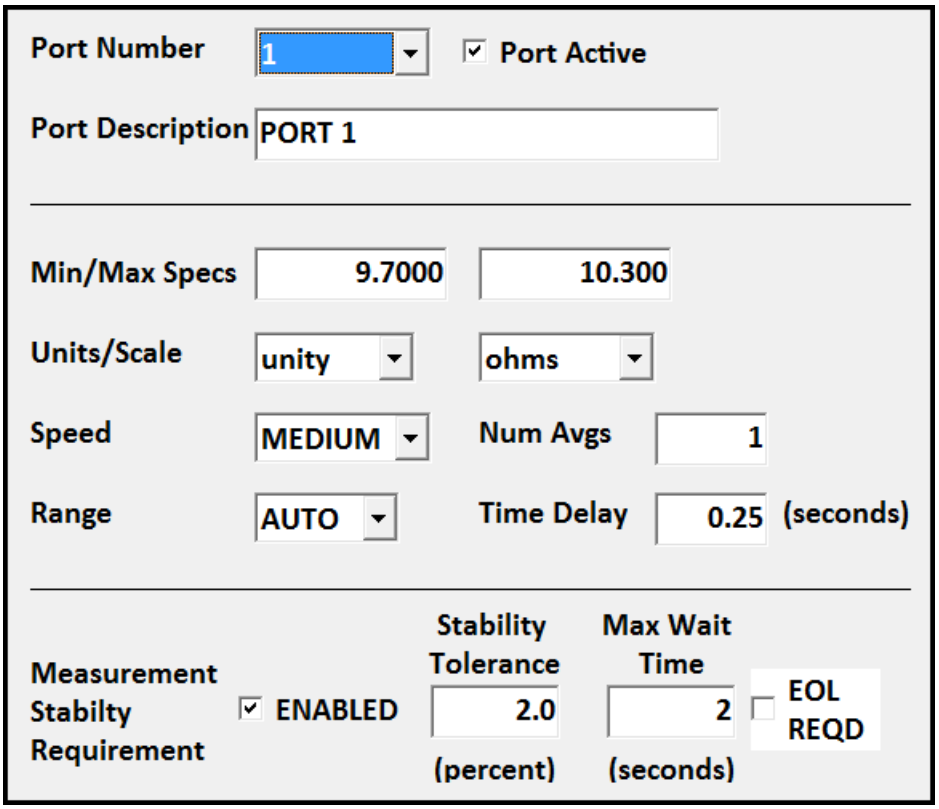
This field defines the Good R and R serial number. It must meet the requirements of the Serial Number Scanning Field.

Bad R and R Serial Number

This field defines the Good R and R serial number. It must meet the requirements of the Serial Number Scanning Field.

VII. Port Configurations

In order to optimize the software and hardware performance, the Part Number ports must be configured. The applicable fields are illustrated in the screen shot below.



Port Number

The number of ports that must be configured for a part number is dependent on the hardware model purchased. Typically number of ports is 4 and 8 (with specials up to 16 and 32). Each individual port must be configured. The port being edited may be selected in the Port Number field

Port Active

The individual port may be enabled (i.e. a test measurement conducted) by selecting the Port Active checkbox.

Port Description

Each individual Port may be given a unique identifier. The port name is limited to 15 characters. There is no restrictions on the port name.

Min/Max Specs

The min and max specs are the minimum and maximum resistances for a PASS/FAIL evaluation. The units for the min and max specs are per the scaling factor.

Units/Scale

For the current version of MeasureOHM®, the UOM identifier is configured for resistance measurements only (ohms). The scaling factor may be set to milliohms, ohms, kilo-ohms, and mega-ohms.

Speed

The measurement speed entry may be set to SLOW, MEDIUM, and FAST. The number of samples taken per second as a function of these settings is as follows:

- SLOW = 2.5 reading/second
- MEDIUM = 20 readings/second
- FAST = 100 readings/second

Range

The range entry may be set to AUTO, 0-200, 0-2k, 0-20k, 0-200k, 0-2M, 0-20M, and/or 0-100M. This setting may be utilized in order to speed up the measurement speed of the MeasureOHM® system by anticipating the expected range of the measurement. It is recommended that the User set the Range setting to AUTO until more experience with the system is obtained by the User.

Speed/Range Ramifications

These two settings impact the resolution and accuracy of the MeasureOHM® system per the following table.

Input Characteristics

Range	Full-Scale (5-1/2 Digits)	Resolution			Current Source
		Slow	Medium	Fast	
200 Ω	199.999 Ω	0.001 Ω	0.01 Ω	0.01 Ω	0.8 mA
2 kΩ	1.99999 kΩ	0.01 Ω	0.1 Ω	0.1 Ω	0.8 mA
20 kΩ	19.9999 kΩ	0.1 Ω	1 Ω	1 Ω	0.08 mA
200 kΩ	199.999 kΩ	1 Ω	10 Ω	10 Ω	0.008 mA
2 MΩ	1.99999 MΩ	10 Ω	100 Ω	100 Ω	0.9 µA
20 MΩ	19.9999 MΩ	100 Ω	1 kΩ	1 kΩ	0.16 µA
100 MΩ	100.000 MΩ	1 kΩ	10 kΩ	10 kΩ	0.16 µA || 10 MΩ

Accuracy

Range	Accuracy [1]		Temperature Coefficient/°C Outside 18 – 28 °C
	90 days	1 year	
	23 °C ± 5 °C	23 °C ± 5 °C	
200 Ω	0.02 + 0.004	0.03 + 0.004	0.003 + 0.0006
2 kΩ	0.015 + 0.002	0.02 + 0.003	0.003 + 0.0005
20 kΩ	0.015 + 0.002	0.02 + 0.003	0.003 + 0.0005
200 kΩ	0.015 + 0.002	0.02 + 0.003	0.003 + 0.0005
2 MΩ	0.03 + 0.003	0.04 + 0.004	0.004 + 0.0005
20 MΩ	0.2 + 0.003	0.25 + 0.003	0.01 + 0.0005
100 MΩ	1.5 + 0.004	1.75 + 0.004	0.2 + 0.0005

Notes:
[1] Accuracy given as ± (% of reading + % of range)

Num Avgs

In order to obtain a more stable reading, the system allows for multiple readings be made for each port and averaged. This setting sets the number of averages for the port reading. This value must be between 1 and 25.

Time Delay

The timeDELAY value allows for an additional time delay to be enforced before the port reading is made. This value must be between 0 and 60. The units of the time delay entry is seconds.

Measurement Stability Requirement

This checkbox enables the Measurement Stability algorithm.

Stability Tolerance

The field is the measurement stability that is required a particular port that must be met before a measurement is made. The value is in percent.

Max Wait Time

This is the maximum wait time the MeasureOHM® software will wait for measurement stability. This value must be between 2 and 10 seconds. If additional time is required, the Time Delay field may be used.

EOL Reqd

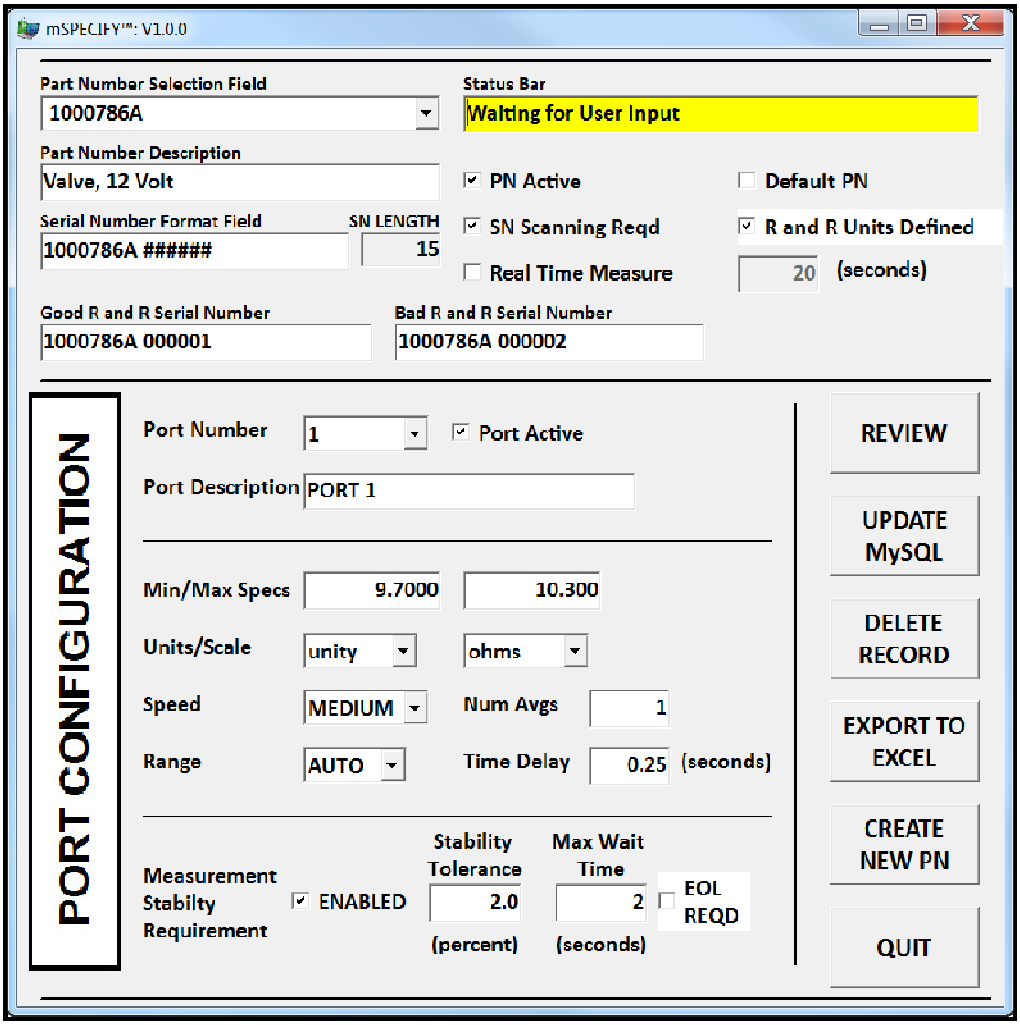
This field implements the EOL Required algorithm. Under the following conditions:

1. Measurement Stability Algorithm is Enabled
2. The actual measurement is not stable (i.e. the measurements did not meet the Stability Tolerance within the Max Wait Time period)

The system will report the measurement as FAILED even IF the actual measurement meets the requirement of the Min/Max Spec.

VIII. mSPECIFY™ Options

The mSPECIFY™ menu buttons allows for the following to be executed upon a particular part number



REVIEW

This menu option checks the current part number and port configurations to ensure that they meet the configuration rules. If the system finds an error -- it highlights the error for the User to correct.

UPDATE MySQL

Saves (and updates) the current configuration to MySQL. The configuration MUST be valid.

DELETE

Deletes the PN from MySQL

EXPORT TO EXCEL

Exports the current PN to MicroSoft Excel. Note that Excel must be loaded on your computer in order for this feature to work. Excel is NOT provided. Note that the export configuration is the one that is currently SAVED/STORED in MySQL and not what is currently on the screen (if they are different).

An example of this exported parameter summary is provided below.

NOTE: MeasureOHM® Part Number Parameter Summary — printed on 11/16/2014 at 8:14 PM

Part Number	1785000A
Description	Lockoff, 12 Volt
Default PN	Disabled
PN Active	Active
Scan Bar Code	Enabled
SN Format	1785000A ######
SN Extender	N/A
Auto Measure	Enabled
Auto Time (seconds)	20.00
R & R Configured	Enabled
Good SN	1785000A 000002
Bad SN	1785000A 000001

Port #	Description	Unit Scale	UOM	Port Active	Range	Min Spec	Max Spec	Number of	Measurement Speed	Time Delay (sec)	Stability Algorithm	SS Tol (%)	SS Max Wait (sec)	Stability Required
1	PORT 1	unity	ohms	Active	Autorange	9.7000	10.300	1	MEDIUM	0.25	Enabled	2.00	2.00	Disabled
2	PORT 2	unity	ohms	Active	Autorange	9,800.0	10,200	1	MEDIUM	0.25	Enabled	2.00	2.00	Disabled
3	PORT 3	unity	ohms	Active	Autorange	980,000	#######	1	MEDIUM	0.25	Enabled	2.00	2.00	Disabled
4	PORT 4	unity	ohms	Active	Autorange	9.8000	10.200	1	MEDIUM	0.25	Enabled	2.00	2.00	Disabled
5	PORT 5	unity	ohms	Active	Autorange	#######	#######	1	MEDIUM	0.25	Enabled	2.00	2.00	Disabled
6	PORT 6	unity	ohms	Active	Autorange	98,000	102,000	1	MEDIUM	0.25	Enabled	2.00	2.00	Disabled
7	PORT 7	unity	ohms	Active	Autorange	98.000	102.00	1	MEDIUM	0.25	Enabled	2.00	2.00	Disabled
8	PORT 8	unity	ohms	Active	Autorange	#######	#######	1	MEDIUM	0.25	Enabled	2.00	2.00	Disabled

CREATE NEW PN

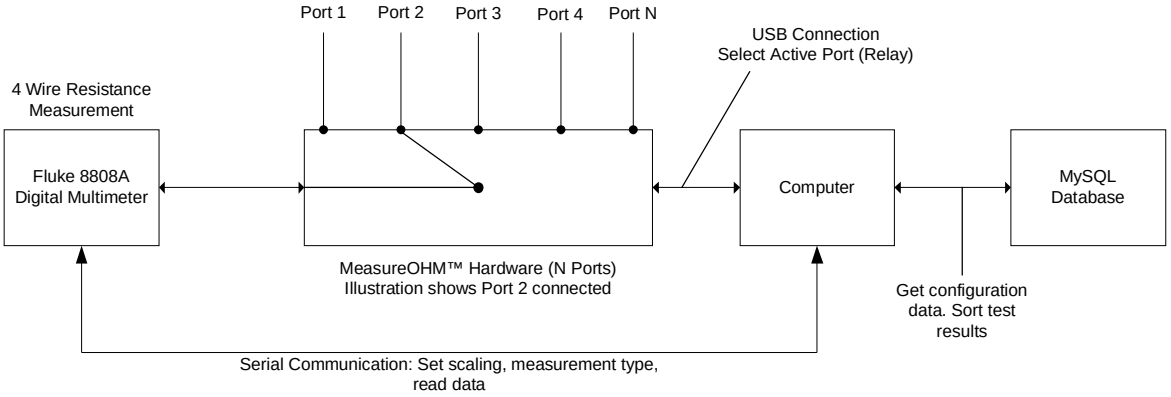
Allows the User to create a New Part Number

QUIT

Exits the Program

IX. MeasureOHM® Summary

The MeasureOHM® Hardware system allows for multiple resistive connections to be connected. Standard configuration for the system consist of 4 and 8 connections. If you need more or less connections -- contact us for a quotation and lead time.



The MeasureOHM® system has been programmed to work with the Fluke 8808A Digital Multimeter. The advantage of the Fluke 8808A Digital Multimeter is the following:

- It offers testing ranges from 200 ohms to 100 Mohms with 1 mOHM sensitivity
- 5 - 1/2 digit resolution