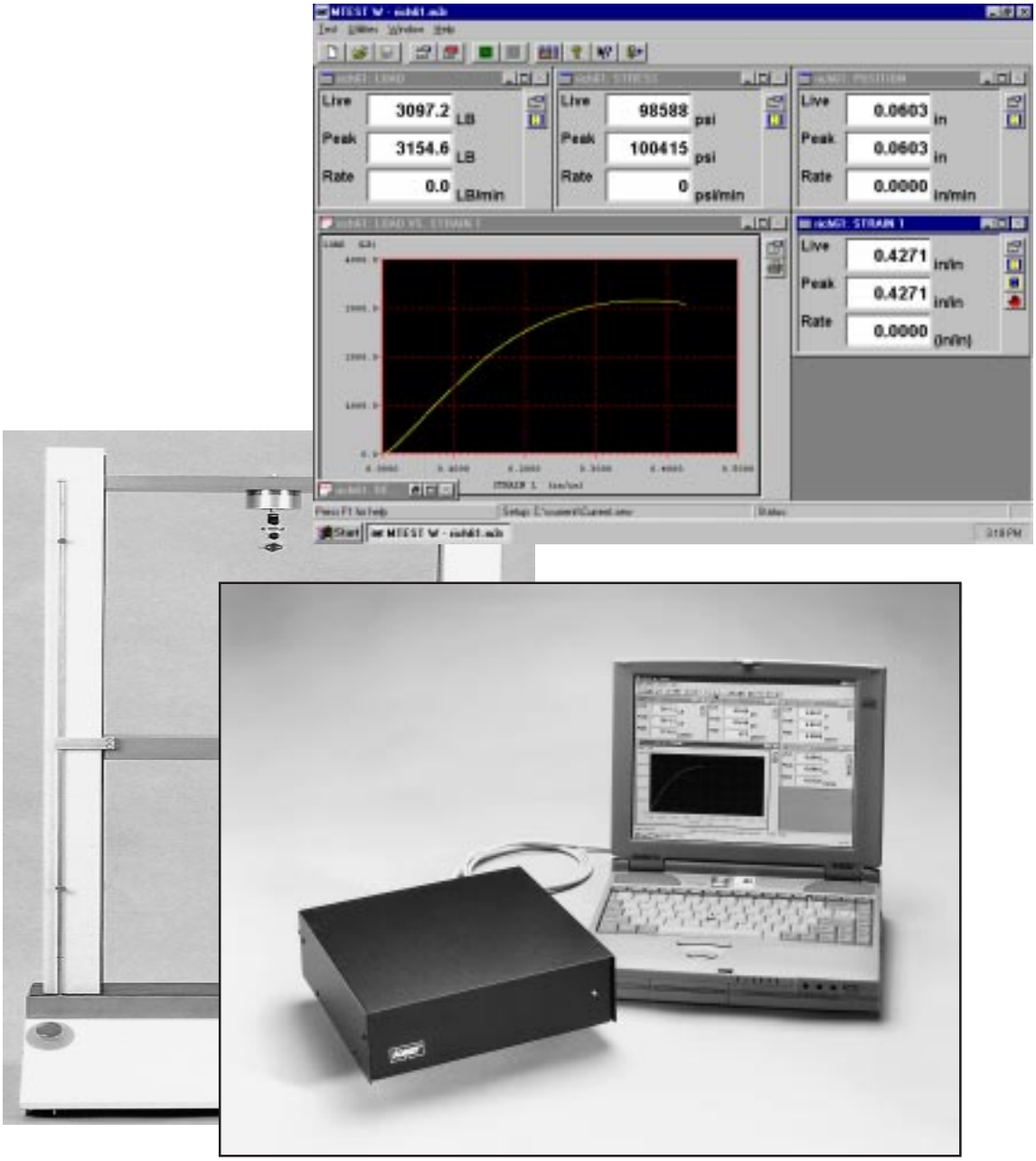
MTESTWindows™

Troubleshooting Guide



ADMET, Inc.
51 Morgan Drive Norwood, MA 02062
Tel: (781) 769-0850 Fax: (781) 769-0884
sales@admet.com www.admet.com

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MTESTWindows Troubleshooting

Analysis Problems (Modulus/Yield)

Analysis (Modulus/Yield) Problems		
Problem Description	**Possible Cause**	**ACTION**
Offset Yield Result is 0 or N/A.	Data logging threshold is not set properly	Ensure that the data logging threshold is set to appropriate value: it should be above any type of "foot" in the stress strain curve.
	Automatic algorithm for modulus calculation not appropriate for test data	Use Manually Select Points for Modulus feature to ensure that data points being used for modulus calculation are in the linear elastic portion of the test curve.
	Insufficient strain data collected	Ensure that enough strain data is being collected so that the stress/strain data point that is being specified by the offset percentage is included in the test data.
Autofreeze is triggering Prematurely	Data logging threshold is not set properly	Ensure that the data logging threshold is set to appropriate value: it should be above any type of "foot" in stress strain curve.
	Automatic algorithm for modulus calculation not appropriate for test data	Use Manually Select Points for Modulus feature to ensure that the data points being used for the modulus calculation are in the linear elastic portion of the test curve.
	Autofreeze Threshold not set to proper value	Ensure that the Autofreeze threshold is higher value than the data logging threshold. If it is and you are still having a problem you can raise the auto freeze threshold to be closer to the yield point of the stress strain curve.
	Insufficient strain data collected	Add an extra strain based analysis at higher offset than your desired value to force test to collect additional strain data. For example if your desired analysis is .2% yield offset add a .5% offset EUL analysis to the setup. This will provide a safety factor in collecting enough strain data for the .2% offset yield. EUL (elongation under load) is preferable to Offset Yield for this purpose as it draws a vertical line from the strain axis to intercept the stress curve and it is not dependent on the slope of the modulus line.
Modulus Calculation is wrong	Data logging threshold not set properly	Ensure that the data logging threshold is set to an appropriate value: it should be above any type of "foot" in the stress strain curve.
	Automatic algorithm for modulus calculation not appropriate for test data	Use the Manually Select Points for Modulus feature to ensure that the data points being used for the modulus calculation are in the linear elastic portion of the test curve.
	Incorrect value for gage length entered.	Ensure that the correct gage length value is entered.

Analysis (Modulus/Yield) Problems Cont'd		
Problem Description	**Possible Cause**	**ACTION**
Test Ends Early with no Errors.	Sample Break and/or Threshold are not set properly	Ensure that the data logging threshold and the sample break% are set to values appropriate for your test. Threshold is where data logging begins. Once threshold is crossed the software is looking for the load to drop to a percentage of peak as specified in sample break%. An insignificant drop in the load at the beginning of a test can trigger the end of the test prematurely if the threshold is set to low.
	Data logging rate not set properly	Ensure that the data-logging rate is appropriate for the test length. The test buffer is roughly 64 KB in size. So if you are logging all the time at 30Hz for example you will collect about 35 minutes worth of test data before the test buffer fills and data logging stops.
No data is logged	Data logging threshold not set properly	Ensure that the data-logging threshold is set to an appropriate value. Data logging begins at Threshold. If, for example, the threshold is set to a value higher than the expected peak load for a particular sample, then no data will be logged for the test.

Load AND/OR Strain Reading Problems

Load (transducer) reading wrong		
Problem Description	**Possible Causes**	**ACTION**
Load or Strain reading is unstable	Incorrect transducer calibration specified	Ensure that the correct transducer calibration is selected in the test setup, Active Channels tab.
	Bad transducer calibration	Open the calibration table for the transducer that is connected. (Select Calibration from the Utilities menu in the program.) Check to see that calibration is good: The A/D count span should extrapolate to 600,000 to 1,000,000 range from zero to full scale of the transducer. The relationship between A/D counts and engineering unit values should be linear and there should be no duplicate points. The first point in the calibration MUST be zero.
	Bad transducer and/or transducer cable	If possible swap the transducers on MTESTWindows. For example if the instability is in the load channel, switch the extensometer and load cables at the back of MTESTWindows so that the extensometer is now connected to the load channel and the load transducer is connected to the strain channel. If the instability stays with the load channel then it is likely that there is a hardware failure and the MTESTWindows interface box needs to be returned to ADMET. If the instability moves to the strain channel then most likely the problem is with the load transducer and/or cable.
	Failed analog channel in MTESTWindows box	If possible swap the transducers on MTESTWindows. For example if the instability is in the load channel, switch the extensometer and load cables at the back of MTESTWindows so that the extensometer is now connected to the load channel and the load transducer is connected to the strain channel. If the instability stays with the load channel then it is likely that there is a hardware failure and the MTESTWindows interface box needs to be returned to ADMET. If the instability moves to the strain channel then most likely the problem is with the load transducer and/or cable.

Load (transducer) reading wrong, cont'd.		
Problem Description	**Possible Causes**	**ACTION**
Load or Strain reading is incorrect	Incorrect transducer calibration specified	Ensure that the correct transducer calibration is selected in the test setup, Active Channels tab.
	Bad transducer calibration	Open the calibration table for transducer that is connected. (Select Calibration from the Utilities menu in the program.) Check to see that the calibration is good: The A/D count span should extrapolate to 600,000 to 1,000,000 range from zero to full scale of transducer. The relationship between the A/D counts and engineering unit values should be linear and there should be no duplicate points. The first point in the calibration MUST be zero.
	Bad transducer and/or transducer cable	Open the calibration table for the transducer that is connected. (Select Calibration from the Utilities menu in the program.) Observe the live count value at zero and full scale (in this view MTESTWindows is not providing the engineering unit values so you need some independent way of evaluating the full scale value) and compare with A/D counts for the corresponding engineering unit value in the original calibration. The typical A/D count span from zero to full scale for a transducer should be between 600,000 and 1,000,000. If there is little or no span with the transducer in question connected, try swapping a known good transducer and cable to the channel in question. If little to no span stays with the transducer/cable then the problem is with the transducer/cable. If little to no span stays with the analog channel then the problem is likely with the hardware and the unit may need repair. If you do not have a known good transducer and cable to perform this test then the test could be done with a voltage simulator with mv/V output.
	Failed analog channel in MTESTWindows box	Open the calibration table for the transducer that is connected. (Select Calibration from the Utilities menu in the program.) Observe the live count value at zero and full scale (in this view MTESTWindows is not providing the engineering unit values so you need some independent way of evaluating the full scale value) and compare with A/D counts for the corresponding engineering unit value in the original calibration. The typical A/D count span from zero to full scale for a transducer should be between 600,000 and 1,000,000. If there is little or no span with the transducer in question connected, try swapping a known good transducer and cable to the channel in question. If little to no span stays with the transducer/cable then the problem is with the transducer/cable. If little to no span stays with the analog channel then the problem is likely with the hardware and the unit may need repair. If you do not have a known good transducer and cable to perform this test then the test could be done with a voltage simulator with mv/V output.

Load (transducer) reading wrong cont'd.		
Problem Description	**Possible Causes**	**ACTION**
A/D Saturation Error	Bad transducer and/or transducer cable	If possible swap transducers. For example if A/D saturation in load channel, switch extensometer and load cables at the back of MTESTWindows so that extensometer now connected to load channel and load transducer connected to strain channel. If A/D saturation stays with load channel then it is likely that there is hardware failure and box needs to be returned to ADMET. If A/D saturation moves to strain channel then most likely problem with load transducer and/or cable. Disconnect transducer from channel that has A/D Saturation if saturation goes away then (fluctuation normal with no transducer connected but not saturation) then problem lies with transducer and/or cable. Open calibration table for transducer that is connected. (Select Calibration from the Utilities menu in the program.You will need password to enter calibration) Observe what the Count value that corresponds to 0 engineering unit value in the original calibration. Is the number displayed in Live Counts window signigicantly larger than count value in orginal calibration. If it is then transducer has been damaged and there is 0 offset so that full scale range of transducer has been reduced.
	Failed analog channel in MTESTWindows box	If possible swap transducers. For example if A/D saturation in load channel, switch extensometer and load cables at the back of MTESTWindows so that extensometer now connected to load channel and load transducer connected to strain channel. If A/D saturation stays with load channel then it is likely that there is hardware failure and box needs to be returned to ADMET. If A/D saturation moves to strain channel then most likely problem with load transducer and/or cable. Disconnect transducer from channel that has A/D Saturation if saturation goes away then (fluctuation normal with no transducer connected but not saturation) then problem lies with transducer and/or cable. Open calibration table for transducer that is connected. (Select Calibration from the Utilities menu in the program.You will need password to enter calibration) Observe what the Count value that corresponds to 0 engineering unit value in the original calibration. Is the number displayed in Live Counts window signigicantly larger than count value in orginal calibration. If it is then transducer has been damaged and there is 0 offset so that full scale range of transducer has been reduced.

Communications Problems

Communication Problem		
Problem Desciption	**Possible Causes**	**ACTION**
PDAU Version Unknown error	MTESTWindows program not communicating with MTESTWindows interface box.	When the MTESTWindows program opens it needs to establish communications with the interface box and confirm that the firmware version in the interface box is compatible with the MTESTWindows software version in the computer. Ensure that the interface box has powered up prior to opening the MTESTWindows program. Ensure that the serial cable between the computer and the interface box is properly connected. If the problem persists after confirming that the interface box is powered up and the serial connection is good power the computer down, power the interface box down and restart in reverse order. The suggested procedure for shutting down is to first close the MTESTWindows program, then shut off the computer, then power down the interface box. The procedure for starting up is to ensure that the interface box is powered up before opening the MTESTWindows program.
PDAU Version Mismatch Error	Firmware in interface box is incompatible with MTESTWindows software version	When the MTESTWindows program opens it needs to establish communications with the interface box and confirm that the firmware version in the interface box is compatible with the MTESTWindows software version in the computer. Ensure that you are running the correct version of MTESTWindows on the computer. This problem most often occurs when reinstalling the software after an upgrade.
Command Time Out to Portable Board error	MTESTWindows program not communicating with MTESTWindows interface box.	MTESTWindows needs to be in constant communication with the interface box. Anything that interrupts this communication can produce this type of error including power fluctuations and/or wiring problems in any of the transducer cables connected to the MTESTWindows interface box. Ensure that the interface box is powered up.
	Wall Transformer has failed.	MTESTWindows needs to be in constant communication with the interface box. Anything that interrupts this communication can produce this type of error including power fluctuations and/or wiring problems in any of the transducer cables connected to the MTESTWindows interface box Ensure that the wall transformer is okay. Check the output voltage.
Communication Initialization Failed: do you wish to set comm port? Error	MTESTWindows software cannot access computer's com port.	MTESTWindows needs to be in constant communication with the interface box. Anything that interrupts this communication can produce this type of error. This error means the software cannot even access the com port. Something is running on the computer that is preventing access to the COM port. Is there anything running that could be tying up the COM port (this includes other software applications and/or utilities running in the background)?

Software Problems

Software Problem		
Problem Description	**Possible Causes**	**ACTION**
MFC Application error	Default test setup file, mtestw.sew is corrupted.	Close the MTESTWindows Program and delete mtestw.sew from the MTEST program directory (typically C:\Program Files\ADMET\MTESTW). Then reopen MTESTWindows. You will get a message that the software cannot find mtestw.sew and it will create a new one. If this does not fix problem then contact ADMET.
Attempting to Access Unnamed File error	Computer does not have access to specified file saving location	Ensure that computer has access to all of the directories specified for automatic file saving.
	Automatically appending MTX file and the MTX file has gotten too large	If you are appending a MTX file automatically, ensure that the file has not gotten too large. You can select the frequency for new mtx file generation in the Acquisition tab to manage MTX file sizes.
	Target directory for automatically saved files has gotten too large.	Ensure that the target directory for auto saving of files has not grown too large.
Screen taking a long time to refresh after test ends.	Computer does not have access to specified file saving location	Ensure that the computer has access to all of the directories specified for automatic file saving.
	Automatically appending MTX file and the MTX file has gotten too large	If you are appending a MTX file automatically, ensure that the file has not gotten too large. You can select the frequency for new mtx file generation in the Acquisition tab to manage MTX file sizes.
	Target directory for automatically saved files has gotten too large.	Ensure that the target directory for auto saving of files has not grown too large.

Testing Machine Control Problems (Servo Control Systems Only)

Control Problem (Servo Control Systems Only)		
Problem Description	**Possible Causes**	**ACTION**
Test Ending Early	Threshold and/or Sample Break% not set to values appropriate for your test	Ensure that the data logging threshold and the sample break% in the Acquisition tab are set to values appropriate for your test. Threshold is where data logging begins. Once threshold is crossed the software is looking for the load to drop to a percentage of the peak load as specified in sample break%. An insignificant drop in load at the beginning of a test can trigger the end of the test if the threshold is set to low.
	Servo Control Profile not set up properly	Check the servo profile and ensure that it is correct for what you want to do. The machine will stop when it reaches programmed end point in any particular step and the test will end if there are not subsequent steps in the profile.
	Local Load Overload setting	Ensure that the Local Load Overload value in the Active Channels tab is set to an appropriate value for the test.
Difficulty Preloading	Load tuning gains not set	Ensure that the system is tuned for load control. Preload moves under position control to a percentage of the specified preload amount and then switches to load control. Note that Preload can also be accomplished by inserting a position control step to the target preload value as the first step in your servo control profile. This is sometimes easier than using the Preload Function.
	Requested preload amount and rate not practical for testing machine	Ensure that your programmed Preload Amount and Preload Rate are practical for the machine. For example preloading at a very fast position rate to a low preload value increases the possibility of having control problems and overshooting the preload amount. Note that Preload can also be accomplished by inserting a position control step to the target preload value as the first step in your servo control profile. This is sometimes easier than using the Preload Function.
Machine not controlling at requested rate	Tuning gains not set for requested control channel	Ensure that the machine has been tuned in the requested control channel. Ensure that the test setup being used has the proper PID gains. Select Modify Gains in the Servo Parameters tab. NOTE that the PID tuning gains are specific to each Test Setup. The current tuning gains are overwritten with values in Test Setup that is being opened. You can select Don't Overwrite Gains in Miscellaneous tab from Utilities menu if desired.
	Incorrect Gear is selected	Ensure that the correct gear is selected. In hydraulic and single gear electromechanical machines only the Low Gear settings are used. In multigear electromechanical machines the gear selection in the software must match the gear the machine is currently in.

Control Problem (Servo Control Systems Only)		
Problem Description	**Possible Causes**	**ACTION**
Machine not stopping at requested endpoint	Tuning gains not set for requested control channel	Ensure that the machine has been tuned in the requested control channel. Ensure that the test setup being used has the proper PID gains. Select Modify Gains in the Servo Parameters tab. NOTE that the PID tuning gains are specific to each Test Setup. The current tuning gains are overwritten with values in Test Setup that is being opened. You can select Don't Overwrite Gains in Miscellaneous tab from Utilities menu if desired.
	Programmed control rate and end amounts are not practical for testing machine and/or test sample.	Ensure that your programmed Control Rate and End Amount are practical for the machine and test sample. Example of an impractical servo profile would be programming the test machine to move at very fast position rate to end point of 5lbs on machine with load capacity of 25,000lbs. 5lbs is in the noise area relative to the full-scale capacity of 25,000lbs so you will probably have difficulty controlling to 5lbs.
Machine not moving	Tuning gains not set for requested control channel	Ensure that the machine has been tuned in the requested control channel. Ensure that the test setup being used has the proper PID gains. Select Modify Gains in the Servo Parameters tab. NOTE that the PID tuning gains are specific to each Test Setup. The current tuning gains are overwritten with values in the Test Setup that is being opened. You can select Don't Overwrite Gains in the Miscellaneous tab from Utilities menu if desired.
	Position tuning gain and/or calibration is incorrect	Ensure that the Position channel calibration and tuning gains are correct. If the position channel tuning gain has been overwritten with the default value then the machine may not move at all.
Machine moves in wrong direction	Incorrect Load cell calibration selected in ACTIVE CHANNELS tab	Ensure that correct load calibration is selected for procedure.
	Incorrect setting for Direction of Loading in load cell's calibration	Ensure that the load cell calibration was setup with the proper value for Direction of Loading. The proper setting depends on the type of testing machine. On ADMET universal testing machines the tension direction is Positive and the compression direction is Negative.