

Title: DataMaster DMT Installation Procedure		Page 1 of 6
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1.0 Purpose and Scope

- 1.1. The purpose of this procedure is to describe the process used by Vermont Forensic Laboratory staff for the installation of the DataMaster DMT infrared breath alcohol analysis instruments designated for use as evidentiary breath testing devices.
- 1.2. The scope of this procedure includes site inspection, installation and testing of evidentiary breath testing instruments at police agencies.

2.0 Responsibility

- 2.1. All instruments shall only be installed by trained laboratory staff.
- 2.2. It is the responsibility of staff performing this task to follow the procedure as written, to note any omissions, errors or unclear instructions in the procedure and bring them to the attention of the Alcohol Program Supervisor.
- 2.3. This procedure will be reviewed periodically by Alcohol Program staff. Revisions of the procedure will be made when a need is identified.

3.0 Precautions

- 3.1. Appropriate caution must be taken to avoid electrical shock when working with or using any electrically charged equipment.
- 3.2. All instruments shall undergo a power-up procedure, calibration and certification before installation may occur. See P-ALC 201, P-ALC 202 and P-ALC 203.
- 3.3. All reports generated during this procedure must be retained; this includes those displaying error messages or failures. One copy of the report will be retained by the agency in which the instrument is installed. One copy of the report will be returned to VFL, tech and admin reviewed and filed in the appropriate instrument's file in the DataMaster DMT files in Room 164 and an electronic copy placed into the instrument electronic folder on the VFL intranet.

4.0 Procedure Steps

4.1. Materials and Supplies

- 4.1.1. DataMaster DMT Instrument with keyboard and simulator lock.
- 4.1.2. HP 5650 or equivalent (HP PLC3e, PLC4 or PLC5) printer and USB cable.
- 4.1.3. Uninterruptible Power Supply (UPS) or Line Power Conditioner.
- 4.1.4. Guth 34C-NP Wet Bath Simulator or equivalent.
- 4.1.5. DataMaster DMT Simulator Solution ~0.100 EtOH.
- 4.1.6. DataMaster DMT Mouthpieces.
- 4.1.7. Radio Frequency Transmitter.
- 4.1.8. Field Service Tool Kit.

4.2. Transport

- 4.2.1. Contact the agency representative at the site of the pending installation to schedule date and time for instrument installation.

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4.2.2. Use a protective cover when transporting instruments through precipitation and prevent simulator solution from freezing during cold weather.

4.2.3. The simulator should be transported 'dry' –i.e. simulator solution should be removed before transport.

4.3. Site Inspection and DataMaster DMT Placement for New Sites

4.3.1. All agencies shall agree and sign a DataMaster DMT Site Maintenance Agreement as part of a DataMaster DMT Site Evaluation Checklist (F-ALC 205) prior to an instrument being deployed to an agency.

4.3.2. With an agency representative present, complete a DataMaster DMT Site Evaluation Checklist (F-ALC 205).

4.3.3. The area of instrument placement must meet specifications outlined in the site inspection standards as listed on the DataMaster DMT Site Evaluation Checklist (F-ALC 205).

4.3.4. Review the area for limited access, instrument security, cleanliness, adequate ventilation, stable temperature, and lack of potentially interfering volatile substances. Ensure availability of appropriate power and telephone outlets. If any deficiencies are noted, document them on the Site Evaluation Checklist; submit this to the Alcohol Program Supervisor for disposition.

4.4. Setting up the DataMaster DMT

4.4.1. Plug the UPS or line conditioner into an electrical outlet. Plug the DataMaster DMT and printer into the UPS or line conditioner.

4.4.2. Turn the DMT on. Depending on instrument temperature, a minimum of ten minutes is necessary for the instrument to come to temperature and be ready to perform an installation. When the instrument reaches adequate temperature, the screen will display "Ready, Push Run".

4.4.3. Add solution to the simulator. Replace the simulator head snugly. Affix one copy of the simulator solution label to the top of the simulator head.

4.4.4. Plug the simulator in to the UPS or line conditioner. Ensure the simulator is powered on correctly and the paddle is rotating.

4.4.5. Attach the BNC connector to the head of the simulator. Ensure the DMT registers a temperature for the simulator. Connect the simulator to the simulator tower on the DMT. Lock the arms around the simulator head using a small padlock

4.4.6. Plug in the printer, turn it on and connect it to the DMT using a USB cable. Fill the printer with ink and paper (as necessary).

4.4.7. Connect the keyboard to a USB slot in the back of the DMT.

4.4.8. On the "Ready, Push Run" screen, press the NPAS logo to open the drop down menu. Select TECH MODE. Enter password.

4.4.8.1. On the Technician screen, press the "Set RFI" button to set the Radio Frequency sensitivity. The instrument will adjust the RF sensitivity to the ambient level. Press "Save" to save the RF setting.

4.4.8.2. Exit when complete.

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4.4.9. Ensure the date and times are correct. Adjust as necessary.

4.5. Installation Protocol

4.5.1. Open the drop down menu. Select: Protocols → Installation. Fill in all fields on the data entry screen as required and review before continuing.

4.5.2. The instrument will now perform a mandatory thirty minute wait period which gives the simulator solution time to warm up and equilibrate.

4.5.3. Once the wait period is complete, the instrument will automatically begin the Installation Protocol. Follow all instructions on the screen. The instrument will only continue on to the next step once each check passes.

4.5.3.1. The first step is a Diagnostic Check which also resets the options to default. The instrument will run a self-check to ensure all temperatures, settings and components are functioning properly.

4.5.3.2. The second step is an Accuracy and Precision Check. The instrument will run five replicates of the simulator solution and calculate and average and standard deviation. The average must be within $\pm 5\%$ of the certified simulator solution concentration and the standard deviation must be <0.002 .

4.5.3.3. The third step is the Radio Frequency Detection check.

4.5.3.3.1. When prompted to perform the RF check, if the agency has a console radio located in their building, have dispatch key all commonly used frequencies. The instrument should not react to dispatch frequencies. If a dispatch frequency causes an RF error, post a sign alerting operators to be aware of the potential RF detection warnings.

4.5.3.3.2. Key a handheld radio within two feet of the instrument. An RF should be reported. If the instrument does not report RF detected then refer to the power-up procedure (P-ALC 201) to reset the RF sensitivity and begin the test again.

4.5.3.4. The final step is a sample acceptance check.

4.5.3.4.1. Press "OK" when you are ready to start the test. The DMT will run through a series of quality control checks.

4.5.3.4.2. When prompted "Please Blow" and an intermittent tone are heard, insert a new mouthpiece into the breath tube.

4.5.3.4.3. Provide breath samples. The bottom left corner of the screen will display the type of breath to deliver.

4.5.3.4.4. **Shallow Breath:** Very lightly blow a small amount of air into the mouth piece, allowing some air to escape out the sides of your mouth. The air flow should be very slight, but strong enough to just register air flow (blue line) on the screen. Blow for a few seconds then stop. The instrument should **not** report an alcohol response (black line) and should **not** accept the sample.

4.5.3.4.5. **Intermittent Breath:** Strongly blow into the mouth piece for 1-2 seconds and stop a couple of times. Be careful not to suck back on the

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mouth piece between puffs of air. The instrument should **not** report an alcohol response (black line) and should **not** accept the sample.

4.5.3.4.6. **Suck Back Test: VERY GENTLY** suck back on the mouth piece just enough so you feel a one-way valve stop the air flow (less than one second of pressure). If you suck too hard, you may damage the one-way valve. Once you feel this one way valve hit, you are finished. **Do not continue to suck back on the breath tube. Once is enough.** The instrument should **not** report an alcohol response (black line) and should **not** accept the sample.

4.5.3.4.7. **1.5L Alcohol Free Sample:** While watching the total volume box in the bottom right corner of the screen, provide a sample of ~1.5L of air to the instrument. The instrument should accept a sample of 1.5L of air. The instrument should **not** report an alcohol response (black line).

4.5.3.4.8. Once the Sample Acceptance test is complete, the instrument will prompt "Did Instrument Pass All Sample Acceptance Checks? Yes/No". If all checks passed, select "Yes". If any of the checks failed, select "No". When prompted, type in which check failed and why.

4.5.3.5. Once the protocol is complete, the instrument will prompt for technician signature. Sign in the box and press "finished". Two copies of the report will now print.

4.6. Record Keeping

4.6.1. When the Installation reports print, file one copy with the onsite maintenance records. One copy of the report and the site evaluation checklist (F-ALC 205) will be returned to the laboratory and tech and admin reviewed, then filed in the DataMaster DMT files in room 164. An electronic copy will be placed into the instrument folder on the VFL intranet.

4.6.2. In the DataMaster DMT Maintenance Logbook (F-ALC 203) affix one copy of the simulator solution label, document your name, date of installation and note any corrective actions that may have been performed.

4.6.3. In the DataMaster DMT Operators Logbook (F-ALC 204) document your name, under the "subject" column write "test/Install" and enter the result of the simulator vapor average.

5.0 Emergency or High Priority Situations

5.1. The Laboratory Director or Alcohol Program Supervisor may designate any DataMaster DMT Installation to be a high priority and request service as soon as possible.

6.0 Quality Criteria and Corrective Action

6.1. The standard approach to correct a problem would be to first repeat the test to confirm the problem. Consult the service manual or ask for technical support from another program staff member. Try to correct the problem and then document the event. Write the problem and corrective actions taken on the failing installation reports and in the instrument's maintenance log.

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- 6.2.** After three failed installation attempts, the installation is considered failed and the instrument shall be returned to VFL for further evaluation.
- 6.3.** If the problem is not correctable in the field or technical evaluation is needed, a DataMaster DMT Technical Support Inquiry worksheet (F-ALC 202) must be started. The instrument shall be returned to the laboratory for further evaluation. Once the repair is complete, the TSI is finished and placed in the instrument's file. This procedure may be redone again when the problem is resolved.

7.0 Preventative Maintenance and Backup Procedures

- 7.1.** If a problem is encountered that cannot be resolved by program staff, the instrument manufacturer, National Patent Analytical Systems, Inc. (NPAS) will be contacted for technical support.
 - 7.1.1.** Contact NPAS at 1-800-800-8143 or service@npas.com.
- 7.2.** If an agency's instrument requires repair and cannot be returned to service within two weeks, a replacement instrument may be installed at that site.

8.0 References

- 8.1.** DataMaster DMT In-house Service Manual.
- 8.2.** DataMaster DMT Power-Up Procedure (P-ALC 201).
- 8.3.** Laboratory Calibration of DataMaster DMT (P-ALC 202).
- 8.4.** Laboratory Certification of DataMaster DMT (P-ALC 203).
- 8.5.** DataMaster Site Evaluation Checklist (F-ALC 205).
- 8.6.** DataMaster Maintenance Logbook (F-ALC 203).
- 8.7.** DataMaster Operators Logbook (F-ALC 204).
- 8.8.** DataMaster Technical Support Inquiry (F-ALC 202).

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Appendix A Acceptable Installation Report

INSTALLATION REPORT

DataMaster DMT: 122206
 Location: WILLISTON VSP
 Calibration Date: 06/10/2009
 Certification Date: 06/11/2009
 Installation Date: 06/11/2009
 Installed By: STEVEN E HARNOIS



Site meets specification in doc P-ALC-210

Diagnostic Results

VERSIONS
 DMT 1.00
 PIC 2.05
 Modem 1.04
 Questions 1.00
 Reports 1.00

TEMPERATURES
 Sample Chamber = 48.74°C
 Breath Tube = 48.10°C
 Digital Sim = 33.9°C

SETTINGS
 Lamp Voltage = 1.51 V
 Cooler Voltage = 1.53 V
 Bias Voltage = 80.1 V
 Chopper Freq = 543.3 Hz

PUMP INFO
 Flow Rate = 4.536 L/M

DETECTOR INFO
 PUMP ON OFF
 MAX(V) 0.0159 0.0191
 MIN(V) 0.0128 0.0175

FILTER INFO
 Filter 1 0.017 Zero = true
 Filter 2 0.712 Zero = true
 Filter 3 1.485 Zero = true

CALIBRATION CHECK
 Xq = 0.0798 0.76%

INSTALLATION PASSED

Accuracy and Precision Check

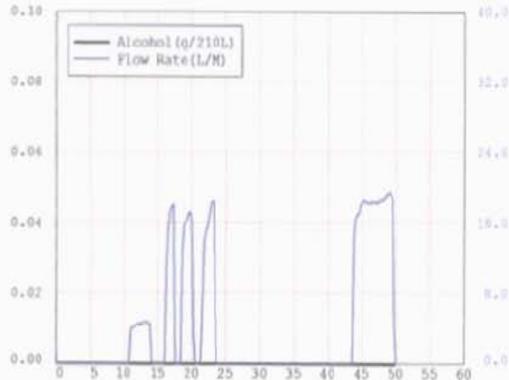
Concentration = 0.100 g/210L
 Lot # = 09-40-100
 Average = 0.102 g/210L
 Std Dev = 0.000

RFI Interference Test

RFI detected

Sample Acceptance Test

Passed



Performed by [Signature]

Date 06/11/2009

Reviewed by [Signature]

Date 6/15/09

DMT Serial Number #122206

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