



ELECTRONIC MONITORING SYSTEM



MEMS 3000 HOMESTATION & TRANSMITTER INSTALLATION GUIDE

September 2005

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Chapter 1 Introduction

Welcome to the Electronic Monitoring System and correctional tool, created by ElmoTech Ltd., that has the ability to collect, analyze and intelligently act on information from multiple sources.

An inconspicuous transmitting Tag (TX) is attached to the client's ankle or wrist by means of a tamper-detecting strap. The client's presence (or absence) is tracked constantly by radio transmissions between the Tag and the MEMS 3000 HomeStation (RF Model). When the client enters or leaves the defined home environment, the MEMS 3000 HomeStation records the event. The MEMS 3000 HomeStation then checks the client's stored curfew schedule to determine if the event is in violation of his or her curfew order.

The MEMS 3000 HomeStation is a highly efficient monitoring unit, integrating alcohol testing (BAT), video identity verification and radio frequency (RF Model) presence monitoring into a single unit. The MEMS 3000 HomeStation transfers the breath alcohol test results and user's image to the monitoring center at a push of a button.

The MEMS 3000 HomeStation reports certain violations to the monitoring center as soon as they occur. All violation, non-violation events that are not defined as immediate are stored in the MEMS 3000 HomeStation for the next upload. The MEMS 3000 HomeStation initiates a pre-defined routine sanity call to the monitoring center in order to report the status of the equipment and upload stored events. This event information completes the audit trail of the client's behavior. The MEMS 3000 HomeStation detects and reports tilting, loss of power, loss of telephone line, low battery, and other alarm conditions. The MEMS 3000 HomeStation also detects transmitter tag tampering, tag removal and low battery.

Chapter 2 The Monitoring Office

Before leaving the monitoring office, check that you have the correct installation kit and the appropriate installation tools.

Installation Kit

The installation kit should include the following items:

- MEMS 3000 HomeStation
- Power adapter
- Phone line cables
- Transmitting tag
- Strap locking clips and strap holder – remember, at least three sets of each

Installation Tools

You will also need the following installation tools:

- Manual Reset Device – for activating the transmitting tag
- Strap locking tool – for locking the transmitting tag onto the offender
- 5mm (0.2”) flat head screwdriver – for opening the strap-locking clip
- Snake eye screwdriver – for changing the straps on the transmitting tag

Offender Information in the MWS

Verify the following Offender details in the MWS software application:

- Offender's name and address
- Home phone details
- Equipment serial numbers – these must match the serial numbers on the equipment you are providing for the installation
- Offender's program type – this must match the type of equipment that you are providing for the installation

Chapter 3 The Offender's Curfew Location

First we need to find the ideal location for the MEMS 3000 HomeStation.

Locating the MEMS 3000 HomeStation

Generally the ideal location for the MEMS 3000 HomeStation would be:

- In an open area
- As close as possible to the center of the curfew location
- On a flat and secure surface
- 3 ft (1m) above the ground and at least 1 ft (30cm) away from the wall

Make sure the MEMS 3000 HomeStation is located well away from:

- Television sets or other electrical appliances
- Microwave ovens
- Personal computers or laptops
- Disruptive noise sources such as heavy traffic or mechanical vibrations
- Heat sources such as a radiator, air duct or direct sunlight
- Excessive moisture or extremely low temperatures
- Mirrors or reflective materials

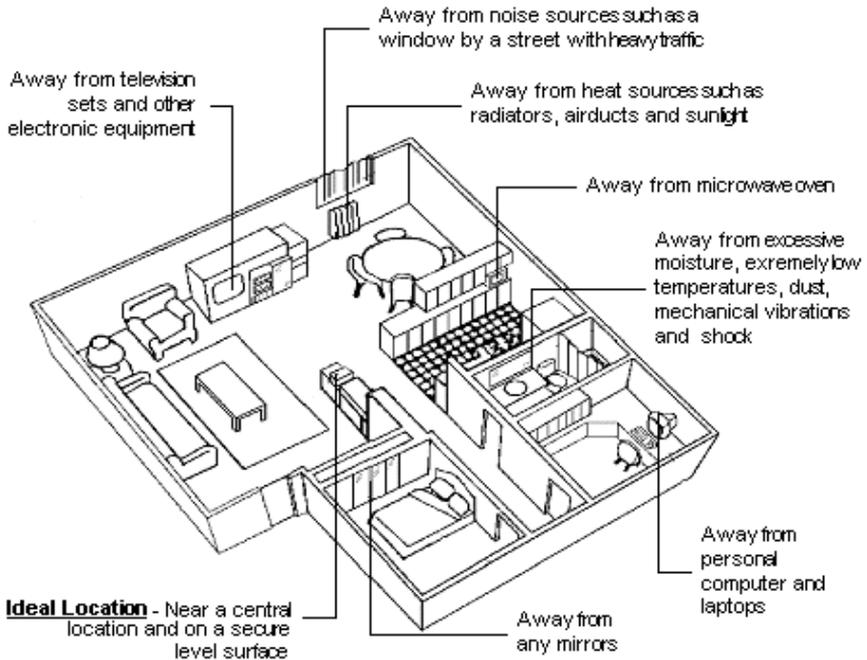


Figure 3-1 Locating the MEMS 3000 HomeStation

Positioning the MEMS 3000 HomeStation

Always position the MEMS 3000 HomeStation in a decently lit room with the mirror panel facing away from any direct light (as indicated by the ✓ in the diagram, below).

Direct light in front of the mirror or any backlighting behind the person in which the picture is taken (as indicated by the ✕ in the diagram, below) may cause severe reflection of the picture.

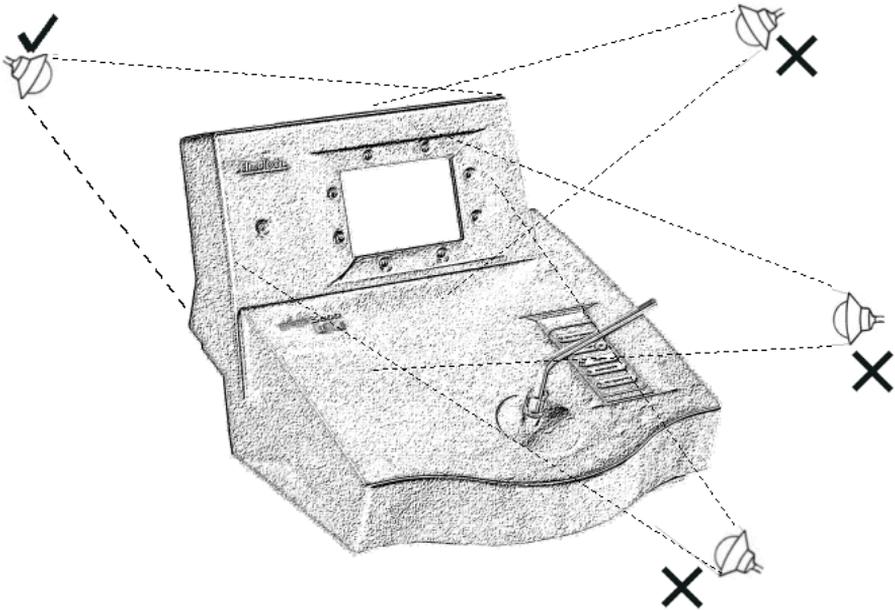


Figure 3-2 Positioning the MEMS 3000 HomeStation

Once the MEMS 3000 HomeStation has been positioned correctly, you can start the installation and activation process

Installing and Activating the MEMS 3000 HomeStation

1. Disconnect the telephone cord from the wall telephone socket and plug it into the Phone socket on the MEMS 3000 HomeStation.
2. Take the supplied telephone cord and plug one end into the wall telephone socket and the other end into the Line socket on the MEMS 3000 HomeStation.

3. Take the supplied power adapter and plug one end into the wall power socket and the other end into the Power socket on the MEMS 3000 HomeStation. Once connected to the power supply, the MEMS 3000 HomeStation makes an audible beeping sound and the self-initiation procedure starts.

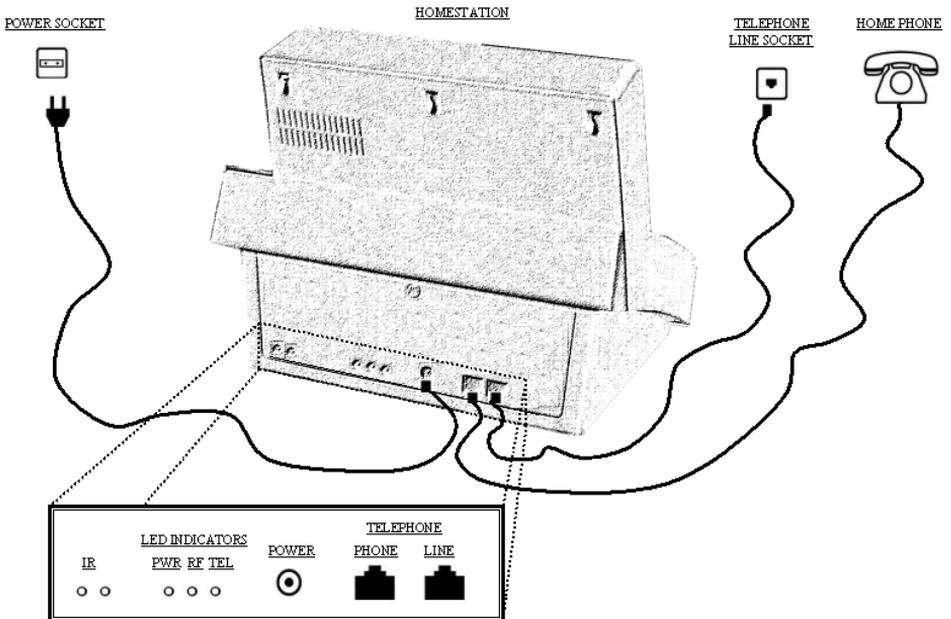


Figure 3-3 Installing the MEMS 3000 HomeStation

Once the self-initiation process has completed successfully, the MEMS 3000 HomeStation makes another audible beeping sound. The left LED indicates that the power is connected correctly. The right LED indicates that the telephone line is connected correctly.

Once the MEMS 3000 HomeStation has been installed and activated, you can start the transmitting tag activation and installation process.

Chapter 4 Transmitting Tag (Tx) Calibration and Installation

First you will need to calibrate or activate the transmitting tag.

Calibrating the Transmitting Tag

1. Hold the free end of the transmitting tag strap in your hand with the metal pins pointing towards you.
2. Hold the manual reset device in you other hand, with the two connection points facing the metal pins.
3. Press the metal pins on the transmitting tag onto the two connection points on the manual reset device.
4. Holding the manual reset device in this position, press the On button. The red LED on the manual reset device lights up for 2 seconds and then flashes for another 2 seconds. The flashing indicates that the transmitting tag has passed the first phase of its calibration



Note that in case of calibration failure, the red LED on the manual reset device will light up for 2 seconds and then turn off.

5. Once the calibration pass indication has been verified, place the transmitting tag on its side onto a non-metal surface with the protruding side of the body facing upwards.
6. Wait for at least 60 seconds. The MEMS 3000 HomeStation makes an audible beeping sound once the transmitting tag has passed the calibration

Now you can attach the transmitting tag to the offender's wrist or ankle.

Attaching the Transmitting Tag

1. Place the strap holder over the short strap of the transmitting tag.



2. Attach the female part of the strap clip to the underside of the short strap ensuring that the closed end of the clip fits snugly onto the end of the strap.



Note that for the ankle attachment the silver line on the underside of the female strap clip should be visible

3. Wrap the transmitting tag around the wrist or ankle at its narrowest point



Note that for ankle attachments it is recommended to mount the transmitting tag over a sock before the strap is closed. The protruding side of the transmitting tag should be facing upwards

4. Lay the long strap over the female part of the strap clip ensuring that the strap pins and the clip studs are protruding through the holes in the long strap



5. Slide the strap holder over the end of the long strap in order to hold the strap in place
6. Place the male part of the strap clip over the female part ensuring that that the grooves on each side of the strap clips match
7. Move the transmitting tag around the wrist or ankle to ensure that it fits comfortably.
8. Place one side of the locking tool underneath the strap clip and close the two parts together
9. Turn the locking tool around to the other side of the strap clip and repeat the closing procedure. A clicking sound should be heard on each press.



Once the transmitting tag has been activated and attached to the wrist or ankle, the activated MEMS 3000 HomeStation makes an audible beeping sound and the middle LED flashes. This occurs every time a transmission signal from the transmitting tag is received.



Remember - Do not, under any circumstances, leave any the installation equipment at the offender's curfew location – this includes any strap-locking clips that may have broken during the installation.

Once the MEMS 3000 HomeStation is in standby or pre-monitoring mode you can activate the Offender's monitoring program.

Chapter 5 Activating the Offender's Monitoring Program

Once the monitoring equipment has been installed and activated, you can download the offender's program configuration and perform a range test.

Downloading the Program Configuration

1. First you need to verify that the phone LED on the MEMS 3000 HomeStation is on and not flashing. Flashing indicates that the telephone line is busy.
2. You can now call the monitoring office personnel to request a manual download. Once initiated the following occurs:
 - The flashing Phone LED indicates that the download call is being received
 - The Phone LED returns to its steady state once the download call has been completed
 - The MEMS 3000 HomeStation then turns to monitoring mode
3. Call the monitoring office personnel and confirm that the download was successful.

Once the offender's program configuration has been successfully downloaded and the MEMS 3000 HomeStation is in monitoring mode, you can perform a range test

Performing a Range Test

1. First you need to verify that the phone LED (right) on the MEMS 3000 HomeStation is on.
2. Call the monitoring office personnel and request a range test. Once initiated the following occurs:
 - The Phone LED will flash indicating that the range test call is being received and will return to its steady state once the range test call has been completed.
 - Once the range test has started, the middle LED blinks 3 times (every 20 seconds). This is accompanied by 3 audible beeping sounds. This indicates that the MEMS 3000 HomeStation is receiving the appropriate transmission signal from the transmitting tag



Note that the MEMS 3000 HomeStation is programmed to automatically terminate the range test after approximately 15 minutes!

3. You can now escort the offender to the following locations:
 - Locations that are the most distant from the MEMS 3000 HomeStation
 - Locations behind large metal objects
 - Locations where the offender may be located for long periods, for example the living room, bedroom or toilet.
 - Remote locations where the offender is also allowed to be, for example the garage, cellar or back yard.

This process is required in order to check that the current range setting in the MEMS 3000 HomeStation is sufficient. You can also use this time to check for dead spots in the curfew location.



Remember that, as long as the middle LED is blinking and the accompanying beeping sounds are heard, the transmitting tag is still within the MEMS 3000 HomeStation's range

4. Wait for up to 2 minutes in each location tested for 4 transmission signals. Be aware of the following:
 - If less than 4 transmission signals have been received you may have to call the monitoring office personnel and request that they set the range setting to a longer range. Remember that, if this is the case, the current range test must be ended, and a new range test started.
 - If the range setting is currently set at its longest (i.e. maximum), you may have to relocate the MEMS 3000 HomeStation in order to get a better coverage.
5. Once you have tested the range in all the relevant locations, you can call the monitoring office personnel and request an end to the current range test. Once initiated the following occurs:
 - Once the end range test call has ended, the MEMS 3000 HomeStation makes an audible beeping sound, the middle LED stops flashing and then turns off

Once the offender's program configuration has been successfully downloaded, the range test performed and the MEMS 3000 HomeStation is in monitoring mode, you can enroll the offender into the monitoring program.

Enrolling the Offender

1. First you need to verify that the phone LED on the MEMS 3000 HomeStation is on and not flashing. Flashing indicates that the telephone line is busy.
2. You can now call the monitoring office personnel to request an Offender enrollment. Once initiated the following occurs:
 - The flashing Phone LED indicates that the enrolment call is being received
 - The Phone LED returns to its steady state once the enrolment call has been completed
 - An audible beeping sound comes from the MEMS 3000 HomeStation
3. Instruct the Offender to press the Start button and to follow the enrollment procedure according to the illuminated LED's on the Operation panel.

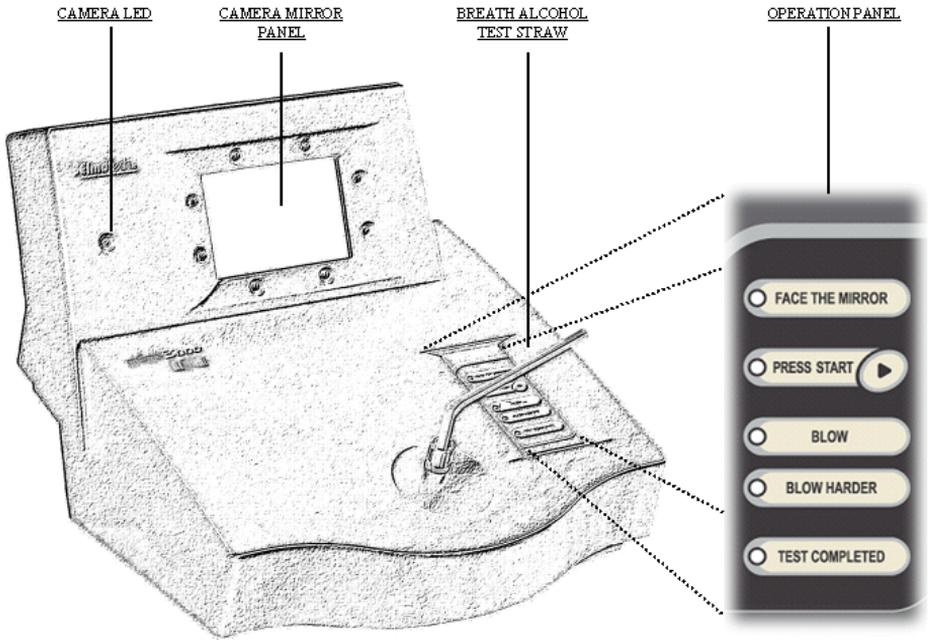


Figure 5-1 Enrolling the Offender

The following points should be adhered to with regard to enrolling an Offender:

- The Offender should wait for the audible beeping sound from the MEMS 3000 HomeStation before performing the enrollment procedure
 - The Offender should place the Breath Alcohol Test Straw into the straw holder located in the center of the MEMS 3000 HomeStation
 - The Offender should be lined up in front of the MEMS 3000 HomeStation so that only the forehead and hair are displayed in the Camera Mirror panel.
 - The Camera Mirror panel should not be facing towards direct light (e.g. lamps or sunlight).
 - The Offender should follow the pre-defined instructions on the Operational panel
 - The Offender should wait until the Operational panel has finished prompting before initiating any action.
 - Once instructed, the Offender should press the appropriate buttons on the Operation panel.
 - Once instructed, the Offender should blow into the Breath Alcohol Test straw until the Camera LED, flashes red.
4. Once the test completed LED is illuminated, call the monitoring office personnel and confirm that the enrollment was successful.

Chapter 6 Daily Operating Instructions

Incoming / Outgoing Calls

The user of the telephone may receive two types of telephone calls:

- Regular calls from other people
- The occasional call from the monitoring center computer.

The telephone will ring 6 times, during which, if the call is not answered, the MEMS 3000 HomeStation will answer and then disconnect the call.

The following points should be adhered to with regard to incoming and outgoing calls:

- If, after answering the call, the user hears a light sound on the line, this is normal as the MEMS 3000 HomeStation interacts with each incoming call.
- If, during a conversation, the user hears a short tune from the MEMS 3000 HomeStation, the conversation should be completed immediately. This indicates that the MEMS 3000 HomeStation needs to call the monitoring center computer. The user should not attempt to use the telephone for at least 10 minutes
- If, after answering the call, the user hears a sharp modem sound on the line, the phone should be hung-up immediately. This indicates that the monitoring center computer is attempting to call the MEMS 3000 HomeStation. The user should not attempt to use the telephone for at least 10 minutes.

On-demand Test Requests

The Offender on the monitoring program will receive on demand breath alcohol test requests according to the following criteria.

- Scheduled test requests according to the predefined test schedule in the MEMS 3000 HomeStation
- Manual test requests from the monitoring center

The following points should be adhered to with regard to on-demand test requests:

- The Offender should wait for the audible beeping sound from the MEMS 3000 HomeStation before performing the test procedure
- The Offender should press the Start button and follow the test procedure according to the illuminated LED's on the Operation panel
- The Offender should wait until the Operational panel has finished prompting before initiating any action.
- Once instructed, the Offender should press the appropriate buttons on the Operation panel.
- Once instructed, the Offender should blow into the Breath Alcohol Test Straw.

General Rules for the Offender

Once all Elmo-Tech equipment has been installed and the Offender's monitoring program has been activated, the following rules should be adhered to:

- Never touch or move the MEMS 3000 HomeStation once it has been installed
- Never place any objects on top of the MEMS 3000 HomeStation
- Never disconnect the power cord from either the MEMS 3000 HomeStation, or the wall socket
- Never attempt to open the MEMS 3000 HomeStation
- Always stay inside the designated curfew area during an in-house curfew time frame
- Never attempt to open the transmitting tag strap
- Never cut or break the transmitting tag strap

The following appliances and services are prohibited:

- Answering machine
- Fax machine
- Fax \ Internet modem
- ADSL Internet service
- Call forwarding \ waiting services

Chapter 7 Removing the Monitoring System

In some cases it is required to remove the monitoring system before the defined confinement period is completed. Before disconnecting and removing the MEMS 3000 HomeStation, an end of service procedure should be performed.



Note that performing an end of service before disconnecting and removing the MEMS 3000 HomeStation is essential to preserving the unit's internal backup battery.

Performing an End of Service

In order to perform an end of service, perform the following steps:

1. Using a mobile phone, call the monitoring center and ask the monitoring personnel to perform a manual end of service.
2. The monitoring center personnel will call back to confirm a successful end of service. You can now disconnect and pack the MEMS 3000 HomeStation into its original package.



It is recommended that only experienced personnel remove the MEMS 3000 HomeStation

Disconnecting and Packing the MEMS 3000 HomeStation

In order to disconnect and pack the MEMS 3000 HomeStation, perform the following steps:

1. Remove the power adapter from the wall.
2. Remove all telephone cables from the back of the MEMS 3000 HomeStation.
3. Reconnect the telephone line to the wall socket.
4. Pack the MEMS 3000 HomeStation into its original package and place into the carrying case.
5. Pack the power-cord adapter and telephone cables into their original packaging and place into the carrying case. You can now remove and pack the transmitting tag.



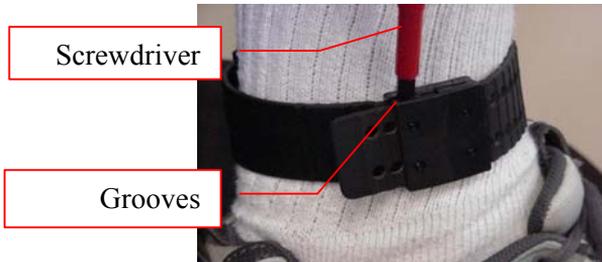
It is recommended that only experienced personnel remove the transmitting tag.

Removing the Transmitting Tag

To remove the transmitting tag perform the following steps:

1. Check the following signs to see if the clips have been tampered with:
 - Cracks on the clips
 - Broken pins.
 - Sign of adhesive or glue.

2. Being careful not to damage or cut the strap, use a screwdriver to break the disposable clips.



3. Collect all the fragments of the broken clip. Do not leave any disposable items.

Deactivating the Transmitting Tag

Deactivating the transmitting tag is essential to preserving the unit's internal battery.

In order to deactivate (turn off) the transmitting tag, perform the following:

1. Hold the transmitter in your hand with the metal pins (along the strap) pointing towards you. You will need to support the underside of the strap.
2. Hold the electronic key in your other hand, with the 'OFF' button pointing towards the open or free end of the strap. The 'OFF' button must be facing away from the transmitter body.
3. Press the electronic key down over the metal pins with the two touch points on top of the electronic key matching the metal pins on the transmitter strap.
4. Hold the electronic key and the transmitter strap in this position while you perform the next step.

5. Press the 'OFF' on the electronic key for one second; the red LED light on the electronic key turns steadily on for two seconds. If the transmitter successfully received the deactivate command the red light on the electronic key will flash for two seconds.



Note that if the transmitter failed to receive the deactivate command, the red light on the electronic key will turn off after the initial two seconds on. If the electronic key's battery is low, the red light will immediately flash for two seconds once the 'ON' button is pressed.

6. Pack the transmitting tag into its original packaging and place into the carrying case.

Chapter 8 Monitoring System Maintenance

In order to keep the Electronic Monitoring System functional and in good working order a number of maintenance procedures will need to be adhered to.

Cleaning the MEMS 3000 HomeStation

To clean the MEMS 3000 HomeStation, perform the following:

1. Remove the MEMS 3000 HomeStation from its carrying case and simply wipe the outside of the unit with a damp cloth.



Do not, under any circumstances, submerge or place the MEMS 3000 HomeStation under running water.

2. Using a piece of cloth or a paper towel, dry the outer side of the MEMS 3000 HomeStation.
3. Once the MEMS 3000 HomeStation is dry, place it into the specially designed transportation case.

Cleaning the Transmitter

The transmitting tag is made of a single mold, especially designed to protect the integrity of the electronic circuits during daily use and while it is being cleaned. A soft brush and an alcohol based solution; soapy water or Lysol can be used to clean the transmitter.



For additional safety and user comfort, it is recommended that after cleaning with any of the above-mentioned solutions, you wash and wipe the transmitter with clear water before it is re-used.

To clean the transmitter, perform the following:

1. Remove the ‘female’ clip and strap holder from the transmitter short strap.
2. If the storage clip is on, remove it until you finish cleaning the transmitter.
3. Holding the transmitter by the end of the long strap, spray the transmitter with a cleaning solution of choice.
4. Using a piece of cloth or a paper towel, dry the outer side of the transmitter. Lay the transmitter on the towel with its inner side facing up. Using a soft brush or a piece of cloth/towel, gently scrub the inner side of the transmitter along the tracks.
5. Wash the transmitter in clear water.
6. Dry the transmitter using a piece of cloth/paper towel or simply let it drip dry.
7. Once the transmitter is dry, place it into the specially designed transportation case.

Replacing the Transmitter Straps

After some time and depending on the wear and tear of the transmitter, the straps on the transmitter will need to be replaced. Any of the following points could justify replacing a transmitter strap:

- Visible damage to one or both straps
- Unexplainable strap tamper alarms
- Transmitter will not calibrate



Note that if only one side of the strap is damaged, you may want to leave the undamaged side in place and replace only the damaged side of the strap.

Check that you have the following equipment items before you replace the transmitter straps:

- 1 transmitter body
- 1 pair of replacement straps (long/medium non-pins side and long/medium pins side)
- Screwdriver
- Extra screws
- Extra strap clips (male and female)
- Electronic key

To replace the transmitter straps, perform the following:

1. Using the screwdriver, open the screw(s) that holds the strap clasp to the transmitter and remove the strap clasp.
2. Gently shake the strap loose from the transmitter body, being extra careful not to damage the metal pins on the transmitter body.

3. Position the new strap over the transmitter body. Notice that the two small holes on the strap have to lie exactly over the two metal pins.
4. Gently place the strap down over the metal pins and press down along the seam of the strap, snugly fitting the entire strap to the transmitter body.
5. Put the strap clasp back in place with the wider side pointing in-wards.
6. Close the screw (s) with the screwdriver. It has to be closed firmly, but not too tight since this can damage the strap.
7. Test the new strap by performing a calibration.



If, after the calibration, the transmitter does not reset, repeat steps 1-6 making sure that the strap is positioned correctly over the pins. Then perform another calibration test. If changing only one side of the strap does not work, you should try and change the other strap side.

FCC Notices

This note is applicable to the American MEMS 3000 HomeStation

NOTE - The MEMS 3000 HomeStation complies with Part 15 and Part 68 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
 - (2) This device must accept any interference received, including interference that may cause undesired operation.
-

This device has been tested and found to comply with the limits of the Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses and can radiate radio frequency energy and, if installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to correct the interference by one or more of the following measures

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION – Any changes or modifications not expressly approved by the grantee of this device could void the user’s authority to operate the equipment.
