

MIDWEST *CaRies*»I.D.[™]

Detection Handpiece

Directions for Use



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>Introduction

The Midwest Caries I.D.™ detection handpiece is an aid in identifying the presence of occlusal and interproximal caries in molars and pre-molars. Caries is traditionally detected by clinical and radiological exams, a technique which is not very sensitive for incipient or hidden occlusal caries. Interproximal decay is sometimes difficult to detect using bitewing x-rays, especially when dental crowding exists. The Midwest Caries I.D.™ detection handpiece provides information to supplement the clinician's visual observations, consideration of patient histories, and information from other diagnostic modalities, resulting in an overall risk assessment and treatment determination.

The Midwest Caries I.D.™ technology emits a soft (LED) light and captures the resulting reflection and refraction of the light in the tooth. A specific optic signature identifies the presence of caries. A healthy dental structure is generally more translucent than a decalcified one; consequently, it has a different optic signature. The light reflected from the decalcification of the enamel is captured by fiber optics and is converted to electrical signals for analysis. These signals are run through a computer-based algorithm to determine if caries is present. See the Operating Procedure Section in the manual for more information.

>Indications

The Midwest Caries I.D.™ detection handpiece is recommended for use as an aid in the detection of caries in pits and fissures and interproximal areas on posterior teeth that have not been restored. The detection handpiece must be used in a wet field.

>Contraindications

The Midwest Caries I.D.™ detection handpiece is not designed to be used:

- On or at the interface of dental restorations or for **residual caries detection**
- On buccal and lingual areas of anterior and posterior teeth
- On thick, dark brown stains, calculus and heavy plaque
- On restorations, sealants and varnish
- On primary teeth
- On dried teeth

>Warnings and Precautions

General Precautions

- Do not place the Midwest Caries I.D.™ detection handpiece or its Probe on or near a radiator or any other source of heat.
- Store the Detection Module in the case provided, at room temperature for 2 hours prior to use.
- The Midwest Caries I.D.™ detection handpiece is intended as a detection aid for dental care and to be used only by a dental care professional in the course of dental treatment. Any misuse of the equipment is prohibited and could be hazardous. Do not operate the Midwest Caries I.D.™ detection handpiece if any part is not in proper working order.
- It is the responsibility of the Dental Healthcare Professional to determine the appropriate uses of this product and to understand:
 - the health of each patient;
 - the dental procedures being undertaken;
 - the applicable industry and governmental agency recommendations for infection control in dental healthcare settings,
 - the requirements, and regulations for the safe practice of dentistry; and
 - these Directions for Use in their entirety.

- The Midwest Caries I.D.™ detection handpiece is a precision instrument – handle it with care. It has been tested following high quality assurance standards.
- To ensure maximum performance, handle the Probe carefully. Replace the Probe immediately if twisted or damaged.

Artificial Prosthesis or Heart Murmurs

As with any dental procedure or medical device posing the possible induction of gingival bleeding, the Midwest Caries I.D.™ Probe and its components must never be used on a patient with an artificial prosthesis or a heart murmur without prior medical consultation and, if needed, adequate prophylactic antibiotic coverage.

Active Implanted Medical Devices

Persons fitted with cardiac pacemakers, defibrillators and other active implanted medical devices, have been cautioned that some types of electronic equipment might interfere with the operation of the device. Although, no instance of interference has ever been reported to DENTSPLY, we recommend that the device be kept 6 to 9 inches (15 to 23 cm) away from any device and their leads during use.

There are a variety of pacemakers and other medically implanted devices on the market. Clinicians should contact the device manufacturer or the patient's physician for specific recommendations.



Interference with the Electro Medical Equipment Caused by Cellular Phones

To ensure safe operation of electro medical equipment, the use of cellular phones in dental offices and clinics should be prohibited.

Safety Precautions

There are no user-serviceable parts inside the detection handpiece, except for the batteries. A qualified technician from DENTSPLY or one recognized by DENTSPLY must handle all repairs. Never attempt maintenance operations beyond those described in these operating instructions and comply with all warnings that appear on the equipment.

Degree of protection against electric shock: BF type equipment (hand-held Probe)

Only a qualified, trained dental professional should operate the Midwest Caries I.D.™ detection handpiece.

Water Infiltration

Ensure the Probe is properly inserted to avoid water or other liquids from entering the device. Do not use device if Shell is damaged.

Battery Leakage

Use leak-proof batteries only; remove batteries if device is not used for an extended period; dispose of the batteries in an approved manner according to the country regulations.

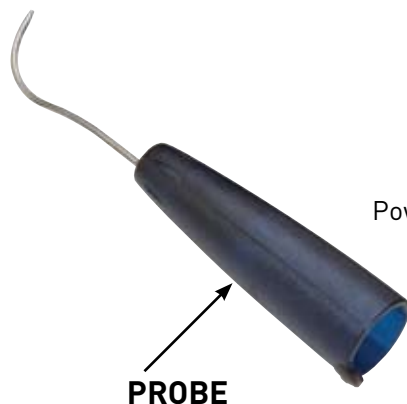
>Midwest Caries I.D.™ Description

Included in the Box

- Midwest Caries I.D.™ Detection Handpiece
 - Detection Module
 - Probe
 - Shell
- AAA Lithium Batteries
- Detection Module Case
- Probe Maintenance Kit (Polishing Paper - not shown)
- Directions for Use
- Custom Cassette and Detection Handpiece Holder
- Ceramic Calibration Target
- Fiber Optics Cleaning Swabs (not shown)



**Midwest Caries I.D.™
Detection Handpiece**
(Fully Assembled)



PROBE



Power On/Off

Attachment Knob
SHELL

Battery
Compartment
(Do Not Autoclave)



Beeper

AAA Batteries Included
DETECTION MODULE



**CUSTOM CASSETTE
AND DETECTION
HANDPIECE HOLDER**



Ceramic
Calibration Target

Shown being used as
a handpiece holder

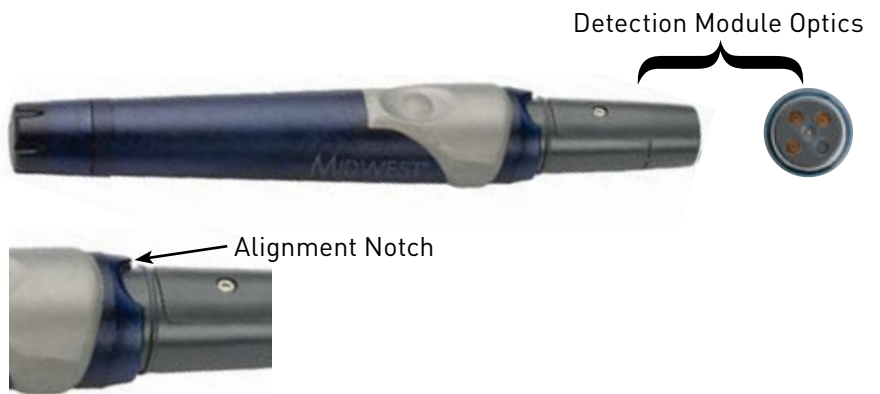


**DETECTION MODULE
CASE**

>Detection Module Overview

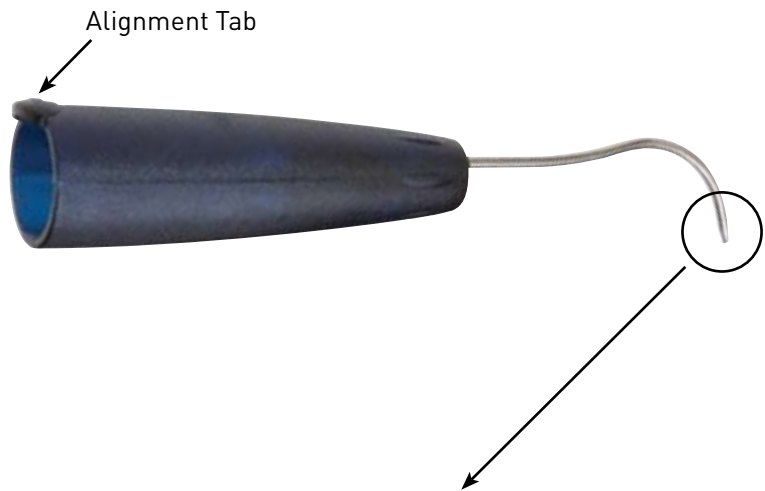
DETECTION MODULE (shown assembled with shell)

The Midwest Caries I.D.™ detection handpiece uses light transmitted via the optical fibers to aid in the detection of dental caries. The Detection Module detects the amount of scattered light reflected to determine if caries is present. A healthy structure is more translucent than a decalcified structure and scatters less light. Refer to the Caries Detection Section for instruction on light and audible signal definition. The Detection Module houses the main control, fiber optics and power source.



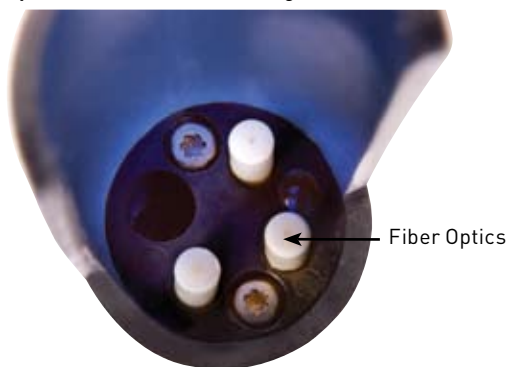
PROBE

The Probe houses fiber optics that mate with those of the Detection Module to transmit light to and from the tooth structure. The Probe will wear through repeated use. Proper care and maintenance will provide optimal life. During the calibration procedure, the handpiece is capable of determining if the Probe has worn beyond the useful life. Refer to limited warranty statement and terms.

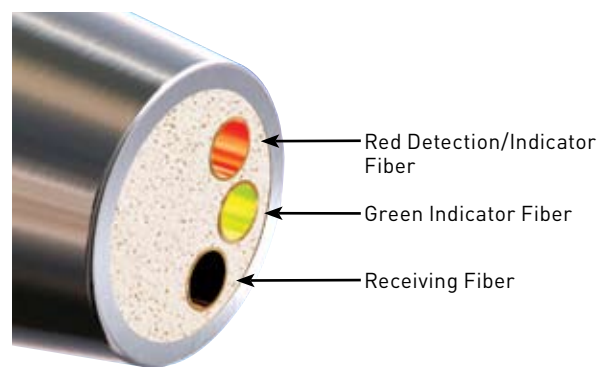


PROBE OPTICS

(Optics receive and transmit light used to detect caries)



INSIDE VIEW
(Shown 'cut-away' for better view)



END OF TIP VIEW
(3-D Model rendering)

>Controls and Functions

Power On/Off

The tip **must** be pointing in the air when the unit is turned on. The detection module determines if the Probe is in good condition through the process of measuring a baseline optical response. To power on, simply press the On/Off button once.

Normal Signals (short beeps)

Two (2) short beeps: Indicates the handpiece has been calibrated or user has bypassed calibration.

Three (3) short beeps: Indicates the handpiece has been deactivated.

Note: When the handpiece is in energy saving mode, there may be a delay prior to the device powering off.

Energy Saving Mode

If the Midwest Caries I.D.™ Probe tip is not in contact with a surface for more than four (4) seconds, the unit automatically reverts to sleep mode to save energy. It then emits a red flashing signal every second. **Reactivation:** If the Midwest Caries I.D.™ Probe tip comes in contact with a surface within two (2) minutes of inactivity, it will reactivate automatically within one (1) second after touching a surface. If there is no contact within two (2) minutes, the handpiece will automatically shut off; emitting three (3) short beeps.

Volume Adjustment

Activate the Midwest Caries I.D.™ detection handpiece by pressing the On/Off button once. To adjust the volume, press and hold the On/Off button. The audible signal will progress from low to loud and return to low. Select the desired volume by releasing the button. The volume level will be saved until the next adjustment.

Audible Signals

During probing, the Midwest Caries I.D.™ detection handpiece will emit **beeps** ranging in speed (slow to rapid) to signal the presence of caries. The handpiece emits **long beeps** only when an error occurs. It is normal for the handpiece to beep when approaching/retracting the tooth surface.

WARNING signals (long beeps)	INDICATION	WHAT TO DO?
Two (2)	Weak Batteries	Replace batteries (refer to the Battery Installation and Replacement Section).
Three (3)	Residue on Probe	Clean tip of Probe (refer to the Infection Control Section). If problem persists, polish the tip (refer to the Polish the Probe Section).
Four (4) or Five (5)	Technical problem	Contact DENTSPLY Professional Technical Service and Repair Department (refer to the Service Section).

Note: If the Midwest Caries I.D.™ detection handpiece does not emit audible or visual (green and red light) signals, do not use detection handpiece and contact Technical Service and Repair Department at 1-800-989-8826.

>Preparation for Use

Battery Installation and Replacement

- Important!**
- Two (2) 1.5 Vdc AAA format batteries are required for installation. Primary lithium batteries are preferred and have been included with your package. Alkaline batteries may be used in place of lithium, but battery life will be shortened. **DO NOT USE RECHARGEABLE BATTERIES.**
 - The Probe and Shell must be autoclaved before assembling to the Detection Module, refer to the Infection Control Procedures. Ensure the Detection Module does not come into contact with any source of water or heat, and should be stored at room temperature for 2 hours prior to use.

Handpiece is not shipped sterile. (Autoclave Probe, Shell, and Calibration Target prior to use.)

1. Remove the Probe with a firm grip pulling in a straight line (refer to the "Removing the Probe" Section).
2. Holding the Shell, unscrew the attachment knob at the bottom, by turning in a counter-clockwise direction. The Detection Module will begin rising out of the Shell.
3. Remove the Detection Module from the Shell by pulling in a straight line.
4. Insert the first battery into the battery compartment at the end closest to the threads of the housing with the positive end toward the threads.
5. Insert the second battery into the compartment at the other end with the positive end toward the first battery.
6. Note properly installed batteries. Batteries will rest unevenly. This will not affect performance.
7. Insert the Detection Module into the Shell, threaded end first, with the ON/OFF buttons properly aligned to ensure proper engagement. Module should slide easily into shell. **DO NOT** force. Holding the Shell, tighten the attachment knob by turning in a clockwise direction.
8. Ensure the handpiece is "OFF" before assembling the Probe.

Caution: Do NOT use unless fully assembled, or if Shell is damaged.

Note: Weak batteries will not affect the detection ability of the handpiece. Once the batteries cannot supply enough energy to ensure optimal detection, the handpiece will emit an audible signal (2 long beeps) and deactivate.



Connecting the Probe

1. Ensure that the device is "OFF", the inside of the Probe is dry and that the alignment notch and tab are aligned. Holding the Detection Module and Probe as shown below, insert the Detection Module into the Probe. Gently seat the Probe's fiber connections into the mating holes in the Detection Module, before fully seating the Probe. Do not turn or twist the Probe during assembly.
2. After assembling, gently wipe the tip of the Probe with a gauze dampened with isopropyl alcohol. This eliminates the presence of residues.
Note: Gauze not included in package.



Removing the Probe

1. Firmly hold the lower portion of the Shell with the Probe tip facing the ground.
2. Place your hand, palm up on the Probe.
3. Remove the Probe by pulling in a straight line: Do not try to unscrew or twist the Probe.



>Calibration Procedures

The calibration procedure should be followed before each use, and each time a Probe is attached, for optimal caries detection performance. The Probe will wear through repeated use. Proper care and maintenance of the Probe will provide optimal life. During the calibration procedure, the handpiece is capable of determining if the Probe has worn beyond its useful life.

Caution: Inspect the Calibration Target for stains or damage.

1. Attach a sterilized Probe to the Detection Module.
2. Ensure that the tip of the Probe and the ceramic Calibration Target are clean. Wet the surfaces of the tip and target with clean water.
3. With the tip of the Probe in the air (a minimum of 30 cm from any surface), activate the handpiece by quickly pushing the ON/OFF button. The handpiece will emit steady beeps indicating it is in calibration mode. (Note: If you hold the button for greater than 1 second, you will bypass the calibration procedure).
4. Place the tip of the Probe in the center of, and perpendicular to, the ceramic Calibration Target. Hold the tip in-place and steady for 1 second after the red light turns off and the handpiece emits 2 quick beeps, confirming that calibration has been completed. Do not allow water to leave mineral deposits on target. After calibration, wipe dry with a **clean lint-free cloth**.



Light is red at the beginning of calibration step.



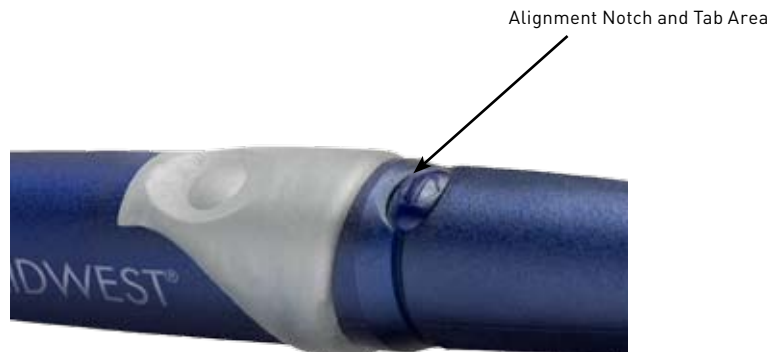
Red light turns off at end of calibration step.

Note: To bypass the calibration procedure, turn the handpiece on, with tip of Probe in the air, while holding down on the ON/OFF button for 1 second. The previous calibration values will be used.

>Experiencing Failed Calibration

Failed calibration can occur for the following reasons:

1. After turning on the detection handpiece, the unit emits three long beeps and turns itself off. If this occurs, clean the Probe tip (follow Polishing the Probe instructions) and be sure the Probe tip and Calibration Target are wet.
2. After attempting calibration, the unit emits a long beep and turns itself off.
 - a. Reasons that this may occur
 - i. User lifts Probe tip too soon from the Calibration Target before the red light turns off.
 - ii. User moves the Probe during the 2 second calibration process.
 - iii. User does not hold the Probe perpendicular to the Calibration Target surface.
 - iv. User waited too long to place the Probe on the Calibration Target and the detection handpiece turns off.
 - v. Working with a worn out Probe or Probe needs to be cleaned and polished.
 - vi. Calibration Target may need to be cleaned of mineral deposits or debris.
 - vii. Probe not fully seated.



Fully Seated Probe

>Operating Procedures

Important! Always connect a sterilized Probe and Shell, and calibrate the handpiece prior to use.
Always deactivate the handpiece before removing the Probe.

The following instructions must be followed for each use and maintenance of the Midwest Caries I.D.TM detection handpiece.

General Principles:

The **general principle** of caries detection with the Midwest Caries I.D.TM detection handpiece is the recognition of the pattern of caries development. Caries detection is achieved using the difference in reflective properties of healthy and decayed tooth structure. A healthy tooth structure is more translucent than a decalcified structure. For the Midwest Caries I.D.TM detection handpiece, the light reflected from the decalcified structures allows the handpiece to distinguish between healthy and less translucent structures. Other artifacts, present in or on the tooth, can interfere with the detection.



When the detection is positive, the light at the tip changes to red. The speed of the audible signal is proportional to the amount of decay detected. A large positive detection surface indicates a strong possibility of large quantity of underlying decay. It is important when interpreting the signals that you also take into consideration other caries risk factors, such as: history of caries, frequency of sugar consumption, presence of bacterial plaque and production of saliva. Refer to the Caries Detection Section for explanation of signals.

Tooth Preparation

The examined teeth **must be moist** and free of all residue (cleaning agent, prophylaxis paste, plaque, calculus) that might be present on the surface to avoid erroneous readings.

Probing Instructions

The clinician begins the examination by scanning the Midwest Caries I.D.TM Probe along the pits and fissures. Direct contact with the tooth must be maintained but there is **no need** to apply pressure against the tooth surface. If caries is detected, focus on the entry point and pivot the Probe around this point to determine the size and direction. To detect interproximal caries, scan from the occlusal surface on the mesial or distal marginal ridge, not between the teeth. Refer to the Caries Detection Section for explanation of signals.

> Probing Technique Guide

OCCLUSAL CARIES



Caries detection is performed by placing the Probe tip directly on pits and fissures.



Pivot the Probe tip in all directions or 360° to assess caries size. A large positive area corresponds to a large volume of decay beneath.



Proper technique

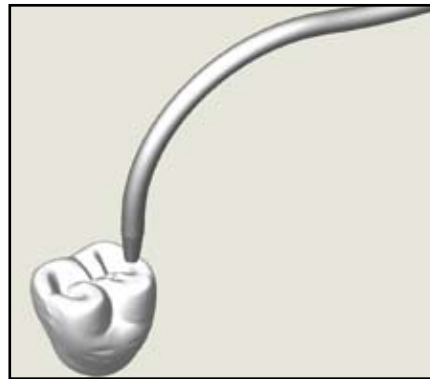


Improper technique, in that the probe is placed on smooth buccal or lingual surface, which allows the light to penetrate easily into dentin (rather than being reflected or absorbed, causing a false positive reading).

INTERPROXIMAL CARIES



Place the tip over the marginal ridge perpendicularly or with a slight angle toward interproximal area. A large positive area corresponds to the area of decay beneath.



Proper technique



Improper technique, in that the probe is improperly positioned over interproximal embrasure, not on the marginal ridge of either adjacent tooth.

>Caries Detection

Signals: Green - Red & Audible

The green and red LED lights at the tip of the Probe indicate that the handpiece is working.

When the green light is extinguished and the red light illuminates the tooth, this indicates the likelihood of decalcification of the examined tooth structure.

Note: If there is an absence of an audible and/or visual (green and red light) signal, do not use detection handpiece and contact Technical Service and Repair Department at 800-989-8826.



Speed of audible signal:

Three (3) distinctive beeps characterize the amount of decalcification:

- A rapid pulse indicates a strong level of decalcification in the direction observed by the Probe or that the Probe is situated directly on the entry point of the caries.
- A medium pulse indicates that there is a medium level of decalcification.
- A slow pulse indicates a small amount of decalcification or decalcification is far from the Probe.

For occlusal caries, the approach is done directly in the pit and fissure with the Probe. Ensure the tip of the Probe is always in direct contact in the long axis of the tooth.

For interproximal caries, detection is possible by an occlusal approach only. Probe the occlusal surface on the mesial or distal marginal ridge to correctly determine the presence of underlying caries.

False Negative / Non-Detection of Caries on the Tooth

To avoid false negatives (non-detection of caries on the tooth when decay is present) you must check the following and ensure they do not interfere with the effectiveness of the handpiece:

- Very thin enamel on interproximal caries
- Improper Probe angle
- Artifacts present in or on the tooth can interfere with detection.

False Positive / Detection of Caries on a Healthy Tooth

To avoid false positives (detection of caries on a tooth when no decay is present) you must be aware that some particular elements can generate them:

- Atypical morphology of the tooth or the enamel
- Restorations and sealants
- Presence of calculus and heavy plaque
- Presence of thick, dark brown stains
- Presence of food on the tooth
- Presence of contaminants on the surface of the tip
- Primary teeth due to thin enamel
- Buccal and lingual area of anterior and posterior teeth
- Probe not in direct contact with the dental surface
- Very intense ambient light
- Dry teeth

After Each Use

1. Deactivate the Midwest Caries I.D.™ detection handpiece by pressing the On/Off button once.
2. Remove, clean and autoclave the used Probe, Shell, and Calibration Target. Refer to the Infection Control Procedures Section.
3. Clean the Detection Module using the recommended method of disinfection. DO NOT AUTOCLAVE. Refer to the Infection Control Procedures Manual Cleaning and Disinfection Sections.

**OCCLUSAL CARIES
DETECTION**



**INTERPROXIMAL CARIES
DETECTION**



>Infection Control Procedures

Important: Autoclave the Probe, Shell, and Calibration Target of the Midwest Caries I.D.™ detection handpiece in the custom cassette. Detection Module **cannot** be autoclaved. Handle the Probe with care during the autoclave process.



Detection Module (**DO NOT Autoclave!**)



Probe and Shell (**Autoclave**)

Warnings

- Midwest Caries I.D.™ Probe, Shell, and Calibration Target are not sterile upon receipt and must be autoclaved prior to use in accordance with the following instructions.
- **DO NOT Autoclave** the Detection Module. Refer to the Manual Cleaning and Disinfection Sections of these procedures for instruction.
- Do not use solvents or aggressive chemicals on the Detection Module. Do not immerse in fluids. Do not spray solutions directly on the Detection Module.
- Do not bend or reshape the tip of the Probe.
- Be sure to follow cleaning instructions prior to autoclaving.

Limitations on Processing

- Only the Probe, Shell, and Calibration Target are steam autoclavable.
- Do not use chemical disinfectants prior to autoclaving or rapid deterioration of the material may occur.
- Cold liquid disinfection/sterilization, chemical vapor sterilization, and dry heat sterilization methods have not been tested or validated for efficacy and are not recommended for use.
- Do not immerse any components of the device in an ultrasonic bath.

INSTRUCTIONS

Point of Use:

Remove excess soil with disposable cloth or paper.

Containment and Transportation:

Protect Probe and Shell from damage. Probe and Shell should be reprocessed as soon as it is reasonably practical following use. Store disinfected Detection Module in its case and autoclaved Probe, Shell, and Calibration Target in the custom cassette when not in use.

Cleaning: Automated

None.

Cleaning: Manual

Probe, Shell and Calibration Target

- Rinse the Probe, Shell and ceramic Calibration Target under running water to remove any gross debris.
- Wipe Probe tip with gauze dampened with isopropyl alcohol.
- Wipe Probe, Shell and Calibration Target with a cloth saturated with isopropyl alcohol and rinse with running water. Dry with a **clean lint-free cloth**.

Detection Module

- Remove batteries.
- Generously spray disinfectant solution on a **clean lint-free cloth** and wipe the outer surfaces. Do not spray directly on the Detection Module. Avoid contaminating optics, beeper, battery terminals, and the On/Off button with disinfection solution. Wipe dry with a clean lint-free cloth.

Disinfection:

Probe, Shell and Calibration Target

- Additional disinfection is not necessary prior to steam autoclave sterilization.

Detection Module

- Remove batteries.
- Generously spray disinfectant solution on a **clean lint-free cloth** and wipe the outer surfaces. Do not spray directly on the Detection Module. Avoid contaminating optics, beeper, battery terminals, and the On/Off button with disinfection solution. Allow surfaces to air dry.

Drying:

When cleaning, wipe surfaces dry with a **clean lint-free cloth**. To achieve disinfection, allow surfaces to air dry.

Packaging:

Place the Probe, Shell and ceramic Calibration Target in the custom cassette as shown. Place the custom cassette into a paper or paper/plastic steam sterilization pouch.



The Detection Module is NOT autoclavable. It will not fit in the custom cassette for that reason. Place the cleaned and disinfected module into the Detection Module case while not in use.

Sterilization:

Probe, Shell and Calibration Target

- Use a steam autoclave. Place sterilization pouch into the steam autoclave, paper side up when using a paper/plastic pouch. After warm-up is completed, operate at a sterilizing temperature of 273°F/134°C to 279°F/137°C and pressure of 31psi/216kPa for 6 to 12 minutes.

Note: If the Probe is removed from steam autoclave before completion or drying cycle (see Drying below), allow to air dry before attaching to Detection Module.

Detection Module

- **DO NOT Autoclave.** The Detection Module is not autoclavable. Refer to the Disinfection Section of these procedures.

Drying:

Use the drying cycle of the autoclave. Set cycle for 20-30 minutes.

Maintenance, Inspection and Testing:

- Visually inspect to ensure all contamination is removed.
- Check for distortion, damage and wear. Polish Probe tip if required (Refer to the Maintenance Section of this Instruction Manual).

Storage:

To maintain sterility, the Probe, Shell and Calibration Target should remain bagged until ready for use. The disinfected Detection Module should remain in its case until ready for use. The Detection Module should be stored at room temperature at least 2 hours prior to use.

>Polishing the Probe

The tip of the Probe should be polished approximately every 5 uses or when needed following these procedures carefully. The Probe will wear through repeated use. Proper care and maintenance will provide optimal life.

1. Remove, clean and autoclave the used Probe. (Follow the Infection Control Procedures).
2. Place polishing paper on a flat surface, dull side up and moisten with a drop of water. Holding the Probe tip perpendicularly, contact the tip to the polishing paper, ensuring the tip is flat to prevent polishing a bevel on the tip.
3. Polish with a light pressure while tracing figure 8's several times as shown on the following picture.



END OF TIP VIEW
(3-D Model rendering)

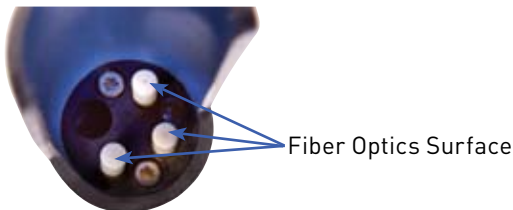
4. Discard the used polishing paper.
5. Clean the tip of the Probe with gauze dampened with isopropyl alcohol.

Important! – Excessive polishing can cause premature degradation of the Probe.

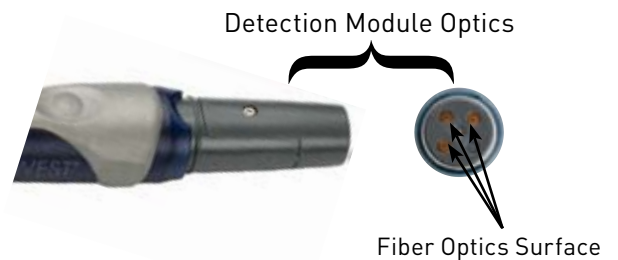
>Cleaning the Fiber Optics

The fiber optics of the Probe and the Detection Module should be cleaned monthly or when needed following these procedures carefully.

1. Clean the inside fiber optics using the polyester fiber optics swab provided.
2. Dampen swab tip with isopropyl alcohol before using it on the optic surface.
3. Gently clean the fiber optic surfaces to remove debris.
4. Allow to air dry prior to assembly.



**PROBE OPTICS
INSIDE VIEW**
(SHOWN 'CUT-AWAY' FOR BETTER VIEW)



>Accessories and Replacement Parts

To order accessories or replacement parts in the U.S., contact your local DENTSPLY Professional distributor or call 1.800.989.8826. Monday through Friday, 8:00 AM to 5:00 PM (Standard Eastern Time).

Midwest Caries I.D.™ Probe	Part Number 9107001
Midwest Caries I.D.™ Shell	Part Number 9100501
Probe Maintenance Kit.....	Part Number 91044
Custom Autoclave Cassette	Part Number 91055
Ceramic Calibration Target.....	Part Number 91049

Note: AAA lithium batteries are available at stores locally and are not being offered as an accessory or spare part by DENTSPLY.

>Service Centers

United States of America

DENTSPLY Professional
 Technical Service and Repair Department
 1301 Smile Way
 York, PA 17404-1785
 Phone: (800) 989-8826 or (717) 767-8502

There are no user-serviceable parts inside the detection handpiece, except for the batteries. A qualified technician from DENTSPLY or one recognized by DENTSPLY must handle all repairs. Never attempt maintenance operations beyond those described in these operating instructions and comply with all warnings that appear in these instructions.

Any equipment modified by a third party will automatically void the product certification and its warranty. Only original DENTSPLY parts must be used to operate or repair the equipment.

>Troubleshooting

Following are some basic troubleshooting procedures for the Midwest Caries I.D.™ detection handpiece that can be performed without the assistance of a qualified technician. For issues not covered in this section, contact DENTSPLY customer service by calling 800-989-8826.

Issue	Possible Solution(s)
<p>1. Failed Calibration Handpiece emits a long beep and turns off.</p>	<ol style="list-style-type: none"> 1. Recalibrate the handpiece carefully following the Calibration Procedures in this manual. 2. Ensure the Probe is fully seated with the Shell and that the tip and the ceramic Calibration Target are clean. 3. If the problem persists, deactivate handpiece and polish the tip of the Probe (refer to the Polishing of the Probe Section in the Maintenance Procedures) and clean the Fiber Optics (refer to the cleaning the Fiber Optics section). 4. If the problem still persists, try recalibrating with a new or alternate Probe. If the handpiece calibrates, discard the worn or damaged Probe.

Issue	Possible Solution(s)
<p>2. The light at the tip of the probe is either dim or not illuminated</p>	<ol style="list-style-type: none"> 1. Ensure the Probe guide notches are aligned properly, fully seated and secured. 2. Ensure the cleanliness of the tip of the Probe and clean as needed with gauze dampened with isopropyl alcohol. Recalibrate the handpiece (Refer to Calibration Procedures Section). 3. If the problem persists, deactivate handpiece, and polish the tip of the Probe (Refer to the Polishing of the Probe Section in the Maintenance Procedures Section) and clean the Fiber Optics (refer to the Cleaning the Fiber Optics section). 4. Activate the handpiece to determine if the light is sufficient.
<p>3. The handpiece seems to be giving false or incoherent detection signals or beeping inconsistently.</p>	<ol style="list-style-type: none"> 1. Ensure the cleanliness of the tip of the Probe and clean as needed with gauze dampened with isopropyl alcohol. Recalibrate the handpiece (Refer to Calibration Procedures Section). 2. If the problem persists, deactivate handpiece, and polish the tip of the Probe. (Refer to the Polishing of the Probe Section in the Maintenance Procedures Section) and clean the Fiber Optics (refer to the Cleaning the Fiber Optics section). 3. Using the air syringe, dust the holes at the top of the battery shelter (where the LED lights are), to remove any debris that may obstruct the fiber optics). 4. Connect the Probe and calibrate the handpiece. 5. Tilt overhead light toward patient's chin, away from the oral cavity. 6. Follow normal methods to remove heavy plaque and calculus from teeth.
<p>4. The detection handpiece beeps when outside the mouth.</p>	<ol style="list-style-type: none"> 1. Ensure the cleanliness of the tip of the Probe and clean as needed with gauze dampened with isopropyl alcohol. 2. If the problem persists, deactivate handpiece, and polish the tip of the Probe (Refer to the Polishing of the Probe Section in the Maintenance Procedures Section) and clean the Fiber Optics (refer to the Cleaning the Fiber Optics section). 3. The Midwest Caries I.D.™ detection handpiece is calibrated for intra-oral use (moist environment). Certain ambient luminous reflections can partially imitate the optical signature of the caries and may result in a detection signal.
<p>5. The detection handpiece emits a detection signal on contact or near a dental restoration or sealant</p>	<ol style="list-style-type: none"> 1. Some restorations reflect the general view and optical signature of the detection beam and could imitate the optical signature of the caries. The handpiece is not to be used on or near dental restorations
<p>6. The LED light seems to be fading and/or the handpiece does not seem to be detecting any caries.</p>	<ol style="list-style-type: none"> 1. Deactivate the handpiece and remove the Probe. 2. Using the air syringe, dust the holes at the top of the battery shelter (where the LED lights are), to remove any debris that may obstruct the fiber optics. 3. Connect the Probe and recalibrate the handpiece.
<p>7. The red LED lights up but no beep is heard.</p>	<ol style="list-style-type: none"> 1. Adjust the volume by pressing on the On/Off button until it is loud enough. 2. Install fresh batteries
<p>8. No audible or visual signals</p>	<ol style="list-style-type: none"> 1. Do not use detection handpiece. Contact DENTSPLY Professional Technical Service and Repair Department at 1-800-989-8826.

>Limited Warranty

WARRANTY STATEMENT

The DENTSPLY Professional Midwest Caries I.D.™ detection handpiece is designed expressly for dental use and this warranty is not applicable to other uses. The handpiece is made up of two significant assemblies, the Detection Module and the Probe. Both are warranted against defects arising from faulty materials and workmanship. The Detection Module is warranted from date of purchase for a period of twelve (12) months. The Probe is warranted from date of purchase for a period of ninety (90) days. Parts will be repaired or replaced at the discretion of DENTSPLY Professional.

WARRANTY TERMS

This warranty extends to products purchased from an authorized DENTSPLY distributor, and only to the original purchaser. The warranty is subject to the following conditions:

1. The warranty card must be completed and returned to DENTSPLY within four (4) weeks of date of purchase.
2. Any routine servicing of the device must be performed by DENTSPLY Professional's Cavitron CareSM Service or an authorized DENTSPLY distributor's service personnel.
3. Any warranty repair must be performed by DENTSPLY Professional's Cavitron CareSM Service.
4. The Midwest Caries I.D.™ detection handpiece must not be subjected to abuse, improper installation or operation, or improper cleaning, disinfection or sterilization procedures. Warranty does not cover damage caused by battery leakage.
5. Midwest Caries I.D.™ Probes are subject to these additional terms:
 - a. Probes must not be subjected to abuse, improper use or application, including, but not limited to, bending and reshaping.
 - b. Probes must not be subjected to improper cleaning, disinfection or sterilization procedures.
 - c. Warranty will not be honored for Probes used on devices other than the Midwest Caries I.D.™ detection handpiece.
6. The use of any Probes other than Midwest will void the warranty on the Midwest Caries I.D.™ detection handpiece.

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. DENTSPLY neither assumes, nor authorizes any person to assume for it, any other liability in connection with the sale or use of its products. DAMAGES ARE LIMITED STRICTLY TO REPAIR OR REPLACEMENT OF PARTS. DENTSPLY EXPRESSLY DISCLAIMS LIABILITY FOR INCIDENTAL AND CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCTS.

Claims covered by this warranty will be honored when presented through your DENTSPLY Professional distributor within thirty (30) days from discovery of defect within the applicable warranty period.

> Specifications

Input voltage	[2] 1.5 Vdc, AAA format Lithium Batteries, Alternate: Alkaline
Input current	15uA to 140mA
Light emitted	635 to 1350 nm
Intensity	Between 4 and 80 microwatts (at Probe tip)
Diameter	0.79 Inches (2 cm)
Length	8.70 Inches (22 cm)
Weight	2.4 ounces (68 g) with batteries

Operating Conditions

Temperature	60° to 85° F (15° to 30° C)
Relative Humidity	25 % to 80 % without condensation
Atmospheric Pressure	700 to 1060 hPa

Storage and Transportation Conditions

Temperature	-40° to 131° F (-40° to 55° C)
Relative humidity	5 % to 92 % without condensation
Atmospheric Pressure	500 to 1060 hPa

Remove batteries from Detection Module for extended storage periods.

Label Identifications



or



Consult instruction manual



CSA marking conform with Canada and USA directives
CSA master contract number



Application part, type BF Equipment



Serial number

REF

Catalog number



Protected against spraying water at all angles



EC Directive on waste electrical and electronic equipment applies to this product.
Please contact your dental supplier or DENTSPLY for disposal.



Autoclavable at temperature specified.



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