Sper Scientific 801038

Sper Scientific Wet Bulb Globe Heat Stress Meter (Model 801038) Instruction Manual

Accurate WBGT Monitoring for Indoor and Outdoor Environments

1. Introduction

The Sper Scientific Wet Bulb Globe Temperature (WBGT) Heat Stress Meter, Model 801038, is a professional-grade instrument designed to accurately measure and monitor heat stress conditions. This device is crucial for assessing environmental factors that contribute to heat-related illnesses in various settings, including workplaces, sports activities, and general environmental monitoring. It provides a clear, color-coded WBGT value on a large LCD display, simplifying the interpretation of OSHA WBGT guidelines.

Figure 1: Sper Scientific WBGT Heat Stress Meter, Model 801038.

2. Safety Information

Please read and understand all safety instructions before operating the device.

- Do not expose the meter to extreme temperatures or direct sunlight for prolonged periods when not in use.
- Avoid dropping the device or subjecting it to severe impact.
- Do not attempt to disassemble or modify the meter. Refer all servicing to qualified personnel.
- Ensure batteries are inserted correctly according to polarity markings.
- Remove batteries if the device will not be used for an extended period to prevent leakage.

3. Package Contents

Verify that all items are present upon unpacking:

- Sper Scientific WBGT Heat Stress Meter (Model 801038)
- Protective Sleeve
- AAA Batteries (4 included)
- Instruction Manual

4. Product Overview

Familiarize yourself with the components of your WBGT Heat Stress Meter.

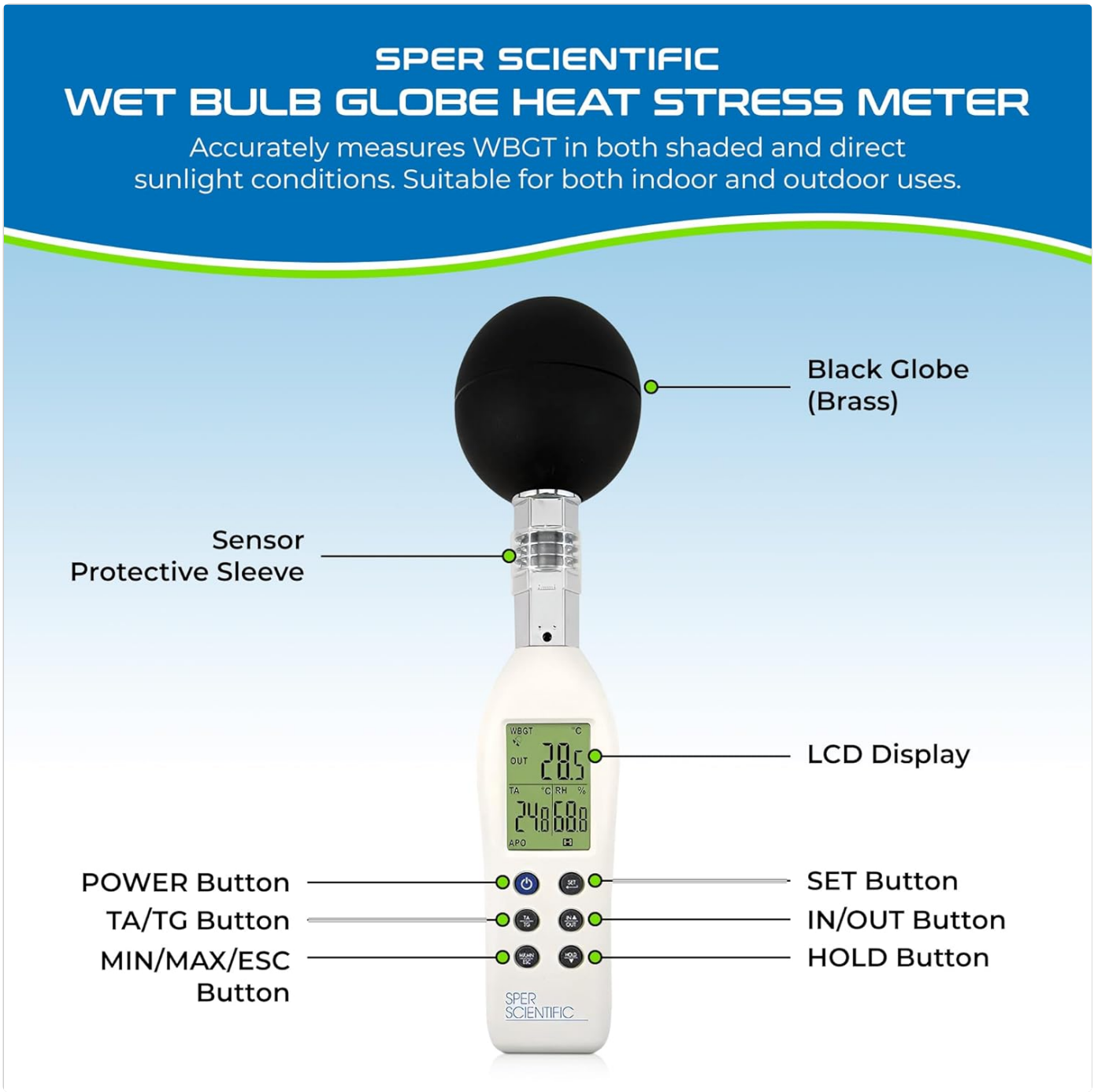

Figure 2: Key components of the Sper Scientific WBGT Meter.

1. **Black Globe (Brass)**: Measures radiant heat.
2. **Sensor Protective Sleeve**: Protects the sensors when not in use.
3. **LCD Display**: Shows all measurement values and alerts.

4. **POWER Button**: Turns the device on/off.
5. **TA/TG Button**: Toggles between Air Temperature (TA) and Globe Temperature (TG) display.
6. **MIN/MAX/ESC Button**: Displays minimum/maximum values or exits a menu.
7. **SET Button**: Enters settings menu or confirms selection.
8. **IN/OUT Button**: Selects indoor or outdoor WBGT calculation mode.
9. **HOLD Button**: Freezes the current display readings.

5. Setup

5.1 Battery Installation

The meter requires 4 AAA batteries (included).

1. Locate the battery compartment cover on the back of the device.
2. Slide or unclip the cover to open.
3. Insert 4 AAA batteries, ensuring correct polarity (+/-) as indicated inside the compartment.
4. Replace the battery compartment cover securely.

5.2 Initial Power On

Press the **POWER** button to turn on the meter. The LCD display will illuminate and begin showing readings.

6. Operating Instructions

6.1 Taking Measurements

Once powered on, the meter automatically begins measuring. Ensure the black globe and sensors are exposed to the environment you wish to monitor.

6.2 Display Information

Figure 3: Comprehensive data display showing Globe Temperature, Ambient Air Temperature, Relative Humidity, and WBGT value.

The large LCD screen simultaneously displays:

- **WBGT Value**: The primary heat stress index.
- **Air Temperature (TA)**: The ambient air temperature.
- **Globe Temperature (TG)**: The temperature measured by the black globe, indicating radiant heat.
- **Relative Humidity (RH)**: The amount of moisture in the air.

6.3 Selecting Indoor/Outdoor Mode

Press the **IN/OUT** button to switch between indoor and outdoor WBGT calculation modes. The display will indicate the selected mode (IN or OUT). This is important as the WBGT calculation formula differs for indoor and outdoor environments.

6.4 Using the HOLD Function

Press the **HOLD** button to freeze the current readings on the display. Press it again to resume live measurements.

6.5 Minimum/Maximum Readings

Press the **MIN/MAX/ESC** button to cycle through minimum and maximum recorded values for each parameter since the device was last reset or powered on.

7. Understanding WBGT and Color-Coded Alerts

The WBGT meter translates OSHA guidelines into a simple, color-coded alert system to indicate heat stress risk levels.

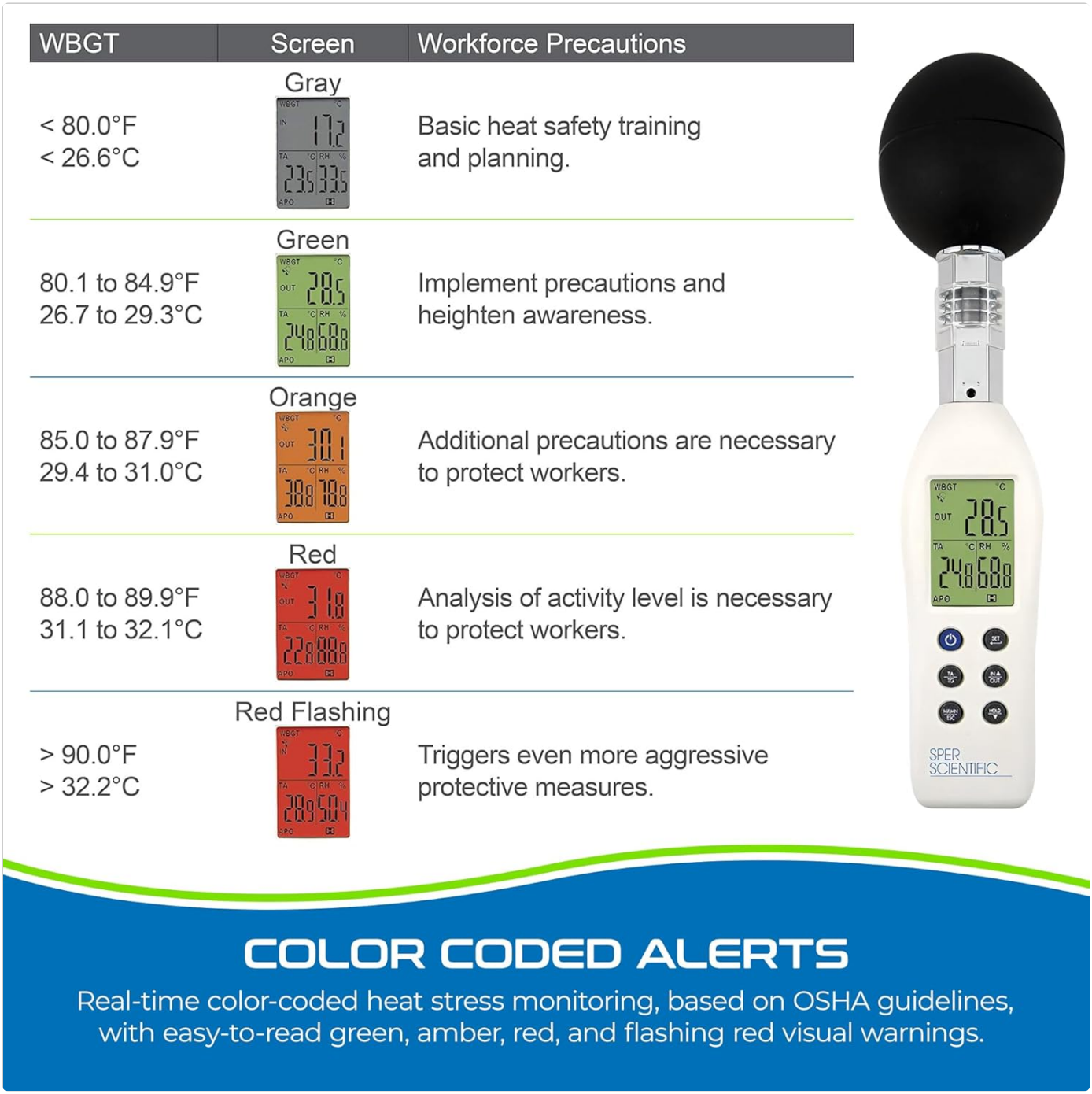

Figure 4: Color-coded WBGT alert levels and associated precautions.

WBGT Color-Coded Alert Levels

WBGT Range	Screen Color	Workforce Precautions
< 80.0°F / < 26.6°C	Gray	Basic heat safety training and planning.

WBGT Range	Screen Color	Workforce Precautions
80.1 to 84.9°F / 26.7 to 29.3°C	Green	Implement precautions and heighten awareness.
85.0 to 87.9°F / 29.4 to 31.0°C	Orange	Additional precautions are necessary to protect workers.
88.0 to 89.9°F / 31.1 to 32.1°C	Red	Analysis of activity level is necessary to protect workers.
> 90.0°F / > 32.2°C	Flashing Red	Triggers even more aggressive protective measures.

The meter also features an optional audible alarm that activates when heat stress levels reach dangerous thresholds, providing an immediate alert in high-risk environments.

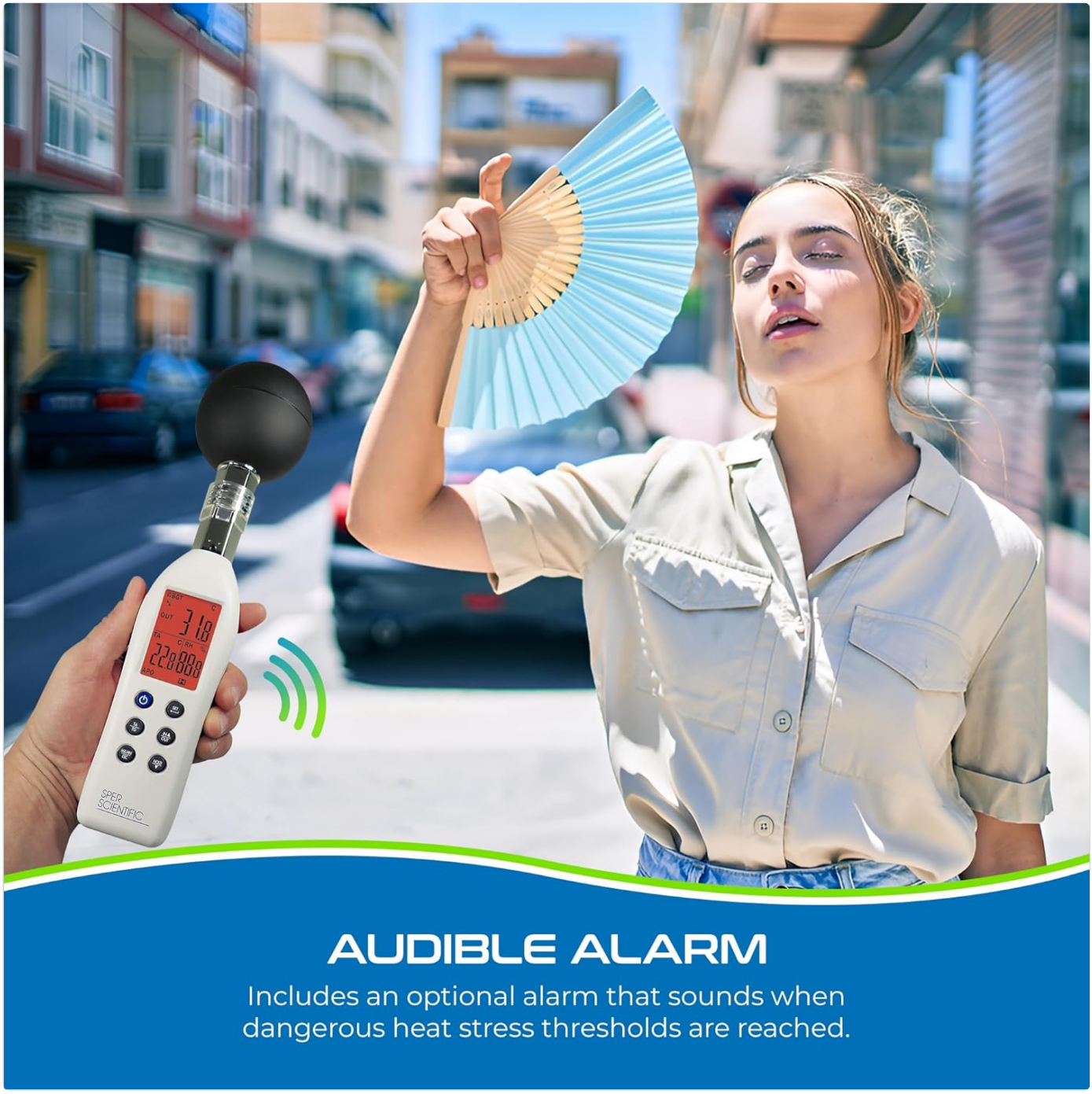

Figure 5: The meter indicating an audible alarm for high heat stress.

8. Maintenance

8.1 Cleaning

Wipe the meter's exterior with a soft, damp cloth. Do not use abrasive cleaners or solvents. Ensure no liquid enters the sensor areas or battery compartment.

8.2 Storage

When not in use, store the meter in its protective sleeve in a cool, dry place, away from direct sunlight and extreme temperatures. Remove batteries if storing for extended periods.

Figure 6: The meter is durable and portable, suitable for handheld use or tripod mounting.

9. Troubleshooting

Common Issues and Solutions

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
Meter does not power on.	Dead or incorrectly installed batteries.	Check battery polarity. Replace with new AAA batteries.
Inaccurate readings.	Sensors are obstructed or dirty. Meter not stabilized.	Ensure sensors are clean and unobstructed. Allow meter to stabilize in the environment for a few minutes before taking readings.
Display is dim or flickering.	Low battery power.	Replace all 4 AAA batteries.
Audible alarm not sounding.	Alarm function is disabled or volume is too low.	Check settings via the **SET** button to ensure the alarm is enabled and set to an audible level.

10. Specifications

- **Model Number**: 801038
- **Brand**: Sper Scientific
- **Display Type**: Digital LCD with Color-Coded Backlight
- **Power Source**: 4 x AAA Batteries (included)
- **Product Dimensions**: 12 x 3 x 1.5 inches
- **Weight**: 11 ounces
- **Outer Material**: Plastic
- **WBGT Measurement Range**: Varies by mode and environmental conditions.
- **Air Temperature Range**: 0 to 50°C (32 to 122°F)
- **Globe Temperature Range**: 0 to 80°C (32 to 176°F)
- **Relative Humidity Range**: 5% to 90% RH
- **Compliance**: OSHA-compliant heat risk alerts
- **Connectivity**: USB (for data logging, if applicable -*Note: Specific USB functionality details may require further manual consultation.*)

For further assistance or inquiries, please refer to the official Sper Scientific website or contact customer support.