

PROSIGHT



USER MANUAL

PROSIGHT SLST • PROSIGHT SMMT • PROSIGHT SCT30

THE SSE PROSIGHT INCLINOMETER SYSTEM IS A PRECISE TOOL FOR USE IN THE INSTALLATION OF LINE ARRAY LOUDSPEAKER SYSTEMS.

The ProSight Inclinometer System comprises the following components:

PROSIGHT SLST



The Sender Unit mounts to the system bumper or rigging frame. The SLST laser module (as shown in the above photograph) contains a precision solid state inclinometer, in a rugged housing case. Mounting brackets are available separately for a number of key line array systems.

PROSIGHT SMMT



The Meter Unit containing a backlit display has a two-button menu driven interface. The Meter Unit operates on 6 x AA batteries.

PROSIGHT CABLE SCT30



A 30m long 6-pin XLR-XLR cable that connects the Meter Unit to the Sender Unit.



PRINCIPAL FEATURES OF THE PROSIGHT INCLINOMETER SYSTEM:

PRECISION ANGLE MEASUREMENT to +/- 0.05 deg. resolved to +/- 0.1 deg. displayed.

INTELLIGENT INTERPOLATIVE MEASUREMENT - the final resting angle of the system is displayed within three periods of oscillation whilst the system is moving after motor hoist adjustment, giving an accurate angle reading. This feature reduces installation time, as the user does not need to wait until the PA system comes to rest after each angle adjustment.

MANY SENDER UNITS MAY BE USED WITH ONE METER UNIT. Calibration information is stored in the Sender Unit using non-volatile memory and remains accurate after the Meter Unit is disconnected. The Sender Unit may be re-calibrated on the fly to any angle within its range from menu controls on the meter unit, allowing adjustment of PA system elevation to be made in absolute values if required.

THE SENDER UNIT HAS AN ON-BOARD GREEN LASER that is calibrated parallel to the Sender Unit mounting faces and switched from menu commands on the Meter Unit. Green lasers are 20 times more visible than red lasers and provide highly visible indication of the aiming of the PA system.


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SERIAL DATA CONNECTION BETWEEN THE METER UNIT AND THE SENDER UNIT. Using SSE ProSight cable we can custom build varying lengths if required (up to 100m), as cable resistance has no influence upon the calibration of the sender unit. SSE ProSight cable must be used for correct function of laser.

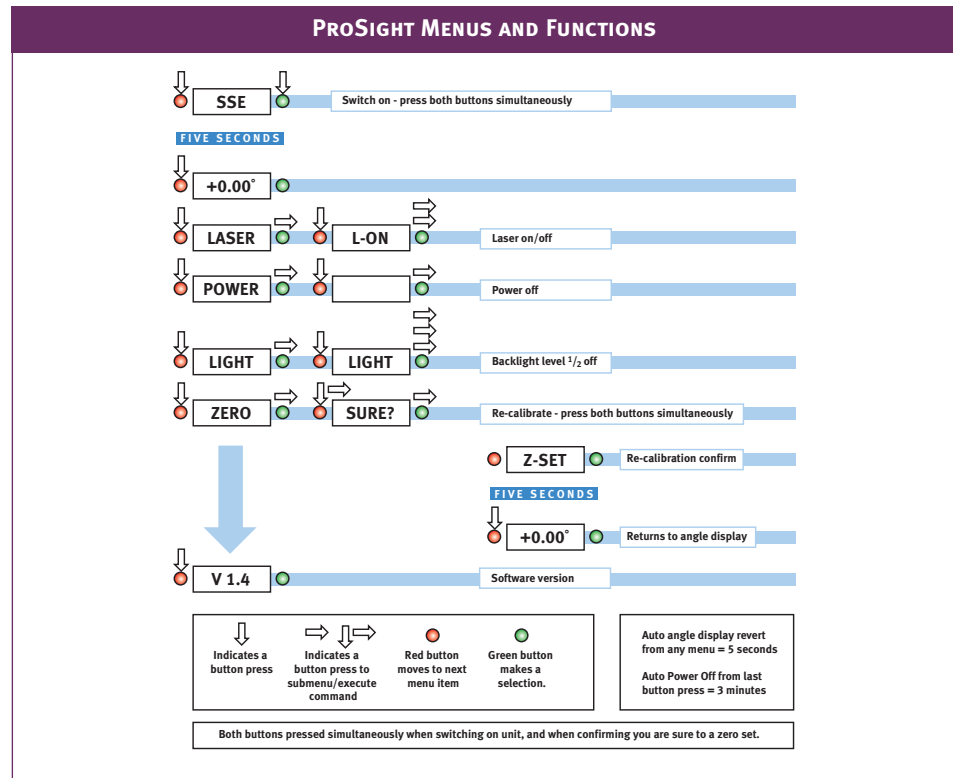
RUGGED PACKAGING FOR RELIABLE PERFORMANCE and long service life.

- **INTEGRATION WITH THE NEXO GEOT, GEOD AND D&B J SERIES RIGGING SYSTEMS** – these systems all have custom mounting points for SSE ProSight providing a reliable and tour friendly precision tool. A standard fitment bracket is available for use with all 3 of these systems.
- **MOUNTING BRACKETS** are available for use with L'Acoustics VDOSC and JBL Vertec. We also aim to have brackets available soon for L'Acoustics KUDO, Meyer Sound Milo and Adamson Y18. Please note that SSE accepts no responsibility for using ProSight systems for other uses than those recommended with official brackets.
- **SSE INNOVATION** and reliability.
- **FULLY FUNCTIONAL WITH ANY MAKE OF LOUDSPEAKER SYSTEM** using custom mounting hardware.

USING THE PROSIGHT INCLINOMETER SYSTEM

THE OPERATION MENU

The ProSight is operated from the meter unit by means of two buttons, one RED and the other GREEN. **IN MOST SCREENS THE RED BUTTON CALLS THE MENU ITEM AND THE GREEN BUTTON EXECUTES THE COMMAND.** The diagram below illustrates the menus and button actions.



Connect the inclinometer cable to the sender unit and to the meter unit.

NOTE: The Inclinometer Cable is durable but requires the same handling precautions and strain relief that users would provide for any other flown cable.

BEFORE SWITCHING ON: Ensure that the laser safety precautions have been followed – see page 7.

SWITCH ON THE UNIT BY PRESSING THE RED AND THE GREEN BUTTONS SIMULTANEOUSLY. The unit checks the backlight and displays 'SSE' for approximately 5 seconds during the boot sequence. After booting the unit displays the current angle readout in degrees.

NOTE: The initial angle reading is relative to the last calibration of the unit.

In order to be sure that the inclinometer measurement is correctly calibrated to the bumper/cabinet the following procedure must be followed:

SENDER UNIT ANGLE CALIBRATION PROCEDURE:

- Place the bumper/cabinet on a solid, stable surface.
- Take a good quality spirit level or calibrated digital level and place it on the top edge of the bumper/cabinet.
- Pack the bumper/cabinet at the front or rear as required so that the bumper/cabinet is perfectly horizontal.
- Switch on the ProSight and scroll to the 'ZERO' menu item using the RED button. Press the GREEN button and note that the display reads 'SURE?' Immediately press and HOLD the RED button and then press the GREEN button. The display reads 'Z-SET' for approximately 5 seconds whilst the calibration register is reset and the Sender Unit re-boots.
- The Sender Unit is now calibrated to read $+0.00^{\circ}$ when the bumper/cabinet is perfectly horizontal.

NOTE: It is normal for the Meter Unit display to occasionally display $\pm 0.01^{\circ}$ when static. This is because the ProSight continually calculates the static angle from dynamic information and is in fact fractionally more accurate when the PA system is swinging than it is when absolutely still.

ANGLE DISPLAY AND INTERPOLATION

The ProSight system is now ready for use and will display the computed static resting angle of the Sender Unit when the Meter Unit is active. The accuracy of the reading is a function of the number of periods of pendulum 'swing' that the PA system has undergone. As a guideline, the angle display has the following accuracy:

- 1 periods (cycles) of swing: $\pm 1.0^{\circ}$
- 2 periods (cycles) of swing: $\pm 0.5^{\circ}$
- 3 periods (cycles) of swing: $\pm 0.1^{\circ}$

It will be obvious that the measurement cannot be relied upon when the PA system hoists are actually being operated. Once the hoist(s) have stopped the Meter Unit display quickly resolves the measurement. A satisfactory value for the resting angle is normally displayed within a few seconds.

OPERATING THE LASER



LASER SAFETY

Lasers are potentially extremely dangerous. Please observe all safety precautions when using this equipment. Never use the laser when hand holding it, and never let anyone into the target area of the laser whilst it is in use. For a full listing of precautions please see page 7.

The laser may be operated by scrolling to the LASER menu using the RED button and switching ON and OFF using the GREEN button.

NOTE: OBSERVE SAFETY PRECAUTIONS BEFORE USING THE LASER – SEE ABOVE.

The laser is used to confirm that the upper margin of the PA systems dispersion is reaching the design target. Line array design software illustrates specifically where the top cabinet should be pointing in relation to the venue, therefore when the array is positioned to the correct elevation and the correct angle, the laser equally should be targetted at this spot.

Once the array installation is complete the Meter Unit should be disconnected from the Inclinator Cable and can be used with other Sender Units. If subsequent adjustment of the array is required the Meter Unit may be re-connected to the Sender Unit without loss of calibration.

ADJUSTING THE ANGLE OF THE PA SYSTEM USING RELATIVE VALUES

Once in position, the Sender Unit can if required be re-calibrated in place to relative zero by following the calibration procedure given above. This allows the PA system to be re-adjusted relative to its original elevation by reading the value of the adjustment rather than the absolute value.

In this case the user must be careful to note when the Sender Unit has been re-calibrated because its horizontal position will no longer be 0.00°. For this reason it is wise to calibrate each Sender installation before use unless you are confident that it has not been re-calibrated to some other angle.

This function may be useful when re-adjusting a system that has been installed to a known position but where the calibration state of the Sender Unit is unknown or appears to be incorrect.

LIMITS OF ANGLE MEASUREMENT

The ProSight has a usable range of +/- 30° with full accuracy. The sensor is capable of measuring angles up to 44° but with reduced accuracy of +/- 1° at 40°. The additional range is left available to the user but should be used with caution. If extreme angles are needed outside the +/- 30° range it is preferable to mount the Sender Unit at a known angle that is closer to the target angle however this would require customised mounting hardware.

HORIZONTAL (AZIMUTH) REFERENCE

With correct calibration (see SLST Laser Sender Calibration) the laser provides an accurate azimuth reference as well as vertical.

POWER MANAGEMENT

AUTOMATIC POWER OFF

The ProSight Inclinator system manages its power consumption and auto powers off 3 minutes after the last button push.

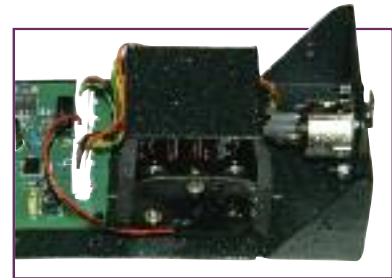
BATTERY CONDITION AND REPLACEMENT

The Meter Unit requires 6 x AA batteries for operation (not included in the shipping package). Only high performance alkaline type batteries such as Duracell MN1500 LR6 should be used.

Low battery indication: When the batteries are low the display shows ***** and the functions of the ProSight are disabled.

TO REPLACE THE BATTERIES

- Remove the 2 x M4 countersunk machine screws in each of the side faces of the Meter Unit.
- Withdraw the inner assembly of the Meter Unit from the outer cover and place on a flat surface.
- Identify the battery bay and disconnect the PP3 type connector.
- Withdraw the battery pack from the battery bay.
- Replace the batteries being careful to observe polarity.
- Replace the battery pack and re-connect
- Replace the outer cover and re-fit the screws. Do not over tighten.



BATTERY LIFE

The SLST laser module is by far the most demanding feature of the system in terms of power consumption, followed by the backlight function and finally the inclinometer electronics. Users should expect approximately 2.5 hours continuous use of the laser.

SERVICING

The SLST laser module and the SLST Meter Unit contain no user serviceable parts. Please refer to your local SSE distributor for service.

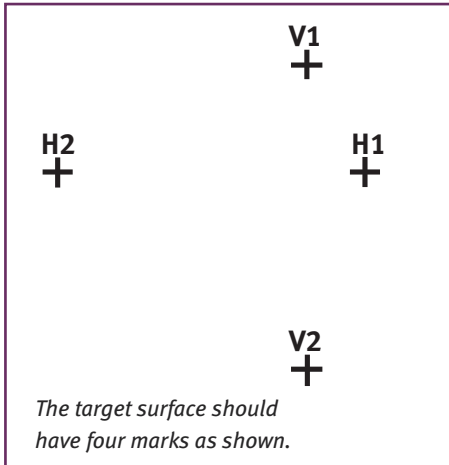
CALIBRATING THE SLST LASER MODULE

Careful calibration of the laser is required as small errors multiply to produce large errors over distance. Use the following procedure to calibrate the laser.

The Sender Unit must be placed in a position where it is registered vertically and horizontally – e.g. on a solid table with a block clamped to it as a side fence. The laser output beam should be aimed at a vertical surface at least 20m distant from the Sender Unit.

Switch on the laser and note where the laser dot falls on the vertical target surface. Make a mark on the surface at the centre of the laser dot.

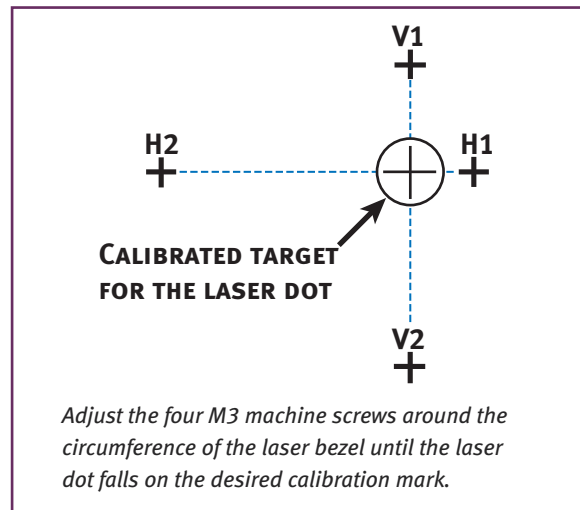
Rotate the Sender Unit 180° around the axis of the laser output beam. Ensure that the Sender Unit is firmly registered against the fence and observe the new position of the laser dot. Make a second mark at the centre of the dot and make sure that the two marks are identified for vertical orientation.



Turn the Sender Unit through 90° and repeat the process, identifying the two laser dots marks for horizontal orientation. After following this procedure the target surface should have four marks as shown in the diagram at left.

Connect the marks V1 and V2 with a line and similarly the pair of marks H1 and H2. The point where the two lines coincide is the desired calibrated target point for the laser dot. Make a clear mark on the target surface at this point.

With the Sender Unit firmly registered against the fence adjust the four M3 machine screws around the circumference of the laser bezel until the laser dot falls on the desired calibration mark. The adjustment is quite sensitive and more so the further the target surface is from the Sender Unit. Make only small adjustments to each of the screws and make sure that the screws are not tightened completely.



When the calibration is completed place a drop of thread lock on each of the screw heads.

When the calibration is completed place a drop of thread lock on each of the screw heads and label the sender unit as having been calibrated with the date and name of the person doing the work.

SSE PROSIGHT IS AN INTEGRATED PART OF YOUR RIGGING SYSTEM AND SHOULD BE REGARDED WITH THE SAME RESPECT AS ANY OTHER RIGGING COMPONENT. IT HAS THE ADDED ISSUE OF THE HIGH BRIGHTNESS LASER THAT REQUIRES ADDITIONAL SAFETY CONSIDERATIONS. PLEASE GIVE CAREFUL ATTENTION TO THE FOLLOWING SAFETY WARNINGS PANEL ON THE FOLLOWING PAGE BEFORE USING YOUR PROSIGHT INCLINOMETER SYSTEM.



**MOST IMPORTANT –
SAFETY PRECAUTIONS WHEN USING LASER EQUIPMENT.**

- **CAUTION** – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- **NEVER** look directly into the laser, even when it is switched off, as someone may activate it without warning you.
- **WARN** others in the venue that you are going to use a laser and move them away from the target area before activating the ProSight. Ensure that others do not enter the target area of the laser whilst it is in use and ensure that the meter unit is to hand at all times so that the beam can be switched off immediately if necessary.
- Use the laser for the minimum amount of time and switch off as soon as the measurement is complete. Disconnect the cable from the Meter Unit as soon as possible and **ALWAYS** ensure that the Meter Unit is disconnected when the public have access to the venue.
- **NEVER** use the laser in any other application than it is designed. **DO NOT** operate the laser when hand holding the Meter Unit. There are serious penalties for using a laser in any manner that may cause accident or injury. Particularly it is very dangerous to point the laser at vehicles or aircraft.
- Carry out alignment procedures and other adjustments and alterations, which may give rise to unexpected beam paths or reflections, with the laser switched off. Avoid leaving the laser turned on whilst unattended.
- **IMPORTANT** – Your ProSight system is shipped with the following labels, please **DO NOT** remove under any circumstances. They are affixed as shown on the SLST unit.



This label should be affixed next to the Aperture at the end of the unit.



This label should be affixed next to the XLR connector at the end of the unit.



This label should be affixed next to the laser aperture at the end of the unit.



This label should be affixed next to the XLR connector at the end of the unit.

LASER SPECIFICATION

Wavelength 532nm
 Max power 5mW
 Class 3R laser product to IEC/EN 60825-1 (2001)

PLEASE ALSO ENSURE THAT THE FOLLOWING LABEL REMAINS AFFIXED TO THE SLST UNIT



OTHER IMPORTANT SAFETY ISSUES:

- The Sender Unit must be safely attached to the loudspeaker array structure when used above 2m from ground level. **DO NOT** fix the Sender Unit with tape or Velcro. Always ensure that a suitable mounting fixture is used.
- The use of ProSight does not preclude the obligation to follow normal rigging safety procedures.
- Be aware that any object left on the top of a PA system during installation may fall when the system is operated. Always check that all accessories are secured before final hoisting.
- When making adjustments to the PA system with motor hoists watch the hoist – not the Meter Unit! Check the measurement only when you are satisfied that the hoist has finished moving safely.
- When using the Meter Unit be aware of other rigging operations around you. Always follow the appropriate safety procedures for the site (including wearing the appropriate protective clothing and headgear).
- Always store the meter unit and the cable properly after use to prevent trip hazards or damage.
- ProSight components are not waterproof but are shower resistant. All brackets offer suitable protection from precipitation. When mounted into a Nexo GeoT bumper, the frame will act as an umbrella and offer weather protection to SLST Module. Always take care when using ProSight outdoors.
- As with any component of flown loudspeaker arrays, regular safety inspections are obligatory.