

**HCC V1**

**Use the HCC Haglöf Clinometer Compass to measure horizontal and vertical angles. With the built-in compass, the HCC also works great for site survey in satellite installation.**

**The HCC instrument is rugged and durable, yet small enough to fit in your pocket. The HCC features azimuth compass 0 - 360° graduated in 1° increments and accuracy to 2.5°. The clinometers measures -55° to +85°, it is graduated in 0.1° increments with accuracy to 0.2°. The instrument operates with one button, has magnetic declination and is easy to calibrate.**

The HCC Clinometer Compass has an adjustable correction of local discrepancies as well as built-in digital functions that will adjust the compass if not held horizontally.

- Maintain accuracy by adjusting declination to match your area.

## HOW TO USE

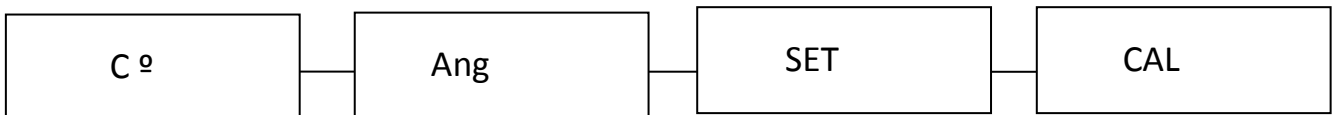
Both eyes should be used and kept open when working with the HCC. Use one eye to read from the display and as guidance when aiming. The other eye is kept open and used to sight the target. This may feel awkward in the beginning, but is usually no problem after only a few minutes of practice.



## FUNCTIONS

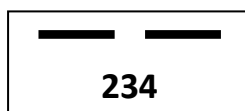
Choose function by pressing the button the required number of times according to the diagram below:

1time	C °	Compass (0..359degrees)
2times	Ang	Angle measuring (-55.0..+85.0)
3times	SET	Settings of local deviations
4times	CAL	Calibration of compass



## START THE HCC INSTRUMENT

Press the button one (1) time. The compass aim is displayed. Use the two horizontal lines in the display as your aim.



Attempt to hold the instrument horizontally when measuring. The HCC will compensate the compass angle if tilting to any direction up to +-10 degrees; however, the steadier the instrument is held, the better the function.

The measuring operation is terminated with a short press on the button.

**NOTE!** If you wish to proceed to measure a vertical angle after having stated the compass aim, terminate the measuring operation with one (1) long press on the button. The Vertical angle is displayed, see menu **Ang**.

## THE BATTERY

The HCC instrument uses one (1) standard AA (LR6) battery. A warning will appear in the display when the power goes below 1.0V. A text message appears as (BA<sub>t</sub>) during a short time when starting the instrument.

'C 0' (COMPASS)

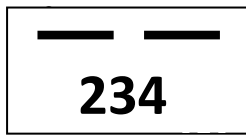
**The compass needs to be calibrated before it is used.** Calibration is made in the menu CAL. It is also necessary to adjust the difference between true (geographic) north and magnetic north in the **SET** menu.

Metal framed glasses can cause disturbances in the compass function. If you are wearing metal framed glasses, calibrate the instrument with the glasses on (see **CAL** below).

**Note** that surrounding magnetic fields can cause disturbances in the built-in compass, as with regular compasses.

- Important! All compasses use and are affected by the Earth's magnetic fields
- All compasses are sensitive to disturbances in the surroundings caused by for example the following: metals, household appliances, computers, high voltage power lines, etc.

Push the button one time. The bearing is displayed. Use the two linear lines in the display as your aim.



Hold the instrument vertically when measuring! The built-in compass will otherwise show an inaccurate value. If leaning the instrument, an image/ message will be displayed urging you to correct the position.



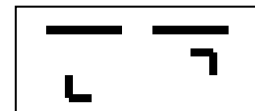
Tilt the HCC upwards!



Tilt the HCC downwards!



Turn the HCC clockwise!



Turn the HCC anti-clockwise!

Finish measuring by giving a short press on the button one time.

- If you from compass bearing want to proceed to measure a vertical angle, you can finish the measuring with a long press at the button instead. The vertical angle will be displayed, see menu **Ang**.

## 'ANG' (ANGLE MEASURING)

Press the button two (2) times. The current angle is displayed. Aim with the vertical lines in the display. Finish measuring by giving a short press on the button.

It is important not to tilt the instrument sideways when measuring vertical angles to avoid getting inaccurate values of inclination. The HCC Instrument will encourage the operator to correct position with the following display image/message:



Turn the HCC clockwise!



Turn the HCC anti-clockwise!

## 'SET' (COMPASS SETTINGS)

**Deviations will vary.** To compensate for the deviation at a given time and place, it is important to consider the position/place you are actually at when measuring. Note that the deviation can vary from time to time at the same place.

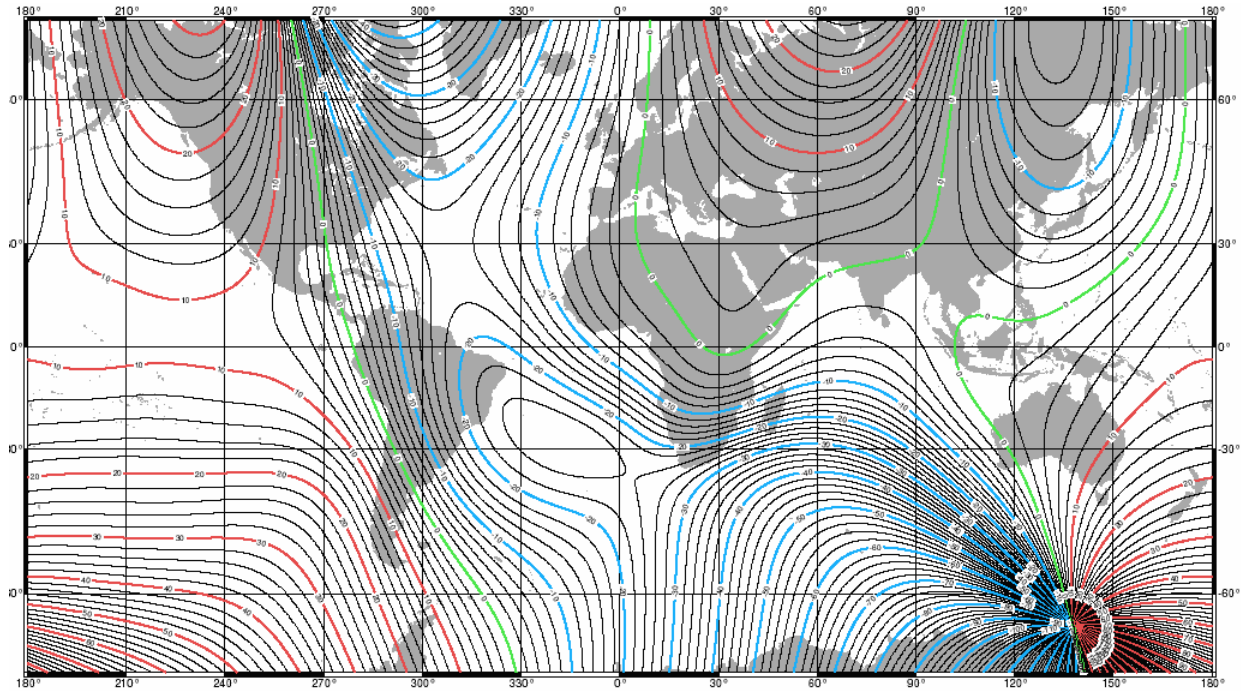
Choose **SEt** to set the current deviation for the position you are at, between true north and magnetic north. The HCC instrument will automatically adjust the measured compass angle with the set deviation.

Activate the **SEt** menu by pressing the button three (3) times. Enter the deviation by holding the button depressed (down) and tilting the instrument up or down. Release the button when the correct value is displayed.

- If the angle is insufficient to obtain the correct desired value, simply release the button and start over. By repeating the operation, a deviation between  $-45^{\circ}$  and  $45^{\circ}$  can be set and obtained.

To leave (terminate) the settings adjustment, briefly press the button one (1) time. The instrument will maintain the last input values even after removing the battery.

Example: Without compensating for deviations when in Stockholm, the compass will show  $0^{\circ}$  to magnetic north. Since the deviation is  $2^{\circ}$  degrees to true (geographical) north, this value ( $2^{\circ}$ ) should be set in the settings (**SEt**) menu. The compass will display the correct  $2^{\circ}$ .



**Deviations in some larger cities:**

Anchorage	22°
Atlanta	-4°
Bombay	-1°
Boston	-16°
London	-4°
Little Rock	3°
Livingston, MT	14°
Munich	1°
New York City	-14°
Orlando	-5°
Oslo	-2°
Paris	-2°
Calgary	-18°
Chicago	-3°
Denver	10°
Jerusalem	3°
Rio de Janeiro	-21°
San Francisco	15°
Seattle	19°
Shanghai	-5°
Toronto	-11°
Vancouver	-20°
Washington DC	-10°
Waterbury, CT	-14°
Stockholm	2°

**'CAL' (CALIBRATE)**

The HCC compass should always be calibrated after a battery change. Calibration should also be made if the battery is removed and put into place again or if the battery position has been changed.

Calibration is made in the **CAL** menu. Press the button four (4) times to activate the calibration function. During the following 10-20 sec's, the instrument should be rotated at least 1-2 times/turns, preferably on a flat surface,

**free from magnetic objects.** You can also, while holding and aiming with the instrument, turn around in a full circle, 1 – 2 times/turns. This method is preferred if the operator is wearing metal framed glasses.

Leave (terminate) the calibration function after having rotated at least 1-2 times/turns, with a short press on the button. Always remember to maintain the HCC instrument steady and flat while calibrating. If not, the built-in compass will show incorrect values.

While calibrating, the instrument will display the time that has passed since initiating the calibration operation (max. time 20 sec's). **NOTE!** Always test the compass function in at least four (4) directions after calibration!

#### TECHNICAL SPECIFICATION HCC CLINOMETER COMPASS

Vertical angle	-55.0 to 85 degrees
Resolution	0.1 degrees
Accuracy	0.2 degrees
Horizontal angle	0 to 359 degrees (0degrees=North)
Resolution	1 degree
Accuracy	2.5 degrees
Battery	1.5V AA

#### DECLARATION OF CONFORMITY

According to the EMC Directive with amendment 92/31/EEC, Low Voltage Directive 73/23/EEC and CE Marking Directive 93/68/EEC. Type of equipment Clinometer. Brand name or trade mark Haglöf

Manufacturer's name, address, telephone & fax no

Haglöf Sweden AB, Klockargatan 8, SE-882 30 Långsele, Sweden

Tel: +46 620-25580, Fax: +46 620-20581, [info@haglofsweden.com](mailto:info@haglofsweden.com); [www.haglofsweden.com](http://www.haglofsweden.com)

The following standards and/or technical specifications, which comply with good engineering practice in safety matters in force within the EEA, have been applied:

**Test report/ technical construction file/normative document**

Ref.no 03087/Issued by Haglöf Sweden AB.Standards EMC Emission EN61000-6-3: 2001, EN 55022 Class B

EMC Immunity EN61000-6-2: 2001, EN 6100-4-2, -3. The HEC Product was CE marked 2003

As manufacturer established within EEA, we declare under our sole responsibility that the equipment follows the provisions of the Directives stated above.

## WARRANTY AND SERVICE INFORMATION

Haglöf Sweden AB warrants that this product shall be free from defects in materials and workmanship, under normal intended use, for a period of 12 months after date of shipment. The warranty excludes the battery, the accessories and any written materials. The warranty does not apply if the product has been improperly installed, improperly calibrated or operated in a manner not in accordance with the user guide. Warranty is also automatically expired if the product has been opposed to external force and warranty is not applicable for cosmetic defects. The one-year limited warranty time covers obvious fabrication defects. Defects in the electronic components that are impossible for the manufacturer to detect prior to assembling and shipping of the product may occur. Haglöf Sweden AB can in no case be responsible for problems of this nature and has no liability for any loss of business, profits, savings, consequential damages or other damages resulting from use of the products described. Signs of misuse, cosmetic damage, accidents or equal automatically withdraw the warranty. The warranty is valid in the country where your Haglöf product has been purchased. A product covered by warranty will be object to exchange, service, and repair or according to special agreement between seller and buyer, within the frames of the limited warranty. Haglöf Sweden reserves the right to determine which option will be most suitable for each separate case after having examined and evaluated the product.

### IMPORTANT ISSUES:

- For a valid warranty, a copy of invoice or dated receipt of your purchase must be presented. The serial number of the returned product has to be clearly stated upon return. Go to <http://www.haglofsweden.com/PDF/HaglofRMA.pdf> for return form/turn to your supplier for assistance.
- The return freight to us is on buyer's expense. After warranty repair or exchange, the return freight to you is on our expense. If warranty has expired or is null and void, all freights are on buyer's expense.
- If no original invoice can be presented upon shipment, or if two years have passed from date of purchase, a customs fee will be added by the applicable customs authorities and possibly in receiving country as well. These fees are on buyers account.
- We perform repair and service of products where warranty has expired when possible. Cost estimation will be sent to you after evaluating the returned product for cost approval. Please also see above paragraph on customs fees.
- Please do not hesitate to contact us or any Haglöf Sweden AB representative for questions or comments!
- Any signs of misuse or negligence automatically withdraw our warranty commitments.

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## HAGLÖF SWEDEN'S PROFESSIONAL CLINOMETERS FEATURE

- **Reliable results**
- **Low battery consumption**
- **Uses regular 1.5V AA batteries for function**
- **Backlit display for easy reading**
- **Electronic results for improved accuracy**
- **One year full factory warranty**
- **Quality manufacturing**
- **Made in Sweden**

*MORE MODELS AND VARIANTS IN OUR ELECTRONIC CLINOMETER RANGE! CHOOSE THE MODEL THAT FITS YOUR MEASURING NEEDS AND EXPERIENCE THE DIFFERENCE WITH DIGITAL MEASURING RESULTS!*



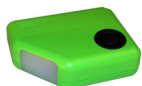
**The EC II** is an easy to use field instrument that offers accurate measuring results on inclination and heights of objects, usually trees. Heights are measured from any known distance. With electronic presentation of precision results, the EC II will serve you well for a long time, always giving accurate measurements without calibration or maintenance.



**The C I** is the ideal instrument when you wish to measure slopes and inclination of trees, buildings, walls, tunnels, roads and more. Various field professionals will appreciate the simplicity and accuracy of the C I.



**The HEC-R** offers accurate height results from any known distance. Use the built-in basal area functions to count number of stems in your HEC-R, using one out of four basal area factors (0.5,1,2,4 or 5,10,20,40). The HEC-R will automatically display a calculation of the basal area. One dominant tree height will be used to calculate volume/ha. Measure in m/deg; m/% or ft/deg, ft/% (factory set).



**The HCH Compass with Height function** has the potential to become your next favorite forest instrument: small, accurate, fast, easy to use and giving measuring results of inclination and heights measured from any optional distance and placing in relation to the object's position in the field - and including a built-in azimuth compass 0-360° graduated in 1° increments, and accuracy to 2.5°. Ideal when building roads and power lines, demarcation of forest properties etc. Single button operation where the user can switch from compass to clinometer with one push. Built-in magnetic declination and easy calibration.



**The HCC Haglöf Clinometer Compass** is an inclinometer and a compass. Use the HCC to measure horizontal and vertical angles. This together with the compass makes the HCC *great for site survey in satellite installation*. Features azimuth compass 0-360° graduated in 1° increments, and accuracy to 2.5°. Clinometer measures -55° to +85°, graduated in 0.1° increments with accuracy to 0.2°. The user can switch from compass to clinometer with one push. Built-in magnetic declination and easy calibration. The HCC Clinometer Compass measures in degrees.

