COMPASS MANUAL
MIRROR SIGHTING COMPASSES

HOW TO NAVIGATE

ORIENTING THE MAP TO NORTH
The easiest way to use a map and compass together is to orient the map towards North. Simply align the map meridians with the compass needle so that "up" on the map is pointing North. Now everything on the map is in the same direction as on the ground. When travelling along your route, remember to keep the map oriented at all times. By doing this it will be very easy to follow your route since turning right on the map also means turning right on the ground! Properly orienting the map is quick, easy and the best way to avoid unnecessary mistakes during your trip!

EASY AS 1-2-3
THE SILVA 1-2-3 SYSTEM

1-2-3
Place your compass on the map and use the baseline to make a straight line between your current position and your destination. Make sure the part with the mirror points towards your destination.

1-2-3
Turn the compass housing until the red part of the north/south arrow is parallel with the map meridians and points north on the map.

1-2-3
Lift your compass from the map and hold it horizontally in your hand. Turn yourself and the compass until the red end of the needle is inside the red north/south arrow. Now the direction of travel arrow will point towards your destination. Take a landmark and start moving.

When using a mirror sighting compass, hold the compass with the mirror tilted to a 45° angle, so that you can check your direction by looking at the base in the mirror while sighting in the correct direction of travel.

MAGNETIC DECLINATION
When compass and map are used together it’s important to know the local magnetic declination and how to compensate for it. Magnetic declination is the difference between Geographic North/True North (where the map meridians point) and Magnetic North (where the North end of the compass needle points). In areas with significant declination, adjustments must be made to walk a correct bearing. Information concerning the amount and direction of magnetic declination is shown on topographical maps with a diagram. Use an up-to-date map for current declination.

Declination can be handled either with a fixed declination scale or declination adjustment in the compass capsule. Read more further down in this manual.

BEFORE HEADING OUT
• Always check that your compass is functioning properly before heading out.
• Never expose your compass to extreme temperatures (high or low) or to magnetic fields such as knives, mobile phones, radio speakers, magnets etc. Such exposure can cause permanent damage to the compass.

MIRROR SIGHTING COMPASSES

The mirror compass features a mirror that allows you to view the compass dial and the background at the same time. The fact that the compass dial can be seen at the same time the reference point is aligned makes mirror compasses more desirable for taking accurate bearings.

A mirror-sighting compass is at its best in open terrain where you must determine direction over long distances. Because you needn’t lift your eyes from the compass in order to look into the terrain, the direction determined with the Silva 1-2-3 System becomes more accurate.

BASIC COMPASS FEATURES

1 BASEPLATE
2 LIQUID FILLED CAPSULE
3 CLINOMETER *
4 DECLINATION SCALE (FIXED)
5 DECLINATION ADJUSTMENT *
6 COMPASS NEEDLE
7 TURNABLE COMPASS HOUSING
8 GRADUATION RING / GRADUATION SCALE
9 ORIENTING LINES / ORIENTING ARROW
10 SCALES
11 INDEX LINE
12 MAGNIFYING LENS *
13 LUMINOUS MARKINGS/RING *
14 RUBBER FRICITION FEET *
15 SIGHTING MIRROR
16 SIGHTING CROSS
17 SIGHT

* Features may vary between different compass models
COMPASS NEEDLE

Swedish high quality, stainless steel, magnetic needle. The combination of a sapphire jewel bearing and a hardened steel pivot minimises friction, which in turn gives good and accurate movements. Magnetic North direction accuracy 1 degree.

The red end points to magnetic north!

TURNABLE COMPASS HOUSING (BEZEL)

Use the turnable compass housing to set your bearing or when navigating with the SILVA 1-2-3 system. Some of our compasses are equipped with a rubber, tactile grip ring to make the housing easier to adjust.

GRADUATION RING / GRADUATION SCALE

The angle between true North and the direction of travel is called bearing (the direction from where you are, to where you want to go). The value of this angle can be read directly off the scale on the graduation ring. Our compasses have either a graduation scale divided into 360 degrees or 6400 mils. The graduation ring is also marked with the cardinal points (N-S-E-W) on some models.

ORIENTING LINES/ORIENTING ARROW (NORTH ARROW)

All our outdoor compasses have red/black north-south lines and arrow on the capsule bottom ensure easy and safe setting. The lines and arrow are fixed within the compass housing, aligned to north on the graduation ring and designed to be aligned with the map meridians. Half the lines/arrow are coloured red to indicate north. The lines are used to align the compass housing with the map in step 2, when navigating with the Silva 1-2-3 system.

SCALES

On the baseplate you'll find scales for measuring distances etc. on a map. The type and number of scales varies between each SILVA compass model. The scales and prints on most SILVA compasses are "hot stamped" to ensure extra durability.

MAP MEASURING SCALES

A map is a reduced picture of the terrain. The determined proportion between the distances on the map and the corresponding distance on the ground is called a map scale. To obtain the corresponding distance in the field, the distance on the map must be multiplied by the divider of the scale. The most common scales are 1:10 000, 1:15 000, 1:25 000 and 1:50 000. For example, the scale 1:10 000 means that 1 cm on the map corresponds to 100 cm or 100m in the terrain.

RULER

The map scale is 1:50 000, and your compass has the corresponding map measuring scale, use this to measure distance.

If your compass lacks the corresponding map measuring scale, use the regular Metric or Imperial Ruler found on the edge of the baseplate.

Example: If the map scale is 1:50 000, then 1 mm on the map = 50 cm in the terrain.

Example: If the map scale is 1:24 000, then 1 inch on the map = 24000 inches (2,000 feet) in the terrain.

INDEX LINE

The index line is fixed beneath, or at the outer edge of the graduation scale as an extension of the sighting cross and sight. It marks the bearing you set by rotating the compass housing.

If you rotate the graduation ring to line-up the red north end of the compass needle to the North arrow, a bearing can be taken from the graduation scale at the index line.

MAGNIFYING LENS

Built in magnifier for detailed map reading.

LUMINOUS MARKINGS/RING

Our compasses have luminous markings and/or graduation ring for compass reading in the dark. Once activated by daylight/flashlight they will give light up to 4 hours of light. The markings are commonly placed at the North arrow, the index line, the sight and north part/pivot of the compass needle.

RUBBER FRICTION FEET

Silicon rubber friction feet for precision map work. Placed at the bottom side of the baseplate.

SIGHTING MIRROR

Using a Sighting compass increases the accuracy in the compass field work. The mirror enables the user to simultaneously sight the terrain in the field while checking that the compass needle is aligned with the North arrow in the compass housing. A mirror-sighting compass is at its best in open terrain where you must determine direction over long distances. Because you don't lift your eyes from the compass in order to look into the terrain, the direction determined with the Silva 1-2-3 System® becomes more accurate.

When using a sighting compass with a mirror, hold the compass at eye level with the mirror tilted to a 45° angle (the horizontal part of the sighting cross shall align with the center of the compass housing). Now you can check your direction by looking at the bezel in the mirror while sighting in the correct direction of travel at the sighting cross and sight.

SIGHTING CROSS

The vertical part of the sighting cross shows the direction that you want to travel along or the bearing you are taking. It is aligned with the index line and the sight. The horizontal part helps you setting the mirror at a correct angle.

SIGHT

See 15. Sighting mirror.
**SCALE LANYARD**
The scale lanyard makes it easier to quickly make a distance judgement of your route or to plan your route in advance. The distance lanyard has 2-4 scales on it: 1:24 000, 1:25 000, 1:50 000, and 1:62 500, which facilitates to measure the distance of your hike. Since the lanyard is soft and bendable it’s easy to place it directly on to your route on the map. The lanyard has a safety release that opens if the lanyard gets stuck. For compasses that have declination adjustment, simply use the screwdriver in the lanyard’s safety release to make the adjustment. Pull the safety release apart and use the screwdriver to turn the screw on the bezel.

**SLOPE CARD**
The slope card is great both for detecting avalanche risk and for determining how challenging your journey will be. By knowing the slope you can also judge any extra distance that you need to go due to the slope.

*Left side* is for the following map scales:
- 1:25k, Contour Interval 5
- 1:50k, Contour Interval 10
- 1:100k, Contour Interval 20
- 1:24k, Contour Interval 20 (US version)

*Right side* is for map scale:
- 1:25k, Contour Interval 10
- 1:24k, Contour Interval 40 (US version)

Contour interval is the number of contours in between the index contours (thicker contour lines on the map)

The centre of the slope card gives you information on the extra distance you need to walk per 100 meter (yards, US version) at that specific angle. For example when walking a slope with an angle of 45 degrees you need to walk an extra 41m (yd) per 100 meters (yards).

How slope card is used:
Determine map scale and contour interval that is written on the map
Determine the angle that matches the index contours (thicker contour lines). This will give you the actual angle on that specific place on the map. If the map are missing index contours you can measure between the individual contours. This measurement is not as exact.

By matching the map index contour or contour lines with the lines on the card, the slope angle can be determined. Below example shows matching of the index contour lines.

**SILVA GLOBAL COMPASSES**
Some of our most popular compasses have now been equipped with a global needle that can be used in all three magnetic zones.
The global needle makes the compass flexible and possible to use all around the world. Read more at www.silva.se.

**TAKE CARE OF YOUR COMPASS**
A SILVA compass will, if treated carefully, be a navigation partner for many, many years. Always check that your compass is functioning properly before heading out.
- Never expose your compass to extreme temperatures (high or low) – this can deform the plastics with a leaking compass capsule as a result.
- Avoid dropping the compasses on hard surfaces and handle it with care.
- Don’t store or place the compass close to strong magnetic fields such as knives, mobile phones, radio speakers, magnets etc. This can cause reversed polarity of the compass needle which will result in it pointing south instead of north.

**WARRANTY**
SILVA warrants that, for a period of five (5) years, your SILVA product will be substantially free of defects in materials and workmanship under normal use. SILVA’s liability under this warranty is limited to repairing or replacing the product. This limited warranty extends only to the original purchaser. If the product proves defective during the warranty period please contact the original place of purchase. Make sure to have your proof of purchase on hand when returning the product. Returns cannot be processed without the original proof of purchase. This warranty does not apply if the product has been altered, not been installed, operated, repaired, or maintained in accordance with instructions supplied by SILVA, or has been subjected to abnormal physical or electrical stress, misuse, negligence or accident. Neither does the warranty cover normal wear and tear. SILVA is not responsible for any consequences, direct or indirect, or damage resultant from use of this product. In no event will SILVAs liability exceed the amount paid by you for the product. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This Warranty is valid and may be processed only in the country of purchase.