Installation & Operation Manual

Overhead Compass/180…/160 with Reflection Mirror or Direct Reading

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The magnetic Overhead Compass/180 with 180 mm card diameter (No. 32005, 32006) and Overhead Compass/160 with 160 mm card diameter (No. 33005, 33006) are to be installed below the wheelhouse roof. This grants a satisfactory distance to any interfering magnetic source located within the bridge desk. Usually the compass will be delivered with longitudinal gimbal suspension. On demand a cross gimbal suspension is available.
This compass is an A-class compass. The permitted region of voyage will be determined by the responsible maritime authority.

Range of Delivery

Externally gimbaled flat top compass with mirror arrangement and lens from below (only for #32005 & 33005). The mirror is a white mirror from one side and a black mirror for readings at night from the rear. The direct reading types (#32006 & #33006) do not at all have a mirror arrangement. Electrical Illumination: 24 VDC.

Additional Accessories

- Mounting brackets (#10292): one pair.
- B+C-corrector device (#18100): three wooden magazines (300x215x30 mm) with 4 magnets (at delivery inserted in one magazine).
- D-Mu-correctors (#12200): Centre pivot glued to the cover glass above or below of the compass. 2x4 weak iron µ-sheets are at delivery separate attached.
- Heeling corrector (#12800k): Magnet tube fixed at a circular plate. Magnet inserted in magnet tube.
- Illumination dimmer 24 VDC (#203304).

A description how to use these accessories is attached at delivery.

Compass Location, Possible Deflections of Heading Indication

We recommend to choose the compass location in accordance with suggestions of the responsible maritime authority. Generally choose a place to minimize any magnetic interference. Refer to IMO 382 (X) rules. Possible sources of disturbing magnetic fields are: iron bulkhead walls, beams, masts and so on or any electric/electronic instruments like: Radar, loudspeakers, electro motors... The disturbing influence of fix installed iron objects can be corrected or adjusted as far as the deflection is not too large. Therefore the maritime authority recommends necessary iron free zones to be understood as radius around the compass. Variable magnetic fields which are caused by electric/electronic devices are impossible to correct. The only way is to keep a suitable distance. For each instrument used for professional navigation the so called magnetic safe distance is measured by the authority. The instrument has to be marked with. Keep this distance.
Although if all these precautions are fullfilled the compass will be deflected practically. Therefore a correction/adjustment is necessary. The ship owner has to call a professional compass adjuster who is authorized by the maritime authority to do this job.
One has to consider the following components of the ship´s disturbing field:

1. Longitudinal and cross: corrected by use of the B and C-correctors (#18100)
2. Vertical: corrected by use of the heeling magnets (#12800k).
3. Weak iron field: corrected by use of the D-magnets (#12200).

The reading mirror of the reflection type or the scale of the direct view type has to be at a maximum distance of 1 m to the helmsman. The illumination dimmer must be comfortably accessible from the steering position.

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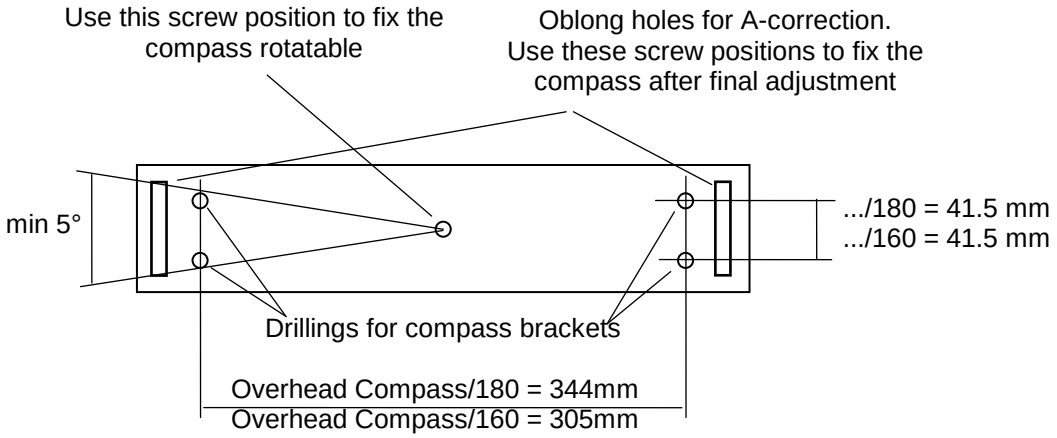
Installation

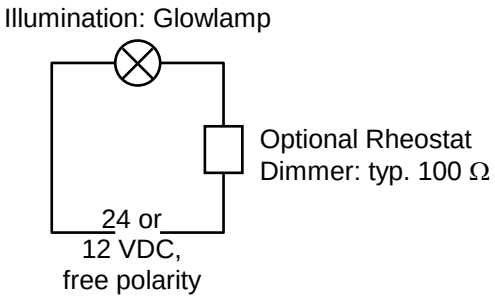
The mounting brackets have to be fixed on a cross beam which should be rotatable around the central vertical axis for A-adjustment. For dimensions refer to the following drawing.



In case of cross ship gimbaled compass the mounting beam must be cross ship orientated, if logitudinal gimbaled compass the beam must be longitudinal orientated.
The adjustment angle of not less than 5° is for A-error or alignment correction. Use the oblong holes to arrest the mounting beam at a certain position after adjustment. For installation use only non-magnetic materials. Ahead direction of the compass is marked.

Illumination

The illumination element is fixed by a bracket on top the compass. For removal of the element lift the bracket. Connection can be made independent of polarity of the battery. Use 24 or 12 VDC supply voltage. The 24 VDC element can be identified by a red marking at the cap. A rheostat dimmer can connected to the „+“ as well as to the „-“ wire of the illumination element.



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Reading of the Heading

The heading will be read at the ahead lubber mark.
Reflection type compass:
Rotate the reflection mirror according to height of eyes. For magnification of the picture an optical lens was interposed. Most comfortable reading will be granted by similar brightness of the compass card and environment. Adjust the illumination dimmer accordingly. At night use the black mirror. The optimal view angle of the reflection type compass is between 10° … 30° to horizontal.
Direct reading type compass:
The optimal view angle of the direct view type compass is between 30° … 80° to horizontal.

Maintenance, Routine Service

From time to time lens and mirrors has to be cleaned using a non scratching cloth. The gimbal suspension should easily swing, use non-acid and resin-free oil for the bearings only. Remove the illumination element is already glued to the above cover glass of the compass. The directional system of the compass rests on a very sharp tip upon the pivot to minimize friction. Not only in case of strong vibrations this tip works out in a certain time and the pivot has to be replaced by a new one. Therefore some maritime authorities request for routine compass service within certain periods of time to grant reliable function.

Functional Failures

If functional error of the compass are discovered a qualified compass workshop has to be instructed for repair. Failures are: bubble in the liquid, tilted directional system, sluggish movement of the card assembly.....

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