

# SKIPPER

## DGR360

### Digital Gyro Repeater

### Operating & Installation Manual



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# Introduction

- DGR360 is a digital gyro repeater that displays the heading angle in the LED segment display and indicates the rate of turn (ROT) with 30 dual-colour surrounding LEDs. The DGR360 will display heading angle given by the THS, HDT or HDM message from a gyro or other equipment (NMEA 0183) and indicate ROT by calculating change in heading based on the THS, HDT or HDM input and the time between each message.
- The dimming may be controlled by pressing the dimming key or by using an external dimming key.



Figure 1: Operation Panel

# Operation

- **System On/Off:** Push the  On/Off button to switch the repeater on and off.
- **Dimming key:** Push the  (Dimming key) button to adjust the brightness among 8 dimming levels.
- The LED displays the heading angle between 0.0° and 359.9°.
- When the heading angle increases (turn starboard), the turning indicators are green. When the heading angle decreases (turn port), the turning indicators are red.
- The repeater may receive THS, HDT, and HDM messages from more than one source. The unit will choose the THS, HDT or HDM message from the source with best accuracy. The source identities are prioritized in the following order (high-to-low): "\$HETHS", "\$HEHDT", "\$GPTHS", "\$GPHDT", "\$HCTHS", "\$HCHDT", "\$??THS", "\$??HDT", "\$HEHDM", "\$GPHDM", "\$HCHDM", "\$??HDM". Prioritizing between the messages are done continually and the LED will display "HE T", "HE H", "GP T", "GP H", "HC T", "HC H", "?? T", "?? H", "HE C", "GP C", "HC C" or "?? C" for a few seconds when the priority is set or changed.
- In order to ensure displaying a heading angle from a specific source, all other sources should be removed from the input line.
- The LEDs will display "ERR" when the repeater do not receive any signal or if the signal is not recognized as a NMEA message.
- The LED will display " ." when the repeater receives THS, HDT or HDM message with empty value field.
- The LED will display "- - - -" when the repeater receives THS, HDT or HDM message with incorrect data.
- The LED will display " \_ \_ \_ \_" when the repeater only receives other NMEA messages than THS, HDT and HDM.
- DGR360 can distinguish and receive baud rates of 4800, 9600, 19200 and 38400 automatically.
- Presentation of heading angle and turn indication will be affected by the refresh rate of the THS, HDT and HDM signal. Low refresh rate may result in latency compared with real movements.

## NMEA Input (Ref: IEC 61162)

\$--HDT,x.x,T\*hh<CR><LF> Heading, degrees True

\$--THS,x.x,A\*hh<CR><LF> Heading, degrees True

\$--HDM,x.x,M\*hh<CR><LF> Heading, degrees Magnetic

## Connection

Connecting	
Colour	Signal
1 Red	+24V
2 Black	-24V
3 Blue	NMEA In+
4 White	NMEA In/Out-
5 Orange	NMEA Out+
6 Green	Dim+
7 Yellow	Dim-
8 Grey	Dim key
9 Shield	Gnd

**Figure 2: Cable connections**

## Specifications

Measurement	L: 220 mm, W: 170 mm, H: 63 mm
Weight	About 2 kg
Voltage	24 V DC (20-32 V DC)
Power consumption	2 W (24 V DC)
Compass safe distance	85 cm

### Environmental (according to IEC 60945 for exposed equipment)

Operating temperature	-15°C - +55°C
Storage temperature	-25°C - +70°C
Humidity	10 % - 90 % relative humidity
Protection	IP 56

**Note:** Operating temperature in the range 0 - 40°C is recommended and will increase overall lifetime of the product.

## User Maintenance

The repeater is virtually maintenance free, but occasionally cleaning may be necessary depending on the installation. Please use a soft cloth and only mild cleaning chemicals.

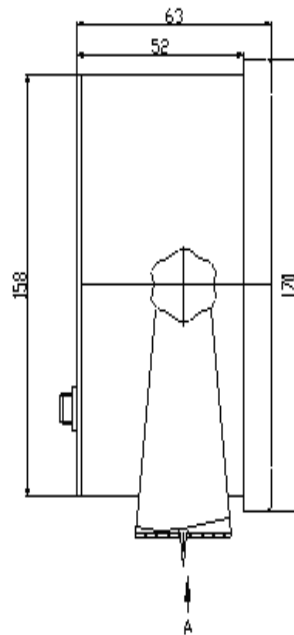
## Service

All service requests should be made to your local representative or to the manufacturer. (Contact information on title page). Adjustments and repairs should only be performed by qualified service engineers. Unqualified repair attempts will void the warranty.

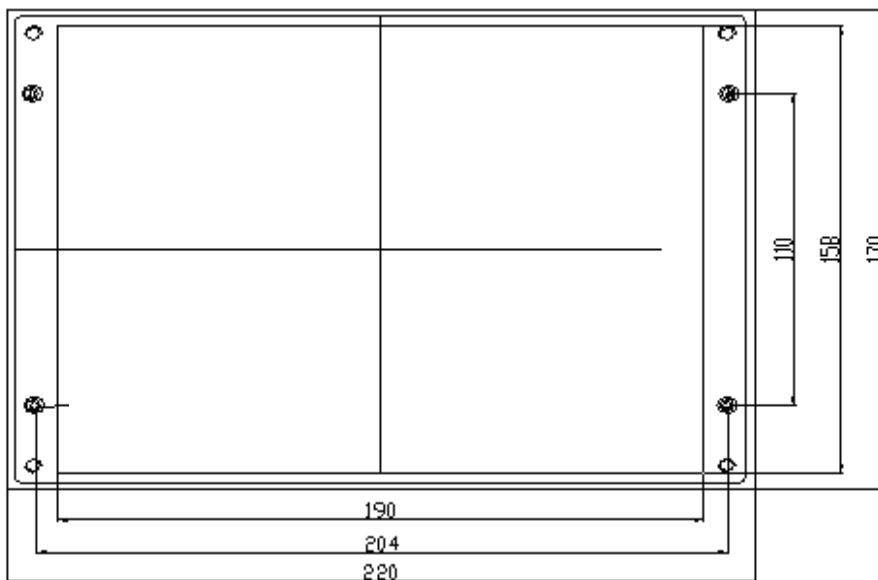
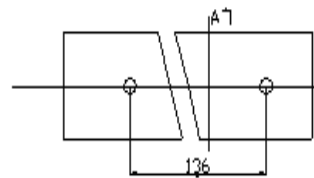
# Installation

The unit can be mounted in panel on table, wall or ceiling.

- For table, wall or ceiling mounting, use the supplied bracket.
- If panel mount, take off the bracket and take off the front frame. Cut a square window in the panel according to cut out drawing. Fix the inside 4 holes with screws, and put on the front frame again.



**Figure 3: Mounted on table**



**Note:** When mounted in a panel, we advise the size of the hole to be 160 mm x 192 mm.

**Figure 4: Mounted in panel**

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