SKIPPER DGR360

Digital Gyro Repeater
Operating & Installation Manual

Edition 20090825sw2.16

SKIPPER

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 HDT message from a gyro or other equipment (NMEA 0183, version 2.30) and indicate ROT by calculating change in heading based on the HDT input and the time between each message.

The dimming may be controlled by pressing the dimming key or by using an external dimming key.
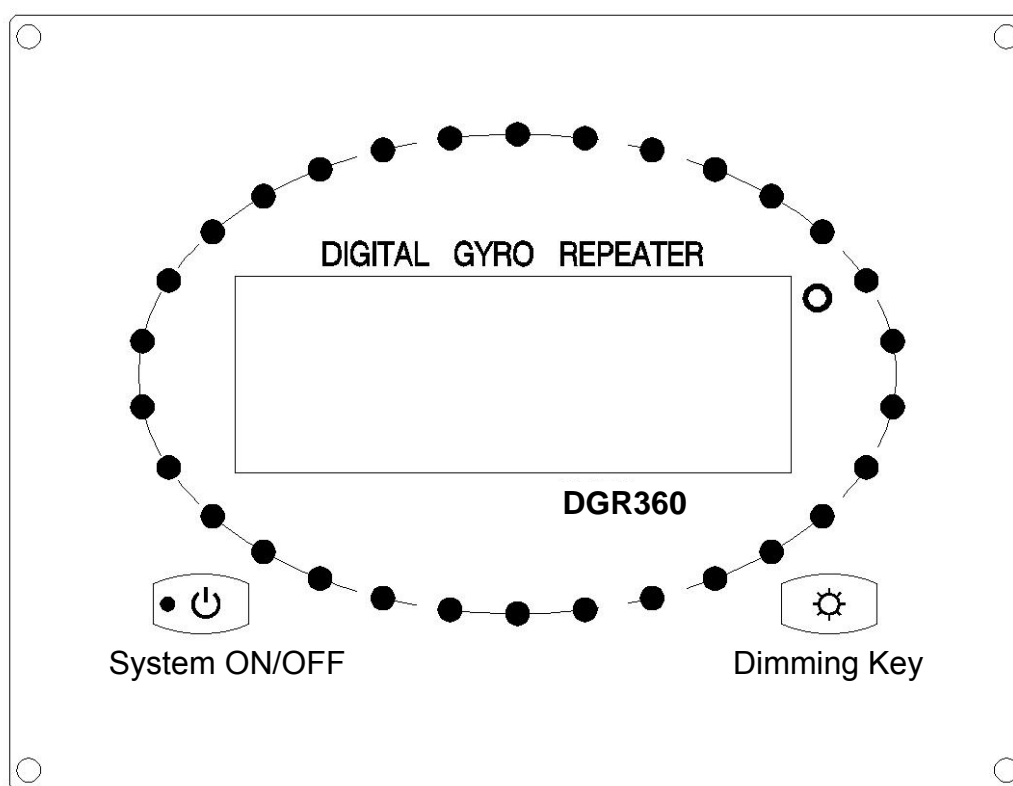
Figure 1: Operation Panel

Function

1. The LED displays the heading angle between 0.0°and 359.9°.

2. When the heading angle increases (turn starboard), the turning indicators are green. When the heading angle decreases (turn port), the turning indicators are red.

3. The repeater may receive HDT and THS messages from more than one source. The unit will choose the HDT or THS message from the source with best accuracy. The source identities are prioritized in the following order

(high-to-low):"$HETHS", "$HEHDT",
"$PTHS", "$GPHDT", "$HCTHS", "$HCHDT", "$??THS", "$??HDT".
Prioritizing between the messages are done continually and the LED will display "HE T", "HE H", "GP T" or , "GP H", "HC T", "HC H" "?? T", "?? H" 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 HDT sources should be removed from the input line.

4. The LEDs will display "ERR" when the repeater do not receive any signal or if the signal not are recognized as a NMEA message.
5. The LED will display "   .   " when the repeater receives HDT or THS message with empty value field.
6. The LED will display "- - - -" when the repeater receives HDT or THS message with incorrect data.
7. The LED will display "_ _ _ _" when the repeater only receives other NMEAS messages than HDT and THS.
8. DGR360 can distinguish and receive baud rates of 4800, 9600, 19200 and 38400 automatically.
9. Presentation of heading angle and turn indication will be affected by the refresh rate of the HDT and THS signal. Low refresh rate may result in latency compared with real movements.

Operation

1. System ON/OFF: Push the ⏻ button to switch the repeater on and off.
2. Dimming key: Push the ☼ button to adjust the brightness among 8 dimming levels.

Connection

CONNECTING			
COLOUR	SIGNAL	COLOUR	SIGNAL
1 RED	+24 V	6 GREEN	DIM+
2 BLACK	- 24 V	7 YELLOW	DIM -
3 BLUE	NMEA IN+	8 GREY	DIMKEY
4 WHITE	NMEA IN/OUT-	9 SHIELD	GND
5 ORANGE	NMEA OUT+		

Figure 2: Cable connections

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

Specifications

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

Enviromental (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.

Installation

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

1. For table, wall or ceiling mounting, use the supplied bracket.
2. 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.

Installation information
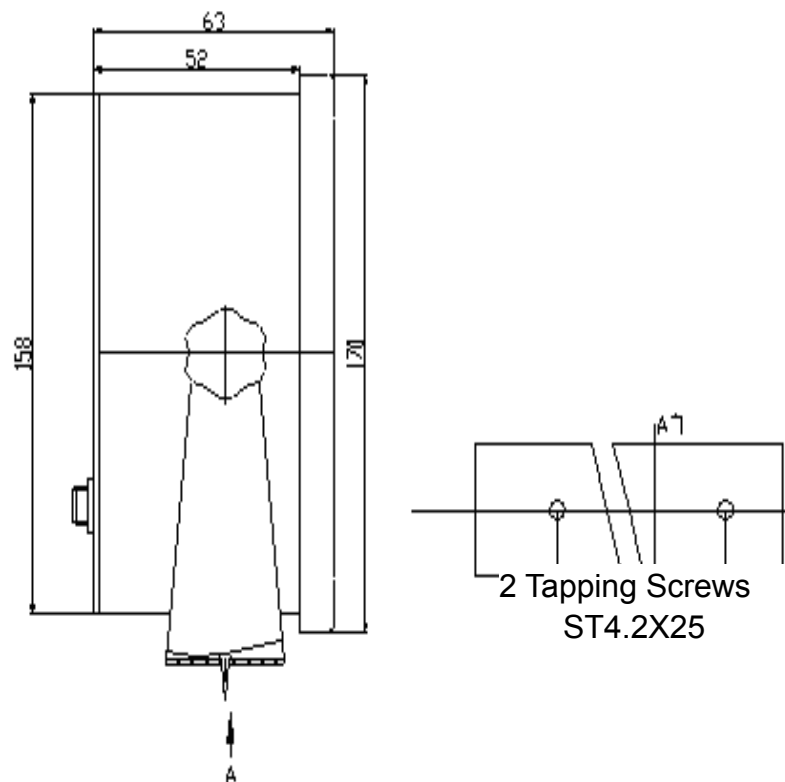
Figure 3: Mounted on table
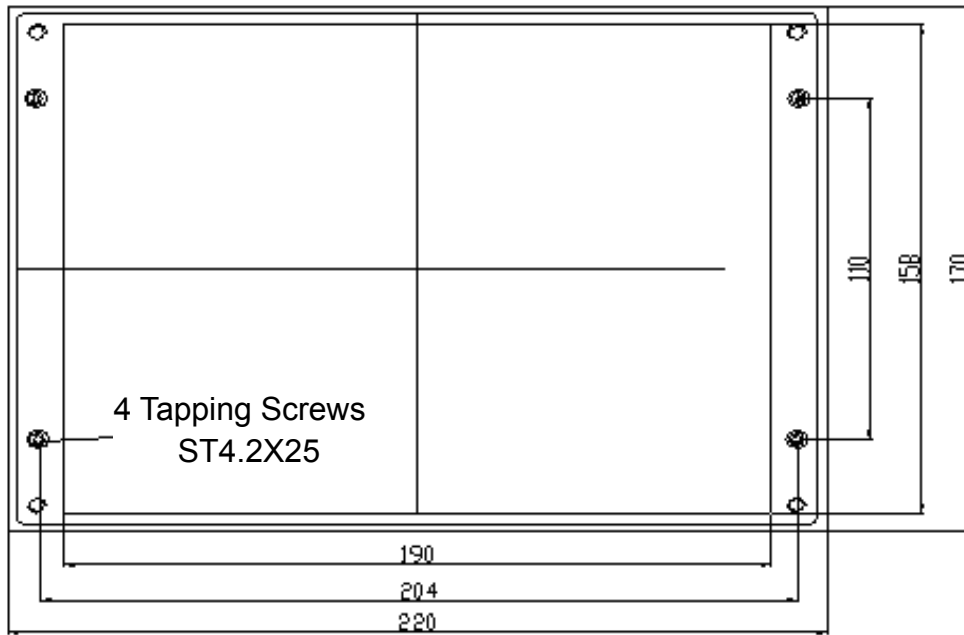
Figure 4: Mounted in panel

Note: When mounted in a panel, we advise the size of the hole to be160 x 192.