SKIPPER

Digital Speed and Distance Repeater

IR300
Operation and Installation Manual

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1. Overview

The SKIPPER IR300 is a dual axis remote speed indicator for NMEA signals. It is designed for use with SKIPPER DL850 and SKIPPER EML224. It may also be used with speed logs from other manufacturers, when these have an NMEA 0183 output. It repeats information about transversal and longitudinal ship speed. The operator may select between bottom and water related speed when these are provided from the log. If both fore and aft transversal speed is available (docking mode), the IR300 will also display this information.

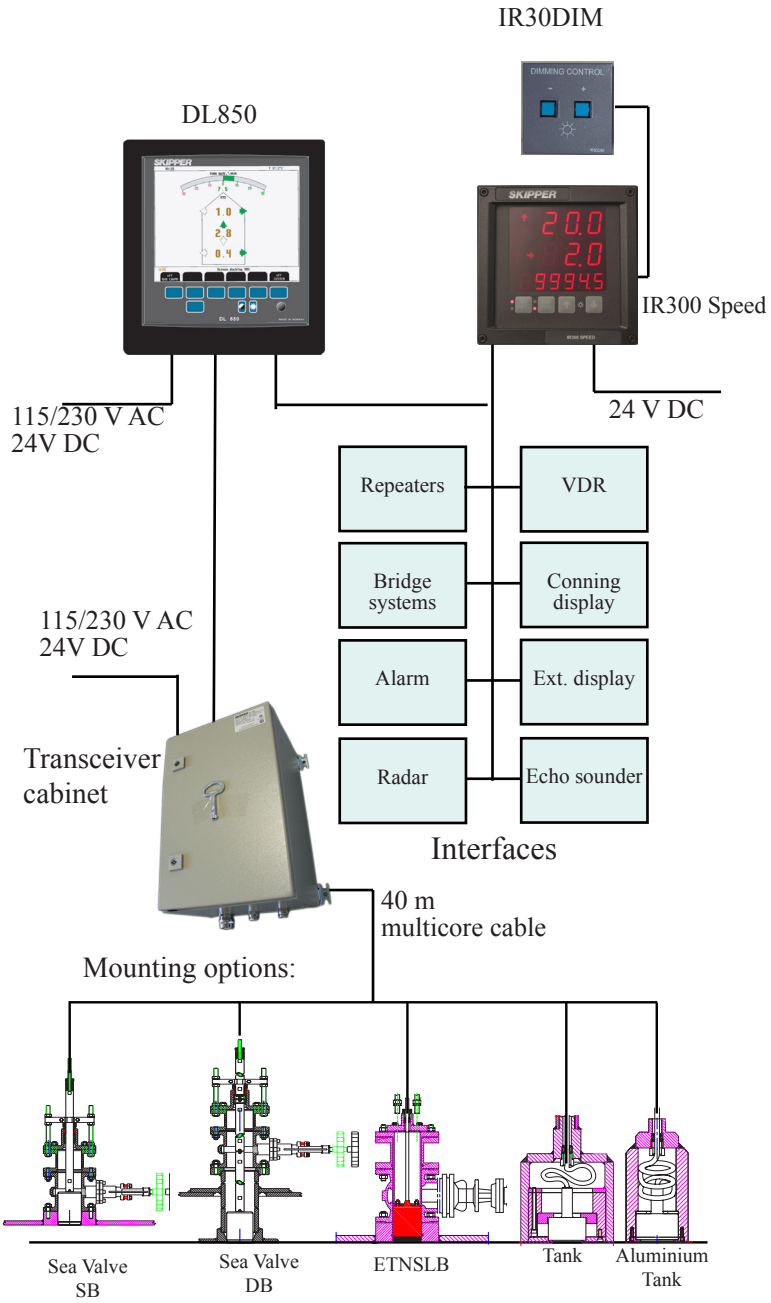
SKIPPER IR300 indicates trip and total distance measured by the log. If aft speed is available, it can be displayed by pressing the Trip/Total button until the indicator LEDs are both off. SKIPPER IR300 indicates trip and total distance measured by the speed log.

Brightness can be adjusted from:
- The front panel.
- A remote controller (IR30DIM).
- NMEA sentence DDC (Display Dimming Control).

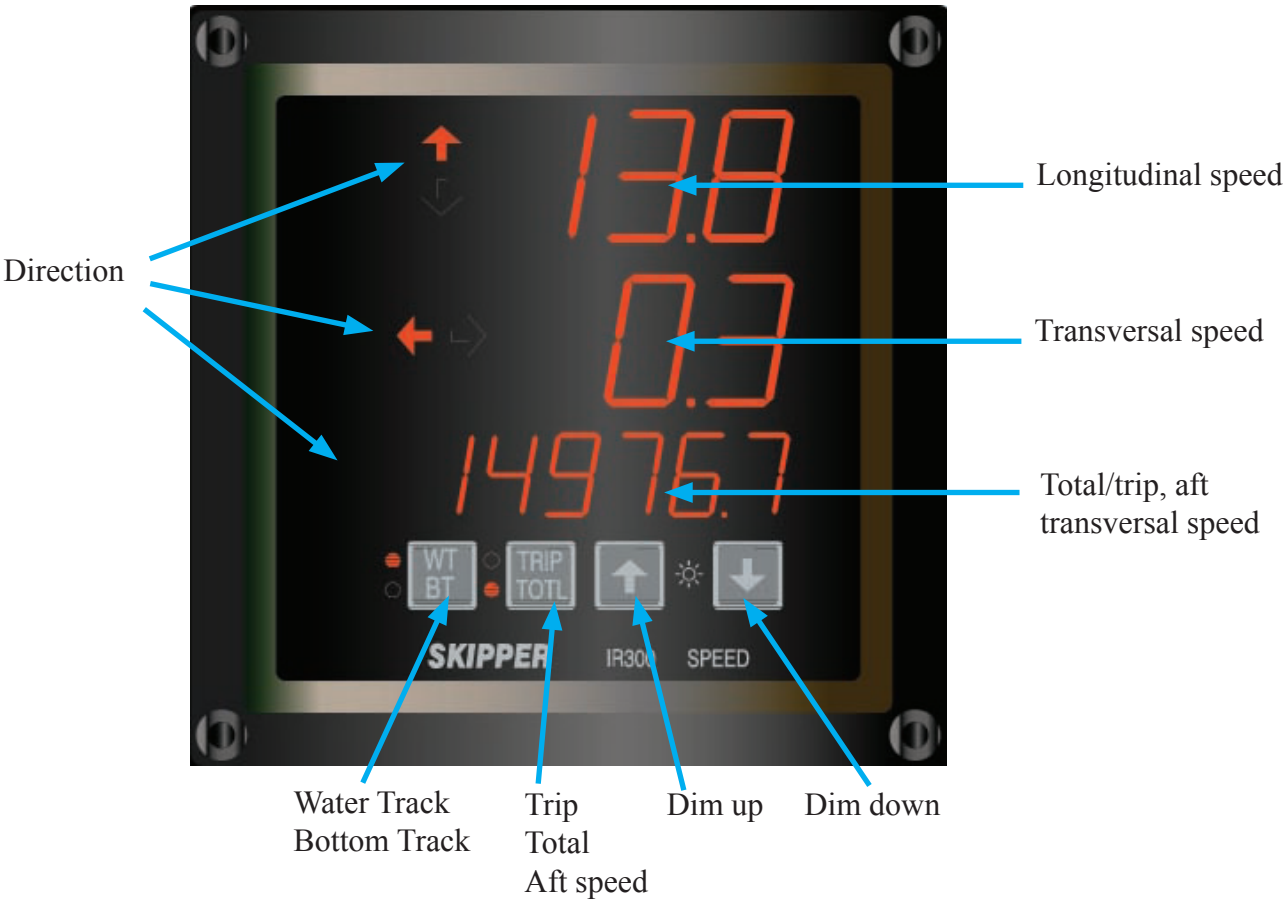
Note: The display can be deactivated (system off) by pressing the up and down buttons simultaneously. The display will be reactivated when any button is pressed.

Features
- Speed indicator.
- Alarms - speed alarm.
- Trip counter.
- Distance counter.
- One, two or three axis (Docking) indication.
- Bracket or panel mounting.

2. System Overview



3. Buttons and Display



Name	Description
WT (Water Track)	Speed through water (Longitudinal, transversal, transversal aft)
BT (Bottom Track)	Speed over ground. (Longitudinal, transversal, transversal aft)
Trip Total and Aft	Indication on 3rd line.
↑ (Dim up)	8 levels of dimming up.
↓ (Dim down)	8 levels of dimming down.
Longitudinal speed	Speed in the fore-aft direction of the vessel.
Transversal speed	Speed in the port-starboard direction of the vessel.
Total distance	The distance through water, daily trip value in NM or the transversal aft speed in kn.
Direction	↑ : Fore
	↓ : Aft
	←, -| Port
	→, |- Starboard

4. Operation

1. To switch the unit on, press any key, to switch off, press both up and down keys at the same time.
2. To adjust brigthness of LEDs, press up/down arrows to find suitable setting. (**Note***)
3. The IR300 has been adapted to show the Aft speed when available. This function can be activated by pressing the trip total button until the indicator LED does not light.
4. The display will primarily show values from the VBW NMEA sentence. If this is not available, the display will show VHW or VTG from other sentences. In these cases, there will be no value in the transveral speed.

Note*: Remote Dimming.

- Repeaters can be remotely dimmed by:

- Using external buttons (IR30DIM) connected to the DIM UP, DIM DN and DIMKEY of each repeater.
- Pressing up and down arrows on one repeater, when DIM lines are connected in parallel.
- Using NMEA command DDC as described in section 5.

5. NMEA Messages

Accepted messages (received and transmitted) (NMEA 0183), talker identifier is not processed:

Name	Description	Example	Comments
VBW	Dual Ground/Water Speed.	$--VBW,x.x,x.x,A,x.x,x.x,A,x.x,A,x.xA*hh<CR><LF>	
VTG	Course Over Ground and Ground speed	$--VTG,,,,,x.x,N,,,*hh<CR><LF>	Only speed over ground in knots is accepted.
VHW	Water speed and heading	$--VHW,,,,,x.x,N,,,*hh<CR><LF>	Only speed in knots is accepted.
VLW	Distance traveled through the water	$--VLW,x.x,N,x.x,N*hh<CR><LF> $--VLW,x.x,N,x.x,N,x.x,N,x.x,N*hh	Trip and total through water in NM. Trip and total through water (and over ground, not displayed) in NM.
ALR	Alarm status	$--ALR,hhmmss.ss,xxx,A,A,<Alarm message>*hh<CR><LF>	
DDC	Display Dimming Control	$--DDC,a,xx,*hh<CR><LF>	Brightness percentage has priority over display dimming preset.

Note: Baud rate is fixed to 4800 baud.

Speed vectors directions (Fore/Aft, Port/Starboard) are displayed by arrow indicators, and no sign is presented in the digital value.

6. Diagnostic information

- If IR300 does not receive any signal from the external source for more than 3 seconds, “Error” (“Err”) message is indicated on the LEDs. This may happen, for example if an external talker is not connected or connection polarity is not correct.

- If input messages do not contain sentences required for indication of selected data, “-” (minus) is indicated on the corresponding LEDs. Example: if there is no VLW message available on the input, IR300 will indicate “------” instead of distance counter.

- If fields in the received message is empty (not valid data), dots are indicated on the corresponding LEDs. Example: if speed over ground fields are empty in VTG or VBW sentences and BT mode is selected on IR300, “...” will be indicated instead of speed value.

- If input message format is incorrect, e.g. the baud rate is incorrect, noise or incorrect polarity on the communications line, this will result in “-.-.-.-” in all positions.

- If an alarm message is received, the forward speed will be blinking until the alarm is acknowledged at the speed log or at an alarm central.

7. Environmental according to IEC60945

Power supply	DC: 10 - 32 V DC.
Power consumption	3 W at 24 V.
Display	2 lines with 7 segments 20 x 11 mm. 1 line with 7 segments 20 x 11 mm.
Display outputs	Speed over ground (bottom track). • Longitudinal. • Transversal fore. • Transversal aft (docking). Speed through water (water track). • Longitudinal. • Transversal fore. • Transversal aft (docking). Distance travelled through water. • Trip • Total • Daily trip
Mounting dimensions	124 x 124 mm. Bracket or panel mounting.
Front plate	144 x 144 mm to DIN standard.
Depth	59 mm.
Weight cabinet	1 kg.
Protection	IP 56.
Resolution	0.1 kn.
Outputs	1 x NMEA 0183 (IEC 61162-1:2007(E). (Fixed to 4800 baud).
Inputs	NMEA 0183 (IEC 61162-1:2007(E). (Fixed to 4800 baud). Remote dimmer input.
Classification	Follows standards as required for use with MED B equipment (IEC 60945).
Service	Available in most major harbours, world-wide through extensive dealer network.
Operating temperature	-15 - 55 degrees C. To increase serviceability and lifetime, we suggest the working temperature to be held at 0 - 40 degrees C
Storage temperature	-20 - 70 degrees C.
Humidity	10 - 90 % relative, no condensation.

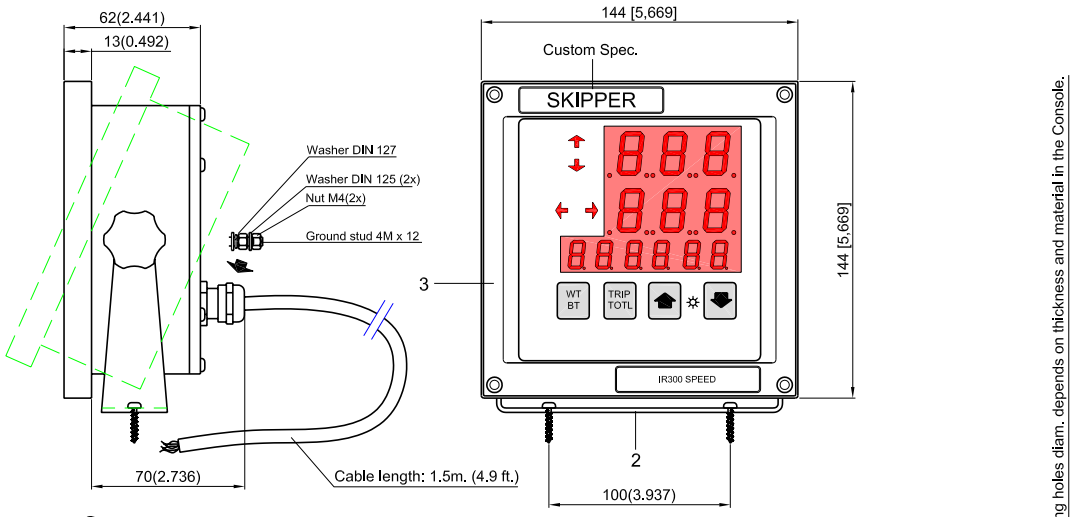
Note: The IR300 is classed IP 56 and may be mounted externally, but should be covered when not in use.

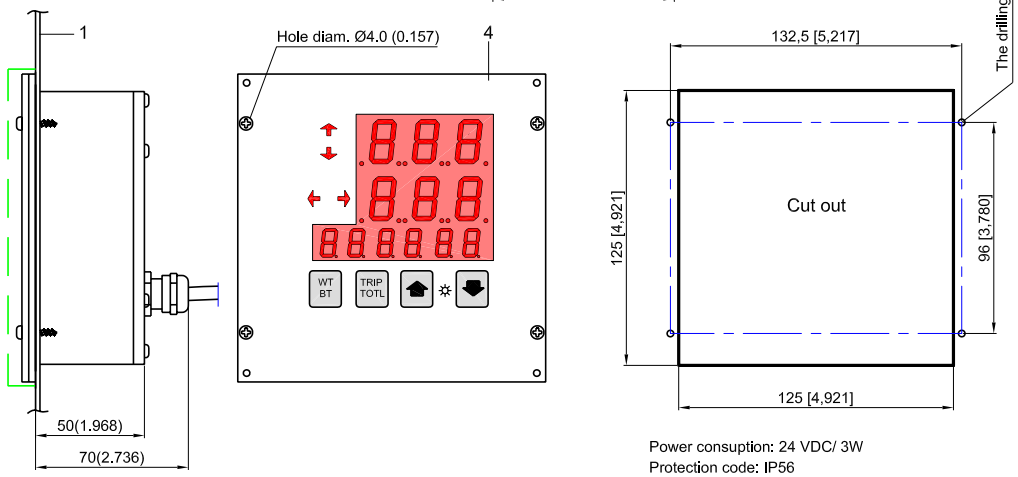
8. Service

- All service requests should be made to the local SKIPPER representative.
- Adjustments and repairs should only be performed by qualified service engineers, and unqualified repair attempts will void the warranty.

9. IR300 Connections

RevNo	Revision note	Date	Signature	Checked





Power consuption: 24 VDC/ 3W
Protection code: IP56

Console mounting order:

A. Make a cut out in the Console (1) 125 x 125 (4.921 x 4.921)
B. Remove the mountingbracket (2)
C. Unscrew the 4 screws in the frame (3) (one in each corner) and remove the frame.
D. Put the Monitor(4) in the cut out and mark the 4 centerpoints for the Drill in the Console(1)
(The drilling holes diam. depends on thickness and material in the Console.)
E. Use Panh. screws DIN 7981 Diam. 2.9 (0.114). Length depends on the Console thickness.
F. Finally put on the frame (3). Make sure that the screwheads correspond with the cut outs in the frame.

WIRING CONNECTING

COLOUR	SIGNAL	COLOUR	SIGNAL
RED	+ 24V	GREEN	DIM+
BLACK	- 24V	YELLOW	DIM-
BLUE	NMEA IN+	GREY	DIMKEY
WHITE	NMEA IN/OUT-		
ORANGE	NMEA OUT+		

DIM+
DIM-
DIMKEY
REMOTE DIMMER

GROUND WITH GROUND STUD

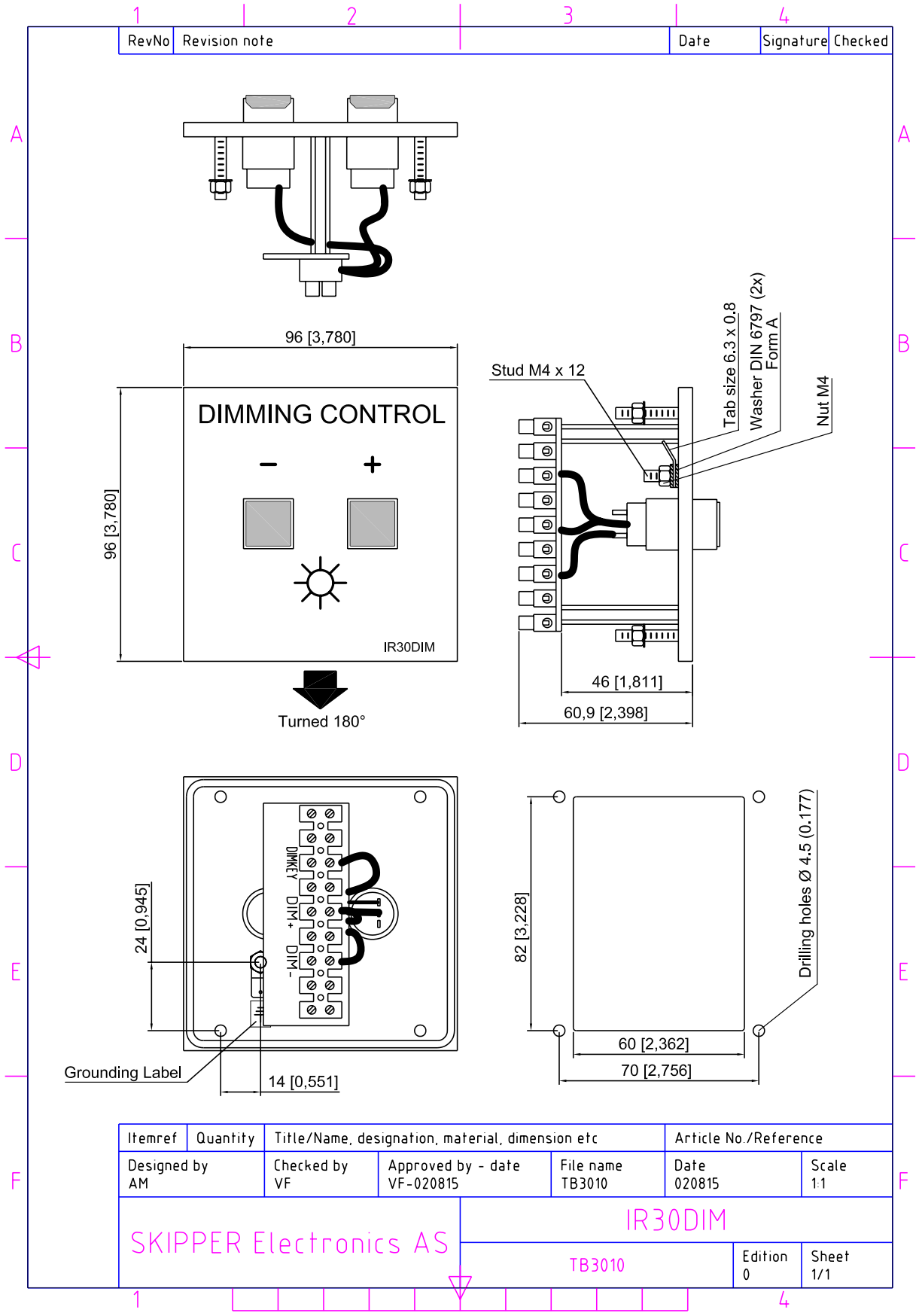
Itemref	Quantity	Title/Name, designation, material, dimension etc			Article No./Reference
Designed by AM		Checked by VF	Approved by - date VF-020815	File name IR300speed	Date 020815	Scale 1:1

SKIPPER Electronics AS

IR300 SPEED INDICATOR

TB3012-01 | Edition 0 | Sheet 1/1

10. IR30DIM


RevNo
Revision note
Date
Signature
Checked
96 [3,780]
DIMMING CONTROL
−
+
IR30DIM
96 [3,780]
Turned 180°
Stud M4 x 12
Tab size 6.3 x 0.8
Washer DIN 6797 (2x) Form A
Nut M4
46 [1,811]
60,9 [2,398]
DIM+
DIM-
24 [0,945]
Grounding Label
14 [0,551]
82 [3,228]
Drilling holes Ø 4.5 (0.177)
60 [2,362]
70 [2,756]
Itemref
Quantity
Title/Name, designation, material, dimension etc
Article No./Reference
Designed by AM
Checked by VF
Approved by - date VF-020815
File name TB3010
Date 020815
Scale 1:1
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IR30DIM
TB3010
Edition 0
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