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УРОВНЕМЕРЫ

Технические характеристики
на

EM540

EC TYPE EXAMINATION CERTIFICATE, SEE APPENDIX A



EM540

IDENTIFICATION NAMEPLATE
II 1(1) G
Ex ia [ia Ga] IIB or IIC T4 Ga
LCIE 05 ATEX 6087X
IECEX LCIE 12.0009X

MARKING
S/N
P/N

TAG

3. INSTALLATION

Radar level transmitters

The EM540 and EM940 radars are top tank mounted on a carbon or stainless steel socket (normally not provided by Honeywell Marine) welded or flange-mounted on the deck.

The compactness, light weight of EM540 and EM940, and the small size of both transmitter and socket facilitate their installation.

To improve accuracy, install the radar level transmitter at plumb line of cargo tank's centre of gravity to minimise the correction of trim and list. The best performance is obtained when its conical beam can pass through the cargo tank to bottom without any reflecting surfaces.

Radar socket requirements



The inclination of the radar fixing flange should not exceed 0.5° for ship at even keel.

The fixing flange size is:

- ISO PN16 DN200 for the EM540 radar,
- ISO PN10 DN250 for the EM940 radar,

and its machining surface is suitable for the 3 mm flat gasket.

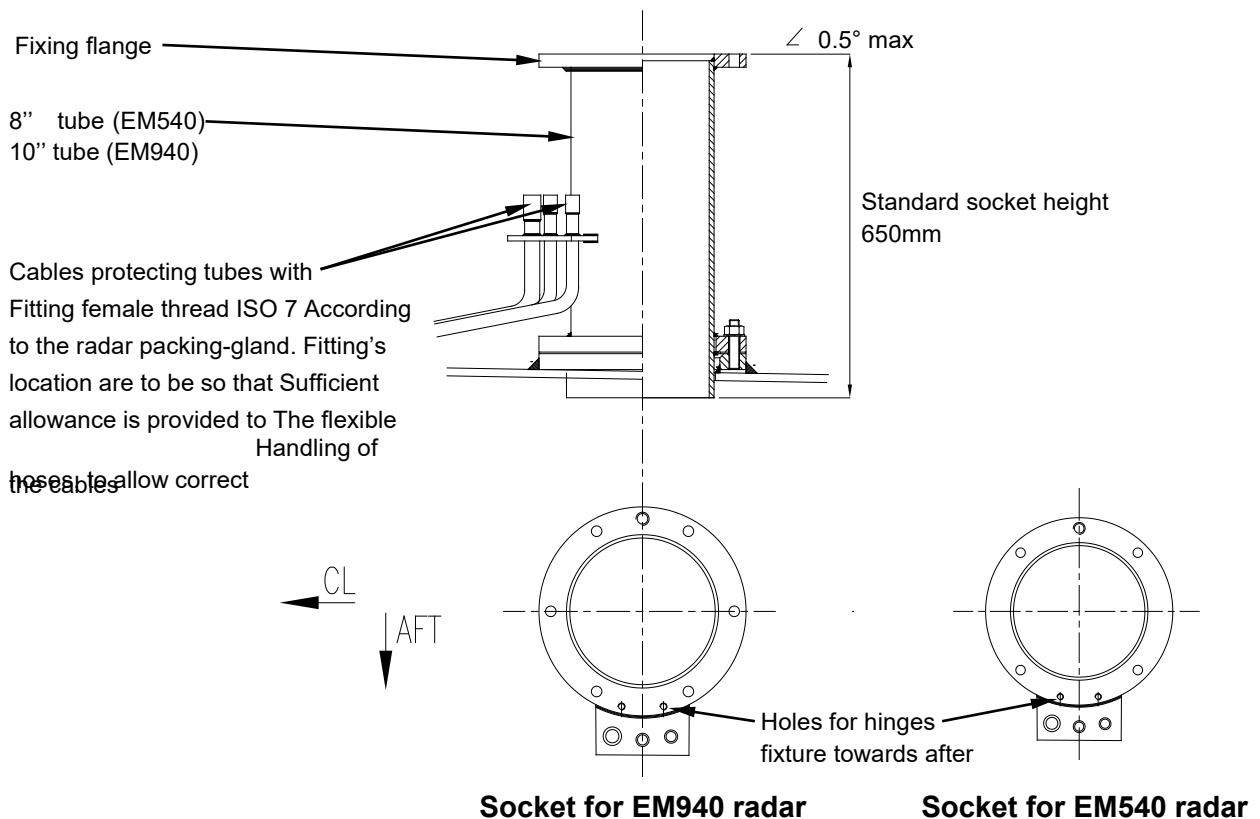
Standard height of socket is 650 mm to keep a free passage for the radar beam to the bottom end of the socket. (see drawing M34993)

Protecting tube requirements

The connection cables are protected by flexible hoses screwed on the packing-glands, and fitted with a drain to allow inner water to evacuate. This drain is to be installed at the lowest point of the hose.

To protect packing-glands and flexible hoses against powerful jets of sea water, the cables protecting tubes must be installed on AFT side of socket and 30° to centreline (refer to previous drawing).

Starboard installation example:



Installation of the EM540 radar on the socket

- Clean the flange surface.
- Install the flat appropriate gasket (A) on the flange.

Note: for chemical applications, use appropriate gasket.

The EM540 radar is delivered in an individual box protected by foam shelves. Extract it from its box just before installation.



Be careful to avoid any shocks to antenna surface.

- Place the radar on the flange.

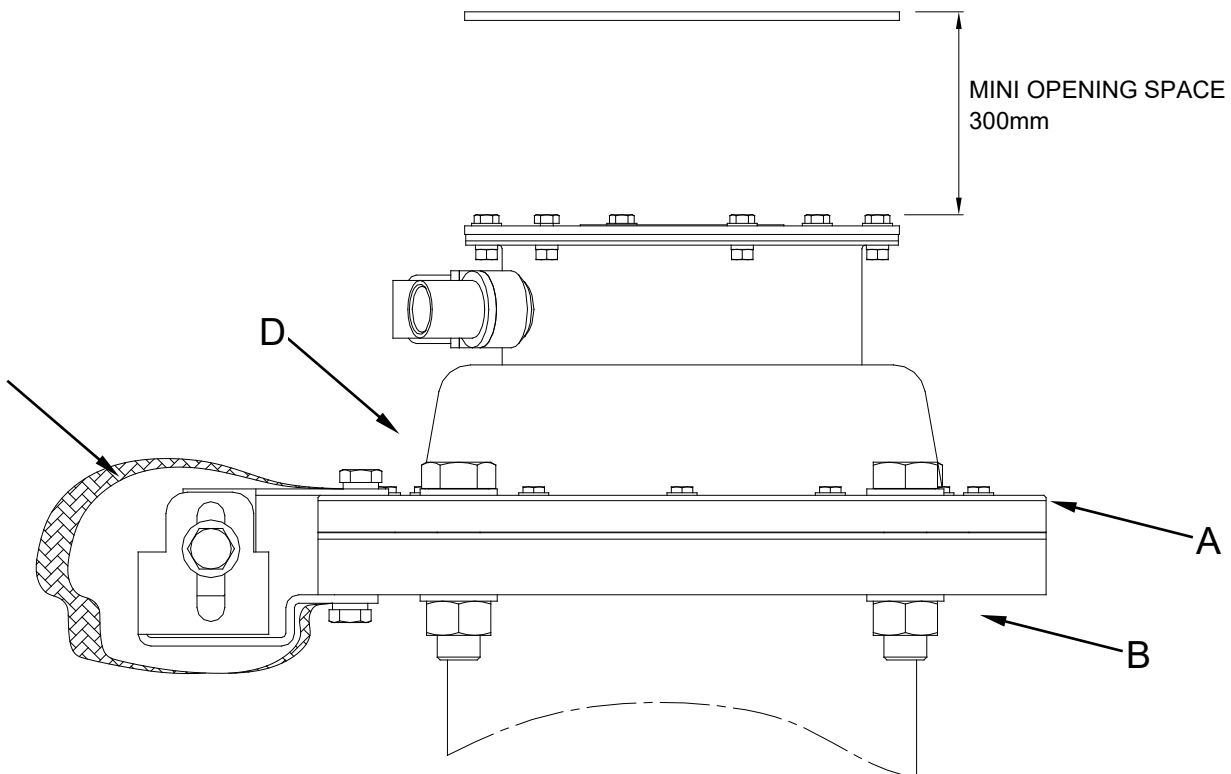


Take care that no obstacle is opposed to the cover opening of the terminal box (min opening space 300 mm).

- Fix the radar on the socket with 4 M20x80 stainless steel bolts (B), using a 30 mm wrench (tightening torque from 60 to 70 Nm).
- Fix the braided ground conductor (C) with 2 M10x20 stainless steel screws (D), using a 16 mm wrench.

Note: If hinge is required, braid fixing screws are included in hinge kit

- Carry out the electrical connection (refer to "Electrical connection" chapter).



Typical sockets drawings:

- Without T901-P F M34350, With T901-P (PN16/DN50) F M35057
- With T901-P01TA (PN16/DN40) F M35480, With T901-P01TA (PN40/DN25) F M35481
- With cleaning hatch & T901-P01TA F M35635
- Still pipe F M35475

Installation of the EM940 radar on the socket

- Clean the flange surface.
- Install the flat appropriate gasket (A) on the flange.

Note: for chemical applications, use appropriate gasket.

The EM940 radar is delivered in an individual box. Extract it from its box only near the site of installation.



Be careful to avoid any shocks to the antenna surface.

- Place the radar on the flange.

Note: check the position of two fixing holes for hinge (see “Radar socket requirements” paragraph).



Take care that no obstacle is opposed to the cover opening of the terminal box (min opening space 300 mm).

- Fix the radar on the socket with 6 M20x80 stainless steel bolts (B), using a 30 mm wrench (tightening torque from 60 to 70 Nm).
- Fix the hinge both on socket and radar with 4 M10x20 stainless steel screws, using a 16 mm wrench.
- Install the braided ground conductor on left side of the hinge.
- Carry out the electrical connection (refer to "Electrical connection" chapter).

Electrical characteristics of the cable between the safety unit and the radar must not exceed the following values

| Radar | Safety unit | L (μH) | L/R (μh/W) | C (μF) |
|-----------------|-------------|--------|------------|--------|
| EM540 class IIB | TA840-I | ≤ 100 | ≤ 24 | ≤ 7.9 |
| | TA3840S | ≤ 270 | ≤ 44 | ≤ 3.08 |
| EM540 class IIC | TA840-I | ≤ 22 | ≤ 14.2 | ≤ 3.8 |
| | TA3840S | ≤ 22 | ≤ 14.2 | ≤ 3.8 |
| EM940 class IIB | TA840-I | ≤ 100 | ≤ 24 | ≤ 7.9 |
| | TA3840S | ≤ 270 | ≤ 44 | ≤ 3.08 |
| EM940 class IIC | TA840-I | ≤ 22 | ≤ 14.2 | ≤ 3.8 |
| | TA3840S | ≤ 22 | ≤ 14.2 | ≤ 3.8 |

The TA840-I safety unit is from a previous generation TA840 system. It is mentioned here in case of EM540 or EM940 radars installed are spare on such a system.

Electrical characteristics of the cable between the radar and the T901-P temperature/pressure transmitter must not exceed the following values

| Radar | L (mH) | C (μF) |
|----------------------|--------|--------|
| EM540 class IIB, IIC | ≤ 18 | ≤ 30 |
| EM940 class IIB, IIC | ≤ 18 | ≤ 30 |

EM940, EM540 radar

For best installation performance, the procedure below must be carried out step by step.

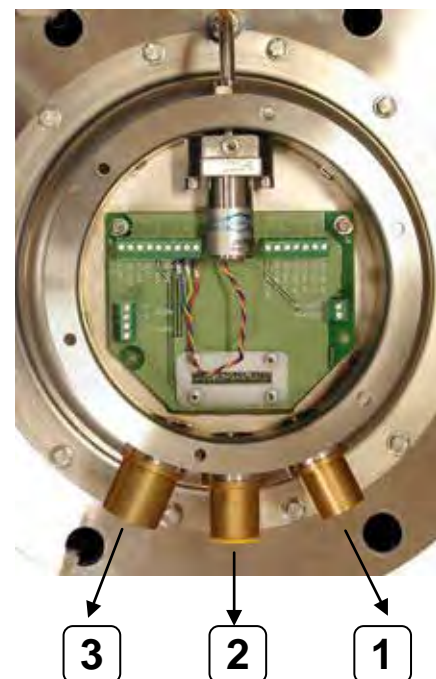
- Check the On/Off switch on the TA3840S safety unit front panel is in "Off" position (or TA840-I safety unit for the TA840 system).
- Remove the 6 fixing screws from the terminal box cover, using a 10 mm wrench.

Connecting cables

The EM940 radar is standard supplied with the 3 cable entries:

- 2 BV2 type packing-glands, for cable OD 7 to 14.5 mm,
- 1 BV3 type packing-gland, for cable OD 8.5 to 19 mm.

Note: the EM540 doesn't include integrated inert gas Pressure sensor



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