
Installation Manual VITO IP upgrade kit

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Preface

This installation guide is intended for technicians involved in the mechanical and electrical installation of the Honeywell Enraf series 76x and 36x temperature probes and the 762 VITO Interface. There are three 762 VITO Interface versions:

VITO-MTT (16 elements) → only to be used in combination with 764/765/766 probe;

VITO-LT (9 elements) → only to be used in combination with 767/768 probe;

VITO MRT (max. 14 elements) → only to be used in combination with RTD/MRT/36x MPT probe.

EC declaration of conformity

Refer to the EC declaration of conformity, shipped with the instrument

Note:

The connection to the instrument must be made with shielded cable. The shielding must be grounded in the cable gland on both ends of the cable.

Legal aspects

The mechanical and electrical installation shall only be carried out by trained personnel with knowledge of the requirements for installation of explosion proof equipment in hazardous areas.

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- Deviation from any of the prescribed procedures;
- Execution of activities that are not prescribed;
- Neglect of the general safety precautions for handling tools, use of electricity and microwave radiation.

Additional information

Please do not hesitate to contact Honeywell Enraf or its representative if you need additional information.

1 Safety

1.1 Safety aspects of the VITO Interfaces & probes

Warning

Do not use the instrument for anything else than its intended purpose.

The housing of the 762 VITO Interfaces & 764, 765, 766, 767 or 768 temperature and/or water bottom and MRT/MPT probe is intrinsically safe, certified by KEMA (Netherlands):

VITO-MTT & VITO-LT : II 1/2 G EEx ia IIB T4, KEMA 01ATEX1212X
 VITO-MRT : II 1/2 G EEx ia IIB T4, KEMA 04ATEX1225X
 VITO series : Zone 0/1 Ex ia IIB T4, IECEx KEM 05.0014X
 Class I, Division 1, Groups B, C and D, NFPA 70 (FM USA)

The environmental conditions for the VITO interfaces & probes are:

Ambient temperature (VITO Interface) : -40 to 60 °C (-40 to 140 °F)
 Operating temperature (probes) :
 764 low temp. version : -200 to 70 °C (-328 to 158 °F)
 764/767 standard version : -55 to 135 °C (-67 to 275 °F)
 764 high temp. version : -55 to 200 °C (-67 to 392 °F)
 764 very high temp. version : -55 to 250 °C (-67 to 482 °F)
 765/766/768/365 probe : 0 to 100 °C (32 to 212 °F)
 MRT probe : -50 to 200 °C (-58 to 392 °F)
 362 low temp. version : -200 to 50 °C (-328 to 122 °F)
 362 standard version : -50 to 120 °C (-58 to 248 °F)
 362 high temp. version : -50 to 200 °C (-58 to 392 °F)
 362 very high temp. version : -20 to 280 °C (-4 to 536 °F)
 Operation pressure : 5 bar (72 psi)
 Relative humidity : 0 –100%
 Ingress protection : IP 65 (762 VITO interfaces)

Caution

*The 762 VITO Interface is an instrument with intrinsically safe output/input circuits.
 Modification to the instrument may only be carried out by
 trained personnel which is authorized by Enraf.
 Failure to adhere to this will invalidate the approval certificate.*

Warning

*Improper installation of cable glands, conduits or stopping plugs will invalidate the
 Ex approval of the 762 VITO Interface.
 "For electrical data see certificate".*

1.2 Personal safety

The technician must have basic technical skills to be able to safely install the equipment. When a probe is installed in a hazardous area, the technician must work in accordance with the Local (National) and Company regulations for electrical equipment in hazardous areas.

Warning

In hazardous areas it is compulsory to use personal protection and safety gear such as: hard hat, fire-resistive overall, safety shoes, safety glasses and working gloves.

*Avoid possible generation of static electricity.
Use non-sparking tools and explosion-proof testers.*

Do not rub the surface of the VITO Interface and probe with a cloth to avoid the build-up of electro-static charges. These may cause sparks and explosions in hazardous areas, if a combustible gas mixture is present.

Make sure no dangerous quantities of combustible gas mixtures are present in the working area.

Never start working before the work permit has been signed by all parties.

Pay attention to the kind of product in the tank. If any danger for health, wear a gas mask and take all necessary precautions.

1.3 Safety conventions

“Warnings”, “Cautions” and “Notes” are used throughout this installation guide to bring special matters to the immediate attention of the reader.

A Warning concerns danger to the safety of the technician or user;

A Caution draws the attention to an action which may damage the equipment;

A Note points out a statement deserving more emphasis than the general text, but not requiring a “Warning” or a “Caution”.

2 Installation Instructions

Replacing Existing O-ring and Installing IP adapter:

This addendum must be used in conjunction with Installation Guide 762 VITO Interfaces & VITO Probes (part no. 4416648). Replacement of the existing O-ring and installation of the IP adapter will require the VITO enclosure to be fully disconnected from the power supply line and the temperature probe. The following tools are required;

- Tommy bar
- Screw drivers, various sizes 3 to 6 mm ($\frac{1}{8}$ to $\frac{1}{4}$ ")
- Spanners, 32 and 36 mm ($1\frac{1}{4}$ and $1\frac{7}{16}$ ")
- Allen key 2.5 mm ($\frac{3}{32}$ ")

It will take around 30 minutes for successful completion of all necessary tasks related to the adapter installation & O-ring replacement following below specified steps:

1. Switch off the gauge power supply! Tag & lock the switch!
2. Open the VITO enclosure.
3. Remove plastic cover (black cover) at lower left corner and disconnect HART wires from the VITO interface.
4. Disassemble the HART/gauge comm. lines with the glands from the VITO housing connection points.
5. Disconnect all wires coming from the temperature probe to the interface. Be careful not to damage the wires or isolation.
6. Disconnect external grounding wire located at the bottom of the VITO housing (outside of the VITO housing).
7. Loosen the locking nuts located on the temperature probe.
8. Remove all obstacles around the VITO housing (if any) while the VITO will need to be disassembled from the temperature probe.
9. Make sure that the housing can be fully rotated without damaging internal or external parts.
10. Disconnect the VITO housing from the temperature probe by rotating it anti clockwise.
11. Make sure not to damage (scratch) any wires and their isolation at the time when the wires are pulled through the opening on the bottom of the VITO housing.



Figure 1: VITO lid (left) and housing (right)

Note:

It is NOT required to remove VITO interface from the housing!

12. Remove the parts from the VITO IP upgrade kit.

| VITO IP Upgrade kit parts: | | |
|-----------------------------------|--|-----------------|
| PART NO. | DESCRIPTION | QUANTITY |
| 0762580 | IP Adapter Assembly | 1 |
| 2132991 | Replacement O-ring (VITON70) 183.83x2.62 | 1 |
| 2132272 | Sealing ring 20.25x2.5 | 1 |
| 2132274 | O-ring (EPDM70) 25.07x2.62 | 2 |
| 6451070 | Set screw M5 x 6 | 2 |
| 4150005 | Agip Top 2000 Grease | 1 |
| 4416656 | Installation Manual VITO IP upgrade kit | 1 |



Figure 2: VITO IP upgrade kit - main components


Note:

The supplied Agip Top 200 grease has a temperature range from -30 °C to +110 °C (-22 °F to +230 °F). If ambient conditions exceed the specified range, use a suitable grease. Also refer to the Info Note about this subject.

13. Disassemble the upper IP adapter from the lower IP adapter.



Figure 3: Lower (left) and upper (right) main components of the IP adapter

14. Insert the  sealing ring (2132272) inside the lower IP adapter. The ring will need to be compressed with temperature probe when assembled! Shift the O-ring (2132274) over the lower IP adapter. Refer to figure 4.

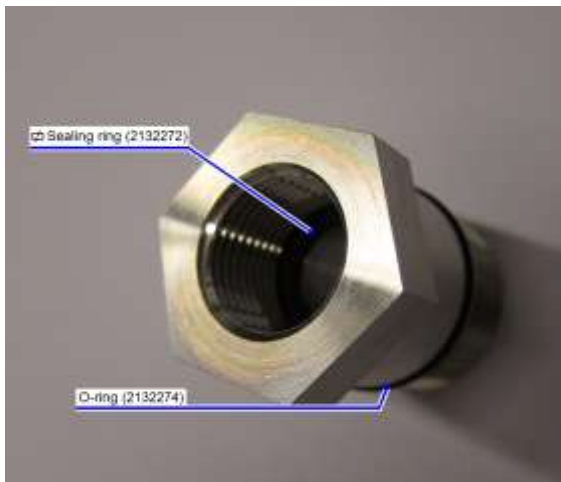


Figure 4: Lower IP adapter with  sealing ring and O-ring

15. Clean the threads on the temperature probe removing any old grease, anti-seize, dirt, corrosion, etc.
16. Apply a light, smooth layer of the Agip TOP 2000 grease over the temperature probe threads.

17. Bolt the lower IP adapter to the temperature probe. Spanner 27 mm will need to be used in order to tighten the adapter to the probe and achieve positive sealing between the two parts! Tightening the adapter to the probe will compress squared ring located inside of the adapter. Make sure not to over tighten the connection and/or damage the ring!



Figure 5: Assembling the lower IP adapter to the temperature probe

18. Looking thru the opening on the adapter top side you will be able to see when the sealing ring gets oval shape while the probe has pushed it from the bottom side.

Sealing ring before compressed

Sealing ring after compressed (inside surface of the ring will get oval shape)

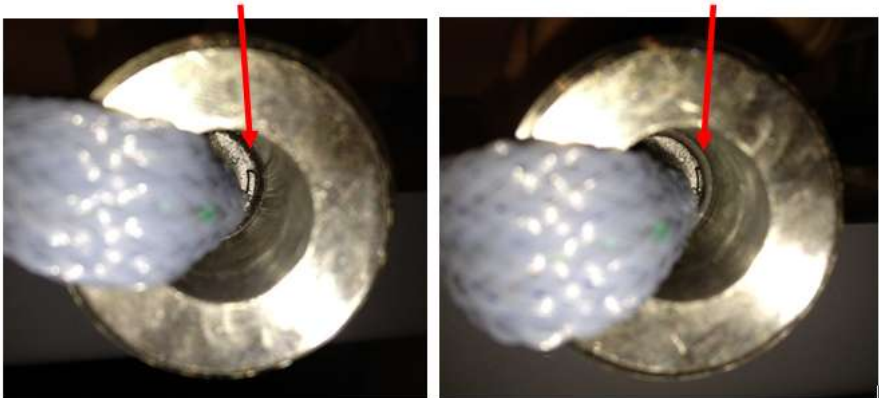


Figure 6: Sealing ring squeezed between the adapter and the probe

19. Using spanners 32 mm to tighten the hexagonal lock nut against the adapter with the lock-washer in-between after the positive sealing is achieved. Make sure that the sealing ring is still pushed (compressed) with the temperature probe!



Figure 7: Fully assembled lower IP adapter and the temperature probe

20. Apply a light, smooth layer of Agip TOP 2000 grease to the groove on the upper IP adapter.
21. Install O-ring (2132274) into the groove of the upper adapter. Apply a light, smooth layer of Agip TOP 2000 grease to the outside surface of O-ring and the threads.



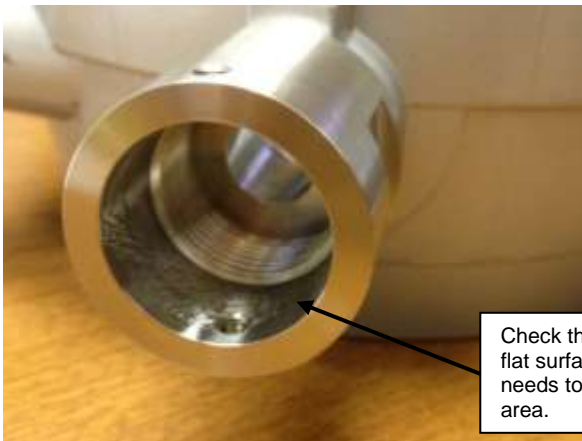
Figure 8: Upper IP adapter

22. Clean the threads and the mating surface on the bottom of the VITO enclosure.
23. Apply a light, smooth layer of Agip TOP 2000 grease to bottom VITO housing threads.
24. Tighten the upper IP adapter to the VITO enclosure using spanner 36 mm.



Figure 9: VITO assembly

25. Apply a light, smooth layer of Agip TOP 2000 grease over the inside threads of the VITO assembly.



Check this area for a smooth flat surface. The o-ring needs to properly seal this area.

Figure 10: Greased threads in the VITO assembly

26. Apply a light, smooth layer of Agip TOP 2000 grease over the threads and the outside surface of the temperature probe assembly.
27. Slowly push the wires from the temperature probe into the VITO assembly.
28. Tighten the temperature probe assembly and the VITO assembly making sure that the set screws on the upper IP adapter are loose and cannot damage O-ring on the lower IP adapter during assembly.



Figure 11: VITO assembly and the temperature probe assembly

29. After fully tightening, rotate the VITO assembly in reverse direction to accommodate desired position of the VITO lid (maximum one turn in reverse direction is allowed!).
30. Tighten the set screws (6451070) on the upper IP adapter in order to secure position of the VITO enclosure assembly (use Allen key 2.5 mm).



Figure 12: Secured VITO enclosure and the temperature probe assemblies

31. Connect the external grounding wire to the bottom of the VITO housing (outside of the enclosure).
32. Connect all wires coming from the temperature probe to the interface.
33. Tighten the glands to the VITO housing. Make sure that there is no gap between two mating surfaces after the gland is fully tightened to the VITO housing.

NO GAP ALLOWED!



Figure 13: Gap between gland and the VITO housing - not allowed

34. Connect the power wires to the VITO interface and assemble the black cover at lower left corner.
35. Remove existing O-ring from the VITO lid and clean the threads on the lid removing any old grease, anti-seize, dirt, corrosion, etc.
36. Be sure threads are free of burrs and abrasions.
37. Clean the O-ring groove.
38. Apply a light, smooth layer of the Agip TOP 2000 grease to the lid threads and the groove.
39. Carefully slide new O-ring (2132991) over the lid threads and install it into the groove.
40. Make sure that the O-ring is not twisted.
41. Apply a light, smooth layer of the Agip TOP 2000 grease over the O-ring outside surface after installed.



Figure 14: Greased lid threads and the O-ring

42. Clean the threads on the VITO housing removing any old grease, anti-seize, dirt, corrosion, etc.
43. Be sure threads are free of burrs and abrasions.
44. Apply a light, smooth layer of the Agip TOP 2000 grease to the housing threads.



Figure 15: Greased VITO housing threads

45. Assemble the lid and the housing by rotating the lid to the very end (Tighten two parts together!).
46. After tightened, rotate the lid in the opposite direction for about $\frac{1}{4}$ of the turn. This will allow the o-ring to reposition in the groove and will lower the disassembly torque at the time of future disassembly.
47. Switch on the gauge power supply.
48. Verify correct function of the gauge (level and temperature measurement!).

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