

# Level measurement - Radar

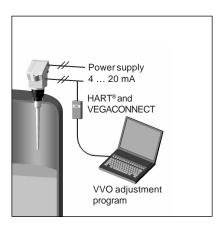
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# Application examples: Level measurement with radar

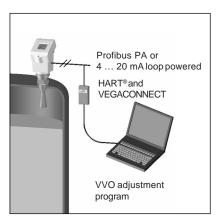
# Continuous measurement with compact instrument



Measuring system with VEGAPULS series 40 or 50K as compact instrument

A measuring system consists of:

 one VEGAPULS series 40 or 50K compact instrument for use in non-Ex area with analgoue current output

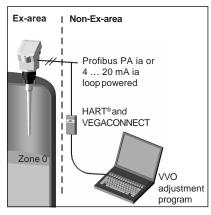


Measuring system with VEGAPULS series 40 or 50K as compact instrument

A measuring system consists of:

- one VEGAPULS series 40 or 50K compact instrument two-wire sensor loop powered with power supply via 4 ... 20 mA, or
- one Profibus PA sensor VEGAPULS series 40 or 50P with digital transmission of measured values

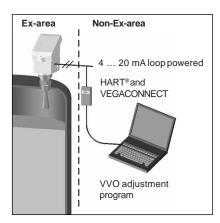
# Continuous measurement with compact instrument in hazardous areas



Measuring system with VEGAPULS series 40 or 50 as compact instrument intrinsically safe

A measuring system consists of:

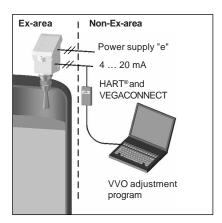
- one VEGAPULS 41 ... 45 compact sensor or 51K ... 56K two-wire sensor loop powered with power supply via 4 ... 20 mA
- one VEGAPULS 41 ... 45 compact sensor or 51K ... 56K (two-wire sensor loop powered) intrinsically safe ia and suitable separator, or
- one Profibus PA sensor VEGAPULS
  41 ... 45 or 51P ... 56P and a segment coupler for connection to Profibus DP/ connection to PLC



Measuring system with VEGAPULS series 40 or 50 as compact instrument Ex "d"

A measuring system consists of:

 one VEGAPULS 41 ... 45 compact sensor or 51K ... 56K two-wire sensor loop powered in Ex "d" version and power supply via 4 ... 20 mA



Measuring system with VEGAPULS series 40/50 as compact instrument Ex "d" with separate power supply

A measuring system consists of:

 one VEGAPULS 41 ... 45 compact sensor or 51 ... 56 four-wire sensor with separate power supply in Ex "d" version and 4 ... 20 mA current output





# Radar sensor for continuous level measurement in 26 GHz technology with PTFE encapsulated antenna system

Especially suitable for small vessels for the measurement of aggressive liquids under easy process conditions

- wetted materials TFM™ -PTFE and PVDF with Viton seal
- measurement up to 50 mm to the antenna edge for complete use of the vessel volume
- accuracy +/- 3 mm
- ECHOFOX® signal processing with Fuzzy-Logic
- adjustment via VEGACONNECT and PC, via detachable adjustment module

Meas. range : 10 m Seal antenna system : Viton : -40...130°C Process temperature

Process pressure : -1...3 bar (-100...300 kPa)









#### Approval

- **XX** without
- CX ATEX II 1G, 1/2G EEx ia IIC T62)
- CM ATEX II 1G, 1/2G EEx ia IIC T6 + ship approval
- DX ATEX II 1/2G EEx d ia IIC T61)
- CA ATEX II 1G, 1/2G EEx ia IIC T6 + WHG 2)
- DA ATEX II 1/2G EEx d ia IIC T6 + WHG 1)
- XV FCC
- **XU** FM Division 2/Zone 2
- CU FM Division 1/Zone 02)
- **DU** FM Division 1/Zone 0, pressure-tight encapsulation 1)

#### **Electronics**

- **B** Four-wire 20...72VDC/20...250VAC 4...20mA HART®
- **D** Two-wire-Loop powered 4...20mA HART®
- **G** Profibus PA

#### Adjustment module MINICOM (plug-in)

- **X** without
- **B** mounted

#### Indication

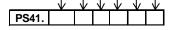
- x without
- mounted

# Process connection/Material

- G Thread G11/2A/PVDF
- N Thread 11/2NPT/PVDF
- A Tri-Clamp 2"/1.4571(316Ti)
- **B** Tri-Clamp 3"/1.4571(316Ti)
- J Bolting DN50/1.4571(316Ti) DIN11851
- Bolting DN80/1.4571(316Ti) DIN11851

#### Housing/Cable entry

- K Plastic PBT/M20x1,5
- N Plastic PBT/1/2NPT
- Alu powder coated/M20x1,5
- D Alu powder coated EEx d/½NPT



- 1) Only in conjunction with housing/cable entry "D"
- 2) Not for electronics "B"
- Further process connections upon request
- Profibus accessory see chapter "Signal conditioning instruments and communication"





# Radar sensor for continuous level measurement in 26 GHz technology with horn antenna

Especially suitable for small tanks and process vessels for measurement of virtually all products

- non-contact measurement, unaffected by process pressure, temperature and gas
- measurement up to 50 mm to the antenna edge for complete use of the vessel volume
- accuracy +/- 3 mm
- ECHOFOX® signal processing with Fuzzy-Logic
- adjustment via VEGACONNECT and PC, via detachable adjustment module

Process pressure

: -1...40 bar (-100...4000 kPa)











#### Approval

- xx without
- CX ATEX II 1G, 1/2G EEx ia IIC T62)
- CM ATEX II 1G, 1/2G EEx ia IIC T6 + ship approval
- DX ATEX II 1/2G EEx d ia IIC T61)
- CA ATEX II 1G, 1/2G EEx ia IIC T6 + WHG 2)
- DA ATEX II 1/2G EEx d ia IIC T6 + WHG 1)
- XV FCC
- XU FM Division 2/Zone 2
- CU FM Division 1/Zone 0 FCC 2)
- DU FM Division 1/Zone 0, FCC; pressure-tight encapsul. 1)

#### **Electronics**

- **B** Four-wire 20...72VDC/20...250VAC 4...20mA HART®
- **D** Two-wire-Loop powered 4...20mA HART®
- **G** Profibus PA

#### Adjustment module MINICOM (plug-in)

- **x** without
- B mounted

#### Indication

**x** without

# mounted

#### Process connection/Material/Vessel pressure

- G Thread G1½A/1.4435(316L)(also antenna)/max.40bar
- N Thread 1½NPT/1.4435(316L)(also antenna)/max.40bar

### Horn antenna/Measuring range

ø40mm/max.10m

#### Seal antenna system/Process temperature

- V Viton/-25...150°C/impedance cone PTFE
- N Viton/-40...150°C/impedance cone PTFE
- Kalrez 4079/-15...150°C/impedance cone PTFE

#### Housing/Cable entry

- K Plastic PBT/M20x1,5
- N Plastic PBT/1/2NPT
- A Alu powder coated/M20x1,5
- D Alu powder coated EEx d/½NPT

#### Options

- x without
- J Extension for horn antenna 1.4435(316L)



- 2) Not for electronics "B"
- Further process connections upon request
- Profibus accessory see chapter "Signal conditioning instruments and communication"
- 8 AL

PS42.



# Radar sensor for continuous level measurement in 26 GHz technology with PTFE encapsulated antenna system

Especially suitable for measurement of liquids in the chemical, pharmaceutical and food processing industry

- only one wetted material TFM™-PTFE
- measurement up to 50 mm to the antenna edge for complete use of the vessel volume
- accuracy +/- 3 mm
- ECHOFOX® signal processing with Fuzzy-Logic
- adjustment via VEGACONNECT and PC, via detachable adjustment module

Process temperature : -40...150°C

Process pressure : -1...16 bar (-100...1600 kPa)











#### Approval

- **XX** without
- CX ATEX II 1G, 1/2G EEx ia IIC T62)
- CM ATEX II 1G, 1/2G EEx ia IIC T6 + ship approval
- DX ATEX II 1/2G EEx d ia IIC T61)
- CA ATEX II 1G, 1/2G EEx ia IIC T6 + WHG 2)
- DA ATEX II 1/2G EEx d ia IIC T6 + WHG 1)
- XV FCC
- XU FM Division 2/Zone 2
- CU FM Division 1/Zone 02)
- DU FM Division 1/Zone 0, pressure-tight encapsulation 1)

### **Electronics**

- **B** Four-wire 20...72VDC/20...250VAC 4...20mA HART®
- D Two-wire-Loop powered 4...20mA HART®
- G Profibus PA

#### Adjustment module MINICOM (plug-in)

- x without
- mounted

#### Indication

- X without
- mounted

# Process connection/Measuring range

- FA Flange DN50PN40/10m
- FB Flange DN80PN40/20m
- FC Flange DN100PN16/20m
- AA Flange 2"150lb ANSI/10m
- AB Flange 3"150lb ANSI/20m
- AC Flange 4"150lb ANSI/20m
- AE Flange 6"150lb ANSI/20m
- CA Tri-Clamp 2"/10m
- CB Tri-Clamp 3"/10m
- RA Bolting DN50/10m
- RB Bolting 3"/10m

#### Housing/Cable entry

- K Plastic PBT/M20x1,5
- N Plastic PBT/½NPT
- A Alu powder coated/M20x1,5
- Alu powder coated EEx d/½NPT

PS43.

- Further process connections upon request
- Profibus accessory see chapter "Signal conditioning instruments and communication"

<sup>1)</sup> Only in conjunction with housing/cable entry "D"

<sup>2)</sup> Not for electronics "B"





# Radar sensor for continuous level measurement in 26 GHz technology with horn antenna

Especially suitable for storage tanks and process vessels for the measurement of products such as solvents, hydrocarbons and fuels under arduous process conditions

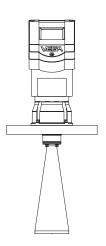
- measurement up to 50 mm to the antenna edge for complete use of the vessel volume
- accuracy +/- 3 mm
- ECHOFOX® signal processing with Fuzzy-Logic
- adjustment via VEGACONNECT and PC, via detachable adjustment module

Process pressure : -1...40 bar (-100...4000 kPa)











Approval





## xx without CX ATEX II 1G, 1/2G EEx ia IIC T62) CM ATEX II 1G, 1/2G EEx ia IIC T6 + ship approval DX ATEX II 1/2G EEx d ia IIC T61) CA ATEX II 1G, 1/2G EEx ia IIC T6 + WHG 2) DA ATEX II 1/2G EEx d ia IIC T6 + WHG 1) XV FCC **XU** FM Division 2/Zone 2 CU FM Division 1/Zone 0 FCC 2) **DU** FM Division 1/Zone 0, FCC; pressure-tight encapsul. 1) **B** Four-wire 20...72VDC/20...250VAC 4...20mA HART® **D** Two-wire-Loop powered 4...20mA HART® **G** Profibus PA Adjustment module MINICOM (plug-in) **x** without **B** mounted Indication **x** without A mounted Flange/Horn antenna/Measuring range/Material GCC DN50PN40C/ø48mm/max.15m/1.4435(316L) FCE DN80PN40C/ø75mm/max.20m/1.4435(316L) CCG DN100PN16C/ø95mm/max.20m/1.4435(316L) DCG DN150PN16C/ø95mm/max.20m/1.4435(316L) ARC 2"150lb RF,ANSI/ø48mm/max.15m/1.4435(316L) BRE 3"150lb RF,ANSI/ø75mm/max.20m/1.4435(316L) CRG 4"150lb RF,ANSI/ø95mm/max.20m/1.4435(316L) DRG 6"150lb RF,ANSI/ø95mm/max.20m/1.4435(316L) Seal antenna system/Process temperature V Viton/-25...150°C/impedance cone PTFE N Viton/-40...150°C/impedance cone PTFE A Kalrez 4079/-15...150°C/impedance cone PTFE Housing/Cable entry K Plastic PBT/M20x1,5 N Plastic PBT/1/2NPT Alu powder coated/M20x1,5 Alu powder coated EEx d/½NPT **Options** x without Extension for horn antenna/1.4435(316L) PS44.

- 1) Only in conjunction with housing/cable entry "D"
- 2) Not for electronics "B"
- Further process connections upon request
- Profibus accessory see chapter "Signal conditioning instruments and communication"





# Radar sensor for continuous level measurement of liquids in 26 GHz technology with mounted 3/4" standpipe

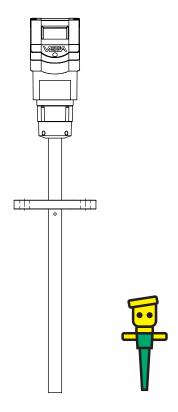
Especially suitable for the measurement of solvents and liquid gases in vessels with small process connections under arduous process conditions

- setup without additional settings
- measurement up to the process fitting for complete use of the vessel volume
- accuracy +/- 3 mm
- ECHOFOX® signal processing with Fuzzy-Logic
- adjustment via VEGACONNECT and PC, via detachable adjustment module

Process pressure : -1...40 bar (-100...4000 kPa)







**Approval** 



### **XX** without CX ATEX II 1G, 1/2G EEx ia IIC T62) CM ATEX II 1G, 1/2G EEx ia IIC T6 + ship approval DX ATEX II 1/2G EEx d ia IIC T61) CA ATEX II 1G, 1/2G EEx ia IIC T6 + WHG 2) DA ATEX II 1/2G EEx d ia IIC T6 + WHG 1) XV FCC XU FM Division 2/Zone 2 CU FM Division 1/Zone 0 FCC 2) DU FM Division 1/Zone 0, FCC; pressure-tight encapsul. 1) **Electronics B** Four-wire 20...72VDC/20...250VAC 4...20mA HART® D Two-wire-Loop powered 4...20mA HART® G Profibus PA Adjustment module MINICOM (plug-in) **x** without **B** mounted Indication x without mounted Process connection/Material GB Thread G11/2A/1.4435(316L) NR Thread 11/2NPT/1.4435(316L) AC Flens DN50PN40C/1.4435(316L) BC Flens DN80PN40C/1.4435(316L) CC Flange DN100PN16C/1.4435(316L) **DC** Flange DN150PN16C/1.4435(316L) AR Flange 2"150lb RF,ANSI/1.4435(316L) BR Flange 3"150lb RF,ANSI/1.4435(316L) CR Flange 4"150lb RF,ANSI/1.4435(316L) DR Flange 6"150lb RF,ANSI/1.4435(316L) Seal antenna system/Process temperature v Viton/-25...150°C/impedance cone PTFE N Viton/-40...150°C/impedance cone PTFE Kalrez 4079/-15...150°C/impedance cone PTFE Housing/Cable entry K Plastic PBT/M20x1,5 N Plastic PBT/1/2NPT Alu powder coated/M20x1,5 Alu powder coated EEx d/½NPT D PS45.

1) Only in conjunction with housing/cable entry "D"

Standpipe length in mm per 100 mm of 1.4435(316L)

per 100 mm of Hastelloy C22

- Multi-sectional standpipe upon request
- Further process connections upon request
- · Profibus accessory see chapter "Signal conditioning instruments and communication"

<sup>2)</sup> Not for electronics "B"





# Radar sensor for continuous level measurement of liquids in 6.3 GHz technology with rod antenna

Especially suitable for vessels with small process connections for measurement of liquids under easy process conditions

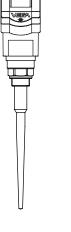
- accuracy +/- 10 mm
- ECHOFOX® signal processing with Fuzzy-Logic
- adjustment via VEGACONNECT and PC, via detachable adjustment module

Meas. range : up to 20 m











#### Instrument version

- K Compact instrument with analogue current output
- $\begin{picture}(0,0)\put(0,0){\line(0,0){100}}\put(0,0){$

#### **Approval**

- .x FTZ (Standard telecommunication approval)
- EX0.X Use in Ex-Zone 01)
- EXO.A Use in Ex-Zone 0, overfill protection WHG 1)
- **EX.U** FM Div.I, CSA Div.I, FCC, Industry Canada<sup>2)</sup>
  - .u FM Div.II, CSA Div.II, FCC, Industry Canada

#### Electronics

- **D** Two-wire-Loop powered/4...20mA HART®
- **B** Four wire 20...72VDC,20...250VAC/4...20mA HART®
- G Profibus PA

#### Adjustment module MINICOM (plug-in)

- **x** without
- **B** mounted

### Indication

- **x** without
- mounted

# Process connection/Process pressure

- G Thread G11/2A/PVDF/max.3bar (PP antenna)
- N Thread 1½NPT/PVDF/max.3bar (PP antenna)
- E Thread G1½A/1.4435(316L)/max.16bar (PPS antenna)
- H Thread 1½NPT/1.4435(316L)/max.16bar (PPS antenna)
- A Tri-Clamp 2"/1.4571(316Ti)/max.3 bar
- B Tri-Clamp 3"/1.4571(316Ti)/max.3 bar
- $\textbf{\textit{J}} \ \ \, \text{Bolting DN} 50/1.4571(316\text{Ti})/\text{DIN} 11851/\text{max.3 bar}$
- L Bolting DN80/1.4571(316Ti)/DIN11851/max.3 bar

#### Rod antenna material/Process temperature

- 5 PP socket length up to 50mm/-20...80°C
- 3 PPS socket length to 100mm/-20...120°C
- 9 PPS socket length to 250mm/-20...120°C

#### Housing/Cable entry

- K Plastic PBT/M20x1,5
- N Plastic PBT/½NPT
- A Alu powder coated/M20x1,5
- D Alu powder coated EEx d/½NPT
- E Alu powder coated EEx e/M20x1,5

1) In combination with electronics "B": only in conjunction with housing/cable entry "D" or "E"

<sup>2)</sup> In combination with electronics "B": only in conjunction with housing/cable entry "D"

- Process connection "A", "B", "G", "N", "J", "L": only for socket length up to 50 mm
- · Further process connections upon request
- Profibus accessory see chapter "Signal conditioning instruments and communication"

PULS51



# Radar sensor for continuous level measurement of liquids in 6.3 GHz technology

Especially suitable for vessels with small process connections for measurement of aggressive liquids under easy process conditions

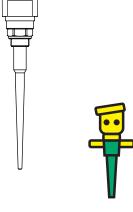
- rod antenna of PTFE (Teflon)
- accuracy +/- 10 mm
- ECHOFOX® signal processing with Fuzzy-Logic
- adjustment via VEGACONNECT and PC, via detachable adjustment module

Meas. range : up to 20 m









#### Instrument version

- K Compact instrument with analogue current output
- P Digital signal transmission for connect. to Profibus PA

# Approval

- .X FTZ (Standard telecommunication approval)
- EX0.X Use in Ex zone 01)
- EXO.A Use in Ex-Zone 0, overfill protection WHG 1)
- EX.U FM Div.I, CSA Div.I, FCC, Industry Canada 2)
  - .U FM Div.II, CSA Div.II, FCC, Industry Canada

#### **Electronics**

- **D** Two-wire-Loop powered/4...20mA HART®
- **B** Four wire 20...72VDC,20...250VAC/4...20mA HART®
- **G** Profibus PA

# Adjustment module MINICOM (plug-in)

- **x** without
- **B** mounted

#### Indication

- **X** without
- Mounted

### Process connection/Process pressure/Temperature

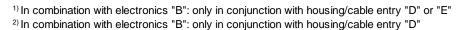
- G Thread G1½A/PVDF/max.3 bar/-40...130°C
- N Thread 1½NPT/PVDF/max.3 bar/-40...130°C
- E Thread G11/2A/1.4571(316Ti)/max.16 bar/-40...150°C
- H Thread 11/2NPT/1.4571(316Ti)/max.16 bar/-40...150°C
- A Tri-Clamp 2"/1.4571(316Ti)/max.3 bar/-40...150°C
- **B** Tri-Clamp 3"/1.4571(316Ti)/max.3 bar/-40...150°C
- J Bolting DN50/1.4571(316Ti)/max.3 bar/-40...150°C
- Bolting DN80/1.4571(316Ti)/max.3 bar/-40...150°C

### Rod antenna of PTFE

- 5 for socket length up to 50mm
- 3 for socket length up to 100mm
- 9 for socket length up to 250mm

# Housing/Cable entry

- K Plastic PBT/M20x1,5
- N Plastic PBT/½NPT
- A Alu powder coated/M20x1,5
- **D** Alu powder coated EEx d/½NPT
- E Alu powder coated EEx e/M20x1,5



- Process connection "A", "B", "G", "N", "J", "L": only for socket length up to 50 mm
- Further process connections upon request

PULS52

Profibus accessory see chapter "Signal conditioning instruments and communication"





# Radar sensor for continuous level measurement of liquids in 6.3 GHz technology with rod antenna of PTFE

Especially suitable for measurement of aggressive liquids under arduous process conditions

- accuracy +/- 10 mm
- ECHOFOX® signal processing with Fuzzy-Logic
- adjustment via VEGACONNECT and PC, via detachable adjustment module

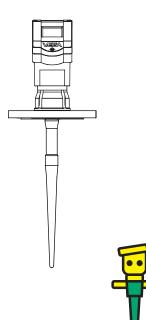
Meas. range : up to 20 m

Process pressure : -1...16 bar (-100...1600 kPa)











#### Instrument version

K Compact instrument with analogue current output Digital signal transmission for connect. to Profibus PA

- Approval .X FTZ (Standard telecommunication approval) EX0.X Use in Ex zone 01) EX0.A Use in Ex-Zone 0, overfill protection WHG 1) EX.U FM Div.I, CSA Div.I, FCC, Industry Canada 2) .u FM Div.II, CSA Div.II, FCC, Industry Canada **Electronics D** Two-wire-Loop powered/4...20mA HART® **B** Four wire 20...72VDC,20...250VAC/4...20mA HART® G Profibus PA Adjustment module MINICOM (plug-in) x without **B** mounted Indication x without mounted Process connection/Material **c** Flange DN50PN40C/1.4571(316Ti) D Flange DN80PN40C/1.4571(316Ti) G Flange DN100PN16C/1.4571(316Ti) H Flange DN150PN16C/1.4571(316Ti)
  - Rod antenna of PTFE/Process temperature 1 for measurement in standpipe/-40...150°C
  - 3 for socket length up to 100mm/-40...150°C

  - for socket length up to 250 mm/-40...150°C

#### Housing/Cable entry

K Plastic PBT/M20x1,5

**S** Flange 2"150lb ANSI/1.4571(316Ti) W Flange 3"150lb ANSI/1.4571(316Ti) P Flange 4"150lb ANSI/1.4571(316Ti) Flange 6"150lb ANSI/1.4571(316Ti)

- N Plastic PBT/1/2NPT
- A Alu powder coated/M20x1,5
- D Alu powder coated EEx d/½NPT
  - Alu powder coated EEx e/M20x1,5

PULS53

- Further process connections upon request
- Profibus accessory see chapter "Signal conditioning instruments and communication"

<sup>1)</sup> In combination with electronics "B": only in conjunction with housing/cable entry "D" or "E"

<sup>&</sup>lt;sup>2)</sup> In combination with electronics "B": only in conjunction with housing/cable entry "D"





# Radar sensor for continuous level measurement in 6.3 GHz technology with horn antenna and flange connection

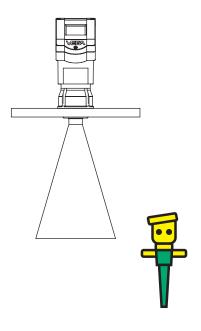
Especially suitable for measurement of liquids and solids under arduous process conditions such as buildup, condensation and foam generation as well as strong product movements

- accuracy +/- 10 mm
- ECHOFOX® signal processing with Fuzzy-Logic
- adjustment via VEGACONNECT and PC, via detachable adjustment module











### Instrument version K Compact instrument with analogue current output Digital signal transmission for connect. to Profibus PA .x FTZ (Standard telecommunication approval) EX0.X Use in Ex zone 01) EX0.A Use in Ex-Zone 0, overfill protection WHG 1) **EX0.M** Use in Ex-Zone 0, ship approval GL. LR EX.U FM Div.I, CSA Div.I, FCC, Industry Canada 2) .u FM Div.II, CSA Div.II, FCC, Industry Canada **Electronics** D Two-wire-Loop powered/4...20mA HART® B Four wire 20...72VDC,20...250VAC/4...20mA HART® Profibus PA Adjustment module MINICOM (plug-in) **x** without **B** mounted Indication x without A mounted Flange size/Material/Antenna diameter RCX DN50PN40C/1.4571(316Ti)/without horn antenna UC6 DN80PN40C/1.4571(316Ti)/horn antenna ø76 EC1 DN100PN16C/1.4571(316Ti)/horn antenna ø96 FC2 DN150PN16C/1.4571(316Ti)/horn antenna ø146 FD2 DN150PN16C/1.4571/PTFE-coat./enamelled antenna Ø1403) MD4 DN200PN16C/1.4571/PTFE-coat./enamelled antenna Ø160 3) SVX 2"150lb RF/1.4571(316Ti)/without horn antenna WV6 3"150lb RF/1.4571(316Ti)/horn antenna Ø76 **PV1** 4"150lb RF/1.4571(316Ti)/horn antenna ø96 VV2 6"150lb RF/1.4571(316Ti)/horn antenna ø146 VD2 6"150lb RF/1.4571/PTFE coat./enamelled antenna ø1403) QD4 8"150lb RF/1.4571/PTFE coat./enamelled antenna ø1603) Seal antenna system/Process temperature v Viton/-25...150°C A Kalrez 4079/-15...150°C P Viton with PTFE-coating/-40°C...200°C 5) G Graphite with ceramic/-60...250°C Housing/Cable entry K Plastic PBT/M20x1,5 N Plastic PBT/½NPT A Alu powder coated/M20x1,5 Alu powder coated EEx d/½NPT E Alu powder coated EEx e/M20x1,5 Options x without Extension for horn antenna/1.4571(316Ti) 4) PULS54

1) In combination with electronics "B": only in conjunction with housing/cable entry "D" or "E"

Extension for horn antenna \_\_\_\_\_ mm (max. 3000 mm); per 100 mm

- Further process connections upon request
- Profibus accessory see chapter "Signal conditioning instruments and communication"

<sup>&</sup>lt;sup>2)</sup> In combination with electronics "B": only in conjunction with housing/cable entry "D"

<sup>3)</sup> Delivery time more than 10 working days

<sup>4)</sup> Delivery time more than 5 working days

<sup>5)</sup> Only possible with antenna material enamel





Radar sensor for continuous level measurement in 6.3 GHz technology with horn antenna and flange connection under high pressures and temperatures

Especially suitable for measurement of liquids and solids under extreme process conditions such as 160 bar (16000 kPa) process pressure or 400°C process temperature

- accuracy +/- 10 mm
- ECHOFOX® signal processing with Fuzzy-Logic
- adjustment via VEGACONNECT and PC, via detachable adjustment module













### Instrument version K Compact instrument with analogue current output Digital signal transmission for connect. to Profibus PA Approval .x FTZ (Standard telecommunication approval) EX0.X Use in Ex zone 01) EXO.A Use in Ex-Zone 0, overfill protection WHG 1) EXO.M Use in Ex-Zone 0, ship approval GL, LR EX.U FM Div.I, CSA Div.I, FCC, Industry Canada 2) .u FM Div.II, CSA Div.II, FCC, Industry Canada **Electronics** D Two-wire-Loop powered/4...20mA HART® **B** Four wire 20...72VDC,20...250VAC/4...20mA HART® **G** Profibus PA Adjustment module MINICOM (plug-in) **X** without **B** mounted Indication **X** without A mounted Flange size/Material/Antenna diameter RCX DN50PN40C/1.4571(316Ti)/without horn antenna UC6 DN80PN40C/1.4571(316Ti)/horn antenna ø76 EC1 DN100PN16C/1.4571(316Ti)/horn antenna ø96 FC2 DN150PN16C/1.4571(316Ti)/horn antenna ø146 SVX 2"150lb RF/1.4571(316Ti)/without horn antenna WV6 3"150lb RF/1.4571(316Ti)/horn antenna ø76 **PV1** 4"150lb RF/1.4571(316Ti)/horn antenna ø96 VV2 6"150lb RF/1.4571(316Ti)/horn antenna ø146 Seal antenna system/Process temperature G Graphite (coupling of ceramic)/-60...400°C Housing/Cable entry K Plastic PBT/M20x1,5 N Plastic PBT/1/2NPT A Alu powder coated/M20x1,5 D Alu powder coated EEx d/1/2NPT Alu powder coated EEx e/M20x1,5 **Options** X without J Extension for horn antenna/1.4571(316Ti) 3) PULS56 1) In combination with electronics "B": only in conjunction with housing/cable entry "D" or "E" <sup>2)</sup> In combination with electronics "B": only in conjunction with housing/cable entry "D" 3) Delivery time more than 10 working days mm (max. 3000 mm); per 100 mm Extension for horn antenna

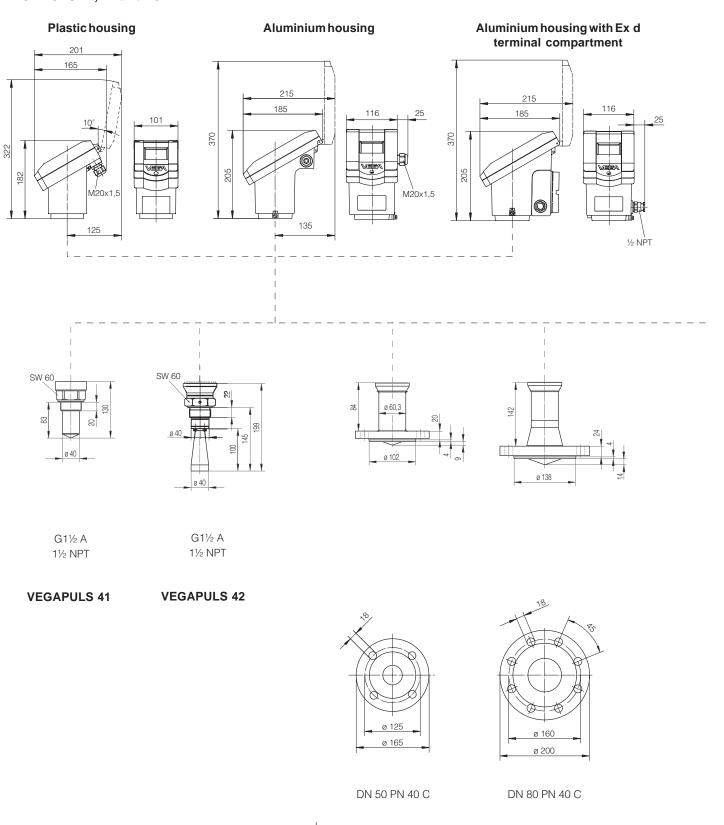
• Further process connections upon request

Profibus accessory see chapter "Signal conditioning instruments and communication"





# **VEGAPULS 41, 42 and 43**



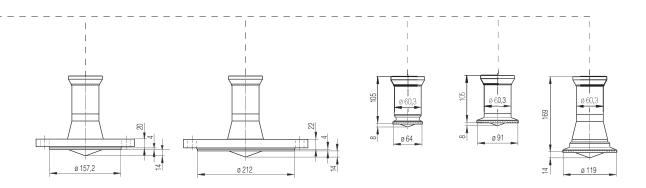
**VEGAPULS 43** 



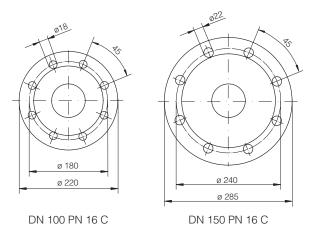


# Recommended max. socket length depending on the antenna version:

Sensor type	Version	Socket length
VEGAPULS 41	Standard	70 mm
VEGAPULS 42	Standard	135 mm
VEGAPULS 43	DN50/ANSI2"	50 mm
	DN 80/ANSI 3"	80 mm
	DN 100/ANSI 4"	100 mm
	DN 150/ANSI 6"	150 mm
	Tri-Clamp 2"	50 mm
	Tri-Clamp 3"	80 mm
	Tri-Clamp 4"	100 mm



Tri-Clamp 2" Tri-Clamp 3" Tri-Clamp 4"

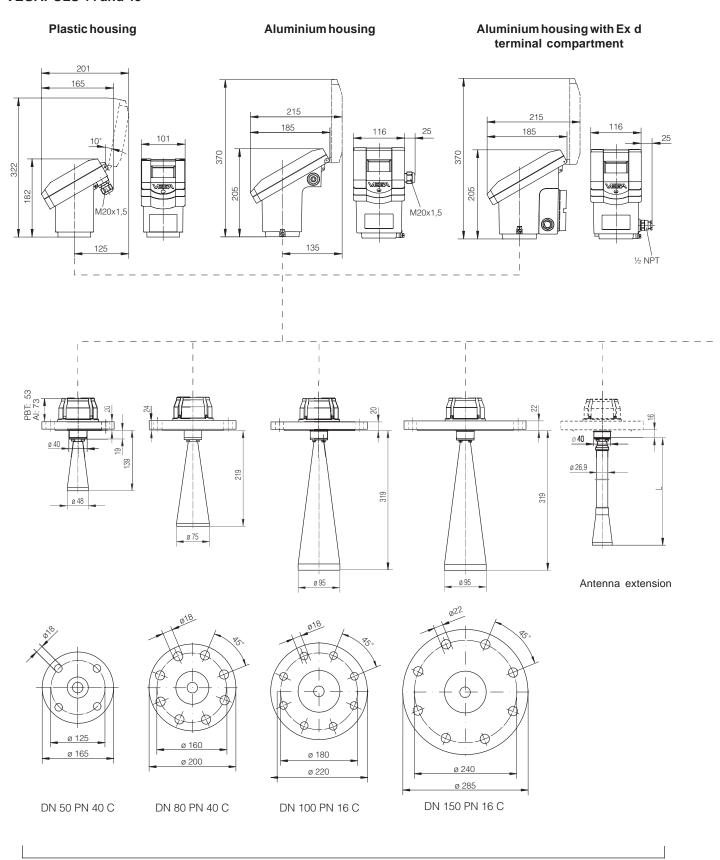


**VEGAPULS 43** 





### VEGAPULS 44 and 45



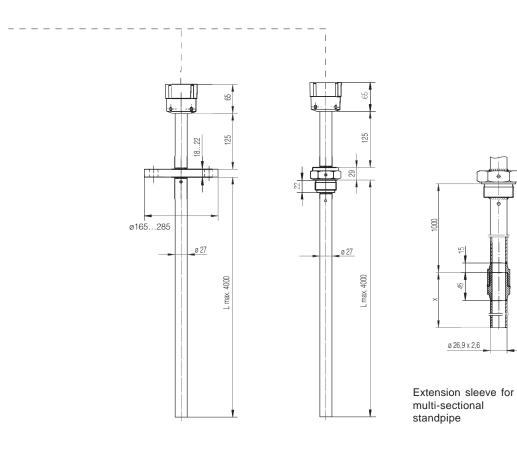
**VEGAPULS 44** 





# Recommended max. socket length depending on the antenna version:

Sensor type	Version	Socket length
VEGAPULS 44	DN50/ANSI2"	135 mm
	DN 80/ANSI 3"	210 mm
	DN 100/ANSI 4"	310 mm
	DN 150/ANSI 6"	310 mm



**VEGAPULS 45** 

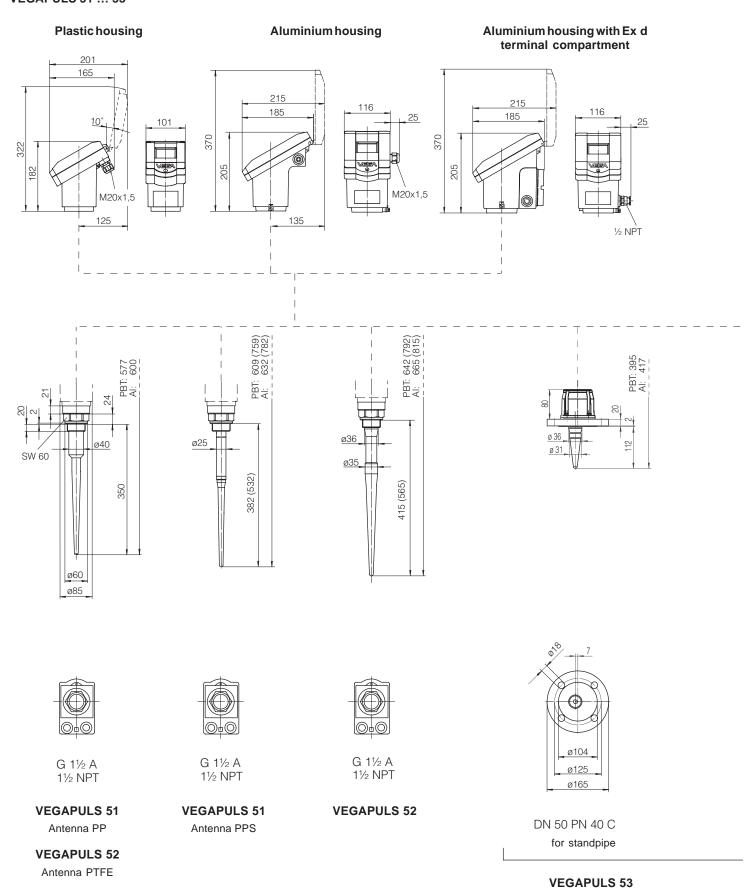
G1½ A 1½ NPT

DN 50...DN 150 PN 16/40 C



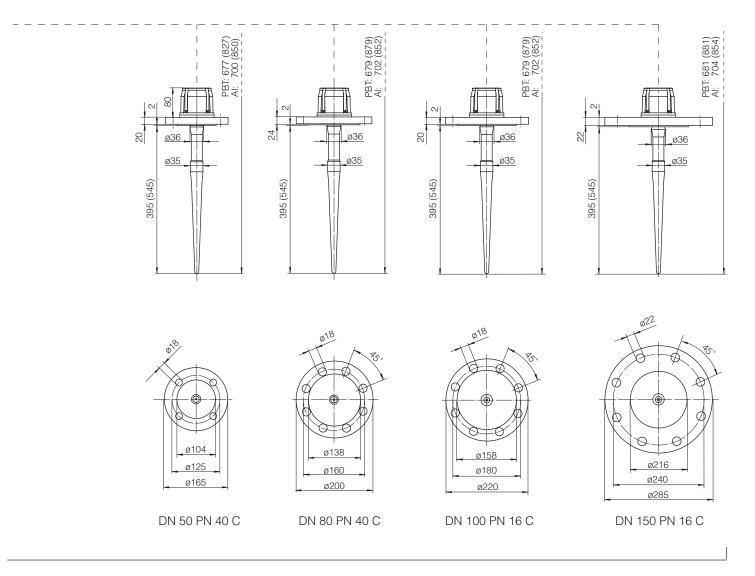


# **VEGAPULS 51 ... 53**





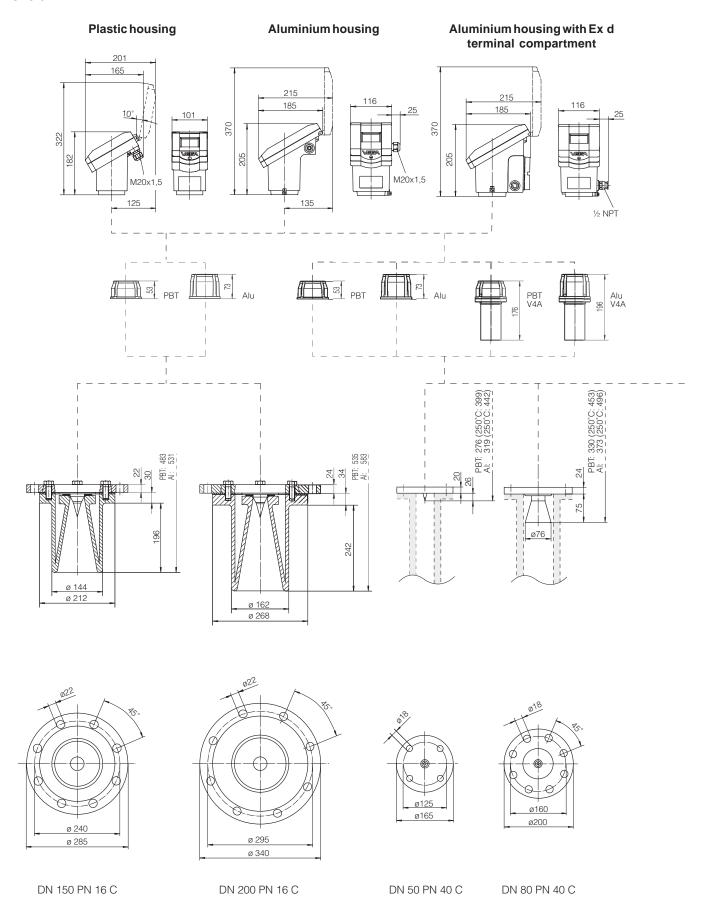




**VEGAPULS 53** 

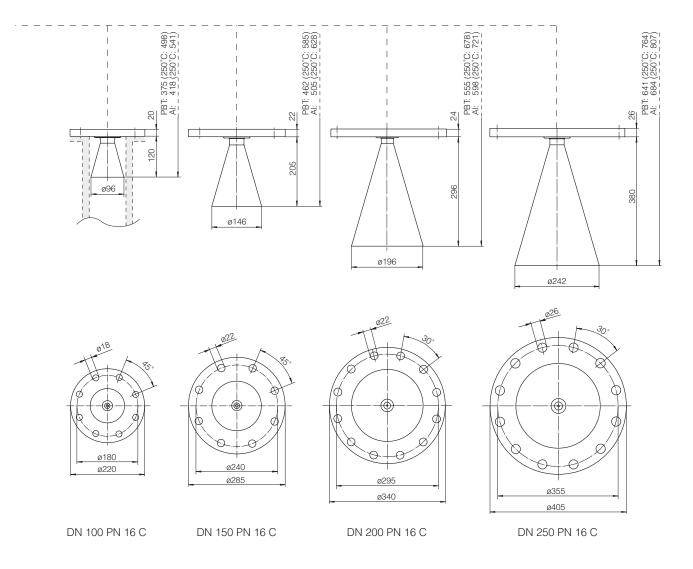






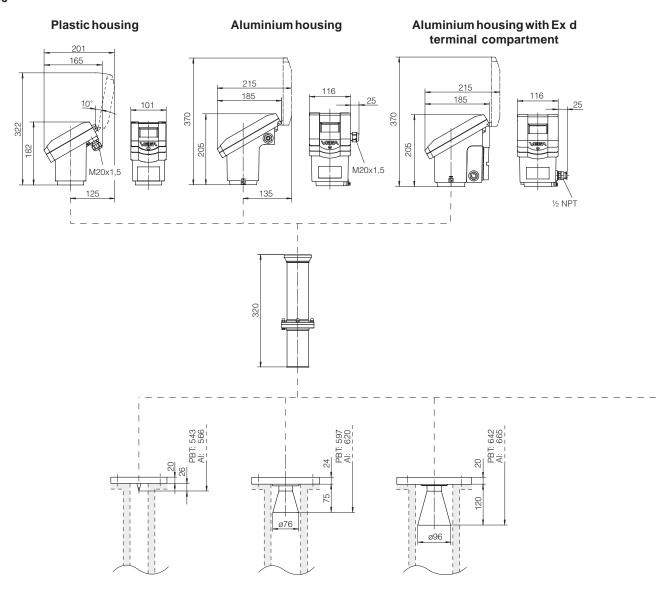


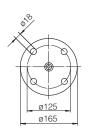


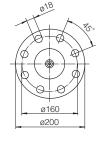


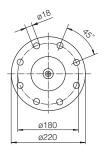












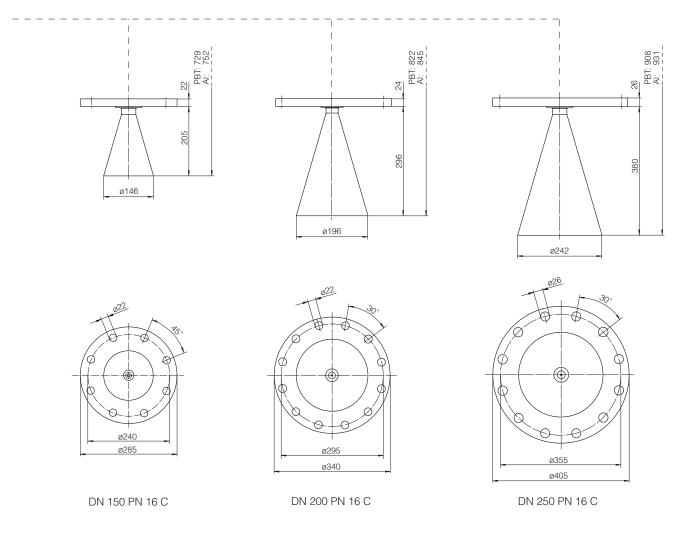
DN 50 PN 40 C

DN 80 PN 40 C

DN 100 PN 16 C











### **VEGADIS 50**

External indication and adjustment unit for connection of VEGAPULS series 40 and 50, VEGASON 50 and VEGAFLEX 50 sensors

Suitable for external indication of the measured values and external adjustment of sensors

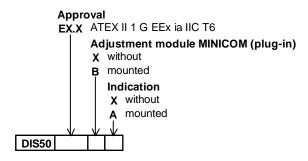
- digital and quasi-analogue indication of measured values
- can be mounted up to 25 m away from the sensor
- module for adjustment module MINICOM

Indicating range : -9999...9999, with

individually adjustable decimal point

Housing protection : IP66/IP67





· Dimensions see chapter "Indication and adjustment"

# **MINICOM**

Pluggable adjustment module for VEGASON, VEGAPULS and VEGAFLEX series 50 and VEGAPULS series 40 sensors

Suitable for adjustment directly on the sensor or separate in conjunction with VEGADIS 50 for 4...20mA or Profibus PA sensors

- 6-key adjustment
- 4-line display for menu-driven clear text parameter adjustment







