

MINITRAC 31

Radiation-based sensor for density measurement

Application area

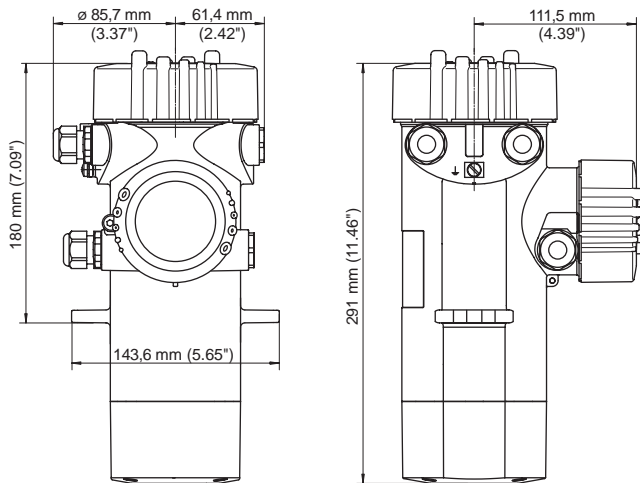
The MINITRAC 31 is a radiation-based sensor for non-contact density measurement of liquids and bulk solids. The MINITRAC 31 determines the density contactlessly from outside through pipelines or the vessel wall. Through its compact design it is ideal for mounting in positions hardly to access and in narrow space applications.

Advantages

- Simple retrofitting during production processes
- High plant availability through non-contact measurement
- Exact measuring results independent of the process conditions

Technical data

Version:	sensor with integrated NaI detector
Mounting:	from outside on pipelines or the vessel
Reproducibility:	+/- 0.1 %
SIL qualification:	up to SIL2



Approval

- XX** Without
- UX** FM(NI)CL.1 DIV2 GR.ABCD/T6; CL.II,III DIV1 GR.EFG/T6
- UG** FM (XP-IS) CL. I-III, DIV 1 GR A-G
- KX** CSA(NI)CL.1 DIV2 GR.ABCD/T6; CL.II,III DIV1 GR.EFG/T6
- KG** CSA(XP-IS)CL.I-III,DIV 1GP A-G
- DK** ATEX II 2G Ex d ia IIC T6+1D,2D Ex tD IP66 T
- TX** ATEX IM 2 (M1) Ex d [ja Ma] I Mb
- DK** IEC Zone 1 Ex d ia IIC T6+Ex tD A20,A21 IP66 T
- TX** IEC Ex d [ja Ma] Mb

Version / Ambient temperature

- 1** Standard / -40°...+60°C

Electronics

- V** Four-wire 4...20mA/HART®
- A** Four-wire 4...20 mA/HART® (Explosion Proof Output)
- B** Four-wire 4...20 mA/HART® (Intrinsically Safe Output)
- F** Four-wire Foundation Fieldbus
- C** Four-wire Foundation Fieldbus (Explosion Proof Output)
- D** Four-wire Foundation Fieldbus (Intrinsically Safe Out)
- P** Four-wire Profibus PA
- E** Four-wire Profibus PA (Explosion Proof Output)
- G** 4-wire Profibus PA (Intrinsically Safe Output)

Housing / Protection

- D** Aluminum / IP66/IP67
- W** 316L SS / IP66/IP67

Cable entry / Cable gland / Plug connection

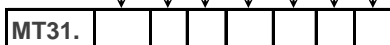
- M** M20x1.5 / without / without
- N** 1/2 NPT / without / without

Indicating / Adjustment module (PLICSCOM)

- X** Without
- B** Side mounted with backlight

Additional equipment

- X** Without
- S** Int. lead coating to protect against ambient radiation



DSG

The DSG detector utilizes high sensitivity scintillator technology to measure density in process piping without contacting the process.

The detector features GEN2000 electronics for application flexibility including temperature compensation, remote standardization and multi-detector networking. The DSG may also be used to measure Point Level and short-range continuous/Interface Level.



Brackets PTB1

Clamping fixture for pipes with 2 - 14 in diameter

Mounting bracket set for attaching source holder and MiniTrac density detector to process piping.



Pipe Size / Material

- A1A 2"-8" (DN50-DN200) / LCS w/Polyester Powder Coating
- A1B 2"-8" (DN50-DN200) / 316 SS
- A2A 9"-14" (DN225-DN350) / LCS w/Polyester Powder Coating
- A2B 9"-14" (DN225-DN350) / 316 SS

Mounting Configuration

- 1 Horizontal detector mounting
- 2 Vertical detector mounting (with shielding)
- 3 30° angle mounting

Bracket Configuration

- X Without
- A Vibration isolation (gauge to bracket)
- B Thermal isolation (gauge to bracket)

Cooling Options

- X without

Additional Equipment

- X Without
- 1 Equivalent Absorbers for SHLD,SR-A,SR-1A,SH-F,SHGL



Brackets PTB2

Clamping fixture for pipes with 16 - 36 in diameter

Mounting bracket set for attaching source holder and MiniTrac density detector to process piping.



Tube Diameter/Material

16A	NPS16" (DN400) / LCS w/Polyester Powder Coating	.....
16B	NPS16" (DN400) / 316 SS	.....
16S	NPS16" (DN400) / LCS w/Special Polyester Powder Coating	.....
17A	NPS17" (DN425) / LCS w/Polyester Powder Coating	.....
17B	NPS17" (DN425) / 316 SS	.....
17S	NPS17" (DN425) / LCS w/Special Polyester Powder Coating	.....
18A	NPS18" (DN450) / LCS w/Polyester Powder Coating	.....
18B	NPS18" (DN450) / 316 SS	.....
18S	NPS18" (DN450) / LCS w/Special Polyester Powder Coating	.....
19A	NPS19" (DN475) / LCS w/Polyester Powder Coating	.....
19B	NPS19" (DN475) / 316 SS	.....
19S	NPS19" (DN475) / LCS w/Special Polyester Powder Coating	.....
20A	NPS20" (DN500) / LCS w/Polyester Powder Coating	.....
20B	NPS20" (DN500) / 316 SS	.....
20S	NPS20" (DN500) / LCS w/Special Polyester Powder Coating	.....
21A	NPS21" (DN525) / LCS w/Polyester Powder Coating	.....
21B	NPS21" (DN525) / 316 SS	.....
21S	NPS21" (DN525) / LCS w/Special Polyester Powder Coating	.....
22A	NPS22" (DN550) / LCS w/Polyester Powder Coating	.....
22B	NPS22" (DN550) / 316 SS	.....
22S	NPS22" (DN550) / LCS w/Special Polyester Powder Coating	.....
23A	NPS23" (DN575) / LCS w/Polyester Powder Coating	.....
23B	NPS23" (DN575) / 316 SS	.....
23S	NPS23" (DN575) / LCS w/Special Polyester Powder Coating	.....
24A	NPS24" (DN600) / LCS w/Polyester Powder Coating	.....
24B	NPS24" (DN600) / 316 SS	.....
24S	NPS24" (DN600) / LCS w/Special Polyester Powder Coating	.....
25A	NPS25" (DN625) / LCS w/Polyester Powder Coating	.....
25B	NPS25" (DN625) / 316 SS	.....
25S	NPS25" (DN625) / LCS w/Special Polyester Powder Coating	.....
26A	NPS26" (DN650) / LCS w/Polyester Powder Coating	.....
26B	NPS26" (DN650) / 316 SS	.....
26S	NPS26" (DN650) / LCS w/Special Polyester Powder Coating	.....
27A	NPS27" (DN675) / LCS w/Polyester Powder Coating	.....
27B	NPS27" (DN675) / 316 SS	.....
27S	NPS27" (DN675) / LCS w/Special Polyester Powder Coating	.....
28A	NPS28" (DN700) / LCS w/Polyester Powder Coating	.....
28B	NPS28" (DN700) / 316 SS	.....
28S	NPS28" (DN700) / LCS w/Special Polyester Powder Coating	.....
30A	NPS30" (DN750) / LCS w/Polyester Powder Coating	.....
30B	NPS30" (DN750) / 316 SS	.....
30S	NPS30" (DN750) / LCS w/Special Polyester Powder Coating	.....
32A	NPS32" (DN800) / LCS w/Polyester Powder Coating	.....
32B	NPS32" (DN800) / 316 SS	.....
32S	NPS32" (DN800) / LCS w/Special Polyester Powder Coating	.....
34A	NPS34" (DN850) / LCS w/Polyester Powder Coating	.....
34B	NPS34" (DN850) / 316 SS	.....
34S	NPS34" (DN850) / LCS w/Special Polyester Powder Coating	.....
36A	NPS36" (DN900) / LCS w/Polyester Powder Coating	.....
36B	NPS36" (DN900) / 316 SS	.....
36S	NPS36" (DN900) / LCS w/Special Polyester Powder Coating	.....

Mounting Configuration

- 1 Horizontal detector mounting
- 2 Vertical detector mounting (with shielding)

Bracket Configuration

- X Without
- A Vibration isolation (gauge to bracket)
- B Thermal isolation (gauge to bracket)

Offset

- 1 Standard
- 2 Offset on the pipe cord

Cooling Options

- X Without

Additional Equipment

- X Without
- 1 Equivalent Absorbers for SHLD,SR-A,SR-1A,SH-F,SHGL
- 2 Equivalent Absorbers SR-2



Brackets PTB3

Mounting bracket PTB3 for ProTrac Gauges

Bracket for wall or tube mounting of ProTrac gauges.



Bracket Material Construction

A LCS w/Polyester Powder Coating

C 316SS

Bracket Configuration

X Standard Gauge Mounting

A Vibration isolation (gauge to bracket)

B Thermal isolation (gauge to bracket)

PTB3.		
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Brackets PTB4

Mounting bracket PTB4 for ProTrac Gauges

Bracket for mounting MiniTrac density gauge to vessel.



Bracket Material Construction

A LCS w/Polyester Powder Coating

C 316SS

Bracket Configuration

X Standard Gauge Mounting

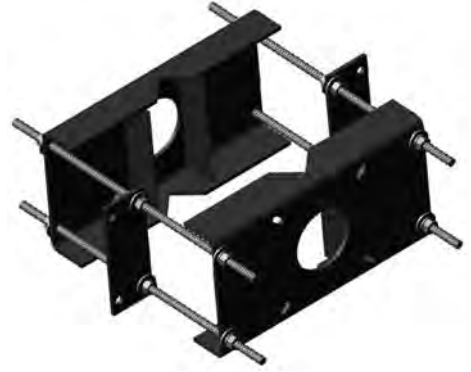
A Vibration isolation (gauge to bracket)

B Thermal isolation (gauge to bracket)

PTB4.		
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Brackets for DSG

Mounting bracket set for attaching source holder and density detector to process piping.



Version

- B1- 2" to 14" (50 mm to 355 mm)
- B2- 16" to 21"(406 mm to 508 mm)
- B3- 22" to 36"(560 mm to 813 mm)
- B4- 2" to 4" SHGL source holder and vertical DSG mount
- B5- Fiberflex "L" 304SS for vert mount (option B mtrl only)
- B6- 16" to 21"(406 mm to 508 mm) Measurement on Pipe Chord
- B7- 22" to 36"(560 mm to 813 mm) Measurement on Pipe Chord

Pipe size

- 02- 2" / 51 mm
- 04- 4" / 102 mm
- 06- 6" / 152 mm
- 08- 8" / 203 mm
- 10- 10" / 254 mm
- 12- 12" / 305 mm
- 14- 14" / 356 mm
- 16- 16" / 406 mm
- 18- 18" / 457 mm
- 20- 20" / 508 mm
- 22- 22" / 559 mm
- 24- 24" / 610 mm
- 26- 26" / 660 mm
- 28- 28" / 711 mm
- 30- 30" / 762 mm
- 32- 32" / 813 mm
- 34- 34" / 864 mm
- 36- 36" / 914 mm
- 40- 40" / 1016 mm

Bracket Material

- A- LCS w/blue polyester powder paint (standard)
- C- 316SS for B1 or B4
- C- 316SS for B2,B3,B6 or B7

Bracket Options

- X No Options
- A 30° angle mounting
- B External Mounting Tabs (quantity 2 per set)
- C Equivalent Absorbers for SHLD, SR-A, SR-1A, SH-F, SHGL
- D Equivalent Absorbers for SR-2
- F Thermal isolation for detector

Bracket Options

- X No Options
- A 30° angle mounting
- B External Mounting Tabs (quantity 2 per set)
- C Equivalent Absorbers for SHLD, SR-A, SR-1A, SH-F, SHGL
- D Equivalent Absorbers for SR-2
- F Thermal isolation for detector

Bracket Options

- X No Options
- A 30° angle mounting
- B External Mounting Tabs (quantity 2 per set)
- C Equivalent Absorbers for SHLD, SR-A, SR-1A, SH-F, SHGL
- D Equivalent Absorbers for SR-2
- F Thermal isolation for detector

Label

- 0 Standard Brady label
- 3 Engraved 316SS label

Packaging

- 0 Cardboard Box/Open Skid
- 1 Closed Wood crate
- 2 Sealed Wood crate



Accessories, Software and Spare Parts - Density

Cable:

CABLE.202676	BELDEN 8760 18AWG 2 CONDUCTOR 300V. Used to connect frequency or current signals to SmartPro remote electronics or to user's PLC/DCS unit. Specify length in 1 foot (305mm) increments. Price per foot.
CABLE.202679	Tray Cable - Belden 9341: 18AWG X 2 conductors, twisted pair, 600V, shielded, UV resistant jacket. Used to connect frequency or current signals to SmartPro remote electronics or to user's PLC/DCS input. Specify length in 1 foot (305mm) increments. Price per foot.
CABLE.247830	Intergauge Communication Cable - Belden 9841: 24 AWG, shielded x 2 twisted pair, 300V. Used to interconnect gauges to utilize RS485 communication. Specify length in 1 foot (305mm) increments. Price per foot.

Manuals:

Additional copies of manuals on CD
 Additional copies of paper manuals

Software:

244400.	Ohmview Software with USB HART modem
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Recommended Spare Parts:

245463.	Spare electronics: CPU circuit board, HART w/ RS485
239622.	Spare electronics: CPU circuit board, HART version
247658.	Spare electronics: CPU circuit board, HART version (UG)
241519.	Spare electronics: Power supply circuit board
247661.	Spare electronics: Power supply circuit board, HART version (UG)

Brackets and Accessories:

B5-00-B-XXX-00	"L" bracket for vertical mounting
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