FLEXIM

# Technical specification

# FLUXUS G831

## Ultrasonic gas flowmeters for permanent installation in hazardous areas

### Features

- Two measuring channels
- Flameproof/explosion proof housing for hazardous areas
- Intrinsic safe process inputs for the integration of external pressure and temperature sensors
- More precise measurement at unfavorable measuring points through integrated disturbance correction
- Bidirectional communication and support of common bus technologies (Profibus PA, Foundation Fieldbus, HART, Modbus, BACnet)
- Certification: ATEX/IECEx zone 1, FM Class I Div. 1+2

### Applications

- Chemical industry
- Petrochemical industry
- Oil and gas industry



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TSFLUXUS_G831V1-4-2US_Lus, 2023-10-01

# Transmitter

## Technical data

| | | FLUXUS G831 (831-AA*, 831-SA*) | FLUXUS G831 (831-AB*, 831-SB*) | FLUXUS G831 (831-ANN, 831-SNN) | FLUXUS G831**-F1N |
|---|---|---|---|---|---|
| | |  | | |  |
| design | | **831-AA*** (aluminum housing): explosion-proof field device or **831-SA*** (stainless steel housing): explosion-proof offshore device<br>zone 1 (intrinsic safety: outputs, process interfaces) | **831-AB*** (aluminum housing): explosion-proof field device or **831-SB*** (stainless steel housing): explosion-proof offshore device<br>zone 1 (intrinsic safety: outputs, inputs, process interfaces) | **831-ANN** (aluminum housing): explosion-proof field device or **831-SNN** (stainless steel housing): explosion-proof offshore device<br>zone 1 | aluminum housing: explosion-proof field device<br>FM |
| **measurement** | | | | | |
| measurement principle | | transit time difference correlation principle | | | |
| flow direction | | bidirectional | | | |
| synchronized channel averaging | | x (2 measuring channels necessary) | | | |
| flow velocity | ft/s | measuring range: 0.03 to 115, depending on pipe diameter | | | |
| repeatability | | 0.15 % MV ±0.02 ft/s | | | |
| fluid | | all acoustically conductive gases,<br>e.g., nitrogen, air, oxygen, hydrogen, argon, helium, ethylene, propane | | | |
| temperature compensation | | corresponding to the recommendations in ANSI/ASME MFC-5.1-2011 | | | |
| **measurement uncertainty (volumetric flow rate)** | | | | | |
| measurement uncertainty of the measuring system[1] | | ±0.3 % MV ±0.02 ft/s<br>includes calibration certificate traceable to NIST | | | |
| measurement uncertainty at the measuring point | | ±1 to 2 % MV ±0.02 ft/s, contact FLEXIM for an application specific uncertainty evaluation | | | |
| **transmitter** | | | | | |
| power supply | | 20 to 32 V DC, $U_m$ = 120 V | • 100 to 230 V/50 to 60 Hz or<br>• 20 to 32 V DC | | |
| power consumption | W | < 4 | < 8 | | |
| number of measuring channels | | 1, optional: 2 | | | |
| damping | s | 0 to 100 (adjustable) | | | |
| measuring cycle | Hz | 100 to 1000 (1 channel) | | | |
| response time | s | 1 (1 channel), option: 0.02 | | | |
| housing material | | aluminum housing: cast aluminum EN AC 44200 mod, special heavy-duty coating (C5 according to EN ISO 12944)<br>stainless steel housing: stainless steel 316/316L | | | cast aluminum EN AC 44200 mod, special heavy-duty coating (C5 according to EN ISO 12944) |
| degree of protection | | IP66 | | | TYPE 4X/IP66 |
| dimensions | inch | see dimensional drawing | | | |
| mounting position | | **831-A*F** (Profibus PA, FF H1)**, 831-S****:<br>nameplate faces upwards | | - | |
| weight | lb | aluminum housing: 14.3, stainless steel housing: 34.4 | | | |
| fixation | | wall mounting, 2" pipe mounting | | | |
| ambient temperature | °F | aluminum housing:<br>• -40 to +140<br>• **831-A*F** (Profibus PA, FF H1): -40 to +122 (< -4 without operation of the display)<br>stainless steel housing:<br>• -4 to +140<br>• **831-S*F** (Profibus PA, FF H1): -4 to +122 | | aluminum housing:<br>-40 to +140 (< -4 without operation of the display)<br>stainless steel housing:<br>-4 to +140 | -40 to +140 (< -4 without operation of the display) |
| display | | 128 x 64 pixels, backlight | | | |
| menu language | | English, German, French, Spanish, Dutch, Russian, Polish, Turkish, Italian, Chinese | | | |

[1] with aperture calibration of the transducers

[2] outside the explosive atmosphere (housing cover open)

| | | FLUXUS G831 (831-AA*, 831-SA*) | FLUXUS G831 (831-AB*, 831-SB*) | FLUXUS G831 (831-ANN, 831-SNN) | FLUXUS G831**-F1N |
|---|---|---|---|---|---|
| **explosion protection** | | | | | |
| **• ATEX/IECEx** | | | | | |
| marking | | CE 0637 Ex II2G II2D<br>Ex db eb ia IIC T6 Gb<br>Ex tb ia IIIC T100 °C Db<br>**831-AAN:**<br>$T_a$ -40...+60 °C<br>**831-SAN:**<br>$T_a$ -20...+60 °C<br><br>**831-AAF:**<br>$T_a$ -40...+50 °C<br>**831-SAF:**<br>$T_a$ -20...+50 °C | CE 0637 Ex II(1)2G II(1)2D<br>Ex db eb ia [ia Ga] IIC T6 Gb<br>Ex tb ia [ia Da] IIIC T100 °C Db<br>**831-ABN:**<br>$T_a$ -40...+60 °C<br>**831-SBN:**<br>$T_a$ -20...+60 °C<br><br>**831-ABF:**<br>$T_a$ -40...+50 °C<br>**831-SBF:**<br>$T_a$ -20...+50 °C | CE 0637 Ex II2G II2D<br>Ex db eb IIC T6 Gb<br>Ex tb IIIC T100 °C Db<br>**831-ANN:**<br>$T_a$ -40...+60 °C<br>**831-SNN:**<br>$T_a$ -20...+60 °C | - |
| certification | | IBExU20ATEX1103 X,<br>IECEx IBE 20.0015X | IBExU20ATEX1103 X,<br>IECEx IBE 20.0015X | IBExU20ATEX1103 X,<br>IECEx IBE 20.0015X | - |
| **• FM** | | | | | |
| marking | | - | - | - | FM APPROVED<br>Cl. I, II, III, Div. 2, GP A, B, C, D, F, G / T4A<br>Cl. I Div. 1, GP. A, B, C, D / T6<br>For Group A, conduit seal of connection compartment is required within 18 inches.<br>Cl. II, Div. 1, GP. E, F, G / T6<br>Cl. III, Div. 1 / T6<br>Ta = -40°C to +60°C<br>c FM APPROVED<br>Cl. I, II, III, Div. 2, GP A, B, C, D, F, G / T4A<br>Cl. I Div. 1, GP. B, C, D / T6<br>Cl. II, Div. 1, GP. E, F, G / T6<br>Cl. III, Div. 1 / T6<br>Ta = -40°C to +60°C |
| **measuring functions** | | | | | |
| physical quantities | | operating volumetric flow rate, standard volumetric flow rate, mass flow rate, flow velocity, optional: gas energy flow rate (DGM) | | | |
| totalizer | | volume, mass, optional: gas energy (DGM) | | | |
| calculation functions | | average, difference, sum (2 measuring channels necessary) | | | |
| diagnostic functions | | sound speed, signal amplitude, SNR, SCNR, standard deviation of amplitudes and transit times | | | |
| **communication interfaces** | | | | | |
| service interfaces | | measured value transmission, parametrization of the transmitter:<br>USB[2] | | | |
| process interfaces | | intrinsic safety, max. 1 option:<br>• HART<br>• Profibus PA<br>• FF H1 | | max. 1 option:<br>• Modbus RTU/RS485<br>• HART<br>• Profibus PA<br>• FF H1<br>• BACnet MS/TP | |
| intrinsic safety parameters | | Profibus PA, FF H1:<br>$U_i$ = 24 V<br>$I_i$ = 174 mA<br>$P_i$ = 1044 mW<br>$L_i$ = 10 µH<br>$C_i$ negligible | | - | |
| **accessories** | | | | | |
| data transmission kit | | USB cable | | | |
| software | | • FluxDiagReader: reading of measured values and parameters, graphical representation<br>• FluxDiag (optional): reading of measurement data, graphical representation, report generation, parametrization of the transmitter | | | |
| **data logger** | | | | | |
| loggable values | | all physical quantities, totalized physical quantities and diagnostic values | | | |
| capacity | | max. 800 000 measured values | | | |

[1] with aperture calibration of the transducers

[2] outside the explosive atmosphere (housing cover open)

| | | FLUXUS G831 (831-AA*, 831-SA*) | FLUXUS G831 (831-AB*, 831-SB*) | FLUXUS G831 (831-ANN, 831-SNN) | FLUXUS G831**-F1N |
|---|---|---|---|---|---|
| **outputs** | | | | | |
| | | The outputs are galvanically isolated from the transmitter. | | | |
| **• switchable current output** | | | | | |
| | | | | configurable according to NAMUR NE43<br>All switchable current outputs are jointly switched to active or passive. | |
| number | | - | | max. 3 | |
| range | mA | - | | 4 to 20 (alarm current: 3.2 to 3.99, 20.01 to 24, hardware fault current: 3.2) | |
| uncertainty | | - | | 0.04 % of output value ±3 µA | |
| active output | | - | | $R_{ext}$ = 250 to 530 Ω, $U_{opencircuit}$ = 28 V DC | |
| passive output | | - | | $U_{ext}$ = 9 to 30 V DC, depending on $R_{ext}$ ($R_{ext}$ < 458 Ω at 20 V) | |
| current output in HART mode | | - | | option | |
| • range | mA | - | | 4 to 20 (alarm current: 3.5 to 3.99, 20.01 to 22, hardware fault current: 3.2) | |
| • active output | | - | | $R_{ext}$ = 250 to 530 Ω, $U_{opencircuit}$ = 28 V DC | |
| • passive output | | - | | $U_{ext}$ = 9 to 30 V DC, depending on $R_{ext}$ ($R_{ext}$ = 250 to 458 Ω at 20 V) | |
| **• current output** | | | | | |
| | | configurable according to NAMUR NE43 | | | |
| range | mA | 4 to 20 (alarm current: 3.2 to 3.99, 20.01 to 24, hardware fault current: 3.2) | | - | |
| uncertainty | | 0.04 % of output value ±3 µA | | - | |
| passive output | | $U_{ext}$ ≤ 29 V DC, depending on $R_{ext}$ ($R_{ext}$ < 458 Ω at 20 V) | | - | |
| current output in HART mode | | option | | | |
| • range | mA | 4 to 20 (alarm current: 3.5 to 3.99, 20.01 to 22, hardware fault current: 3.2) | | - | |
| • passive output | | $U_{ext}$ = 9 to 29 V DC, depending on $R_{ext}$ ($R_{ext}$ = 250 to 458 Ω at 20 V) | | - | |
| intrinsic safety parameters | | $U_i$ = 29 V<br>$I_i$ = 100 mA<br>$P_i$ = 0.725 W<br>$C_i$ = 1 nF<br>$L_i$ = 50 nH | | - | |
| **• digital output** | | | | | |
| functions | | • frequency output<br>• binary output<br>• pulse output | | • frequency output<br>• binary output<br>• pulse output | |
| type | | open collector (passive) | | open collector (passive) | |
| operating parameters | | 8.2 V/30 mA (NAMUR) | | 8.2 V/30 mA (NAMUR) | |
| max. values | | 8 mA at 29 V DC | | 8 mA at 29 V DC | |
| **frequency output** | | | | | |
| • range | kHz | 2 to 10 | | 2 to 10 | |
| • damping | s | 0 to 999.9 | | 0 to 999.9 | |
| • pulse-to-pause ratio | | 1:1 | | 1:1 | |
| **binary output** | | | | | |
| • binary output as alarm output | | limit, change of flow direction or error | | limit, change of flow direction or error | |
| **pulse output** | | | | | |
| • pulse value | units | 0.01 to 1000 | | 0.01 to 1000 | |
| • pulse width | ms | 0.05 to 1000 | | 0.05 to 1000 | |
| • pulse rate | | max. 10 000 pulses | | max. 10 000 pulses | |
| intrinsic safety parameters | | $U_i$ = 29 V<br>$I_i$ = 100 mA<br>$P_i$ = 0.725 W<br>$C_i$ = 1 nF<br>$L_i$ = 50 nH | | - | |

[1] with aperture calibration of the transducers

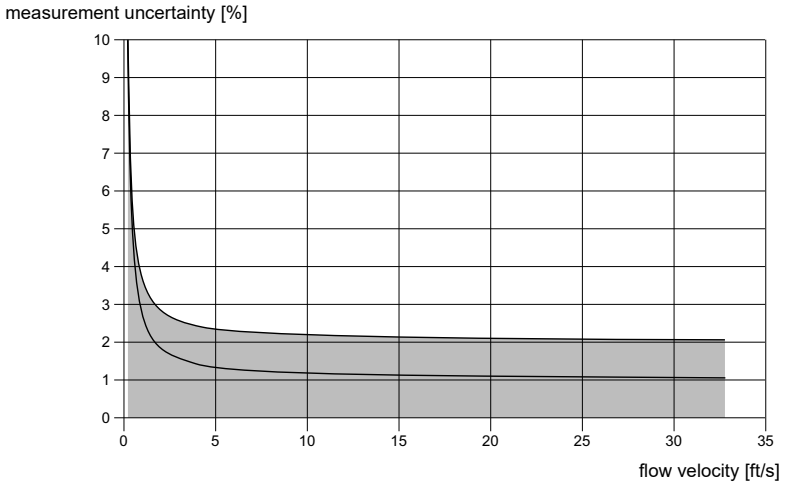
[2] outside the explosive atmosphere (housing cover open)

| | | FLUXUS G831 (831-AA*, 831-SA*) | FLUXUS G831 (831-AB*, 831-SB*) | FLUXUS G831 (831-ANN, 831-SNN) | FLUXUS G831**-F1N |
|---|---|---|---|---|---|
| **inputs** | | | | | |
| | | not short-circuit proof<br>The inputs are not galvanically isolated from the transmitter. | | The inputs are galvanically isolated from the transmitter. | |
| **• temperature input** | | | | | |
| number | | - | max. 1 | max. 1 | |
| type | | - | Pt100/Pt1000 | Pt100/Pt1000 | |
| connection | | - | 4-wire | 4-wire | |
| range | °F | - | -238 to +1040 | -238 to +1040 | |
| resolution | K | - | 0.01 | 0.01 | |
| accuracy | | | ±0.01 % MV ±0.03 K at 64 to 82 °F<br>±0.01 % MV ±0.03 K ±0.0005 %/K at <64 °F/>82 °F | ±0.01 % MV ±0.03 K at 64 to 82 °F<br>±0.01 % MV ±0.03 K ±0.0005 %/K at <64 °F/>82 °F | |
| cable resistance | Ω | | max. 1000 | max. 1000 | |
| intrinsic safety parameters | | - | $U_o$ = 9.2 V<br>$I_o$ = 25 mA<br>$P_o$ = 0.057 W<br>$C_o$ = 4283 nF<br>$L_o$ = 57 mH | - | |
| **• switchable current input** | | | | | |
| | | All switchable current inputs are jointly switched to active or passive. | | | |
| number | | - | | max. 2 | |
| accuracy | | - | | ±0.1 % MV ±0.01 mA at 64 to 82 °F<br>±0.1 % MV ±0.01 mA ±0.005 %/K at <64 °F/>82 °F | |
| resolution | µA | - | | 0.1 | |
| active input | | - | | $R_{int}$ = 75 Ω, $I_{max}$ ≤ 30 mA<br>$U_{opencircuit}$ = 28 V (open circuit)<br>$U_{min}$ = 21.4 V at 20 mA | |
| • range | mA | - | | 0 to 20 | |
| passive input | | - | | $U_{ext}$ = 24 V, $R_{int}$ = 35 Ω, $I_{max}$ ≤ 24 mA | |
| • range | mA | - | | 0 to 20 | |
| **• current input** | | | | | |
| number | | - | max. 1 | - | |
| accuracy | | - | ±0.1 % MV ±0.01 mA at 64 to 82 °F<br>±0.1 % MV ±0.01 mA ±0.005 %/K at <64 °F/>82 °F | - | |
| resolution | µA | | 0.1 | - | |
| active input | | - | $U_{int}$ < 20 V, $R_{int}$ ≤ 385 Ω, $I_{max}$ ≤ 40 mA<br>$U_{min}$ = 19.6 V - $R_{int}$ · I | - | |
| • range | mA | - | 0 to 20 | - | |
| intrinsic safety parameters | | - | $U_o$ = 29.2 V<br>$I_o$ = 88 mA<br>$P_o$ = 0.64 W<br>$C_o$ = 73 nF<br>$L_o$ = 4.1 mH | - | |

[1] with aperture calibration of the transducers

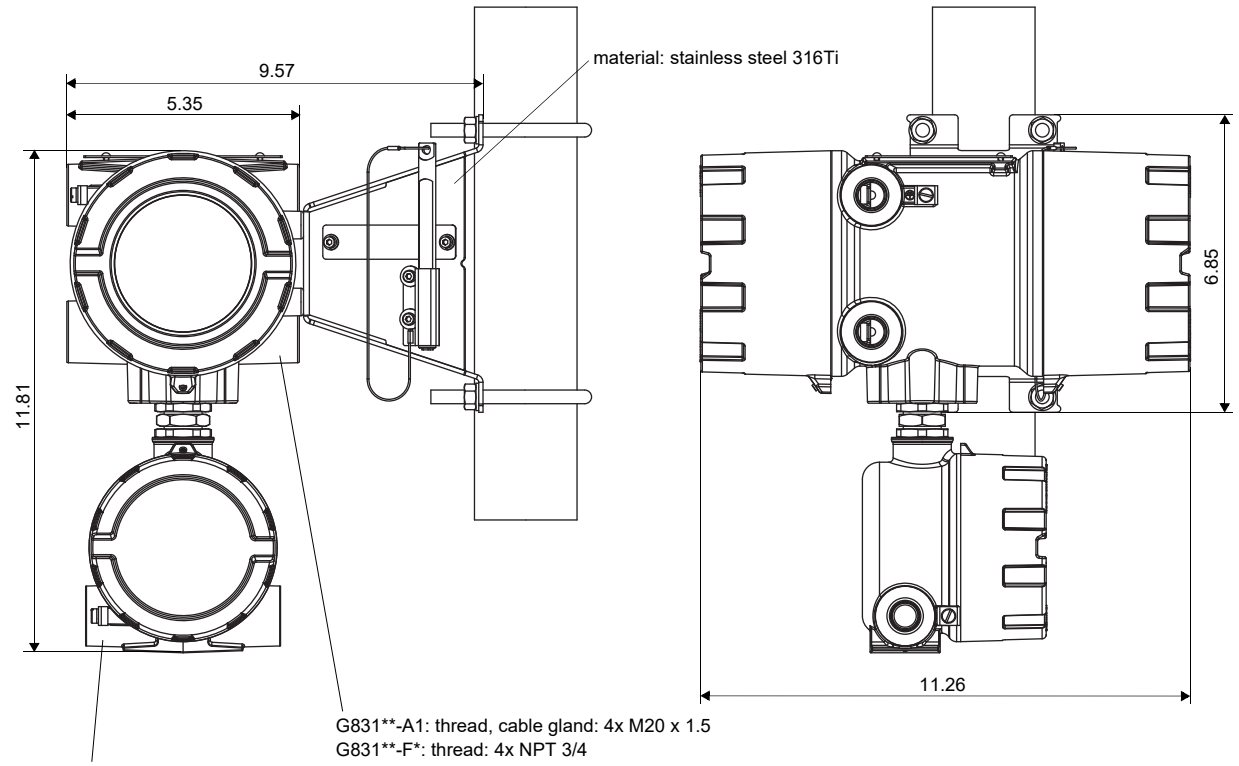
[2] outside the explosive atmosphere (housing cover open)

**Measurement uncertainty**



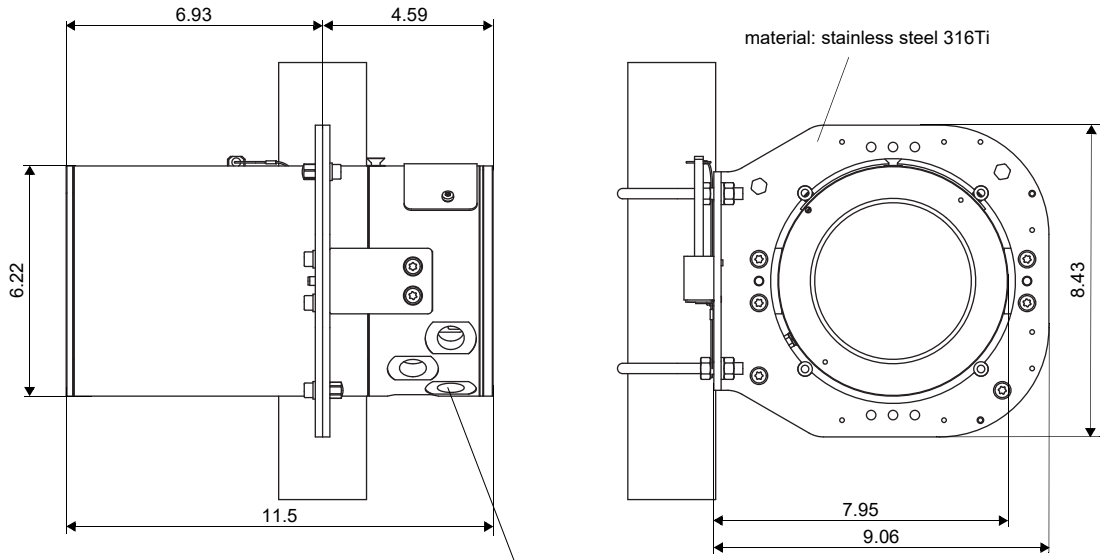
## Dimensions

***831 (aluminum housing)**




in inch

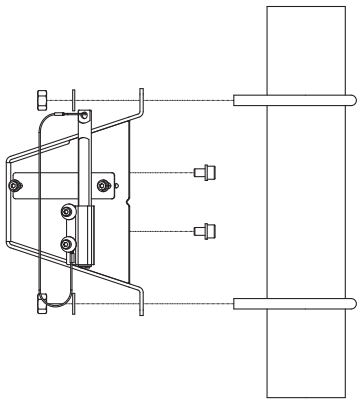
***831 (stainless steel housing)**



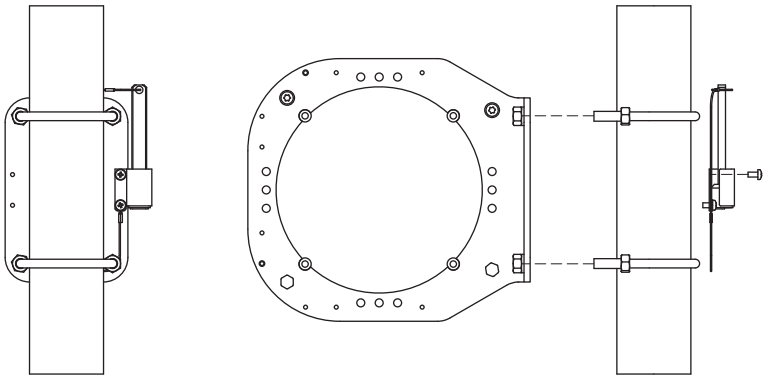

in inch

## Wall and 2" pipe mounting kit

***831 (aluminum housing)**



***831 (stainless steel housing)**

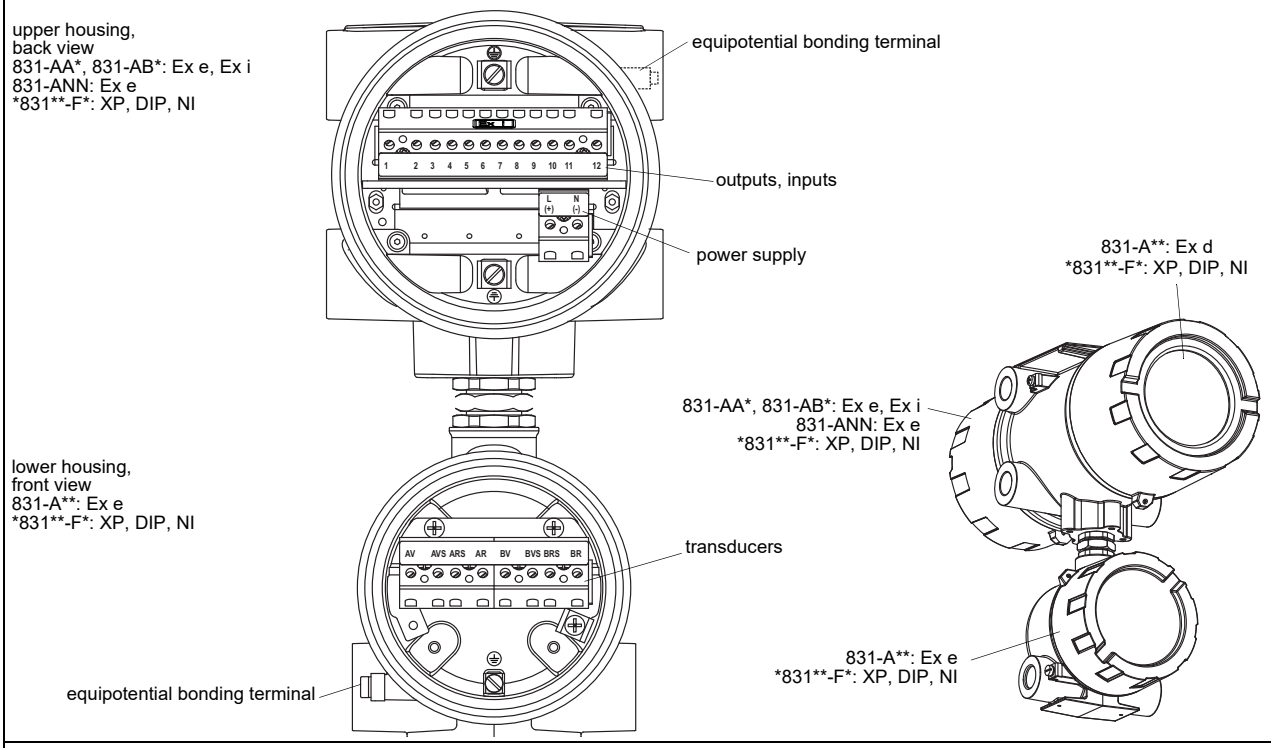


## Storage

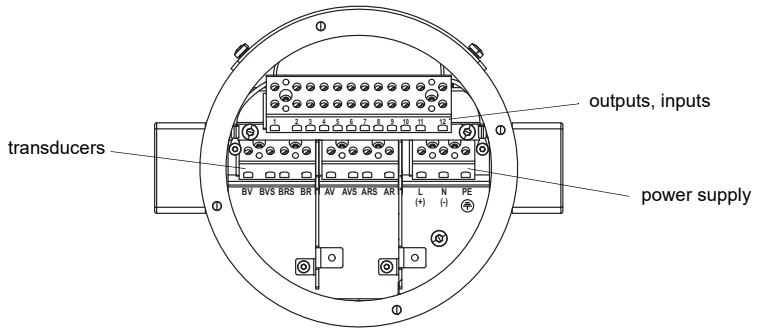
- do not store outdoors
- store within the original package
- store in a dry and dust-free place
- protect against sunlight
- keep all openings closed
- storing temperature:
  - aluminum housing: -40…+140 °F
  - stainless steel housing: -4…+140 °F

# Terminal assignment

***831 (aluminum housing)**




***831 (stainless steel housing)**




| **power supply**[1] | | | |
|---|---|---|---|
| **AC** | | **DC** | |
| **terminal** | **connection** | **terminal** | **connection** |
| L | outer conductor | (+) | + |
| N | neutral conductor | (-) | - |
| ⏚ | protective conductor | ⏚ | protective conductor |

[1] cable (by customer): e.g., flexible wires, with insulated wire ferrules, wire cross-section: AWG14 to 24

| **transducers, extension cable** | | | | |
|---|---|---|---|---|
| **measuring channel A** | | **measuring channel B** | | **transducer** |
| **terminal** | **connection** | **terminal** | **connection** | |
| AV | signal | BV | signal | |
| AVS | internal shield | BVS | internal shield | |
| ARS | internal shield | BRS | internal shield | |
| AR | signal | BR | signal | |
| cable gland | external shield | cable gland | external shield | |

| **outputs, inputs[1, 2]** | | |
|---|---|---|
| **terminal** | **connection** | |
| depending on configuration | current output, digital output, current input | |
| 3, 4, 5, 6 | temperature input | |
| 11+, 12- | passive current output/HART | |
| 11-, 12+ | active current output/HART | |
| 11, 12 | Modbus RTU, FF H1, Profibus PA, BACnet MS/TP | |
| | | |
| **temperature probe** | | |
| **terminal** | **direct connection** | **connection with extension cable** |
| 3 | red | red |
| 4 | white | black |
| 5 | red | green |
| 6 | white | white |
| | | |
| USB | type C<br>Hi-Speed USB 2.0 Device | service (FluxDiag/FluxDiagReader) |

[1] cable (by customer): e.g., flexible wires, with insulated wire ferrules, wire cross-section: AWG14 to 24

[2] The number, type and terminal assignment are customized.

# Transducers

## Overview

### Shear wave transducers

| | | | technical type | | | | |
|---|---|---|---|---|---|---|---|
| | | | G | K | M | P | Q |
| **zone 1<br>normal temperature range** | | | GDG1N81<br>GLG1N81 | GDK1N81<br>GLK1N81 | GDM2N81<br>GLM2N81 | GDP2N81<br>GLP2N81 | GDQ2N81<br>GLQ2N81 |
| **zone 1<br>IP68** | | | GDG1LI1 | GDK1LI1 | GDM2LI1 | GDP2LI1 | |
| **zone 1<br>extended temperature range** | | | GDG1E83<br>GLG1E83 | GDK1E83<br>GLK1E83 | GDM2E85<br>GLM2E85 | GDP2E85<br>GLP2E85 | GDQ2E85<br>GLQ2E85 |
| **FM Class I Div. 1<br>normal temperature range** | | | GDG1N62<br>GLG1N62 | GDK1N62<br>GLK1N62 | GDM1N62<br>GLM1N62 | GDP1N62<br>GLP1N62 | GDQ1N62<br>GLQ1N62 |
| **FM Class I Div. 2<br>normal temperature range** | | | GDG1N52<br>GLG1N52 | GDK1N52<br>GLK1N52 | GDM2N52<br>GLM2N52 | GDP2N52<br>LP2N52 | GDQ2N52<br>GLQ2N52 |
| **FM Class I Div. 2<br>extended temperature range** | | | | | GDM2E52<br>GLM2E52 | GDP2E52<br>GLP2E52 | GDQ2E52<br>GLQ2E52 |
| **inner pipe diameter d** | | | | | | | |
| min. extended | inch | | 7.1 | 2.4 | 1.2 | 0.59 | 0.28 |
| min. recommended | inch | | 8.7 | 3.1 | 1.6 | 0.79 | 0.39 |
| max. recommended | inch | | 35.4 | 11.8 | 5.9 | 2 | 0.87 |
| max. extended | inch | | 43.3 | 14.2 | 7.1 | 2.4 | 1.2 |
| **pipe wall thickness** | | | | | | | |
| min. | inch | | 0.43 | 0.2 | 0.1 | 0.05 | 0.02 |
| **fluid pressure** | | | | | | | |
| min. extended | psi | | metal pipe: 290 | | | | |
| min. | psi | | metal pipe: 435, plastic pipe: 15 | | | | |

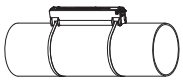
for further data see Technical specification TS_G8xx-transducersVx-xXX_Lus

### Lamb wave transducers

| | | | technical type | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | F | G | H | K | M | P | Q |
| **zone 1<br>normal temperature range** | | | GRF1N83<br>GTF1N83 | GRG1N83<br>GTG1N83 | GRH1N83<br>GTH1N83 | GRK1N83<br>GTK1N83 | GRM1N83<br>GTM1N83 | GRP1N83<br>GTP1N83 | GRQ1N83<br>GTQ1N83 |
| **zone 1<br>higher temperatures** | | | | GRG1S83<br>GTG1S83 | GRH1S83<br>GTH1S83 | GRK1S83<br>GTK1S83 | GRM1S83<br>GTM1S83 | | |
| **zone 1<br>IP68** | | | GRF1LI3 | GRG1LI3 | GRH1LI3 | GRK1LI3 | GRM1LI3 | GRP1LI3 | |
| **FM Class I Div. 1** | | | | GRG1N62<br>GTG1N62 | GRH1N62<br>GTH1N62 | GRK1N62<br>GTK1N62 | GRM1N62<br>GTM1N62 | GRP1N62<br>GTP1N62 | GRQ1N62<br>GTQ1N62 |
| **FM Class I Div. 2** | | | GRF1N52<br>GTF1N52 | GRG1N52<br>GTG1N52 | GRH1N52<br>GTH1N52 | GRK1N52<br>GTK1N52 | GRM1N52<br>GTM1N52 | GRP1N52<br>GTP1N52 | GRQ1N52<br>GTQ1N52 |
| **FM Class I Div. 2<br>higher temperatures** | | | | GRG1S52<br>GTG1S52 | GRH1S52<br>GTH1S52 | GRK1S52<br>GTK1S52 | GRM1S52<br>GTM1S52 | | |
| **fluid pressure** | | | | | | | | | |
| min. extended | psi | | metal pipe: 145 | metal pipe: 145 | metal pipe: 145 | metal pipe:<br>145<br>(d > 4.7 inch)<br>44<br>(d < 4.7 inch) | metal pipe:<br>44<br>(d < 2.4 inch) | metal pipe:<br>44<br>(d < 1.4 inch) | metal pipe:<br>44 (d <<br>0.59 inch) |
| min. | psi | | metal pipe: 218<br>plastic pipe: 15 | metal pipe: 218<br>plastic pipe: 15 | metal pipe: 218<br>plastic pipe: 15 | metal pipe:<br>218<br>(d > 4.7 inch)<br>145 (d <<br>4.7 inch)<br>plastic pipe: 15 | metal pipe:<br>145<br>(d > 2.4 inch)<br>73<br>(d < 2.4 inch)<br>plastic pipe: 15 | metal pipe:<br>145<br>(d > 1.4 inch)<br>73<br>(d < 1.4 inch)<br>plastic pipe: 15 | metal pipe:<br>145<br>(d > 0.59 inch)<br>73<br>(d < 0.59 inch)<br>plastic pipe: 15 |
| **inner pipe diameter d** | | | | | | | | | |
| min. extended | inch | | 8.7 | 7.1 | 4.3 | 2.4 | 1.2 | 0.59 | 0.28 |
| min. recommended | inch | | 10.6 | 8.7 | 5.5 | 3.1 | 1.6 | 0.79 | 0.39 |
| max. recommended | inch | | 47.2 | 35.4 | 23.6 | 11.8 | 5.9 | 2 | 0.87 |
| max. extended | inch | | 63 | 55.1 | 39.4 | 14.2 | 7.1 | 2.4 | 1.2 |
| **pipe wall thickness ****N**, ****L**** | | | | | | | | | |
| min. | inch | | 0.59 | 0.43 | 0.31 | 0.2 | 0.1 | 0.05 | 0.02 |
| max. | inch | | 1.3 | 0.94 | 0.63 | 0.39 | 0.2 | 0.12 | 0.05 |
| max. extended | inch | | 1.4 | - | - | - | - | - | - |
| **pipe wall thickness ****S**** | | | | | | | | | |
| min. | inch | | | 0.42 | 0.28 | 0.17 | 0.08 | | |
| max. | inch | | | 0.93 | 0.62 | 0.37 | 0.19 | | |

for further data see Technical specification TS_G8xx-transducersVx-xXX_Lus

## Transducer mounting fixture

| PermaRail | PermaFix |
|---|---|
|  |  |
| | |
| | **PermaFix with bolt mounting plates** |
| |  |

for further data see Technical specification TS_G8xx-transducersVx-xXX_Lus

## Coupling materials for transducers

| | normal temperature range | | extended temperature range | | |
|---|---|---|---|---|---|
| | < 212 °F | < 338 °F | < 302 °F | < 392 °F | 392 to 464 °F |
| < 24 h | coupling compound type N or coupling pad type VT | coupling compound type E or coupling pad type VT | coupling compound type E or coupling pad type VT | coupling compound type E or H or coupling pad type VT | coupling pad type TF |
| long time measurement | coupling pad type VT | coupling pad type VT | coupling pad type VT | coupling pad type VT | |

for further data see Technical specification TS_G8xx-transducersVx-xXX_Lus

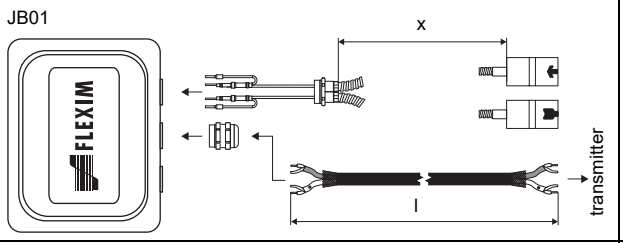
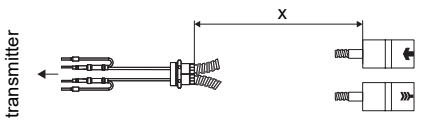
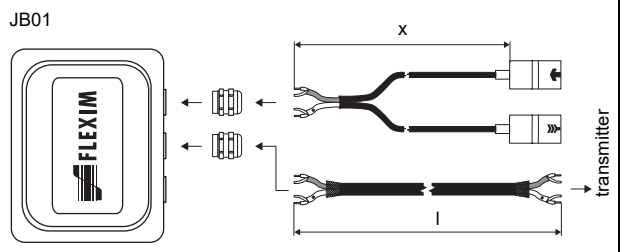
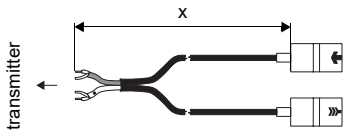
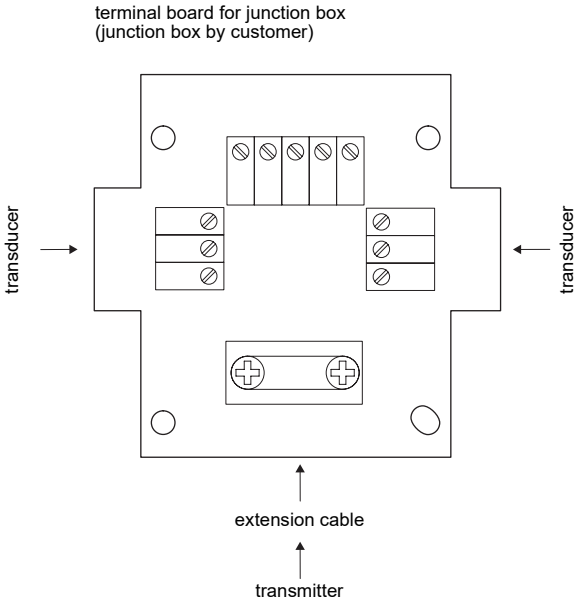
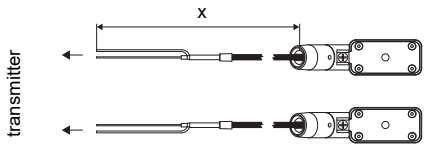
## Damping material

| | | damping mat | | damping coat |
|---|---|---|---|---|
| item number | | 992080-11 | 992080-10 | 992080-13 |
| type | | E30R4 | E30R3 | |

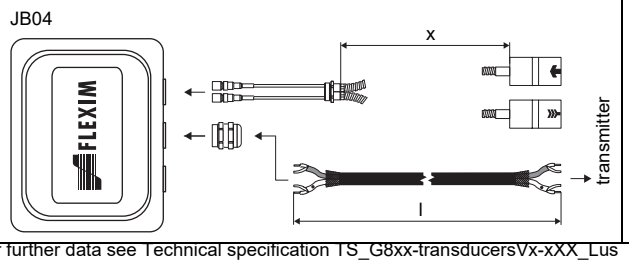
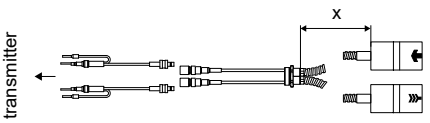
for further data see Technical specification TS_G8xx-transducersVx-xXX_Lus

## Connection systems

**connection system T1**

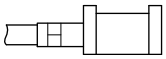
| connection with extension cable | direct connection | transducers technical type |
|---|---|---|
|  |  | *****8* |
|  |  | ****LI* |
|  |  | *****62 |

**connection system TS**

| connection with extension cable | direct connection | transducers technical type |
|---|---|---|
|  |  | *****52 |

for further data see Technical specification TS_G8xx-transducersVx-xXX_Lus

# Temperature probes

| PT12N (item number: 770415-6) | PT12N (item number: 770415-7) |
|---|---|
| • Pt100<br>• clamp-on<br>• -49 to +446 °F<br>• ATEX zone 0/1 (intrinsic safety)<br>• for 831-*B* | • Pt100<br>• clamp-on<br>• -49 to +482 °F<br>• ATEX zone 1<br>• for 831-*NN |
| | |
|  | |

see Technical specification TS_PTVx-xXX