

VISY-Stick

The level and environmental sensor based on the magnetostrictive measuring principle

VISY-Stick is a level and environmental sensor that has been specially designed to offer high-precision volume and leakage monitoring.



VISY-Stick magnetostrictive sensors with screw-in unit (left) and for riser installation (right)

Function

The VISY-Stick sensor operates in accordance with the magnetostrictive measuring principle. The probe tube contains a wire made of magnetostrictive material. Magnets integrated in the floats magnetise the wire at the float position. The sensor electronics transmit current pulses through the wire, which generate a circu-

lar magnetic field. A torsional wave develops at the point where the two magnetic fields overlap and it propagates towards the probe head. In the probe head, these waves are converted into an electrical signal. The float positions and the temperature are calculated from the different propagation times.

Design

A VISY-Stick comprises:

- » Stainless steel sensor housing
- » Stainless steel probe tube
- » Brass screw-in unit (height adjustable)*
- » Stainless steel product float
- » Stainless steel water float

Features of the FAFNIR technology

- High-precision sensors based on the magnetostrictive measuring principle
- Detects product filling level, product temperature and water level
- All wetted parts are made of high-quality stainless steel
- Maintenance-free
- Permanent self-diagnostics
- Also suitable for AdBlue
- Optional: with 1" floats and screw-in unit
- Wireless link to VISY-Command supported

* for use in AdBlue, the screw-in unit is made of stainless steel

Technical data

VISY-Stick

Standard version

» Product:

Accuracy ± 0.5 mm;
Repeatability ± 0.1 mm;
Resolution 0.001 mm;
Response threshold 75 mm*;
Float $\varnothing 43$ mm, 1½";

» Water:

Accuracy ± 2 mm;
Repeatability ± 0.5 mm;
Resolution 0.001 mm;
Response threshold 23 mm*;
Float $\varnothing 43$ mm, 1½";

* Product density and the position of the other float may result in variations

» Temperature:

Measuring range
- 40 °C to + 85 °C;
Accuracy ± 1 °C (20 °C);
Repeatability ± 0.5 °C;
Resolution 0.001 °C

» Process connection:

R 1½ screw-in unit,
brass, height adjustable

» Electrical connection:

M12 Plug connector

» Casing protection: IP68

» Sensor material:

Stainless steel

» Approvals:

ATEX, NEPSI, IECEx, UL-Brazil

» Certificates: CPA, OIML

Options

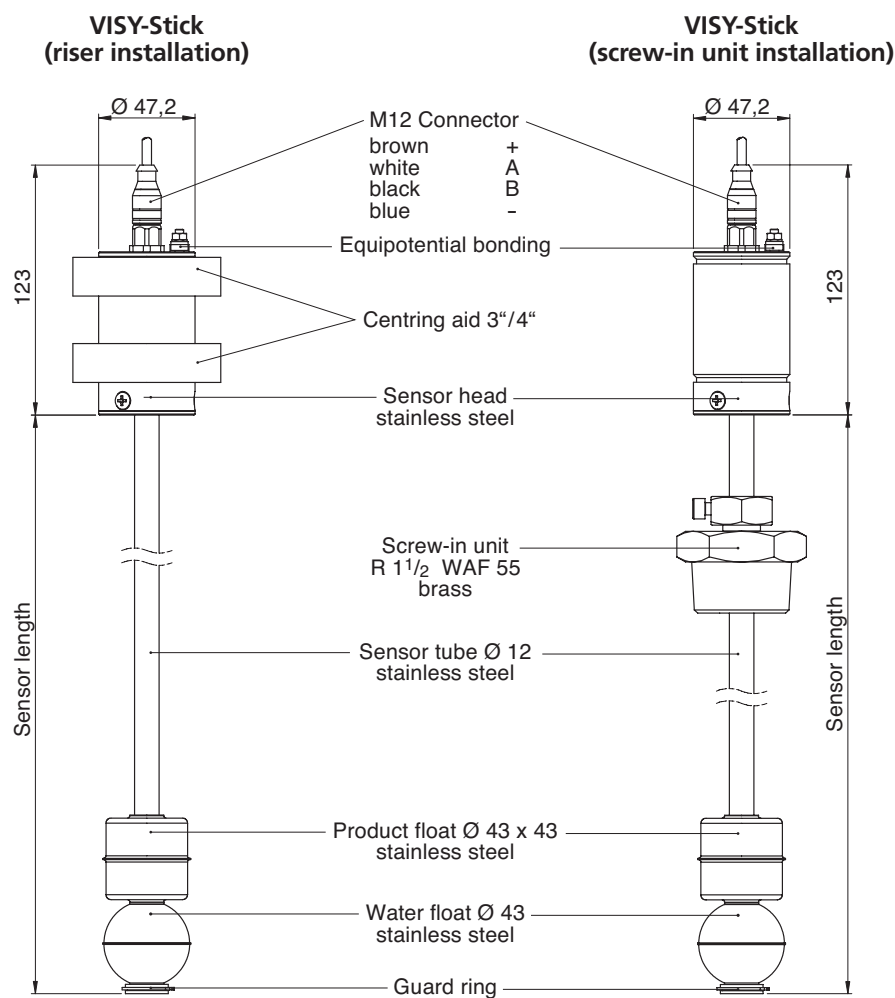
» Riser installation

» Battery-powered transmitter
VISY-RFT for wireless link
to the VISY-Command RF
control unit

» 1" installation kit

» Screw-in unit made of
stainless steel

VISY-Stick



VISY-Stick Advanced

The high-precision level and environmental sensor based on the magnetostrictive measuring principle

The VISY-Stick Advanced level sensor is ideal for applications that demand maximum precision and is also suitable for detecting tank leaks.



VISY-Stick Advanced magnetostrictive sensors with screw-in unit (left) and for riser installation (right)

Function description

The VISY-Stick Advanced sensor operates in accordance with the magnetostrictive measuring principle. The probe tube contains a wire made of magnetostrictive material. Magnets integrated in the floats magnetise the wire at the float position. The sensor electronics transmit

current pulses through the wire, which generate a circular magnetic field. A torsional wave develops at the point where the two magnetic fields overlap and it propagates towards the probe head. In the probe head, these waves are converted into an electrical signal. The float po-

sitions are calculated from the different propagation times. For precision temperature measurements, the sensor tube of the VISY-Stick Advanced contains temperature sensors.

Features of the FAFNIR technology

- Detects product filling level, water level, and temperatures at multiple points along the measurement length
- Precise gauging of product temperature by means of temperature sensors
- Detects even the most minimal of level changes
- Wireless link to a VISY-Command RF possible
- Certificates: CPA, EPA, OIML

Technical data

VISY-Stick Advanced

Standard version

» Product:

Accuracy ± 0.25 mm;
Repeatability ± 0.05 mm;
Resolution 0.001 mm;
Response threshold 75 mm*;
Float \varnothing 54 mm, 2";

» Water:

Accuracy ± 2 mm;
Repeatability ± 0.5 mm;
Resolution 0.001 mm;
Response threshold 23 mm*;
Float \varnothing 43 mm, 1½";

* Product density and the position of the other float may result in variations

» Temperature:

Measuring range
- 40 °C to + 85 °C;
Accuracy ± 0.3 °C (20 °C);
Repeatability ± 0.1 °C;
Resolution 0.001 °C

» Process connection:

R 1½ screw-in unit,
brass, height adjustable

» Electrical connection:

M12 Plug connector

» Casing protection: IP68

» Sensor material:

stainless steel

» Approval:

ATEX, NEPSI, IECEx, UL-Brazil

» Certificates: CPA, EPA, OIML

Options

» Riser installation

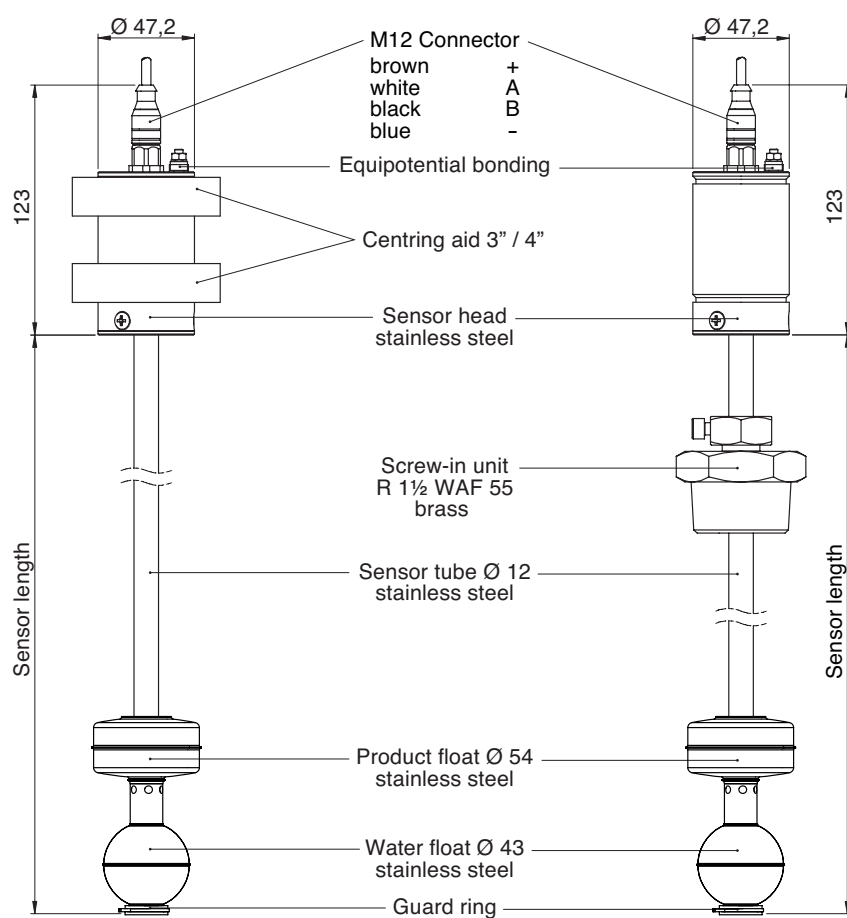
Battery-powered transmitter
VISY-RFT for wireless link
to the VISY-Command RF
control unit

» Screw-in unit made of stainless steel

VISY-Stick Advanced

VISY-Stick Advanced (riser installation)

VISY-Stick Advanced (screw-in unit installation)



Dimensions in mm

VISY-Density

The highly accurate density measuring module

The VISY-Density module is designed for the measurement of fuel densities. It can be mounted on the VISY-Stick Advanced sensor without the need to install an additional sensor. In combination with the density module the VISY-Stick Advanced provides accurate information about the product filling level, water level, product temperature and product density in the tank.



The magnetostrictive sensors
VISY-Stick Advanced Density with screw-in unit (left) and for riser installation (right)

Function description

Inside the VISY-Density module* the buoyancy of a displacer is measured (Archimedean principle). It provides precise information as to whether fuel in the tank is in conformity with

legal and in-house standards. Any changes and deteriorations of the product quality can be measured and alarms can be configured in VISY-Command. The tank level gauging and

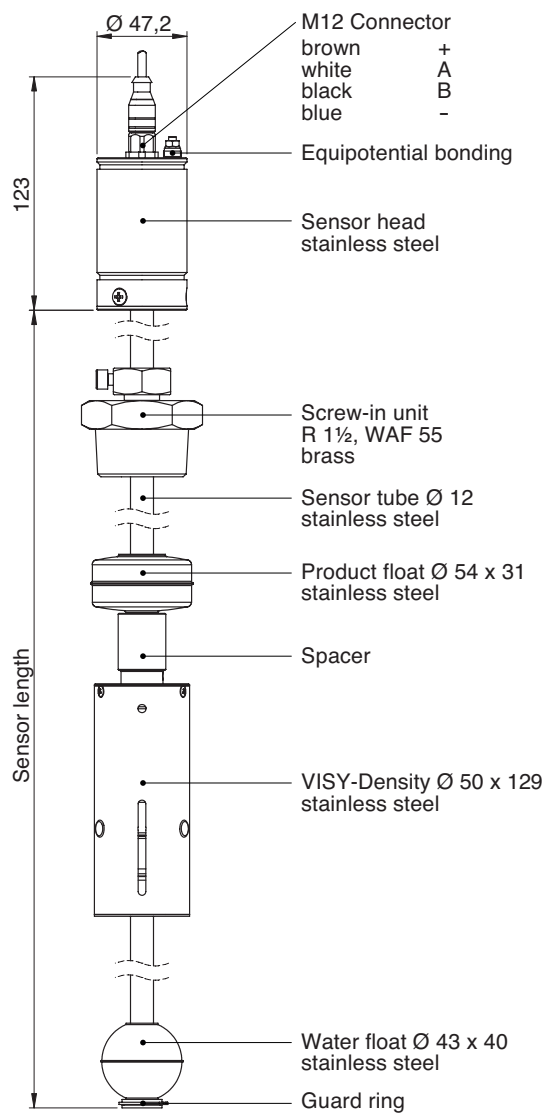
VISY-Density combination will enable you to control and manage your valuable wet stocks in every respect.

* Patents pending

Features of the FAFNIR technology

- Continuous and hysteresis free density measurement
- Function in conjunction with the level sensor VISY-Stick Advanced
- Compact design
- Quality control of fuels
- Recognition of water containing sump fluids in ethanol blends
- Determination of water content in E85 to E100 fuels

VISY-Density



Technical data

VISY-Density

» Product:

Accuracy ± 2 g/l,
Resolution 0.1 g/l

» Temperature range:

- 40 °C to +85 °C

» Dimensions:

Diameter 50 mm;
Length 129 mm

» Operating pressure:

up to 16 bar

» Sensor material:

Stainless steel

Example

VISY-Stick Flex

The flexible level and environmental sensor
based on the magnetostrictive measuring principle

VISY-Stick Flex is a level sensor
which is especially designed for
bulk storage tanks



Function description

The VISY-Stick Flex sensor operates according to the magnetostrictive measuring principle. A wire made of magnetostrictive material has been integrated into the flexible corrugated hose. The special design of the sensor allows the sensor body to be bent. So the VISY-Stick Flex can be packed compactly and

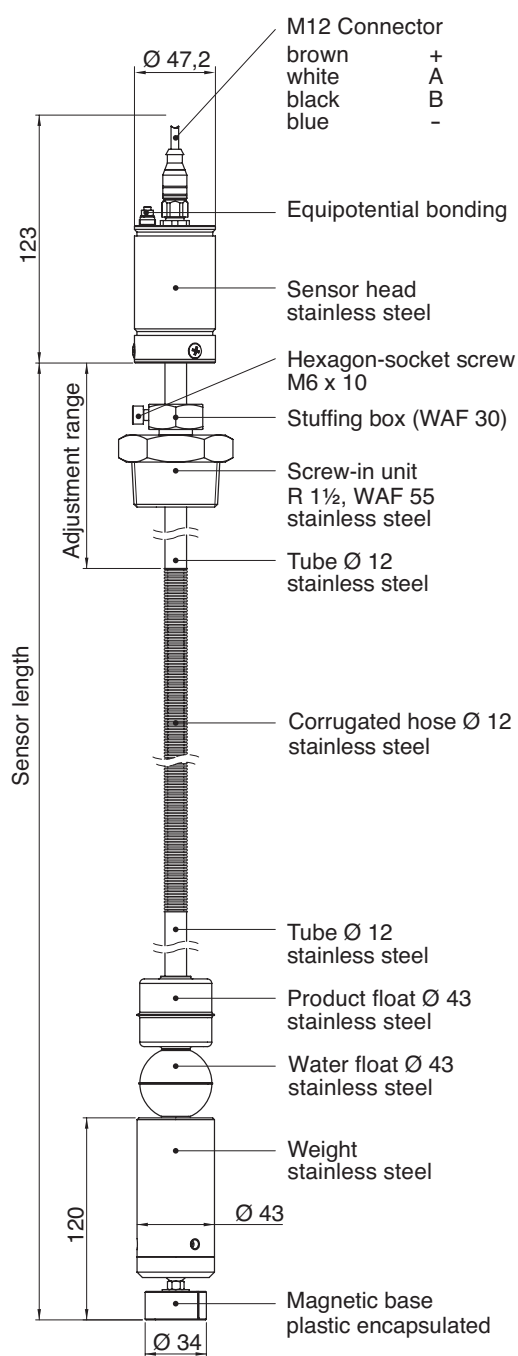
shipped at low cost. Another advantage is the easy installation. A weight at the lower end of the sensor stretches it out to its full length, and a magnet placed below the weight secures the sensor to be in place. When the magnet is in contact with the bottom of the tank (after installation) any unintentional

movement of the VISY-Stick Flex is avoided. When the installation of the VISY-Stick Flex level sensor has been completed, the corrugated hose is positioned vertically and both the product and the water float can freely move up and down.

Features of the FAFNIR technology

- High-precision sensor based on the magnetostrictive measuring principle
- Detects product filling level, product temperature and water level
- Sensor length up to 15 meters
- Compact packaging and easy transport thanks to the corrugated tube
- Weight at end of sensor guarantees vertical installation
- Lower end of the sensor held in place by a magnet
- Installation in tanks with low ceiling height possible
- Easy installation
- Installation in 1½" process connection possible
- Wireless link to a VISY-Command RF possible
- Maintenance-free

VISY-Stick Flex



Dimensions in mm

Technical data

VISY-Stick Flex

Standard version

- » Measurement lengths up to 15 m
- » Product:
 - Accuracy ± 2 mm;
 - Repeatability ± 0.5 mm;
 - Resolution 0.001 mm;
 - Response threshold 185 mm*;
 - Float Ø 43 mm, 1½";
- » Water:
 - Accuracy ± 3 mm;
 - Repeatability ± 0.5 mm;
 - Resolution 0.001 mm;
 - Response threshold 140 mm*;
 - Float Ø 43 mm, 1½";

* Product density and the position of the other float may result in variations

- » Temperature:
 - Measuring range -40 °C to +85 °C;
 - Accuracy ± 1.5 °C (20 °C);
 - Repeatability ± 0.5 °C;
 - Resolution 0.001 °C
- » Process connection:
 - R 1½ screw-in unit,
 - Stainless steel,
 - Adjustment range approx. 500 mm
- » Electrical connection:
 - M12 Plug connector
- » Casing protection: IP68
- » Sensor material:
 - Stainless steel;
 - Encapsulation of magnetic base: Conductive plastic
- » Approvals:
 - ATEX, IECEx, NEPSI

Options

- » Battery-powered transmitter VISY-RFT for wireless link to the VISY-Command RF control unit

VISY-Stick LPG

The level sensor for liquefied petroleum gas based on the magnetostrictive measuring principle

The VISY-Stick LPG level sensor supplies information about the fuel levels in LPG tanks.

The magnetostrictive sensor with buna float and pressure-resistant stainless steel screw connection is specially designed for use in liquefied petroleum gas.



VISY-Stick LPG for direct installation in the tank

Function

The VISY-Stick LPG sensor operates in accordance with the magnetostrictive measuring principle. The probe tube contains a wire made of magnetostrictive material. A magnet integrated in the float magnetises the wire at the

float position. The sensor electronics transmit current pulses through the wire, which generate a circular magnetic field. A torsional wave develops at the point where the two magnetic fields overlap and it propagates

towards the probe head. In the probe head, these mechanical waves are converted into an electrical signal. The float positions and the temperature are calculated from the propagation time.

Features of the FAFNIR technology

- Magnetostrictive sensor for use in liquefied petroleum gas (buna float, pressure-resistant stainless-steel screw connection)
- Continuous monitoring of product level and product temperature
- Also available with a 1" float
- Two installation versions: direct installation or installation with installation kit

Technical data

VISY-Stick LPG

Standard version

» Product:

Accuracy ± 2 mm;
Repeatability ± 0.5 mm;
Resolution 0.001 mm;
Response threshold 120 mm;
Float $\varnothing 43$ mm, 1½";

» Temperature:

Measuring range
-40 °C to +85 °C;
Accuracy ± 1 °C;
Repeatability ± 0.5 °C;
Resolution 0.001 °C

» Process connection:

Screw-in unit ¾" NPT with
1½" reducer, Stainless steel,
height adjustable

» Electrical connection:

M12 Plug connector

» Casing protection: IP68

» Sensor material:

Stainless steel

» Product float material:

Buna

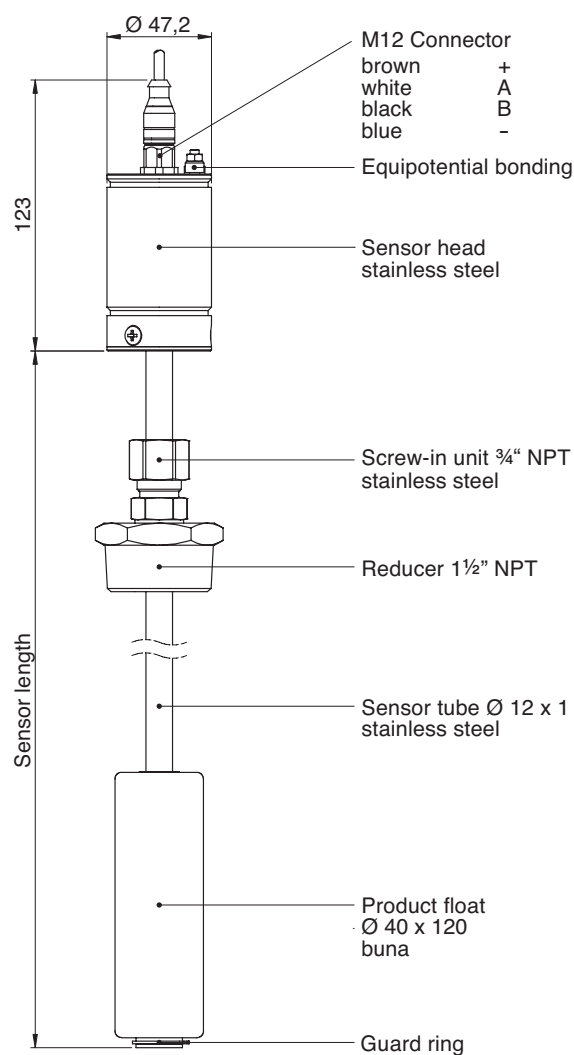
» Approvals: ATEX, NEPSI, IECEX, UL-Brazil

» Certificates: CPA, OIML

Options

- » Battery-powered transmitter
VISY-RFT for wireless link
to the VISY-Command RF
control unit
- » Variable LPG Installation Kit
- » Screw-in unit ½" NPT,
Stainless steel
- » 1" product float

VISY-Stick LPG



Dimensions in mm

Variable LPG installation kit

The variable LPG installation kit comprises a jacketed pipe with special LPG float and a cutting ring fitting with $\frac{3}{4}$ " NPT external thread.



Variable LPG installation kit
to install VISY-Stick LPG

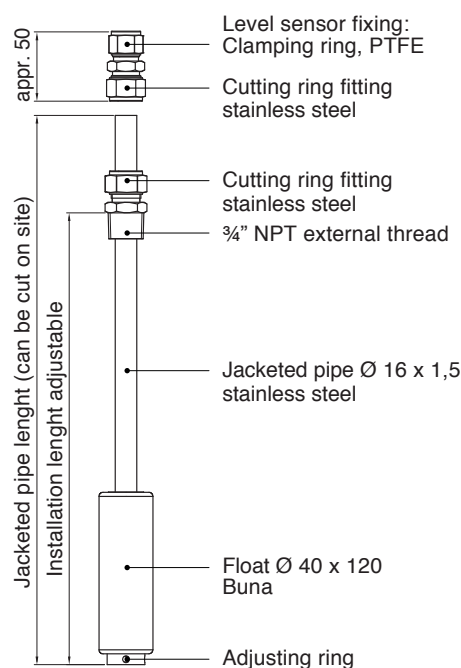
Function description

The installation length of the variable LPG installation kit can be adjusted. The exact installation dimensions do not need to be known for this installation.

The attachment to the process connection of the tank is done with a cutting ring fitting which is movable on the jacketed pipe and can be adapted to the tank diameter. If necessary, the length of the jacketed pipe can be cut on-site.

After fixing the installation kit, the level sensor is simply slid into the jacketed pipe and attached. Now, the level sensor is not in the pressurised chamber and can be replaced at any time without releasing the pressure in the tank.

Variable LPG installation kit



Dimensions in mm

Features of the FAFNIR technology

- Adjustable installation length
- No prior knowledge of exact installation length required
- Can be cut on-site
- One-time emptying of the tank during the installation
- Significant cost savings
- Easy installation
- Material: Stainless steel, buna
- Maintenance-free

VISY-Stick Interstitial

The leakage sensor for double-walled tanks based on the magnetostrictive measuring principle

The VISY-Stick Interstitial is a sensor for installation in the intermediate chamber and is designed to guarantee rapid leak detection. It is used in double-walled tanks whose intermediate chambers are filled with a leak detection fluid (e.g. brine, glycol, etc.). An alarm is issued from VISY-Command if the fluid level in the intermediate chamber leaves a specified range.



VISY-Stick Interstitial
with screw-in unit (left)
and for riser installation (right)

Function

The VISY-Stick Interstitial sensor operates in accordance with the magnetostrictive measuring principle. The probe tube contains a wire made of magnetostrictive material. A magnet integrated in the float magnetises the wire

at the float position. The sensor electronics transmit current pulses through the wire, which generate a circular magnetic field. A torsional wave develops at the point where the two magnetic fields overlap and it propagates

towards the probe head. In the probe head, these waves are converted into an electrical signal. The float position is calculated from the propagation time.

Features of the FAFNIR technology

- Continuous monitoring of the fluid level
- VISY-Command gives instant alarm in the event of a leak
- Easy and cost-effective to install and commission

Technical data

VISY-Stick Interstitial

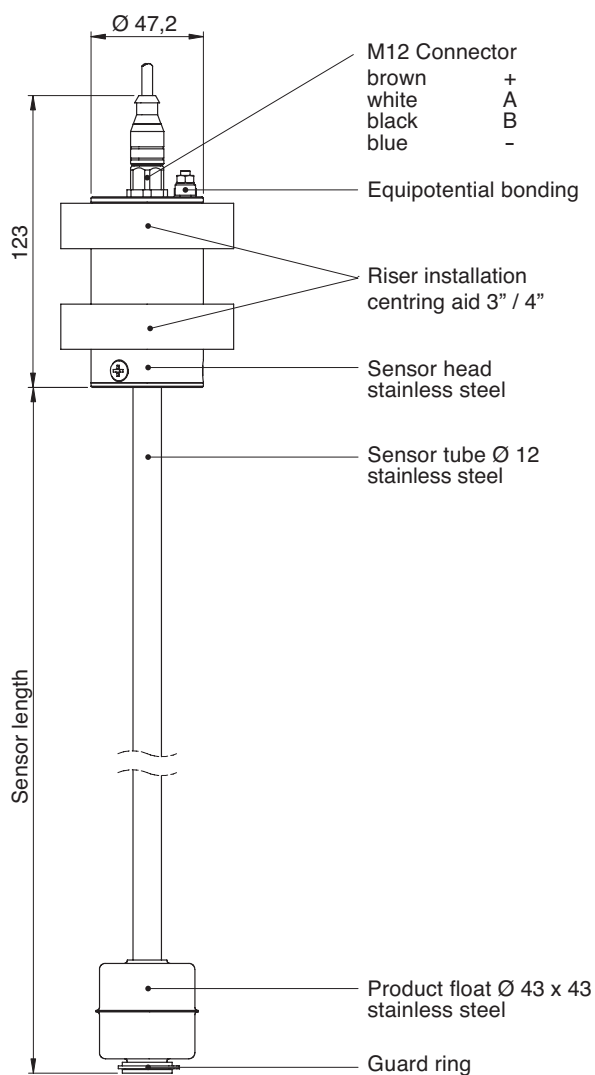
Standard version

- » Product:
 - Accuracy ± 0.5 mm;
 - Repeatability ± 0.1 mm;
 - Resolution 0.1 mm;
 - Response threshold 40 mm;
 - Float $\varnothing 43$ mm, 1½";
- » Temperature:
 - Measuring range
 - 40 °C to +85 °C;
 - Accuracy ± 1 °C;
 - Repeatability ± 0.5 °C;
 - Resolution 0.1 °C
- » Process connection:
 - Riser installation
 - centering aid 3" / 4"
- » Electrical connection:
 - M12 Plug connector
- » Casing protection: IP68
- » Sensor material:
 - Stainless steel
- » Approvals: ATEX, IECEx, NEPSI, UL-Brazil

Options

- » R 1½ screw-in unit, brass, height adjustable
- » 1" installation kit
- » Screw-in unit, stainless steel

VISY-Stick Interstitial



Dimensions in mm

VISY-Stick Sump

The sensors for manhole and dispenser sumps based on the magnetostrictive measuring principle

The VISY-Stick Sump sensors are used to monitor the man-hole sump and the sump underneath the dispenser for fluids that could potentially accumulate there. They are capable of distinguishing between water and fuel rapidly and accurately.



VISY-Stick Sump
(blue for manhole sump,
red for dispenser sump)
and the VISY-Stick Sump
installation kit

Function description

The VISY-Stick Sump sensor operates in accordance with the magnetostrictive measuring principle. The probe tube contains a wire made of magnetostrictive material. Magnets integrated in the floats magnetise the wire at the float position.

The sensor electronics transmit current pulses through the wire, which generate a circular magnetic field. A torsional wave develops at the point where the two magnetic fields overlap and it propagates towards the probe head. In the

probe head, these waves are converted into an electrical signal. The float positions are calculated from the different propagation times. When necessary the water level, fuel alarm or tamper alarm are reported.

Features of the FAFNIR technology

- Continuous monitoring of the water or fuel level in the man-hole sump and dispenser sump
- Alarm in the event of fuel and/or water being detected
- Encapsulated design for protection against contamination
- Anti-Tamper device

Technical data

VISY-Stick Sump

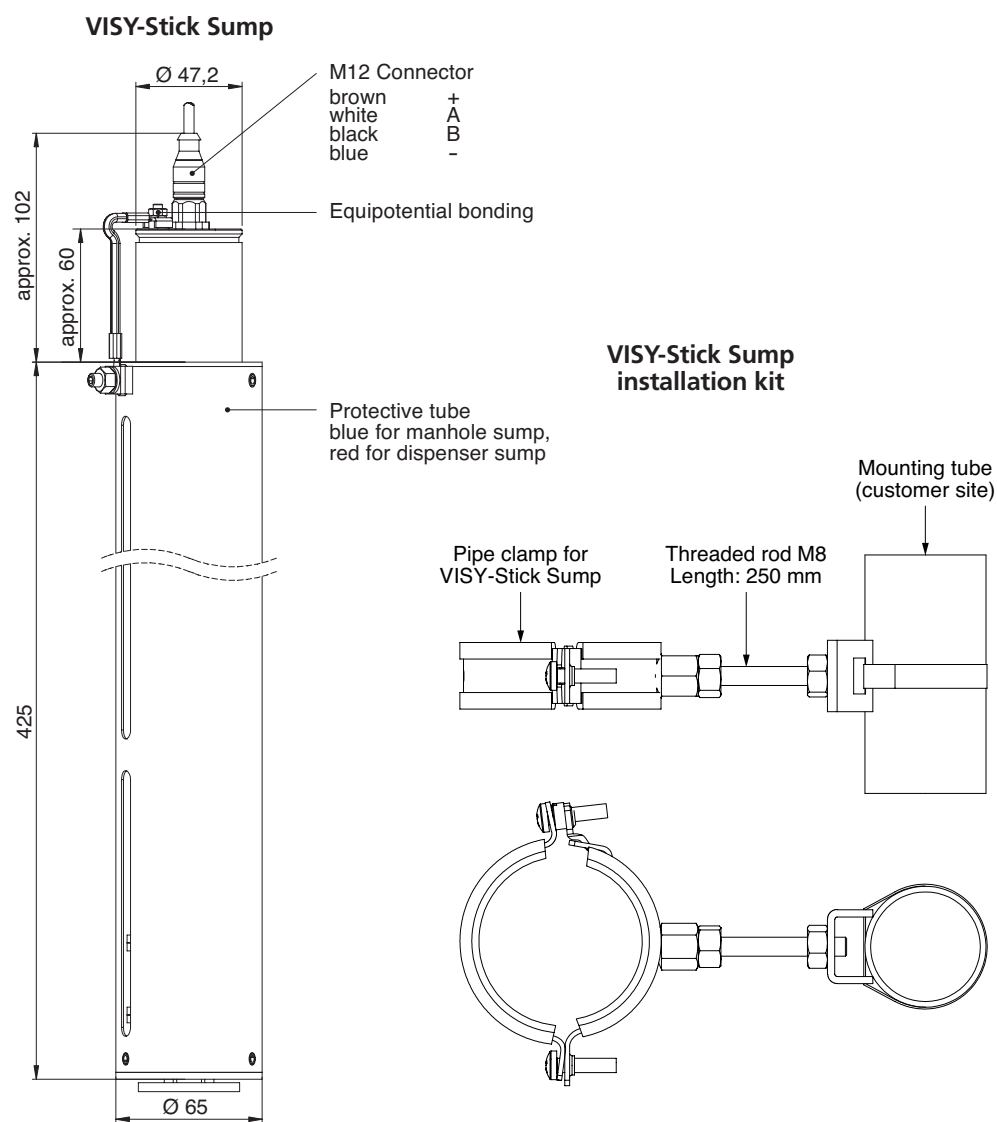
Standard version

- » Product:
 - Accuracy ± 1 mm;
 - Repeatability ± 0.1 mm;
 - Resolution only generating an alarm;
 - Response threshold 35 mm over water*;
 - Float $\varnothing 54$ mm
 - » Water:
 - Accuracy ± 2 mm;
 - Repeatability ± 0.5 mm
 - » Resolution 1 mm;
 - » Response threshold 66 mm*;
 - » Float $\varnothing 54$ mm
- * Product density and the position of the other float may result in variations
- » Temperature:
 - Measuring range -40°C to $+85^{\circ}\text{C}$;
 - Accuracy $\pm 1^{\circ}\text{C}$;
 - Repeatability $\pm 0.5^{\circ}\text{C}$;
 - Resolution 0.1°C
 - » Electrical connection:
 - M12 Plug connector
 - » Casing protection: IP68
 - » Sensor material:
 - Stainless steel, aluminium, plastic
 - » Approvals: ATEX, NEPSI, IECEx, UL-Brazil

Options

- » Installation kit

VISY-Stick Sump



Dimensions in mm