



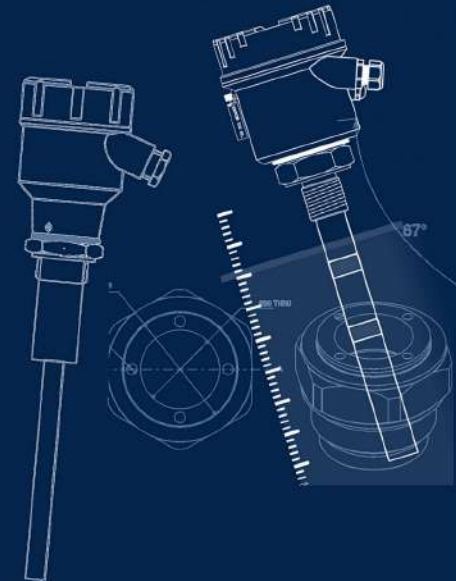
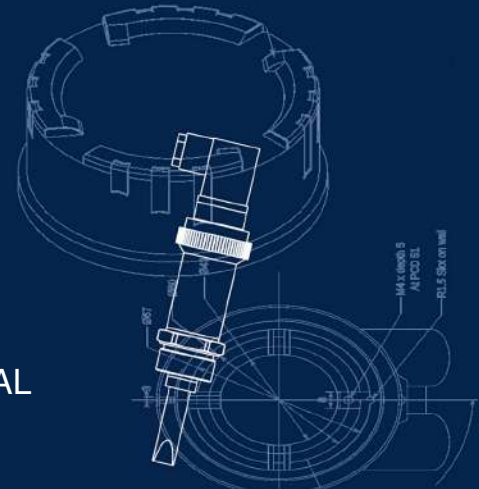
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INSTRUCTION MANUAL

ELIXIR

Compact Vibrating Fork

Version 2.6



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Revision History

Revision	Date	Author(s)	Description
1.0	26 Mar 2014	RND	First Version Editing
1.1	15 Sep 2014	MRK	Applications Revision
1.2	09 Apr 2015	RND	Features Revision
1.3	20 Nov 2015	RND	Specs Revision
1.4	19 Oct 2016	RND	Specs Revision
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2.1	17 Sep 2017	BRND	Branding Revisions
2.2	20 Jan 2018	MRK	Marketing Revisions
2.3	19 Oct 2018	RND	Specs Revision
2.4	17 Aug 2020	RND	Certificate Addition
2.5	17 Apr 2021	RND	Namur Section Added
2.6	4 Jun 2021	RND	AS-i Section Added

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- The images shown in this manual may differ from the actual instrument / housing in terms of dimensions, color and design. Please refer to GA drawings for dimensional details.
- Values (of performance) described in this manual were obtained under ideal testing conditions. Hence, they may differ under industrial environment and settings.

General Instructions

- Instrument shouldn't block the material filling inlet.
- Secure the cover of housing tightly. Tighten the cable glands. For side mounting, the cable glands should point downwards.
- For side mounting, provide a baffle to prevent the material from falling on the probe.
- When handling forks, do not lift them using their tines. While using them with solids, ensure that material size is less than 10mm.
- Deforming the shape of the tines may interfere with the fork's operating frequency.
- Make all electrical connections as instructed in the manual. Don't power on the device before verifying the connections.

1 Introduction

Elixir is a Vibrating Fork Liquid Level Limit Switch. It is suitable for level detection in storage tanks, mixing containers and pipelines, for liquids that do not react with stainless steel (SS) whose viscosity does not exceed 10000 cP. It is suitable for most of the applications where float switches were previously employed, as well as in such places where float switches were not appropriate (due to deposit formation, turbulence, stresses and air bubbles).



Figure 1: Elixir Product Image

2 Operating Principle

A specially shaped tuning fork is kept vibrating using piezo-electric elements. Typically, the fork vibrates at its natural frequency. The frequency of oscillation for the tuning fork changes when immersed in liquids. The change in frequency is detected by the microprocessor leading to a switching decision.

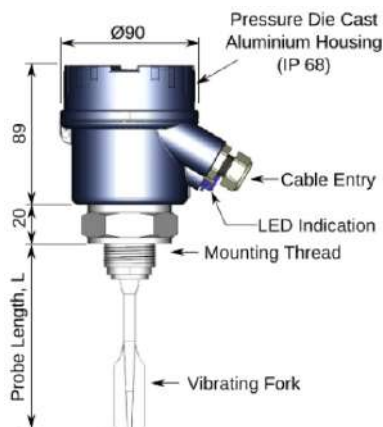


Figure 2: Description of Parts

3 Features

- Universal Power Supply: 18 - 55V DC, 90 - 265V AC
- 8.5 ± 0.2 V DC via Namur Isolator should contain 1K Ω Internal Resistor (e.g. EX ia IIC, T3 (Zone 0, gas group 2))
- Low Power Consumption: less heat, long life
- High temperature durability (H1 up to 200°C)

- Immunity to spurious external vibrations, material turbulence and flow
- Suitable for liquids with viscosity up to 10,000 cP
- Fast switching
- Self-diagnosis
- Independent of material's electrical properties

4 System Description

The Elixir level detecting system consists of a micro-controller based electronic insert with fork probe. The instrument comprises of an electronics SS 316 tuning fork housed in a cast aluminum housing provided with 2 suitable cable entries. The fork is of a special shape suitable for operating in liquids of specified range of viscosities. This is provided with either screwed mounting or flanged mounting suitable for installation on to a container or pipeline. Piezo ceramic elements are mounted inside the fork capsule and potted with epoxy compound for rendering them immune to dust, moisture and inflammable gases.

5 Applications

Elixir is suitable for the following industries:

- FMCG
- Paint
- Textile
- Breweries
- Cosmetics
- Chemicals
- Pesticides
- Edible Oil
- Confectionery
- Food Industry
- Dairy Industry
- Packaging Industry
- Pharmaceutical Industry

6 Model Identification

Elixir has 4 variant models based on array of features and functionalities. Select the model based on electronic insert:

1. **SPN:** Selection of SPN(SPDT Relay PNP Output) model avail the benefit of following functionalities-
 - Cover Delay
 - Uncover Delay
 - Calibration
 - Failsafe
2. **D:** Selection of D(DPDT Relay) model avail the benefit of following functionalities-
 - Cover Delay
 - Uncover Delay
 - Calibration
 - Failsafe

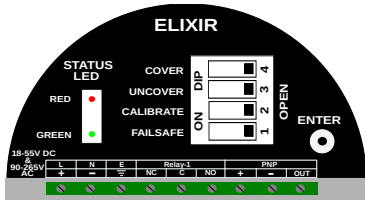


Figure 3: Top Panel for SPDT Relay & PNP

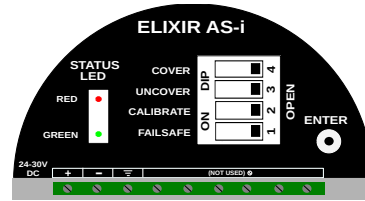


Figure 7: Top Panel for AS-Interface

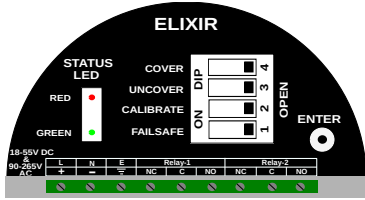


Figure 4: Top Panel for DPDT Relay

3. **NMR:** Selection of NMR(Namur Current) model avail the benefit of following functionalities-

- Calibration
- Failsafe

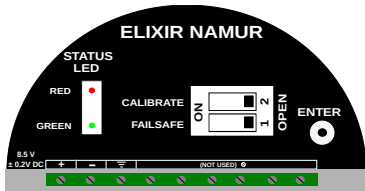


Figure 5: Top Panel for NAMUR

4. **MA1:** Selection of MA1(8/16mA Current 2-wire loop current) model avail the benefit of following functionalities-

- Cover Delay
- Calibration
- Uncover Delay
- Failsafe

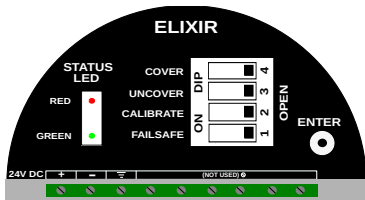


Figure 6: Top Panel for 8/16 mA

5. **AS-i:** Selection of AS-i(Actuator Sensor Interface) model avail the benefit of following functionalities-

- Cover Delay
- Calibration
- Uncover Delay
- Failsafe

7 Application Specifications

Please refer to Table 1 for Application Specifications.

Parameter	Value
Response Time	<ul style="list-style-type: none"> • Cover Delay - 0.8 seconds • Uncover Delay - 1 seconds
Hysteresis	3 - 4 mm
Density	Above 0.7gm/cm ³
Viscosity	Suitable for liquids with viscosity up to 10,000 cP

Table 1: Application Specifications

8 Switching Indication

Please refer to Table 2 for Switching Indication.

Parameter	Value
Internal Indication	Two LEDs <ul style="list-style-type: none"> • Green: Normal • Red: Alarm
External Indication	Available only in SCUTE Enclosure

Table 2: Switching Indication

9 Electrical Specifications

Please refer to Table 3 for Electrical Specifications.

Parameter	Value
Input Power Supply and Outputs	<ul style="list-style-type: none"> • D: Universal Power Supply 18 - 55V DC, 90 - 265V AC, Single-point two potential free relay outputs rated at 6A • SPN: Universal Power Supply 18 - 55V DC, 90 - 265V AC <ul style="list-style-type: none"> - Single-point Single relay (Rated 6A) - Open-collector PNP output, max 100mA non-inductive load • MA1: 24V DC 8/16mA 2-wire Loop powered current output • AS-i: ASi-3, Actuator Sensor Interface, 4-bit bus • NMR: 8.5 ± 0.2 V DC. Namur type current output ($I_{ON} \geq 2.1$ mA, $I_{OFF} \leq 1.2$ mA) <p>Namur compliance can be attained with a Namur certified isolator.</p>
Power Consumption	4W at 24V DC with 90 mA load
Fail-safe Settings	User selectable (Field selectable through toggle switch) <ul style="list-style-type: none"> • Open: Fail-safe High • Close: Fail-safe Low
Time Delay Settings	Cover and Uncover Delay: 0.8s / 1s to 20s, through toggle switches
Sensitivity Setting	Field Selectable (through toggle switches)
Protection	If required, additional over-current and short-circuit protections can be provided with the use of an external fuse rated for 500mA.

Table 3: Electrical Specifications

10 Mechanical Specifications

Please refer to Table 8 for Mechanical Specifications.

Parameter	Value
Active Fork Length	44 mm and 100 mm
Housing	<ul style="list-style-type: none"> • SCUTE: Pressure die-cast aluminium weatherproof (Rating IP-68) • FP2C: Cast aluminium, weatherproof & flameproof, powder coated, suitable for Gas Groups IIA, IIB & IIC as per IS-2148
Electrical Connector	PG-13.5, 1/2" BSP DC Glands, 1/2" NPT DC Glands
Mounting	<ul style="list-style-type: none"> • Screwed - 1"/1 1/2" BSP/NTP(M) • Flanged - As per your specifications • Material - SS
Extension Pipe	SS-304 / SS -316
Wetted Parts	<ul style="list-style-type: none"> • S4: SS 304 • S6: SS 316 • S6L: SS 316L • HA: Hastelloy C • CHLR: Halar Coated • PTFE: Teflon Coated
Process Temperature	<ul style="list-style-type: none"> • A (Ambient): Below 100°C • H (High temperature): 100°C - 200°C
Resonant Frequency	Value
<ul style="list-style-type: none"> • Active Fork length of 100mm • Active Fork length of 44mm 	<ul style="list-style-type: none"> • Approx. 1.1KHz • Approx. 1.5KHz

Table 4: Mechanical Specifications

11 Influences on Switching Point

1. **Process Pressure** - It has no significant effect on the switching point of the device as can be observed from the Figure 8.

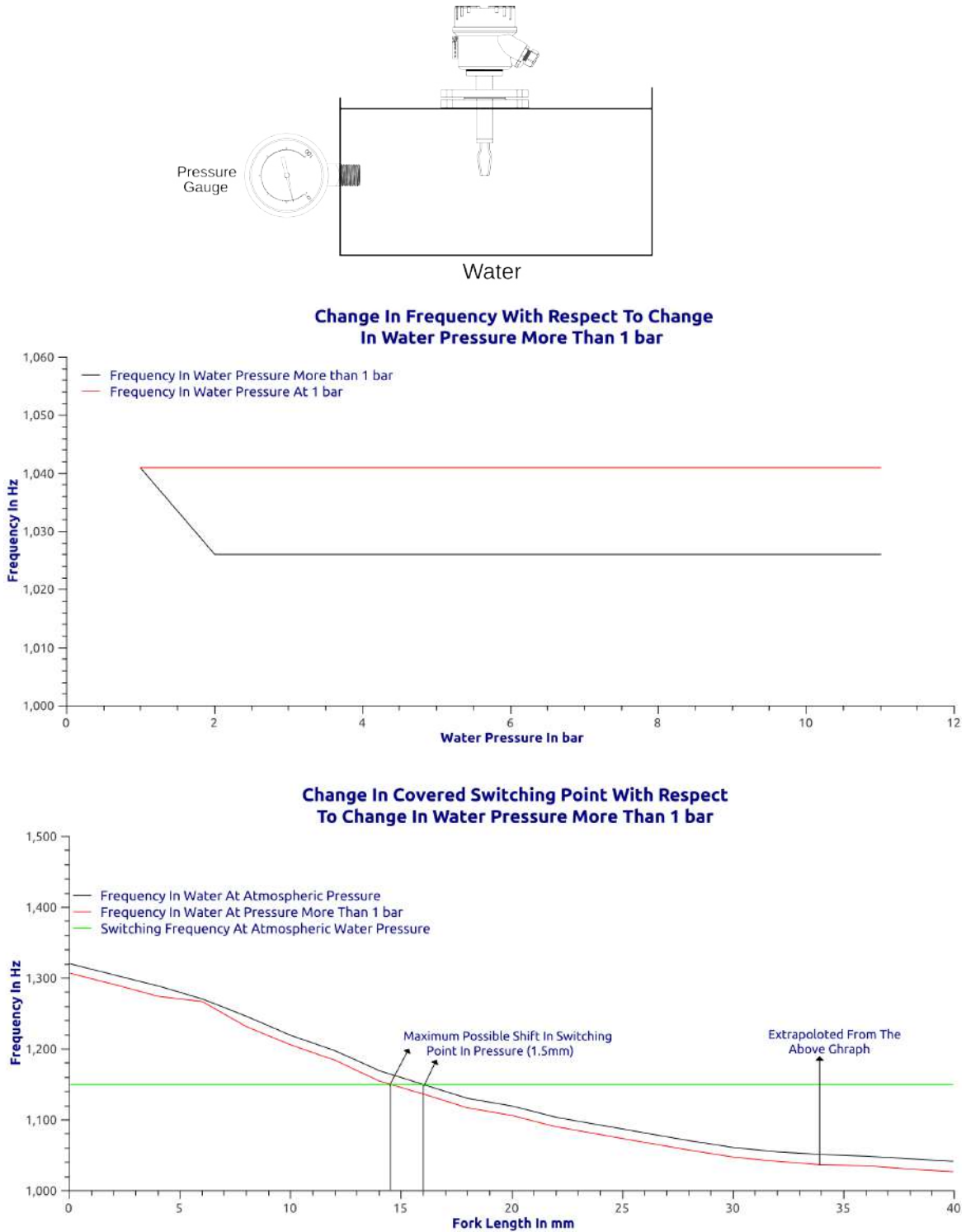
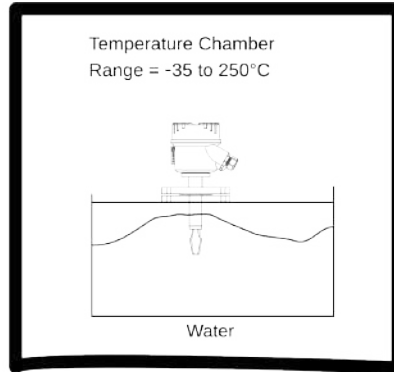
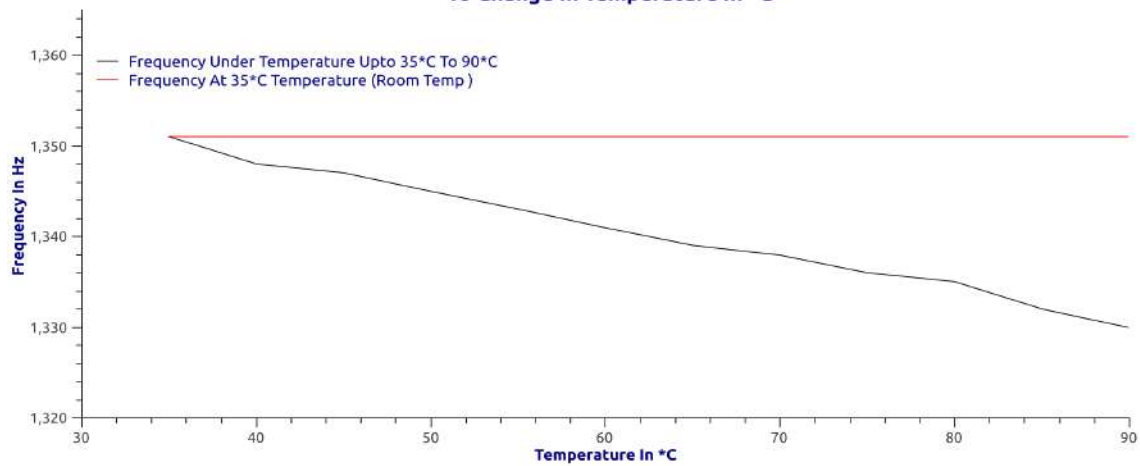


Figure 8: Influence of Process Pressure on Switching Point

2. **Process Temperature** - The influence of temperature on switching point of the device is described in Figure 9.



Change In Frequency With Respect To Change In Temperature In °C



Change In Covered Switching Point with Respect To Change In Temperature In °C

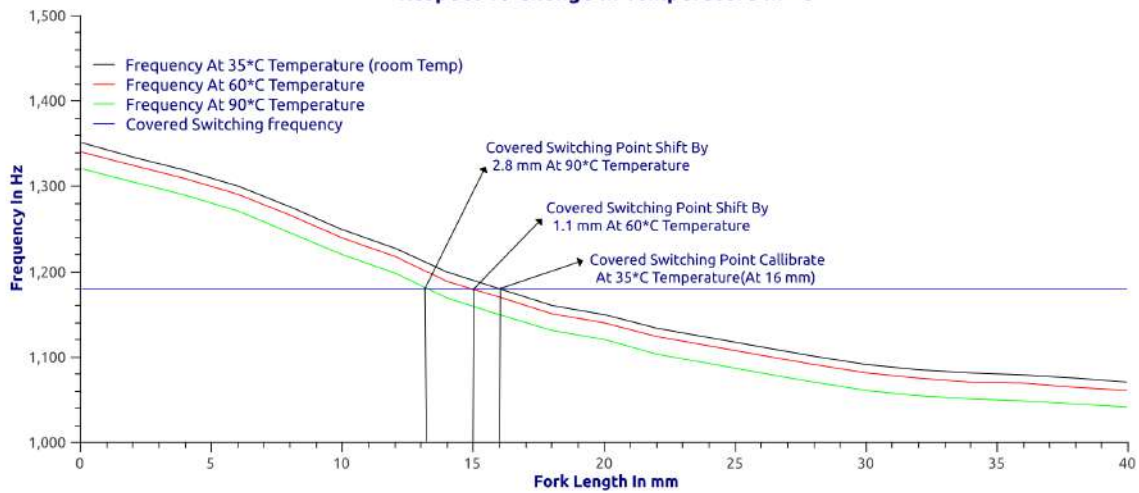


Figure 9: Influence of Process Temperature on Switching Point

3. **Liquid Density** - The influence of liquid density on switching point of the device can be seen in the graph in Figure 10.

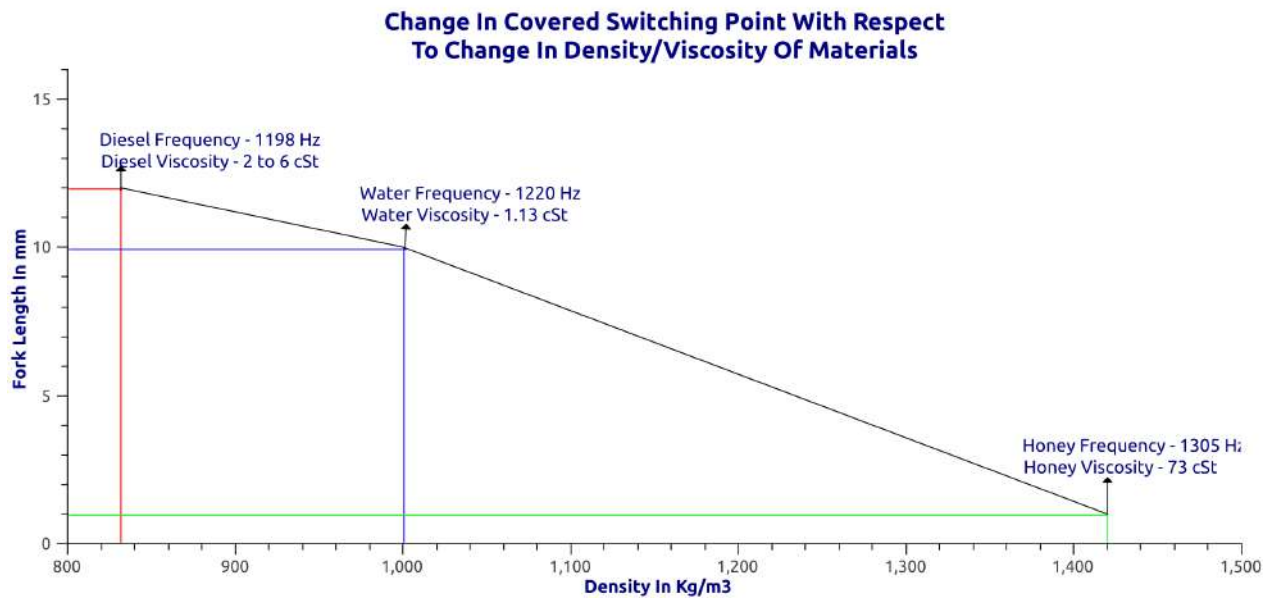
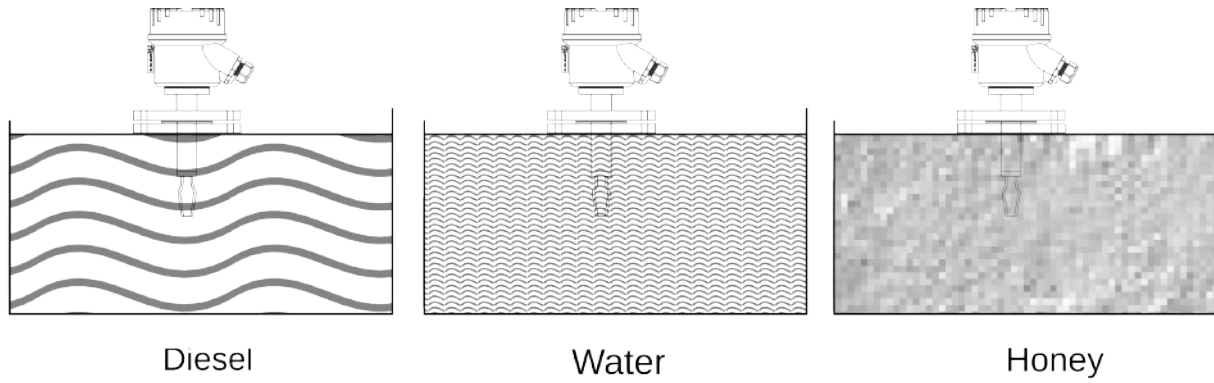


Figure 10: Influence of Liquid Density on Switching Point

12 Installation Guidelines

The Elixir can be installed in the vessel in almost any position. For liquids with higher viscosities, top mounting or side mounting with tines slanting downwards is preferred as then the viscous liquid can drip off faster when the level goes below the set point. While installation of Elixir fork, please take care of the following points:

- The instrument shouldn't block the material filling inlet.
- Secure the cover of housing tightly. Tighten the cable glands.
- For side-mounting, provide a baffle to prevent the material from falling on the fork. Please refer to Figure 11.

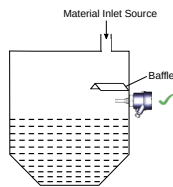


Figure 11: Provision of Baffle

- When handling forks, do not lift them using their tines. Please see Figure 12.

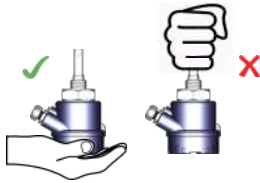


Figure 12: Instrument Handling

- The tines should not be bent nor should their dimensions be altered. Deforming the shape of the tines may interfere with the fork's operating frequency.
- Make all electrical connections as instructed in the manual. Don't power on the device before verifying connections.
- To prevent the ingress of moisture and water seepage in side mounting position, the cable entries should always point downwards as shown in Figure 13.

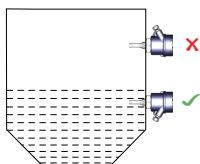
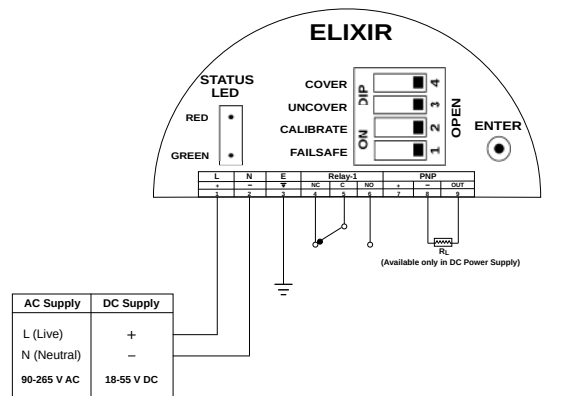


Figure 13: Cable Gland Position

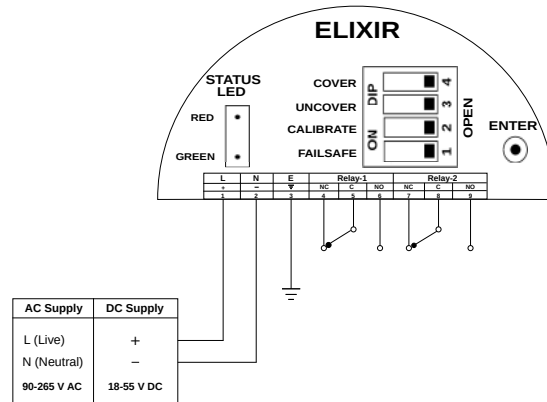
- Weatherproofness of enclosure is guaranteed only if the cover is in place glands adequately tightened. Damage due to accidental entry of water can be avoided if the instrument is installed in a rain shade.
- If the ambient temperature is high, the instrument should not be installed to receive direct sunlight. In case such a position of shade is not available, a heat shield should be fitted above the instrument especially if the operating temperature lies between 60°C and 80°C.
- While screwing the Elixir instrument, the hexagonal mounting bush should be turned and not the housing.

13 Electrical Connections

Please refer to the Figures 14a and 14b for the same.



(a) Electronics option SPDT Relay and PNP Output (SPN)



(b) Electronics option DPDT Relay (D)

Figure 14: Electrical Connections

14 Calibration

It is recommended to first calibrate the Elixir in a more convenient setup before installing it in the application tank. To carry out calibration process, please follow the steps mentioned below.

- Prepare a narrow transparent test tank & fill the application media as shown in the following Figure 15.

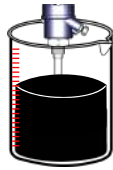


Figure 15: Test Tank

- Refer to given Figure 14 for Electrical Connections to power up and connect the device.
- Dip the Elixir into test tank upto the notch (calibration point) as shown in Figure 16.

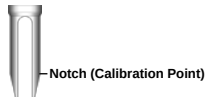


Figure 16: Calibration Point

- Ensure that all DIP switches are in OPEN position as shown in Figure 17. Make sure that STATUS LED is not blinking for Error.
- To start with Calibration process, set the CALIBRATE switch to CLOSE position and press ENTER. (CLOSE is the opposite of OPEN for a DIP switch.)
- The Status RED LED will glow. Blinking indicates that Elixir is registering the switching point position.
- Keep ENTER key pressed for 4 to 5 blinks. Release the ENTER key.
- On Release, the status LED should :
 - Turn RED for Maximum Failsafe Selection.
 - Turn Green for Minimum Failsafe Selection.
 This indicates that calibration is correct.
- Test the calibration by dipping and removing the Elixir tines from liquid.
- During calibration, delays are automatically by-passed.
- If calibration is correct, put the calibration switch back to the OPEN position.
- Else, Elixir will indicate error after 2 minutes of pressing the ENTER key for the last time.
- If calibration is incorrect, repeat the above stated steps once again.

15 Cover Delay

Note: Set the value of COVER DELAY between 1-25 secs.

When the application material covers the fork tines, the changeover of the output can be delayed by a pre-determined time. This time is called COVER Delay. For a different value of Cover Delay, the number of blinks can be adjusted as per requirement. Follow the below procedure for setting Cover Delay:

1. Ensure that all DIP switches are in OPEN position as shown in Figure 17. Make sure that STATUS LED is not blinking for Error.



Figure 17: Cover Delay Switch Position

2. Set the COVER switch to CLOSE (Opposite of OPEN in a DIP switch) position as shown in Figure 18.

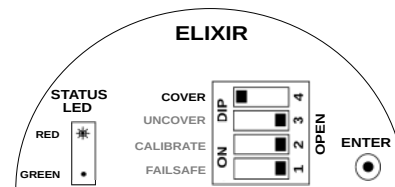


Figure 18: Cover Delay Switch Position

3. Press ENTER. The STATUS LED starts blinking. Blink the STATUS LED according to value of cover delay as shown 19.

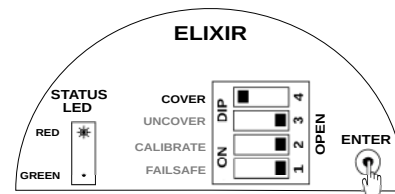


Figure 19: Setting Cover Delay

4. Cover delay is entered, but not saved. To save and test the cover delay, set the COVER switch back to OPEN position as shown in Figure 20.

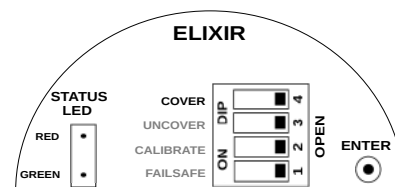


Figure 20: Saving Cover Delay

5. To test, dip Elixir into the application material until the switching point is reached.
6. The STATUS LED will start blinking RED if the switch point is reached. It will blink for the number of seconds for which the cover delay is set. 1 blink is equal to 1 second during switching.

16 Uncover Delay

Note: Set the value of UNCOVER DELAY between 1-25 secs.

When the application material uncovers Elixir's fork tines, the changeover of the output can be delayed by a pre-determined time. This time is called UNCOVER Delay. For a different value of Uncover Delay, the number of blinks can be adjusted as per requirement. Follow the below procedure for setting Uncover Delay:

1. Ensure that all DIP switches are in OPEN position as shown in Figure 17. Make sure that STATUS LED is not blinking for Error.
2. Set the UNCOVER switch to CLOSE (Opposite of OPEN in a DIP switch) position as shown in Figure 21.

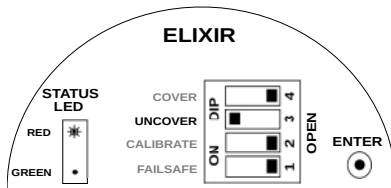


Figure 21: Uncover Delay Switch Position

3. Press ENTER. The STATUS LED starts blinking. Blink the STATUS LED according to value of uncover delay as shown in Figure 22.

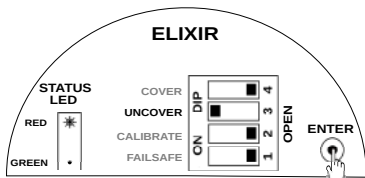


Figure 22: Setting Uncover Delay

4. Uncover Delay is entered, but not saved. To save and test the uncover delay, set the UNCOVER switch back to OPEN position as shown in Figure 23.

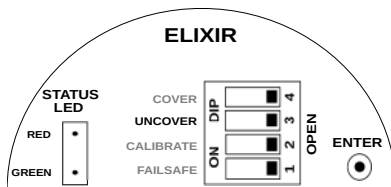


Figure 23: Saving Uncover Delay

5. To test, dip Elixir into the application material until the switching point is achieved.
6. The STATUS LED will start blinking GREEN if the switch point is achieved. It will blink for the number of seconds for which the Uncover Delay is set.

17 Failsafe Settings

In a condition of device failure, known errors and input power failure the outputs of the device resemble the ALARM condition. This is meant to prevent overflow or dry run conditions in case of failures.

Prevent Overflow - High Level Switch Failsafe High (default) is set by moving the Failsafe switch to OPEN position.

1. When not in contact with the material, LED turns GREEN.
2. When in contact with the material, LED turns RED.

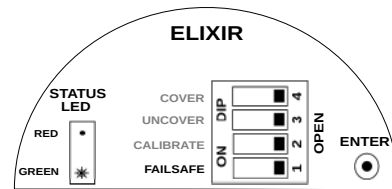


Figure 24: Failsafe High

Prevent Dry run - Low Level Switch Failsafe Low is set by moving the Failsafe switch to CLOSE position

1. When in contact with the material, LED turns GREEN.
2. When not in contact with the material, LED turns RED.

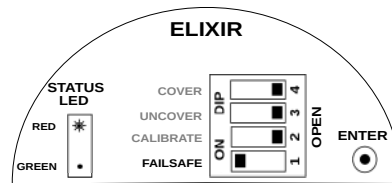


Figure 25: Failsafe Low

18 For AS-Interface Module

18.1 AS-Interface Topology

AS-Interface by design is a loop-powered digital bus. The 2-wire unshielded lines carry power as well as data on them. The single cabling system connects I/O devices with automation systems as shown in Figure 26. ASi-3 is based

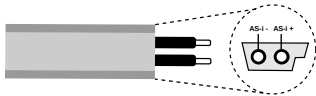


Figure 26: AS-Interface

on a master-slave system where single master can transfer input and output data with up to 62 slaves.

18.2 Electrical Specifications

Please refer to Table 5 for Electrical Specifications.

PARAMETER	VALUE
Input Power Supply	24-30V DC
Electrical Connector	PG-13.5, 1/2" BSP DC Glands, 1/2" NPT DC Glands
Current Consumption	60mA @24V DC
Fail-safe Settings	User selectable (Field selectable through toggle switch) <ul style="list-style-type: none"> • Open: Fail-safe High • Close: Fail-safe Low

Table 5: Electrical Specifications

18.3 AS-i Configuration

Please refer to Table 6 for AS-Interface Configuration.

PARAMETER	VALUE
AS-i Version	3
Max. Slaves	62 Slave
Max. Cable Length	100m
Communication Method	Master/Slave with cyclic polling
Communication Speed	167 kbits/sec
Max. Data Size	8 bits

Table 6: AS-i Configuration

18.4 Electrical Connections

Please refer to the Figure 27 for electrical connections of AS-Interface Module.

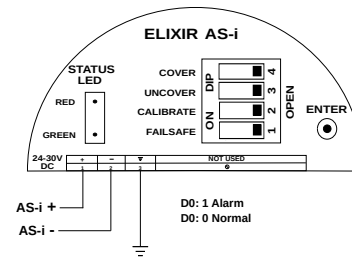


Figure 27: Electrical Connection

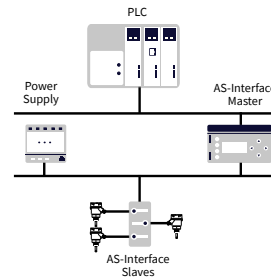


Figure 28: Connection of Elixir via AS-Interface

18.5 Setting Up AS-Interface

Note: ASi-4 and ASi-5 are later versions of the AS-i protocol. However, ASi-3 version is the most prevalent. ASi-4 & ASi-5 are backwards compatible with ASi-3.

AS-Interface can set up easily using a PLC with AS-Interface bus input. Follow these steps for setting up the AS-Interface bus with Elixir:

- **Set Unique Bus ID:** Assign and set a unique bus identification for the slave device. This can be done by using an AS-I master device. Each device should have a unique bus identification. For setting the ID, there needs to be single device connected to the AS-Interface, other slaves need to be disconnected from the bus.
- **Check Configuration:** Use the failsafe switch to toggle the output and observe the change in the D0 bit for the assigned address. The output change can be observed via a PLC or a SCADA system connected to the PLC.

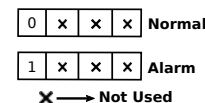


Figure 29: Output of AS-Interface

18.6 Installation & Calibration

Proceed to Section [Installation Guidelines](#) for installing the product in an application tank and then refer to given Figure 27 for connecting Elixir AS-i and power up to follow the calibration procedure given in [Calibration](#) Section to calibrate the Elixir AS-i.

19 For Namur Module

19.1 Electrical Specifications

Please refer to Table 7 for Electrical Specifications.

Parameter	Value
Input Loop Power Supply	NMR: 8.5 ± 0.2 V DC. Namur type current output (I ON \geq 2.1 mA, I OFF \leq 1.2 mA) Namur compliance can be attained with a Namur certified isolator.
Ambient Temperature	0°C to 60°C
Fail-safe Settings	User selectable (Field selectable through toggle switch) <ul style="list-style-type: none"> • Open: Fail-safe High • Close: Fail-safe Low

Table 7: Electrical Specifications

19.2 Mechanical Specifications

Please refer to Table 8 for Mechanical Specifications.

Parameter	Value
Active Fork Length	44 mm
Housing	<ul style="list-style-type: none"> • SCUTE: Pressure die-cast aluminium weatherproof (Rating IP-68) • FP2C: Cast aluminium, weatherproof & flameproof, powder coated, suitable for Gas Groups IIA, IIB & IIC as per IS-2148 (Rating IP-66)
Powder Coating	<ul style="list-style-type: none"> • SCUTE: Pure Polyester (Thickness: 50-70 μm) • FP2C: Epoxy Polyester (Thickness: 50-70 μm)
Cable Gland	PG-13.5, 1/2" BSP DC Glands, 1/2" NPT DC Glands
Mounting	<ul style="list-style-type: none"> • Screwed - 1 1/2" BSP/NTP(M) • Flanged - As per your specifications • Material - SS
Extension Pipe	SS-304 / SS -316
Wetted Parts	<ul style="list-style-type: none"> • S4: SS 304 • S6: SS 316 • S6L: SS 316L • HA: Hastelloy C • CHLR: ECTFE Coated
Process Temperature	Upto 150°C
Resonant Frequency	Value
<ul style="list-style-type: none"> • Active Fork length of 44mm 	<ul style="list-style-type: none"> • Approx. 1.5KHz

Table 8: Mechanical Specifications

19.3 Switching Indication

Please refer to Table 9 for Switching Indication.

Parameter	Value
Internal Indication	Two LEDs <ul style="list-style-type: none"> • Green: Normal • Red: Alarm

Table 9: Switching Indication

19.4 Namur Isolation Barrier Specifications

The 'NMR' electronics of the vibrating fork requires the following specifications to be functional:

Parameter	Value
Functional Operating Voltage	8.5 ± 0.2 V DC
Internal Source Resistance	1K Ω
Absolute Maximum Voltage	UI & UO = 13 V
Current Consumption	II & IO = 16 mA
Power Consumption	PI & PO = 65 mW
Input Capacitance	0 μ F
Input Inductance	0 μ H
Certification	Ex ia IIC T3 Ga (0°C \leq Tamb \leq 60°C)

Table 10: Namur Isolation Barrier Specifications

19.5 Electrical Connections

Please refer to the Figure 30 for electrical connections while connecting the Elixir Namur in an application tank.

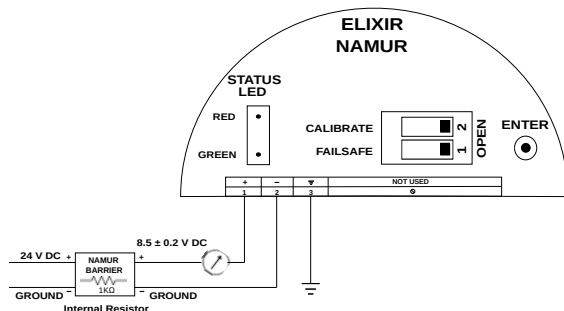


Figure 30: Electrical Connection during installation

19.6 Calibration

Note: Calibrator device must be used to power the instrument only when the level instrument is in a Safe Zone (Zone 2).

It is recommended to first calibrate the Elixir Namur in a more convenient setup in Safe Zone (Zone 2) before installing it in the application tank.

Refer to given Figure 31 for connecting Elixir Namur and power up then follow the calibration procedure given in [Calibration](#) Section to calibrate the Elixir Namur in safe zone and proceed to [Section Installation Guidelines](#) for installing the product in an application tank

19.7 Installation Guidelines

The Elixir Namur can be installed in the vessel in almost any position but before installing the device, ensure that

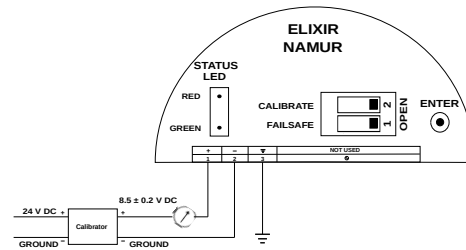


Figure 31: Electrical Connections during Calibration

the calibration process has been already carried out in safe area (Zone 2). After calibration procedure install the instrument in hazardous area as shown in Figure 32

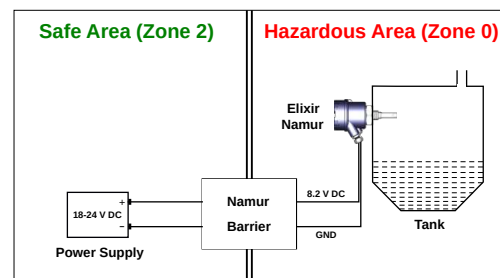


Figure 32: Calibration at safe zone

For other installation handling procedure, refer to [Section Installation Guidelines](#)

20 Troubleshooting & Fault Indication

20.1 Output Indications

Green LED Glows When:

- Fork is Uncovered and Fail-safe is High
- Fork is Covered and Fail-safe is Low

Red LED Glows When:

- Fork is Covered and Fail-safe is High
- Fork is Uncovered and Fail-safe is Low

20.2 Error Indications

1. Loss of Vibration

- When Red LED blinks continuously and Fail-safe is High
- When Green LED blinks continuously and Fail-safe is Low

Troubleshooting: The following reasons may be responsible for the absence of vibrations in the fork:

- The instrument is damaged.

- Heavy build-up of application medium can dampen the fork oscillations. In this case, the fork requires to be cleaned.
- If material is very viscous, the fork vibrations will resume when the fork is uncovered. **In this case, the error indication should be ignored.**

2. No LED Glows

- This would happen in absence of power supply to the instrument.

3. Line Break to Piezo Drive/Oscillator

- In fail-safe 'High' mode, instrument will switch to alarm condition if the connectivity between vibrating fork and electronics is lost.

- Description of the query
- Your contact details

In an attempt to serve you better, we are open seven days a week (9:30am to 7:30pm). We are available at:

- www.sapconinstruments.com
- sales@sapcon.in
- +91-731-4757575

21 Certification

CERTIFICATION	ITEM SELECTION
IS/IEC 60529: 2001 (IP68)	SCUTE
IS/IEC 60529: 2001 (IP66)	FP2C
IS/IEC 60079-1:2014 (Ex 'd')	FP2C
Ex ia IIC T3 Ga	NMR-DC6

Table 11: Certifications

22 Maintenance

The electronics of Elixir instrument needs no maintenance. When cleaning and checking the vessel, free the tuning fork from deposits. If the material has tendency to form a hard sticky deposit, the instrument must be checked more often. Make sure that the cable ducts and the lid are tightly sealed so that no moisture seeps into the instrument.

23 Customer Support

Thank you for going through the instructions given in this manual. To further ease the process of installation and use, we have developed special demo videos which are hosted on YouTube.

Sapcon's YouTube channel, SAPCON INSTRUMENTS, lists all these videos: <https://goo.gl/dnxfcz>

Should you require further information regarding installation, use or working of the instrument, please don't hesitate to contact us. Kindly provide the following information at the time of contacting:

- Instrument Model and Serial Number
- Purchase Order Number and Date of Purchase

24 Product Selection Order Code

Product

ELIXIR - Liquid Level Switch for Sticky, Corrosive, Agitated, Splashing, Foaming Liquids suitable for liquids with viscosity up to 10,000cp

Type

I : Integral (sensor in same unit)

Housing

SCUTE : Pressure Die Cast Aluminium weather proof (Rating IP68) SCUTE

FP2C : Cast Aluminium weather & flame proof powder coated suitable for gas group IIC

Indication (Optional)

WL : External LED Indication (Only with "SCUTE")

Probe Housing Cable Entry

PCPG13 : PG 13.5, Polyamide

PCB5D : 1/2" BSP, DC Gland, Brass

PCN5D : 1/2" NPT, DC Gland, Brass

Output (Depends on "Vibrating Fork" & "Power Supply")

SPN : SPDT Relay output 1NO, 1NC (Relay rated at 6 A, 230 V AC for non-inductive load) and PNP output (only for supply voltage 18V to 35V DC)

D : 2NO, 2NC DPDT Relay Output (rated at 6 A, 230 V AC for non-inductive load)

NMR : Namur type current output at 8.5 ± 0.2 V DC ($I_{ON} \geq 2.1$ mA and $I_{OFF} \leq 1.0$ mA)

ASi-3 : ASi-3, Actuator Sensor Interface, 4-bit bus

MA1 : 8/16 mA 2-wire Loop powered current output at 24V DC (Only with "VF44", "DC")

Power Supply (Depends on "Vibrating Fork" & "Output")

U : Universal (18 to 55V DC) and (90 to 265V at 50Hz AC)

DC6 : 8.5 ± 0.2 V DC supplied by NAMUR certified isolator should contain 1K Ω Internal Resistor (Only with "VF44", "NAMUR")

DC : 24V DC (Only with "VF44", "MA1")

Insulation (Depends on "Vibrating Fork & "Mounting") (Optional)

CHLR : HALAR (ECTFE) (Only with "VF110" & with "Flange")(Only with "15T")

Mounting (Depends on "Vibrating Fork")

MB5S4 : Screwed Thread, BSP 1/2", SS 304

MB5S6 : Screwed Thread, BSP 1/2", SS 316

MN5S4 : Screwed Thread, NPT 1/2", SS 304

MN5S6 : Screwed Thread, NPT 1/2", SS 316

MB75S4 : Screwed Thread, BSP 3/4", SS 304

MB75S6 : Screwed Thread, BSP 3/4", SS 316

MN75S4 : Screwed Thread, NPT 3/4", SS 304

MN75S6 : Screwed Thread, NPT 3/4", SS 316

MB10S4 : Screwed Thread, BSP 1", SS 304

MB10S6 : Screwed Thread, BSP 1", SS 316

MN10S4 : Screwed Thread, NPT 1", SS 304

MN10S6 : Screwed Thread, NPT 1", SS 316

Mounting

- FA10S4 : 1" ANSI Flange, SS 304
- FA15S4 : 1-1/2" ANSI Flange, SS 304
- FA10S6 : 1" ANSI Flange, SS 316
- FA15S6 : 1-1/2" ANSI Flange, SS 316
- FA20S4 : 2" ANSI Flange, SS 304
- FA20S6 : 2" ANSI Flange, SS 316
- FA25S4 : 2-1/2" ANSI Flange, SS 304
- FA25S6 : 2-1/2" ANSI Flange, SS 316
- F10S4 : 1" ASA Flange, 10mm thickness, SS 304
- F15S4 : 1-1/2" ASA Flange, 10mm thickness, SS 304
- F10S6 : 1" ASA Flange, 10mm thickness, SS 316
- F15S6 : 1-1/2" ASA Flange, 10mm thickness, SS 316
- F20S4 : 2" ASA Flange, 10mm thickness, SS 304
- F20S6 : 2" ASA Flange, 10mm thickness, SS 316
- F25S4 : 2-1/2" ASA Flange, 10mm thickness, SS 304
- F25S6 : 2-1/2" ASA Flange, 10mm thickness, SS 316

Vibrating Fork (Depends on "Mounting" & "Probe Length")

- VF44 : Total Length 50 mm, Tines 44mm, Material SS 316 (Only with "0.68H", "1.05H", "1.25H10H")
- VF110 : Total Length 110mm, Tines 100mm, Material SS 316 (Only with "1.3H", "1.75H", "2H30H")

Finish

- HB : Standard
- FB : Fully Buffed

Extension Material (Depends on "Probe Length", Only with ("1.25H10H" , "2H30H"))

- ES4 : SS 304
- ES6 : SS 316

Standoff Material (Depends on "Operating Temperature", Only with "20T")

- STS4 : SS 304
- STS6 : SS 316

Operating Temperature

- 10T : Upto 100°C
- 15T : Upto 150°C (Only with "CHLR")
- 20T : Upto 200°C

Probe Length (Depends on "Vibrating Fork")

- 0.68H : 68 mm (Only with "VF44")
- 1.05H : 105 mm (Only with "VF44")
- 1.3H : 130 mm (Only with "VF110")
- 1.75H : 175 mm (Only with "VF110")

Probe Length (Depends on "Vibrating Fork")

- 1.25H10H : 125 to 1000 mm (Only with "VF44")
- 2H30H : 200 to 3000 mm (Only with "VF110")

Example - ELIXIR-I-SCUTE-PCPG13-SPN-U-MB10S4-VF110-HB-ES4-STS4-20T-2H30H

25 Namur Selection Order Code

Product

ELIXIR - Liquid Level Switch suitable for Sticky, Corrosive, Agitated, Splashing, Foaming Liquids with viscosity up to 10,000cp

Type

I : Integral (sensor in same unit)

Housing

SCUTE : Pressure Die Cast Aluminium weather proof (Rating IP68) SCUTE

FP2C : Cast Aluminium weather & flame proof powder coated suitable for gas group IIC (Rating IP66)

Probe Housing Cable Entry

PCPG13 : PG 13.5, Polyamide

PCB5D : 1/2" BSP, DC Gland, Brass

PCN5D : 1/2" NPT, DC Gland, Brass

Output

NMR : Namur type current output at 8.5 ± 0.2 V DC ($I_{ON} \geq 2.1$ mA and $I_{OFF} \leq 1.2$ mA)

Power Supply (Depends on "Vibrating Fork" & "Output")

DC6 : 8.5 ± 0.2 V DC supplied by NAMUR certified isolator should contain 1K Ω Internal Resistor

Mounting (Depends on "Vibrating Fork")

MB5S6 : Screwed Thread, BSP 1/2", SS 316

MN5S6 : Screwed Thread, NPT 1/2", SS 316

MB75S6 : Screwed Thread, BSP 3/4", SS 316

MN75S6 : Screwed Thread, NPT 3/4", SS 316

MB10S6 : Screwed Thread, BSP 1", SS 316

MN10S6 : Screwed Thread, NPT 1", SS 316

FA10S4 : 1" ANSI Flange, SS 304

FA15S4 : 1-1/2" ANSI Flange, SS 304

FA10S6 : 1" ANSI Flange, SS 316

FA15S6 : 1-1/2" ANSI Flange, SS 316

FA20S4 : 2" ANSI Flange, SS 304

FA20S6 : 2" ANSI Flange, SS 316

FA25S4 : 2-1/2" ANSI Flange, SS 304

FA25S6 : 2-1/2" ANSI Flange, SS 316

F10S4 : 1" ASA Flange, 10mm thickness, SS 304

F15S4 : 1-1/2" ASA Flange, 10mm thickness, SS 304

F10S6 : 1" ASA Flange, 10mm thickness, SS 316

F15S6 : 1-1/2" ASA Flange, 10mm thickness, SS 316

F20S4 : 2" ASA Flange, 10mm thickness, SS 304

F20S6 : 2" ASA Flange, 10mm thickness, SS 316

F25S4 : 2-1/2" ASA Flange, 10mm thickness, SS 304

F25S6 : 2-1/2" ASA Flange, 10mm thickness, SS 316

Vibrating Fork (Depends on "Mounting" & "Probe Length")
VF44 : Total Length 50 mm, Tines 44mm, Material SS 316 (Only with "0.68H", "1.05H", "1.25H10H")
Finish
FB : Fully Buffed
Extension Material (Depends on "Probe Length", Only with ("1.25H10H"))
ES4 : SS 304
ES6 : SS 316
Standoff Material (Depends on "Operating Temperature")
STS4 : SS 304
STS6 : SS 316
Operating Temperature
10T : Upto 100°C
15T : Upto 150°C (Only with "CHLR")
Probe Length (Depends on "Vibrating Fork")
0.68H : 68 mm
1.05H : 105 mm
1.25H10H : 125 to 1000 mm

Example - ELIXIR-I-SCUTE-PCPG13-NMR-DC6-MB10S6-VF44-FB-ES6-STS6-15T-1.3H

26 AS-Interface Order Code

Product

ELIXIR - Liquid Level Switch suitable for Sticky, Corrosive, Agitated, Splashing, Foaming Liquids with viscosity up to 10,000cp

Type

I : Integral (sensor in same unit)

Housing

SCUTE : Pressure Die Cast Aluminium weather proof (Rating IP68) SCUTE

FP2C : Cast Aluminium weather & flame proof powder coated suitable for gas group IIC (Rating IP66)

Probe Housing Cable Entry

PCPG13 : PG 13.5, Polyamide

PCB5D : 1/2" BSP, DC Gland, Brass

PCN5D : 1/2" NPT, DC Gland, Brass

Output

ASi-3 : ASi-3, Actuator Sensor Interface, 4-bit bus

Mounting (Depends on "Vibrating Fork")

MB5S6 : Screwed Thread, BSP 1/2", SS 316

MN5S6 : Screwed Thread, NPT 1/2", SS 316

MB75S6 : Screwed Thread, BSP 3/4", SS 316

MN75S6 : Screwed Thread, NPT 3/4", SS 316

MB10S6 : Screwed Thread, BSP 1", SS 316

MN10S6 : Screwed Thread, NPT 1", SS 316

FA10S4 : 1" ANSI Flange, SS 304

FA15S4 : 1-1/2" ANSI Flange, SS 304

FA10S6 : 1" ANSI Flange, SS 316

FA15S6 : 1-1/2" ANSI Flange, SS 316

FA20S4 : 2" ANSI Flange, SS 304

FA20S6 : 2" ANSI Flange, SS 316

FA25S4 : 2-1/2" ANSI Flange, SS 304

FA25S6 : 2-1/2" ANSI Flange, SS 316

F10S4 : 1" ASA Flange, 10mm thickness, SS 304

F15S4 : 1-1/2" ASA Flange, 10mm thickness, SS 304

F10S6 : 1" ASA Flange, 10mm thickness, SS 316

F15S6 : 1-1/2" ASA Flange, 10mm thickness, SS 316

F20S4 : 2" ASA Flange, 10mm thickness, SS 304

F20S6 : 2" ASA Flange, 10mm thickness, SS 316

F25S4 : 2-1/2" ASA Flange, 10mm thickness, SS 304

F25S6 : 2-1/2" ASA Flange, 10mm thickness, SS 316

Vibrating Fork (Depends on "Mounting" & "Probe Length")

VF44 : Total Length 50 mm, Tines 44mm, Material SS 316 (Only with "0.68H", "1.05H", "1.25H10H")

Finish	FB : Fully Buffed
Extension Material (Depends on "Probe Length", Only with ("1.25H10H"))	ES4 : SS 304 ES6 : SS 316
Standoff Material (Depends on "Operating Temperature")	STS4 : SS 304 STS6 : SS 316
Operating Temperature	10T : Upto 100°C 15T : Upto 150°C (Only with "CHLR")
Probe Length (Depends on "Vibrating Fork")	0.68H : 68 mm 1.05H : 105 mm 1.25H10H : 125 to 1000 mm

Example - ELIXIR-I-SCUTE-PCPG13-ASi-3-DC6-MB10S6-VF44-FB-ES6-STS6-15T-1.3H