

## Installation guide/Quick start

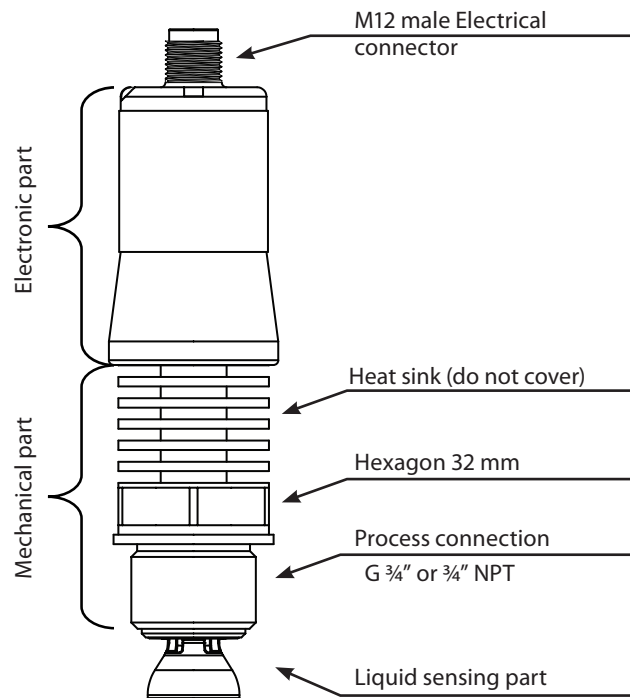
# Liquid Level Switch

Type LLS 4000 / LLS 4000U

148R9650



**Warning!** This is a Class A device. This device may cause radio interference in residential areas. In case of interference, the operator may be required to take appropriate measures. This instrument has to be mounted on a metallic tank. The device is intended to be used in industrial areas.



148R9650

Fig. 1

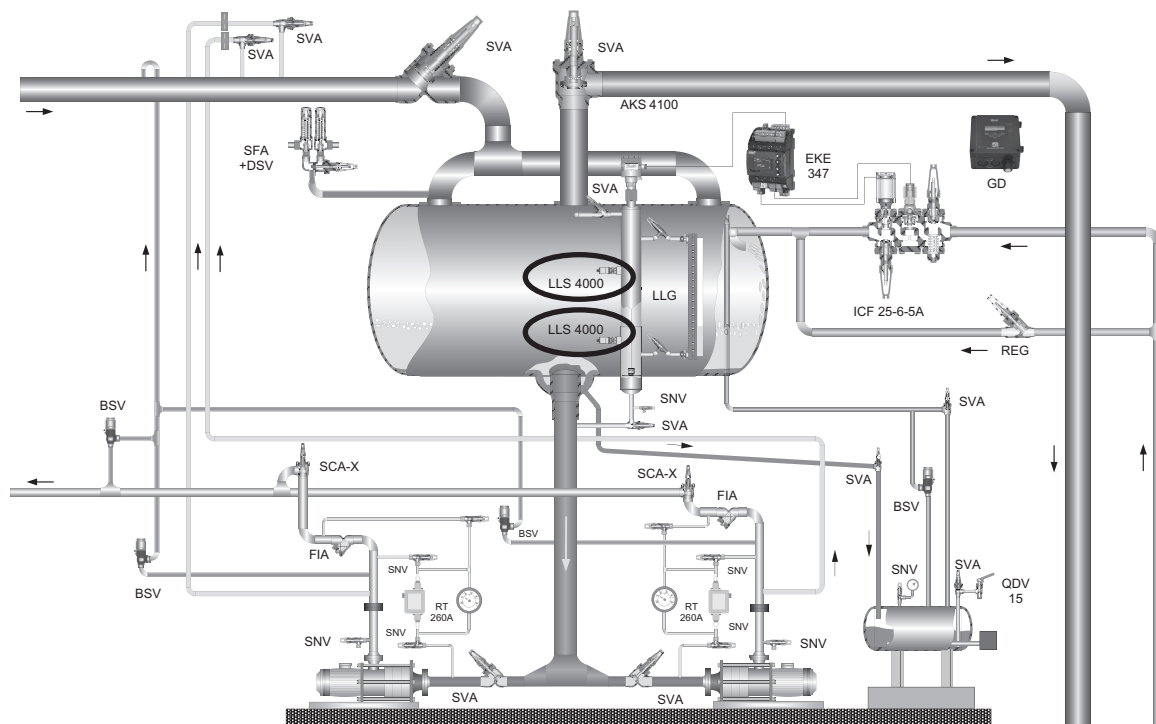


Fig. 2

LLS 4000  
Weld connector  
G 3/4"

LLS 4000U  
Weld connector  
NPT 3/4"

Note:  
**Horizontal installation  
Recommended**

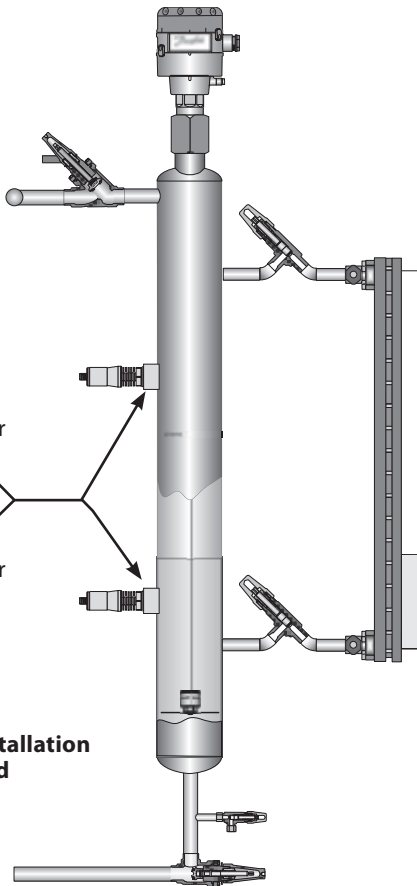


Fig. 3

Weld connector  
Clean for particles

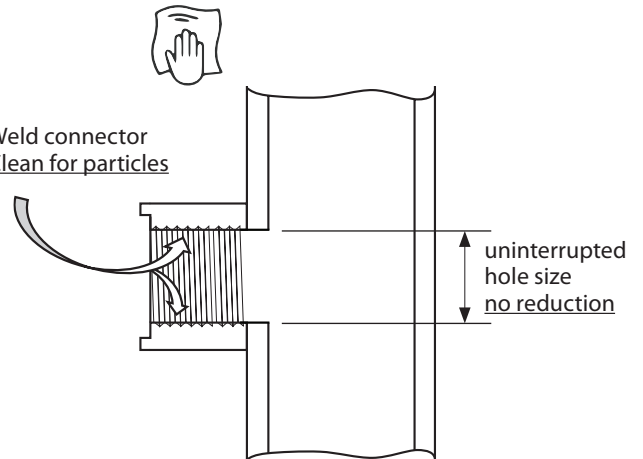
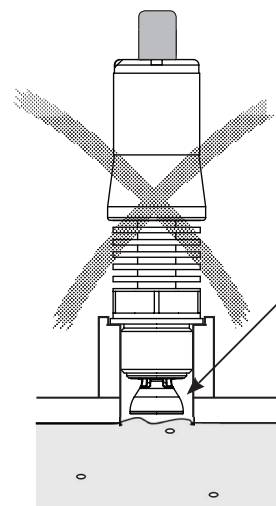


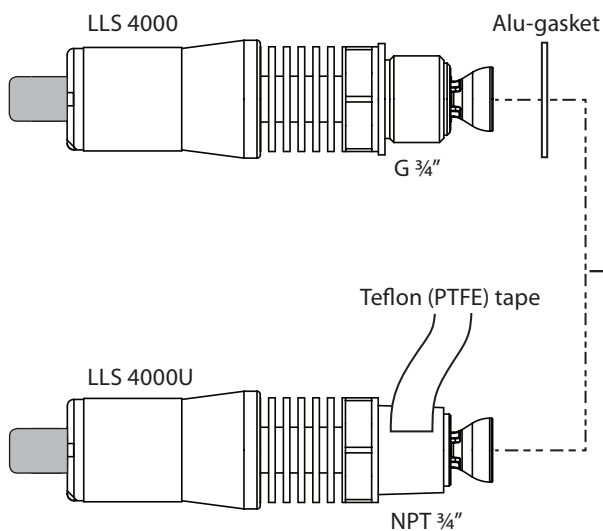
Fig. 4



Note:  
Vertical or inclined  
installation not  
recommended:  
**Risk of Gas Pockets**

Fig. 5

  
Clean joining surfaces



Torque (LLS 4000 only):  
10 Nm/7.4 lb ft pre-tightening + 45 degrees  
clockwise rotation

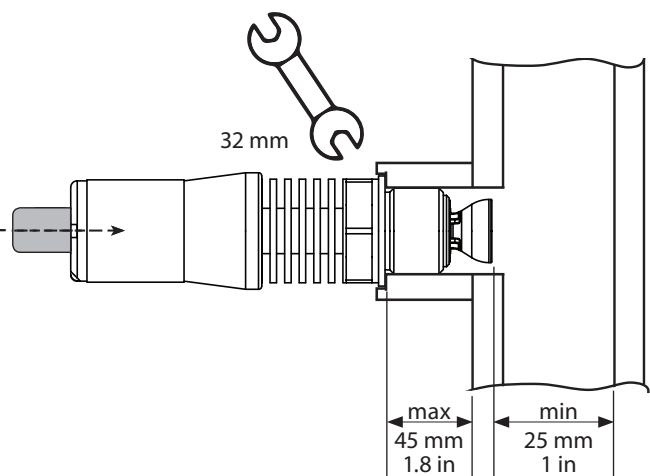
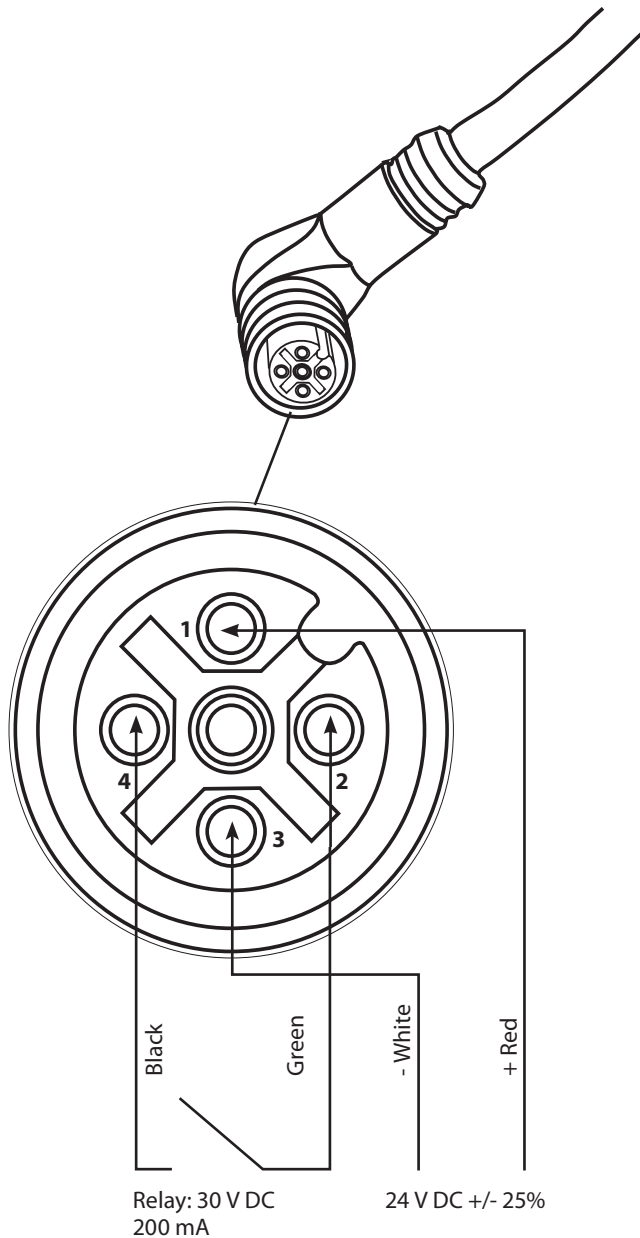
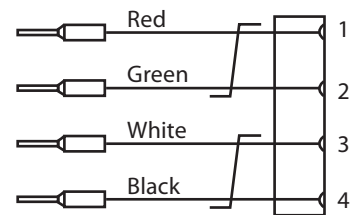


Fig. 6

**Cable with M12 female connector**



**Color code M12 cable**



**Danfoss M12 cables**

**034G7073**, M12 cable female x 2 meter

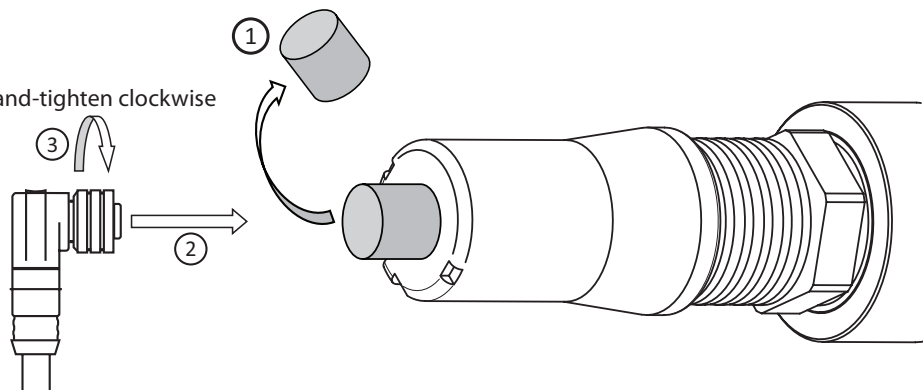
**034G7074**, M12 cable female x 8 meter

**Cables not included with LLS 4000/4000U**

**Fig. 7**



Hand-tighten clockwise



Note: **Fasten the wire approx. 100 mm from the LLS**

**Fig. 8**

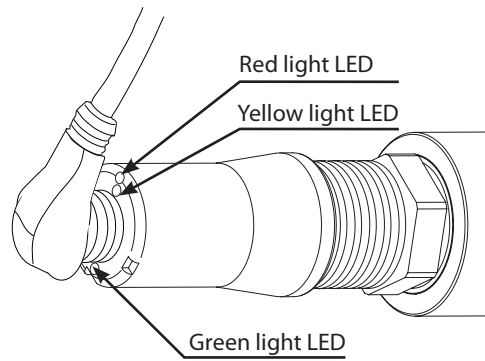


Fig. 9

	Level	Open at no Liquid (Normally Open)*	Closed at no Liquid (Normally Closed)*	Voltage connected	Level detection	LLS 4000/4000U Fault
				Green LED	Yellow LED	Red LED
High Level sensor			 SIL2 fixed configuration			
High Level sensor		1) 				
Low Level sensor						
Low Level sensor			2) 			
Voltage supply outside spec.	-					
LLS 4000/4000U fault**	-				***	

	Green LED ON		Yellow LED ON		Red LED ON		Green LED Flashing. LLS 4000/4000U connected to Bluetooth device
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\* Configuration dependent. Non-SIL2 fully configurable. SIL2 fixed configuration and only applicable for High Level sensor

\*\* For failure types please connect the device to the Bluetooth App, enter fault state mode, and read the failure type

\*\*\* Fault can be detected at any detected level, ie. 2 or all 3 lights on

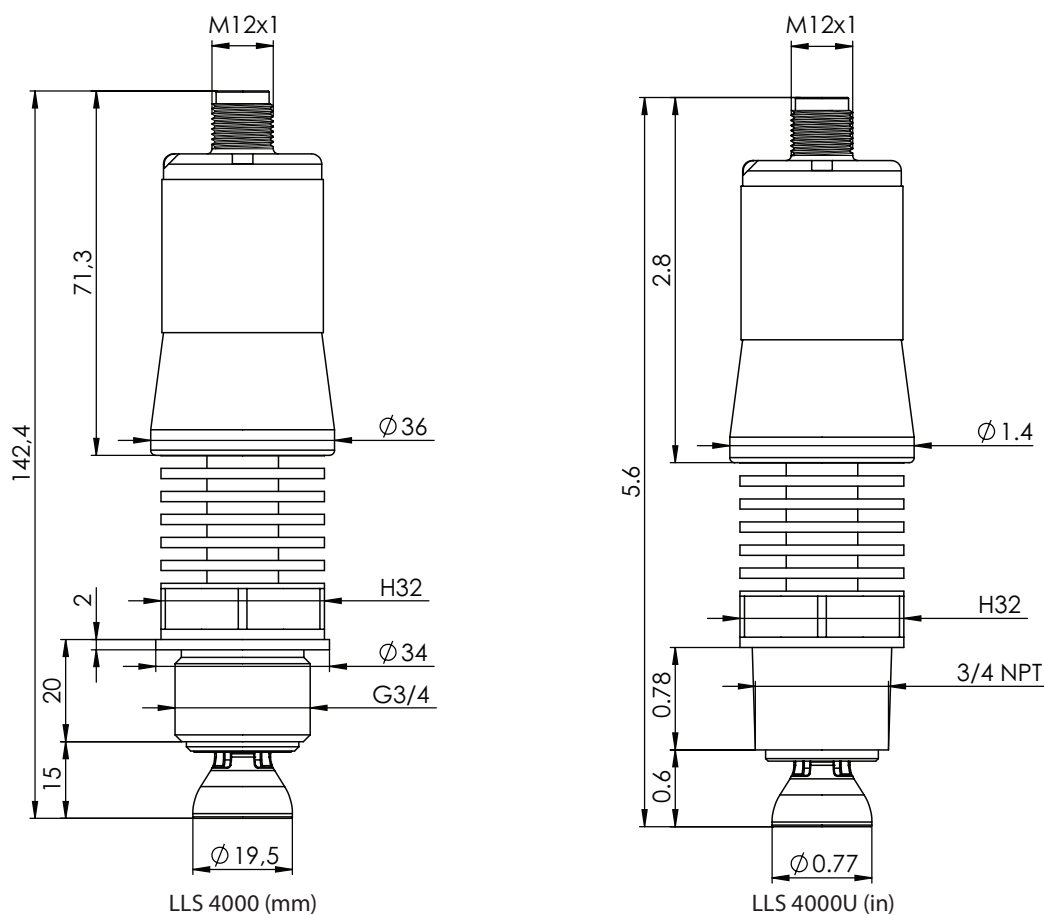
**Not recommended in these applications because**

1) A High Level Alarm may not be registered at a power failure

2) A Low Level Alarm may not be registered at a power failure

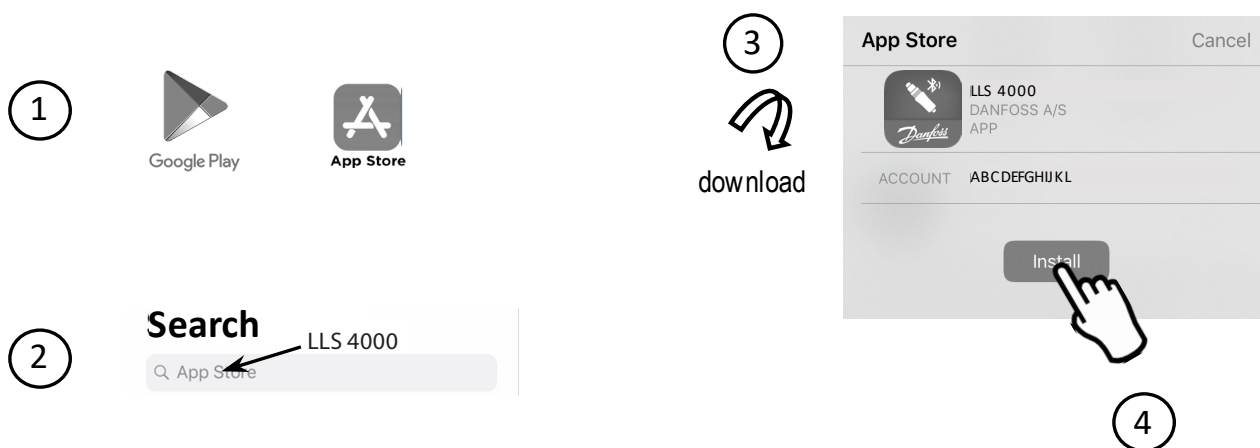
## General specifications

Electrical data	
Supply	24 V DC +/-25%, 80 mA Standard power supply of type: SELV (Separated Extra Low Voltage) with current limit of max. 8A.
Relay (Solid state)	Max 30 V DC, 200 mA. Same power supply as to supply can be used. Observe: In applications with request for SIL2, another separate SELV power supply may be needed. Max. cycles: 1.000.000
Mechanical Data	
Max. medium viscosity	5000 cps
Max. working pressure	65 bar (943 psi)
Ambient temperature range	-40 °C to +65 °C (-40 °F to +149 °F)
Medium temperature range	-50 °C to +120 °C (-58 °F to +248 °F)
Operating environment	Pollution degree 3, altitude 2000 max., outdoor use
Connection type	G ¾ in. or NPT ¾ in.
Weight	350 g (0.77 lbs.)
Approved media	
Refrigerants	R717/NH <sub>3</sub> (Ammonia): -50 °C to +105 °C (-58 °F to +221 °F)
	R22: -50 °C to +86 °C (-58 °F to +187 °F)
	R404A: -50 °C to +63 °C (-58 °F to +145 °F)
	R410A: -50 °C to +61 °C (-58 °F to +142 °F)
	R134A: -50 °C to +91 °C (-58 °F to +196 °F)

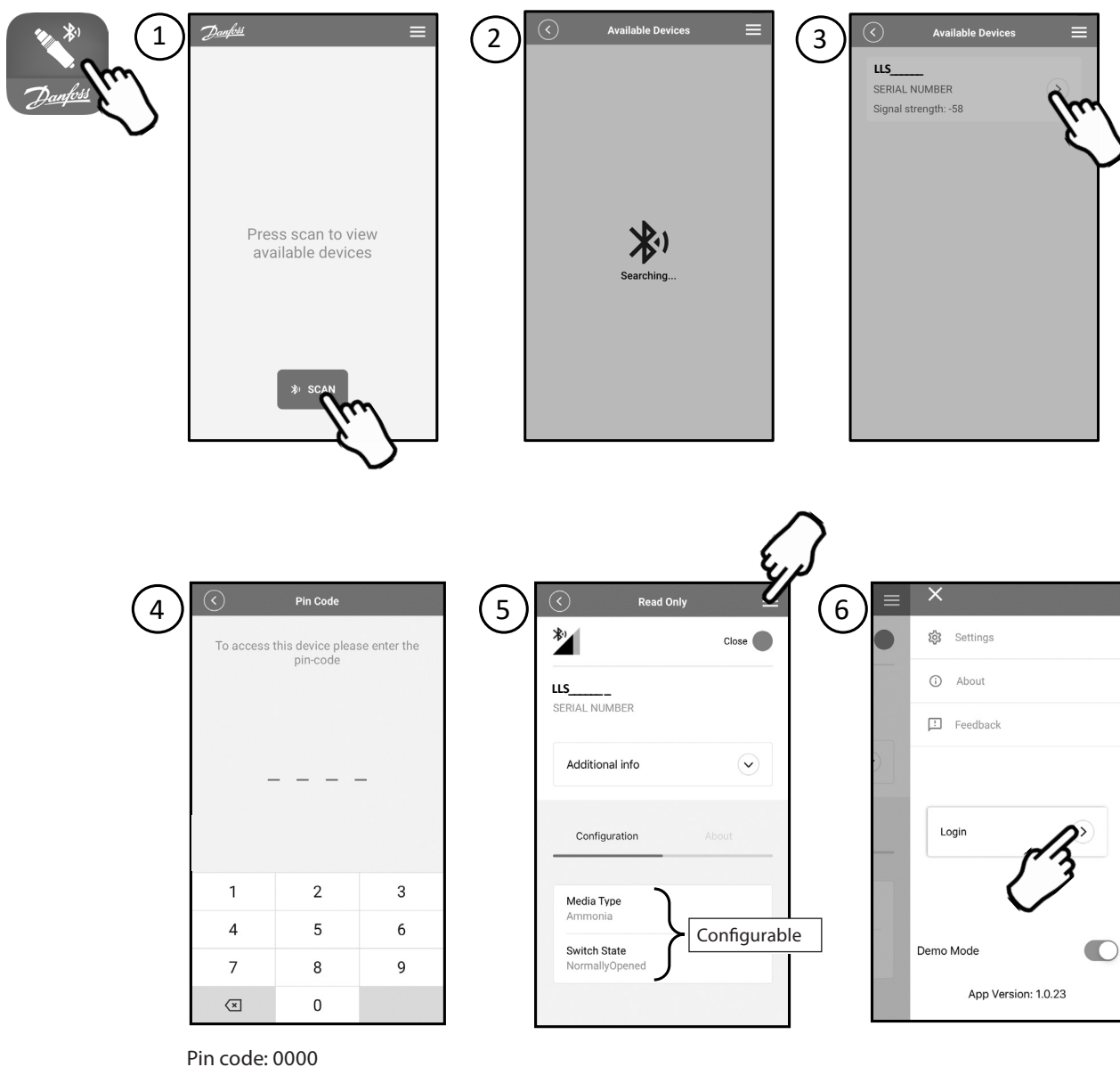


**Fig. 10**

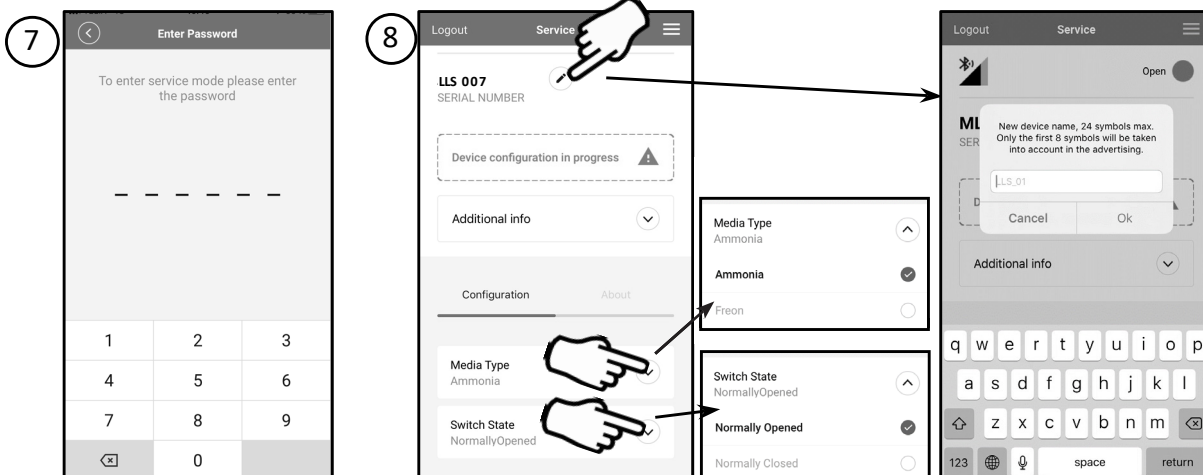
## LLS Bluetooth app download



## Configuration



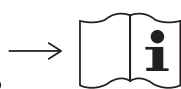
## Configuration continued



Password: 12131400

In Service menu a unique password for Service menu can be entered.

- Go to menu upper right
- Go login
- Go to settings
- Go to Service Password
- Enter new Service Password



Read and apply safety instructions contained in product documentation.



Direct current.

### General warnings/precautions

- Every use that is not described in this guide is considered incorrect and is not authorized by the manufacturer.
- The LLS device should only be used with approved media listed under **General specifications**. Use with other medias must be validated by Danfoss before installation.
- Verify that the installation and operating conditions of the device respects those specified in this guide, especially concerning the supply voltage and environmental conditions.
- All service and maintenance operations must be performed by qualified personnel.
- Installation must comply with local standards and legislation.
- Before carrying out any maintenance operations on the device, disconnect the device from the main power supply.
- Before unscrewing the LLS device from the pipe or tank ensure that pipe or tank is empty and not under pressure.
- Liability for injury or damage caused by incorrect use of the device lies solely with the user.
- Depending on the application, the metallic part of the instrument may be hot or cold.
- If media detection or non-detection by the level switch could generate a hazard the SIL version and specific instructions described in the safety manual (periodic proof test) should be used. The SIL safety manual can be downloaded from Danfoss web site or by scanning the QR code below.

For further documents (Data sheet, SIL2 safety manual etc.) scan this QR code:



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