



Danfoss AKS 38 LLS 4000 Retrofit Electromechanical Level Switch Installation Guide

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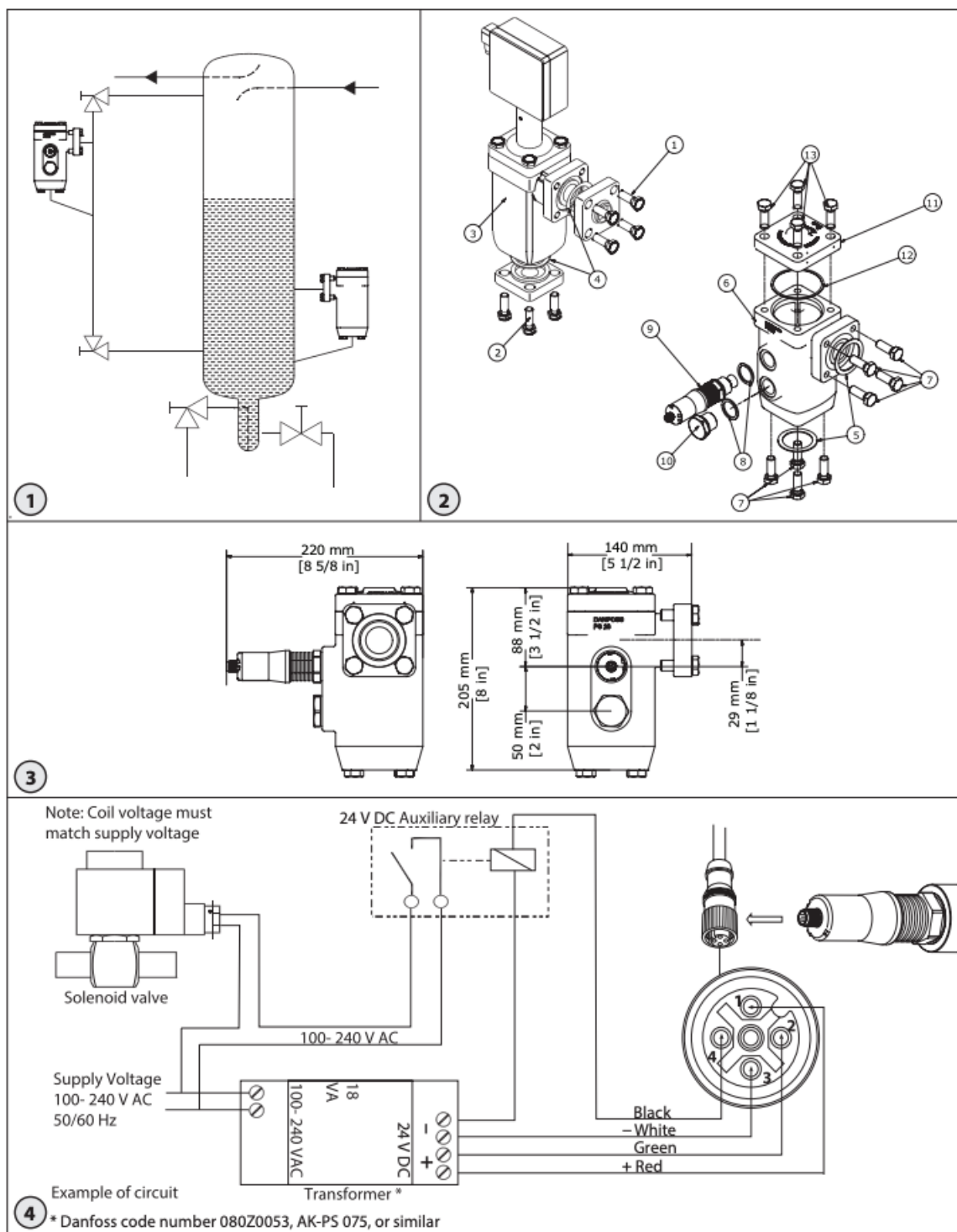
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Refrigerants

Applicable to:

Ammonia R717
 HCFC R22, R507A
 HFC R407A, R404A, R410A, R134A, R513A

Temperature Range

-50 °C/+65 °C (-58 °F/149 °F)

Pressure Range

AKS 38 retrofit house is designed for a max. working pressure of 28 bar (406 psig).

Electrical Data (LLS 4000)

Power Supply: 24 V DC +/-25%, 80 mA

Standard power supply of type: SELV (Separated Extra Low Voltage) with current limit of max. 8 A.

Solid state relay: Max 30 V DC, 200 mA. M12, 4 pin electrical connection.

Enclosure

AKS 38 Retrofit house: IP65

LLS 4000: IP66/IP67

Liquid Level Differential

The AKS 38 retrofit house is equipped with 2 connections with 50 mm distance (fig. 3), that can be used for mounting:



- 1 x LLS 4000 + plug (Hi/Lo level control, default configuration)
- 2 x LLS 4000 (ON/OFF level control, require additional LLS 4000)

For ON/OFF level control only, 1 x LLS 4000 can be used in combination with a time delay via an externally managed time delay.



The time delay shall be set with care and provide an effective differential NOT higher than 50 – 75 mm under all conditions.

Installation



IMPORTANT

AKS 38 Retrofit house must always be installed in a vertical position (fig. 1 and 2).

AKS 38 is supplied with new bolts and gaskets (fig. 2, pos. 5+7) for the retrofitting. The external surfaces of the flanges must be protected against corrosion with a suitable protective coat after installation.

To avoid an oil seal forming which would affect the LLS 4000 measuring the bottom connecting pipe must have an incline towards the liquid separator.

Shut-off valves should be mounted as close as possible to the retrofit house for service (fig. 1).

Installing the retrofit house (fig. 2)

- Unscrew the 4 bolts on the side flange of the existing AKS 38 (fig. 2, pos. 1)
- Unscrew the 4 bolts on the bottom flange (fig. 2, pos. 2)
- Remove the old AKS 38 housing (fig. 2, pos. 3) and scrap the old gaskets (fig. 2, pos. 4)
- Install the new gaskets (fig. 2, pos. 5) and position the retrofit housing (fig. 2, pos. 6) to the flanges
- Fasten new 4 × M12×35 stainless steel bolts (fig. 2, pos. 7) in each flange.

Tighten diagonally to a max. tightening torque: 74 Nm (55 ft-lb)

Installing the LLS 4000 and ¾" plug (fig. 2)

- Install the 2 alu gaskets (fig. 2, pos. 8)
- Fasten the LLS 4000 (fig. 2, pos. 9) and ¾" plug (fig. 2, pos. 10). Max. tightening torque: 10 Nm/7.4 ft-lb pre-tightening + 45 degrees clockwise rotation



Max. tightening torque: 10 Nm/7.4 ft-lb pre-tightening + 45 degrees clockwise rotation.



Electrical installation (fig. 4)

The wiring diagram (fig. 4) is an example and serves as an overall guide to the actual installation.

24 V DC transformer for LLS 4000/4000U: Danfoss code number 080Z0053, AK-PS 075, or similar.

AK-PS 075 data:

Input Voltage

100 – 240 V AC

50 – 60 Hz

0.4 A (120 V AC) /

0.2 A (230 V AC)

Output Voltage:

24 V DC

0.75 A

18 VA

Observe:

Auxiliary relay:

Coil voltage: 24 V DC

Contact rating: Must match load of the connected field coil (voltage and load)

The Auxiliary relay and the Transformer are not included in the AKS 38 Retrofit kit.

Maintenance



IMPORTANT

The AKS 38 Retrofit housing must be evacuated before opening to air.

Replacing the flange gaskets (fig. 2, pos. 5)

- Unscrew the 4 bolts on the side flange (fig. 2, pos. 7)
- Unscrew the 4 bolts on the bottom flange (fig. 2, pos. 7)
- Remove both gaskets (fig. 2, pos. 5)
- Install the new gaskets
- Fasten 4 bolts in each flange. Tighten diagonally to a max. tightening torque: 74 Nm (55 ft-lb)

Replacing the top cover gasket (fig. 2, pos. 12)

- Unscrew the 4 bolts (fig. 2, pos. 13)
- Remove the top cover (fig. 2, pos. 11)
- Remove the gasket (fig. 2, pos. 12)
- Install the new gasket
- Fasten 4 × bolts (fig. 2, pos. 13). Tighten diagonally to a max. tightening torque: 74 Nm (55 ft-lb)

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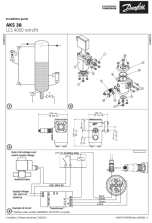
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