



Differential pressure switch

MP55E

MP55E oil differential pressure switches are used as safety switches



Description

MP55E oil differential pressure switches are used as safety switches to protect refrigeration compressors against low lubricating oil pressure.

If the oil pressure fails the oil differential pressure control stops the compressor. MP55E for HCFC, HFC and HC refrigerants are equipped with gold-plated SPDT contacts, which react directly on the differential pressure without time delay.

The units are designed to operate in explosive zones acc. to 2014/34/EU, Atex directive, explosive zone 2, surface equipment, category 3.

MP55E are delivered with 1/4 inch solder connections to ensure a hermetic installation.

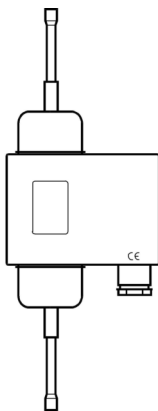
Features & benefits

- Wide regulating range
- Can be used for deep freeze, refrigeration and air conditioning plant
- Can be used for HCFC, HFC and HC refrigerants
- Electrical connection at the front of the unit
- Screwed cable entry for cables from 6 – 14 mm diameter
- Small contact differential

Ordering

Product code numbers

Figure: Ordering for MP55E



Applicable for R32, R290, R600, R600a, R1270

For complete list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of technical data.

This product is validated in accordance to EN 60079-0:2012 + A11:2013. Ignition risk is evaluated in accordance to EN 60079-11:2012. See safety requirements at the end of instruction.

Type	Diff.press.setti range [bar] [min]	Diff.press.setti range [bar] [max]	Contact differential [bar]	Operat. range LP side [bar] Pe [min]	Operat. range LP side [bar] Pe [max]	Pressure connection type	Code number
MP55E	0.30	4.50	0.20	-1	12	Solder, ODF	060B530091



Product details

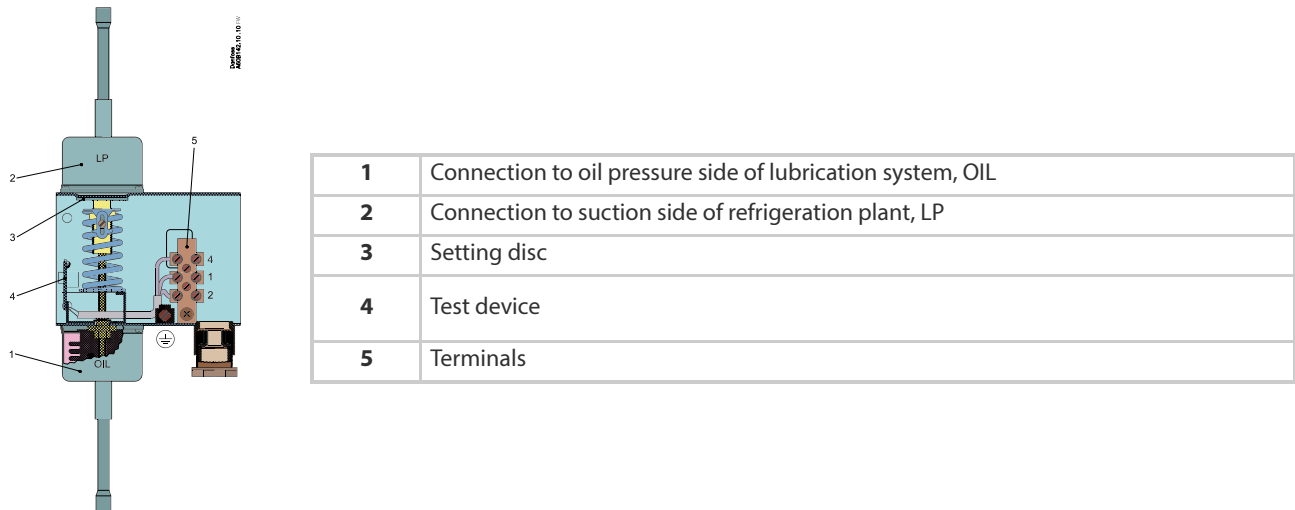
General data

Table: Technical data for MP55E

Features	Specification
Ambient temperature	-20 – 60 °C
Max. working pressure	PS/MWP = 17 bar
Max. test pressure	P _e = 22 bar
Screwed cable entry	Pg 13.5
Cable diameter	6 – 14 mm
Max. media temperature	80 °C
Enclosure	IP20 to EN 60529 / IEC 60529
Contact rating	P _i max: 1 W
	U _i max: 30 V
	I _i max: 0.1 A
	C _i max: 0.5 nF
	L _i max: 0.2 µH

Design

Figure: Design for MP55E



The MP55E pressure control only switches the differential pressure, i.e. the difference in pressure between the two - counteracting bellows, and it is virtually independent of the absolute pressure acting on both bellows.

The MP55E can be set for different differential pressures by the setting disc (3).

The set differential pressure can be read from the internal scale.



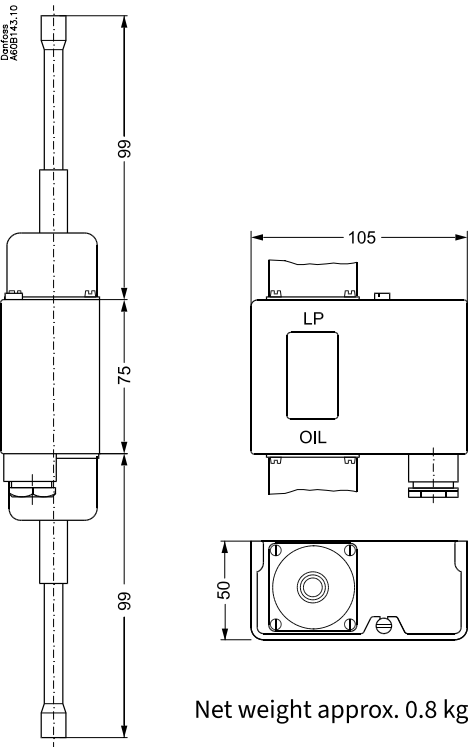
Materials

Table: Materials in contact with the medium

Features	Specification
Stainless steel	19/11, no. 1.4306 to EN 10088
Deep-drawn steel plate	No. 1.0338 to EN 10130
Free cutting steel	No. 1.0401 to EN 10277

Dimensions

Figure: Dimension and weight for MP55E





Installation

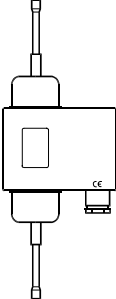
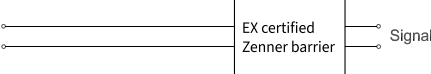
Electrical connection

The MP55E pressure switch placed in explosive zone must always be wired through reliable EX Zener barrier, placed outside ex-zone, to ensure insufficient energy supply to cause the ignition of surrounding atmosphere by an electrical spark or the heating of components of circuitry.

The equipment to be used for electrical load limiting must always be approved for use in the zone concerned. Cables and cable entries approved for the application must be used and cannot be in contact with sharp edges. Cables must be connected with adequate stress relief that way that pulling forces cannot be carried through the cable to the terminal.

NOTE: A particular system can be classified in different zones, for different parts of the system.

Intrinsic safety protection method
Table: Intrinsic safety protection method

EX - zone	Non-EX - zone	Electrical data for intrinsically safe specification (for all MP55E types):
		Pi max: 1 W Ui max: 30 V Ii max: 0.1 A Ci max: 0.5 nF Li max: 0.2 µH

Must be used with certified Ex ic barrier (product matching) satisfying the input parameters.

Installation and maintenance

Only authorized persons, who are certified in installing and maintaining the systems may do the installation, maintenance and change of the switch. In the event of strong pulsation in the system, bellows must be protected against fatigue failure by use of damping coil. The cycle frequency of the MP55E switch must be kept as low as possible. The vibration level must be kept as low as possible. Any overload of the MP55E switch must be prevented. Overloaded or damaged apparatus must be exchanged.

Safety requirements

The MP-E can be applied on systems with R1270, R290, R600, R600a as the working fluid. For countries where safety standards are not an indispensable part of the safety system Danfoss recommend the installer to get a third-party approval of the system containing flammable refrigerant.

Please follow specific selection criteria stated in the datasheet for these particular refrigerants.

MP55E pressure switches comply with the requirements for explosive atmosphere 2014/34/EU, acc. to ATEX, zone 2.

Only apparatus designed, constructed and released by Danfoss must be used for application concerned. Danfoss can accept no responsibility in case of alterations made on the switches or the use of them against the Danfoss instructions. Original Danfoss spare parts approved for use in explosive atmosphere can only be used.

The application covers systems that must be located within the EU or EFTA and comply with the existing EU legislation, such as the directive concerning potential explosive atmosphere (ATEX) 2014/34/EU, and other related EU standards. The system where MP55E is mounted must always comply with local directives, legislation or any other regulation applying in the area of installation. The Danfoss products comply with the requirements of ATEX directive, but Danfoss takes no responsibility for the classification of explosive zone.

Certificates, declarations and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

When you click on the link you will be directed to the latest version of the 'Declaration of Conformity'. Products developed and sold before this date of issue conform to the directives/standards in force at the time of their sale.

Approval type	Title	Certification body	Approval topic
UK Declaration	Danfoss UK 060-9691.AA	Danfoss	Explosive
EU Declaration	Danfoss EU 060-9651.AC	Danfoss	ATEX
CCC Declaration	Danfoss CCC 2020000305000027	Danfoss	
Export Control Declaration	Pressure switches & Thermostats	Danfoss	
UA Declaration	Danfoss UA 2024-07-25 cooling sensors	Danfoss	EMC, LVD
Pressure Safety Certificate	LLC CDC EURO-TYSK UA.TR.089.1015.05-22	LLC CDC EURO TYSK - Ukraine	Pressure
UA Declaration	Danfoss UA 2023-01-10 Regulators PL01 PL04	Danfoss	PED, Pressure

Contact details

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