

Solenoid plug with economy circuit type MSD 4 ECO

Product documentation

Connection acc. to EN 175 301-803 A

Nom. voltage U_{Nom} :

24 V DC



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1 Overview plug with economy circuit type MSD 4 ECO for 24 V DC

The final power of a solenoid when energized is higher than the power required to hold the valve in a shifted position. By using economy circuitry it is possible to reduce the final power of the solenoid by reducing the voltage that is applied to the coil. Reduction of this voltage will decrease the heat generated thus extending the life of the solenoid coil. Applications where this circuit could be used are: solenoids that remain in a continuously energized state with short breaks; areas with high ambient temperatures; directional valve banks where adjacent valves will be energized at the same time. In general, due to the lower temperature, increased reliability and longer solenoid life is achieved.

Features and benefits:

- Switching monitoring using LED
- Energy-saving on continuous actuation
- Straightforward mounting

Intended applications:

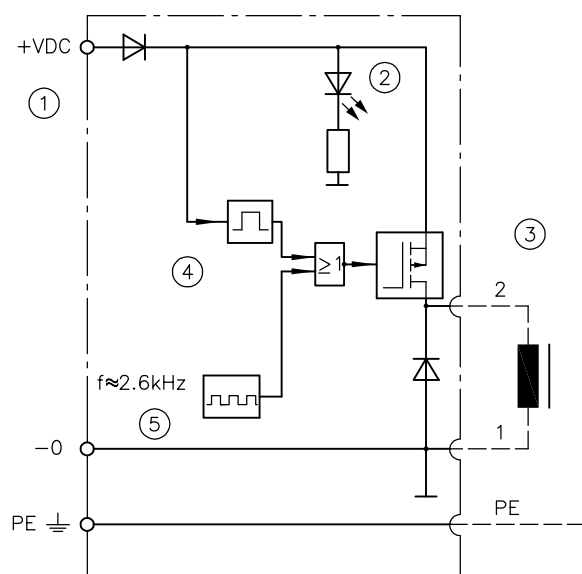
- For controlling on/off solenoids
- Industrial environment



Line connector with economy circuit type MSD 4 ECO for 24 V DC

2 Available versions, main data

Block diagram



Block diagram MSD4 ECO

- 1 Supply voltage
- 2 LED yellow
- 3 Solenoid valve
- 4 $t_{\text{start-up}} \approx 650 \text{ ms}$
- 5 duty cycle = 0.75...0.79

i NOTE

The field voltage which is fully connected when switched on is reduced after a certain delay and the valve is then supplied with only approx. 75% of the voltage. When the circuit is live, this is indicated by a yellow LED.

3 Parameters

3.1 General

General features

| | |
|-------------------------|---|
| Order coding | Economy circuit type MSD 4 ECO |
| Nomenclature | Line connector with economy circuit for 24 V DC |
| Condition when supplied | See Chapter 4, "Dimensions" |
| Connection pattern | Per DIN 43 650 Form A, 2-pole |
| Cable inlet | Pg 9 DIN 46 320 for sheath external diameter 4...8 mm |
| Connecting cables | 1.5 mm ² recommended wire cross section |
| Installation position | Any |
| Weight | Approx. 30 g |
| Ambient temperature | -20°C...+80°C |

i NOTE

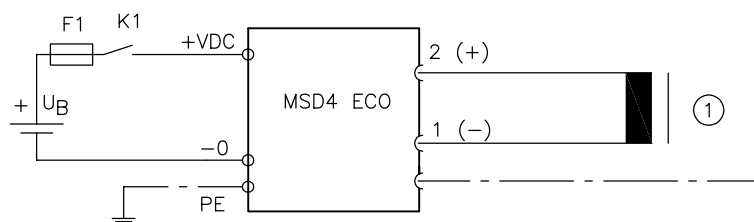
The line connector cannot be used for double or reversal lift solenoids MD and MU in accordance with [D 7055](#) or twin solenoids in accordance with [D 7785 A](#).

3.2 Electrical data

Electrical data

| | | |
|--|-------------|---|
| Supply voltage | U_B | 19 ... 30 V DC |
| Max. permissible ripple factor | w | 10 % (supply voltage has to be adequately smoothed) |
| Start voltage | U_A | $U_B - 0.8$ V DC |
| Start current | I_A | max. 1.5 A |
| Holding voltage | U_H | 0.75...0.79% U_B permanently set |
| Economy current | I_H | max. 1.2 A Sustaining voltage is the voltage at the valve solenoids in the steady condition. |
| Reponse time (ON) | t_{on} | No delay. For response time of the valve connected see 24 V DC version in the respective pamphlet |
| Reponse time (OFF) | t_{off} | Delay in switch off and drop time, depending on valve type, in part considerably longer than shown in the respective pamphlet |
| Conversion time | t_U | Approx. 600...750 ms permanently set Switch-over time is the time from switching on until switching over to the holding voltage. |
| Pulse repetition rate of PWM end stage | f_{pulse} | ≈ 2.6 kHz |
| Max. permissible operation frequency | | 0.1 Hz |

Circuitry example



Circuitry example MSD 4 ECO

1 Solenoid valve

4 Dimensions

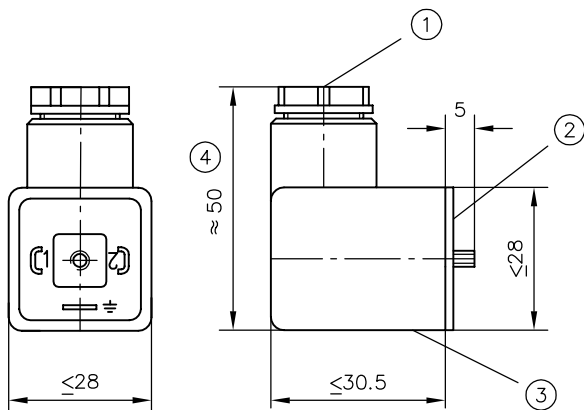
All dimensions in mm, subject to change.

Coding per DIN 43650 A

Casing translucent

Condition on delivery:

The economy circuit plug is supplied as an individual element. HAWE does not undertake preassembly with any valve for which it is intended which may be ordered at the same time. The valve and economy circuit unit must be listed separately in the order.



Coding MSD 4 ECO

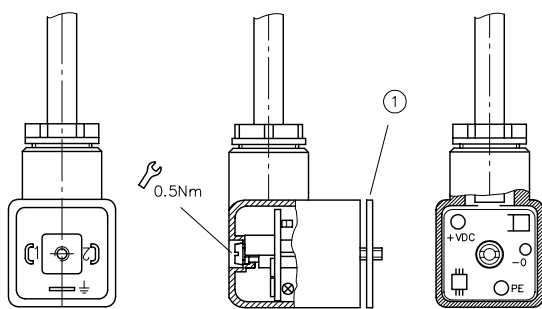
- 1 Cable gland Pg 9, DIN 43650
- 2 Flat seal
- 3 Type identifier printed on this side surface
- 4 not fully tightened

5 Installation, operation and maintenance information

5.1 Installation instructions

Special care must be taken regarding correct polarity when connecting cables.

i NOTE
Only install with the seal supplied.



Installation example

1 Flat seal

Additional versions and use

Additional versions

- Economy circuit type MSD: D 7813
- Line connector type MSD and others: D 7163
- Economy circuit plug type MSE 28026 with adjustable economy voltage: D 7832

Application

- Directional seated valve type EM and EMP: D 7490/1
- ional seated valve type WN and WH: D 7470 A/1
- Directional seated valve type G, WG and others: D 7300
- Directional seated valve type BVE: D 7921
- Directional seated valve type BVG 1 and BVP 1: D 7765