MAGNET-SCHULTZ

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Holding Current Reduction

Z KD H

Application

Holding current reduction Z KD H is a control gear for solenoids. Depending on the requirement a higher attraction force or a lower energy demand can be reached with the same solenoid size.

Function

The electronic device controls the input power of the connected solenoid via a pulse width modulation (PWM) which is controlled by a microcontroller.

For the attraction pulse duration of 300ms the input voltage is connected through to the solenoid. Then the holding current is controlled to an adjustable value.

Fig. 1: Z KD H 211 A02

Design Features

- Connector housing DIN EN 175301-803 type A – plug insert and therefore cable outlet turnable in 90° steps
- Protection class according to DIN VDE 0470/DIN EN 60529 when properly installed: IP 65
- Holding current controlled with pulse width modulation
- Factory-adjusted attraction pulse duration 300ms
- Function display via 2 LEDs

Application examples

- Linear solenoids, shotbolt lock units, rotary solenoids

Options and accessories on request

- Factory-adjusted holding current

Fig. 2: Z KD H 211 A03

Standards

- Quality management to ISO 9001
- EMC directive

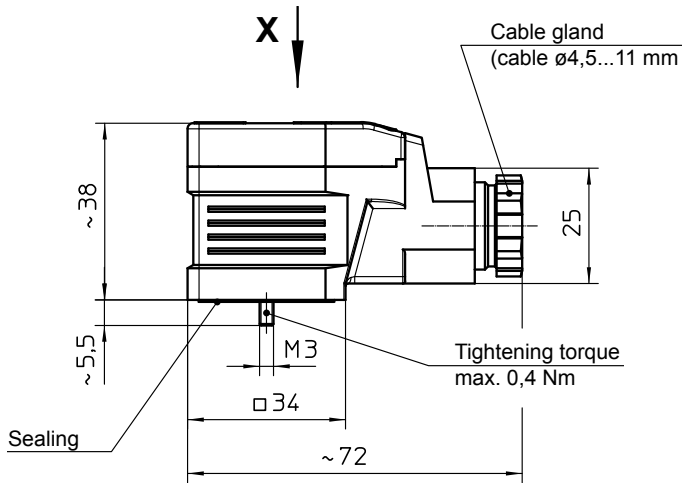## Technical Data

Z KD H 211	A02	A03
Input voltage range U_E	9.6V..28.8V DC	
Attraction current I_A	max. 10 A	max. 6 A
Holding current I_H	0.1 A ... max. 3A	admissible setting values 12 V: 0,1 A ... max. 2 A 24 V: 0,1 A ... max. 1 A
Attraction pulse duration t_{AP}	300 ms	
PWM frequency	20,8 kHz	
Operating temperature range	-20°C…50°C	-20°C…70°C
Approval	CE	CE / UL E 505221

Dimensional drawing

X
(view without adhesive labels)

Holding current setting $\cdot \textcircled{\tiny{\textbf{I}}} \cdot$ (P1)

GND

Status display LED green, red

9,6 V - 28,8 V DC

Terminal clamp tightening torque max. 0,4 Nm

Strain relief

Block diagram

9,6 V - 28,8 V DC K1.1 — X1

GND K1.2 — X2

protected against polarity
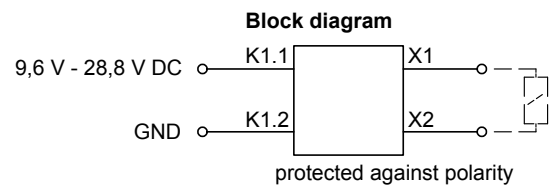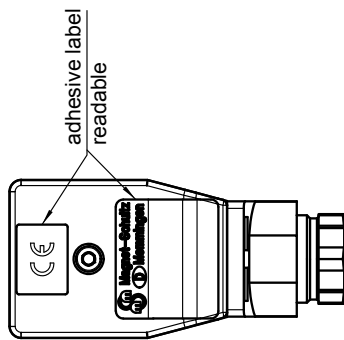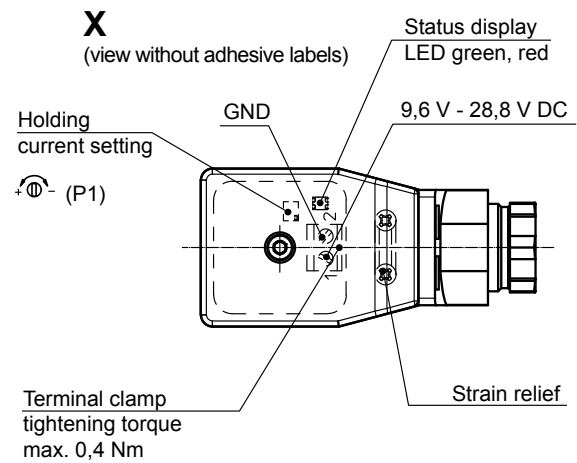
Caution! Electrostatically sensitive components!

Fig. 3: Z KD H 211 A02

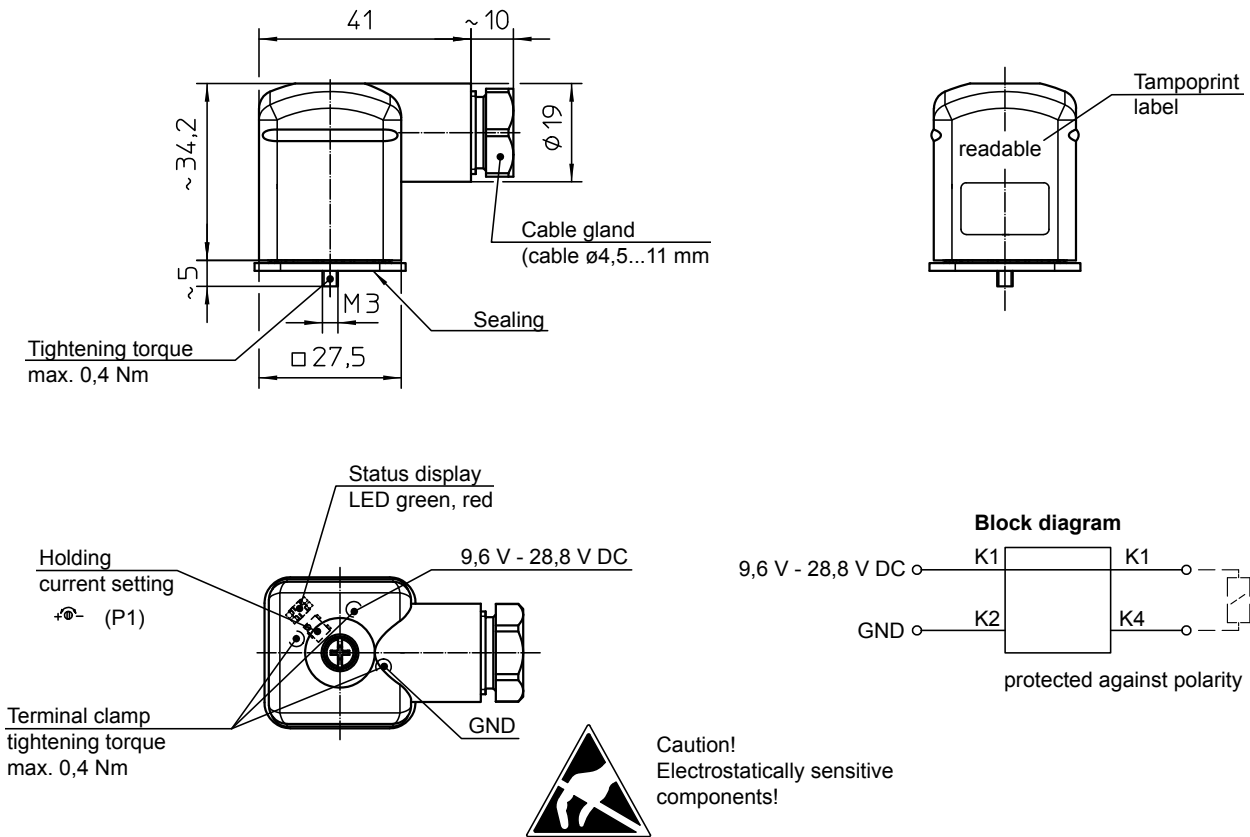For commissioning please observe the operating manual.

Fig. 4: Z KD H 211 A03

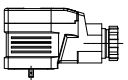For commissioning please observe the operating manual.

Note to Electromagnetic Compatibility Directive

The device is EMC tested and complies with the provisions of the directive.

The compliance with the standards can be confirmed on request.

Please make sure that the described devices are suitable for your application. Our offers for these devices are based on the assumption of maximal 8 in an FMEA severity table, i. e. in case of malfunction of the device model as offered, there is, amongst others, no jeopardy of life or limb. Supplementary information concerning its proper installation can be taken also from the 🔶 –Technical Explanation, the effective DIN VDE0580 as well as the relevant specifications.

This part list is a document for technically qualified personnel.

The present publication is for informational purposes only and shall not be construed as mandatory illustration of the products unless otherwise confirmed expressively.

Type code

Type	max. Attraction current	max. Holding current	
Z KD H 211 A02	10 A	3 A	
Z KD H 211 A03	6 A	12 V: 2 A 24 V: 1 A	

Example

Type   Z KD H 211 A02

Special Variants + Settings Z KD H

Please do not hesitate to ask us for application-oriented problem solutions. In order to find rapidly a reliable solution we need the most precise details about your application conditions.

Please send us for this the completed checklist overleaf or request the assistance of our responsible technical office.

Checklist Use for and Adjustment to the Application

Principle / Application	Overexcitation	Holding Current Reduction
Target	Maximum attraction force with the smallest possible device size	Energy efficiency, lowest energy demand with lowest heat development
Actions to the solenoid	Adjusted winding (special winding)	Standard winding (100 % ED) No adjustment required
Physical limits	Average continuous power must not be exceeded. (design by MSM)	Do not choose a too low holding force in order to exclude the drop of the armature also with changing environmental influences (specification customer)

1. Which solenoid is to be operated:
   Type: _____

2. Which optimization shall be carried out (see above table)
   □ Maximum attraction force (overexcitation)
   □ Minimum energy demand (holding current reduction)

3. Rated voltage [V] with tolerance U_N = _____ V DC (9,6V…28,8V) ± _____ %

4. Min. cycle time [s] (period between two cycles) t_{Cycle} = _____ s (see diagram fig. 3)

5. Max. operating time [s] (energization duration) t_{On} = _____ s (see diagram fig. 3)

6. Max. expected ambient temperature [°C] $\vartheta_{13,\,max}$ = _____ °C (max. +50°C)

7. Min. ambient temperature [°C] $\vartheta_{13,\,min}$ = _____ °C (min. -20°C)

8. Requested attraction force [N] / torque [Ncm] F_M / M_D = _____ N / Ncm

9. Requested holding force [N] / holding torque [Ncm] F_H / M_H = _____ N / Ncm

Example
GTCA050X43A01

U_N = 24 V DC ±10%

t_{Cycle} = 300 s

t_{On} = 200 s

$\vartheta_{13,\,max}$ = 35°C

$\vartheta_{13,\,min}$ = -5°C

F_M = 60 N

F_H = 180 N

Please indicate in addition which values can be varied if the requested technical data cannot be reached. Example: Constructive size of the solenoid variable, larger if required
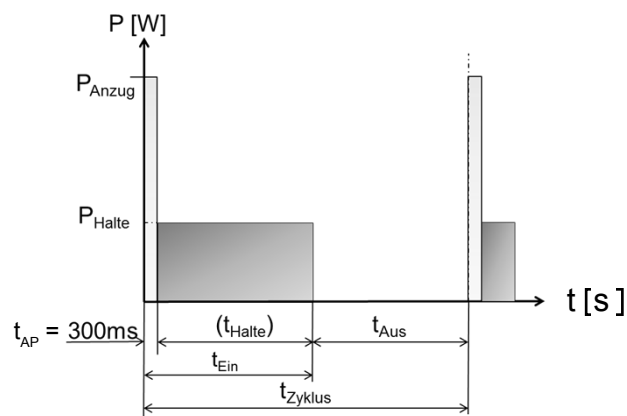

Fig. 3: Diagram

Note to power supply:
The required attraction power is to be provided by the operator with sufficient voltage. You will receive the exact performance values as a result of our design on the basis of your information.