

Absolute encoders - analog

Encoder with cable-pull

Magnetic sensing, resolution 12 bit

ZXSS K50 / K50 analog / cable-pull - MAGRES



BMMS K50 analog with connector M12

Technical data - electrical ratings

Voltage supply	8...30 VDC
Reverse polarity protection	Yes
Short-circuit proof	Yes
Consumption typ.	35 mA (24 VDC, w/o load)
Initializing time	≤500 ms after power on
Response time	<1 ms
Interface	Analog 0...10 V / 0.5...4.5 V / 4...20 mA / Resolution: 12 bit
Function	Linear position feedback
Sensing method	Magnetic
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4
Programmable parameters	Measuring range teachable
Diagnostic functions	Self-diagnosis Reading back voltage output
Factory setting	Entire measuring range Min. output at 0 m Max. output at 2.3 m, 5 m

ZXSS K50

Linearity	0.17 % of whole measuring range
Repeatability typ.	2 mm

BMMS K50

Linearity	0.45 % of whole measuring range
Repeatability typ.	4 mm

Features

- Encoder with cable-pull —
- Magnetic sensing method —Resolution: 12 bit
- Interface analog 0...10 V / 0.5...4.5 V / 4...20 mA —Measuring length 2300 mm or 5000 mm
- Removable caps for water outlet —Teach inputs
- Extremely flat design
- Extremely light thanks to housing of plastic and aluminum

Technical data - mechanical design

Protection DIN EN 60529	IP 65 (encoder)
Materials	Encoder housing: aluminium Cable-pull housing: PA6 GF30 Cable: Stainless steel cable coated with polyamide
Operating temperature	-40...+85 °C
Service life	Typ. >500000 strokes
Cable acceleration	≤50 m/s ²
Cable diameter	0.45 mm
Pull-in force	>3 N
Pull-out force	≤9 N
Relative humidity	95 % temporary condensing
Resistance	DIN EN 60068-2-6 Vibration 10 g, 10-2000 Hz DIN EN 60068-2-27 Shock 50 g, 11 ms
Weight approx.	400 g
Connection	Connector M12, 5-pin Connector M12, 8-pin Cable 2 m
Bending radius	Cable: >55 mm
Special characteristics	Coated electronic
Instruction	Please consider the assembly instructions

ZXSS K50

Measuring length	2.3 m
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BMMS K50

Measuring length	5 m
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BMMS K23 / K50 analog / cable-pull - MAGRES

Part number

Measuring length max. 2.3 m

ZXSS

K505N24V12

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Connection

- 5 Cable 2 m, radial
- M 2 x connector M12, 5-pin, radial (redundant version)
- N Connector M12, 5-pin, radial (not redundant version)
- Q Connector M12, 8-pin, radial

Resolution

12/16 12/16 bit single-/multiturn

Analog signals

- U 0...10 VDC
- 5 0.5...4.5 VDC
- V 4...20 mA
- 7 0.5...4.5 VDC redundant
- Y 0...10 VDC redundant
- Z 4...20 mA redundant

Measuring length max. 5 m

BMMS K505N24

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Connection

- 5 Cable 2 m, radial
- M 2 x connector M12, 5-pin, radial (redundant version)
- N Connector M12, 5-pin, radial (not redundant version)
- Q Connector M12, 8-pin, radial

Resolution

12/16 12/16 bit single-/multiturn

Analog signals

- U 0...10 VDC
- 5 0.5...4.5 VDC
- V 4...20 mA
- 7 0.5...4.5 VDC redundant
- Y 0...10 VDC redundant
- Z 4...20 mA redundant

Accessories

Connectors and cables

10153968	Female connector M12, 5-pin, straight, without cable
11046266	Female connector M12, 5-pin, straight, shielded, 5 m cable
10156842	Cable with male/female M12, 5-pin, angled, A-coded, 5 m
11144306	Cable with male/female M12, 5-pin, straight, A-coded, 5 m
10146775	Female connector M12, 8-pin, straight, without cable

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Terminal significance

+Vs	Cable transducer supply voltage. (Redundant configuration provides decoupled dual voltage supply (+Vs1/+Vs2) separated by diodes.
0 V	Cable transducer ground connection relating to +Vs.
Iout	Current output. Load: $<500\ \Omega$
Uout	Voltage output. Current output: max. 10 mA Load resistor: $>1\ \text{k}\Omega$ between Uout / 0 V
Set	Teach input. Resting state: Low Level High: $>0.7 \times +Vs$ Level Low: $<0.3 \times +Vs$ Pull-Down resistor: 10 k Ω
DV/Status	Diagnostic output/Teach output. R _L - Vs: High: $>(+Vs - 1.0\ \text{V})$ Low: $<3.0\ \text{V}$ R _L - GND: High: $>(+Vs - 3.0\ \text{V})$ Low: $<1.0\ \text{V}$ I _{Lmax} = 10 mA Upon any short-time disturbance, DV will go on Low for 1 second.

Teach process

Activate teach process

After power on set "Set-input" on HIGH for >5 seconds and afterwards on LOW level.

DV/Status output: Oscillates after 5 seconds.

Position 1

Get cable transducer on position 1 intended for voltage output 1 / current output 1. Set "Set-input" for 1 second on HIGH level.

DV/Status output: Switches to HIGH level for 3 seconds and flashes shortly.

Position 2

Get cable transducer on position 2 intended for voltage output 2/current output 2. Set "Set-input" for 1 second on HIGH level.

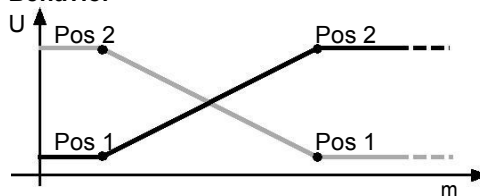
DV/Status output: Switches to LOW level for 3 seconds and oscillates afterwards.

If measuring range is exceeded or the limits are too close to each other, the teaching process was not successful and has to be repeated.

Set / restore default

Set "Set-input" for 16 seconds to HIGH. DV/Status output: Oscillates after 5 seconds. Note: The cable transducer has to be completely drawn in.

Behavior



— Teach in direction - move in
— Teach in direction - move out

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Terminal assignment

Cable

for connection reference -5

Core color	Analog signals		
	U/5	V	W
white	0 V	0 V	0 V
brown	+Vs	+Vs	+Vs
green	d.u.	Iout	Iout
yellow	Uout	d.u.	Uout
grey	Set	Set	Set
pink	DV/Status	DV/Status	DV/Status
Screen	connected to housing		
Cable data	6 x 0.14 mm ²		

Cable redundant

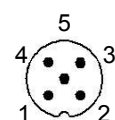
for connection reference -5

Core color	Analog signals	
	Y/7	Z
white	0 V	0 V
brown	+Vs 1	+Vs 1
green	Uout 1	Iout 1
yellow	Uout 2	Iout 2
grey	Set 1	Set 1
pink	DV/Status 1	DV/Status 1
blue	Set 2	Set 2
red	DV/Status 2	DV/Status 2
black	0 V	0 V
violet	+Vs 2	+Vs 2
Screen	connected to housing	
Cable data	10 x 0.14 mm ²	

Connector M12, 5-pin

for connection reference -N

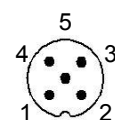
Connector	Analog signals		
	U/5	V	W
Pin 1	0 V	0 V	0 V
Pin 2	+Vs	+Vs	+Vs
Pin 3	d.u.	Iout	Iout
Pin 4	Uout	d.u.	Uout
Pin 5	Set	Set	Set



Connector M12, redundant, 2 x 5-pin

for connection reference -M

Connector	Connector 1	Connector 2
Pin 1	0 V	0 V
Pin 2	+Vs 1	+Vs 2
Pin 3	Uout 1 (Y/7) Iout 1 (Z)	Uout 2 (Y/7) Iout 2 (Z)
Pin 4	DV/Status 1	DV/Status 2
Pin 5	Set 1	Set 2



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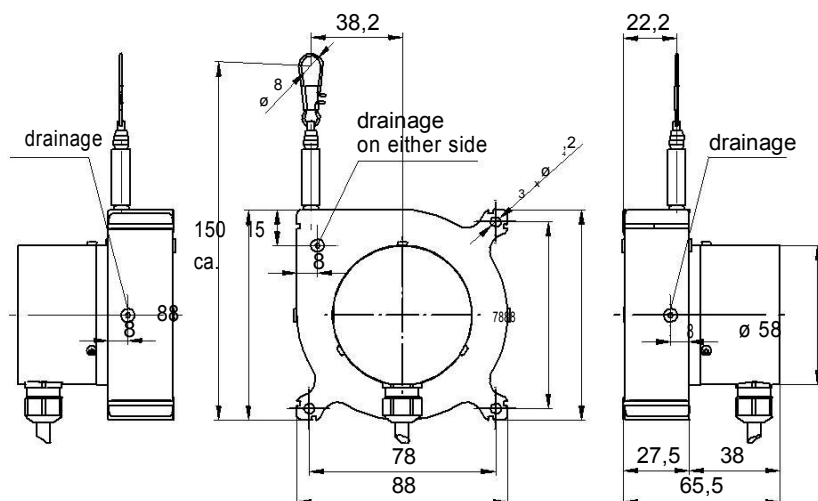
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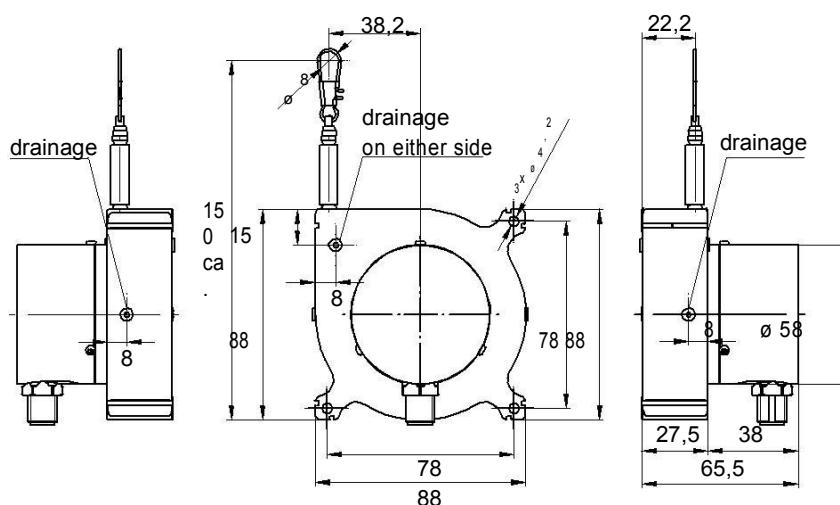
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Dimensions

ZXSS K50 / K50 cable radial



ZXSS K50 / K50 connector M12



ZXSS K50 / K50 connector 2 x M12

