Absolute encoders - analog

Encoder with cable-pull

Magnetic sensing, resolution 12 bit

BMMS M50 / M75 analog / cable-pull - *MAGRES*

BMMS M75 analog with connector M12

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 5000 mm or 7500 mm**
- **Removable cabs for water outlet**
- **Teach inputs**
- **Extremely flat design**
- **Extremely light thanks to housing of plastic and aluminium**

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
Linearity	0.2 % of whole measuring range
Sensing method	Magnetic
Repeatability typ.	3 mm
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 5 m, 7.5 m

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 diameter	0.45 mm
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.	900 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
BMMS M75	
Measuring length	7.5 m
Cable acceleration	≤15 m/s²
Pull-in force	>7 N
Pull-out force	≤13 N
BMMS M50	
Measuring length	5 m
Cable acceleration	≤25 m/s²
Pull-in force	>5 N
Pull-out force	≤8 N

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Part number

Measuring length max. 7.5 m

BMMS M755N24 | | **12/16** | **00** | |

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 M505N24 | | **12/16** | **00** | |

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
11144306	Cable with male/female M12, 5-pin, straight, A-coded, 5 m
10146775	Female connector M12, 8-pin, straight, without cable
10127844	Female connector M12, 8-pin, straight, shielded, 2 m cable

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Terminal significance	
+Vs	Cable-pull encoder supply voltage. (Redundant configuration provides decoupled dual voltage supply (+Vs1/+Vs2) separated by diodes.
0 V	Cable-pull encoder ground connection relating to +Vs.
Iout	Current output. Load: <500 Ω
Uout	Voltage output. Current output: max. 10 mA Load resistor: >1 kΩ between Uout / 0 V
Set	Teach input. Resting state: Low Level High: >0.7 x +Vs Level Low: <0.3 x +Vs Pull-Down resistor: 10 kΩ
DV/Status	Diagnostic output/Teach output. R_L- Vs: High: >(+Vs -1.0 V) Low: <3.0 V R_L- GND: High: >(+Vs -3.0 V) Low: <1.0 V I_{Lmax} = 10 mA Upon any short-time disturbance, DV will go on Low for 1 second.
Drain	Encoder housing.

Teach process

Activate teach process
Set “Set-input” on HIGH for 6 seconds and afterwards on LOW level.
DV/Status output: Oscillates after 5 seconds.

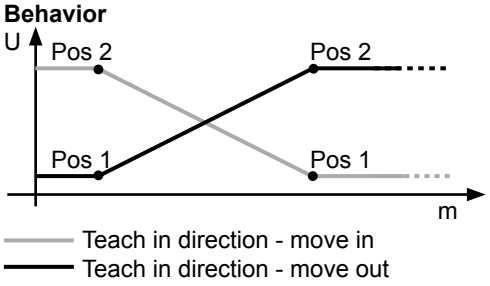
Position 1
Get cable transducer on position 1 intended for voltage output 1 / current output 1. Set “Set-input” for 1 second on HIGH level.
DV/Status output: Switches to HIGH level for 3 seconds and flashes shortly.

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 hast to be completely drawn in.

Behavior



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Terminal assignment

Cable
for connection reference **-5**

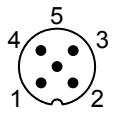
Core color	Analog signals U/5	V	W
white	0 V	0 V	0 V
brown	+Vs	+Vs	+Vs
green	d.u.	Iout	Iout
yellow	Uout	d.u.	Uout
grey	Set	Set	Set
pink	DV/Status	DV/Status	DV/Status
Screen	connected to housing		
Cable data	6 x 0.14 mm²		

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 mm²	

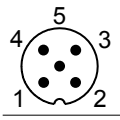
Connector M12, 5-pin
for connection reference **-N**

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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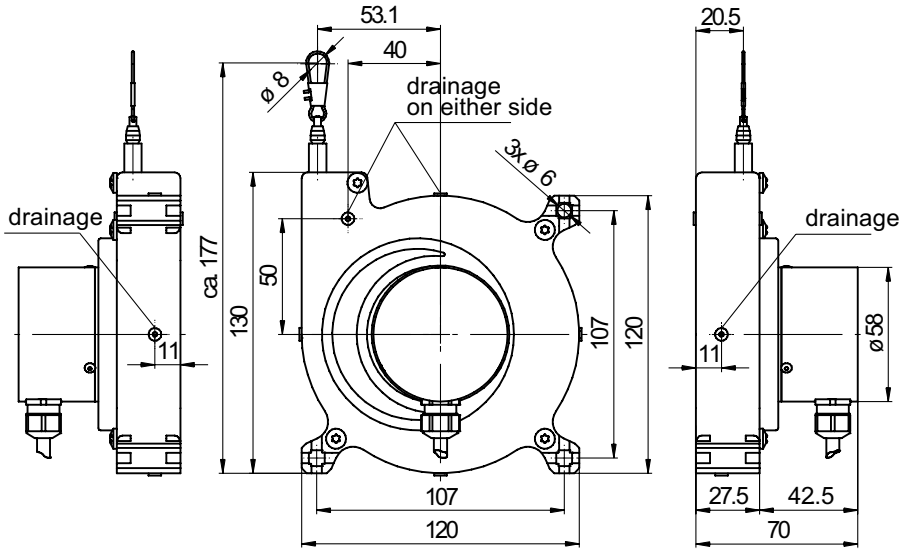
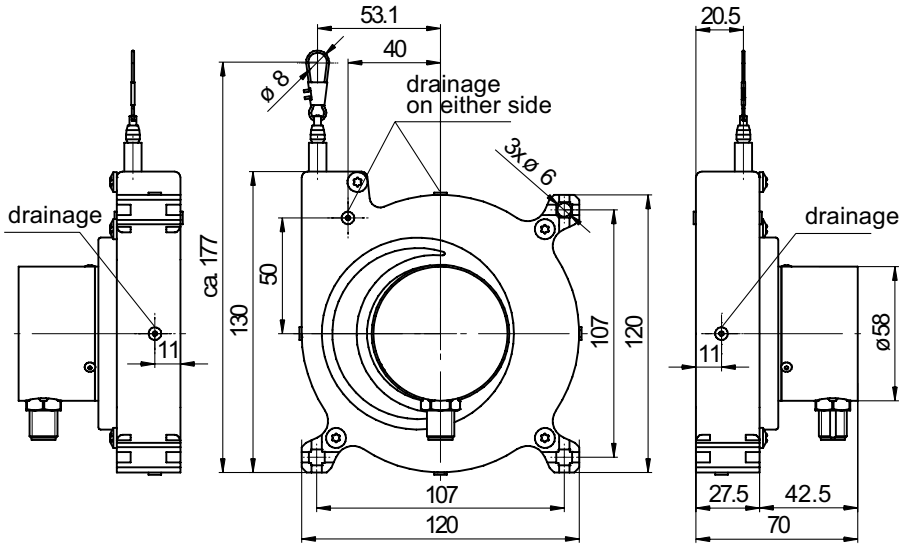
Dimensions

BMMS M50 cable radial



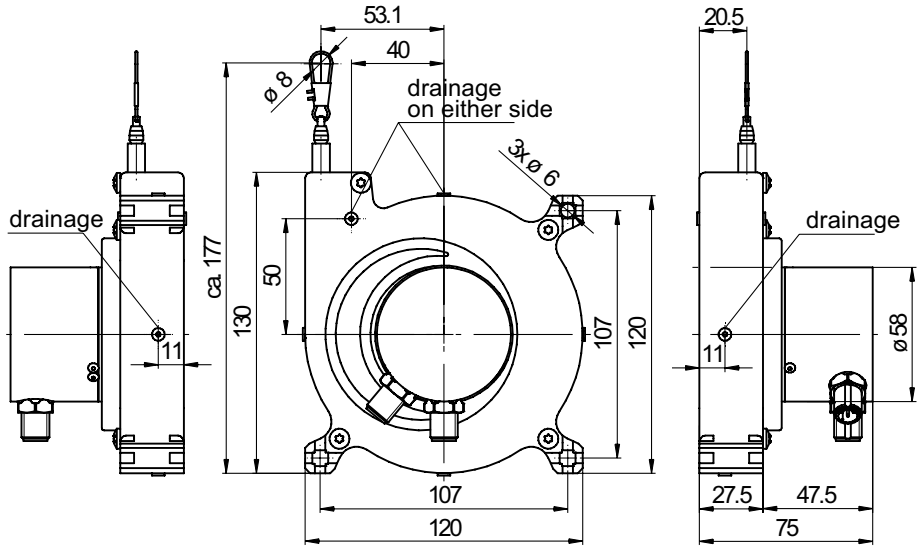
BMMS M50 connector M12



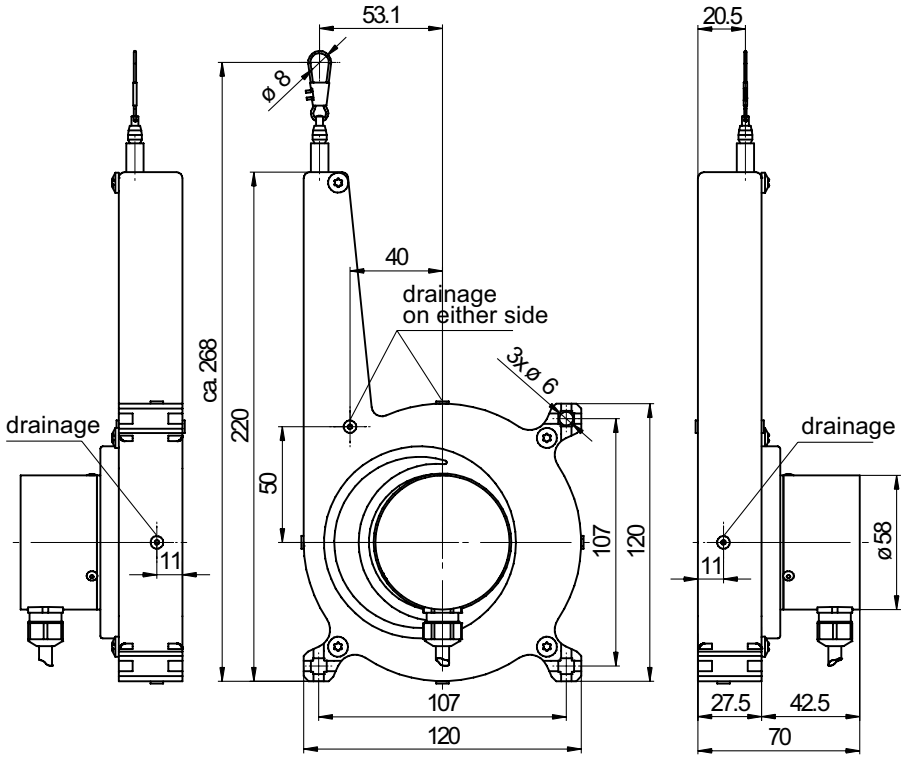
BMMS M50 / M75 analog / cable-pull - *MAGRES*

Dimensions

BMMS M50 connector 2 x M12



BMMS M75 cable radial



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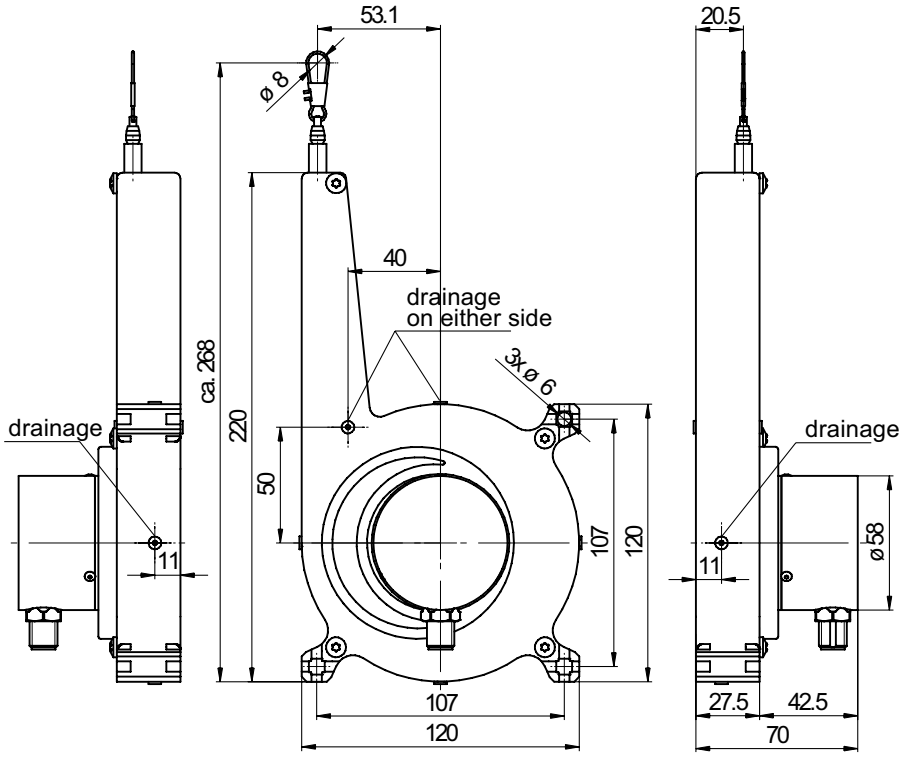
Dimensions

BMMS M75 connector M12



BMMS M75 connector 2 x M12