

# Magnetic display

## For bypass level indicators

### Model BMD

WIKA data sheet LM 10.03

#### Applications

- Magnetic display for the visualisation of levels in combination with bypass level indicators
- Individual design and corrosion-resistant materials make the products suitable for a broad range of applications
- Chemical, petrochemical industry, natural gas, offshore, shipbuilding, machine building, power generating equipment, power plants
- Process water and drinking water treatment, food and beverage industry, pharmaceutical industry

#### Special features

- Measured value indication by means of rollers or flaps with permanent magnets, without auxiliary power
- Medium temperatures from -200 ... +450 °C [-328 ... +842 °F]
- Splash-proof or hermetically sealed
- Hermetically separated from the process
- Version with illumination available

#### Description

The model BMD magnetic displays are used in combination with bypass level indicators for the display of levels. A magnetic system built into the float transmits the liquid level, contact-free, to the externally mounted display. In this are fitted, at 8 mm intervals, plastic rollers or stainless steel flaps with bar magnets. Through the directional magnetic field of the permanent magnetic system in the bypass float, the magnetic rollers or flaps, through the wall of the bypass chamber, are turned through 180°. With this functional principle of the magnetic display, the



Fig. left: Plastic rollers, model BMD-SA

Fig. right: Stainless steel flaps, model BMD-FR

level of a vessel is indicated as a coloured column, without auxiliary power.

An integrated T-slot serves for the fastening of further attachment parts such as scales, transmitters and switches.

For selecting the optimum magnetic display (plastic rollers/stainless steel flaps, case, scale, measuring range etc.) we offer application-related technical advice.

## Overview of versions

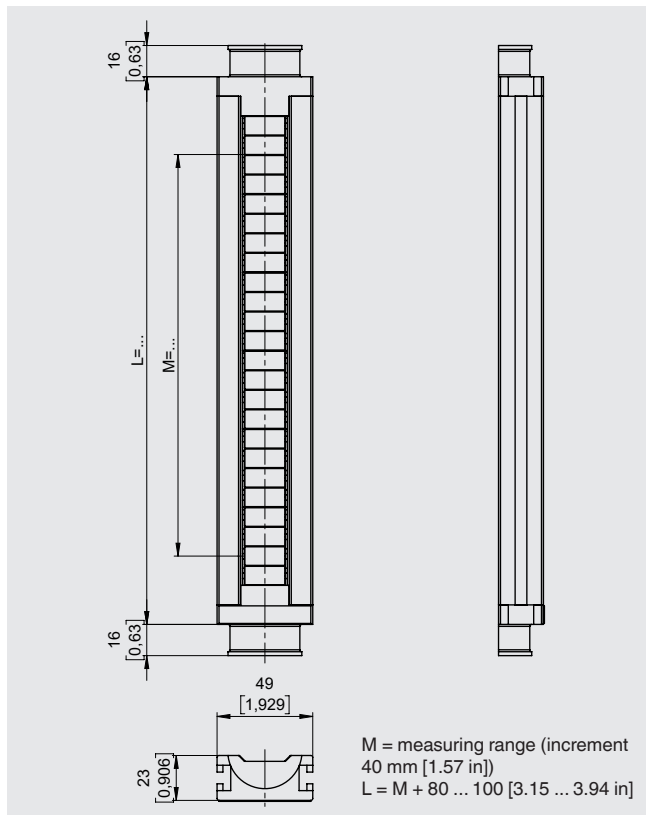
- Scale with adhesive foil
- Scale engraved aluminium
- Scale engraved stainless steel
- Scale in cm, mm or %
- Scale with special engraving
- Non-frosting glass extension for insulation at low temperatures
- Purge gas connection
- Display elements in the colours red, white, black, blue and yellow (others on request)
- Illumination unit
- Float monitoring for the indication of defective floats

## Model overview

Model	Instrument model	Material
BMD-SA	MRA	Plastic rollers in aluminium case, with T-slot
BMD-SR	MRAV	Plastic rollers in stainless steel case, with T-slot
BMD-FA	MRF	Stainless steel flaps in aluminium case, with T-slot
BMD-FR	MRFV	Stainless steel flaps in stainless steel case, with T-slot
BMD-SS	MRAS	Plastic rollers in stainless steel case, hermetically sealed, with T-slot
BMD-FS	MRFS	Stainless steel flaps in stainless steel case, hermetically sealed, with T-slot
BMI-LE	-	Illumination for magnetic bar (attachment)

## Plastic rollers in aluminium case, with T-slot, model BMD-SA, instrument model MRA

Permissible temperature: -50 ... +200 °C [-58 ... +392 °F]

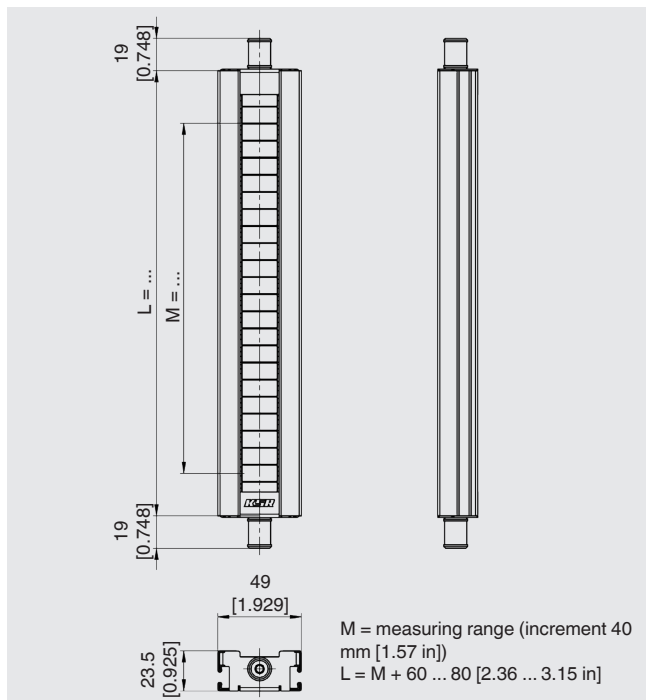


### Specifications

<b>Case</b>	Aluminium, anodised
<b>Length L</b>	180 ... 6,000 mm [7.1 ... 236.2 in]
<b>Indication element</b>	Plastic rollers, PBT, red/white
<b>Indicator window</b>	Polycarbonate
<b>Ingress protection</b>	IP65 per IEC/EN 60529

## Plastic rollers in stainless steel case, with T-slot, model BMD-SR, instrument model MRAV

Permissible temperature: -50 ... +200 °C [-58 ... +392 °F]

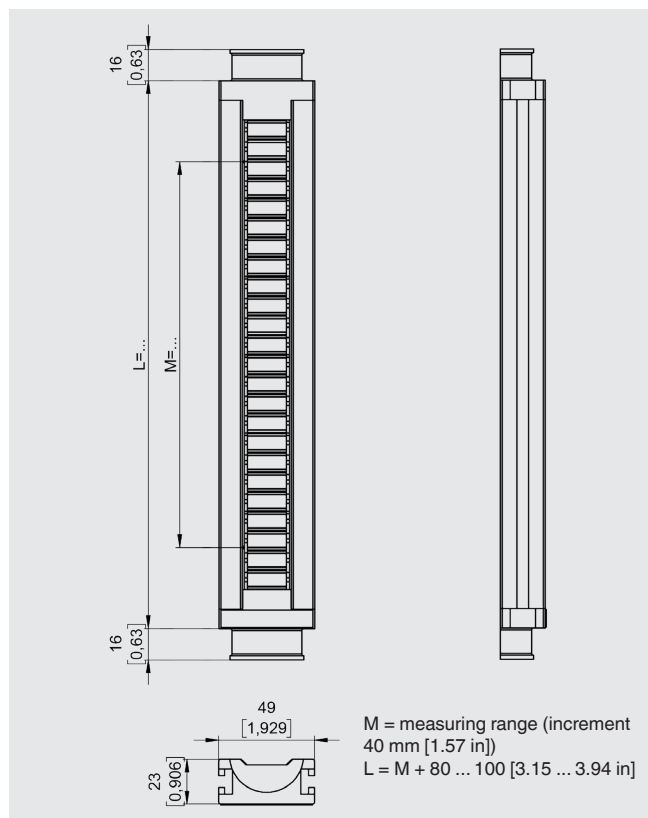


### Specifications

<b>Case</b>	Stainless steel
<b>Length L</b>	180 ... 6,000 mm [7.1 ... 236.2 in]
<b>Indication element</b>	Plastic rollers, PBT, red/white
<b>Indicator window</b>	Polycarbonate
<b>Ingress protection</b>	IP65 per IEC/EN 60529

## Stainless steel flaps in aluminium case, with T-slot, model BMD-FA, instrument model MRF

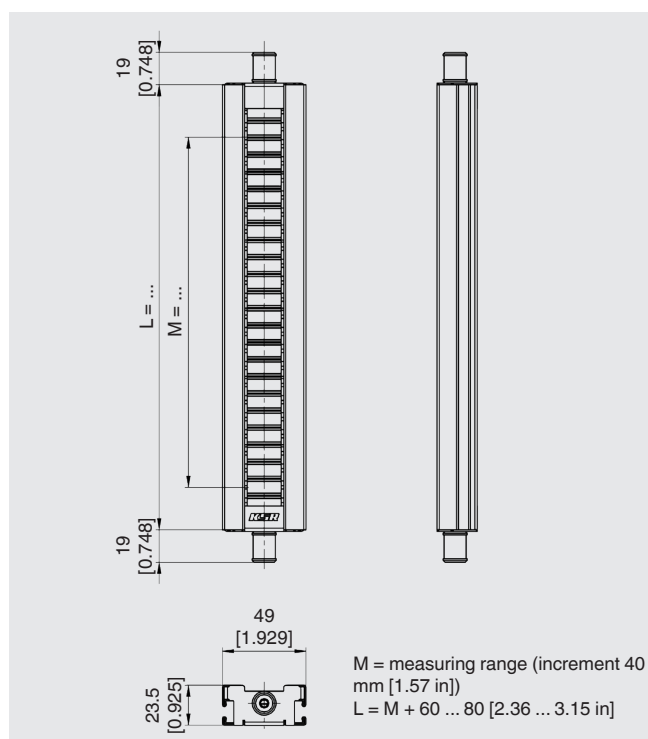
Permissible temperature: -200 ... +450 °C [-328 ... +842 °F]



Specifications	
Case	Aluminium, anodised
Length L	180 ... 6,000 mm [7.1 ... 236.2 in]
Indication element	Stainless steel flaps, red/white
Indicator window	Glass
Ingress protection	IP65 per IEC/EN 60529

## Stainless steel flaps in stainless steel case, with T-slot, model BMD-FR, instrument model MRFV

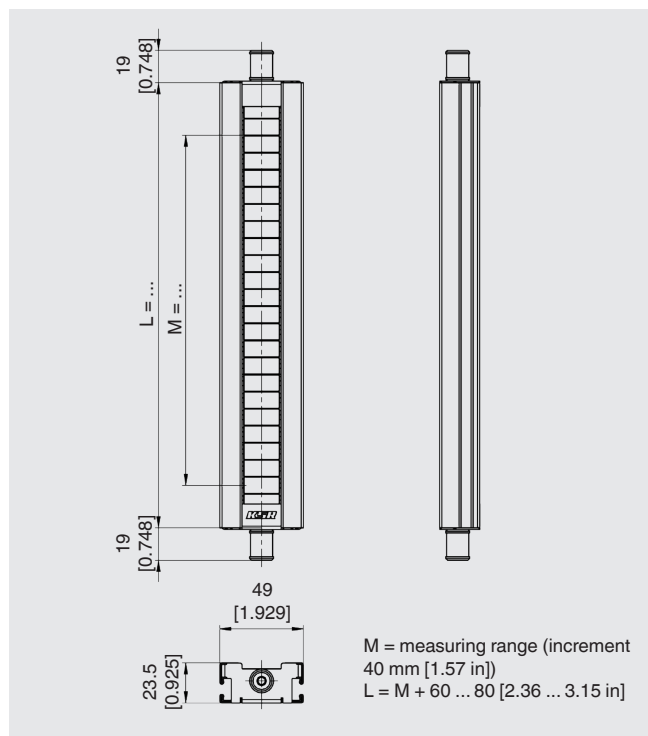
Permissible temperature: -200 ... +450 °C [-328 ... +842 °F]



Specifications	
Case	Stainless steel
Length L	180 ... 6,000 mm [7.1 ... 236.2 in]
Indication element	Stainless steel flaps, red/white
Indicator window	Glass
Ingress protection	IP65 per IEC/EN 60529

## Plastic rollers in stainless steel case, with T-slot, hermetically sealed, model BMD-SS, instrument model MRAS

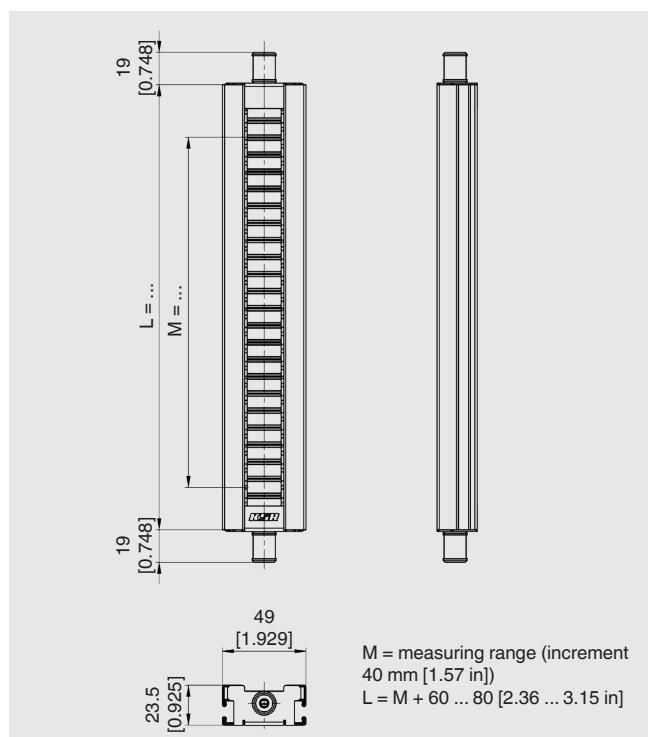
Permissible temperature: -170 ... +200 °C [-274 ... +392 °F]



Specifications	
Case	Stainless steel
Length L	180 ... 6,000 mm [7.1 ... 236.2 in]
Indication element	Plastic rollers, PBT, red/white
Indicator window	Polycarbonate profile, argon gas-filled, hermetically sealed
Ingress protection	IP66/68 per IEC/EN 60529

## Stainless steel flaps in stainless steel case, with T-slot, hermetically sealed, model BMD-FS, instrument model MRFS

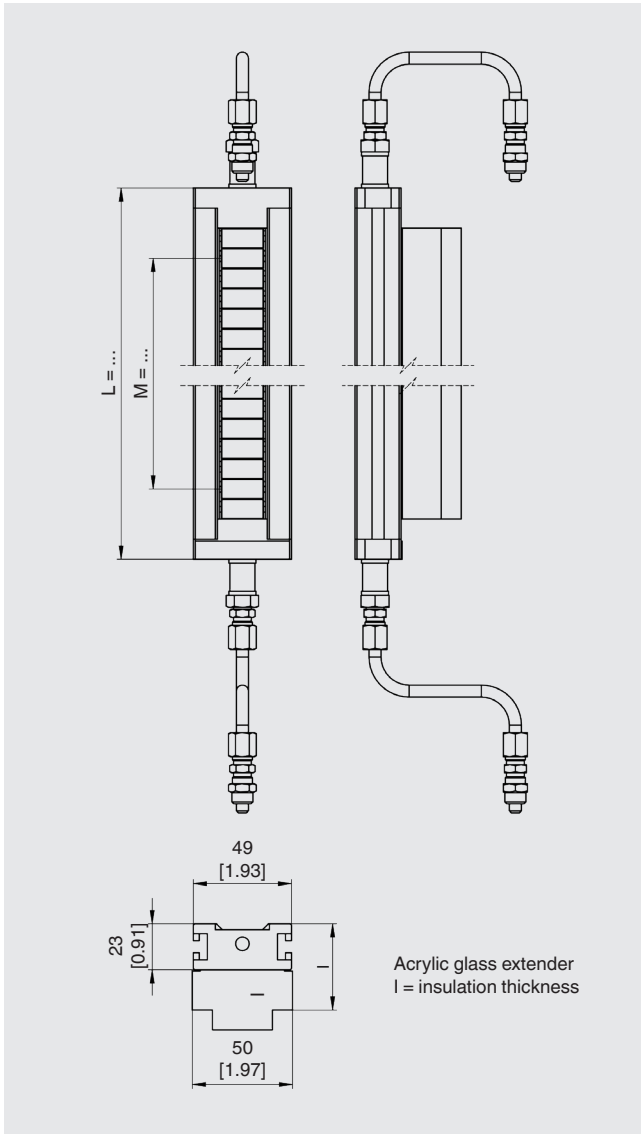
Permissible temperature: -170 ... +200 °C [-274 ... +392 °F]



Specifications	
Case	Stainless steel
Length L	180 ... 6,000 mm [7.1 ... 236.2 in]
Indication element	Stainless steel flaps, red/white
Indicator window	Polycarbonate profile, argon gas-filled, hermetically sealed
Ingress protection	IP66/68 per IEC/EN 60529

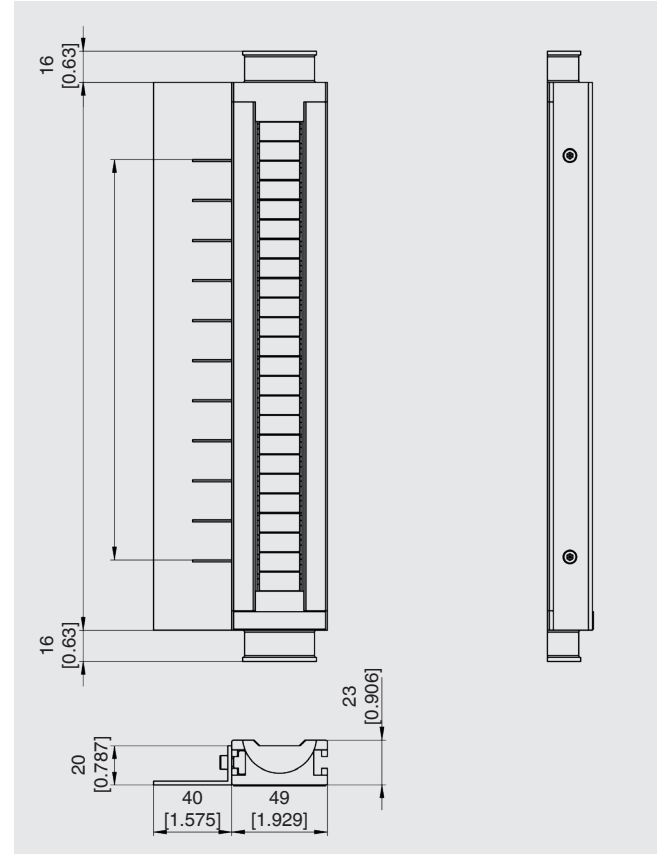
## Other versions

With non-frosting glass extension and purge gas connection  
(with bypass chamber insulation)

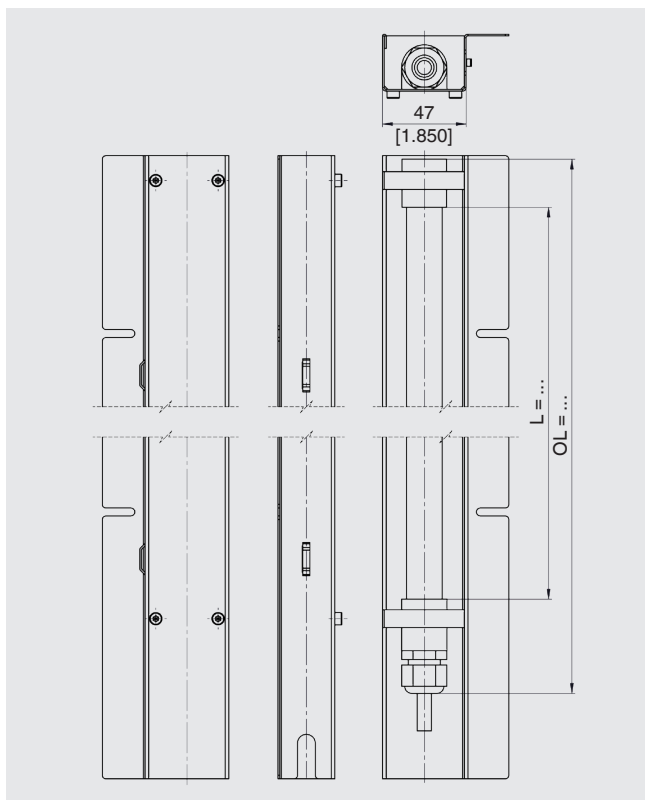


Scale (adhesive foil, aluminium or stainless steel)

- Aluminium with adhesive foil, cm-graduation
- max. ambient temperature for the adhesive foil: 100 °C [212 °F]
- Aluminium or stainless steel engraved, graduation selectable



## Illumination for magnetic display, model BMI-LE



### Specifications

<b>Electrical connection</b>	Cable from polyurethane (2 x 1.5 mm <sup>2</sup> [0.08 x 0.06 in <sup>2</sup> ] [H07BQ-F]), length 10 m [393.7 in]
<b>Length</b>	100 ... 1,242 mm [3.9 ... 48.9 in] Illumination length > 1,242 mm [48.9 in]: several illumination units required
<b>Ambient temperature</b>	-20 ... +60 °C [-4 ... +140 °F]
<b>Auxiliary power</b>	DC 24 V (±10 %)
<b>Electrical power</b>	approx. 30 W/m
<b>Service life</b>	approx. 50,000 h
<b>Ingress protection</b>	IP66 per IEC/EN 60529
<b>Illumination unit with connection housing (option)</b>	Light source model LTC-LV incl. power supply unit U <sub>IN</sub> = AC 115/230 V; U <sub>OUT</sub> = DC 24 V Specify the length of the magnetic display to be illuminated when ordering.

## Approvals

Logo	Description	Region
CE	<b>EU declaration of conformity for BMI-LE illumination only</b>	European Union
	Low voltage directive	
	RoHS directive	

## Optional approvals

Logo	Description	Region
Ex	<b>EU declaration of conformity for light source model LTC-LV only</b>	European Union
	ATEX directive Hazardous areas	
	- Ex e mb Zone 1 gas II 2G Ex e mb IIC T5 ... T4 Gb - Ex mb Zone 21 dust II 2D Ex mb IIIC T95 ... T130 °C Db IP66	

## Float failure indication

By means of the float failure indication, it is possible to detect if a float is defective and cannot float any more. The white rollers in the lower area indicate that the float is still functional. The red rollers indicate that the float has sunk.

### Indicative image



Float is floating  
(vessel empty)



Float is floating  
(vessel filled)



Float has sunk



## Ordering information

Model / Measuring range / Options

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