

BLISS
AMERICAS



BA-SERIES
**MAGNETOSTRICTIVE
LEVEL TRANSMITTER**

www.blissamericas.com

BA-Series Magnetostrictive Level Transmitter

**Magnetostrictive Liquid-Level
Sensors with Temposonics®
Technology**

**BA-Series Model BAMR3/4
MLG Transmitter with Analog Output**



Model BAMR Sightglass Transmitter
Single-Cavity Housing

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PRODUCT OVERVIEW

The Model BAMR3/4 liquid level transmitter satisfies the demand for an analog communication interface for magnetic level gauge (MLG) applications. The Model BAMR3/4 transmitter provides a 4-20mA output for most MLG manufacturers and allows for mounting external to the chamber without interrupting the process.

Model BAMR3/4 transmitters are modular in design offering a selection of mounting options and pipe styles. The modularity also offers simple field replacement. Subject to local electrical codes, the sensing element and electronics can be removed from the transmitter pipe without disturbing the operation of the process saving both time and money

The model BAMR3/4 transmitter uses HART communication for setup, calibration, and diagnostics. HART can be utilized via a hand-held communicator or with the Setup Software via a PC and HART to serial converter. The optional on-board display and keypad is

FEATURES

- High accuracy and Repeatability
- 4 to 20 ma analog Output with HART®
- No drift due to changes in:
 - Dielectric
 - Vapor Composition
 - Temperature
 - Pressure
- Factory calibrated (No recalibration or maintenance required)
- AMS aware
- Explosion-proof and/or Intrinsically Safe

APPLICATIONS

- Inventory Control
- Process Vessel
- Bypass Chamber

MARKETS

- Petroleum and Petrochemical
- Power Generation
- Specialty Chemical

Certifications:



ISO 14001 : 2004 | OHSAS 18001 : 2007

PRODUCT SPECIFICATIONS

Parameters	Specifications
LEVEL OUTPUT	
Measured variable:	Product level
Output signal / Protocol:	4 to 20 mA with HART®
Order length:	Rigid pipe: 508 mm (20 in.) to 3658 mm (144 in.) § Δ Δ Contact factory for longer lengths. § Order length equals the measurement range plus the inactive zone.
Non-linearity:	0.02% F.S. or 0.794 mm (1/32 in.)* * Whichever is greater
Repeatability:	0.01% F.S. or 0.381 mm (0.015 in.)* (any direction) † Contact factory for alternative materials.
COMPATIBILITY	
BAMR3/4 chamber compatibility:	Compatible with all reputed manufacturers
ELECTRONICS	
Input voltage:	10.5 to 36.1 Vdc, 28 Vdc maximum for I.S. approval
Fail safe:	High (21.4 mA), or Low (3.8 mA)
Reverse polarity protection:	Series diode
Lightning/ Transient protection:	Stage 1: Line-to-ground surge suppression; IEC 61000-4-5 Stage 2: Line-to-line and line-to-ground transient suppressors; IEC 61000-4-4

Parameters	Specifications
CALIBRATION	
Zero adjust range:	Anywhere within the active length
Span adjust range:	Full scale to 152 mm (6 in.) from zero
ENVIRONMENTAL	
Enclosure rating:	NEMA Type 4X
Humidity:	0 to 100% relative humidity, non-condensing
Operating temperatures:	Electronics: -40 °C (-40 °F) to 71 °C (160 °F) Sensing element: -40 °C (-40 °F) to 125 °C (257 °F) ◇ ◇.Contact factory for specific temperature ranges.
FIELD INSTALLATION	
Housing dimensions:	Single cavity: 127 mm (5 in.) by 133 mm (5.25 in.) 123 mm (4.84 in.) O.D.
MOUNTING	
Rigid pipe:	Hose clamp to chamber
WIRING	
Connections:	2-wire shielded cable twisted pair,
ELECTRICAL CONNECTIONS	
Single Cavity:	¾ in. conduit opening, M20 for ATEX / IEC version
DISPLAY	
Measured variables:	Product level
Size:	13 mm (0.5 in.)
Number of digits:	16

AGENCY APPROVALS

Explosion proof

FM 3615	Class I, Division 1, Groups B, C and D ••
C22.2 No. 30	Class II, Division 1, Groups E, F and G •• Class III, Type 4X, T4
	•• Explosion-proof housing required

Intrinsically safe

C22.2 No. 157	Class I, Division 1, Groups A, B, C and D Class II, Division 1, Groups E, F and G Class III, Type 4X, T4
FM 3610	Class I, Division 1, Groups C and D order length < 300 inches Class I, Division 1, Group D order length > 300 inches Class II, Division 1, Groups E, F, and G Class III, Type 4X, T4

Analog Setup Software

Bliss provides a Setup Software to help customers program and customize their Model BAMR transmitter.

The Model BAMR3/4 transmitter is programmed through the HART interface. This interface is easily connected to a PC by using the HART-to-Serial converter. The Analog Setup Software allow the user to adjust both 'Zero' (4 mA) and 'Span' (20 mA) setpoints, adjust HART parameters, and customize the optional built-in display. Setup software is shipped with each transmitter order. However, if you require an additional copy or an upgrade to your currently installed Setup Software, consult factory.

HART® handheld communicator programming

The Model BAMR3/4 transmitter programming can also be performed by using handheld HART communicator device such as the Rosemount® 375 or 475.

Setpoint programming using the display

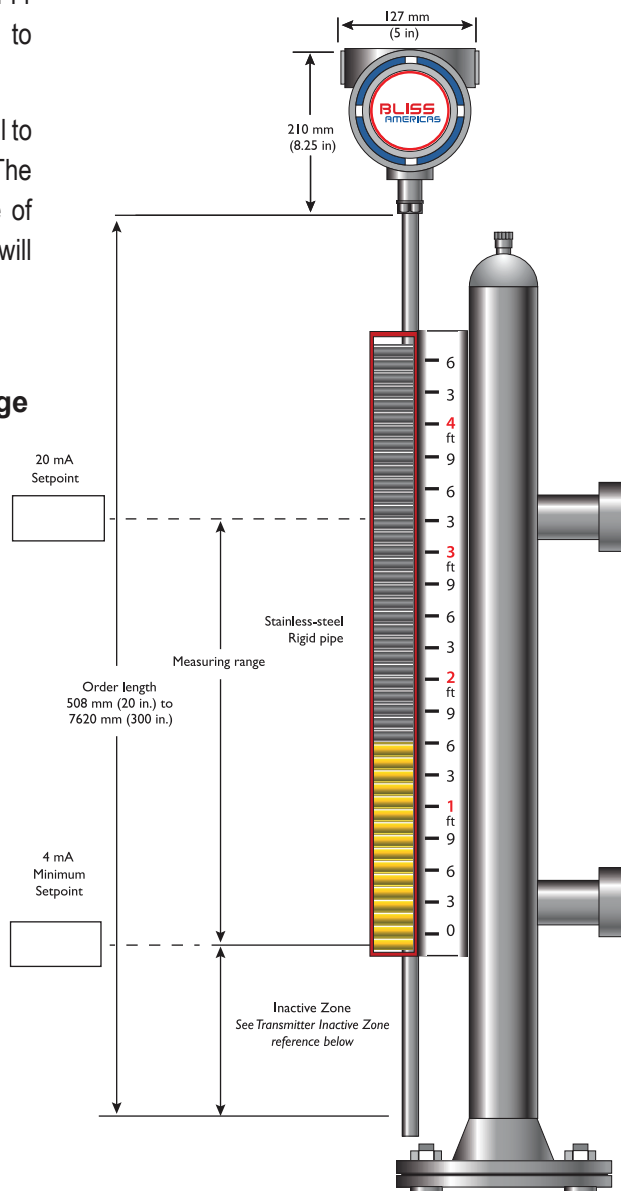
Any Model BAMR3/4 transmitter that is purchased with a display has the ability to adjust the 4 and 20 mA

PRODUCT DIMENSIONS AND MOUNTING

Bliss offers the Level Plus Model BAMR3/4 transmitter configured for external mounting to most Magnetic Level Gauges (MLG) (see 'Figure 1'). The model BAMR can be ordered with the standard 5/8 inch OD pipe or the optional 1/2 inch OD pipe from 508 mm (20 in.) to 3658 mm (144 in.). Stainless steel hose clamps are typically used to secure the model BAMR to the MLG.

The Model BAMR transmitter 'Measuring Range' is equal to the 'Order Length' minus the 'Inactive Zone'. The 'Measuring Range' should equal the measuring range of the MLG. Ensure that there are no obstructions that will limit the ability to mount the model BAMR on the MLG.

Figure 1. Bliss MLT mounting, bottom flange



PRODUCT DIMENSIONS AND MOUNTING

Bliss offers the Level Plus Model BAMR3/4 transmitter configured for external mounting to most Magnetic Level Gauges (MLG) (see 'Figure 2'). The model BAMR can be ordered with the standard 5/8 inch OD pipe or the optional 1/2 inch OD pipe from 508 mm (20 in.) to 3658 mm (144 in.). Stainless steel hose clamps are typically used to secure the model BAMR to the MLG.

The model BAMR offers an optional 90 degree fitting for an MLG with both top and bottom flanges. The 90 degree fitting allows the electronic head of the Model BAMR to be positioned to the side of the pipe allowing for simpler mounting.

The Model BAMR transmitter '**Measuring Range**' is equal to the '**Order Length**' minus the '**Inactive Zone**'. The '**Measuring Range**' should equal the measuring range of the MLG. Ensure that there are no obstructions that will limit the ability to mount the model BAMR on the MLG.

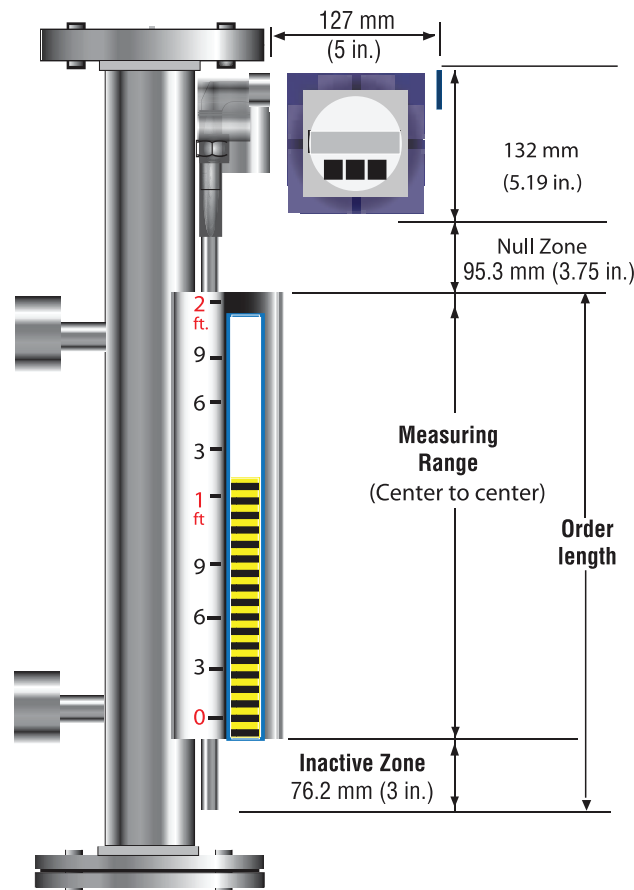


Figure 2. BLISS MLT mounting, top and bottom flange

Bliss - Magnetostrictive Level Transmitter Selection Guide

Ordering information for FM and CSA Approvals

Selection		Suffix Codes																Description	
	Bliss MLT	BA																	
A	Transmitter Model		M																Magnetostrictive transmitter
B	Type			R															Analog output liquid-level transmitter
C	Approval Agency				F														FM
					C														CSA
D	Output					3													4-20 mA Single loop with Display
						4													4-20 mA Single loop no display
E	Housing Type						B												Single cavity (explosion-proof and intrinsically safe)
							D												Single cavity with display (explosion-proof and intrinsically safe)
F	Electronics Mounting						1												Integral electronics
							3												90° fitting, housing top left
							4												90° fitting, housing top right
							5												90° fitting, housing bottom left
							6												90° fitting, housing bottom right
G	Transmitter Pipe						B												Industrial pipe, 5/8 in. OD
							R												Industrial pipe, 1/2 in. OD
H	Material of Construction (Wetted Parts)						1												316L stainless steel
							X												Other (contact factory)
I	Process Connection Type							X											Sightglass
J	Process Connection Size								X										Sightglass
K	Temperature									0									None
L	Unit of Measurement										M								Metric (mm)
											U								US Customary (inches)
M	Length											XXXX							Order Length
N	Special												S						Standard product
													E						Engineering special (not affecting agency controlled parts or features)

Note : Other Information as per data sheet.

Bliss - Magnetostrictive Level Transmitter Selection Guide

Ordering information for ATEX and IECEx Approval

Selection		Suffix Codes																Description	
	Bliss MLT	BA																	
A	Transmitter Model		M																Magnetostrictive transmitter
B	Type			R															Analog output liquid-level transmitter
C	Approval Agency				E														ATEX
					H														IECEx approval
					P														CCoE approval
					X														Other approval (Specify)
D	Output					3													4-20 mA Single loop with display
						4													4-20 mA Single loop no display
E	Housing Type						B												Single cavity (Flameproof IIB)
							D												Single cavity with display (Flameproof IIB)
							G												Single cavity (ATEX Ex ia IIA)
							J												Single cavity with display (ATEX Ex ia IIA)
							R												Single cavity (ATEX Ex ia IIB)
							T												Single cavity with display (ATEX Ex ia IIB)
F	Electronics Mounting						1												Integral electronics
							3												90° fitting housing top left (Flameproof only)
							4												90° fitting housing top right (Flameproof only)
							5												90° fitting housing bottom left (Flameproof only)
							6												90° fitting housing bottom left (Flameproof only)
G	Transmitter Pipe						B												Industrial pipe, 5/8 in. OD
							R												Industrial pipe, 1/2 in. OD
H	Material of Construction (Wetted Parts)						1												Stainless steel, 1.4404
							X												Other (contact factory)
I	Process Connection Type							X											Sightglass
J	Process Connection Size								X										Sightglass
K	Temperature									0									None
L	Unit of Measurement										M								Metric (mm)
											U								US Customary (inches)
M	Length											XXXXX							Order Length
N	Special												S						Standard product
													E						Engineering special (not affecting agency controlled parts or features)

Note : Other Information as per data sheet.



MAGNETOSTRICTIVE

LEVEL TRANSMITTER

**PROGRAMMING AND HARDWARE
ACCESSORIES**

Programming Accessories	Part Number
BA-Series Model BAMR3/4 PC setup software on CD
BA-Series Model BAMR3/4 PC setup software on CD Includes HART adapter, part no. 380068
HARDWARE	
HART to RS-232 adapter (SMAR H1-311)

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