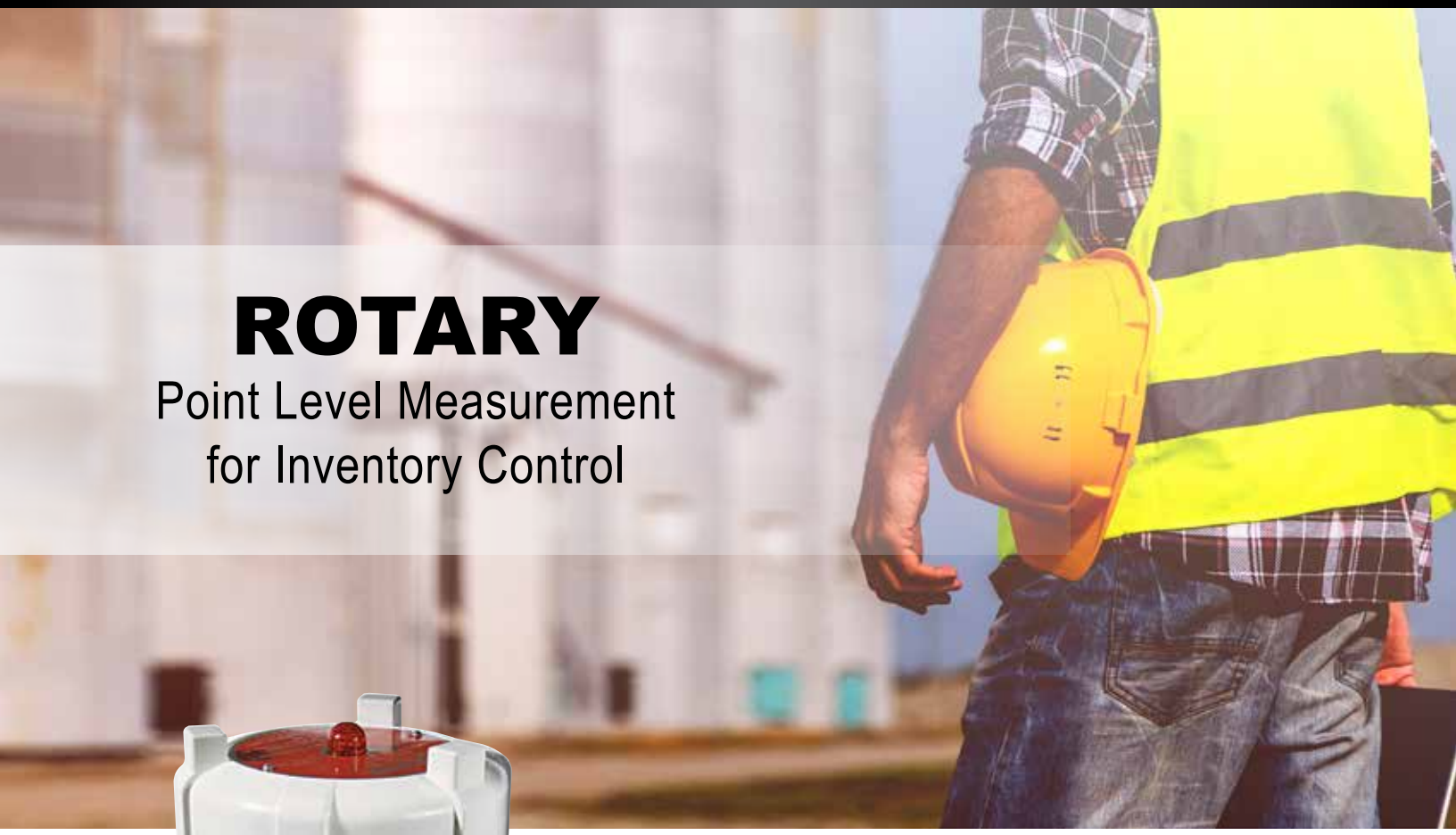
BINMASTER

Measure. Detect. Alert.



# ROTARY

## Point Level Measurement for Inventory Control

Detect high and low levels while protecting valuable inventory with tried-and-true rotary level indicators from BinMaster. Made in Lincoln, Nebraska, USA, following ISO-9001:2015 quality processes, BinMaster offers the widest variety of custom extensions, paddles, and mounting options available. Select from the fail-safe MAXIMA+, reliable BMRX, or compact mini rotary – shipped fast and built to last.

# Models for Every Mission

## MAXIMA+

Fail-safe operation, self-diagnostics, and immediate and corrective response to failures distinguish the MAXIMA+ as the best rotary for process control. Its red LED light visually alerts to fault, covered, or rotating status conditions.

## BMRX

From its explosion-proof housing, to de-energized motor operation, a bi-directional slip clutch, and a four-bearing drive shaft – the BMRX is a rugged workhorse built for efficiency and longevity.

## MINI

Compact design for top or side mounting on small bins or hoppers and in tight spaces. Four-vane or bayonet style paddle options, adjustable sensitivity, and simple ¾" installation for affordable level alerts and detection.

| | MAXIMA+ | BMRX | MINI |
|---|---|---|---|
| De-Energized Motor | x | x | |
| Fail-Safe | x | x | |
| Status Light | x | | |
| Time Delays | x | | |
| Auto Sensing | x | x | x |
| Built-In Slip Clutch | x | x | x |
| Screw-Off Cap | x | x | |
| Tight Spaces | | | x |

# Seven Steps to a Better Rotary

1

## De-energized Motor

Automatically goes into a resting state when paddle is covered to extend motor life

2

## Fail-Safe

Confident process control for immediate status notification and visual status notification for mechanical failure or loss of power

3

## Status Light

Solid for covered paddle, blinking for an uncovered turning paddle, and unlit for failed condition

4

## Time Delays

Set 5 to 25 second delays in the alarm relay for covered or uncovered conditions to reduce false positives

5

## Auto Sensing

No sensitivity setting or calibration required regardless of material density

6

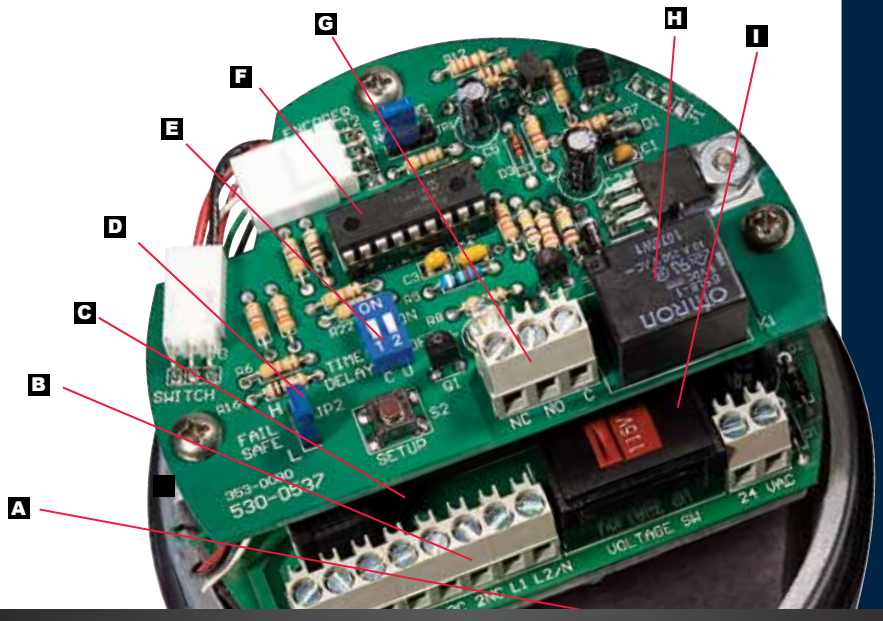
## Built-in Slip Clutch

Protects the gear assembly from damage due to over rotation

7

## Screw-off Cap

USA-made housing with simple access to internal components. No screws to lose!




- **A** Easy access to motor
- **B** Wire terminals simplify wiring
- **C** DPDT 10 Amp relay
- **D** Switch selectable high/low fail-safe switch
- **E** Time delay for covered & uncovered conditions
- **F** Microcontroller-based electronics ensure reliable operation
- **G** LED light for local visual indication (MAXIMA+ only)
- **H** Supervisory and pulse status relay
- **I** Motor voltages include 115 VAC, 230 VAC, 24 VAC, 24 VDC, & 12 VDC

# Models for Every Mission

## Custom Options for MAXIMA+ or BMRX

### HORIZONTAL EXTENSIONS

Side mount through thick concrete walls using a 6”, 8”, 10” or 12” extended drive shaft and protective shaft guard with a sealed bearing end to prevent packing

### VERTICAL EXTENSIONS

Get high level alerts and specify headroom with a top mounted rotary with a custom extension up to 144”

### FLEXIBLE EXTENSIONS

A flexible 8 mm steel cable from 4” to 14’ long detects the level of heavy falling material when attached to a top mounted rotary

### SEALED EXTENSIONS

Protective bearings form a seal between the shaft and shaft guard to prevent false alarms caused by material packing

## STAINLESS STEEL PROCESS CONNECTION

1-1/4” or 1-1/2” stainless steel process connections stand up in corrosive or food processing applications

## TRI-CLOVER

Stainless steel mounts, connections, and clean-in-place features for food, feed, and pharmaceutical use

***“We just love the Binmaster rotaries. They are reliable and offer all the options our customers need.”***

***– Ronnie Shappley, Airdusco Inc.***

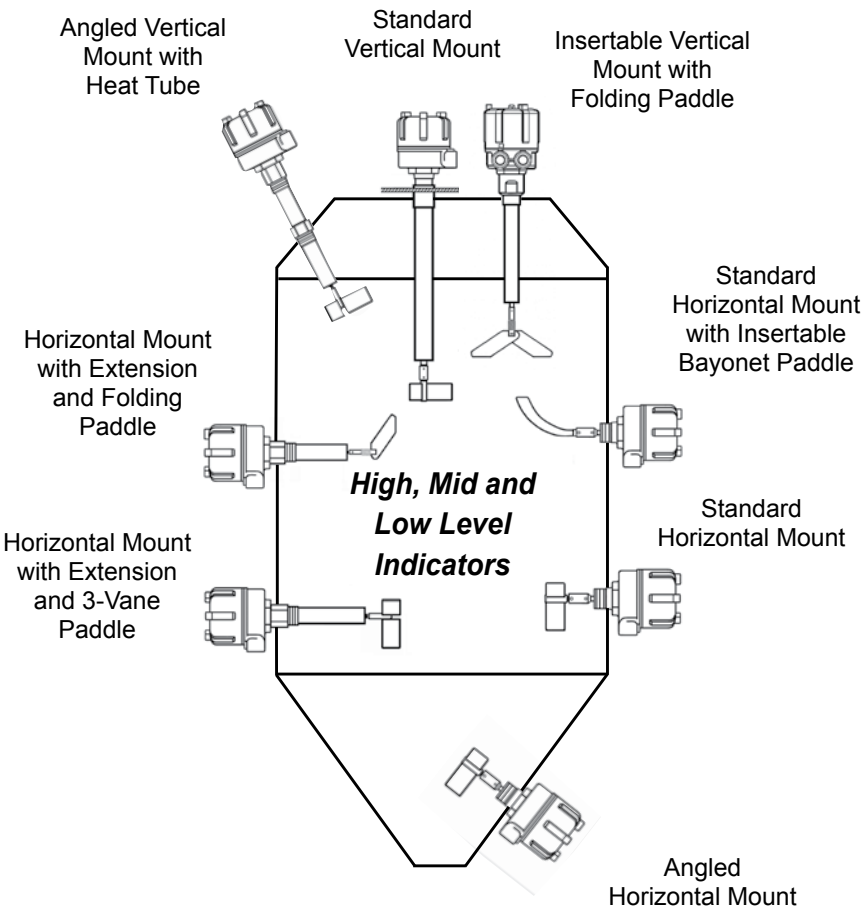
## ADJUSTABLE COUPLING

Vary the depth of a top mounted rotary from 6” to 72” without entering the vessel using a sliding extension

## HEAT TUBES

Distance the electronics from the heat source when external temperatures exceed 140° F (60°C) with 6”, 8”, or 12” aluminum or stainless-steel extensions that can be side or top mounted

# Rotary Mounting Options




# Mounting Plate Selector

Side or horizontal mounting uses a solid shaft coupler and a half coupling mounting plate available in carbon steel or stainless steel.

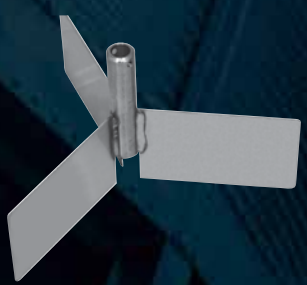
Top mounting plates in 0°, 10°, 20°, and 30° angles use a flexible shaft coupler to absorb impact when loading and a full coupling mounting plate.

| MODEL | MOUNT | ANGLE | COUPLING | CONSTRUCTION | FINISH | GASKET |
|---|---|---|---|---|---|---|
| GRMP-1 | Side | 0° | Half - 1.25” | Carbon Steel | White Powder Coat | Black Neoprene |
| GRMP-3 | Side | 0° | Half - 1.25” | Stainless Steel | Bare | Black Neoprene |
| GMRP-14 | Side | 0° | Half - 1.25” | Carbon Steel | Bare | White Silicone |
| GRMP-2 | Top | 0° | Full - 1.25” | Carbon Steel | White Powder Coat | Black Neoprene |
| GRMP-4 | Top | 0° | Full - 1.25” | Stainless Steel | Bare | Black Neoprene |
| GRMP-15 | Top | 0° | Full - 1.25” | Stainless Steel | Bare | White Silicone |
| GRMP-9 | Top | 10° | Full - 1.25” | Carbon Steel | White Powder Coat | Black Neoprene |
| GRMP-16 | Top | 20° | Full - 1.25” | Carbon Steel | White Powder Coat | Black Neoprene |
| GRMP-13 | Top | 30° | Full - 1.25” | Carbon Steel | White Powder Coat | Black Neoprene |

# Paddles

BinMaster offers a wide selection of paddles for very light to heavy materials. Select paddles will collapse to fit through a 1-1/4” or 1-1/2” opening allowing installation without entering the vessel. For some applications, a direct connect paddle option will not require a coupler.

| MODEL | TYPE | CONSTRUCTION | TURNING DIAMETER | INSERTION DEPTH | BLADE HEIGHT | CONNECTION | MATERIAL DENSITY |
|---|---|---|---|---|---|---|---|
| GRP-1 | 3-VANE | STAINLESS STEEL | 7.0” | 2.7” | 2.0” | COUPLER | LIGHT |
| GRP-2 | 3-VANE | STAINLESS STEEL | 5” | 2.2” | 1.5” | COUPLER | MEDIUM |
| GRP-3 | SINGLE VANE INSERTABLE | STAINLESS STEEL | 4-7/16” | 2.0” | 1.0” | COUPLER | HEAVY |
| GRP-11 | 3-VANE | NYLON | 7.0” | 2.6” | 1-15/16” | COUPLER | LIGHT |
| GRP-12 | 3-VANE | NYLON | 5.0” | 2.1” | 1-7/16” | COUPLER | MEDIUM |
| GRP-22 | 3-VANE | STAINLESS STEEL | 5.0” | 2.2” | 1.0” | COUPLER | HEAVY |
| GRP-23 | BAYONET | STAINLESS STEEL | 6.4” | 6.2” | 1.2” | COUPLER | MEDIUM |
| GRP-24 | BELT | BELTING | 1.5” | 13.2” | 12.0” | COUPLER | HEAVY WITH LARGE PARTICLE SIZE |
| GRP-25 | 3-VANE | STAINLESS STEEL | 5.4” | 5.7” | 5.0” | COUPLER | VERY LIGHT |
| GRP-26 | 3-VANE | STAINLESS STEEL | 7.0” | 3.5” | 2.0” | DIRECT | LIGHT |
| GRP-27 | BAYONET | STAINLESS STEEL | 6.4” | 8.0” | 1.2” | DIRECT | MEDIUM |
| GRP-28 | 3-VANE | STAINLESS STEEL | 7.0” | 5.7” | 5.0” | COUPLER | VERY LIGHT |
| GRP-29 | 3-VANE | STAINLESS STEEL | 5-7/16” | 5.7” | 5.0” | DIRECT | VERY LIGHT |
| GRP-30 | 3-VANE | STAINLESS STEEL | 5.0” | 4.0” | 1.5” | DIRECT | MEDIUM |
| GRP-31 | SINGLE VANE | STAINLESS STEEL | 7” | 2.25” | 1-5/8” | COUPLER | HEAVY |
| GRP-34 | SINGLE VANE | STAINLESS STEEL COLLAPSIBLE TO 1.5” NPT | 8” | 4.7” | 1-3/8” | DIRECT | MEDIUM TO HEAVY |
| GRP-35 | DOUBLE VANE | STAINLESS STEEL COLLAPSIBLE TO 1.5” NPT | 8” | 4.8” | 1-3/8” | DIRECT | MEDIUM TO HEAVY |
| GRP-36 | SINGLE VANE | STAINLESS STEEL COLLAPSIBLE TO 1.5” NPT | 8” | 4.8” | 1-3/8” | COUPLER | MEDIUM TO HEAVY |
| GRP-37 | DOUBLE VANE | STAINLESS STEEL COLLAPSIBLE TO 1.5” NPT | 8” | 4.8” | 1-3/8” | COUPLER | MEDIUM TO HEAVY |



3-vane paddle

Bayonet paddle

Single vane paddle

Nylon paddle

# Principle of Operation

## High Level Control During Filling

The paddle continually rotates until material reaches it. Sensing resistance, the motor rotates an actuator arm activating a switch wired to an alarm or process equipment to prevent overfilling.

## Low Level Control When Emptying

When covered, the paddle is de-energized and not rotating. As material drops below the paddle, the actuator arm springs back, the motor re-energizes, and the paddle rotates, sending an alarm or starting up a process system.

## Many Materials and Applications

Point level detection in powders and bulk solids with a bulk density of 2 pounds to over 100 pounds per cubic foot. Used in bins, silos, chutes, and conveyors storing or processing powders, pellets, and granular materials.

| | MAXIMA+ | BMRX | Mini |
|---|---|---|---|
| Power Requirements | 24/115/230 VAC 50/60 Hz; 8VA<br>24/12 VDC, 60/35 mA, 4V4 | 24/115/230 VAC 50/60 Hz;<br>5.5VA 24/12 VDC, 1W | 115/230 VAC,<br>50/60 Hz |
| Output Contacts | DPDT 10 Amp 250 VAC | DPDT 10 Amp 250 VAC | 5A @ 250 VAC |
| Status Indicator Relay | Standard: SPDT 10 Amp 250 VAC,<br>Optional: DC Solid State<br>Relay 1A 60 VDC<br>Optional: AC Solid State<br>Relay 1A 250 VAC | | |
| Operating Temperature | -40°F to +185°F (-40°C to +85°C)<br>ATEX -4°F to +185°F (-20°C to +85°C) | -40°F to +185°F (-40°C to +85°C)<br>ATEX -4°F to +185°F (-20°C to +85°C) | -40°F to +185°F<br>(-40°C to +85°C) |
| Process Temperature | to +400°F<br>(to +204°C) | to +400°F<br>(to +204°C) | |
| Pressure | 1/2 micron, 30 PSI | 1/2 micron, 30 PSI | |
| Approvals & Certifications CSA / US | Class II Groups E, F & G<br>Hazardous Locations.<br>Enclosure Type<br>NEMA 4X, 5, 9, & 12<br>IP66 | Class I, Groups C & D and Class II,<br>Groups E, F & G<br>Hazardous Locations.<br>Enclosure Type NEMA 4X, 5, 7, 9, & 12<br>IP66 | |
| ATEX | Please see www.binmaster.com<br>for latest ATEX certifications | Please see www.binmaster.com<br>for latest ATEX certifications | |
| Fail-Safe Mode | Switch selectable<br>between high & low | Switch selectable<br>between high & low | |
| Time Delay | Dual Independent Time Delay<br>Selectable 5 seconds;<br>Programmable to 25 seconds | | |
| Enclosure | Die cast aluminum,<br>FDA recognized powder coat finish | Die cast aluminum,<br>FDA recognized powder coat finish | Polycarbonate,<br>NEMA 1 |
| Mounting | 1-1/4" NPT | 1-1/4" NPT | 3/4" PF (pipe fitting) |
| Conduit Connections | 3/4" NPT | 3/4" NPT | |
| Shaft and Components | Stainless Steel | Stainless Steel | |