Position Indicators/Switches/Transmitters

The Proximity™ Mark Series is a line of position indicators with a selection of various output options. Three model styles make up the Mark series to cover almost any application. Standard models in the Mark Series have visual position indicators and are weatherproof, explosion-proof, and submersible. A large variety of outputs are available to fit specific applications. There is a choice of 1 to 6 switch outputs of 16 varieties including inductive sensors, high temperature switches, gold contact switches, hermetically sealed switches, and high current switches. Besides the switch outputs the Series offers potentiometer outputs, transmitters and HART Communications. The units are purchased for either direct drive applications, such as rotary valves, or lever drive applications, such as linear valves. Adjustable visual indicators are standard on direct drive units that display OPEN / CLOSED status and degrees. A magnetic drive that completely seals the switch compartment from the atmosphere for maximum leak protection is utilized in the Mark 1. The Mark 3 uses the same magnetic drive of the Mark 1, but it can be used for multi-turn applications with 1 to 25 revolutions, such as gate valves. A through shaft drive is incorporated in the Mark 4 making the unit a lower cost alternative to the Mark 1 for applications that are not as demanding.

Mark 1
- Features a magnetic coupling that isolates the switch compartment, completely sealing the unit from the surrounding atmosphere for maximum hazard and leak protection.
- EZset cams on switch models provide simple set point adjustment.
- Flexible design allows multiple switches and transmitter options.
- Ideal for corrosive environments.

Mark 3
- Features a magnetic coupling that isolates the switch compartment, completely sealing the unit from the surrounding atmosphere for maximum hazard and leak protection.
- Multi-Turn models that can provide switch signals between 1 and 25 revolutions, and transmitter models for up to 10 revolutions without gear reduction.
- Flexible design allows multiple switches and transmitter options.
- Ideal for corrosive environments.

Mark 4
- Thru-Shaft design that features a 1” bushing for long life and O-rings to seal the switch compartment for hazard, corrosion, and leak protection.
- EZset cams on switch models provide simple set point adjustment.
- Flexible design allows multiple switches and transmitter options.
- A lower cost alternative to the Mark 1 Series for less demanding applications.
††Minimum temperature depends on output and switch type selected.

- 4 Switches if ordered with switch types B, C, I, R, V, W.
- HART® Transmitter. Available with switches, see note below.*

Note:

44VD0-J1 42VD0-J1 45VD0 44AD0 42AD0 14VD0-J1 12VD0-J1 14AD0 12AD0 42AD0 44AD0 45VD0 42VD0-J1 44VD0-J1

Series
Mark
Construction
Output Type
Switch Type A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Model
12AD0 12AL0 14AD0 15VD0 12AD1 14AD1 12VD0-J1 14VD0-J1 42AD0 44AD0 45VD0 42VD0-J1 44VD0-J1

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
<th>Function</th>
<th>Design</th>
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<tbody>
<tr>
<td>12AD0</td>
<td>$187.00</td>
<td>2 SPDT</td>
<td>Magnetic Coupling</td>
</tr>
<tr>
<td>12AL0</td>
<td>187.00</td>
<td>2 SPDT (lever drive)</td>
<td></td>
</tr>
<tr>
<td>14AD0</td>
<td>248.00</td>
<td>4 SPDT</td>
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</tr>
<tr>
<td>15VD0</td>
<td>506.00</td>
<td>2 SPDT &amp; 4-20 mA</td>
<td>Position Transmitter</td>
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<td>218.25</td>
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<td>278.25</td>
<td>4 SPDT</td>
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<td>Thru- Shaft Drive</td>
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<td>264.00</td>
<td>4 SPDT</td>
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<td>232.00</td>
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</tbody>
</table>

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545
Mounting kits with drive yoke (see drawing), or slotted lever arm, bracket, fasteners and other zinc plated or stainless steel hardware fit over 2000 popular valves and actuators. A high strength spring tempered stainless steel drive yoke/coupling is taileered to fit securely to a specific valve or actuator stem. There is no slippage or binding. No special alignment fixtures are required due to switch offset design and yoke to stem engagement that makes installation a “snap”. Each kit is specially designed for a particular valve or actuator, making field mounting simple with standard tools. Please specify make and model of valve or actuator on order.

Mounting kits can be used interchangeably with all models since external mounting features are identical. Rotary valves utilize direct drive couplings and a slotted lever drive is used with linear valves. Lever drives convert linear motion to rotary. Stainless steel visual indicators are standard for direct drive, automated quarter-turn valve applications.

**Position Indicators/Switches/Transmitters**

### SPECIFICATIONS

#### General

- **Product Ratings:**
  - Weatherproof and flameproof. NEMA (IP10, IP11, IP54, IP40, IP56, IP66, IP52, IP45) 1, 2, 3, 3R, 3S, 4, 4X, 6, 12, 13.
  - CSA rated: Class I, Div. 1 & 2, Groups A, B, C, D; Class II, Div. 1 & 2, Groups E, F, and G. Submersible to 50 feet.

- **ATEX Compliant:**
  - -B suffix, directive 94/9/EC.
  - KEMA 03 ATEX 2391. II 2 G Ex d IIC T6 for -25°C/-40°C/-50°C ≤ Tamb ≤ 70°C and 75°F for (-25°C/-40°C/-50°C ≤ Tamb ≤ 80°C optional wording) depending on output and switch type selected.
  - -S suffix directive 94/9/EC.
  - KEMA 03 ATEX 1392X. II 1 G Ex ia IIC T4. (Switch type C is not available with ATEX; Switch type B is not available with ATEX intrinsically safe, -IS suffix).

- **IECEx Compliant:**
  - -IE suffix IECEx DEK II.0065 X Ex d IIC T6 for -25°C/-40°C/-50°C ≤ Tamb ≤ 70°C and 75°F for -25°C/-40°C/-50°C ≤ Tamb ≤ 80°C optional wording depending on output and switch type selected. Compliant per IEC 60079-0:2007, IEC 60079-1:2007.
  - -IE suffix IECEx DEK II.0061 X Ex ia IIC T4 Ga. Compliant per EN 60079-0:2007, EN 60079-11:2006 and EN 60079-26:2006. (Switch type C is not available with IECEx; Switch type B is not available with IECEx intrinsically safe, -IS suffix).

- **Electrical Connections:**
  - Screw terminal.
  - Optional factory sealed leads that are 36” (914.4 mm) of 16 AWG.

- **Conduit Connection:**
  - 3/4˝ female NPT standard. Optional one or two 1/2˝ female NPT. M25 and M20 optional (Standard on SAA models).

- **Mounting Orientation:**
  - Not position sensitive.

- **Mounting Life:**
  - 10,000,000 cycles.

- **Maximum Altitude:**
  - 2000 meters.

**Mark 1, 3, and 4 with Potentiometer**

- **Accuracy:** ± 0.5% of full span. Optional ± 0.25% of full span.
- **Temperature Limits:** -40 to 176°F (-40 to 80°C) (ATEX flameproof, -B suffix, rated -40°C (-40°F) to 80°C (176°F) for switch types A, G, M, O, R, S, T, V, or W, -25°C (-13˚F) to 80°C (176°F) for switch types B, D, or I; ATEX intrinsically safe, -IS suffix, rated -25°C (-13°F) to 40°C (104°F) for switch type I, -40°C (-40°F) to 40°C (104°F) for switch types O, R, S, V, or W.)
- **Power Rating:** 1.5 Watt maximum.
- **Current Consumption:** 50 mA.
- **Output Signal:** 4 to 20 mA.
- **Zero and Span Adjustments:** Trim pots for adjusting both. Mark 1 and 4: Span is adjustable from 50 to 300. Mark 3: Span is adjustable from 1.5 to 8.5 revolutions.
- **Conduit Connection:** 3/4” female NPT standard. Optional one or two 1/2” female NPT. M25 and M20 optional (Standard on SAA models).
- **Rotational Travel:** Mark 1 and 4: Minimum: 50°, Maximum: 300°. Mark 3: Minimum: 1.5 revolutions, Maximum: 8.5 revolutions.

**Mark 1, 3, and 4 with HART® Transmitter**

- **Accuracy:** ± 0.25% of full span.
- **Temperature Limits:** -40 to 176°F (-40 to 80°C). (ATEX flameproof, -B suffix, rated -40°C (-40°F) to 80°C (176°F) for switch types A, G, M, O, R, S, T, V, or W, -25°C (-13°F) to 80°C (176°F) for switch types B, D, or I; ATEX intrinsically safe, -IS suffix, rated -25°C (-13°F) to 40°C (104°F) for switch type I, -40°C (-40°F) to 40°C (104°F) for switch types O, R, S, V, or W.)
- **Power Requirements:** 8 to 30 VDC.
- **Current Consumption:** 21 mA.
- **Output Signal:** 4 to 20 mA.
- **HART® Receive Impedance:** Rx = 500 kΩ; Cx = 2500 pF.
- **Zero and Span Adjustments:** Pushbuttons or HART® master for setting both. Mark 1 and 4: Span is adjustable from 0 to 330°. Mark 3: Span is adjustable from 1.5 to 8.5 revolutions.
- **Conduit Connection:** 3/4” female NPT standard. Optional one or two 1/2” female NPT. M25 and M20 optional.
- **Rotational Travel:** Mark 1 and 4: Maximum: 300°. Mark 3: Minimum: 1.5 revolutions, Maximum: 8.5 revolutions.