**MAG Hall Effect Pickup**  
Installation and Technical Data Guide  
Rev. 07/2017

**Description:**
The MAG is a Hall Effect sensor which is compatible with all AW Company and KEM Positive Displacement gear flow meters except ZHM-04 to the ZHM-07KL and all AW Company and KEM turbine flow meters. The sensor detects the rotation of the flow meter’s gears and emits a frequency signal proportional to flow. The output signal is a square wave pulse which has a duty cycle of approximately 50%.

MAG signal outputs are protected with a self-resetting fuse. This fuse has a 50mA nominal trip point. When a trip occurs, turn off power to the sensor and remove output load to reset fuse.

The MAG sensor has two different output configurations: MAG-PA for a sinking output and MAG-PB for a sourcing output.

**Installation:**
- Ensure that the flowmeter sensor cavity is free of debris prior to installing pickup
- Swivel fitting is required for sensor mounting. **Note:** In order to receive correct swivel fitting with your sensor - you must specify meter part number when ordering
- 4 Steps to properly install sensor:  
  1- Securely fasten swivel fitting on flow meter  
  2- Turn set screws counter clockwise until they are not visible inside the swivel fitting  
  3- Install sensor into swivel fitting until sensor bottoms out in the sensor hole  
  4- Tighten set screws by turning clockwise  
**NOTE:** DO NOT OVER TIGHTEN SET SCREWS OR SENSOR DAMAGE WILL OCCUR!

**AW Company wiring color code:**

<table>
<thead>
<tr>
<th>MAG-PA</th>
<th>MAG-PB</th>
<th>Wire Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC</td>
<td>NC</td>
<td>Green</td>
</tr>
<tr>
<td>Output</td>
<td>Output</td>
<td>White</td>
</tr>
<tr>
<td>Ground</td>
<td>Ground</td>
<td>Black</td>
</tr>
<tr>
<td>Supply</td>
<td>Supply</td>
<td>Red</td>
</tr>
</tbody>
</table>

**Part number configuration:**

MAG sensors can be used with all AW Company and KEM Positive Displacement flow meters (except ZHM-04 to the ZHM-07KL) and all AW Company and KEM turbine flow meters

MAG-PA for a sinking output  
MAG-PB for a sourcing output

**Note:** In order to receive correct swivel fitting with your sensor - you must specify meter part number when ordering

AW-LAKE COMPANY
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**Technical Data:**

- **Supply Voltage:** +10 to 28 Volt DC
- **Supply Current:** 8 mA @ 12 VDC, 12mA @ 24 VDC
- **Duty Signal:** 50% ± 15%
- **Minimum Signal:** 0.5 Hz
- **Frequency Output:** Flow dependent, up to 2,000 Hz
- **Driving Capacity:** 50 mA Max resistive load
- **Output Impedance:** ~ 40 Ohm - analog switch and self-resetting fuse
- **Temperature Range:** -40° F to 185° F (-40° C to 85° C)

**MAG-PA Sinking Output Circuit**

- User may need to add external components to interface to displays or other instruments
- User must limit output voltage to Supply -1V
- Max current sinking capability: 50mA

**MAG-PB Sourcing Output Circuit**

- Signal output square wave:
  \[ V_{\text{high}} = \text{Supply} -1V @ \text{no output load} \]
  \[ V_{\text{low}} = 0.1V \]
- Max sourced output voltage: Supply -0.5V
- Max current sourcing capabilities: 50mA