

## MagneW Two-wire PLUS Delivers Performance and Savings



Electromagnetic Flow Meters (mags) are seen by many as the flow meter of choice when it comes to volumetric flow measurements of conductive liquids. Why is this so?

There are two major reasons;

1) they are obstruction-less and can therefore

handle slurries and solids and have no pressure loss,

2) they have no moving parts that need to be maintained or that require calibration.

Additional benefits are a linear output, accuracy of 0.5% of rate, excellent turndown ratios and the ability to handle high viscosity fluids.

With all this going for them why isn't everybody using them? Sometimes the measurement required is one of mass flow rather than volumetric flow. In this case a coriolis is often applied. More often, the reason is a non-conductive liquid, as in the case of hydrocarbons. But often it comes down to cost of the device and the installation. Mags are considered by some to be on the expensive side and don't get as broadly applied as they could be. Traditionally, mags have been "4-wire" devices requiring separate wire runs for the power and signal lines. This can add substantially to the total cost of making the measurement, especially if long conduit runs are required.

In many cases, the total cost of making the measurement can be reduced by using a "2-wire", or loop-powered mag such as Yamatake's MagneW Two-wire PLUS. Since it is loop-powered from the 4-20mA current loop, substantial savings can be realized by eliminating one of the conduit runs to the converter portion of the mag.

Let's look at a hypothetical project consisting of 10 mags. Assume that each mag will require conduit runs of 20 feet. The cost of running conduit is going to vary depending on labor rates and the ambient and regulatory requirements of the installation site. For the purposes of comparison, let's run this example using cost per foot of \$25.00, \$50.00, \$75.00 and \$100.00.

First let's look at using 4-wire mags in this scenario:

(20ft @ \$25/ft) x (2 runs) x (10 mags) = \$10,000  
(20ft @ \$50/ft) x (2 runs) x (10 mags) = \$20,000  
(20ft @ \$75/ft) x (2 runs) x (10 mags) = \$30,000  
(20ft @ \$100/ft) x (2 runs) x (10 mags) = \$40,000

Now let's check the savings from the 2-wire:

(20ft @ \$25/ft) x (1 run) x (10 mags) = \$5,000  
(20ft @ \$50/ft) x (1 run) x (10 mags) = \$10,000  
(20ft @ \$75/ft) x (1 run) x (10 mags) = \$15,000  
(20ft @ \$100/ft) x (1 run) x (10 mags) = \$20,000

And that is just the savings from eliminating the conduit for the power. There are additional savings that come from a simplified electrical installation. There is no need to design the power distribution system required for 4-wire mags. Project engineers have more freedom in deciding where to locate the mag because they do not need to worry about where the power will come from. The loop drawings are simplified too, which will reduce the engineering costs.

On one recent project involving over 150 mags, the end-user estimated that they could have saved \$250,000 by going with the loop-powered electromagnetic flow meter. You can bet that on the next project the MagneW Two-wire PLUS will be given strong consideration in light of the potential project savings!

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**2 is  
more  
than 4**

Traditional electromagnetic flow meters are 4-wire devices requiring separate conduit for signal and power, adding significant installation costs. Now, get the inherent advantages of electromagnetic flow meters in a **2-wire, loop-powered device** and realize installation and operational savings. This allows electromagnetic flow meters to be more broadly applied to your process.

## **Gain Accuracy and Performance**

The MagneW 3000 Two Wire PLUS™ (TWP) flowmeter series delivers accurate, reliable flow measurement without pressure loss. The obstruction-less flow tube and 2-wire loop-powered design substantially reduces installation and operation costs. Don't simply replace existing flow measurement technology, instead choose to improve overall performance.

**Call your Yamatake representative  
for detailed specifications  
and application data or  
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