

The Admag AM11 Magnetic Flow Converter for Improved Basis Weight Control ~Option Code ZYF085~

One of the more cost-effective measurements in a paper mill is the one that monitors the flow of pulp stock into the head box of the paper machine. The stock level in the head box directly affects the thickness of the stock being laid onto the forming screens and the thickness of the end product. Because there are normally variations in the thickness of the pulp stock as it is laid onto the forming screens, excess stock must be laid on to ensure that a minimum thickness is maintained.

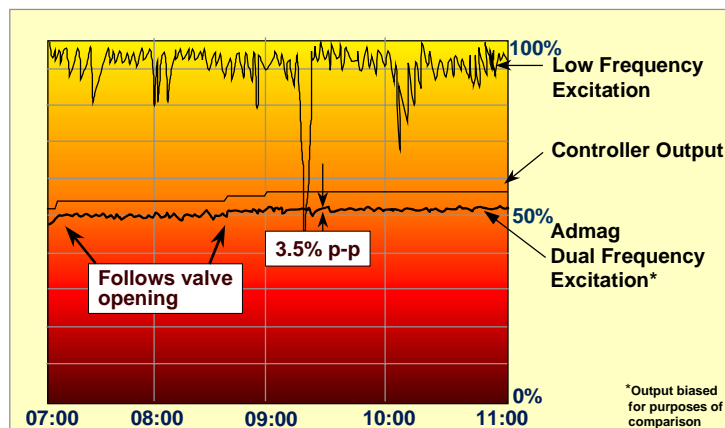
Traditional Magmeter Performance

Magnetic flow meters are often used to measure the flow of pulp stock into the head box. Since pulp stock tends to be a noisy measurement with a magnetic flow meter, long damping times are traditionally used to smooth the output of the meter. Unfortunately, this results in slow response from the meter and the level in the head box must be kept high to avoid gaps or voids in the final product, which wastes pulp stock. While reducing the damping will result in quicker response, it can also result in a noisy signal. The end result is the valve controlling the

pulp stock level in the head box chatters away while effective level control in the head box, and the resulting thickness or "basis weight" of the end product is compromised.

In slurries, such as pulp stock, noise is generated when solids collide with the electrode. The collision displaces a thin oxide layer present on most electrodes, and electrical noise is generated when the exposed metal re-oxidizes. Slurry noise has its greatest amplitude at low frequencies, so conventional mag meters using low frequency DC excitation (~7-12 Hz) can suffer from slurry noise. High frequency AC meters using 60 to 65 Hz excitation do a good job of reducing slurry noise due to their high frequency sampling rate, but have problems with zero stability, poor accuracy and

A relatively new approach to solving slurry or pulp stock noise is the brute force approach or using high power to increase the signal to noise ratio. High drive current and corresponding high power consumption (up to 300 watts) are characteristics of these systems. While a high power system works very well in reducing output variability, the high power means a much higher cost of ownership and fewer instruments on an electrical circuit. Also, the coils may experience shortened service life when no-flow conditions cause a buildup of heat.

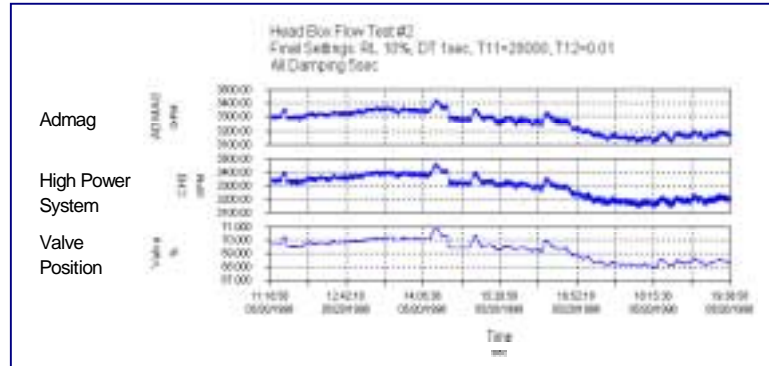


Admag's AM11 dual frequency excitation and noise reduction circuitry provides a more stable output than can be obtained with low frequency, pulsed DC systems.

Yokogawa's Unique Dual Frequency Excitation Technique

Yokogawa's unique simultaneous dual frequency excitation method can offer benefits in this application which can result in tighter control, faster response, more end product per batch, greater profit and a direct cost savings to the customer. Since dual frequency excitation is all but immune to the noise generated by slurry and pulp stock flows, lower damping values can be used while maintaining tighter control and allowing less variation of the pulp stock level in the head box. Use of the Dead Time and Rate Limit functions can further reduce any noise that the dual frequency excitation does not eliminate. This results in more consistent pressure from the head box to the forming screens and less variation in the thickness and basis weight of the end product. Since there is less variation in the end product, the mill can set it's control point closer to the desired basis weight figure, reducing waste and resulting in more end product from the same amount of pulp stock. More end product means more profit from each batch.

Actual head-to-head flow tests on the head box show Admag's AM11 dual frequency excitation and noise reduction circuitry provides output stability comparable to high power systems, but without the drawbacks.



The Admag AM11 Magnetic Flow Converter with Basis Weight Programming

The AM11 flow converter can be supplied pre-programmed to provide the optimum performance in a basis weight application. Factory programming eliminates the guess work and set-up time for mill personnel and assures a reduction in basis weight variation. Refer to the model code table, build the base model code and then select option code YF085.



How To Order

Model and Specification Codes

Model	Specification Code	Description
AM11		Magnetic Flow Converter
Function	-AS	Standard Type
	-DH	High performance with Brain communication
	-DE	High performance with Hart communication
	-DB	Batch Functions
Power Supply	A1	80 to 264 VAC
	D1	24 VDC
Electrical Connection	A	ANSI 1/2" NPT female
	-000	Always -000
Style Code	*A	Style A
Optional Specifications	/SCT	Stainless steel tag plate
	/ZYF085	Basis Weight Programming