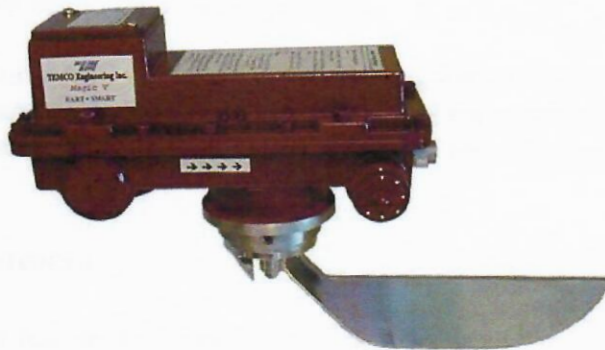


# TEMCO Engineering *MAGIC V*



## ***INSTALLATION AND CALIBRATION PROCEDURE***

### **INSTALLATION**

1. Insure the Gasket is installed in the groove on the *MAGIC V* mounting flange.
2. Insert the *MAGIC V* sensor through the mounting coupling, and place the *MAGIC V* with the mounting flange flush against the mounting coupling.
3. Orient the *MAGIC V* so the transmitter is exactly **parallel to the pipe** and with the **sensor pointing downstream** of the flow.
4. Connect 24-35VDC power. Power (+) to *MAGIC V* (+), the load resistor in the (-) leg.  
Minimum voltage at 20mA should be at least 16VDC
5. **Horizontal Installation:** Adjust Zero Screw for a 0.0% cs reading at horizontal pipe installation at 3 o'clock or 9 o'clock position (see Figure 1).
6. **Vertical Installation:** Adjust Zero Screw for a 0.0% cs reading with pipe empty (see Figure 1).
7. Use **HART** Communicator to set the Upper Range Value (URV) and Lower Range Value (LRV) to match control rooms settings.
8. TEMCO has preset the curve for your consistency application.
9. Electronic dampening is factory preset – Do Not Change.

## SETTING UPPER & LOWER RANGE VALUE WITH HART COMMUNICATOR

Connect one lead of the communicator to the positive terminal and one lead to the negative terminal, or connect the leads across the dropping resistor.

- 1) Connect with your HART communicator and go to the LRV and URV screen.
- 2) Set the Lower Range Value (LRV) to match control room setting.
- 3) Set the Upper Range Value (URV) to match control room setting.

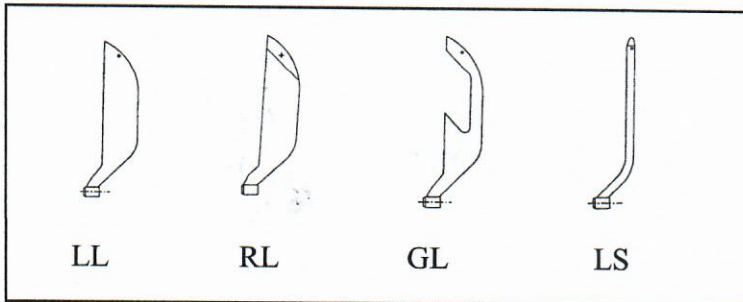
## First Time Zero Adjustment

1. Put Consistency Loop in Automatic Control.
2. Obtain a Lab Sample. Record the **MAGIC V** signal at the time the sample is taken.
3. If an error is found, Adjust Zero Screw until **MAGIC V** agrees with Sample.

## MAGIC Curve Selection

Furnish	LL	RL	GL	LS
Unbleached Softwood	10	10	8	-
Bleached Softwood	8	8	6	-
Unbleached Hardwood	7	7	5	9
Bleached Hardwood	5	5	4	6
OCC	-	6	5	-
Recycle Newsprint	-	4	3	-

❖ *The curve is factory preset for your application.*



## OTHER ZERO ADJUSTMENTS

- Make a Zero Adjustment when a **series of lab results** shows a consistent error in the same direction with system in automatic.
- Consistency error **greater** than 0.5% adjust Zero Screw.
- Consistency error **less** than 0.5% shift LRV/URV with the Hart.

**MAGIC** is reading high, ADD the error to the LRV & URV.

**MAGIC** is reading low, SUBTRACT the error from the LRV & URV.

### LRV and URV Change EXAMPLE

**MAGIC** = 3.5 % Con.; Labs Av. = 3.7 % Con.; Error = -0.2%

**MAGIC** is reading low, so subtract error from LRV and URV

LRV = 2 % - Adjust to 1.8%      URV = 5 % - Adjust to 4.8%

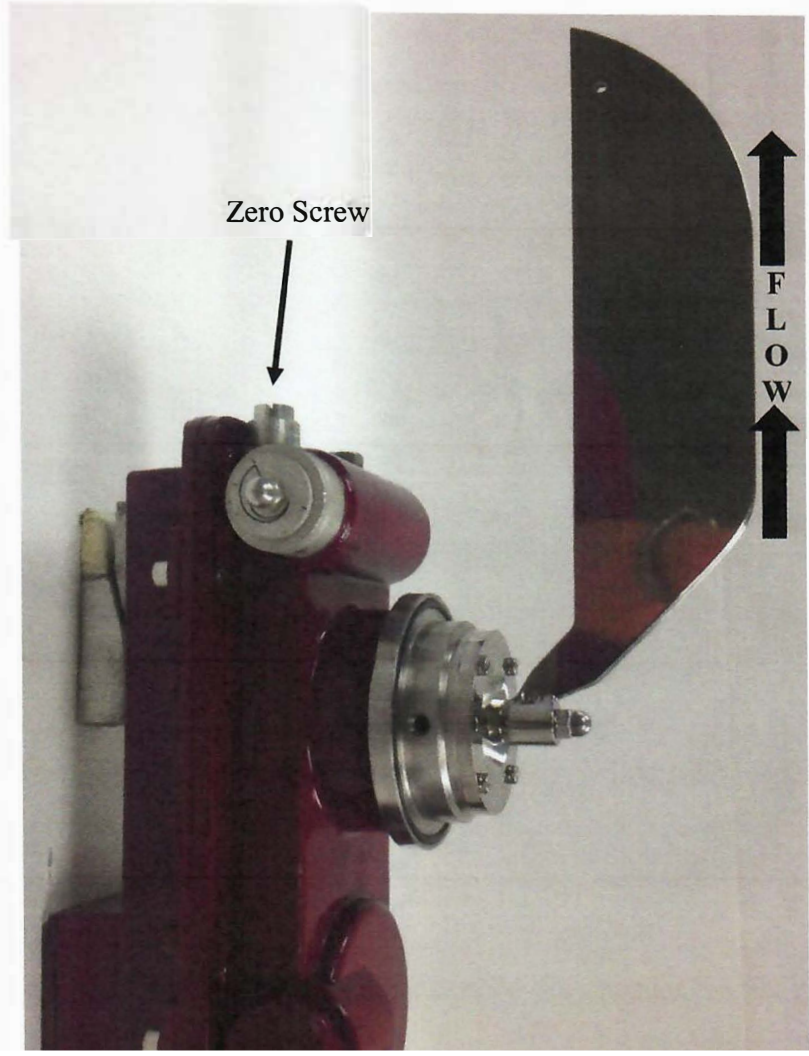
Output at the Control Room will go up .2% to a 3.7% Con. output.

- ❖ After the First Zero Adjustment, output adjustments should be one half the error shown between the labs and the meter.



Figure # 1





**Independent Consistency Experts since 1985**



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