TEMCO Engineering

MAGIC II Installation and Calibration

INSTALLATION

- Leave all shipping braces in. Bolt down with 1/2-13 x 1 3/4 long screws. Then start up as follows:
    1. Install clean sensor and new ceramic-coated shaft.
    2. Connect motor power and check rotation.
       Clockwise - Looking from the top of the ***MAGIC II***.
    3. ***REMOVE*** vent **screw** in oil filled dampener.
    4. Connect 24-35VDC power. Power (+) to ***Magic II (+)***, the load resistor in the (-) leg.
    5. Connect digital voltmeter to front panel test points. **With motor off**, adjust **Coil** to DC voltage marked on S/N tag Magic box.
    6. Use **HART** Communicator to set the Upper Range Value (URV) and Lower Range Value (LRV) to match control rooms settings.
    7. TEMCO has preset the curve for your consistency application.
    8. Electronic dampening is factory preset – Do Not Change.
    9. Switch **HART** to read Process Variable.
    10. Move torque arm, DC voltage should swing between 6.0 and about 7.0 volts and Consistency should follow DC voltage swing.
    11. Remove volt meter & Hart Communicator.
    12. Grease Cartridge Option – Install elbow and thread on cartridge to activate.

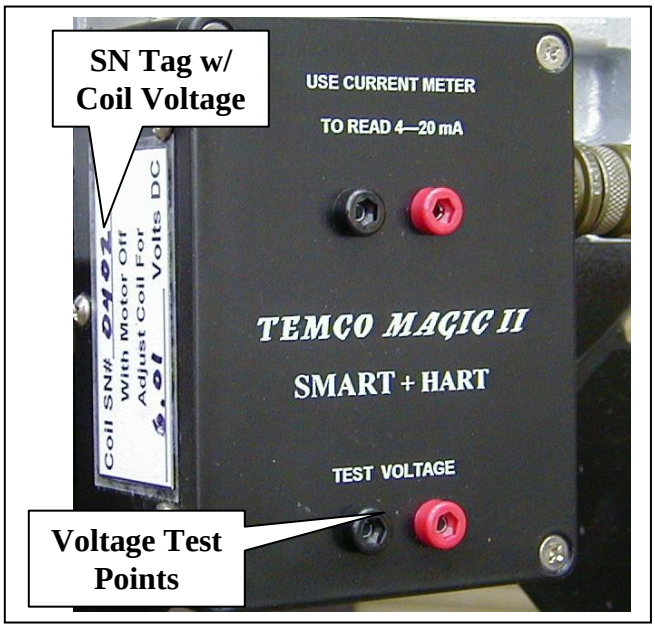
SETTING UPPER & LOWER RANGE VALUE WITH HART COMMUNICATOR

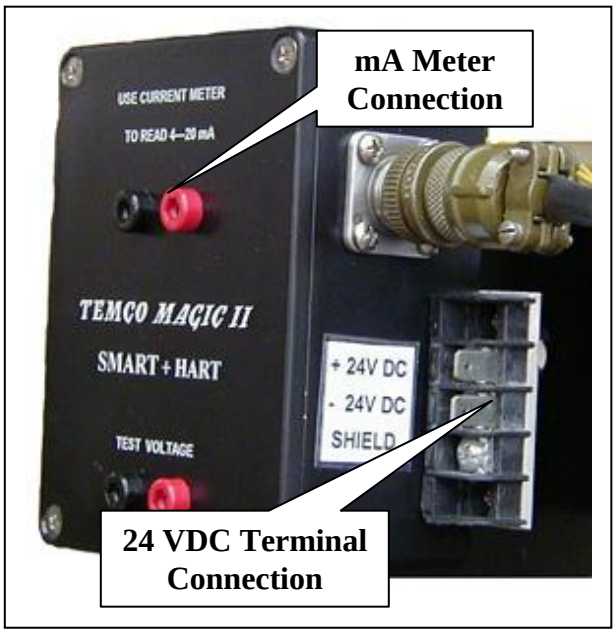
Connect one lead of the communicator to the positive terminal and one lead to the negative terminal, or connect the leads across the dropping resistor.

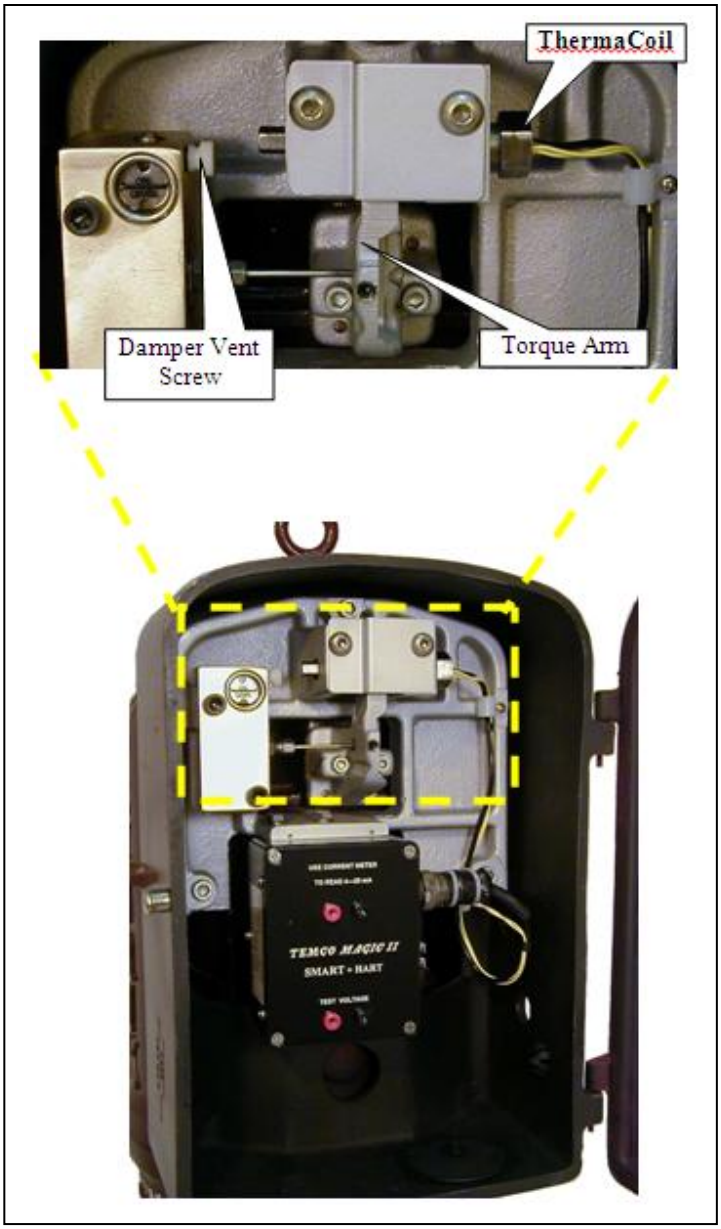
1) Connect with your HART communicator and then go to the LRV and URV screen.
2) Set the Lower Range Value (LRV) to match control room setting.
3) Set the Upper Range Value (URV) to match control room setting.

FIRST TIME ZERO ADJUSTMENT

1. Put Consistency Loop in Automatic Control.
2. Obtain a Lab Sample. Record the ***MAGIC's*** signal at the time the sample is taken.
3. Adjust Coil so the ***MAGIC's*** signal agrees with Lab Sample







MAGIC CURVE SELECTION

Furnish	*MAGIC II* Curves
Unbleached Stock	10
OCC and Bleached	7
TMP and Newsprint	6

❖ *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 Thermacoil.
- 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.

TROUBLE SHOOTING TIPS

Constant error between ***MAGIC*** and labs	Check coil voltage setting * – if okay refer to Ouput Adjustments to change zero
Varying error with changes in consistency	Refer to Output Adjustments to change sensitivity with the Curve Number
MAGIC output does not change * Voltage can vary +/- .05 VDC.	▪ Verify that breather plug on damper has been removed ▪ Verify that shipping brace has been removed ▪ Examine area around torque arm and motor for objects obstructing free movement ▪ Disconnect loop power for a few seconds to reset micro. Check power supply for a min of 16VDC @ 20mA output ▪ Verify that the Box and Coil are working by pushing the torque arm to simulate the full range of output.

TROUBLE SHOOTING PROCEDURE

1. Transmitter Serial Number	
2. Examine unit to insure it is free to move and is not obstructed by **DRIED** stock.	____ Yes ____ No
3. Has the damper's vent screw and other shipping hardware been removed?	____ Yes ____ No
4. What is the supply voltage at terminals on side of enclosure? Minimum of16vdc @ 20mA. Push torque arm to full right position to simulate 20mA output.	____VDC @ 20mA
5. Check Coil Voltage with MOTOR OFF.	____VDC
6. Does Coil Voltage go UP when torque arm is pushed to the right and DOWN when pushed to the left?	____ Yes ____ No
7. Does Consistency Output follow the coil voltage changes?	____ Yes ____ No
8. Disconnect **ThermaCoil** from electronics enclosure. Does Coil Voltage equal approximately 10vdc?	____ Yes ____ No

Independent Consistency Experts since 1985

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