D4228 Addendum: EZ4 Analog Output

The Analog Output Option provides an analog signal that is proportional to the scale weight. The option is normally configured with 4-20mA output. (Optional 0-5V and Sawtooth). The Analog Out option uses pin 1 and pin 8 of the Serial port on specific EZ4 models.

Setup
Your Analog Out EZ4 scale has been precision calibrated at the factory for 4-20mA operation. Changing to 0-5V or other modes requires resistor changes.

Zero balance the scale:
This should be done when the mixer is empty by holding the ZERO key.

Zero Output “ZEROOUT” DAN 2102:
When the mixer is empty, type 2102 SELECT, current weight is shown. Hold the ZERO key.
This matches the minimum analog output signal with no weight on the scale to the displayed 0.

Low Weight “LOW WT” DAN 3201:
Type 3201 SELECT. Use the keypad to enter displayed weight where the analog output is at 0-4mA. Press ENTER to save.

High Weight “HIGHWT” DAN 3202:
Type 3202 SELECT. Use the keypad to enter displayed weight where the analog output is 20mA or 5V. Press ENTER to save.

Analog Output “ANAOUT” DAN 3203:
This selects between the 4-20mA and 0-5V output. The 0-5V output requires resistor changes.

Negative Analog Output ”-ANALG” DAN 3204:
The analog output can go as low as 3mA if the weight is negative. To enable, type 3204 SELECT, then SELECT and ENTER to enable/ disable.

Example
Scale with 10000 kg capacity, Analog Out set to 4mA at 0 kg and 20 mA at 10000 kg.
1. With the scale empty, perform a Zero/Balance.
2. With the scale empty, set “ZEROOUT” DAN 2102 to zero the Analog Output.
3. Set “LOW WT” DAN 3201 to 0.
4. Set “HIGHWT” DAN 3202 to 10000.
**General Information - Analog Output Signal**

- The Analog Output is updated 10 times a second and reflects the “Analog Output Gross Weight” value which is derived using “ZEROUT”, “LOW WT” and “HIGHWT” values.
- The analog output will not necessarily follow the value displayed on the indicator.
- The “Analog Output Gross Weight” is not affected when the operator performs a normal “Zero/Balance” of the display.
- The “Analog Output Gross Weight” will always be gross and does not change when the operator selects the Net, Gross or Load/Unload weight to be displayed.
- If the “Analog Output Gross Weight” is less than “LOW WT”, the Analog Output Signal will be 4mA or 0V.
- If the “Analog Output Gross Weight” is greater than “HIGHWT”, the Analog Output Signal will be 20mA or 5V.
- The analog output will hold its present level when operator enters the menus to change the scale’s setup parameters.
- The analog output signal will be 4mA or 0V if “ZEROUT” has not been set.
- The analog output signal will be 4mA or 0V if “LOW WT” is larger than the “HIGHWT”.
- The analog output signal will be 4mA or 0V if the scale has an error such as overcapacity.
- The analog output will hold its present level during indicator temperature calibration process (which can take up to 3 seconds).

**Analog Output Test**

Test to verify operation of the Analog Output. A current meter or analog device is used to measure the output. “NORMAL” will output a 4-20mA value based on the load cell input. “MIN” will output 0mA. “MAX” will output 20mA. “SAW” will output a sawtooth waveform with a constantly increasing value which restarts at 0 after reaching the highest value.

1. Type **3209 SELECT** to enter the “Analog Output Test”.
2. Press **SELECT** to scroll through the test modes: **“NORMAL”, “MIN”, “MAX”, and “SAW”**.
3. Press any other key to exit the test.

<table>
<thead>
<tr>
<th>Selection</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Normal Operation</td>
</tr>
<tr>
<td>Min</td>
<td>0mA</td>
</tr>
<tr>
<td>Max</td>
<td>20mA</td>
</tr>
<tr>
<td>Saw</td>
<td>0mA to 20mA saw-tooth wave</td>
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</tbody>
</table>

**Specifications**

Output Signal: 4-20mA (default) or 0 to 5V (optional with resistor changes)

4-20mA Output Load Resistance: < 350 ohm

Resolution: 16 bits, 1LSB = 0.0015% of full scale range where 1 LSB = 244 nA or 7.5 mV

Nonlinearity: < +/- 0.012%

Gain plus Offset Error: +/- 0.15% max.

Temperature Drift: 50 ppm/degree C, 0.35% max.

Update rate: 10 times per second