Background

Electromechanical step counters were originally supplied with operating plant rod control systems for installation on main control boards. Due to wear on metal and plastic parts and aging of plastic parts, these counters require periodic replacement. As a result of complex assembly and low volume sales, price of the electromechanical counters has become prohibitively high. CJ Enterprises had been supplying an electronic replacement for the electromechanical counter directly to the utilities. Westinghouse purchased rights to the design and now offers two versions of the counter.

Description

Both versions of the counter are replacements for the Whittaker Corporation Neuron Electromechanical Counter. Both versions re-use the housing and faceplate assembly of the electromechanical counter. A liquid crystal display shows the step count in numbers that are 0.35 inches (0.89 cm) high. Up and down push-buttons are mounted to the left of the display, a zero reset push-button is located to the right, and all three are accessed by opening the window of the faceplate assembly. Connections to both versions are made through a quick disconnect plug-in terminal strip, making online replacement simple.

A battery-operated version uses two 3-volt lithium batteries in series. The batteries are rated at 5,000 milliampere-hours, giving an expected lifetime of 8-10 years. When voltage from the batteries drops below 4.2 volts, the display will flash off and on to indicate that it is time for replacement. The counter will still increment, decrement and display step counts.
A 100 VDC version uses the 100 VDC up-and-down count voltages that are always present at the counter, even when the unit is not counting. The return paths are switched by two driver circuits on a relay driver printed circuit board in the logic cabinet. An unswitched return path to zero volts is needed to provide the continuous 100 VDC to operate the counter. Zero volt connections are available on the bank selector switch, the in-hold-out switch or the in-and-out indicating lamps on the control board. The location used is optional. A field change notice will be provided to wire each step counter to a single zero volt source. On the step counter board, the 100 VDC supply is regulated to six volts. Beyond the regulator, the battery-operated and 100 VDC versions are identical.

Audible feedback is accomplished by energizing and de-energizing a solenoid simultaneously with the count-up and count-down functions. Manual operation of the step counter is accomplished by pressing the appropriate push-button on the front panel. Pressing and holding the push-button will cause the unit to count continuously. The first five counts will be at a slow speed, then the count accelerates to a fast speed until the push-button is released. Manual operation does not operate the audible feedback solenoid.

**Benefits**

- A quick disconnect plug-in terminal strip provides for simple replacement
- Two versions are available:
  - The Battery Operated Step Counter (6D30731G01) with 8-10 year battery life
  - The 100 VDC Operated Step Counter (10051D16G01) that eliminates periodic battery replacement
- Manual push-buttons permit presetting of the step count and zero reset
- Audible feedback of step counts is maintained

---

**Step counter display**

**Battery operated step counter**

**100 VDC operated step counter**