

Tomahawk™ Encoder



Description

Applications: The Tomahawk™ Encoder is a solid-state encoder with no mechanical numerical wheels. It can deliver an industry standard absolute encoded or scalable pulse output configurable to 1, 10, 100, 1000, 10,000 or 100,000 measurement unit intervals. It is designed for use with all RG3 meters and retrofit to most other manufacturer's meters (Badger, Master Meter, Neptune, Sensus, Hersey, etc.). Tomahawk™ provides communication with RG3 Tesla AMR/AMI endpoints and other AMR/AMI technology solutions approved by RG3 Meter Company.

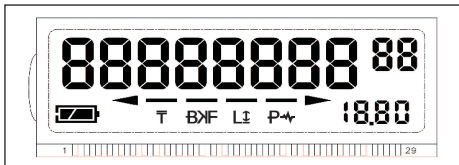


Field Programmable: Tomahawk™ is factory programmed to customer specifications, with the option for field programming the unit of measure, the existing read if desired, and the ability to choose between an absolute encoded or pulse output.

Resolution for 5/8" to 4": "Absolute" 10-digit meter reading on the LCD with precise visual readings down to the hundredths of a gallon or thousandths of a cubic foot/meter. Electronic output includes 8-digit remote meter reading. 1 to 8 digits can be communicated for billing.

Resolution for 6" through 12" Meter Applications: "Absolute" 9-digit meter reading on LCD with precise visual readings down to the whole unit. Electronic output includes 8-digit remote meter reading. 1 to 8 digits can be communicated for billing.

Status Indicators: Indicators on the LCD show battery status, rate of flow, water movement, and alarm conditions including tamper, leak and back-flow.



LCD: Tomahawk™ is equipped with the largest LCD in the industry for easy reading at a distance of 6 feet. The LCD provides a 10-digit resettable totalizer and a 6 segment leak detector with flow direction arrows. Flow rate is clearly displayed in the applicable unit of measurement. Leak warnings are shown on the LCD as appropriate. Battery status is indicated on the LCD along with an early warning flag that informs the user when 20% or less battery life remains.

Specifications

Encoder Type	Straight reading, permanently sealed, electronic LCD absolute encoder with field programmable options including pulse output.
Encoder Display	10-digit LCD totalizer, 6 segment leak detector, flow direction arrows, rate of flow, battery status, leak alarm, and back-flow alarm
Unit of Measure	U.S. gallons, Imperial gallons, cubic feet, cubic meters, and liters
Flow Rate	Units per Minute
Numerals	7.44 mm (.293") high and 7.24 mm (.285" wide)
Humidity	0 to 100% condensing
Temperature	-40° to 185°F (-40° to 85°C)
Status Indicators	Electronic and visual icons for: Totalizer, flow rate, back-flow, leak, battery indicator (including 20% battery life alarm)
Encoded Signal Output	Industry standard ASCII format
Pulse Signal Output	Configurable to 1, 10, 100, 1000, 10,000 or 100,000 gallon intervals
Signal Type	Three wire synchronous
Battery	C Cell lithium thionyl chloride, independently potted and fully encapsulated within Tomahawk housing
Battery Life	25 Years (calculated)
Warranty	10 years



Itron & Aclara Approved



TEncoder-U000230201

Mounting: The fully potted encoder assembly has a bayonet mount compatible with all RG3 meters and most other manufacturer's meters as well. The bayonet mount allows Tomahawk™ to be positioned in any of four orientations for visual reading convenience. Tomahawk™ can be removed from the meter without disrupting water service.

Magnetic Drive Communication: Reliable and dependable register coupling is provided through a direct-drive, high-strength magnetic coupling through the meter body to the wetted magnet.

Tamper Resistant Features: Tomahawk™ is secured to the meter housing with a tamper resistant Torx screw. It can be installed at the factory or in the field.

Wire Connections: Tomahawk's™ easy connect protected electrical contact exterior screw terminals allow for simple removal and replacement of the wiring harness, eliminating the need for splicing wires and the possibility of associated corrosion. Screw terminal pins are molded into the engineered polycarbonate lens and back sealed with a potting compound eliminating any opportunity for moisture intrusion at the connections making Tomahawk™ suitable for installation in all environments, including continuously submerged water meter pits. Tomahawk™ is provided with pre-sized wire harnesses available for field connection or factory wired to RG3 approved AMR/AMI endpoints or a variety of lead wire lengths as specified by the customer. Tomahawk™ installs up to 600 feet away from the controller. Standardized lead lengths are 5 and 22 feet.

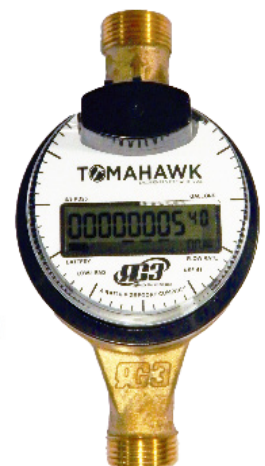
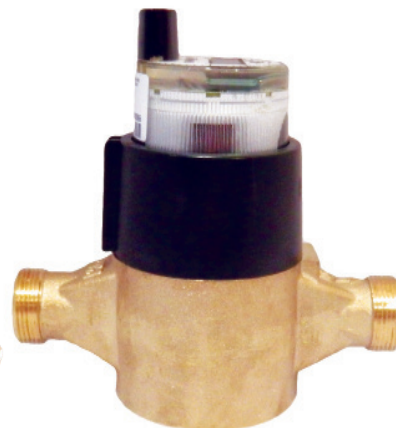
Electrical: Tomahawk's™ electronic circuitry is designed to provide immunity to electrical surges and transients per IEC801-2, IEC801-4 Severity Level 4.

Operating Characteristics: The digital reading obtained by an AMR/AMI device is retrieved directly from the register's internal magnetic sensor coupled to the wetted magnet through the meter body. Tomahawk's™ magnetic sensors are always on and always watching. This technology provides real time reads and eliminates interpretation of odometer wheels by means of LED, optical character recognition, or electromechanical contacts that could wear out. The Tomahawk™ solution provides superior long-term performance and the most accurate counting solution available.

Tomahawk on a Perpetual® PD Meter



Actual Size LCD



Construction: Tomahawk's™ shroud assembly is constructed from engineered polycarbonate with a hermetically sealed stainless steel bottom. The enclosure is UV-resistant, weatherproof, and fully encapsulated to withstand harsh environments and to protect the solid state electronics in flooded or submerged pit applications. Electronic circuitry is gold plated to provide increased corrosion resistance before it is encapsulated by high quality endothermic potting material that diminishes the expansion and contraction related to temperature extremes. Electronics are designed to provide immunity to electrical surges. Tomahawk's™ counting mechanisms are permanently active magnetic sensors. Tomahawk™ uses magnetically driven thermoplastic floating gears to minimize friction and provide a long, reliable life. The power source is an internal lithium battery that is independently encapsulated in potting for redundant protection against moisture and provides 25 years of life.

Precision Counting: Tomahawk™ uses magnetic sensors that detect changes and disturbances in the magnetic field of the wetted meter magnet like flux, strength, and direction. This precision technology allows Tomahawk™ to accurately count with resolutions that far exceed the flow capabilities of any water meter, while remaining sensitive enough to count down to the thousandths of a gallon.

Water Movement Indicator: Six segments illuminate in succession ending in an arrow to demonstrate directionality and to simulate water flow. The water movement indicator activates immediately upon water movement. Cessation of segment movement demonstrates that water movement has stopped within the past 20 seconds. After 20 seconds all segments disappear.

Flow Rate: Flow rate is clearly displayed in the applicable unit of measurement and updated every 10 seconds. If the unit of measure is gallons, for example, displayed flow rates range from 1/10th gpm to 9,990 gpm.

Battery Status: Tomahawk™ uses a C cell lithium thionyl chloride battery to provide a true 25 year battery profile. Tomahawk™ adjusts the battery status indicator based on actual usage to provide the most accurate and up to date information to the utility. At 20% battery life remaining, the visual indicator on the LCD begins to blink to let the utility know the battery status. The new register can be field programmed with the old register's reading before replacement.

Tomahawk™ can Retro-Fit to the Following Manufactures Meters :

