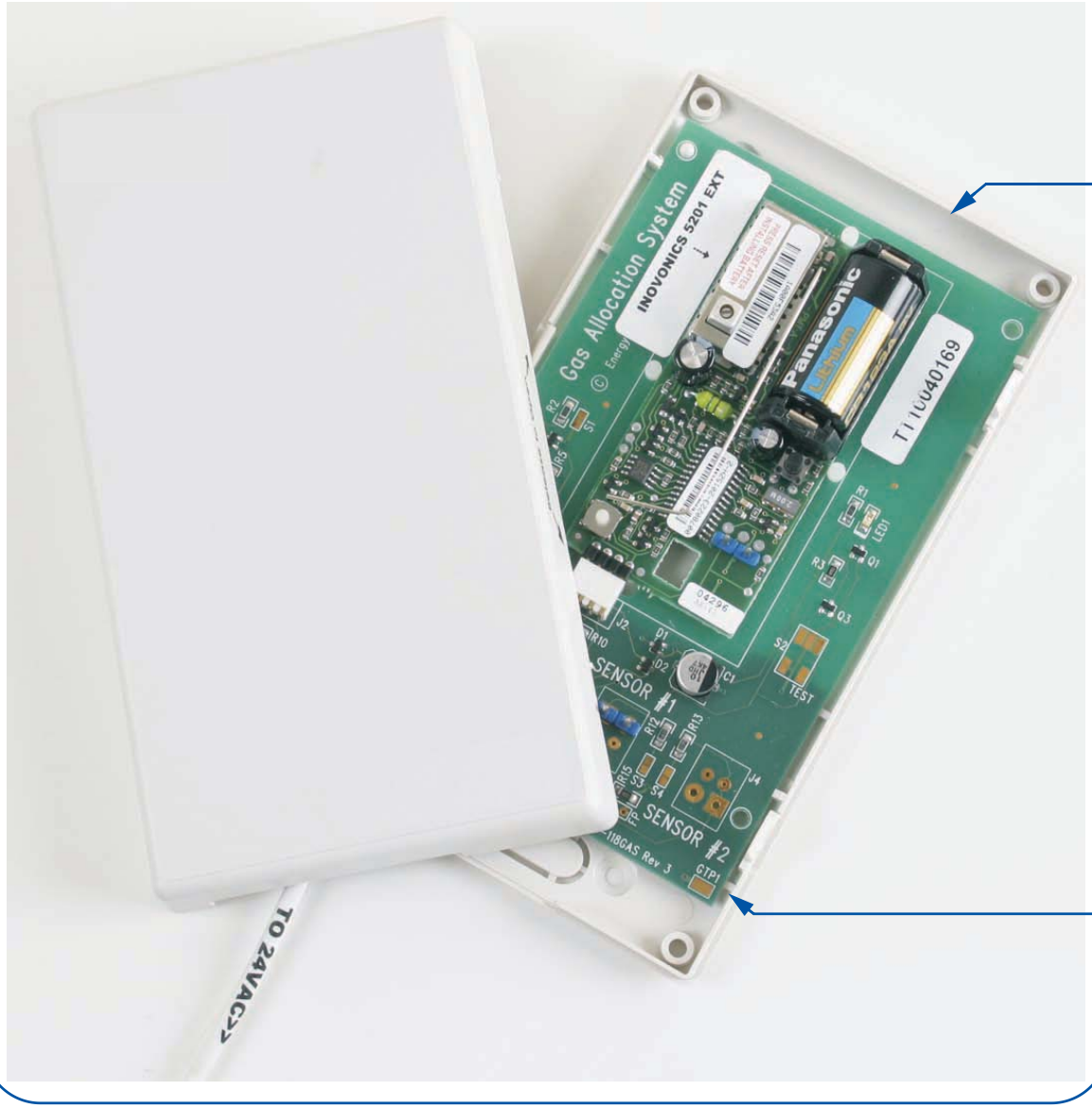
G.A.S.$_{TT}$

Gas Allocation System Timing & Temperature

Fancoil & Baseboard Heating Systems

- Energy Allocation of Hydronic and Fan Coil Boiler-Chiller Systems with Inovonics Wireless Platform Non-Proprietary Design
- Industry Leader In Converting Owner Paid Utilities To Resident Paid Utilities
- 24 Years Experience Converting 100,000 Units

- Daily Tamper Detection Circuitry Provides Over 99% Equipment Up Time Highest In Industry
- Allocation Accuracy And Service Provide Highest Resident Billing Satisfaction In Industry
- Designed And Supported For 40 Year Life Expectancy



Battery powered (uses Inovonics Transmitter Lithium Battery) - single battery has 5 + year life expectancy

Tamper detection circuitry provides over 99% metering up time - the highest in the industry

Hydronic baseboards and single speed are metered by measuring run time and water temperature. G.A.S.$_{TT}$ is the only system in the industry that has daily tamper detection. The tamper detection mechanism indicates any third party tampering by maintenance staff or residents by detecting cut or disconnected sensor wires and/or malfunctioning zone valves. G.A.S.$_{TT}$ uses the industry-standard Inovonics wireless platform for data transmission and collection.

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G.A.S.TT

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SYSTEM DESCRIPTION

The G.A.S.TT is designed to accurately allocate gas consumption of hydronic baseboard and fan coil boiler/chiller systems using standard non-proprietary equipment. Both system run-time and temperature are measured to accurately determine heat delivered (as relative BTUH) to each apartment.

The microprocessor based design incorporates unique daily tampering circuitry to detect disconnects, cut wires and other types of tampering by residents and maintenance personnel. In addition, failure of zone valves (stuck open or closed) may also be determined to assist maintenance in their repair work.

With 29 years experience designing, installing and servicing gas allocation systems, Energy Metering Systems, Inc.'s G.A.S.TT equipment finally provides 40+ year dependable allocation and resident billing. Over half of all hard-wired allocation systems installed to date have been abandoned due to poor design, service and subsequent estimated billing errors. The G.A.S.TT coupled with Energy Metering Systems, Inc.'s on-site service and reporting provides for a 40+ year design life expectancy with equipment "up time" of 99%+.

The unique daily tampering circuitry plus monthly reporting of equipment "outages" allows property management to verify equipment up time of 99%+ and subsequent resident billing accuracy. Resident Manager and resident billing satisfaction is assured with high billing accuracy.

SYSTEM SPECIFICATION

- Hydronic Baseboard Installation - Measures 24VAC zone valve "on time" plus water temperature. Converts "on time" to Time-Temperature units (TTU) via internal microprocessor to provide heat output reading as relative BTUH.
- Fan Coil Boiler/Chiller Installation - Measures single speed fan "on time" plus water temperature. Uses 24VAC fan-coil output or isolation transformer for fan "on time." Converts "on time" to time-temperature units (TTU) via internal microprocessor to provide heat output readings as relative BTUH.
- Battery powered (uses Inovonics Transmitter Lithium Battery) - Single battery has 5 year life expectancy.
- Daily Tamper Circuitry - detects and transmits tamper code for disconnect from zone valve, cut wire to zone valve or temperature sensor, removed sensor, stuck zone valve open or closed. Provides allocated data for zone valve manual override condition.
- Low power Texas Instruments (MSP430) microprocessor accumulates data, provides daily tamper testing and transmits data to standard Inovonics 5201 Transmitter.
- Data collection via Inovonics wireless repeater network and DCC (data collector and concentrator) or Energy Metering Systems, Inc.'s CU (Central Unit).

Gas TT Specifications

Accuracy:	**Timing: 99.9%**
Input:	**24-volt AC Gas Valve or Zone Valve Temperature Sensor: 30° F - 230° F**
Output:	**Data to 9999.99 Hours (or TTU - Time Temperature Units for Hydronic Systems)**
Processing:	**Low-Power Microprocessor Accumulates Data, Provides Daily Tamper Testing And Transmits Data**
Dimensions	**3-1/2" Width x 6-1/2" Height x 1" Depth**