

# Gas meter transponders: direct and standalone



The direct and standalone gas transponders are part of the TRACE® AMR system that uses mobile, two-way RF communication technology to request and collect specific meter data.

## Direct transponder

The direct gas meter transponder (DGT) is designed for use with all major residential and small commercial diaphragm meters. The DGT mounts directly on a meter in the field or in the factory, incorporating the mechanical index and index cover supplied as part of the meter. The DGT can be programmed to work with a fixed factor, pressure compensating index.

## Standalone transponder

The standalone gas meter transponder (SGT) is compatible with most large diaphragm meters, rotary meters, and rotary or turbine meters with electronic correctors. The SGT is designed for use with commercial gas meters where the meter/index design prohibits direct transponder attachment. A pulser circuit board is interfaced with the index producing pulses that are recorded by the transponder as consumption values. Most applications accommodate connection of the transponder within one foot of the

meter. Alternatively, a remote transponder with a longer cable may be special ordered so that the transponder can be mounted farther away from the meter in a position more favorable for interrogation.

## Basic operation

To maximize battery life, the gas meter transponder changes from its normal, low-power, quiescent state every 1.5 seconds into an intermediate, active listening, power state for 2.5 milliseconds to perform the following actions:

- update the electronic index for the meter index and time-of-use (TOU) indexes
- poll the tamper detectors
- check to see if a valid interrogation signal is being received

Once a day, at a factory programmable time, the transponder stores the current index reading for that day in nonvolatile memory.



The transponders allow utility companies to attach AMR functionality onto existing meters. At the same time, the devices are capable of delivering a wealth of information as needed to manage the customers.

## Data collection

In addition to maintaining an index reading that corresponds to the meter index reading, the DGT and SGT:

- store 35 daily index readings for applications such as eliminating expensive off-cycle reads for move-in and move-out billing
- maintain up to four TOU indexes with programmable start and stop times for applications like encouraging conservation measures

## Communication

When a valid interrogation signal is received, a two-way communication link is established. A current reading and other historical data (as requested through Route Manager for each individual account) is transmitted to the interrogator. The transponder can also be instructed to update TOU and other background settings at this time.

Data collected by an interrogator are validated, audited and stored for uploading to Route Manager software where it can be transferred to the utility's CIS.

## Transponder specifications

- Battery: one lithium-thionyl chloride; 3.3 amp-hours; >20-year calculated life. The battery can easily be replaced in the field.
- FCC compliance: Part 15, Subpart C; a user license is not required
- RF transmitter: 414.5 MHz, +0.5, -1.0 MHz; 4,000  $\mu\text{V}/\text{m}$  @ 3m
- RF receiver: 451.35 MHz; -70 dBm sensitivity
- Housing: high-impact plastic, weather-proof, UV protected for outdoor installation
- Circuit-card assembly: conformal-coated
- Corrosion-protected external-housing screws
- Operating temperature range: -22 °F to 158 °F (-30 °C to 70 °C)
- Storage temperature range: -40 °F to 185 °F (-40 °C to 85 °C)
- Humidity: 5 % to 95 % relative (noncondensing)

## About Elster Group

Elster Group is the world's leading manufacturer and supplier of highly accurate, high quality, integrated metering and utilization solutions to the gas, electricity, and water industries. In addition, through its subsidiary Ipsen International, it is the leading global manufacturer of high-level thermo-chemical treatment equipment.

The group has over 8,500 staff and operations in 38 countries, focused in North and South America, Europe, and Asia. Elster's high quality products and systems reflect the wealth of knowledge and experience gained from over 170 years of dedication to measuring energy and scarce natural resources.

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