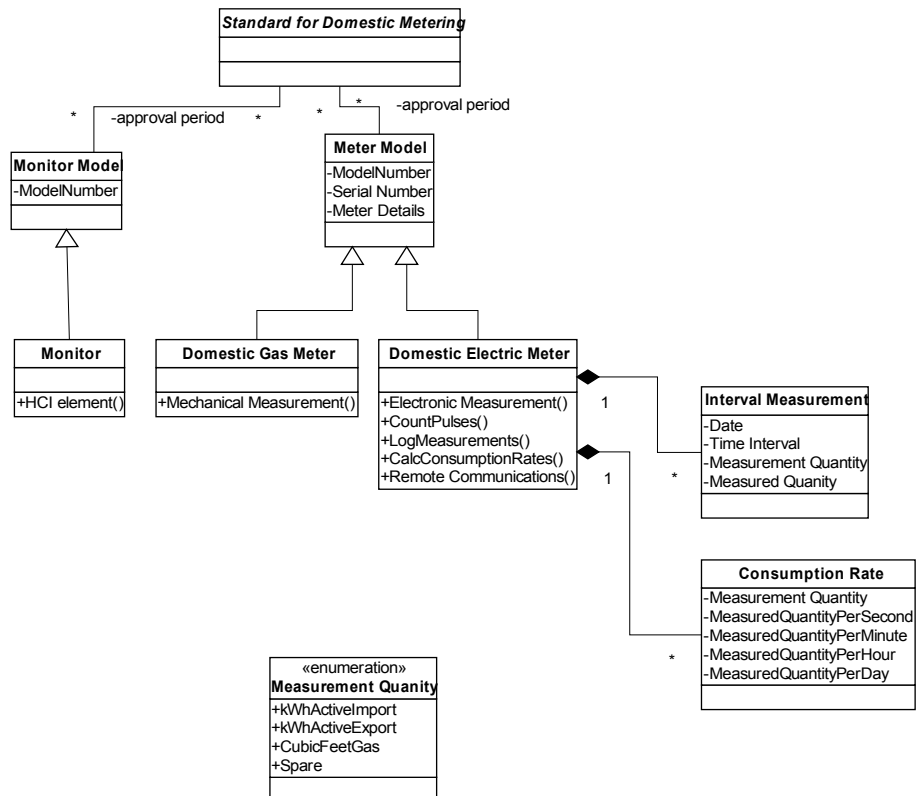
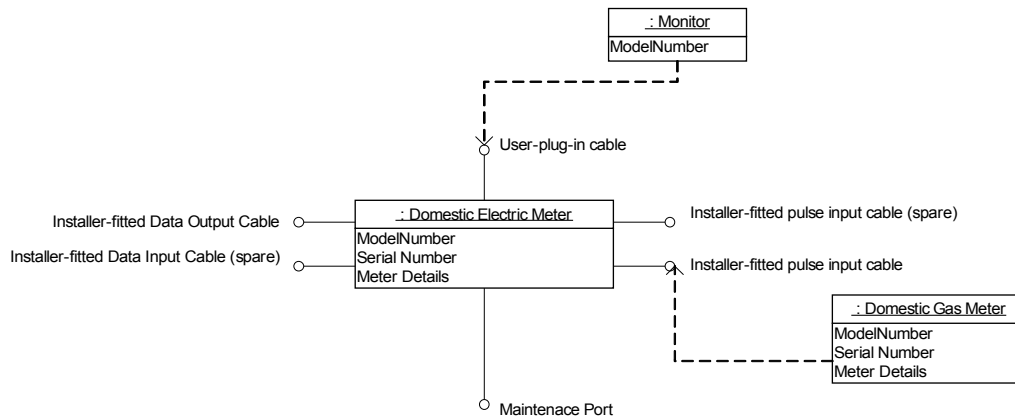


Standardised Domestic Metering



UML object and class diagrams are used to postulate the most appropriate base feature-set of an electricity smart-meter. Each feature has been carefully chosen and optimised to meet the key objective of maximising stakeholder return on investment, whilst capping volume-manufactured-device unit costs at an affordable level. Type approval of meters shall be performed against a published “Standard for Domestic Metering” that shall formally define the normative characteristics of an electricity smart meter, along the following lines.

Smart electricity meters, as proposed, shall incorporate an internal measuring element that is electronic in operation rather than electro-mechanical. Capable of integrating Active Import and Active Export electrical energy measured over a half-hourly interval, they will obviate the former practice of duplicating electric circuits to serve time-switched loads (a significant cost saving nationwide); electrical loads may simply be switched by means of close-proximity in-circuit timers. Accurate consumption rates shall be captured on a rolling average: calculated by second, minute, hour and day. A spare port shall be provided to support the fitting of a tamper-resistant data cable to connect an external electronic measuring element, possibly for water or gas, but equally well-suited for multiple supplies. A data output port shall be provided to support the fitting of a tamper-resistant cable to an external electricity smart meter or possibly a large-scale data-logger.

Gas meters, traditionally mechanically actuated, shall impart electrical pulses to the smart electricity meter via an installed tamper-resistant cable. The smart electricity meter shall have the capability to provide pulse counting, data logging and remote communications functions. Interval metering shall be configurable and no less than daily. A spare port shall be provided to support the fitting of a tamper-resistant cable from a second pulse-actuator measuring element, most probably for water.

Remote communication may be achieved by any technology, wired or wireless, but shall do away with any routine manual involvement, particularly pedestrian access to the premises. Remote communication timing cycles for interval measurement data collection shall be engineered to effect monthly billing upon measured data, within agreed service levels. A proprietary interface from the smart electricity meter shall be provided for local diagnostics, maintenance and data management.

A port in the smart electricity meter shall be provided to support connection of a plug-in device, referred to herein as the “monitor”, for interrogation of consumption rates and interval measurements.

Basic display monitors with a minimum 3m cable shall be provided to accompany every electric smart meter. Consequently there shall be no further requirement for any user interface sited on the meter. Users may attach their own connection-approved monitors. These may incorporate wired or wireless communication devices, proprietary domestic data analysis devices, sophisticated presentation displays optimised for specific settings and/or may link into personal computers.

Standard licence conditions shall be introduced permitting commercial arrangements that are more conducive to the necessary financial investment for smart metering, by relaxing the “28-day termination rule” on change of Supplier. Legitimate installations of approved smart electricity meters only shall be admissible.

Predominant deployments of smart metering may be categorised as follows:

- New combined gas and electricity installations shall comprise a smart electricity meter and monitor, connected by cable to a pulse-enabled gas meter.
- New electricity-only installations shall comprise a smart electric meter and monitor only.
- Existing combined gas and electricity installations shall be converted by replacement of the electricity meter with a smart meter, replacement of, or retro-fitting a pulse counter to, the gas meter and installation of an approved pulse-carrying electrical connection running between the two meters.
- New or existing gas-only installations shall not be impacted directly by standardised smart metering, although they may take advantage of the emerging remote communications infrastructures through use of battery operated devices.