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Smart metering data

- Data storage and sharing
- Data organization and identification

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Data storage and sharing

- How are data stored in smart meter?
  - Data are stored as objects
    - E.g. events are logged in the event log usually as objects
  - DLMS/COSEM set of standard provides rules how are data organized
    - DLMS - Device Language Message Specification
    - COSEM - COmpanion Specification for Energy Metering.
- How is the standard defined?
  - DLMS User Association maintains a set of four main specification documents
    - Blue Book - describes the COSEM meter **object model**
    - Green Book - describes the architecture and protocols
    - Yellow Book - describes conformance testing
    - White Book - contains the glossary of terms

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Data organization and identification

- Data object model uses OBIS (OBject Identification System)
- What are OBIS codes?
  - Assigns logical names to the objects (COSEM objects)
  - Specified in the IEC 62056-61
- How to read OBIS codes
  - Identifies data using a hierarchical structure with dot notation
  - six value groups in the form: **A-B:C.D.E*F**
  - 4 different separators present (- : . *) - support the group identification
  - Often only sub-identifier is preset

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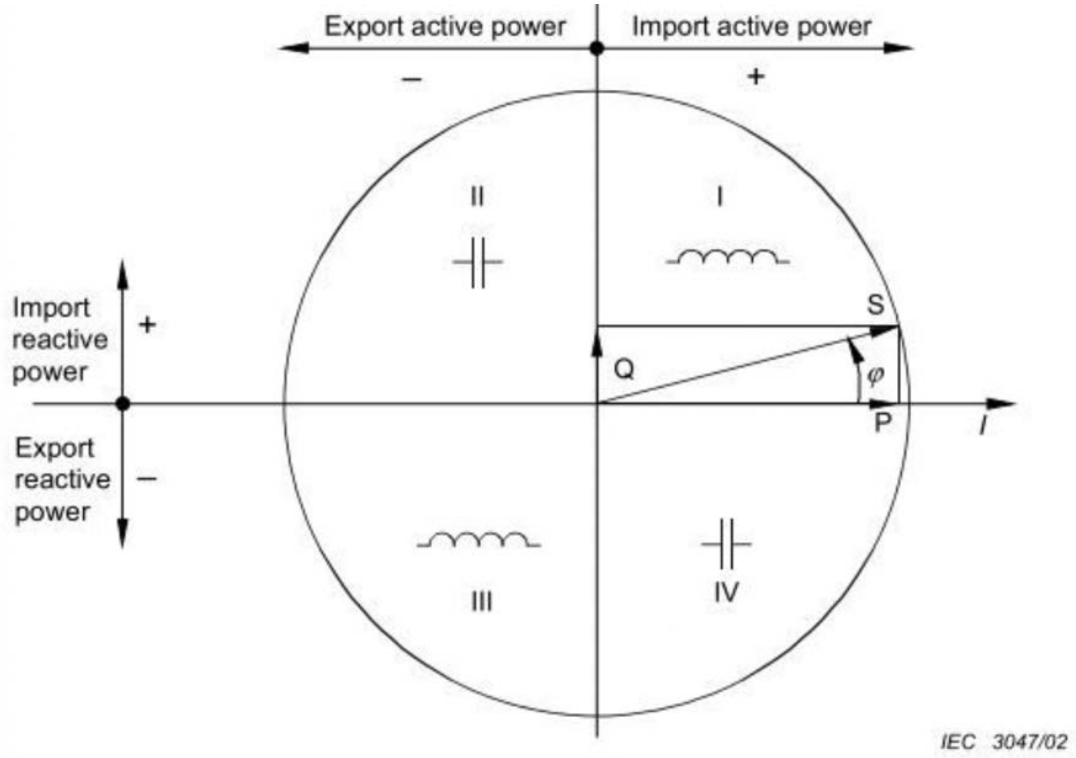
OBIS codes - details

- A-B:C.D.E*F.
  - A – defines media (energy type)
  - B – identifies the measurement channel by number
  - C – identifies abstract or physical data, such as current, voltage, power
  - D – identifies the type of data processing result
  - E – identifies further processing
  - F – identifies historical data
- Example explanations of selected OBIS codes (C.D.E part only)



OBIS code	Explanation
1.8.0	Positive active energy (A+) total [kWh]
1.8.1	Positive active energy (A+) in tariff T1 [kWh]
2.8.0	Negative active energy (A+) total [kWh]
2.8.1	Negative active energy (A+) in tariff T1 [kWh]
99.98.x	Event log
99.1.x	Load profile with recording period 1
99.2.x	Load profile with recording period 2