

# Metering glossary

## A

A	Active Energy
advantis	Advanced metering system catering for the special needs of the liberalized energy markets. It is a complete solution developed by Landis+Gyr. advantis covers the entire value chain from the meter to the billing interface and is designed to suit large-scale, residential metering systems. Therefore, it provides all user-friendly tools required for handling large numbers of customers.
AM	Advanced Metering
AMI	Advanced Metering Infrastructure. An infrastructure which encompasses metering, data collection (either direct communication with a central system or via a concentrator) and data management.
AMR	Automatic Meter Reading
AMS	Advanced Metering Solution
ASN	Article Specific Number, a Landis+Gyr internal number used for production management. It can be referred to for successive orders.

## B

Billing cycle	Period of days in which a utility or supplier totals customer energy use and produces the customer bill.
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## C

Class	Usually used in the metering context to specify a meter's accuracy. IEC defines classes as 0.5%, 1.0% and 2.0%; the new MID (Metering instrument directive) specifies classes A, B, C with temperature-dependent measurement deviations. Class C represents the highest accuracy. The term is sometimes also used for environmental, mechanical and electromagnetic conditions.
COSEM	Companion Specification for Energy Metering. Comprises the specifications required in addition to dims (as defined in IEC 61334-4-41, 1996), which describe the interface to the meter. These are the standards (drafts) IEC 62056-42, IEC 62056-46, IEC 62056-53, IEC 62056-61 and IEC 62056-62.
CS	Central System/Station. A device which offers a complete set of features and functions in connection with meter data acquisition, data segmentation, report generation, monitoring, tariffication, data plausibility checks and many more.
CS	Current loop serial interface. A serial transmission method that uses a closed loop. Current loops provide a better signal-to-noise ratio (SNR) than voltage-based systems, i.e. they offer very good noise immunity.

CT	Current transformer. Reduces actual current flow through meter.
CJ	Communication unit. A device which can be connected to a meter in order to enable automatic meter reading.
Cumulative value	Value cumulated since the beginning of the measurement.
<b>D</b>	
DA	Data Acquisition
DC	Data Concentrator
Delta value	Value calculated over the billing or the capture period. After the end of the period the value is reset.
Demand	The amount of power required to meet the customer's load at a given instant or averaged over any designated interval of time, expressed in kilowatts or megawatts. For an explanation of how demand is measured, see "Electric Meter."
Demand billing	The demand upon which billing to a customer is based, as specified in the rate schedule or contract. The billing demand doesn't have to coincide with the actual measured demand for a billing period. Such a charge might be applied to an industrial customer who may have inconsistent supplies of raw materials, but who must have access to substantial amounts of energy when those materials are available, or to a seasonal customer who requires large amounts of energy at one time of the year for which a utility company must make extra facilities available year-round.
DFS	Direct Field Sensor. A technology based on the Hall effect used in Landis+Gyr measuring elements in order to generate digital signals.
DLC	Distribution Line Carrier
dlms	Device Language Message Specification. This specification provides an interoperable environment for structured modeling and meter data exchange. Applications such as remote meter reading, remote control and value added services for metering any kind of energy (electricity, water, gas, and heat) are supported.
dlms device identification	Worldwide unique number in each dlms device to identify the device (in blue book it is named 'COSEM logical device name')
dlms tree	Tree in MAP120 showing all dlms objects of a device.
dlms UA	dlms User Association. Group of various companies interested in promoting, developing and enhancing the dlms standard.
DSM	Demand side management. This is a means to control energy consumption and to optimize network usage via tariff control and/or load control. Both can be controlled via ripple control signals (see PLC) and radio signals.
DSW	Device Software

## E

ER Energy Register

ESD Electrostatic Discharge

ESW Embedded Software

## F

FSK Frequency Shift Keying, a classical narrow band modulation method: the digital form of frequency modulation. A specific frequency corresponds to a digital level.

## G

GPRS General Packet Radio Service (GPRS) is a mobile data service available to users of GSM mobile phones. It is often described as "2.5G", that is, a technology between the second (2G) and third (3G) generations of mobile telephony. It provides moderate speed data transfer, by using unused TDMA channels in the GSM network.

Grid meters High precision electricity meters for the highest energy quantities with several communication interfaces for e.g. GPRS/GSM or TCP/IP. These meters provide flexible communication with several central stations, making all relevant data accessible to all partners.

GSM The Global System for Mobile Communications (GSM) is the most popular standard for mobile phones in the world. Wireless communication network for data and voice transmission.

## H

HDLC High-Level Data Link Control (HDLC) is a bit-oriented synchronous data link layer protocol specified by the International Organization for Standardization (ISO) in IS 3309: Information Processing Systems - Data Communication High-Level Data Link Control Procedure - Frame Structure

HHT, HHU Handheld terminal/unit, used for automated meter readings

Hot wire The ungrounded current carrying wire in an electrical system.

## I

I&C meters Industrial and commercial meters: Multi-tariff meters, often featuring active and reactive energy registers, for industrial or commercial usage.

IEC International Electrotechnical Commission. IEC 62056-21 is the standard "Electricity metering - Data exchange for meter reading, tariff and load control - Part 21: Direct local data exchange".

IEC readout Billing data readout according to IEC 62056-21

iMEGA Internet Metering Gateway

Industrial meter An electricity meter used in industrial and commercial settings. These meters have an extended functionality and communication possibilities and can be integrated into systems for high data availability.

## L

**Load profile** An allocation of electricity usage to discrete time intervals over a period of time, based on individual customer data or averages for similar customers. A load profile may be used to estimate electric supply requirements and determine the cost of service to a customer.

## M

**m2c** meter2cash Ltd. A Landis+Gyr company which offers market-leading solutions for meter data acquisition, processing and management. M2C has created several generations of meter reading and meter data processing systems over the past 15 years.

**MAC** Medium Access Control. MAC specifies the link layer address of the device for the communication. COSEM separates the address in a lower MAC address (addressing the physical device) and an upper MAC address (addressing the logical device within the physical device).

**MAP 110** The Landis+Gyr MAPI 10 Service Tool is used for reading out billing data and profiles and for changing the most important device parameters. It is able to communicate with all modern electronic meters from Landis+Gyr, which comply with the standards under dims or IEC 62056-21 (formerly IEC 1107). Its core functionality relates to meter testing/certification, installation and service.

**MAP 120** The Landis+Gyr MAP120 Parameterization Tool was developed for the reparameterisation of meters by the utility. It is able to communicate with all modern electronic meters from Landis+Gyr and also with many units from other manufacturers, which comply with the standards according to dims or IEC 62056-21 (formerly IEC 1107). The Landis+Gyr MAP120 Parameterization Tool is therefore an ideal aid for the service engineer.

**M-Bus** The M-Bus, also called Meter Bus, was produced from the necessity to interlink a large number of consumption measuring units, such as electricity, water, gas or heat meters over a long section at low cost to permit communication with a central station, i.e. to read meter data or to perform service functions (setting starting values, time/date, etc.). The central station computer (PC) together with a repeater connected to its RS232 interface forms the M-Bus master. Up to 250 meters can be connected to the repeater as M-Bus slaves via a twin-core connecting cable (standard telephone cable). The meters are connected parallel to the connecting cable to permit easy extension.

**MDR** Maximum Demand Register

**Meter constant** The Meter constant is a value which describes the "transmission ratio" between measuring element and register. In Ferraris-meters it represents the number of revolutions for 1 kWh. In electronic meters, it defines how many times the Test-LED flashes per 1 kWh.

**MMI** Monolithic Measuring system I (with index I), a monolithic chip used for measurement purposes in residential meters. The current version is MMI2.

**MPF** Minimum Power Factor

## **N**

N Neutral

## **O**

OBIS Object Identification System. Identification number system for clear identification of measured values.

## **P**

PF Power Factor

PLC Power Line Carrier, Power Line Communication, also called Mains Communication or Power Line Telecoms (PLT) or Powerband, is a term describing several different systems for using power distribution wires for simultaneous distribution of data. The carrier can communicate voice and data by superimposing an analog signal over the standard 50 or 60 Hz alternating current (AC).

$P_{avg}$  Current Average Demand

PSTN Public Switched Telephone Network. The public switched telephone network can be used for data transmission. To this purpose a modem (modulator/demodulator) must be inserted between computer and telephone network and also between the telephone network and the remote meter.

## **R**

R Reactive Energy

RCR Ripple Control Receiver

RM Remote Metering

RS 232 In telecommunications, EIA-232 (formerly RS-232) is a standard for serial binary data interconnection.

RS 485 EIA-485 (formerly RS-485 or RS485) is an OSI Model physical layer electrical specification of a two-wire, half-duplex, multipoint serial connection. The standard specifies a differential form of signaling. The difference between the wires' voltages is what conveys the data. One polarity of voltage indicates a logic 1 level, the reverse polarity indicates logic 0.

RTC Real Time Clock

RTU Remote Terminal Unit (e.g. FAG, METCOM)

## **S**

S (VA) Apparent Energy

SO The SO interface (pulse input) is used to receive pulses from external pulse transmitters (e.g. other meters with transmitting contacts for fixed value pulses) that are to be processed by the meter.

SAP	Service Access Point. The SAP is a device address defined in the link layer (see HDLC). Only a correctly addressed device reacts to the communication data received.
SCTM	Serial Coded TeleMetering, this is a former FAG telegram protocol.
Service tool	Landis+Gyr MAP120 software
S-FSK	Spread frequency shift keying, a new modulation scheme which is a combination of narrow band FSK and spread-spectrum technology. The signal is transmitted on a bandwidth considerably larger than the frequency content of the original information, this increases the signal-to-noise ratio.
STOM	Serial Transmission of Original Meter Registers. With the STOM concept, Landis+Gyr enables the transmission of meter values in an entire system.
<b>T</b>	
THD	Total Harmonic Distortion
TOU	Time of Use tables facilitate load control and planning on the part of utilities. This involves dividing the day, month and year into tariff slots and with higher rates at peak load periods and low tariff rates at off-peak load periods. The TOU table can also be used for load control, signal generation, etc.