

Today, the changing market landscape demands open solutions. That is why you need a safe metering investment for the future. The E650 meter family offers you maximum flexibility through unique communication modularity, high interoperability and a comprehensive functionality set, which includes:

- maintenance-free and robust long-life design in electronics and mechanics
- lowest failure rate in the market
- more than 30 different communication options
- extensive functionality covering a broad range of applications
- installation support and anti-tampering features
- built-in smart grid functionality

Manage energy better

Landis+Gyr is the leading global provider of integrated energy management solutions for the utility sector. Offering one of the broadest portfolios, we deliver innovative and flexible solutions to help utilities solve their complex challenges in smart metering, grid edge intelligence and smart infrastructure. With sales of USD 1.8 billion, Landis+Gyr employs approximately 5,600 people in over 30 countries across five continents, with the sole mission of helping the world manage energy better.

More information is available at www.landisgyr.eu.

Landis+Gyr in short

- Swiss HQ with 5'600 employees in 30+ countries worldwide
- Serving 3'500+ utilities worldwide
- Over USD 1b of self-funded R&D investment since 2011
- Over 90 million connected intelligent devices deployed
- More than 14 million meter points under managed services
- World's largest smart grid IoT project with 300+ million devices globally
- Frost & Sullivan Global AMI Company of the Year 2017 - the 4th consecutive year

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Electricity Meter
Landis+Gyr E650
ZMD300/400
ZFD400

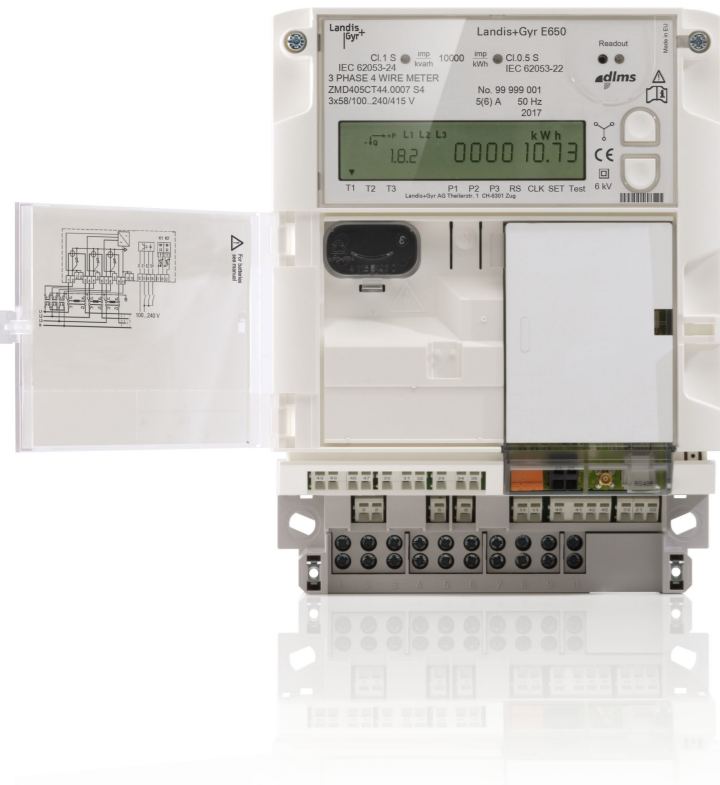
The ultimate building block for your
industrial and commercial metering
infrastructure

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Leading and most proven industrial & commercial meter

Over 2 million metering devices installed in 80 countries around the world

E650 is the most proven meter, which achieves maximum performance in all industrial and commercial application areas thanks to its unique modular architecture, exceptional feature set and high interoperability.



Basic Functionality

Quality and Safety: The extensive basic functionality already meets all major IEC standards applicable to the respective requirements.

| | |
|-------------|---|
| Electronics | Wide-voltage power supply Large LCD display Up and down buttons for display Optical button for the display Utility sealed reset button Optical interface (IEC 62056) Optical test output Three control inputs Two output contacts |
| Recording | 8 measurement channels with total register 24 energy registers Stored values register 9 operating time registers Event log |
| Functions | Installation support on display Set mode via buttons Real-time clock with power reserve Instantaneous voltage values Voltage monitoring Gregorian and Persian calendar Remote control of output contacts |
| Housing | Glass fiber reinforced, antistatic Crystal clear, unbreakable windows Wiring diagram on faceplate Utility sealed battery box |

Basic Configuration

Landis+Gyr E650 (ZMD300/400 and ZFD400) is the answer to your specific needs: from the reliable commercial meter to the complex measuring device with comprehensive additional functionality for advanced data acquisition and flexible tariff control of large industrial customers..

Modular communication units provide the right choice for the best data channel at all times. «Plug and Play» modules also offer you full freedom of choice for deployment of new communication technologies.

| | | E650 (ZFD402C) | E650 (ZFD405C) | E650 (ZFD410C) | E650 (ZMD402C) | E650 (ZMD405C) | E650 (ZMD410C) | E650 (ZMD310C) | E650 (ZFD410A) | E650 (ZMD410A) | E650 (ZMD310A) |
|--|---------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Application | High voltage | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Medium voltage | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Low voltage | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Connection Type | Transformer conn. | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Direct connection | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Metering accuracy (active/reactive energy) | Class 0.2/0.5 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Class 0.5/1.0 MID C | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Class 1.0/1.0 MID B | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Energy Type | Active energy | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Reactive energy | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Apparent energy | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |



Additional Functionality

| | |
|--------------------------------------|--|
| Tariff functions | Average demand Time-of-use (TOU) tables Programmable matrix-based mixes control |
| Measured Values | Power factor Instantaneous values for current, phase angle, frequency, power factor |
| Recording | 24 demand registers 2 power factor register 2 independent load profiles (billing and power quality monitoring) with integration period from 1' up to 60' minutes 26-channel profile memory |
| Special functions | Monitoring for power, current, power factor Backlit and LED Alert programmable display CT/VT error correction THD measurements and calculation of losses (Transformer and Line) Detection of strong magnetic fields Opening detection of terminal cover |
| Extension boards (only one possible) | 6 outputs 2 control inputs, 4 outputs 4 control inputs, 2 outputs 4 active inputs, 2 relay outputs 8A 3 control inputs, 2 relay outputs, auxiliary power supply 4 outputs, various auxiliary power supply |

Software Tools

| | |
|----------|---|
| MAP 120 | Parameterisation |
| .MAP 110 | Installation support Meter data readout Load profile analysis Security system visualisation Communications settings |

Enhanced communication capability through combined IEC 1107 and DLMS™ protocols

Only complete availability of reliable metering data guarantees an efficient billing process. The range of Landis+Gyr E650 (ZMD300/400 and ZFD400) meters is «bilingual»: handling the legacy IEC1107 protocol and the well established DLMS™ both of which comply with the IEC62056 standard.

An optimal data flow is achieved through the built-in communication interface or by readily interchangeable communication units.

Exceptional functionality for demanding I&C metering

Billing Data management:

- Large variety of registers to track and record the measured quantities you require
- High flexibility to link register values

Network monitoring:

- Monitor instantaneous values against threshold and record deviations in a snapshot event log
- Monitor and record disturbances for analysis and preventive network maintenance
- Protect your assets, e.g. transformers, against overload with real-time alarm information through SMS
- Detect tampering attempts and trigger real-time alarms (SMS)

Adaptation and Installation support:

- Smart installation support tools to avoid errors, simplify installation and service processes
- A set of powerful software tools (MAP Suite) to customise meter to your application needs, e.g. time-of-use tables, billing lists, profile memory, remote parameter modification, etc.

Smart Grid applications:

- Additional auxiliary power supply to assure data reading during power down phases
- Power quality monitoring functions with alarm and log features
- Real-time alarm system (SMS)
- Boolean I/O control functions to link and combine measured quantities