



Top level metering solutions by Landis+Gyr

Smart metering solution products for industrial, commercial and residential heating and cooling applications.

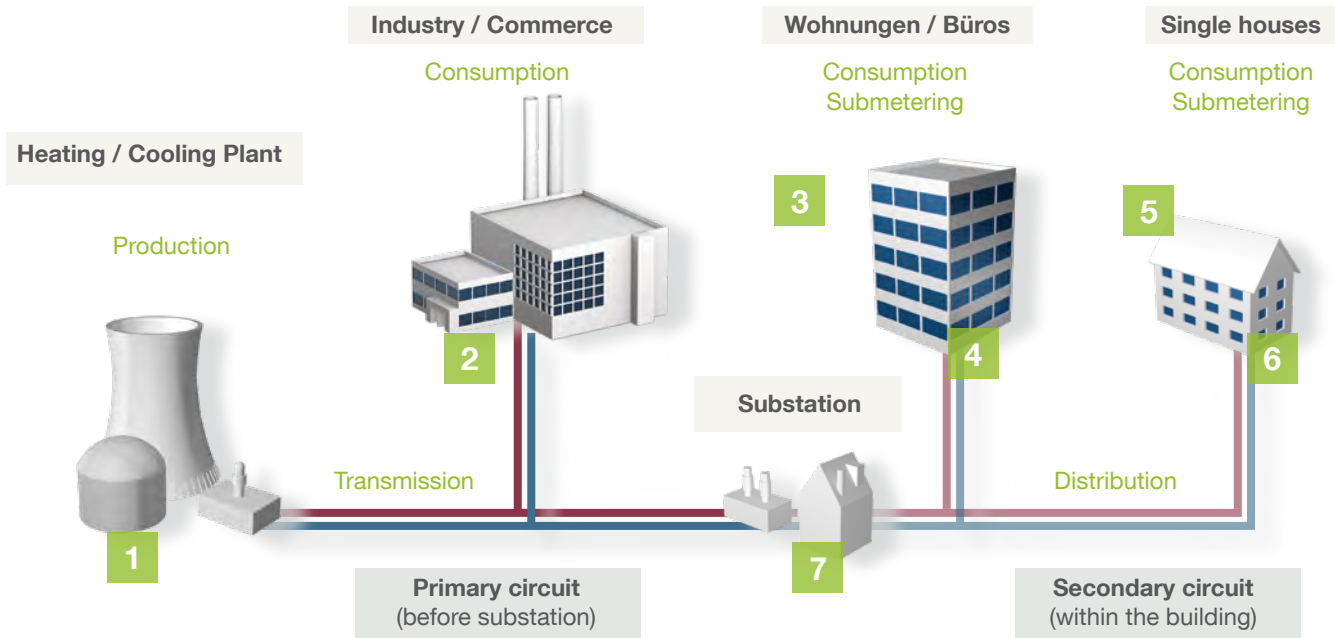
The Landis+Gyr brand defined

<p>Where are we going and how we'll get there</p>	<p>Our vision: We emphasize to be the leading smart metering provider, offering innovative products and solutions of high quality.</p> <p>Our strategy:</p> <ul style="list-style-type: none"> + Penetration of emerging markets + Appreciation and fair dealing with each employee + Green focus 				
<p>Who we are</p>	<p>Our guiding values and unique character:</p>	<p>Innovative spirit</p> <ul style="list-style-type: none"> + Expand what is possible + Commitment to advanced products and solutions + Move the industry forward 	<p>Trusted partner</p> <ul style="list-style-type: none"> + Deep expertise rooted in our 100+ year heritage + Commitment to long-term relationships + Deliver on promises 	<p>Customer focused</p> <ul style="list-style-type: none"> + In-depth knowledge of customers' needs and energy industry + Prompt resolution of issues 	<p>Committed to quality</p> <ul style="list-style-type: none"> + In every step of our processes our entire staff effort is focused on quality principles and flawless execution.
<p>What we do</p>	<p>Our customer promise: To help utilities, consumers and society manage energy better</p> <p>The benefits we provide:</p> <ul style="list-style-type: none"> + Improved energy efficiency + Improved operational efficiency + Better environmental outcomes + Enhanced customer satisfaction + Peace of mind 				
<p>How we deliver on our promise</p>	<p>Our assets:</p>	<p>L+G employees</p> <ul style="list-style-type: none"> + Strive for excellence and continuous improvement + Passionate about the energy industry 	<p>Exceptional offering</p> <ul style="list-style-type: none"> + Deliver integrated offers / systems covering the whole value chain + Provide future-proof products and solutions 	<p>Customer relationship</p> <ul style="list-style-type: none"> + Build highly collaborative customer relationships + Develop a deep understanding of customers' business 	<p>Global footprint</p> <ul style="list-style-type: none"> + Provide global resources and local support + Operate everywhere our customers are

Distribution of thermal energy

District Heating / District Cooling

Residential Heating / Residential Cooling



1

T550 qp 150
T150 qp 150



2

T550



3

T230
T330
T350



4

T550



5

T230
T330
T350



6

T550



7

T550



T150
Flow measurement or
for open systems



Heat Meter - Cooling Meter - combined H / C Meter

T550 (UH50...)



At a glance

- Ultrasonic technology - no moving parts, no mechanical wear
- All-metal volume measuring components
- Robust transducers construction
- No straight lengths of pipe required - any mounting orientation
- Two push-buttons for easy handling
- Manual parameterization without tools or software
- Two slots for communication modules
- Logbook for easy diagnosis
- Allows data from 60 previous months to be read
- Wealth of tariff functions allow the unit to be customized to individual requirements
- Batteries have service-life up to 16 years
- Power supply units available from 24 V AC/DC to 230 V
- Automatic self-diagnostics and fault detection
- Optional extra: programmable data logger for system monitoring
- Free service software UltraAssist
- Complies to the strict European MID



Technical data

General

Approval	EN 1434 class 2 / 3	Temperature range	5-130	[°C]
Protection class (flow part)	IP 54/ (IP65)	Max. diff. of temp.	120	[K]
LCD	7-digit	Min. diff. of temp.	3	[K]
Energy units	kWh / MWh or MJ / GJ	Switch-off limit	0.2	[K]

Threaded connection

Nominal flow q_p	0.6	1.5	0.6	1.5	2.5	2.5	3.5	6.0	10	[m³/h]
Maximum flow q_s	1.2	3.0	1.2	3.0	5.0	5.0	7.0	12	20	[m³/h]
Minimum flow q_i (1:100)	6	15	6	15	25	25	35	60	100	[l/h]
Response threshold (variable)	2.4	6	2.4	6	10	10	14	24	40	[l/h]
Length	110	110	190	130/190	130	190	260	190/260	300	[mm]
Thread	G¾	G¾	G1	G1	G1	G1	G1¼	G1¼	G2	--
Pressure loss at q_p	150	170	150	160	200	210	55	190/140	130	[mbar]

Flanged connection

Nominal flow q_p	0.6	1.5	2.5	3.5	6.0	10	15	25	40	60	[m³/h]
Maximum flow q_s	1.2	3.0	5.0	7.0	12	20	30	50	80	120	[m³/h]
Minimum flow q_i (1:100)	6	15	25	35	60	100	150	250	400	600	[l/h]
Response threshold (variable)	2.4	6	10	14	24	40	60	100	160	240	[l/h]
Length	190	190	190	260	260	300	270	300	300	360	[mm]
Flange	DN20	DN20	DN20	DN25	DN25	DN40	DN50	DN65	DN80	DN100	--
Pressure loss at q_p	150	160	210	55	140	130	110	105	160	115	[mbar]

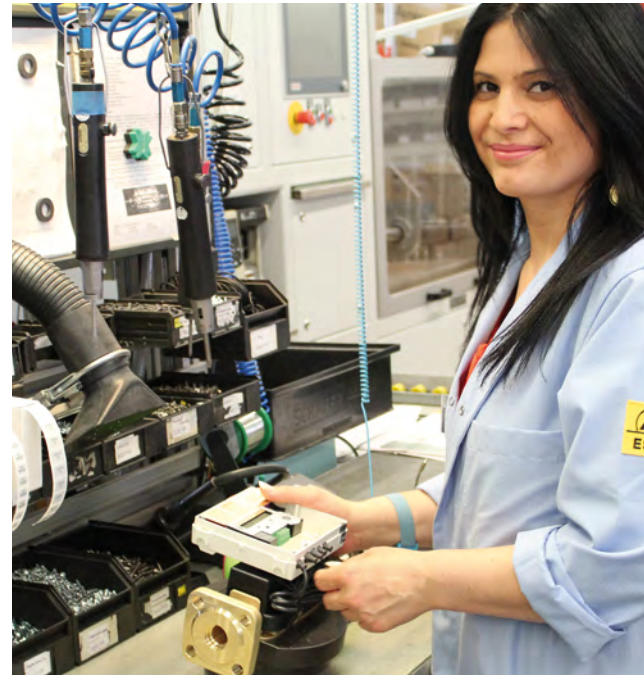
Benefits

T550
(UH50...)

- Enhanced flexibility for system management and tariff calculations
- Cost-efficient AMR possibilities
- Benefit from the most comprehensive functionality offering in the market
- Excellent Total Cost of Ownership due to optimal technologies used
(long lifetime and maintenance-free design)
- Maximizing effectiveness of a smart metering rollout through integration of reliable, interoperable and future-proof solutions that will secure your investments and enhance profitability

Highlights

- Top measurement accuracy and stability proven by longest track record of field installations
- Special internal profile DuraSurface™ makes the flow part insensitive to small particles in the water
- Easy data collection and processing



Heat Meter - Cooling Meter - combined H / C Meter



T330



At a glance

- Compact, robust, precise, non-wearing
- Insensitive to soiling and deposits
- Fast, intelligent measurement for all applications
- Flat, detachable calculator
- Any mounting orientation, mounting in return or in flow
- Short measuring intervals and high load capacity
- Temperature range: 5-130 °C
- Fast communication: wireless M-Bus, M-Bus, pulse output
- Free service software UltraAssist
- Battery operated up to 11 years
- Complies with the strict European MID
- Automatic self-diagnostics and fault detection



Technical data

General

Approval	MID (EN 1434:2016, national cooling)	
Protection class (flow part)	IP 54 / (IP65)	
LCD	10 mm high symbols	
Temperature range (flow part)	5 ... 130	[°C]
Temp.-Diff. ΔT	3 ... 80	[K]
Nominal pressure	PN16, (PN25)	[bar]

Threaded connection

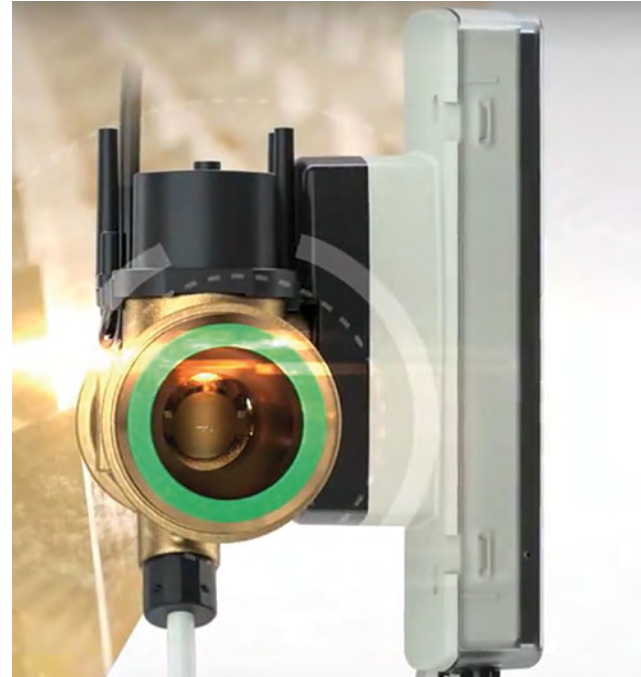
Nominal flow rate (qp)	0.6	1.5	2.5	[m³/h]
Max. flow (qs)	1.2	3.0	5.0	[m³/h]
Min. flow (qi)	6	15	25	[l/h]
Operating limit	1.2	3	5	[l/h]
Mounting length	110 / 190	110 / 130 / 190	130 / 190	[mm]
Threaded connection	G¾ / G1	G¾ / G1 / G1	G1 / G1	--

Benefits

- Excellent measurement stability, robust design and easy handling
- Platform Strategy: proven and well-known components
- Reliable operation with constant measuring accuracy during the device's entire lifecycle
- Compact design offers versatile installation options
- Seamless end-to-end integration
- Reliable data for invoicing

Highlights

- Advanced software features simplify the handling of the metering data and help the thermal energy meter to adapt intelligently to changing conditions.
- Resistant to mechanical stress and high temperatures (130°C) due to all-metal design of the flow part
- DuraSurface™



Heat Meter - Cooling Meter - combined H / C Meter



T230



At a glance

- Ultrasonic technology - precise, robust, non-wearing
- Compact, detachable calculator
- Easy readable display
- Temperature range: 5-90 °C
- Total dynamic range: 1:1000
- Storage for 24 monthly values
- 2 monthly set days and mid-month values
- Environmental-friendly construction
- Any mounting orientation without limitation
- Glass-fiber reinforced measuring tube - robust and lightweight
- Complies with the strict European MID
- Fast communication: wireless M-Bus, M-Bus, pulse output
- Battery operated up to 11 years (also with wireless M-Bus)



Technical data

General

Approval	MID (EN 1434)	
Protection class (flow part)	IP 54 / (IP65)	
LCD	7-digit	
Energy units	kWh / MWh or MJ / GJ	
Temperature range	5-90	[°C]
Nominal pressure	PN16	[bar]
Max. diff. of temp.	80	[K]
Min. diff. of temp.	3	[K]
Switch-off limit	0.2	[K]

Threaded connection

Nominal flow rate (qp)	0.6	1.5	2.5	[m³/h]
Max. flow (qs)	1.2	3.0	5.0	[m³/h]
Min. flow (qi)	6	15	25	[l/h]
Operating limit	1.2	3	5	[l/h]
Mounting length	110	110 / 130	130	[mm]
Thread connection	G¾	G¾ / G1	G1	--
Pressure loss at qp (mounting length 110 mm)	75	135	--	[mbar]
Pressure loss at qp (mounting length 130 mm)	--	135	165	[mbar]

Benefits

- Offers a host of impressive and convincing technical advances, e.g.
 - + Significant low pressure loss
 - + Integrated communication
 - + Clever software features
- Ideal balance of price and performance, adapted to the requirements of residential heat metering
- Seamless end-to-end integration
- Reliable data for invoicing

Highlights

- High measuring accuracy and reliability
- Reduced CO₂ emissions due to lightweight and environmentally friendly materials
- Cost-efficient AMR possibilities
- Extensive feature set for a small device





T150 (2WR7...)



At a glance

- Ultrasonic flow sensor
- For separately approved calculators
- For open systems
- Available sizes from qp 0.6 up to qp 60 (and qp 150)
- Any mounting orientation without limitation
- Fast and save mounting
- Precise, robust, nonwearing
- All-metal volume measuring components
- Temperature range from 10 - 130 °C
- Complies with the strict European MID
- Optical interface and pulse output



Technical data

Threaded connection											
Nominal flow q_p	0.6	1.5	0.6	1.5	2.5	2.5	3.5	6.0	10	[m ³ /h]	
Maximum flow q_s	1.2	3.0	1.2	3.0	5.0	5.0	7.0	12	20	[m ³ /h]	
Minimum flow q_i (1:100)	6	15	6	15	25	25	35	60	100	[l/h]	
Response threshold (variable)	2.4	6	2.4	6	10	10	14	24	40	[l/h]	
Length	110	110	190	190	130	190	260	260	300	[mm]	
Thread	G $\frac{3}{4}$	G $\frac{3}{4}$	G1	G1	G1	G1	G1 $\frac{1}{4}$	G1 $\frac{1}{4}$	G2	--	
Pressure loss at q_p	150	170	150	160	200	200	60	180	100	[mbar]	
Flanged connection											
Nominal flow q_p	0.6	1.5	2.5	3.5	6.0	10	15	25	40	60	[m ³ /h]
Maximum flow q_s	1.2	3.0	5.0	7.0	12	20	30	50	80	120	[m ³ /h]
Minimum flow q_i (1:100)	6	15	25	35	60	100	150	250	400	600	[l/h]
Response threshold (variable)	2.4	6	10	14	24	40	60	100	160	240	[l/h]
Length	190	190	190	260	260	300	270	300	300	360	[mm]
Flange	DN20	DN20	DN20	DN25	DN25	DN40	DN50	DN65	DN80	DN100	--
Pressure loss at q_p	125	160	195	60	180	165	100	105	160	115	[mbar]

Benefits

- Low start up and operating costs
- Avoidance of revenue loss
- Minimized investment costs
- Optimal investment protection
- Seamless integration in open systems
- For connecting to external operating systems via pulse output
- Different pulse charts are available
- Alternative further pulse significances can be realized

Highlights

- High measuring accuracy and reliability
- No maintenance and stable measurement for years and years
- Automatic data storage on yearly set day
- Storage of 36 monthly values
- Self-diagnostics



Stand-Alone-Calculator



T550 (UC50...)



At a glance

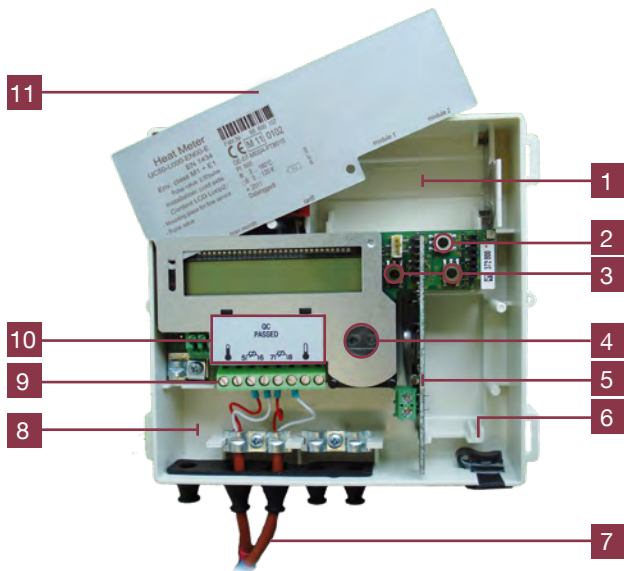
- Heat, cooling and combined heat / cooling measurement
- Multi tariff meter, glycol meter (acc. to EN1434)
- Passive pulse input
- Useful information on the dial plate
- Logbook included as standard
- Batteries have a service life of up to 16 years
- Power supply units available from 24 V AC / DC to 230 V (optional)
- Optical interface acc. to EN 62056-21
- Two slots for the huge range of communication modules
- Allows data from 60 preceding months to be read
- Wealth of tariff functions allow the unit to be customized to individual requirements
- Optional extra: programmable data logger for system monitoring



Calculator

Approval	MID (EN 1434)
Protection class	IP 54
LCD	7-digit
Energy units	kWh / MWh or MJ / GJ

Operation threshold f. ΔT	0.2	[K]
Temperature difference ΔT	3 - 120	[K]
Temperature measurement range	0 - 180	[°C]



- 1 Space for battery or power supply
- 2 Service button
- 3 Two buttons for easy handling
- 4 Optical interface
- 5 Module slot1 (reserved)
- 6 Module slot2 (empty)
- 7 Example for mounted temperature sensors
- 8 More space for connections
- 9 4-pin terminal
- 10 Calibration seal calibration button below
- 11 Faceplate

Benefits

- Investment security to future-proof solutions
 - + Exchangeable communication modules
 - + Remotely upgradeable software
 - + Meets open industry standards for data structure and communication protocols
- The use of flexible tariff functions can create incentives for making district heating / cooling systems more efficient by formulating tariff depending prices for heating and cooling.

Highlights

- Advanced applications for more flexibility
 - + Heat / cooling meter
 - + Multi-tariff meter
 - + Glycol meter*
- Stable indication of the smallest flows
- Special registers and functions for more safety

* (acc. EN 1434)



Heat Meter - Cooling Meter - combined H / C Meter Flow Meter

qp 150

T550 (UH50...)

T150 (2WR7...)



At a glance

- Landis+Gyr ultrasonic technology, proven - precise - stable
- Maintenance-free - without any moving parts
- Simply exchangeable measurement insert - without removing the flanged body - no special tooling necessary
- Cost-saving recalibration with lowest mounting effort - very low operating and switching costs
- High-quality V4A stainless steel construction, robust - durable - corrosion-resistant
- No mounting restrictions and no straight pipe sections required, shaft fitting possible (flow part)
- Full functionality of T550 (UH50...) or T150 (2WR7...)
- T550 with power supply or battery for up to 16 years



Flanged connection

Length	500	[mm]
Connection	DN150 flange	--
Pressure range	PN16 / PN25	--
Protection class (flow part)	IP68	--
Temperature range	5 - 130	[°C]
Permanent temperature	130	[°C]
Pressure loss at qp	< 120	[mbar]

Nominal flow qp	150	[m³/h]
Maximum flow qs	300	[m³/h]
Minimum flow qi (1:100)	1500	[l/h]
Response threshold	600	[l/h]
Overload flow	2.8 x qp	--
Metrological class	1:100	--
Accuracy class	2	--
Environmental class	E1 and M1	--



Benefits

- Exchangeable measurement insert
- High flexibility with low life-cycle costs
- Low costs for transportation to the testing center
 - + Only the measurement insert has to be changed
 - + Flanged body will be closed with interims cover
- Easy rework, maintenance and calibration
 - + Exchange can be done by one single person
 - + Saves time and money

Highlights

- The measurement insert is not assigned to the flanged body
- Flexible replacement of the measurement insert
- Saving resources due to meter's long life cycle is ecologically sustainable and economically attractive





Communication possibilities

Each type of meter is equipped with an optical interface as standard. This enables you to read out data and a smooth integration in different systems.

A wide and constantly expanding range of communication interfaces and modules are available.



	 Optical Interface	 Pulse (2 channels)	 M-Bus	 M-Bus (with 2 pulse inputs)	 wireless M-Bus (868 MHz)	 Analog (2 channels)	 GPRS (internal or external antenna)	 BACnet	 Modbus	 LoRa (internal or external antenna)	 NB-IoT (external antenna)
T550 (UH50...)	X	X	X	X	X	X	X	X*	X*	X*	X*
T550 (UC50...)	X	X	X	X	X	X	X	X*	X*	X*	X*
T330	X	X	X		X					X**	
T230	X	X	X		X					X**	
T150 (2WR7...)	X	X									

* available as accessories

** available end of 2019



Communication application examples

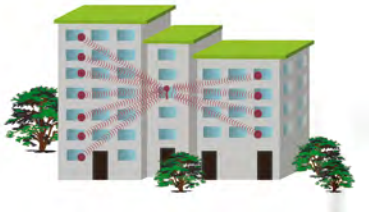
M-Bus

wireless M-Bus (mobile network)



Read meters remotely, offer dynamic pricing schemes and confirm demand response from individual premises. We offer a full range of options that ensure fast and reliable communication.

wireless M-Bus (fixed network)



combined communication





Information Gathering

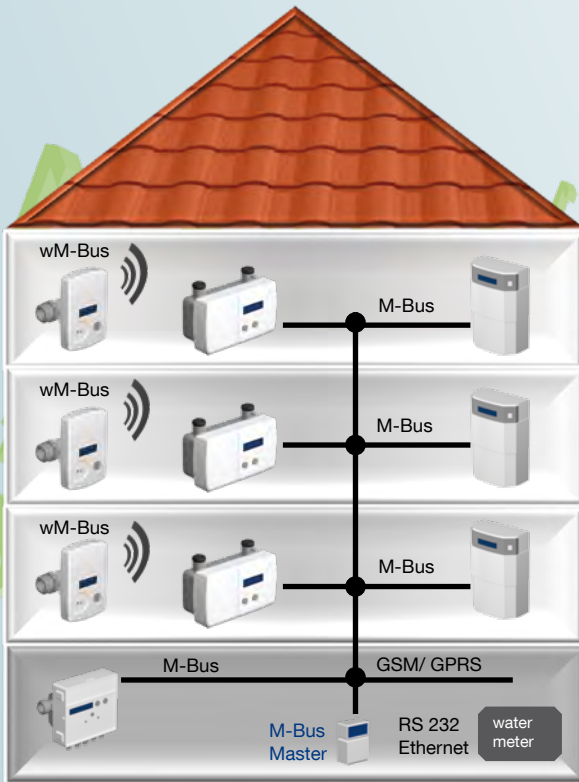
With the L+G ADVANCE Software, it's easy to get data there and back.

ADVANCE system is an up-to-date program created on the .NET platform, intended to data acquisition from different measuring devices (e.g. heat meter, cooling meter, electricity meter or gas meter).

The system is a comprehensive tool for the administration and dynamic management of measurement places, data management and billing.

At a glance

- + Datamanagement of different meter types
- + Display collected data in charts
- + Setup of validation and synchronization, analyses and summaries
- + Defines individual physical measurement devices, readout channels, processed media types, energies and variables
- + Integration in customer owned system



ADVANCE

Data collection module

- + Measurement devices management
- + Energy management
- + Variables management
- + Scheduler

Metering point module

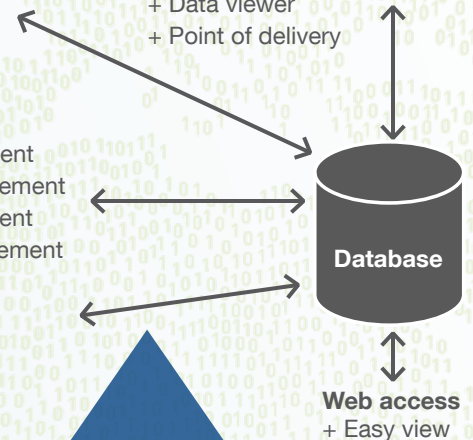
- + Measurement places management
- + Collected data visualization
- + Validation and synchronization management
- + Analysis, Balances
- + Data viewer
- + Point of delivery

Administration

- + Tariff management
- + License management
- + User management
- + Module management

Services

- + Billing values
- + Periodic data
- + Meters
- + Statuses
- + Events



Database

Web access
+ Easy view

Functionality

- Automatic acquisition of data for billing
- Data normalisation
- Quick data preview
- Management of templates and measuring devices (AutoTemplate feature)
- Data visualization (graph, table)
- Aggregation functions
- Dynamic groups
- Virtual measurement places
- Data comparison
- Data substitution, editing and export
- Tariff management and data structuring
- Billing module

Advantages

- Actual data are always available
- Automation - Reduces the probability of errors related to manual data input
- Reduction of operating costs due to automation
- Simple and intuitive Graphical User Interface
- Data acquisition implemented as Windows services
- Modern Technology (Microsoft .NET, Web Services)
- Support for multiple data acquisition systems
- Many protocols supported
- Extensions and add-ons can be prepared by the customer's specification





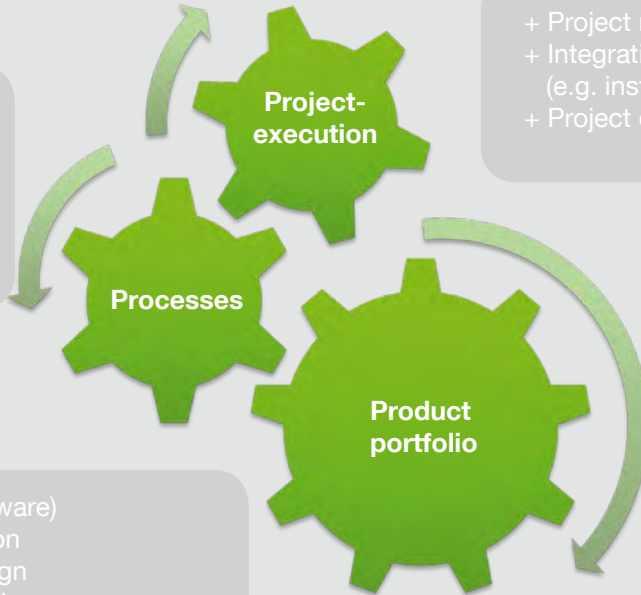
Heat Solution Business - The 3 P's

P₂

- + Analyzing of customers calls and problems
- + Individual elaboration of customer solution on the basis of our portfolio

P₁

- + Meters (hardware)
- + Data collection
- + Solution design
- + Data processing
- + Software customizing

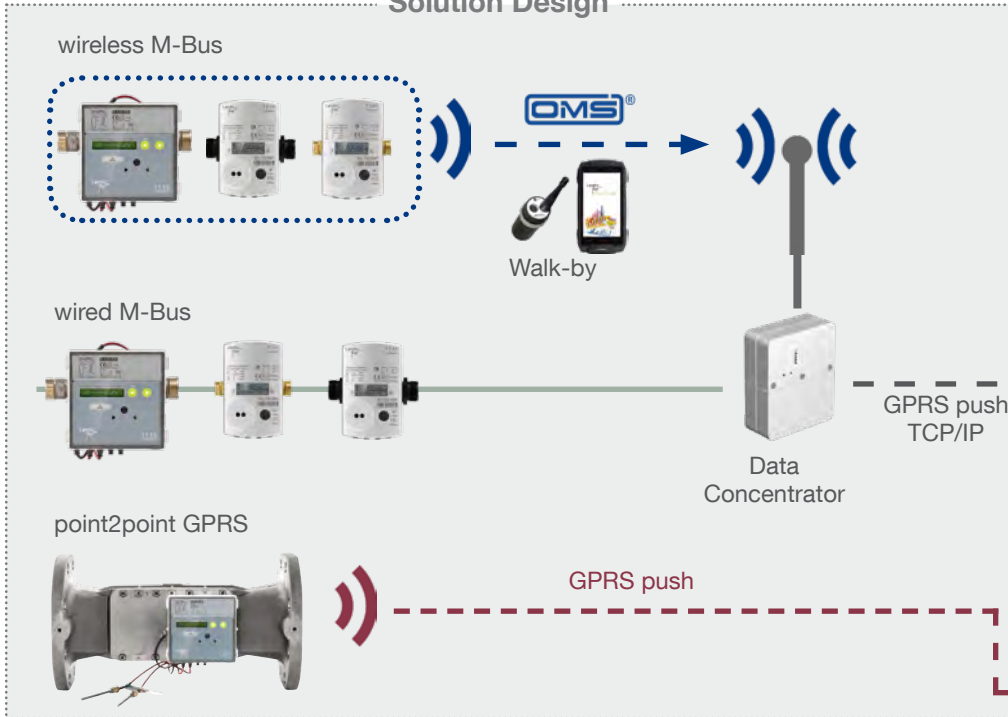


P₃

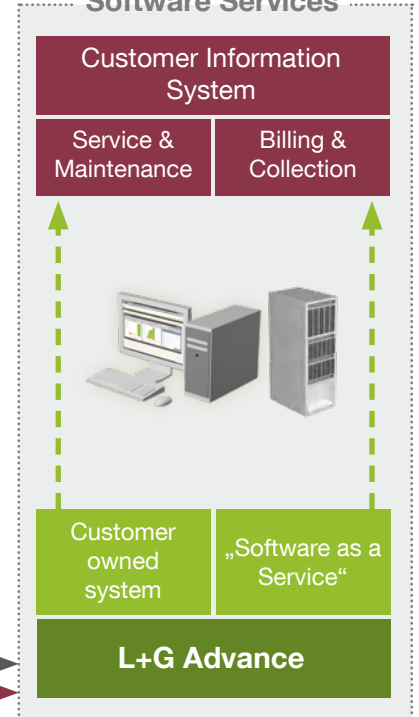
- + Project management
- + Integration of 3rd parties (e.g. installation)
- + Project delivery to handover

Solution Overview

Solution Design



Software Services



Meter



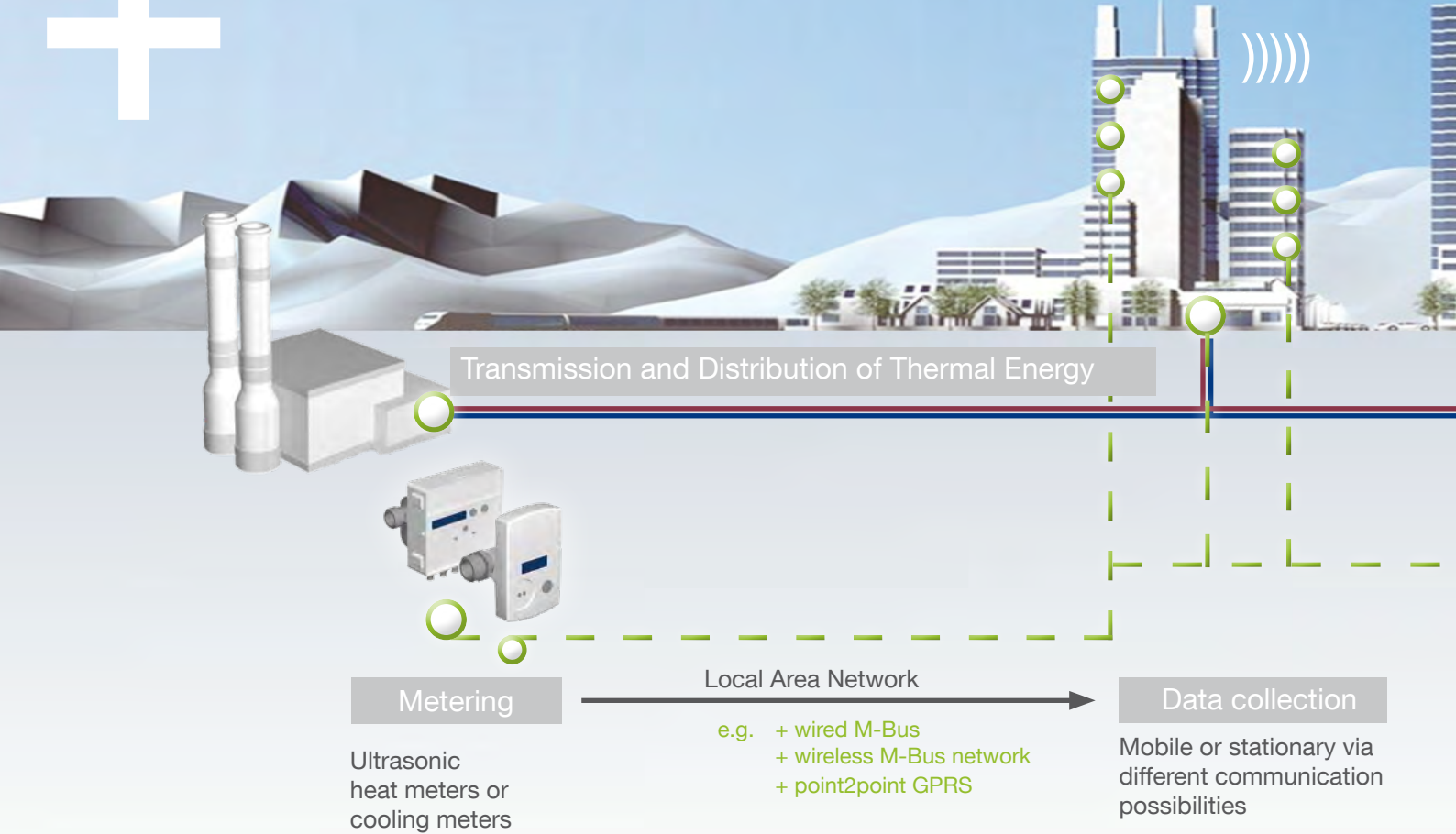
Data Collection

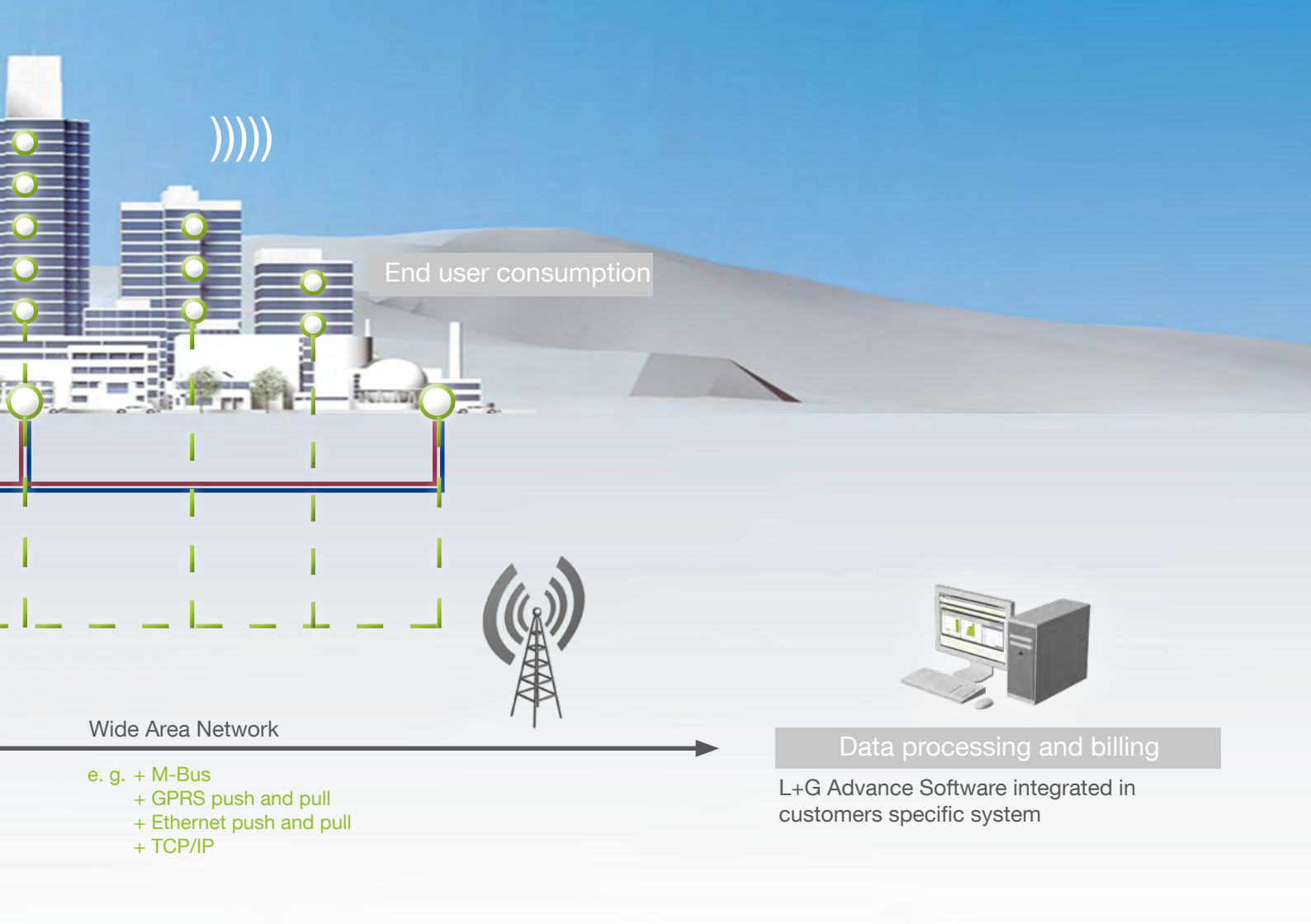


Data Processing



Smart Metering Solution





**Benefit from experience,
support and stability provided by one
of the world's largest meter vendor.**

Landis+Gyr GmbH

Humboldtstrasse 64 · 90459 Nuremberg · Germany

Phone: +49 911 723 7036 · Fax: +49 911 723 7301

info-nbg.de@landisgyr.com

www.landisgyr.eu