



Powerful solutions for smart energy management

Load Management Systems from Landis+Gyr



Distributed power generation

Greater network reliability and efficiency

Renewable energies

Customised migration solutions

Smart metering

Dynamic pricing models

Residential electricity feed

Sustainability

Optimised network investments

Ripple control

Street lighting

Services for today and tomorrow

Individual solution packages

Smart metering

- Monthly billing
- Improved process efficiency
- Extended customer services
- Web service, invoicing, statistics
- Price models

Smart infrastructure

- Smart meters
- Advanced sensors

Dynamic price models

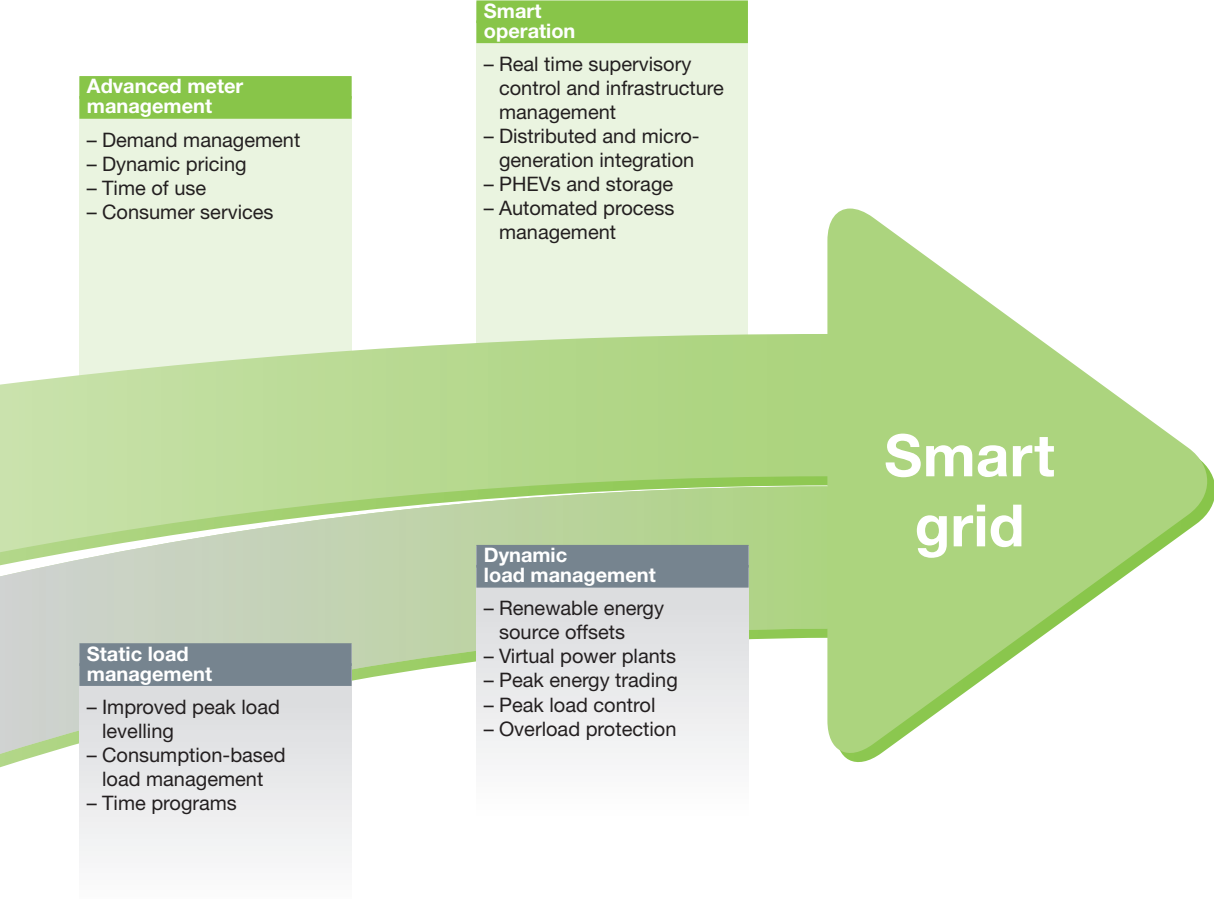
- Peak load levelling
- Indirect load management

Simple price models

- Static peak load levelling



Dynamic load management and smart metering – A powerful combination for tomorrow’s smart grid



The significance of optimised energy consumption in households, the industry, and the public sector keeps rising. At the same time, additional consumers such as electric vehicles and the ever-growing share of renewable energy are creating completely new challenges.

Up to now, reliable and comprehensive energy management consisted of static control mechanisms for loads and tariffs with conventional ripple control systems. Consumption was metered and charged to the end user in a separate process.

That approach is no longer sufficient in this day and age. Alternative electricity producers like wind farms or solar energy plants do not supply a constant flow of energy and their energy production may vary depending on weather and wind conditions. This calls for new, dynamic energy management solutions to accommodate these fluctuations. These solutions are a combination of metering and control systems. Today’s intelligent networks utilise fast, deterministic load management systems to respond to peak demand and generation bottlenecks and to charge energy storage systems.



Multi-Energy Smart Metering, Dynamic Load Management and Personal Energy Management:

As a truly flexible solution, the Gridstream portfolio suite addresses all energy needs in one complete energy management solution.

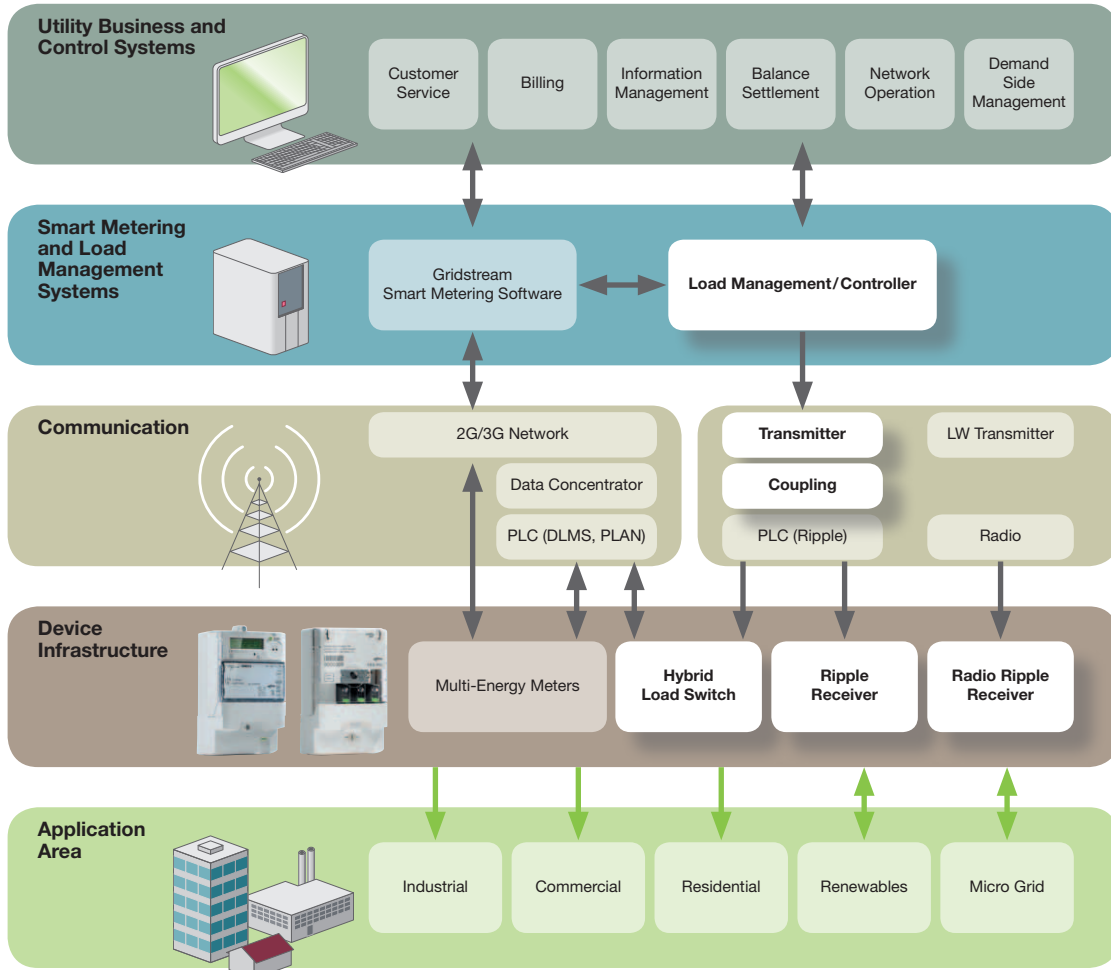
From conventional ripple control systems to smart grids

Gridstream – the comprehensive energy management platform from Landis+Gyr – combines powerful dynamic load control with smart metering.

Smart metering systems are modern tools for logging and invoicing energy data. They are frequently used in conjunction with load control systems that switch loads on and off on the basis of static time schedules. However, this configuration cannot respond promptly to changes occurring in the network at short notice and safeguard network stability and reliability. Complexity is steadily growing as electric vehicles, renewable energies, liberalisation of the electricity market and other factors call for efficient system packages.

In order to help you manage energy better, we have developed the fitting solution: the communication concept Dynamics^{3G}.

Stable smart grid networks have to meet two prerequisites: Transparent consumer data for all network participants as well as controlled and planned dynamic load control in networks. As the market leader, Landis+Gyr goes one step further. Powerful dynamic load control technology and the smart metering system are seamlessly integrated in the comprehensive Gridstream energy management solution.





- High-level functionality
- User-friendly
- Great flexibility for custom-tailored solutions
- High reliability for peace of mind



Controllers

The controllers of Landis+Gyr provide highly reliable and efficient operation as standalone applications or in large-scale interlinked systems. Up to 32 local controllers can be connected to a central controller to create a comprehensive network.

Landis+Gyr is breaking new ground with its FPS LM load management system and relies on the Dynamics^{3G} communications concept, which supports all known ripple control protocols and 2-way power line technology. FPS LM is connected to an existing network control system and manages system loads from e.g. hot boilers, heat pumps, charging stations, air conditioners and lighting systems as well as small, decentralised energy producers with the L740-H hybrid load switch or the L740-P PLC load switch devices.

		FPS	FPS LM
Applications	Small ripple control systems	■	■
	Medium ripple control systems	■	■
	Large ripple control systems	■	■
	Local ripple controller	■	■
Command transmission	Coded	■	■
	Direct	■	■
	Real time	■	■
	Signal broadcast via smart metering for direct commands in the whole network	■	■
Communication	TCD/IP communication for LAN operation and coded transmission	■	■
	SCADA interfaces in upper control centres	■	■
	Integration in smart metering system Gridstream AIM	■	■
Core functionality	Load control for peak power reduction and overload prevention	■	■
	Astronomical clock	■	■
	External inputs and signal outputs for light sensors, period measurement and alarms	■	■
	Synchronization via GPS or DCF77	■	■
	Real-time broadcast commands in the entire network	■	■
	Remote programming of user profiles for load switch devices	■	■
Hardware	Industrial PC	■	■

- Flexible and universal solutions for every system size and coupling type
- Control panel and user-friendly computer software for parameter programming and diagnosis
- Compact, modular and low-maintenance design



Ripple control transmitters

Landis+Gyr has the right transmitter for every coupling type. All transmitters are modular and can be installed easily in standard 19" cabinets. This creates sufficient space for unimpeded installer access to connections and all relevant components, ensuring easy and cost-effective maintenance. Transmitters are available with output ratings of up to 440 kVA. Up to four transmitters may be operated in parallel if necessary.

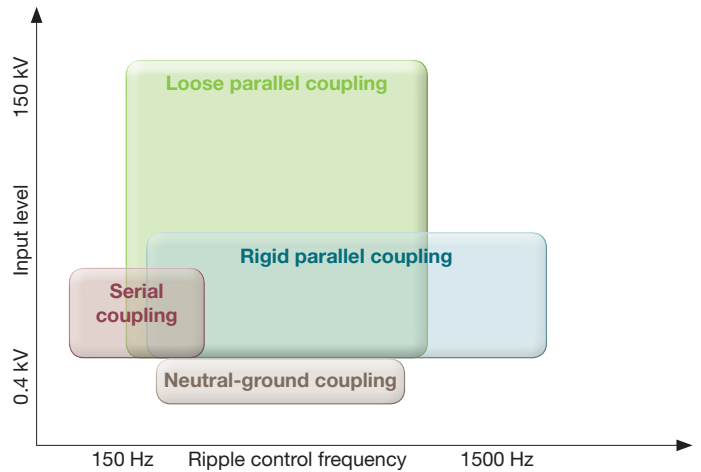
		FQD	SFU-K
Output Power	Low (4 kV, 10 A to 40 kVA, 60 A)	■	■
	Medium (40 kVA, 60 A to 440 kVA, 640 A)	■	■
	High (440 kVA, 640 A to 1680 kVA, 2440 A)	■	■
Power supply	Low voltage 400V	■	■
	Medium voltage 5 kV to 66 kV	■	■
	High voltage 66 kV to 150 kV	■	■
Tri-phase coupling	Loose parallel coupling	max. 2	max. 4
	Rigid parallel coupling	max. 2	max. 4
	Serial coupling	max. 2	■
	Shunt coupling	max. 2	■
	Neutral-ground coupling	max. 40	max. 40
Operation	Single	■	■
	Redundant	■	■
	Parallel	■	■
Monitoring	Operating panel for parameterisation, diagnostics and supervision	■	■
	Service software for parameterisation, diagnostics and supervision	■	■
	Local and remote control	■	■
	Local emergency operation	■	■
	DECABIT emergency controller	■	■
	Coupling cell tuning	■	■
Design	EMC and EC conformity	■	■
	Built-in output transformer	Option	Option
	Built-in check-back receiver	Option	Option
	Built-in local controller	Option	Option
	Coupling monitoring	Option	Option
	Pilot frequency synchronisation	Option	Option
	Fault reporting	Option	Option
	Built-in ammeter	Option	Option



- Landis+Gyr – Your one-stop provider for all coupling types
- Reliable signal injection
- Unrestricted signal propagation
- Low-maintenance and durable

Coupling equipment

When it comes to rigid or loose parallel coupling, serial or neutral coupling, Landis+Gyr offers in-depth engineering expertise and experience to create the ideal solution adapted to your network topology. We apply the highest quality standards to the products manufactured in our own production facilities.



		Loose parallel coupling	Rigid parallel coupling	Serial coupling	Shunt coupling	Neutral-ground coupling
Injection level	Low voltage	■	■	■	■	400 V
	Medium voltage	max. 66 kV	max. 66 kV	max. 66 kV	max. 30 kV	■
	High voltage	max. 150 kV	■	■	■	■
Quantity per transmitter	Single phase injection	■	■	■	■	max. 40
	Tri-phase injection	max. 4	max. 4	max. 4	max. 2	■
Design	Signal frequency	168 Hz to 1350 Hz	283 Hz to 2000 Hz	110 Hz to 283 Hz	110 Hz to 283 Hz	230 Hz to 595 Hz
	Input voltage	up to 1000 V	up to 1000 V	up to 480 V	1000 V	400 V
	Indoor operation	■	■	■	■	■
	Outdoor operation	■	■	■	■	■
	Starpoint reference	Option	Option	■	■	■
	Capacitor monitoring	Option	Option	■	■	■
	Transformer monitoring	Option	■	Option	Option	■
	Dry transformers	Option	Option	Option	Option	■
	Low noise components	Option	Option	Option	Option	■

- Broad range of applications from simple relays to individually parameterised annual time switch
- Option for remote programming
- Also available with radio transmission



Conventional and radio ripple control receivers

Installed more than 15 million times around the globe, the ripple control receivers from Landis+Gyr ensure flawless load control and monitoring on a daily basis. Our receivers are universally usable and can be customised to specific needs thanks to the wide variety of programmable functions, variable relay numbers, and free choice of relay types.

The RCR and Enermet RO ripple control receivers are also available with plug-in data carrier. They are a proven, flexible solution for utility companies using different ripple control systems.

FTU ripple control receivers with integrated ripple control and time switch functions offer unique flexibility. In addition, the FTU actively supports the efforts of utility companies to safeguard the quality of supply by load shedding when the network frequency is low.

FTY ripple control receivers use radio transmission.

Reliable and user-friendly software for parameterisation is available for all ripple control receivers and load switch devices. The desktop and laptop software applications run on the Microsoft Windows operating system.

Hybrid and PLC load switch devices

Our new L740-H hybrid load switch device offers optimal conditions for the smooth, seamless and cost-effective connection of your existing ripple control system to the smart metering system. The Gridstream AIM smart metering solution from Landis+Gyr combines your load management and your smart metering systems into a complete package.

In contrast to the L740-H, the L740-P PLC load switch device supports 2-way power-line technology and is used wherever there is no ripple control system present.

L740

The L740-H hybrid load switch device is a unique migration solution for transitioning from existing ripple control systems to a smart grid.



RO3

RCR161

FTU263

FTY233





**L320 load switch device:
A receiver especially designed for street lighting systems**

The compact design and special mounting options are ideal for street lighting applications. Thanks to its high resistance to atmospheric conditions, the L320 may be installed either inside the light or on the lamp post.

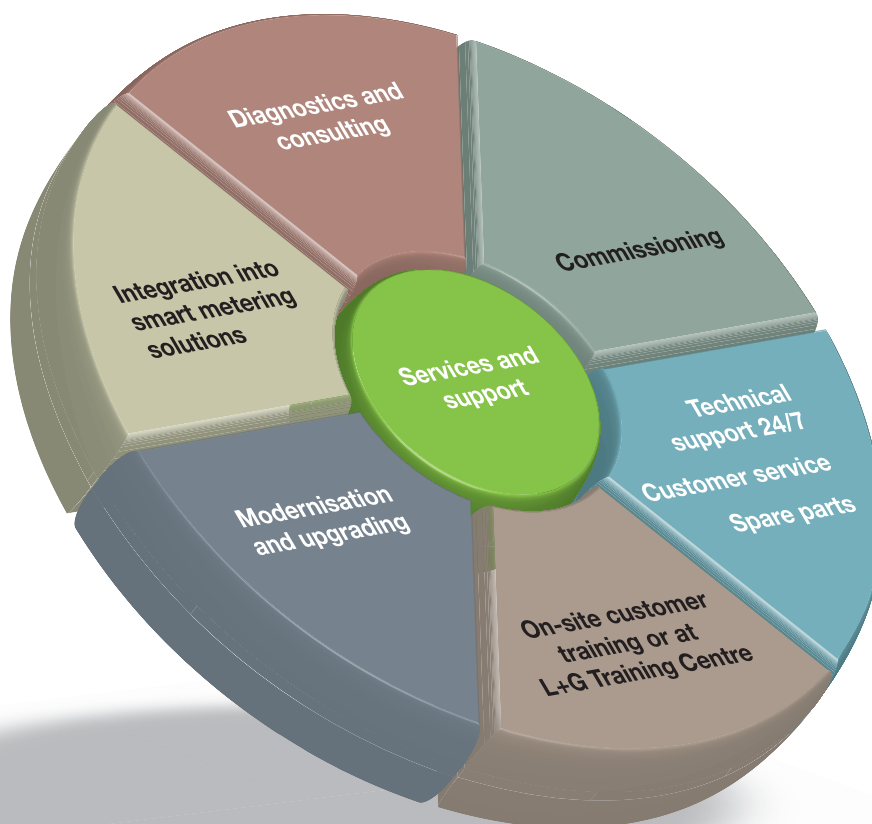
		Ripple receivers				Load switch devices		
		RO	ROR	FTU	FTY (Radio)	L740-H	L740-P	L320
Supported ripple systems	Impulsion Systems (Semagyr, Ricontic, Pulsadis ...)	■	■	■	■	■	■	■
	DECABIT	■	■	■	■	■	■	■
	K22	■	■	■	■	■	■	■
	Semagyr-TOP (remote parameterisation)	■	■	■	■	■	■	■
	Versacom-TOP (remote parameterisation)	■	■	■	■	■	■	■
	PLAN PLC (remote parameterisation)	■	■	■	■	■	■	■
Time programs	8	■	■	■	■	■	■	■
	16	■	■	■	■	■	■	■
	24	■	■	■	■	■	■	■
Optional backup clock	36 hours power reserve, soldered	■	■	■	■	■	■	■
	1 year power reserve, plugged-in	■	■	■	■	■	■	■
Communication	Optical interface	■	■	■	■	■	■	■
	Optional plug-in data medium	■	■	■	■	■	■	■
Functions	Weekly time switch	■	■	■	■	■	■	■
	Smart annual time switch	■	■	■	■	■	■	■
	Summer/wintertime changeover	■	■	■	■	■	■	■
	Astronomical calendar for lighting control	■	■	■	■	■	■	■
	Learning function	■	■	■	■	■	■	■
	Time functions	■	■	■	■	■	■	■
	Signal level memory of last message	■	■	■	■	■	■	■
	Event memory	■	■	■	■	■	■	■
	Relay repetition for tamper protection	■	■	■	■	■	■	■
	Transmitter outage detection (failsafe)	■	■	■	■	■	■	■
	Remote ripple frequency changeover	■	■	■	■	■	■	■
	Low frequency load shedding	■	■	■	■	■	■	■
	Mains monitoring in case of power loss	■	■	■	■	■	■	■
	Relay monitoring	■	■	■	■	■	■	■
	Tamper detection	■	■	■	■	■	■	■
	Firmware download	■	■	■	■	■	■	■
	Remote allocation of customer profiles	■	■	■	■	■	■	■



Focus on your core business

As the most comprehensive and expert supplier of load management systems in the world, we are your trusted partner, ready to assist you with our broad range of consulting, engineering and support services.

Whether your system includes equipment from Landis+Gyr, Siemens, Enermet or one of our competitors, we have the knowledge and experience to maintain, upgrade or modernise every ripple control installation. You can count on our competent staff within the framework of our project management and customer support services. With an open architecture designed to accommodate future requirements and relevant upgrades, we protect your investment and ensure that your ripple control system has a long service life.





Versatile, forward-looking solutions

Our customers benefit from our decades of experience and outstanding expertise in the fields of load management and smart metering.

With 65 years of experience in ripple control systems, a century of experience in the metering business and more than 25 years of involvement with smart metering, we are a recognised solution provider for load management and smart metering. Serving the energy industry has always been our core business. During decades of cooperation with utilities we have gained a unique understanding of business requirements.

We base our knowledge on our first-hand experience, which includes the delivery of more than 3,000 ripple control systems all over the world and the rollout of more than 300 AMM smart metering systems in Europe.

At Landis+Gyr we foster forward thinking and innovation. We keep our eye on the market in order to bring our customers future-proof solutions designed to adapt to industry trends. We are committed to developing our portfolio in order to help you stay ahead of the competition, now and in the future.

As your trusted partner, we look forward to working with you to develop solutions that are a precise fit for your requirements and future plans, in line with our motto ... **manage energy better.**

State-of-the-art technology

Sustainability

Customer focus

Higher energy efficiency

Forward-looking solutions

Integration of renewable energy sources

Innovative spirit

Manage energy better

We deliver peace-of-mind when it comes to managing your energy. Decades of leadership in technology and in-depth knowledge at Landis+Gyr means we are able to offer you an extensive, high quality and proven portfolio.

Obtaining the highest level of energy efficiency has never been easier. We have translated our unique expertise of utility processes into an integrated energy management solution, Gridstream. We can help you streamline your processes, increase customer loyalty and secure revenue. Gridstream packages our AMM offering, meeting your needs today and in the future.

Let us tailor our innovative solutions to meet your specific needs. Whether electricity, water, heat/cold, gas metering or load management, we provide what you need to ensure that your energy is managed with increased precision and reliability.

With Landis+Gyr as your trusted partner, you can manage energy better.

Landis+Gyr in short:

- 5000 employees worldwide
- Operations on all five continents
- Broadest portfolio of products and services in the industry
- 25 years of smart metering experience
- 1000 AMM systems delivered
- 300 million energy meters produced
- Largest relevant engineering capacity in the industry
- 65 years of direct load management experience
- 20 million load management receivers produced
- ISO certified for quality and environmental processes
- World leader in integrated energy management solutions
- Committed to improved energy efficiency and environmental conservation
- Solid and established partner network

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