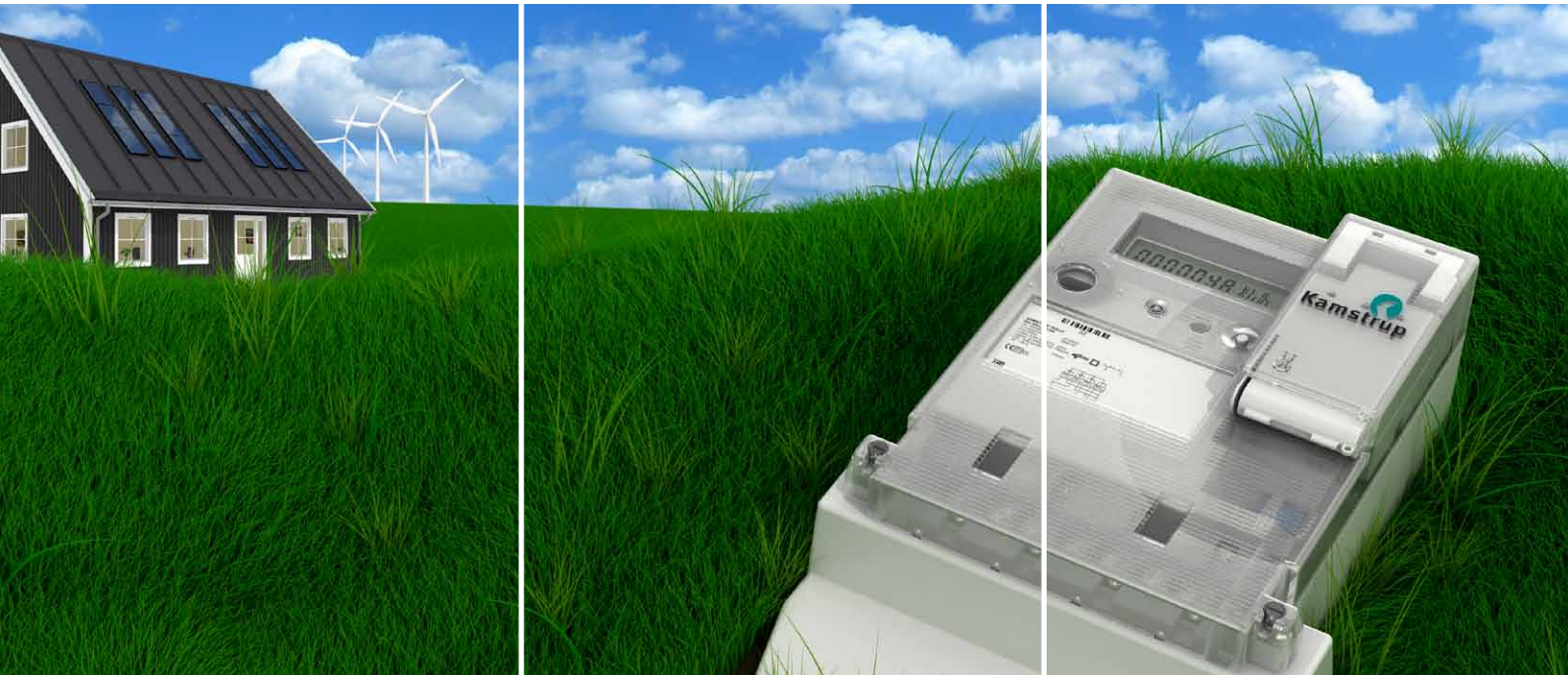


Residential Smart Meters

Smart metering with a green difference



The environmental aspect

The new generation of smart meters from Kamstrup is in all aspects an environmentally sustainable product. With a power consumption of only 0.27 W a Kamstrup meter is a true low-power device. Not only does it hold all the features of a smart meter; it brings considerable reductions in the power consumption of a meter fleet. And it has a low environmental impact – its carbon emission footprint throughout the entire life is lower than the emission of a mobile phone.

Revenue protection

Kamstrup Smart Meters are designed to provide accurate and reliable metering data for exact billing and documentation purposes. Kamstrup Smart Meters provide a remotely controlled prepayment feature allowing power disconnection at a pre-paid maximum level of consumption. The prepayment feature offers an efficient and secure way to manage operational and financial costs.

Ready for Smart Grid

Deploying smart meters is the essential condition for moving towards Smart Grid. Kamstrup Smart Meters deliver all necessary data to take the first steps towards a Smart Grid environment – they supply the data that enables dynamic response to changes in the grid load and to peak fluctuations.





Future-proof with Kamstrup Smart Meters

Improved tampering features

Kamstrup Smart Meters hold comprehensive event loggers with anti-fraud and security features that enable the utility to immediately discover tamper and attempts to physically access the meter. Equally, the meters are immune to external magnetic influence.

Automatic neutral fault detection

The new generation of Kamstrup Smart Meters can be provided with a neutral fault detection feature allowing the power supply to be automatically disconnected to avoid over-voltages or shortcircuits in the household. At the same time an alarm can be sent to the utility identifying the substation and grid-line in which the fault has occurred.

Load control

Load control is an efficient way of managing and controlling the grid load in order to balance production and demand. By remote upload of time-of-use tariffs Kamstrup Smart Meters efficiently support utility load control programs. The utility can implement tariffs that encourage consumers

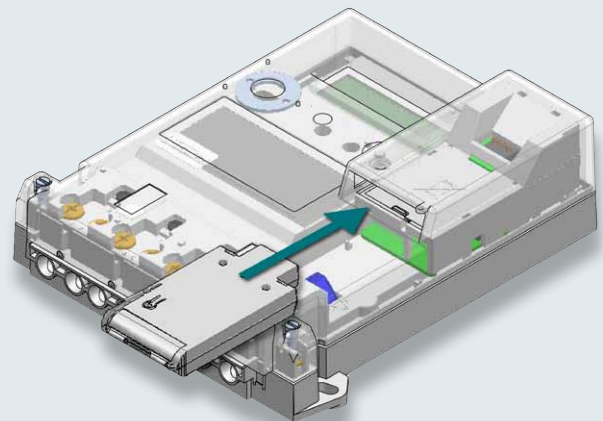
to disconnect part of their consumption during peak load periods. The meters can be supplied with 1 or 2 individual load control relays.

Interoperability

Seamless integration and flexibility are key factors in exploiting the full potential of the fast developing and diversified communication technologies. Kamstrup Smart Meters provide the DLMS/COSEM communication protocol as system integration interface. This assures a standardized interface between the electricity meter and any AMI system supporting this common specification.

Smart Home enabled

Being ready for consumer interaction Kamstrup Smart Meters open the door to the Smart Home.



A module slot for data communication outside the meter seal enables the utility or the consumer to add a communication module and to have consumption data transmitted wirelessly to an in-house display or other communication devices.



Kamstrup 162L



Kamstrup 382L





We meet the requirements

Features	162L	382L
4-quadrant metering Active positive and active negative as well as reactive positive and negative energy.	■	■
Voltage quality Voltage, current and power per phase. Time stamp on power failures on one or more phases. Registration in configurable levels - over voltage and under voltage.	■	■
Disconnection Power supply to consumers can be connected and disconnected remotely.	■	■
Real time clock (RTC) Timestamping of measurements and events provided by a real time clock.	■	■
Magnetic immune The meter is immune to external magnetic influences.	■	■
Tamper Detection and registration of attempts to manipulate the meter installation.	■	■
Communication technology via modules Radio (optional integrated radio communication), GSM, GPRS, M-Bus, Wireless M-Bus, PLC, TCP/IP, WiFi, ZigBee and Z-Wave. Modules can be fitted and retrofitted.	■	■
External module slot Open slot for communication module for wireless communication with Smart Home equipment.	■	■
Analysis log Logs up to 16 different registers at a time from a selection of more than 80 different values.	■	■
Load profile log Configurable in intervals of: 5, 15, 30 or 60 minutes.	■	■
DLMS/COSEM protocol Standard communication protocol for interoperable system integration.	■	■
Smart Metering based prepayment Prepayment function possible. The integrated breaker will disconnect the supply when the acquired kWh's are used.	■	■
Encryption AES128 encryption key securing the meter data transmission.	■	■



Technical Specifications

Meter type	Kamstrup 162L	Kamstrup 382L
		
Connection	Direct/1-phase 2-wire	Direct/3-phase 4-wire
Type tests	Active energy: EN 50470-1 (MID), EN 50470-3 (MID), IEC 62052-11, IEC 62053-21 Reactive energy: IEC 62053-23	
Accuracy class	Class 2 (IEC)/Class A (MID) Class 1 (IEC)/Class B (MID) Class 2 (IEC) (reactive energy)	
Current range	Without breaker: 5(65)A, 10(60)A, 5(85)A, 10(85)A With breaker: 5(65)A, 10(60)A, 5(85)A, 10(85)A	Without breaker: 5(65)A, 10(60)A, 5(85)A, 10(85)A, 5(105)A With breaker: 5(65)A, 10(60)A, 5(85)A, 10(85)A
Ref. voltage/frequency	230 V – 50/60 Hz	3 x 230/400 V – 50/60 Hz
Measurement values	A+, A-, R+, R-, power per phase, RMS voltage and RMS current per phase	
Temperature range	Operation: -40°C to +70°C – Storage and transport: -40°C to +85°C	
Protection class	IP52	
Power consumption	Current circuit 0.01 VA Without breaker: 0.27 W per phase With breaker: 0.45 W per phase	Current circuit 0.01 VA Without breaker: 0.27 W per phase With breaker: 0.45 W per phase
Voltage quality log	Over and under voltage, max. and min. voltage, power outage, up to 200 loggings	
Data logging	In intervals of 5, 15, 30 or 60 minutes	
Log for events, tamper and magnetic disturbance	Status event logger 200 loggings RTC event logger 200 loggings	
Time of use metering	Up to 8 tariffs	
Measurement principle	Current measurements via shunt	Current measurements via shunt per phase
Standards	Terminals according to DIN 43857 SO pulse output according to DIN 43864 Optical reading according to DLMS/COSEM OBIS codes according to IEC 62056-61	