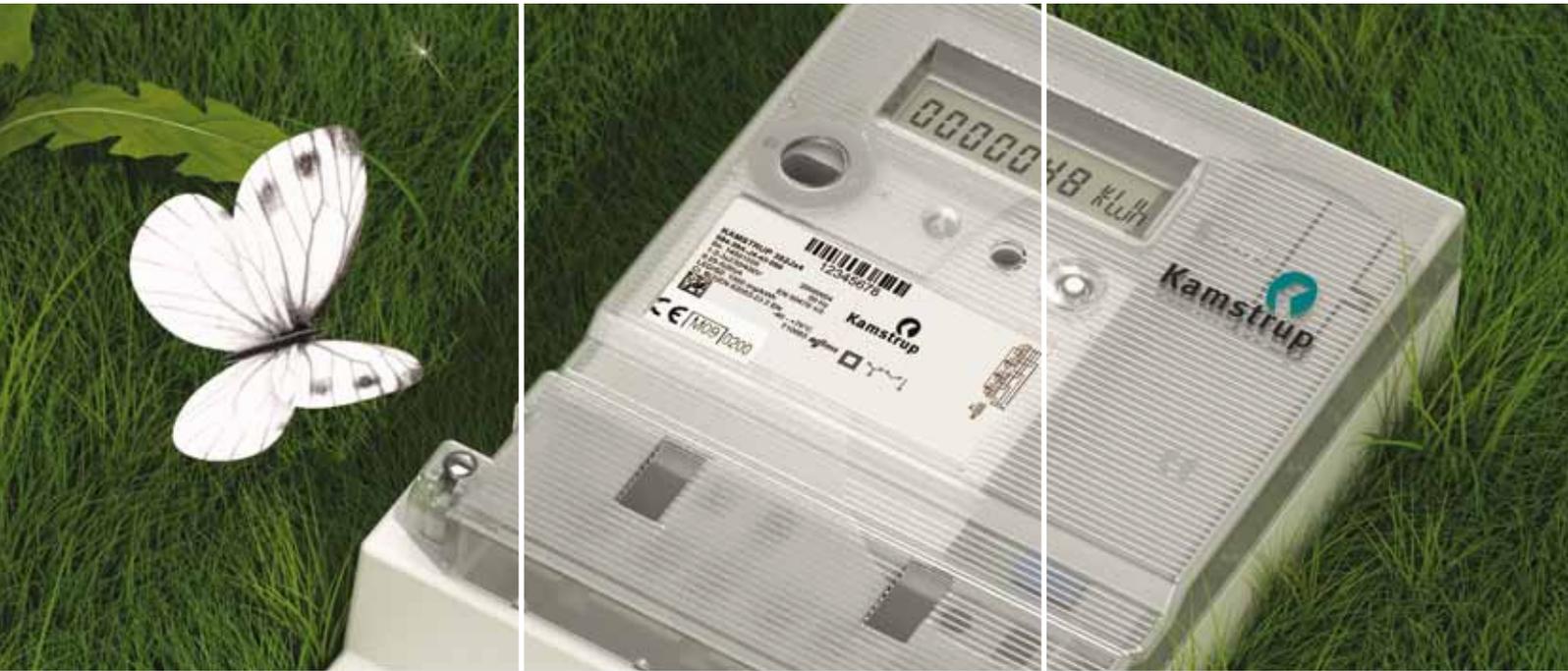


# Residential Electricity Meters



Smart metering with a green difference



## Power Savings

The new generation of electricity meters from Kamstrup takes power savings to a higher level. With a power consumption of only 0.6 W a Kamstrup electricity 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. This truly green difference brings cost savings throughout the life-time of an electricity meter and supports the requirements for energy savings.

## Revenue protection

Looking for added value and ways to safeguard your revenue? Unauthorized attempts to access a Kamstrup meter are instantly discovered; smart disconnect allows shutdown at a preprogrammed maximum level and when integrated in an AMR/AMM system the meter allows prepayment functionality – all features which improve and streamline customer services whilst protecting revenue.

## Interoperability

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





## Kamstrup 162, 282, 382 and 382 DIN – electricity metering of the future

**Kamstrup electricity meters** are high-end electronic meters equipped with a wide range of communication technologies.

Unlike other makes a Kamstrup residential meter comes in three basic versions. New functionality is added simply by adding modules or upgrading software remotely. This "one version fits all installations" philosophy brings logistic ease and guarantees a future-proof investment.

All meters can be used as stand-alone meters. Consumption on each individual phase as well as accumulated consumption can be read in the

display and via optical interface. As standard all meter types offer real-time load profile generation for all 4 quadrants, voltage quality measurements and logging of events, tamper and magnetic disturbance.

The same versions can be used in automated metering systems for billing, analysis, management and smart metering like home automation control. Kamstrup meters communicate over wired link as well as wireless, being high-power radio, GSM, GPRS, Wireless M-Bus, WiFi, ZigBee and Z-Wave.



**Kamstrup 162**



**Kamstrup 282**



**Kamstrup 382**



**Kamstrup 382 DIN**



## We meet the requirements

Features	162	282	382	382 DIN
<p><b>4-quadrant Metering</b></p> <p>Active positive and active negative as well as reactive positive and negative energy.</p>	■	■	■	■
<p><b>Voltage Quality</b></p> <p>Voltage, current and power per phase. Time stamp on power failures on one or more phases. Registration of overvoltage and undervoltage.</p>	■	■	■	■
<p><b>Disconnection</b></p> <p>Power supply to consumers can be connected and disconnected remotely.</p>	■	■	■	
<p><b>Real Time Clock (RTC)</b></p> <p>Timestamping of measurements and events provided by a real time clock.</p>	■	■	■	■
<p><b>Magnetic Immune</b></p> <p>The meter is immune to external magnetic influences.</p>	■	■	■	■
<p><b>Tamper</b></p> <p>Recognition and registration of attempt to manipulate.</p>	■	■	■	
<p><b>Communication Technology via Modules</b></p> <p>RF, GSM, GPRS, M-Bus, Wireless M-Bus, PLC, TCP/IP, WiFi, ZigBee and Z-Wave. The Modules can be fitted and retrofitted.</p>	■	■	■	■
<p><b>DLMS/COSEM Protocol</b></p> <p>Data collection protocol as system integration interface.</p>	■	■	■	■
<p><b>AMR-based Prepayment</b></p> <p>Prepayment function possible. An integrated breaker will cut off the supply when the preprogrammable kWh's are used.</p>	■	■	■	



## Technical Specifications

Meter type	Kamstrup 162	Kamstrup 282	Kamstrup 382	Kamstrup 382 DIN
				
<b>Connection</b>	Direct/1-phase 2-wire	Direct/3-phase 3-wire	Direct/3-phase 4-wire	Direct/3-phase 4 wire
<b>Type Tests</b>	Active energy: EN 50470-1 (MID), EN 50470-3 (MID), IEC 62052-11, IEC 62053-21 Reactive energy: IEC 62053-23			
<b>Accuracy Class</b>	Class 2 (IEC)/Class A (MID) Class 1 (IEC)/Class B (MID) Class 2 (IEC) (reactive energy)			
<b>Current Range</b>	5(65)A 10(60)A 5(85)A 10(85A)	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	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	5(65)A 10(60)A 10(85)A 5(85)A
<b>Ref. Voltage/Frequency</b>	230 V – 50/60 Hz	3 x 230 V – 50/60 Hz	3 x 230/400 V – 50/60 Hz	3 x 230/400 V – 50/60 Hz
<b>Measurement Values</b>	A+, A-, R+, R- – Voltage and current per phase, load, acc. energy, RMS voltage, RMS current			
<b>Temperature Range</b>	Spec. operating range -40°C - + 70°C – Limit range for storage and transport -40°C - + 85°C			
<b>Protection Class</b>	IP52			
<b>Power Consumption</b>	Current circuit 0.01 VA  Without breaker: 0.2 W per phase  With breaker: 0.45 W per phase	Current circuit 0.01 VA  Without breaker: 0.2 W per phase  With breaker: 0.45 W per phase	Current circuit 0.01 VA  Without breaker: 0.2 W per phase  With breaker: 0.45 W per phase	Current circuit 0.01 VA  0.2 W per phase
<b>Voltage Quality Log</b>	Voltage, max. and min voltage, power outage, sag & swell			
<b>Data Logging</b>	In intervals of 5, 15, 30 or 60 min			
<b>Log for Events, Tamper and magnetic Disturbance</b>	Status event logger 200 loggings RTC event logger 200 loggings Voltage quality logger 200 loggings			
<b>Time of Usage Metering</b>	Up to 8 tariffs			
<b>Measurement Principle</b>	Current measurements via shunt	Single-phase current measurements via shunt	Single-phase current measurements via shunt	Single-phase current measurements via shunt
<b>Standards</b>	Terminal according to DIN 43857 S0 pulse output according to DIN 43864 Optical reading according to DLMS/COSEM OBIS codes according to IEC 62056-61			