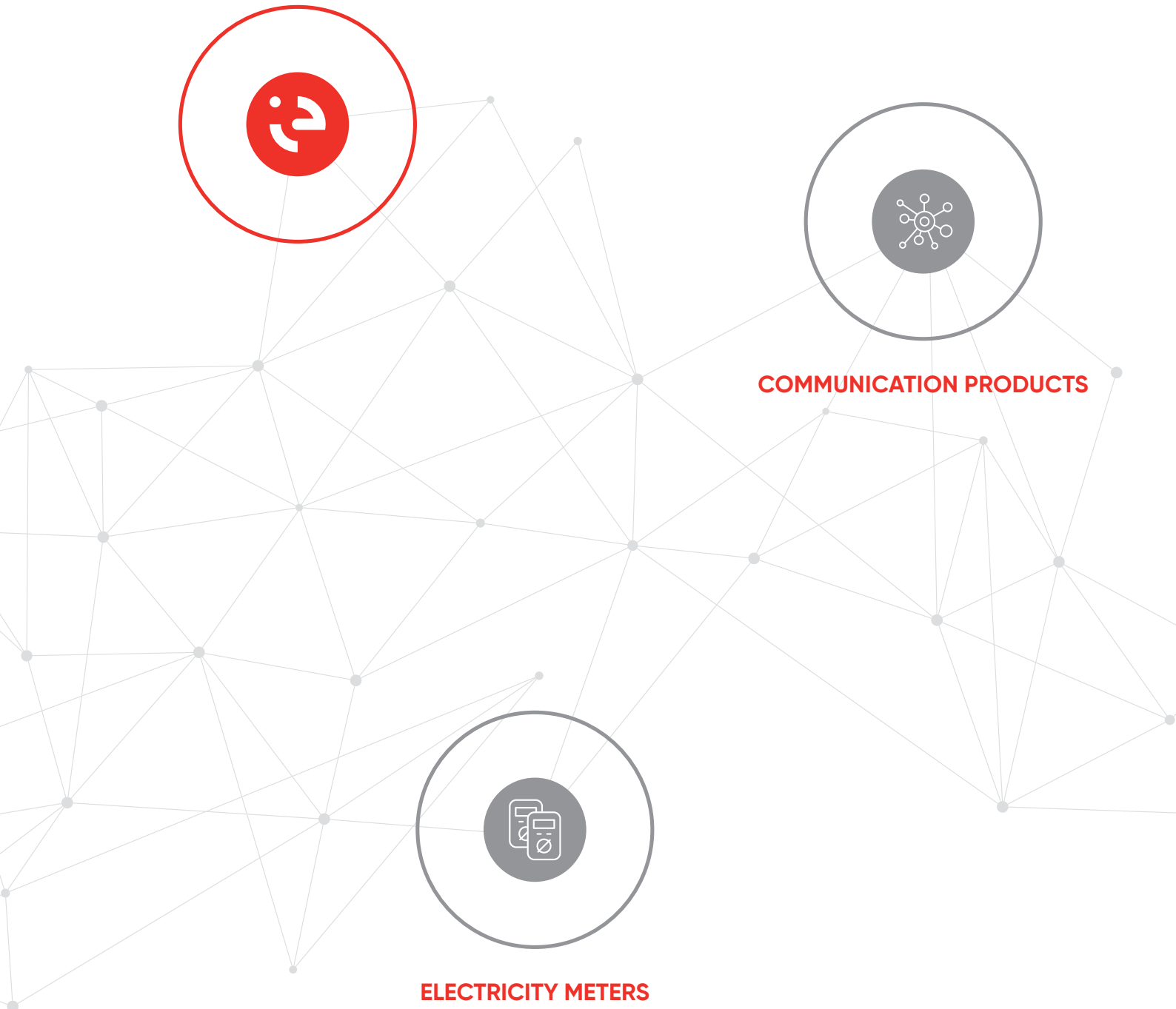
iskraemeco
BY ELSEWEDY ELECTRIC

CATALOGUE.

SMART ENERGY PRODUCT PORTFOLIO



COMMUNICATION PRODUCTS

ELECTRICITY METERS

SERVICES

SOFTWARE PRODUCTS

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TRANSFORMING VALUABLE EXPERIENCES INTO QUALITY PRODUCTS AND SERVICES.

Iskraemeco is one of the world's leading providers of smart metering solutions. Its employees have been transforming valuable experience, innovation and a sound understanding of our customers' needs into comprehensive energy management solutions.

For more than seven decades, Iskraemeco has been delivering quality products, solutions and services that make efficient energy use a reality for utilities worldwide. Our robust portfolio of smart metering solutions enables us to predict future needs for efficient energy management. Based on digitized IoT solutions, our products and services provide utilities with the data they need to manage energy consumption, anticipate demand and optimize costs. They also help consumers to act more sustainably while significantly reducing their energy bills.

Iskraemeco aims to revolutionize sustainability practices in the electronics industry. With a fully transparent supply chain and a strong commitment to solving the electronics industry's most pressing issues - energy intensity, material scarcity, unfair labor conditions, use of conflict minerals and e-waste - we are laying the foundation for a fair smart grid.

Our products and services, which include a good grasp of our customers' requirement to provide long-term, sustainable solutions. Our strong commitment towards energy efficiency encourages environmentally friendly management of natural resources. Iskraemeco's interoperable products are a timeless solution that enables utilities to fully focus on building a better future for their customers.

With electricity meters addressing diverse market needs, a variety of communication tools, software for meter data management and comprehensive services, we help energy companies shape the future of power generation and management. Our comprehensive range of smart products takes you one step further towards a smarter generation and management of power grids.

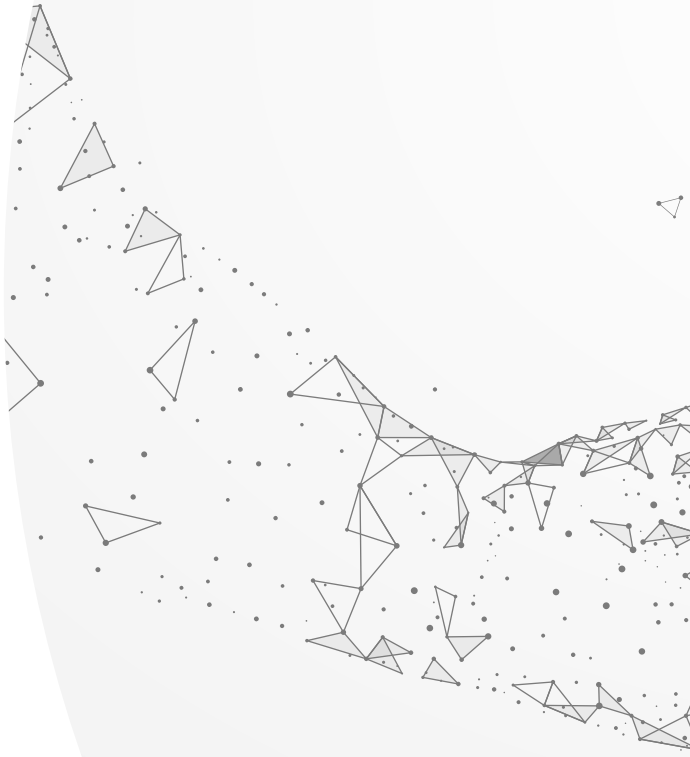
Iskraemeco has joined the Elsewedy Electric Group, which aims to envision a smarter and more energy-efficient future. This driving force binds the two companies in their energy ventures and in their shared passion for progress and enhancement. It has provided us with a valuable business partner and numerous opportunities for growth and development. As a result, we are constantly united in seeking the opportunities to expand our expertise in existing and emerging markets.

SMART SOLUTIONS, SMARTER SERVICES, BRILLIANT BUSINESS – ISKRAEMECO.

As one of the leading metering solutions providers, our aim is to provide energy companies with products and services that help them overcome the challenges that lie ahead. Iskraemeco is committed to delivering a portfolio of high-quality, customized solutions and products.

ELECTRICITY METERS.

A wide array of advanced products can all be connected to digital networks and applications. Whether they are intended for residential or industrial environments, smart or prepayment products, customized or turnkey solutions - our diversified portfolio was built to last.



COMMUNICATION PRODUCTS.

Smart meters in modernized utility grids of the future are just the beginning. The data they collect must then be transmitted to a central exchange as quickly, accurately and securely as possible. Iskraemeco's tools transform data into meaningful communication.

SERVICES.

Iskraemeco's rich portfolio of services supports you every step of the way. Our expert team specializes in design, deployment, maintenance and major upgrades. With us as your partner, your infrastructure transforms into the powerful tool you need to focus on what you do best.

ELECTRICITY METERS.

Advanced energy meters are perfectly suited for smart grid applications. They offer feature-rich design and the ultimate balance of performance, efficiency and reliability, fully tailored to our customers' needs.

Our expertise allows us to offer premium quality that guarantees products and services that are built to last. The robust selection of electricity meters includes: advanced residential, smart residential, industrial and commercial, and grid meters. As well as offering a range of smart prepayment and residential meters that feature the highest accuracy and precision.

Iskraemeco's customers always come first. That is why we strive to tailor our products and services to each market with its specific requirements. By looking for new opportunities to expand our expertise in existing and emerging markets. As a result of these efforts, we are now able to offer a selection of 'LEAN' meters exclusively for the German market and look forward to further expansion.

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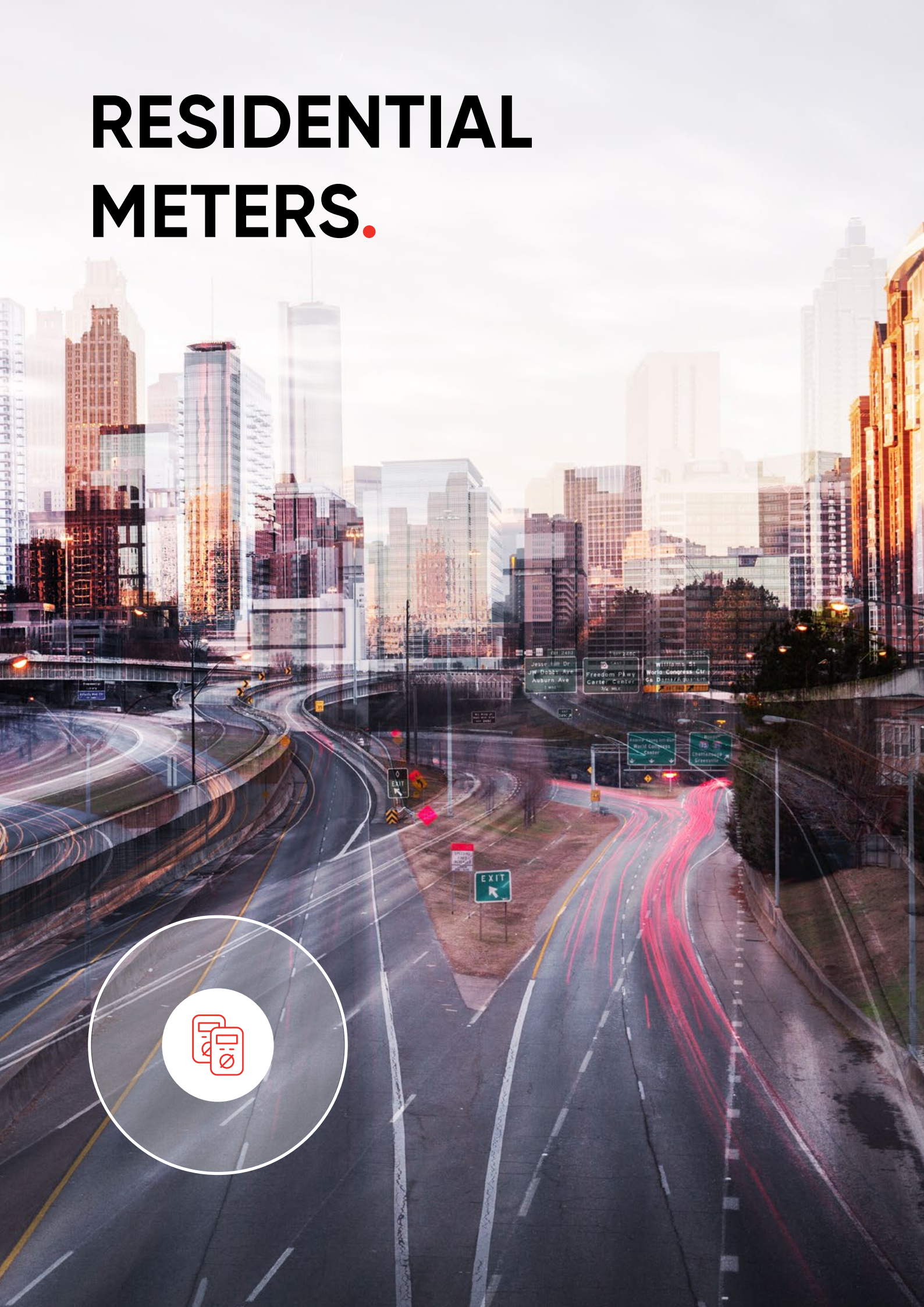
RESIDENTIAL METERS.



Residential and small commercial environments need to have accurate energy measurement, so Iskraemeco's electricity meters are intended for this purpose.

By offering advanced functionalities, enhanced operations and an expanded set of security mechanisms that successfully tackle theft and meter tampering attempts. Through independent communication interfaces for customers and service providers with advanced encryption and authentication methods provide the highest possible security for valuable metering data. Residential meters provide excellent data management functions and are able to record a large number of measuring data.

Despite the rapid development and shift in demand towards the smart metering segment, household meters remain an important part of our offering. Therefore, we will continue to supply high quality meters that meet customers` requirements.

As we address future challenges, we ensure to provide:

Interoperable smart meters that provide real insurance against stranded smart metering investments. Built with solutions that are cost-optimized for mass deployment yet with the necessary flexibility needed through specific software applications.

Whether wired or wireless, directly connected or connected to a transformer, our broad portfolio of smart meters covers diverse types of application topologies and provides independent interfaces for different market players.

By leveraging multi-energy management, smart meters can act as a communication gateway to interact with and collect data from other energy meters (gas, water, heat), resulting in lower operating costs.

ME172

SINGLE PHASE MULTIFUNCTION METER.

The compactly designed ME172 single phase meter is made to increase your revenues through high anti-fraud protection and fully customized metering functionalities.

FEATURES

- Extensive anti-tampering package.
- Import/export energy management.
- Photovoltaic ready design.
- No-power LCD reading.
- Extended load profile.
- Up to four internal tariffs.
- RS485 communication interface.

KEY BENEFITS

- Only positive energy output measurement option.
- Single-wire measurement.
- On-site meter configuration.
- Multiple event logs with energy fraud registers.
- Registration of manipulation attempts.
- High immunity against strong magnet fields.
- Communication via an optical or RS485 port.
- Up to four external tariff changeovers.
- Maximum demand measurement.
- Neutral line energy measurement.

			ME172-D1 DIN	ME172-D3 DIN
TYPE OVERVIEW				
Network	Low voltage		•	•
Connection type	1P2W		•	•
Communication	RS485		•	•
	Optical port		•	•
TECHNICAL SPECIFICATIONS				
Nominal voltage Un			230 V	
Voltage range			0.8 – 1.15 Un	
Current	Base current	Ib	5 A	
	Maximal current	Imax	85 A	100 A
	Minimum current	Imin	0,25 A	
Accuracy class	Active energy		Class 2 or Class 1 (IEC 62053-21 or -23) B or A (EN 50470 - 3)	
Temperature ranges (IEC 62052-11)	Operation		-40°C ... +80°C	
	Storage		-40°C ... +85°C	
Frequency Range			50Hz, 60Hz	
Ingress protection IEC 60529			IP54	

MT174

POLYPHASE MULTI-TARIFF METER.

A polyphase multi-tariff meter with a future-proof design, the MT174 is ready to meet diverse customer requirements.

A high-quality manufacturing process enables the meter to deliver the performance expected in residential and small commercial environments.

FEATURES

- Extensive anti-tampering package.
- Photovoltaic ready design.
- RS485 communication interface.
- Up to four internal tariffs.
- Up to four external tariff changeovers.
- Extended load profile.

KEY BENEFITS

- Communication via an optical or RS485 port.
- Measurement of instantaneous voltage, current, power, and power factor.
- On-site meter configuration.
- Neutral line energy measurement.
- Up to four external tariff changeovers.
- Sleeping (passive) tariff program.
- High immunity against strong magnetic fields.
- Multiple event logs with energy fraud registers.
- Effective network quality management.
- Energy loss detection.
- Two extensive load profiles.
- Registration of manipulation attempts.
- No-power reading option.
- Maximum demand measurement.
- Sleeping (passive) tariff program.

			MT174-D1 DIN	MT174-D2 DIN	MT174-T1 DIN
TYPE OVERVIEW					
Network	Low voltage		•	•	•
Connection type	3P2W		•	•	
	3P3W		•	•	
	3P4W		•	•	•
Communication	RS485		•	•	•
	Optical port		•	•	•
TECHNICAL SPECIFICATIONS					
Nominal voltage Un			120 V, 3×120, 3×230/400 V, 3×230 V, 230 V, 3×400V		3×230/400 V, 3x230 V
Voltage range			0.8 – 1.15 Un		
Current	Base current	Ib, In	5 A or 10 A		1 A
	Starting current	Ist	5 A => Class 2: 0.025 A, Class 1: 0.02 A 10 A => Class 2: 0.05 A, Class 1: 0.04 A		2mA
	Maximal current	Imax	85 A, 120 A		6 A
Accuracy class	Active energy		Class 2 or Class 1 (IEC 62053-21 or -23) A or B (EN 50470 - 3)		
	Reactive energy		Class 3 or Class 2		
	Apparent energy		Class 3 or Class 2		
Real-time clock	Accuracy		Better than ±3 min/year at 23°C		
	Back-up power supply		Li battery : 5 years, life time up to 20 years		
Temperature ranges (IEC 62052-11)	Operation		-40°C ... +70°C		
	Storage		-40°C ... +80°C		
Ingress protection IEC 60529			IP54		

ME162

SINGLE PHASE ELECTRONIC METER.

The ME162 electronic single-phase meters are designed for measurement and registration of active energy in a single phase two-wired networks for direct connection. The metering and technical properties of the meters comply with the EN 50470-1 and EN 50470-3 European standards, classes B and A, as well as with the IEC 62053-21 and IEC 62052-11 (former IEC 61036). A built-in time switch complies with the IEC 62054-21and IEC 62052-21 standards. The meter enables energy registration in up to four tariffs, and is designed and manufactured in compliance with ISO 9001.

FEATURES

- Internal clock.
- Energy measurement: unidirectional or bidirectional energy flow, absolute energy measurement.
- One or two energy flow directions.
- Impulse output (tariff output on request).
- Scroll key.

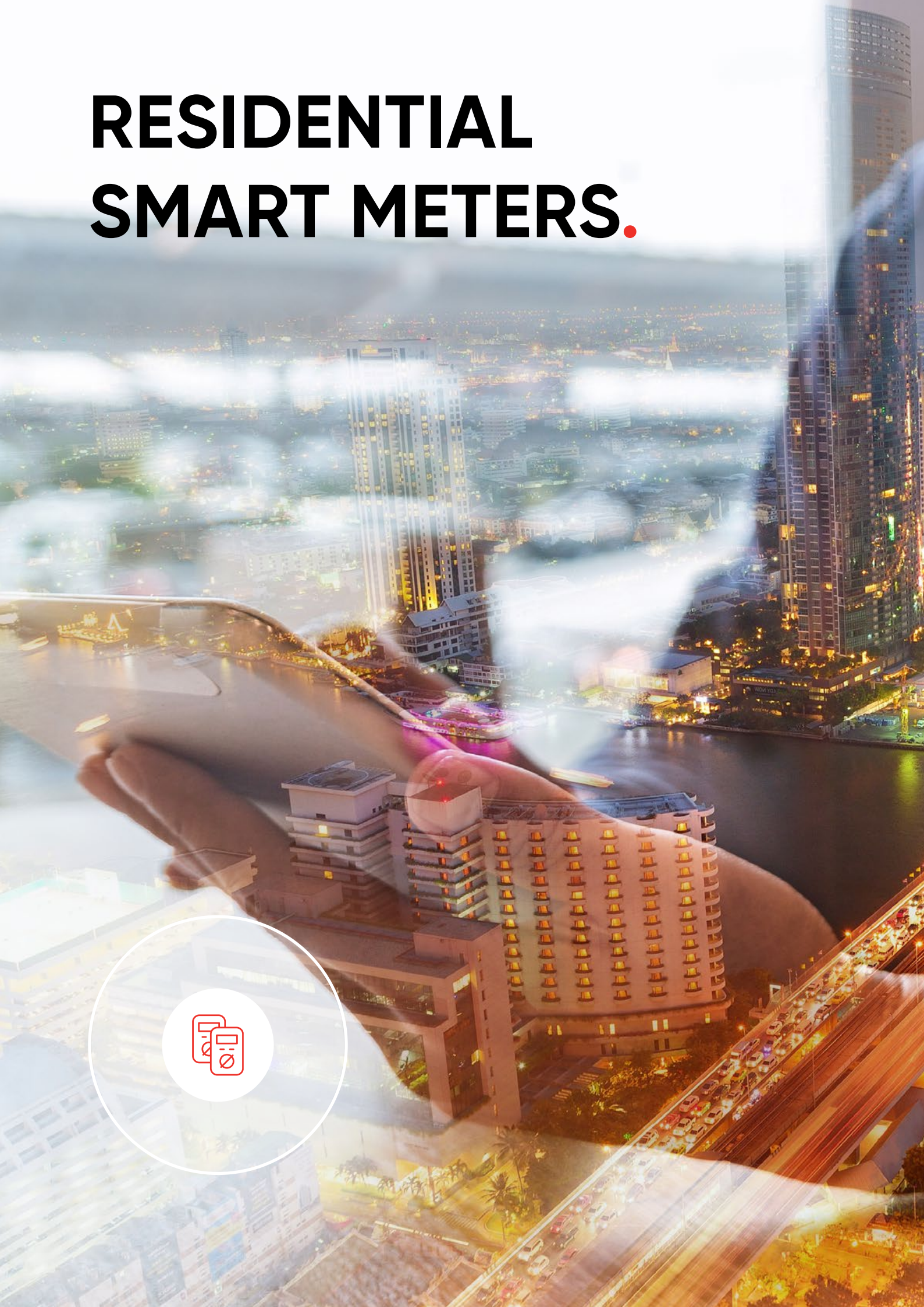
KEY BENEFITS

- Data display on LCD in no-voltage state (optional).
- LCD backlight (option).
- Optical port for local data downloading and meter programming.
- Compact design.
- Active energy.
- Internal time switch.
- Impulse output (tariff output on request).
- CS Interface.

ME162
single phase electronic meter

TECHNICAL SPECIFICATIONS				
Network			1P2W	
Connection type			DIN, BS	
Nominal voltage Un			120, 220, 230, 240 V	
Voltage range			0.8 - 1.15 Un	
Current	Base current	Ib	5, 10, 20 A	
	Maximal current	Imax	85 A (DIN meters)	100 A (BS meters)
	Minimum current	Ib	5 A	
Accuracy class	Active energy		Class 2 or 1 (IEC 62053-21) B or A (EN 50470-1)	
Temperature range (EN 50470-1)	Operation		-25°C to +60°C	
	Storage		-40°C to +85°C	
Frequency range			50 Hz, 60 Hz	
Ingress protection of dust and water			IP53	

RESIDENTIAL SMART METERS.



True interoperable smart meters with open choices for future issues, are a real insurance against stranded smart metering investments We are more than ready to secure your assets through interoperability and prepare you for future smart grid requirements with IDIS.

A comprehensive smart portfolio for smart applications.

Our extensive smart portfolio encompasses a wide range of application configurations and provides independent interfaces for diverse market participants, whether wired or wireless, directly connected or transformer linked.

Iskraemeco's interoperable solutions are cost-efficient for mass deployment while also allowing for future business models to be accessed via specialized software applications. By linking to other energy meters (gas, water, and heat) and collecting their data, smart electricity meters can operate as a communication gateway, reducing operating costs.

Independent communication interfaces for customers and service providers as well as up-to-date encryption and authentication mechanisms ensure the highest level of security for vital metering data.

Smart, interoperable devices secure your assets while also meeting smart grid needs in the future. Our comprehensive smart portfolio spans a wide range of application topologies and ensures the greatest level of security for critical metering data. At the same time, it opens the door to a significant number of smart applications using the intelligent technology features of innovative metering devices.

AM550

MODULAR ELECTRICITY METER.

Iskraemeco's AM550 smart meter with an innovative platform approach enables seamless integration of smart metering functions into the smart grid. It is optimized for smart residential and mid-size commercial environments and ensures maximum flexibility.

FEATURES

- Universal standardized transparent pass-through communication interface.
- Optimized new metrology base with a powerful “Measure Everything” measuring concept.
- Modular communication on WAN (P3) and HAN (P1) levels.
- Firmware upgradeability of communication modules (P3 port).
- Backward compatible PLC modules.
- Flexible memory capacity availability.
- Extended set of embedded Smart Grid functions.
- Integrated high-level security mechanisms.
- Flexible set of input/output options.
- Sub-metering support and data forwarding over various HAN and WAN communication paths.

KEY BENEFITS

- Future proof platform.
- Optimized new metrology base with a power-full “Measure Everything” measuring concept
- FW upgradeability of meter communication modules.
- Sub-metering support and data forwarding over various HAN and WAN communication paths.
- Fair meter approach (high level of recyclability)
- Modular communication on WAN interface.
- Universal standardized transparent pass-through communication interface.
- Modular communication on the customer interface.
- Extended set of embedded Smart Grid functions.
- Integrated high-level security mechanisms.
- Modular set of input/output options.

			AM550-E	AM550-T	
			Direct connected	Direct connected	Current transformer connected
TYPE OVERVIEW					
Network	Low voltage		•	•	
Connection type	1P2W		•		
	3P4W			• Can be connected as 1Ph or 2Ph meter	•
Communication	WAN		PLC (G3PLC), Point-to-point (2G/4G, 2G/3G/4G, 2G/LTE-M/NB-IoT), Ethernet, RS485		
	Customer port		DSMR5 compliant; active or passive with RJ12 connector type		
	Multiutility		M-Bus; wired and wireless		
	Local communication		Optical port		
TECHNICAL SPECIFICATIONS					
Nominal voltage			230 V	3 x 230/400 V	
Voltage range			0.8 – 1.15 Un		
Current range	Base current	Ib	5 A or 10 A	5 A, 10 A or 20 A	1 A
	Maximal current	Imax	60 A, 85 A and 100 A	60 A , 85 A, 100 A or 120 A	10 A
Accuracy class	Active energy		Class 1 (IEC 62053-21) or B (EN 50470 - 3, EN 50470 - 1)		Class 0.5 (IEC 62053-21) or C (EN 50470 - 3, EN 50470 - 1)
	Reactive energy		Class 2 (IEC 62053-23)		Class 1 (IEC 62053-23)
	Apparent energy		Calibrated up to 3%		Calibrated up to 2%
Temperature ranges (IEC 62052 - 11)	Operation		-40 °C ... +70 °C		
	Storage		-40 °C ... +80 °C		
Ingress protection IEC 60529			IP 54		

ME260

SMART RESIDENTIAL METER.

Iskraemeco's next generation smart meters are deployed for the smart residential consumer/prosumer. The best-in-class design, cost-efficient, reliable and secure communication and the intelligent 'Measure Everything' innovative platform, enables a seamless integration of smart metering functions into the smart grid and assures maximum flexibility.

FEATURES

- Future proof platform.
- Last Gasp and First Breath.
- Universal standardized transparent pass-through communication interface.
- Communication according to IS 15959 -1 and IS 15959 – 2
- Extended set of embedded Smart Grid functions.
- Compliance with IS 16444.
- Support of both prepayment and post payment mode.
- Extended load profile and maximum demand measurement.
- Front mounted communications module for easy access.
- Solid anti-tamper features.
- Four quadrant metering with import/export registration.
- ESD compliance at factory.
- Passes through highest reliability standard with HALT/ALT and HASS.

KEY BENEFITS

- Modular communication to support different WAN/NAN modules (RF, 2G/3G/4G, NBIoT).
- Integrated high-level security mechanism.
- Remote firmware upgradeability of meter.
- Push alarms for real-time monitoring and intervention.

			ME260
TECHNICAL SPECIFICATIONS			
Network			Low voltage
Connection type			1P2W
Communication			Local - Optical port
Nominal voltage Un			240 V, -40% to +20%
Voltage range			0.8 - 1.15 Un
Current	Base current	Ib	5, 10 A
	Maximal current	Imax	60, 100 A
Accuracy class			Active Class 1 (IS 16444), Reactive class 2
Temperature range	Operation		-10 °C to +60 °C
	Storage		-25 °C to 70 °C
Ingress protection			IP51

MT260

SMART RESIDENTIAL METER.

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FEATURES

- Future proof platform.
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- Communication according to IS 15959 -1 and IS 15959 – 2
- Extended set of embedded Smart Grid functions.
- Compliance with IS 16444.
- Support of both prepayment and post payment mode.
- Extended load profile and maximum demand measurement.
- Front mounted communication module for easy access
- Stringent anti-tamper features
- Four quadrant metering with import/export registration

KEY BENEFITS

- Modular communication to support different WAN/NAN modules (RF, 2G/3G/4G, NBIoT).
- Integrated high-level security mechanism.
- Remote firmware upgradeability of meter.
- Push alarms for real-time monitoring and intervention.
- Hot swappable with all kinds of COMs.
- 10+ years of life.
- Dual relay.
- Metrology on both phase and neutral.
- Minimal Total Cost of Ownership.

			MT260
TECHNICAL SPECIFICATIONS			
Network			Low voltage
Connection type			3P4W
Communication			Local - Optical port
Nominal voltage Un			240 V, -40% to +20%
Voltage range			0.8 - 1.15 Un
Current	Base current	Ib	5, 10 A
	Maximal current	Imax	60, 100 A
Accuracy class			Active Class 1 (IS 16444), Reactive class 2
Temperature range	Operation		-10 °C to +60 °C
	Storage		-25 °C to 70 °C
Ingress protection			IP51

C&I + GRID METERS.

The architecture of Iskraemeco C&I and Grid applications includes monitoring mechanisms that provide stable and reliable measuring data and a detailed snapshot of power consumption and power quality. An integrated power quality monitoring solution and seamless SCADA connectivity allows users to make power quality decisions quickly and effectively. A solution that opens the door to future engagements through the modularity of communications, and flexibility are a "must have" when it comes to smart and future-proof investments.

Iskraemeco C&I and Grid applications are designed to enable high communication modularity, allowing easy module exchange at any time. A smart investment that solves tomorrow's challenges, with up to four independent communication interfaces and the ability to store enormous amounts of data, is making our C&I and Grid portfolio ready for the future by increasing communication requirements of the smart grid market and the trend towards distributed generation.

MT880

HIGH PRECISION MODULAR METER.

Iskraemeco's leading edge meter - MT880 is a multi-functional precision meter designed for large and mid-sized commercial, industrial and grid applications. The meter provides exceptional state-of-the-art measurement in terms of accuracy, precision, and dependability. With detailed power quality measurement as well enhancement of the grid capabilities. MT880 is as well compliant with the safety standard IEC/EN 62052-31.

GET THE SOLUTIONS YOU NEED:

Outage Management solution

To minimize losses and power outages, our solution offers near realtime information about network conditions, like alarms, extraordinary events, and other status reports, from as many points as possible (households, feeders, and transformer stations) to distribution and grid personnel. Combining the data of all smart meters from many consumers gives you deep insights into the network's operation.

Balancing solution

To balance electricity, distribution and grid operators need to monitor an array of network status indicators for operators. Iskraemeco meters feature the edge-computing oriented indicators and all data from meters are then transmitted to the upper system. Analyzing such indicators helps improve the grid balance and therefore cut total operational costs. All data from the meters are further transmitted to the upper system, where data analysis is performed and KPIs are evaluated.

Power quality capabilities

- **Slow Voltage Variation Indicator:** presenting RMS voltage value behavior.
- **Voltage Distortion Indicator:** the maximum voltage THD value within the measured period.
- **Voltage Unbalance Indicator:** the imbalance is calculated by measuring phase voltages and phase angles.
- **Voltage Fluctuations Indicator:** long term and short-term flicker severity is calculated, as specified in the IEC 61000-4-15 standard.

			MT880-T1 Indirect connection (CT, CT/VT)
TYPE OVERVIEW			
Network	High voltage		
	Medium voltage		•
	Low voltage		•
Connection type	3P4W		•
	3P3W		•
	3P3W (two systems)		•
Communication type – on board			RS485
Communication type – module (Each communication module has an additional RS485 interface)			2G/4G (With Last Gasp), MODBUS TCP/IP & RTU, Ethernet, LMN, CS – Current source (current loop)
TECHNICAL SPECIFICATIONS			
Nominal voltage Un			3x57,7/100 V – 3x290/500 V
Voltage range			0.8 – 1.15 Un
Reference Frequency			50 Hz ±2% or 60Hz ±2%
Current	Nominal current	In	1 A, 1.5 A, 2 A, 5 A
	Base current	Ib	–
	Maximal current	Imax	Version 1: 6 A, 10 A Version 2: 20 A (In = 5 A)
Accuracy class	Active energy		A, B or C (EN 50470 - 3, EN 50470-1), Class 1 (IEC62053 - 21), Class 0.2s & 0.5s (IEC 62053 – 22)
	Reactive energy		Class 0.5s & Class 1s (IEC 62053 – 24), Class 2 (IEC 62053-23)
	Apparent energy		Calibrated up to 1%
Temperature ranges (IEC 62052 - 11)	Operation		-40 °C ... +70 °C
	Storage		-40 °C ... +85 °C
Ingress protection IEC 60529			IP 54

IE.X: NEXT GENERATION eIoT METERS.

A NEW FUTURISTIC TECHNOLOGY.

In order to stay up to date with market demands, Iskraemeco introduces the new IE.X Generation: The ever-changing trends keep evolving and have out-ran the basic requirements of AMI as a whole.

Iskraemeco's new eIoT metering platform offers a promising transition in the energy sector, i.e. generation, transmission and distribution, and consumption. The platform has a significant impact on the future of metering systems and supports all modern IoT solutions for the energy sector in the context of the smart digital grid and building smart cities and societies with a focus on sustainable development. The extraordinary IE.X generation has brought a variety of promising benefits to our utility customers to enhance the end-consumer's everyday energy needs.

The platform is designed through a modular and scalable firmware architecture to optimize product delivery at a top-notch quality in terms of flexibility, meeting market needs and configuration. Supporting Iskraemeco's strategy to impact the IoT world by providing greater flexibility to our customers. Our meters, based on the eIoT modular platform, enable the delivery of new functionalities for modern business challenges. The scalable functions differentiate themselves through innovation, high modularity and effective network management with real-time data.

WONDERING HOW WE ADAPT TO MARKET NEEDS?

- Providing real-time data for grid applications and RES (renewable energy resources).
- Guiding the end-consumers to make smarter decisions about their power usage and reduction of energy waste through the prosumer dashboard.
- Integrating and managing renewable energy.

DIVING IN THE BENEFITS

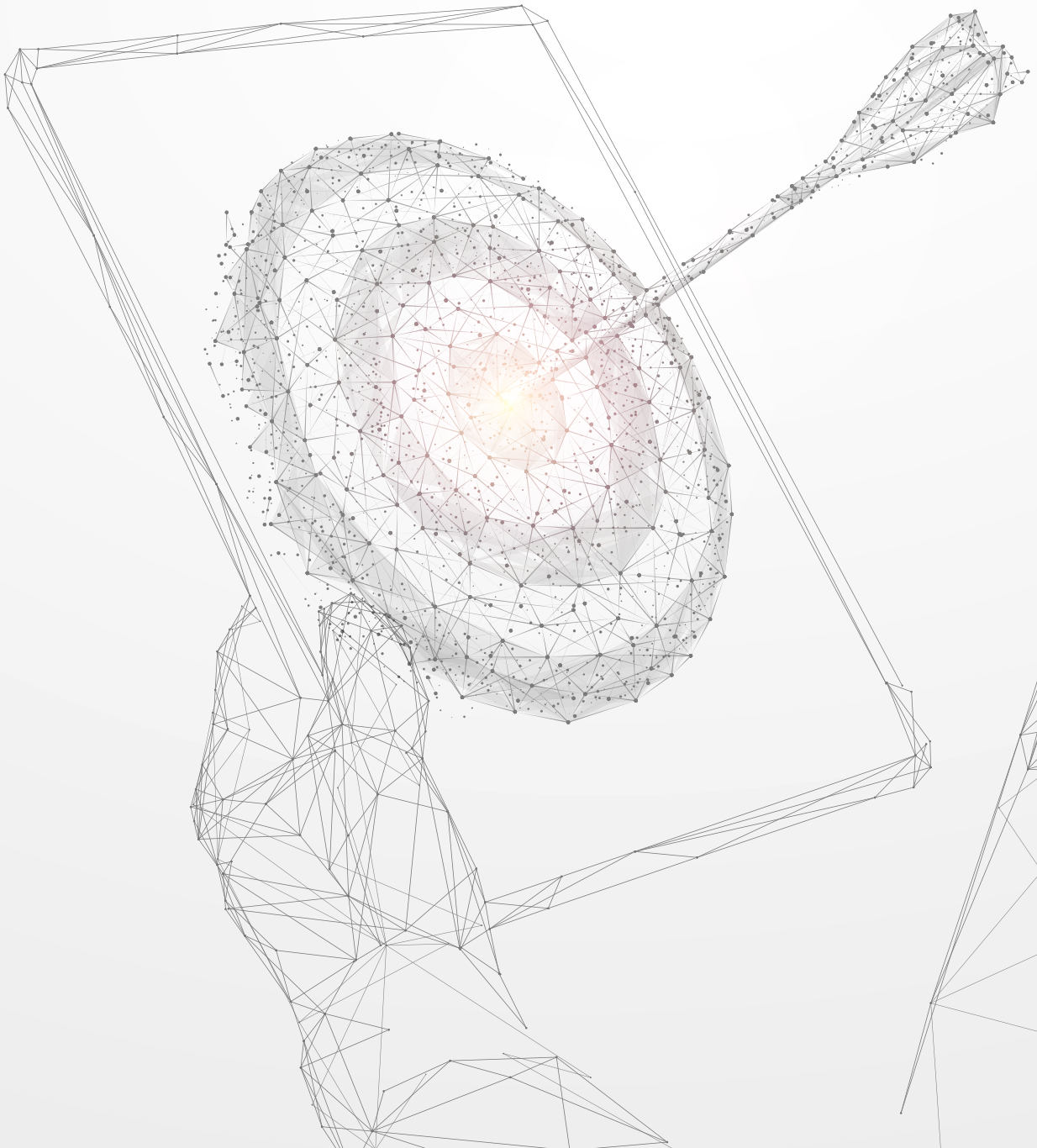
- Minimized Total Cost of Ownership
- Reliant on consistent, dedicated M2M connectivity through LTE NB -IoT. Track IoT evolution by supporting CAT-M technology and NB-IoT communications.
- Flexibility through modularity and integration.
- Enhanced security complying with the industry standards to serve the needs of the strategic infrastructure requirements.
- Future proof - adding new features through firmware only, no meter replacement required.

IN A NUTSHELL

The new generation will support the ongoing trends of IoT by developing and offering larger solutions. In doing so, it has edge computing capabilities, meaning an instantaneous value for meter data, as well as the latest and most reliable bi-directional communications technology offered, i.e., M2M communications - NBIoT/LTE-M. Through a ground-breaking approach, Iskraemeco will ensure an astonishing data collection to support your network efficiency, stability and an overall reliable power supply.

The main takeaways:

- Flexibility and availability to tailor market needs through a remarkable energy transition; therefore, the possibility to implement some functions or applications to identify future trends and respond accordingly.
- Enhanced customer interface means that the platform enables participation in the energy community, meaning it will permit visualization and data management more efficiently.
- Data reading convenience has an emphasis on the customer information area to make the data easy to read, proposed actions to reduce consumption if exceeded, engagement through monitoring and management of energy consumption.
- Eco-friendly platform enables a more sustainable path that positively impacts customers' lives by reducing their carbon footprint.



IE.X – INTELLIGENT ENERGY METERS BASED ON eIoT MODULAR PLATFORM.

The eIoT platform

The eIoT modular platform is a foundation for the new generation of electricity meters and is designed for smart grids with an excellent modular technology and operational design. The platform is based on a modular architecture, has a significant impact on the future of metering systems and supports all current Energy IoT solutions in the smart digital grid environment, and the development of smart cities with a focus on sustainable development. Products based on the eIoT modular platform have Iskraemeco's Measuring Operating System (eMOS) embedded, which monitors and maintains the hardware's functionality and metrology. eMOS provides a platform for applications that integrate our products into a wider energy IoT system, by combining operating system technology and software development for meters. This enables efficient new functionalities related to modern electricity distribution challenges, providing insights into network control, fault detection management, better energy efficiency, increased data security, forecasting energy consumption trends, lower operating costs and the possibility of organic and technological growth of electricity distribution (e.g. gradual replacement and upgrade of the network).

IE.X meter series

The IE.X series consist of reliable and versatile metering devices that offer numerous applications in power generation, transmission, distribution and consumption. The series is based on an eIoT modular platform, which offers utilities maximum flexibility ranging from hardware to software and various communication modules. The IE.X will shape the future of metering business in the IoT landscape. IE stands for Intelligent Energy and X represents the various products series available. The IE.5 (for smart applications) and IE.7 (for commercial applications) meters are already on the market, all fitted with an integrated breaker, and pre-installed with the latest communication technologies. All IE.X meters are designed with flexibility in mind, ensuring that we're always able to meet the everchanging demands of a fast-moving sector, and tailor our products and services to the individual needs of every customer.

IE.X

SINGLE AND THREE PHASE ENERGY METERS.

FUNCTIONALITIES

- Modular hardware design (field exchangeable communication device).
- Modular firmware design.
- High integration: Multi-utility, HAN, LAN, IO's.
- Support for latest communication technology: NBIoT/LTE-M/2G. ESIM, Antenna couplers.
- Integrated breaker up to 100A.
- Exchangeable battery improved customer GUI interface.
- Integrated generic IO sets.
- Customer Access to IO's (2x Relay, P1 port).

BENEFITS

- **Flexibility** in our product portfolio also caters to requirements at every possible scale, from simple residential meters all the way up to advanced measurement systems for industry and everything in between.
- **Scalability** is achieved through the platform's architecture, which allows products to be scaled with specific features for different applications. This serves the RSA, RSM and ICG segments with scalable hardware and embedded software architecture (eMOS).
- **Sustainability** is integrated in Iskraemeco's DNA and our portfolio, IE.X, has low power consumption and a design that together with optimized logistics services impacting the total cost of ownership of the meter. The meter is made of recyclable material making it easy to dismantle at the end of its life cycle.
- **Connectivity** is guaranteed in huge time savings by supporting M2M connectivity - such as NB -IoT, CAT -M and LTE-M - and offering full backward compatibility with 2G, 3G and 4G ensures major time savings. A capability of a sub-metering water, heat and gas meters and with an expansion of inputs and outputs accommodating their increasing importance in load management.
- **Security** is ensured through fully complying with the safety requirements of European and national legislation. There are two levels at which security is ensured: Physical and Logical.

			IE.5-E Direct connected	**IE.5-T** Direct connected	**IE.7-T** Current transformer connected
TYPE OVERVIEW					
	Low voltage		•	•	•
Connection type	1P4W		•		
	3P4W			•	•
	3P3w			•	•
Communication	WAN		Point-to-point (2G/3G/4G, NB-IoT/LTE-M), RS485		
	Customer port		DMSR5 compliant; active or passive with RJ12 connector type		
	Multiutility		wM-Bus		
	Local communication		Optical port		
TECHNICAL SPECIFICATIONS					
Nominal voltage Un			230 V	3 x 230/400 V; 3 x 230 V	
Voltage range			0.8 – 1.15 Un		
	Base current	Ib	5 A	5 A	1 A
	Maximal current	Imax	85 A	85 A, 100 A	10 A
Accuracy class	Active energy		Class 1 (IEC 62053 - 21) or B (EN 50470 - 3, EN 50470 - 1)		Class 0.5 (IEC 62953 - 21) or C (EN 50470 - 3, EN 50470 - 1)
	Reactive energy		Class 2 (IEC 62053 - 23)		Class 1 (IEC 62053 -23)
	Apparent energy		Calibrated up to 3 %		Calibrated up to 2 %
Temperature ranges (IEC 62052 - 11)	Operation		-40 °C ... +70 °C		
	Storage		-40 °C ... +80 °C		
Ingress protection IEC 60529			IP 54		

SMART STS PREPAYMENT METERS.

Our smart prepayment solution integrates the sales system with AMI infrastructure for remote prepayment and meter reading, remote control, etc. It adopts advanced communication and metering technologies to automatically measure, detect, collect, manage and analyze energy data.

STS Prepayment meters are multi- function meters complying with STS and DLMS/COSEM protocols. The customer purchases energy in the form of tokens entered locally through the built-in keypad on the meter or through split Customer Interface Unit (CIU), or remotely via Head-end system (HES). The internal relay will disconnect automatically when the credit is used up.

The meters are wall-mounted or Din rail mounted meters can be paired with a separate Customer Interface Unit (CIU) at the customer's premises.

Iskraemeco ensures that we offer first-class products that meet the requirements of each customer.

Mx516

SMART STS WALL MOUNTED METERS.

FEATURES

- Supports total four quadrant active energy, four quadrant reactive energy, positive and negative energy.
- Measurement of instantaneous voltage, current, powers (active, reactive, apparent, factor and frequency).
- Refresh time of power data is one second.
- Internal card backup operation when the power grid drops.
- Multiple anti-tamper detection package.
- Up to 8 rates TOU design.
- Maximum demand measurement function.
- Strong magnetic field detection function.

KEY BENEFITS

- Compliant with the International standards of DLMS/COSEM Certified by the DLMS CTT test
- Supports switching to post payment mode.
- Supports local/remote online software upgrades.
- Switching power supply applicable to all kinds of standard voltage specifications.
- Highly secure through the support of the anti-tamper detections.
- Can operate with a Built-in Keypad of Split CIU.
- Swappable communication module.

		ME516	MT516
TECHNICAL SPECIFICATIONS			
Voltage		220-240V	
Operating voltage range		0.7 – 1.15 Un	
Current		10(100) A	
Accuracy class		Active Class 1	Active Class 1; Reactive Class 2
Temperature range (EN 50470-1)	Operation	-25 °C to +55 °C	
	Storage	-40 °C to 70 °C	
Frequency range		50 Hz ± 5%, 60 Hz ± 5%	
Power consumption of voltage circuit		<1.5 W, 4 VA	
Power consumption of current circuit		<1 VA	
Starting current	Ib	0.4	
Creeping condition		no current, 115% Un	
Impulse voltage		6 kV	
AC voltage		4 kV	
Electric rapid transient pulse group		4 kV	
Communications	Uplink	Swappable G3-PLC, RE modules or GPRS module directly to the HES	
	MCU and CIU	PLC or RF Optical port according to IEC Optical port according to IEC 62056-21 (E mode) and RS485 Port	

ME513-2

SMART STS DIN RAIL.

ME513-2 is a smart prepayment energy meter with a compact design for Din Rail mounting and customized to the international prepaid AMI market.

This series is based on the current international standard of AMI communication protocol DLMS/COSEM and supports local/remote online software upgrades. The meter uses a switching power supply suitable for all kinds of standard voltage specifications abroad.

FEATURES

- Supports total four quadrant active energy, four quadrant reactive energy, positive and negative energy.
- Measurement of instantaneous voltage, current, active power, reactive power, apparent power factor and frequency.
- Supports up to 8 rates, four-quadrant active and reactive power, positive and negative TOU measurement, and total energy measurement.
- Supports positive and negative active demand, reactive demand and apparent demand measurement, and TOU measurement.
- TOU and Step Tariff options.

KEY BENEFITS

- Remaining energy alarm.
- Load power control.
- Communication capabilities.
- Smart ready
- Commission and decommission status.
- Detection of tampering attempts.
- Enhanced event logs record.
- Different alarms.
- Load control.
- Low-voltage and over voltage relay open protection.
- Time-of-use (TOU) tariffs.

		ME513 - 2
TECHNICAL SPECIFICATIONS		
Nominal voltage Un		230/240 V
Voltage range		0.5 Un - 1.15 Un
Current		5 (80) A
Accuracy class		Class 1
Temperature range (EN 50470-1)	Operation	-25°C to +55°C
	Storage	-44°C to +70°C
Impulse voltage		6 kV
AC voltage		4 kV
Electric rapid transient pulse group		4 kV
Pulse constant		1000 imp/kWh
Consumption		<6 VA, 1.5 W
Communication	Optical	Complies with IEC62056-21 (E mode)
	Uplink Built-in	RS485 and G3-PLC
	MCU to CIU	RF or PLC communication with CIU

ME513-3

SMART STS DIN RAIL METER.

The ME513-3 is the latest version of Din-Rail smart STS Prepayment Energy meter customized to the international prepaid AMI market supporting local/remote software upgrade.

This series adopts the current international standard of AMI communication protocol DLMS/COSEM, the meter is designed to meet the latest standards and requirements of energy utilities, providing a strong foundation for Smart Grid initiatives.

FEATURES

- Bi-directional metering for import/export active energy, and 4 quadrants reactive energy.
- Metering instantaneous voltage and current, active/reactive/apparent power, power factor and frequency, for total and per phase value.
- The minimum cycle of the unit for electric energy direction judgment is one second.
- The minimum unit of energy metering in memory is 1mWh, 1mVARh, and 1mVAh.
- The minimum unit of energy metering of output (communication/display) is 1Wh, 1VARh, and 1Vah, the data refreshes every second.
- Support of up to 8 tariffs. Time of Use (TOU) of total import/export active energy, reactive energy.

KEY BENEFITS

- The meter supports five payment modes: Prepayment energy, pre-paid gradient, pre-paid TOU, post-paid gradient and post-paid TOU.
- Firmware can be updated by means of optical port, RS485 port and remote communication.
- Load profile with configurable interval and capture objects.
- Event logs: The meter is capable of recording events as it captures the occurrence of configurable events with timestamp.
- Built-in smart Communication interface.
- Compact Design.

	ME513 - 3
TECHNICAL SPECIFICATIONS	
Voltage	220-240V
Operating voltage range	0.5 Un - 1.13 Un
Current	5(80) A
Frequency	50Hz±5%
Accuracy class	Active Class 1
Conformity	IEC62052-11, IEC62053-21, IEC62053-22, IEC62053-23, IEC62055-41, IEC62056-46, IEC62056-53, IEC62056-61, IEC62056-62, IEC62053-21
Operating temperature range	-25 °C-+55 °C
Transportation and storage temperature	-40 °C-+70 °C
Relative humidity	95%, No coagulate frost
Frequency range	50Hz±5%, 60Hz±5%
Power consumption of voltage circuit	<1.5W, 6VA
Power consumption of current circuit	<1VA
Starting current Ib	0.4
Creeping condition	no current, 115%Un
Impulse voltage	6kV
AC voltage	4kV
Electric rapid transient pulse group	4kV
Clock accuracy	0.5s/day
Display	Split CIU, with PLC or RF communication to MCU
Power supply	Single phase power supply, switching power technology, low voltage starts.
CIU communication	MCU and CIU communication through PLC or RF
Uplink Built-in communication interfaces	RS485, G3-PLC or RF complies with DLMS/COSEM protocol

METERS FOR THE GERMAN MARKET.

The Lean Meter portfolio is specialized for the requirements of the German market. The portfolio is intended for households and small businesses. In order to offer customers with accurate energy consumption data with minor assembly, the reading and operating costs are applicable as well. In this way, customers gain insights that enable them to control their energy consumption. The standards, specifications, compliances and manufacturing are in line with those of our industry and are tailored to the needs of the German market.

MT176

THREE PHASE ELECTRICITY METER.

The MT176 three phase meter was developed specifically for the German market and meets the specifications of the FNN MS2020 project as well as other market requirements.

FEATURES

The meter is particularly suitable for measuring points with limited space availability.

It is characterized by the following properties:

- Long-term stability of measurement accuracy.
- Great reliability and long service life.
- Suitable for photovoltaic systems (EEG systems).
- Smart Meter Gateway (SMGW) can be set up as a piggyback.
- Direct exclusion on SMGW.
- Data security according to BSI requirements.
- Compact housing made of self-extinguishing polycarbonate.
- Two-line information display.
- LMN communication interface in the terminal block.
- Front INFO IR communication interface.

KEY BENEFITS

- COSEM/OBIS.
- Magnetic field manipulation detection.
- Uni-directional or bi-directional energy measurement.
- DIN terminal block.
- Suitable for EEG systems.
- External tariff setting using two auxiliary terminals according to EDL LH specification.
- Consumption since last reset.
- Data protection via PIN.
- Terminal block cover position detection.
- Display of historical values.
- Signature formation.
- SML, TLS, HDLC.

			MT176-D1 SLP
TYPE OVERVIEW			
Network	Low voltage		•
Connection type	1P2W		•
	3P4W		•
Communication	LMN interface		•
	INFO interface		•
TECHNICAL SPECIFICATIONS			
Nominal voltage Un			3 x 230/400 V, 230 V
Voltage range			0.8 Un – 1.15 Un
Current	Nominal current	Ib	5 (60) A
Accuracy class	Active energy		MID A (EN 50470 - 3)
Temperature range (EN 50470 - 1)	Operation		-25°C to +55°C
	Storage		-40°C to +80°C
Ingress protection of water and dust (EN 60529)			IP54

MT691

SMART ELECTRICITY METER.

The MT691 basic smart meter was developed specifically for the German market and meets the specifications of the FNN MS2020 project as well as other market requirements. The meter is intended for use in households and small businesses.

FEATURES

- Long-term stability of measurement accuracy.
- Great reliability and long service life.
- Suitable for photovoltaic systems (EEG systems).
- Simple, safe, and quick plug-and-play installation.
- Compact housing made of self-extinguishing polycarbonate.
- Direct connection to SMGW.
- Data security in accordance with BSI requirements.
- Added value through two-line information display.
- Optical LMN communication interface on the back ~ 1 Mb / s.
- Front INFO IR communication interface.

KEY BENEFITS

- COSEM/OBIS.
- Magnetic field manipulation detection (optional).
- Suitable for EEG systems.
- Consumption since last reset.
- Double tariff version according to EDL FNN LH specifications.
- Data protection via PIN.
- Sealing pin with position detection.
- Signature formation.
- Optical display of the operation.
- SML, TLS, HDLC.
- Historical consumption values.
- Uni-directional or bi-directional energy measurement.

			MT691
TYPE OVERVIEW			
Network	Low voltage		•
Connection type	1P2W		•
	3P4W		•
Communication	LMN interface		•
	INFO interface		•
TECHNICAL SPECIFICATIONS			
Nominal voltage Un			3 x 230/400 V, 230 V
Voltage range			0.8 Un – 1.15 Un
Current	Nominal current	Ib	5 (60) A
Accuracy class	Active energy		MID A (EN 50470 - 3)
Temperature range (EN 50470 - 1)	Operation		-25°C to +55°C
	Storage		-40°C to +80°C
Ingress protection of water and dust (EN 60529)			IP54

MT631/MT632

MODULAR ELECTRICITY METER.

The MT631/MT632 three phase basic meter meets the specifications of the FNN MS2020 project and strict market requirements. The meter is intended for use in households and small businesses.

FEATURES

- Long-term stability of measurement accuracy.
- Great reliability and long service life.
- Suitable for photovoltaic systems (EEG systems).
- Modular structure.
- Direct exclusion to SMGW.
- Data security in accordance with BSI requirements.
- Compact housing made of self-extinguishing polycarbonate.
- Two-line information display.
- LMN communication interface under the module cover.
- Front INFO IR communication interface.

KEY BENEFITS

- COSEM/OBIS.
- Magnetic field manipulation detection.
- Suitable for EEG systems.
- Historical consumption data.
- External tariff setting using two auxiliary terminals according to EDL LH specification.
- Data protection via PIN.
- Terminal block cover position detection.
- Signature formation.
- Optical display of operation.
- SML, TLS, HDLC.
- Uni-directional or bi-directional energy measurement.
- DIN terminal block.

			MT631-D1 SLP	MT631-D2 SLP	MT632-D1 4Q	MT632-D2 4Q
TYPE OVERVIEW						
Network	Low voltage		•	•	•	•
Connection type	1P2W		•	•	•	•
	3P4W		•	•	•	•
Communication	LMN interface		•	•	•	•
	INFO interface		•	•	•	•
	Multiutility		•	•	•	•
TECHNICAL SPECIFICATIONS						
Nominal voltage Un			3 x 230/400 V, 230 V			
Voltage range			0.8 Un – 1.15 Un			
Current	Nominal	Ib	5 (60) A	5 (100) A	5(60) A	5(100) A
Accuracy class	Active energy		MID A (EN 50470 - 3)		MID B (EN 50470 - 3)	
	Reactive energy				Class 2 (IEC 62053 - 23)	
Temperature range (EN 50470 - 1)	Operation		-25°C to +55°C			
	Storage		-40°C to +80°C			
Ingress protection of water and dust (IEC 60529)			IP 54			

MT681

ELECTRONIC EDL HOUSEHOLD METER.

The MT681, developed according to the EDL concept, is a static three-phase active consumption meter for the household sector. The meter offers customers with actual energy consumption and thus the possibility to control energy consumption. With its small dimensions and low installation, reading and operating costs, the MT681 is particularly suitable as a replacement for the existing mechanical three-phase electricity meter based on the Ferraris principle. The MT681 complies with the EN 50470-3 standard and is manufactured in accordance with ISO 9001.

FEATURES

- Modern household meter for the liberalized energy market.
- Bi-directional interface (MSB).
- Basic meter based on the EDL21 concept with activatable EDL40 functionality (meter design according to the FNN specification sheet, EDL version 1.2).
- Active consumption measurement in three phase and four-conductor networks or single-phase networks without adaptation.
- Uni-directional optical customer interface for meter reading (INFO).
- Capacitive power supply – no interference from radio ripple control receivers.
- Energy efficient through low energy consumption.
- Easy wiring-free installation due to innovative insertion technology.
- Double tariff.

KEY BENEFITS

- Active consumption meter.
- Connection.
- Dual tariff function.
- Suitable for photovoltaic systems.
- Optical meter operator interface.
- Optical customer interface.
- Smart Message Language.
- Protection against ingress of water and dust.
- Data access protection via PIN.
- Uni-directional or bi-directional energy measurement.

			MT681
TYPE OVERVIEW			
Network	Low voltage		•
Connection type	1P2W		•
	3P4W		•
Communication	LMN interface		•
	INFO interface		•
TECHNICAL SPECIFICATIONS			
Nominal voltage Un			3 x 230/400 V, 230 V
Voltage range			0.8 Un – 1.15 Un
Current	Nominal current	Ib	5 (60) A
Accuracy class	Active energy		MID A (EN 50470 - 3)
Temperature range (EN 50470 - 1)	Operation		-25°C to +55°C
	Storage		-40°C to +80°C
Ingress protection of water and dust (EN 60529)			IP54

MT175

ELECTRONIC EDL HOUSEHOLD METER.

The MT175 developed according to the EDL concept is a static three phase active consumption meter for the household sector. The meter provides actual energy consumption and the possibility of controlling consumption overall. With its low assembly, reading and operating costs, the MT175 is particularly suitable as a replacement for the existing mechanical three phase meter based on the Ferraris principle. The MT175 complies with the EN 50470-3 standard and is made in accordance with ISO 9001.

FEATURES

- Active consumption meter.
- Dual tariff function.
- Readings.
- Bi-directional interface (MSB) – RJ10.
- Data access protection via PIN.
- Uni-directional or bi-directional energy measurement.

KEY BENEFITS

- Strong Connection.
- Suitable for photovoltaic systems.
- Optical meter operator interface.
- Smart Message Language

			MT175
TYPE OVERVIEW			
Network	Low voltage		•
Connection type	1P2W		•
	3P4W		•
Communication	MSB interface		•
	INFO-IR interface		•
TECHNICAL SPECIFICATIONS			
Nominal voltage Un			3 x 230 V / 400 V, 3 x 230 V, 230 V
Voltage range			0.8 Un – 1.15 Un
Current	Nominal current	Ib	5 (60) A
Accuracy class	Active energy		MID A (EN 50470 - 3)
Temperature range (EN 50470 - 1)	Operation		-25°C to +55°C
Ingress protection of water and dust (EN 60529)			IP54

COMMUNICATION PRODUCTS.

Since the first developments within the communication portfolio, the metering systems have become smarter, more demanding and more complex. Today's smart metering systems feature a number of innovations. They can be used to retrieve premium metering data, they enable demand response, they monitor the grid, and more.

Our communication products already in line with future communications and measurement requirements and are ready for use in renewable energy applications. The products in our communication portfolio are linked between the meter and the software platforms responsible for data collection and management. Our company offers solutions for a wide variety of communication technologies, allowing us to adapt to various metering environments.

The communication portfolio providing accuracy and precision includes:

- Gateways and data concentrators.
- Communication modules.
- Tools and accessories.

$5.6
$1.35
$2.26
$3.96
$4.48
$5.19
$4.34
$17.4
$19.0
$21.3
$17.9
$21.7
6%
10%
15%
15%
15%
11%
13%

GATEWAYS AND DATA CONCENTRATORS.

Data concentrators and gateways are crucial components in any modern measurement infrastructure. With flexibility and a wide range of communication options, these products consolidate and direct bi-directional data streams.

The data concentrator is an advanced communication device that enables a two-way communication via the powerlines to smart meters. It stores and processes metering data and monitors the network. It autonomously manages the metering network to ensure a robust, scalable and cost-effective solution.

Smart gateways transform existing networks into advanced metering systems. They enable bi-directional remote communication between the meter and Head-End-System (HES).

AC750

A SECURE, MODULAR IoT CONNECTIVITY SOLUTION.

AC750 gateway/data concentrator is a future-proof investment for the smart grid. It manages seamlessly the connectivity on the network and enables monitoring the connected devices.

FEATURES

- Notification manager.
- Multi-interface solution.
- Web user interface.
- OTA firmware upgrades.
- Interoperable communication protocols.
- Exchangeable plug-and-play communication modules.
- Secure and scalable, multinetwork solution.
- Auto-commissioning function.
- Monitoring and diagnostics.
- Network management.
- IoT ready.

KEY BENEFITS

- **Future proof** - designed with two field-exchangeable communication modules to cope with new communication technologies and have a customized solution for individual requirements.
- **Interoperability** – uses open interoperable standards at multiple levels such as DLMS/COSEM, IDIS, G3-PLC, etc., ensuring seamless data flow and smooth upgrades.
- **Managed connectivity** - enables to successfully launch, manage, and monitor the connected devices.
- **Security** - utilizes a Hardware Security Module to protect cryptographic material against compromise and supports secured protocols that guarantee confidentiality, integrity, authenticity and availability of metering data
- **Cost effective** – multi-interface solution which can be tailored to the customer's business needs.
- **High reliability and long lifetime** - designed with industrial-grade specifications to withstand extreme environmental conditions such as shock, corrosion, temperature, vibration and humidity.

		AC750
TECHNICAL SPECIFICATIONS		
Nominal voltage		1x230 V or 3x230/400 V
		1x120 V or 3x120/208 V
Voltage range		0.8 – 1.15 Un
Type of system earthing (IEC 60364)		TN and TT
Reference frequency		50/60 Hz
Frequency range		-/+10%
Power consumption	Standard	6.5W/20VA
	Maximum	10 W/30VA
Real time clock	Accuracy	<5 ppm (at 23 °C))
	Back-up power supply	With Super-Cap: < 7 days
		With exchangeable battery: < 10 years
Temperature ranges	Operation	-25 °C ... +70 °C
	Storage	-40 °C ... +80 °C
Humidity		Relative humidity up to 98% non-condensing
Pollution degree rating		II
Operation altitude		<2000 m
Overvoltage category (IEC 60664-1)		OVC IV
Protection against electric shock (IEC 61140)		Class II
Ingress protection IEC 60529		IP 54
Safety		According to IEC 62368-1
Certifications		G3-PLC alliance certificate, Declaration of Conformity (CE)
Installation		DIN rail or 3 fixing points
COMMUNICATION INTERFACES		
To Head End-System		10/100 BASE-T, Ethernet (RJ45) interface, AC150 cellular communication module
To connected devices		G3-PLC modem based on ITU-T G.9903 (OFDM Modulation) with three phase coupling, RS485 interface
Local access		10/100 BASE-T Ethernet (RJ45) interface

MC500

TAILORED FOR GLOBAL AMI MARKETS.

The MC500 is a smart concentrator for the high demands of the global AMI markets. It is based on a modular design concept for hardware and firmware structure. In line of its basic functions, the concentrator collects data from meters, stores meter data and delivers data to the head-end system.

The MC500 Concentrator is a communication device based on the LINUX operating system and consists of a GPRS module, an Ethernet adapter and a G3-PLC module.

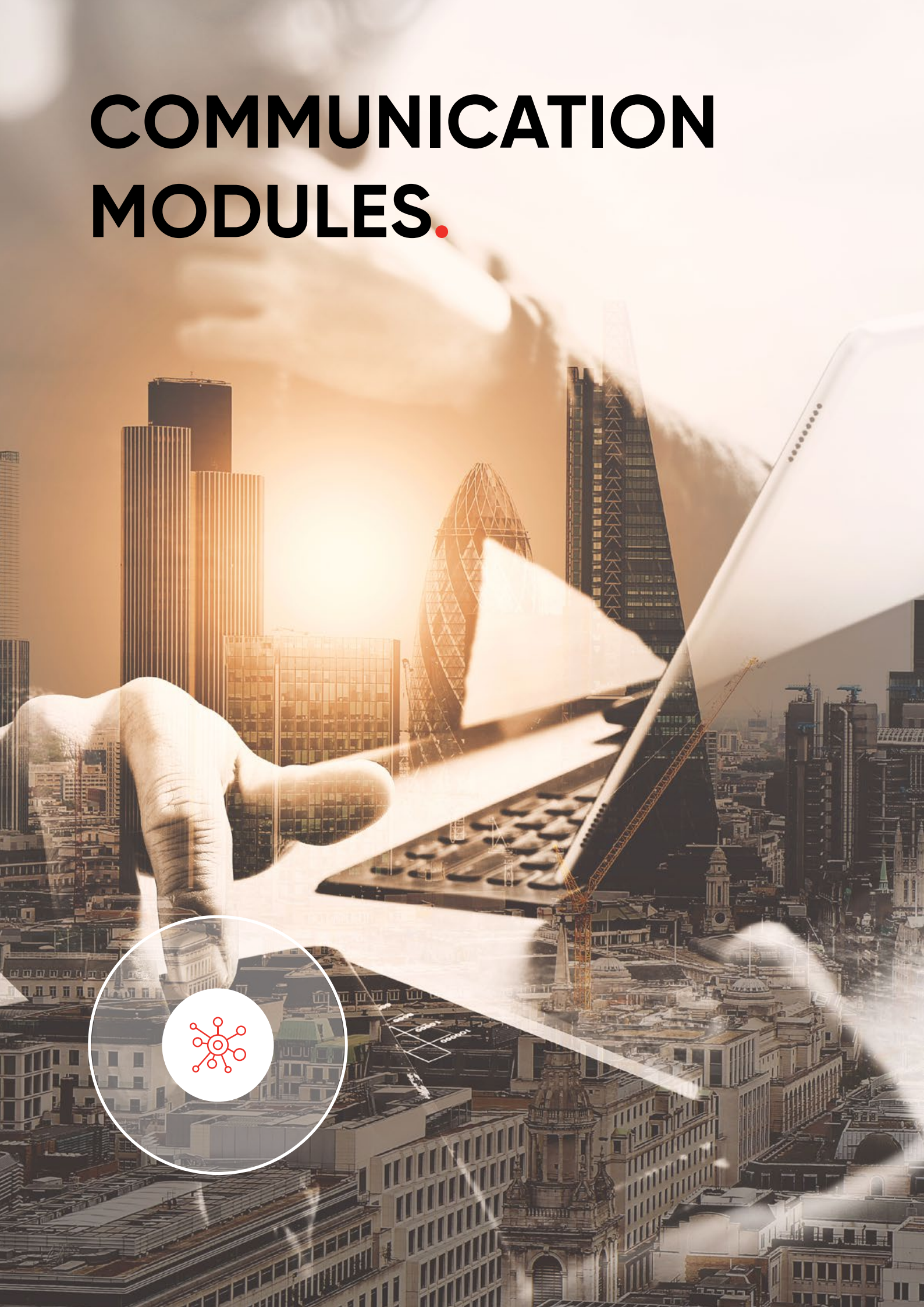
MC500 uses a 32-bit RISC embedded software and hardware platform, professional real-time LINUX embedded OS and plug-and-play communication module.

What we offer goes beyond meter reading data collection. We are committed to providing accuracy, efficiency, and a gateway or storage with instantaneous sendings to the system.

The Iskraemeco data concentrator complies with the Applicable and EMS standards to meet various market demands.

		MC500
TECHNICAL SPECIFICATIONS - ELECTRICAL CHARACTERISTICS		
Connection wiring		3 - Phase
Nominal voltage		3 x 220V/380V
Voltage range		70% ~ 130% Un
Frequency		50Hz ± 5%
Ac voltage		4 kV
Fast instantaneous pulse group		4 kV
Immunity to Impulse voltage IEC 62052 11		6 kV
Electrostatic discharge IEC61000 4 2		Contact discharge, 8kV, 10 cycles; Air discharge, 15kV, 10 cycles
Relative humidity		95%, No coagulate frost
Frequency range		50Hz±5%, 60Hz±5%
Fast transient burst main circuits		4 kV
Electric rapid transient pulse group		4kV
TECHNICAL SPECIFICATIONS - PHYSICAL CHARACTERISTICS		
Temperature ranges	**Specified operation**	25 °C to + 5 5 °C
	Limit operation	40 °C to + 70 °C
	Storage and transport	45 °C to + 85 °C
Relative humidity		≤95%, non-condensing
Ingress protection		IP51
Insulation protection		Class II
Clock accuracy		≤ 0.5 sec/day
MTBF		≥ 50,000 hours
Meter lifetime		≥ 15 years
Battery lifetime		10 years
Dimensions W x H x D mm		290 * 180 * 95
Weight		2 kg
TECHNICAL SPECIFICATIONS - TECHNICAL CHARACTERISTICS		
CPU Processors		Atmel ARM9
SDRAM		32M
Flash		1Gb
Operating system		Linux
Internet Protocol		IPV4

COMMUNICATION MODULES.



Any truly smart metering solution must foresee the interoperability of communication systems and predict future network developments. With options for Ethernet, GSM/GPRS, PLC, PSTN, RF and more, our modules can be deployed in any environment.

Communication modules are the key to turning electricity meters into smart metering devices. In today's environment where communication technologies are rapidly evolving, they provide utilities with much needed flexibility for future smart grid endeavors. A modular meter supports multiple communication technologies and gives utilities the flexibility needed to implement the latest market requirements into their systems.

FIELD EXCHANGEABLE MODULES

SOLVING ENERGY GRID CONNECTIVITY.

Communication is an essential element of the smart metering landscape, which is constantly evolving to allow utilities to quickly and effectively adapt to future changes in the grid infrastructure. Iskraemeco's field-exchangeable modules AC150, AC140 and CM-LTE -3 are a future-proof and flexible solution that utilizes multiple communication technologies.

FEATURES

- Modular design
- G3-PLC technology
- Cellular technologies
- Universal device interface
- WAN network
- HAN network
- NAN network
- Last gasp
- Hot swap

KEY BENEFITS

- **Simple installation and maintenance** - State-of-the-art design to ensure easy and cost-effective installation and maintenance.
- **Interchangeability** - The AC150 communication module uses a universal interface to seamlessly connect to a smart meter, gateway or concentrator.
- **Flexibility and upgradeability** - The AC150, AC140 and CM-LTE -3 support multiple communication technologies.
- **Reliable and high-performance communication** - The modules' robust design and proven communication technologies ensure device connectivity across the smart grid.
- **Future proof solution** - The AC150 offers a modular solution that is always up-to-date with the latest communication technologies.

		MODULAR COMMUNICATION
TECHNICAL SPECIFICATION		
Operational temperature range		-40°C to +70°C
Storage temperature range		-40°C to +80°C
Air humidity		max. 95%
Power supply		No external power supply
SPECIFIC		
AC150-Ax and CM-LTE-3	Supported technologies	GSM/2G (GPRS)
		3G (UMTS)
		AC150-Ax: 4G (LTE, LTE-M, NBIoT), CM-LTE-3: 4G (LTE)
	Antenna connection	AC150-Ax: Integrated antenna with possibility to connect external antenna via antenna coupler
		CM-LTE-3: External antenna
	Additional options	AC150-Ax: Last gasp support - up to 40 seconds of available time after power outage
	SIM card	All SIM card sizes and eSIM
	Diagnostics	Enhanced network and SIM card diagnostics using connection watchdog
PLC		
AC150-Gx	Supported technologies	IEC 61334 (SFSK modulation)
		ITU-T G.9903 (G3 PLC)
	Band/Frequency support	G3 PLC with CENELEC A and FCC frequency bands
		SFSK with FM (Mark Frequency): 63300 Hz and SF (Space Frequency): 74000 Hz.
P1 (CONSUMER PORT)		
AC140-Kx	Power supply options	P1 passive – without power supply for RJ11 connected device
		P1 active – with embedded power supply for RJ11 connected device (1,25W)
INTEROPERABILITY MATRIX		
Device	Supported Modules	
AM550	AC150-A5 (2G/4G) AC150-A6 (2G/3G/4G) AC150-A7 (2G/LTE-M/NB-IoT) AC150-G3 (G3 PLC) AC140-K1 (passive P1 port) AC140-K8 (active P1 port)	
IE.x	AC160-A6 (2G/3G/4G) AC160-A7(2G/LTE-M/NB-IoT)	
AC750	AC150-A6 (2G/3G/4G) AC150-G3 (G3 PLC) – integrated	
MT880	CM-LTE-3 (LTE)	

TOOLS AND ACCESSORIES.

Comprehensive providers are bound to produce some products that are difficult to pigeonhole. Our tools and accessories are just that, with a variety of indispensable gadgets that make it much easier to deploy, install, and maintain metering systems.

Tools and accessories are indispensable for meter system deployment, installation and maintenance. Meter communication tools - Sonda 5 and 6 are intended for local communication with various meters and communication products.

SONDA OPTICAL PROBE

ENABLING AN ACCURATE METER READOUT.

Sonda 5

Sonda 6

Sonda optical probes are an essential part of the Iskraemeco smart metering solution, as they are designed for local communication with the meter. Sonda is a reliable, field-proven product utilized in many metering projects worldwide. It uses an optical interface to communicate with the meter (e.g. electric meter, gas meter, water meter, etc.) and connects via USB interface to handheld devices, laptops and desktop computers.

FEATURES

- Based on Open standard IEC 62056-21.
- Proven in the field – utilized in metering project worldwide for more than 15 years and during the development of Iskraemeco meters.
- Universal connector USB to connect to computer or handheld units.
- Powered by USB (doesn't require batteries or external power supply).
- No Power reading – Sonda 6 enables reading of MT880 meters also, when the meter is not powered.
- High data rates up to 115,200 bps.

	Sonda 5	Sonda 6
TECHNICAL SPECIFICATIONS		
Connector	USB 1.1 and 2.0 Type-A	USB 1.1 and 2.0 Type-A
Protocol	IEC 62056-21 (former IEC 1107)	IEC 62056-21 (former IEC 1107)
Data rate	max 115,200 bps	max 57,600 bps
Operating mode	Half-duplex	Half-duplex
No-Power reading	-	+ (with MT880)
Operating voltage	5v, Power by USB	5v, Power by USB
Cable length	2m	2m
Wave length	880 nm	875 nm
Magnetic Force	> 6 N	> 14,7 N
Consumption	Max 25 mA	Max 25 mA (switch position 0), Max 250 mA (switch position 1)
Material (body)	ABS	ABS
Dimensions (HxWxD)	34x47x13 mm with circular extension (diameter: 31 mm, height: 7 mm)	32x32x31 mm
Weight	Approx. 60 gr	Approx. 66 gr

OKK EHZ 2020

OPTICAL PROBE FOR THE LEAN METER PORTFOLIO.

GERMAN MARKET ONLY

The OKK is an optical communication head used to connect the eHZ plug-in basic meter (BZ) to a smart meter gateway (SMGw) as part of a smart metering system (iMSys). The OKK is manufactured in design and function according to the requirements of the FNN specifications. Suitable for plugging into eHZ mounting and contacting devices (BKE-I, BKE-A).

The optical LMN interface of the basic meter enables LMN communication with the SMGw at very high data transmission rates.

FEATURES

- Optical probe according to FNN specifications
- Suitable for plugging into BKE-A and BKE-I
- Optical interface with 1 MBit/s
- LMN-RS485 communication with 1 MBit/s
- RJ12 connector
- 50 cm cable length or 75 cm cable length

	OKK eHZ 2020
TECHNICAL SPECIFICATIONS	
Counter interface	Serial communication with the smart meter gateway (according to BSI TR -03109), baud rate 921.6 kbaud, LMN specification according to FNN specifications for the construction of the basic meter and the smart meter gateway.
Interface	Serial communication with the smart meter gateway via RS485 TLS 1.2 according to BSI TR-3109 baud rate 921.6 kbaud
Power supply	8-13.2 VDC powered by the LMN bus
Power consumption	Relative humidity up to 98% non-condensing
Enviromental conditions	Operation: -25°C to +55°C humidity 0-95%, non-condensing
Testing & approval	Electrical safety: EN 60950: 2006
Mechanics	for BKE according to DIN VDE 0603-5 housing plastic protection class: IP30 Dimensions: 49 x 13.5 x 11 mm
Article number	020356482 (cable length 50 cm) 020356486 (cable length 75 cm)
SPECIFIC PROPERTIES	
Compatible with MS2020 basic plug-in meter Immunity to stray light (LMN is not blocked if the probe is strongly illuminated) e.g. when changing the meter.	

SOFTWARE PRODUCTS.

SYMBIOT
POWERED BY ISKRAEMECO

Developing a complex IoT-based smart environment, such as smart cities or communities, is a reality today. For a successful implementation, you will need a stable, secure, and sustainable Symbiot system that can be deployed flexibly and managed easily.

Effective big data processing and real-time networking enable you to improve the overall efficiency of the utility system, whether it is for electricity, water, or gas distribution. Symbiot is intended to assist utilities in managing energy and water in the twenty-first century while addressing global environmental problems.

Iskraemeco's new software suite and solution platform is well aligned with the company's vision to provide our clients smart solutions which help them improve their efficiency, reduce operating costs and deliver better customer service. Thus, we offer a technology solution that is modular, open, universal, highly configurable, scalable, robust and reliable.

www.symbiot.iskraemeco.com

SYMBIOT SOFTWARE SUITE.

SYMBIOT
POWERED BY ISKRAEMECO

SYMBIOT is an adaptive, intelligent software platform that enables simple, highly secure and automated management of any business based on real-time data processing.

SYMBIOTHES

Focuses on multi-source data from multiple sources, a meter-agnostic approach with the ability to process any competitive device (electricity, water, gas, heat).

SYMBIOTMDM

Provides functionality to analyze data from multiple sources (multiple HES systems) and prepares it for other higher-level systems (ERP, billing, customer portal). Provides validation, aggregation, estimation, and prediction at the point of consumption level.

SYMBIOTFIELDASSIST

Fieldwork simplification solution provides field workers with a clear overview of the tasks to be completed on a daily basis. It has the ability to configure fieldwork and create work orders, enables walk-by and drive-by solutions for data collection with battery-powered meters.

BENEFITS

Configure your package and minimize costs

The modular design of SYMBIOT allows you to customize your system by using only the modules you really need, minimizing system costs. A flexible licensing model supports you with your requirements.

A solution supporting your growth

The reliable and fully scalable platform provides a solution that not only meets your current needs, but also the requirements that may arise in the future due to system expansions, changes in legislation and/or operational requirements.

Optimize processes with a flexible approach

SYMBIOT is a highly flexible solution that fully supports the optimization of your processes throughout the entire company with its service-based design.

Ideal integration that delivers savings

Using open standards and technologies ensures effortless integration with existing legacy systems and minimizes your custom development costs.

Take your customer support to the next level

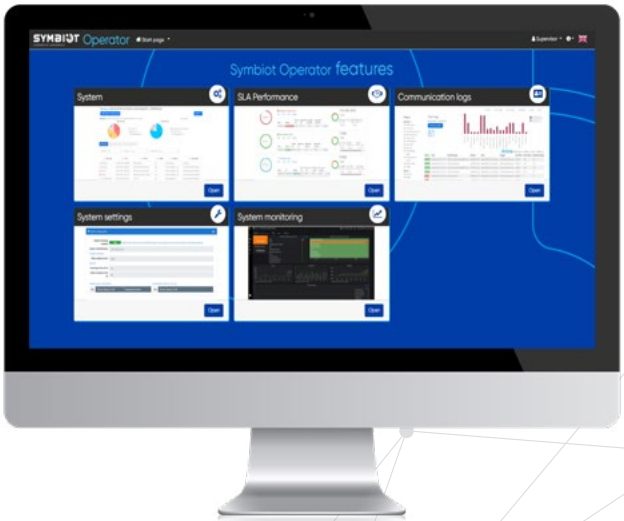
The system notifies you of any exceptional condition, so you can dispatch maintenance personnel within seconds of a network disruption. Consumer-focused solutions increase customer engagement in water, heat, and energy conservation activities.

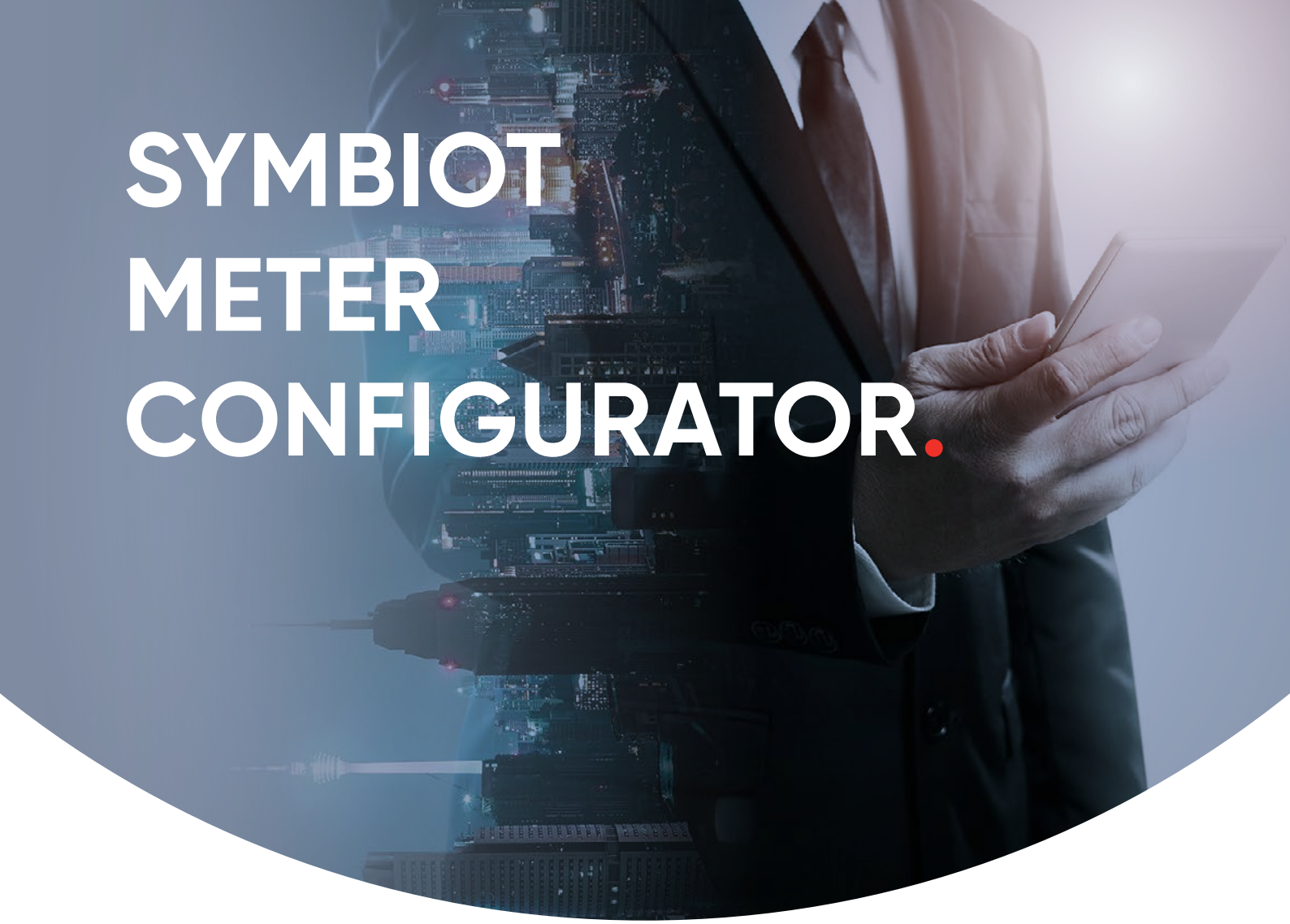
Provide end-to-end security using the most advanced methods available

Sophisticated authentication and encryption methods are essential for secure data transmission between the smart meter and the Head-End System. End-to-end security is provided through the use of advanced, standards-based security methods.

ADVANTAGES

- Generic platform for electricity, water, heat and gas.
- Seamless integration with third-party devices via a powerful SDK.
- Includes a powerful Open API library (SOAP web services, CIM integration layer, file base integration ...)
- Optimizes resource utilization with automatic load balancing.
- Easily manage groups of devices with minimal group management overhead (one definition applied to a group of devices for reading, reconfiguring, reporting, etc.).
- Supports on-premise hardware, virtualized hardware, cloud deployment or Saas and Daas modes of operation.
- ...and numerous others.





SYMBIOT METER CONFIGURATOR.

SYMBIOT
POWERED BY ISKRAEMECO

A powerful tool enabling total meter control

Symbiot Meter Configurator is a complete meter management tool that enables users to read or change meter parameters, upgrade meter firmware, and perform various other actions. It is available as a standalone application and as a Symbiot plugin (providing data collection and processing features), which ensures simple transition from a single meter to group parameterization of meters.

Ease of use and high security at the same time

- The application offers a high level of security and auditing by providing easy selection of appropriate user and group permissions and logging of all user actions.
- Have the ability to effortlessly select an individual meter and manage it using its communication interface.

Flexibility when and where you need it

- Meter parameters within the Symbiot Configurator are grouped into schemes with varying scope.
- One or more schemes can be assigned to a single device. Schemes can also be compared.
- Exports to command scripts, PDF, Word and Excel, or Symbiot reading definitions.

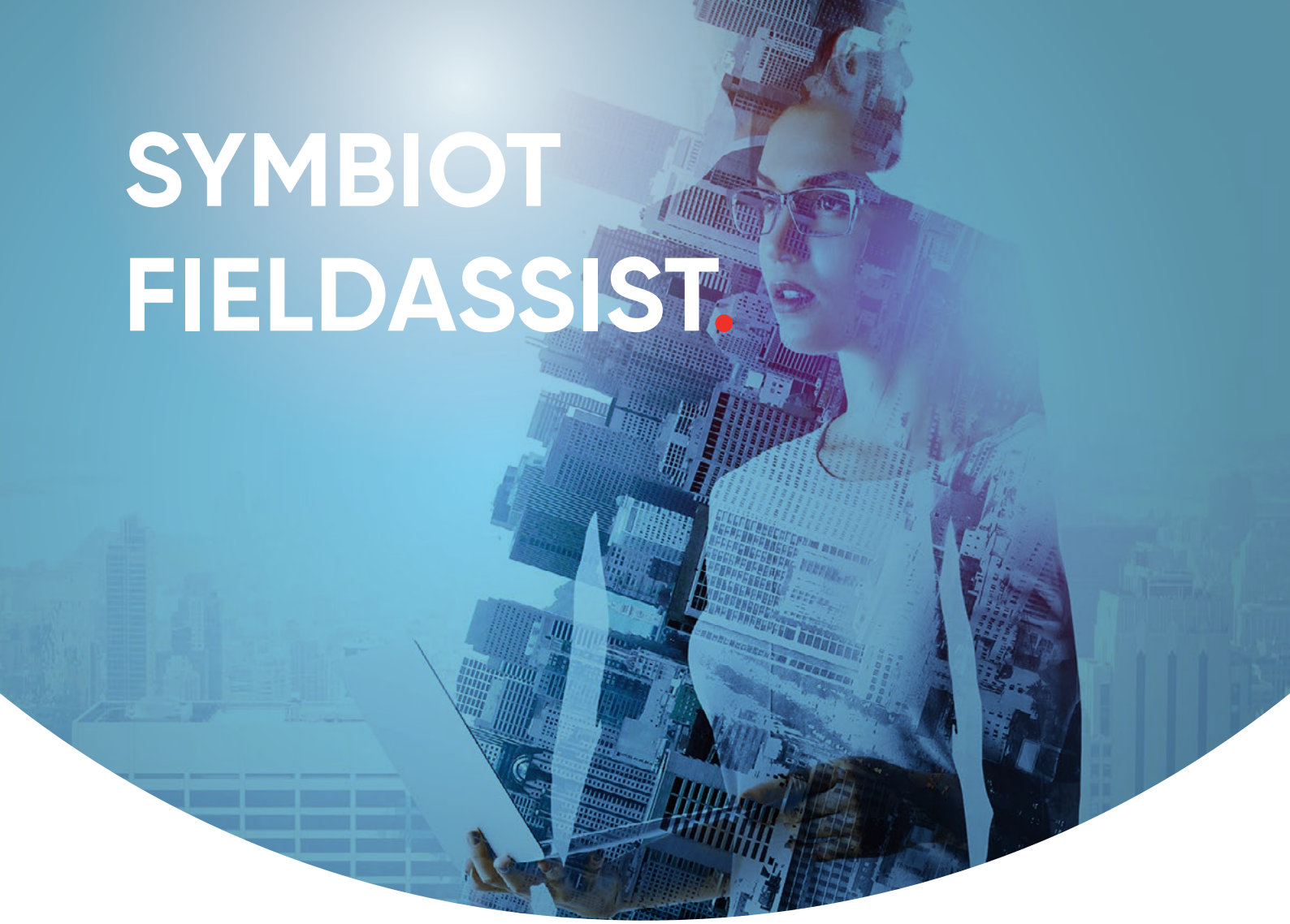
ADVANTAGES

- Support for IDIS, DLMS/COSEM, SML, IEC 62056-21 (former IEC 1107) and other metering communication protocols.
- Read-only snapshots of all parameters through various timings and schemes.
- Remote meter communication – communication with any device via a direct infrared optical interface, serial interfaces, GSM/GPRS/3G&4G, Ethernet, or other interfaces.
- Command script files can be exported and easily attached to quick execution buttons or used in other Iskraemeco meter parametrization tools.
- Tree structure, where new device groups, devices and their parameter schemes can be manipulated.
- Each device can have one or more parameter schemes attached to it, thus covering the needs and rights of an individual user.
- Powerful customization options for different operations.
- Ability to quickly execute frequent actions on various meter types.
- Communication analysis options for trouble-shooting issues with meters.

SYMBIOT METER CONFIGURATOR. FUNCTIONALITIES IN EDITIONS

	BASE	ENTERPRISE
Low voltage	•	•
Manage devices and groups	•	•
Read from device - parameters, profiles, log book, events	•	•
Device communication log	•	•
License HW lock, activation and management	•	•
Use of local database (automatic upgrade from older versions)	•	•
Combine command scripts	•	•
Execute methods on DLMS/COSEM devices	•	•
Set/synchronize time		•
Parameter scheme - save changes		•
Search for parameters		•
Print - log book, load profile, data readout		•
Export to PDF, Excel, Word - log book, load profile, data readout		•
Read – only snapshots of device parameter		•
Use remote communication (PSTN,GSM, GPRS, Modern, TCP/IP...)		•
Update device firmware		•
Execute command scripts		•
Parameter scheme – compare parameters (with print and export to PDF, Excel, Word), import from command script files, export to Symbiot's reading definitions or command scripts		•
Parameter scheme – view and edit parameters in raw mode		•
Export to Symbiot – log book, load profile, data readout		•
User and security management		•
Communication trace and analysis view		•

SYMBIOT FIELDASSIST.



SYMBIOT
POWERED BY ISKRAEMECO

The Symbiot FieldAssist is a modern and userfriendly solution designed by Iskraemeco. It is dedicated for local meter operations in the field (meter commissioning, meter data reading, meter parameterization and meter firmware upgrade).

The central Symbiot FieldAssist Backend server enables the management of user permissions and preparation of command files, automatically distributed to smartphones or tablets. The Webbased Backend server assures the management of work orders and an overview of the digitally signed operating logs with the geographical location on the map.premises; it enables centralized management of users and operations for the S- FA applications.

Meter readouts and operation logs collected with the Symbiot FieldAssist application are automatically transferred to the Backend server and imported into Symbiot or any other HES. In the case of using the Symbiot Suite, the integration is readily available. 3rd party Head-End-Systems can be integrated on the level of collected files, made available by the Backend server in a dedicated folder.

SOLUTION ARCHITECTURE

The solution consists of the following components:

- **Symbiot FieldAssist App** - the Android application for local meter operations in the field with a USB or Bluetooth optical probe running on a smartphone or tablet.
- **Symbiot FieldAssist Backend** - a Windows service with an administrator web portal running on the customer's premises; it enables centralized management of users and operations for the S- FA applications.

SUPPORTED METER OPERATIONS

Supported operations on electricity meter:

- Read Clock.
- Set Clock.
- Synchronize Clock – meter clock synchronization with time on an Android device.
- Read Load Profile.
- Read Billing Profile.
- Read Event Log – enables reading of any meter event log with a simple presentation.
- Read Registers – enables reading of arbitrary meters registers with simple presentations.
- Execute Command Script – meter parametrization with arbitrary command script in NCS format.
- Monitoring – periodical presentation of current measurement values on the meter. On industrial meters, a vector diagram is presented.
- Meter Firmware Upgrade – upgrade of DLMS based electricity meters.
- Meter Snapshot – reading of complete meter data from the meter for further inspection.

Supported operations on wireless M-Bus meters (water, heat, gas meters):

- Passive reading – reading of measurement values for all meters in the reach (general Walk-by / Drive-by mode of meter readout).
- Target reading – reading of measurement values only for the meters contained in the work order (suitable for collecting the missing measurement data).

Additional functionalities available in the Symbiot FieldAssist application:

- Seamless operation with the Key Management System (KMS) when online connection available.
- Offline work with meter keys if the online connectivity to KMS is not possible.
- Work order management with the Google Maps navigation.
- Digitally signed operations log, with geographical location and optional photo evidence of the action.

END-USER BENEFITS

- Central management of operations and user rights.
- Simple and ergonomic user interface.
- Support for any Android-based device, from simple to rugged one.
- Support for revoking the permission if a phone/tablet was lost or stolen.
- Securely protected data is instantly transferred between the phone application and the Center.
- Support for DLMS and IEC 1107 electricity meters.
- Support for Low-Level Security and High-Level Security (Cosem Security Suite 0, 1, 2).
- Complete set of electricity meter operations including reading, writing, and DLMS meter firmware upgrade.
- Vector diagram and smart meter monitoring.
- Walk- By / Drive By meter readout for water, heat and gas meters.
- Integration with HES and out-of-thebox integration into Symbiot System.
- Support for wired USB and wireless Bluetooth optical probes.
- Secure and seamless support for Key Management System (KMS).
- Work order management.
- Localization support.

THE SYMBIOT FIELDASSIST IN A NUTSHELL:

- Simple-to-use utility tool that runs on Android. It is aimed at field technicians and enables meter installations, readouts and local maintenance tasks.
- It supports electricity meters and battery-powered w-Mbus meters (water/heat/gas) using the efficient Walk-By/Drive-By readout method.
- The use of work orders provides a clear overview of daily tasks. It enables effcient traveling between meter locations using Google Maps navigation.
- The solution utilizes a two-way communication with the center for online exchange of work orders, commands, operational logs and collected data.
- The solution is highly secure. It enables seamless operation with any KMS system without exposing the meter keys. Besides, it offers the offline operation mode when no internet connection is available, assuring the field technician to complete the mission under any circumstances.

The solution supports Iskraemeco and other non-Iskraemeco meters.

There is a growing list of supported meters. If a meter is not supported yet, Iskraemeco can integrate it on a project basis.

SERVICES.

Iskraemeco's rich portfolio of services supports every step of your project. Our expert teams specialize in design, deployment, maintenance and key upgrades. With us as your partner, your infrastructure transforms into the powerful tool you need to focus on what you do best.

Having delivered millions of devices over the past few years, our team has gained extensive knowledge and expertise, which allows us to support our customers at all stages of smart metering projects, from planning to implementation, and continue to provide high-quality support services after the delivery of the project. Experts with vast experience in the field ensure that your tailored solutions will be implemented professionally, efficiently, and on time using our robust portfolio of products and solutions.

TYPES OF SERVICES

Planning

- Infrastructure survey.
- Solution design.
- Feasibility study.
- Consultancy.

Deployment

- Installation.
- Integration.
- Configuration.
- Testing.
- Infrastructure optimization.
- Documentation.
- Project management.

Support services

- Preventive maintenance.
- Corrective maintenance.
- Service desk.
- Training.

PLANNING.

We provide a range of services right from the project planning stage. These services include a detailed analysis and comprehensive understanding of the customer's existing infrastructure and the requirements for future infrastructure, as well as the preparation of a solution that best fits the customer's budget.

INFRASTRUCTURE SURVEY

Our experts perform a detailed analysis of the customer's current infrastructure, with a massive emphasis on transmission communication systems and various parameters. However, in order to perform the infrastructure survey, our team needs specific requirements provided by the customer, in order to perform the infrastructure survey.

FEASIBILITY STUDY

Based on the information gathered from the survey regarding future infrastructure, our highly qualified team will prepare a comprehensive feasibility study. The feasibility study will be communicated to and discussed with the customer.

SOLUTION DESIGN

Taking into account the combined findings of the infrastructure survey and the feasibility study, our experts will then prepare a customized solution proposal, which will be analyzed in close collaboration with the client.

CONSULTANCY

Consulting services are part of our broad portfolio of services that address the unique challenges utilities face today or may face in the future.

Our team supports customers in all phases of their smart metering projects by sharing our knowledge and understanding of AMI systems.

Finally, after successful completion of the previous phases, the existing solution is optimized by extending or adding functionalities to maximize the benefits of the system.

DEPLOYMENT.

INSTALLATION

Iskraemeco's professional team offers installation of our system for automated collection and processing of smart metering data to secure proper installation and guarantee maximum performance.

CONFIGURATION

The configuration service covers the definition and configuration of use cases for communication and metering devices to be implemented in the system.

INTEGRATION

We offer integration services that include analysis, design, development, testing, and integration of Iskraemeco's system with other systems that are part of the customer's infrastructure or integration of third party devices with our Head-End System.

TESTING

Testing service includes testing of metering devices, communication devices or the complete system. Testing may be performed on various types of communications and may include third party devices. Testing is demonstrated on metering devices, systems, and communications equipment. The process can be carried out remotely or on-site.

INFRASTRUCTURE OPTIMIZATION

Due to infrastructure and solution specifics, a number of issues may arise in certain cases that may result in unavailability of data measurement. To minimize such problems, we offer the service remotely or on-site.

DOCUMENTATION

Documentation prepared by our experts is an essential part of any project, as it supports the activities performed and can be used in the future when open questions arise.

PROJECT MANAGEMENT

Project management is vital for a successful AMM roll-out. It consists of all activities necessary to ensure that the project is carried out as efficiently as possible and with the best possible results.

SUPPORT SERVICES.

Iskraemeco's team of experts performs preventive maintenance activities in order to avoid extensive and costly repairs at a later date. It also helps ensure reliability and maximize system's performance.

CORRECTIVE MAINTENANCE

It is a form of system maintenance that is performed after a fault or problem has occurred in the system, with an aim of restoring the system's functionality.

SERVICE DESK

We offer support to day-to-day service requests and incident resolutions via our Service Desk. It operates in accordance with the relevant ITIL processes.

TRAINING

We offer an effective professional training service covering the entire product and solution portfolio.

Smart solutions, smarter services, brilliant business –

ISKRAEMECO.

As one of the leading metering solutions provider our aim is to provide energy companies with products andservices that help them overcome the challenges that lie ahead. Iskraemeco has ommitted to deliver high quality, and customized solutions and portfolio.

Interested in learning more about iskraemeco's smart water product portfolio?

SCAN THE CODE NOW!

Every drop of water is precious to our planet and to future life as we know it. Water demand is increasing as the population grows. Iskraemeco's Smart Water Solutions address the key challenges facing water utilities.

Our smart water solutions address the key challenges faced by water utilities:

- Digitization and improving the management of utility supply systems.
- Efficient measurement, precise calculation of water consumption and calculation of water balances.
- Non-Revenue Water (NRW). Proactive monitoring and pinpointing of small leaks before major damage occurs.
- Reduction of apparent losses: detection of meter under-registrations, data-handling errors and water theft.
- Improvement of services to consumers. We have taken a holistic approach to tackling these pain-points of the modern water utilities and developed comprehensive water solutions to ensure their sustainable technical and financial operation.

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