



ENERGY  
KNOWLEDGE  
FUTURE



**Energy efficient  
solutions**



EKF is a leading manufacturer & supplier of electrical equipment and derived solutions

In-house R&D

Wide range of products for most electrical applications

Global Team with Local Presence at Eastern Europe, Asia and Middle East



21 years of experience in electrical equipment



over 1 500 employees worldwide



our company operates in 20 countries across Eastern Europe, Central and South Asia



more than 5 000 projects annually all over the world implemented with over 1 000 engineering consultants



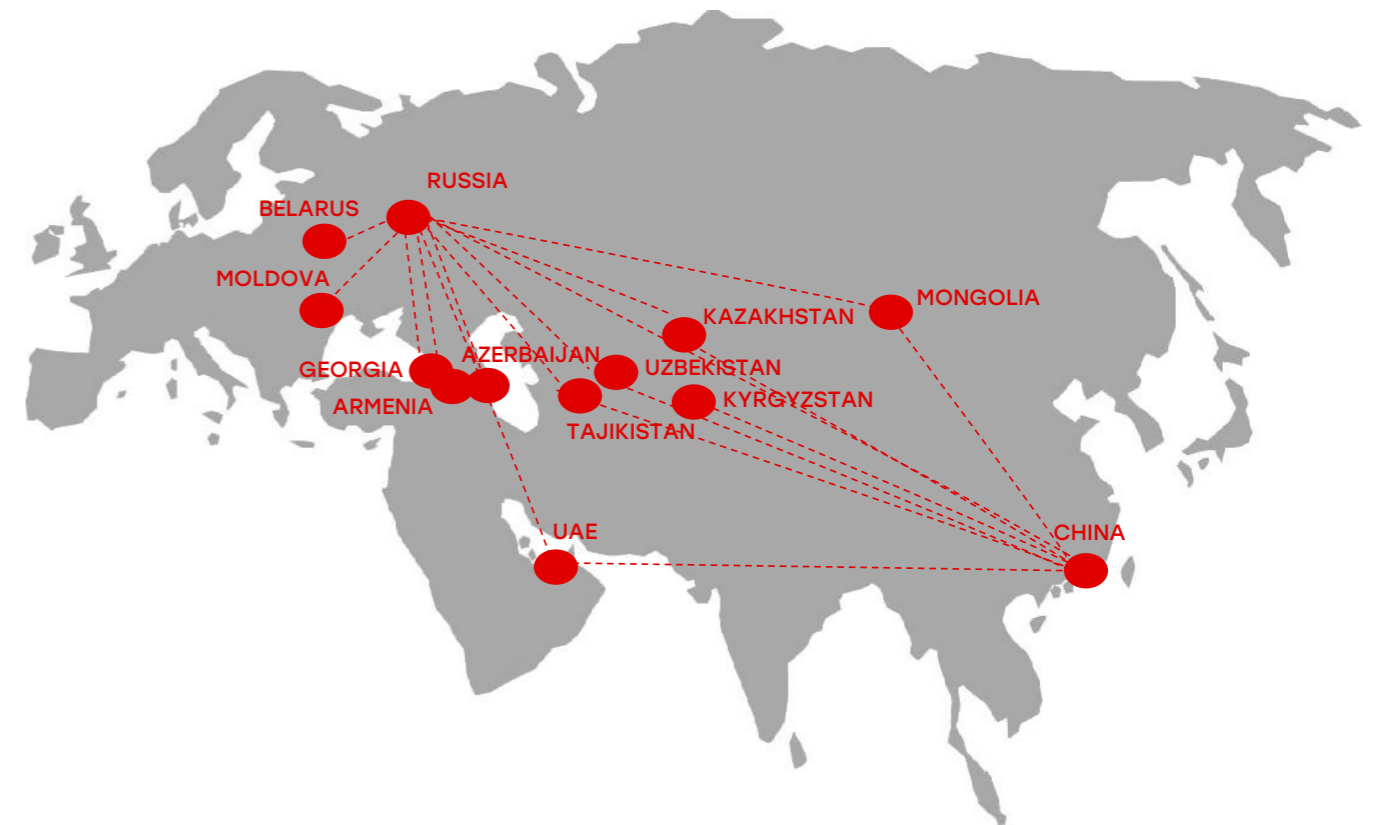
over 17 000 SKUs in catalogue



35 000 m<sup>2</sup> of own production facilities in Eastern Europe



over 350 distributors all over the world



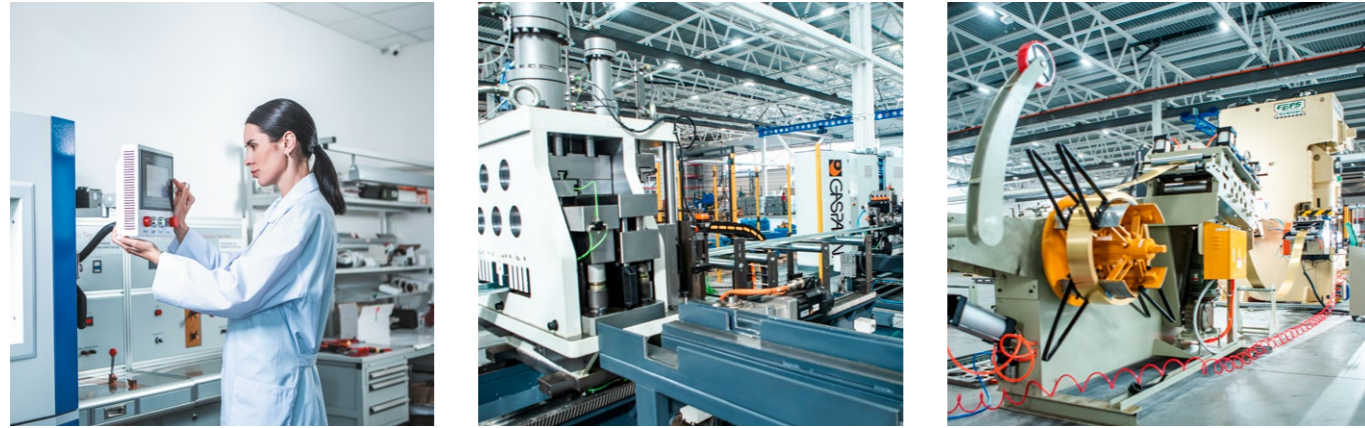
[GLOBAL.EKFGROUP.COM](http://GLOBAL.EKFGROUP.COM)



## R&D and production

Comprehensive R&D comprising products, software and solutions

35 000 m<sup>2</sup> of own production facilities in Eastern Europe complemented with OEM-synergy with Asian factories



## Quality and reliability

Quality control by the in-house team of engineers & world's largest expert organization in the TIC sector



## Trusted electrical solutions

Local and Global customers



Every year with over 5 000 successfully implemented projects

Over 1 000 engineering consultants collaborate with us on energy efficiency for Residential & Commercial Construction, and Industry

## Local and global customers

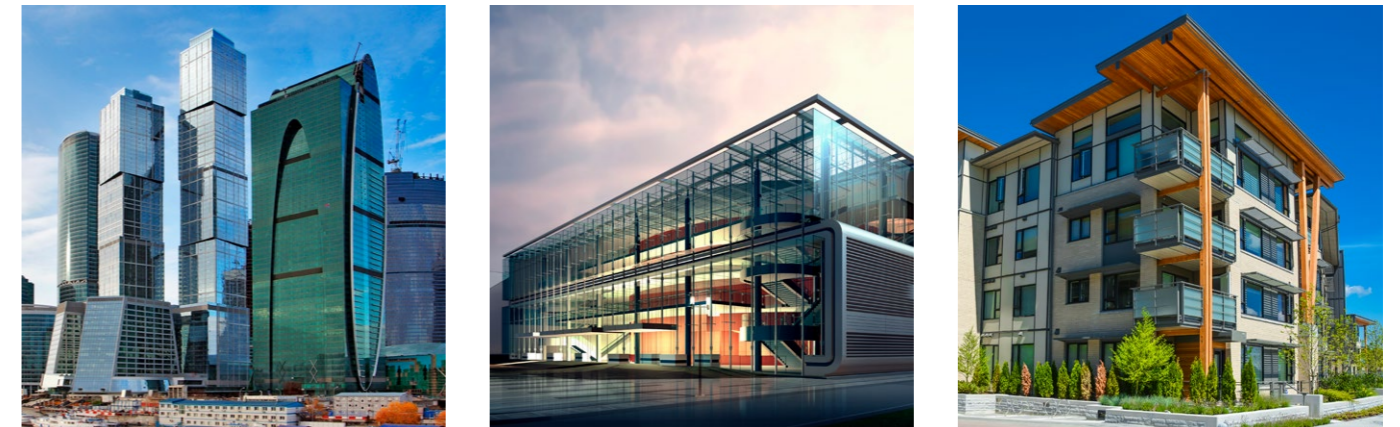
### Industry & Construction

Over 3 000 facilities use EKF electrical equipment and solutions



### Residential & Commercial Facilities

Over 5 000 facilities use EKF electrical equipment and solutions



## Reliable partner

We manufacture top-quality reliable electrical equipment with warranty up to 10 years

We certify our equipment in the world's largest expert organizations

We continuously engineer and introduce new products, solutions and innovations with in-house R&D

We are the best bargain

We keep in touch to solve any issue efficiently





## EKF develops, manufactures and markets electrical equipment and related solutions

**2** own manufacturing facilities

**17 000+** SKUs in the catalogue

**R&D** In-house R&D

**6** logistics hubs in Russia, Kazakhstan, and Uzbekistan

**20** countries of operation

**Fast delivery**

## Start to save up to 50% of energy and reduce operation expenses

**A**  
**B**  
**C**  
**D**  
**E**

**Energy efficiency** is the quickest and low-cost way to reduce energy consumption, and carbon footprint of any activity.

The EKF catalogue of standard energy solutions will help you in sustainable energy consumption.

Examples of energy efficient solutions in our catalogue can help you start saving up to 50% of energy and reduce your expenses as early as today.

## EKF energy efficient solutions

EKF provides comprehensive energy efficient solutions that help our customers save energy (up to 50%) and reduce operating expenses.

### EXPECTED SAVINGS

- 35% for service and repair
- 50% for electric power
- 30% for heating
- 70% for maintenance personnel

#### EKF solutions enable:

- Local monitoring & control
- Remote monitoring & control
- Data collection and analysis, including financial metrics
- Equipment diagnostics & troubleshooting
- Routine maintenance and retrofit

#### Every solution includes:

- Basic & detailed design documents
- Material & product specifications
- Operation manuals
- Software for PLC, HMI

## Customers need comprehensive energy efficient solutions

### Commercial construction

- Lighting
- Ventilation
- Power supply
- Heating

### Residential construction

- Heating
- Water supply
- Power metering

### Industry

- Power supply
- Heating
- Ventilation
- Water supply
- Production process



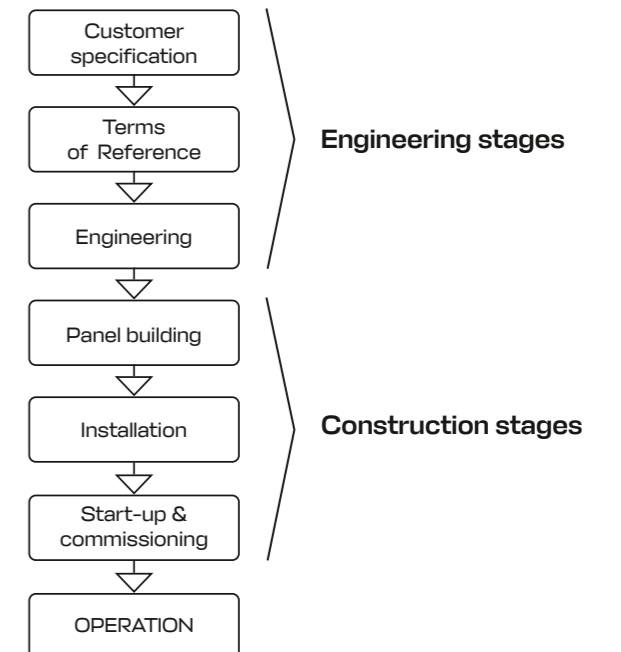
## We collaborate with over 500 engineering companies

EKF experts provide partners with high-quality service, customized approach and support at any design stage.

## The EKF team is always ready to support our customers at any project stage

- First, we assess the customer specification
- Second, we offer an optimal solution
- Then, we search for a partner (integrator, OEM, etc.) to implement the solution
- We assist implementation at every project stage
- We provide tailored training on the operation, configuration and programming of our equipment
- We produce design documentation
- We design software for PLC and HMI

### Project stages





Up to 40% savings  
for small-scale commercial and residential projects

Up to 30% savings  
for large-scale commercial and residential projects

### Lighting control

The best-suited products:

- timers
- motion sensors
- switches
- control relays
- controllers
- circuit breakers

### Heating, ventilation & air-conditioning

The best-suited products:

- frequency converters
- measuring instruments
- programmable relays

### Motor control & protection

The best-suited products:

- programmable time relays
- frequency converters

### Additional functions

Remote and local control



Up to 30% savings  
for industry projects

### Lighting control

The best-suited products:

- dimmers
- timers
- motion sensors
- switches
- twilight relays
- controllers
- circuit breakers

### Heating, ventilation & air-conditioning

The best-suited products:

- temperature & level sensors
- pressure transmitters & switches
- solid-state & interface relays
- programmable logic controllers
- frequency converters

### Motor control & protection

The best-suited products:

- time relays
- frequency converters
- PLC
- motor protection relays
- motor starters
- thermal overload relays

### Energy consumption control

The best-suited products:

- reactive power regulators
- measuring instruments

### Additional functions

Remote control, visual control, data collection and analysis



# Content

## EKF energy efficient solutions

Auto lighting control in multi-apartments' entrances.....	10
Auto control of urban lighting based on time of day.....	12
Electricity metering in allotments.....	14
Auto lighting control of building surrounding area.....	16
Time control of lights and bells at schools.....	18
Ventilation control in hotel bathrooms.....	20
Remote control of electrical heating in hotels.....	22
Metering and analysis of energy consumption in shopping malls.....	24
Integrated lighting control in all types of rooms.....	26
Control of building utilities.....	28
Optimization of refrigeration energy consumption.....	30
Metering and analysis of energy consumption at production facilities.....	32
Optimization of energy consumption at production facilities.....	34
Improvement of energy system efficiency at production facilities.....	36
Efficient operation of central air conditioner condensing units.....	38
Reduced energy costs for electrical asynchronous motors.....	40

## EKF products for energy efficient solutions

Miniature circuit breakers & accessories.....	43
Molded case circuit breakers up to 1600A.....	44
Contactors, starters, relays & accessories up to 1000A.....	45
Industrial automation.....	46
Current transformers TTE, TTE-A & TTE-R.....	50
Electricity meters SKAT.....	51
Measuring instruments.....	52
Socket outlets & switches.....	53
Power factor correction components.....	54
Interface converters.....	55
Lighting control.....	56

# EKF energy efficient solutions





## Auto lighting control in multi-apartments' entrances

### Customer needs

Property management companies require improving comfort of tenants and reducing energy costs.

### EKF recommendation

The motion sensor EKF, mounted as directed in public areas, will automatically control lighting under a preset illumination level and by presence of persons.

### Requirements and specifications of the equipment within the solution

Motion sensors detect movements throughout 360 degrees and 20-meter radius. The high-sensitive sensors can detect motion even through thin obstacles.

Ceiling infrared motion sensor 1200W 360° up to 6m IP20 MS-20B EKF



Microwave motion sensor white 1200W 360° up to 20m IP20 MW-701 EKF

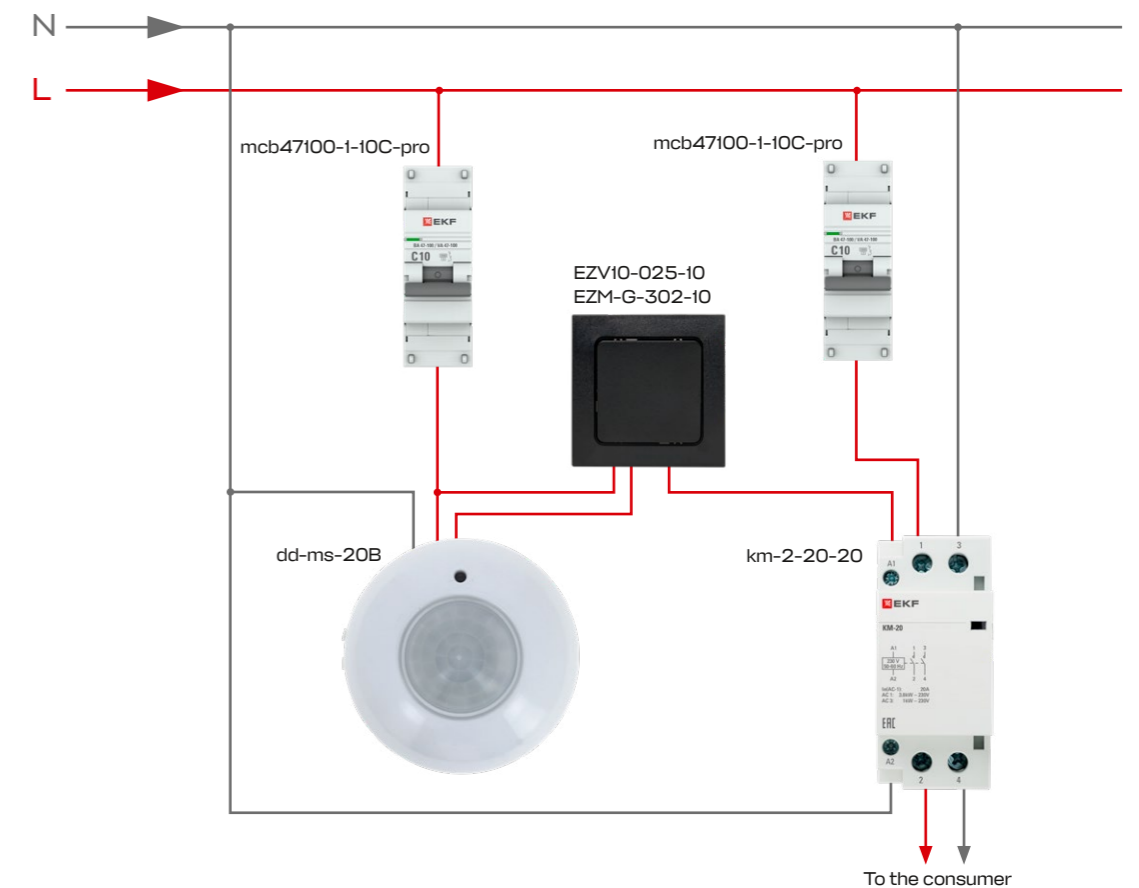


up  
to **15%**  
benefit

## ENERGY EFFICIENT

- 1) Energy saving by the auto lighting off not required at the moment.
- 2) Ensuring sustainable energy use, utmost comfort and safety.

### Proposed solution diagram



### Proposed solution

Item code	Name	Q-ty	Page
dd-ms-20B	Ceiling infrared motion sensor 1200W 360deg. up to 6m IP20 MS-20B EKF	1 pc	56
mcb47100-1-10C-pro	Miniature circuit breaker VA 47-100 1P 10A [C] 10kA EKF PROXIMA	2 pcs	43
km-2-20-20	Modular contactor KM 20A 2NO (2modules) EKF PROXIMA	1 pc	45
EZV10-025-10	Mechanism of switch 1-gang 2-way 10A black series Stockholm EKF	1 pc	53
EZM-G-302-10	1-gang frame metal black series Stockholm EKF	1 pc	53



## Auto control of urban lighting based on time of day

### Customer needs

Municipal administrations require higher reliability of public lighting to provide citizens with maximum comfort and safety. The administrations also require lighting time regulation to save energy.

### EKF recommendation

The programmable astronomical timer will automatically turn lights on and off at sunset/sunrise and by time of day.

### Requirements and specifications of the equipment within the solution

The astronomical timer TM-AS EKF is a relay with two independent contact groups. It operates (switches on/off) at sunset/sunrise, based on geo-location.

With the built-in clocks, you can track current time. Moreover, the timer has pulse function to form a pulse of 1 to 99 seconds.

Sealing available.

Copper and aluminum wire connections are supported.

Astro digital timer, two-channel TM-AS EKF

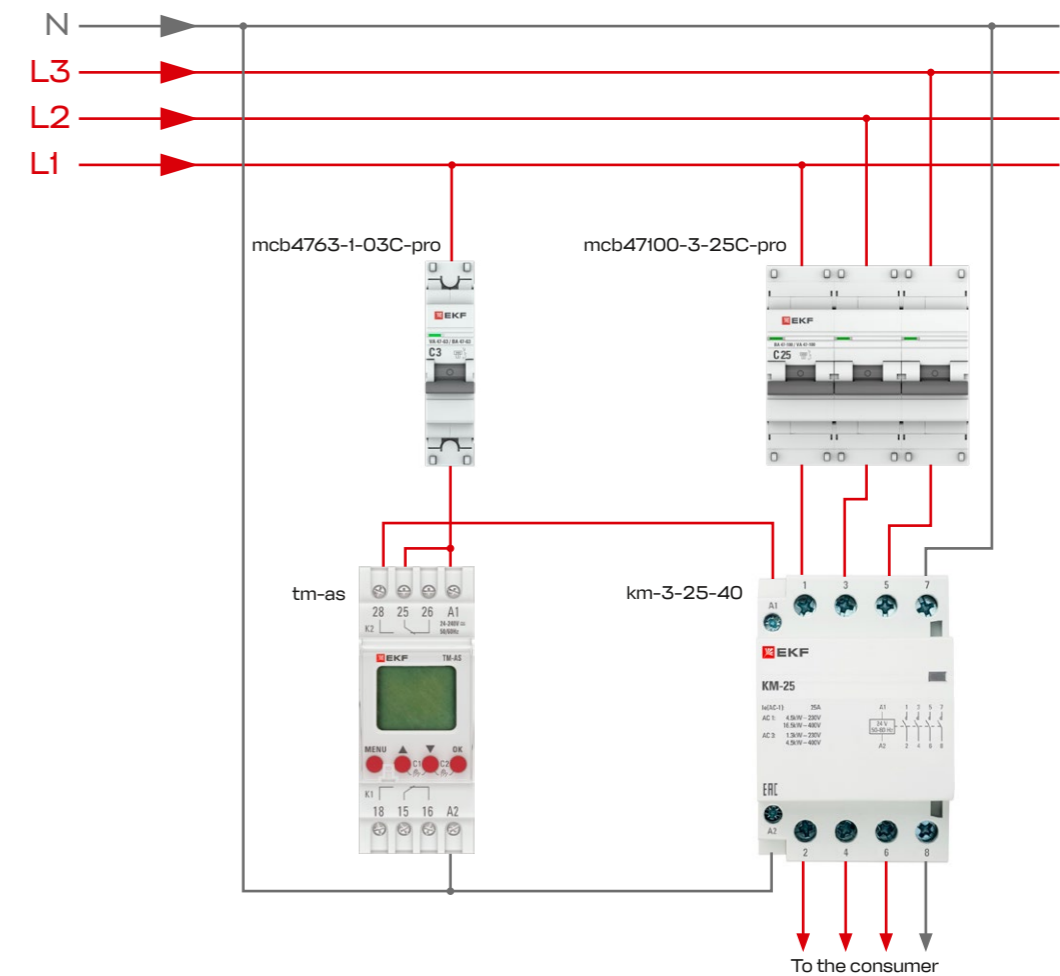


up  
**to 35%**  
benefit

## ENERGY EFFICIENT

- 1) Energy saving by the auto lighting off not required at the moment.
- 2) Ensuring sustainable energy use, utmost comfort and safety.
- 3) Manual control option of temporary or permanent ON/OFF status.

### Proposed solution diagram



### Proposed solution

Item code	Name	Q-ty	Page
tm-as	Astro digital timer, two-channel TM-AS EKF	1 pc	46
mcb4763-1-03C-pro	Miniature circuit breaker VA 47-63 1P 3A [C] 4,5kA EKF PROXIMA	1 pc	43
mcb47100-3-25C-pro	Miniature circuit breaker VA 47-100 3P 25A [C] 10kA EKF PROXIMA	1 pc	43
km-3-25-40	Modular contactor KM 25A 4NO (3modules) EKF PROXIMA	1 pc	45





## Electricity metering in allotments

### Customer needs

Allotment managements require metering the electricity consumed by tenants to bill them accurately. To encourage tenants to save energy, the management shall provide them with detailed information about their energy consumption.

### EKF recommendation

The electricity meters SKAT are best-suited solution to meter energy consumption of every allotment parcel.

### Requirements and specifications of the equipment within the solution

Meters fit both indoor and outdoor installation. For outdoor installation, special enclosures with extra protection against adverse environmental conditions shall be used. In such enclosures, the meters retain their accuracy at temperature from -40 to +55 °C.

Meters have bistable relays to remotely control the consumers' connections, event logging function, and protection against magnetic fields.

The terminal group is located on one side for easy meter installation.

Electricity meter SKAT 115 STIROD EKF

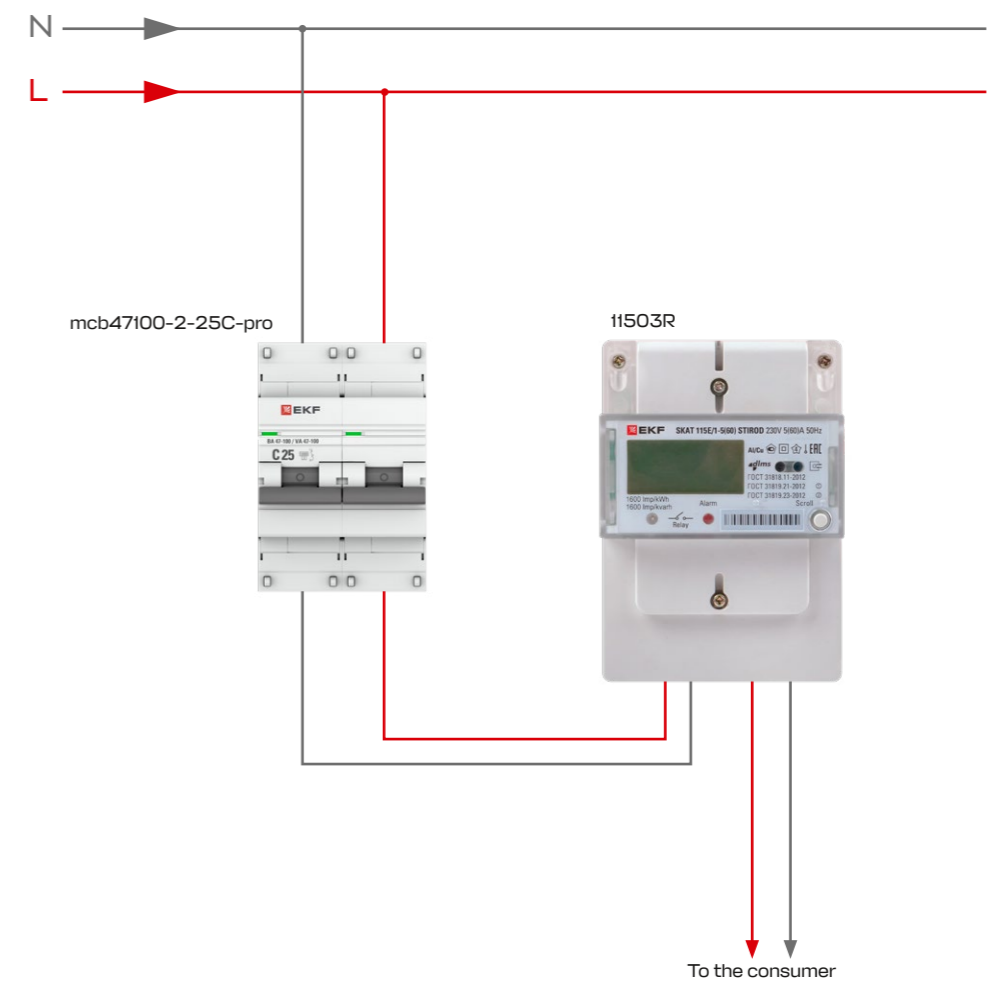


up  
to 10%  
benefit

ENERGY EFFICIENT

- 1) Allocation of energy costs implicitly contributes to lower energy consumption.
- 2) Visualization and regular monitoring helps consumers control their energy consumption and use electrical appliances prudently.

### Proposed solution diagram



### Proposed solution

Item code	Name	Q-ty	Page
mcb47100-2-25C-pro	Miniature circuit breaker VA 47-100 2P 25A [C] 10kA EKF PROXIMA	1 pc	43
11503R	Multi-rate single-phase electricity meter SKAT 115E/1-5(60) STIROD (built-in relay) two-tariff MSC+0 EKF	1 pc	51



## Auto lighting control of building surrounding area

### Customer needs

If night lighting of areas surrounding public buildings or premises is required, simple scheduling is not sufficient to ensure both safety and energy savings. The reason is the variation of light brightness depending on the season and climatic conditions. Municipal administrations require lighting of surrounding areas whenever natural light is insufficient, and auto switching off lights during daytime.

### EKF recommendation

A twilight relay is a perfect solution. The device automatically switches on and off lights whenever required by the set parameters. A built-in time relay prevents the lighting circuit from untimely open/close during transient lighting conditions.

### Requirements and specifications of the equipment within the solution

We recommend a twilight relay triggered by an external wall-mounted photocell:

- The photocell detects low brightness and makes contact close to trigger luminaires.
- The twilight relay switches lights off when the preset brightness threshold is reached. Time delay of the contact open/close: 10 seconds.
- Switch-off threshold ranges from 2 to 100 lux.
- Twilight relay is made of flame-retardant plastic.

Twilight relay with remote sensor DIN-1 (FR)  
2-100lx 25A 3000W EKF

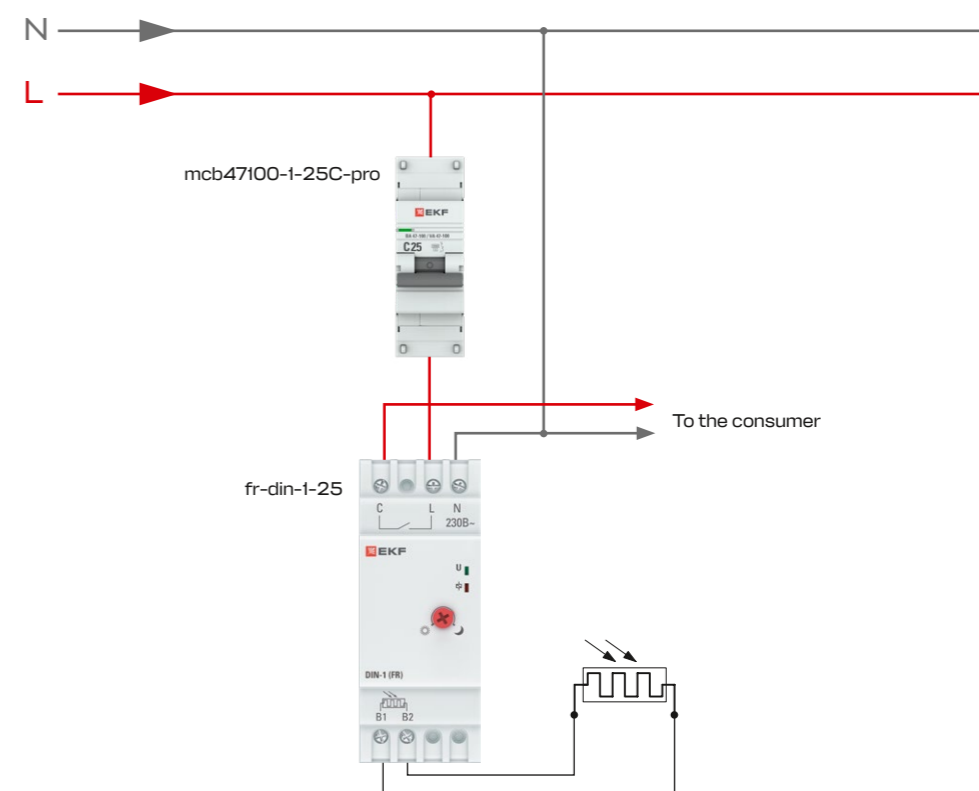


up  
to **15%**  
benefit

## ENERGY EFFICIENT

- 1) Energy saving by the auto lighting off not required at the moment.
- 2) Ensuring sustainable energy use, utmost comfort and safety.

### Proposed solution diagram



### Proposed solution

Item code	Name	Q-ty	Page
fr-din-1-25	Twilight relay with remote sensor DIN-1 (FR) 2-100lx 25A 3000W EKF	1 pc	46
mcb47100-1-25C-pro	Miniature circuit breaker VA 47-100 1P 25A [C] 10kA EKF PROXIMA	1 pc	43





## Time control of lights and bells at schools

### Customer needs

School administrations require optimizing operational costs by saving energy for lighting and auto activation of school bells at the designated time.

### EKF recommendation

Customers shall determine the time period, when lighting is used, and additional lighting periods (for technical purposes), set the required limits in the relay, program time and duration of the bells.

### Requirements and specifications of the equipment within the solution

The programmable relays PRO-Relay EKF can greatly facilitate electrical equipment control circuits. The relays are programmed with the programming cable iLr-uLink. Copper and aluminum wire connections are supported.

- From 10 to 20 I/Os in the central module. Expansion options up to 56 I/Os
- Programming with Ladder Diagram (LD) and Functional Blocks (FBd) supporting up to 260 blocks
- Built-in 4x16 character display
- Programming via PC or front panel
- Flexible debugging. Password protection
- RS-485 with Modbus RTU
- Ethernet with Modbus TCP supporting up to 300 lines.

Programmable relay 20 I/O with display 230V PRO-Relay EKF

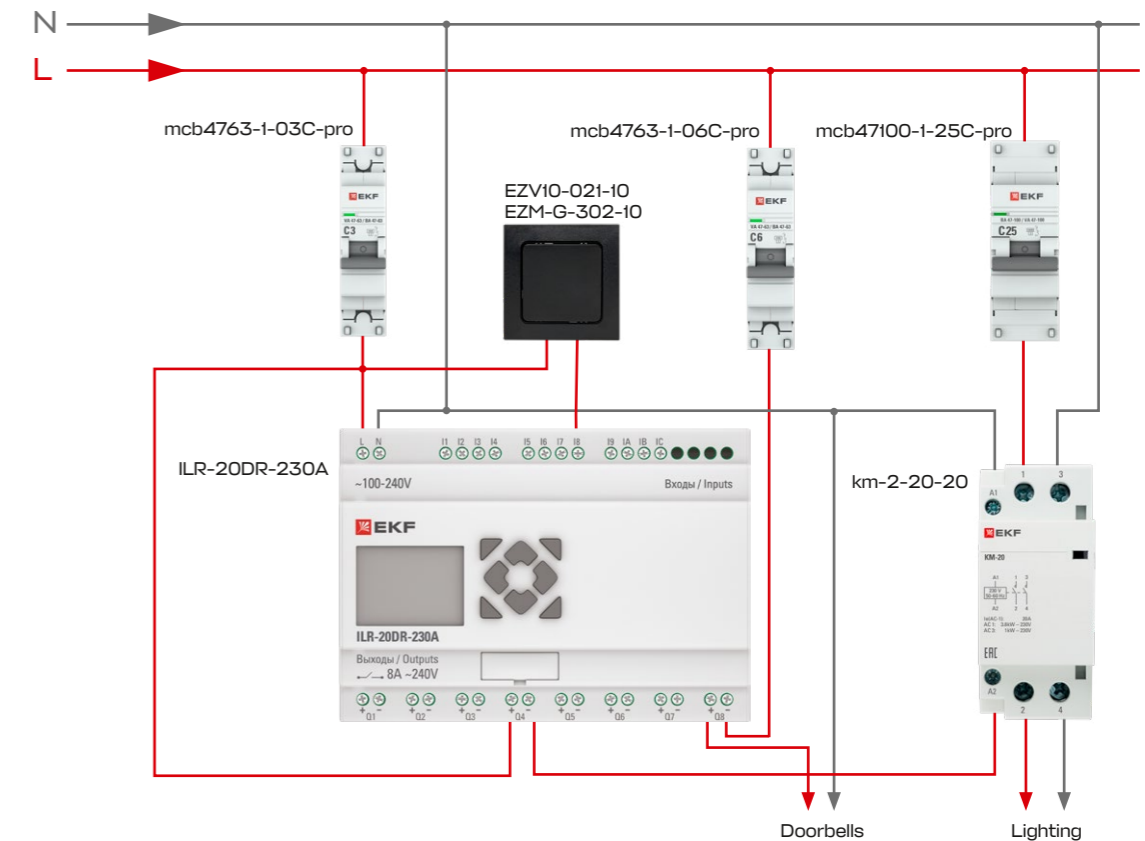


up  
to **50%**  
benefit

## ENERGY EFFICIENT

- 1) Energy saving by the auto lighting off not required at the moment.
- 2) Easy modification of the time relay program reduces waste of electric power.
- 3) Auto summer/winter time shift.

### Proposed solution diagram



### Proposed solution

Item code	Name	Q-ty	Page
ILR-20DR-230A	Programmable relay 20 I/O with display 230V PRO-Relay EKF	1 pc	46
mcb47100-1-25C-pro	Miniature circuit breaker VA 47-100 1P 25A [C] 10kA EKF PROXIMA	1 pc	43
mcb4763-1-03C-pro	Miniature circuit breaker VA 47-63 1P 3A [C] 4,5kA EKF PROXIMA	1 pc	43
mcb4763-1-06C-pro	Miniature circuit breaker VA 47-63 1P 6A [C] 4,5kA EKF PROXIMA	1 pc	43
km-2-20-20	Modular contactor KM 20A 2NO (2modules) EKF PROXIMA	1 pc	45
EZV10-021-10	Mechanism of switch 1-gang 1 way 10A black series Stockholm EKF	1 pc	53
EZM-G-302-10	1-gang frame metal black series Stockholm EKF	1 pc	53



## Ventilation control in hotel bathrooms

### Customer needs

Hotel managements require reducing energy consumption and improving comfort of guests by installing auto ventilation control systems in bathrooms.

### EKF recommendation

The first option is a ventilation system in bathrooms that starts when the room is occupied and keeps running for a few minutes after lights off.

Another option is a time delay relay to prevent exhausts from immediate shut off and to make them operate for a set period of time.

### Requirements and specifications of the equipment within the solution

We recommend using the time relay EKF to power an exhaust fan when the bathroom light is ON:

- The ON-OFF switch controls the lighting and ventilation simultaneously.
- When the lights are off, the relay keeps controlling the ventilation system.
- The fan stops after a set period to remove any unpleasant odors and moisture without wastage of energy.
- The time delay can be set from 0,1 second to 2400 hours.

Time relay (off delay when the signal disappears)  
RT-SBE12-240V EKF

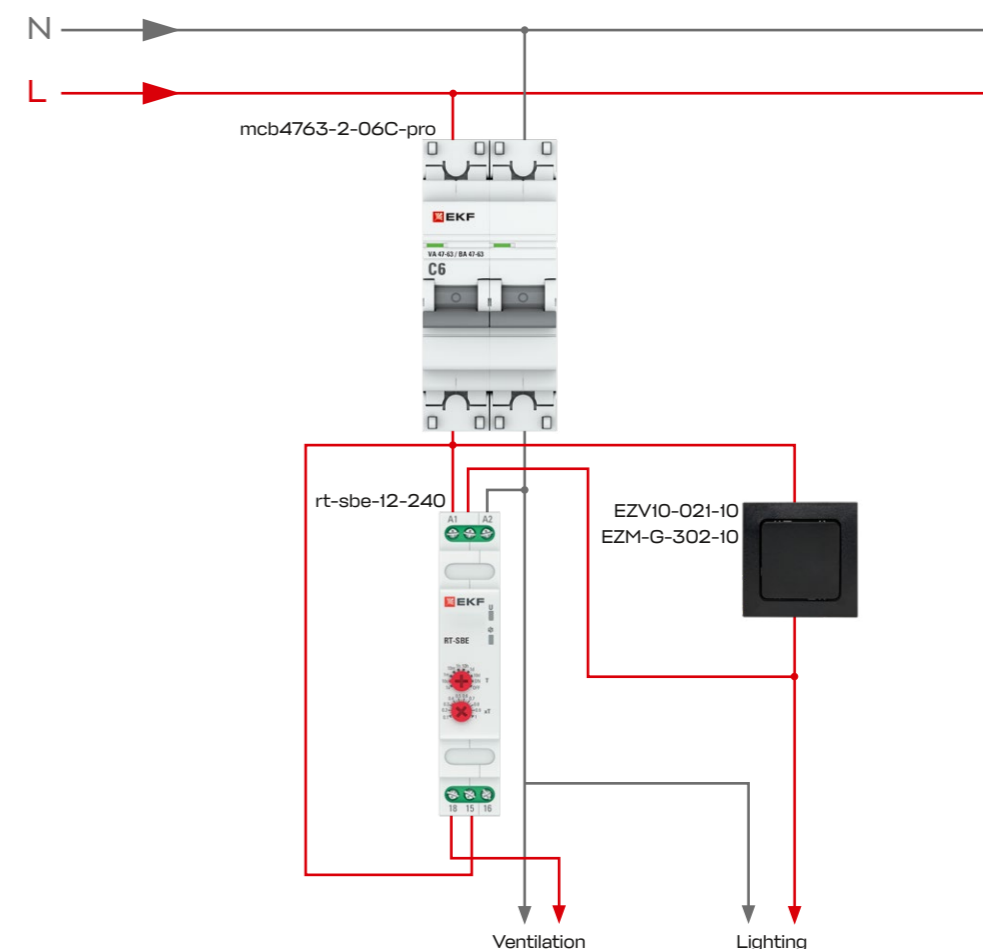


up  
to **15%**  
benefit

## ENERGY EFFICIENT

1) The system offers significant energy savings by auto turning off lights and ventilation components not needed at the moment.

### Proposed solution diagram



### Proposed solution

Item code	Name	Q-ty	Page
mcb4763-2-06C-pro	Miniature circuit breaker VA 47-63 2P 6A [C] 4,5kA EKF PROXIMA	1 pc	43
rt-sbe-12-240	Time relay (off delay when the signal disappears) RT-SBE12-240V EKF	1 pc	46
EZV10-021-10	Mechanism of switch 1-gang 1-way 10A black series Stockholm EKF	1 pc	53
EZM-G-302-10	1-gang frame metal black series Stockholm EKF	1 pc	53





## Remote control of electrical heating in hotels

### Customer needs

Hotel managements require heating and hot water in each room with reduced heating costs. Moreover, remote or local control of such operations is desired.

### EKF recommendation

Remote control of heating and hot water systems via a cell phone or tablet will heat water in a room for a few hours before guests arrive.

The time relay will switch heating off automatically. You can remotely control heaters and hot water tank for a required period with a cell phone or tablet.

### Requirements and specifications of the equipment within the solution

- Four relay outputs with two-way contact 10A.
- DIs with opto-coupling.
- Modular model. DIN rail mounting.
- Up to eight expansion modules connected.
- Standard Micro USB port for PC connection.
- Removable terminals facilitate installation.
- Wide power supply range.

Remote controller ePRO 24 6I/4O 230V Wi-Fi GSM with external antenna EKF

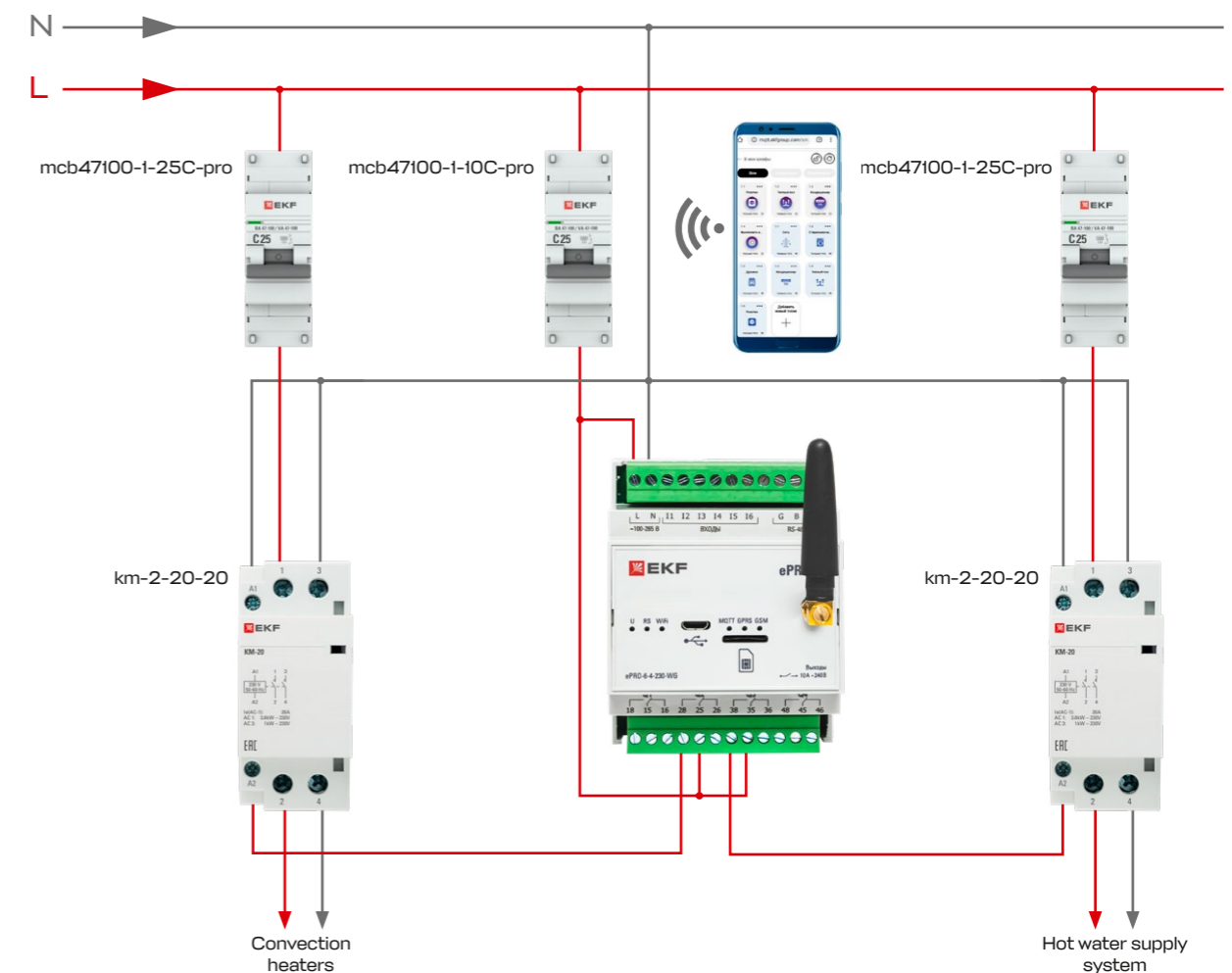


up  
to **20%**  
benefit

## ENERGY EFFICIENT

- 1) Energy saving by remote equipment on/off.
- 2) Equipment control via GSM and Wi-Fi.

### Proposed solution diagram



### Proposed solution

Item code	Name	Q-ty	Page
ePRO-6-4-230-WG1	Remote controller ePRO 24 6I/4O 230V Wi-Fi GSM with external antenna EKF	1 pc	46
mcb47100-1-25C-pro	Miniature circuit breaker VA 47-63 1P 3A [C] 4,5kA EKF PROXIMA	2 pcs	43
mcb47100-1-10C-pro	Miniature circuit breaker VA 47-100 1P 10A [C] 10kA EKF PROXIMA	1 pc	43
km-2-20-20	Modular contactor KM 20A 2NO [2modules] EKF PROXIMA	2 pcs	45





## Metering and analysis of energy consumption in shopping malls

### Customer needs

Shopping mall managements require identifying sources of excess and wasteful energy consumption, controlling and allocating energy costs to different spaces.

### EKF recommendation

The three-phase electricity meter SKAT 315 measures total energy consumed, via both direct and transformer connection. The three-phase electricity meter measures both active and reactive power.

### Requirements and specifications of the equipment within the solution

The meter shall be multi-tariff.

The meter shall be magnetic-field-protected.

Contemporary meters are fitted with electronic seals and record a log showing hourly power profile of the meter.

The meter shall record both active and reactive power.

Three-phase multi-tariff electricity meter SKAT 315E/1-10(100) SIRP



Three-phase multi-tariff electricity meter SKAT 315E/0,5S-5(7,5) TIRP



Single-phase modular electricity meter SKAT 101E/1-5(40) SDM

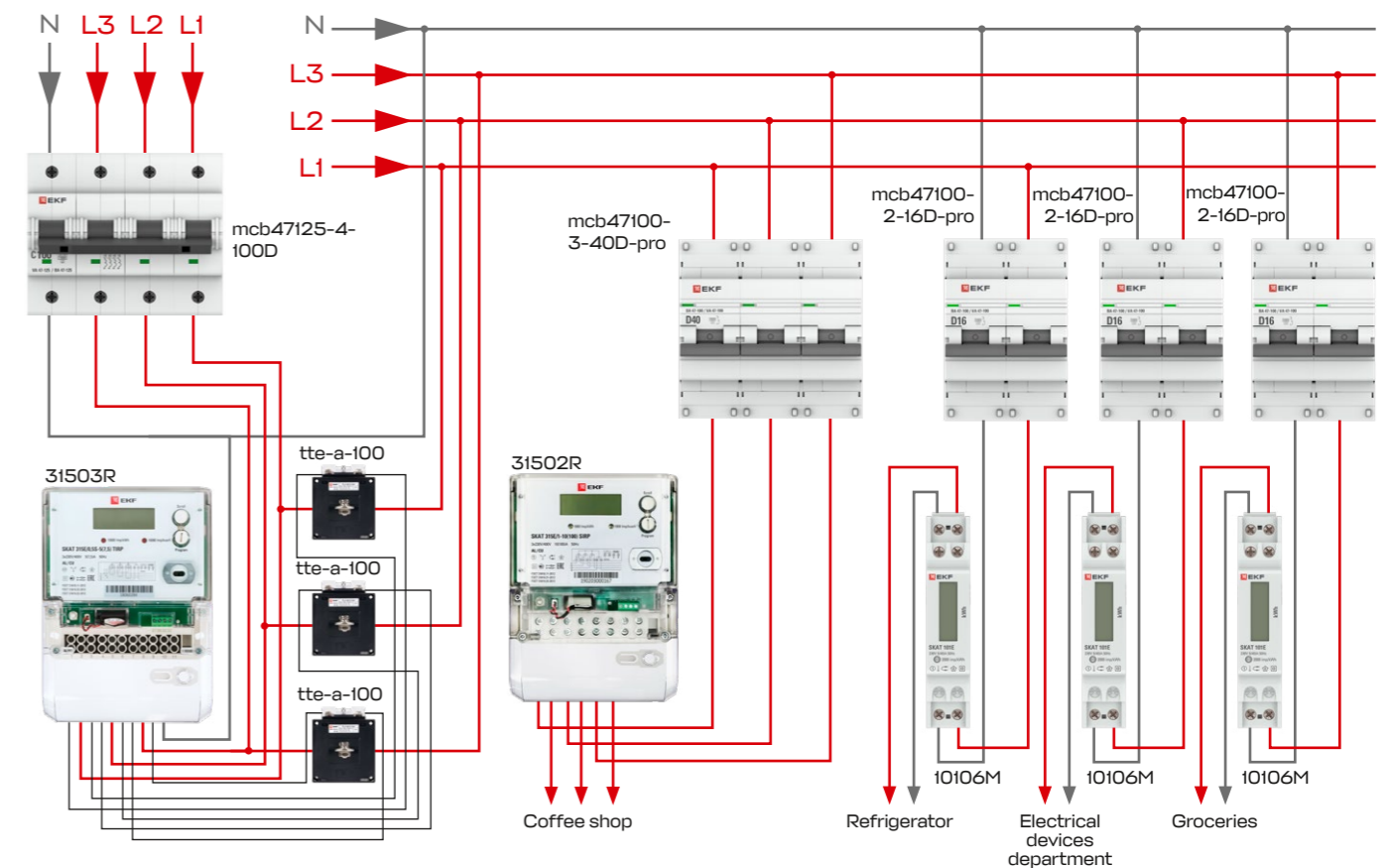


up  
to 10%  
benefit

## ENERGY EFFICIENT

- 1) Allocation of energy costs implicitly contributes to lower energy consumption.
- 2) Visualization and regular monitoring helps consumers control their energy consumption and use electrical appliances prudently.

### Proposed solution diagram



### Proposed solution

Item code	Name	Q-ty	Page
mcb47125-4-100D	Miniature circuit breaker VA 47-125 4P 100A [D] 15kA EKF PROXIMA	1 pc	43
mcb47100-3-40D-pro	Miniature circuit breaker VA 47-100 3P 40A [D] 10kA EKF PROXIMA	1 pc	43
mcb47100-2-16D-pro	Miniature circuit breaker VA 47-100 2P 16A [D] 10kA EKF PROXIMA	3 pcs	43
31503R	Three-phase multi-tariff electricity meter SKAT 315E/0,5S-5(7,5) TIRP	1 pc	51
31502R	Three-phase multi-tariff electricity meter SKAT 315E/1-10(100) SIRP	1 pc	51
10106M	Single-phase modular electricity meter SKAT 101E/1-5(40) SDM	3 pcs	51
tte-a-100	Current transformer TTE-A-100/5A accuracy class 0,5 EKF	3 pcs	50





## Integrated lighting control in all types of rooms

### Customer needs

Building managements require increasing comfort of employees and saving energy by controlling lighting parameters.

### EKF recommendation

An integrated lighting system in a room comprising control cabinets with the programmable logic controller PRO-Logic, HMI PRO-Screen and miscellaneous equipment to control illumination level: motion sensors (microwave or infrared) and twilight relays.

### Requirements and specifications of the equipment within the solution

Integrated lighting control systems are suited for infrastructure facilities, commercial and industrial premises, outdoor, architectural and advertising lighting.

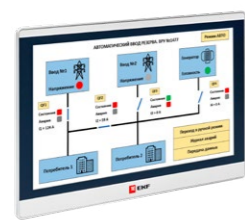
Contemporary control systems offer:

- supervisory visualization systems, graphic mnemonic diagrams
- analytical reports
- event logs
- track of current and archive schedules.

Programmable controller F200 12 I/O PRO-Logic EKF



HMI PRO-Screen 15E EKF



Twilight relay PS-3 20A 4400W IP44 EKF



Microwave motion sensor white 1200W 180 deg. up to 15m IP65 MW-704 EKF



Angled infrared motion sensor 1200W 270 deg. up to 12m IP44 MS-48B EKF

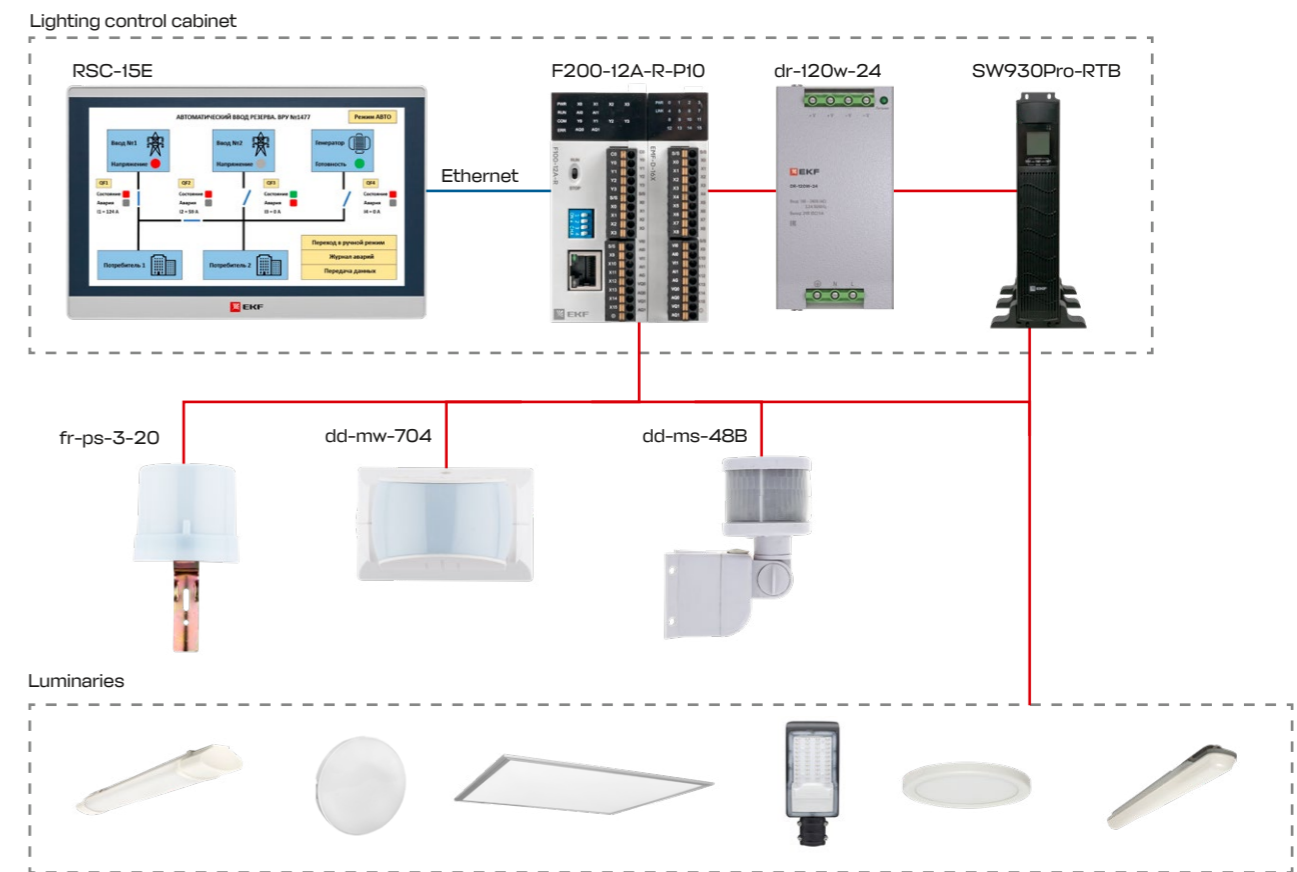


up  
**to 35%**  
benefit

## ENERGY EFFICIENT

- 1) Energy saving by efficient algorithms of equipment operation.
- 2) Automated control of equipment operation parameters.
- 3) Energy saving by the auto lighting off.

### Proposed solution diagram



### Proposed solution

Item code	Name	Q-ty	Page
F200-12A-R-P10	Programmable controller F200 12 I/O PRO-Logic EKF	1 pc	46
RSC-15E	HMI PRO-Screen 15E EKF	1 pc	46
SW930Pro-RTB	UPS E-Power SW900Pro-RTB 3000 VA EKF	1 pc	46
dr-120w-24	DIN rail power supply 24V DR-120W-24 EKF	1 pc	46
fr-ps-3-20	Twilight relay PS-3 20A 4400W IP44 EKF	1 pc	56
dd-mw-704	Microwave motion sensor white 1200W 180deg. up to 15m IP65 MW-704 EKF	1 pc	56
dd-ms-48B	Angled infrared motion sensor 1200W 270deg. up to 12m IP44 MS-48B EKF	1 pc	56





## Control of building utilities

### Customer needs

Building owners require prudent use of energy resources, forecasting and optimizing repair costs, easy changes, transparency and availability of building utility systems, and remote access to them.

### EKF recommendation

Standard solutions such as control cabinets for building utility systems can be combined into a building management system (BMS) with the Modbus protocol. The core of control cabinets are the programmable controllers PRO-Logic.

### Requirements and specifications of the equipment within the solution

Building management systems can integrate both local and remote networks. The free programmable controllers PRO-Logic with RS-485 and Ethernet are designed to create custom operational algorithms.

The PRO-Logic line comprises programmable logic controllers and I/O modules with RS-485 and Ethernet interfaces.

With these devices you can create process control systems with up to 3408 I/Os.

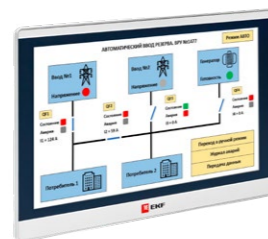
The HMI PRO-Screen offers:

- visualization and supervisory systems, graphic mimics, analytical reports
- event and alarm logs
- track of current and archive schedules.

Programmable controller F200 12 I/O  
PRO-Logic EKF



HMI PRO-Screen 15E EKF

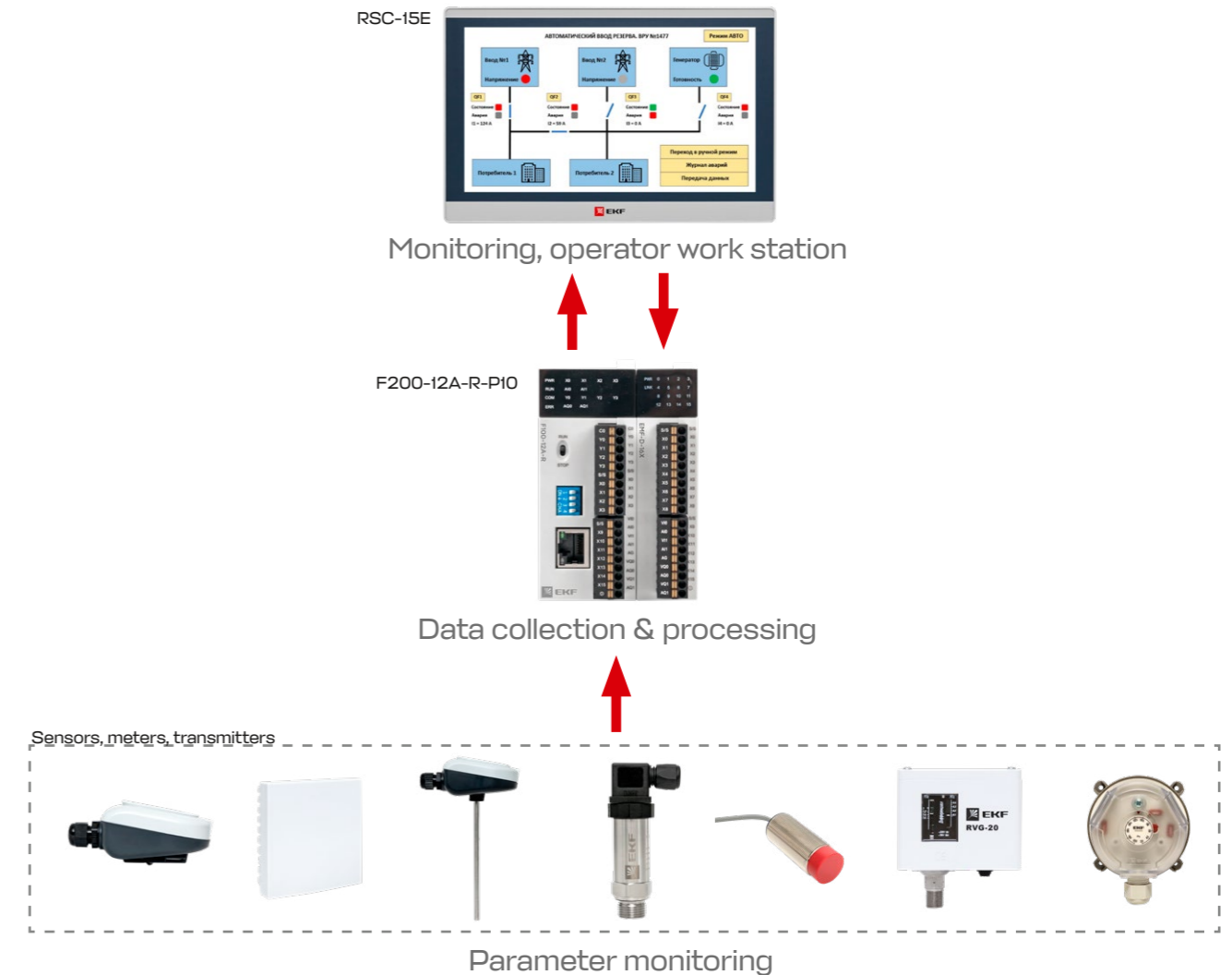


up  
to **50%**  
benefit

## ENERGY EFFICIENT

- 1) Energy saving by efficient algorithms of equipment operation.
- 2) Automated control of equipment operation parameters.

### Proposed solution diagram



### Proposed solution

Item code	Name	Q-ty	Page
F200-12A-R-PIO	Programmable controller F200 12 I/O PRO-Logic EKF	1 pc	46
RSC-15E	HMI PRO-Screen 15E EKF	1 pc	46
RTD20-OUT2-PT1000	Outside temperature sensor (fast-acting)	1 pc	46
RTD30-IN-PT1000	Room temperature sensor	1 pc	46
RTD20-CH150-NTC10K	Duct temperature sensor 150 mm	1 pc	46





## Optimization of refrigeration energy consumption

### Customer needs

In supermarkets, refrigeration accounts for up to 60% of total energy costs. Administrations of supermarket chains require optimizing energy consumption of each refrigerator and ensuring their uninterrupted performance. Moreover, administrations need a comparative analysis of energy consumption at all supermarkets.

### EKF recommendation

The molded case circuit breakers AV POWER integrate measurement functions to analyze energy consumption of various units, to keep a timeline of events contributing to the overall energy efficiency, and to ensure smooth operation, thus preventing accidental equipment malfunctions. The AV POWER features the trip unit ETU X.2 with a communication module.

### Requirements and specifications of the equipment within the solution

Contemporary molded case circuit breakers such as AV Power feature measurement functions for:

- Control of power system parameters on inputs and outputs
- Auto control of transfer switches
- Control of priority and non-priority loads
- Integration into company management systems.

Molded case circuit breaker AV POWER-1/3 100A 50kA ETU6.2



Digital multifunctional meter SM-G33H with LCD, DIN rail

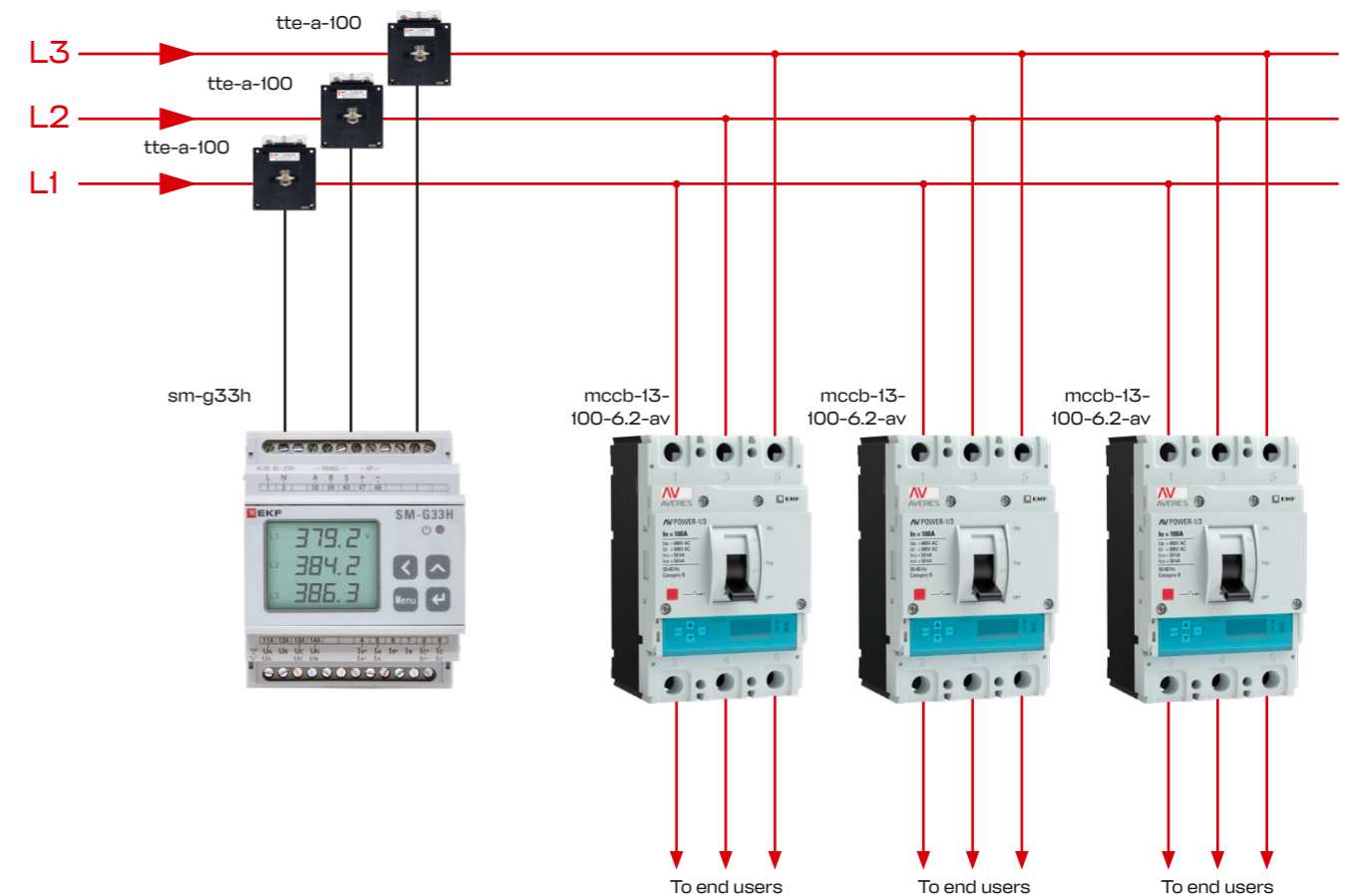


up  
to **25%**  
benefit

ENERGY EFFICIENT

- 1) Regular measurements help control and minimize energy consumption.
- 2) Monitoring and visualization contribute to more sustainable energy consumption.
- 3) Remote control provides both monitoring and predictive control.
- 4) Disconnect of non-priority loads maintains energy consumption within the set range.

### Proposed solution diagram



### Proposed solution

Item code	Name	Q-ty	Page
mccb-13-100-6.2-av	Molded case circuit breaker AV POWER-1/3 100A 50kA ETU6.2 EKF	3 pcs	44
sm-g33h	Digital multifunctional meter SM-G33H with LCD, DIN rail	1 pc	52
tte-a-100	Current transformer TTE-A-100/5A accuracy class 0,5 EKF	3 pcs	50





## Metering and analysis of energy consumption at production facilities

### Customer needs

Companies require identifying excess and/or wasteful energy consumers by controlling and allocating energy consumption in different production units. Company managements require reducing energy costs by 20% with continuous data monitoring by remote control system, and controlling electricity quality.

### EKF recommendation

The perfect solution is energy management system based on EKF multifunctional measuring instruments. Multifunctional meters are installed on input and output lines, support PC485 interface, Modbus-RTU protocol, and are integrated into the supervisory level of the company overall energy management system.

### Requirements and specifications of the equipment within the solution

The multifunctional meters EKF provide control, analysis and optimization of energy equipment, systems and industrial networks.

The meters measure the following parameters:

- RMS values of current, voltage, frequency, active, reactive and total power, forward and reverse active and reactive energy
- power factor, frequency
- average active and reactive power
- harmonics, harmonic distortion
- peak values.

Digital multifunctional meter SM-H with LCD



Digital multifunctional meter SM-B-96 panel mount 96x96 EKF



Digital multifunctional meter SM-E with LED display



Digital multifunctional meter SM-G33H with LCD, DIN rail

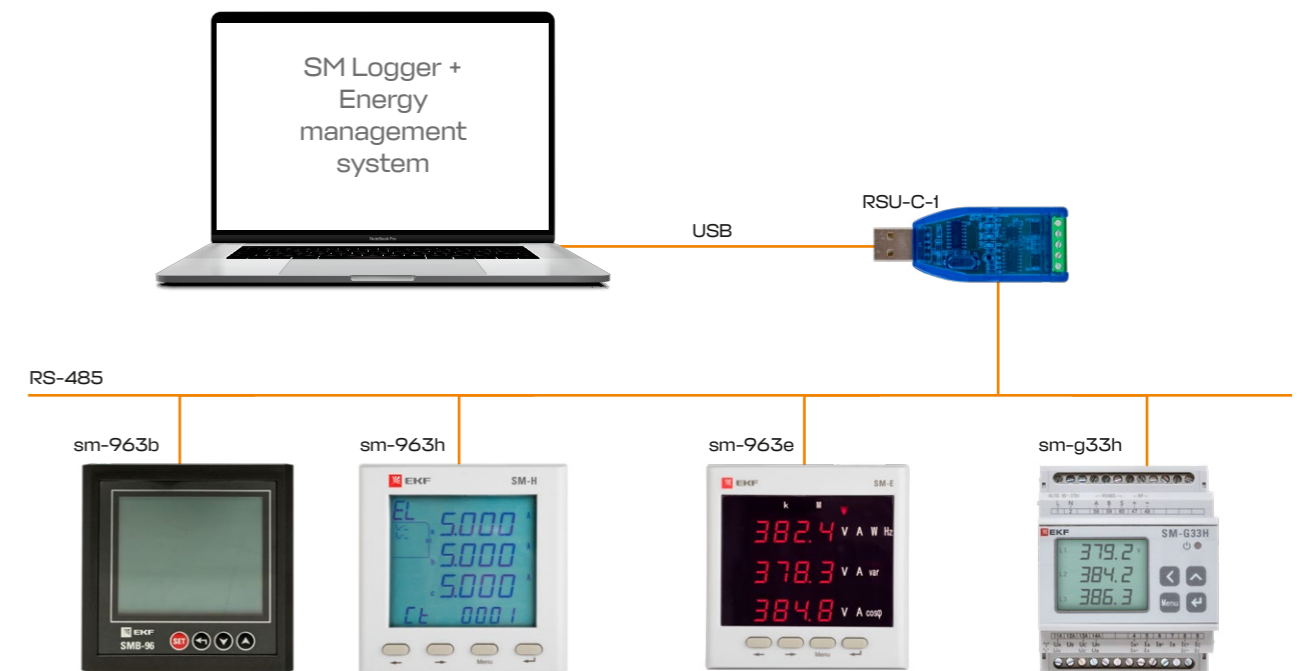


up  
to **20%**  
benefit

ENERGY EFFICIENT

- 1) Regular measurements help control and minimize energy consumption.
- 2) Monitoring and visualization contribute to more sustainable energy consumption.

### Proposed solution diagram



### Proposed solution

Item code	Name	Q-ty	Page
SM Logger	Software SM Logger	1 pc	-
RSU-C-1	Interface converter RSU-C-1 RS485-USB EKF	1 pc	55
sm-963h	Digital multifunctional meter SM-H with LCD	1 pc	52
sm-963b	Digital multifunctional meter SM-B-96 panel mount 96x96 EKF	1 pc	52
sm-963e	Digital multifunctional meter SM-E with LED display	1 pc	52
sm-g33h	Digital multifunctional meter SM-G33H with LCD, DIN rail	1 pc	52





## Optimization of energy consumption at production facilities

### Customer needs

Chief energy officers and production managers require upgrading of existing LV-unit protection coupled with energy consumption optimization.

### EKF recommendation

The best option is to replace the existing circuit breaker by the molded case circuit breaker AV Power with trip unit ETU X.2 and communication module. This MCCB will provide higher degree of protection and metering performance required at all levels of power distribution.

### Requirements and specifications of the equipment within the solution

Contemporary molded case circuit breakers such as AV Power feature measurement functions for:

- Control of power system parameters on inputs and outputs
- Auto control of transfer switches
- Control of priority and non-priority loads
- Integration into company management systems.

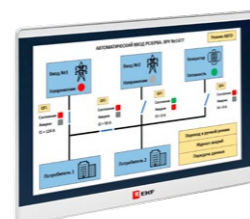
Molded case circuit breaker AV POWER-1/3 100A 50kA ETU6.2



Programmable controller F200 12 I/O PRO-Logic EKF



HMI PRO-Screen 15E EKF

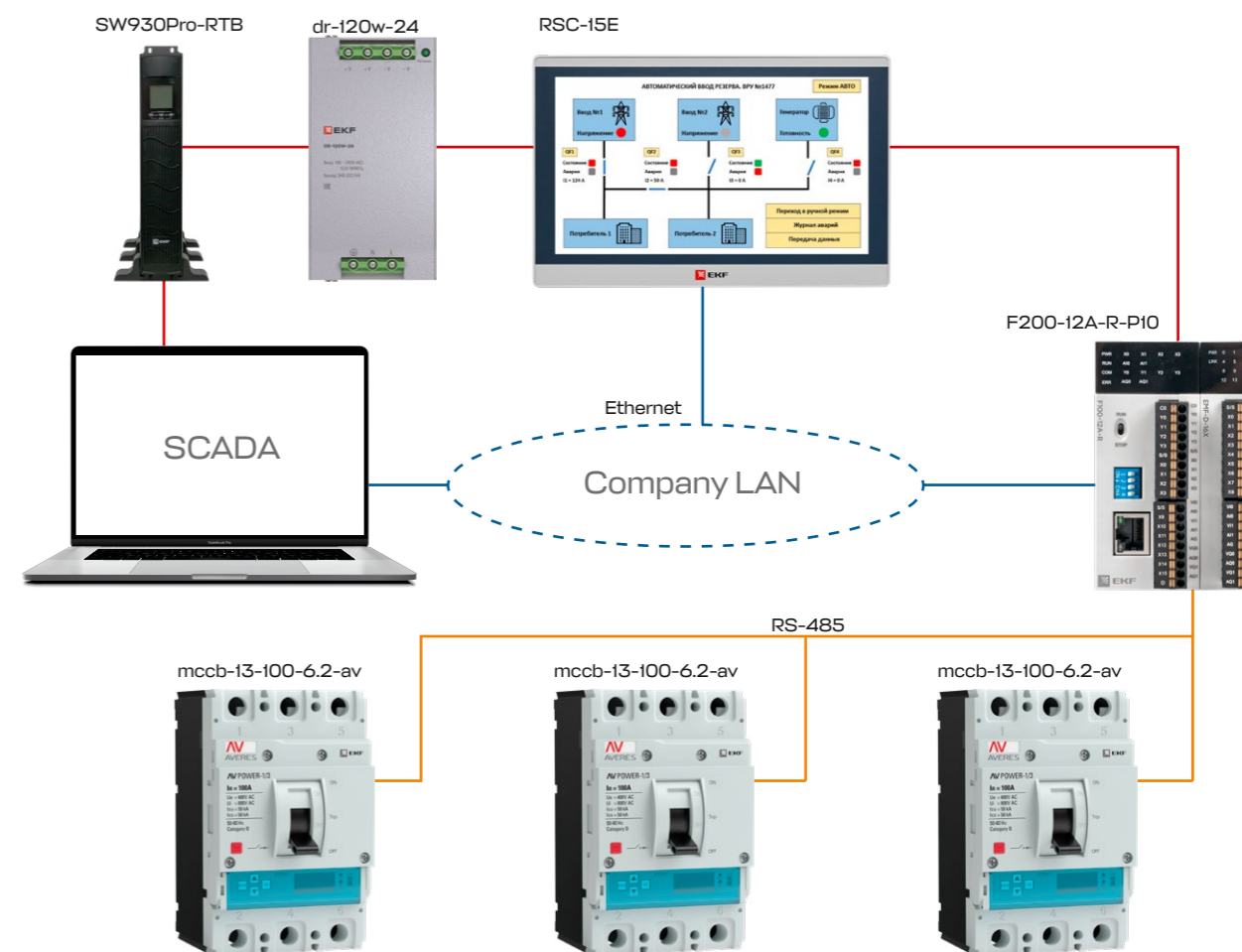


up  
to **20%**  
benefit

### ENERGY EFFICIENT

- 1) Regular measurements help control and minimize energy consumption.
- 2) Monitoring and visualization contribute to more sustainable energy consumption.
- 3) Remote control provides both monitoring and predictive control.

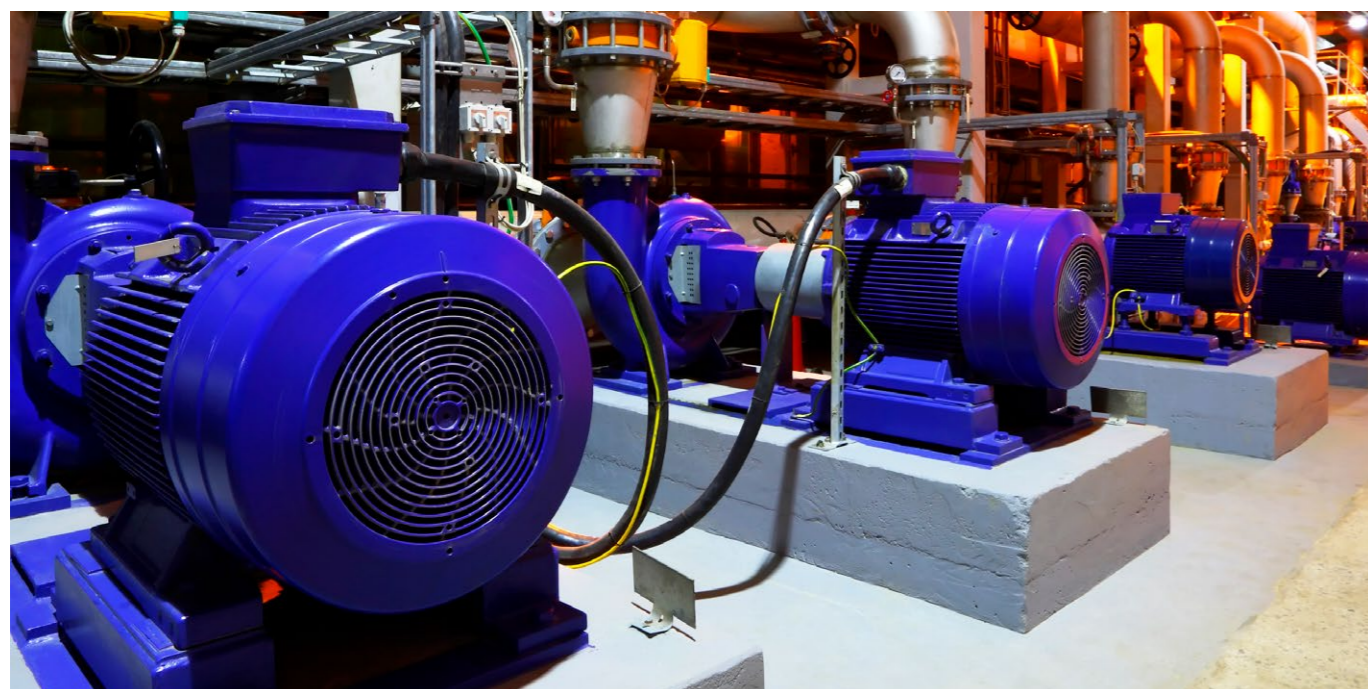
### Proposed solution diagram



### Proposed solution

Item code	Name	Q-ty	Page
mccb-13-100-6.2-av	Molded case circuit breaker AV POWER-1/3 100A 50kA ETU6.2 EKF	3 pcs	44
F200-12A-R-P10	Programmable controller F200 12 I/O PRO-Logic EKF	1 pc	46
RSC-15E	HMI PRO-Screen 15E EKF	1 pc	46
SW930Pro-RTB	UPS E-Power SW900Pro-RTB 3000 VA EKF	1 pc	46
dr-120w-24	DIN rail power supply 24V DR-120W-24 EKF	1 pc	46





## Improvement of energy system efficiency at production facilities

### Customer needs

Enterprise managements require identifying and reducing energy costs, improving energy quality and efficiency. Harmonics in facility power systems are high due to motors, some with frequency converters.

### EKF recommendation

Power factor correction devices will increase power factor to reduce energy costs and eliminate penalties for reactive power consumption, and will ensure savings by reducing losses from active power consumption. Power factor correction devices reduce the effect of harmonic oscillations on electronic devices: computers, telephones, etc.

### Requirements and specifications of the equipment within the solution

The reactive power correction devices are comprehensive devices influencing the reactive part of the total power transmitted from the mains to the load. Reducing the reactive component decreases the load on the mains and the power transformer. This results in increased transmission capacity and reduced system losses. This reduction is achieved by correction devices, namely cosine three-phase capacitors, controlled by a regulator analyzing the system status.

Reactive power regulator  
Varko-106a EKF



Cosine capacitor  
KPS-0,4-50-3 EKF PRO



Capacitor contactor KMEK 75 kVar  
230V 1NO EKF AVERES

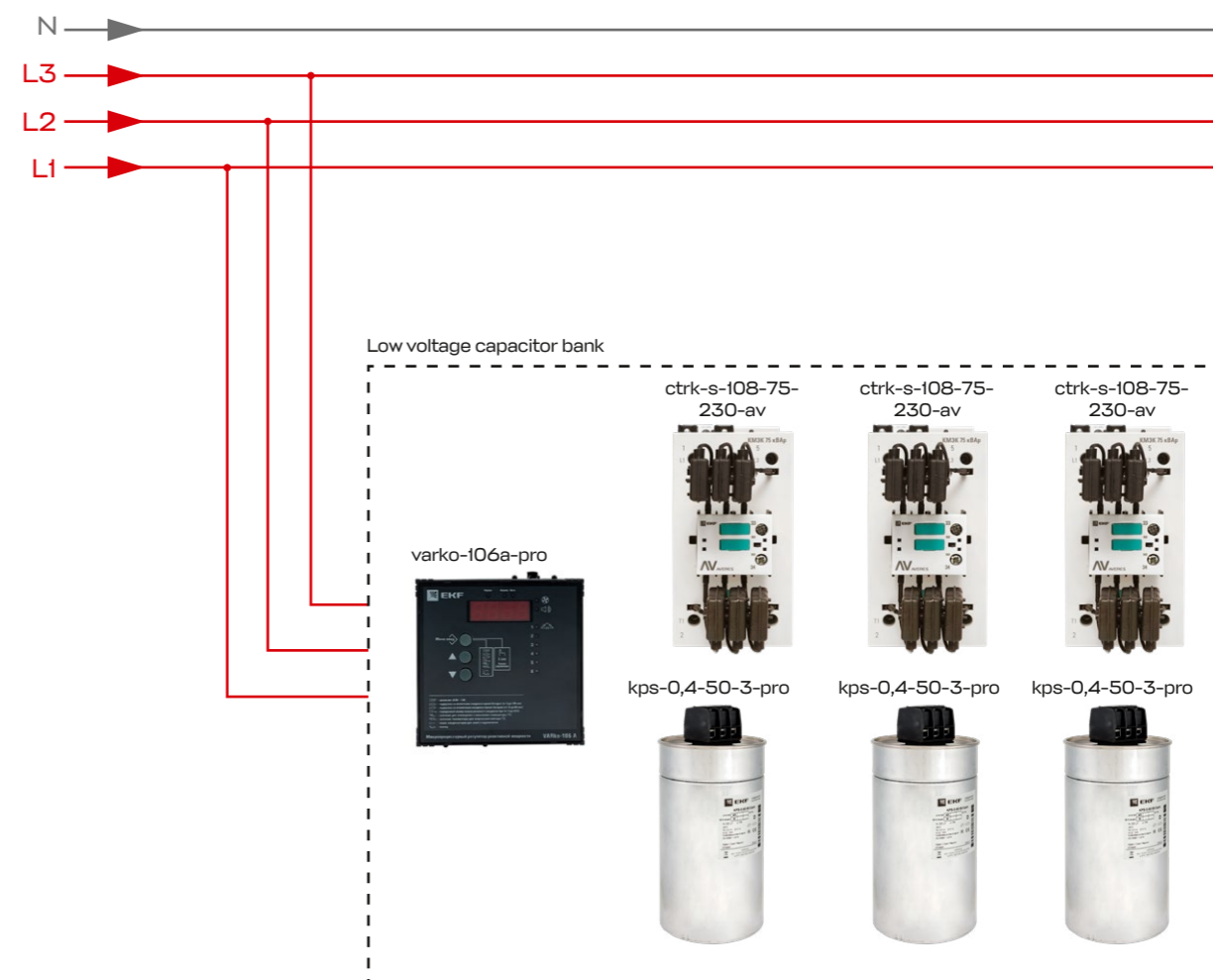


up  
to **50%**  
benefit

## ENERGY EFFICIENT

- 1) Power factor correction helps to reduce electricity costs by 10%.
- 2) Capacitor banks increase power efficiency by up to 30%.
- 3) Capacitor banks reduce total harmonic disturbances by 50%.

### Proposed solution diagram



### Proposed solution

Item code	Name	Q-ty	Page
varko-106a-pro	Reactive power regulator Varko-106a EKF	1 pc	54
kps-0,4-50-3-pro	Cosine capacitor KPS-0,4-50-3 EKF PRO	3 pcs	54
ctrk-s-108-75-230-av	Capacitor contactor EKF AVERES	3 pcs	54





## Efficient operation of central air conditioner condensing units

### Customer needs

For central air conditioning systems, customers require reducing operating costs and maximizing energy efficiency.

### EKF recommendation

Control and instrumentation cabinet, including programmable logic controller PRO-Logic, frequency converter, HMI, instrumentation equipment supporting data exchange with building management system (BMS).

### Requirements and specifications of the equipment within the solution

EKF solutions offer:

- energy efficient PLC-based algorithms for air conditioner control
- fan speed control for optimal air flow compliant with ambient conditions and regulations in force
- monitoring and control with HMI
- metering and control of air flow parameters
- integrating into supervisory control systems with Modbus.

Programmable controller F200 12 I/O PRO-Logic EKF



HMI PRO-Screen 15E EKF



Frequency converter 400/450kW 3x400V VECTOR-100 EKF

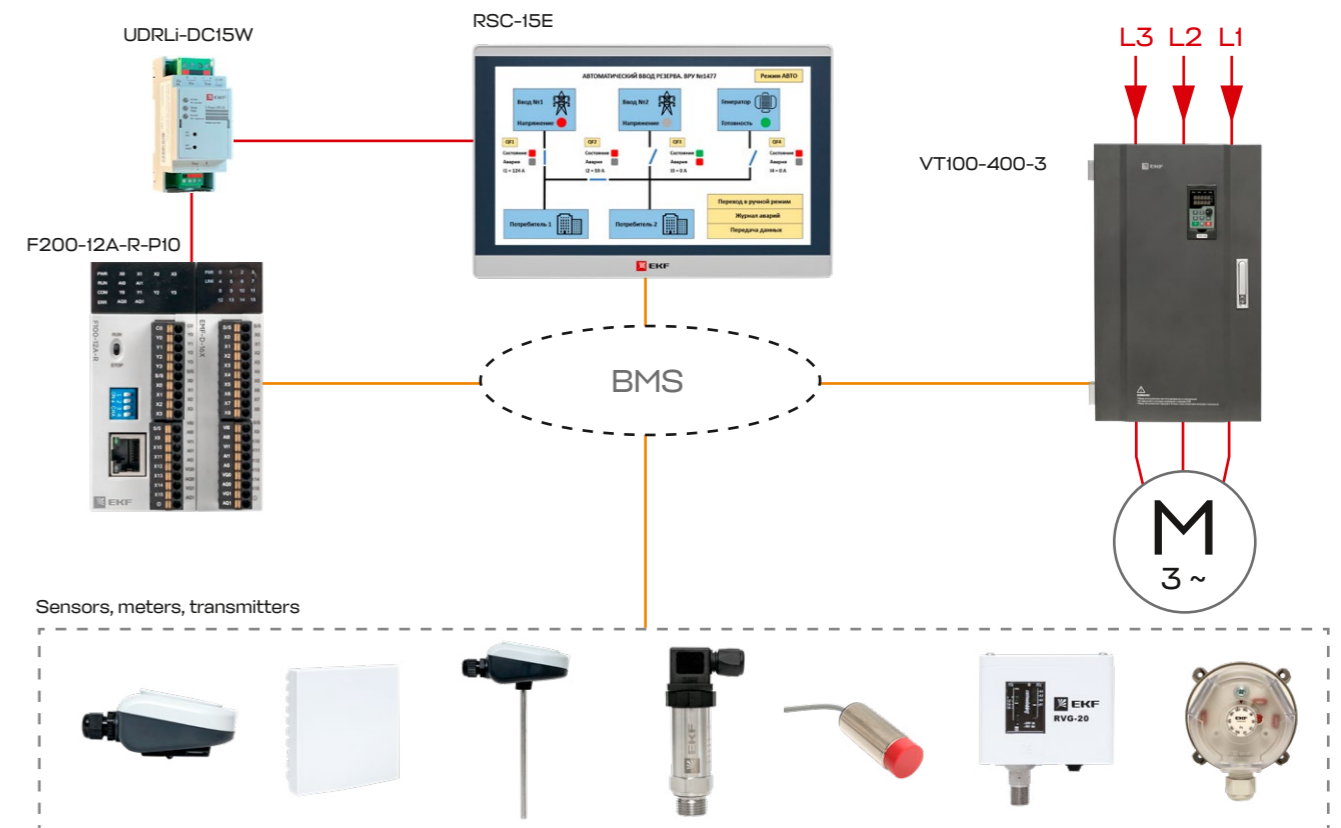


up  
to **35%**  
benefit

## ENERGY EFFICIENT

- 1) Energy saving by efficient algorithms of equipment operation.
- 2) Automated control of equipment operation parameters.

### Proposed solution diagram



### Proposed solution

Item code	Name	Q-ty	Page
VT100-400-3	Frequency converter 400/450kW 3x400V VECTOR-100 EKF	1 pc	46
F200-12A-R-P10	Programmable controller F200 12 I/O PRO-Logic EKF	1 pc	46
RSC-15E	HMI PRO-Screen 15E EKF	1 pc	46
UDRLi-DC15W	UPS E-Power UPS DC -15W 12/24V 3600 mAh	1 pc	46
RTD20-OUT2-PT1000	Outside temperature sensor (fast-acting)	1 pc	46
RTD30-IN-PT1000	Room temperature sensor	1 pc	46
RTD20-CH150-NTC10K	Duct temperature sensor 150 mm	1 pc	46



## Reduced energy costs for electrical asynchronous motors

### Customer needs

Electric motors use most consumed power, so operators require optimizing the performance of electric motor systems.

### EKF recommendation

The frequency converter VECTOR-100 starts the motor and controls its speed. The converter can connect to the building control system.

### Requirements and specifications of the equipment within the solution

The frequency converter VECTOR-100 is the perfect solution for motor speed control, energy savings and user convenience. With Modbus protocol, users can monitor and control the motor remotely.

Frequency converter 400/450kW  
3x400V VECTOR-100 EKF

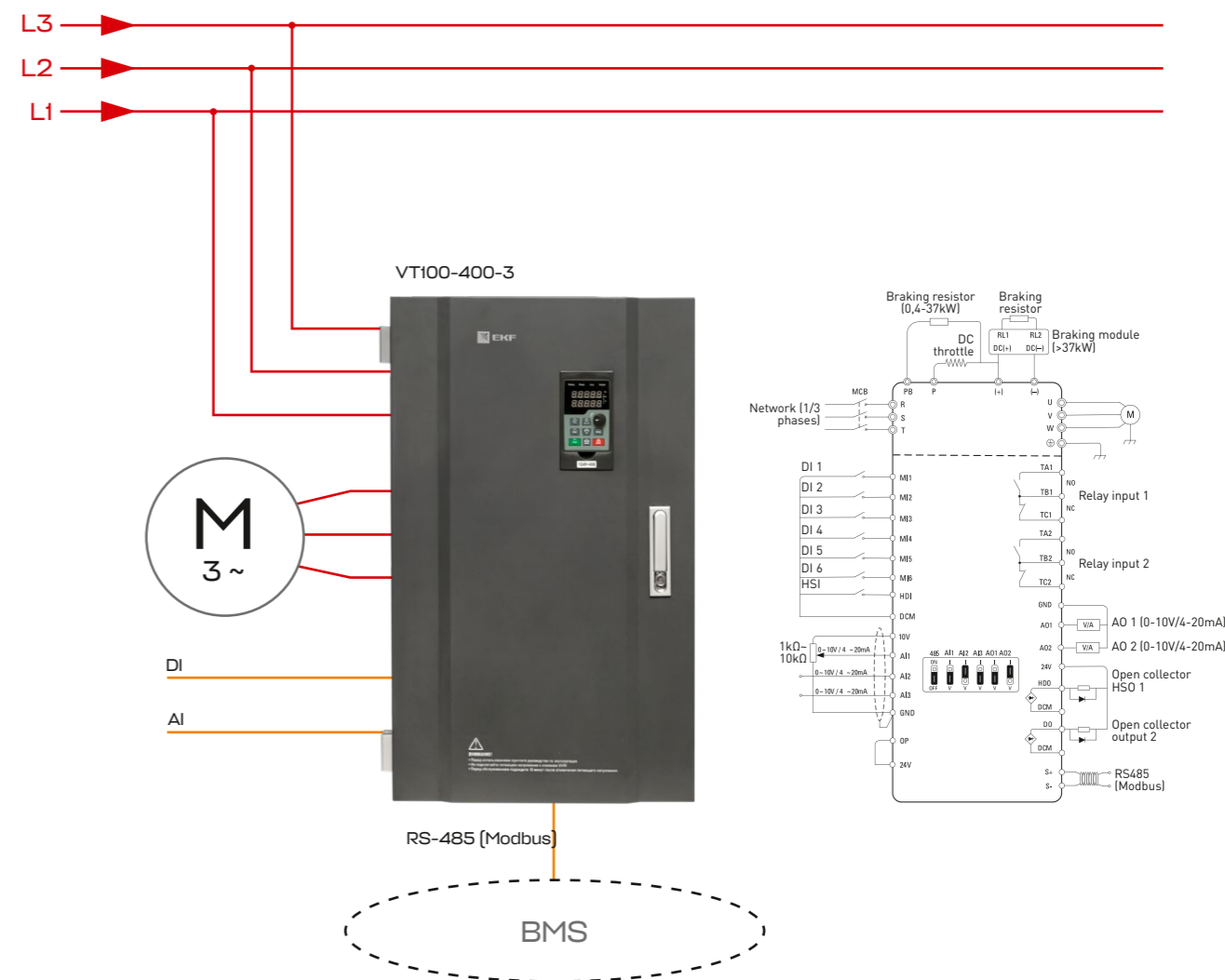


up  
**to 30%**  
benefit

## ENERGY EFFICIENT

1) Frequency converters control motor rotation speed, optimizing power consumption and increasing service life of motor-driven machinery.

### Proposed solution diagram



### Proposed solution

Item code	Name	Q-ty	Page
VT100-400-3	Frequency converter 400/450kW 3x400V VECTOR-100 EKF	1 pc	46



## Miniature circuit breakers & accessories



Miniature circuit breakers (MCB) are devices used to close/open one or several electrical circuits and to protect circuits and electrical equipment against overload and short-circuit currents. An electromagnetic release [a coil with a movable core] serves as short-circuit protection for MCB, while a bimetal plate with different coefficients of linear expansion serves as overload [long-term small overcurrent] protection. Since short circuits and overloads are rare but hazardous and destructive phenomena, MCBs are subject to stricter requirements for reliability, compliance with the declared ratings and safe operation.

This product line includes Basic, PROXIMA, and AVeres MCB. Their design enables connection of monitoring and control accessories to meet any need in automation and supervisory systems.

### Application

- Single-family houses
- Apartment buildings
- Commercial buildings
- Offices
- Warehouses
- Hospitals
- Hotels
- Shopping malls
- Industrial facilities
- Utilities and amenities
- OEM
- Installation and repair work

### Major customers

- Chief power engineers
- Chief engineers
- Electricians
- Individuals
- Panel builders

### EKF USP

- Basic** features robust and field-proven design
- Tightening torque for power screws: 3 N·m
  - Connection options for a variety of accessories
  - Easy and reliable operation

**PROXIMA** features patented integrated screw shields that reduce expenses for accessories and sealing boxes

- Molded front panel
- Notched terminals for secure connection with conductors
- Convenient operating handle with automatic re-closing
- Two-position DIN rail clamp
- Housing reinforced with 6 rivets prevents deviations in device performance
- Contact position indicator
- Maximum tightening torque, stripping length and other specifications are marked on the housing
- Shaped grooves in the housing facilitate natural cooling
- FORK-type connecting bar supported
- Warranty: 7 years

**AVeres** features instantaneous switching

- Rigid housing [9 rivets]
- Marking window
- Screw shields for terminals sealing
- Compliant with standards and regulations both for industrial and household applications
- Warranty: 10 years.

### The outstanding SKUs in the category

- Basic
- PROXIMA
- AVeres

### Major characteristics

- Rated current  $I_n$ : 0,5-125 A
- Trip curves: B, C, D
- Rated breaking capacity  $I_{cn}$ : 4500, 6000, 10000, 15000 A

# EKF products for energy efficient solutions

## Molded case circuit breakers up to 1600A



Circuit breakers (CB) are contact switching devices used to switch, conduct and disconnect current under rated conditions, and to switch, conduct for specified period and disconnect current under adverse conditions [e.g. overloads or short circuits] in electrical circuits. Circuit breakers are designed for rare switching - max. 30 trips/day.

### Application

- Industry
- Construction

### Major customers

- Chief power engineers
- Chief engineers
- Panel builders
- Wiremen

### EKF USP

- Instantaneous switching
- Breaking capacity up to 100kA [AV Power]
- Spring-loaded moving and fixed contacts [AV Power]
- Silverized contact pads
- Rotary switching action [VA-99C]
- Copper and aluminum wire connections are supported
- Housing made of flame retardant plastic

### The outstanding SKUs in the category

- AV POWER-3/3 400A 100kA ETU6.2 EKF
- VA-99C [Compact NS] 250/250A 3P 45kA EKF
- VA-99M 250/250A 3P 35kA EKF

### Major characteristics

- Rated current: 10-1600 A
- Rated breaking capacity: 15-100 kA
- Rated voltage: 690 V
- Poles: 3P, 4P, 3P+N
- Trip unit: electromagnetic, thermal-magnetic, electronic
- Warranty: 10 years [Averes]

## Contactors, starters, relays & accessories up to 1000A



Contactors are two-position electromagnetic switching devices used for remote routine close/open operations in power circuits. Their functions can be extended with accessories:

- thermal overload relay - protection,
- auxiliary contacts - control signals,
- time relay - time delayed switching of control signals, secondary circuits,
- interlock - mechanical interlocking in reverse contactor assemblies.

### Application

- Industry
- Construction

### Major customers

- Chief power engineers
- Chief engineers
- Panel builders
- Electricians

### EKF USP

- Silverized contact pads
- Housing made of flame retardant plastic
- Copper and aluminum wire connections are supported
- Core of the magnetic system with reduced eddy currents

### The outstanding SKUs in the category

- PML-2160DM 25A 230V EKF
- KTE 185A 230V NO EKF
- KM 25A 2NO [1 module] EKF

### Major characteristics

- Rated current: 16-1000 A
- Rated operating voltage: max. 690V
- Auxiliary contacts: NO, NC, NO+NC
- Electrical endurance: 1,65 mln cycles



# Industrial automation



This group includes:

- Programmable logic controllers (PLC)
- HMI
- I/O modules
- Industrial switches
- Modems
- Remote controllers
- Sensors (temperature, pressure, level etc.)
- Frequency converters
- Control relays
- Switching devices
- Uninterrupted power supplies (UPS)
- Voltage stabilizers
- Power supplies

**Controllers** perform logical operations following a preset program, and are used for automation of any process systems: machinery, pumps, lighting, ventilation, heating, water and power supply, packaging, hoisting, conveying and batching systems, etc. Controllers increase energy efficiency, performance and safety of systems and facilities.

The EKF portfolio offers three series of controllers:

- Remote controllers ePRO24
- Programmable relays PRO-Relay
- Programmable logic controllers PRO-Logic.

**The controller ePRO24** is designed for remote routine close/open operations in power circuits. The controller communicates with the server via the MQTT protocol over two communication channels: GSM and Wi-Fi. The ePRO24 features output pulse

control, scripting and timer mode, requires the EKF ePRO24 application, and supports push notifications.

**The programmable relay PRO-Relay** is used for local automation of selected machines and mechanisms, as well as for household applications. The PRO-Relay has expansion modules (up to 56 I/Os), LCD display, RS-485 interface (Modbus RTU protocol), programmable in FBD and LD languages.

**The programmable logic controller PROLogic** is designed for automation of industrial systems of any scale and complexity. The PRO-Logic has expansion modules (up to 256 I/Os), RS-232/485 (Modbus RTU/ASCII protocols) and Ethernet (Modbus TCP) interfaces, high-speed 200 kHz I/Os, programmable in FBD, LD, and IL languages.

**The HMI PRO-Screen** is a human-machine interface device used to create process control and monitoring systems. The HMI PRO-Screen is used in various industrial processes, controlled by programmable logic controllers, and industrial automation devices.

HMI PRO-Screen advantages:

- Resistive TFT LCD display
- Screen sizes: 4.3", 7", 10.1", 15.6"
- Supported interfaces: RS-232/485/422, Ethernet
- Protocols: Modbus RTU/ASCII/TCP
- USB ports and SD card port
- Real time clock (RTC)
- Degree of protection: IP65
- VNC supported

**The I/O Modules EKF PRO-Logic** are supplied in two series - REMF (RS-485) and EREMF (Ethernet and RS-485) and are designed to establish automatic control and monitoring systems. They are used as remote expansion modules for PLC PRO-Logic, I/O devices for HMI PRO-Screen, connection to SCADA systems and other supervisory systems, and interoperability with any equipment supporting Ethernet and RS-485 interfaces and Modbus TCP/RTU/ASCII protocols.

I/O modules PRO-Logic advantages:

- Digital and analog inputs/outputs
- Connection of thermocouples and RTDs
- Ethernet
- RS-485
- Modbus RTU/ASCII/TCP
- Mounting: surface, DIN-rail
- Removable spring terminals
- Easy configuration with PRO-Logic master

**Industrial switches TSX EKF** are designed to establish Layer 2 (L2) Ethernet networks. The devices feature 10/100 Mbps Ethernet ports, metal housing, are DIN rail mounted, and can operate in an extended temperature range: -30...+75 °C.

**The WDT modem** is designed for wireless communication between two or more devices over a certain distance. They are particularly relevant in locations where no wires can be laid or no Internet access is available. Such modems are an inexpensive and efficient solution for the Internet of Things with low volume traffic. E.g. Smart Home, metering systems, etc.

**Sensors** are devices transmitting physical values into signals for further use in automation systems.

The EKF portfolio includes:

- Temperature sensors RTD for HVAC systems
- Capillary thermostats TR-15
- Protective sleeves IS10 & IS20
- Analog pressure transmitters PRT-100
- Overpressure switches RVG-10 for heating and water supply systems
- Differential pressure switches RVG-20 for ventilation systems
- Differential pressure switches RVG-30 for water supply pumps
- Float switches RL-1 for sewerage
- Float level sensors RLF for liquids
- Inductive, capacitance and proximity photoelectric sensors PROXIS

**The EKF frequency converters** are used to operate asynchronous motors in ventilation, pumping, conveying and hoisting automation systems. Their major function is to convert input 230/400 V AC with 50 Hz frequency into a variable frequency used to drive the electric motor at a variable speed.

Frequency converters ensure:

- control of motor rotation speed
- stable level of process indicators (pressure, temperature, speed)
- protection of electric motors against overloads
- protection against phase loss
- smooth start of motors and reduced inrush currents
- correction of voltage imbalance
- conversion of single-phase into three-phase network.

Frequency converters improve overall plant energy efficiency, reduce resource consumption, and extend equipment service life.

The EKF portfolio offers two series of frequency converters: VECTOR-100 and VECTOR-80. The VECTOR-80 is available from 0,7 to 11 kW with three-phase power supply and from 0,7 to 1,5 kW with single-phase power supply. The VECTOR-100 is available from 0,7 to 630 kW with three-phase power supply and from 0,4 to 2,2 kW with single-phase power supply. The converters VECTOR-100 feature a high overload capacity (150% for two minutes or 180% for three seconds), a wide frequency control range (0-600 Hz), vector and scalar control.

**Control relays** are used to control and protect electrical equipment. Their operation is simple - relays measure various parameters (illumination, time, temperature, voltage, current) and turn on/off the electromechanical switch in response.

The EKF portfolio offers:

- Temperature monitoring relays
- Time relays
- Twilight relays
- Voltage monitoring relays
- Power limiters
- Level monitoring relays
- Phase monitoring relays
- Motor protection relays
- Timers (operate by time of day)
- Automatic phase switches
- Pulse relays

Main characteristics of control relays:

- Type of contacts (NO, NC, NO-NC)
- Number of electromechanical relays
- Rated current
- Measuring range
- Voltage
- Display available/non-available.

Relays RP-22 and RP-25 EKF are used in control circuits up to 230 VAC/24 VDC of automation systems and control cabinets and ensure:

- opening/closing of power circuits up to 10 A
- galvanic separation
- control commands from the controller to actuators.

The solid state relay RTP EKF provides non-contact switching of power circuits within common industry ranges of resistive or inductive load currents. Non-contact control prevents sparks and arcing, and improves relay response speed and rate.

**Uninterruptible power supplies (UPS)** power energy-dependent equipment when the main power grid is not available, for whatever reason, until restart/transfer to a backup power source or until the production process is completed correctly. If the main power grid fails, the UPS supplies power to the equipment stored by its secondary power source.

The EKF portfolio offers:

- Line-interactive UPS E-Power Home 0,8/1kVA and E-Power SSW 200 0,8/1,2/2/3 kVA
- Line-interactive UPS E-Power PSW-H 0,3/0,6/1 kVA and E-Power PSW600-T 1/1,5/2/3 kVA. Their main function is to protect equipment sensitive to the quality of the output voltage, but not sensitive to small voltage drops up to 6 ms when switching from the grid to the battery - small servers, gas boilers, workstations.
- Double conversion single-phase UPS E-Power SW900T/RT 1/2/3 kVA and SW900G4-T/RT 6/10 kVA
- Double conversion three-phase UPS E-Power SW900Pro-G5 10/15/20/30 kW in three versions: with built-in battery, external battery units, and output decoupling transformers
- Single phase 3 to 1 UPS (three input phases, one output phase) E-Power SW800 with decoupling transformer 10/15/20/30 kVA and E-Power SW900G4-T/RT-31 10/15/20 kW
- DC UPS E-Power UPS DC -15W 12/24V 3600 mAh with polymer batteries are designed to operate controllers and connected modules when the external power supply fails.

The main purpose of a double conversion UPS is to protect critical applications, equipment, servers, databases, medical and industrial equipment sensitive to voltage drops.

**Voltage stabilizers** are devices designed to maintain the output voltage within specified limits during significant input voltage fluctuations.

The EKF portfolio offers two versions of stabilizers:

- Floor-mounted voltage stabilizers TITAN-F 0,5/1/1,5/2/3/5/8/10/12 kVA
- Wall-mounted voltage stabilizers TITAN-W 0,5/1/1,5/2/3/5/8/10/12 kVA

Input voltage: 140-270 V. Output voltage: 202-238 V. Stabilization accuracy: ± 8 %.

**Power supplies** are pulse type voltage converters that transform the input AC voltage of 100-240V into a stabilized DC voltage of 12 or 24 V. The power supplies feature small size and short circuit protection.

The EKF portfolio offers three versions of power supplies 12V and 24V:

- Power supplies DR DIN rail mounted 15/30/45/60/75/120/240W
- Power supplies MPS panel mounted 35/50/75/100/150/200/350W
- Power supplies with UPS MPSU panel mounted 55/155W 24V.

The main function of power supplies is to power equipment with stabilized direct voltage of 12/24 V in automation systems, controllers, alarm and fire suppression systems, measuring devices, etc.

### Application

- Industry
- Construction

### Major customers

- Chief power engineers
- Chief engineers
- Heads of automation and C&I departments
- C&I engineers
- Panel builders

### EKF USP

- Wide range of functions
- Rated range for fuses - up to 1250 A, for load disconnectors - up to 1600 A
- Combined devices available
- Copper and aluminum wire connections are supported
- High electrical endurance

### The outstanding SKUs in the category

- Programmable logic controller PRO-Logic F200
- HMI PRO-Screen RSC- 10E
- Frequency converter 75/90kW 3x400V VECTOR-100 EKF

### Major characteristics

#### Programmable controller F200 16 i/o PRO-Logic EKF

- RS-485/232 & Ethernet
- Modbus RTU/ASCII/TCP
- Digital and analog inputs/outputs
- Connection of temperature sensors supported
- High-speed I/Os: up to 200 kHz
- Removable spring terminals
- Programming languages: FBD, LD, IL

#### HMI PRO-Screen RSC-15E

- Resistive TFT LCD display
- Screen size: 4,3"/7"/10,1"/15,6"
- RS-232/485/422, and Ethernet

- Modbus RTU/ASCII/TCP
- USB ports and SD card port
- Real time clock (RTC)
- Degree of protection: IP65
- VNC supported
- Free programming environment

#### Frequency converter 75/90kW 3x400V VECTOR-100 EKF

- Power: 0,4-600 kW
- Input voltage: 230-400 V
- Operating temperature: -10 ... +50 °C.
- Modbus RTU



## Current transformers TTE, TTE-A & TTE-R



The current transformers EKF are designed to transform current to values suitable for measurement, with subsequent transmission of the measured signals to measuring devices, protection and control devices, and are used in 50 Hz AC circuits.

### Application

- Industry
- Construction
- ESCOs

### Major customers

- Chief power engineers
- Chief engineers
- Panel builders

### EKF USP

- Improved electrical insulating properties
- Small size to save workspace
- Various sizes and designs, including split versions

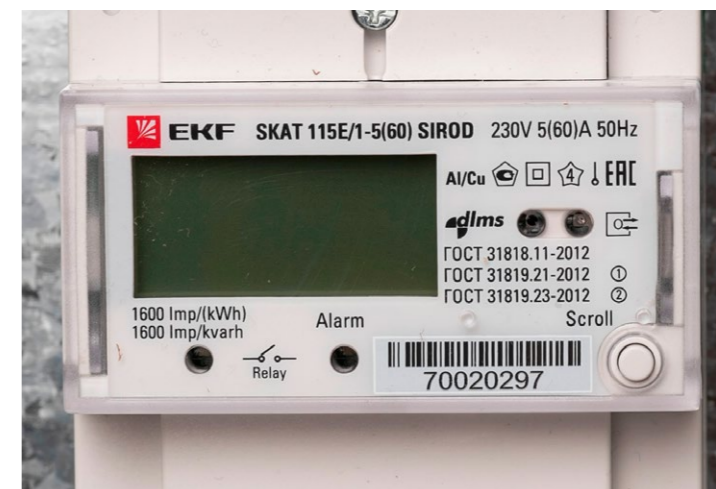
### The outstanding SKUs in the category

- TTE-30-150/5A accuracy class 0,5S EKF
- TTE-100-3000/5A accuracy class 0,5S EKF
- TTE-P 816 2500/5A 0,5 20VA NF4 EKF

### Major characteristics

- Accuracy class: 0,5; 0,5 S
- Rated voltage: 600 V. Frequency: 50 Hz.
- Rated current: 5 - 5000 A.
- Rated secondary load: from 2,5 to 15 VA

## Single- and three-phase electricity meters SKAT



Electricity meters SKAT EKF are designed to measure and meter the consumed active and reactive power in single-phase and three-phase AC circuits. The devices feature communication interfaces for programming and remote reading of metered data within electricity metering systems.

### Application

- Industry
- Construction
- ESCOs

### Major customers

- Chief power engineers
- Chief engineers
- Panel builders

### EKF USP

- Communication interfaces for programming and remote metering
- DIN rail and mounting plate options
- Metering both active and reactive power in forward and reverse directions
- Compact housing to save space in enclosures
- Low energy consumption
- Protection against electricity fraud
- Vector diagram visualization
- Event log
- Verification interval: 16 years

### The outstanding SKUs in the category

- SKAT-315
- SKAT-115

### Major characteristics

- Single- and multi-tariff metering options
- Direct and transformer connection
- Multi-tariff electricity metering, up to 4 tariffs
- Rated voltage: 220 [230]-380 [400] V
- Maximum current: 7,5, 60, 100 A
- RS-485 & opto-port
- Built-in bistable relay to limit power consumption
- Frequency: 50 Hz.
- Accuracy class: 1; 0,5 S

## Measuring instruments



Multifunctional measuring instruments EKF are digital programmable devices designed to measure parameters of three-phase three-/four-wire circuits with balanced and unbalanced load, simultaneous display of measured values, and data transfer. The devices provide control, analysis and optimization of energy equipment, systems and industrial networks.

### Application

- Industry
- Construction

### Major customers

- Chief power engineers
- Chief engineers
- Panel builders

### EKF USP

- Can be used in automated monitoring and data systems with RS-485 interface and Modbus protocol
- Help to save space in enclosures and reduce the number of measuring devices required due to multiple functions
- Prevent equipment from failure - timely detect critical deviations of power quality parameters
- Panel and DIN rail mounting options
- Fit any type of current and voltage transformers
- Can be complemented with digital I/O expansion module [DIN rail model]
- Enable metering of active and reactive power at multiple tariffs
- Programmable modes and functions, including monitoring of critical values with further alarm

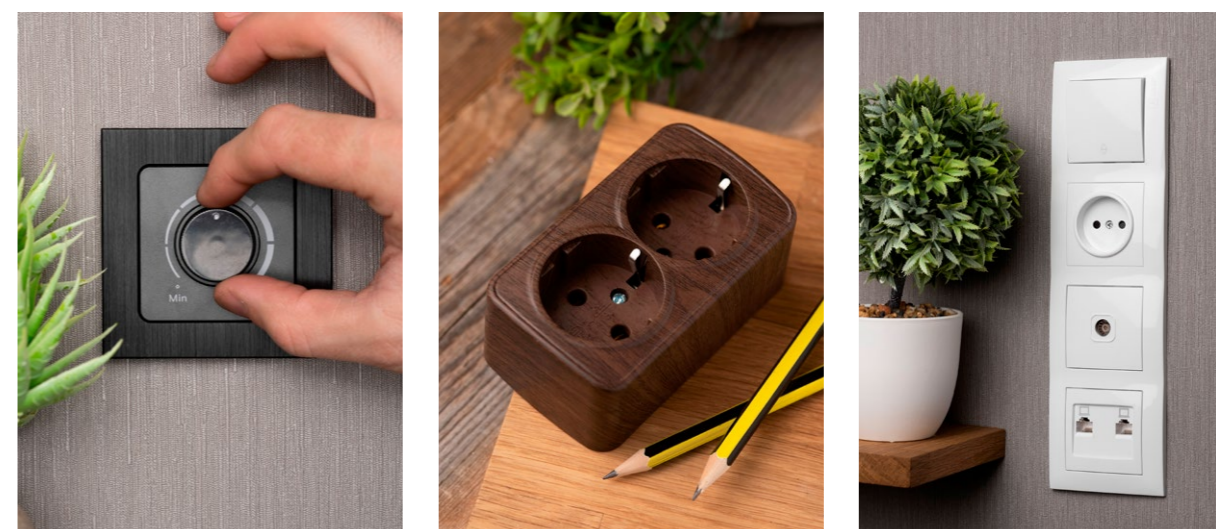
### The outstanding SKUs in the category

- Digital multifunctional meter SM-H with LCD
- Digital multifunctional meter SM-E with LED display
- Digital multifunctional meter SM-G33H with LCD, DIN rail

### Major characteristics

- Accuracy class: 0,5 S
- Front panel: 96x96 mm [enclosure version]
- Measurement: U, I, P, Q, S, PF, F, EP, EQ, THD
- RS485 interface via ModBus RTU protocol
- Display: LCD, LED
- Degree of protection: front enclosure - IP64, rear enclosure - IP20
- Transformer connection
- Digital I/Os

## Socket outlets & switches



Electrical accessories are widely used in households. These flush- and surface-mounted mechanisms provide switching of electrical devices in apartments, offices, and plants.

Electrical accessories include:

- socket outlets, e.g. phone outlets RJ11, computer outlets RJ45, etc.
- switches, e.g. 1-/2-gang 1-/2-way switches, dimmers, etc.

The EKF socket outlets and switches are easy to install and use, safe and reliable, and perfect to complement your interior.

The EKF range includes both flush-mounted and surface-mounted products. Surface-mounted products are classified by the degree of ingress protection - from IP20 to IP54. The IP54 products are suitable for outdoor installation under an awning, in garages, and industrial facilities. Flush-mounted products differ in appearance and materials. The EKF portfolio offers a variety of designs and colors. With a wide range of mechanisms, you can design the entire room in a single style.

### Application

- Specialist and household retail
- Construction

### Major customers

- Individuals
- Wiremen

### The outstanding SKUs in the category

- Series Minsk
- Series Stockholm
- Series Valencia

### Major characteristics

- IP20-IP54



## Power factor correction components



Power factor correction is one of the ways to improve the quality of electrical energy. EKF offers both separate elements and ready-to-use systems.

**Capacitors** are the main operating elements for power factor correction in the grid.

**Capacitor battery contactors EKF** are used for switching capacitors into the mains. They are equipped with a lead block and reinforced contacts.

**Regulators** are devices to analyze and control capacitor banks. They determine the volume of reactive power in the grid and connect the capacitors to the grid required to achieve the target power factor value. The EKF portfolio offers two series of power correction devices—NOVAR and VARko.

**Capacitor banks** are out-of-the-box solutions based on capacitors, regulator VARko, contactors Averes and are made entirely of EKF components.

### Application

- Industrial facilities
- Utilities and amenities
- Warehouses
- Apartment buildings
- Shopping malls and hotels
- OEM

### Major customers

- Chief power engineers
- Panel builders
- Chief engineers

### EKF USP

#### Capacitors

- Rated power: up to 50 kVAR
- Gas filled version
- Service life: 14 years

#### Contactors

- High electrical endurance of contacts
- Rated power: up to 75 kVAR

#### Regulators

- Capacitor power auto detection
- Thermal sensor
- Maximum number of connected stages - 14 pcs.

#### Capacitor banks

- Easy installation and operation
- Thermal calculation

### The outstanding SKUs in the category

- Reactive power regulator Varko-106a EKF
- Cosine capacitor KPS-0,4-25-3 EKF
- Capacitor contactor KMEK 25 kVAR 230V AC 1NO EKF AVERES

### Major characteristics

#### Rated power

- Capacitors: from 5 to 50 kVAR
- Contactors: from 5 to 75 kVAR

#### Rated voltage

- Capacitors: 50V and 400V

#### Number of stages

- Regulators: from 4 to 14 stages

## Interface converters



The interface converter RSU-C-1 RS485-USB EKF is designed to convert USB interface signals into two-wire RS-485 serial interface signals. The main application is the connection of controllers, measuring devices, data collection systems, and computers without serial interfaces. The converter serves for offline configuration of one or more devices with RS-485 interface. The converter is compatible with Windows 2000, XP, Vista, Windows 7/8/10 [x86 and x64], Windows 98me, Linux to establish a virtual COM port.

### Application

- Industry
- Specialist and household retail

### Major customers

- Chief power engineers
- Panel builders
- Integrators of automation and metering systems

### EKF USP

- Compact and handy module connected directly to your computer
- Standard COM port emulation
- Uninterrupted operating mode
- Up to 32 devices connected to one interface converter
- Auto data direction detection
- Power supply from PC USB port

### The outstanding SKUs in the category

- Interface converter RSU-C-1 RS485- USB EKF

### Major characteristics

- Voltage: 5V (PC USB port)
- Current: max 200 mA
- Overall dimensions: 70x25x13mm
- PC connection: USB Type-A
- Data transfer rate: 300-115200 bps
- Degree of protection: IP20







Open to cooperation and looking for distributors

## All countries from the Middle East & Africa

E-mail:

[sales@ekfgroup.com](mailto:sales@ekfgroup.com)

Social media:



[ekf.global](https://www.instagram.com/ekf.global)



[ekf\\_global](https://www.facebook.com/ekf_global)



[ekf\\_global](https://www.linkedin.com/company/ekf_global)



**[GLOBAL.EKFGROUP.COM](https://www.global.ekfgroup.com)**