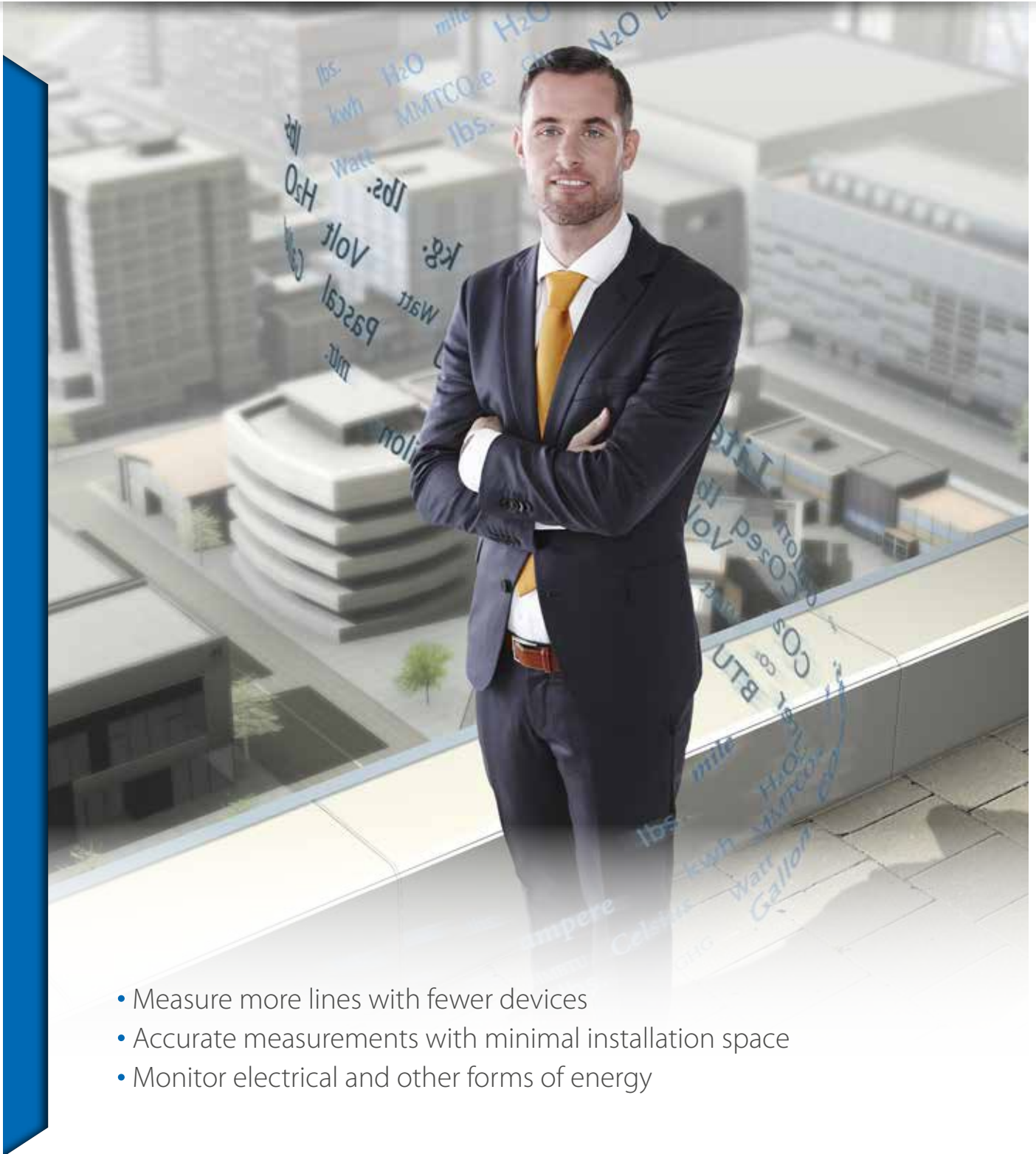OMRON

Rise above your energy challenges

Energy monitoring devices

- Measure more lines with fewer devices
- Accurate measurements with minimal installation space
- Monitor electrical and other forms of energy

industrial.omron.eu/green-automation

Energy Awareness

Measure, visualize and optimize to reduce your energy bill while gaining competitiveness with Omron's energy monitoring solutions. A combination of hardware, software and expertise allows you to effectively manage your energy use without sacrificing production or quality.

Measure

When you measure something, you understand it and when you understand it, you can improve it. Our energy monitoring devices provide high precision energy measurements to facilitate a better understanding of your power consumption.

Visualize

Collect data using the Multi Data Viewer Light and Easy KM Manager software. Allowing you to visualize, monitor and analyze a system's energy usage.
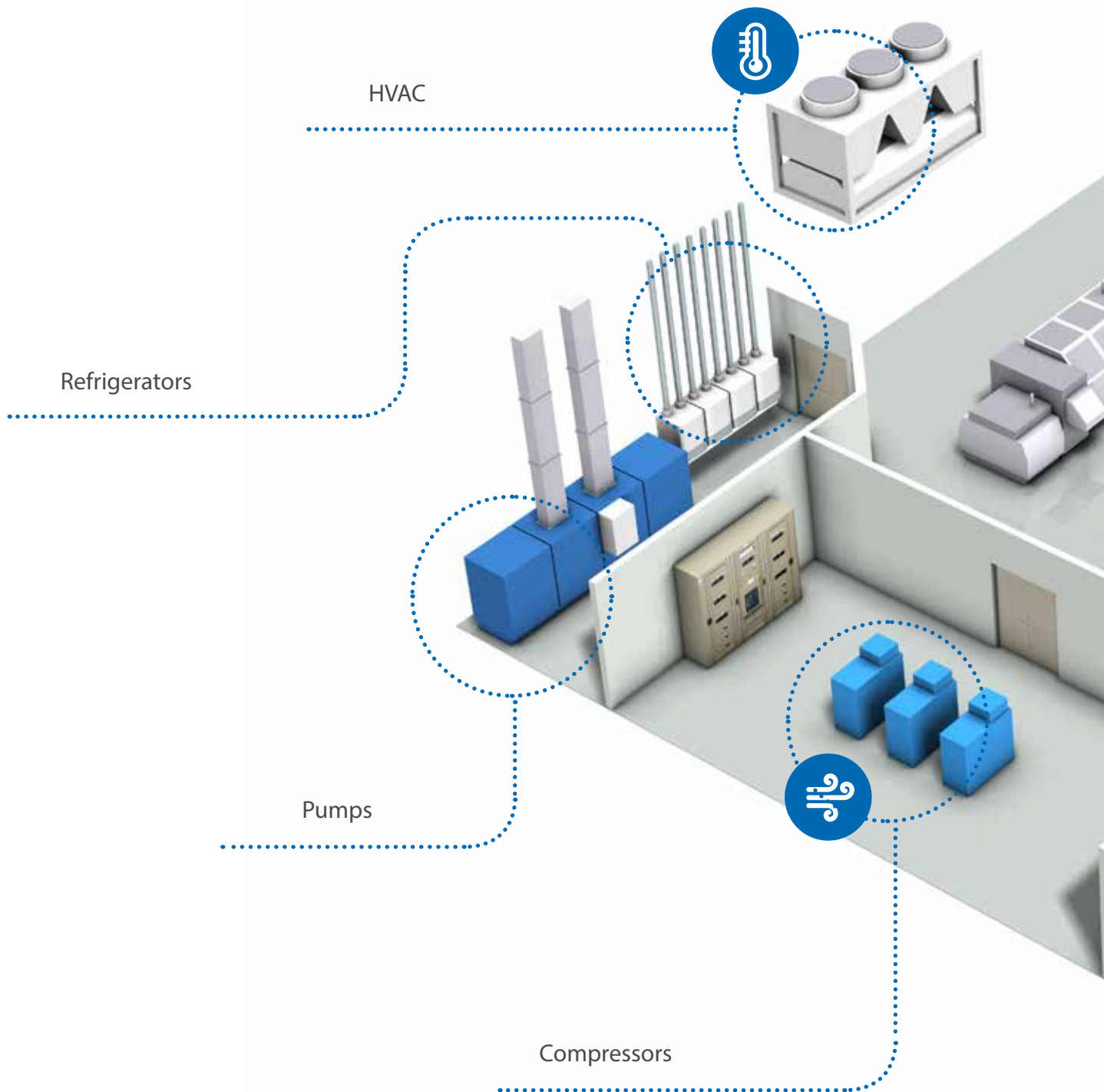
Optimize

Implement energy management techniques to realize an immediate reduction of your energy bill. Use our selected network of Omron Solution Partners or your trusted Energy Service Companies (ESCo) to optimize your energy management.
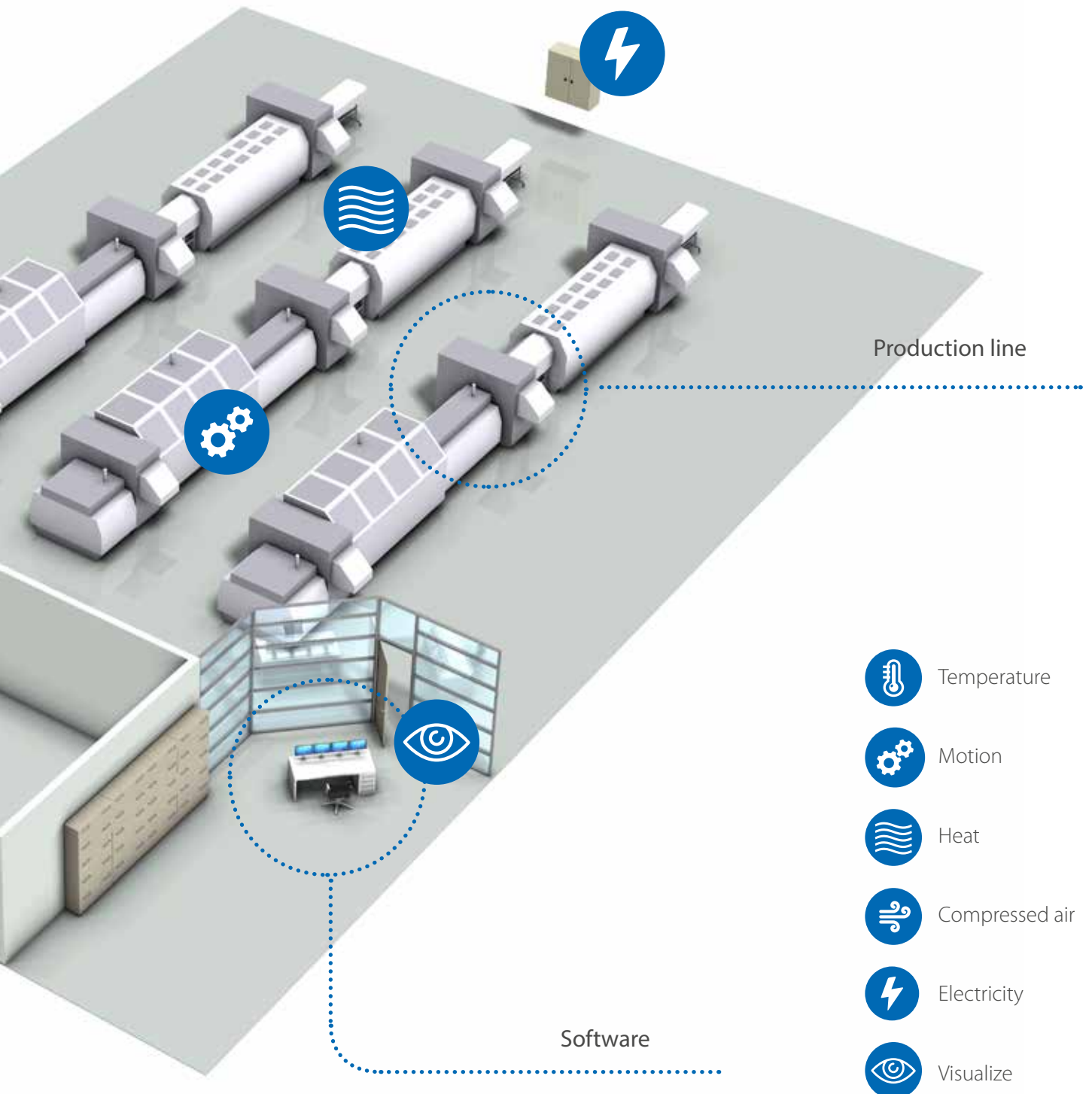
As an energy manager, you are challenged implementing EU directive 27/2012 and ISO50001 at your site. Our energy monitoring hardware and software helps you meeting these demands.

Find energy inefficiencies at every level

Omron's energy monitoring devices find energy waste for both direct and indirect processes of your entire site. The KM series of power monitoring devices have the versatility to function at multiple levels to reveal detailed information in a consistent manner.

HVAC

Refrigerators

Pumps

Compressors

Production line

Temperature

Motion

Heat

Compressed air

Electricity

Software

Visualize

Smart power monitoring devices

The KM series accommodates a wide range of applications, from simple measurements to high-precision power monitoring.

KM1 Platform features

- Visualization of power consumption for back panel applications
- Simultaneous measurement of electric and non-electric parameters
- Master unit connects up to 4 slave units
- Multi-circuit measurements

KM50-E1-FLK features

- Colored display for on-panel assistance in finding actions to improve energy management
- Measure produced and consumed power, current, voltage, leading reactive power, lagging reactive power, power factor, frequency and more
- Simultaneously measure power and current

Collect data allowing you to visualize, monitor and analyze

Easy KM-Manager software

- Free data collection software
- Collect data directly on your computer
- Trend analysis of instantaneous values
- Graphs of Energy and other data

KM1 setup tool

- Free configuration tool
- Connect the KM1 to a PC to easily set up
- USB-powered
- Simple setting parameters

KM50

KM1

KM1

KM1

KM20

Key benefits

- Mounting space reduced by 76% compared to traditional monitoring products (in the case of single-phase, two-wire lines)
- Reduced number of devices for monitoring multiple circuits (up to 36 circuits with one platform)
- Inner bus provides high speed communication and shared power supply from the master to reduce wiring effort
- Customizable platform for various applications
- No VT required
- Up to 7 pulse inputs
- Free KM1 configuration tool
- Install clamp-type CT (KM20 current transformer) without interrupting current flow

Invisible air flow is energy

Air compressors typically use 27% of a machine's total electricity. This major source of energy consumption can now be visualized and monitored with air flow sensors allowing you to recognize new energy saving areas. Air is invisible, which can lead to waste. Monitoring air energy exposes 3 common problems.

1

Air leakage

Unrecognized as leakage

2

Excessive air usage

Air used more than necessary quanity

3

Too much pressure

fluctuations are not monitored thus pressure set too high

D6FZ-FGS1000

D6FZ-FGT200
D6FZ-FGT500

D6FZ-FGS features

• Measure compressed air at the line level

• Detect leakage while measuring pressure and flow

• Wide measurement range of 0 to 1000 L/min

D6FZ-FGT series features

• Measure compressed air at the machine level

• Detect leakage and measure usage

• Wide measurement range of 0 to 200 L/min
  and 0 to 500 L/min

• 11 segment colored display

compressed air at the line

D6FZ-FGS1000

D6FZ-FGS1000

compressed air at the machine

D6FZ-FGT

compressed air at the machine

D6FZ-FGS

compressor
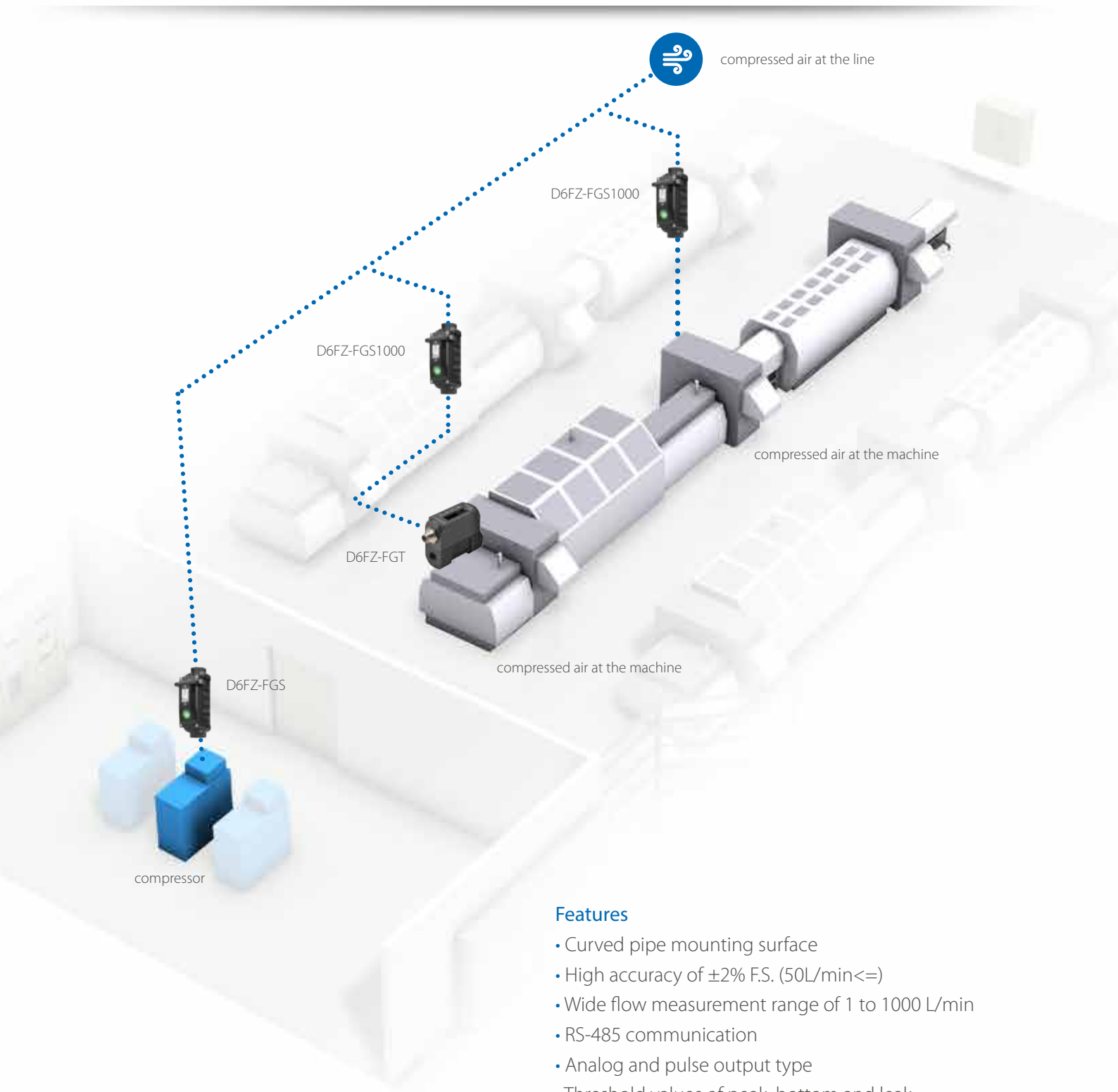
Features
- Curved pipe mounting surface
- High accuracy of ±2% F.S. (50L/min<=)
- Wide flow measurement range of 1 to 1000 L/min
- RS-485 communication
- Analog and pulse output type
- Threshold values of peak, bottom and leak

A portable way to monitor energy flow

This plug-and-play tool gathers and represents energy flow data for a variety of machines and panels.

ZN-KMX21 features
- Compatibility with the KM50 series via an RS-485 network
- Log data to an SD card (energy, power, power factor, pulse sum)
- Adjustable sampling time (1 sec, 2 sec, 5 sec, 10 sec, 20 sec, 30 sec, 1 min)
- Integrates into a LAN
- Free visualization software included
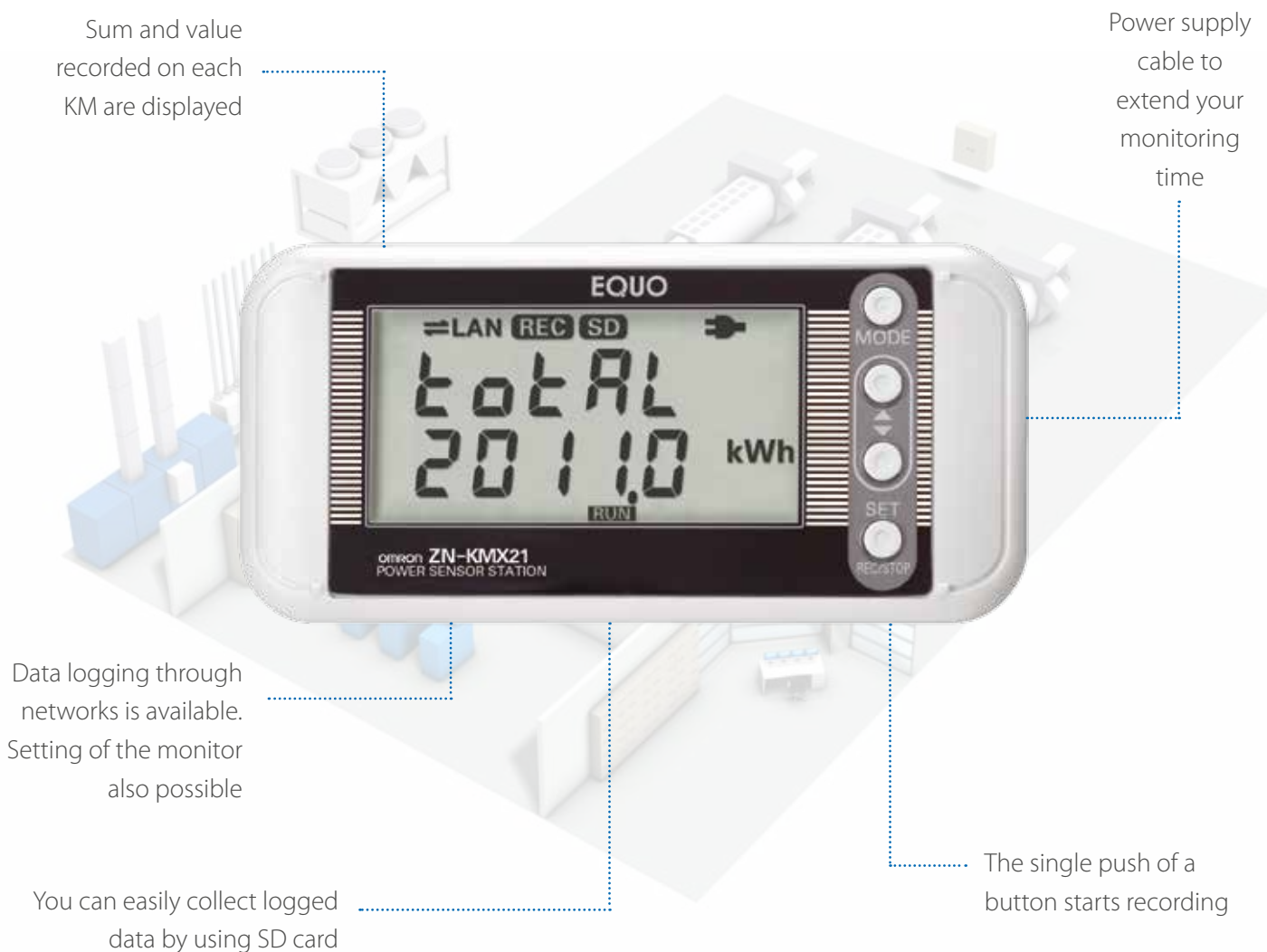
Sum and value recorded on each KM are displayed

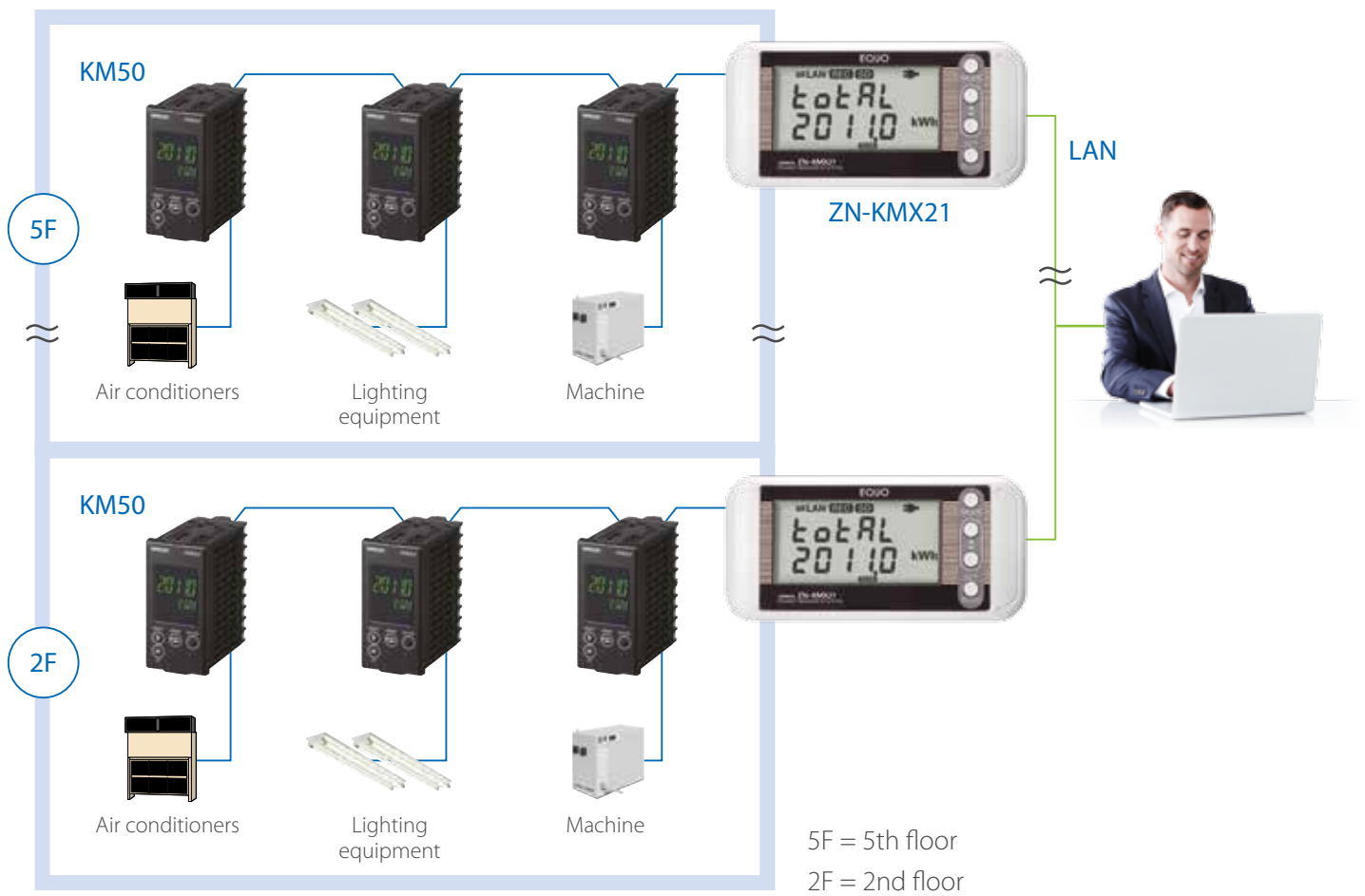Power supply cable to extend your monitoring time

Data logging through networks is available. Setting of the monitor also possible

The single push of a button starts recording

You can easily collect logged data by using SD card

Monitor the power of an entire building

Use one or more ZN series Power Sensor Stations to gather and represent energy flows from multiple sources across your entire building.

KM50

5F

Air conditioners | Lighting equipment | Machine

ZN-KMX21

LAN

KM50

2F

Air conditioners | Lighting equipment | Machine

5F = 5th floor
2F = 2nd floor

Application examples

Monitor compressor efficiency

Comparing compressor power consumption with air flow rates allows close monitoring of compressor operating efficiency. Measuring the air output and comparing with the electricity input provides you the right key performance indicator to understand the level of efficiency for your air compressor or set of air compressors.
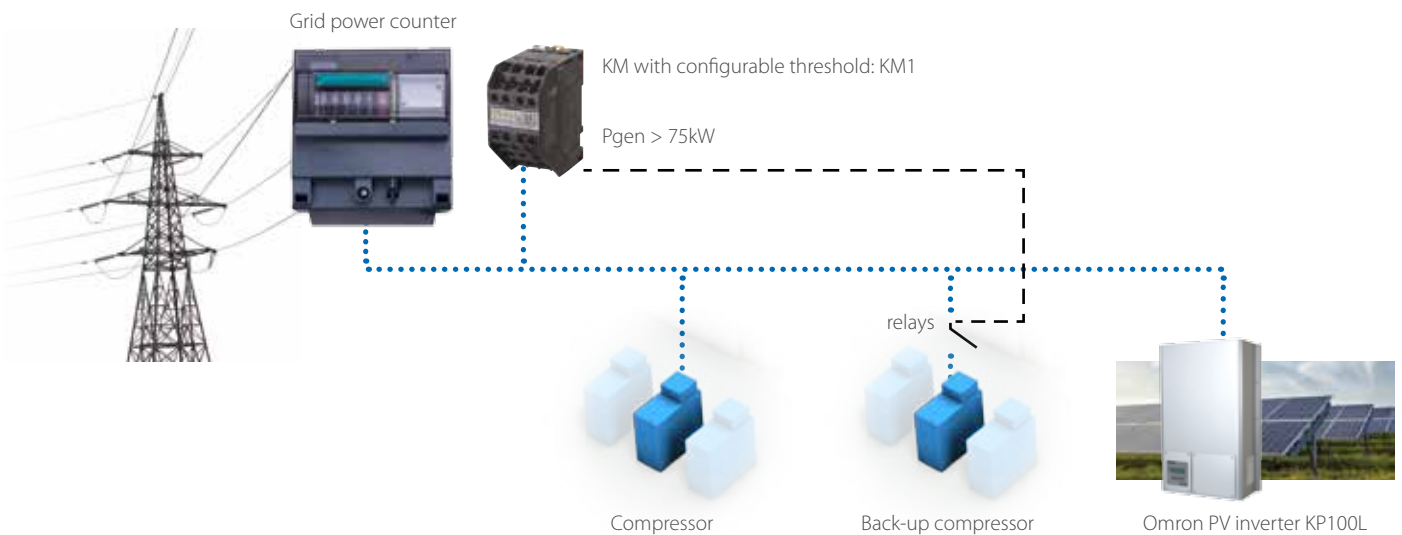
Directly connecting the digital output from a D6FZ sensor to the digital input of the KM series controller allows you to use it as a unique serial port interface to acquire electricity and air flow measurements without additional devices.

Flow rate pulse

D6FZ sensor

Gas
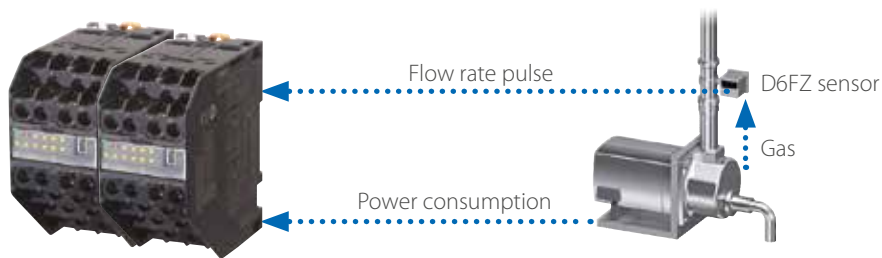
Power consumption

Manage energy loads automatically

Intelligent energy management with the KM series allows you to increase the self-consumption rate from your power generation efforts. When the generated power exceeds demand, the KM alarm output can

trigger supplementary tasks such as increasing compressed air capacity or other energy storage methods.

Grid power counter

KM with configurable threshold: KM1

Pgen > 75kW

relays

Compressor

Back-up compressor

Omron PV inverter KP100L

Electricity and other sensors

PLC CJ2
Provides PID control for all drives

NA HMI

feedback for drive's control

3G3RX Drive-
secondary

3G3RX Drive-
secondary

3G3RX Drive-
secondary
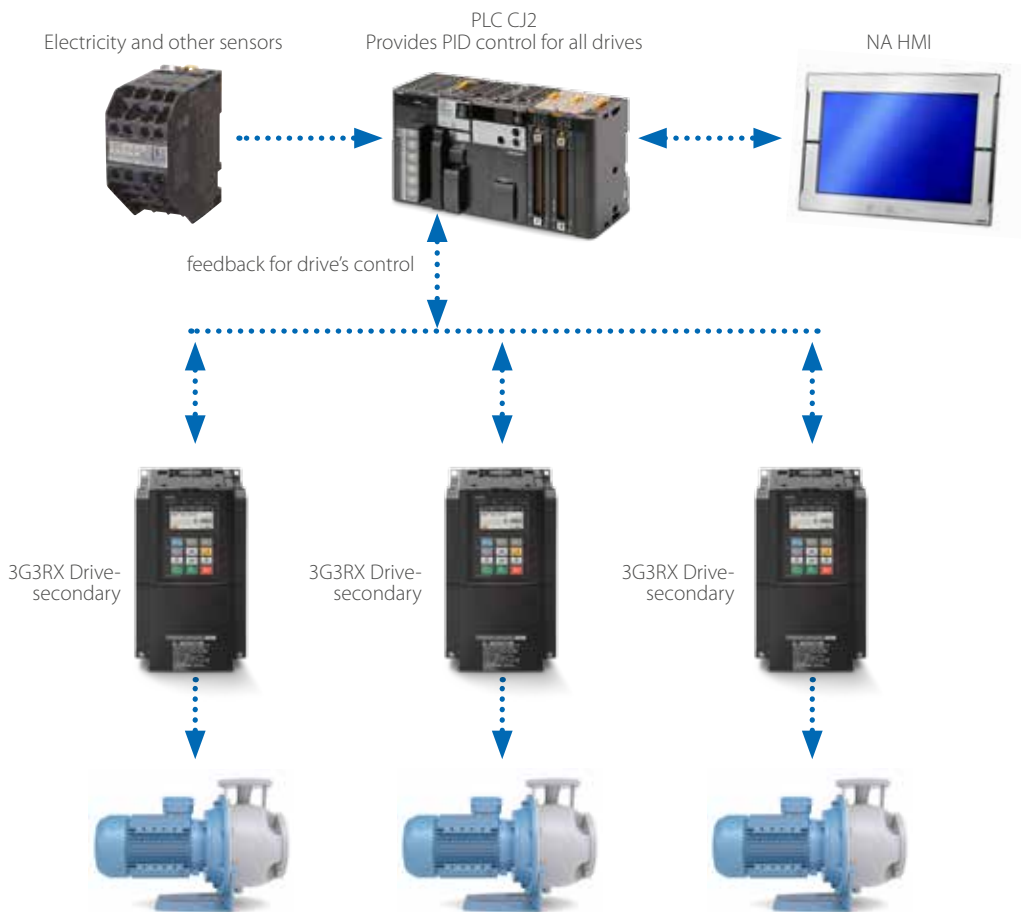
Pumping station

Incorporating a variable speed drive into pumping stations can result in a 30-60% energy usage reduction. The KM series provides accurate measurements (±2% FS) of inverter power use without any current waveform distortion, making this device ideal for proving and monitoring the effectiveness of energy conservation measures.

Selection table

Function icon		Product type		Product code	Description
Measure	Electricity	KM1	main device	KM1-PMU1A-FLK	Power monitor, master unit, single system, three-phase / 4-wire, Compoway/F and Modbus
				KM1-PMU2A-FLK	Power monitor, master unit, dual system, single phase / 2-wire,three-phase / 3-wire, Compoway/F and Modbus
				KE1-CTD8E	Power monitor, expansion unit for current transformer
	Temperature, pulses			KM1-EMU8A-FLK	Power monitor, expansion unit, pulse & temperature input, Compoway/F and Modbus
	Electricity, temperature, pulses	KM50	main device	KM50-E1-FLK	Power monitor, on-panel wiith LED display, single phase / 2-wire,three-phase / 3-wire, Compoway/F and Modbus
			accessory	KM50-OPT-ED1	Mounting form for KM50 E-version (DIN rail mounting type)
				KM50-OPT-EM1	Mounting form for KM50 E-version (magnet mounting type)
	Electricity	KM	accessory	KM20-CTB-5A/50A	Current transformer, in panel (penetration) installation, 5A / 50A, for cable dia. 8.4mm max
				KM20-CTF-100A	Current transformer, field installation, 100A, for cable dia. 14.5mm max
				KM20-CTF-200A	Current transformer, field installation, 200A, for cable dia. 24mm max
				KM20-CTF-400A	Current transformer, field installation, 400A, for cable dia. 35.5mm max
				KM20-CTF-50A	Current transformer, field installation, 50A, for cable dia. 9.5mm max
				KM20-CTF-5A	Current transformer, field installation, 5A, for cable dia. 7.9mm max
				KM20-CTF-600A	Current transformer, field installation, 600A, for cable dia. 35.5mm max
				KM20-CTF-CB3	Cable for current transformer, 3m
	Compressed air	D6FZ	main device	D6FZ-FGS1000	Air Flow Sensor (1000L type, cable length: 0.2m)
				D6FZ-FGS1000-S	Air Flow Sensor Set (1000L type) including 01*Air Flow Sensor (1000L type), 01*Air Flow Station, 01*T-branch connector, 01Single-end wire cable (3m)
				D6FZ-FGT200	Air Flow Sensor (200L type)
				D6FZ-FGT500	Air Flow Sensor (500L type)
			accessory	D6FZ-FC02	T-branch connector
				D6FZ-FC03	Mounting bracket (*1) plus screws (M3)*4 (Air Flow Sensor D6FZ-FGT only)
				D6FZ-JD10A	Single-end wire cable (cable length 10m)
				D6FZ-JD10B	Double-end connector cable (cable length 10m)
				D6FZ-JD20A	Single-end wire cable (cable length 20m)
				D6FZ-JD20B	Double-end connector cable (cable length 20m)
				D6FZ-JD3A	Single-end wire cable (cable length 3m)
				D6FZ-JD3B	Double-end connector cable (cable length 3m)
				D6FZ-JD5B	Double-end connector cable (cable length 5m)
Visualize	Compressed air	D6FZ	main device	D6FZ-FGX21	Air Flow Station, compatible with all D6FZ air flow sensors, logging on SD card
	Electricity	ZN	main device	ZN-KMX21-A	Power sensor station compatible with KM50, logging on SD card
	Electricity, temperature, pulses	KM	Software	Easy KM Manager	Display graphs and download csv file from all KM units via RS485-USB converter like the E3SC by Omron
	Electricity, pulses, compressed air	ZN, D6FZ	Software	Multi data viewer light	Display Graphs and download csv file from ZN and D6FZ station.
Setting	Electricity, temperature, pulses	KM1	Software	KM1-KE1 setting	Make setting to all the KM1 units by connecting via USB cable

Omron at a glance

Listed in Top 2000 largest companies of the globe
Omron Corporation NASDAQ: OMRNY
Top ranking in Dow Jones Sustainability Index
Thomson Reuters Top 100 Global Innovators

200.000 products ranging input, logic and output

Sensing, Control Systems, Visualization, Drives, Robots, Safety, Quality Control & Inspection, Control and Switching Components

7%

Investment in Research & Development

Innovation track record of 80 years

Top 150 global patent assignee
1.200 employees dedicated to R&D
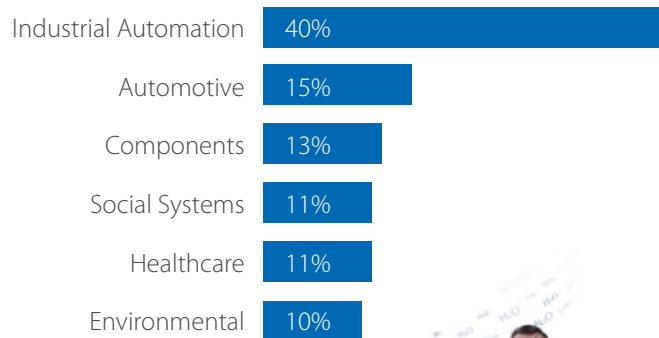11.000 + issued and pending patents

36.500
Employees worldwide

210
Locations worldwide

22
Countries in EMEA

Working for the benefit of society

Industrial Automation	40%
Automotive	15%
Components	13%
Social Systems	11%
Healthcare	11%
Environmental	10%

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