SMART

AGRICULTURE

AirIM-100S

iNELS®

Smart Agriculture

IoT services for farmers

www.elkoep.com/agriculture

ELKO EP

ELKO EP is a traditional, innovative and purely Czech manufacturer of electronic equipment and has been your partner in the field of electrical installation for ore than 26 years.

ELKO EP employs 330 people, exports its products to more than seventy countries and has representatives in thirteen foreign branches. The Company of the Year of the Zlín Region, Visionary of the Year, Global Exporter of the Year, participation in the Czech TOP 100, are just some of the awards received. Still, we are not finished. We are constantly striving to move forward in the field of innovation and development. That is our primary concern.

Millions of relays, thousands of satisfied customers, hundreds of employees, twenty-six years of research, development and production, thirteen foreign branches, one firm. ELKO EP, an innovative Czech company based in Holešov, where development, production, logistics, service and support go hand in hand. We focus primarily on developing and manufacturing, building automation systems in the residential, commercial and industrial sectors, along a wide range of Smart city facilities and the so-called Internet of Things (IoT).

Farming and modern technology

Every good farmer, be it a grower, a breeder, a winemaker, a beekeeper or a forester, puts a lot of effort and money into the proper management of his production areas, but circumstances do not always allow him to harvest the crops appropriately. Farmers are particularly worried about weather conditions - temperature fluctuations, unforeseen precipitation, long-term drought, and soil moisture - all result in lower yields.

| Meterological Conditions		Natural disasters	Pests	Diseases	Unpredictable Conditions
Temperature	Sun light	Drought	Insects	Mould	Animal Escape / Failure
Freezing	Wind	Flood	Vermin	Crop disease	Theft / Energy waste
Humidity	Rain	Fire	Wild Animals	Animal disease	

We cannot predict the wind and rain precisely; we can however, monitor and evaluate them very well. Modern technology can make life easier and doesn't work only in homes but in commercial buildings and smart cities.

Technology can be a great help also were you would not expect it - on farms, vineyards, fields or forests, especially if it is automated and communicates efficiently. It makes work easier and more efficient, with better property protection, and helps prevent and speeds up crisis response.

Main MOTIVATORS
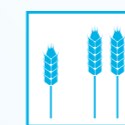
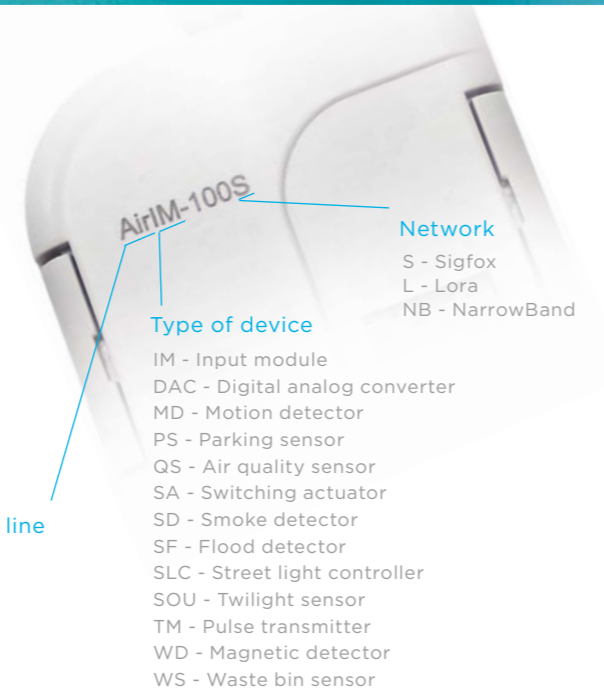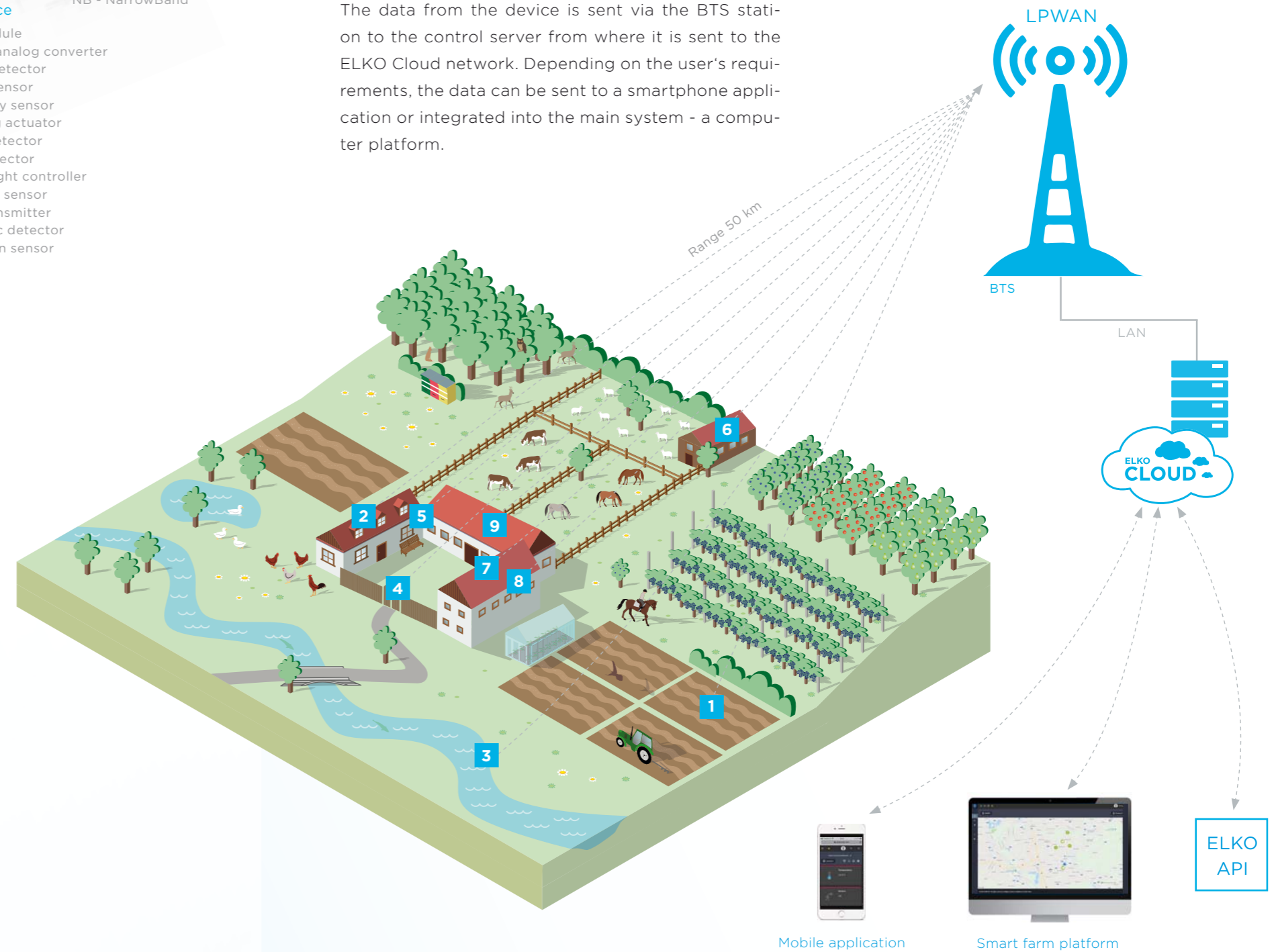| Saving money	Higher crop yield	Work efficiency	Worker comfort	Increase security

iNELS Air

iNELS Air is our response to the dynamically developing network for IoT (Internet of Things). The IoT wireless communications category describes the Low Power Wide Area Network (LPWAN). This technology is designed to provide both full-area outdoor coverage and indoor signal, energy-saving and low-cost operation of individual devices.

The iNELS Air product family includes sensors for communication on the Sigfox, LoRa and NB-IoT protocols.

AirIM-100S

Product line

Network
S - Sigfox
L - Lora
NB - NarrowBand

Type of device
IM - Input module
DAC - Digital analog converter
MD - Motion detector
PS - Parking sensor
QS - Air quality sensor
SA - Switching actuator
SD - Smoke detector
SF - Flood detector
SLC - Street light controller
SOU - Twilight sensor
TM - Pulse transmitter
WD - Magnetic detector
WS - Waste bin sensor

1 Universal input

2 Input module

Flood detector

3 Level Sensor

4 Magnetic detector

5 Motion Detector

6 Smoke Detector

7 Air Quality Sensor (CO_2)

Air Quality Sensor (CO)

Pulse transmitter

8 Waste bin sensor

9 Street light controller

IoT networks

This term includes the concept of connecting appliances, machines, sensors to an existing internet structure. This structure uses a specially designed network for small data transfer and low power consumption over long distances. For our concept we use Sigfox, LoRa and NB-IoT.

The data from the device is sent via the BTS station to the control server from where it is sent to the ELKO Cloud network. Depending on the user's requirements, the data can be sent to a smartphone application or integrated into the main system - a computer platform.

sigfox   LoRa   NB-IoT

LPWAN

Range 50 km

BTS

LAN

ELKO CLOUD

Mobile application   Smart farm platform   ELKO API

Display and control

The status of individual iNELS Air devices can be viewed in several ways. The primary repository of all collected information is the ELKO Cloud. From it, you can view your data on your smartphone application where you can also set notifications like pop-ups in the top bar of your phone or directly to your email. Linking the ELKO Cloud with IFTTT also offers the possibility of linking iNELS Air devices to the Internet of Things structure (IoT).
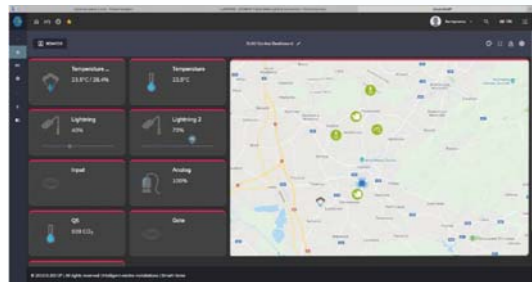
ELKO Cloud

For easy viewing of your data on a computer / laptop, use the ELKO Cloud, which, in addition to the current status, also stores the history of the data from your sensors.

Signalling

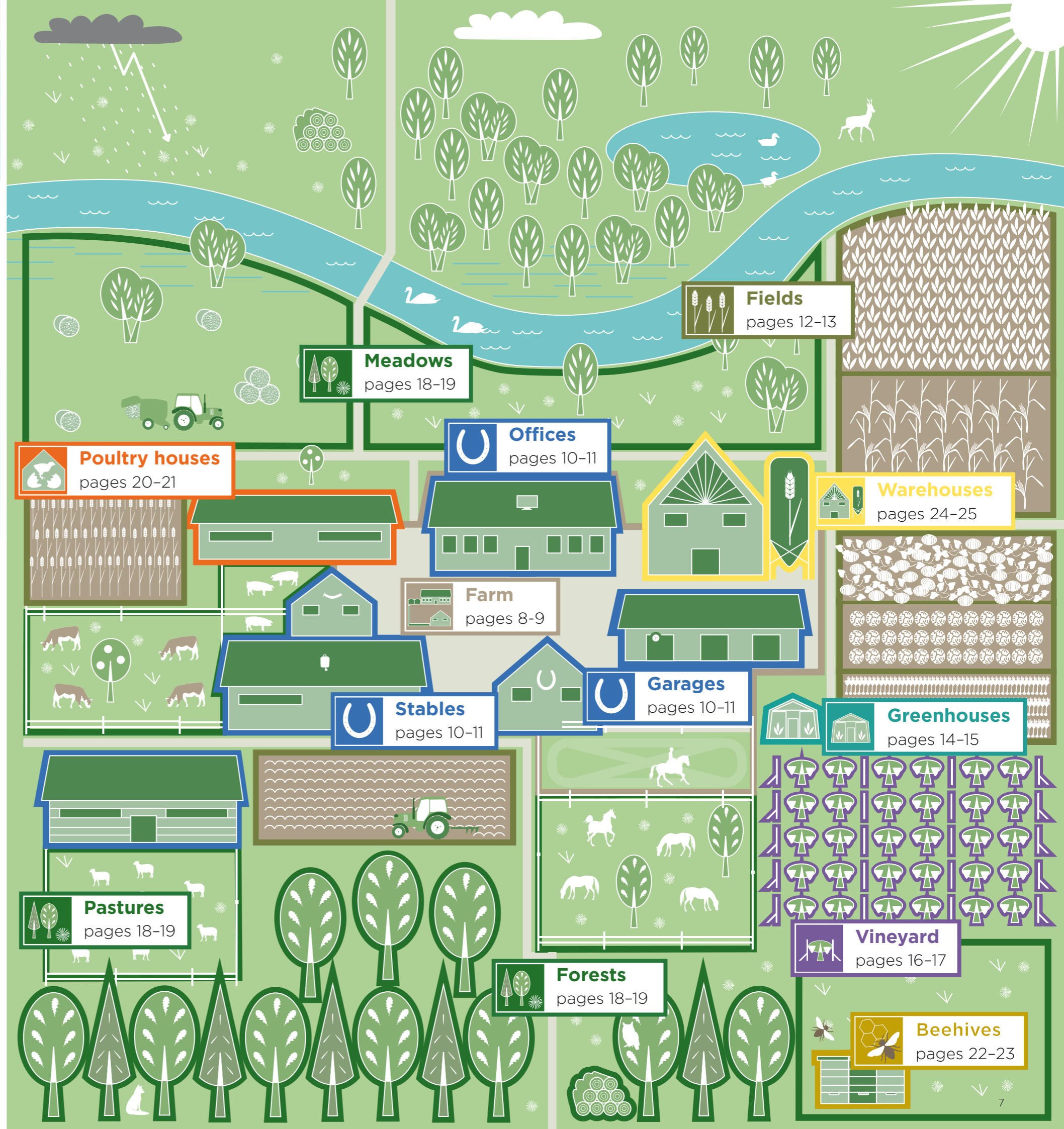If the pre-set conditions are interrupted, a light will illuminate or an alarm will sound.

Application

A simple way to check the current status of all connected sensors or detected consumption within your smartphone. The application offers you a ser-friendly and intuitive interface.

Notifications

You can get information about event occurrences by SMS.

Fields pages 12–13

Meadows pages 18–19

Offices pages 10–11

Poultry houses pages 20–21

Warehouses pages 24–25

Farm pages 8-9

Garages pages 10–11

Stables pages 10–11

Greenhouses pages 14–15

Pastures pages 18–19

Vineyard pages 16–17

Forests pages 18–19

Beehives pages 22–23

Farm

Every good farmer likes secure areas. After all, here there is everything, buildings, machinery and the harvest from September. The motion sensors and the camera system provide the viewer with the perfect overview of any events in the area, even if they are not present. Noise sensors protect agricultural machinery from theft. In the event that an unauthorized person enters, the owner is immediately informed and can also light the lights in the area and trigger an alarm.

But smart technology can also help to considerably save energy. An example is a light that automatically switches on at dusk, while lit with minimal brightness. When motion is detected, the illumination lights up to full brightness and then decreases to a pre-set value.

Seemingly small but significant relief can be gained with the possibility of the remote opening of gates, and other entrances through a smartphone, which also informs about their possible undesirable opening. The system is fully variable, so the farmer only chooses the elements he currently needs, and then later can add to them at any time.

2 Twilight sensor

The AirSOU sensor senses the current light intensity at a given location. Depending on the intensity measured, the intensity of the artificial lighting can be adjusted. This simple concept can effectively reduce power consumption.
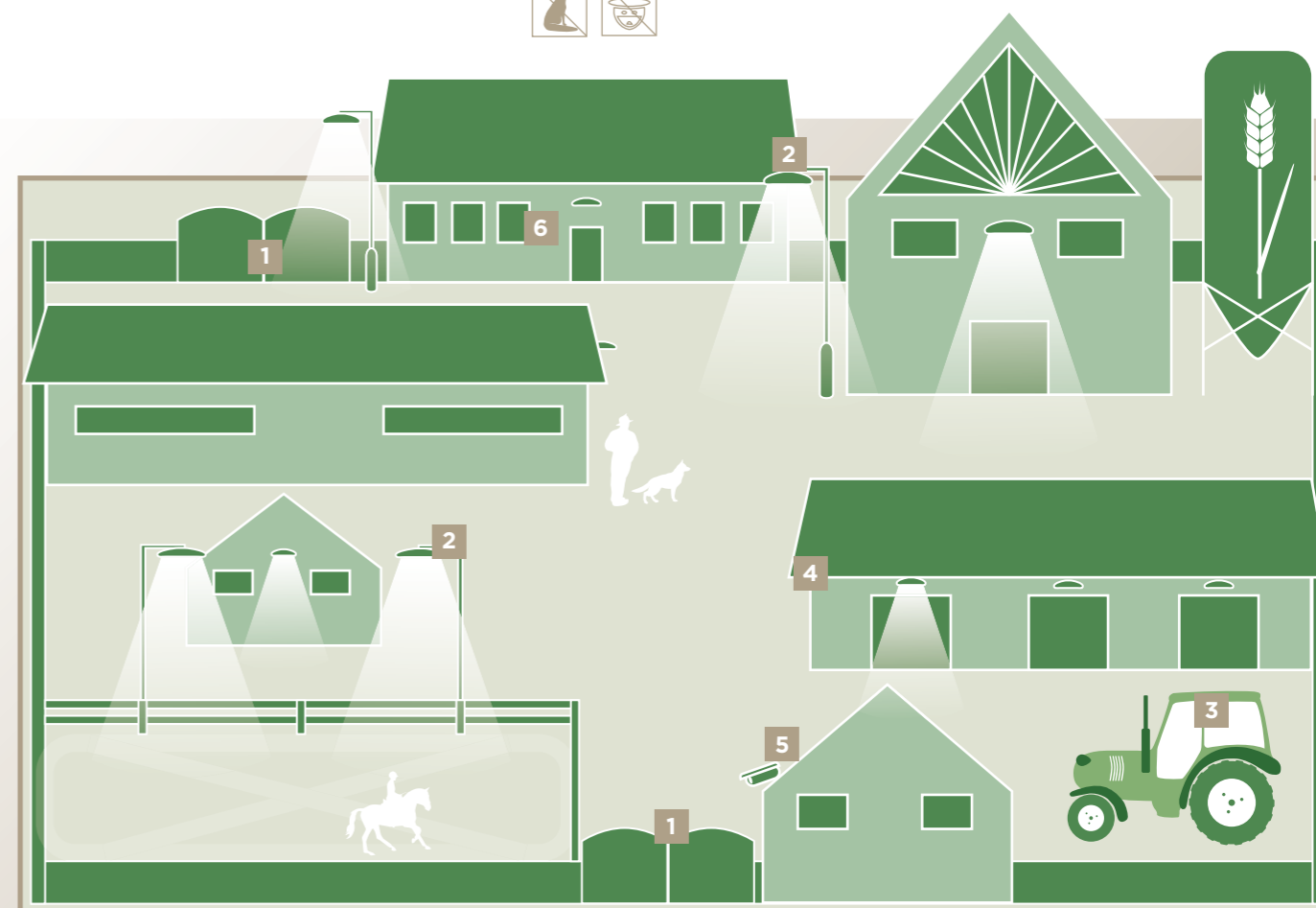
5 CCTV Camera System

The remote access camera system provides a perfect view of events in an area at any time and from anywhere. The data is stored in the server. The information can be displayed in applications on your computer or smartphone.

3 Noise measurement

The Air NOISE sensor measures the ambient noise level (dB). In case of a sudden increase in noise, it sends information about the event. For example, when a tractor is started unlawfully.

6 Device status monitoring

The universal AirIM module, in conjunction with the appropriate monitoring relay, monitors the current status of the appliances and detects critical and emergency conditions.

4 Motion detection

Outdoor Motion Detector AirMD is designed to detect the movement of people, machines and animals in the monitored area.

1 Detection of opening gates and doors

Outdoor magnetic detector
AirWD-101

- Change of state of the detector message is sent when the magnet is moved away from the device
- Status change information is sent to ELKO Cloud
- User can be informed by SMS, e-mail or smartphone notification
- The operator has the option of closing the door or the gate (see page 10)

Farm buildings

Smart technology makes it easy to work on farms. ELKO EP offers a variety of monitoring sensors connected to one central unit that evaluates the scanned data and informs the user about the actual values or critical states. Thanks to a wide range of sensors, it is possible to monitor a range of variables, such as temperature, humidity, voltage or current, or to measure energy consumption (electricity, water, gas).

Other sensors highlight open gates, doors or windows, strangers, the presence of undesirable substances in the air of farm buildings, and also monitor the state of feed and the supply of fresh water to farm animals. Additionally, with disasters such as fire or leaking water, the farmer is warned in time and can intervene before large-scale damage occurs.

Garages for parking expensive agricultural machines and their accessories tend to be the target of thieves, so it is advisable to provide these facilities with some of the monitoring safeguards.

An important part of each farm is also the office where it is possible to rely on smart lighting technology, maintaining pre-set climatic conditions, theft security, evidence of arrivals and departures of staff, or controlling energy consumption.

1 Gate remote control

Switching actuator
AirSA-11

- The switch actuator can be used to remotely switch gate driver
- The actuator is equipped with a relay with a changeover contact, which enables to switch high current loads up to 16A

2 Intrusion Detection

The AirMD-100 indoor magnetic detector is used to detect open gates, doors and windows where there is a risk of intrusion of unauthorized persons or the escape of livestock.
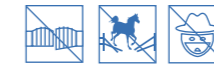
3 Maintain pre-set conditions

The Universal AirIM input records the current temperature and humidity in the areas. This makes it possible to maintain ideal breeding conditions.

4 Lighting

Also in halls, buildings or offices, it is desirable to regulate the intensity of light sources. The Air-SLC actuator works for this purpose. Nowhere will be lit unnecessarily. (More in catalogue Smart Street Lighting)

5 Smoke Detector

Smoke detector Air SD notices the presence of smoke in the room, an alarm is triggered and the operator is alerted immediately.
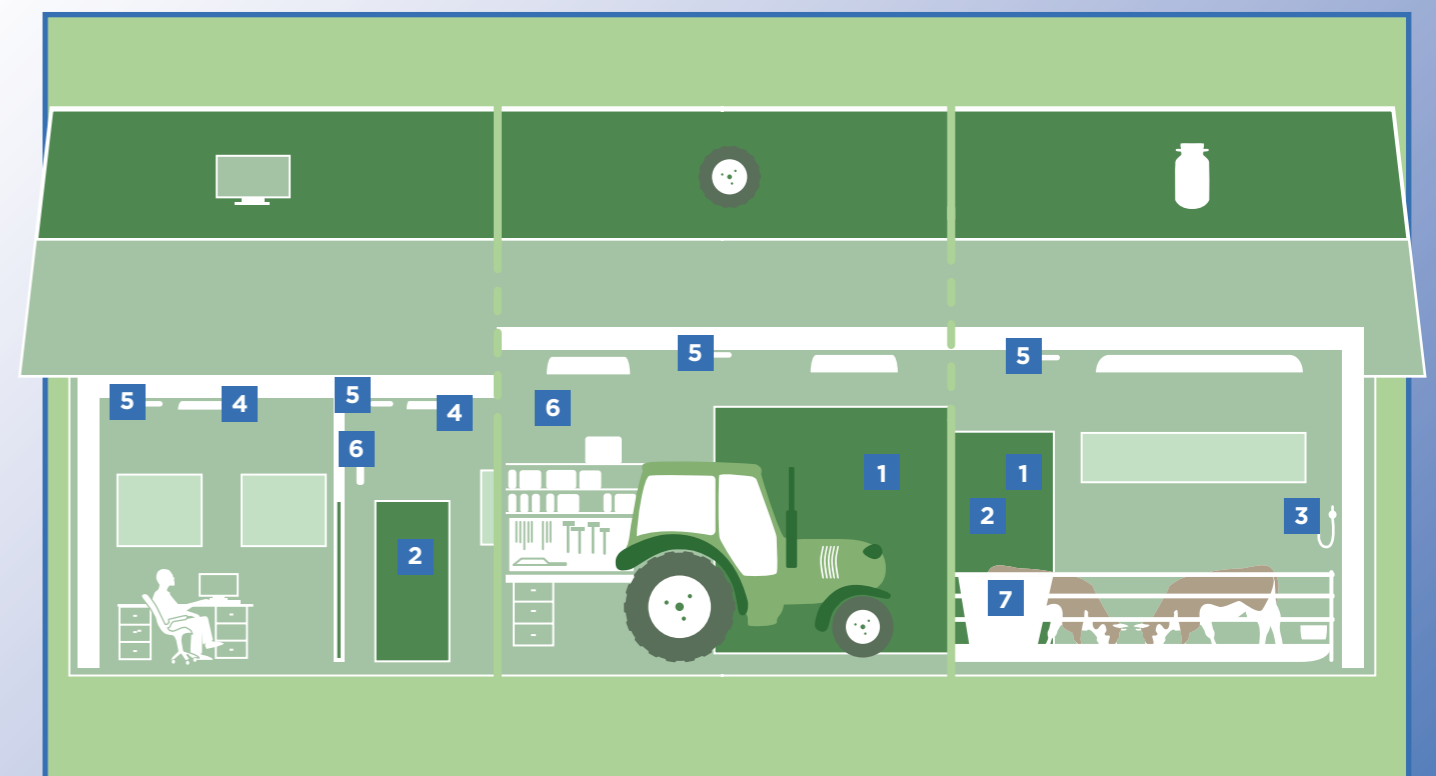
6 Motion detection

The AirMD indoor motion detector detects movement of persons, animals or machinery in the interiors of buildings.

7 Automatic dispensing of feed and fluids

The Air-11 switch actuator switches the feed or fluid dispenser on/off at set times.

Fields

Information on the current state of conditions in the fields is essential for timely and correct decision-making on further crop cultivation. Sensors and weather stations can monitor the state of the conditions (temperature, humidity and soil, precipitation, wind strength and direction) on production areas. The data is stored in the ELKO Cloud. The information can be displayed clearly in applications on your computer or smartphone. The recorded data is further evaluated and subsequently developed. Farmers can therefore decide in time on the appropriate procedures to take, thus eliminating possible harvest losses or, on the contrary, increasing production.

When exceeding or falling below the critical level, the system immediately sends the information to a mobile phone. Frequent risks are for example floods that commit massive damage. Smart technology helps to warn against their threat in a timely manner. Farmers can, as far as it is possible, allow the floodwater to spill out of their fields, for example into the meadows.
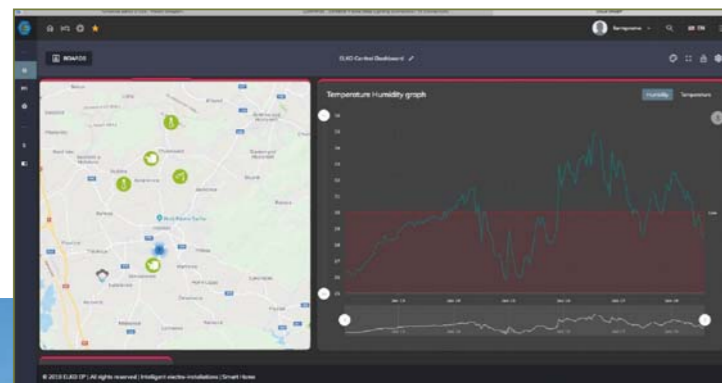
1 Measurement of current crop conditions

Universal input
AirIM

- onitors the current temperature and humidity status of the crops
- sends data to server at regular intervals
- You can conveniently view your data in a PC application or smartphone

2 Measurement of soil moisture

Universal AirIM input with external humidity sensor records and sends current status information, at a depth of 25 to 30 cm below ground.

3 Meteorological data measurement

The AirMETEO weather station detects wind speed, direction, temperature, humidity and light level directly in the field.

4 Level sensor

The universal AirIM input with the appropriate probe detects the water level, if the critical threshold is exceeded, an alert will be sent to the farmer.

5 Identification of shocks

AirSEIS shock sensor senses vibrations belonging to cars of unauthorized persons. An alert is sent when excessive vibration is detected.

6 Noise measurement

The Air NOISE sensor measures the ambient noise level (dB). In case of a sudden increase in noise, it sends information about the event. For example, when a tractor is started unlawfully.

Greenhouses

Greenhouses allow provision for the almost perfect conditions for the growth of crops, practically at any time of the year. Fruit is therefore weather-independent and more bountiful than when growing outdoors.

However, in greenhouses, it is necessary to ensure optimal conditions for growth, i.e. correct temperature, humidity, intensity and length of lighting, and to ensure ventilation and more. Smart technology connected to the central unit will record data on current greenhouse conditions and the farmer can make a decision on the next cultivation process on their basis. The ideal conditions, however, can be monitored and maintained by the system without the intervention of a human being

Smart technology can completely control the entire operation of greenhouses. Moisture sensors trigger irrigation only when it is needed, in case of lack of sunshine, the light with the pre-set colour spectrum switches on, if it starts to rain, the windows are closed, when the rain stops they open again.

Greenhouses under the control of smart technology will always deliver a perfect harvest that will please with both the high yield and the quality of the crops and of course especially the great taste.

1 Measurement of soil moisture

Universal input, Soil humidity sensor
AirIM, ECH-20 GS-1

- monitors the current humidity status in the soil
- sends data to the ELKO Cloud repository at regular intervals
- You can conveniently view your data on a PC application or smartphone

2 Measurement of current crop conditions

Universal AirIM input with temperature and humidity sensor records the current state of the quantities in the crops.

3 Twilight sensor

The AirSOU sensor controls the intensity of the greenhouse lighting. If the intensity of natural light drops below the desired value, it can activate the artificial light.

4 Automatic irrigation

If the system detects a shortfall of the soil moisture condition, the irrigation starts automatically with the valve being operated.

5 Air quality monitoring

If the AirQS sensor detects the exceedance of the critical CO_2 values, the windows will be automatically opened.
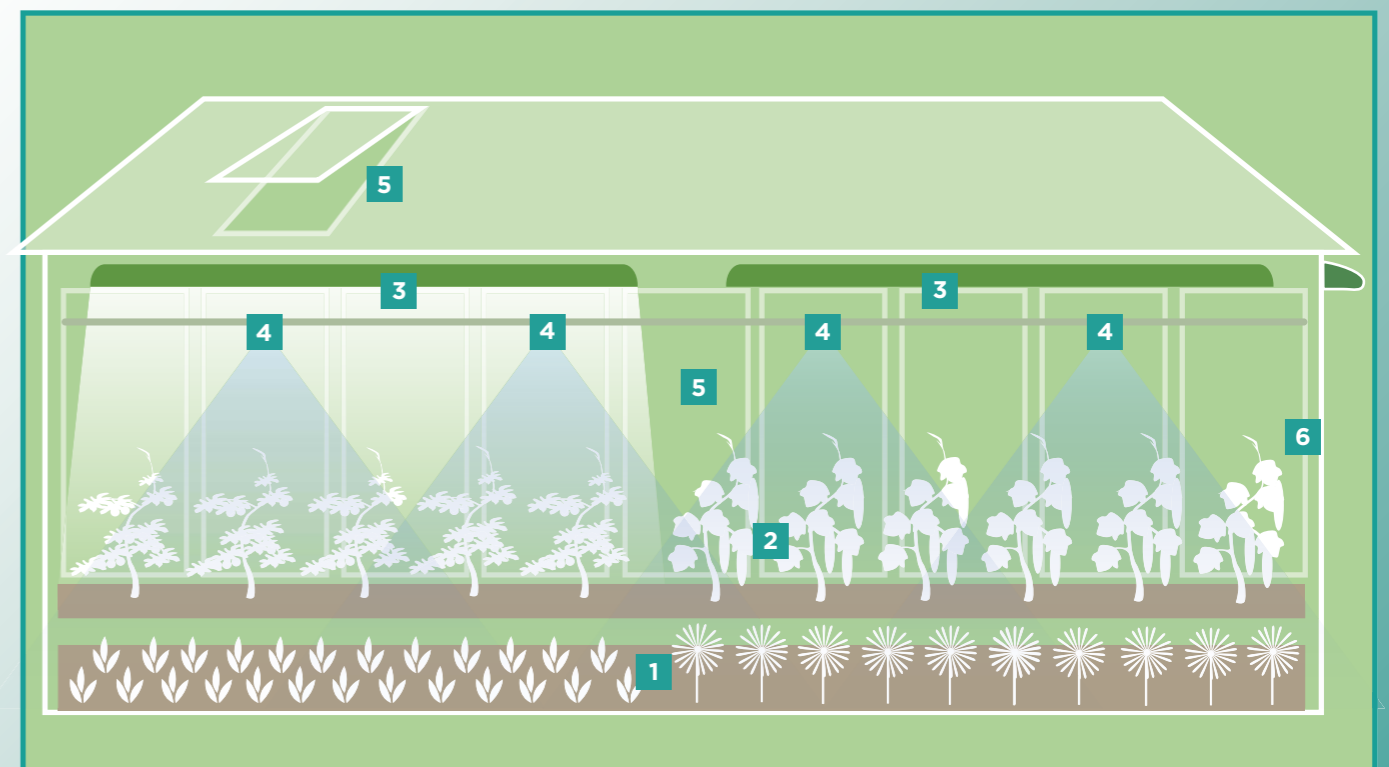
6 Device status monitoring

The input AirIM module, in conjunction with the appropriate monitoring relay, monitors the current status of the appliances and detects critical and emergency conditions.

Vineyard

The basis for producing delicious wines is healthy and mature grapes. Furthermore, it depends on the skill, experience and capabilities of the winemaker.

Smart technology can also help with providing a good foundation. The main use is to find current actual data on the meteorological situation and the current conditions not only in the vineyard itself but also in the soil where the temperature and humidity are sensed.

Using weather stations and other sensors connected to the ELKO Cloud, we can closely monitor many variables that can prevent unwanted losses. If the set values are exceeded, the winemaker is notified by SMS or notification on his smartphone.

Our technology will also help protect harvesting or technical equipment from theft. The gyroscopic sensor senses vibrations from cars that are being driven through, and the vital information is instantly sent by alert directly to their phones. There is also the appropriate deployment of motion sensors. Thanks to them, the lights in the respective part of the vineyard can be switched on to warn unauthorized people that they are known about.

1 Meteorological data measurement

Weather station
AirMETEO

- reads the status of the environmental conditions directly in the vineyard
- Measured quantities are speed (m/s) and wind direction, temperature (°C), relative humidity (%), UV radiation, sunshine (lx) and precipitation (mm)
- Information can be sent to ELKO Cloud at a set time interval, e.g. every hour

mm | rv | °C | lx | UV | m/s

2 Measurement of current crop conditions

Universal AirIM input with temperature and humidity sensor records the current state of the quantities in the crops.
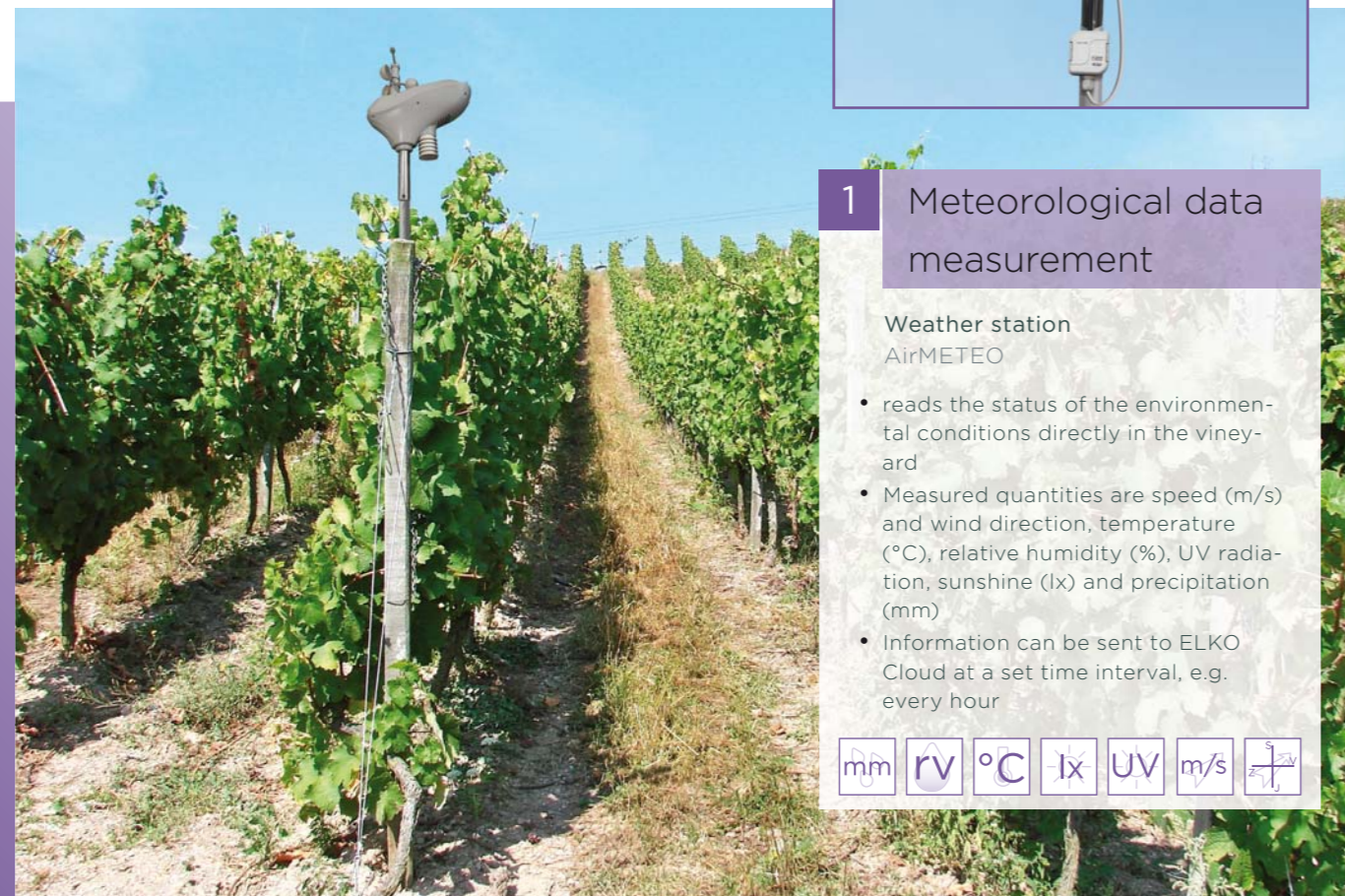
°C | %

3 Measurement of soil moisture

Universal AirIM input with external humidity sensor records and sends current status information, at a depth of 25 to 30 cm below ground.

%

4 Identification of shocks

AirSEIS shock sensor senses vibrations belonging to cars of unauthorized persons. An alert is sent when excessive vibration is detected.

5 Noise measurement

The Air NOISE sensor measures the ambient noise level (dB). In case of a sudden increase in noise, it sends information about the event. For example, when a tractor is started unlawfully.

dB

Forests, meadows and pastures

Extensive meadows, pastures and forest stand full of trees, wildlife, and often the field or forest nurseries, place tremendous demands and require the proper care. Watching hundreds of hectares and taking care of everything that's happening to them is a superhuman task. Not in the 21st century in the world of smart technology. Forests, meadows and pastures can be guarded, protected, and cared for by iNELS Air detectors. Fires, movement of people and animals, air quality, and the theft of hay, logs or technical equipment. All this and much more can be monitored by a combination of remote access detectors.

In the pastures and paddocks, it saves the time and work, with automatic water replenishment or the remote opening of a gate or door. An break in the fence is detected immediately, not by an on-the-spot check.

A locator pinned to halters or collars will help to trap the stolen or escaped animals. The driveways and commodities themselves can be watched through the camera system, motion detectors and gyro sensors. In case of any unusual situation, a signal is sent, which informs the owner directly via mobile phone through the ELKO Cloud. For example, if we calculate the cost of a gyroscope sensor against the price of a stolen log, the investment definitely pays off.

1 Securing stored wood

Gyroscopic detector
AirGYRO

- The gyro sensor responds to position change, the information is instantly sent to the server
- Farmers are instantly notified by a smart phone or SMS message that logs are being handled, so they can intervene against thieves in a timely manner

2 Detection of open gates and entrances
The outdoor magnetic detector AirMD-100 is used to detect open doors or gates where there is a risk of intrusion of unauthorized persons or the escape of livestock.

3 Identification of shocks
AirSEIS shock sensor senses vibrations belonging to cars of unauthorized persons. An alert is sent when excessive vibration is detected.

4 Identify the interruptions in fences
AirIM sensor with a current relay or a current transformer is used to detect faults (reduced effectiveness due to overhanging branches, grasses growing through or breaks) in the electric fence.

5 Automatic dispensing of feed and fluids
The Air-11 switch actuator switches the feed or fluid dispenser on/off at set times.
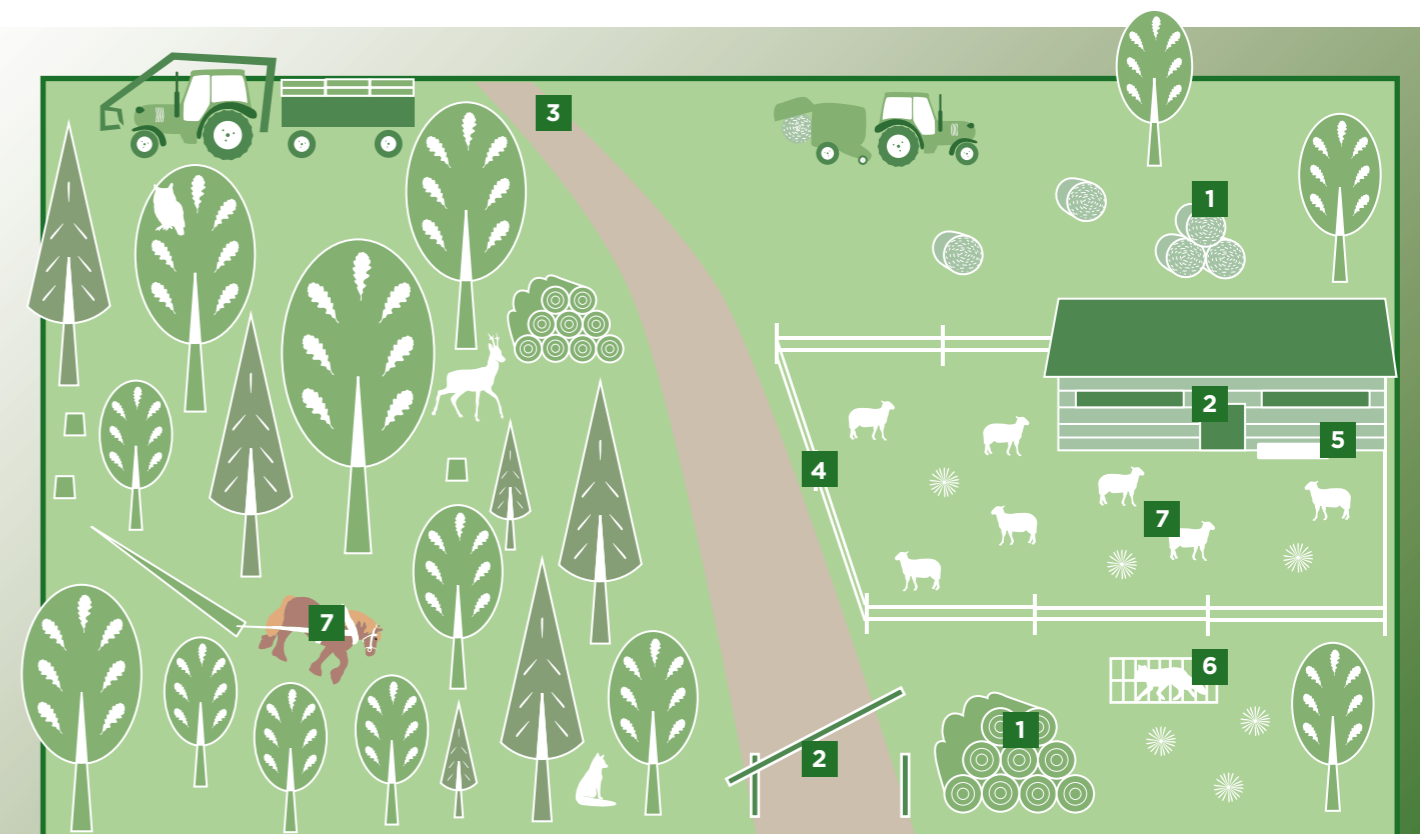
6 Security against intruders
The trap holds the vermin and the AirIM sensor alerts the farmer to its capture.

7 Location of animals
AirGPS located on a halter or collar monitors animal movement and sends data to the ELKO Cloud.

Poultry and hatchery

Meat and eggs are inherent among basic food and raw materials for further processing. Honest breeders are trying to maintain maximum quality of the entire process from hatching through fattening up to the daily care of the difficult conditions favourable for breeding. Whether its chickens, geese, ducks, turkeys, or less traditional species like quails and pheasants, it's always necessary to ensure that poultry is provided with the ideal conditions for healthy growth.

For example, with hatching, temperature is a key factor that has to be stable at all times. At the time of hatching, an excess of harmful gases escapes from the eggs, which can endanger the life of the hatching chickens. Therefore, it is necessary to monitor the air quality, to regulate ventilation and to intervene immediately when dangerous levels are detected.

For poultry breeding, it is also necessary to provide suitable light conditions, imitating daylight, not only in terms of its colour spectrum, but also in the length and intensity of the light. In seasons with a shorter daylight time, it is necessary to artificially ensure the extension of the light in the halls and its regulation, imitating the onset of daylight and twilight.

For the successful growth of poultry, it is necessary to maintain all the mentioned quantities in pre-set values.

1 Timed illumination

Twilight sensor, Automat with dimming
AirSOU, DIM-2

- Detects the current outdoor lighting intensity and controls the intensity of indoor artificial lighting
- Simulate day and night to modulate the biorhythms of laying hens

2 Intrusion Detection

The AirMD-100 indoor magnetic detector is used to detect open gates, doors and windows where there is a risk of intrusion of unauthorized persons or the escape of livestock.

3 Measurement of the actual conditions

Universal AirIM input with temperature and humidity sensor records the current state of the quantities in the hall and ensures ideal breeding conditions.

4 Air quality monitoring

If the AirQS sensor detects the exceedance of the critical CO_2 values, the windows will be automatically opened or notifications sent to the breeder.

5 Smoke Detector

The smoke detector Air SD alerts for the presence of smoke in the hall and the farmer is immediately notified.

6 Automatic dispensing of feed

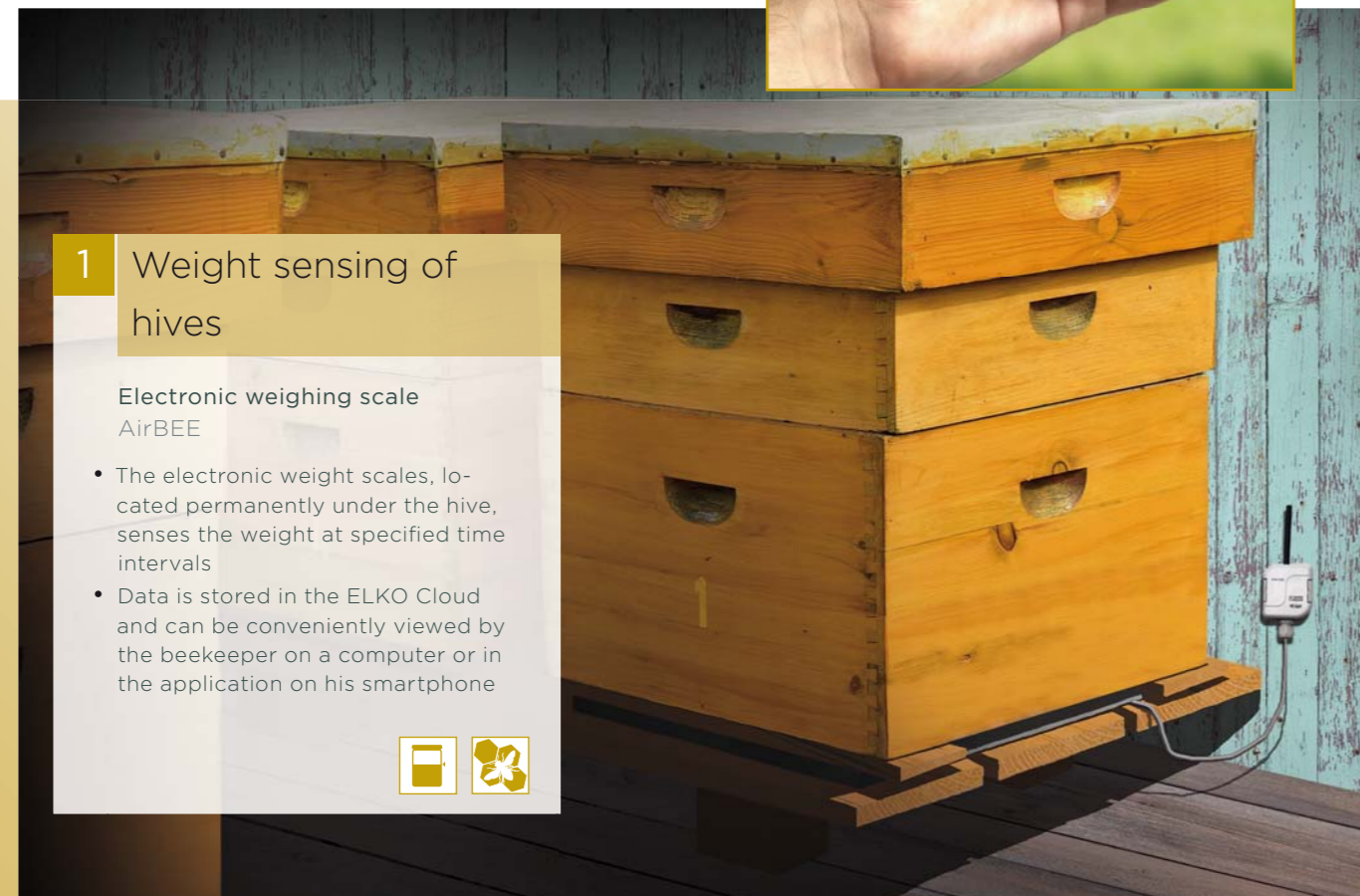The Air-11 switch actuator switches the feed dispenser on/off at set times.
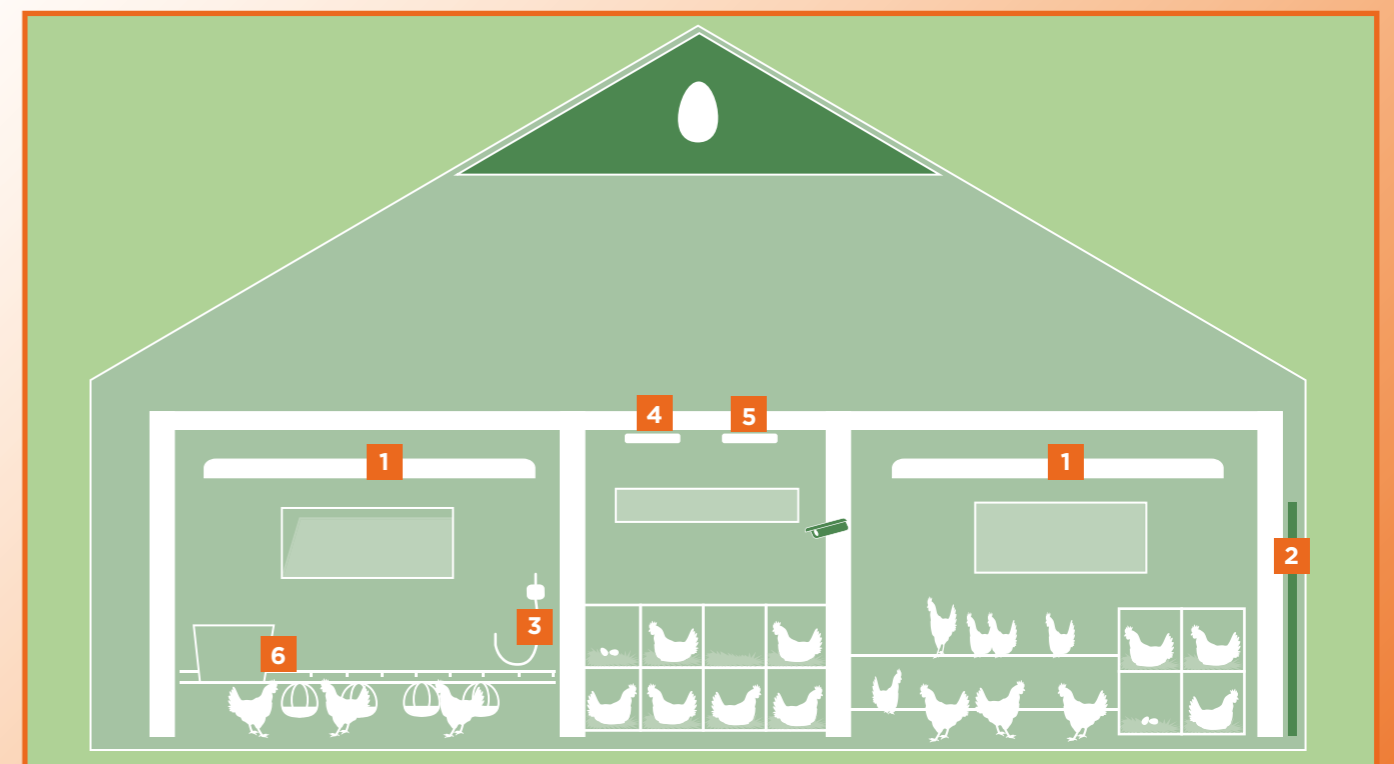
Beehives

The mass of a hive provides beekeepers with important information on the condition of the colony, and of course the size of the colony. But getting them using a mechanical beehive scale is almost unrealistic. Convenient and efficient solutions are offered by smart technology.

An electronic scale is permanently stationed directly under the hive. The sensor reads the weight and ambient temperature at regular intervals and sends the data to the ELKO Cloud. The beekeeper can display the current data, history, or convert it to clear graphs. The data gathered informs the beekeeper of the stock, through the feeding season, hibernation, or any extraordinary situation. Thanks to this information, the bee-

keeper can not only plan activities throughout the year, but also intervene in a timely manner in emergency situations of which he is informed on his mobile phone.

The overall picture of the colony is complemented by data from meteorological stations located near the apiary.

2 Weather station

The AirMETEO weather station detects wind speed, wind direction, temperature, humidity, or light level directly at the apiary.

mm % °C lx UV m/s

3 Protection against rodents

AirRAT motion detector, based in the rodent bait box, monitors their activity.

4 Anti-theft security

The indoor motion detector AirMD sends alerts about the movement of people or animals the closed space of the apiary.

5 Noise measurement

The closed mobile apiary can be monitored by the AirNOISE Noise Sensor, which reports the engine sound of any connected vehicle.
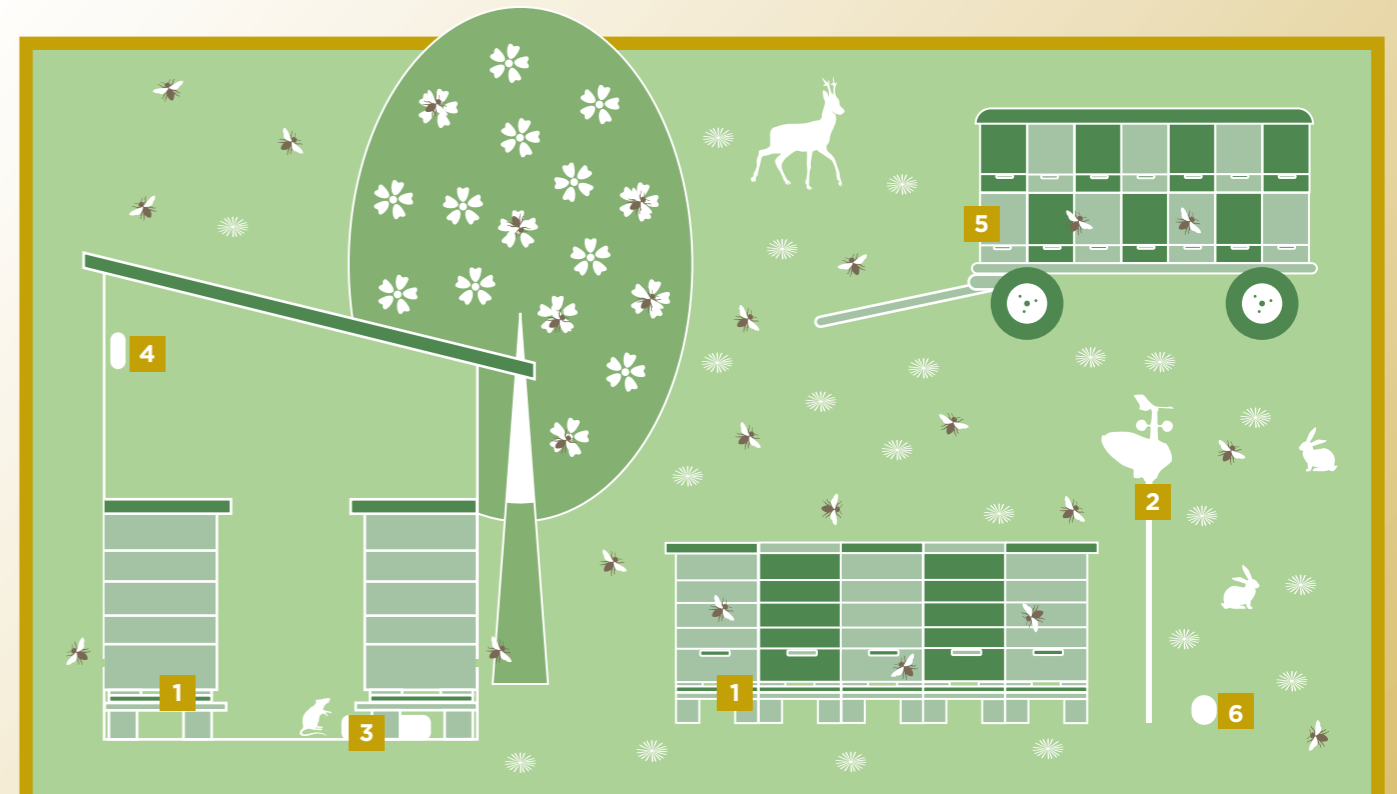
dB

6 Identification of shocks

AirSEIS shock sensor senses vibrations belonging to cars of unauthorized persons. An alert is sent when excessive vibration is detected.

1 Weight sensing of hives

Electronic weighing scale
AirBEE

- The electronic weight scales, located permanently under the hive, senses the weight at specified time intervals
- Data is stored in the ELKO Cloud and can be conveniently viewed by the beekeeper on a computer or in the application on his smartphone

Silos, granaries, warehouses, barns

Smart technologies are usable to maintain the right conditions for longer storage of products. Sensors inserted into the crop piles of the farmer's crop will alert the farmer to the conditions present that are conducive to the formation and spread of rot and mould. They can also check the status of the conditions and the level of filling of containers that cannot be seen.

The grain preservation in the silos is ensured by the CO_2 produced, if there is not enough, the air quality sensor will warn of the shortage. There is a high risk of fire in the storage areas, so it is highly desirable to provide them with smoke detectors.

The monitoring relay monitors the state of machines such as grain silos and conveyors, cleaners, dryers, fans, and other devices, and detects their critical and emergency conditions. Universal sensors monitor the current status of the passage of current or voltage and draws attention to any fluctuations.
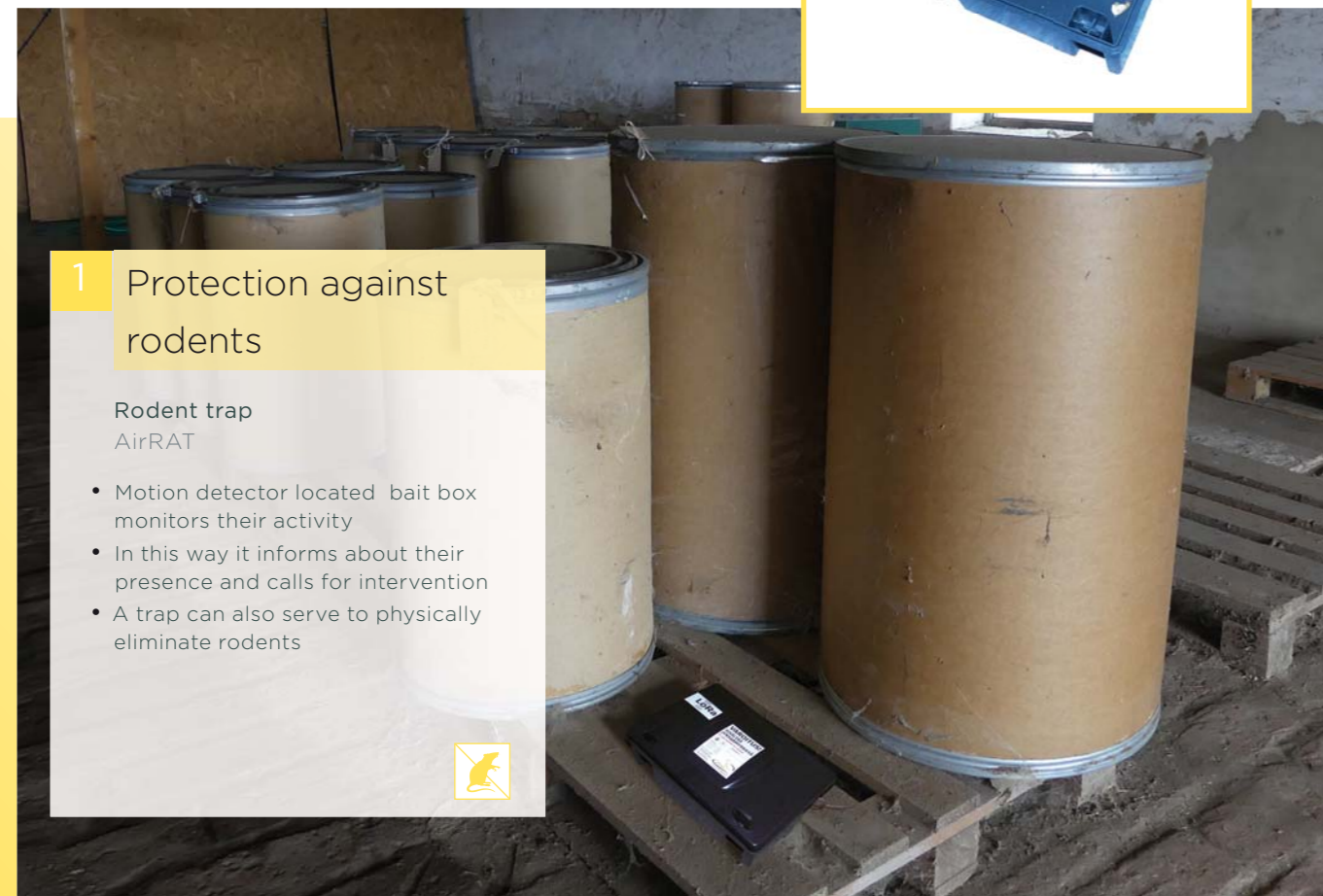
1 Protection against rodents

Rodent trap
AirRAT

- Motion detector located bait box monitors their activity
- In this way it informs about their presence and calls for intervention
- A trap can also serve to physically eliminate rodents

2 Measurement of the actual conditions

The Universal AirIM input records the current status of the variables (temperature and humidity) in the product storage area.

3 Fills ultrasonic sensor

Areas requiring special conditions, such as silos, can be equipped with the AirWS ultrasonic sensor that reports the density of the bulk or liquid.

4 Air quality monitoring

If the AirQS sensor detects the exceedance of the critical CO_2 values, the windows will open automatically. Conversely, in areas requiring the presence of CO_2, it will alert the farmer if its status is low.
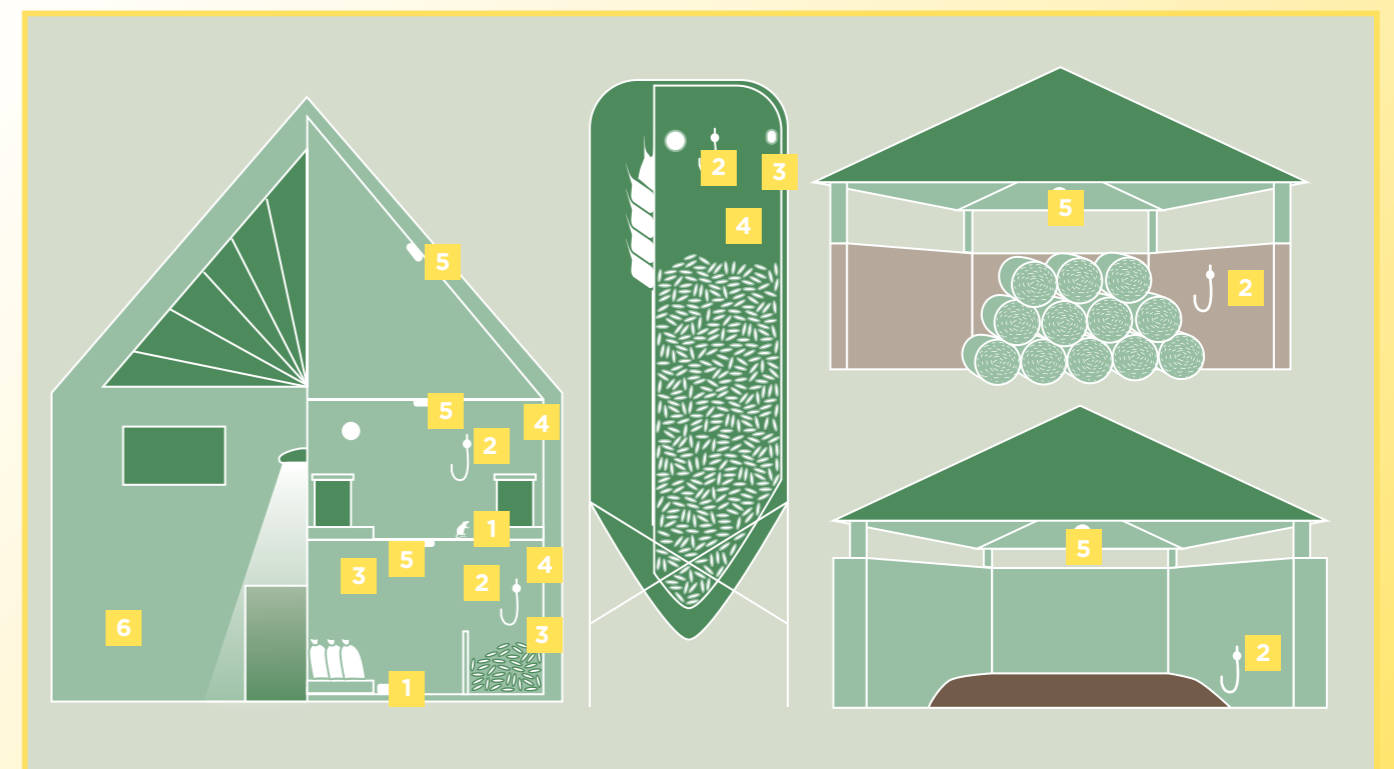
5 Smoke Detector

The AirSD Smoke Detector detects that there is a source of smoke in the room and sends a notification.

6 Device status monitoring

The universal AirIM module, in conjunction with the appropriate monitoring relay, monitors the current status of the appliances and detects critical and emergency conditions.

Switches

Switching actuator

AirSA-11L, AirSA-11NB

- The switch actuator can be used to remotely switch appliances
- The actuator is equipped with a relay with a switching contact, which enables to switch high current loads up to 16A
- Continuous power supply 110 - 230V AC
- Enhanced IP65 protection (dust and splash protection)

Lighting control

Twilight sensor

AirSOU-100S, AirSOU-100L, AirSOU-100NB

- Allows you to capture the current lighting intensity and to control the intensity of artificial lighting thanks to this information, thereby reducing power consumption
- Battery power
- Enhanced IP65 protection (dust and splash protection)

Module for control of lighting

AirSLC-100L/DALI, Air SLC-100NB/DALI

- Lighting switching and control
- DALI communication with ballast is used to control light intensity (alternatively 0-10V)
- Continuous power supply 110 - 230V AC
- Enhanced IP65 protection (dust and splash protection)

Lighting control

LWES

NEMA

Outdoor Lighting Control Module

DALI: AirSLC-100L/LWES/DALI 0-10V: AirSLC-100L/LWES/0-10V
AirSLC-100NB/LWES/DALI AirSLC-100NB/LWES/0-10V
AirSLC-100L/NEMA/DALI AirSLC-100L/NEMA/0-10V
AirSLC-100NB/NEMA/DALI AirSLC-100NB/NEMA/0-10V

- Designed to measure light intensity
- DALI or 0-10V communication is used for intensity control
- Internal illumination sensor, range 5 - 100,000 Lx
- Internal temperature sensor in the range -30 ... 70 ° C
- Protection IP66, UV resistant
- Power type LUMAWISE ENDURANCE S. (LWES) or NEMA SOCKET (NEMA)

Motion detection

Rodent trap

AirRAT-100S, AirRAT-100L, AirRAT-100NB

- The motion detector located in the rodent bait box monitors their activity
- In this way it informs about their presence and calls for action
- Battery power

Motion detection

Indoor motion detector

AirMD-100S, AirMD-100L, AirMD-100NB

- detects people moving in a supervised area
- Adjustable detector sensitivity
- Battery power

Outdoor motion detector

AirMD-101L, AirMD-101NB

- detects the movement of people, machines or animals in the monitored area
- Adjustable detector sensitivity
- Battery power
- Enhanced IP65 protection (dust and splash protection)

Indoor magnetic detector

AirWD-100S, AirWD-100L, AirWD-100NB

- Primarily designed to detect opening / closing windows, doors or gates
- Activation occurs by removing the magnet from the sensor
- Activation occurs by removing the magnet from the sensor
- Battery power

Outdoor magnetic detector

AirWD-101S, AirWD-101L, AirWD-101NB

- Primarily designed to detect opening / closing windows, doors or gates
- Activation occurs by removing the magnet from the sensor
- Status change information is sent to server
- Battery power
- Enhanced IP65 protection (dust and splash protection)

Gyroscopic detector

AirGYRO-100L, AirGYRO-100NB

- responds to changing its location
- sends a message to the server when it is detected
- Battery power
- Enhanced IP65 protection (dust and splash protection)

Vibration sensor

AirSEIS-100L, AirSEIS-100NB

- senses the vibration from its surroundings and thereby detects movement of vehicles, persons or animals
- při detekci odešle zprávu na server
- Battery power
- Enhanced IP65 protection (dust and splash protection)

Measurement of energy consumption

Pulse transmitter

AirTM-100S, AirTM-100L, AirTM-100NB

- Wireless pulse transducer designed for sensing pulses from energy meters (electricity meters, gas meters, water meters)
- Information about pulse counts (consumption) is sent to the server
- Battery power
- Enhanced IP65 protection (dust and splash protection)

Accessories for AirTM

LED sensor

LS

- Senses pulses from gauges that use LED flashes for indication
- The sensor is placed outside the meter by fixing it to the appropriate location

Magnetic sensor

MS/WS

- detects the magnetic pulses that are generated by turning the indicator on / off of the gauge dial
- The sensor is placed outside the meter by fixing it to the appropriate location

Liquid detection

Flood detector

AirSF-100S, AirSF-100L, AirSF-100NB

- the activation occurs after flooding the bottom contacts on the detector
- Battery power
- Enhanced IP68 protection

Universal input

AirIM-100S, AirIM-100L, AirIM-100NB

- Used to measure temperatures, humidity, voltage, current, voltage according to the sensor used
- Battery power
- Battery power / Permanent power supply 5-12 V DC
- Enhanced IP65 protection (dust and splash protection)

Accessories for AirIM

FP-1

NL-100

Probes

FP-1, NL-100

- FP-1 – Flood probe
- NL-100 – Plastic float sensor

Fill level detection

Fills ultrasonic sensor

AirWS-100S, AirWS-100L, AirWS-100NB

- Informs about the filling level of the container, storage tank or garbage cans
- Resistance to dirt, dust, moisture and fogging
- Battery power
- Protection IP65 is suitable for installation in demanding environments

Device status monitoring

Input module

AirIM-100S, AirIM-100L, AirIM-100NB, AirIM-100S/M, AirIM-100L/M

- In conjunction with the relevant monitoring relay, monitors the current status of the appliances and detects critical and emergency states
- 24-240 V AC power supply in the cabinet design, or IP65 battery power
- In 1-MODULE design, rack-mount or IP65 enclosure for outdoor use

Relevant monitoring relay

- Catalogue sensors and monitoring relays

Air quality

Air quality sensor - CO_2

AirQS-100S, AirQS-100L, AirQS-100NB

- Measurement of CO_2
- Automatic testing of functionality
- Continuous power supply 12-240 V AC / DC
- Sensitivity 300 ... 5000 ppm, accuracy 5 % (0 ... 180 ppm)
- Dimension 120 mm × 36 mm
- Weight 185 g

Air quality sensor - CO

AirQS-101S, AirQS-101L, AirQS-101NB

- Safety device for CO concentration monitoring
- Information about the actual temperature and humidity
- Battery power
- Sensitivity 0 ... 10000 ppm, accuracy 5 % (0 ... 500 ppm)
- Dimension 120 mm × 36 mm
- Weight 184 g

Smoke detection

Smoke Detector

AirSD-100S, AirSD-100L, Air SD-100NB

- Detects smoke, temperature and humidity
- Automatic testing of functionality
- Battery power
- Dimension 120 mm × 36 mm
- Weight 176 g

Measurement of temperature, humidity and meteorological conditions

Accessories for AirIM

Input module

AirIM-100S, AirIM-100L, AirIM-100NB, AirIM-100S/M, AirIM-100L/M

- In conjunction with the sensor, it measures the actual temperature, humidity or mediates meteorological data
- 24-240 V AC power supply in the cabinet design, or IP65 battery power
- In 1-MODULE design, rack-mount or IP65 enclosure for outdoor use

Noise sensor

AirNOISE

- measures the ambient noise level (dB)
- dynamic range is from below 27 dBA to 145 dB
- frequency range extends from 10 Hz to 12 kHz
- light surface microphone for general purpose measurements on planar and curved surfaces within aeroacoustics

Temperature sensor

TC

- The sensor is made from a NTC thermistor with a PVC end
- Temperature range 0 ... + 70 ° C
- Length 100 mm
- Weight 5 g

Measurement of temperature, humidity and meteorological conditions

Accessories for AirIM

Temperature sensor

TZ

- The sensor is made of an NTC thermistor, which is embedded in metal end cap by heat-conductive putty
- Temperature range -40 ... +125 ° C
- Length 110 mm
- Weight 4,5 g

Combined sensor

HTML2500LF

- Measures temperature and humidity
- Humidity range 1 ... 99% (± 3%)
- Temperature range - 40 ... + 85 ° C
- Length 326 mm
- Weight 17,5 g

Soil humidity sensor

ECH-20 GS-1

- High accuracy ± 0.03 %
- Resistant to environmental and water penetration
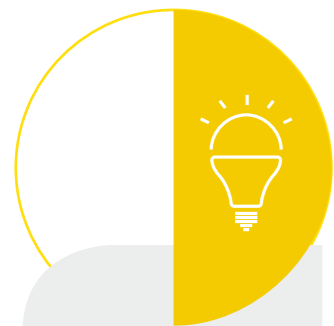- Dimension 89 mm × 18 mm × 7 mm

Weather station

AirMETEO

- Provides information on speed (km/h): 0 ... 180 km/h and wind direction, temperature (°C): -30 °C ... 65°C, relative air humidity (%): 1 ... 99 % (± 5 %), UV radiation, sunshine (lx): 0 ... 400 kLux, ± 15%, and precipitation (mm): 0 ... 9999 mm
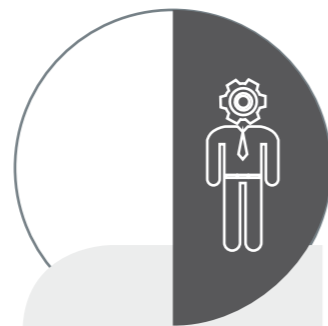- Battery power
- network Lora, NarrowBand

Others just resell
HOWEVER, WE DEVELOP AND MANUFACTURE PRODUCTS OURSELVES!

26 years
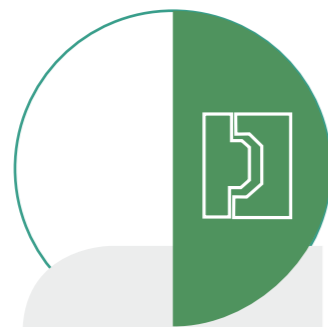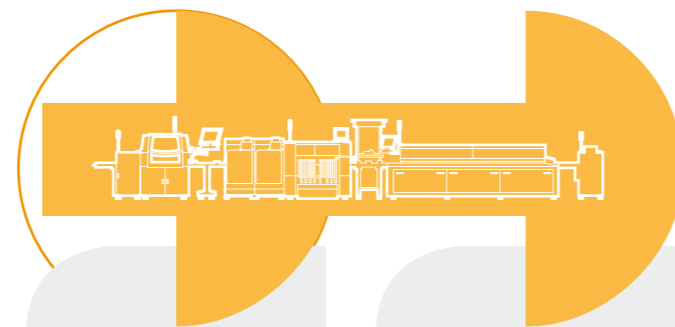on the market

15 years
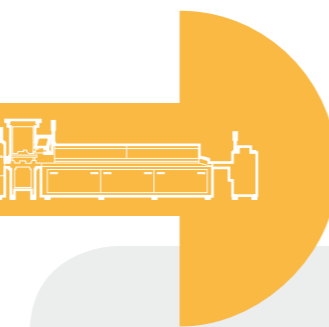ISO certification

40
developers

330
employees

2 000 m²
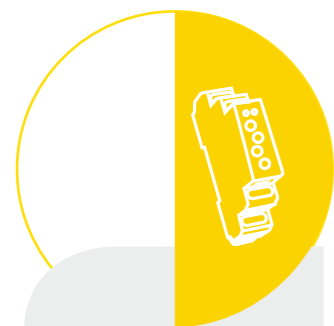manufacturing space

200
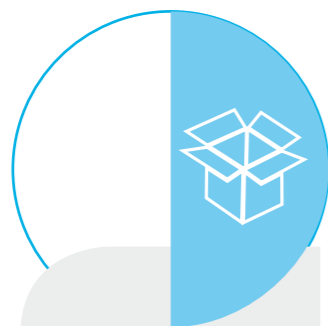proprietary plastic mods

2
SMD lines

1 mil.
components per day
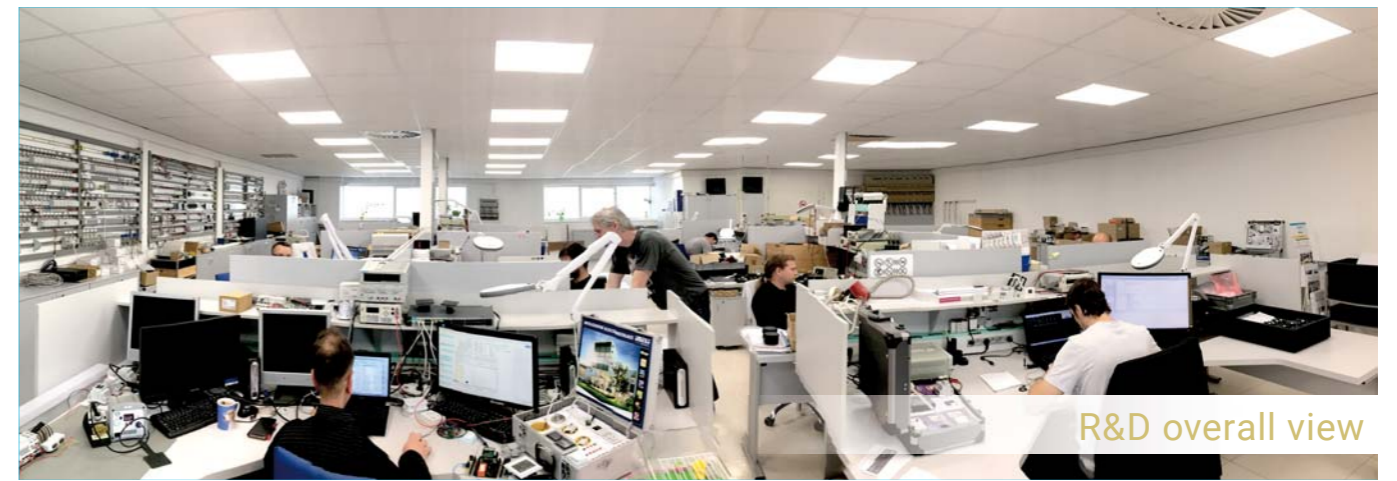
600 000
products per year

2 000 m²
finalization and dispatch

2000
warehousing spaces

2
printing lasers
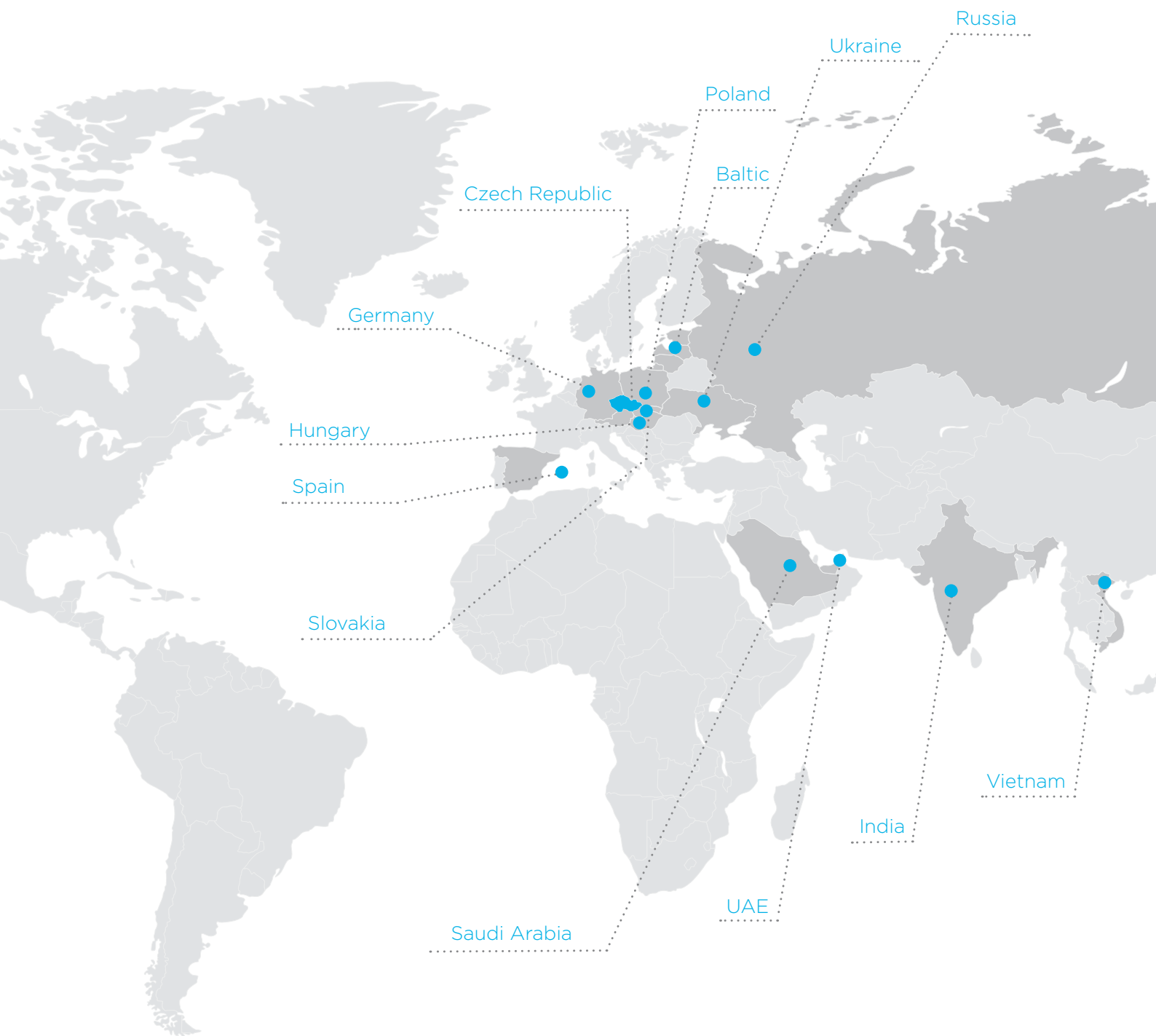

R&D overall view

Manufacturing hall

Testing lab

Finalization and dispatch

ELKO EP Holding

Russia

Ukraine

Poland

Baltic

Czech Republic

Germany

Hungary

Spain

Slovakia

Vietnam

India

UAE

Saudi Arabia

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