

Engineered for Those Who Feed the Planet

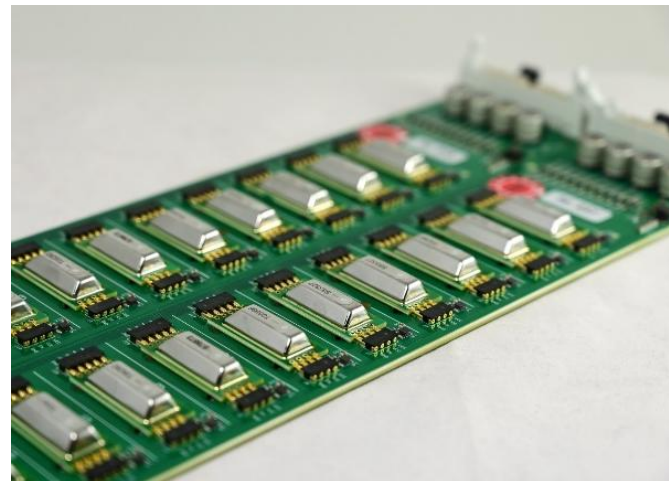
Long-term stable all-in-one sensors for optimal climate control in agriculture

+ E+E Elektronik – Your Partner in Sensor Technology

- E+E Elektronik is an Austrian sensor developer and manufacturer in the field of humidity, dew point, moisture in oil, CO₂, air velocity, flow, pressure and temperature
- From sensor to calibration – the complete solution from one source
- Your trusted partner in sensor technology for more than 40 years
- High-quality products engineered & produced in Austria



Headquarters in Engerwitzdorf/Austria



State of the art clean room production



From sensor to calibration – the complete solution from one source

+ Accurate Sensors for Agriculture

- Long-term stable all-in-one sensors for optimal climate control
- Robust solutions for ripening chambers, greenhouses & livestock housing
- Multiple measurands: temperature, humidity, dew point, CO₂, differential pressure, air velocity

Key Benefits of E+E Elektronik:

- + Designed for harsh agricultural environments
- + Easy integration and maintenance-friendly design
- + Up to 30% energy savings through precise climate regulation
- + Improved animal welfare and product quality
- + Practical solutions backed by decades of experience in the agricultural sector



+ Advantages of E+E Sensors



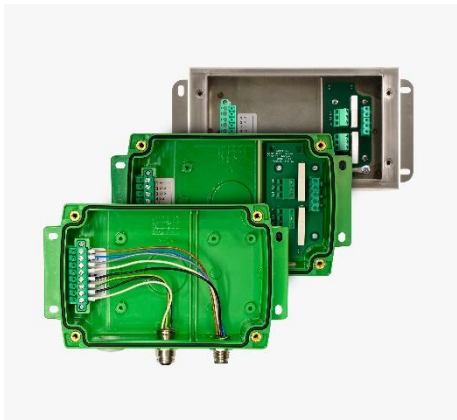
Smart sensor protection
to avoid downtime



30% lower energy costs
thanks to accurate humidity
measurement



Quick integration
in existing systems due to modular
design



Lower maintenance costs
thanks to exchangeable sensor
modules

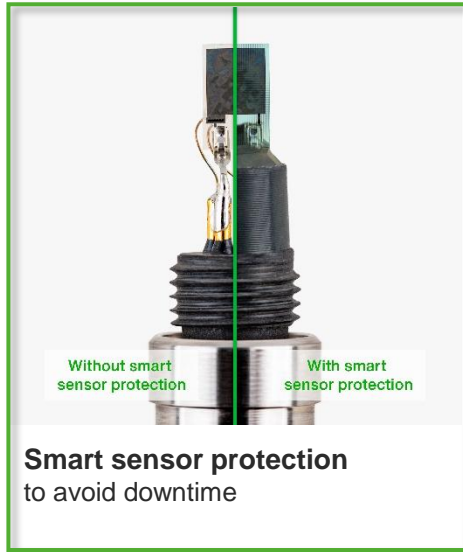


Practical solutions
backed by decades of experience
in the agricultural sector



From sensor to calibration -
The complete solution from one
single source

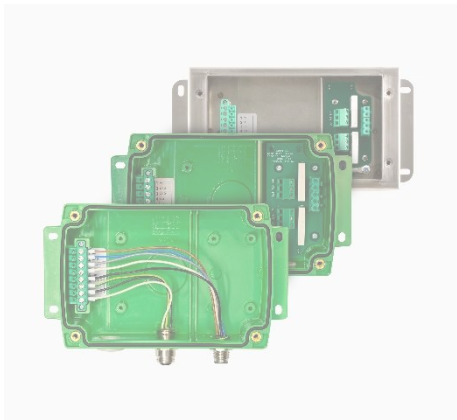
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+ Smart Sensor Protection

- Heated humidity sensors (High Humidity Guard)
- IP65 / IP67 enclosures & interchangeable filters
- E+E Sensor-Coating

Key Benefits:

- + Reliable measurements under harsh agricultural conditions
- + Extended sensor lifespan & reduced maintenance
- + Long-term stable performance

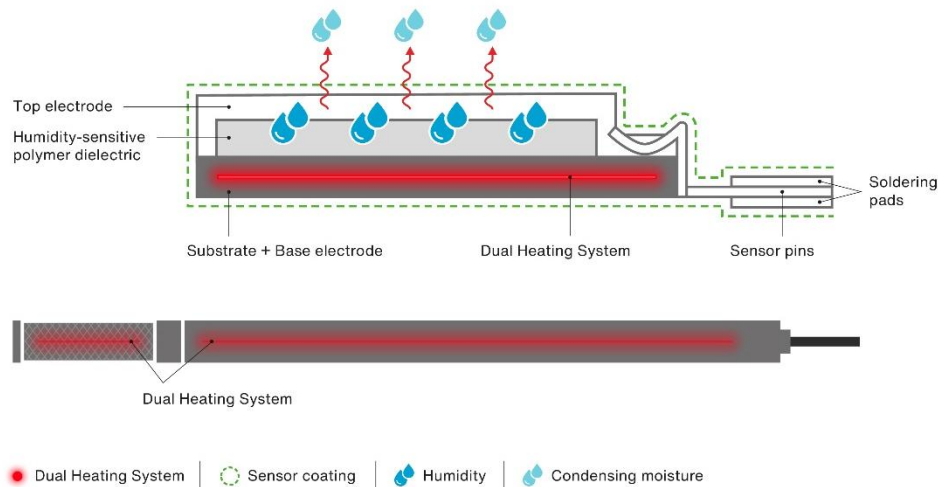


E+E Sensor-Coating and Innovative Sensor Connection Encapsulation



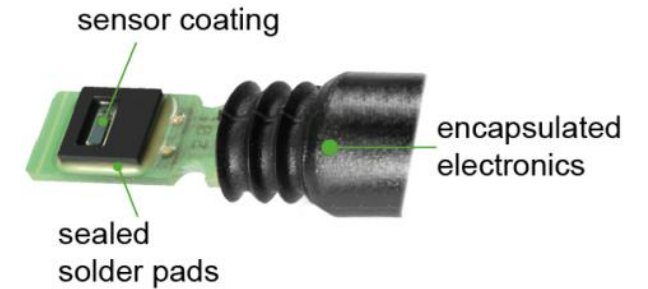
Heated Humidity Sensor

- The integrated sensor heating (High Humidity Guard) prevents condensation and ensures consistently accurate measurements - even in environments with high humidity or condensation risk
- Continuous, adaptive heating of the sensing element and of the probe body (dual heating system)
- Prevents drift effects and condensation on the sensor element
- The monolithic construction of the sensing element enables fast RH response times under condensing conditions

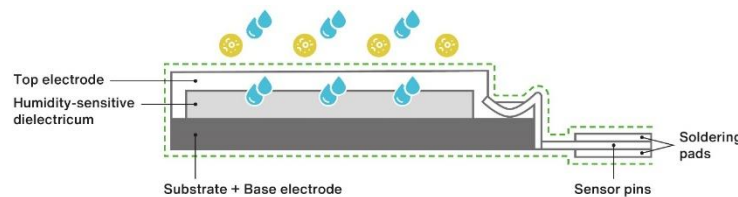


+ E+E Sensor-Coating

- This proprietary sensor coating is a protective layer applied to the active surface of the sensor element
- It covers the neuralic points of the sensing elements:
 - active sensor surface
 - soldering pins
 - soldering pads
- The coating extends the lifespan and measurement performance of the sensor. Furthermore, it enhances the long-term stability of sensors in harsh, dusty, and contaminated environments



E+E Sensor-Coating



+ Advantages of E+E Sensors



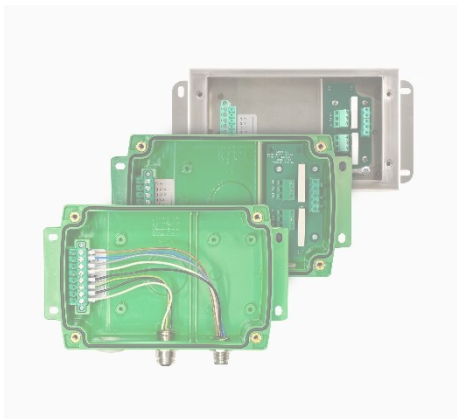
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+ Accurate Sensors

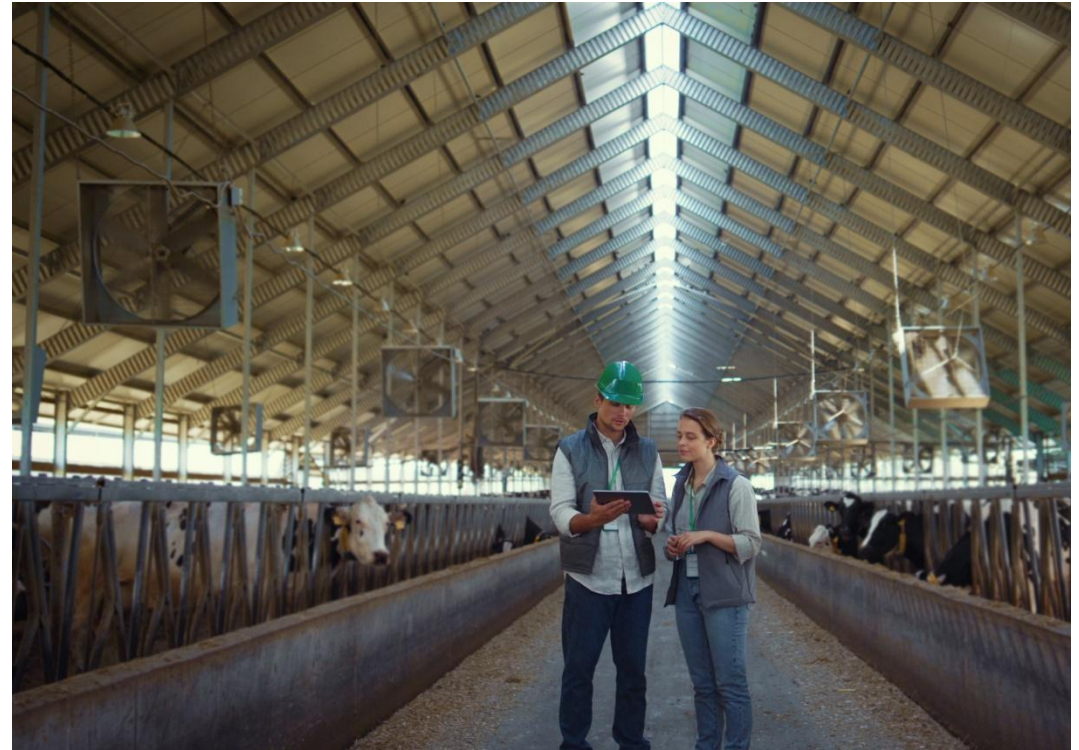
- In greenhouses, livestock facilities, ripening chambers or during storage, sensor accuracy directly impacts energy consumption and operating costs.
- Precise measurements minimise heating, cooling and ventilation effort.

Costly Example: Poultry House

- 20,000 animals, 90-day winter fattening period
- Appr. \$100,000 heating cost savings ($\approx 30\%$) with demand-based CO₂-controlled ventilation

Our solution

- + Temperature accuracy ± 0.2 °C
- + Humidity accuracy ± 2 % RH
- + CO₂ measurement deviation ± 50 ppm
- + Air velocity accuracy > 0.1 m/s
- + Differential pressure deviation ± 1 Pa



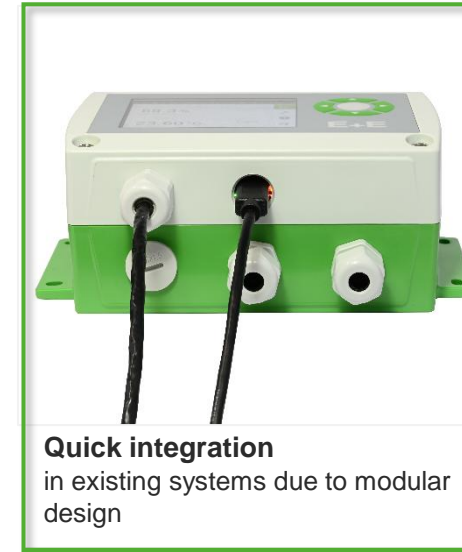
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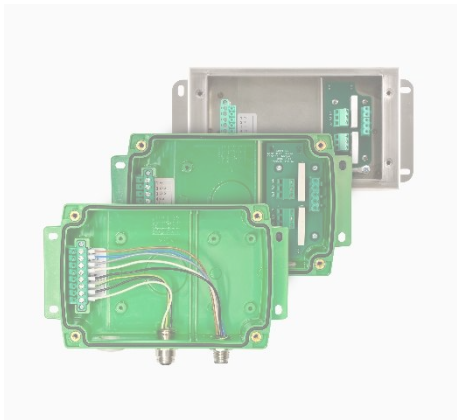
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+ Easy Integration into Existing Systems

Standard = Suboptimal

- Standard sensor without any flexibility in configuration can limit efficiency and quality

E+E Sensor Technology Delivers:

- + High range of measurands & calibration options
- + Digital/analogue outputs (e.g., Modbus RTU/TCP)
- + Variable cables
- + Multiple enclosure and display options



Variation of different analogue and digital outputs



Different enclosure and display options



High range of sensing probes

+ Advantages of E+E Sensors



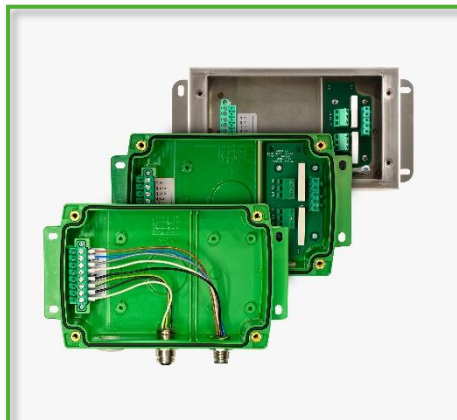
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+ Exchangeable sensor modules

- Standard sensors without exchangeable modules can cause high maintenance effort and are a risk for downtime
- Reliable operation in critical applications (e.g. livestock housing, ripening storage)

E+E Sensor Design Advantage:

- + Modular components for quick & easy replacement on-site
- + No dismantling of the entire device required
- + Reduced maintenance costs and downtime
- + Ideal for installations that are difficult to access



Modular design

+ Advantages of E+E Sensors



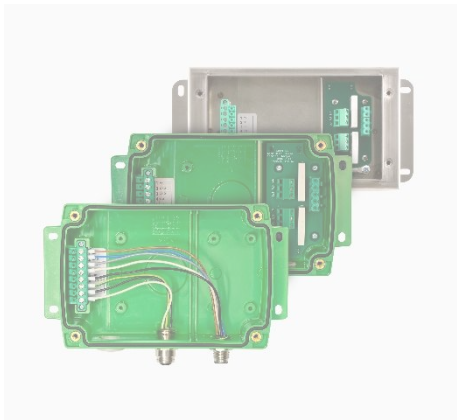
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Decades of experience in the agricultural sector



—
your partner
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technology.



DeMar Lott, General Manager at The Gellert Company

“ We use E+E sensors in our vegetable storage systems and are highly satisfied with their accuracy, reliability and seamless integration. They maintain optimal climate conditions even in high humidity, are easy to set up and built to last. A valuable, high-performance solution we can fully recommend. ”



+ Advantages of E+E Sensors



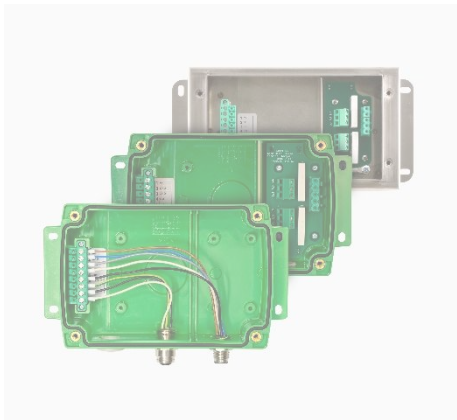
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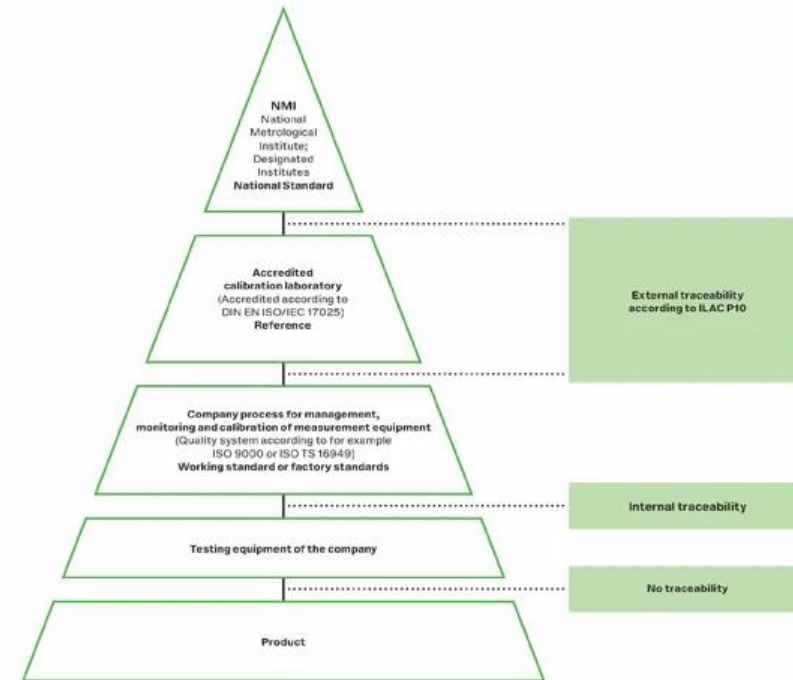


From sensor to calibration -
The complete solution from one
single source

+ Your Partner for Calibration

Calibration

- **Calibration at the highest level**
 - Designated Institute (BEV/E+E) of the Austrian Federal Office for Metrology (BEV) to provide the national standard for humidity, dew point, CO₂ and air velocity
 - Accredited Calibration Laboratory (AA0608) according to EN ISO/IEC 17025
 - Advantages of accredited calibration
 - Traceability to the SI Base Units
 - fast & uncomplicated calibration process: save time
 - manufacturer independence: we offer multi-brand calibration services
 - lowest measurement uncertainty: highest precision guaranteed



- **Measurement Quantities**
 - Humidity and Dew Point
 - Air Speed
 - Amount of Substance Fraction CO₂
 - Temperature
 - Mass Flow
 - Pressure



Key Applications



Mushroom cultivation

- At least 10% energy saving with precise climate control
- Stable in 85–95% RH with ± 0.2 °C and ± 50 ppm CO₂ accuracy



Stables, Hatchers & Incubators

- Up to 35% energy savings and minimise maintenance
- Ammonia-resistant, low-maintenance sensors for harsh livestock environments



Storage & Ripening of Agricultural Products

- Ensure quality and shelf life with real-time monitoring
- Stable in 85–98% RH, resistant to chemicals



Greenhouse

- Up to 30% energy with precise VPD and greenhouse climate control systems
- Stable in 85–98% RH with ± 0.2 °C and ± 50 ppm CO₂ accuracy



Tobacco

- Up to 30% energy savings, ± 0.2 °C and ± 1.5 % RH accuracy
- reliable operation in dusty, humid, and phosphine-rich conditions

+ Mushroom cultivation

- Different growth phases (mycelium growth, fruiting, harvesting) demand precise control of temperature, humidity, and CO₂
- Harsh conditions for sensors: high humidity, temperature fluctuations, steam/cleaning cycles, and organic contamination (spores, mushroom material)

Our solution

- + Robust sensors resistant to moisture, contamination, and cleaning processes.
- + Tailored monitoring for each phase
- + Continuous monitoring and early detection of deviations → ensures high yield, stable quality, and process efficiency

1 Mycelium Growth (Compost preparation and spawning)	2 Fruiting Intitiation (Mushroom bed and initiation)	3 Fruiting and Harvest (Growth)
<ul style="list-style-type: none">▪ Temperature: 21 - 27 °C (70 - 81 °F)▪ Humidity: 85 to 95% rH▪ CO₂ concentration: > 10.000 ppm▪ Duration: 25 - 70 d	<ul style="list-style-type: none">▪ Temperature: 15 - 18 °C (59 - 64 °F)▪ Humidity: 95 to 100% rH▪ CO₂ concentration: < 1000 ppm▪ Duration: 5 - 7 d	<ul style="list-style-type: none">▪ Temperature: 15 - 18 °C (59 - 64 °F)▪ Humidity: 60 to 80% rH▪ CO₂ concentration: < 1000 ppm▪ Duration: 7 d

Phases of mushroom cultivation using Shiitake as an example



Storage & Ripening of Agricultural Products



your partner
in sensor
technology.

- Uniform ripening after harvest requires precise control of temperature, humidity, CO₂ and ethylene
- Long-term storage (CA/DCA) must keep fruit fresh, nutritious, and visually appealing across seasons
- Harsh conditions: high humidity, condensation, gas fluctuations, chemical exposure → stress for sensors

Our solution

- + Robust, long-term stable sensors ensure consistent quality, reduced waste, extended shelf life
- + Ripening chambers: controlled temperature & humidity dosing, CO₂ regulation
 - + reliable sensors resistant to condensation & contamination
- + CA/DCA storage: low O₂, elevated CO₂, high humidity
 - + dynamic adjustment based on continuous sensor data.



Ripening chambers are equipped with a variety of technical systems for monitoring and controlling the storage atmosphere

Product	Temperature	relativ humidity (RH)	O ₂	CO ₂	Normal Conditions	CA Storage
Apple	0 – 5 °C [32 – 41 °F]	90 – 95 %	< 4 %	< 0,7	3 – 4 months	9 – 12 months
Pear	-1 – 0 °C [30,2 – 32 °F]	90 – 95 %	1 – 3 %	0 – 1	4 months	12 months
Plum	0 °C [32 °F]	95 %	1 – 2 %	5	18 days	50 days
Avocado	7 – 12 °C [44,6 – 53,6 °F]	90 %	2 – 3 %	3 – 10	14 days	2 months
Blueberry	-0,5 – 0 °C [31 – 32 °F]	90 – 95 %	2 – 3 %	10 – 12	14 days	2 months
Cherry	-0,5 – 0 °C [31 – 32 °F]	95 %	3 – 10 %	10 – 12	6 days	25 days
Kiwi	-0,5 – 0 °C [31 – 32 °F]	90 – 95 %	1 – 2 %	4 – 5	70 days	3 – 5 months
Grapes	-1 – 0 °C [30,2 – 32 °F]	90 – 95 %	2 – 5 %	1 – 3	1,5 months	3 – 5 months
Nectarine	-0,5 – 0 °C [31 – 32 °F]	95 %	1 – 2 %	5	4 – 5 weeks	7 weeks
Mango	8 – 13 °C [46,4 – 55,4 °F]	90 – 95 %	3 – 7 %	5 – 8	2 – 4 weeks	3 – 6 weeks
Peach	0 – 5 °C [32 – 41 °F]	90 – 95 %	1 – 2 %	3 – 5	3 weeks	40 days

Overview of fruit-specific storage conditions and storage duration

+ Our solutions



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EE872

Modular Probe for CO₂, Humidity, Temperature and Ambient Pressure

0-100% RH -40...60°C (-40...140°F)

700-1100 mbar (10.15-15.95 psi)

CO₂: 0-2000 / 5000 / 10000 ppm

CO₂ accuracy: ±50 ppm ±3%

Analogue output: 0-10V or 4-20mA

Modbus RTU (RS485)



EE211

Humidity and Temperature Sensor for Continuous High Humidity

0-100% RH -40...60°C (-40...140°F)

Accuracy: ±0.1°C | ±2% RH

Analogue output: 0-10V or 4-20mA

Modbus RTU (RS485) IP65 / NEMA 4X

Heated sensing element

E+E proprietary coating



EE072

Humidity and Temperature Probe with Digital Interface

0 ... 100% RH -40 ... 80 °C (-40 ... 176 °F)

E+E proprietary coating

Polycarbonate or stainless steel

Modbus RTU / CANopen

±1.3% / ±2.3% RH accuracy



EE074

Temperature Probe with Modbus RTU

Electronics: -40...80°C (-40...176°F)

70 mm & 155 mm probe: -40...80°C (-40...176°F)

305 mm probe: -70...105°C (-94...221°F)

Accuracy at 20°C (68°F): ±0.1°C (±0.18°F)

Modbus RTU (RS485)

IP68 protection (electrical connection IP67)

... and many more