

## ALIS Greenhouse Sensor 110/230V IP66

### Product description

The Greenhouse sensor is a precision multi-gas sensor used for air quality monitoring, through measuring the Carbon Dioxide (CO<sub>2</sub>), Ammonia (NH<sub>3</sub>) and Relative Humidity (RH) content, within a shed or barn. It operates by drawing in a sample of air every 15 minutes from about 1m (poultry) to 1.5m (swine) above the ground (about 30cm above the flock or herd height respectively). The multiple gas concentrations are analysed within the device and results and data transferred via Wi-Fi and a sensor gateway to a cloud, and from there onto the GreenCloud App. The sensor unit is designed to automatically connect to any router via the WPS button or can be pre-set to a specific SSID name and password. Devices will connect to routers laptops or mobile phone hotspots. The GreenCloud App displays the measured ambient gas level data in graphical form and users can set alarm levels at which they receive visual and audible warning indications.



### Coupler features

The sensor coupler comes in a sturdy plastic casing, protecting it from the harsh livestock house environment. The sensor unit draws power inductively from the bus cable to which it is connected via the coupler. The sensor can easily be repositioned as the coupler simply clips on and off the bus cable. There is no need to remove the sensor unit during wash down.

Each unit has a built-in Wi-Fi antenna to transmit the sensor data to the ALIS gateway and a built in NiMH rechargeable battery to ensure data capture is maintained.

The device complies with the latest Radio and EMC requirements, and current RoHS and WEEE material restrictions. The unit is impact resistant as well as being humidity and dust proof.



### Probe features

Each probe is connected to the sensor unit externally so there is no need to open the coupler casing. The probe is weighted appropriately to allow the inlet to hang to flock or herd height. It has an IP rated ePTFE filter to ensure no liquid or particulate matter can reach the sample chamber. Filters are field replaceable, and the probe is detachable. The tube length provides the user with the ability to lower the sensor probe to within 1m of the floor (30cm above the height of the animal) for more accurate readings.

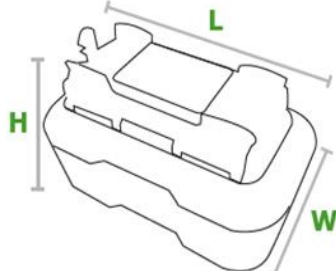
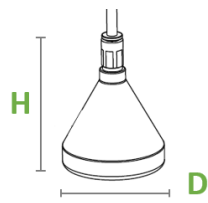


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## Product Technical Specifications

<b>Model number</b>	ALS0047	
<b>Ammonia (NH<sub>3</sub>) Sensing</b>		
<b>Measuring Principle /Type</b>	Metal oxide Micro-Electro Mechanical System (MEMS)	
<b>Measuring Range</b>	1 to 100 ppm	@25°C (77°F) & 50% RH
<b>Measuring Accuracy</b>	± 1.5 ppm + 10% of measured reading	
<b>Long Term Drift</b>	< ±10 % of the measured value/year	Dependent on Cycle rate
<b>Carbon Dioxide (CO<sub>2</sub>) Sensing</b>		
<b>Measuring Principle /Type</b>	Non-Dispersive Infrared technology (NDIR)	
<b>Measuring Range</b>	0 to 5000 ppm	@25°C (77°F) & 50% RH
<b>Measuring Accuracy</b>	± 30 ppm + 3% of measured reading	
<b>Long Term Drift</b>	Auto-zero maintains accuracy over product lifetime	
<b>Relative Humidity (RH) Sensing</b>		
<b>Measuring Principle /Type</b>	TF polymer dielectric	
<b>Measuring Range</b>	0 to 95% RH (non-condensing)	@25°C (77°F) & 50% RH
<b>Measuring Accuracy</b>	±2% RH	
<b>Long Term Drift</b>	±0.25% RH/yr -at 30°C and 20% to 50% RH	
<b>Material for Sensor Coupler</b>	Glass reinforced polypropylene	
<b>Material for Probe</b>	Polyamide/anodised aluminium	
<b>Material for Tube</b>	Black polyamide, O.D. 4mm, I.D. 2.5mm x 2.5 m	
<b>Normal Operating Power Max.</b>	Induction power drawing 1W max.	Back-up: NiMH rechargeable battery
<b>Power Factor</b>	>0.95	
<b>System Connectivity</b>	W-Fi communication 2.4 GHz 802.11 b/g/n	
<b>Data Transmission</b>	Set as standard every 15 minutes	5 min intervals up to 24 hrs
<b>Data Protection</b>	Data encryption	
<b>Sensor Coupler &amp; Probe Weight</b>	590g & 90g respectively	
<b>Chemical Resistance</b>	Typical agricultural cleaning agents, detergents, disinfectants, & surfactants. Including those containing; alcohols, formaldehyde, glutaraldehyde, sodium hydroxide, peracetic, orthophosphoric & sulphuric acids,	Tested examples: CID Lines; BioGel, Virocid F & KC 5000 Kilco; Ecofoam, Kilcox, HPPA and Virophor.
<b>Humidity Operating Range</b>	0 to 95% RH	
<b>Ingress Protection</b>	IP66	
<b>Operating Temperature</b>	-20°C to +55°C	
<b>Mean Time Between Failure (MTBF)</b>	100,000 hours	
<b>Warranty</b>	3 years from date of manufacture	
<b>Patents</b>	<a href="http://www/greengage.global/patents">www/greengage.global/patents</a>	
<b>Approvals and Certifications</b>	Certified to EN, IEC, UL, and CSA standards	 

## Product Schematic Dimensions

<p><b>Sensor Coupler Unit</b></p> <p>Height 100mm (4.0 inches)          Length 170mm (6.7 inches)          Width 110mm (4.0 inches)          Tube connector 7mm (0.3 inches)</p> 	<p><b>Sensor Probe Unit</b></p> <p>Tube Length 2.5m (98 inches)          Diam. 40mm (1.6 inches)          Height 54mm (2.2 inches)</p> 
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## ALIS Ambient Sensor 110/230V IP66

### Product description

The Ambient sensor is a precision light and temperature sensor used for environmental monitoring, through measuring the illuminance (lux) and air temperature, within a shed or barn. It operates by taking a temperature and lux reading every 15 minutes from about 1m (poultry) to 1.5m (swine) above the ground (about 30cm above the flock or herd height respectively). The multiple sensor outputs are analysed within the device and results and data transferred via Wi-Fi and a sensor gateway to a cloud, and from there onto the GreenCloud App. The sensor unit is designed to automatically connect to any router via the WPS button or can be pre-set to a specific SSID name and password. Devices will connect to routers laptops or mobile phone hotspots. The GreenCloud App displays the measured ambient light and temperature level data in graphical form and users can set alarm levels at which they receive visual and audible warning indications.



### Coupler features

The sensor coupler comes in a sturdy plastic casing, protecting it from the harsh livestock house environment. The sensor unit draws power inductively from the bus cable to which it is connected via the coupler. The sensor can easily be repositioned as the coupler simply clips on and off the bus cable. There is no need to remove the sensor unit during wash down. Each unit has a built-in Wi-Fi antenna to transmit the sensor data to the ALIS gateway and a built in NiMH rechargeable battery to ensure data capture is maintained.

The device complies with the latest Radio and EMC requirements, and current RoHS and WEEE material restrictions. The unit is impact resistant as well as being humidity and dust proof.





### Probe features

Each probe is connected to the sensor unit externally so there is no need to open the coupler casing. The probe is weighted appropriately to allow the sensing elements to hang to flock or herd height. Like the sensor unit it is IP rated and is o-ring sealed to ensure no liquid or particulate matter can reach the sensing elements. The probe is detachable and disconnects in an emergency. The cable length provides the user with the ability to lower the sensor probe to within 1m of the floor (30cm above the height of the animal) for more accurate readings.

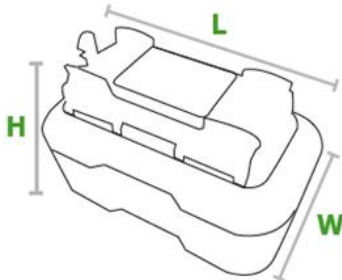
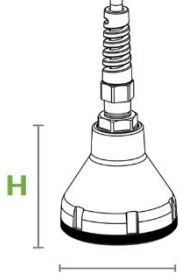


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## Product Technical Specifications

<b>Model number</b>	ALS0056	
<b>Light Sensing</b>		
<b>Measuring Principle /Type</b>	Infrared blocked photodiode array	
<b>Measuring Range</b>	0 to 60,000 lux	
<b>Measuring Accuracy</b>	± 2 lux + 5% of reading	
<b>Long Term Drift</b>	< ± 0.5 lux / 10000hrs	@25°C (77°F)
<b>Temperature Sensing</b>		
<b>Measuring Principle /Type</b>	Silicon Diode Integrated Circuit	
<b>Measuring Range</b>	-20°C to +55°C	
<b>Measuring Accuracy</b>	± 0.5°C	@25°C (77°F)
<b>Long Term Drift</b>	± 0.125°C / 1000hrs (accelerated)	accelerated@150°C (77°F)
<b>Material for Sensor Coupler</b>	Glass reinforced polypropylene	
<b>Material for Probe</b>	Polyamide/anodised aluminium	
<b>Material for Cable</b>	LSZH 4 x 22AWG / 0.34 mm <sup>2</sup> x 2.5 m	
<b>Normal Operating Power Max.</b>	Induction power drawing 1W max.	Back-up: NiMH rechargeable battery
<b>Power Factor</b>	>0.95	
<b>System Connectivity</b>	W-Fi communication 2.4 GHz 802.11 b/g/n	
<b>Data Transmission</b>	Set as standard every 15 minutes	5 min intervals up to 24 hrs
<b>Data Protection</b>	Data encryption	
<b>Sensor Coupler &amp; Probe Weight</b>	540g & 230g respectively	
<b>Chemical Resistance</b>	Typical agricultural cleaning agents, detergents, disinfectants, & surfactants. Including those containing; alcohols, formaldehyde, glutaraldehyde, sodium hydroxide, peracetic, orthophosphoric & sulphuric acids,	Tested examples: CID Lines; BioGel, Virocid F & KC 5000 Kilco; Ecofoam, Kilcox, HPPA and Virophor.
<b>Humidity Operating Range</b>	0 to 95% RH	
<b>Ingress Protection</b>	IP66	
<b>Operating Temperature</b>	-20°C to +55°C	
<b>Mean Time Between Failure (MTBF)</b>	100,000 hours	
<b>Warranty</b>	3 years from date of manufacture	
<b>Patents</b>	<a href="http://www/greengage.global/patents">www/greengage.global/patents</a>	
<b>Approvals and Certifications</b>	Certified to EN, IEC, UL, and CSA standards	 

## Product Schematic Dimensions

<p><b>Sensor Coupler Unit</b>            Height 100mm (4.0 inches)            Length 170mm (6.7 inches)            Width 110mm (4.0 inches)            Probe Cable 200mm (8 inches)</p> 	<p><b>Sensor Probe Unit</b>            Probe Length 2.3m (90 inches)            Diam. 40mm (1.6 inches)            Height 54mm (2.2 inches)</p> 
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## ALIS Chirpy Sensor 110/230V IP66

### Product description

The Chirpy sensor is a precision acoustic sensor used for welfare monitoring, through measuring and analysing the sounds of poultry, within a shed or barn. It operates by taking a short sound recording every 15 minutes from about 1m (poultry) to 1.5m (swine) above the ground (about 30cm above the flock or herd height respectively). The sound clip is analysed within the device and results transferred via Wi-Fi and a sensor gateway to a cloud, and from there onto the GreenCloud App. The sensor unit is designed to automatically connect to any router via the WPS button or can be pre-set to a specific SSID name and password. Devices will connect to routers laptops or mobile phone hotspots. The GreenCloud App displays the measured distress call score data in graphical form and users can set alarm levels at which they receive visual and audible warning indications.



### Coupler features

The sensor coupler comes in a sturdy plastic casing, protecting it from the harsh livestock house environment. The sensor unit draws power inductively from the bus cable to which it is connected via the coupler. The sensor can easily be repositioned as the coupler simply clips on and off the bus cable. There is no need to remove the sensor unit during wash down. Each unit has a built-in Wi-Fi antenna to transmit the sensor data to the ALIS gateway and a built in NiMH rechargeable battery to ensure data capture is maintained. The device complies with the latest Radio and EMC requirements, and current RoHS and WEEE material restrictions. The unit is impact resistant as well as being humidity and dust proof.





### Probe features

Each probe is connected to the sensor unit externally so there is no need to open the coupler casing. The probe is weighted appropriately to allow the sensing elements to hang to flock or herd height. It has an IP rated ePTFE filter as well as o-ring seals to ensure no liquid or particulate matter can reach the microphone chamber. The probe is detachable and disconnects in an emergency. The cable length provides the user with the ability to lower the sensor probe to within 1m of the floor (30cm above the height of the animal) for more accurate sound recordings.

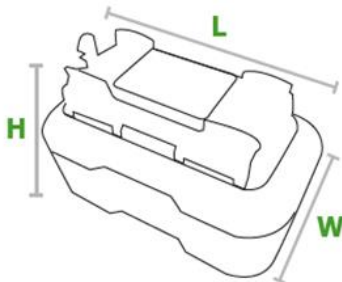
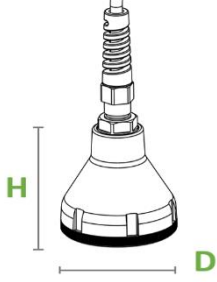


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## Product Technical Specifications

<b>Model number</b>	ALS0057	
<b>Acoustic Sensing</b>		
<b>Measuring Principle /Type</b>	Metal oxide Micro-Electro Mechanical System (MEMS) based microphone	
<b>Measuring Range</b>	50 Hz to 20 kHz	
<b>Signal to Noise Ratio</b>	67 dB	
<b>Dynamic Range</b>	101 dB	
<b>Total Harmonic Distortion</b>	± 0.2%	
<b>Recording Time</b>	15 seconds set as standard	15s to 15 minutes
<b>Sound Analysis</b>	Proprietary distress call algorithm based on spectral entropy of sound recording which correlates with mortality and growth particularly in early life.	
<b>Material for Sensor Coupler</b>	Glass reinforced polypropylene	
<b>Material for Probe</b>	Polyamide/anodised aluminium	
<b>Material for Cable</b>	LSZH 4 x 22AWG / 0.34 mm <sup>2</sup> x2.5 m	
<b>Normal Operating Power Max.</b>	Induction power drawing 1W max.	Back-up: NiMH rechargeable battery
<b>Power Factor</b>	>0.95	
<b>System Connectivity</b>	W-Fi communication 2.4 GHz 802.11 b/g/n	
<b>Data Transmission</b>	Set as standard every 15 minutes	5 min intervals up to 24 hrs
<b>Data Protection</b>	Data encryption	
<b>Sensor Coupler &amp; Probe Weight</b>	540g & 210g respectively	
<b>Chemical Resistance</b>	Typical agricultural cleaning agents, detergents, disinfectants, & surfactants. Including those containing; alcohols, formaldehyde, glutaraldehyde, sodium hydroxide, peracetic, orthophosphoric & sulphuric acids,	Tested examples: CID Lines; BioGel, Virocid F & KC 5000 Kilco; Ecofoam, Kilcox, HPPA and Virophor.
<b>Humidity Operating Range</b>	0 to 95% RH	
<b>Ingress Protection</b>	IP66	
<b>Operating Temperature</b>	-20°C to +55°C	
<b>Mean Time Between Failure (MTBF)</b>	100,000 hours	
<b>Warranty</b>	3 years from date of manufacture	
<b>Patents</b>	<a href="http://www.greengage.global/patents">www/greengage.global/patents</a>	
<b>Approvals and Certifications</b>	Certified to EN, IEC, UL, and CSA standards	 

## Product Schematic Dimensions

<p><b>Sensor Coupler Unit</b>            Height 100mm (4.0 inches)            Length 170mm (6.7 inches)            Width 110mm (4.0 inches)            Probe Cable 200mm (8 inches)</p> 	<p><b>Sensor Probe Unit</b>            Probe Length 2.3m (90 inches)            Diam. 40mm (1.6 inches)            Height 54mm (2.2 inches)</p> 
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## ALIS Cluster Sensor 110/230V IP66

### Product description

The Cluster sensor is a precision infrared imaging sensor used for welfare monitoring, through measuring and analysing the movement of poultry, within a shed or barn. It operates by taking a short video recording every 15 minutes from about 2.5m above the ground (capturing around a 5 m<sup>2</sup> flock or herd sample image). The video clip is analysed within the device and results transferred via Wi-Fi and a sensor gateway to a cloud, and from there onto the GreenCloud App. The sensor unit is designed to automatically connect to any router via the WPS button or can be pre-set to a specific SSID name and password. Devices will connect to routers laptops or mobile phone hotspots. The GreenCloud App displays the measured movement score data in graphical form and users can set alarm levels at which they receive visual and audible warning indications.



### Coupler features

The sensor coupler comes in a sturdy plastic casing, protecting it from the harsh livestock house environment. The sensor unit draws power inductively from the bus cable to which it is connected via the coupler. The sensor can easily be repositioned as the coupler simply clips on and off the bus cable. There is no need to remove the sensor unit during wash down. Each unit has a built-in Wi-Fi antenna to transmit the sensor data to the ALIS gateway and a built in NiMH rechargeable battery to ensure data capture is maintained. The device complies with the latest Radio and EMC requirements, and current RoHS and WEEE material restrictions. The unit is impact resistant as well as being humidity and dust proof.





### Sensor features

For this sensor there is no separate sensor probe. The infrared imaging sensor is located within the coupler unit. The sensor unit is IP rated and the camera sits behind a solid germanium window with o-ring and gasket seals to ensure no liquid or particulate matter can reach the camera chamber. The unit is positioned on the ALIS bus cable at the same level as, and can be fitted in combination with, ALIS lighting. This position gives the largest sample area for image recordings.



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## Product Technical Specifications

<b>Model number</b>	ALS0058	
<b>Imaging Sensing</b>		
<b>Measuring Principle /Type</b>	Vanadium oxide microbolometer	
<b>Spectral Measuring Range</b>	8 to 14 $\mu\text{m}$ (longwave infrared)	
<b>Array Resolution</b>	12 $\mu\text{m}$	
<b>Pixel Size</b>	80 x 120	
<b>Field of View</b>	57°	
<b>Frame Rate</b>	8.7 Hz	
<b>Recording Time</b>	15 seconds set as standard	15s to 15 minutes
<b>Image Analysis</b>	Proprietary motion analysis algorithm based on identifying birds from the background and using total flow of bird movement to provide mobility score.	
<b>Thermal Sensitivity</b>	<50 mK	
<b>Temperature Compensation</b>	Automatic	
<b>Radiometric Accuracy</b>	$\pm 5\text{ }^\circ\text{C}$	
<b>Material for Sensor Coupler</b>		
	Glass reinforced polypropylene	
<b>Material for Lens</b>		
	Germanium 2mm thick	
<b>Normal Operating Power Max.</b>		
	Induction power drawing 1W max.	Back-up: NiMH rechargeable battery
<b>Power Factor</b>		
	>0.95	
<b>System Connectivity</b>		
	W-Fi communication 2.4 GHz 802.11 b/g/n	
<b>Data Transmission</b>		
	Set as standard every 15 minutes	5 min intervals up to 24 hrs
<b>Data Protection</b>		
	Data encryption	
<b>Sensor Coupler Weight</b>		
	510g	
<b>Chemical Resistance</b>		
	Typical agricultural cleaning agents, detergents, disinfectants, & surfactants. Including those containing; alcohols, formaldehyde, glutaraldehyde, sodium hydroxide, peracetic, orthophosphoric & sulphuric acids,	Tested examples: CID Lines; BioGel, Virocid F & KC 5000 Kilco; Ecofoam, Kilcox, HPPA and Virophor.
<b>Humidity Operating Range</b>		
	0 to 95% RH	
<b>Ingress Protection</b>		
	IP66	
<b>Operating Temperature</b>		
	-20°C to +55°C	
<b>Mean Time Between Failure (MTBF)</b>		
	100,000 hours	
<b>Warranty</b>		
	3 years from date of manufacture	
<b>Patents</b>		
	<a href="http://www/greengage.global/patents">www/greengage.global/patents</a>	
<b>Approvals and Certifications</b>		
	Certified to EN, IEC, UL, and CSA standards	 

## Product Schematic Dimensions

