

# Martin Lishman

# Crop Quality



# Crop Quality Measurement and Monitoring



# Moisture Meters

## Grainmaster i2-S



PROTIMETER

### Voted BEST for ACCURACY

Built on the foundations of the UK's most popular moisture meter, the Grainmaster i2 offers the same accurate moisture measurement with new enhancements. Using tried and tested crop calibrations, the robust electronics of the Grainmaster i2 give high levels of repeatability between samples.

### Optional moisture and temperature probes



#### Grain Temperature Probe

Fast response 1.5m probe to check stored grain temperatures.



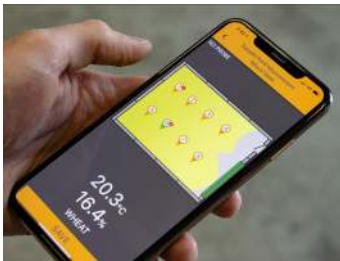
#### Bale Moisture OR Temperature Probe

600mm probes for checking hay and straw bale temperatures or moistures.

### Key Features

- **Easy to Use** - All-in-one grinder-compressor unit: easy and quick to get consistent results
- **Complete Service Package** - hard carry case, button cover, spare grinder-blade and battery, free first year service voucher
- 15 pre-programmed crop calibrations and 30 reference calibrations
- Easy calibration adjustment facility
- Automatic temperature compensation

### Store Management App



Download moisture and temperature readings instantly using the Grainmaster App. Readings from the meter or any of the optional probes can be sent instantly via Bluetooth to a smartphone, speeding up the recording process and making it easier to provide evidence for crop assurance schemes.

The App allows the user to manage multiple crop stores. Using on-screen store maps monitoring changes to crop moisture or temperature is much simpler. Results can be viewed in the App or exported in either graph or table form. Search *Grainmaster* on the App stores.



## Balemaster



### STRONG and EASY to use

A 2-piece instrument and probe that stands up to heavy use. Helps to decide whether bales are safe to store or for assessment at power station intake points.

- Displays bale moisture instantly
- 600mm probe reaches the centre of large bales
- Suitable for all bales, including miscanthus
- Optional 600mm temperature probe

PROTIMETER

## Timbermaster



For quick and simple woodchip moisture measurement. Supplied with a strong 600mm moisture probe to withstand heavy-duty use.

## Field Check and Field Check PLUS

### Ideal for the COMBINE

Budget-priced meters for checking trailers or drying progress. Consistent readings and easy to re-calibrate to match other meters.



### Whole Grain Meter

Simple scoop action with built-in pressure indicator and compressor. Results displayed in seconds.



### Ground Grain Meter

Integral grinding handle with measuring cups to suit the crop and pre-set grinding action.

Save money with regular moisture meter servicing - Avoid deductions and the cost of over-drying by cleaning and servicing your meter on a regular basis. We service all makes to conform with quality assurance schemes, or you can do a simple calibration check at one of our moisture meter clinics. See our website for details.

# Crop Temperature Monitoring

## Minitemp Temperature Monitor

### FAST RESPONSE

The Martin Lishman Minitemp Temperature Monitor is essential for conforming to quality assurance schemes.

Regular store checks help to ensure fast, energy efficient crop cooling.

### Key Features

- **Fast response sensor** - several readings can be taken quickly
- **Range of alternative sensors** - allows creation of a full store monitoring system
- **Latching connector** - prevents accidental disconnection during use



### Optional temperature sensors

#### 1.5m fast response

Portable, stainless steel for grain

#### 2m and 3m static

PVC sensors for grain or bulk potatoes

#### Cable sensor

Any length for bins (with care) or potatoes

### Simple MULTI-SENSOR Monitoring

To provide multiple records quickly and ensure readings are always taken in the same place.

Helps to decide where and when to locate cooling fans. Sensor selector at ground level saves walking the heap to take readings.

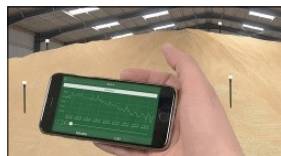
### Key Features

- **Multi-sensor switch** - connects up to 12 crop sensors. Plug in a Minitemp Monitor and turn the selector to give each sensor reading.
- **Sensor extension cables** - supplied to any length in multiples of 10m, fitted with plug and latching connector.



Connect up to 12 crop temperature sensors to a Multi-Sensor Switch and plug in a Minitemp Monitor to create a simple logging system

### MiniTemp Blue - Bluetooth crop temperature



### Fast crop temperature monitoring with data logging

- Instant crop temperature readings with Android or iOS app
- Avoids walking over grain to take readings
- Logs temperature data for up to 6 months
- Download stored data for long-term record keeping

## Silo Temperature Monitoring



### Hand-held Meter or Wireless Monitoring

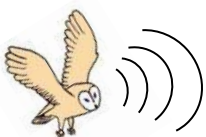
Steel-core silo strings up to 60m and push-in composite probes up to 12m for silos and bins can be connected to a hand-held reader or our Barn Owl Wireless system - please ask for further details.

## Compost Temperature Monitoring



### Minitemp Monitor or Wireless Monitoring

2m stainless steel push-in sensors for compost production monitoring can be connected to either a Minitemp Monitor, MiniTemp Blue or as part of our Barn Owl Wireless System - please ask for further details.



## Wireless Temperature Monitoring

### Barn Owl Wireless

Wireless and remote crop monitoring and automatic fan control with data storage and management - please ask for further details or visit our website.



# Crop Sampling and Measurement

## Grain Sampling Spears



### 2 metre long 8-Hole Spears

A combined sample can be emptied through the top or individual samples through each hole. Holes open spirally, beginning at the pointed end, to maximise sample separation.

**Solid Core Grain Sampling Spear** - for drying bed profile and general crop moisture sampling. Holes begin 0.6m from the top of the spear. Approx. 290g grain sample.

**Stretched Core Grain Sampling Spear** - for lorry load profile sampling. Holes stretch along the full length of the spear. Approx. 480g grain sample.



### 2.6 metre Single Head Spear

For small samples at depth to use in moisture meters. Supplied in two screw-together sections.

Brass sliding head opens and samples at depth required. Approx. 50g grain sample.

## Hectolitre Weight



### Hectolitre Measure

On-farm assessment of hectolitre weight by weighing a known volume of grain. Simple and easy-to-use, giving high accuracy if used precisely. See our website for further details.

## Calibration and Check Weight Scales



**Precision hanging scales** - compact, rugged, accurate and easy to read

*Light duty* - ideal for drill calibration

- 5kg, 10kg, 15kg and 50kg capacities
- Accuracy +/- 0.5%
- Increments 5g to 50g

*Heavy duty* - ideal for weighing large containers, sacks etc

- 20kg, 50kg, 100kg & 200kg capacities
- Accuracies +/- 10 to 500g
- Increments 10g to 500g



The weigh scales shown here form just a fraction of the range available. From 1g to 10 tons there are hanging and platform scales to suit hundreds of uses. Please contact us to discuss your requirements.

# Crop Environment Monitoring

## Ambient Air Measurement



### Martin Lishman Portable Thermo-Hygrometers

Hand-held fast response meters to quickly measure air humidity and temperature in different locations.



### Tunnel Hygrometer

Measures the air stream in a grain store tunnel. Includes detachable probe and 1m connection cable.

### Portable Thermo-Hygrometer

Measures air temperature, relative humidity and dew-point temperature.

### Static Thermo-Hygrometers

Meters to measure air humidity and temperature in fixed locations.



### Panel Thermo-Hygrometer

Used in grain stores for continuous assessment of air condition.



### Jumbo Thermo-Hygrometer

Measures air temperature, relative humidity and dew-point temperature.

## STATIC or PORTABLE Thermo-Hygrometers

Accurate and regular assessment of air humidity and temperature inside the grain store, in a grain store tunnel or being blown in from the outside, ensures drying and cooling targets are reached quickly and energy efficiently.

If automatic systems are not available, our static and portable instruments are a low-cost alternative for measurement.



### Key Features

- **Digital, large displays** - easily seen in low light
- **Good accuracy and range** - to suit most storage situations
- **Fast response** - to take quick readings in changing situations

## Insect Traps



### Floor Traps

After store cleaning, the presence of insects should be monitored by placing the Floor Traps in corners and at wall/floor junctions every 4-5 metres around the store. The traps can show where insects are and how serious the infestation is. Using Floor Traps can also demonstrate that a store is clear of insects and avoid the need for unnecessary spraying with chemicals.

### Pitfall Traps

Once the store is filled with grain, Pitfall Insect Traps can be used to detect the presence of insects. They are a 'blunder' trap designed to take a random sample that is representative of the whole store. Pitfall Traps are used in pairs, with one at the surface and one placed approximately 8-15cm down into the grain.



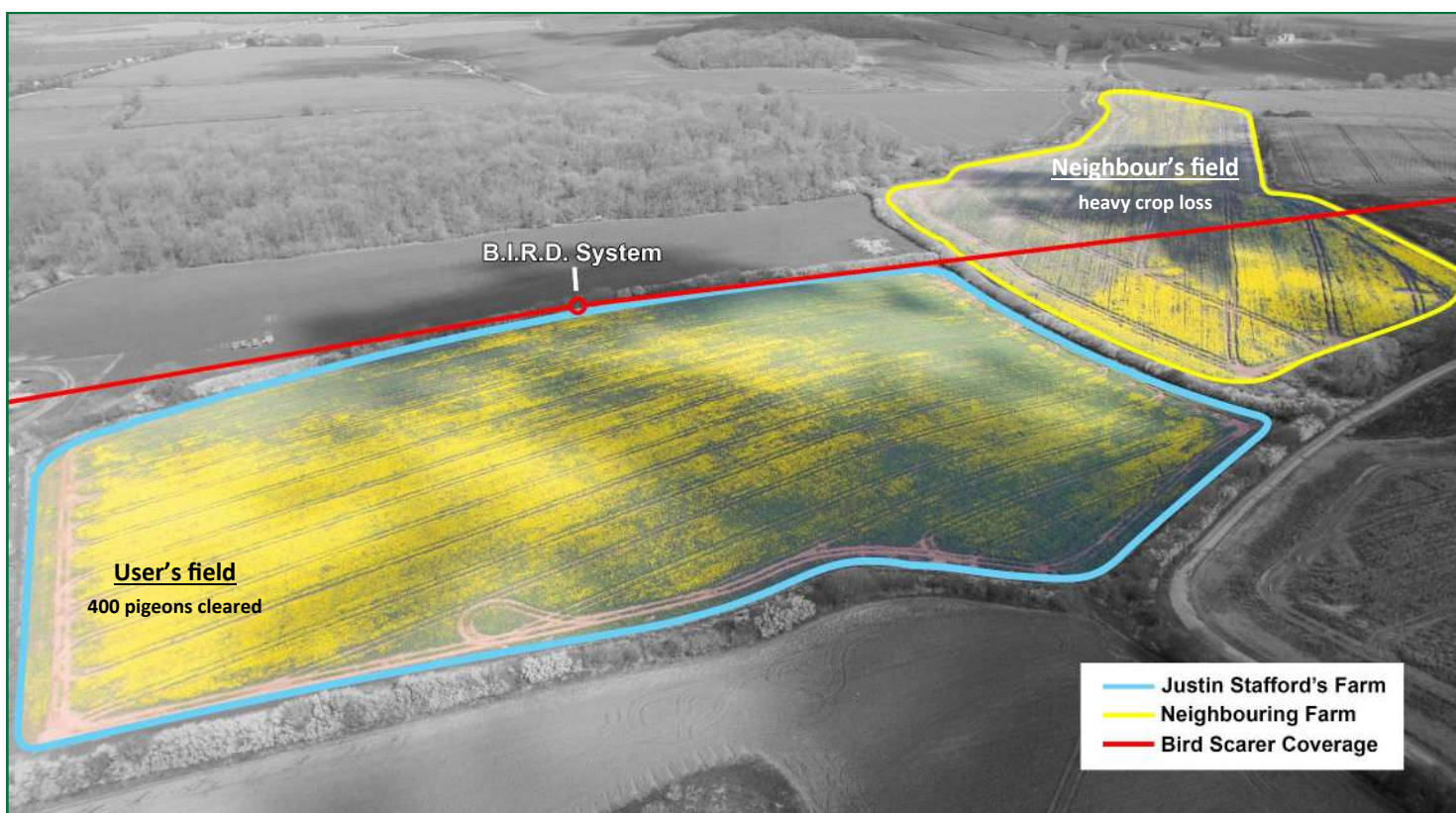


# Scarecrow B.I.R.D. System

## Bird Instinctive Reactive Dispersal

The Scarecrow B.I.R.D. System broadcasts natural bird distress calls through three loudspeaker channels and creates an environment which is hostile to birds.

- 🐦 10 bird pest distress calls
- 🐦 Fully IP rated
- 🐦 Built-in remote light sensor
- 🐦 Low energy consumption
- 🐦 Add up to 30 loudspeakers
- 🐦 Unobtrusive



# Crop Quality Details and Specifications



## Protimeter Grainmaster i2-S (Product Code: GRN3000I2-S)

16 pre-programmed crop calibrations  
 - Wheat, Barley, Oats, Oil Seed Rape, Canola, Linseed, Peas, Beans, Maize, Sunflower Seed, Coffee Beans, Soya Beans, Milled Rice, Paddy Rice, Sorghum, rye grass  
 29 additional calibrations (see www.martinlishman.com)  
 Adjustable calibration and 0-100 scale user calibration facility  
 Automatic temperature compensation  
 Complete service pack  
 - hard carry case, operating button dust protector, spare grinder blade and feeder ring, spare battery, free first year service voucher (conditions apply).

### Optional probes for Grainmaster i2-S

**Grain Temperature** (Product Code: GRN6046)  
 1.5m stainless steel, fast response

**Bale Temperature** (Product Code: GRN6155)  
 600mm stainless steel, fast response, T-bar handle

**Bale Moisture** (Product Code: GRN6138)  
 600mm stainless steel, strong handle  
 Calibrated for wheat straw (suitable for other products)  
 Adjustable calibration using meter settings

### Specifications:

**Meter accuracy:** +/- 0.5%; **Resolution:** 0.1  
**Operating range:** Meter 0 - 40°C  
 Grain or bale temperature probe 0 - 80°C  
**Weight** (c/w grinder-compressor): 950g  
**Dimensions** (c/w grinder-compressor): 19.5 x 18.5 x 10 cm  
**Power:** 1 x PP3 9V battery (included plus spare)  
**% Moisture ranges:**  
 Meter only or with moisture/temperature probe for relevant calibrations (see left)

Barley: 10.9 to 29.3	Beans: 12.4 to 25.0
Canola: 7.0 to 26.0	Coffee: 9.8 to 23.9
Linseed: 7.0 to 16.5	Maize: 10.4 to 26.2
Oats: 10.9 to 29.3	OSR: 7.0 to 26.0
Paddy: 10.4 to 26.2	Peas: 12.0 to 30.9
Rice: 13.2 to 26.5	Sorghum: 10.2 to 26.9
Soya: 7.4 to 22.2	Sunflower: 6.2 to 23.0
Wheat: 11.3 to 29.3	

With bale moisture probe in wheat straw: 8.5 to 36.8%



## Protimeter Balemaster (Product Code: GRN6165)

600mm stainless steel moisture probe with strong handle  
 Calibrated for wheat straw (suitable for other baled products)  
 Auto-off, backlight, buzzer and moisture description functions

### Optional Temperature Probes

**Bale Temperature** (Product Code: GRN6154)  
 600mm stainless steel, fast response, T-bar handle

**Grain Temperature** (Product Code: GRN6153)  
 1.5m stainless steel, fast response



## Protimeter Timbermaster (Product Code: GRN6156)

600mm stainless steel moisture probe with strong handle  
 Calibrated for wood moisture measurement  
 Auto-off, backlight, buzzer and moisture description functions  
 Optional Temperature Probes available (see Balemaster above)

### Specifications:

**Resolution:** 0.1  
**% Moisture range:**  
**Balemaster**  
 With Bale Moisture Probe in wheat straw: 8.5 to 36.8%  
**Timbermaster**  
 7 to 29.6% (depending on wood type); relative readings to 99%  
**Operating humidity range:** 0 - 90% RH (non-condensing)  
**Operating temperature range:**  
 Meter: 0 °C to 50 °C  
 Temperature probes: 0 °C to c.80 °C  
**Weight** (with bale moisture probe): 228g  
**Dimensions:** Meter 19 x 6.5 x 3.5 cm; Probe 600mm long  
**Power:** 9V battery (alkaline 550 mAh) (included)  
**Regulatory compliance:** CE, RoHS, ETL

## FieldCheck Whole grain (Product Code: CQ/FIELD)



## FieldCheck PLUS Ground grain (Product Code: CQ/FIELDPLUS)



14/15 pre-programmed crop calibrations  
 - Wheat, Barley, Oats, Rye, Maize, Oil Seed Rape, Peas, Beans, Triticale, Red fescue, Rye grass, Linseed, Sunflower, Mustard, Blue grass (Field CheckPLUS only)  
 Automatic averaging function  
 Automatic temperature compensation  
 Adjustable calibration facility  
 Hard carry case

### Specifications:

**Accuracy:** +/- 0.5% by using averaging and self-calibration  
**% Moisture range:** 5-50% (crop dependent)  
**Operating range:** 0 - 50°C  
**Weight:** Field Check 1.6 kg, Field CheckPLUS 1.8 kg  
**Dimensions:** Meter 13 x 21 x 8 cm; Case 32 x 29 x 12 cm  
**Power:** 1 x PP3 9V battery (included)

## Insect Traps

### Floor Traps (Product Code: CQ/TRAP/FLOOR)

Box of 5. Includes non-replaceable lure.  
 Traps 10 different insect pests in the empty store.

### Pitfall Traps (Product Code: CQ/TRAP/PIT)

Box of 10. Blunder trap to detect and monitor insect pests in stored grain, pulses and feedstuffs.



## Grain Sampling Spears



**Single Head**  
 (Product Code: CQ/SHS) - 2.6m, c.50g  
**Solid Core** - L 2m, od. 32mm, id. 22.5mm, c.290g (Product Code: CQ/SCS)  
**Stretched Core** - L 2m, od. 32mm, id. 22.5mm, c.480g (Product Code: CQ/SCS)

## Calibration and Check Weight Scales

### Light Duty

Thermometer & clock (5 & 10kg)  
 Function indicators, tare facility  
 Low battery warning (battery included)

**5Kg** (Product Code: CQ/SCALE/5K5)  
**10Kg** (Product Code: CQ/SCALE/10K10)

**15Kg** (Product Code: CQ/SCALE/15K20)  
**50Kg** (Product Code: CQ/SCALE/50K20)



### Heavy Duty

Function indicators, tare facility, data hold, auto off  
 25mm stainless steel hook, karabiner handle  
 Low battery warning (battery included)

**20Kg** (Product Code: CQ/SCALE/DWS20)  
**50Kg** (Product Code: CQ/SCALE/DWS50)  
**100Kg** (Product Code: CQ/SCALE/DWS100)  
**200Kg** (Product Code: CQ/SCALE/DWS200)



### Specifications:

**Light Duty**  
**Dimensions:** 140 x 70 x 25mm (5kg & 10kg)  
 255 x 90 x 28mm (15kg & 50kg), incl. handle & hook  
**Overload protection:** 25% of capacity (15 & 50kg)  
**Increments:**  
**5Kg** - 5g, **10Kg** - 10g, **15Kg** - 20g, **50Kg** - 50g  
**Accuracy:**  
**5Kg, 10Kg, 15Kg, 50Kg** - +/-0.5%  
**Power:** 2 x AAA (5/10kg), 1 x 9V (15/50kg) battery (included)

**Heavy Duty**  
**Dimensions:** 150 x 80 x 45mm, incl. handle & hook  
**Overload protection:** 25% of capacity  
**Increments:**  
**20Kg** - 10g, **50Kg** - 100g, **100Kg** - 200g, **200Kg** - 500g  
**Accuracy:**  
**20Kg** - +/-10g, **50Kg** - +/-100g, **100Kg** - +/-200g, **200Kg** - +/-500g

## Hectolitre Measure



(Product Code: CQ/HTLR)



# Crop Quality Details and Specifications

## MiniTemp Temperature Monitor

(Product Code: CQ/MTM10)



Max, Min, Auto-off  
Calibration certificate

## Optional Temperature Sensors & Accessories

600mm stainless steel, portable (Product Code: CQ/MTM10PS600)

1.5m stainless steel, portable (Product Code: CQ/MTM10PS)

2m stainless steel for compost (Product Code: FC060)

2m PVC, static (Product Code: FC054)

3m PVC, static (Product Code: FC055)

Cable, static (Product Code: TEMPFLEXSENSOR10/(length))

Sensor extension cable (Product Code: FC046/(length))

**Multi-Sensor Switch** (Product Code: CQ/MULTISWITCH)

## Specifications:

**Monitor Accuracy:** +/- 0.4°C over range -10°C to 70°C.

**Operating range with sensor:** -40°C - 125°C

**Power:** 3 x AAA battery (included)

**Multi-Sensor Switch:**

- input sockets for 12 sensors

- output socket with connecting cable and plugs

- Dimensions: 165 x 120 x 85 mm; Weight: 450g



## MiniTemp Blue (Product Code: CQ/MTM10BLUE)

Bluetooth crop temperature monitor and data logger with iOS/Android App and 2m crop temperature sensor.

## MiniTemp Blue for Compost (Product Code: CQ/MTM10BLUE/EXT)

As above, to use with 2m stainless steel compost temperature sensor (FC060)

## Specifications:

**Monitor Accuracy:** +/- 0.5°C over range -25°C to 75°C.

**Resolution:** 0.1°C

**Power:** 3 x Lithium 1/2 AA battery, approx. 6 month battery life (included)

**Measuring interval:** 1s to 24hr adjustable

**Start delay:** 1s to 6 month adjustable

**Memory:** Max. 32,000 values

**Data Transfer:** Bluetooth 4.0 up to 40m line of sight

**Data export format:** CSV

## Portable Thermo-Hygrometer (Product Code: CQ/HYGDIG)

## Tunnel Hygrometer (Product Code: CQ/HYGTUNNEL)

Data hold, min/max memory, auto-off, low battery indicator, calibration certificate. **Tunnel only:** detachable probe with 1m connection cable

## Panel Thermo-Hygrometer (Product Code: CQ/HYGWALL)

Min/max memory.

## Jumbo Thermo-Hygrometer (Product Code: CQ/HYGIUMBO)

Min/max memory.



## Specifications:

### Portable & Tunnel Thermo-Hygrometer

**Operating range:** 0-100% RH; -20-50°C

**Accuracy:** +/-2% RH; +/-1°C; **Resolution:** 0.1% RH; 0.1°C

**Power:** 3 x AAA battery (included)

### Panel Thermo-Hygrometer

**Operating range:** 20-99% RH; 0-50°C

**Accuracy:** +/-5% RH; +/-1°C; **Resolution:** 0.1% RH; 0.1°C

**Power:** 1 x CR2032 Lithium battery (included)

### Jumbo Thermo-Hygrometer

**Operating range:** 10-99% RH; 0-50°C

**Accuracy:** +/-5% RH; +/-1°C; **Resolution:** 0.1% RH; 0.1°C

**Power:** 1 x AAA battery (included)

## Scarecrow B.I.R.D. System (Product Code: BIRDSYSTEM)

### Operating Unit :



10 pre-programmed digitally cleansed, natural bird distress calls

- Herring Gull, Black Headed Gull, Starling, Rook, Jackdaw, Crow, Pigeon, Canada Goose (2 dialects), Bird of Prey (generic mixed call)

Library of additional calls available

Fully automatic random timing and variable volume play system

Built-in keypad for setting controls

Built-in light sensor for 'dusk to dawn' operation

PIN number activation/security option

Suitable for indoor or outdoor use

Includes mounting bracket with pole clamps (pole not included)

Powered from leisure battery, with mains or solar power options

### Speaker:



System includes 3 x 20W speakers

Can be increased to 30 speakers per system

Operates up to 300m on full volume

Includes stainless steel pole-mounting bracket (pole not included)

Supplied with 4m cable

NB. The Scarecrow B.I.R.D. System can only be truly effective as part of a planned programme of bird control. This includes total hygiene management, such as removal of nests in buildings and suitable netting to prevent roosting, appropriate siting and quantity of speakers, choice and setting of operation functions.

## Specifications:

**IP rating:** IP65

**Weight:** 2.7kg

**Dimensions (c/w mounting bracket):** 30 x 29 x 11 cm

**Enclosure material:** ABS

**Power requirements:** 12-15vdc, 100-250vac, 12v 80Ah leisure battery

**Power consumption:** Playing - 300mA (average); Standby - 50mA; Night standby- 5mA

**Audio power output:** 3 audio channels, max 25W each one (allows up to 10 x 2.5W 100v line speakers per channel)

**Operating conditions:** -20°C to 55°C @ 95% humidity

**Regulatory compliance:** CE, RoHS, WEEE

## Specifications:

**IP rating:** IP66

**Weight:** 2.37kg

**Dimensions:** 16.5 x 31 x 32 cm

**Enclosure material:** ABS

**Frequency response:** 250Hz to 10kHz

**Maximum sound level:** 122dB @ 1m

**Angles of coverage:** 60° x 130°

**Power handling:** 25W RMS

**Operating conditions:** -25°C to 70°C

**Regulatory compliance:** CE, RoHS

**Martin Lishman Ltd is the sole UK distributor and service agent of Protimeter products and Scarecrow Bio-Acoustic products for agriculture**

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