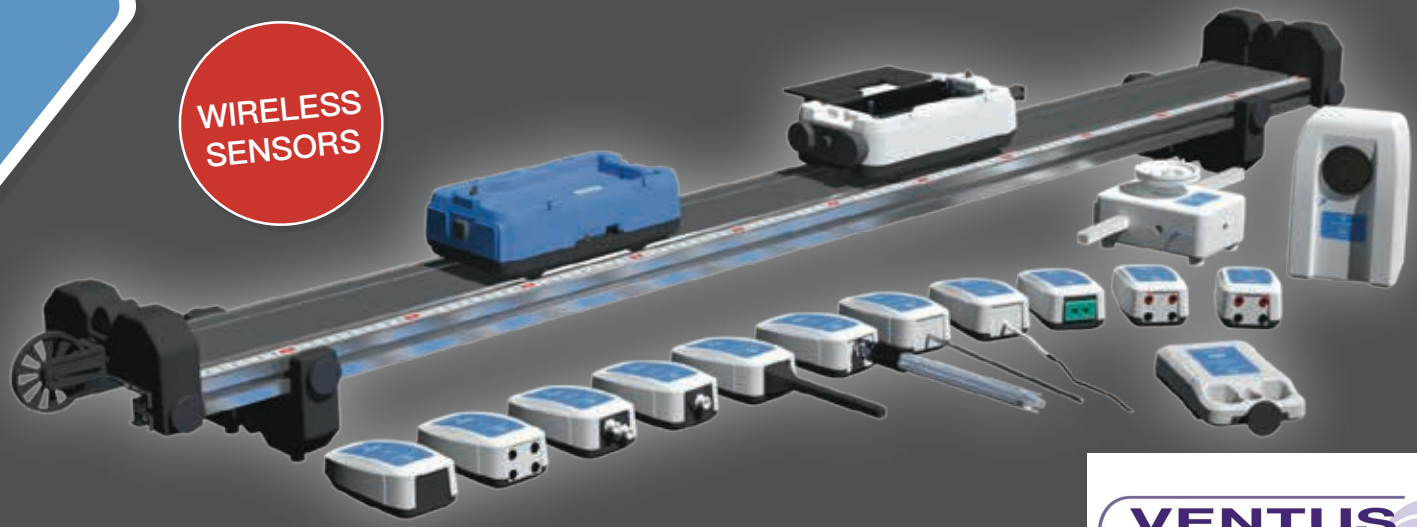
DATA HARVEST

WIRELESS
SCIENCE

WIRELESS SENSORS



VENTUS
Ciencia Experimental

Want to make your existing SmartQ sensors wireless?

Your SmartQ sensors can still be used with our latest version of EasySense2 and all you need is one of our compatible devices!

See page 16 to learn more...

WARRANTY 5 Year

Who we are and what we do

For over 30 years Data Harvest has continually adapted to modern technology, redefining our approach as to how students and teachers explore science.

As new technologies such as Bluetooth devices and mobile computers are introduced into schools, the demands on the modern classroom change. These changes enable us to deliver solutions that are right for today's approach to learning science.

We ensure that our products are tried and tested and not just the latest 'wave' of 'smart tech'.

We want to ensure that our solutions are right for you and the science that you want to teach.

We take time to understand what the modern classroom means, and how we can provide solutions that are easy to use with minimal learning, providing a progressive approach that helps teachers to adapt to new technologies.

You will see from our new wireless products that they fit within the existing range of Data Harvest products, allowing you to transition to a modern classroom with minimum disruption.

Award Winning Solutions

We are proud of our success, winning many awards for design, development and supply of high quality solutions for the UK and World education markets.

BETT Awards

ERA Awards

World Didac Awards

So, what do we think a modern science lesson looks like?

Over the years school classrooms have been transitioning from "traditional" to 21st century with the introduction of interactive whiteboards, computers, tablets and mobile devices. The approach to teaching science in the modern classroom has changed making learning science even more accessible to the young scientists of the future.

Today's technology means we can explore, collect, share and analyse our scientific data with the entire class without the need to be tethered to the science labratory or a traditional data logger.

Our wireless solutions allow you to move freely beyond the classroom and explore the science around you, and with our devices you can collect data in as little as three clicks of a button and wirelessly stream your data to the entire classroom in real time!

The process is simple because we know time is crucial in each lesson.

Our hands–on interactive technology offers a huge step forward in how you teach and how students learn science.

We want to ensure your investment plays an important part in the delivery of your lessons and that's why we work hard to ensure all our products meet with your needs; a progressive solution that's easy to understand, practical to implement and complies with the modern classroom.

Thank you for taking the time to learn more about Data Harvest and our solutions for the modern science classroom.

Data Harvest
https://data-harvest.co.uk

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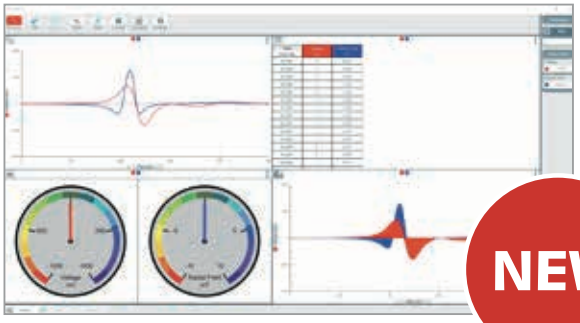


EasySense2

NEW

New wireless products

An introduction to our new range of smart wireless sensors, new wireless dynamics system and the new cross platform EasySense2 software.

Wireless Science Sensors
Pages 4-9

Take a look at the new smart sensors. 3 clicks to wireless science discovery makes getting started simple and easy to use.

Dynamics Systems
Wireless (Pages 10-11) - Modular (Page 22)

Forces and motion physics for the modern, practical classroom. Our new wireless dynamics system will be coming in 2021.

EasySense2 Software
Pages 12-15

A redeveloped and new approach to exploring science with our free cross platform EasySense2 science software.

Data Logging & Wired Sensors
Pages 16-21

With integrated sensors and Bluetooth you can now make your existing SmartQ sensors wireless with V–Hub & V–Log!

Customer Support

All Data Harvest products are covered by our five year warranty* and we give free support for the lifetime of your product. *See website for terms and conditions.

British Quality Assured

We design, develop & manufacture our products in the UK and are members of the British Educational Suppliers Association and The Association of Science (ASE).

besa BRITISH EDUCATIONAL SUPPLIERS ASSOCIATION

The Association for Science Education
Promoting Excellence in Science Teaching and Learning

DATA HARVEST

WIRELESS SENSORS

“Function as a data logger in their own right”

WHY WIRELESS TECHNOLOGY?

Wireless Bluetooth technology has really changed the way we do practical science.

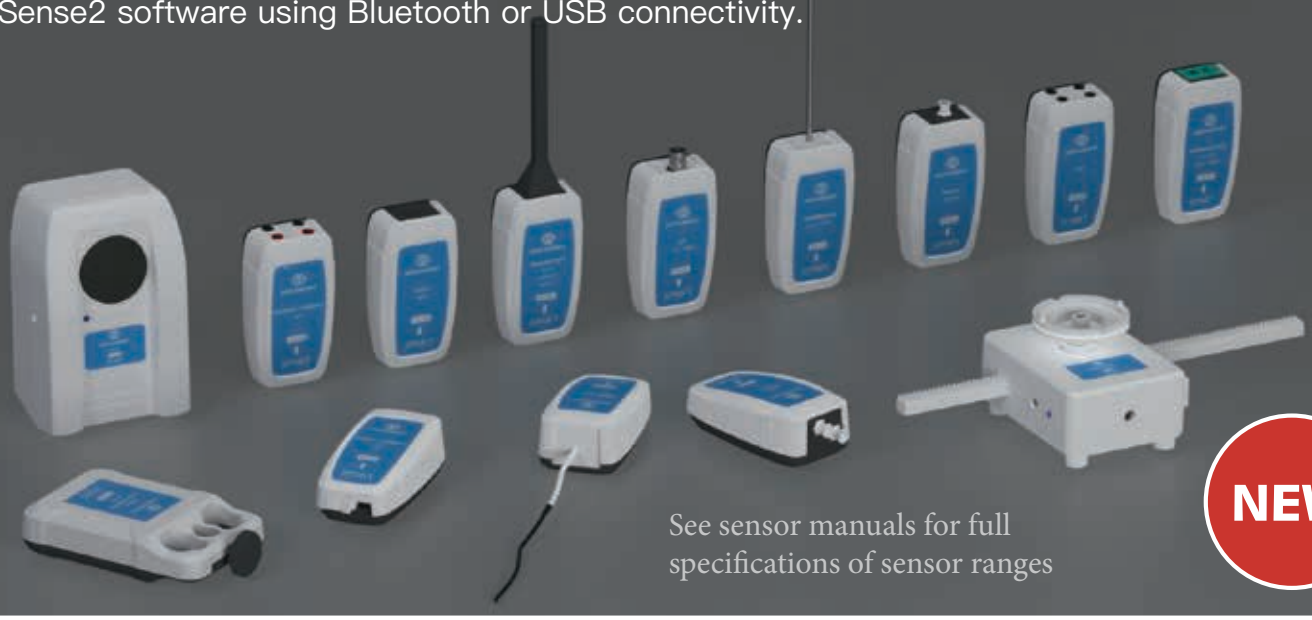
With the introduction of wireless connection the whole class can work untethered to a data logger, sharing and collaborating across multiple devices such as desktops and laptops running Windows & Apple Mac OSX, Chromebooks, iPads, iPhones, Android tablets & SmartPhones.

In 2019 we launched our range of Smart Wireless science sensors, and throughout 2020 we increased the range with Magnetic Field, Gas Pressure & combined current & voltage sensors to name but a few. We have an extensive development road map with many sensors being added to the range through 2021.

The new sensors can be used alone, alongside our other wireless sensors and mixed & matched with existing SmartQ sensors & V–series data loggers.

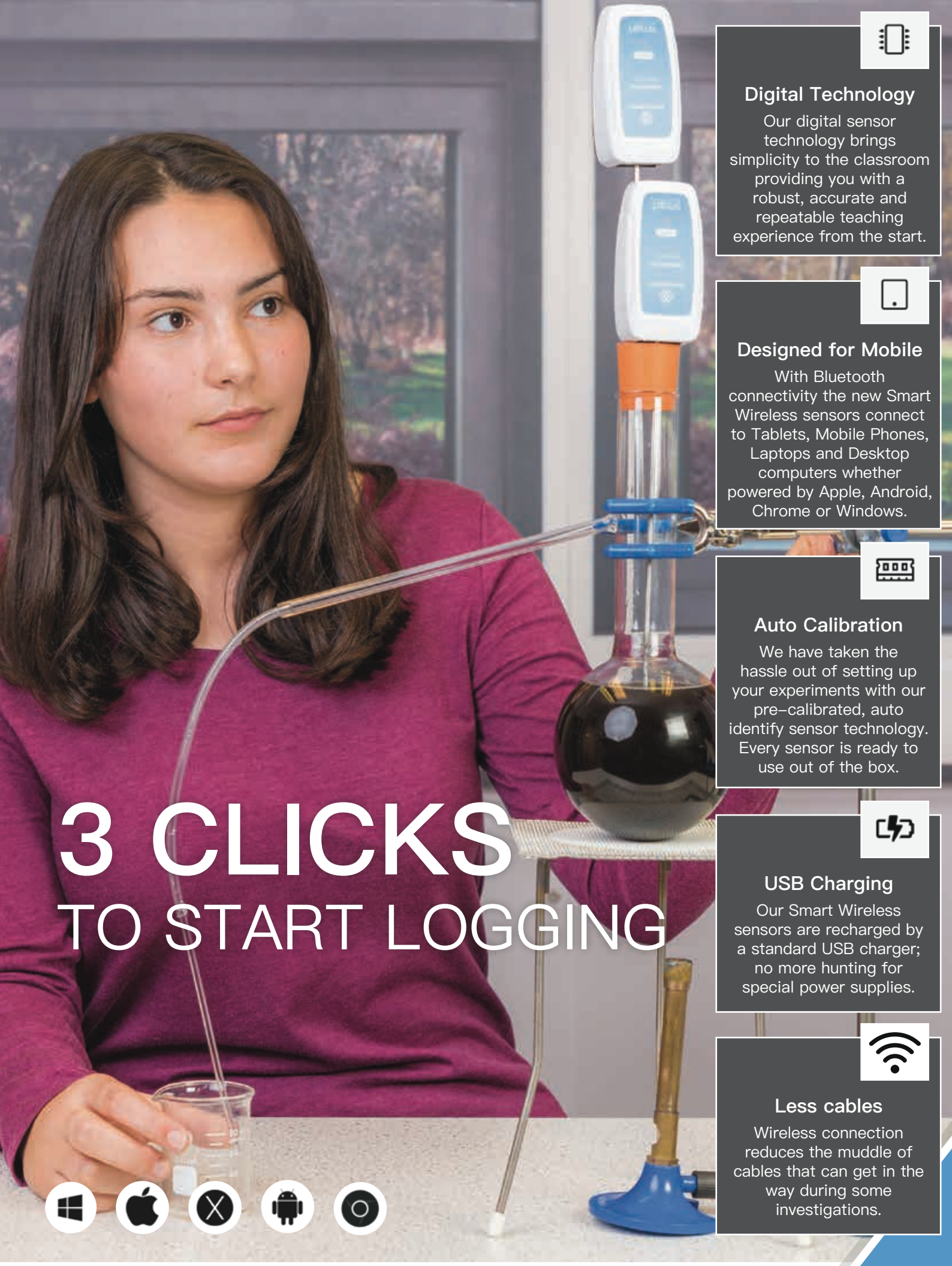
With ultra–long battery life and unpaired, password free connection, wireless sensors are a must for busy science practical lessons offering all the advantages of traditional data logging but with even greater versatility.

These Wireless sensors function like a data logger connecting direct to the cross platform EasySense2 software using Bluetooth or USB connectivity.



See sensor manuals for full specifications of sensor ranges

NEW



3 CLICKS
TO START LOGGING

Digital Technology

Our digital sensor technology brings simplicity to the classroom providing you with a robust, accurate and repeatable teaching experience from the start.

Designed for Mobile

With Bluetooth connectivity the new Smart Wireless sensors connect to Tablets, Mobile Phones, Laptops and Desktop computers whether powered by Apple, Android, Chrome or Windows.

Auto Calibration

We have taken the hassle out of setting up your experiments with our pre–calibrated, auto identify sensor technology. Every sensor is ready to use out of the box.

USB Charging

Our Smart Wireless sensors are recharged by a standard USB charger; no more hunting for special power supplies.

Less cables

Wireless connection reduces the muddle of cables that can get in the way during some investigations.

The Power of Smart Wireless

Our Smart Wireless sensors build on the design of our legendary SmartQ sensors adding Bluetooth wireless connectivity that allows users to connect to tablets and mobile phones using the new EasySense2 software.

Smart Connectivity

No pairing, no passwords, find the sensor by its name and connect. The Smart Wireless Sensors can also be used like a traditional data logger connected via USB to achieve ultra–fast data transfer and collection.

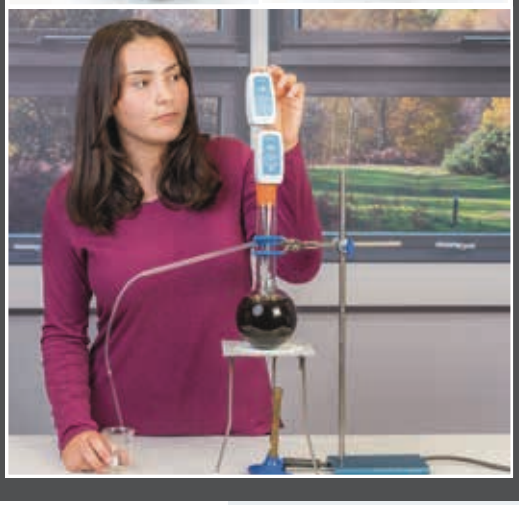
Smart Single Button

One press and the Sensor is ready to connect to your Bluetooth compatible device. Three presses to start logging data on the sensor. Now that's smart!

Smart Battery

The Smart Wireless sensors have a huge 1300 mAh battery making it a market leading sensor. A single charge powers the sensor for a whole year not just a class day!

Want to know if you have enough battery life available for your next experiment? Simply connect your sensor to the EasySense2 software and you will instantly see the battery life!



BLOOD PRESSURE SENSOR

This sensor is designed to measure human blood pressure.

It can be used to help explain why blood in arteries is under pressure due to contraction of heart muscles so that it reaches all parts of the body, and the factors that can contribute to high and low blood pressures such as exercise, smoking, weight, diet including salt and saturated fat.

Blood Pressure
Order No. 1155
Ranges:
- Pressure in mmHg
- Pulse in bpm
- Detailed waveform

CARBON DIOXIDE (CO_2) SENSOR

Temperature, Pressure and Humidity sensors included for higher versatility!

This sensor can be used to investigate the amount of CO2 in the air and how it changes over time. A Nalgene bottle, into which it fits, is included to create a contained environment for study of plants and small animals. (NB for gaseous use only. Not for use in water)

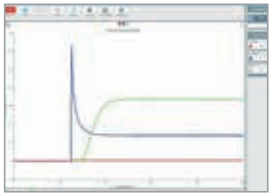
Carbon Dioxide
Order No. 1180
Ranges:
- 0 to 100,000
- Temperature 0–50 degrees
- Pressure 30–110kPa
- Humidity 0–100%

CURRENT AND VOLTAGE SENSORS – 5V & 20V

Combined Voltage and Current sensors in one package.

They can be used to measure both the electric current and the potential difference across a component in a circuit in low voltage AC or DC circuits. Voltage and current can be measured at the same time.

The four 4mm sockets (2 for Voltage and 2 for Current) allow for connection to most standard electronics kits.



Startup current of a lamp

Voltage – Current
Order No. 1130
Range:
- ±20 V
- ±1 A

Order No. 1131
Range:
- ±5 V
- ±0.1 A (±100 mA)

FORCE ACCELEROMETER SENSOR

This sensor is a combination of both a Force sensor and a 3 axes Accelerometer.

Force, both compressive and tensile, and acceleration in 3 dimensions, can be measured using this sensor. Collisions, SHM, bungee jumping and muscle fatigue can also be investigated. Angular motion can be measured with the high performance 3–axes Gyroscope. For ease of use, only one axis is turned on by default and you can turn the other two on in the software.

Force
Order No. 1120
Ranges:
- ±100 N
- 3 axis accelerometer
- 3 axis Gyroscope

Leak–free Luer locking style ports

GAS PRESSURE SENSORS – ABSOLUTE & DIFFERENTIAL

There are two types of pressure sensor available:

1. Absolute Gas Pressure (one port) that measures the total pressure on a system. When the single port is left open the sensor will measure atmospheric pressure.

2. Differential Gas Pressure (two ports) that measures the difference in pressure between the two ports. If one port is left open the measurement will be relative to atmospheric value.

Gas Pressure – Absolute
Order No. 1150
Range:
- 400kPa Absolute

Gas Pressure – Differential
Order No. 1151
Range:
- 25kPa

GAS PRESSURE ACCESSORY KIT FOR WIRELESS SENSORS

New accessory kit for the new wireless Bluetooth Gas Pressure sensors coming soon.

Please see our website for more details.

Pack contents TBC

Gas Pressure Pack
Order No. 1149

INFRA–RED SENSOR

Leslie's cube, insulation, heat along a metal rod, Hershel's discovery, Stefan–Boltzmann law, residual heat, efficiency of filament lamps, warm and cold–blooded animals, human body heat–loss and disaster victims are just some of the investigations which can be done with this sensor.

Being wireless allows pupils to investigate the IR coming from surfaces inside and out e.g. when looking at heat–loss from buildings and comparing results from their own insulation experiments. It also allows a demonstration such as Leslie's cube to be set up anywhere in the laboratory.

Infra–red
Order No. 1205
Range:
- TBC

LIGHT AND COLOUR

This sensor can be used to measure not only the level of light in the visible spectrum but also the primary colours of that light and the UV portion of the electromagnetic spectrum. The sensor also has a built–in white LED that can be used as a light source, especially useful in experiments on reflectivity.

Light and Colour
Order No. 1160
Range:
- Ambient Light Lux
- Fast Ambient Light Lux
- Colour (RGB & LED)
- UV (UV Index, nominal UV)

LIGHT GATE

Each Light Gate is actually a double Light Gate; you can use these Light Gates individually or in pairs to calculate average speed and acceleration, acceleration due to gravity, Newton's laws, momentum and kinetic energy.

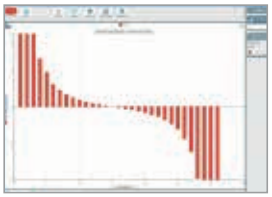
Alternatively, the students can get the raw data and do all the calculations themselves. Furthermore, being wireless you can set up a demonstration anywhere in the room and send the data straight to your screen and also the students' devices simultaneously using the share function in the software.

As an external laser detector is also included, this means that you can have objects of any size being detected if they are bigger than the gate's aperture such as a large toy car or a basketball.

Light Gate
Order No. 1200

MAGNETIC FIELD SENSOR

Explore the nature and strengths of magnetic fields of solenoids and permanent magnets with this robust sensor that accurately measures the magnitude and direction of a magnetic field along three axes at right angles (X, Y & Z). It is sensitive enough to show variation of the Earth's magnetic field relative to magnetic north and inclination.

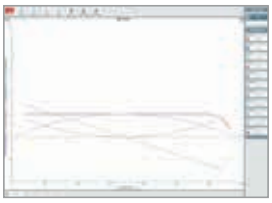


2 North poles facing

Magnetic Field
Order No. 1140
Range:
- ±130 mT
- ±5 mT

MOTION SENSOR

This sensor can be used to show distance–time, velocity–time and acceleration–time graphs of students walking, falling balls for finding "g", a cart on an inclined plane or being accelerated by a falling mass. It easily shows the phase relationships between s, v, and a in SHM – mass on a spring system and can also be used to measure the speed of sound in air. It works using sonar and emits ultra–sonic pulses.



Conversion of energy ball drop

Motion Sensor
Order No. 1190
Ranges:
- Distance
- Time

OXYGEN IN AIR SENSOR

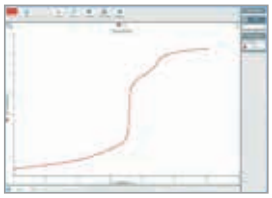
Temperature, Pressure and Humidity sensors included for higher versatility!

This can be used to measure how the amount of O2 varies in the classroom and the variation of the rate of production in photosynthesis and respiration of small organisms such as microbes and maggots. Particularly useful with the wireless CO_2 sensor, the gaseous exchange of a burning candle in a bell–jar can be measured and with no wires to attach, it is much easier. With the built–in pressure, relative humidity and temperature sensors, environmental measurements in Biology can take on a whole new meaning. A Nalgene bottle, into which it fits, is included to create a contained environment for study of plants and small animals.
(NB for gaseous use only. Not for use in water)

Oxygen in Air
Order No. 1170
Range:
- 0–100%
- Temperature 0–50 degrees
- Pressure 30–110kPa
- Humidity 0–100%

PH SENSOR PACK

This sensor can be used for testing acids and alkalis, acid–base titrations, dissolved oxygen in water, enzyme action, human or cell respiration, monitoring photosynthesis, fermentation, monitoring pH change during a chemical reaction and examining water quality.



Titration Investigation

The pH adaptor and general pH electrode combine to form the immensely popular wireless Bluetooth pH sensor pack. This pH sensor has both a pre–set calibration range (so the sensor is ready for immediate use) and a user calibration range.

It also has a mV range, perfect for experiments on calibrating a pH sensor or for use with ion–selective electrodes (ISE) and oxidation reduction probes (ORP). The electrode in this pack is a general purpose plastic bodied glass non–refillable electrode, suitable for most investigations.

pH Pack
Order No. 1110PK
Range:
- Default calibration 0 to 14 pH
- User calibration 0 to 14 pH
- ±1,000 mV

includes:
pH Adaptor
Order No. 1110

pH Electrode
Order No. 2253

ROTARY MOTION SENSOR

This Rotary Motion sensor, with its accessory pack, is a must for every Physics Department.

It can be used to show conservation of angular momen–tum, angular velocity, pendulums, linear–velocity, Young's double slits (with a light–level sensor) and so much more. The software can be used with the collected data to show phase relationship of distance, velocity and acceleration in a pendulum swing.

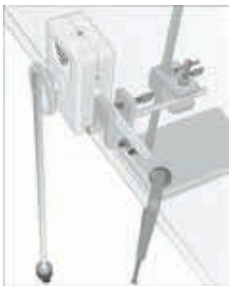
Conservation of angular momentum

Rotary Motion
Order No. 1195
Ranges:
- Angular position and velocity
- Distance
- Pendulum

ROTARY MOTION ACCESSORY PACK

This accessories kit extends the use of the Rotary Motion sensor and comprises of the Pendulum Rod, the Angular Momentum Disk Set and the Linear Rack.

Pack includes:
- 1 x Pendulum Rod
- 2 x Adjustable Masses
- 1 x Angular Momentum Disc Set
- 1 x Linear Rack



Rotary Motion Pack
Order No. 3288

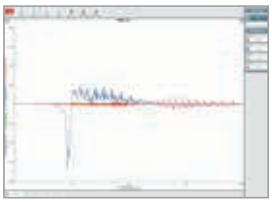
5 Year Warranty

All Data Harvest products are covered by our five year warranty* and we give free support for the lifetime of your product. We ensure your investment gives you complete peace of mind.

*See website for terms and conditions.

SOUND LEVEL SENSOR

This sensor accurately measures the volume of sound in decibels (dB) and can show the frequency waveform using the mV setting. The A filter used in the dBA range measures mid–range frequencies to approximate the normal human ear in the range and intensity that it 'hears' sounds. The C filter (dBC range) suits low and high frequency sound levels.

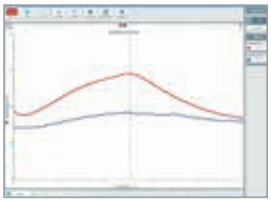


Sound levels

Sound
Order No. 1145
Range:
- dBA
- dBC
- mV

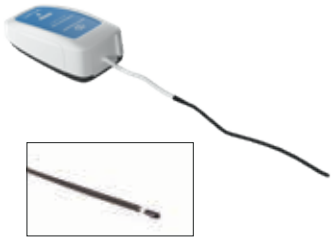
TEMPERATURE SENSOR

This general purpose Wireless Temperature sensor is the most commonly used sensor and can accurately measure the temperature of air, water, soil and weak acidic solutions, making it indispensable in Science practicals.



Temperature Insulation

Temperature
Order No. 1100
Ranges:
- –40˚C to 125˚C
- –40˚F to 275˚F



TEMPERATURE SENSOR – FAST RESPONSE

This sensor is extremely responsive as it features an exposed thermistor.

It is ideal for determining changes in skin temperature, or for measuring air temperature in tight spaces.

Applications Include:

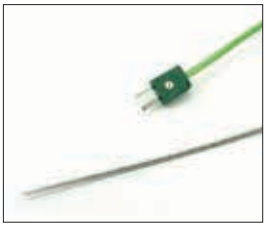
Biology: Skin surface temperatures e.g. body mapping, changes due to exercise.
Chemistry: Universal gas laws

Temperature – Fast
Order No. 1101
Ranges:
- –40˚C to 125˚C
- –40˚F to 275˚F

TEMPERATURE K–TYPE THERMOCOUPLE SENSOR

The wide temperature range of this sensor enables it to be used in a variety of experiments e.g. melting points and flame profiles. The sensing part is a replaceable K–type thermocouple, the junction of which is housed at the end of a stainless steel sheath.

The thermocouple junction is housed at the end of a 200 x 3 mm AISI 310 stainless steel sheath. The metal sheath of the type K thermocouple can withstand temperatures above 1,000 °C.



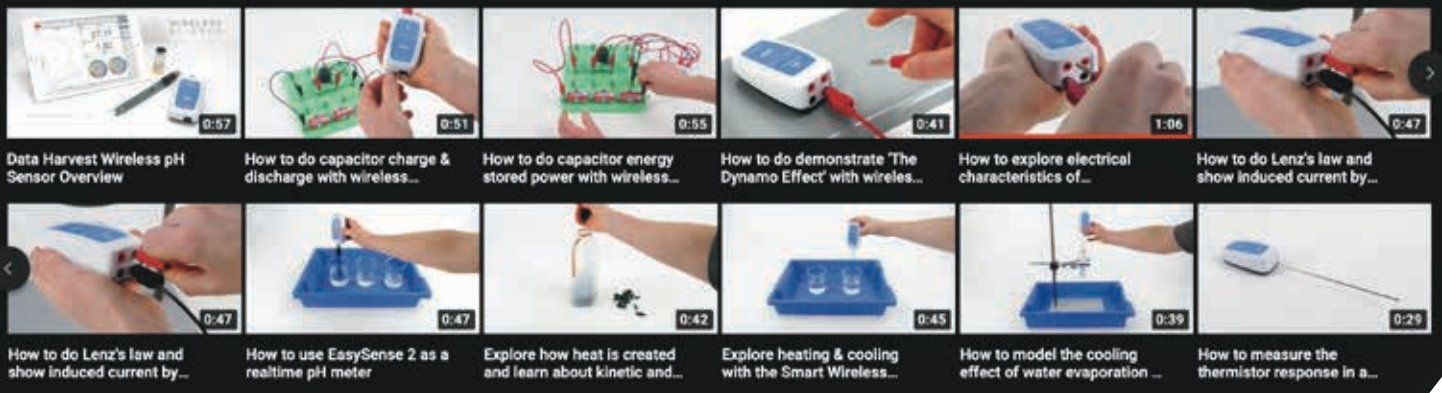
Thermocouple

Thermocouple
Order No. 1102
Range:
- –200˚C to 1000˚C

Browse our secondary science academy

We have a growing playlist of wireless sensor videos on our YouTube channel. We keep the videos very short and on point so you can learn more about our products within minutes.

Subscribe to keep up to date!



https://www.youtube.com/dataharvestgroup

DATA HARVEST

WIRELESS DYNAMICS

"Speed, velocity & acceleration without the wires"

WHAT IS A DYNAMICS SYSTEM?

The all new Data Harvest Smart Wireless Dynamics System provides an ideal way of investigating all types of mechanics work for GCSE & A level studies enabling you to achieve accurate and repeatable results.

Practical Investigations Include: Velocity, Acceleration, Newton's Laws, Forces, Collisions, Conservation of Momentum and Energy.

What's Included:

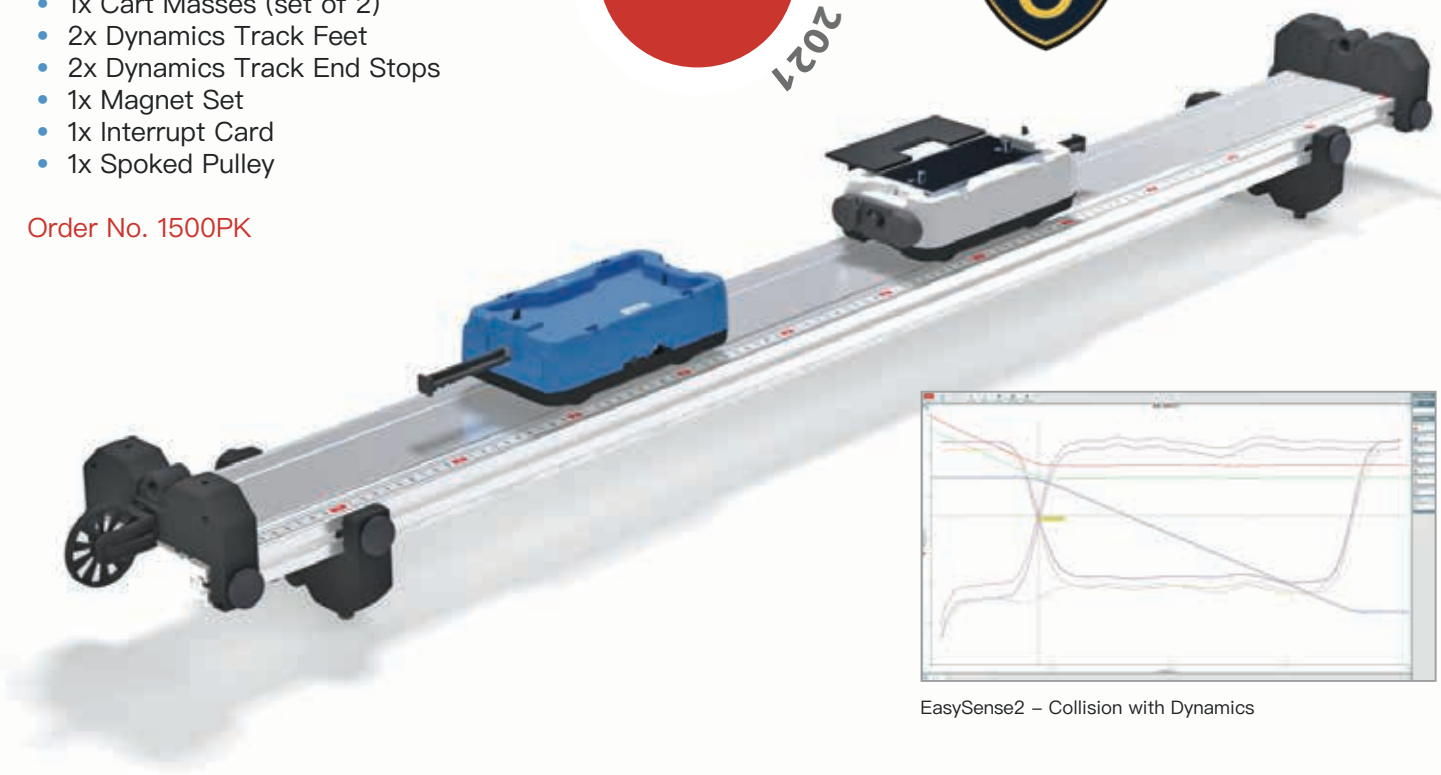
- 1x 1.2m Aluminium Dynamics Track
- 2x Plunger / Collision Carts
- 1x Cart Masses (set of 2)
- 2x Dynamics Track Feet
- 2x Dynamics Track End Stops
- 1x Magnet Set
- 1x Interrupt Card
- 1x Spoked Pulley

Order No. 1500PK

AVAILABLE EARLY 2021

NEW

WARRANTY 5 Year



EasySense2 – Collision with Dynamics

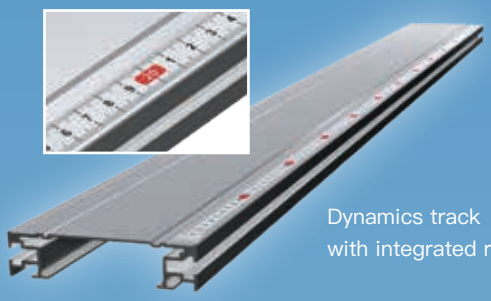
Smart Dynamics Features

The Dynamics pack is a complete solution supplied with a number of great features designed to make teaching physics easy and practical.

The Dynamics Track

The new wider dynamics track is 1.2 meters in length and constructed from extruded aluminium providing a flat smooth base for the low friction carts to operate on.

The track also features an integral precision ruler for accurate results. A retort stand can be attached to convert the track to an inclined plane.



Dynamics track with integrated ruler

Cart Plunger

Includes a USB port for charging

The Wireless Smart Carts - AVAILABLE INDIVIDUALLY

Dynamics Cart White – Order No. 1505
Dynamics Cart Blue – Order No. 1510

The new wireless smart carts are Bluetooth enabled with built–in, spring loaded, 3 stop plunger to provide a graded set of constant force. You can also load the carts with the supplied stackable masses or attach magnets.

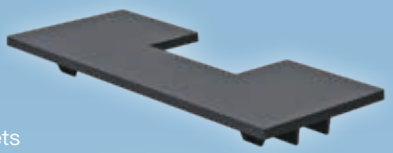
Cart Features:

- Force sensor +/– 100N
- 3 Axis Accelerometer +/– 2000dps
- Optical Encoder on the wheel to 0.1mm
- 3 position plunger

The Track & Cart Accessories

The Dynamics System is supplied with 2 end stops that house two magnets and connections to attach & line feed the included Spoked Pulley accessory. The pack also includes 2 height and slide adjustable feet, and an interrupt card.

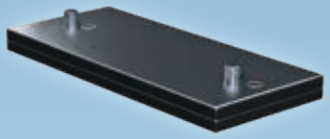
Cart magnets



End stop with magnets

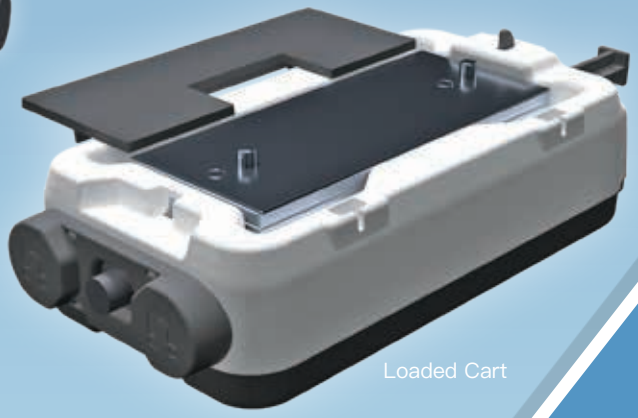
Interrupt Card

Spoked Pulley



Masses

Height and slide adjustable feet



Loaded Cart

DATA HARVEST

EASYSENSE

"A free learning platform that allows teachers to engage through science"

WHAT IS EASYSENSE?

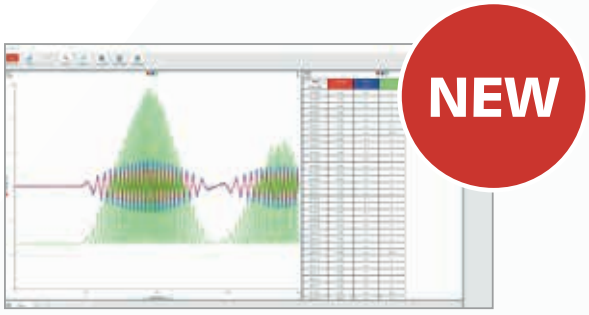
EasySense was first introduced in 2005 as a free science software solution that provides teachers with all the tools to teach scientific methods and allow students to learn and better understand scientific experimental data using our range of data loggers and sensors.

Over its history EasySense has reached a global audience and continues to feature at the heart of many science lessons in primary and secondary education.

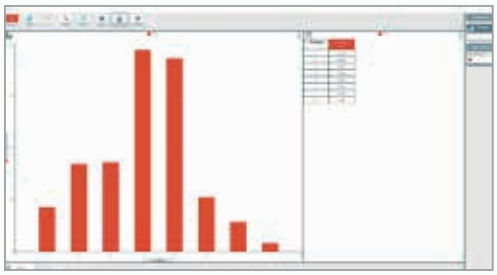
EasySense has grown to include a number of software leading features that benefit teaching and learning.

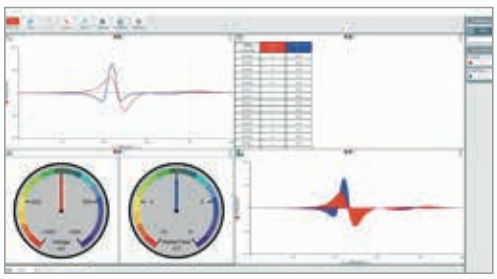
Fast forward to 2019 and a new version of EasySense has been born. This update is now fully cross–platform compatible which means you can use the exact same toolset on all the major computer platforms such as Windows PC, Mac OS, iOS, Android and Chromebook.

Our developers have been creating the all new EasySense2 software with smarter tools, an intuitive user interface and support for our new Smart Wireless sensors. Furthermore we provide our flagship software completely free of charge.



EasySense2 – Voltage, power and current


EasySense2 – Suntan lotions


EasySense2 – Magnet through coil multi screen

EasySense2 - Free Science Software

data–harvest.co.uk/easysense2

Always keep your products up to date for the latest features.

EasySense2 is our most advanced science software!

EasySense2

SCIENTIFIC DATA CAPTURE & ANALYSIS SOFTWARE

EasySense2 is our most advanced educational scientific data capture and analysis software!

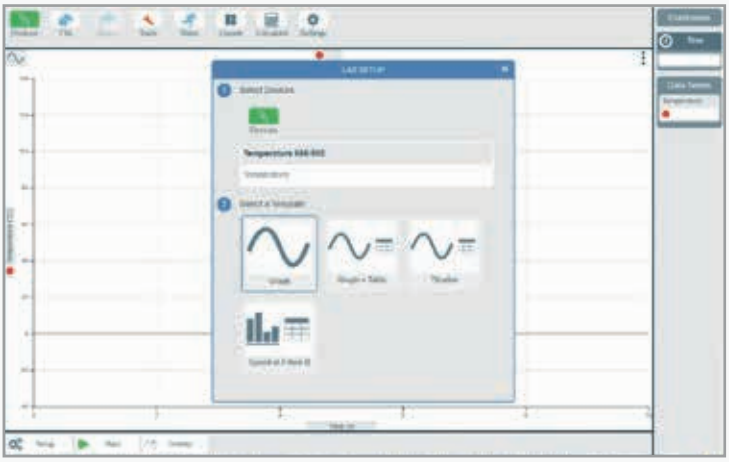
Designed with teachers and students in mind EasySense2 provides a broad set of tools to capture, display and analyse data from Data Harvest Smart Wireless Sensors and Data Loggers using Bluetooth or USB connectivity.

Built on our long standing history of science software

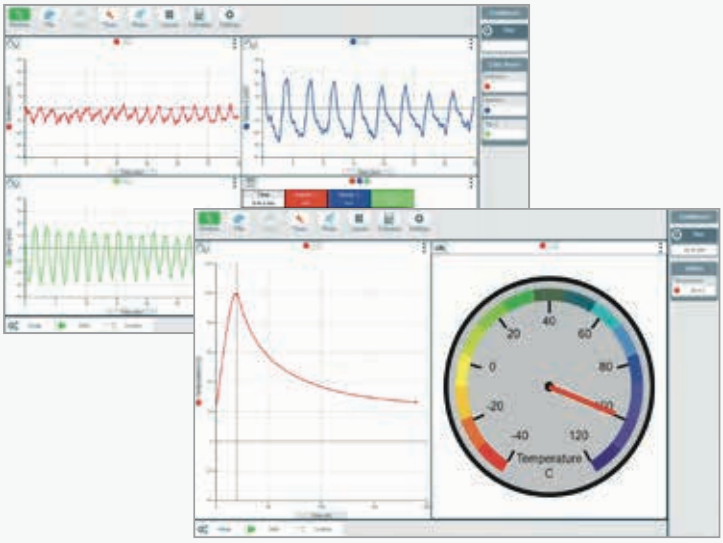
The latest version builds on all the features of our tried and tested science software and adds complete cross platform compatibility on all desktop computers, smart phones and tablets; new workflow, smart analysis tools and a redesigned intuitive user interface.

Delivering the results to ensure your lessons run smoothly

We understand that time is critical in today's modern classroom and that you need the right tools to enable you to teach efficiently and effectively. EasySense2 delivers with experience to ensure today's teachers can work smart.



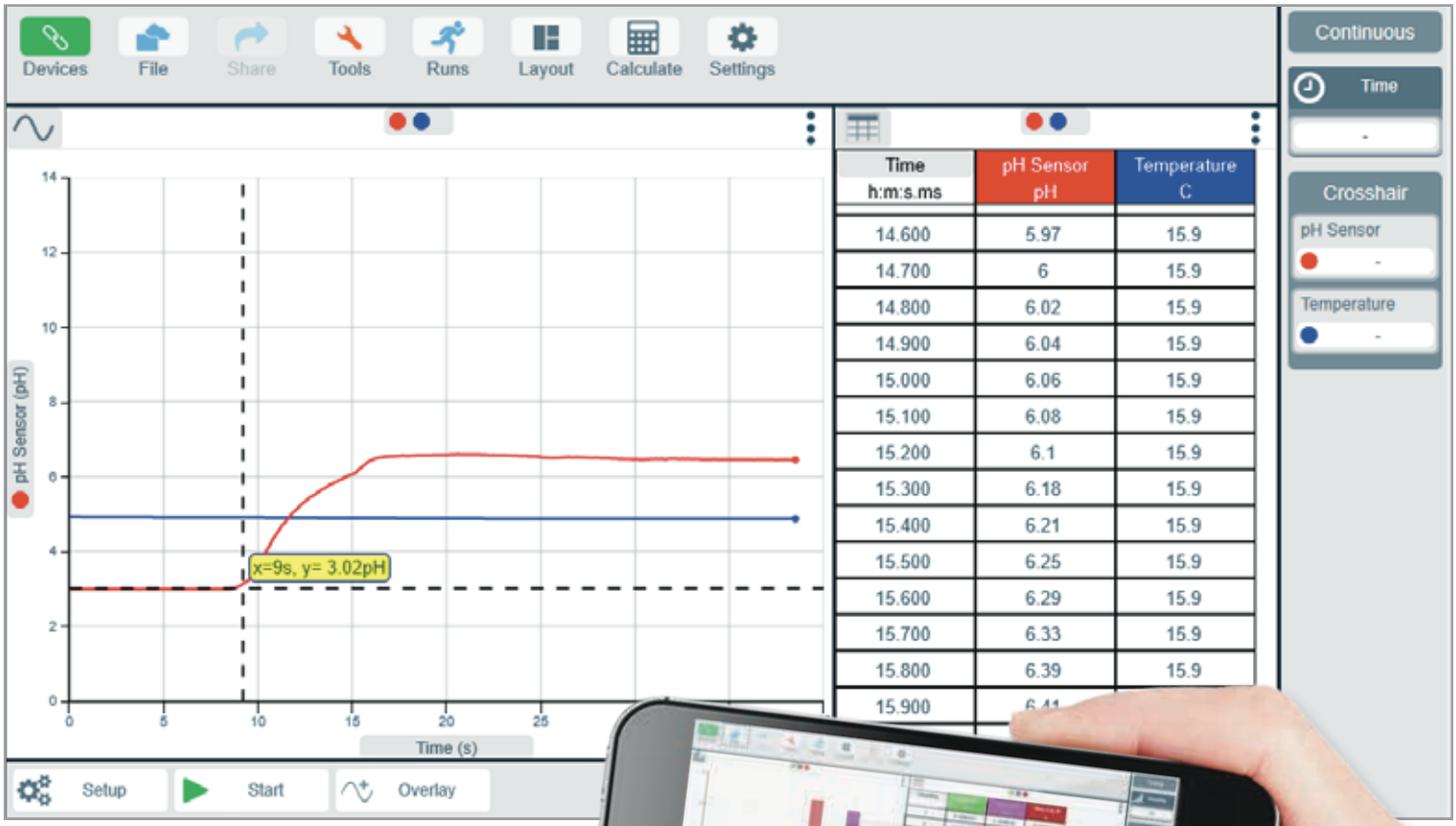
EasySense2 – Lab setup screen

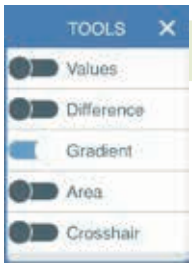


Multi-device data capture

Recording from more than one device is now available leading to endless possibilities and configurations, providing you with the ultimate flexibility.

EasySense2 is compatible with the following data capture devices:
All Smart Wireless sensors, V–Log, V–Hub, VISION, Vu+, Vu





Analysis Tools

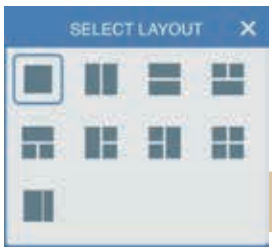
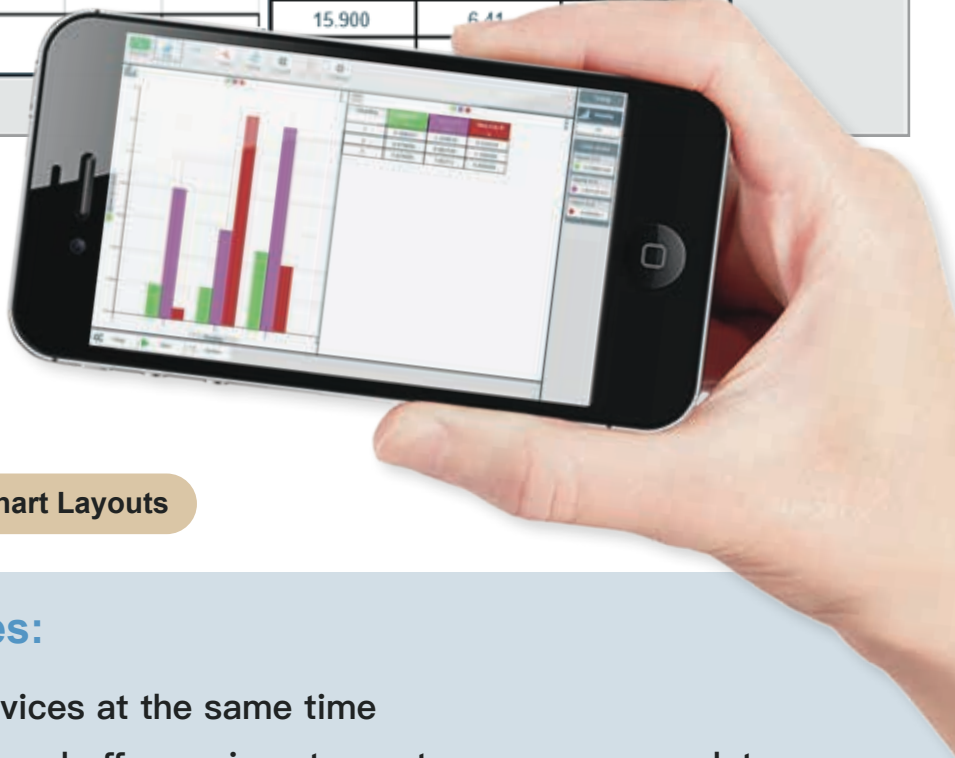


Chart Layouts



Just some of the key features:

- ✓ Capture data from multiple devices at the same time
- ✓ Run manager – easily turn on and off experiment runs to compare your data
- ✓ Simple recording modes – just press record and stop whenever you want to
- ✓ Multi display – combine multiple data views of your captured data series
- ✓ Data views available: line graphs, gauges, numbers and bar charts
- ✓ Simultaneously display up to 4 customisable chart layouts
- ✓ Import and merge multiple files and data sets from devices
- ✓ Calculations – enhanced tools, perform mathematical operations on recorded data
- ✓ Import supported experiment files (.ssl) from EasySense1 into EasySense2
- ✓ Logging modes: Continuous recording, Snapshot and Timing
- ✓ Simple axis selection allows easy XY plots

Want to make your existing SmartQ sensors wireless?

With the introduction of new bluetooth technology in the classroom, it doesn't mean that your existing sensors have to be left out! Your SmartQ sensors can still be used with our latest version of EasySense2 and all you need is one of our compatible devices; V–Log or V–Hub.

Both devices are very similar with only a few key differences. Both devices provide bluetooth connectivity for your existing SmartQ sensors and configurable with 4 built–in sensors, but which one should you buy?

If you are looking for a low–cost solution then V–Hub is the most cost–effective answer. However, if you want a blend of traditional data logging features with all the benefits of bluetooth technology then V–Log will work best.

KEY DIFFERENCES EXPLAINED

V-Hub?

A compact 4 Channel sensor interface/hub with the option of adding 4 built–in sensors.

Creates the link between existing wired sensors and bluetooth technology.

Data capture is taken care of in the latest version of the EasySense2 software.

One button menu system for easy device connectivity setup.

Purchasing Options - Bluetooth & USB

2504PK	V–Hub[4]
100432	V–Hub[4] 5 Pack
2508PK	V–Hub[8]
100434	V–Hub[8] 5 Pack

OR

Optional built–in sensors

Light

Air Pressure

Sound

Humidity

V-Log?

A traditional 4 Channel remote data logger with the option of adding 4 built–in sensors.

Sensor and information is displayed in real–time.

Data capture is either recorded internally as a standalone device or by using the latest version of the EasySense 2 software.

Advanced internal data capture possibilities such as snapshot & timing without a computer or tablet.

Purchasing Options - Bluetooth & USB

2406PK	V–Log[4]
100437	V–Log[4] 5 Pack
2410PK	V–Log[8]
100438	V–Log[8] 5 Pack

V-Hub Sensor Interface

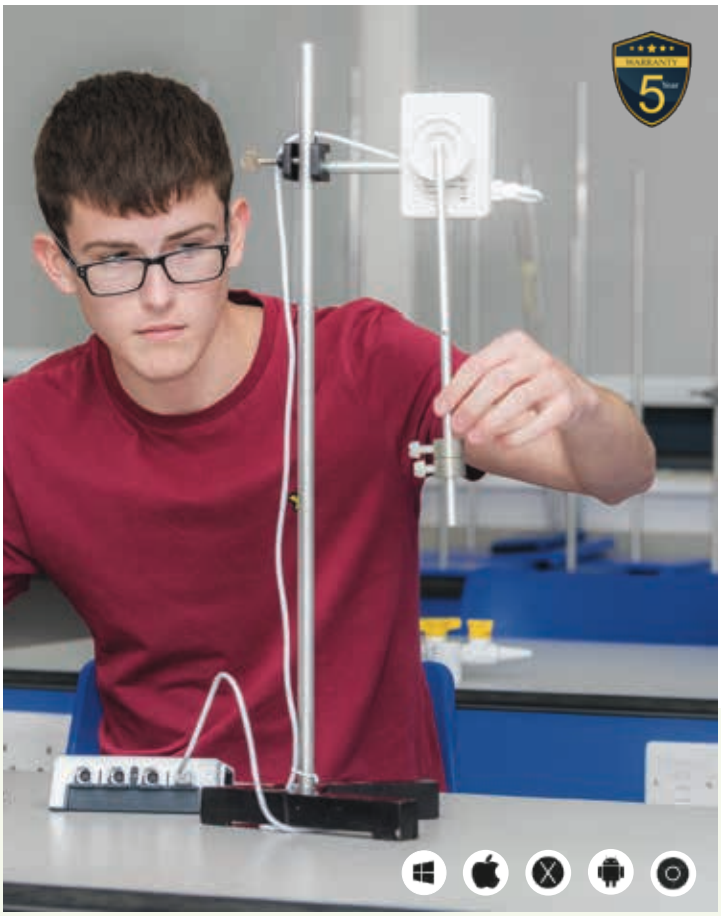
Single V-Hub Pack Includes:

- 1x V–Hub[4] or V–Hub[8] Interface (USB & Bluetooth)
- 1x Mini USB cable
- 2x Short SmartQ sensor cables
- 2x Long SmartQ sensor cables
- 1x Mounting rod
- Free download of the full EasySense cross–platform science software

Our most affordable data logging solution for modern classroom science activities

Classroom Pack of 5

Our convenient five pack solution includes 5 V–Hub data loggers, with integral USB charging system and a Gratnells storage tray.



V-Log Data Logger

Single V-Log Pack Includes:

- 1x V–Log[4] or V–Log[8] Interface (USB & Bluetooth)
- 1x Mini USB cable
- 2x Short SmartQ sensor cables
- 2x Long SmartQ sensor cables
- Free download of the full EasySense cross–platform science software

Built–In Data Logging Features:

- 14 Days Remote logging
- Built–in 1300mAh rechargeable battery pack
- Fast logging (50,000 samples per second)
- Memory to store multiple recording sets
- Logging Modes:
  EasyLog, Fast Logging, Snapshot, Remote Logging & Timing

Classroom Pack of 5

Our convenient five pack solution includes 5 V–Log data loggers, with integral USB charging system and a Gratnells storage tray.

Looking for SmartQ Sensors? See Pages 18–21

DATA HARVEST

SmartQ Wired Sensors

"A range of wired sensors for use with our Data Loggers"

SmartQ OR SMART WIRELESS SENSORS?

SmartQ Sensors were first introduced in 2000, bringing a wealth of sensors to our range of data loggers, covering a vast range of science practicals. Unlike our latest Smart Wireless sensors, these devices are connected to a data logger via a sensor lead, the data is sent along the lead and collected on the data logging interface.

Our Smart Wireless sensors allow you to connect to our EasySense Software via Bluetooth, so you can work freely without wires. If you already have a number of SmartQ sensors, you can make them Bluetooth by connecting them to our V-Log & V-Hub data logging devices (see pages 16–17 for more information).

SmartQ Sensor Range

SEE WEBSITE FOR FULL SENSOR SPECIFICATIONS

ACCELEROMETER

The accelerometer is an electromechanical device that will measure acceleration forces. These forces may be static, like the constant force of gravity pulling at your feet, or dynamic – caused by moving or vibrating the accelerometer.

Low g Accelerometer
Order No. 3200

High g Accelerometer
Order No. 3201

BREATHING RATE BELT PACK

The Breathing Rate Belt is wrapped around a person's chest region. Fitted inside the belt is an inflatable air bladder, which is moulded to two rubber tubes. One of these tubes finishes with a hand pump bulb that is used to inflate the air bladder.

Breathing Rate Belt Pack
Order No. 3190PK

Breathing Rate Belt
Order No. 3190

Gas Pressure Differential
Order No. 3139

CARBON DIOXIDE

This sensor demonstrates that packaging does make a difference. The upper circular lid casing has been cleverly designed to form sealed chambers using standard laboratory beakers and conical flasks.

Carbon Dioxide
Order No. 3152

COLORIMETER

This cleverly designed, self-contained sensor produces consistently excellent results and will appeal to the Biologist and Chemist. Any reaction that causes a change in opacity, or gives a colour change can be used to study rates of reaction.

It is supplied with four 35 mm slides (red, orange, blue and green) that produce light of a specific and consistent wavelength, and a pack of cuvettes with lids.

Colorimeter
Order No. 3275

CONDUCTIVITY PACK

This pack contains both the electrode and the SmartQ Adaptor. Set to any of four ranges enabling accurate measurements from very low ionic sources such as deionised or distilled water to very highly conductive solutions including sea water.

Conductivity Pack
Order No. 3135PK

Conductivity Adaptor
Order No. 3135

Conductivity Electrode
Order No. 3136

CROCODILE CLIPS (PAIR)

A Crocodile clip lead is normally used attached to a home–made or commercial switch. They can be used singly or in pairs to provide timing and event monitoring/triggering.

Crocodile Clips
Order No. 3260

CURRENT – DIFFERENTIAL INPUT

There are 3 Current sensors with different ranges that measure both AC and DC. With differential inputs these sensors can be used anywhere within a circuit and in conjunction with a Voltage sensor.

Current (±100mA)
Order No. 3166

Current ±1A
Order No. 3165

Current ±10A
Order No. 3167

DROP AND BUBBLE COUNTER

This sensor offers exceptional value as it performs a dual role. In Chemistry its primary role is as a drop counter measuring accurately volume during a titration. It can also be used to monitor bubbles produced during gas production from either a chemical reaction or a biological process.

Drop & Bubble Counter
Order No. 3266

E.C.G. (ELECTROCARDIOGRAM)

The ECG sensor measures the electrical energy generated during a heartbeat. To record the classic PQRST wave, the sensor's three electrodes are attached to the skin of the user's forearms using disposable ECG patches.

E.C.G
Order No. 3279

FORCE SENSOR

The sensor measures compression and extension forces applied perpendicular to the beam. Comes complete with accessories to use with the most common investigations. It is supplied with a 20N spring, cushioned and non–cushioned stops, and a hook.

Force
Order No. 3143

GAS PRESSURE – ABSOLUTE

These two sensors measure the total pressure on a system or when the port is left open it will measure the atmospheric value. The 3210 sensor can also be used as an altimeter.

Gas Pressure (700kPa)
Order No. 3142

Gas Pressure (110kPa)
Order No. 3210

GAS PRESSURE – DIFFERENTIAL

These sensors measure the differential pressure between two ports. If one is left open, measurement will be relative to atmospheric pressure. Blowing into one port will produce a positive value, whereas blowing into the other port will produce a negative value.

Gas Pressure (±10k)
Order No. 3139

Gas Pressure (±200kPa)
Order No. 3141

GAS PRESSURE ACCESSORY PACK

A selection of tubing elements and valves which will allow the user to make gas tight connections to a SmartQ Gas Pressure sensor.

Gas Pressure Accessory Pack
Order No. 3138

GEIGER MULLER

Housed in a robust casing, this self–contained sensor detects radiation from Alpha, Beta and Gamma particles. The Geiger Muller sensor is very simple to use, as it does not require an external power source, deriving its power from the Data Logger.

Geiger Muller
Order No. 3265

HEART RATE & PULSE WAVEFORM

Pupils of all ages are keenly interested in how physical and mental stress affects their heart rate. The sensing clip (pleth) can be attached to a finger or ear lobe to measure either blood flow (pulse waveform) or heart rate (beats per minute).

Heart Rate & Pulse Waveform
Order No. 3147

HUMIDITY

Humidity is the measure of water vapour content relative to the ambient temperature. Useful for environmental and Biology studies. For example, a simple transpiration experiment can be set up and the results analysed in less than 5 minutes.

Humidity
Order No. 3145

INFRARED

All warm objects emit infrared radiation. This sensor, therefore, can be used to detect the location of any warm item or living organism. When set to its most sensitive mode, the sensor can detect very low IR emissions, such as the heat trail left on a bench top after you move your hand away.

Infrared
Order No. 3278

INTERRUPT CARD SET

The Interrupt card set consists of 3 cards used with Light Gates:

- A single interrupt card – a 100x100mm
- A double interrupt card – 180x80mm
- A multi–segmented interrupt card picket fence – 500x55mm

Interrupt Card Set
Order No. 3803

LASER MODULE

The laser module includes 2 optical slides for investigating diffraction gratings and Young's single and double slits. This low cost laser module is housed in a strong plastic case and features a safety on/off switch. The laser draws its power from the Logger.

Laser Module
Order No. 3285

LIGHT GATE

The SmartQ Light Gate is a digital switch–type sensor that has two states, ON and OFF. The Light Gate has an infrared transmitter and receiver that detects objects passing through the 'gate'. Light Gates can be used singly or in pairs for time, speed, velocity and acceleration measurements.

Light Gate
Order No. 3250

LIGHT LEVEL

This 5 range sensor cleverly measures light levels from 0 through to 100,000 Lux.
Four of the ranges are for general purpose with filtering to eliminate the unwanted effects of modulation from room lighting (50Hz). The fast response range has no filtering and will clearly show the modulation on an incandescent or fluorescent light.

Light Level
Order No. 3124

MAGNETIC FIELD

Explore the nature and strengths of magnetic fields of solenoids and permanent magnets with this robust sensor which houses two switchable Hall effect transducers to measure accurately both Radial and Axial magnetic fields.

Magnetic Field (±10mT)
Order No. 3170

Magnetic Field (±100mT)
Order No. 3172

MOTION

The Motion sensor can capture the motion of running students, falling basketballs and carts on inclined planes. Featuring a high sample rate of 50Hz, this sensor works well with the Dynamics System.

Motion
Order No. 3270

DISSOLVED OXYGEN PACK

This pack contains both the oxygen adaptor and the electrode.The sensor measures dissolved oxygen levels in water. It has built–in automatic temperature compensation.

Ideal for field studies and measuring oxygen levels around photosynthesising aquatic plants.

Oxygen Pack
Order No. 3130PK

Oxygen Adaptor (Included)
Order No. 3130

Oxygen Electrode (Included)
Order No. 3131

PH PACK

The pH adaptor and general pH electrode combine to form the immensely popular SmartQ pH sensor pack. The SmartQ pH sensor has both a pre–set calibration range (so the sensor is ready for immediate use) and a user calibration range.

The electrode in this pack is a general purpose plastic bodied glass non–refillable electrode, suitable for most investigations.

pH Pack
Order No. 3125PK

pH Adaptor (Included)
Order No. 3125

pH Electrode (Included)
Order No. 2253

PUSH BUTTON REACTION SWITCH

Fitted with a red LED, a pair of these switches can be used to test students' reaction times. One switch can be used for manual marking of events during data logging activities.

Push Button Reaction Switch
Order No. 3261

ROTARY MOTION SENSOR

This 8 range sensor is a must for every Physics department. Highly accurate with an extremely low friction pulley capable of measuring a variety of motions including: pendulum, angular, linear (pulley) and linear (using the Linear Rack accessory).

Rotary Motion
Order No. 3280

ROTARY MOTION ACCESSORY KIT

This is an optional accessory kit that comprises of a pendulum with two adjustable masses, a 250mm plastic rack which allows for the accurate measurement of linear displacement and two discs for studying Angular Momentum.

Rotary Motion Accessory Kit
Order No. 3288

SOUND LEVEL

This dual range sensor accurately measures both sound pressure level in decibels (dBA) or wave–form (mV). To make the measurements meaningful to learners, the sensor has been designed to approximate the normal human ear in the range and intensity that it 'hears' sounds.

Sound Level
Order No. 3175

SPEED OF SOUND PACK

The speed of sound pack contains two SmartQ Stethoscope sensors that can be placed directly onto the surface (no additional apparatus required) and allows the recording of the speed of sound in solids.

Speed Of Sound Pack
Order No. 3179

STETHOSCOPE PACK

The pack contains a SmartQ Stethoscope sensor and a conventional binaural stethoscope (to help students to locate their heart manually). The Stethoscope sensor allows you to record the heart sounds and the echoes of the beat in the circulation. With the addition of an ECG sensor and a Heart Rate sensor, a full physiology of the heart cycle can be recorded and analysed.

Stethoscope Pack
Order No. 3176PK

SPOKED PULLEY

This precision 10 segment, 50mm diameter very low friction pulley attaches to either the Light Gate, Rotary Motion sensor or directly to the Dynamics System where it can be used for the continuous recording of time/distance, time/velocity and time / acceleration relationships.

Spoked Pulley
Order No. 3177

SPIROMETER

The Spirometer measures air flow whilst the user breathes. The air flow data can be converted to volume using a simple function in the EasySense software.

Spirometer
Order No. 3267

COUNT/TACHOMETER ADAPTOR

Offering a wide variety of modes, the Count/Tachometer adaptor will accept any Data Harvest SmartQ digital sensor e.g. Light Gate, Crocodile Clips, Push Button switches via the din plug connector.

Count Tachometer Adaptor
Order No. 3296

ANEMOMETER (Requires count/tachometer)

The Anemometer is constructed using a high quality ball bearing, stainless steel hardware, UV stable plastic, and durable anodized aluminium hemispherical cups that are weight matched.

Anemometer
Order No. 3297

With tachometer
Order No. 3297PK

RAIN GAUGE (Requires count/tachometer)

A `tipping bucket' type rain gauge. As rain falls the water runs down through the collecting funnel into a self–emptying spoon which tips and empties each time the equivalent of 1 mm of rain has fallen. Total rainfall is measured by counting how many times the bucket tips.

Rain Gauge
Order No. 3298

With tachometer
Order No. 3298PK

TEMPERATURE – GENERAL PURPOSE

This general purpose Temperature sensor is the most commonly used sensor in the range. It can accurately measure the temperature of air, water, soil and weak acidic solutions. Housed in a stainless steel tube, it is resistant to dilute acids.

Temperature
Order No. 3100

TEMPERATURE – FAST RESPONSE

This sensor is extremely responsive as it features an exposed thermistor. It is ideal for determining changes in skin temperature, or for measuring air temperature in tight spaces.

Temperature (Fast Response)
Order No. 3101

TEMPERATURE – HIGH RANGE

The wide temperature range of this sensor enables it to be used in a variety of experiments e.g. melting points and flame profiles.

Temperature (High Range)
Order No. 3105

TIMING MATS (PAIR)

These large mats (58 cm x 17 cm) are on/off switches, and are activated by stepping onto them; one mat starts the timer, the other stops the timer.

Timing Mats (Pair)
Order No. 3255

Large Timing Mats (Pair)
Order No. 3256

ULTRA–VIOLET

This multi–range sensor is sensitive to both UVA and the harmful UVB band of the spectrum, and allows topical investigations into the efficiency of suntan creams, UV protection of clothes etc.

Ultra Violet
Order No. 3277

VOLTAGE – DIFFERENTIAL INPUT

There a 4 Voltage sensors that measure the potential energy across any component for both DC and low voltage AC circuits.

The 4mm plugs attach to most of the standard available electronic kits. With differential inputs, these sensors can be used anywhere within a circuit.

Voltage (±20V)
Order No. 3160

Voltage (±12V)
Order No. 3160–12

Voltage (0 to 10V)
Order No. 3161

Voltage (±1V)
Order No. 3162

DYNAMICS SYSTEM

Order No. 3800

A MODULAR DYNAMICS TRACK FOR REPEATABLE RESULTS!

A Solid Investment

Very few investments made in the physics lab will provide more learning opportunities than the Data Harvest Dynamics System. This self–assembled, smart black anodised aluminium track and support pillar comes with a low friction red cart, spoked pulley and various brackets to form a high quality, modular dynamics track.

Features:

- Robust anodised aluminium construction
- 1.2m long incline track
- SmartQ sensors fit easily and are aligned for reliable measurements
- Accurate and repeatable results
- Saves valuable lesson time
- The Dynamics System is so versatile it could be called a Physics Work Station

Spring attached for Elastic collisions

Rubber and solid bumpers

Single and double interrupt card

Magnets for both elastic and inelastic collisions

Masses attached for Newton's 2nd Law

Reflector for Motion Sensor

Pack Includes:

- 1x Aluminium Track
- 1x Vertical Pillar & Base
- 1x Low Friction Cart
- 1x Interrupt Card (for top of cart)
- 1x End Reflector Card
- 1x Spoked Pulley
- Large & Thin Brackets
- Bolts, Screws & Wing Nuts

Optional Extension Kit

Extends the range of investigations

Order No. 3801

This extension kit allows for further dynamics investigations and advanced physics work including collisions, dynamic forces and advanced pendulum work.

- Motion: Use the spring to roll a cart up a slope
- Pendulum: Light Gate and simple pendulum
- Collisions: Elastic and inelastic
- Light Gates, Motion & Force sensors
- Use Force Sensor and a Light Gate to investigate crumple zones
- 2 Force and a Motion sensor with a cart oscillating horizontally

Extension Pack Contains:
An extra cart, magnets and holders, springs, an end reflector card, pendulum bob, slotted mass set, mass retainers, sensor clip, plus an interrupt card set.

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data-harvest.co.uk

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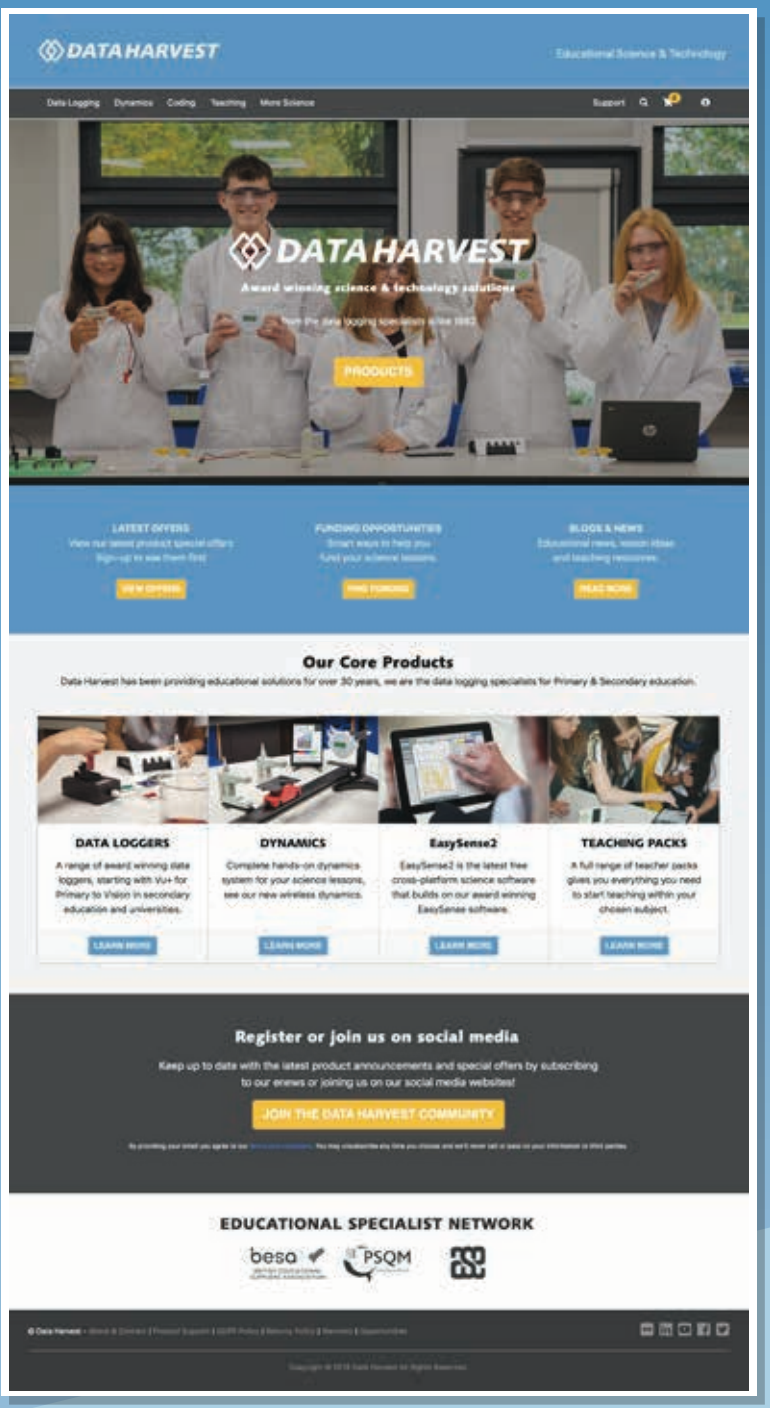

EasySense2 - Now Available

DOWNLOAD OUR LATEST FREE SCIENTIFIC DATA CAPTURE & ANALYSIS SOFTWARE

SEE PAGE 12 FOR MORE INFORMATION

DATA HARVEST

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