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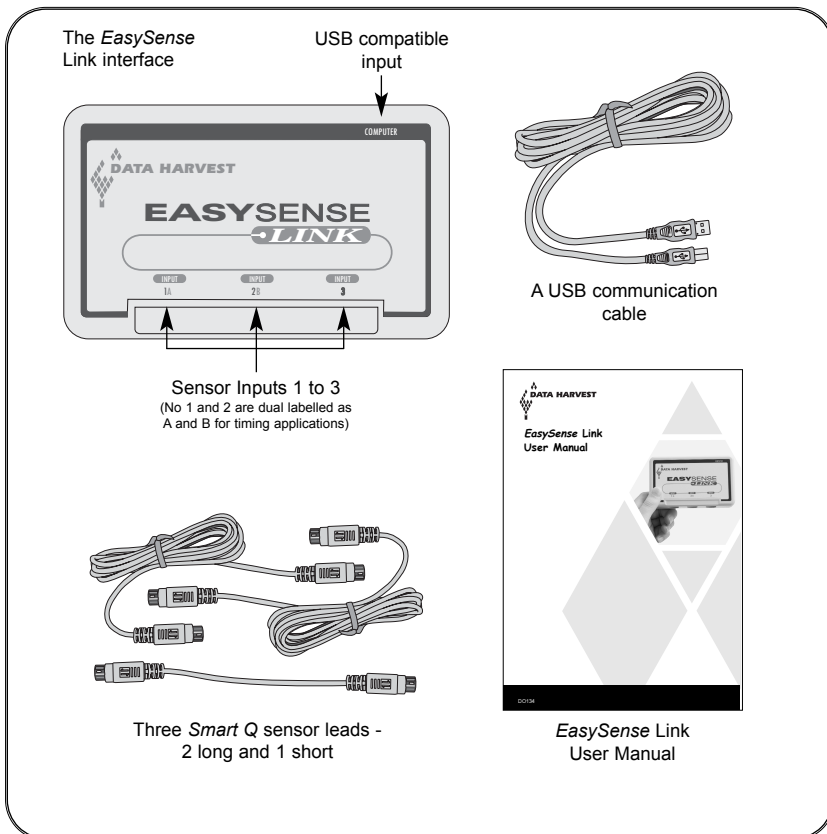
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# What's in the box?



**Note:** As EasySense Link connects via a USB compatible port; it is only suitable for use on a computer with an operating system that supports USB e.g. 98SE, 2000, Me and XP. It will not be supported by Windows 95, 98 or Windows NT (workstation and server).

## What else is required?

### 1. Sensing Science Laboratory or Primary Software

(Version 1.09 or higher). This is a specific application that allows the data captured by EasySense Link to be passed immediately to a computer for display and analysis.

For details of how to operate the software, please refer to the software user guide.

### 2. Smart Q Sensors for capturing data.

Please visit our website ([www.data-harvest.co.uk](http://www.data-harvest.co.uk)) or contact our sales office for an up-to-date list of Smart Q Sensors.



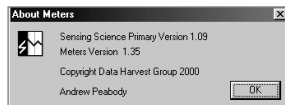
## Using *EasySense* Link for the first time

*EasySense* Link is used connected to the USB port on a computer running the Sensing Science software. The data from any *Smart Q* Sensors connected to *EasySense* Link will be transmitted immediately to the computer and displayed on the computer's screen.

### **Step 1:**

If Sensing Science (Laboratory or Primary) is not already on your computer, **install** the **Sensing Science software** (*EasySense* Link requires Version 1.09 or higher). Make sure *EasySense* Link is **not** connected to the USB port during this installation. For details of how to install and operate the Sensing Science program, please refer to the program's user manual.

**Note:** To check the version number of the Sensing Science program, open *Meters* and select *Help About* from the *Help* menu. If you have an earlier version, contact *Data Harvest* for upgrade information.



**Note for current Sensing Science Laboratory or Primary users:**

If you have an earlier version of *Sensing Science* on your computer, it is best removed (i.e. use *Add/Remove* programs in the *Control Panel* accessed via *Start/Settings*) before commencing installation of the new version.

### **Step 2:**

**Install** the *EasySense* Link **USB drivers**.

**Note for Windows 2000 and XP users:** You need to be logged on as administrator (or with equivalent access rights) to install the *EasySense* Link USB drivers.

1. Insert the Sensing Science Laboratory or Primary CD ROM into the CD Drive. Cancel the auto run program.
2. Connect *EasySense* Link to the computer using the USB cable supplied:
  - Connect the 'square' USB plug of the USB communication cable to the USB compatible input on the back of *EasySense* Link.
  - Connect the 'flat' USB plug to a USB port on your computer.
3. Windows will automatically detect that a new device has been connected and a Wizard will be generated to aid installation.

**Window 98 users:** Select 'Specify a location' and use the Browse button to browse for the *EasySense* Link driver folder on the Sensing Science CD ROM and click on OK. Next

**Windows 2000 and XP Users:** Select to install the software automatically.

**Windows XP users:** You may be warned that the drivers have not passed Logo signing, please 'continue anyway' at this point.
4. When installation is complete, eject the CD ROM and store safely.

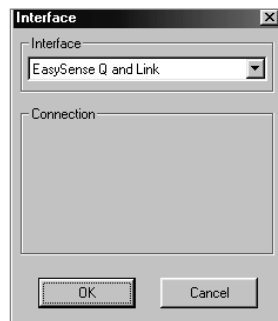
### **Step 3:**

Connect the *Smart Q* Sensors being used to the sensor inputs on *EasySense* Link. See page 5.

**Note:** If digital sensors are to be used for Timing operations they must be connected to the inputs labelled 1A and 2B.

#### Step 4:

Launch one of the Sensing Science logging programs i.e. Meters, Graph, Workroom or Timer. The first time one of the programs from Sensing Science is used an Interface option window will open. Select the Interface as **EasySense Q and Link**.



Click on OK. The program will save your selection so it will be automatically configured when next used.

The computer will automatically assume control and the connected sensors will be recognised and calibrated.

### Using **EasySense Link** after the initial set-up

- Connect **EasySense Link** to the computer using the USB cable.
- Connect the **Smart Q** Sensors being used to the sensor inputs.
- Launch the appropriate Sensing Science program e.g. Graph.
- The connected sensors will be automatically recognised and calibrated.

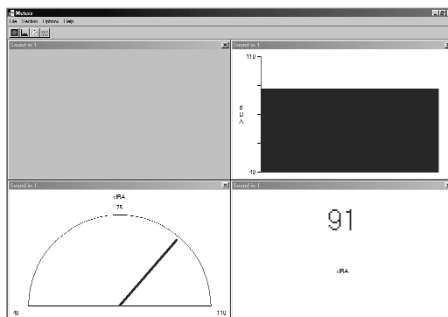
### The Sensing Science programs

For a full description of the Sensing Science software please refer to its Manual. Below is a brief outline of the applications available.



#### The Meters program

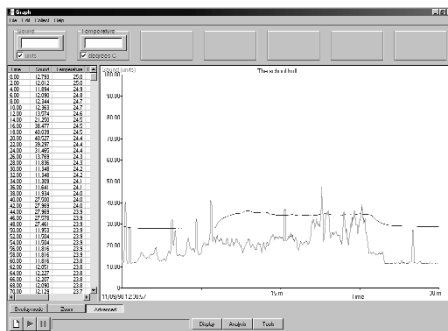
This application displays live data from **Smart Q** Sensors in four different ways. The four display modes are Gauge, Colour Change, Bar or Number. Designed to introduce students to the idea of sensing data and interpreting information.



#### The Graph program

This application is used for recording and graphing signals from **Smart Q** Sensors. There are facilities for analysing and displaying data in a variety of ways. Readings can be taken:

- Over a selected timespan.
- As individual readings in snapshot mode.
- By plotting one sensor against another as an X vs. Y graph.

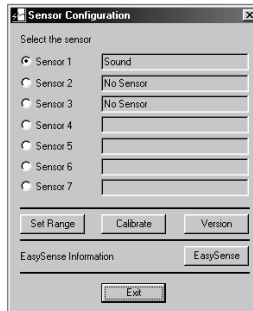


A feature of **EasySense Link** is its ability to capture very fast data in Graph using choice of trigger and pre-trigger conditions. The minimum inter-sample time available when recording from one sensor is 25 microseconds (40,000 per second).



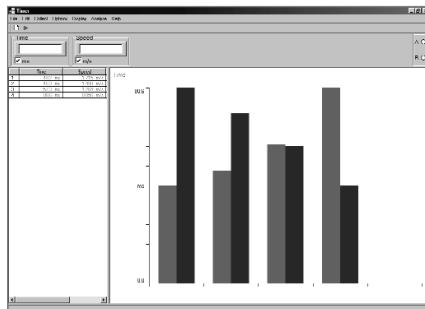
## Sensor Config

This application can be used to alter the range of those *Smart Q* sensors that have either multiple ranges or are capable of user calibration.



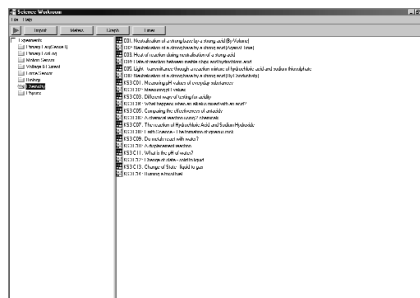
## Timer

This application is used to allow students to study Time, Velocity and Acceleration relationships using digital (switch-type) sensors. Digital sensors need to be connected to the inputs marked as either Input 1 A or Input 1 A and 2 B.



## Workroom

The purpose of this application is to allow the selection of experimental worksheets that are available to purchase separately.



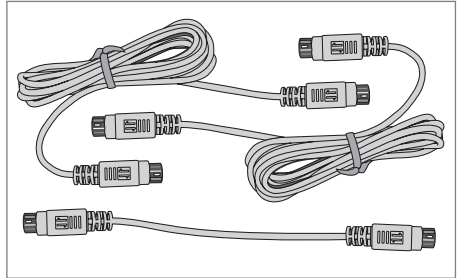
# Using Smart Q Sensors

## The Sensor leads

There are three sensors leads supplied with *EasySense Link*, two long and one short. These are used to connect *Smart Q* sensors to the inputs on *EasySense Link*.

**Note:** *Smart Q Sensors* are available to purchase separately and are not include in this pack.

If additional sensor cables are required, please contact our sales office for ordering details.



## Smart Q Sensors

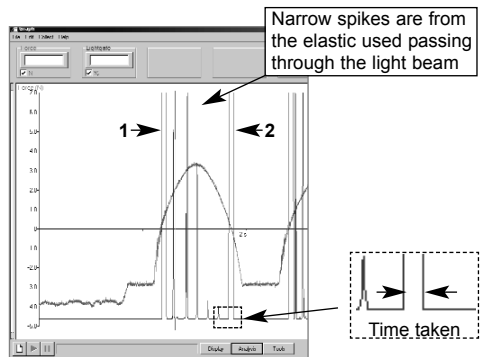
Data Harvest manufactures a wide range of *Smart Q* Sensors for use with the *EasySense* range. Each *Smart Q* Sensor incorporates a microprocessor that stores the calibration and auto-identification data. This dramatically simplifies set up procedures and allows for greater flexibility when logging data.

*Smart Q* Sensors can be divided into two main types:

1. Analogue Sensors, which can be connected to any of the three inputs on *EasySense Link*. They will measure physical changes such as light level, temperature and sound. This physical value is converted into an electrical signal, which is measured by *EasySense Link* and communicated to the computer. All *Smart Q* sensors are automatically calibrated but some have multiple ranges e.g. the Oxygen Sensor or are capable of user calibration e.g. the pH sensor.
2. Digital switch-type Sensors that are capable of measuring ON/OFF conditions. Typical digital sensors include light gates and timing mats. If used for Timing investigations e.g. time, velocity and acceleration relationships, these sensors need to be connected to either Input 1 A or Input 1 A and 2 B. If used for an analogue recording (i.e. using the Meters or Graph program), digital sensors can be connected to any of the three inputs on *EasySense Link*.

In the Graph or Meters program both analogue and digital sensors can be recorded side by side.

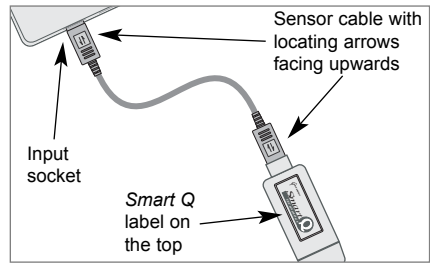
In this example a *Smart Q* Force Sensor and a Light Gate are used to investigate the relationship between impulse and change in momentum during a bungee jump. An interrupt card passes through the Light Gate (shown by the two broader columns) and the time taken is used to calculate the velocity of the jumper.



The housing for a *Smart Q* sensor is fitted with a mini DIN socket. The sensor leads supplied are used to connect a *Smart Q* Sensor to *EasySense Link*. For specific instructions see the information sheet that accompanies the Sensor.

For the majority of *Smart Q* Sensors:

- Hold the sensor housing with the *Smart Q* label showing in on the top.
- Push one end of the sensor cable into the socket on the sensor housing with the locating arrow on the cable facing upwards.
- Connect the other end of the cable to the input socket on *EasySense Link* (with the locating arrow facing upwards).



## Technical Information for *EasySense Link*

### Powering *EasySense Link*

*EasySense Link* is powered by the USB compatible port while connected to the computer.

#### Notes:

*EasySense Link* can only be connected directly to a computers USB port or by using a **powered** USB hub. It will not work with an unpowered hub (*EasySense Link* requires an output current of 500mA). An extension cable must be of a single direct port extension type.

### *EasySense Link's* memory

*EasySense Link* has a memory capacity of 128k. This memory is utilised for fast recording and pre-trigger data whilst in fast mode. *EasySense Link* is **not** capable of recording remote from the computer.

### Specifications

USB compatible communication V1.1.

12 bit sampling resolution.

Fastest sampling speed (per channel) 25µs.

Sensor Inputs: 3.

Dimensions (mm): 118 x 70 x 25.

Digital timing from A to B accurate to 8 microseconds.

### Care & Maintenance

Clean with a damp cloth, do not immerse in water or detergent.

*EasySense Link* is suitable for use in an operating range of 0 - 40°C and 0 to 95%RH (non-condensing).

Do not subject to extreme heat or cold or leave in a location where it will get wet.

*EasySense Link* is not waterproof.

There are no user serviceable parts inside *EasySense Link*.

### Trouble Shooting

Should *EasySense Link* fail to respond to the computer, reset by disconnecting and then re-connecting the USB cable.

If the product still fails to respond, please contact the Technical Support department at Data Harvest. Please provide details of:

- The computer platform it is being used with.
- The software version number.
- A description of the problem being encountered.

If possible, telephone from a location where you can operate *EasySense Link* with the computer.

## Warranty

*EasySense Link* is warranted to be free from defects in materials and workmanship for a period of 12 months from the date of purchase provided it has been used in accordance with any instructions, under normal laboratory conditions. This warranty does not apply if the *EasySense Link* has been damaged by accident or misuse.

In the event of a fault developing within the 12-month period, *EasySense Link* must be returned to Data Harvest for repair or replacement at no expense to the user other than postal charges.

**Note:** *Data Harvest products are designed for **educational** use and are not intended for use in industrial, medical or commercial applications.*

WEEE (**W**aste **E**lectrical and **E**lectronic **E**quipment) Legislation.

Data Harvest Group Limited are fully compliant with WEEE legislation and are pleased to provide a disposal service for any of our products when their life expires. Simply return them to us clearly identified as 'life expired' and we will dispose of them for you.