► # Timing mats
(set of two)

(Product No. 3255)

► # Large Timing
mats (set of two)

(Product No. 3256)

DATA HARVEST

Data Harvest Group Ltd.
1 Eden Court, Leighton Buzzard,
Beds, LU7 4FY
Tel: 01525 373666
Fax: 01525 851638
e-mail: sales@data-harvest.co.uk
www.data-harvest.co.uk

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Contents

Introduction

There are 2 sizes of Timing mats:

1. Stair tread sized mats - Product No. 3255, approximately 595 mm long by 170 mm wide and 3 mm thick.

2. Door mat sized large mats – Product No. 3256, approximately 720 mm long by 390 mm wide and 3 mm thick.

Timing mats are pressure sensitive switches designed to react to a person standing on the mat. They are digital switch-type sensors that have two states, ON and OFF. The mat is normally open (OFF) until someone stands on the mat when the switch is closed (ON).

The Timing mats are supplied as a pack of 2 and can be used singly or as a pair for timing and event monitoring.

Example:

- For time and speed investigations (connected to the inputs labelled A and B).
- To mark an event whilst logging (connected to any input).
- To trigger the start of a recording (connected to A, B or any input – it will depend on the trigger condition set).

Connecting

The Timing mats have female mini DIN sockets that connect to EasySense via a sensor cable (supplied with the EasySense unit).

If the mats are used for **Timing** operations and only one is used, it must be connected to input **A**. If two are used they should be connected to input **A** and **B**.

The EasySense unit will detect that a switch is connected and will either show as On/Off or as a percentage value, depending on the application used e.g. in Timing applications they will either be On or Off, in Graph and Meters they will be displayed as a percentage signal (under 6% when Off and over 90% when On).

Practical information

The switch element is made up from two foils separated by a sheet of non-conductive sponge-type material that is interspersed with holes. It is sealed into a welded PVC envelope and is normally open (OFF). When sufficient pressure is placed on the mat e.g. a child, the conductive surfaces (foils) are pushed together to make contact via the holes and the switch is closed (ON).

Non-conductive material interspersed with holes

Conductive foil

Inside the PVC envelope
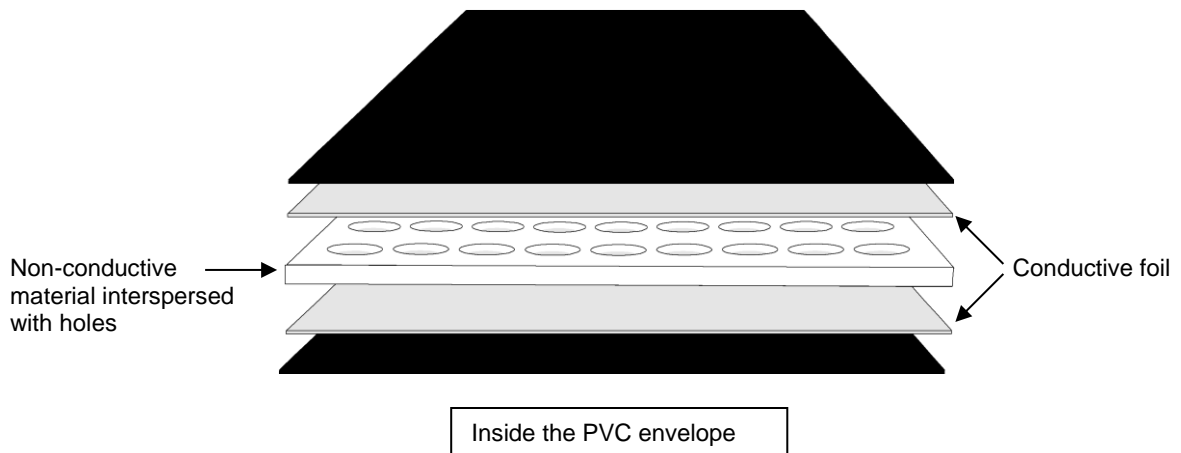
The Timing mats are designed for use on a flat even surface e.g. the floor. During use the Timing mat should be laid out and kept flat. The conductive foils must be protected from damage caused by the mat being distorted or pierced by sharp objects. If the surface under the mat is rough e.g. concrete, then protect by placing a smooth surface e.g. rubber mat under the Timing mat. The uppermost surface can be protected by covering the Mat with a conventional floor covering such as piece of carpet.

Note: The Timing mat is sensitive enough to detect a small child, but its sensitivity will decrease if thick floor covering is used so check for this effect before beginning an investigation.

The Timing mats have an operating temperature range of -5 to 45°C.

Maximum ratings: 25 V dc 250 mA.

Each mat is fitted with screened cable, which is approximately 2 meters in length. The total lead length will depend on which sensor lead is used to connect to the logger i.e. a long sensor lead is 1.5 m long = total length of 3.5 m.

A 1.5 metre Sensor extension lead, Product No. 3017, can be used to further extend the distance between the switches.

Male plug

Female socket
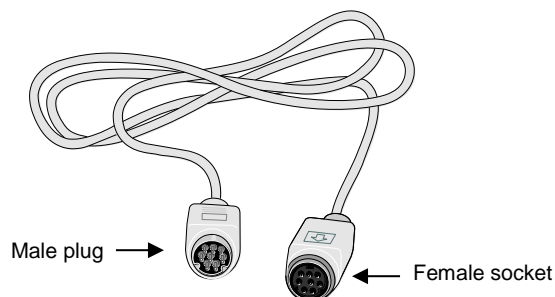
Investigations

- *Introducing pupils to the idea of the computer acting as a stopwatch, e.g. starting and stopping timing.*

- *If the distance between the mats is used, that speed can be calculated directly.*

- *Average speed.*

- *Speed when riding a bicycle (protect both under and over the top of the Timing mat).*

- *Using the Timing mats to record the differences in time taken to walk, run and hop over the same distance.*

Using Timing mats to time an event

Timing mats are most often used to record the time and/or speed that an object/person takes to travel from the switch connected at input A to the switch connected at input B. Timing will start when the signal at input A changes and stops when the signal at input B changes.

The calculation for velocity from A to B uses the distance measurement between the connected switches.

$$Velocity = \frac{Distance\ from\ A\ to\ B}{Time}$$

Although it is possible to record the time the switch connected to input A is ON (Time at A), measurements for Speed at A will not be valid (its calculation relies on the length of an object passing through a sensor).

Time and Speed/Velocity from A to B

- Connect one Timing mat to input A and the another to input B.

  Make sure the mat that will be stood on first is connected to input A and the mat stood on second is connected to input B.

- Open **Timing**. From the timing wizard select to measure either **Time** or **Speed/Velocity**, Next. Select **from A to B**. Next.

- If speed/velocity is selected enter the distance between the centres of the two Timing mats, Next.

- Select the number of decimals places and the units* and Finish.

  * Miles per hour (mph) is an available unit of speed (for comparison with current speed limits).
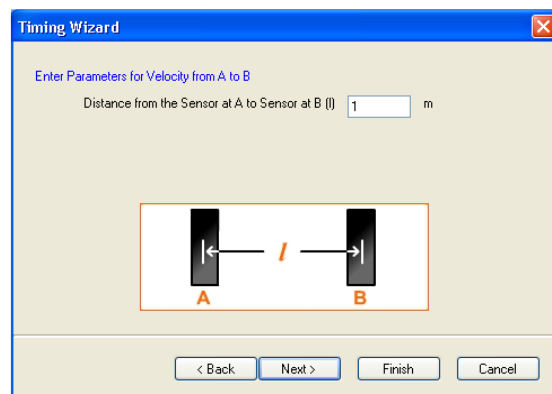
- When ready to start taking measurements click on the **Start** icon.

  It will time from when mat A is ON until mat B is ON and the measurement will automatically be entered into a bar chart.

Limited warranty

For information about the terms of the product warranty, see the Data Harvest website at:
https://data-harvest.co.uk/warranty

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 Ltd is fully compliant with WEEE legislation and is 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.