**Object of the experiment**
1. Record the oscillation of a string pendulum as a graph of distance against time.
2. Determine the amplitude and period of oscillation for a string pendulum.

**Setup**
- Configure the following settings in the “Measurement parameters” window. Time for measurement: 10 s
- Afterwards, close all windows to apply the settings.

**Apparatus**
1. Slotted mass hanger, 50 g, large………………….315 450
2. Slotted weight, 500 g……………………………315 460
3. Fishing line…………………………………….309 48ET2
4. Sensor-CASSY 2……………………………………..524 013
5. CASSY-Lab 2……………………………………..524 220
6. Ultrasonic motion sensor S………………………….524 070
7. Bench clamps……………………………………..301 06
8. Stand rods, 150 cm, 12 mm diam.……………...300 46
9. Stand rod, 100 cm, 12 mm diam.………………...300 44
10. Leybold multiclamps………………………………301 01

**Procedure**
- Position the ultrasonic motion sensor S about 40 cm from the string pendulum and align it to the height of the pendulum bob.
- Deflect the string pendulum.
- Start measuring by pressing the F9 key.
- Observe the curve on the screen.
- Determine the amplitude \(s_A\) and period of oscillation \(T\) of the string pendulum from the curve.

**Measuring example**

**Evaluation**
Oscillation refers to motion of a body which repeats periodically over time and passes back and forth across the equilibrium position of the body.

The relationship between distance and time is described by a sine function.

The time for one complete motion back and forth across the equilibrium position is called the period.

The distance between the equilibrium position and the points where the motion reverses is called the amplitude.

The period of oscillation \(T\) of a body indicates how long a swinging body takes to complete one oscillation.

In the example experiment, the amplitude of the string pendulum \(s_A = 0.037\) m and the period of oscillation \(T = 2.10\) s.

Note:
In order to demonstrate that the relationship between distance and time is described by a sine function, a “free fit” function can be carried out in CASSY-Lab.