

## Watt's governor (centrifugal regulator) 1009695

### Instruction sheet

09/15 ALF



- 1 Axle
- 2 Movable cylinder
- 3 Lever arm
- 4 Coil spring
- 5 Flyweight arms with counterweights

### 1. Safety instructions

Danger of injury owing to the action of large centrifugal forces. Therefore:

- Before starting the experiment, check whether the counterweights are attached firmly to the flyweight arms.
- Insert the axle deep into the chuck of the experiment motor and clamp it tight.
- Always maintain a safe distance.
- Gradually increase the angular velocity.
- Do not touch or try to hold the rotating body.
- Before dismantling, disconnect the equipment from the mains power supply.

Long hair, loose clothing as well as jewelry could get caught in the rotating parts and result in injury.

- To avoid this hazard, persons with long hair should wear a hair net.
- Inappropriate clothing or jewelry should be removed.

### 2. Description

Watt's governor is used to demonstrate centrifugal force and the principle of centrifugal speed control, for instance in steam engines.

Two flyweight arms are centrally fitted onto an axle. The arms are held in a state of rest by a coil spring. When the axle rotates, the weights work their way upwards to a degree dependent on the speed. This movement has technical applications for control and regulatory tasks (centrifugal regulator).

### 3. Technical data

Maximum diameter:	350 mm
Height:	250 mm
Axle diameter:	10 mm
Weight:	0.4 kg approx.

#### 4. Experiment procedure

In order to conduct the experiment, the following apparatus is additionally required:

1 Experiment motor with transmission 1002663

1 DC power supply 0–20 V @230 V 1003312

or

1 DC power supply 0–20 V @115 V 1003311

1 Stand base: 1002836

Experiment leads

- Set up the experiment motor on a stand base.
- Insert the axle of the Watt governor deep into the chuck of the experiment motor and clamp it tight.
- Connect the experiment motor to a power supply.
- Initially set the output voltage to 0 and then turn on the power.
- To increase the speed, gradually increase the output voltage and observe how Watt's governor changes its angle.

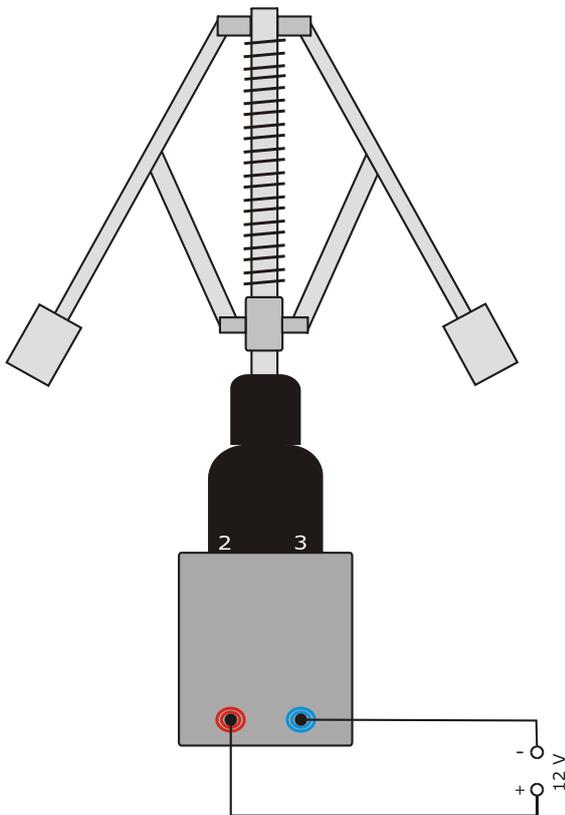


Fig. 1: Experiment set-up for Watt's governor