ACTUATOR SET 062

User's Guide

Figure 1. The Actuator set

CENTRE FOR MICROCOMPUTER APPLICATIONS

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Short description

The Actuator set can be used to introduce the students to the basics of control technology. The set consists of the following elements:

- lamp holder (for 3 bulbs)
- direct current motor (2-bit) with a removable propeller (max. 12 V)
- buzzer (max. 12 V)
- push-button
- 3 colored bulbs (max. 12 V)
- 3 black and 3 red 4-mm wires.

All elements make use of 4-mm sockets.

Actuators (motor, buzzer and lamps) can be connected to the control outputs of the CoachLab I, CoachLab II and CoachLab II$^+$ interfaces. The push button can be used as a digital sensor and can be connected to the inputs of the interface. For BT inputs the CMA adapter (art. Nr 0519)[1] should be used.

Using the Actuator set with the CoachLab I interface

The digital outputs of the CoachLab I interface (art. Nr 005) can be set to two controllable states On and Off. For 2-bits motors two digital outputs are used.
For using digital outputs of the CoachLab I interface it is necessary to use the external power supply (art. Nr 0865). If an output of CoachLab I is switched on in the Coach program, this output has the voltage equal to the voltage which is set on the external mains adapter.

Using the Actuator set with the CoachLab II or CoachLab II$^+$ interfaces

The output channels of the CoachLab II (art. Nr 006) and CoachLab II$^+$ (art. Nr 006p) interfaces are provided with push-pull drivers and can each be set to 4 controllable states. The output LEDs indicate the states of the output by means of different colors (e.g. Off, Green, Orange, Red).
The output channels can be set to 16 different power levels. By using a so-called duty-cycle, power is reduced by switching the 12V on and off periodically at a rate of 625Hz (see also the CoachLab II/ II$^+$ User's Manual).
The maximum power level for an actuator is adjusted in the Coach software. The duty cycle functions only with an icon on the panel, so if an output of CoachLab II with an actuator icon is switched on, this output has the voltage equal to the maximum voltage defined in the actuator properties.

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[1] The CMA adapter (art. nr 0519) allows connecting sensors with 4mm plugs to BT inputs.

The power slider on the actuator icon should be used to lower the output power for the connected actuator e.g. to adjust the speed of a motor or the brightness of a bulb.

Note: The outputs of CoachLab II and CoachLab II$^+$ do not have any power when no actuator icon is connected to them.

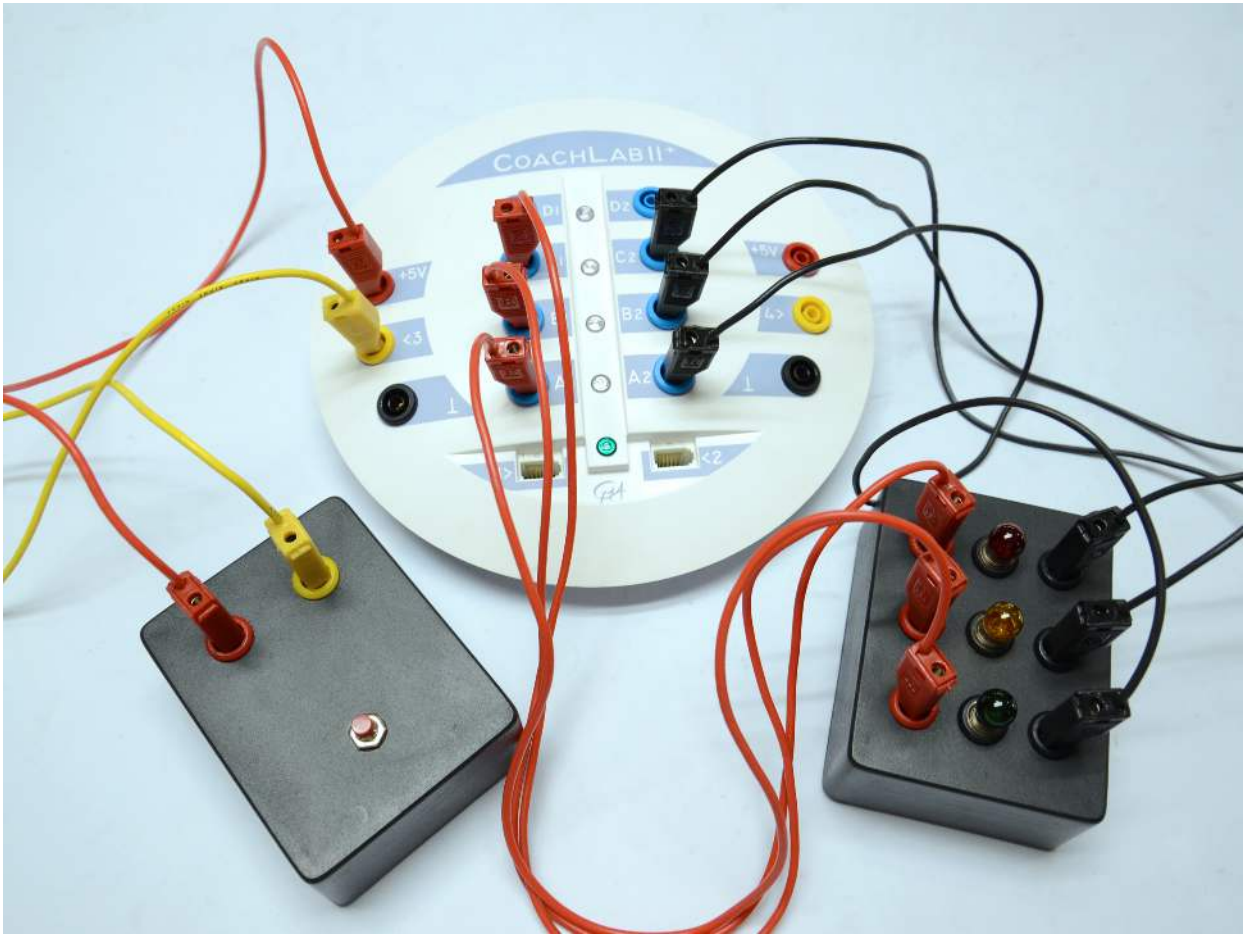

Figure 2. Programming 3 lamps with the CoachLab II interface; the push button is used as a digital sensor and is connected directly to input 3 of the CoachLab II interface.

Technical specifications

Lamp (12V)	1-bit actuator which can be set in 2 states On and Off. 3 colored (red, green and orange) are included.
Buzzer (12V)	1-bit actuator which can be set in 2 states On and Off. The buzzer does not function when it is connected in reverse. It does not harm the buzzer however.
Motor (12V)	2-bit actuator which can be set in 4 states for example: Off, Turn Right, Turn Left and Off. A removable propeller is included.
Push button	Digital sensor with two positions On and Off.

Warranty:

The 062 Actuator Set is warranted to be free from defects in materials and workmanship for a period of 12 months from the date of purchase provided that it has been used under normal laboratory conditions. This warranty does not apply if the sensor has been damaged by accident or misuse.

Note: *This product is to be used for educational purposes only. It is not appropriate for industrial, medical, research, or commercial applications.*
