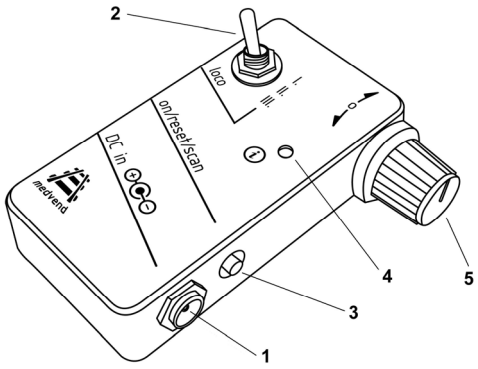
ADU-3/A Universal speed controller for analog and digital (DCC standard) locomotives

(for Z, N, TT and H0 scale)



Just plug and play – no complicated programming required. The controller is ready to use following a few simple auto-programming steps. The auto-programmed operation modes and values are stored even when the controller is switched off. Simple enough for a child to use. You can run up to three locomotives*, all fitted with DCC decoders, or two fitted with DCC decoders and one without**. Locomotives can be selected by a three-position switch.

Instructions for use:

1. First steps

Tie wires to the track, and connect the adapter's plug to the controller (1). Plug the AC-DC adapter into the wall outlet.

2. First-time use – auto-programming:

2.1 Place a locomotive on your layout. Make sure there are no other locomotives on the track (otherwise they will all be programmed with the same settings). Other loads on the track (lamps, capacitors etc.) may also cause errors in the auto-programming process.

2.2 Set the locomotive selector switch (2) to the desired position. After programming is completed, the locomotive on the layout can be controlled with the switch in this position.

2.3 Press and hold the **on/reset/scan** button (3) to switch on the controller. The unit turns on and the indicator LED (4) starts to flash slowly.

2.4 After about 10 seconds the indicator LED (4) stops flashing and stays lit. Release the button. The controller enters the auto-programming mode. This mode takes about 10 seconds, and the LED (4) begins flashing again. During auto-programming the locomotive on the track may move. When the auto-programming mode has finished, the controller returns to the normal (control) mode. There are two modes of control, depending on the locomotive. If the indicator LED (4) turns on and stays lit, it means the controller is working in analog (PWM) mode. If the indicator LED (4) starts to flash rapidly, it means the controller is working in digital (DCC) mode. Now you can control the locomotive using the speed control knob (5) (see Step 3 below).

Repeat steps 2.1 through 2.4 with the second and the third locomotive, with the switch set to the other two positions. Do not assign more than one locomotive to the same switch position. You can reprogram the controller at any time. The programmed modes remain stored even when the controller is switched off.

3. How to run the locomotives

Place the locomotives on your layout. Turn on the speed controller by pressing the **on/reset/scan** (3) button. The unit switches on; the LED (4) comes on. Select the desired locomotive with the locomotive selector switch (2). The indicator LED (4) lights continuously or starts to flash rapidly, depending on the mode programmed earlier. You can now control the selected locomotive using the speed control knob (5). With the switch in the center position, the locomotive will stop. Turn the knob clockwise to start and accelerate in one direction, or counter-clockwise for operation in the other direction. If your locomotive decoder can control its headlights, they will also switch on and off depending on the direction. If you want to operate another locomotive, select another locomotive by using the selector switch (2). If you did not stop the locomotive selected previously, it will come to a stop when the switch is activated. The new locomotive selected will not start automatically even if the speed control knob (5) is not in the center position. To activate the control, first return it to the center position. Emergency stop: push the **on/reset/scan** (3) button to stop the train immediately. Note: if you press and hold the **on/reset/scan** button for more than 10 seconds in the control mode, the controller switches to the auto programming mode.

4. Troubleshooting

A common problem with all analog and DCC systems is the locomotive's pickup. Keep the wheels and track surfaces clean. Intermittent and jerky operation is often caused by an oxide coating forming on the track or the wheels. If you have problems, always check the track and wheels first and make sure they are clean.

The speed controller switches off, or does not switch on

- no input power – check adapter or adapter plug
- there is a short circuit on your layout (e.g. derailment) or in the wiring. Check for a short circuit; after correcting it, press the **on/reset/scan** (3) button to switch the unit on again.
- there is a continuous overload. Extreme power consumption of locomotives (dirty bearings or axles – clean them).
- if the controller receives no input and senses no power consumption for approx. 3 minutes, it will switch off

False recognition or programming in auto programming mode

- there are other loads on your layout (e.g. other locomotive, or lamps, etc.); remove them and try again
- re-program the locomotive with another programming method. See section 2 – when you reach step 2.4, press and hold the **on/reset/scan** (3) button for more than 16 seconds, until the indicator LED starts to flash again. (This is seldom necessary.)

Several locomotives running together in normal mode

- there should only be one analog locomotive on the layout
- re-program the digital locomotives at different "loco" switch positions and make sure there is only one locomotive on the layout during the auto-programming process

5. Technical features

Digital control: DCC standard. The controller may change some configuration variables of the DCC decoder in auto-programming mode.
Analog control: Pulse width modulation (PWM)
Input voltage: must be 6-16V DC. Connector type: 5.5/2.1 with negative polarity on the inside contact of plug.
Output load: continuous 1000mA, short time impulse 1500mA The device is protected against short circuit and thermal overload.
DC adapter: 9V 1000mA for Z scale, 12V 1000mA for N, TT, (H0*) scale.

Attention: short circuit between power input and outputs (track) may damage the controller!

*** only one locomotive may run at any one time (to operate more than one locomotive, use the DU-3/A controller).**

**** If an analog locomotive is placed on the track when using the DCC mode, the locomotive will make a humming sound, and will consume power even while stopped. Some locomotive manufacturers advise against using their analog locomotives on DCC tracks.**

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