

# MEDVEND

This is a preliminary brief description for AN1- PIC-AB. ABZ and ABL model train controllers.

## Some important hints on using controllers:

- Running locomotives at a voltage significantly higher than their nominal value may result in over heating or even permanent damage. It is therefore very important to select the correct power supply and ensure it is configured properly. The recommended regulated adapter DC output voltages are: 4.5V for low voltage locos, 9V for Z scale, 12V for N scale, 12V-14V for TT scale, 14V-16V for HO scale, but first, always follow the manufacturer's recommendation. It is strongly recommended that you only use a regulated adapter. At lower loads, the output voltage of unregulated adapters can be much higher than their nominal voltage. When an adapter is used for the first time, check the temperature of the engines more frequently. When using an unregulated variable output adapter, set the output voltage to 3V for low voltage locomotives, 7.5V for Z scale, 9V for Nor TT scale, and 12V for HO (TT) scale.
- There are two very similar sized connectors found on different types of wall adapters: 5.5/2.1mm and 5.5/2.5mm. The right connector for "Medvend" controllers is the 5.5/2.1mm. The other one also can be plugged in, but it is the wrong size and the electrical contact could be uncertain.
- Right polarity of the connector: **center negative**. Reversed polarity connection cannot damage the controller.
- Do not use an adaptor that is less powerful than needed, because the adapter may burn out.
- Do not use an adaptor that is more powerful than needed, because extremely high short-circuit currents may cause problems.
- Do not leave running trains unattended. Always switch off or unplug the wall adapter from the outlet after use.
- To save battery life, when you stop the locomotive for a long time always turn the direction switch to central position. (only for version ABZ and ABL).
- Please take care when disconnecting the 9V battery) to avoid breaking the snap-on connector or tearing off the wires. (for version ABZ) A screwdriver or other tool can be used to separate the connector from the battery terminals if required.
- Avoid touching both the positive and negative battery terminals at the same time, if using a metal tool, as this will create a short circuit and sparking if the battery is still holding a charge.
- The ABL version controller is working with 3 pcs of AAA type battery. Be careful when replacing the batteries because the battery holder may move. Voltages higher than 7 volts can damage the controller (only for version ABL)

## 1. Manual control

### 1.1 Basic manual mode

Works like traditional controllers: select direction) with the toggle switch, clockwise turn of speed control knob will start and accelerate. counterclockwise turn will slow down and stop the locomotive. There is an added, unique, automatic feature of this mode. If the speed control knob is not in zero setting when the directional switch is moved to forward or backward position, the locomotive will gradually accelerate until reaching the corresponding speed. Turning the speed control knob during automatic acceleration will move the controller back to basic manual mode.

### 1.2 Realistic manual mode

The directional switch must be in off (center) position. Press and hold the "start/stop" pushbutton while selecting the direction. then release it. Turn the speed control knob clockwise to start and accelerate, counterclockwise to slow down and stop. In this mode the locomotive will react to speed changes with a delay, just like the real thing. Fine, gradual acceleration and delayed deceleration. replicating the "momentum" of big, heavy trains. To exit from realistic manual mode, move the directional switch to off (center) position.

## 2. Automatic start /stop modes

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There are three levels of automatic start/stop modes, dynamic, standard and slow. The differences are in the intensity of acceleration and braking. The tune of acceleration or braking is approximately 6 seconds in dynamic, 9 seconds in standard and 14 seconds in slow modes.

There are two ways to switch from manual to automatic start/stop modes.

**2.1 If the train is in motion**, press the "start/stop " push button. The train begins to gradually slow down, then stops. Press the pushbutton again (see intensity setup instructions in paragraph 2.3.), the train starts to gradually accelerate until it reaches the preset speed. When the pushbutton is pressed again, the train will enter into the braking phase, even if the preset speed has not been reached.

**2.2 If the train is stopped** (the speed control knob is in zero position) move the directional switch to forward or backward position, press and hold the "start/stop" pushbutton while setting the desired speed with the speed control knob, then release the push button. Press the pushbutton again (see intensity setup instructions in paragraph 2.3.). the train starts to gradually accelerate until it reaches the preset speed.

**2.3 To achieve the desired acceleration/braking intensity, follow the instructions below.**

- Dynamic mode: press the "start/stop" pushbutton for less than one second.
- Standard mode: press the "start/stop" pushbutton for approximately two seconds until the LED indicator light turns on, then immediately releases the pushbutton.
- Slow mode: press the "start/stop" pushbutton for more than three seconds and release it after the LED indicator light turns off.
- To exit any of the automatic start/stop modes turn the speed control away from the current position or move the directional switch to off (center) position.

## 3. LED indicator light signals

- Slow flashing light (1 second OFF between flashes); the controller is in manual mode.
- Rapid flashing light (short, 0.3 second OFF between flashes): the controller is in start/stop mode, train is in motion.
- Double flashing light (1 second OFF between two rapid flashes) waiting for start in start/s top mode.
- LED is constantly on – error.

## 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.**

4.1 The locomotive suddenly stops and then starts again with gradual acceleration.

Uncertain contact at the DC socket. This can be caused by using a wrong type or adapter plug. If you are certain that you are using the correct adapter plug, then the problem could be that the center tip has been accidentally bent and the two halves are touching when they should be slightly apart to make correct contact. The remedy would be to carefully prying them apart, with a small screwdriver, to the correct alignment.

4.2 The locomotive does not move and ...

- the indicator LED (3) is not lit
  - no input power - check adapter or adapter plug (or low battery in type ABZ and ABL)
- the indicator LED (3) is flashing (see 3.)
  - contact fault on the track or at the loco motive's pickup.
  - low battery in type ABZ and ABL
- the indicator LED (3) is continuously on.
  - there is a continuous overload. After the overload is, resolved and the device has cooled off, the unit will switch on again.