

1. Main Features

- § Non contact trigger.
- § Minimal maintenance.
- § Microcontroller- based PWM control.
- § New braking behavior and high acceleration.
- § Adjustable brake sensitivity and choke.
- § Suitable for all motors within the current rating.
- § No relevant heat.
- § Minimal loss of energy.
- § Shielded against most failure situations.
- § For positive or negative Tracks.
- § Light weight.
- § Fulfills the EU Requirements WEEE /CE



2. General

The **ACD pro** is a microcontroller based slot car racing controller. The current flow to the car is controlled as a Pulse Width Modulated current (PWM). The **ACD pro** uses no mechanical switching parts in the main current path. The peak current can be handled without wasting a lot of energy. As a result: The **ACD pro** needs no heat sink and is very light.

The **ACD pro** replaces any resistance based controller and is suitable for nearly any motor within the current rating.

This state of the art technique is very reliable and produces excellent and very well controlled acceleration and braking of the slot car.

The contact less trigger makes the **ACD pro** very reliable and maintenance free. This feature is unique on the car racing controller market.

The main parameter can be adjusted via the brake, sensitivity and the choke potentiometer. The racer gains better and effective control of the slot car. The **ACD pro** has a balanced protection system to protect against over current and wrong connection! Please read the precautions at the end of this Manual.

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3. Technical Data

Working voltage: ACD pro3 (7 to 27V) ACD pro5 & ACD pro10 (7 to 22V)
Cont. Current: 3A 5A 10A
Max. Pulse current: 8A 12A 30A **

Fuses: ACD pro 3 / internal electronic fuse.
ACD pro 5/10 FKS fuse

Display: green LED indicating that the current source is
connected.
red LED flashes if a failure is detected.

Connector: German version for positive tracks

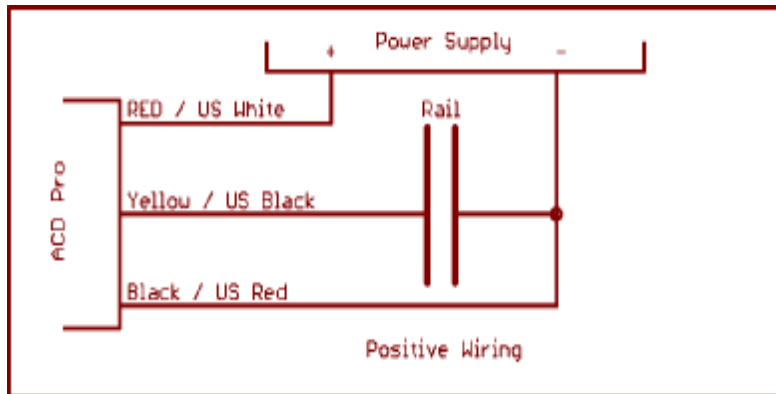
red + wire (Power) corresponds to white in the US
black - wire (Break) corresponds to red in the US
yellow Motor (Wiper) corresponds to black in the US

Knobs: break (Red cap)
chock (without a cap)
sensitivity (Gray or black cap)

Switches: switch for positive or negative wiring
switch to change the trigger characteristic

** This current is the maximum starting current of the motor. Please do not exceed this value. If you do so, the ACD pro will switch off or will reduce the output current for a short period.

3.1. Wiring Plan



3.2. Polarity Switch

Most versions of the **ACD pro** have a polarity switch. This switch will be found near the LEDs. For changing the polarity the **ACD pro** must be switched off first. Switch the polarity to the desired position then reconnect the **ACD pro** according to the new polarity.

Switch to the LED direction --> positive (default)

Switch to the trigger direction --> negative

If the polarity switch is changed while the **ACD pro** is on, nothing changes immediately. However when the **ACD pro** is switched off and then on again it will assume the new polarity

Attention!

If the **ACD pro** is connected to a track with the wrong polarity then the car may start directly with full speed immediately after connecting the **ACD pro** .

If the **ACD pro** is switched to negative polarity, the red and the black wires must be exchanged. This means that the red wire must be connected to the black connector of the track and the black wire must be connected to the red connector of the track.

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The colored wires of the ACD pro are coded for positive polarity by default. To avoid damages please always be sure to connect the ACD pro according to the correct polarity.

3.3. Trigger Characteristic Switch

This switch can be found behind the trigger itself. There are 2 trigger characteristics - progressive and smooth. The racer can choose the one he prefers. The default value is the progressive position.

Switch to upper direction --> **progressive**
Switch to the down direction --> **smooth**

3.4. Failure Situations and LED Display

In the most wrong connecting situations of the **ACD pro**, one of the fuses will blow. This is because the **ACD pro** has a very low internal resistance. (In order to minimize internal losses.)

If the + and - wires are reversed, the **ACD pro** will appear to the power supply as a short circuit. If the power supply is strong, one of the fuses will immediately blow. If the power supply has a current limiting characteristic within the fuse rating then the current through the **ACD pro** will be the limited current. This situation should be short and not longer than a few seconds. Otherwise the **ACD pro** may be damaged. In some cases the power supply will interrupt the excessive current.

The **green LED** displays that the microcontroller is running. In some cases, this is true even if the **ACD pro** is not completely connected. This LED indicates also the over voltage mode.

The **red LED** is normally off. This LED will flash if the microcontroller detects a failure. In this case the output current will be switched off immediately. In some cases the flashing will start immediately while connecting the **ACD pro**. This indicates a wrong connection.

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If the green LED goes off while the red LED is flashing then the ACD pro is not completely connected or the working voltage is too high. The ACD pro goes to the over voltage protection mode.

If the red LED flashes, please release the trigger to the stop position. Otherwise the flashing will stay as long as the trigger is not released.

4. Precautions

Use adapter plugs with fixed polarity instead of the separate wires. This will prevent wrong connections. For flexibility the ACD pro is delivered with separate wires.

Never use more rated fuses than the technical data for your ACD pro model.

The green LED will go on even if the ACD pro is not completely connected. This LED is not the final indicator for the correct connection. This is a display for the correct microcontroller operation.

If the ACD pro detects a failure the red LED will flash. The output current will be switched off. Please release the trigger to reset the failure display.

Please connect the ACD pro always to rails with the correct polarity. If your ACD pro has a polarity switch, please be sure to switch the ACD pro to the correct polarity prior to connecting it to the rail.

Never use the ACD pro without connecting the brake wire. If you do so the ACD pro will detect an internal over voltage situation (green LED off/red LED flashes)

The higher acceleration and deceleration values will cause a better racing performance. As a result the slot car needs more service to be able to give out this performance.

Never connect condenser for absorbing the motor distortion near the ACD pro connection. These condensers should be connected far away within the rail or within the slot car.

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5. Legal Warnings

This Product is not for use by children under 12 years old. All products manufactured by IBY are electric-powered high-speed controllers, intended for use on certain home-racing sets as clearly defined on catalogue or at clubs or professional raceways by competent hobbyists.

Follow all recommendations stated on the website and any printed material supplied by IBY with the product for best results. IBY, its agents, dealers and personnel make no representations as of the actual performance of the product.

The use of any parts of any manufactured products by IBY may cause injury or death, even if used as intended. Sharp edges on plastic or metal parts may cause injury or death if such parts are swallowed, used as a weapon or if the user is accidentally maimed by any and all such parts or involved in an electrocution from support systems necessary to run this product.

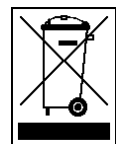
The IBY, its agents and dealers, are in no case responsible in any way for any damage, physical or mental, caused by the use of any part of its product, or the use of any tool, implements, jigs, fixtures either sold or recommended by IBY, or any other tool, jig, fixture devised by the user.

In case of dispute or claim, the resolution of such will be performed at the expense of the claimant for both parties until a decision will be reached by the sole jurisdiction of the German Court in Erkelenz, Germany, under its arbitration program.

The purchase of any product manufactured or sold by IBY, its agents and / or employees implies full acceptance of the statements posted above.

5.1. Please note

The ACD pro family is built according to the EU regulations. Please do not dispose of the ACD pro via normal waste. Please send the ACD pro to us or make sure to dispose of it according to the regulation in your country.



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Do not pull the connectors of the **ACD pro** via the cables. This will damage the cables and may cause damage to the **ACD pro**. The cables can not withstand such treatment.

In general the manufacturer will not guarantee against any damage to the cable.

The **ACD pro** is a maintenance free device. Please do not open the case. If you do so, then you will lose the guarantee.

If you have questions or problems, please contact us by email or fax prior to sending your **ACD pro** to us. We don't accept any unknown parcel.