

# **HAMMER M**

USER  
guide



***Avant Slot***  
Future starts now

# Avant Slot

Future starts now

## THE HAND CONTROLLER

- Voltmeter to show the power supply voltage
- Higher brake than Hammer XL
- Double polarity
- Automatic brake system when hand controller is powered off.
- Power curve adjusted with 2 points (this will allow 100.000 different behaviours of the unit if it is considered the 10 brake levels.
- Anti-spin System
- Adaptive Brake System
- Transparent covers smaller, shorter and smaller trigger, softer spring to minimize the user tiredness.
- Magnetic trigger to eliminate wear and friction.
- Interchangeable spring with two possible positions to get different strains.
- The trigger supports any kind of springs (even the softer ones) thanks to absence of friction.
- No wires, nuts and screws which could break or lose causing breakdowns.
- Crystal quartz stronger blow-resistant.
- Bigger heat sink screwed to the printed board to prevent vibrations and breakdowns.
- Overload, voltage drop in power supply, short circuits on track and wrong connection using bananas detection.
- Automatic disconnection due to overcharge or short circuit.
- All scale motor cars and tracks compatible (1/43,1/32,1/24...)
- Tuning up motors mode.
- XLR plug with sure shutter to avoid incorrect connections and involuntary disconnection.
- Wrong connection indication (when using other adaptors)
- Low heat dissipation.
- Connection indicator.
- Extremely flexible silicone wire.
- Automatic store of brake and curve parameters when disconnecting the unit.
- Voltage range: 8v-24v

**WARNING:** CONNECT THIS UNIT ONLY TO AVANT SLOT POWER SUPPLIES OR TO OTHER ONES WITH XLR PLUG. ANYWAY, THE XLR PLUG PINOUT POLARITY OF THE CONTROLLER MUST VERIFY THE SCHEMA:



+ to track  
+ power supply  
- común

*Thanks for trusting in Avant Slot products and congratulations for acquiring the "Hammer" electronic controller. The unit you have acquired IS NOT A TOY. It is a technical product which must receive the appropriated care and use, and it must not be used by children under 14 years old. To guarantee its operation, an ideal yield and the safety of this unit, we request you read the instructions of use before starting it up for the first time.*



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Made in Spain, this item could contains  
foreigners pieces.

## WAY OF USE

User will be able to modify all parameters of the unit and their different modes pressing lateral buttons.

### General Information

#### 6 Adjustment buttons:

The 3 right side buttons increase the value showed in the display, and the 3 left side ones decrease it. The two buttons closer to the front part of the unit set the brake parameter; the two ones closer to the multicolour LED set the X parameters and the two central buttons the Y parameters of the two points of the power curve.



#### 7 segment display:

After pressing any button it will firstly indicate the mode of working of the hand controller ("-" normal mode, "n" tuning up mode) and, later, the value of the parameter associated with that button. A moment later, the unit will pass to the ecological mode (mode "ECO") and the display will turn off.

#### Multicolour led:

- Red: it indicates that brake is being adjusted.
- Green: it indicates that the Y parameter is being adjusted.
- Orange: it indicates that the X parameter is being adjusted.

Typically, when connecting the controller to the power supply, this led will light with a green colour and the display will show "-" or "n" and all values, before changing to the "ECO" mode.

### Right way of connecting and disconnecting the controller

The right way of connecting the controller to the power supply is the next one:

- 1.- Switch on the power supply.
- 2.- Adjust the power supply to 8v or more (up to 24V).
- 3.- Connect the hand controller to the power supply.

The right way of disconnecting the controller to the power supply is the next one:

- 1.- Disconnect the hand controller from the power supply.
- 2.- Switch off the power supply.

#### Power curve setting:

The Hammer M follows the same idea of its predecessor Hammer XL, but now, instead of adjusting only one point, two points are necessary: PO and PI. In this way, the curve can be separated in two zones: low zone and high zone.

Giving values to these two points you can fit better the way of managing the power along these two zones. Anyway, you will not have to be worried about PO is higher than PI thanks to the controller performs all the necessary calculations to prevent this problem.

So, Avant Slot advises to follow this next procedure to adjust the curve:

1st Set the low zone.

2nd Set the high zone.

#### Low Zone Setting mode:

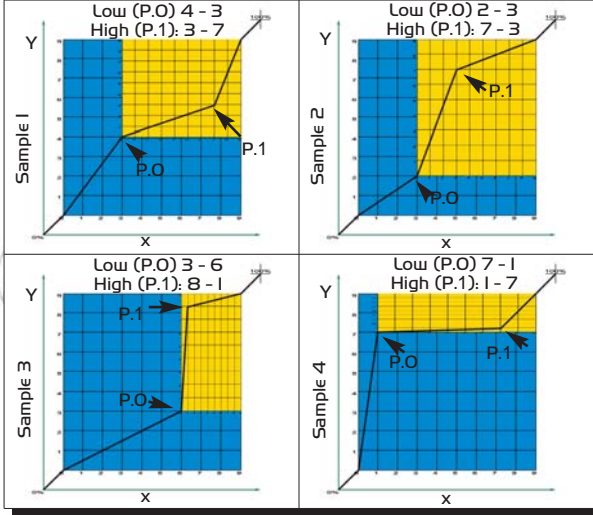
1.- Push, for a little bit more than one second, any of the nearest buttons to the multicolour LED. The display will show the letter 'P' indicating that controller is in the Low Zone Setting mode. WARNING: While the display is ON, this mode will be the active mode. When the display switches OFF (around 10 seconds later) this mode will be deactivated. Anyway, you can return to the normal mode pushing, again, any of the nearest buttons to the multicolour LED for a little bit more than one second.

2.- Push the X and Y buttons to set the Po coordinates.

### High Zone Setting mode:

This is the default setting mode. It is necessary to push no more than one button simultaneously; only press the X and Y buttons to set the PI coordinates.

So, high values for X, perform a more gradual start and high values for Y, a more explosive behaviour.



### Brake setting:

Push the brake buttons (the ones closer to the front part of the controller) to change the brake level (from 0 to 9) while the "High Zone" or "Low Zone" mode is ON. While this is done, the multicolour LED of the unit will take a red colour to indicate us that the brake level is being adjusted.

### Modes

The controller has several modes which will be described below.

#### "Normal or safe" mode

This is the default mode of the unit. When unit is in this mode it will show the "N" symbol in the display (view message I in the "Display messages table" (section 4)).

It is strongly recommended to use this mode with other plugs different to XLR provided by manufacturer. In this way, the unit will be able to detect wrong connections alerting to user with the 7th message in the display (view 4th section).

**WARNING:** Do NOT FORGET TO PLACE THE CAR ON THE TRACK BEFORE CONNECTING THE HAMMER TO YOUR SYSTEM IF YOUR CONTROLLER IS IN "SAFE MODE", OTHERWISE, THE DISPLAY WILL SHOW THREE HORIZONTAL LINES AND THE CONTROLLER WILL NOT POWER THE TRACK UNTIL YOU SWITCH IT OFF, PLACE THE CAR ON THE TRACK.

#### "Not safe" mode

It is suggested to use this mode when using the XLR plug and you are really sure about the right connectivity between the hand controller and the power supply (in normal use or in competition).

To activate this mode, follow next steps:

- 1.- Be sure that hand controller is in "safe" mode pressing a button and checking that the symbol "N" appears in the display.
- 2.- Unplug the hand controller from the power supply.
- 3.- Press continuously the "decrease brake level" button and plug the

hand controller to a power supply with a higher voltage than 8v.  
 4.- The symbol "u" will appear in the display indicating that hand controller is now in "not safe" mode.  
 5.- To set the unit, again, in "safe" mode, repeat 2 to 4 steps.

**Tuning up mode for motors:**

The hand controller you have acquired allows tuning up motors. Follow these next steps to set the control in this mode:

- 1.- Unplug the controller from the power supply.
- 2.- Without stopping pressing the button "increase brake level", plug the unit to a power supply with 8v (minimum.)
- 3.- The symbol "n" will appear in the display indicating that the unit is, now, in the "tuning up mode".
- 4.- With the buttons "increase and decrease Y" set the speed you want to give to the motor in a range of 0 to 9.
- 5.- Leave the control in a stable place in such a way that the grilles do not remain blocked. If there is a short circuit while tuning up the motor, the unit will change to safe mode.



**ADVANCED MODE**

Till now, the Hammer M basic functionalities have been described and Avant Slot has such a great confidence in them that the most demanding users will be satisfied.

As you have seen, the way of adjusting the different parameters is really easy. Anyway, a set of advanced functionalities will be detailed next, but they are not really necessary to get an optimum behaviour of the controller.

**Power supply voltage measure:**

As soon as you connect your controller to the power supply, the display will show the power supply voltage with a  $\pm 1v$  precision. So, if the power supply manage 12v, the display will show the sequence 1,2,u. Anyway, the user can use the controller immediately without waiting to watch the whole sequence.



You can get the voltage at any time pressing one of the two central buttons (the ones used to decrease or increase the Y values) and, at the same time, the X button placed in the same side that the pressed Y button.

The display will show the voltage in case of power supply voltage drops 8v below the initial value.

This not changes the right behaviour of the unit: this is only an informative message about a possible overload, short circuit, or high current motor consumption.

**Dynamic brake :**

Avant Slot understands "Dynamic brake" like a brake level which is proportional to the whole time while the trigger is pressed until its maximum position. In this way, when the controller detects that the trigger is in its maximum position, it internally increase the level brake (from 0 to 9, displaying the 9 symbol in this last case).

The increase rate for the level brake may be adjusted by the user and it will be applied to the brake system only when the user leaves the trigger from its maximum position to its brake position.



In contrast, if the user did not leave completely the trigger, the brake level will be the one set by the user using the common brake buttons.

#### Dynamic brake activation and setting procedure:

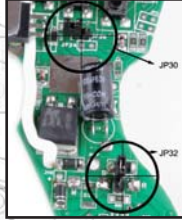
- 1.- Push any of the increase and decrease brake buttons for a little bit more than one second.
- 2.- After this, the display will show a 'd' to indicate that the unit is in "Dynamic Brake Setting" mode. **WARNING: WHILE THE DISPLAY IS ON, THIS MODE WILL BE THE ACTIVE MODE. WHEN THE DISPLAY SWITCHES OFF THIS MODE WILL BE DEACTIVATED. ANYWAY, YOU CAN RETURN TO THE NORMAL MODE PUSHING, AGAIN, ANY OF THE INCREASE AND DECREASE BRAKE BUTTONS FOR A LITTLE BIT MORE THAN ONE SECOND.**
- 3.- Push the increase and decrease brake buttons to set the "speed of change" (0-9) of the dynamic brake.  
The value 0 deactivates the dynamic brake. The value 1 increases the dynamic brake value in a slowly way. The value 9 changes it faster. The display will show a 'd' for a few seconds when the controller activates the dynamic brake.

#### Activating the automatic brake system

This system allows the controller to brake, even, when the power is off (this is what happens with some plug-in or Stop&Go boxes). Thanks to this feature the user will avoid and protect his car going out the track when the race finishes. To activate it the user must place one of the two following jumpers depending on the polarity selected to work with.

- Positive polarity: place the jumper JP30 and remove JP32.
- Negative polarity: place the jumper JP32 and remove JP30.

By default, this automatic brake system is deactivated because user may decide to win the last tenths of race instead of protecting his car.



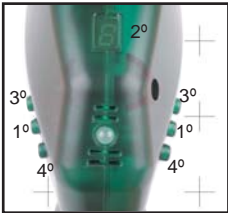
**WARNING: FOR A PROPER WORKING OF THIS SYSTEM IT IS NECESSARY TO USE GOOD QUALITY POWER SUPPLIES, STABILISED, AND HAVING A GOOD ELECTRIC INSTALLATION: CONNECTIONS MUST BE CLEAN AND WIRES WHICH CONNECT THE POWER SUPPLIES TO THE PLUG-IN OR STOP&GO BOXES MUST NOT BE TOO LONG AND MUST BE THICK.**

#### Activating the anti-spin system:

The anti-spin system gives the power gradually when the user presses the trigger too fast. This system needs two parameters:

- Trigger sensitivity (0-9):  
The value 0 deactivates the anti-spin system. With the value 1 the user must move the trigger really faster than with the 9 value. Anyway, the display will show a 't' for a while to indicate that the anti-spin system is working.
- Speed of power change (de 0 a 9):  
With the value 0 the unit gives the power slower than with the value 9.

Anti-spin adjustment and setting procedure:



- 1.- Push any of the increase and decrease Y buttons for a little bit more than one second.
- 2.- After this, the display will show a **B** to inform that unit is in anti-spin mode.

**WARNING: WHILE THE DISPLAY IS ON, THIS MODE WILL BE THE ACTIVE MODE. WHEN THE DISPLAY SWITCHES OFF THIS MODE WILL BE DEACTIVATED. ANYWAY, YOU CAN RETURN TO THE NORMAL MODE PUSHING, AGAIN, ANY OF INCREASE AND DECREASE Y BUTTONS FOR A LITTLE BIT MORE THAN ONE SECOND.**

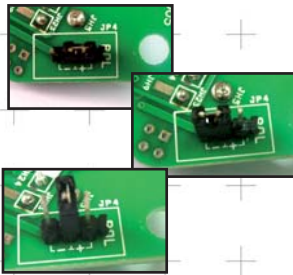
- 3.- Push the increase and decrease brake buttons to adjust the speed of power change.
- 4.- Push the increase and decrease X buttons to adjust the trigger sensitivity.

The display will show a **B** for a few seconds when the controller activates the dynamic brake.

**WARNING:**

- If THE JUMPER JP4 IS PLACED IN + OR - POSITIONS, THE ANTI-SPIN SYSTEM WILL NOT WORK IN THE TOP POSITION OF THE TRIGGER.

- If THE JUMPER JP4 IS NOT PLACED IN + NOR - THE ANTI-SPIN SYSTEM WILL WORK IN THE TOP POSITION OF THE TRIGGER.



**Changing polarity:**

In general, slot clubs use the positive polarity. The negative polarity is typically used in home tracks based on toys systems. Anyway, you can find out your installation polarity following the steps indicated in "How to find out the polarity of my track?" explained below.

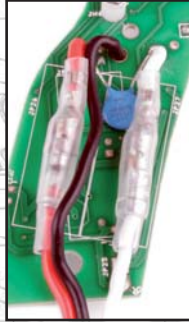
To change the polarity, follow these steps:

1st. Setting voltage to the trigger electromechanical limit

Disconnect the unit from the power supply and open it unscrewing the 3 screws of the covers.

**Positive polarity** (It is typically used in slot clubs. This is the default polarity for the unit): Unplug the faston terminals and plug them in such a way that both red wires are connected.

**Negative polarity** (typically used in toys): Unplug the faston terminals and plug them in such a way that both red wires are connected to the white ones.



2nd Tell the controller that polarity has changed

Close the unit screwing the 3 screws and press the left X button while you plug it to the power supply. The unit will show two possible symbols while you are pressing this button:

- to inform about the change to negative polarity.
- to inform about the change to positive polarity.

**Which is the polarity of my installation?**

In general, slot clubs use the positive polarity. The negative polarity is typically used in home tracks based on toys systems.

1st- if you plug-in the hand controller and works ok, the track is on positive polarity. You can use the hand controller.

2.- If you plug-in and it doesn't work in absolute, use the change wire procedure and inform to hand controller.

3.- If you plug-in the hand controller and the car runs alone, please only inform to the hand controller about the polarity change.



Spare part case M  
ref. IOIIO

## DISPLAY MESSAGES

Num.	Fig	Messages
1	8	"Normal or Safe" mode ON.
2	8	"Not safe" mode ON. "Normal or Safe" mode OFF.
3	8	"Tuning up" mode.
4	8	Voltage drops in power supply.
5	8	Short circuit or overload.
6	8	Wrong connections or car is not placed on the track.
7	8	The Dynamic brake System is working.
8	8	The Anti-spin System is working.
9	8	Positive polarity activated.
10	8	Negative polarity activated.
11	8	The Dynamic brake has increased until its maximum value.
12	88	The parameters have been changed to their original values and Anti-Spin and Dynamic Brake Systems have been deactivated.

## CONTROLLER DEFAULT SETTINGS

If you are confused with so much parameters and settings, you can start from zero following these steps:

**Reset to the default settings:** You can set the parameters of the controller to the default values pressing one of the two central buttons (the ones used to decrease or increase the Y values) and, at the same time, the brake button placed in the same side that the Y button pressed. Then the display will show an alternating '0' between low and high display zones to tell us that parameters have been changed to their original values and Anti-Spin and Dynamic Brake Systems have been deactivated.

Default electronic settings:

- Positive polarity
- Jumper JP4 placed in the central position.
- Automatic brake system deactivated

## SOLVING PROBLEMS

If the problem is not listed in the cases mentioned below or, if the problem is not solved after following these next steps, call to the Avant Slot's Technical Service.

Problem	Solution
The car runs as soon as the controller is connected to the power supply, even, without pressing the trigger.	Check your track polarity.
The display shows the message 6 when the controller is connected to the power supply, without pressing the trigger.	Place the car on the track and verify the order of connectors if you are not using an XLR connection.
When the race starts, the controller does not drive power to the motor if you press the trigger until its maximum position.	Set the controller in "Not Safe" mode or, if you want to stay in "Safe" mode, eliminate the JP4 jumper.
Suddenly, numbers are displayed increasing or decreasing the value and the controller behaviour changes abruptly compared to its previous status.	Due to the intensive use, some of the plastic stubs of the buttons presses its respective switch continuously. Open the unit and push the buttons outwards.
The car emits a sound when the trigger is pressed.	It is normal. The sound is typical in electronic controllers based on PWM.



## MAINTENANCE

The controller will hardly need maintenance. Anyway, we suggest tightening internal nuts and screws once in a while.

On the other hand, if you lose one of the jumpers of the controller, you can find it in any electronic shop or the Avant Slot Technical Service will provide it to you.

### Replacing the trigger:

In case of replacing the trigger by another new one, you must follow the next calibration procedure:

- 1.- Unplug the controller from the power supply and open it unscrewing the 3 screws of the covers.
- 2.- Remove the jumper JP4.
- 3.- Push the increasing X button while you plug the controller to the power supply.
- 4.- The display will show a 'c' to indicate that the controller is calibration mode. Then, six numbers will be displayed to inform about the software version of his unit. Later, the display will show the voltage of the power supply, and, finally, the X,Y and brake values.
- 5.- Do not press the trigger. Push the decreasing Y button till the display shows the symbol  Leave the button and wait till this symbol disappears.
- 6.- Press the trigger to its maximum position.
- 7.- Push the increasing Y button till the display shows the symbol  Leave the button and wait till this symbol disappears.
- 8.- Unplug the controller. The calibration procedure has finished.

### WARRANTY

To validate the warranty of this product, you must send an e-mail to [reg@avantslot.com](mailto:reg@avantslot.com) with the following data:

Name, Address, phone, e-mail and serial number of the unit.

#### Terms of warranty:

- The unit must be sent to the Avant Slot Local Dealer Technical Service using the original packaging and original invoice.
- The unit must not be internally handled in a different way from the indicated in this manual.
- The XLR connector must not be handled, eliminated or substituted by other one.
- The power wire must be the original one.

