

MX PRO BRAKE MINIMUM SETTINGS

The MX has 6 brake minimum settings. Setting 1 is the minimum brakes and settings 2, 3, 4, 5 & 6 increase the minimum braking "strength". Setting 1 gives the most progressive braking whilst 6 gives the most aggressive. Note: the maximum braking available is engaged when the throttle control is in the full brake position. The "strength" of the brakes is dependent on the motor type and motor wind being used, generally 'hot' motors will give the strongest brakes.

To check the current brake minimum setting turn on the MX, then press and hold the set button for 4 seconds, then release. The LED will flash dimly showing the currently set brake minimum setting, see the table below. To change the brake setting press and release the set button whilst the MX is displaying the currently set brake minimum value. Once set turn off the MX to store the setting.

1	☒ "Dim Flash"	☒ "Dim Flash"	Brake minimum 0% of maximum
2	☒ ☒ <i>etc</i>	☒ ☒	Brake minimum 16% of maximum
3	☒ ☒ ☒	☒ ☒ ☒	Brake minimum 32% of maximum
4	☒ ☒ ☒ ☒	☒ ☒ ☒ ☒	Brake minimum 48% of maximum
5	☒ ☒ ☒ ☒ ☒	☒ ☒ ☒ ☒ ☒	Brake minimum 64% of maximum
6	☒ ☒ ☒ ☒ ☒ ☒	☒ ☒ ☒ ☒ ☒ ☒	Brake minimum 80% of maximum

MX LAUNCH CONTROL

The MX has "launch control" available which is very useful to give an "assisted" start line response. From the race start launch control will provide maximum power and acceleration until full throttle is reached. After full throttle has been reached and held for 1 second, the throttle response will go back to the profile that has been set. Note: use launch control wisely and take care as it's very fast!

To set launch control, hold the transmitter throttle control in the full brake position for 4 seconds, launch control will then be active. Note: the MX will also make a 'beep' to help with bench testing.

MX INTERNAL POWER PROTECTION

The MX has in-built protection to help avoid damage. If the MX detects over-temperature due to a fault, extreme overload running or using without a schottky diode it will run but only very slowly. You MUST stop and check it immediately. If the MX gets hot caused by a fault or being subjected to extreme operating conditions etc the user may experience the in-built protection continuously. If any prolonged abnormal operation is experienced the MX should NOT be used as damage may result. Stop using the MX until either the fault is found or it has been returned to MRT for testing. For support telephone or fax MRT on +44(0)870 1624955 or Email support@team-mrt.com

MX PRO OPTIONS & USER NOTES

The MX set-up button may be 'unplugged' if required, this is useful when soldering to connections or when the button is to be situated in an external position. An optional extension set-up button lead is available as MRT option part no. 9007 (also a replacement set-up button MRT part no. 9006) The MX may be re-reprogrammed via data port (by MRT) if firmware profile upgrades are required. The MX has a built-in heatsink under its MX label. Upgrades for future include optional MX heatsink and MX high-flo micro fan unit for direct fitting, these options will help in extreme heat conditions. It is recommended that MX Pro power plugs (if fitted) and leads/connectors are replaced following long periods of use, as unreliable/worn connections could result in impaired operation or damage.

MX PRO TECHNICAL SPECIFICATIONS

Case Dimensions	24x24x14mm	Brake On-Resistance	0.000433 Ohms
Weight (no wires)	Approx. 20g	†Brake Current	540A
Voltage Input (4-7 cells)	4.8V to 8.4V	Regenerative Braking	Yes
Drive On-Resistance	0.000216 Ohms	Brake Minimum Settings	6 selectable
PWM Frequency Range	1KHz - 3.3KHz	Rx Supply Output	6V/3A (peak)
†Drive Current	1080A	Rx Supply Priority/Protection ..	Yes
Power Profiles	6 selectable	Full Water and Dust Protection ..	Yes 100%
'Dual-Active' VDF Logic	Yes	Thermal Protection	Yes inc brakes
Launch Control	Yes	Re-programmable Firmware	Yes (data port)

†Combined MOSFET Transistor Rating at 25°C Junction Temperature

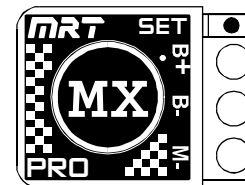
MODEL RACING TECHNOLOGY

MX

PRO

ADVANCED DIGITAL ELECTRONIC SPEED CONTROL

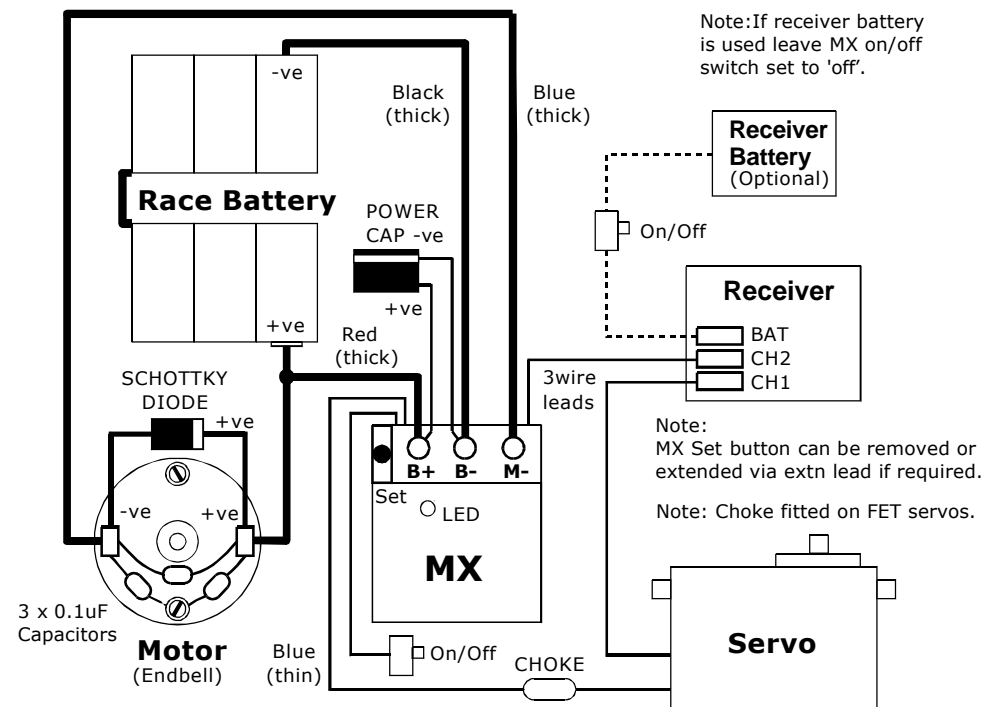
INSTRUCTIONS



MODEL RACING TECHNOLOGY

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BEFORE YOU USE YOUR MX YOU MUST READ THE INSTRUCTIONS CAREFULLY & REFER TO MX WIRING DIAGRAM TO BE SURE CONNECTIONS ARE CORRECT OR MX MAY SUFFER EXPENSIVE IRREVERSIBLE DAMAGE!!



MX WIRING DIAGRAM

IMPORTANT INFORMATION

THANK YOU FOR PURCHASING THE MRT MX PRO SPEED CONTROLLER. WE BELIEVE IT IS A SUPERIOR PRODUCT WITH UNEQUALLED SPECIFICATION AND PERFORMANCE IN THE SMALLEST SIZE. IT HAS BEEN DESIGNED AND MANUFACTURED TO THE HIGHEST STANDARDS. OUR WARRANTY COVERS YOUR MX AGAINST MANUFACTURING DEFECTS HOWEVER THE MX WARRANTY IS INVALIDATED BY ANY OF THE FOLLOWING: REVERSE OR MIS-CONNECTION OF LEADS (THE MX CAN DETECT AND RECORD THIS) RUNNING THE MX WITHOUT A SUITABLE SCHOTTKY DIODE. ANY DAMAGE CAUSED BY SOLDERING, MIS-USE OR TAMPERING. DAMAGE CAUSED BY CRASHES OR BY NORMAL WEAR AND TEAR DURING OPERATION AND USE OF THE MX PRO SPEED CONTROLLER.

* WARRANTY CLAIMS WILL ONLY BE ACCEPTED IF ACCOMPANIED BY THE ORIGINAL *
 * SALES RECEIPT WITH A COMPLETED MRT MX SPEED CONTROL WARRANTY FORM. *
 (OTHERWISE THE MX NON-WARRANTY RETURNS REPAIR/SERVICING FORM IS USED)

THE MX PRO MUST BE CONNECTED ACCORDING TO THE WIRING DIAGRAM BEFORE PROCEEDING. PLEASE TAKE CARE THAT ALL EQUIPMENT IS CONNECTED CORRECTLY AS ANY MIS-CONNECTION MAY DAMAGE THE MX OR EQUIPMENT CONNECTED TO IT. (NOTE: BEEPS WILL NOT BE HEARD UNLESS A MOTOR IS CONNECTED TO YOUR MX)

IF THE RECEIVER LEAD IS REPLACED THE CONNECTIONS MUST BE RESEALED WITH SILICONE SEALANT TO ENSURE FULL WATERPROOF OPERATION IS MAINTAINED.

SETTING MX PRO TO A TRANSMITTER

If using an advanced type transmitter, check that it's set to 'basic' operation of the throttle channel ie. with full travel (end point adjust) and no exponential, also transmitter trim & sub trim (if fitted) is set at neutral position. If unsure check the transmitter manual. A good way to check is if a servo is connected to receiver channel 2 it would have full movement with equal travel in both directions (from centre). A basic type transmitter should have the throttle trim centred. Once the transmitter has been set to your MX Pro the channel 2 servo reversing switch (if fitted) should not be moved.

1. Switch the transmitter on. Hold down the MX 'set' button and then switch MX on. If no MX 'on/off' switch is fitted, proceed by connecting the MX to a race battery which will then switch the MX on.
2. After 4 seconds the MX will make a beep, the 'neutral' position has now been set. The LED will be on to show that the 'full power' position is now ready to be set.
3. Move the throttle control to the position 'full throttle' is to be set at (usually full travel end point). Press and release the MX 'set' button to store the 'full throttle' position. The MX will beep and the LED will flash to show that the 'full brake' position is now ready to be set.
4. Move the throttle control to the position 'full brake' is to be set at (usually full travel end point). Press and release the MX 'set' button to store the 'full brake' position.

Radio set-up is now complete. With the throttle control in 'neutral' position, the MX LED will now be on dim. Moving the transmitter throttle control should now operate the motor and brakes with the power profile and brake minimum value as set on the MX (1 to 6). When the MX is at full power the LED will be on bright, and when the MX is at full brakes the LED will be showing bright flashing.

Note: during radio set-up if any error is made ie. setting 'full power' at 'neutral' the LED will display a fast bright flash and a fast-beep audible 'error' warning will also be heard.

MX PRO POWER PROFILES

The MX has 6 throttle power profiles. Profiles 1, 3 and 5 are fixed 2.5KHz frequency with a punchy, linear and smooth response respectively. Profiles 2, 4 and 6 are DualActive™ with a variable drive frequency (VDF) and a punchy, linear and smooth response respectively.

The response characteristics for each DualActive™ profile gives a throttle curve plus drive frequency 'mapping' to maintain the maximum MX performance across the entire throttle range. The precise frequency of each DualActive™ profile is continuously adjusted to respond to the throttle input along with the motors varying power requirements due to changing track conditions. The advanced power programming of the MX DualActive™ profiles confirms it as the Ultimate Competition ESC.

Note: most often the performance of low power motors (e.g. 27 turn stock) is best with profiles 1 or 2, medium power motors with profiles 3 or 4 (e.g. 19 turn) and high power (modified) with profiles 5 or 6. Depending on the track layout, car type, motor type/wind, gearing etc, it may be found that using different profiles to the ones recommended above can sometimes give better performance.

To check the currently set power profile, turn on the MX then press and hold the set button for 2 seconds, then release. The LED will flash brightly showing the currently set power profile as in the table below. To change the power profile press and release the set button whilst the power profile is displayed, repeat until the correct profile is selected. Finally turn off the MX to store the setting.

(VDF = Variable Drive Frequency)

Profile	LED Flash Pattern	Response	Frequency
1	☀️ "Flash"	Punchy response with a fixed	2.5KHz drive frequency.
2	☀️☀️ "Flash Flash"	'Dual-Active' punchy response	VDF 1KHz to 3.3KHz frequency.
3	☀️☀️☀️ etc	Linear response with a fixed	2.5KHz drive frequency.
4	☀️☀️☀️☀️	'Dual-Active' linear response	VDF 2KHz to 3.3KHz frequency.
5	☀️☀️☀️☀️☀️	Smooth response with a fixed	2.5KHz drive frequency.
6	☀️☀️☀️☀️☀️☀️	'Dual-Active' smooth response	VDF 2.5KHz to 3.3KHz frequency.