

GM made easy – V13.1

Download V13.1:

http://www.graupner.de/fileadmin/downloadcenter/9716x_GM_GENIUS_Upgrade_V13_1.zip

This Tutorial bases on the file: V13_1_basic.gd2

Make it accurate:

You may want to make sure the correction factor for the amp limitation is set right. Checking that is very easy. Just do a run. Recharge your battery. Remember the capacity charged into it. Read out the speedo. Use the formula:

Correction factor * charged capacity / discharged capacity = new correction factor

This way you make sure the amp limit and the discharged capacity is correct.

Pick your mode:

EPA on the transmitter has to be set to 100% for brake and throttle and be left there! Don't use higher values.

To get into the setup-mode, press and hold the button on the speedo. You will hear a long beep and the LEDs will change. Go for what is easier for you to recognize.

If you do full throttle then, the speedo will do a short beep, which means it's now in mode 1.

Do full brake and it will beep again and be in mode 2. So:

Do nothing	= Mode 0
Full throttle	= Mode 1
Full throttle, full brake	= Mode 2
Full throttle, full brake, full throttle	= Mode 3 and so on.

When you have reached the mode you want to use just hold the last throttle position until the speedo beeps again or the LEDs change after a while.

The way it beeps depends on how it's setup. Mine usually does only beep once as I always use mode 3 and have disabled the "short beeps for mode indication". With factory settings it will do a long beep, followed by a series of short beeps depending on which mode you have picked.

I MESSED up the Transmitter data so please note that if you copy this file onto your speedo you NEED to redo your transmitter setup (-> pick the mode via transmitter).

When properly done, the full throttle value should be something around 1.9ms, neutral between 1.4-1.5ms and the full brake value should be around 1.1ms.

With this file there are only 4 values that you change according to the motor / class you race and the track you race on.

1, Amp Limit

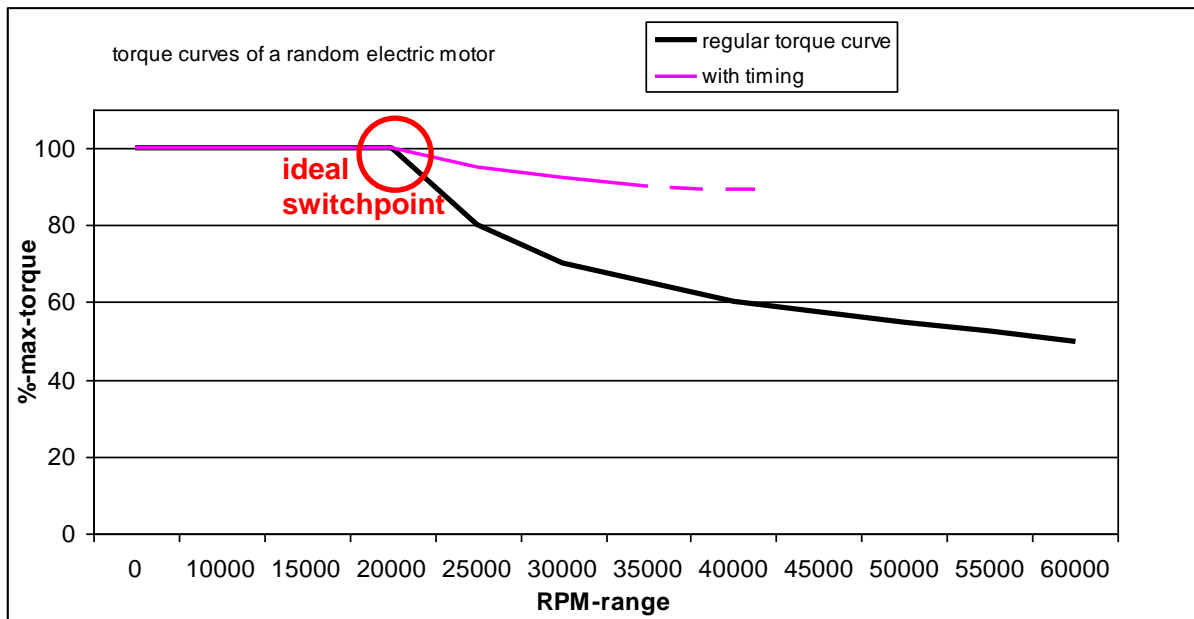
For any kind of Stock Racing (13.5/17.5 or slower) 90 – 100A is by all means enough. Most drivers actually prefer even less. In regular racing you actually not really reach that value anyway and in the cases you do reach that, anything above 100A only creates heat instead of power. The amp limit influences the bottom end rip and driveability in the slow parts of the track. Always try to use the lowest value possible.

13.5:	90-100A
10.5:	100-130A
5.5:	150-190A
5.0:	160-200A
4.5:	170-210A

2. Switchpoint RPM

Greatly influences the feedback and feel the speedo gives you. When running modified, a higher switchpoint RPM will actually give you a more linear throttle feeling and more bottom end rip. When running Stock, the switchpoint RPM will help you to keep the motor running cool and therefore enables you to run more power where you really need it.

This diagram should help you to understand why you want to use a switchpoint and why it should be quite high.



These are the rpm values, close to the ideal switchpoint position for various motors:

- 13.5: 10000 1/min
- 10.5: 13-15000 1/min
- 5.5: 25-30000 1/min
- 5.0: 30-35000 1/min
- 4.5: 35-40000 1/min

3. Fixed Timing / Max Timing

With fixed timing you set the top-end power. The value can vary from 0 – 30. Max timing is the power for the launch control which is activated if you don't touch the throttle trigger for more than 5 seconds.

I recommend to either have **fixed timing = max timing** or **max timing = fixed timing +1**

I know that people tend to overdo it with the timing values so this should give you a guideline:

- 13.5: 22-28 (X12: 15-20)
- 10.5: 20-26 (X12: 12-20)
- 5.5: 6-16
- 5.0: 6-14
- 4.5: 6-12

4, Motor Cut-off Temperature

The tempcheck feature only works with GM, Graupner, Novak, LRP X12 and Corally Motors. Speedpassion and LRP X11 do not feature a Temperature Sensor so be careful not to blow those up.

Values for various motors:

GM motors: 120 - 125°C

Graupner / Corally motors: 135-145°C

Novak: 115°C

LRP X12: 140°C

The GM speedo features a very clever way to keep the motor from dying. For example: You are running 20 fixed timing and a motor cut-off temperature of 135°C. You will have the full 20 degrees fixed timing until the motor reaches 115°C. Then the timing will go down 1° for every degree you get closer to the cut-off. So if the motor reaches 125°C, you are left with 10° of timing. A thermal balance tends to be achieved when the timing goes down to 7. So you basically can't even reach the cut-off point.

That's it.

What if ?:

- The Motor gets too hot: gear harder / use less fixed timing
 - The Motor is running cool but there's not enough power: gear harder / use more fixed timing
 - The Motor feels sluggish but temps and power are ok: you are overgeared (although you really need to gear super hard to reach that point! (indoors around 4.2 with 13.5T)
 - Not enough brakes with LRP X11: update to V13.0 and set Reserved 4 (in the telemetry tab) to 5 (if you used 1 'no switchpoint' before) and 7 (if you used 3 'HST with switchpoint')
- But with the basic file posted, there should be enough brakes as this has been set already.
- Sudden loss of power: clean the motor and especially the sensors, check the sensor wire and the magnet

Basic Tips:

- A fan is always better as it enables you to run more timing (40mm fan = 4° more power)
- Always make sure your motor is really clean
- Always go for the biggest pinion possible. Even though the motors rev up to the sky with the highspeedtiming activated they are still most efficient in their natural rpm range.

When I am using a X12 motor I always use the 4dot insert. Some people struggle to get the car off the line, even with the LRP speedos in 0-boost mode. What I heard is that the sensors get dirty. It's hard to clean on these motors but it seems like bathing them in brake-cleaner really does the job.

Have fun on the track.
Martin Hofer.