

Smart Booster 2016-2

Fitting instructions



Smart Booster - Variable Ignition Timing Box
Increased torque, power and mileage, smoother idling, reduced mechanical stress and vibration!

You will need around 15 minutes to complete the installation !

For more information visit www.kytronik.com

 Like us on Facebook !

KyTronik Pte Ltd
No.25 International Business Park
#02-53, German Centre,
Singapore 609916

Disclaimer: Use of this product is intended for off-road, non-street, or racing use only. Hence, all possible damages or possible resulted claims for liability will be rejected. Check with local laws before ordering. This product may accelerate wear

1. Change your stator position



The table below provides **conservative** guidance to setup **Smart Booster** according to your engine:

Engine setup	Recommended Static timing (in degree BTDC)	Recommended curve (s)	Comment
Stock PX125/150	24°	F	Set stator 1mm after A mark (anti-clockwise)
Stock/lightly tuned PX200, Stock/lightly tuned Lambretta	24°	4	Set stator 1mm after A mark (anti-clockwise) Can also apply to Vespa DR177
Touring "Vespa 177cc class"	23°	A	
Touring Vespa PK/ET3/T5 with cylinder kit	24°	1 or 6	Set stator 1mm after A mark (anti clockwise) Note: Curve 7 is similar to Vespatronic
High-RPM Vespa PX, Lambretta with ported cylinder kit and proper expansion pipe	25°	7 or C	vespa: Set stator 3mm after A mark (anti-clockwise)
Highly tuned engine / Tuned T5	27°	8	You should know what you are doing !

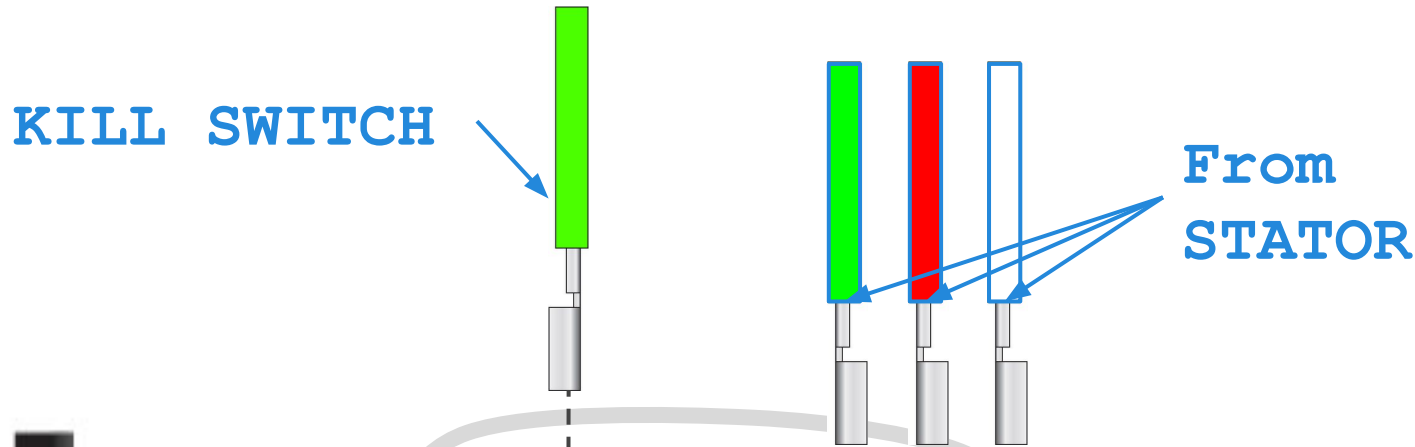
Tooling

You need a flywheel extractor, a screwdriver and the appropriate socket (usually 19 or 17mm)



2. Insert Smart Booster in between stator and CDI

KyTronik



Set cursor to curve '0'

You need a small flat-head screwdriver to adjust the rotary switch. Be gentle !

SMART BOOSTER

KyTronik

3. Verify static timing

KyTronik

What to do:

- **Smart Booster** is mounted and curve is set to '0'
- Verify you stator static timing with a strobe-light.
- Re-adjust the stator if necessary.

Some technical background:

- The curve "0" is "transparent mode", i.e the ignition timing is *supposed to be* same as without using **Smart Booster**
- **In some case**, curve '0' could be offset by some degrees (for eg, giving you 22deg BTDC instead of expected 24deg BTDC); in such case, simply adjust stator.



Tooling

You need a timing light also called strobe light/gun

3. Select a variable ignition timing curve



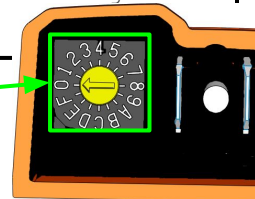
The table below provides **conservative** guidance to setup **Smart Booster** according to your engine:

Engine setup	Recommended Static timing (in degree BTDC)	Recommended curve (s)	Comment
Stock PX125/150	24°	F	Set stator 1mm after A mark (anti-clockwise)
Stock/lightly tuned PX200, Stock/lightly tuned Lambretta	24°	4	Set stator 1mm after A mark (anti-clockwise) Can also apply to Vespa DR177
Touring "Vespa 177cc class"	23°	A	
Touring Vespa PK/ET3/T5 with cylinder kit	24°	1 or 6	Set stator 1mm after A mark (anti clockwise) Note: Curve 7 is similar to Vespatronic
High-RPM Vespa PX, Lambretta with ported cylinder kit and proper expansion pipe	25°	7 or C	vespa: Set stator 3mm after A mark (anti-clockwise)
Highly tuned engine / Tuned T5	27°	8	You should know what you are doing !



Tooling

You need a small flat-head screwdriver to adjust the rotary switch. Be gentle



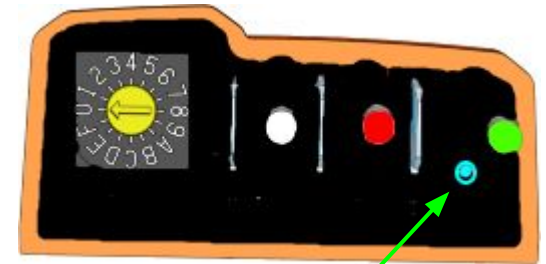
4. Start the engine and ride !

KyTronik

LED indicator

There is a small LED on the Smart Booster
The LED has two functions:

1. After each engine start, the LED will blink/count the curve number (short blink means +1, long blink means +10). It will happen one time, only once you pass 4000rpm
2. The LED will shortly pulse every time the engine RPM crosses a "changing point" on the curve (NOT including the one at 2000rpm). Only on acceleration phase. For e.g, for curve 8, LED will lit at 4000rpm and 8000rpm



LED

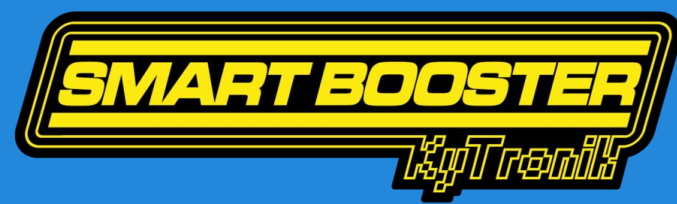


Note

Smart Booster2 LED is **RED**

Smart Booster2.5/2016/2016-2 LED is **BLUE**

FAQs 1/2



1 Q I am using an XYZ CDI unit. Is that compatible with Smart Booster ?

A We are not aware of any CDI not compatible with SB2016

2 Q I don't have the ground cable anymore on my CDI unit. Is that a problem ?

A Yes and no. It will work, but you are taking a risk. Please consider upgrading your CDI.

3 Q My ignition is 20 years old and it has been working perfectly. What should I look after when mounting SB?

A Make sure your cables and terminals coming from your stator are in good conditions. The ground cable is the most important one. If you have any doubt, take 10 minutes to replace and isolate them properly.

4 Q Can I mount a [Spark Magnifier](#) on the Smart Booster2016 ?

A YES ! can mount a Spark Magnifier unit in addition to a SB/2.5/2016 !

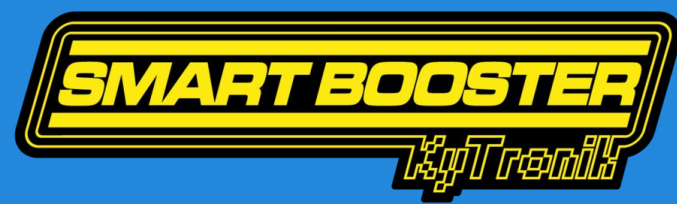
5 Q What is the difference between Smart Booster2/2.5 and Smart Booster2016 ?

A SB2.5 was launched in Sept'15, SB2016 in Sept'16. Both include longer cables, slightly different casing, blue LED (was red for SB2), enhanced compatibility with some stator/flywheel combination. SB16 comes with newly optimized ignition timing curves, specially suited for low-RPM / big capacity engines and stock engines (6 degrees variation ignition timing curves). Will improve relevancy of variable ignition timing for Vespa 200++ and Lambretta 180++

6 Q I don't have a strobe-light...

A You can live without it. BUT, by mounting Smart Boosteryou are changing ignition timing, most probably on a tuned (and costly) engine. We **strongly** recommend you that you [get yourself a strobe light](#) (or strobe gun) ! This will allow you to safely mount and verify good operation of your ignition.

FAQs 2/2



7 Q What is the difference between SB2016 and SB2016-2 ?

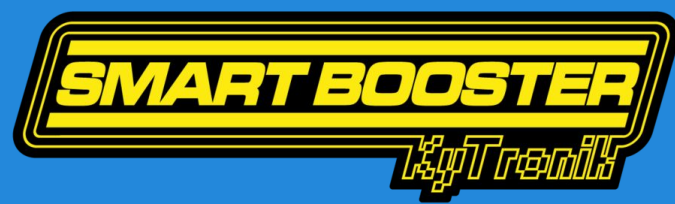
A SB2016-2 is a minor update of Smart Booster2016. It implements a smoother ignition timing variation at low-RPM (between 500 and 2000RPM) compared to SB2016. The red color of its plastic casing is also darker.



8 Q I know nothing about ignition timing, should I experiment ?

A Changing ignition timing on tuned engine with high-RPM expansion pipe might require to adjust the jetting; we recommend you seek advice from a professional or knowledgeable web-community such as:

- Extensive mounting instructions [from MB_Dev](#)
- Webforum English: [Modern Vespa](#)
- Webforum German: [German Scooter Forum](#)
- Webforum French: [scootentole.org](#)



Compatibility

BETA ALP 240 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - Contact us
BETA TECHNO 125 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - Contact us
BETA TECHNO 240 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - Contact us
BETA TRIAL SYNT 240 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - Contact us
FANTIC RAIDER 50 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - Contact us
FANTIC TRIAL 125 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - Contact us
FANTIC TRIAL 241 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - Contact us
FANTIC TRIAL 243 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - Contact us
FANTIC TRIAL 249 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - Contact us
FANTIC TRIAL 300 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - Contact us
FANTIC TRIAL 303 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - Contact us
LAMBRETTA GP 125 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - FOR USE WITH ELECTRONIC IGNITION KITS
LAMBRETTA GP 150 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - FOR USE WITH ELECTRONIC IGNITION KITS
LAMBRETTA GP 200 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - FOR USE WITH ELECTRONIC IGNITION KITS
LAMBRETTA LI 125 SERIES 2 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - FOR USE WITH ELECTRONIC IGNITION KITS
LAMBRETTA LI 125 SERIES 3 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - FOR USE WITH ELECTRONIC IGNITION KITS
LAMBRETTA LI 150 SERIES 2 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - FOR USE WITH ELECTRONIC IGNITION KITS
LAMBRETTA LI 150 SERIES 3 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - FOR USE WITH ELECTRONIC IGNITION KITS
LAMBRETTA SX 125 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - FOR USE WITH ELECTRONIC IGNITION KITS
LAMBRETTA SX 150 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - FOR USE WITH ELECTRONIC IGNITION KITS
LAMBRETTA SX 200 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - FOR USE WITH ELECTRONIC IGNITION KITS
LAMBRETTA TV 175 SERIES 2 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - FOR USE WITH ELECTRONIC IGNITION KITS
LAMBRETTA TV 175 SERIES 3 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - FOR USE WITH ELECTRONIC IGNITION KITS
LAMBRETTA TV 200 and GT 200 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - FOR USE WITH ELECTRONIC IGNITION KITS
MOTO MORINI 125 STRADA ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - OE NO 460560 - Contact us
MOTO MORINI 250 STRADA MONOCYLINDRO ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - OE NO 460560 - Contact us
VESPA COSA 125 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT
VESPA COSA 200 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT
VESPA ET3 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT
VESPA P 200 E ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT
VESPA PK 100 S ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT
VESPA PK 100 XL ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT
VESPA PK 125 S ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT
VESPA PK 50 S ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT
VESPA PK 50 XL ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT
VESPA PX 80/125 E ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT
VESPA PX 125 E DISC ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT
VESPA PX 125 EFL ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT
VESPA PX 150 E ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT
VESPA PX 200 E ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT
VESPA PX 200 E DISC ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT
VESPA PX 200 EFL ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT
VESPA RALLY 200 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT - FOR MODELS WITH DUCATI IGNITION
VESPA T5 ORIGINAL DUCATI ELECTRONIC HT COIL + CDI UNIT
VESPA T5 CLASSIC ORIGINAL DUCATI ELECTRONIC HT COIL CDI

Technical references

Some technical details (applicable to all curves)

- Variable timing is *relative* to your stator static timing, "0"
- The curve "0" is "transparent mode". The ignition timing is unchanged.
- Below 2000RPM, ignition is advanced in order to ease startup, reduce risk of kick-back and to have a gentle and quieter idle RPM.
- The *plateau* at high RPM is here to enlarge power-band and to bring over-rev capability.

HV input (green wire)	max 350VAC
Pickup input (red wire)	peak 45V
Current consumption	Max 3mA
Timing accuracy at 10'000RPM	0.3°
Maximum RPM	20'000
Operational temperature range	-15°C to 70°C
	Size(w/out connectors)
	Weight ~20g

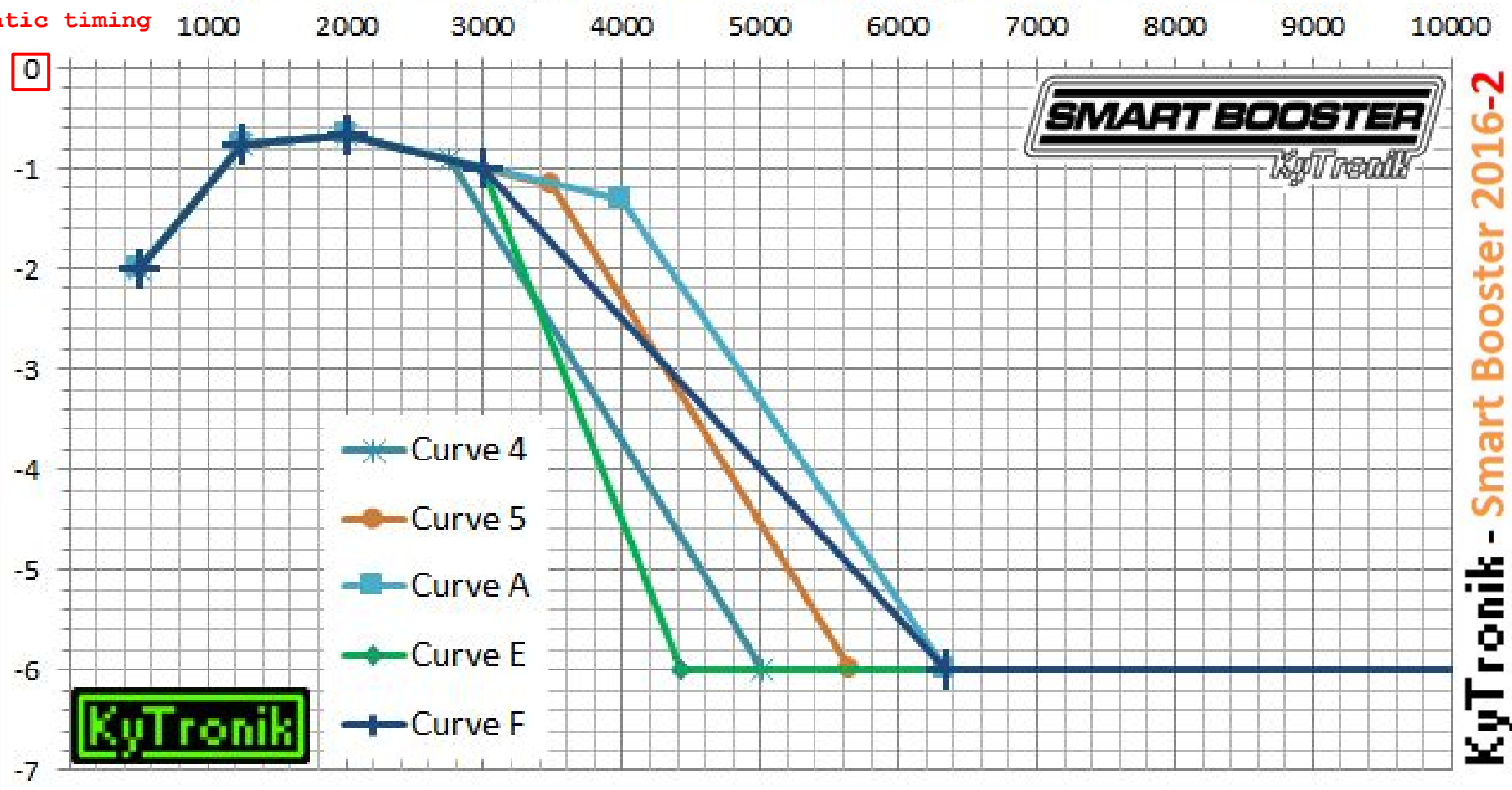


Technical references

Curves with -6° plateau

Variable timing is relative to your stator static timing

Ignition timing vs RPM 6 degrees variation



KyTronik - Smart Booster 2016-2

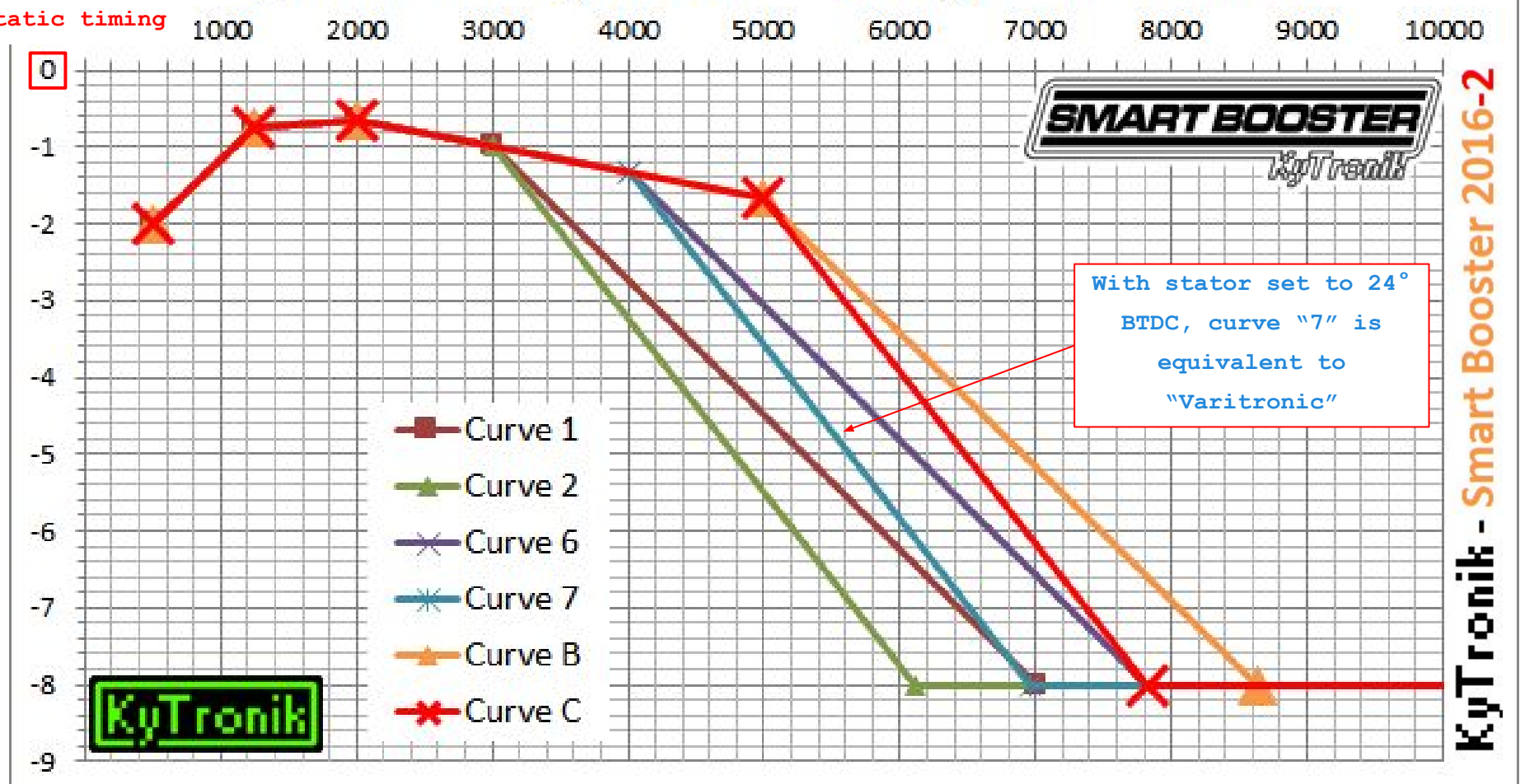
Technical references

Curves with -8° plateau

Variable timing is relative to your stator static timing

Ignition timing vs RPM

8 degrees variation



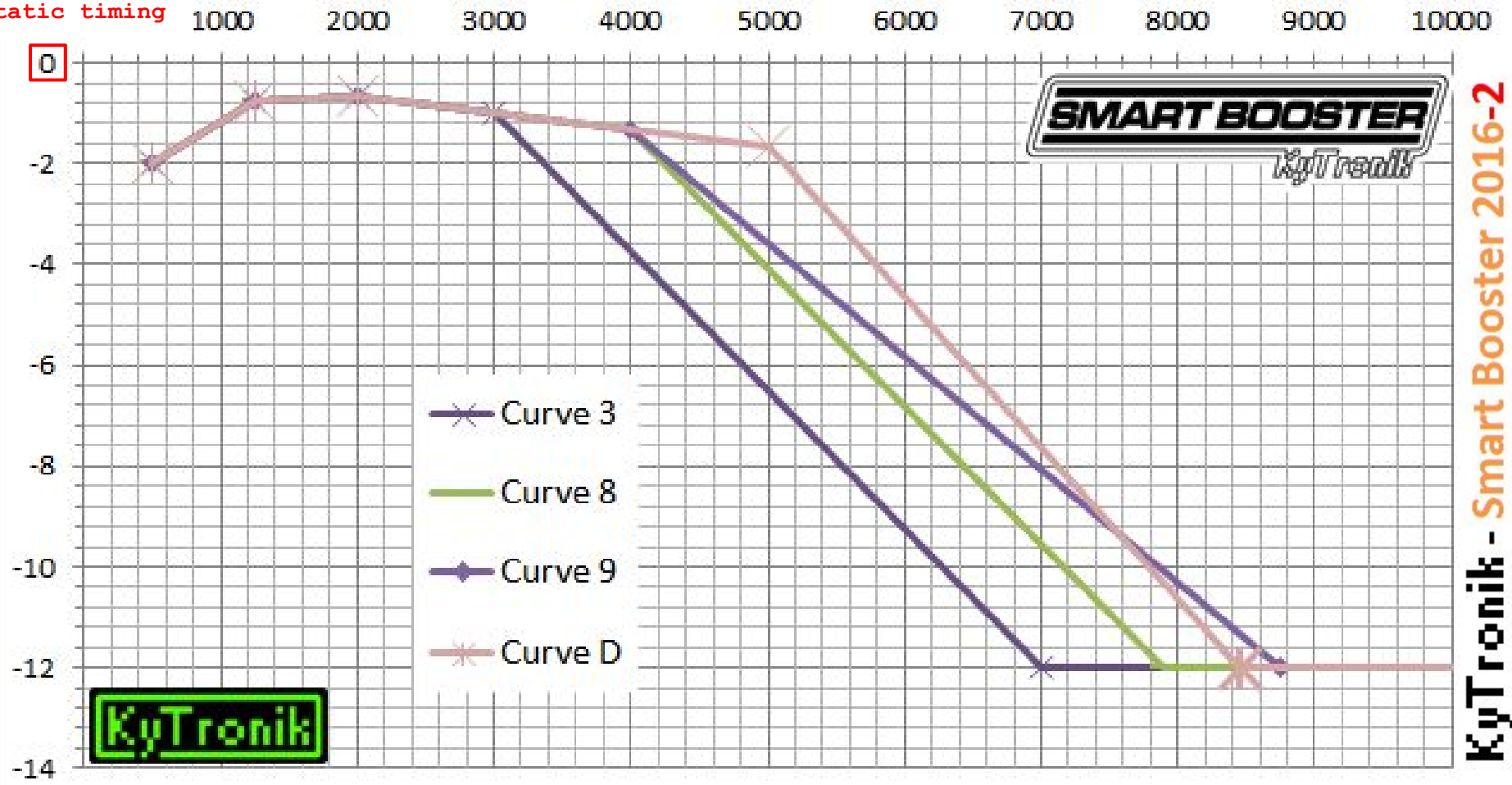
KyTronik - Smart Booster 2016-2

Technical references

Curves with -12° plateau

Variable timing is relative to your stator static timing

Ignition timing vs RPM 12 degrees variation



Technical references

Curves details

Plateau		-8		-8		-12		-6		-6	
Curve 0		Curve 1		Curve 2		Curve 3		Curve 4		Curve 5	
		-1.75		-2.25		-2.75		-2.25		-2.25	
500	-0.015	500	-2	500	-2	500	-2	500	-2	500	-2
1250	-0.038	1250	-0.75	1250	-0.75	1250	-0.75	1250	-0.75	1250	-0.75
2000	-0.06	2000	-0.66	2000	-0.66	2000	-0.66	2000	-0.66	2000	-0.66
3000	-0.09	3000	-0.99	3000	-0.99	3000	-0.99	2750	-0.908	3500	-1.155
9000	-0.27	7006	-8	6116	-8	7004	-12	5013	-6	5653	-6
12000	-0.36	12000	-8	12000	-8	12000	-12	12000	-6	12000	-6
		-8		-8		-12		-12		-6	
		Curve 6		Curve 7		Curve 8		Curve 9		Curve A	
		-1.75		-2.25		-2.75		-2.25		-2	
500	-2	500	-2	500	-2	500	-2	500	-2	500	-2
1250	-0.75	1250	-0.75	1250	-0.75	1250	-0.75	1250	-0.75	1250	-0.75
2000	-0.66	2000	-0.66	2000	-0.66	2000	-0.66	2000	-0.66	2000	-0.66
4000	-1.32	4000	-1.32	4000	-1.32	4000	-1.32	4000	-1.32	4000	-1.32
7817	-8	6969	-8	7884	-12	8747	-12	6340	-6	12000	-6
12000	-8	12000	-8	12000	-12	12000	-12	12000	-12	12000	-6
		-8		-8		-12		-6		-6	
		Curve B		Curve C		Curve D		Curve E		Curve F	
		-1.75		-2.25		-3		-3.5		-1.5	
500	-2	500	-2	500	-2	500	-2	500	-2	500	-2
1250	-0.75	1250	-0.75	1250	-0.75	1250	-0.75	1250	-0.75	1250	-0.75
2000	-0.66	2000	-0.66	2000	-0.66	2000	-0.66	2000	-0.66	2000	-0.66
5000	-1.65	5000	-1.65	5000	-1.65	3000	-0.99	3000	-0.99	3000	-0.99
8629	-8	7822	-8	8450	-12	4431	-6	6340	-6	12000	-6
12000	-8	12000	-8	12000	-12	12000	-6	12000	-6	12000	-6

Kytronik - Smart Booster 2016-2

