HM Quickshifter SABS v2
Stand Alone Blipper Shifter

User Guide
2019/03/09

www.hmquickshifter.com
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As with any new technology, you must read and follow all set-up and usage instructions in the applicable user guide enclosed or provided electronically. If you fail to do so, this product may not function properly and you may not get results advertised.

While **HM Quickshifter** has made every effort at the time of publication to ensure the accuracy of the information provided herein, such information is subject to change without notice.

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The HM Quickshifter Stand Alone Blipper Shifter (SABS)
Introducing the Next Generation in Quick Shifting/Auto Blipper

The HM Quickshifter Stand Alone Shifter Blipper (SABS) is a revolutionary product that, in essence, allows a rider to change gear up and down the gearbox seamlessly in the fastest and smoothest manner possible.

Available in two versions: **LITE** and **PRO**

The **LITE** version already outperforms any other system on the market. It is a simple plug and play system that is fully adjustable.

The **PRO** version is taking shifting / back shifting to the ultimate level. It is the only system on the market that communicates with your ECU to get many vital parameters allowing the shifter blipper to give perfect shifts whatever the load, RPM, Gear or throttle position. It is also completely plug and play in a small, waterproof and compact unit.

The **PRO** version also adds intelligent auto warmup and a Pit Lane limiter. Launch control and Anti wheelie and Engine Brake Control are soon to follow via a software update.
How it Works

The SABS LITE and PRO system simply sits between your grip position sensor and the OE loom. It is plug and play and suitable connectors are supplied with your unit for your bike.

Other connections are on the SABS unit, but these are not required for shifter / blipper operation and indeed the LITE version does not use any other connections.

For reference here is the list of connections:

1. OE Twist Grip Sensor Connectors - (Lite and Pro Version)
   To be connected in between original OE Twist Grip Sensor Connector

2. Comms Connector - (Lite and Pro Version)
   Plugs into the PC via the HM USB Interface lead for setting adjustments and updates

3. HM QS Sensor - (Lite and Pro Version)
   Plugs directly into the HM Quickshifter Sensor

4. CAN Connector - (Only used for Pro version)
   Plugs into the HM CAN Interface Loom, which plugs into the bikes OE diagnostics connector on your bike

5. HM Button Assembly - (Only used for Pro version)
   Connects to the HM Pitlane limit/Warmup procedure bar mounted button
Safety

Due to the fact that this product sits between your accelerator (twist grip) sensor and the ECU, it has the theoretical potential to add uncommanded throttle inputs. This can be very dangerous.

Because of this reason, the HM SABS has been designed from the ground up to be ultra safe. Its design philosophy is that of mission critical systems such as primary flight controls of commercial aircraft.

This is how it works:

1. Normal Operation
The SABS is physically disconnected from throttle circuit during normal operation. I.E. there is a direct connection between the twist grip sensor and the ECU just as if the system was not there.

2. When a SHIFT or BLIP (or warmup / pit limit etc) operation is requested by the user applying pressure to the gear lever, then the SABS performs a full and detailed systems test in less than a millisecond and if, and only if every test passes then it configures a deadman timer suitable to the operation, inserts itself into the circuit and performs the operation. If, during the operation, there is any fault for any reason then the SABS instantly removes itself from the circuit and logs the error. It will then no longer operate as a shifter / blipper until the fault has been acknowledged by the user and rectified.

This means that, whatever the fault, the bike will continue to run in a safe manner.

This design philosophy means that it should be impossible for uncommanded throttle input to ever occur - unlike any other system on the market.
Installation

If you are confident and capable of changing the spark plugs on your bike, then you are capable of fitting this product. If you are unsure, then please take to a dealer to fit.

NOTE:
While the fitting is simple, you will be working with safety critical systems on your bike, so it is very important that care and diligence is used. Take your time and make sure that everything is fitted correctly and that there is no possibility of cables causing any throttle mechanism to jam or that the cables can be abraded or damaged.

Whats in the Box:

The box contains the following depending on version purchased:

**LITE Verison**
- HM Quickshifter SABS Control module
- HM Quickshifter Sensor
- HM QS PC Interface Lead
- HM QS Sticker pack
- HM QS Grub Screw Set

**PRO Version**
- HM Quickshifter SABS Control module
- HM Quickshifter Sensor
- HM QS CAN Interface Lead
- HM QS PC Interface Lead
- HM QS Button Kit
- HM QS Sticker pack
- HM QS Grub Screw Set
Installing the Control Module and Sensor

Installing the Control Module:

The control module must be fitted between the Original Loom and the twist grip sensor. In most cases, the twist grip sensor connector is located under the airbox next to or on the throttle bodies. Remove your fuel tank and airbox and locate the twist grip sensor.

NOTE: Many bikes use the same connector for the TWIST GRIP Sensor and the THROTTLE POSITION Sensor. It is vital that you connect to the TWIST GRIP Sensor.

Installing the Sensor:

Remove the standard linkage arm, making a note of the position of the shift lever. Now fit together the HM Quickshifter Sensor with an HM Linkage Kit (available separately) to achieve the same overall length as the standard linkage.

Re-install the shift linkage making sure that the HM Sensor and the cable exiting the Sensor will not foul the gear lever or any other mechanism.

It is preferred to fit the HM Sensor nearest the gearbox.

Depending on your bike, you will need a suitable length shift rod. These can be ordered from HM Quickshifter or your dealer.

The length of the shift rod is simply the length of your existing shift rod (shift rod only, not to include grub screws / rose joints etc).

Take this length and subtract 55mm.

I.E. SHIFT ROD LENGTH = Existing shift rod - 55mm

A Universal shift rod kit is also available that will fit virtually any requirement.

You may also perhaps need rose joints.

Important Points:

1. The Sensor and Shift rod must be free on the rose joints. This means that you should be able to rotate the sensor and linkage rod at least a small amount on the rose joints.

2. The sensor and linkage rod must not hit or foul anything. Move the lever through its entire range of travel and make sure that the sensor and linkage rod are free to move without touching anything or straining the attached cable.

NOTE: Do not tighten the linkage rod through the sensor - you may damage the sensor.

Setting up your Quickshifter/Autoblipper

One you have plugged your HM Sensor into the HM Sensor connector you are on you way. All Kill times and strategies are controlled by the motorcycles ECU all adjustments can be made via the SABS PC software downloadable from our website.

www.hmquickshifter.com/download
Setup / PC Application

The PC application is available to download at

www.hmquickshifter.com/download/

Please download it and install the software.
Software is compatible with Windows only operating systems.

Plug in your interface lead supplied with the SABS and the drivers will be automatically installed.

**IT IS VERY IMPORTANT TO CALIBRATE THE THROTTLE BEFORE YOU PROCEED**

This only needs to be done once after install.
On the GENERAL tab click on “Start Throttle Calibration” A pop up window will open and say “Move throttle from min to max a few times AFTER clicking Okay”, open and close the throttle a few times all the way to the stop and back, 3 times should be enough.

Once you have done this, click on “End throttle calibration”

If you click on DASH in the top right of the program you will now see your throttle position displayed under TPS%. If you do not, repeat the Throttle Calibration Process again.
SABS PC Software - Overview

Realtime display (PRO version only)

- Use RPM
- Use GEARS

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<tr>
<td>BLIP Status</td>
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</tbody>
</table>

Calibrate Throttle

- Read
- Write
- Exit

Firmware version

MODEL (PRO or LITE)

Read or Write config from/to SABS

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SABS PC Software - Menus

File Menu

The SABS PC tool will automatically save a copy of your setting to c:\ProgramData\HM_SABS. Please note that this folder is usually hidden.

When a SAVE is performed, all of the configuration data is saved, including ECU configuration.
When an OPEN is performed all data EXCEPT ECU configuration is opened.
To also open ECU configuration, use "Import ECU config only"

Open

This will open a configuration file, it does NOT import the ECU settings. This is so that settings can be used from different models without upsetting the communication configuration for your model.

Save

This will save the configuration file to the default folder as mentioned above: c:\ProgramData\HM_SABS

Save as

This will allow you to save the configuration file to any location.

Import ECU config only

This will import the ECU configuration from a configuration file only. It will not import any other setting.

Tools Menu

Reset Service Counter

This will reset the hours counter to zero, for example after an oil change.

Update firmware

This is used to update the firmware version of your SABS
SABS PC Software - General TAB

Use RPM
This setting enables or disables any RPM based feature of the SABS. These include:
- RPM Blip Inhibit
- RPM Bands and BIASing

Use GEARS
This setting enables or disables any GEAR based features, such as different Kill / Blip times for different gears

Cut Off RPM
During operation, no feature of the SABS will enabled under this RPM. This is useful for example if you do not use gears (or have a LITE) and do not want the engine to blip when selecting 1st Gear from Neutral.

RPM BANDS
For different RPMs the ideal shifter / blipper would have different KILL / BLIP times. These BANDS allow you to freely configure this. So choose bands that broadly match your motorcycle and your riding style.

Warmup Program
The choice here is 0,1,2 or C for custom. Selecting a value of 0 will turn the Auto Warmup Procedure off and selecting 1 or 2 will give slightly different warmup routines that suit different engine configurations.

If selecting 1 or 2 then following configuration is applied:
1. The COLD temperature is 30 degrees Celsius (when the engine is under the COLD temperature the engine will simply idle in these two programs)
2. The WARMING temperature is 50 degrees Celsius (when the engine is above the COLD temperature but below the WARMING temperature then the bike will rev slowly and gently to start moving oil and coolant around the engine)
3. The TARGET temperature is user selectable. If your bike has a thermostat then we recommend 80 degrees Celsius so that the thermostat can open and allow all of the coolant to reach a common temperature.

If selecting C (CUSTOM):
All of the parameters are user selectable, including COLD, WARMING and TARGET temperature, and each of the temperature bands has a fully programmable program of up to 50 elements / instructions per band.

Pit Lane Limiter Program
Selecting 0 here will disable this feature, selecting 1 will enable it. Simply holding down the Pit Limiter / Auto Warmup button during riding will limit the speed to the selected Pit Lane Limit Speed.
SABS PC Software - Shifter TAB

Use SHIFTER

If this is unchecked, then all Shifter functionality is disabled.

Kill Times

This is the chosen Kill Time based on Gear position. I.E. The amount of time taken to shift for each gear.

Band BIAS%

In the General TAB, RPM Bands were defined. These BIAS% Settings allow you to BIAS (augment / modify) the Kill Time from -100% to 100% for different RPMs.

For example:

Given the following settings:
RPM Band in the General TAB is 4000
Under Band BIAS is -10%
Kill Time 1 > 2 is 60ms

Then, when riding, if the current RPM is say 3000 and you are in first gear then when you change to 2nd gear the kill time will NOT be your chosen Kill Time of 60ms, instead this time will be BIASED by -10% which means it will be 60ms - (10% of 60ms=6ms) = 54ms
# SABS PC Software - Blipper TAB

**Use BLIPPER**
If this is unchecked then all blipper functionality will be disabled

**Inhibit Over REV**
If this is unchecked, then the blipper will function regardless of RPM

**WIZARD**
This is for easy calculation of inhibiting RPM to prevent engine over rev on a downshift. Simply input the maximum desired RPM and then the gear ratio's out of the bike manual.

**Throttle Blip %**
This is the amount that the throttle will open to initiate a down shift.

**Blip Times**
This is the length of time that the throttle will be held at the Throttle Blip %

**Time BIAS%**
This is the BIAS for the amount of time the throttle is held at Throttle Blip %
Please see Shifter TAB of explanation or BIASing.

**Throttle BIAS%**
This is the BIAS for the amount of throttle.

**Inhibit RPM**
This is used to prevent over revving on downshifting. The value here are used to determine when it is safe to allow a down shift. When the RPM is over the RPM in these settings, then the blipper functionality will not work.
Contact Us

If you need an assistance, we are always here to help.

HM QUICKSHIFTER (UK) Ltd
B3 Brickmakers Estate
Castle Road
Sittingbourne
Kent
ME10 3RL

Email Us:

Support@hmquickshifter.com
Sales@hmquickshifter.com

Call Us:

+44 (0) 1795 429168