Real Performance Product By GIZZMO

IBC Intelligent Boost Controller

GIZZMO ELECTRONICS

Thank you for purchasing the Gizzmo IBC Intelligent Boost Controller.
This manual contains operating instructions and installation procedures that are needed for the fitting and operation of this product.

取扱説明書

Instruction Manual

GIZZMO ELECTRONICS

www.gizzmoelectronics.com

Contents

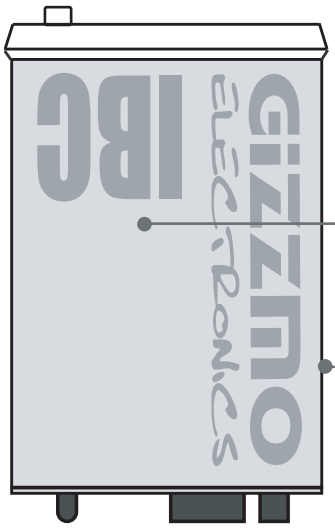
Gizzmo IBC Intelligent Boost Controller

The Gizzmo IBC (Intelligent Boost Controller) represents the ultimate in Accurate, Simple to operate and easy to install Computerised Boost Controllers.

Because all the thinking is done inside the IBC, you will not require an Engineering Degree to operate or fit it.

With the Gizzmo IBC's precision 29lb MAP sensor, High Speed RISC processor and Powerful MOSFET solenoid driver, you can be assured that your Gizzmo IBC has the Quality, Resolution and Accuracy that you need for your Turbocharged vehicle.

Technical Diagram



Processing Power

Gizzmo's IBC is armed a number crunching 20mhz RISC Processor capable of processing 5,000,000 instructions a second. Internally, a 16bit timer controls the Boost Control Solenoid with pin point accuracy.

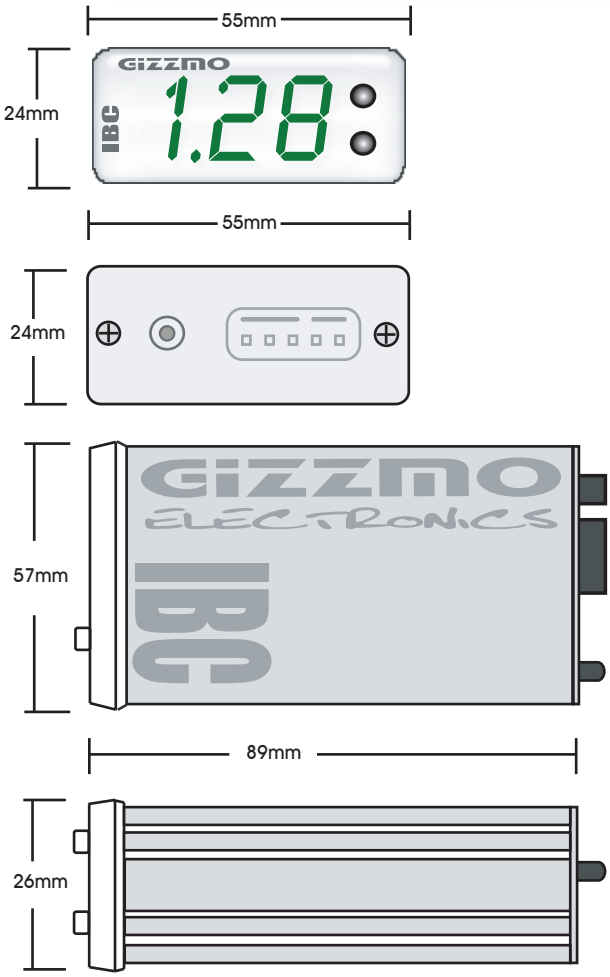
Extruded Aluminium Case

By utilising a rugged Extruded Aluminium case you can be assured that your IBC will keep its look for years to come. Because the IBC is so deceptively small, you can mount it virtually anywhere.

IBC Functions

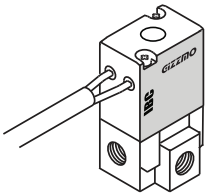
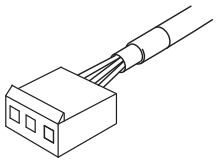
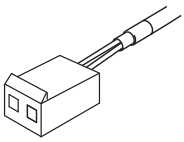
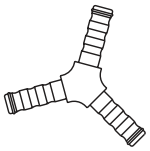
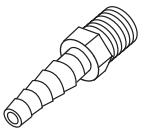
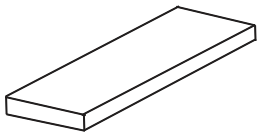
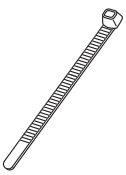
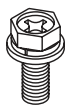
- Fast RISC Processor Technology
- Real Time Digital Boost Gauge
- Adjustable up to 2 bar (29Lb)
- Four Boost Memories
- Extruded Alloy Case
- Simple 2-wire installation
- Suits internal and External Wastegates
- Comes with all Installation accessories

IBC Specifications



Number of boost memories	4 with individual gain settings
Maximum boost	29lb (2bar)
Processor	20mhz RISC
IBC size	117mm * 57mm * 26mm
IBC weight	105g
Packaged size	185mm * 145mm * 60mm
Package Weight (g)	600g
Operating Voltage (v)	11.8V - 21V
Operating Current	Less than 0.5A
Reverse Battery Protection	Yes
Overcharging Protection	Yes
Case Material	Anodised Extruded Aluminium
Display	3 * 7seg Green LED display
Pressure display options	LB or BAR
Wastegate Compatibility	Internal and External
Solenoid	High Performance Single
Features	Adjustable gain settings Adjustable Duty 10% to 90% Backlit buttons

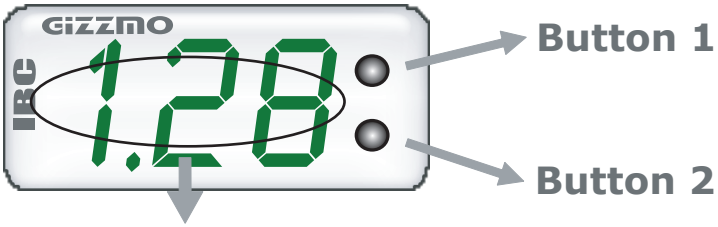
IBC Parts List

 IBC Module x1	 Solenoid Valve x1	 Instruction Manual x1
 Solenoid & Trigger Wiring Loom x1	 MS-IBC Power Supply Loom x1	 1mx5m Nit Rile Tubing x1	 1.2mx2.8m Vacuum Tubing x1
 5mm 'Y' Piece Connector x1	 3mm 'Y' Piece Connector x1	 Tail 5mm x2	 Double sided Tape Pad For Mounting IBC x1
 Cable Tie x8	 3mm Flat Washer x2	 3mm Nut x2	 3mm Bolt x2

Warning/Caution

Always connect the wiring exactly as described in the instruction manual.
Disconnect the negative terminal of the battery before proceeding with installation.
Do not drop or expose this unit to excessive shock.
Installation should only be performed by an experienced automotive electrician.
Keep this unit away from moisture.
Never disassemble, modify, or tamper with this unit.
Never operate this unit while driving.
Securely mount this unit away from any area that may effect driving.
This unit is only designed for 12V DC type vehicles with a negative ground supply.

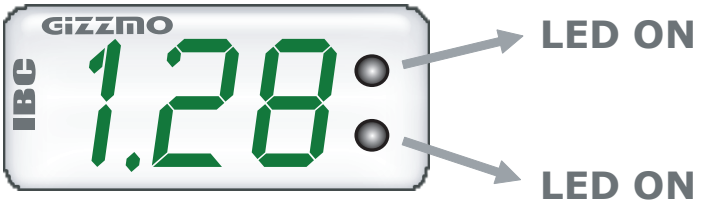
Operating Instructions



Button 1

Button 2

Green 7 Segment LED Display Area



LED ON

LED ON

Caution:
All readings in this Manual are in BAR unless otherwise stated.

Glossary of terms:

Hold: Push Button down for over 1 sec.
Activate: Push Button down for less than 0.5 sec.

IBC Quick Start

Start Up Sequence

Every time the ignition is turned on the screen will Display the memory option that was last chosen and then the boost Pressure for that memory option, after this the IBC will go to the Main Display menu.

Setting the Duty Cycle and Boost Pressure

Start the vehicle
Wait until the screen goes to the main display menu and then Press and Hold Button 1 for four seconds
The Screen will go to the Duty cycle menu, at this stage Button 1 will be flashing

Option 1:
If you do not wish to change the setting, do not push either button for five seconds and the screen will automatically go back to the main display.

Option 2:
Press Button 1 to increase the duty cycle or Press Button 2 to decrease the duty cycle.
E.g. when the setting of the duty cycle is 11, pressing Button 1 will increase the duty cycle to 12 and pressing button 2 will decrease the duty cycle to 10. Holding down Button 1 or Button 2 will increment or decrement the duty cycle continuously.
Once you have finished adjusting the duty cycle, do not push either Button for five seconds and the screen will go to the Boost Pressure display.

Units of Pressure

14.503....Lb = 1 Bar

【Hold both Button1 and Button2】
To change unit between Lb and Bar

BAR Display

LB Display

Caution:
All readings in this Manual are in BAR unless otherwise stated.

Start Up Sequence

Every time the ignition is turned on the Display Area will:
1. Display the memory option that was last in use.
2. Display the boost pressure for the memory option.
Then will go to the real time boost display. (Running Mode)

e.g:

Memory Option

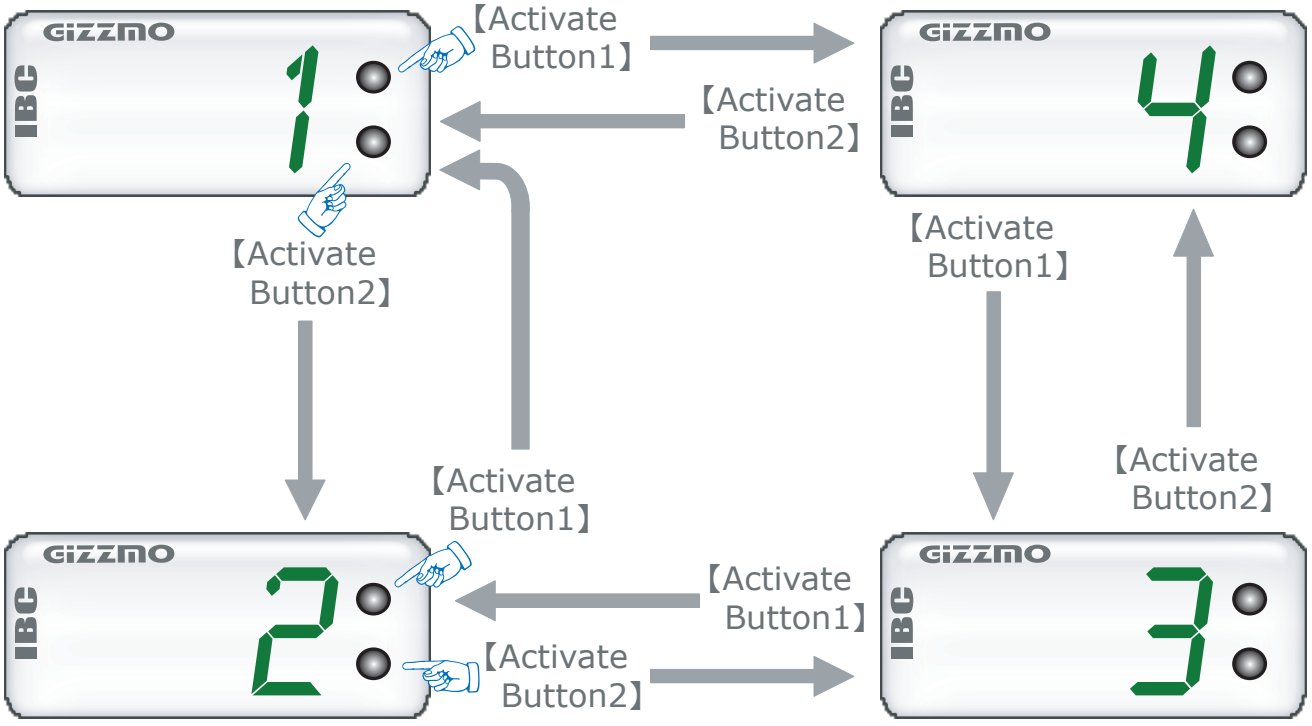
Boost Pressure

Running Mode

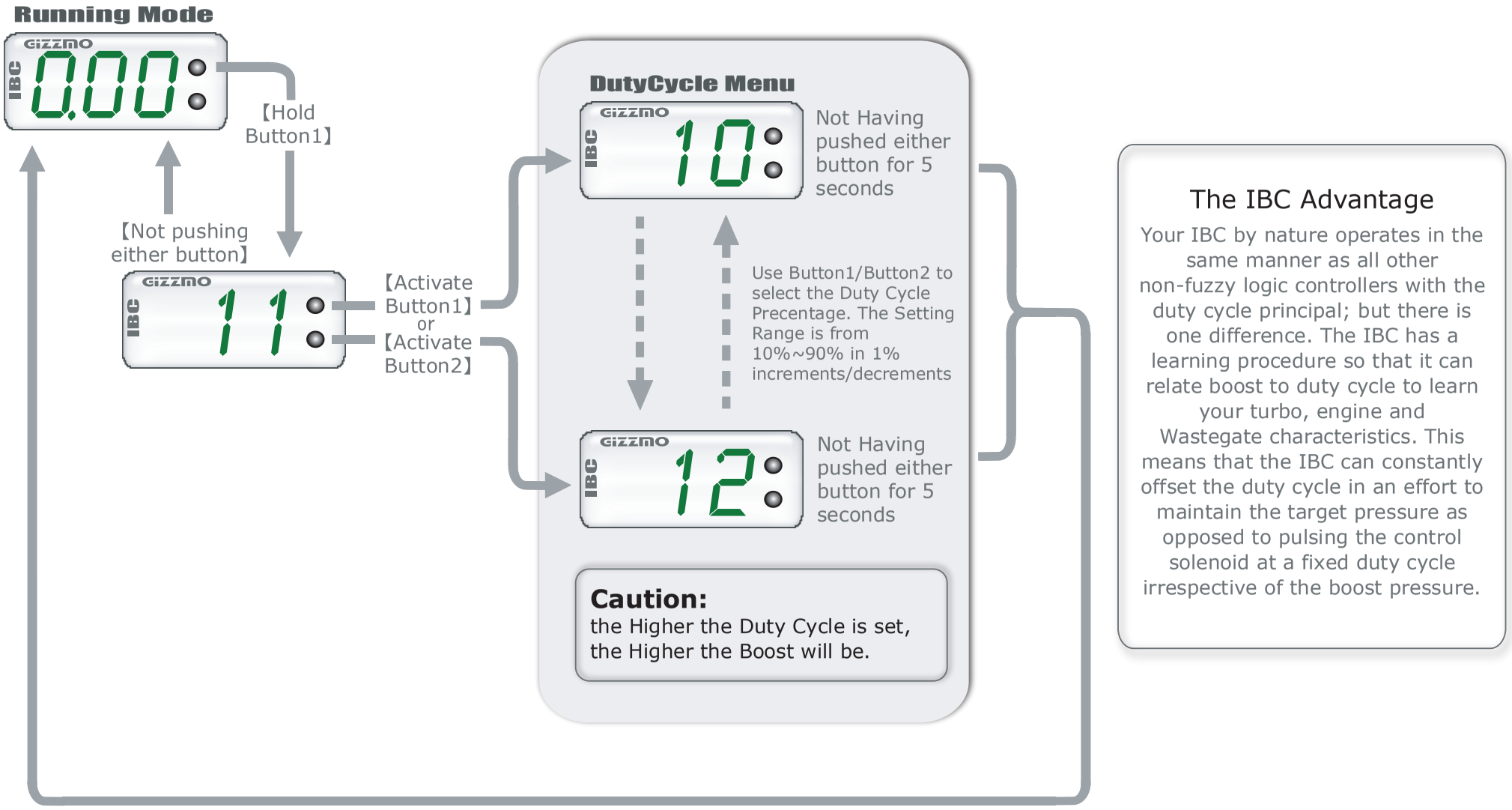
About the memory boost display

When you select a memory setting the IBC will display a boost setting for the new memory option selected. This displayed boost setting is the MAXIMUM STABLE BOOST that the IBC has seen on the memory setting you have selected. This means that if you have a boost control issue such as a boost surge or boost creep that is stable for over half a second, the IBC will recognise this as the maximum stable boost.

To Change Memories



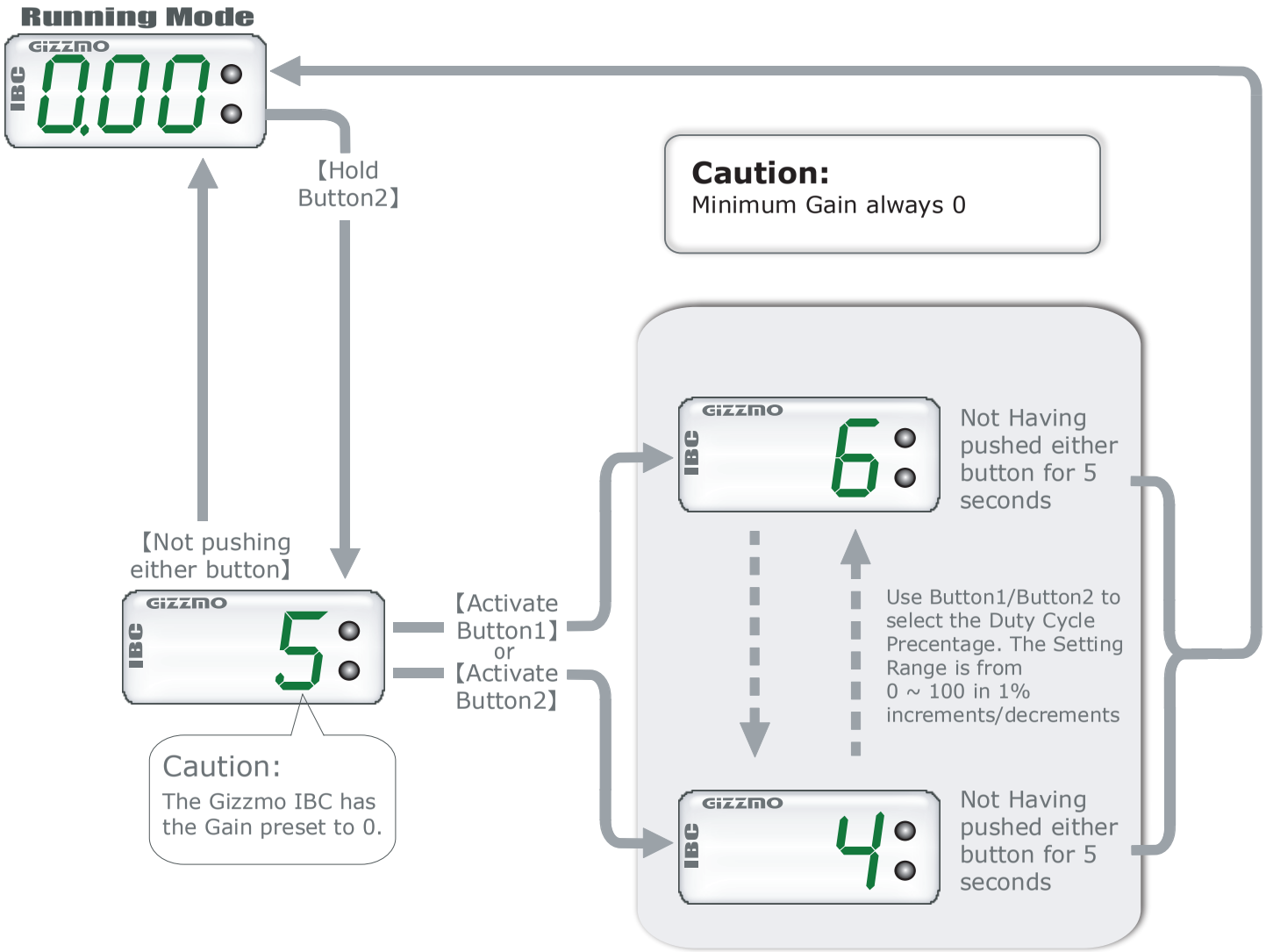
Adjust Duty Cycle/Boost Pressure



The IBC Advantage

Your IBC by nature operates in the same manner as all other non-fuzzy logic controllers with the duty cycle principal; but there is one difference. The IBC has a learning procedure so that it can relate boost to duty cycle to learn your turbo, engine and Wastegate characteristics. This means that the IBC can constantly offset the duty cycle in an effort to maintain the target pressure as opposed to pulsing the control solenoid at a fixed duty cycle irrespective of the boost pressure.

Adjust the Gain/Response

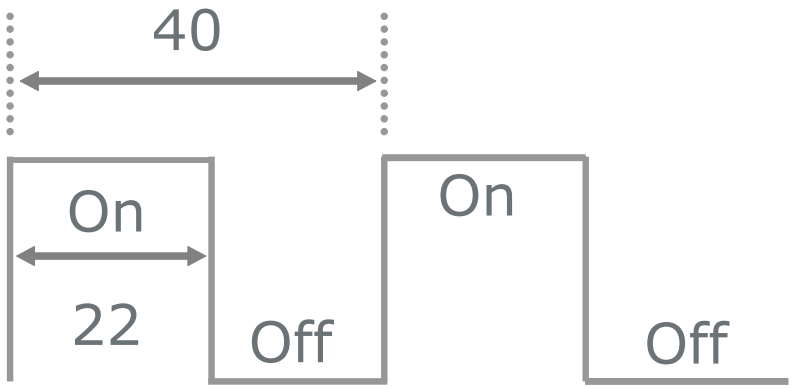


Gain

Gain effects how quickly the turbo comes on boost. Ideally this would be set as high as possible; however, if this is set too high overshooting and boost instability can occur so there will be an ideal setting for this that will be different from vehicle to vehicle.

What is Duty Cycle

$$\text{Duty Cycle} = \frac{\text{Solenoid on Time}}{\text{Solenoid Valve Operate Time}} * 100$$

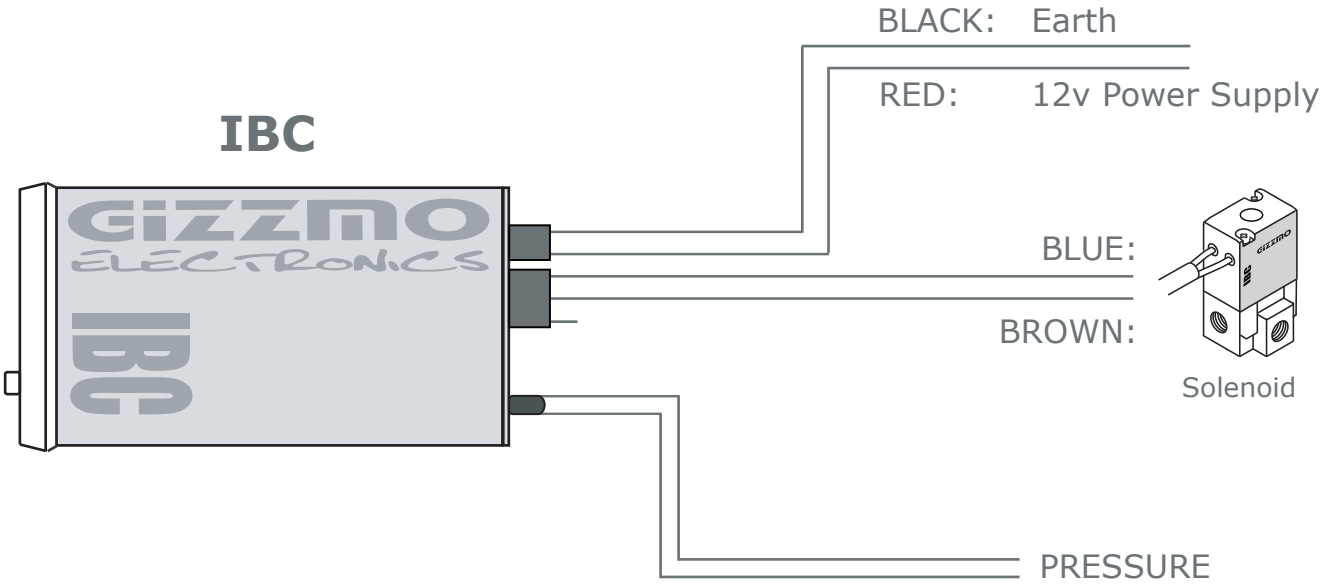


$$\text{Duty Cycle} = \frac{22\text{ms}}{40\text{ms}} * 100$$

With the example above, the solenoid valve frequency timeframe is 40 Ms with a solenoid ON time of 22 Ms. The Solenoid off Time is 18 Ms. So, the Higher the Duty Cycle we set, the Higher the Boost we will have as this will allow less pressure to reach the Wastegate.

Wiring Diagram

Disconnect the negative terminal of the battery BEFORE proceeding with the installation.



1. The Pressure port is to be connected to a direct pressure source at an inlet manifold e.g. Fuel Press Regulator. Do not connect this to any other device such as a solenoid valve or blow off valve. A 3mm Y connector is provided to assist plumbing.

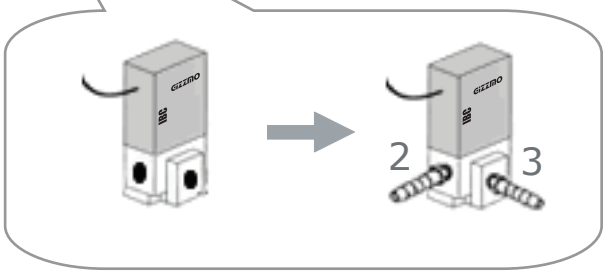
2. Mount the solenoid with the un-used port facing downwards. Connect the hoses as per the correct application (actuator or external wastegate).

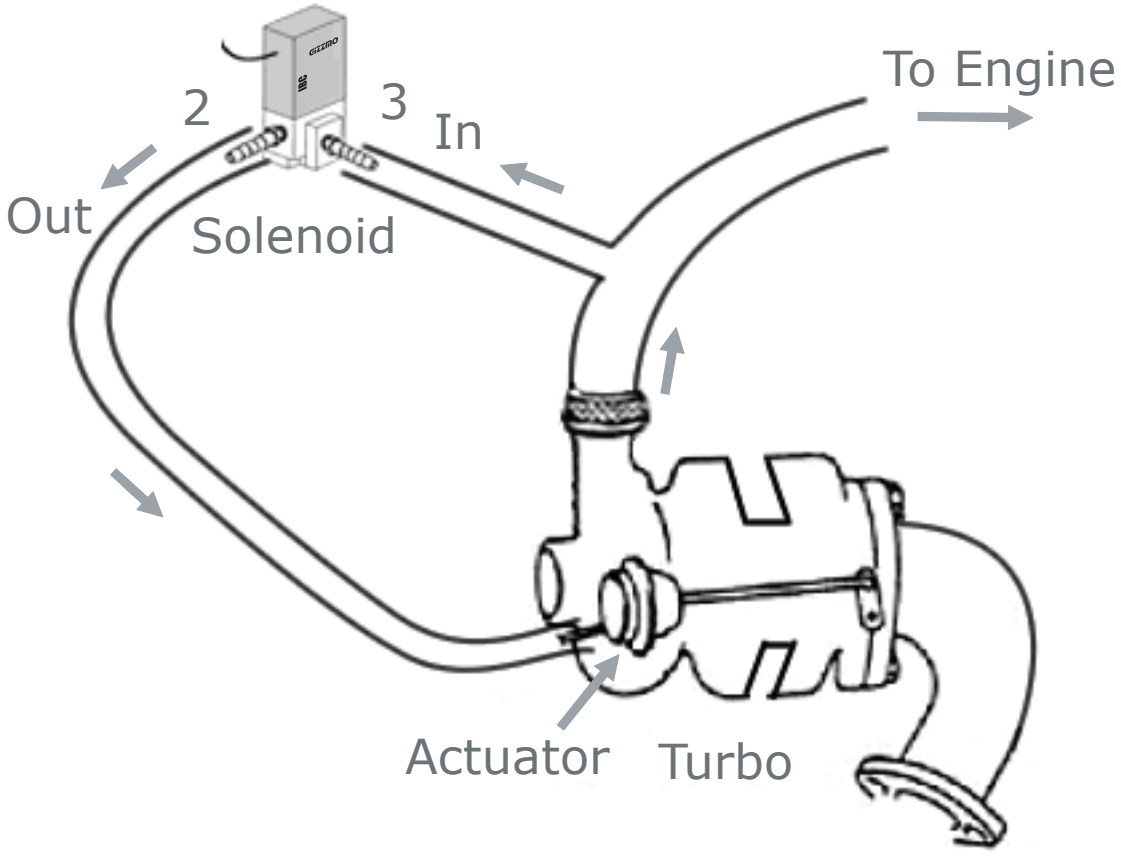
3. Connect the Red wire to a good fused power source that is live only when the ignition switch is in the on position.

4. Connected the Black wire to a good clean chassis earth.

Installation for an Internal Wastegate

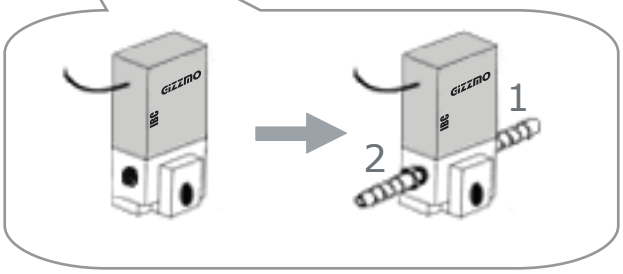
Connect the tails to Port 2 and Port 3 of the Solenoid Valve.

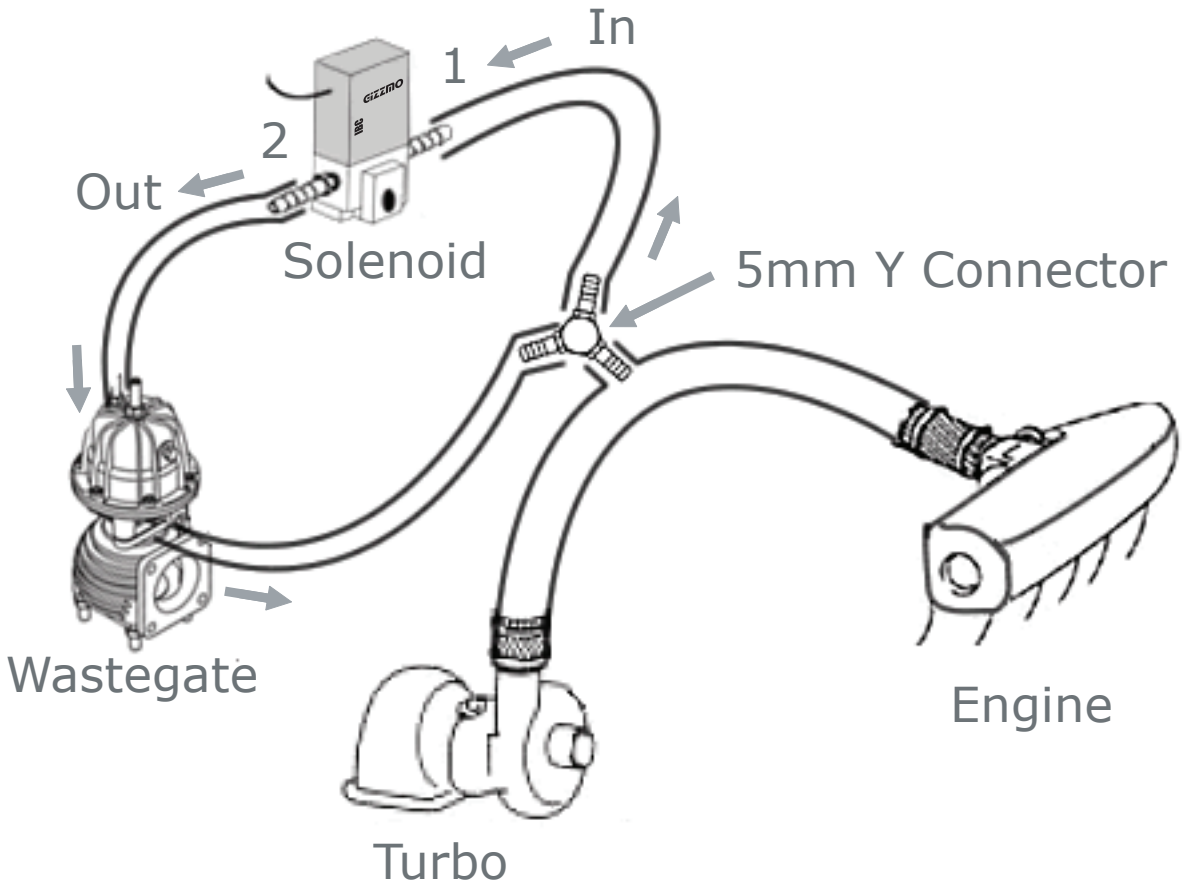




Installation for an External Wastegate

Connect the tails to Port 1 and Port 2 of the Solenoid Valve.





F&Q

The Gizzmo IBC will control Boost accurately on a correctly engineered Turbo/Wastegate combination.

It will not however overcome faults due to

CAUSE	RESULTS
1. Too smaller Wastegate	Overboosting / boost creep
2. Turbocharger to small	Boost drop off at high RPM
3. Poor quality Wastegate or Turbo	Boost instability or lack of boost
4. Wastegate mounting incorrect (poor flow)	Overboosting / boost creep
5. Too larger Turbocharger	Slow / unable to get boost
6. Too bigger Wastegate	Boost instability
7. Too harder wastegate spring	Can’t lower boost enough
8. Too softer wastegate spring	Can’t raise boost enough
9. Not set boost Correct	Over Boosting

About The Warranty

Gizzmo Electronics Limited
Limited Warranties Statement
Effective 1 January 2003

All Products manufactured or distributed by Gizzmo Electronics are subject to the following Limited Express Warranties, and no others:

For a period of one year from and after the date of purchase of a new Gizzmo Electronics product, Gizzmo Electronics warranties and guarantees only to the original purchase/user that such a product will be free from defects of material and workmanship in the manufacturing process. Gizzmo Electronics, at its sole option, shall replace the defective product. This express warranty shall be inapplicable to any product not properly installed and properly used by the purchaser/user or to any product damaged or impaired be external forces. This is the extent of Warranties available on this product. Gizzmo Electronics shall have no liability whatsoever for consequential damages following from the use of any defective product or by reason the failure of any product. Gizzmo Electronics specifically disclaims and disavows all other warranties, express or implied including, without limitation, all Warranties of fitness for a particular propose, Warranties of Description, Warranties of Merchantability, Trade Usage or Warranties of Trade Usage, The above warranty is valid in New Zealand, Australia and the America's only as Gizzmo Electronics does not offer an international warranty outside of these regions.