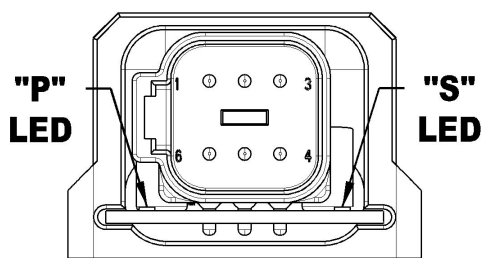
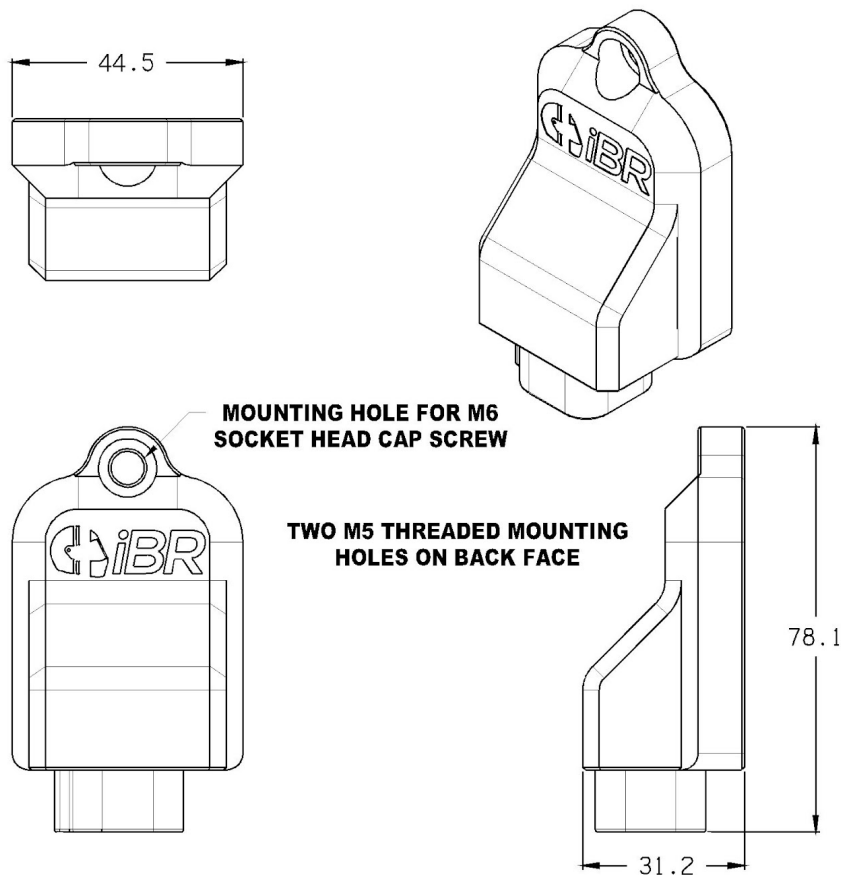


FLX01 - Flex Fuel Sensor Kit

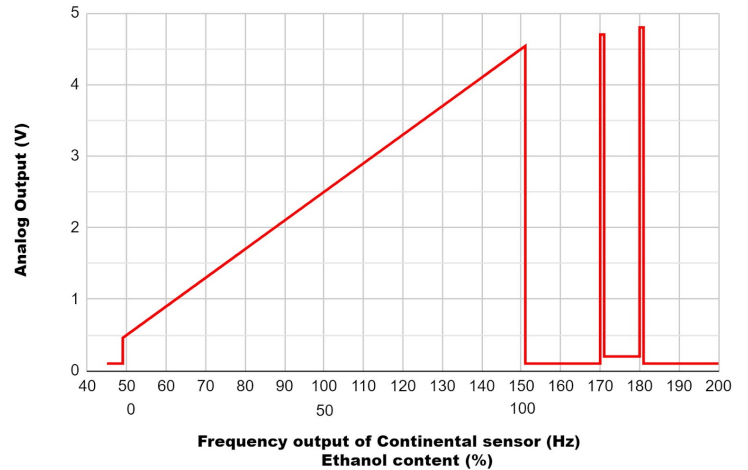
Features:

IBR FLX01 is a controller that allows the use of a Continental Ethanol Content Sensor on an ECU that requires a standard zero to five volt signal. Monitoring the ethanol content of the fuel will allow the car to be tuned for a variety of fuels or a blending of different fuels, for example standard 93 octane and E85 blended to a resulting ethanol content between the two base fuels. There are many performance gains that come from higher ethanol content but getting consistent blends can be difficult. This system allows for precise and reliable monitoring of the fuel in order to maximize the performance of the engine. Some features unique to the FLX01 include a replaceable harness assembly, no requirement for a 12V source, onboard diagnostic LEDs and a high resolution 10 bit analog output that is referenced to ECU 5V for accuracy. Mating Connector is a sealed motorsports grade DEUTSCH DT-06-6S with female terminals.



PIN			
NO.	NAME	Wire	DESCRIPTION
1	5V +	Orange	Input Signal ref and 5V from ECU
2	GND5	Grey	Signal GND from ECU
3	ETH	White	Ethanol Content Analog Out
4	FLX	Purple	Flex Fuel Sensor Signal in (Freq)
5	GND12	Black	12V GROUND for Flex Fuel Sensor ONLY
6	12V +	Red	12V + for Flex Fuel Sensor ONLY

Analog Output vs. Sensor Output



Functional Limits			
Parameter	Min	Nominal	Max
Input Voltage Pin 1 (ECU Logic)	4.5V	5.0V	5.5V
Current Draw Logic Level (5V Pin 1)		20mA	120mA
Output Voltage 12V (Pin 6)	10.0V	12.5V	15.0V
Output Voltage Analog Out Pin (Pin 3)	0V		5.0V
Current Draw (Pin 6)			100mA
Temperature	-40 °C		125 °C

Error Reporting:

FLX01 has two ways to deliver errors: two onboard RGB LEDs and through the Analog Out in reserved areas above and below the nominal 0.5 to 4.5v linear output of the ethanol percentage. The analog output can be used with a tuning software to verify the function of the FLX01 as well as troubleshooting other fuel related issues.

Error	P	S	Analog Out	Description
No Power, all LEDs off	●	●	0V	No 5V Power Connected, check wires that lead to 5V Reference Power. This could be in the TGV plug on a Subaru specific harness or the orange (+) and gray (-) wire if a universal harness was used. The 5V connection should be switched power so that the module turns off with vehicle power.
5V Power Applied	●		0.1	5V switch power applied to the unit. System on.
12V Power Out Good	●			No errors, all FLX self test functions inputs and outputs pass
Power Out of Range	●		0.3 V	5V power out of range, or 12V output out of range. 12V output should be ~12.5 V, error reported under 10.0 Volts or above 15 Volts. Check for a short in the sensor wiring, bad wiring or sensor itself. Internal electronics may be damaged.
Waiting for Voltages and Signal (FLASHING)	● ● ●		0	Booting and stabilizing system and voltages.
Nominal Condition		●	0.5 → 4.5V	No errors, sensor is functioning and reporting in nominal range.
Signal Good, Abnormal Range		●	0.1 V	No errors, signal out of normal range, clean sensor, check for fuel not flowing through sensor.
Sensor Internal Failure		●	0.2 V	Sensor is self-reporting a failure
Compensation Range		●	4.8V V	Fuel composition is outside of sensor measurement range
Error: Water		●	4.9V V	More than 4% Water detected in fuel. Change your fuel supply!