

# F-Diesel i-tool 3 Introduction

Presented by F-DIESEL  
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Version 1.0

# i-Tool 3 Equipment Introduction

**i -tool 3 calibration equipment** is developed and made by F-Diesel Team with own know-how.

It can test and calibrate VGT actuator, VNT actuator and other series actuator, whose range covers from pickup, heavy duty diesel engine to off-road application.



**F-Diesel i-Tool 3**

**i-turbo 3-Hol general specification**

Item	Terms	Specification	
Model family		i-turbo 3 CAN family	
Master model		i-turbo 3-Hol	
Software version		iSN_Hol.V1.2	
1	Power supplier	Power type	DC
		Power range	24V
		Power current	10A（Max）
2	LCD size	Fully color 7 inch PCAP touch PAD	
3	Protocol	J1939 CAN2.0	
4	Size	L*W*H=200*116*41mm <sup>3</sup>	
5	Weight	564g	
6	Software update specification		

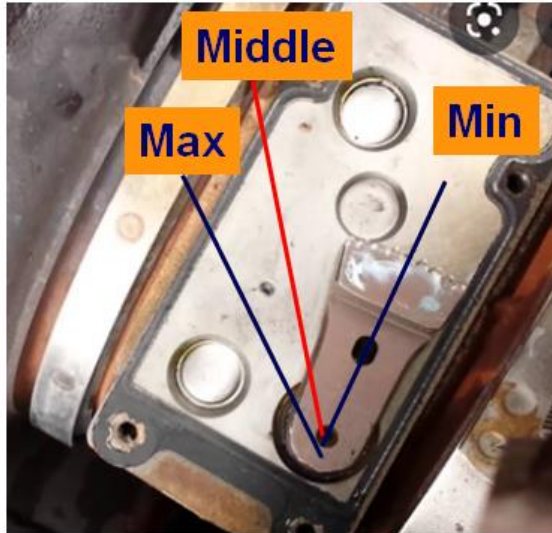
6.1) LCD software update with standalone programmer

6.2) Master chip software update by Type B USB

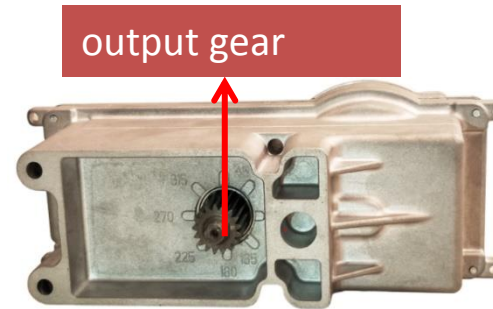
6.3) Customer self-update

**i-turbo 3 General configuration**

# Why VGT Actuator needed calibrated



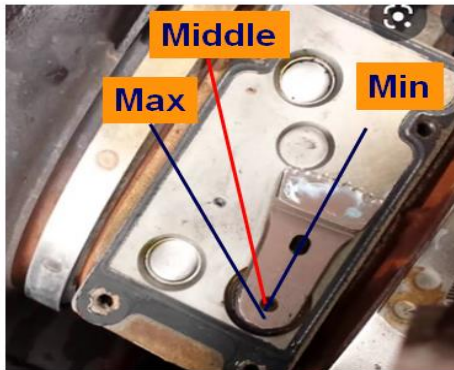
Actuator needs read the Min and Max position then store into its memory for controlling!



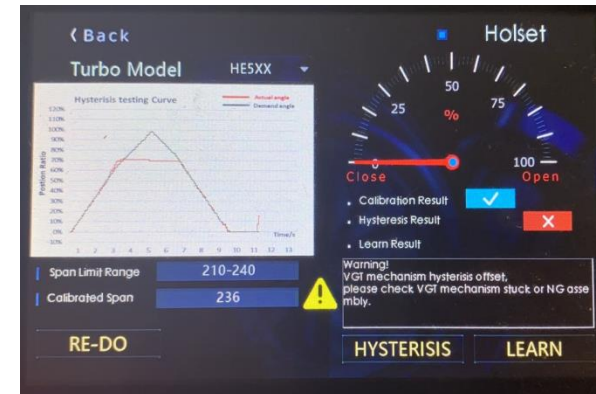
VGT actuator is controlled by CAN command for VGT nozzle open position control, the position will be set as 0-100 range. But actuator gear rotate  $360^\circ$ , and different VGT model has different size of VGT mechanism. So how to know where is the Min position (VGT nozzle Min open position) and Max position is our task to detecting!

Without proper calibrating and testing, the actuator might be stuck and cause big risk to the turbocharger and the whole system.

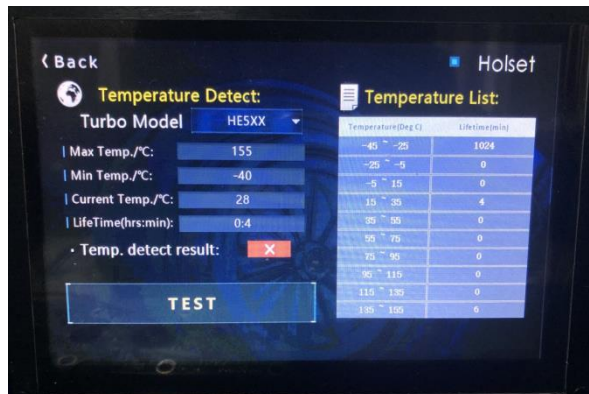
# i-Tool 3 Function and Characteristics



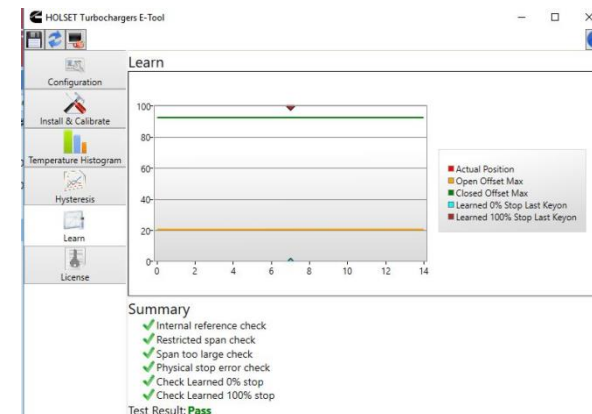
VGT operation span



Hysteresis test

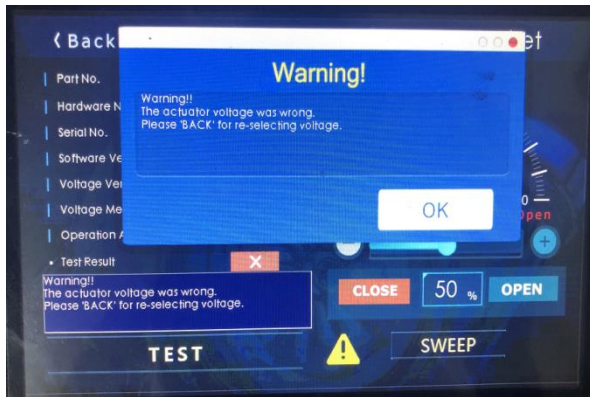


Learn test

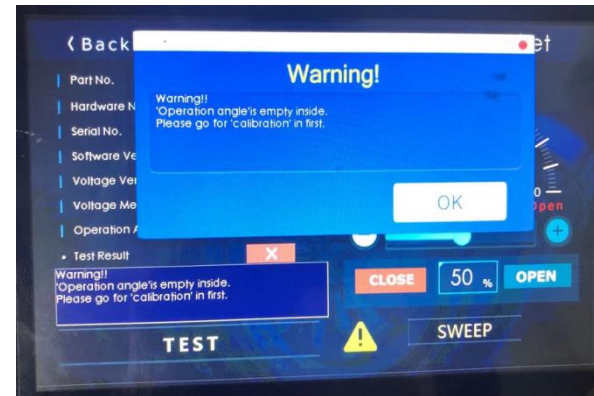


Temperature and Lifetime detecting

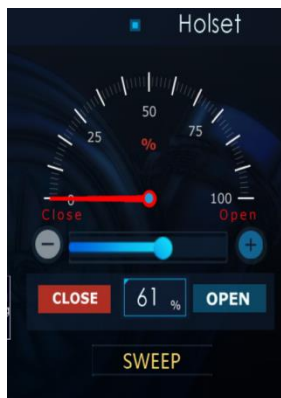
# i-Tool 3 Function and Characteristics



Wrong voltage warning



PCBA abnormal detecting



Actuator sweep testing



PCBA error code detecting

# i-Tool 3 Support Series and Brands



- Support Holset all series actuator > 12V & 24V including HE2-3-4-5
- Support Mitsuba all series actuator > 12V & 24V
- Support BorgWarner actuator > 12V & 24V
- Support John Deere actuator > 12V & 24V
- Hella actuator support—in developing
- Mitsubishi actuator-in developing

# Comparison with Holset E-Tool



**F-Diesel i-Tool 3**

VS



**Holset E-tool**

- Covering all series turbo actuator, like VNT, VGT and passenger application
- Cost 30% lower
- Customized modules
- Provide further upgrading option
- On-line technical support globally

- Holset E tool only cover VGT series

**Contact:** Mr. Bruce Li

**Email:** bruce.li@turbochargers.cn bruce.li@f-diesel.com

**Mobile/ WhatsApp / Wechat:** 0086-15221256058

**LinkedIn:** Bruce Li



**WhatsApp**



**Wechat**

# Thanks