



OCTOBER 2023

# TURBO SPEED / BOOST APP

**Garrett**  
ADVANCING MOTION

# Competitor / VOC

## Garrett Turbo Speed Gauge

- Turbo speed only
- Wired installation
- Antiquated design
- High price (\$459) for limited features/functionality



## BorgWarner TS & Boost Gauge

- Turbo speed, boost and output for datalogger/ECU
- Wired installation
- Antiquated design
- Setup based on BW model for turbo speed
- Overspeed warning
- High price (\$453 w/ TS sensor) for wired installation and antiquated design



<https://www.borgwarner.com/docs/default-source/iam/boosting-technologies/turbo-speed-gauge-guidelines.pdf>

### MATRIX 1 Product Planning

Project: Turbo Speed / Boost Monitoring  
Segment: Performance Enthusiast

Objective: Determine what qualities of an Aftermarket TS-Boost Monitoring product are important for Performance Enthusiast customers

		Competitive Products Performance Rating (1 - 5)			
		Importance Rating (1 - 5)	BW Turbo Speed / Boost Gauge	Garrett Turbo Speed Gauge	New GTX Product
Hardware	<b>Customer Needs</b>				
	Ease of installation	5	2	3	5
	Analog output for ECU and/or datalogging purposes	3	2	0	3
	Boost pressure capability	5	3	0	3
	Reliability	5	5	5	5
	Harness included	5	3	3	3
Software	User Interface Aesthetics - Modern Look (Apple-like)	5	3	2	5
	Ease of configuration	5	4	3	5
	Peak value recall	5	3	3	3
	Warning Output during turbo over-speed	5	3	0	4
	Datalogging / data replay capability included	3	3	0	3
			136	91	176

Installation Main Pain Point | Solution => Bluetooth Design

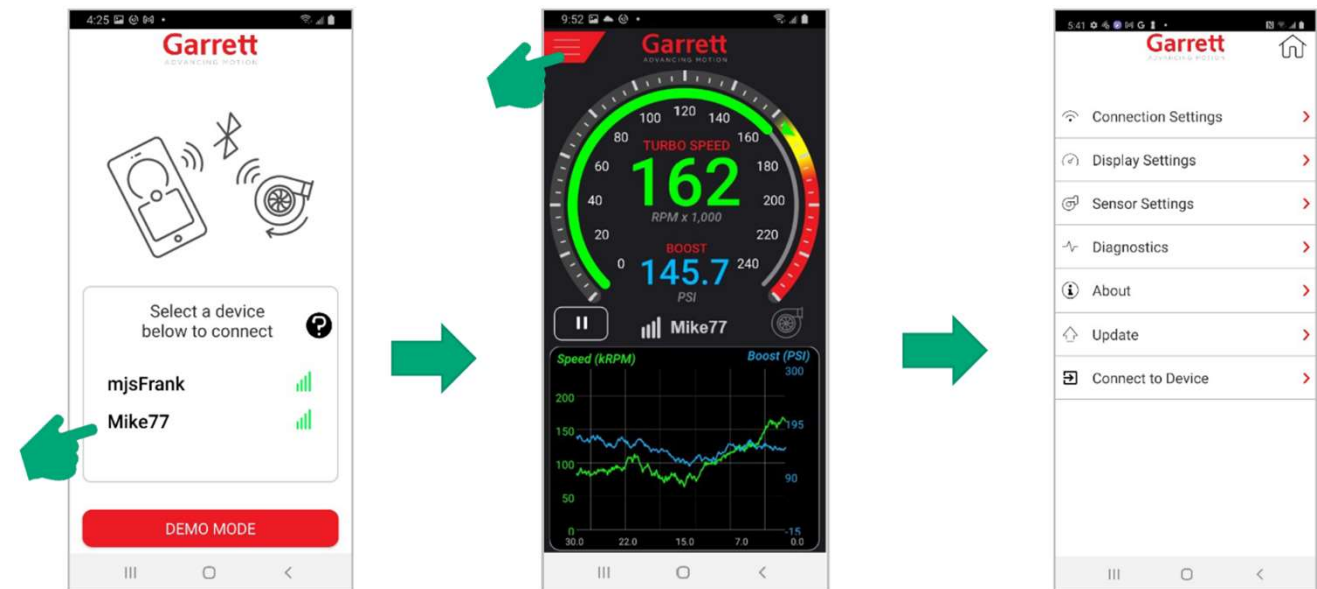
# Turbo Speed / Boost App (New Product - Modern Design)

## Description

- Device and driver interface for monitoring/recording turbo speed and boost pressure (sensor not included)
- For use with smart devices via app
- What's in the box
  - Kit #1 – Module, harness, app (user already has speed sensor)
  - Kit #2 – Module, harness, app, threaded speed sensor
  - Kit #3 – Module, harness, app, flange speed sensor

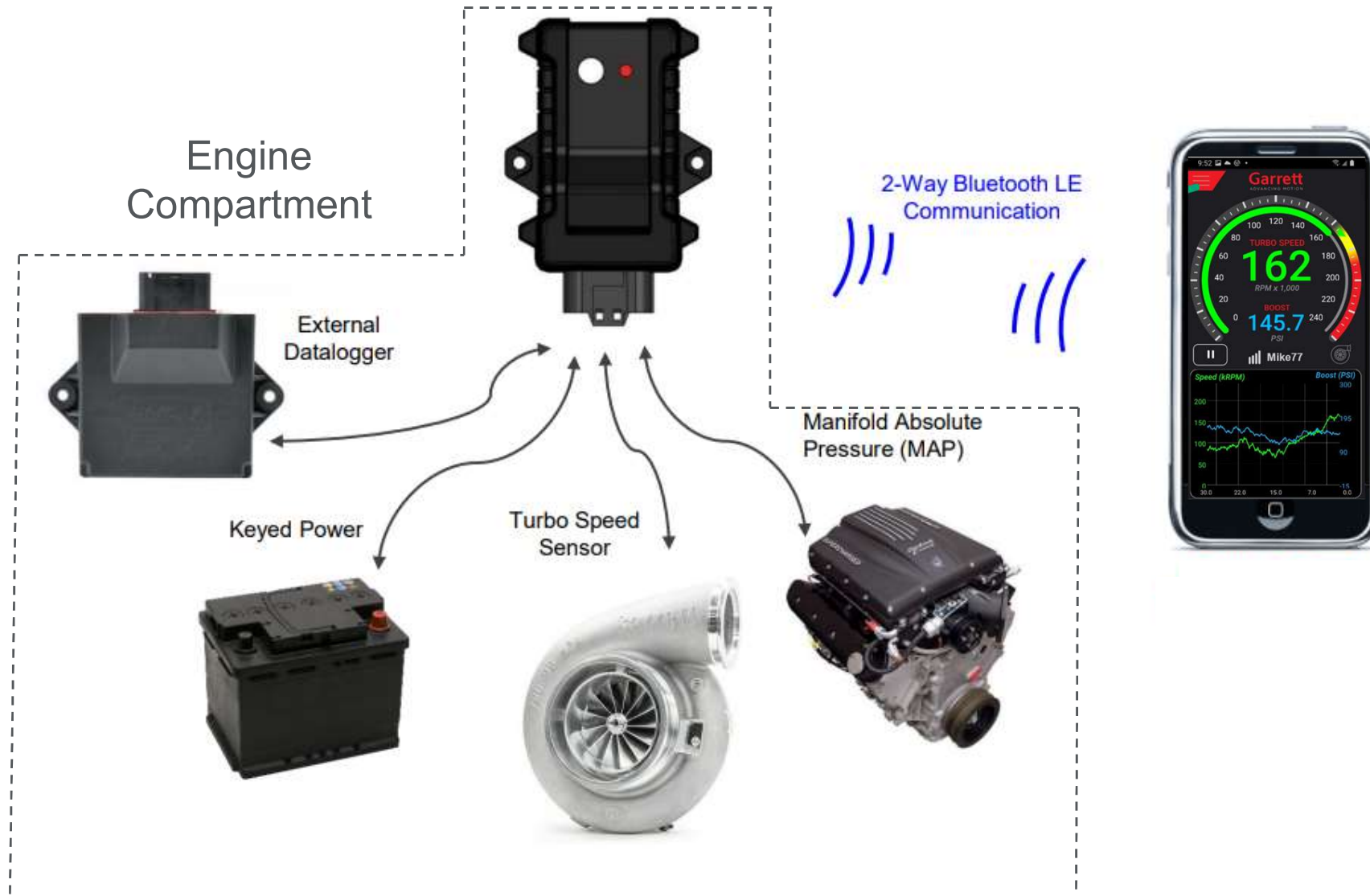
## Product Features

- Wireless (Bluetooth) communication
- iOS and Android app
- Displays and records data
- Output (turbo speed only) for external device (ECU/data logger)
- Configuration and setup based on Garrett turbo model and pressure sensor used (if applicable). Optional user entry (# of comp wheel blades and max speed) for non-Garrett manufactured configurations





# System Layout



Easy Installation

# Display / Data

1. Carrot on gauge sweep indicates maximum turbo speed during power-on cycle
2. Turbo speed displayed in numerical value and gauge sweep style => transitions from green to yellow to red signaling the approach to max-rated turbo speed
3. Boost pressure displayed in numerical value
4. Graphical display can be paused to review data
5. Minimum and maximum y-axis values for turbo speed and boost pressure can be changed to customize graphical display
6. Visible graphical display can be changed up to 120 seconds



# Diagnostics / Historical Data

## Real-time Data

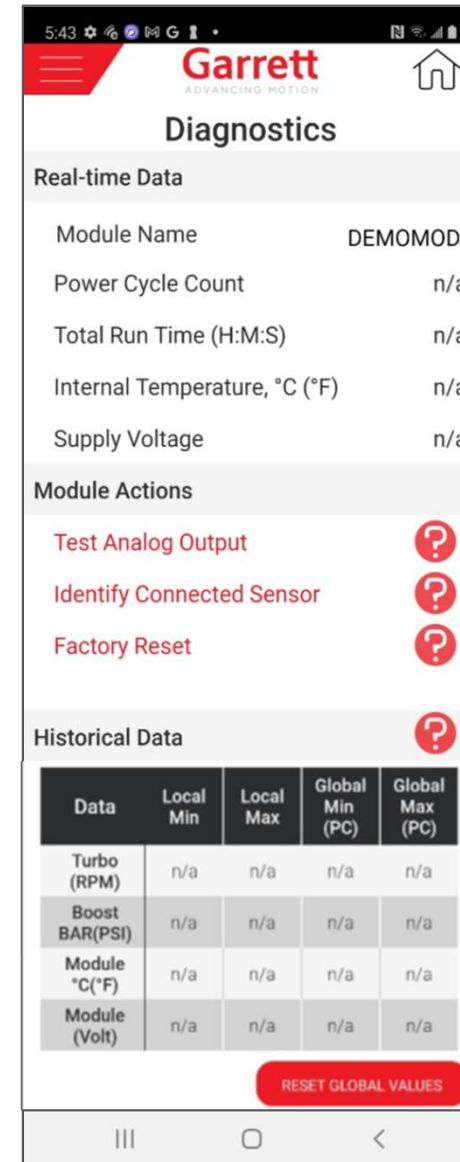
- Displays the module name connected to the app
- Power cycle count and total run time
- Module temperature and voltage

## Module Actions

- Tests output, identifies the sensor connected and resets to factory settings

## Historical Data

- Stores Min and Max values for power-on cycle and Global

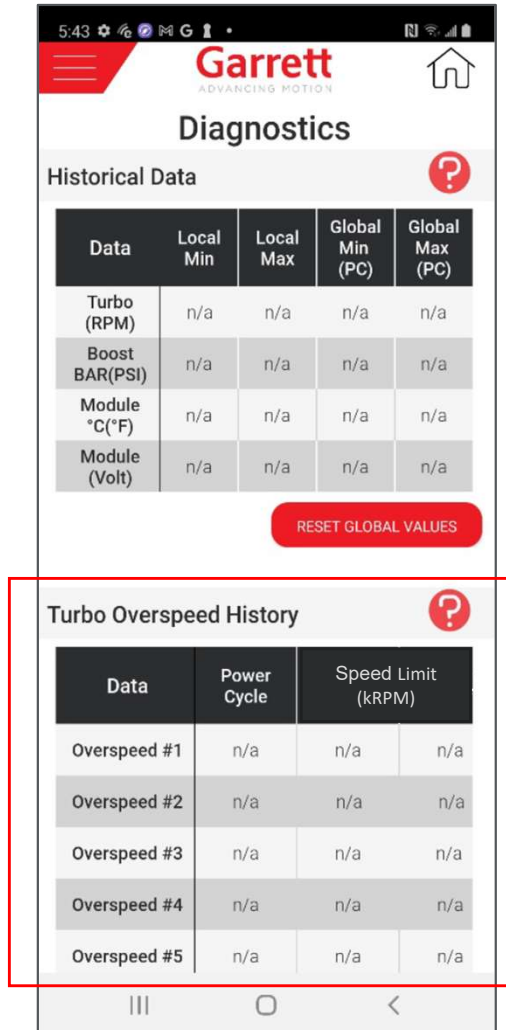
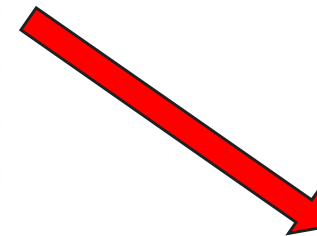


# Diagnostics / Historical Data (cont'd)

## Turbo Overspeed History

- Record last 5 Overspeed events in table format below.
- Event #1 is the most recent. Data is first-in, first-out.
- End user can not reset the table.

Data	Power Cycle	Speed Limit (kRPM)	No of Blades	Max Speed (kRPM)	Duration (sec)	Max Pressure	Turbo P/N
Overspeed Event #1							
Overspeed Event #2							
Overspeed Event #3							
Overspeed Event #4							
Overspeed Event #5							



### Notes:

- Overspeed will be registered as soon as speed exceeds limit with no 'time-at-level' delay.
- RPM must drop 500 RPM below Speed Limit before armed for another Event.

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