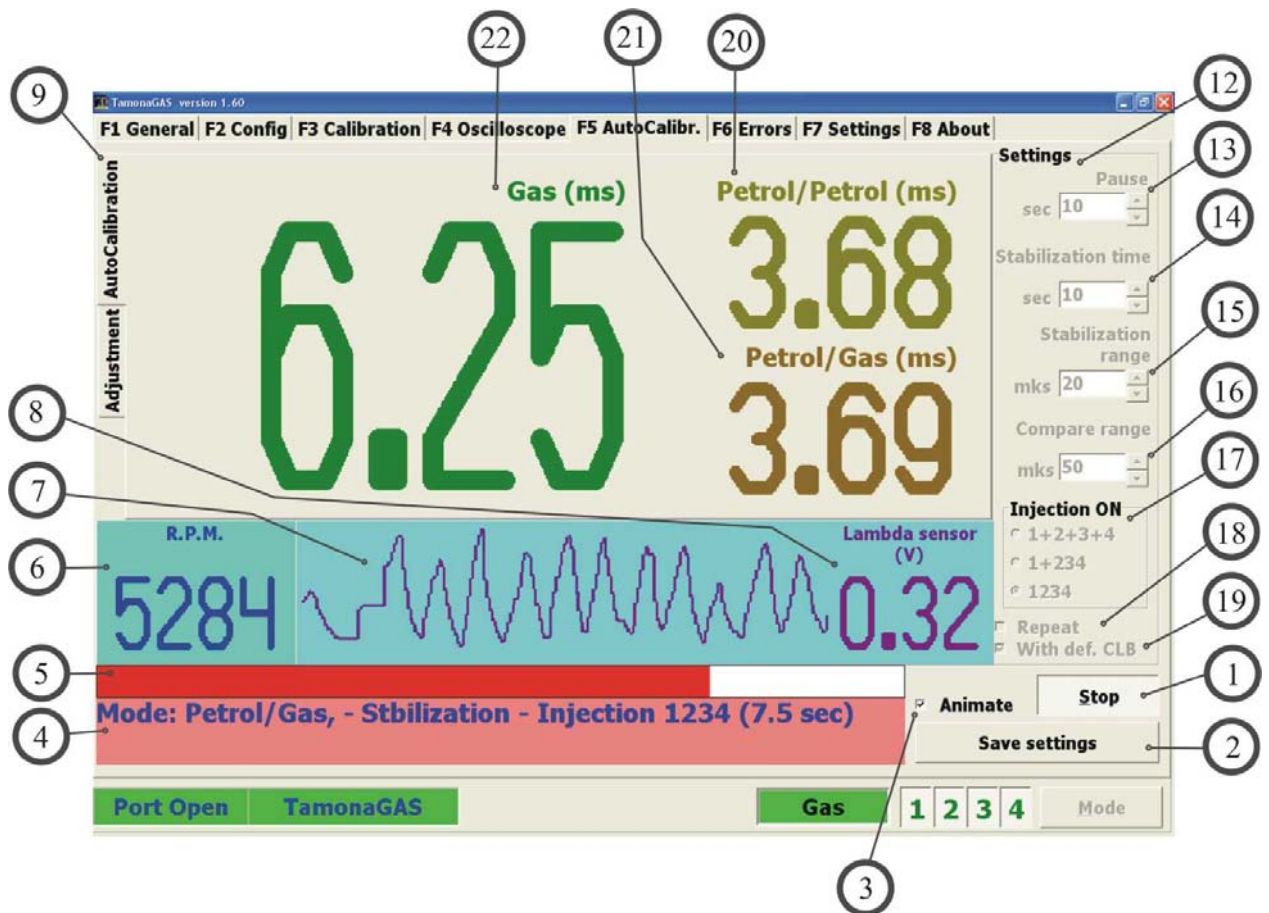


F5. Autocalibration. Overview

Bookmark “Autocalibration” is open



Control buttons

1. Autocalibration star/stop (Start/Stop – “S”).
2. Save settings of autocalibration algorithm script
3. “Animation” option
4. Prompt line
5. Visualization line
6. Ronds per minute
7. Lambda sensor signal oscillogram
8. Lambda sensor voltage (V)
9. Bookmarkss “Autocalibration” / “Positioning” (fine adjusting gas nozzles”)

12. Block of adjusting autocalibration algorithm

13. Time (sec.) of engine stabilization, pause
14. Time (sec.) of stabilization of petrol nozzles impulses duration
15. Allowable limit (us) of stability of petrol nozzles impulses duration
16. Allowable difference of impulses duration for petrol nozzle in “Petrol” and “Gas” modes
17. Succession of gas nozzles switching on
18. Autocalibration method with repeated checking petrol nozzle duration in “Petrol” mode
19. Factory’s settings are set in shortcut calibration after autocalibration start (F3)
20. Petrol nozzles impulses duration in “Petrol” mode
21. Petrol nozzles impulses duration in “Gas” mode
22. Gas nozzles impulses duration

F5. Autocalibration. Detailed description

Bookmark "Autocalibration" is open

Control buttons of „Autocalibration“ bookmark

- "Start/Stop" – "S" (F 5.1)

Starts/stops autocalibration

- "Save settings" (F5.2)

Saves settings F 5.12 , F 5.3 in file "TamonaGAS.ini"

Autocalibration succession

Prompt line (F5.4) gives comments of the process. It is recommended to make in hot engine, switching off all car electric devices, especially automatic ones, eg. air conditioning to switch on "Econ" mode. It is not recommended to change load (switch on or off any car devices). Otherwise calibration results would be erroneous.

1. Fulfill autocalibration algorithm script (F5.12)
2. Push the button "Start" (F5.1). The process could be cancelled any time by pushing the button "Stop"
3. ProGAS system enters automatic mode and switches onto petrol..
4. If option "C factory's.CLB" (F5.19) is on then default diagram data on shortcut calibration (F3) are transmitted to ProGAS system. Otherwise, autocalibration starts with current diagram.
5. Influence factors reset (F11.7, F11.9, F11.11, F11.13)
6. Initial measuring and averaging duration of petrol nozzles impulses on petrol (F5.20) is carried out for time in „Stabilization time" (F5.14).
7. Second measuring and averaging duration of petrol nozzles impulses on petrol (F5.20) is carried out for time in „Stabilization time" (F5.14).
8. Adjacent measurements are compared. If this difference is more than set in "Stabilization range" (F5.15) the program returns to p. 7. If this difference is less than set in (F.15) it is considered that data are stable and :
 - if autocalibration runs in the first checking circle then the program makes next step;
 - if autocalibration runs in the second checking circle (option "Repeat" (F5.18) is on) then ProGAS system restores influence factors (F11.7, F11.9, F11.11, F11.13), and at option "Animation" is On (F5.3) the program switches to shortcut "Configuration, Options" temporarily and gives possibility to make certain of influence factors availability and returns to current shortcut (F11) and p. 14.
9. Depending on nozzles sequence that set in "Nozzles" (F5.17) nozzles switch on: No.1 (1+2+3+4 or 1+234) or all at one time (1234) and there is delay as set in "Pause" (F5.13). Measurements are not carried out.
10. Measuring and averaging duration of petrol nozzles impulses on gas (F5.11) are carried out for time in „Stabilization time" (F5.14).
11. Data of duration of petrol nozzles impulses on gas (F5.21) and in petrol (F5.20) are compared. If the difference is less than set in „Comparison range" (F5.16) , it is considered that gas nozzle works properly and the program steps to the next nozzle till full operation on gas and further next point. Otherwise, diagram (F3) is corrected, data are transmitted to ProGAS system and at option "Animation" is On (F5.3) the program switches to bookmark „Calibration" (F3) temporarily and gives possibility to make certain of diagram change visually and returns to current shortcut and point 9.
12. Sensor reference parameters are measured (F11.8, F11.10, F11.12).
13. "Repeat" option (F5.18)
 - 13.1 If "Repeat" option is Off (F5.18), sensor reference parameters are transmitted to ProGAS system (F11.8, F11.10, F11.12) and influence factors are restored (F11.7, F11.9, F11.11, F11.13), and if "Animation" option (F5.3) is on the program switches to shortcut "Configuration, Options" (F11) temporarily and gives possibility to make certain of reference parameters and influence factors and, further, returns to current bookmark and p. 14.

- 13.2 If “Repeat” (F5.18) option is On, sensors reference data (F11.8, F11.10, F11.12) are transmitted to ProGAS system, if “Animation” option (F5.3) is on the program switches to bookmark “Configuration, Options” (F11) temporarily and gives possibility to make certain of reference parameters, further, returns to current bookmark and makes next step.
- 13.3 ProGAS system switches to petrol and delays for time in point „Pause“ (F5.13). Measurements are not carried out. The program returns to point 7.
14. Autocalibration is completed successfully.

Adjusting autocalibration script

- “Pause” (F5.13). Time (sec) of engine stabilization (default – 10 sec.) **Time decreasing shortens autocalibration time but precision becomes worse.**
- “Stabilization time (F5.14). Time of collection of petrol nozzles data collecting (default – 10 sec.) **Time decreasing shortens autocalibration time but precision becomes worse.**
- 23. “Stabilization range” (F5.15). Permissible limit (usec.) of stability of petrol nozzles impulses duration. The less this time the higher precision and vice versa (default – 20 usec.).
- 24. “Comparison range” (F5.16). Difference between impulses duration at work on petrol and gas. The impulses difference is acceptable if it is less than set. The less set value the more precise calibration but autocalibration takes more time (default – 50 usec.).
- 25. “Nozzles” (F5.17). The sequence of gas nozzles switching on:
 - “1 + 2 + 3 + 4” serial switching, preciser calibration (recommended).
 - “1 + 2 3 4” No.1 first, further all in one time
 - “1 2 3 4” all in one time.
- “Repeat” (F5.18). Autocalibration way with recurring checking of petrol nozzles switching duration in Petrol mode (recommended).
- “Default” (F5.19). Factory’s diagram data are set on calibration bookmark (F3) after autocalibration start. (only for first calibration).
- “Animation” (F5.3). The program switches automatically onto bookmark whose data are transmitted to ProGAS system during autocalibration, further program returns to current bookmark (recommended).