APOWFIX

QDB-5A

Automobile actuator Drive detector



1. Introduction

The QDB-5A is a drive designed for the functions required for automotive maintenance, with simple operation, rich functions, easy-to-use diagnostic instruments that can quickly identify component problems. The main functions include oscilloscope function, PWM drive output, stepper motor drive, PWM signal output, voltage, resistance, current, capacitor and diode measurement.
The supported parts are as follows: (Only supports some models and needs to be identified by the user)

Oscilloscope Function

- Test sensor signal

2 Wire PWM Drive

- Solenoid valves
- Solenoid Injector

Step Motor Drive

- Idle motor
- Instrument panel motor
- Urea pump step motor

PWM Signal Drive

- 3-wire Urea pump motor
- 3-wire ignition coil
- Electronic fan

Signal Output Simulation

- Air conditioner pressure sensor
- Rail pressure sensors
- Flow sensors

Ignition Drive

- Ignition coil

Multimeter Function

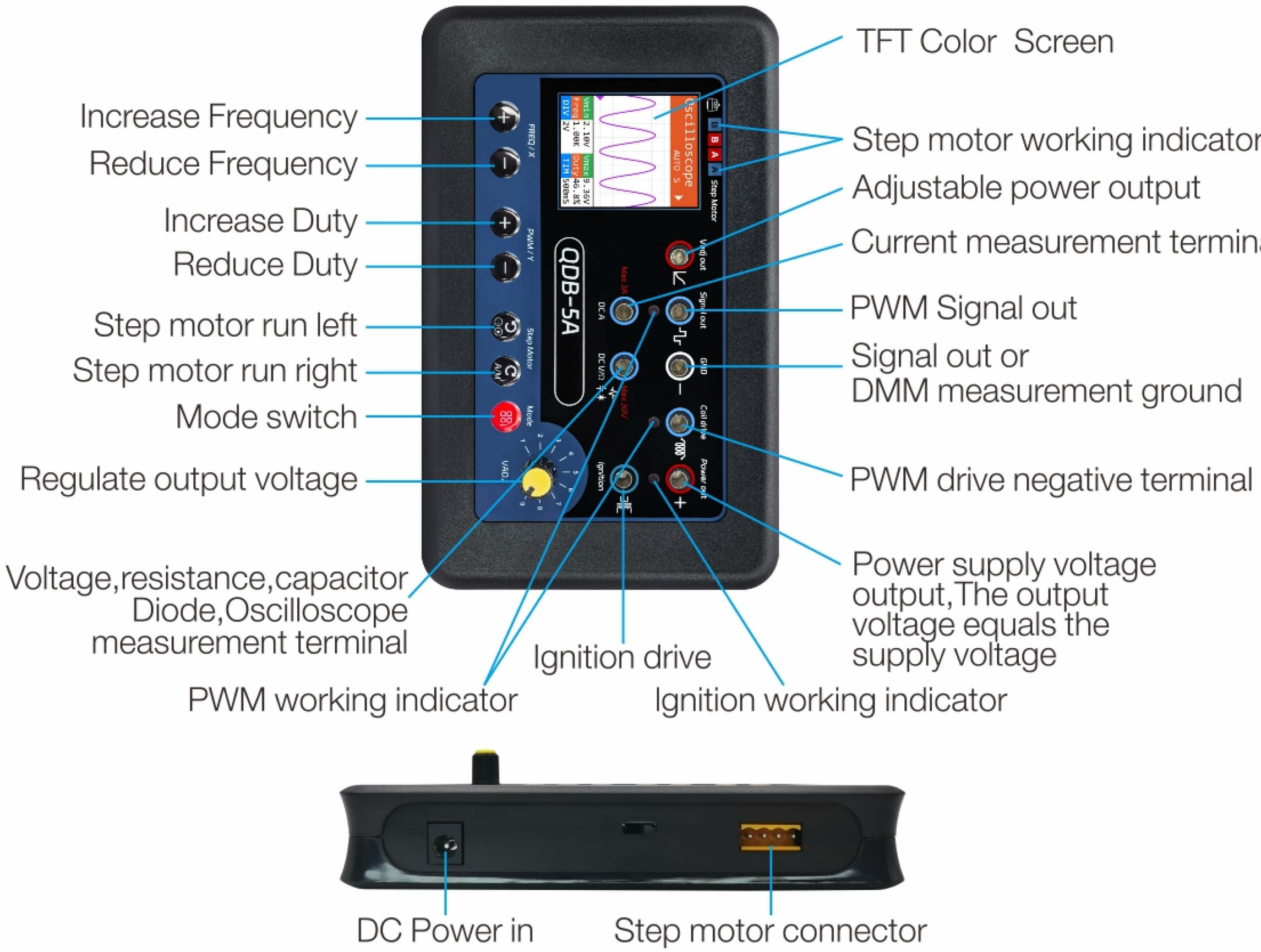
- Resistance, voltage, current, capacitance measurement
- Diode measurement

Do not short-circuit Coil drive or Ignition to Power out terminal.

2. Specification

Num.	Item	Specification
1	Power In	DC 9~26V /100W
2	Power Out	Current: Max 2.5A Voltage: ~Power In
3	VADJ Out	Voltage:1.25V~14.5V Current: Max 1.5A
4	DMM	DCV: 0~30V DCR: 0~1MΩ DCI: 0~1.8A Capacitance: 10nF~1000uF
5	PWM Signal	Frequency:1~100KHz Duty: 0.0~100% VPP: 1.25~14.5V
6	Drive out	Current: Max 3A
7	Step Motor	Max 1.5A
8	OTR	0~55℃

3. Function of the panel



4. Schematic diagram of the test connection

A.3-wire signal drive mode

1.Connect the measured parts according to the diagram (4.A).
2.Power the QDB-5A according to the measured parts, Use 12V or 24V, and press [Mode] key to select [PWM] mode.
3.Adjust the VPP of the PWM signal, which can be adjusted between 5-12V for different parts.
4.Adjust the frequency of the PWM signal.
5.Adjust the duty cycle of the PWM signal.
6.Check the screen and confirm whether the setting parameters are within the set value.
7.Observe the working condition of the components at the same time to judge their quality.



(4.A)

B. 2-wire power drive mode (2-wire solenoid valve, injector, EGR)

1.Connect the measured parts according to the diagram (4.B).

2.Power the QDB-5A according to the measured parts, Use 12V or 24V, and press [Mode] key to select [Valve] or [Injector] mode.

3.Adjust the frequency of the PWM signal.

4.Adjust the duty cycle of the PWM signal or adjust the pulse width.

5.Check the screen and confirm whether the setting parameters are within the set value and View load current.

6.Observe the working condition of the components at the same time to judge their quality.



(4.B)

C. Step motor testing (idle motor, instrument motor, headlight motor)

1.Connect the measured parts according to the diagram (4.C).
2.Power the QDB-5A according to the measured parts, Use 12V or 24V, and press Mode key to select Step motor mode.
3.Click or long press the left turn, right turn button.
4.Observe the working condition of the components at the same time to judge their quality.



(4.C)

D. Resistance, voltage, capacitance, diode, current measurement

1.Power supply to QDB-5A, Use 12V or 24V, and press mode key to select DMM mode.
2.Connect the measuring pen as shown in the figure to measure the resistance,capacitance, diode or voltage (the voltage cannot be connected reversely) (4.D).
3.Connect the measuring pen as shown in the figure to measure the current (4.D).
4.Read the measurement value from the screen and judge its quality.



(4.D)

E.Ignition test

1.Connect the ignition according to the diagram (4.E).

2.Power supply to QDB-5A, Use 12V or 24V;

3.Pressured Mode key to switch to Ignition mode;

4.Adjust the open width of the pulse signal;

5.Observe the working condition of the components at the same time to judge their quality.



(4.E)

F. Oscilloscope

1.Connect the measured parts according to the diagram (4.F)..

2.Power the QDB-5A according to the measured parts, Use 12V or 24V, and press Mode key to select Oscilloscope mode.

3.Adjust the vertical voltage gear.

4.Adjust the horizontal time base.

5.Check the screen and confirm whether the setting parameters meet the requirements of the test component; At the same time, observe the waveform image and analyze the change pattern of the electrical signal over time.



(4.F)

5. Button functions

Button	Work mode						
	Multimeter	Injector	Ignition	Valve	PWM	Step motor	Oscilloscope
1	V/R/CUR/ DIODE/C/AUTO	Adjust Frequency	Adjust Frequency	Adjust Frequency	Adjust Frequency	---	Adjust vertical voltage gear
2	V/R/CUR/ DIODE/C/AUTO	Adjust Frequency	Adjust Frequency	Adjust Frequency	Adjust Frequency	---	Adjust vertical voltage gear
3	---	Adjust Pulse Width	Adjust Pulse Width	Adjust PWM duty	Adjust PWM duty	---	Adjust horizontal time base
4	---	Adjust Pulse Width	Adjust Pulse Width	Adjust PWM duty	Adjust PWM duty	---	Adjust horizontal time base
5	---	Stop/Run	Stop/Run	Stop/Run	Stop/Run	Forward	Pause/Run
6	---	---	---	---	---	Backward	Auto/Manual
7	Next Mode	Next Mode	Next Mode	Next Mode	Next Mode	Next Mode	Next Mode

6. Parameter settings before component testing (very important)

Num.	Parts	Setting
1	Solenoid valve	Frequence:100~500HZ, Duty: 1~40%
2	Solenoid Injector	Frequence:1~20HZ, Width:0~1000US
3	Ignition coil	Frequence:1~20HZ, Width:0~2000US
4	3-wire Urea pump motor	Frequence:100~500HZ, Duty: 1~60%
5	Voltage measurement	DCV <30V, cannot be reversed
6	Power In	DCV < 26V
7	PWM Signal Out	Frequence:1-100KHZ, Duty: 0~100% VPP (VADJ Set): 1.25V-14.5V
8	VADJ OUT	Voltage: 1.25V-14.5V

7. Work mode select (very important)

Num.	Mode	Test Parts
1	DMM Mode	Resistance,Voltage,Current,Capacitance,Diode
2	Injector Mode	Injector
3	Ignition coil Mode	Ignition coil(Direct drive type)
4	Valve Drive Mode	ZME, DRV, Solenoid valve
5	PWM Signal and Drive	Air conditioner pressure sensor Rail pressure sensors Flow sensors 3-wire Urea pump motor 3-wire ignition coil(Signal Drive type) Electronic fan
6	Step Motor Mode	Idle motor Instrument panel motor Urea pump step motor
7	Oscilloscope Mode	Test sensor signal

8.Warranty Service

A.Product warranty period

1 year warranty for the main device, 3 months warranty for vulnerable accessories.

B.Supported Warranty Certificates

Valid proof of purchase + serial number of the product.

C.Product Warranty Policy

During the warranty period, if the host of the product has a performance failure that is not man-made, you can enjoy free repair service.

D.Shipping Instructions

Only bear the one-way freight of the return, and the scope of delivery is limited to the delivery address of the purchase order.

E.The following scenarios do not belong to the scenarios of free replacement or warranty

a.The warranty period has expired.

b.Damage caused by failure to install, use, maintain, and keep in accordance with the requirements of the product's instructions for use.

c.Damage caused by dismantling the host without permission.

d.There is no valid warranty certificate (except those that can prove that the product is within the valid warranty period).

e.The SN barcode is torn off or damage, blurred and unrecognizable.

f.Damage caused by force majeure (such as fire, earthquake, flood, etc.).

g.Damage caused by transportation, loading and unloading during repair.

h.Accidental factors or human behavior cause damage to the product.

9. Commitment to maintenance quality

A.The whole machine is replaced

The warranty validity period after the replacement of the whole machine is recalculated from the date of replacement.

B.Repairs covered by the warranty

Replacement of host parts: If a part is replaced, the original warranty period of the host will be extended after replacement, and the warranty period of the host is less than 60 days shall be calculated as 60 days.

Out-of-warranty repaired replacement parts are covered by a 90-day limited warranty.

10. Disclaimer and warning

The content mentioned in this article is related to your safety, legitimate rights and responsibilities. Before using this product, please read this article carefully to ensure that the product has been set up correctly. Failure to follow and follow the instructions and warnings herein may result in injury to you and those around you, damage to the product or other surrounding items.

Once you use this product, it is deemed that you have carefully read the disclaimer and warning, and understand, Acknowledge and accept all the terms and contents of this statement. You undertake to be fully responsible for the use of this product and the consequences that may arise.

The pictures used in the manual may be different from the actual product. The actual product shall prevail.