



INSTRUCTIONS FOR:

# 12 FUNCTION DIGITAL AUTOMOTIVE ANALYSER

MODEL No: TA101

Thank you for purchasing a Sealey product. Manufactured to a high standard, this product will, if used according to these instructions, and properly maintained, give you years of trouble free performance.



**IMPORTANT:** PLEASE READ THESE INSTRUCTIONS CAREFULLY. NOTE THE SAFE OPERATIONAL REQUIREMENTS, WARNINGS & CAUTIONS. USE THE PRODUCT CORRECTLY AND WITH CARE FOR THE PURPOSE FOR WHICH IT IS INTENDED. FAILURE TO DO SO MAY CAUSE DAMAGE AND/OR PERSONAL INJURY AND WILL INVALIDATE THE WARRANTY. KEEP THESE INSTRUCTIONS SAFE FOR FUTURE USE.

## 1. SAFETY

### 1.1. PERSONAL PRECAUTIONS

- ✓ When using the analyser, please observe all normal safety rules concerning:
  - Protection against the dangers of electric current.
  - Protection of the analyser against misuse.
- ✓ Full compliance with safety standards can only be guaranteed if used with the test leads supplied. If necessary, these must be replaced with genuine Sealey leads with the same electronic ratings. Failure to do so will invalidate the warranty.
- ✗ **DO NOT** use leads if damaged or if the wire is bared in any way.

### 1.2. GENERAL SAFETY INSTRUCTIONS

- ✓ Familiarise yourself with the application and limitations of the analyser as well as the potential hazards. *IF IN ANY DOUBT CONSULT A QUALIFIED ELECTRICIAN.*
- ✓ When the analyser is linked to a measurement circuit, do not touch unused analyser terminals.
- ✓ When the scale of the value to be measured is unknown set the selector to the highest range available.
- ✓ Before rotating the range selector to change functions, disconnect test leads from the circuit under test.
- ✗ **WARNING!** Never perform resistance measurements on live circuits. Only measure on disconnected circuits.
- ✓ Always be careful when working with voltages above 60V DC or 30V AC. Keep fingers behind the probe barriers whilst measuring.
- ✓ When not in use, store the analyser carefully in a safe, dry, childproof location. Storage temperature range -10°C to 50°C.
- ✓ Never apply voltage or current to the analyser that exceeds the specified maximum.
- ✗ **WARNING!** Do not make current measurements on the 10A scale for longer than 10 seconds in every 15 minutes. Exceeding 10 seconds may cause damage to the analyser and test leads.
- ✓ The user shall ensure that test probes are correctly selected in order to prevent danger. Probes shall be selected to ensure that adequate barriers guard against inadvertent hand contact with live conductors under test and that probes have minimal exposed probe tips. Where there is a risk of the probe tip short circuiting with other live conductors under test, it is recommended that the exposed tip length shall not exceed 4mm.

## 2. INTRODUCTION

Durable bi-composite case and integral stand suitable for the toughest workshop conditions. Large, hi-contrast LCD display with 18mm high digital read-out and analogue bar graph. Includes auto-ranging, data-hold, auto-polarity, auto-power-off and low battery display functions. Bar graph simplifies lambda sensor testing. Supplied with capped test probes and K-type thermocouple.

Functions			
Function	Test Range	Connections	
AC Current	326µA - 10A	µAmA / 10A + COM	
DC Current	326µA - 10A		
AC Voltage	3.26V - 750V	VΩRPM + COM	
DC Voltage	326mV - 1000V		
Diode Test	Typically 1mA		
Continuity Test	<50 Ohms		
Frequency	320Hz - 32kHz		
Dwell Angle	2cyl 180° - 8cyl 45°		
Tachometer	0 - 3260rpm and 0 - 3260rpm x10		
Resistance	326Ω - 32.6MΩ		
Temperature	-20°C to 750°C -4°F to 1400°F		
Duty Cycle	0 - 99.9%		

- Display:** 3 3/4 digits LCD display with a max. reading 3260. Digital height 18mm.
- Polarity:** Auto polarity indication.
- Measurement Rate:** 3 times per second.
- Over Range Indication:** "OL" displayed on the LCD.
- Low Battery Indication:** The symbol is displayed when the battery voltage drops below the operating level.
- Auto-Power-Off:** Analyser automatically shuts down after approx. 10 minutes of inactivity. Press "Hold" to switch on again.
- Operating Environment:** 0°C to 40°C (32°F to 104°F) at <75% relative humidity.
- Storage Environment:** -10°C to 50°C (14°F to 122°F) at <75% relative humidity.
- Power:** Single standard 9 Volt battery (PP3).
- Fuse:** F10A/250V and F0.5A/250V.
- Dimensions:** 200 x 93 x 50 mm.
- Weight Approx:** Approx. 400g including battery and holder.

### Function Guide (Fig.2)

- |  |  |
|--|--|
| 1. OFF Position                              | 6. Tachometer                                |
| 2. AC/DC Voltage (+10)                       | 7. Duty Cycle                                |
| 3. Resistance/Diode/Audible Continuity (+10) | 8. Temperature                               |
| 4. AC/DC Current (+10)                       | 9. Dwell Angle                               |
| 5. Frequency                                 | 10. Select AC/DC/Resistance/Diode/Continuity |

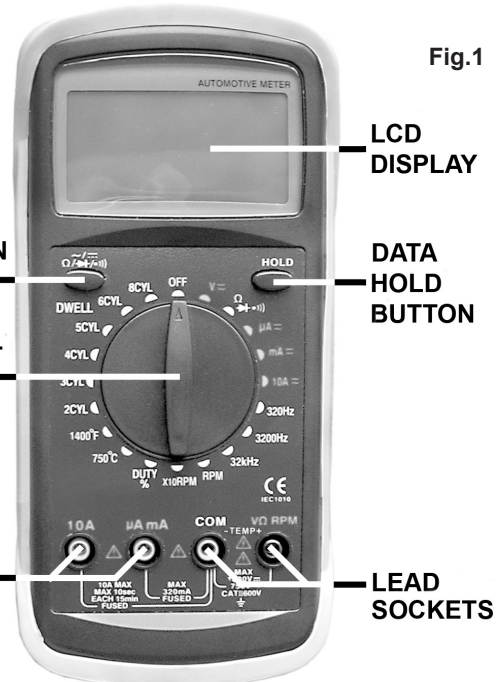
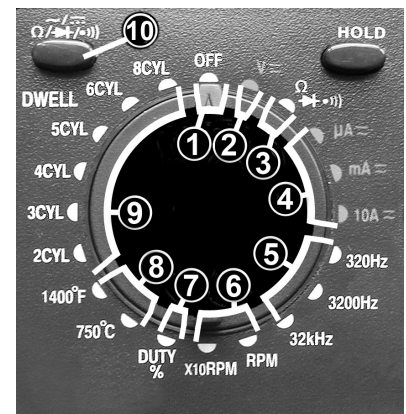


Fig.2



### 3. SPECIFICATION

#### AC Voltage (Autorange)

Range	Resolution	Accuracy
3.26V	1mV	± (0.8% + 5) (40~200Hz)
32.6V	10mV	± (1.2% + 7) (200~400Hz)
326V	0.1V	± (1.0% + 5) (40~200Hz)
750V	1V	± (1.5% + 7) (200~400Hz)

Input Impedance: 10MΩ  
 Frequency Range: 40Hz to 400Hz  
 Overload Protection: DC 1000V; AC 750V.

#### DC Voltage (Autorange)

Range	Resolution	Accuracy
326mV	0.1mV	± (0.5% + 5)
3.26V	1mV	
32.6V	10mV	± (0.8% + 5)
326V	0.1V	
1000V	1V	± (1.0% + 8)

Input Impedance: 10MΩ (for 326mV range: >100MΩ)  
 Overload Protection: DCV1000V; ACV750V.

#### AC Current (µA and mA are Autorange)

Range	Resolution	Accuracy
326µA	0.1µA	
3260µA	1µA	± (1.5% + 5) (40~200Hz)
32.6mA	10µA	± (1.8% + 7) (200~400Hz)
326mA	0.1mA	
10A	10mA	± (3.0% + 5)

Overload Protection: F 500mA L 250V  
 (for 10A range: F10A L 250V, Maximum measurement duration <10 secs. and interval >15 mins). Frequency: 40Hz to 400Hz.

#### DC Current (µA and mA are Autorange)

Range	Resolution	Accuracy
326µA	0.1µA	
3260µA	1µA	± (1.2% + 5)
32.6mA	10µA	
326mA	0.1mA	
10A	10mA	± (2.0% + 5)

Overload Protection: F 500mA L 250V  
 (for 10A range: F10A L 250V, Maximum measurement duration <10 secs. and interval >15 mins).

#### Duty Cycle test

Range	Scope (%)	Resolution	Accuracy
Duty	0~99.9	0.1	± (2.0% + 5)

#### Dwell Angle (Manual Range)

Cylinder	Range	Resolution	Accuracy
2CYL	0 ~ 180.0°		
3CYL	0 ~ 120.0°		
4CYL	0 ~ 90.0°	0.1°	± (2.5% + 5)
5CYL	0 ~ 72.0°		
6CYL	0 ~ 60.0°		
8CYL	0 ~ 45.0°		

#### Frequency (Manual Range)

Range	Resolution	Accuracy
320Hz	0.1Hz	
3200Hz	1Hz	± (2.5% + 5)
32kHz	0.1kHz	

#### Tachometer

Range	Scope (RPM)	Resolution	Accuracy
RPM	0~3260	1 RPM	± (2.5% + 5)
10 x RPM	10 x (0~3260)	10 RPM	

#### Temperature

Range	Resolution	Accuracy
-20°C~750°C	1°C	-20~0°C(-4°F~32°F) ±(6.0% + 5) 0~400°C(32°F~752°F) ±(1.5% + 5)
-4°F~1400°F	1°F	400~750°C(752°F~1400°F) ±(1.8%+5)

#### Audible Continuity Test

Description	Test condition
If the resistance of the circuit under test is lower than 50Ω, an audible warning will sound.	Open circuit voltage is approximately 3V.

#### Diode test

Description	Test condition
The approximate forward voltage of the diode under test will be displayed on the LCD.	The forward DC current is approximately 1mA, the reversed DC voltage is approximately 3V.

#### Resistance (Autorange)

Range	Resolution	Accuracy
326Ω	0.1Ω	± (1.0% + 8)
3.26kΩ	1Ω	
32.6kΩ	10Ω	± (1.0% + 5)
326kΩ	0.1kΩ	
3.26MΩ	1kΩ	
32.6MΩ	10kΩ	± (3.0% + 7)

### 4. OPERATION

**WARNING!** Ensure that you read, understand and apply the safety and operational instructions before connecting the analyser. Only when you are sure that you understand the procedures is it safe to proceed with testing.

**WARNING!** Risk of electrocution. High voltage circuits, both AC and DC are very dangerous and should be measured with great care. Operating temperature range 0°C to 40°C.

**Remember** to turn off analyser when measurement is completed.

**Note:** If "OL" appears in the display during a measurement, the value exceeds the range you have selected. Select a higher range.

**Note:** On some low AC and DC ranges, with the test leads not connected to a device, the display may show a random fluctuating reading. This is normal and is caused by the high input sensitivity. The reading will stabilise and give a correct measurement when connected to a circuit.

#### 4.1. Data Hold Button

4.1.1. The data hold function allows the analyser to freeze a measurement reading for later reference.

4.1.2. Press the data hold button once to freeze the reading in the display. The indicator "H" will appear in the display.

4.1.3. Press the data hold button again to return to normal operation.

#### 4.2. AC/DC Voltage Measurement

4.2.1. Insert the black test lead into the negative **COM** socket and the red test lead into the positive **VΩRPM** socket.

4.2.2. Turn the function dial to the voltage setting and press the function selection button to select AC or DC as required.

4.2.3. Connect the test leads to the circuit under test and read the voltage on the display.

4.2.4. For DC voltage, the polarity of the red test lead will be displayed as well as the value.

#### 4.3. DC Current Measurement

**WARNING!** Do not make current measurements at 10A for longer than 10 seconds in every 15 minutes. Exceeding this may cause damage to the analyser and test leads.


4.3.1. Insert the black test lead into the negative **COM** socket, and the red test lead into the positive **µA mA** socket (or the positive 10A socket for currents from 326mA to 10A).

4.3.2. Turn the function dial to the appropriate setting as required (see ranges above). If the current range to be measured is not known, set to the highest range setting, and then select to the correct range when the first reading is taken, until satisfactory resolution is obtained. Press the function selection button to select AC or DC as required.

4.3.3. Connect the test leads in series with the circuit under test and read the current on the display.

4.3.4. For DC current, the polarity of the red test lead will be displayed as well as the value.

#### 4.4. Diode Measurement

- 4.4.1. Insert the black test lead into the negative **COM** socket and the red test lead into the positive **VΩRPM** socket.
- 4.4.2. Turn the function dial to the  $\Omega$  position, press the function selection button until  is shown to the left side of the display.
- 4.4.3. Connect the red test lead to the anode of the diode, and the black test lead to the cathode of the diode.
- 4.4.4. The approximate forward voltage drop of the diode will be displayed. If the connection is reversed, "OL" will be displayed.


#### 4.5. Duty Cycle Measurement

- 4.5.1. Insert the black test lead into the negative **COM** socket and the red test lead into the positive **VΩRPM** socket.
- 4.5.2. Turn the function dial to the DUTY% position.
- 4.5.3. Connect the test leads to the circuit to be tested and read the value on the display.

#### 4.6. Resistance Measurement

- 4.6.1. Insert the black test lead into the negative **COM** socket and the red test lead into the positive **VΩRPM** socket.
- 4.6.2. Turn the function dial to the  $\Omega$  position, press the function selection button until M and  $\Omega$  are shown in the top right hand corner of the display.
- 4.6.3. Connect the test leads to the load to be tested and read the value on the display.

#### 4.7. Audible Continuity Test

- 4.7.1. Insert the black test lead into the negative **COM** socket and the red test lead into the positive **VΩRPM** socket.
- 4.7.2. Turn the function dial to the  $\Omega$  position, press the function selection button until  and  $\Omega$  are shown in the display.
- 4.7.3. Connect the test leads to the two terminals of the circuit to be tested.
- 4.7.4. If the resistance is less than 50 $\Omega$ , then an audible warning will be given.

#### 4.8. Frequency Measurement

- 4.8.1. Insert the black test lead into the negative **COM** socket and the red test lead into the positive **VΩRPM** socket.
- 4.8.2. Turn the function dial to the desired Hz position.
- 4.8.3. Connect the test leads to the source or load to be measured and read the value on the display.

#### 4.9. Temperature Measurement

- 4.9.1. Insert the thermocouple's plug into the negative **COM** socket and the positive **VΩRPM** socket ensuring that the correct polarity on the plug is observed.
- 4.9.2. Turn the function dial to the °C or °F position as desired.
- 4.9.3. Place the thermocouple on the item to be measured and read the temperature on the display.


#### 4.10. RPM (Tachometer) Measurement

- 4.10.1. Insert the black test lead into the negative **COM** socket and the red test lead into the positive **VΩRPM** socket.
- 4.10.2. Turn the function dial to the desired RPM position.
- 4.10.3. If the vehicle uses a DIS ignition system with no distributor, connect the red test lead to the TACH (tachometer) signal line (which is connected to the computer DIS module of the engine). If the vehicle uses an ignition system with a distributor, connect the red test lead to the primary negative end of the ignition coil. Connect the black test lead to an earthing point, or the negative terminal of the vehicle battery.  
**Note:** Refer to the vehicle manufacturer's manual for the specific location and more details.
- 4.10.4. Start the engine and read the figure on display. Divide this by the number of cylinders (2 stroke) or half the number of cylinders (4 stroke) and the resulting figure is the RPM.

#### 4.11. Dwell Angle Measurement

- 4.11.1. Insert the black test lead into the negative **COM** socket and the red test lead into the positive **VΩRPM** socket.
- 4.11.2. Turn the function dial to the desired position that corresponds with the correct number of cylinders for the engine being tested.
- 4.11.3. If the vehicle uses a DIS ignition system with no distributor, connect the red test lead to the TACH (tachometer) signal line (which is connected to the computer DIS module of the engine). If the vehicle uses an ignition system with a distributor, connect the red test lead to the primary negative end of the ignition coil. Connect the black test lead to an earthing point, or the negative terminal of the vehicle battery.  
**Note:** Refer to the vehicle manufacturer's manual for the specific location and more details.
- 4.11.4. Start the engine and the dwell angle will be shown on the display.  
**Note:** Refer to vehicle manufacturer's manual for detailed procedures for dwell angle settings and adjustments.

#### 4.12. Replacing The Battery

- WARNING! To avoid electric shock, disconnect the test leads from any source of voltage and from the analyser before removing the rear cover.**
- 4.12.1. When the battery drops below the operating voltage, the  symbol will appear in the display. Replace the battery.
- 4.12.2. Remove the analyser from its protective case.
- 4.12.3. Loosen and remove the three screws using a Phillips screwdriver, then remove the rear cover from the analyser.
- 4.12.4. Remove the old battery (PP3) and insert a new one, observing the correct polarity.
- 4.12.5. Replace the rear cover and secure with the three screws.

**WARNING! To avoid electric shock, DO NOT operate the meter until the it has been fully re-assembled.**

#### 4.13. Replacing The Fuses

- WARNING! To avoid electric shock, disconnect the test leads from any source of voltage and from the analyser before removing the fuses.**
- 4.13.1. Remove the analyser from its protective case.
- 4.13.2. Loosen and remove the three screws using a Phillips screwdriver, then remove the rear cover from the analyser.
- 4.13.3. Remove the circuit board by holding it on the left and right sides and gently but firmly lifting it away from the front cover and remove the board to gain access to the fuse holders. Do not turn the function dial whilst the circuit board is removed and keep front cover face down to avoid losing any small parts.
- 4.13.4. Remove the appropriate old fuse from its holder by gently pulling it out.
- 4.13.5. Install the new fuse into its holder. **Note:** Always use a fuse of the correct size and value, either 10A/250V or 0.5A/250V.
- 4.13.6. Replace the rear cover and secure with the three screws.

**WARNING! To avoid electric shock, DO NOT operate the meter until it has been fully re-assembled.**

## 5. MAINTENANCE

- WARNING! DO NOT** attempt to repair or service the analyser unless qualified to do so and have the relevant calibration, performance test, and service information to hand. To avoid electrical shock or damage to the analyser **DO NOT** get water inside the case.
- 5.1. Periodically wipe the case with a damp cloth and mild detergent. Do not use solvents.
- 5.2. Turn the analyser off when not in use and remove the battery if stored for a long period of time.
- 5.3. Do not store the analyser in a place of high humidity or high temperature

## 6. PARTS LIST

Item	Description	Parts
1	TA101.01	TEST LEADS
2	TA101.02	9V BATTERY
3	TA201.01	THERMOCOUPLE 'K' TYPE



**Environmental Protection**  
Recycle unwanted materials instead of disposing of them as waste. All tools, accessories and packaging should be sorted, taken to a recycling centre and disposed of in a manner which is compatible with the environment.  
When the product becomes completely unserviceable and requires disposal, drain off any fluids (if applicable) into approved containers and dispose of the product and the fluids according to local regulations.



**WEEE Regulations**  
Dispose of this product at the end of its working life in compliance with the EU Directive on Waste Electrical and Electronic Equipment (WEEE). When the product is no longer required, it must be disposed of in an environmentally protective way. Contact your local solid waste authority for recycling information.

**Battery Removal: See Section 4.12.**  
ONLY dispose of or recycle according to local authority regulations. Under the Waste Batteries and Accumulators Regulations 2009, Jack Sealey Ltd are required to inform potential purchasers of products containing batteries (as defined within these regulations), that they are registered with Valpak's registered compliance scheme. Jack Sealey Ltd's Batteries Producer Registration Number (BPRN) is BPRN00705.

**NOTE:** It is our policy to continually improve products and as such we reserve the right to alter data, specifications and component parts without prior notice.

**IMPORTANT:** No liability is accepted for incorrect use of this product.

**WARRANTY:** Guarantee is 12 months from purchase date, proof of which will be required for any claim.

**INFORMATION:** For a copy of our latest catalogue and promotions call us on 01284 757525 and leave your full name and address, including postcode.



**Sole UK Distributor, Sealey Group,**  
Kempson Way, Suffolk Business Park,  
Bury St. Edmunds, Suffolk,  
IP32 7AR



01284 757500



www.sealey.co.uk



01284 703534



sales@sealey.co.uk