



INSTRUCTIONS FOR
**TWIN LASER INFRARED
 DIGITAL THERMOMETERS 12:1**

MODEL NO'S: **VS940, VS941**

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.



Refer
To instructions




Warning:
Laser beam

1. SAFETY

- WARNING!** Ensure that Health & Safety, local authority and general workshop practice regulations are adhered to when using this equipment.
- WARNING! DO NOT** aim the laser beams at your or another person's or animal's eye and beware of reflections from mirrors or other shiny surfaces.
- ✓ Familiarise yourself with the applications, limitations, and potential hazards of the thermometer.
- ✓ Keep the thermometer clean and in good condition.
- ✓ Protect the thermometer from the following:
 - Electro-magnetic fields from engine components, arc welders and induction heaters closer than 125mm.
 - Static electricity.
 - Thermal shock caused by large and/or rapid ambient temperature change.
 - High temperatures.
- ✗ **DO NOT** get the thermometer wet or use in damp or wet locations or areas where there is condensation.
- ✗ **DO NOT** take readings through transparent materials such as glass or clear plastic. The surface temperature of these materials will be measured.
- ✗ **DO NOT** use the thermometer in areas where there is steam, dust or smoke. These conditions will result in erroneous readings.
- ✗ **DO NOT** use the thermometer for any purpose other than that for which it is designed.
- ✗ **DO NOT** allow untrained persons (particularly children) to operate the thermometer.
- ✗ **DO NOT** operate the thermometer when you are tired or under the influence of alcohol, drugs or intoxicating medication.

1.1. **Laser Safety**
 The VS940 and VS941 utilise a Class II laser that emits low levels of visible radiation (i.e. wavelengths between 400 and 700 nanometres) which are safe for the skin but not inherently safe for the eyes. The Class II emission limit is set at the maximum level for which eye protection is normally afforded by natural aversion responses to bright light. Accidental eye exposure is therefore normally safe, although the natural aversion response can be overridden by deliberately staring into the beam, and can also be influenced by the use of alcohol or drugs.

- WARNING!** Do not look or stare into the laser beam as permanent eye damage could result.
 Be aware that reflections of the laser beam from mirrors or other shiny surfaces can be as hazardous as direct eye exposure.



2. INTRODUCTION

Detects energy in the infrared spectrum and displays the temperature on an 18mm LCD back-lit display. Twin spot laser targeting enables accurate readings by guiding user to the unit's optimum guiding distance - when the two laser dots merge into one, unit is reading a 13mm disc of temperature. Features data hold and auto power off. Temperature can be shown in either °C or °F. Powered by 9V battery (supplied).

3. SPECIFICATION

Model no: **VS940**
Focal ratio: 12:1
Temperature range:..... -50°C to +650°C (-58°F to +1202°F)
Accuracy: ±2°C or ±2% whichever is greater

Model no: **VS941**
Focal ratio: 12:1
Temperature range:..... -50°C to +1050°C (-58°F to + 1922°F)
Accuracy: ±2°C or ±2% whichever is greater

4. OPERATION

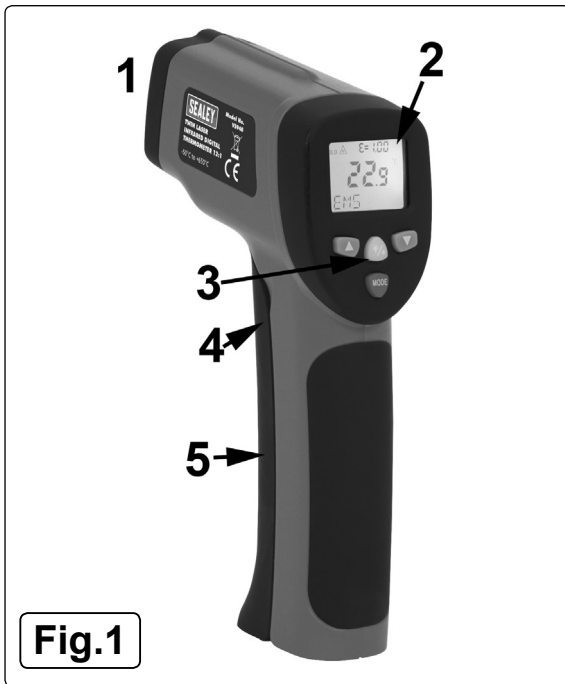


Fig.1

Refer to fig.1

1. Dual laser targeting.
2. LCD display.
3. Function menu.
4. Measuring trigger.
5. Battery cover.

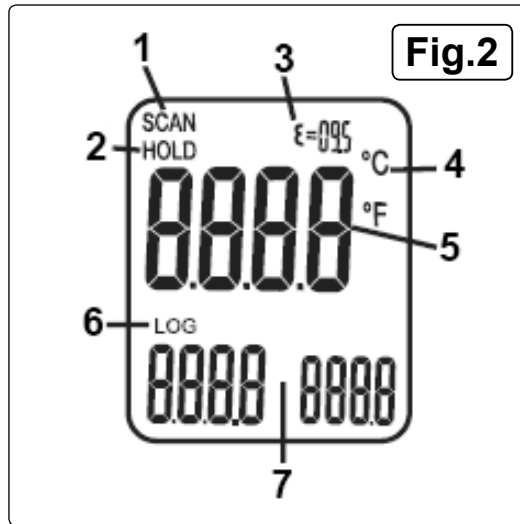


Fig.2

Refer to fig.2

1. Scanning and measuring procedure.
2. Hold and keep the last measured data.
3. Emissivity setting.
4. °F and °C switch.
5. Main temperature display.
6. Low voltage warning.
7. Function transformation zone.

- 4.1. The object to be measured must be larger than the vision field of the instrument.
- 4.2. Keep the object's surface clean and free from frost, oil and dirt etc. when measuring.
- 4.3. If the object to be measured is reflective, covered by adhesive tape or black paint before measurement, transparent (such as glass) the measurement may not be accurate.
- 4.4. Steam, dust or smoke will influence the measurement.
- 4.5. This thermometer can adjust to the environment's temperature deviation. If the deviation is large it may take approximately 30 minutes to adjust.
- 4.6. **Distance coefficient ratio see fig.3**
- 4.6.1. The distance coefficient ratio of this product is 12:1. For example, if the object to be measured is 72cm away from the thermometer, then the diameter of the object must bigger than 6cm. It can measure properly at this distance, but may be influenced by other light sources.
- 4.7. **Emissivity and infrared temperature measurement principle. Also refer to section 4.8.7.**
- 4.7.1.1. An infrared thermometer is an instrument that measures the surface temperature. This is achieved through infrared emission, reflection and then converted into energy. The thermometer converts the electrical signals into a temperature reading displayed on the LCD. The infrared energy that the object can release is in direct proportion with its temperature and emissive power. This is called emissivity, it is related to the material and gloss of the object. The emissivity value ranges from 0.1 to 1.0. The emissivity of most organic materials, is 0.95. Set the emissivity to 0.95, or to one of the values on the table below as required, see section 4.8.7.

Emissivity of common materials

Material under test	Emissivity	Material under test	Emissivity
Asphalt	0.90 to 0.98	Cloth (black)	0.98
Concrete	0.94	Skin (human)	0.98
Cement	0.96	Leather	0.75 to 0.80
Sand	0.90	Charcoal (powder)	0.96
Soil	0.92 to 0.96	Lacquer	0.80 to 0.95
Glass	0.90 to 0.95	Lacquer (matt)	0.97
Ceramic	0.90 to 0.94	Rubber (black)	0.94
Marble	0.94	Plastic	0.85 to 0.95
Plaster	0.80 to 0.90	Timber	0.90
Mortar	0.89 to 0.96	Paper	0.70 to 0.94
Brick	0.93 to 0.96	Chromium oxides	0.78
Water	0.92 to 0.96	Copper oxides	0.78
Ice	0.96 to 0.98	Iron oxides	0.78 to 0.82
Snow	0.83	Textiles	0.90

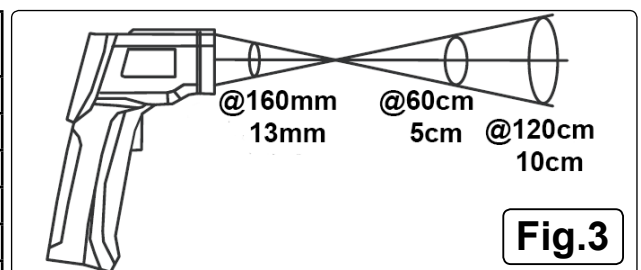


Fig.3

4.8. Temperature Measurement

- 4.8.1. Point the thermometer at the object to be measured and press the trigger. To find a hot spot, point it at the object to be measured and move from top to bottom and from left to right to find it. The thermometer can display: max. temperature, min. temperature, difference value, max. warning point, min. warning point and unit of measurement.
- 4.8.2. The measurement result will remain on the screen for 7 seconds after the trigger is released and it will power off if no measurement is taken.
Note: Press Mode button for 2 seconds, when the display is on, to switch between °F and °C.
- 4.8.3. **Dual laser spot see fig.3**
- 4.8.4. Dual laser measuring distance is up to 120cm. The temperature measured is within a 10cm diameter from the laser spot.
- 4.8.5. **Laser on and off**
- 4.8.5.1. Pull and release the trigger.
- 4.8.5.2. The thermometer will store the information until it is switched to another mode.
- 4.8.6. **Back light (yellow button)**
- 4.8.6.1. Pull and release the trigger.
- 4.8.6.2. Press the back light (yellow) button when the screen shows HOLD to turn on the back light.
- 4.8.6.3. The back light will remain on until another mode is selected.
Note: The back light consumes the battery. Turn it off when it is not required.
- 4.8.7. **Emissivity also refer to section 4.7**
- 4.8.8. Press the UP and DOWN buttons to adjust the emissivity when the display shows HOLD. The emissivity of this instrument is between 0.1 - 1.0.
- 4.8.9. **Mode menu operation**
- 4.8.9.1. The thermometer can measure max. value, min. value, average value, max. alarm point, and min. alarm point.
- 4.8.9.2. To select the Menus pull and release the trigger, when it shows HOLD, press the MODE button to enter the next programme.
Max data: only shows max. data when measuring.
Min. data: only shows min. data when measuring.
Difference data: shows the difference between the first and subsequent data.
Average data: shows the average between the first and subsequent data.
HAL: to set the max. alarm temperature, press the up and down menu.
LAL: to set the minimum alarm temperature, press up and down menu.
- 4.8.10. **Over range alarm function**
- 4.8.10.1. If the temperature is beyond that which the thermometer can measure, it shows '—' on the screen.
- 4.9. **Battery replacement**
- 4.9.1. When the display shows LOG replace the battery (9V). The battery is located beneath the black hinged cover under the trigger.



Battery Removal

Remove the battery, refer to section 4.9.

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.



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.

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.



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