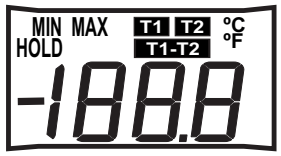
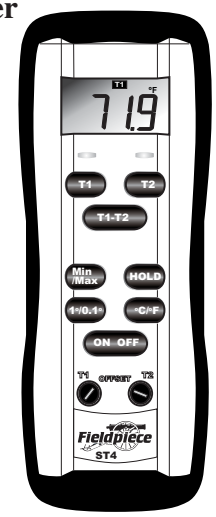
Fieldpiece

Dual Temperature Digital Thermometer
Model: ST4





OPERATOR'S MANUAL

Description

The ST4 is a portable standalone dual temperature thermometer. Plug in one or two of the supplied k-type thermocouples and find T1, T2, or T1-T2. The supplied rubber boot and case give the ST4 Dual Temperature Digital Thermometer plenty of protection and durability to last in the field.

The ST4 has been designed to be used while inside the carrying case. Use the magnet to hang it. The front is clear so you can press the buttons and read the display. The zippers allow the thermocouples to exit from the top of the case.

⚠ WARNINGS ⚠

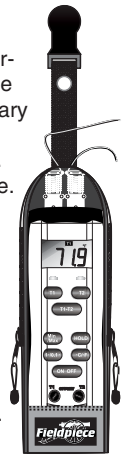
To avoid electrical shock, do not use this instrument when voltages at the measurement surface exceed 24VAC or 60VDC.

To avoid electrical shock, disconnect thermocouples from the ST4 before opening case or battery cover.

To avoid damage or burns, do not take temperature measurements in microwave ovens.

When testing hot temperatures, the thermocouple and velcro may become hot. Do not handle the thermocouple or the velcro when hot.

Operation



1. Turn on the ST4.
2. Select ºC or ºF.
3. Plug in one or both of the k-type thermocouples to the top of the ST4. The red LED will light up when a necessary thermocouple isn't engaged.
4. Press "T1" for the left thermocouple. Press "T2" for the right thermocouple. Press "T1-T2" to get the real-time difference between the two thermocouple readings.
5. Select temperature resolution by pressing the "1º/0.1º" button.
6. "HOLD" keeps current reading on screen until "HOLD" is pressed again.
7. Press once to record MIN and MAX. Press once to toggle between MIN and MAX. Hold down for 1 second to exit the MIN/MAX function.
8. Operate the ST4 in it's case to take advantage of the hanger. You can operate the ST4 while still in the carrying case because of the clear front window.

Note: When in HOLD or MIN/MAX, you cannot change ºC/ºF or resolution (1º/0.1º).

Field Calibration

To calibrate the ST4, adjust the two "OFFSET" pots on the front of the meter labeled "T1" and "T2". The best way to calibrate is to match to a known temperature. Ice water is very close to 32ºF and is readily available. Accuracies of one degree or better are easily obtained.

1. Stabilize a large cup of ice water. Pure, distilled water will be the most accurate.
2. Immerse one probe in ice water and let it stabilize.
3. Select "T1" and adjust the "T1" calibration pot on the face of the meter to display 32.0.
4. Remove T1 from the water and repeat the previous steps 3 and 4 for "T2".

Specifications

Measurement range: -58ºF to 2000ºF (-50ºC to 1300ºC)
Resolution: 0.1º
Temperature coefficient: 0.1 x (specified accuracy) per °C (0°C to 18°C, 28°C to 50°C)
System accuracy after field calibration:
±1ºF @ 30ºF to 120ºF with field calibration
±0.5ºC @ 0ºC to 50ºC with field calibration
Meter accuracy: Accuracies for any of the given ranges below are specified for operating temperatures between 64ºF to 82ºF (18ºC to 28ºC), for 1 year, not including thermocouple error.
±4ºF @ -58ºF to 32ºF
±(0.3% rdg + 2ºF) @ 32ºF to 1100ºF
±(0.5% rdg + 2ºF) @ 1100ºF to 2000ºF
±2ºC @ -50ºC to 0ºC
±(0.3% rdg + 1ºF) @ -50ºC to 600ºC
±(0.5% rdg + 1ºF) @ 600ºC to 1300ºC

Measurement rate: 2.5 readings/second
Battery: Single standard 9-volt battery, NEDA 1604, JIS 006P, IEC 6F22.
Battery life: 100 hours- carbon zinc battery 200 hours- alkaline battery. Replace when " " is displayed.
Operating environment: 32ºF to 122ºF <70% RH
Storage environment: -8ºF to 140ºF <80% RH with battery removed from meter.
Display: 3.5 digits LCD, 2000 count
Overrange: "OL" or "-OL" is displayed.
Accessories: 9V battery (installed), 2 k-type thermocouples, 2 Velcro straps, rubber boot, case, and operator's manual.
Safety: Designed to meet IEC-1010-1, CE-EMC

Warranty

The product is warranted to the original purchaser against defects in material or workmanship for a period of one (1) year from the date of purchase. During the warranty period, Fieldpiece Instruments will, at its option, replace or repair the defective unit.

This warranty does not apply to defects resulting from abuse, neglect, accident, unauthorized repair, alteration, or unreasonable use of the instrument. Any implied warranty arising out of the sale of Fieldpiece's products including but not limited to implied warranties of merchantibility, and fitness for purpose, are limited to the above. Fieldpiece shall not be liable for incidental or consequential damages.

Service

Any defective ST4 should be returned to Fieldpiece Instruments for warranty service along with proof of purchase. Call Fieldpiece for a return material authorization (RMA). For out of warrantee service, send the ST4 along with a check or money order for $40.00 to Fieldpiece. Your ST4 will be repaired or replaced at Fieldpiece's option.

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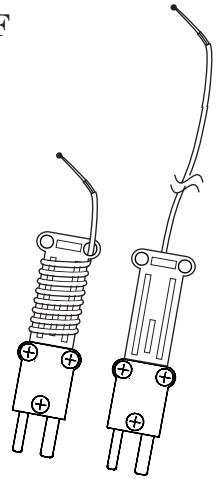
K-type Thermocouple
Model: ATB1
Max: 400ºF



Fieldpiece

OPERATOR'S MANUAL

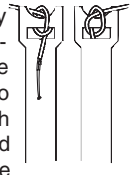
Description

The ATB1, K-Type, thermocouple can be used continously to take temperature readings up to 400ºF and a one time use of 482ºF. The ATB1 can be used with any thermometer which accepts a K-type thermocouple.

The velcro allows the user to strap the ATB1 to a pipe, allowing the user to take hands free, more accurate measurement. The ATB1 also comes with a wrap tab making it easy to wind and store the thermocouple.

Operation

To use the ATB1 plug it into any thermometer accepting a K-type thermocouple and adjust the device to the appropriate settings. To use velcro strap, insert the thermocouple through the velcro as shown to the right and strap it so the pipe is in contact with the thermocouple bead.



Calibration

Due to variances in the thermocouple wire and other parts of the system, a field calibration should be conducted before use. Field calibration typically gives +/- 1ºF overall accuracy. The instructions for this calibration should be in the operating manual for the thermometer.

Broken Wires:

Due to frequent bending, the K-type thermocouple wire may break or come loose, typically near the plug. To repair, cut and strip the thermocouple wire near the plug. The red wire is the (-) wire and it belongs on the wider of the two plugs. Loosen the screws on plugs and wind the conductors around the appropriate screws and tighten. Finally, position the plugs into the tab and screw the tab back together.

Specifications

Thermocouple Conductors: K-type Nickel Chromium/Nickel Aluminum, 2300ºF maximum (insulation limits max. see probe insulation).

Accuracy: -50ºF to 400ºF +/- 4ºF,

Range: -50ºF to 400ºF maximum continous operation. Single exposure use at 482°F.

Probe insulation: While calibration and atmosphere will affect maximum useful temperature in applications, this insulation is designated to withstand a maximum continuous use at 400°F (240°C) and a single exposure use at 482°F (250°C).

Plug: K-Type Thermocouple male mini plug.

Warranty

The ATB1, K-Type, thermocouple is warranted against manufacturer's defects for one year. This warranty does not apply to defects resulting from abuse, neglect, accident, unauthorized repair, alteration, or unreasonable use of the instrument. Any implied warranty arising out of the sale of Fieldpiece's products including but not limited to implied warranties of merchantibility, and fitness for purpose, are limited to the above. Fieldpiece shall not be liable for incidental or consequential damages.

Service

Any defective ATB1 should be returned to Fieldpiece for warranty service along with proof of purchase.

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