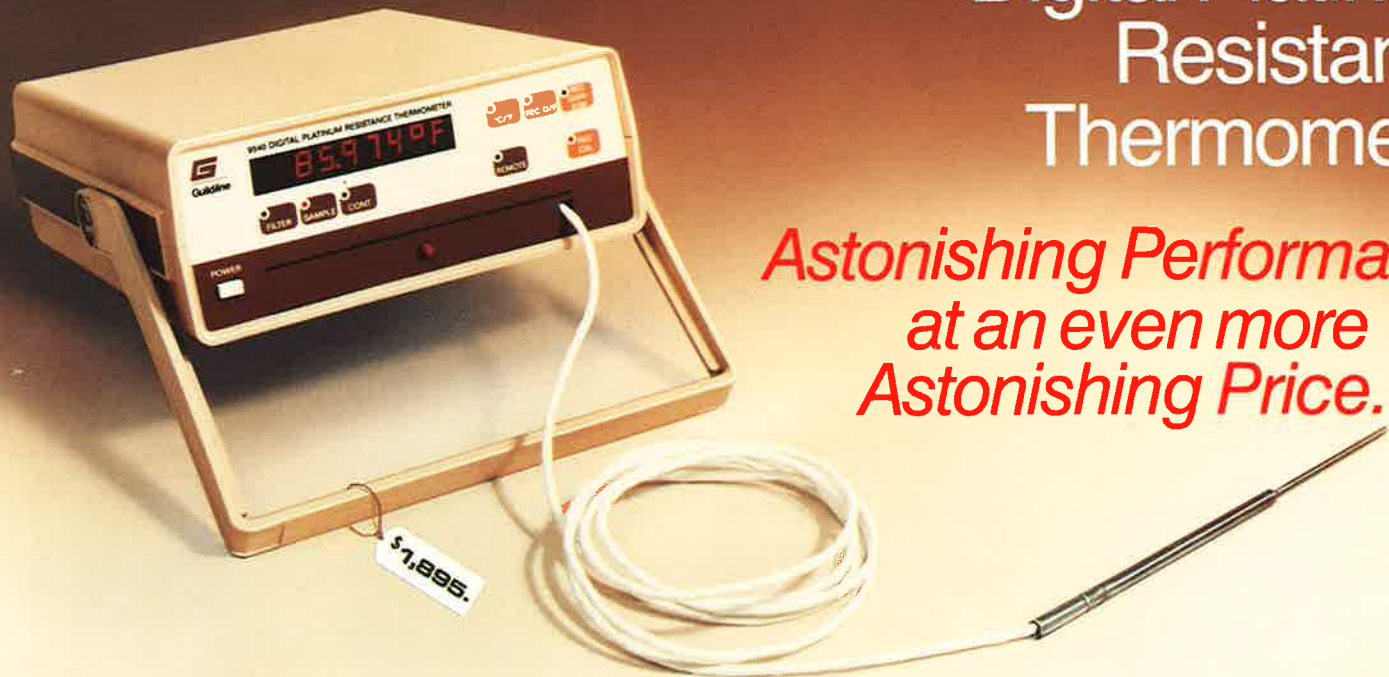




**Guildline**

Model **9540**

## Digital Platinum Resistance Thermometer



*Astonishing Performance  
at an even more  
Astonishing Price.*

**GP-1B**

### **Features:**

- IEEE-488 Interface
- Wide Temperature Measurement Range in both °C and °F
- Variable Zero Set for Recorder Output Providing Full Width Analog Recording
- Hi-Resolution Temperature Deviations to 0.001°C and °F
- Micro Processor Based Design
- Dedicated Integral Probe

Guildline has made hi-accuracy temperature measurement affordable. The Model 9540 delivers precision in a micro processor based instrument which is equally at home in the lab or on the production line.

The Model 9540 provides a measurement range of 440° degrees C, variable recorder zero set for any temperature over it's wide range and an integral dedicated probe which is matched to the instruments electronics. Hi-Precision Temperature Measurement at affordable prices... Guildline doesn't just measure standards, they set them.

## Specifications

### TEMPERATURE

**Accuracy:** GUARANTEED PERFORMANCE including supplied probe.

Range	Resolution deg °C or °F	Limits of Error ± °C or °F		
		24 hrs. @ 23°C ± 1°C	90 days @ 23°C ± 5°C	1 Year @ 23°C ± 5°C
-200°C to -40°C -328°F to -40°F	0.001	0.015	0.03	0.05
-40°C to +180°C -40°F to +356°F	0.001	0.01	0.015	0.03
+180°C to +240°C +356°F to +464°F	0.001	0.015	0.03	0.05

Total guaranteed performance is worst case. It assumes all contributing errors are maximum and occur at the same time and in the same direction. Contributing errors include calibration uncertainty which is referred to flowing water at the rate of 1 m/s, repeatability, stability, temperature coefficient, linearization plus sensor and electronics drift and probe self heating.

**Temperature coefficient:** . . . . . < ±0.0005 deg. C./deg. C.  
 < ±0.0009 deg. F./deg. F.

**Repeatability:** . . . . . ±2 least significant digits

**Warm up time:** . . . . . 30 seconds to full rated accuracy

**Time constant:** . . . . . 5 seconds

**Self Heating:** . . . . . < 0.015 deg. C. at 23 deg. C. in  
 flowing water at 1 m/s

**Filter:** . . . . . 8 sec. digital filter

**Speed:** . . . . . 1.5 sec. per reading filter out

### INTERFACE — built in as standard

Protocol and connection: IEEE 488 (1978)

Provides full talker/listener facilities and remote control of all functions.

Subset: SH1, AH1, T5, TE0, L3, LE0, SR1, RL1, PP2, DC1, C0.

### General

#### Power Supply:

voltage (switch selected): . . . . . 95 to 130V or 190 to 260V

frequency: . . . . . 50, 60, or 400 Hz

consumption: . . . . . < 10VA

#### Protection:

power supply: . . . . . fused line 100 mA slo blo

#### Environment:

Temperature, working: . . . . . 0 to 50 deg. C.  
 storage: . . . . . -30 deg. to 70 deg. C.

Maximum operating humidity (non condensing): . . . . . 70% at 40 deg. C.

Shock and Vibration: . . . . . 1 g in 3 planes, resonance  
 search 5 Hz to 200 Hz

#### Dimensions:

Height: . . . . . 88 mm (3.46 in.)

Width (including handle): . . . . . 228 mm (8.98 in.)

Depth: . . . . . 278 mm (10.94 in.)

Weight: . . . . . 3.0 kg (6.6 lbs.)

#### Sensor Dimensions:

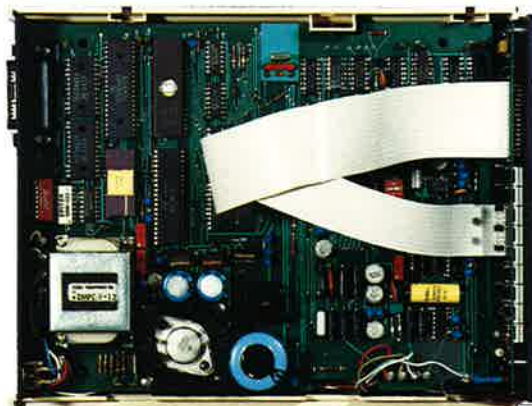
Length: . . . . . 210 mm (8.25 in.)

Diameter: . . . . . 3 mm (0.1 in.)

Immersion depth: . . . . . 50 mm (2 in.) minimum

Length of sensor cable: . . . . . 2 m (6.5 ft.)

Sensor incapsulation: . . . . . Stainless steel



18.294°C

75.979°F

-488.10

## How to Order

9540 Digital Platinum Resistance Thermometer

### Accessories:

18127.01.01 Rack Mounting Kit  
 TM 9540-A-01 Technical Manual



### GUILDLINE INSTRUMENTS

USA: Guildline Instruments Inc., 2 Westchester Plaza, Elmsford, N.Y. 10523, U.S.A. Tel: (914) 592-9101 Telex: 145487

### CANADA & OVERSEAS:

Guildline Instruments Ltd., 21 Gilroy St., Smiths Falls, Ontario K7A 4S9, Canada Tel: (613) 283-3000 Telex: 053-3028

# 9540 SALES GUIDE



**PRECISION DIGITAL THERMOMETER**

# TEMPERATURE MEASUREMENT ...

Astonishing Performance at an even more Astonishing Price

model **9540 Digital Platinum Resistance Thermometer**



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**GP-IB**

 **Guildline**

Guildline Instruments Inc. 2 Westchester Plaza Elmsford, N.Y. 10523, U.S.A. Tel: (914) 592-9101 Telex: 145487



## Specifications

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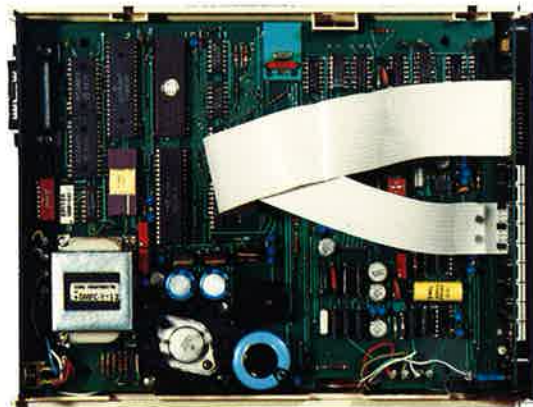
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voltage (switch selected):	95 to 130V or 190 to 260V
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5K-584 Printed in U.S.A.





# Digital Platinum Resistance Thermometer

Model **9540**



GP-IB

## Features:

- Range -200 deg. C. to +240 deg. C.
- Resolution 0.001 deg. C. all temperatures
- Accuracy  $\pm 0.01$  deg. C.
- Display deg. C. or deg. F.
- IEEE-488 GP-IB Interface Standard
- Recorder Output Standard plus Variable Zero Set to Provide Full Width Analog Recording
- Micro Processor Based Design

## The Guildline 9540 Digital Platinum Resistance Thermometer

The Guildline 9540 digital platinum resistance thermometer combines the requirement for high accuracy laboratory temperature measurement with automatic temperature monitoring. Using a micro processor based design 9540 is a highly reliable conveniently packaged easy to use instrument. It is designed to meet today's exacting requirements in terms of accuracy and resolution. Built around the IEEE-488 General Purpose Interface Bus 9540 satisfies the need for precision temperature measurement for the systems user as well as the more traditional laboratory applications.

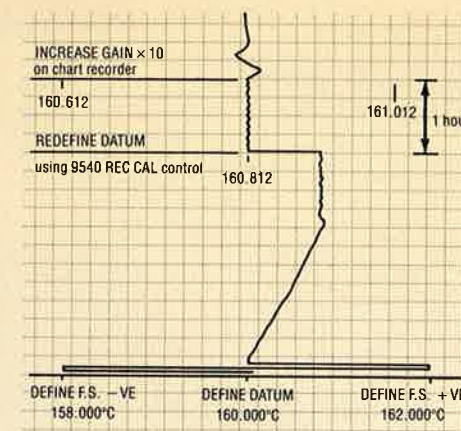
The 9540 developed by Guildline represents the latest in instrument design in the field of temperature measurement. It is the culmination of years of experience by Guildline in temperature measuring and control instruments. The ability to measure many physical parameters to a high precision has only been possible due to the thorough understanding of the temperature effects associated with these parameters. 9540's design has produced a performance only previously possible using very expensive quartz crystal thermometers or standard platinum thermometers.

9540 offers one of the widest temperature measurement ranges available using the same sensor. For measurement in Centigrade degrees the range is -200 deg. C. to +240 deg. C. In Fahrenheit degrees the range is -328 deg. F. to +464 deg. F. For both temperature scales the resolution is 0.001 degree throughout the range.

From the dedicated PRT Probe, 9540 senses the change in resistance and a 5 1/2 digit A/D digitizes the signal. A micro processor

and associated ROM perform a curve fitting linearization to accurately convert the answer to degrees. Over the range -40 deg. C. to +180 deg. C. absolute accuracy of 9540 is  $< 0.01$  deg. C. Over the whole working range the accuracy is  $< 0.03$  deg. C.

Built into the design of 9540 are comprehensive remote control facilities. The IEEE-488 interface gives full talker/listener protocol and is an integral part of the instrument. It is not an add on or plug in option. 9540 also has an analog output suitable for connection to most chart recorders. Under  $\mu$  Processor control the analog output can set the zero of a chart recorder to any temperature over 9540's full range. Very high resolution temperature deviations can be recorded with a resolution of 0.001 deg. C. over a  $\pm 2$  deg. C. band using the recorder gain X100 control. Associated with the analog output is a recorder calibration function for conveniently setting the full scale deflection of a chart recorder. All the recorder output facilities are fully programmable over the IEEE-488 interface bus.



Typical Analog Output For 9540 (REC GAIN  $\times 100$ )

When the 9540 is switched on, the display and all indicators are checked and the current GP-IB address is indicated as part of a power up sequence. The instrument then reverts to a default condition displaying continuous temperature measurement with

controls set to a passive operating condition. For first line servicing a software self test subroutine can be called during the power up to check the status of various parameters of the circuit. This on board intelligence provides confidence to the user that the 9540 is functioning correctly and ready to make measurements.

From the outside 9540 has brand new styling using the latest in mechanical design. The case is made of high impact polycarbonate and the membrane front panel has built in selectors which have no moving parts.



An optional rack mounting kit enables installation into a standard 19" rack either as a single instrument or as two side by side.



Probe stores easily behind drop down door.







**Guildline**

