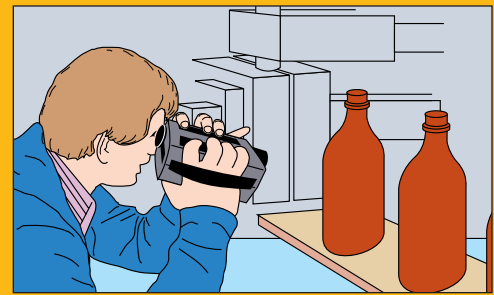
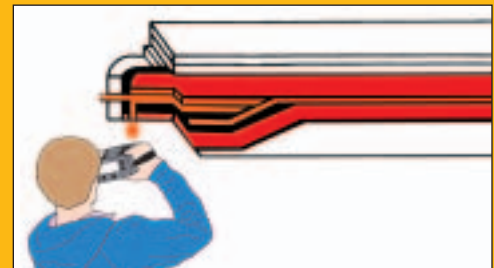


**Foundry (high temperature metals), Model M90R or M90V**



**Measurement of glass and ceramic temperatures, Model M90E**



**Forehearth/Glass Furnace (Gob temperature) Model M90V or M90H**

# MIKRON M90 SERIES... the world's most

Mikron 90 Series Portable Infrared Thermometers use cutting edge technology to provide maximum operator convenience and application versatility for rapid and dependable temperature data gathering. Hand held for spot checks or tripod mounted for short term monitoring, these attractively designed instruments have widespread application throughout industry and research. Capability and versatility are expressed in these outstanding features.

- Sharp focussing on targets from 18cm (7.0") to infinity through precision optics.
- Temperature reading on large display in view finder and in window on rear of instrument.
- Emissivity and measurement mode information also displayed in rear window.
- Peak, Valley and Variable Averaging functions selected by push-button.
- Built-in data logging.
- Digital (RS232C) and analog (mV/° or 0-1VDC) outputs for remote recording, printing or computer interface.
- Computer controlled calibration and diagnostic functions.
- Digital emissivity/slope setting.
- Communication software.

## **Model M90R 2-Color Infrared Thermometer**

This unique version utilizes the 2-color principle, in which the temperature measurement is made by ratioing the radiation intensities of two adjacent wavelengths rather than from absolute intensity as with single band (or single color) instruments. For surfaces behaving as grey bodies, this design approach eliminates a number of factors that degrade the accuracy of conventional instruments. For example, temperature measurements with the M90R are:

- Independent of emissivity
- Unaffected by dust and other contaminants in the field of view
- Unaffected by dirty viewing windows

## **User-oriented Design**

The M90 is designed for user convenience and comfort through such features as a focussable view finder; built-in, selectable filter for hot, bright targets; wrist strap and knurled grips; and left-hand or right-hand operation.

## **Built-in Data Logging**

The M90 can store up to 40 single readings in non-volatile memory. The readings are stored using the

RUN/HOLD switch. Each time the button is pressed, the unit goes from RUN mode to HOLD mode, and the reading is stored. The button is pressed again to return to RUN and the counter is automatically incremented so the next reading may be stored in the next location. The user may single-step through the stored readings to review them. This allows for "snap-shot" readings to be taken in the field and analyzed in the lab or office.

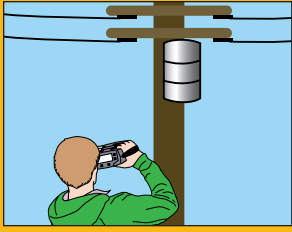
## **Variable Length Averaging**

The averaging feature of the M90 allows the user to enter the number of readings to be averaged together. Up to 60 readings may be averaged to smooth readings from a noisy process. The average performed by the M90 is a running average. This means that each time a new reading is taken, the oldest reading is dropped, so the average is always the average of the most recent readings (the number of readings is determined by user from 2 to 60).

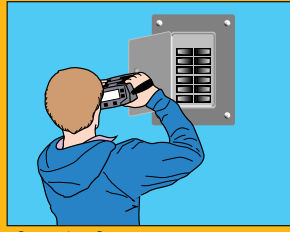
## **Battery Operation**

Long life, rechargeable and replaceable batteries that provide up to 16 hours of continuous operation are enhanced by the M90 battery saver feature that automatically switches the instrument off after a spot check

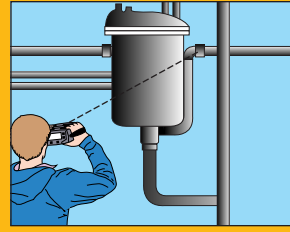
## Typical Preventive Maintenance Applications, Model M90BT



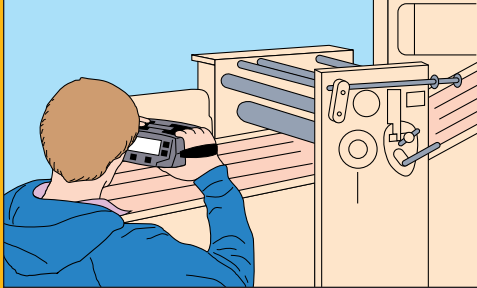
Transformer



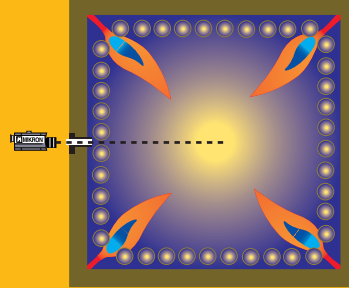
Electrical Hot Spots



Steam Traps



Plastic industry, Model M90F or M90ZF



Cross section view of utility furnace, Model M90L



M90 tripod mounted for precision aiming

# advanced portable infrared thermometer.

reading. The M90 can be continuously powered by the supplied battery charger and rechargeable or alkaline AA batteries may be field installed.

### Calibration

Factory and field calibration is made easy by the built-in "learn" mode which instructs the M90 to match its calibration to laboratory standards. Initiated by easily accessed D.I.P. switch, the "learn mode" eliminates potentiometer adjustments.

### Communication Software

The software for the M90 Series allows the instrument to be interfaced with any IBM personal computer or compatibles. This software features:

### Remote Emissivity Correction

When measuring targets whose emissivity is different from unity, the computer will automatically compute the corrected temperature for the emissivity entered.

### Logging of Temperature Data

As each measurement is taken, it can be logged into a data file on disk compatible with Lotus 1-2-3, or printed on paper.



## Capability-expanding Options

Optional accessories which enhance the capability and versatility of the M90 Series include a line printer for data logging, digital data logger, and close focus lens attachments.



To order specify Model No. DDL90-1 for 115VAC  
DDL90-2 for 220VAC

### Data Logger & Printer

With the addition of the optional Digital Data Logger and Printer, the M90 realizes its full potential as a powerful data capturing system. The printer formats alphanumeric data from the M90 RS232 output in 24 columns on demand or automatically at adjustable intervals. The data logger, with a memory capacity of 5200 readings, facilitates accumulation of temperature data from plant, building or field surveys for later examination or loading into a computer.

The Model DDL90 Digital Data Logger weighs only 400 grams (14 oz.) and the Model DLP Printer only 0.45 kg (1 lb.) Both fit neatly into the standard carrying case furnished with the M90 Infrared Thermometer.

### Specifications

#### Digital Data Logger, Model DDL90

**Memory Capacity:** 5200 readings, temperature °C/°F, date, time, battery condition

**Display:** LCD 2 lines 16 alpha numeric characters/line

**Sampling Interval:** Continuous to 999 seconds in 1 second increments.

**Log Mode:** Manual or Auto. In Manual Mode, data is logged only when the Read button of M90 is pressed.

**Software:** Program supplied for IBM PC or compatible, data file is compatible with Lotus 1-2-3

**Input:** RS232C from M90 Series

**Output:** RS232C to computer, 1M (3.5') interface cable to DB-25 supplied

**Battery Type:** Rechargeable Ni-Cad 4 x Type AA, life 8 continuous hours

**Battery Charger:** 115/220VAC input 12VDC output at 200mA

**Operating Temperature:** -10° to 60°C (0.14 to 140°F)

**Size:** 100mm x 180mm x 35mm (3.9"W x 7.1"L x 1.4"D)

**Weight:** 400 grams (14 oz.)

### Digital Line Printer, Model DLP90

**Paper:** 70mm (2.25") wide

**Mechanism:** Impact dot matrix

**Input:** RS232, 2400 baud, Clear to Send (CTS) from M90

**Format:** 24 column (measurement mode and temperature)

**Control:** OFF/ON/PAPER FEED

**Operating Temperature:** 0 to 50°C (32 to 122°F)

**Ribbon Life:** 200,000 characters.

**Power:** 115VAC/220VAC converter supplied, 8.5 VAC output

**Size:** 100mm x 114mm x 51mm (4"W x 4.5"L x 2"H)

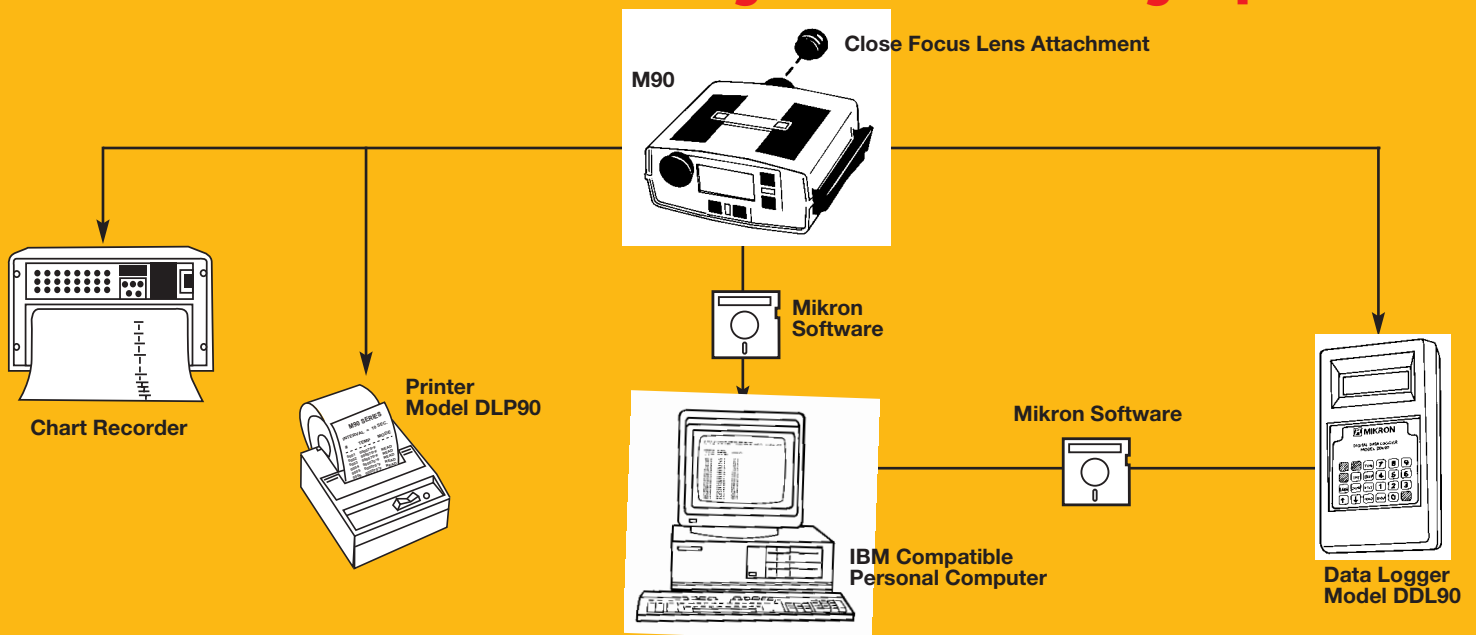
**Weight:** 0.450kg (1 lb.)

To order specify Part No. DLP80-1 for 115VAC  
DLP90-2 for 220VAC



M90 portable system for temperature surveys.

# Model M90 offers a full range of data handling capabilities.



The illustration above indicates the various methods of gathering and processing data from the M90 instrument.

## Optional Close Focus Lens Attachment

With close focus lens attachment the focussable distance of the M90 series can be reduced to 178mm (7.0"). These lenses can be added in the field with no change in calibration accuracy. See table below for minimum measurable target diameters.

Close Focus Lens Part #	Useable with Models	Close Focus Working Distance	Minimum Measurable Target Diameter
14040-1H	M90Q, M90H-1, M90R-1	53.0cm (21.0") to 35.5cm (14.0")	6.0mm (0.24")
	M90H, M90R-2		2.0mm (0.08")
	M90V		1.2mm (0.05")
14040-2H	M90Q, M90H-1, M90R-1	33.0cm (13.0") to 21.5cm (8.5")	3.6mm (0.15")
	M90H, M90R-2		1.2mm (0.05")
	M90V		0.72mm(0.030")
14040-1H and 14040-2H	M90Q, M90H-1, M90R-1	24.0cm (9.5") to 17.8cm (7.0")	3.2mm (0.13")
	M90H, M90R-2		1.06mm(0.05")
	M90V		0.65mm(0.025")

## Metallic Case

The standard M90 housing is manufactured from a rigid and durable ABS plastic, which is suitable for the large proportion of application environments. For more severe working conditions, such as glass works, foundries and steel mills, additional levels of protection are available. The first level is a cast metal housing in place of the standard ABS housing. This provides excellent protection against rough handling and incorporates rubber feet to buffer shock and vibration.

## Dust-proof Soft Case

The second level of protection is a dust-proof soft case cover which fits over the M90 case and protects against dust, fumes and fingerprints, while still allowing all the controls to be operated.

## Shoulder Strap

This accessory allows the Model M90 to be held by the shoulder for an extra measure of safety and convenience.

