

# MS11

## Temperature Meter and Signal Processor

# MS12

## Data Logger

Models **MS11** and **MS12** are microprocessor based precision meters for displaying, processing and storing measured temperature values. Compact size, full portability, and built-in batteries for all power requirements make them ideal instruments for field operation.

### **MS11 - Temperature Meter and Signal Processor**

The **MS11** is designed for connection to all models of KT11 Radiation Pyrometers. The output signals of the KT11 are linearized and compensated for adjusted emissivity. The digital LCD-display indicates the processed and corrected temperature values. A digital or analog output is optionally available via interface cable.

The KT11 connector automatically programs the appropriate measuring range in the MS11 unit. Emissivities are digitally adjustable between 0.1 and 1.0. Calculation of maximum or minimum temperature values are selected by push-buttons.

The physical separation of sensing head (Radiation Pyrometer KT11) and temperature display facilitates convenient measurements at hidden and inaccessible objects.

### **MS12 - Data Logger**

The **MS12** is a portable data logger for all HEITRONICS Radiation Pyrometers and facilitates precise temperature recordings of up to 100,000 measured values numbered by measuring points.

Each measuring point is labeled and identified by a separate number. Programming for automatic recording of temperature data is provided. Alternatively, recordings may be triggered by an external switch.

In addition, for all models of KT11-series Radiation Pyrometers the MS12 provides the required excitation voltage and signal linearization for all temperature ranges. Programmed functions of the MS12 are automatically selected upon connection of the radiation pyrometer.

4 separate input ports for a variety of temperature sensors are provided for parallel connection via interface cable.

A built-in real time clock facilitates programming of automatic data recording.

Several signal processing features calculate the true temperature of the measured object which is indicated on the integrated digital LCD-display in selectable temperature units °C or °F. Integrated threshold alarms, maximum or minimum value for each channel, average value during defined measuring cycle are exceptional features of the MS12.

Transfer of measured data to a standard PC is accomplished via the interface cable. Software for data tabulation and calculation programs are available as optional accessories.

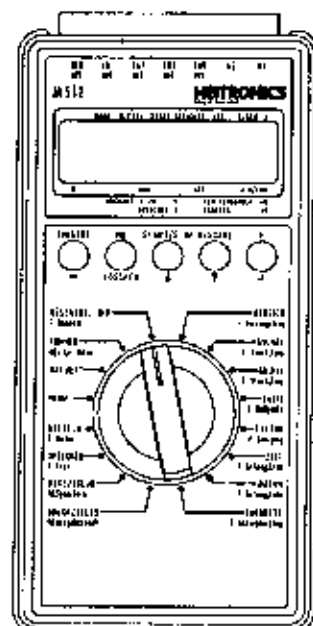
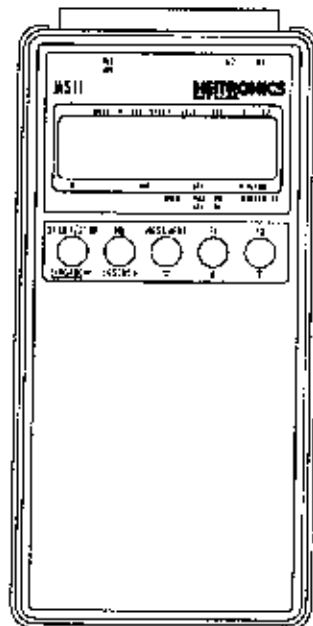
Direct transfer of data to a connected printer can be time programmed via the interface cable.

Baud rate, measuring cycle and printing cycle are programmable.

**HEITRONICS**  
Infrarot Messtechnik

*Temperature Meter and  
Signal Processor MS11  
Data Logger MS12*

*All inputs, outputs and  
the digital interface  
are automatically pro-  
grammed by inserting  
the respective connec-  
tors*



## Technical Data

**Function keys**  
**Input ports**  
**Output ports**  
**(Inputs 1)**

**Input Impedance**  
**Digitizing**

**Measuring rate**  
**Bias correction**  
**Accuracy**  
**Temperature drift**  
**Display**

**Programming**  
**Control functions**

**Memory**

**Interface:**  
*(Interface module required)*  
• V24 interface

• Analog output

**Printing cycle**  
**Measuring cycle**  
**Clock time**  
**Date**

**Power supply**  
**Excitation voltage**  
**Battery control**  
**Housing material**  
**Dimensions**

**Weight**  
**Operating temperature**  
**Storage temperature**

### MS11

5  
1  
2  
NiCr-Ni thermocouple  
radiation pyrometers KT11, PYROSOR

20 M $\Omega$  :  
multi-slope integrating A/D converter,  
resolution 16 bit

3 measurements per second  
automatic

$\pm 0,03\%$  of measured value  $\pm 2$  digits  
0,005%/°C at nominal temperature of 22°C  $\pm 2^\circ\text{C}$   
6\*7-segments-, 2\*16-segments-LCD-display,  
13 mm

by push buttons  
automatic sensor detection  
automatic detection of sensor disconnect  
automatic identification of interface  
No memory

8 bit, 1 start, 1 stop, no parity  
TXD, RXD, DSR, DTR galv. separated, XON, XOFF  
Baud rate 150, 300, 600, 1200, 2400, 4800, 9600 bps  
0,1 mV/digit (-1,25 bis 2,0 V)  
Accuracy  $\pm 0,1\%$   $\pm 0,5$  mV, load  $> 10$  k $\Omega$   
Temperature drift 0,1 mV/K

1 sec to 59 h 59 min 59 sec via V24 module  
1 sec to 59 h 59 min 59 sec via V24 module

9V alkaline-manganese batteries or 9V power line adapter or with plug-in charger  
for Radiation Pyrometers KT11-series  
automatic with optical alarm display  
ABS

approximately 180\*85\*33 mm (7.1\*3.4\*1.3 inch)  
approximately 370 g

-10°C to 60°C  
-30°C to 60°C

### MS12

5  
5 - galvanically separated  
2

All HEITRONICS radiation pyrometers,  
temperature- humidity- current- voltage-  
sensors,

20 M $\Omega$  :  
multi-slope integrating A/D converter,  
resolution 16 bit

3 measurements per second  
automatic

$\pm 0,03\%$  of measured value  $\pm 2$  digits  
0,005%/°C at nominal temperature of 22°C  $\pm 2^\circ\text{C}$   
6\*7-segments-, 2\*16-segments-LCD-display, eige,  
13 mm

by push buttons  
automatic sensor detection  
automatic detection of sensor disconnect  
automatic identification of interface

130 kByte for 25,000 measured data  
Optionally, 520 kByte for 100,000 measured data

8 bit, 1 start, 1 stop, no parity  
TXD, RXD, DSR, DTR galv. separated, XON, XOFF  
Baud rate 150, 300, 600, 1200, 2400, 4800, 9600 bps

0,1 mV/digit (-1,25 bis 2,0 V)  
Accuracy  $\pm 0,1\%$   $\pm 0,5$  mV, load  $> 10$  k $\Omega$   
Temperature drift 0,1 mV/K

Directly programmable  
Directly programmable

buffered  
buffered

9V alkaline-manganese batteries or 9V power line adapter or with plug-in charger

for Radiation Pyrometers KT11-series  
automatic with optical alarm display  
ABS

approximately 180\*85\*33 mm (7.1\*3.4\*1.3 inch)  
approximately 370 g

-10°C to 60°C  
-30°C to 60°C

*1) Detailed information about connecting possibilities and available sensors are listed in the data sheet "Measuring Ranges and Sensors MS11/MS12".*