

# Digital Indicator and Temperature Meter MS40

The logical addition to all HEITRONICS Infrared Radiation Thermometer

# HEITRONICS

Infrarot Messtechnik



The Digital Indicator and Temperature Meter **MS40** display temperatures in °C or °F, and standard signals in plain text.

Even the basic instrument is provided with one analog input, two binary inputs, two relay outputs and two logic outputs. Alternatively a standard temperature probe can be used instead a HEITRONICS Infrared Radiation Thermometer.

Three expansion slots can be filled with additional inputs, outputs and interfaces.

The high-contrast, multicolor LCD for showing measurements and for operator prompting consists of a 5-digit 7-segment display (for the measurement or for setting parameters), an 8-character 16-segment display with color changeover (for the value, parameter name, channel name, process/alarm text as a running text of max. 24 characters, or a pseudo bar graph), and 4 switch status indicators for the binary outputs.

## Ease of Operation & Configuration

Four keys are provided on the instrument for operation and configuration, and a setup program for PC use is available as an option (e.g. for configuring the

math and logic functions, and the input of display texts).

Customer-specific linearization table can be programmed through 10 interpolation points or by entering the coefficients of the polynomial.

## Special Functions

The instrument offers 4 configurable limit comparators and an optional math and logic module (two virtual channels). Extensive binary functions are available for the assignment of functions to the signals of limit comparators, logic and binary inputs.

An (RS422/485 – Mod-Bus - or a PROFIBUS-DP) interface can be used to integrate the instrument into a data network.

The electrical connection is made at the back, via screw terminals.

## Attractive Basics

- Analog input
- two binary inputs
- two relay outputs
- two logic outputs
- Set-up interface
- Dual display
- Detection of probe/lead short-circuit
- Detection of sensor and lead break

## Features & Options

- Configurable process display text (max. 24-character running text)
- Alarm signal text with color changeover green-red (also as running text)
- Up to two configurable analog inputs
- Three option slots
- Math and logic module (option)
- 4 limit comparators
- Fast and convenient configuration through setup program
- RS422/485 interface (option)
- PROFIBUS-DP interface (option)

## MS40 - rear view



### General Specification MS40

### Connection diagram:

#### Terminal strip 1, Terminal 1-4:

Option 1 any option from option table – reserved for analog output:

#### Terminal strip 1, Terminal 5-8:

Option 2 any option from option table

#### Terminal strip 1, Terminal 9-12:

Option 3 any option from option table

#### Terminal strip 2, Terminal 1-4:

Sensor input

#### Terminal strip 2, Terminal 6-10:

Binary-/logical input

#### Terminal strip 3, Terminal L1(L+) – N(L-):

Power

#### Terminal strip 3, Terminal 11-13:

Relay output 1

#### Terminal strip 3, Terminal 15-17:

Relay output 2

#### All series of HEITRONICS Infrared Radiation Thermometer

Current series as :: KT15IIP, KT19II, KT18, KTX, CT09, CT11, CT13, CT15, CT18, etc.

Previous series as :: PYROSOR, KT11, etc.

<b>Inputs:</b>	
Voltage	0 to 10 V (Input resistance > 100 kΩ)
Current	0 / 4 mA to 20 mA (Input resistance 50 Ω)
Binary inputs / Floating contacts	open = not active; short-circuit to GND = active
<b>A/D converter-Resolution:</b>	Dynamic up to 18 bit
Sampling cycle time	50 ms, 90 ms, 150 ms, 250 ms (configurable)
Accuracy	0,05 % of measuring range span
Temperature drift	100 ppm/K
<b>Display 1</b>	7-segment display, 18mm high, 5 digits, color: red, LCD – with background lighting -
<b>Display 2</b>	16-segment display, 7mm high, 8 digits, color: red/green (switchable)
<b>switching status display</b>	4 switching status indicators (K1 to K4), 3mm high
<b>Configuration</b>	Configuration via key board or set-up interface
<b>Relay, changeover (SPDT)</b>	2 separate Relay, changeover (SPDT) max. 40 V / 3 A
<b>Logical outputs</b>	0/12 V / 25 mA max. (sum of all output currents max. 30 mA)
<b>Analog outputs (Option) (switchable)</b>	a) Voltage: 0...10 V / 2...10 V; RLoad ≥ 500 Ω b) Current: 0...20 mA / 4...20 mA; RLoad ≤ 500 Ω
<b>Digital Interface (Option)</b>	Mod-Bus: RS422/RS485; 9600, 19200, 38400 bps; addressable 0...256; max. 32 nodes Profibus DP: addressable 0...256
<b>Supply voltage (switch-mode PSU)</b>	Version 1: AC 110...240 V -15/+10 %, 48...63 Hz <b>or</b> Version 2: AC/DC 20...30 V, 48...63 Hz
<b>Power consumption</b>	max. 13 VA
<b>Dimensions</b>	96x48x90 mm (WxHxD)
<b>Weight</b>	(fully fitted) approx. 380 g
<b>Rating</b>	to EN 60529, front IP 65, back IP 20
<b>Ambient temperature range</b>	0...55 °C
<b>Storage temperature range</b>	-30...+70 °C
<b>Additional Options</b>	2 x Relay, changeover (SPDT); max. 8 A 2 x Relay, make (SPST-NO); max. 3 A 1 x Solid-state relay; max. 1 A 1 x math and logic module

Further information, interesting facts and downloads around the topic „Non-Contact Temperature Measurement from -100 °C to 3000 °C“ are available on our website.