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Inor® Intelligence
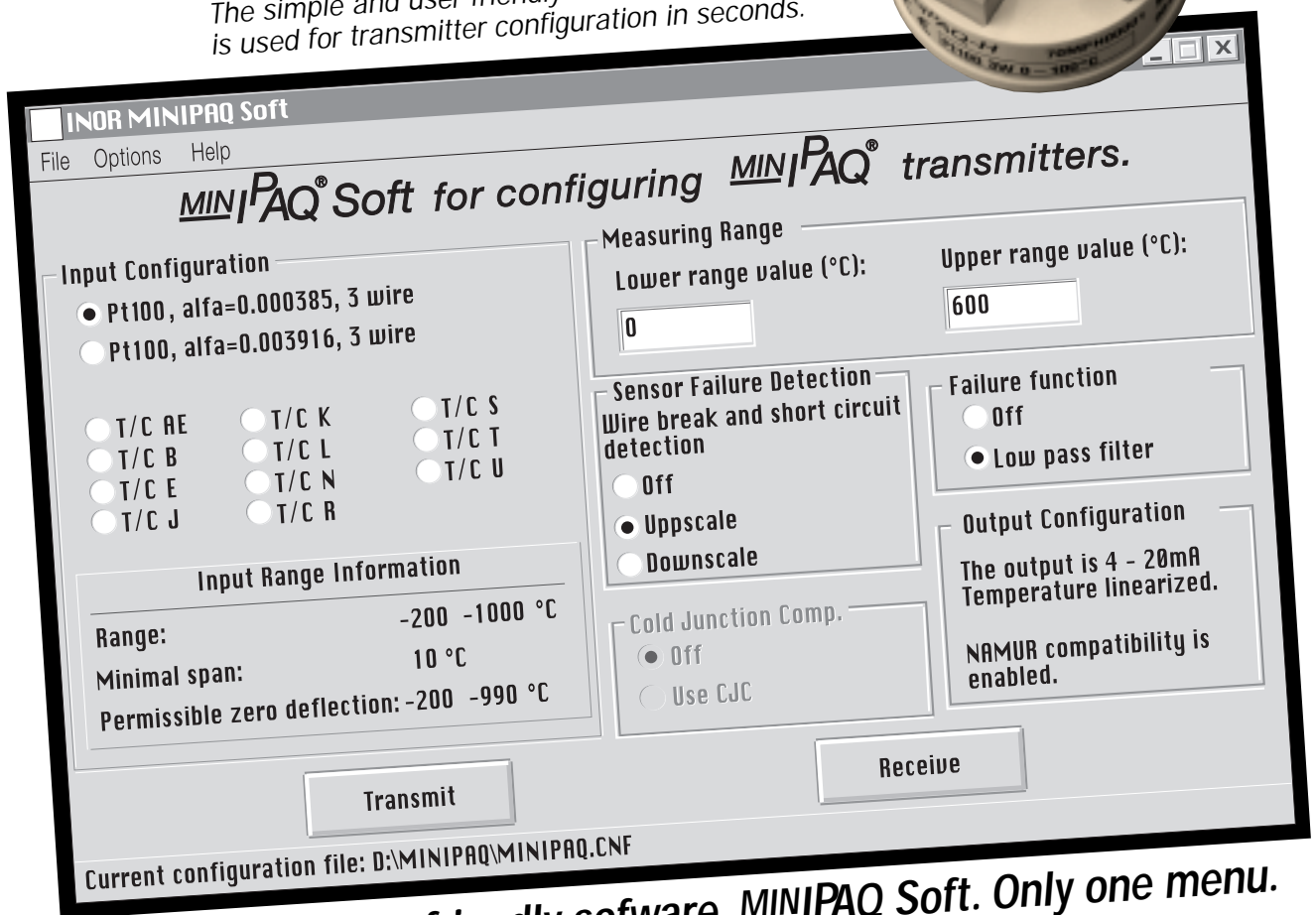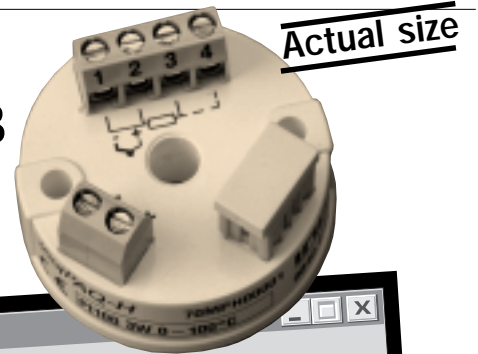
MIN**I**P**AQ**®-H

Basic Programmable Transmitter for RTD and T/C

MIN**I**P**AQ**-H is an easy to use transmitter for in-head mounting in standard DIN-B and similar heads.

Actual size

The simple and user friendly software, MINIPAQ Soft, is used for transmitter configuration in seconds.

INOR MINIPAQ Soft

File   Options   Help

MIN**I**P**AQ**® Soft for configuring MIN**I**P**AQ**® transmitters.

Input Configuration
- ● Pt100, alfa=0.000385, 3 wire
- ○ Pt100, alfa=0.003916, 3 wire

- ○ T/C AE   ○ T/C K   ○ T/C S
- ○ T/C B   ○ T/C L   ○ T/C T
- ○ T/C E   ○ T/C N   ○ T/C U
- ○ T/C J   ○ T/C R

Input Range Information

Range: -200 -1000 °C
Minimal span: 10 °C
Permissible zero deflection: -200 -990 °C

Measuring Range

Lower range value (°C):   Upper range value (°C):

0   600

Sensor Failure Detection
Wire break and short circuit detection
- ○ Off
- ● Uppscale
- ○ Downscale

Cold Junction Comp.
- ● Off
- ○ Use CJC

Failure function
- ○ Off
- ● Low pass filter

Output Configuration

The output is 4 – 20mA Temperature linearized.

NAMUR compatibility is enabled.

[Receive]

[Transmit]

Current configuration file: D:\MINIPAQ\MINIPAQ.CNF

Simple and user friendly sofware, MINIPAQ Soft. Only one menu. No learning time required.

- **No external power supply for configuration.** Edit or read the configuration off-line by just connecting a PC.

- **Linearization.** Fully temperature linear output for RTD and thermocouples.

- **Sensor failure monitoring.** Selectable sensor failure action, upscale or downscale.

- **NAMUR-compliant.** Output limitations and fail currents according to NAMUR recommendations.

- **Designed for harsh conditions.**

- **2-wire, loop-powered.**

- **5 year limited warranty.**

LIMITED 5 YEAR WARRANTY   C€

Main features of ᴹᴵᴺIPAQ-H

Measurements with RTDs

ᴹᴵᴺIPAQ-H accepts inputs from standardized Platinum RTDs, Pt100, acc. to IEC 751 (α=0.00385) andPt100 acc. to JIS 1604 (α=0.003916). 3-wire connection is used.

Measurements with thermocouples

ᴹᴵᴺIPAQ-H accepts inputs from 11 types of standardized thermocouples.

For T/C input, the CJC (cold junction compensation) is fully automatic, by means of an accurate measurement of the terminal temperature. Alternatively, the CJC can be disabled.

Sensor failure monitoring

ᴹᴵᴺIPAQ-H monitors sensor break and short-cicuit and forces the output signal upscale or downscale (selectable), when *any* sensor lead is broken, disconnected or short-circuited. The sensor monitoring can be switched off. The monitoring is furnished with a *pulsed excitation current.* This eliminates the voltage drop in the lead wires (giving a measuring error), caused by a standard DC excitation current.

Power supply

ᴹᴵᴺIPAQ-H is loop-powered and will work on voltages down to 8 VDC, thus giving good margins for high loads in the current loop. Reversed polarity will not damage the transmitter.

Warranty

ᴹᴵᴺIPAQ-H is covered by a 5 year limited warranty.

ᴹᴵᴺIPAQ Soft
Simple Configuration Software

ᴹᴵᴺIPAQ Soft is used for the configuration of ᴹᴵᴺIPAQ-H.

• Measurement configuration: Sensor type, range, filter activation, CJC, etc.

• Monitoring of sensor status: Sensor failure upscale or downscale action of the output signal.

• Documentation: Configuration files can be saved for future use.

ᴹᴵᴺIPAQ-H is configured without need for power supply.

A communication cable is included in the configuration kit, ᴹᴵᴺIPAQ Soft off-line package.

ᴹᴵᴺIPAQ Soft is compatible with Windows 3.1, Windows 3.11, Windows 95, Windows 98 and Windows NT Workstation 4.0. The program is menu-driven and extremely easy to use.
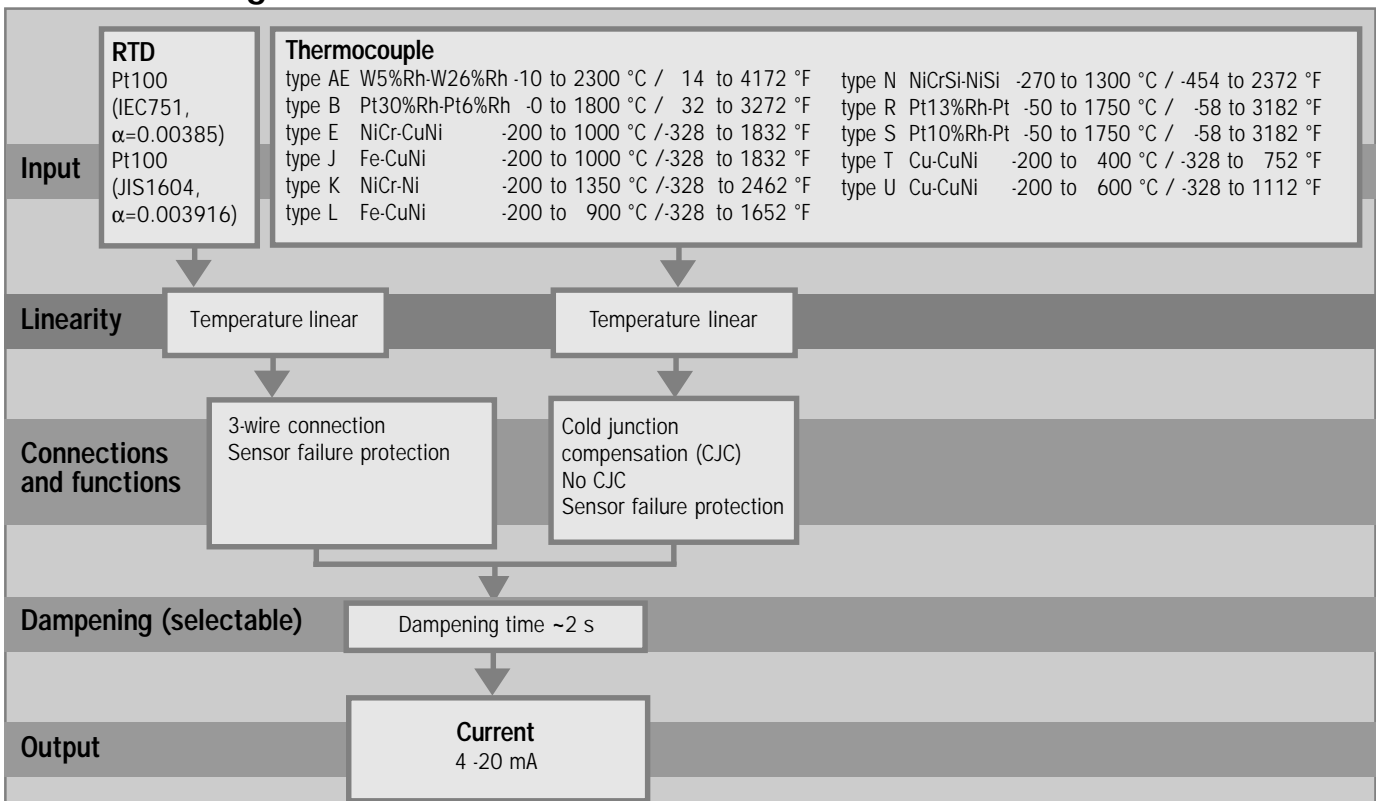
Mounting
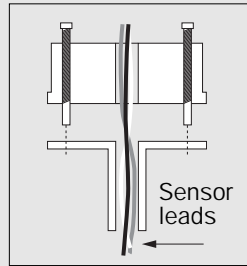
ᴹᴵᴺIPAQ-H is designed to fit inside connection heads type DIN B or larger.

The large center hole, dia. 7 mm / 0.28 inch, facilitates the pulling through of the sensor leads or an insert tube, greatly simplifying the mounting procedure.

ᴹᴵᴺIPAQ-H Configuration scheme

	RTD	Thermocouple		
Input	Pt100 (IEC751, α=0.00385) Pt100 (JIS1604, α=0.003916)	type AE W5%Rh-W26%Rh -10 to 2300 °C / 14 to 4172 °F type B Pt30%Rh-Pt6%Rh -0 to 1800 °C / 32 to 3272 °F type E NiCr-CuNi -200 to 1000 °C /-328 to 1832 °F type J Fe-CuNi -200 to 1000 °C /-328 to 1832 °F type K NiCr-Ni -200 to 1350 °C /-328 to 2462 °F type L Fe-CuNi -200 to 900 °C /-328 to 1652 °F	type N NiCrSi-NiSi -270 to 1300 °C / -454 to 2372 °F type R Pt13%Rh-Pt -50 to 1750 °C / -58 to 3182 °F type S Pt10%Rh-Pt -50 to 1750 °C / -58 to 3182 °F type T Cu-CuNi -200 to 400 °C / -328 to 752 °F type U Cu-CuNi -200 to 600 °C / -328 to 1112 °F	
Linearity	Temperature linear	Temperature linear		
Connections and functions	3-wire connection Sensor failure protection	Cold junction compensation (CJC) No CJC Sensor failure protection		
Dampening (selectable)	Dampening time ~2 s			
Output	**Current** 4 -20 mA			

Specifications

Input

RTD's

Pt100 (IEC751, α = 0.00385)	3-wire connection	-200 to +1000 °C / -328 to +1832 °F
Pt 100 (JIS1604, α = 0.003916)	3-wire connection	-200 to +1000 °C / -328 to +1832 °F
Sensor current		~ 0.4 mA
Maximum sensor wire resistance		25 Ω/wire

Thermocouples

Range	Type: AE, B, E, J, K, L, N, R, S, T, U	See Configuration scheme
Input impedance		>10 MΩ
Maximum sensor wire resistance		500 Ω (total loop)

Monitoring

Sensor failure monitoring		Upscale or downscale

Adjustments

Zero adjustment	All inputs	Any value within range limits
Minimum spans	Pt100	10 °C / 18 °F
	T/C	2 mV

Output

Analog		4-20 mA, temperature linear
Resolution		5 µA
Minimum output signal	Measurement/Failure	3.8 mA / 3.5 mA
Maximum output signal	Measurement/Failure	20.5 mA / 21.6 mA
Permissible load, *see load diagram*		725 Ω @ 24 VDC, 22 mA

Temperature

Ambient, storage and operation		-40 to +85 °C / -40 to +185 °F

General data

Selectable dampening time		~ 2 s
Update time		~ 1.5 s
Isolation In - Out		Non isolated
Humidity (non-condensing)		0 to 95 %RH

Power supply, polarity protected

Supply voltage		8 to 36 VDC 2-wire
Permissible ripple		4 V p-p @ 50/60 Hz

Accuracy

Typical accuracy	RTD	±0.2 % [1]
	T/C	±0.3 % [1]
Cold Junction Compensation (CJC)	T/C	±0.5 °C / ±0.9 °F
Temperature influence [4]	All inputs	Max. of ±0.25 °C/25 °C or ±0.25%/25 °C [1] [3]
		Max. of ±0.5 °F/50 °F or ±0.28%/50 °F [1] [3]
Temperature influence CJC [4]	T/C	±0.5 °C/25 °C / ±1.0 °F/50 °F
Sensor wire resistance influence		Negligible [2]
Load influence		Negligible
Power supply influence		Negligible
RFI influence, 0.15 to 1000 MHz, 10 V or V/m		±0.5% [1] (typical)
Long-term stability		±0.2 % [1] /year

Housing

Material / Flammability (UL)		PC + ABS/V0, Polyamide/V2
Mounting		DIN B-head or larger, DIN rail (with mounting kit)
Connection	Single/stranded wires	≤1.5 mm², AWG 16
Weight		50 g
Protection, housing / terminals		IP 50 / IP 10

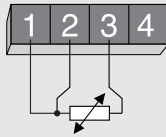[1] Of input span
[2] With equal wire resistance for RTD
[3] If zero-deflection > 100% of input span: add 0.125% of input span/25 °C or 0.14% of input span/50 °F per 100% zero-deflection
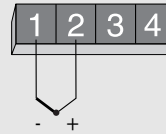[4] Reference temperature 23 °C / 73°F

INPUTS

RTD
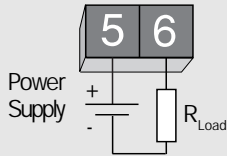
Pt100 (α= 0.00385), Pt100 (α= 0.003916)
3-wire connection

1 2 3 4
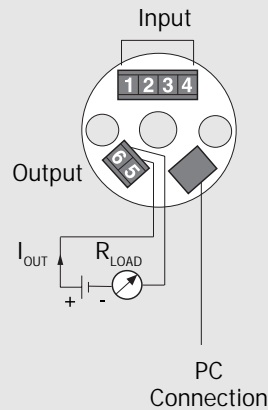
Thermocouple

Type: AE, B, E, J, K, L, N, R, S, T, U

1 2 3 4

- +

OUTPUT

4-20 mA Output

5 6

Power Supply + − R_{Load}

Connections

Input

1 2 3 4

Output

6 5

I_{OUT} R_{LOAD}

+ −

PC Connection

Dimensions

44/1.73

16/0.63   26/1.02

7/0.28

33/1.30   mm/inches
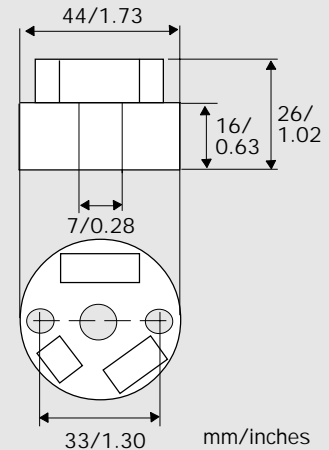
Output load diagram

Permissible R_{Load} at 22 mA output

R_{Load} (Ω)

1600
1200
800
400
0

4 8 12 16 20 24 28 32 36
Supply voltage U (VDC)
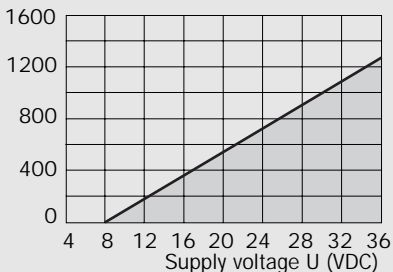
$R_{Load}=(U-8)/0.022$

Ordering table

Item	Part No.
Transmitter	
MINIPAQ-H	70MQH00001
Options	
Configuration	70CAL00001
Software and cable	
MINIPAQ Soft off-line package	70CFG00003
MINIPAQ Soft (software)	70MQS00001
Accessories	
Surface mounting box	70ADA00008
Rail mounting box	70ADA00009
Head mounting kit	70ADA00012
Rail mounting kit	70ADA00013

The User Instructions must be read prior to adjustment and/or installation.

Your distributor

Made in Sweden   All information subject to change without notice