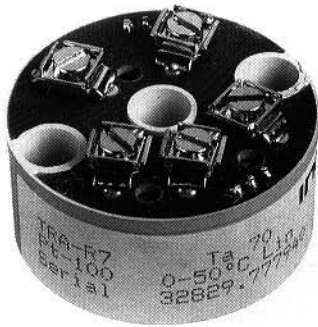


INOR

Fältmonterad 2-ledaromvandlare för motståndstermometrar TRA-R7





- Fältmonterad
- Fasta områden
- Motståndstermometer, Pt100
- Temperaturlinjär utgång 4-20 mA
- Industriellt avstörd
- SMD-tillverkad

°C	Best nr
-50 - +50	70TRAR7005
0 - 50	70TRAR7001
0 - 100	70TRAR7002
0 - 150	70TRAR7011
0 - 200	70TRAR7003
0 - 250	70TRAR7012
0 - 300	70TRAR7013
0 - 400	70TRAR7004
0 - 500	70TRAR7014
0 - 600	70TRAR7015

Tillåten belastning (Ω)

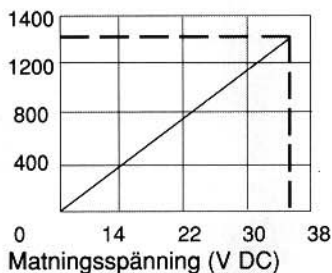


Fig 1

(% av mätområdet)
störkänslighet 0-100°C

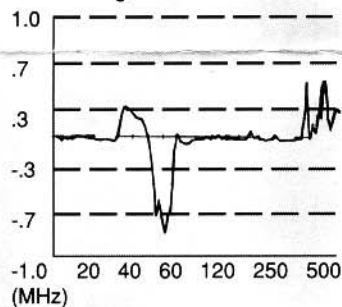


Fig 2

10-36 V DC

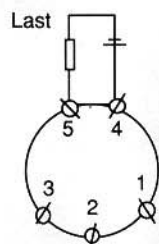


Fig 3

Ingång

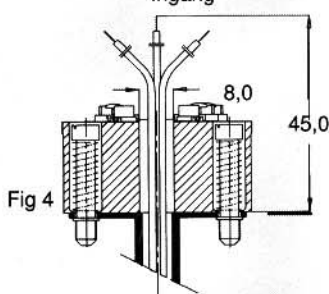


Fig 4

TEKNISKA DATA

Ingångssignal

Motståndstermometer Pt100 enligt DIN 43760.
Standard ingångsområden enligt tabell. Andra områden levereras i min. kvantiteter om 100 st.

Utgång

Lastberoende ström
Tillåten belastning
Lastberoende
Strömbegränsning

4 - 20 mA, temperaturlinjär
Se fig 1
0,05%/kΩ*
~30 mA

Justermöjligheter

Nollpunkt ±10 %
Ändvärde ±10 %

Temperatur

Tillåten lagringstemperatur -40 - +100°C
Tillåten drifttemperatur -20 - +70°C
Temperaturdrift ≤ ± 0,02 %/K*

Allmänna data

Kalibreringsnoggrannhet (vid fabrikskalibrering) ± 0,1 %*
Linearitetsfel för Pt100 enl DIN 43760 ≤ ± 0,10 %*
Svarstid 10-90 % ≤ 0,2 s
Fuktighet 0 - 95 % r l f, icke kondenserande

Störkänslighet, 20-500 MHz 10V/m
IEC 801-3

Se fig 2

Genomförda prov

Kyla IEC 68-2- 1
Torr värme IEC 68-2- 2
Fuktig värme IEC 68-2- 3
Temperaturförändring IEC 68-2-14
Fritt fall IEC 68-2-32
Vibrationer IEC 68-2- 6

Matningsspänning

Matningsspänning, polaritetsskydd ingår i TRA-R7 10 - 36 V DC
Tillåten rippel på matningsspänning 4 V t-t
Matningsspänningsberoende ≤ ± 0,002 %/V DC*

Hölje

Vikt ~0,1 kg

Anslutningar

En- eller flertrådig 0,5 - 2,5 mm²
20 till 14 AWG

* Av mätområde

Application RTD inputs, 2 or 3 sensor wires
Direct mounting inside RTD
connecting heads according
to DIN 43729

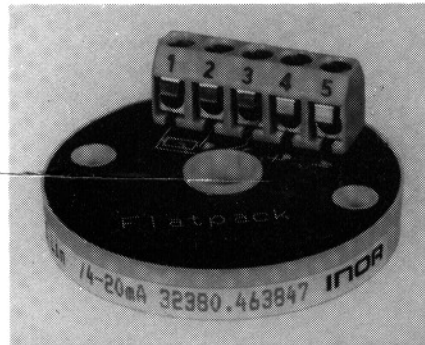
**Transmitter
type** 2-wire

Input span See table below

Linearization RTD Pt 100 DIN 43760

Output 4-20 mA

Power supply 10-36 V DC
Reverse polarity protection

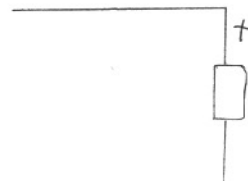


When ordering specify:

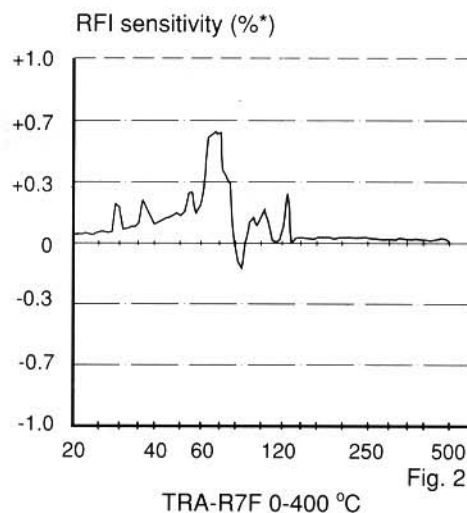
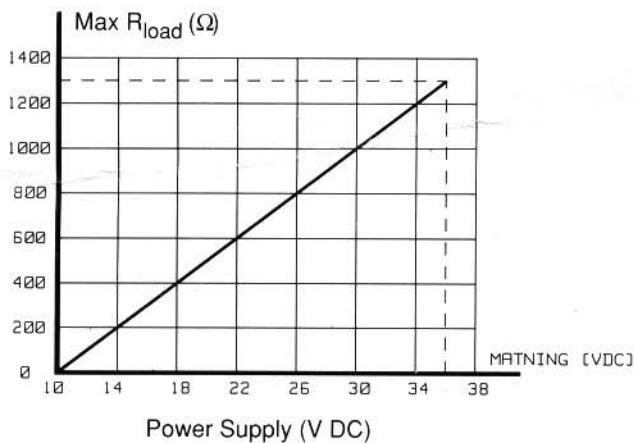
Range °C	70°C ambient temperature Part No.
-50 - +50	70TRAR7051
0 - 50	70TRAR7052
0 - 100	70TRAR7053
0 - 150	70TRAR7054
0 - 200	70TRAR7055
0 - 250	70TRAR7056
0 - 300	70TRAR7057
0 - 400	70TRAR7058
0 - 500	70TRAR7059
0 - 600	70TRAR7060

Other ranges available at min quantity of 100 units.

Option: No linearization



TECHNICAL SPECIFICATIONS			
Input range	RTD Pt100 DIN 43760	°C	50 to 600
Output	Load independent current	mA	4 to 20
	Permissible load	Ω	0 to 1300 see fig. 1
	Load effect	%*/k Ω	0.05
	Current limitation	mA	≤ 28
Panel adjustments		none	
Temperature	Ambient storage	°C	-40 to +100
	Ambient operating	°C	0 to +70
	Temperature effect	%*/°C	≤ 0.02
General specifications	Calibration accuracy typ ***	%*	≤ 0.1
	max	%*	≤ 0.3
	Linearity error for Pt100 DIN 43760	%*	≤ 0.1
	Response time 10-90%	ms	200
	Humidity (non condensing)	%*rh	0 to 95
	RFI sensitivity, 20-500 MHz, 10 V/m **	%*	≤ 1
CMRR	dB	≥ 120	
Tests performed	Cold	IEC 68-2- 1	
	Dry heat	IEC 68-2- 2	
	Damp heat	IEC 68-2-30	
	Change of temperature	IEC 68-2-14	
	Free fall	IEC 68-2-32	
	Vibration	IEC 68-2- 6	
Power supply	Supply voltage	V DC	10 to 36
	Permissible ripple	V p-p	4
	Supply voltage effect	%*/V	≤ 0.002
	Ripple effect 50Hz	%*	≤ 0.001
Housing	Noryl GFN 2 SE1	IP	10
	Weight	g	50
* of input span ** Smallest input span *** Calibration certificate available on request			



All information is subject to change without notice.

INOR

HEAD OFFICE

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Telefax 040-22 92 43. Telecopier +4640 22 92 43. Telex 324 53.

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1. Calibration:

Check the calibration at least once a year and perform as follows:

1.1 Recommended Calibration Equipment

- 1) Resistance decade, inaccuracy < 0,05%
- 1) Display 0—20 mA, inaccuracy < 0,05%
- 3) Power supply 24 VDC 40 mA, e.g. INOR 4 x SG 2420
- 4) Copper wire
- 5) Screw-driver with maximum width 3,0 mm.

1.2

Connect the resistance decade, the read-out unit, and the power supply as shown in Fig. 1.1. Adjust the input signal to give an output of approximately 12 mA and leave the unit for 15 minutes, if possible in the ambient temperature it is intended to work in.

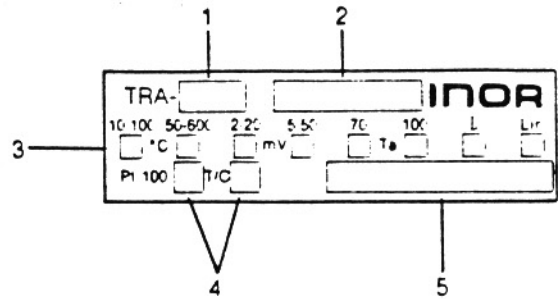
NOTICE: if the transmitter receives an over-load on the input so that the current limitation is activated, then it may take up to one minute before the unit is working properly again. The same problem will occur if the input is shortened so that the output goes low. To avoid these problems always connect the appropriate input before the power supply is connected.

1.3 Adjustments TRA-R6

- a) Turn the potentiometer Range fully counter clockwise
- b) Apply $I_{Nmin} = 100,00\Omega$ (0°C) to the transmitter and adjust potentiometer Zero to get $I_{out} = 4,00$ mA.
- c) Apply $I_{Nmax} = 138,50\Omega$ (100°C) for type R6A alternatively $I_{Nmax} = 313,59\Omega$ (600°C) for type R6B and adjust potentiometer Span to get $I_{out} = 20,00$ mA.
- d) Repeat b)—c) until reading converge.
- e) The transmitter is now calibrated for the largest span. This is also an adjustment that linearises for the Pt100. The Span-potentiometer normally needs no further adjustments.
- f) To calibrate for other spans continue as follows.
- g) Apply I_{Nmin} corresponding to desired minimum input signal and adjust potentiometer Zero to get $I_{out} = 4,00$ mA.
- h) Apply I_{Nmax} corresponding to desired maximum input signal and adjust potentiometer Range to get $I_{out} = 20,00$ mA.
- i) Repeat g)—h) until readings converge.
- j) Secure the potentiometers with lacquer. Calibration is completed.

RTD Pt 100, DIN 43760. Resistance in ohm, as a function of temperature.

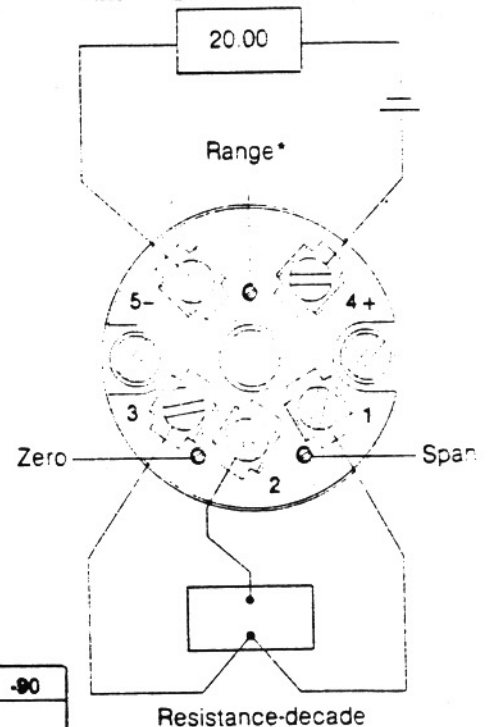
°C	0	-10	-20	-30	-40	-50	-60	-70	-80	-90
-200	18.49									
-100	60.25	56.19	52.11	48.00	43.87	39.71	35.53	31.32	27.08	22.80
0	100.00	96.09	92.16	88.22	84.27	80.31	76.33	72.33	68.33	64.30
°C	0	10	20	30	40	50	60	70	80	90
0	100.00	103.90	107.79	111.67	115.54	119.40	123.24	127.07	130.89	134.70
100	138.50	142.29	146.06	149.82	153.58	157.31	161.04	164.765	168.46	172.16
200	175.84	179.51	183.17	186.82	190.45	194.07	197.69	201.29	204.88	208.45
300	212.02	215.57	219.12	222.65	226.17	229.67	233.17	236.65	240.13	243.59
400	247.04	250.48	253.90	257.32	260.72	264.11	267.49	270.86	274.22	277.56
500	280.90	284.22	287.53	290.83	294.11	297.39	300.65	303.91	307.15	310.38
600	313.59	316.80	319.99	323.18	326.35	329.51	332.66	335.79	338.92	342.03
700	345.13	348.22	351.30	354.37	357.42	360.47	363.50	366.52	369.53	372.52
800	375.51	378.48	381.45	384.40	387.34					



1. Type
2. Manufacturing year and month
3. Indicates the transmitters input span, maximum ambient temperature, if it's low temperature-drift and if it is linearised
4. Type of input signal
5. Calibrated range (if ordered calibrated)

Adjustments TRA-R7

- a) Apply I_{Nmin} to the transmitter and adjust potentiometer Zero to get $I_{out} = 4,00$ mA.
- b) Apply I_{Nmax} to the transmitter and adjust potentiometer Span to get $I_{out} = 20,00$ mA.
- c) Repeat a)—b) until reading converge
- d) Secure the potentiometers with lacquer. Calibration is completed.



*Only TRA-R6

2. Installation

The transmitter is mounted inside a connection-head according to Fig 2.1. Connect the wires according to Fig 2.2. When connecting the sensor with two input wires attention must be paid to the input wiring resistance. The total input wire resistance is measured by short-circuiting the input sensor and measuring the input wire loop while disconnecting the transmitter. If the wire resistance is less than 5% of span this value can be calibrated into the measuring span with the Zero potentiometer as follows:

- Replace the sensor with a resistance corresponding to the lower value of the range.

- Adjust the Zero potentiometer for an output signal of 4.00 mA. If the input wire resistance is larger than 5% of span, this value must be compensated for with an external resistor, R_C , as shown in Fig 2.2. R_C to be chosen as follows:
 - The value of R_C shall be equal to the total input wire resistance as measured above.
 - R_C can be a fixed resistance or a potentiometer.
 - No recalibration necessary.

Figure 2.1

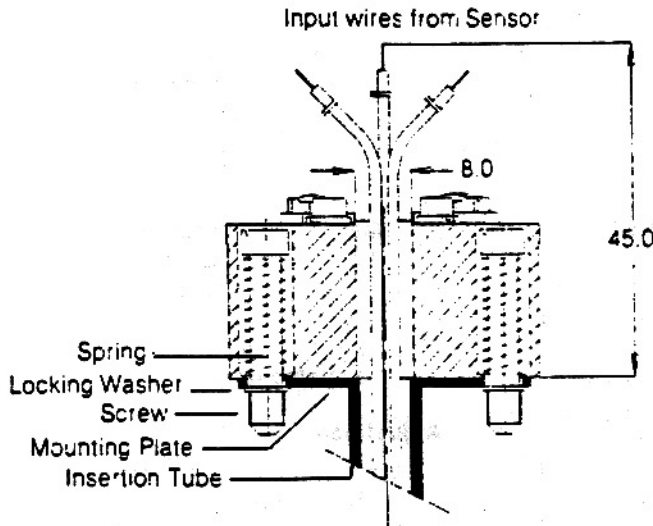
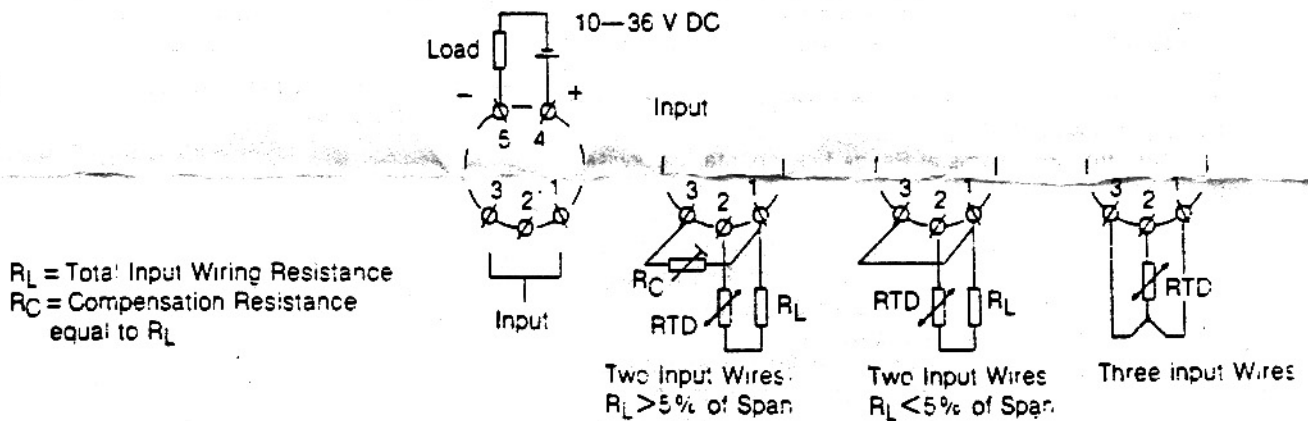


Figure 2.2



Short Data:

Supply Voltage	V DC	10-36
Permissible ripple of supply voltage	V	4
Current limitation	mA	25-30
Zero adjustment R6A/R6E	°C	$\pm 5 / \pm 25$
Zero adjustment R7	%	± 10
Range adjustment R6A/R6B	°C	10 to 100/50 to 600
Span adjustment R7	%	± 10
Permissible load		see fig. 2.3

Figure 2.3

