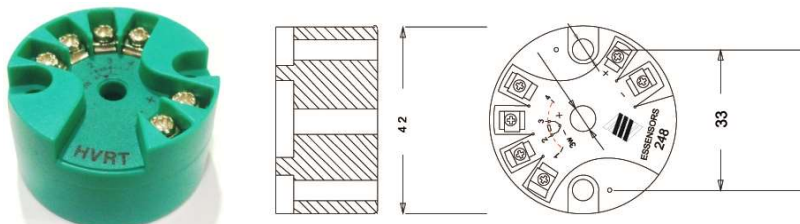


TEMPERATURE TRANSMITTER I 248

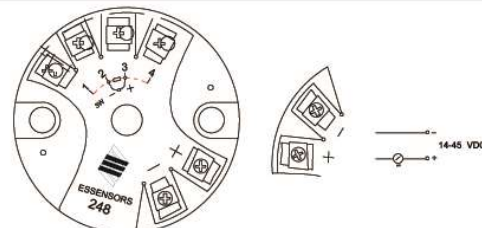


I 248 is a **PC programmable** UNIVERSAL HEAD MOUNT TEMPERATURE TRANSMITTER which converts all type of TC, RTD, mV, Ohms signal into **4 to 20mA** scalable analogue output. The HVRT Communicator can directly power I 248 without using external power supply while calibrating thus making it very convenient user friendly.

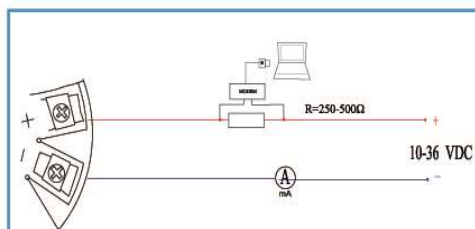
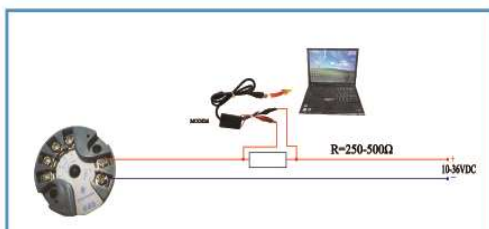
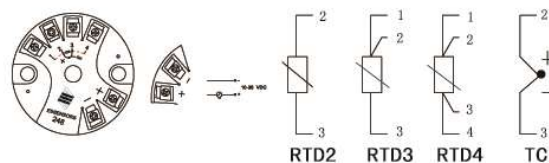
PERFORMANCE	PRODUCT FEATURES
- Accuracy: $\pm 0.1\%$ for RTD & $\pm 0.5\%$ for TC - Response time ≤ 0.8 sec - Stability 0.01°C(RTD), 0.1°C(E J K N T), 0.2°C(B R S) - Operating Temp.: -40 to 85°C - Degree of Protection: IP 66	- PC Programmable with user friendly software 2 wire 4 to 20mA scalable linear output - Universal Input: TC, RTD, mV, Ohms - Wide Supply Voltage Range 10 to 36 VDC - Internal Cold junction Compensation

Signal Input	Type	Measurement Range
Thermal Resistance (RTD)	Pt 100	-200°C to 850°C
	Pt500, Pt1000	-200°C to 250°C
	Cu50, Cu100	-50°C to 150°C
	Ni100	-60°C to 180°C
	Ni500	-60°C to 180°C
	Ni1000	-60°C to 150°C
RTD Signal (Ω)	RTD Sensor	0 to 400 Ω
		0 to 2000 Ω
Thermocouple	B	0 to 1820 $^\circ\text{C}$
	N	-270 to 1000°C
	J	-270 to 1200°C
	K	-270 to 1372°C
	N	-270 to 1300°C
	R	-50 to 1768°C
	S	-50 to 1768°C
	T	-270 to 400°C
Voltage Signal (mV)	Voltage (mV)	-10 to 75mV
		-100 to 100mV
		-100 to 500mV
		-100 to 200mV

Power Connection



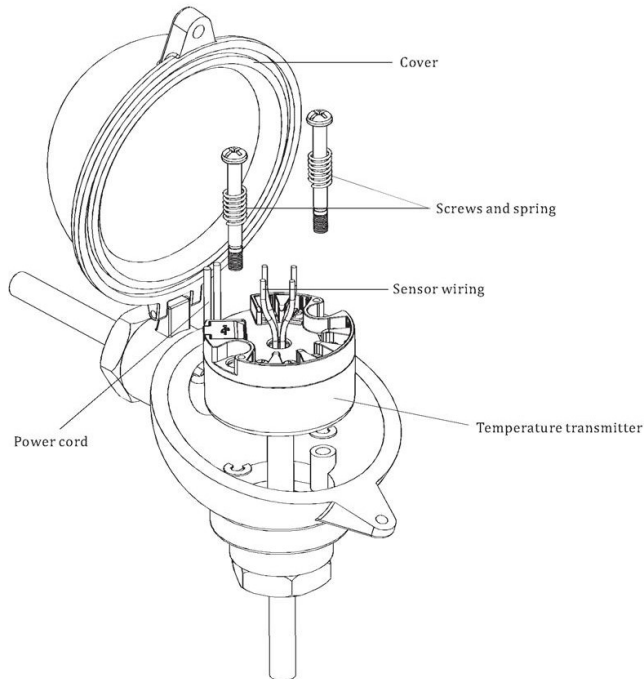
Signal Input



TECHNICAL SPECIFICATIONS

Input	B, E, J, K, N, R, S, T type thermocouple ; PT50 , PT100 , PT1000 , CU50 , CU100 type thermal resistance; resistance , mV Voltage input and so on.
Output	2 wire 4 to 20mA scalable linear output
Max load	Max : (vpower-10V) / 0.22A(Circuit output)
The cold end Compensation Accuracy	0.5 C
Damp	0 - 32 s
Current Limit	< 22 mA
Saturation Current	Low 3.8 mA ; High 20.6 mA
Current Alarm	Output is 3.6 mA or 22mA When Sensor Damage or Break
Mechanical Vibration	10...60 HZ, 0.21 mm Sine Wave
RF Interference	IEC 6100-4-3, 20 V/M.80 100 MHZ

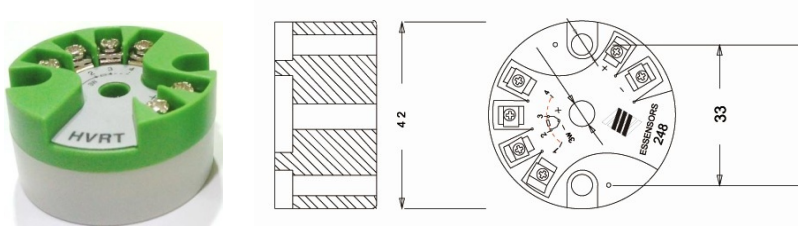
Installation diagram



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TEMPERATURE TRANSMITTER I 148

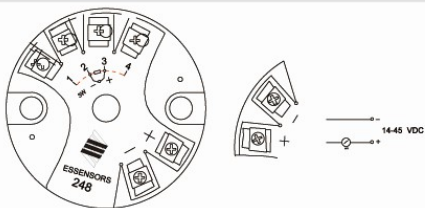


I 148 is **PC programmable** UNIVERSAL HEAD MOUNT TEMPERATURE TRANSMITTER which converts all type of RTD, signal into **4 to 20mA** scalable analogue output. The HVRT Communicator can directly power I 148 without using external power supply while calibrating thus making it very convenient user friendly.

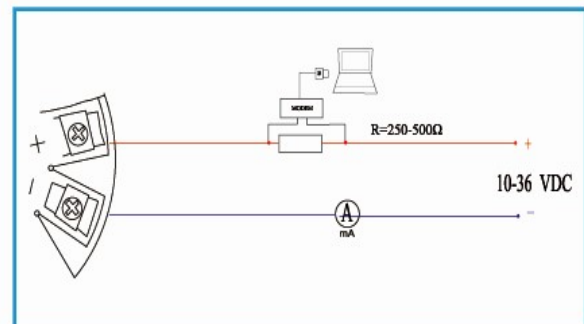
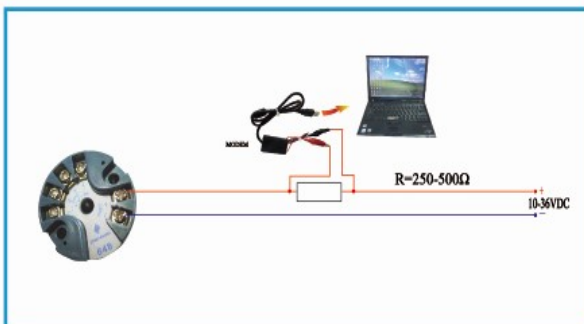
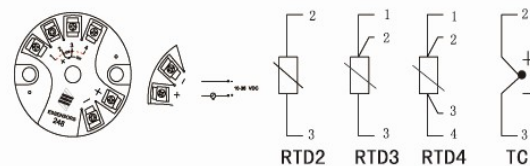
PERFORMANCE	PRODUCT FEATURES
- Accuracy: $\pm 0.1\%$ for RTD - Response time ≤ 0.8 sec - Stability 0.01°C - Operating Temp.: -40 to 85°C - Degree of Protection: IP 66	- PC Programmable with user friendly software 2 wire 4 to 20mA scalable linear output - Dedicated Input: RTD PT 100, RTD PT 1000 - Wide Supply Voltage Range 10 to 36 VDC - Internal Cold junction Compensation

Signal Input	Type	Measurement Range
RTD PT 100	2 Wire	-200°C to 850°C
	3 Wire	-200°C to 850°C
	4 Wire	-200°C to 850°C
RTD PT 1000	2 Wire	-200°C to 850°C
	3 Wire	-200°C to 850°C
	4 Wire	-200°C to 850°C

Power Connection



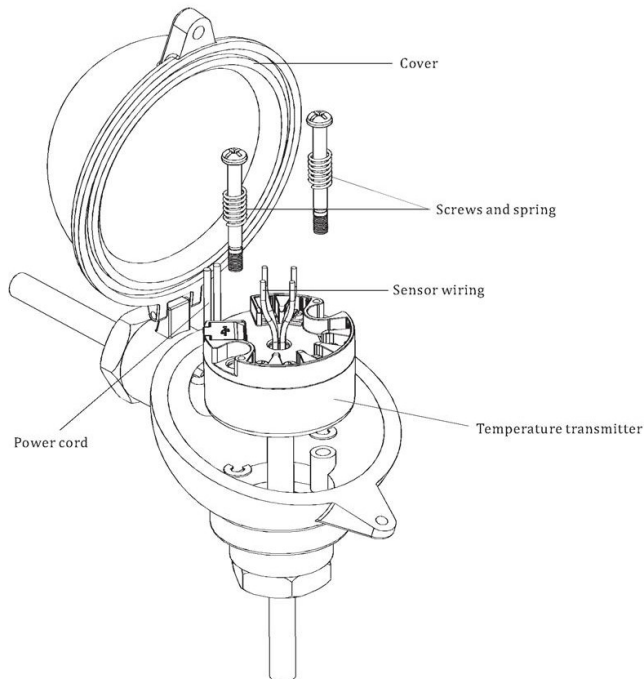
Signal Input



TECHNICAL SPECIFICATIONS

Input	RTD PT 100, RTD PT 1000
Output	2 wire 4 to 20mA scalable linear output
Max load	Max : (vpower-10V) / 0.22A(Circuit output)
The cold end Compensation Accuracy	0.5 C
Damp	0 - 32 s
Current Limit	< 22 mA
Saturation Current	Low 3.8 mA ; High 20.6 mA
Current Alarm	Output is 3.6 mA or 22mA When Sensor Damage or Break
Mechanical Vibration	10...60 HZ, 0.21 mm Sine Wave
RF Interference	IEC 6100-4-3, 20 V/M.80 100 MHZ

Installation diagram



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DIN Rail Temperature Transmitter TMT130



- Universal temperature transmitter for resistance thermometers (RTD), thermocouples (TC), resistance and voltage transmitters, settable via PC-Programmable
- The slim housing with 12.5 mm wide for DIN-rail mounting

Application areas

- Temperature Transmitter for converting various input signals into a scalable 4 to 20 mA analogue output signal
- Input
 - Resistance thermometers (RTD)
 - Thermocouples (TC)
 - Resistance transmitters (Ω)
 - Voltage transmitters (mV)
- Installation on DIN Rail

Performance

- Universal settings with PC-Programmable for various input signals
- 2 wire technology, 4 to 20 mA analogue output
- High accuracy in total ambient temperature range
- An internal temperature sensor for active temperature compensation
- Wide voltage supply range
- Customer specific measurement range settings
- Expanded resistance input (max 2K Ω)
- Expanded voltage input (max 2K mV)

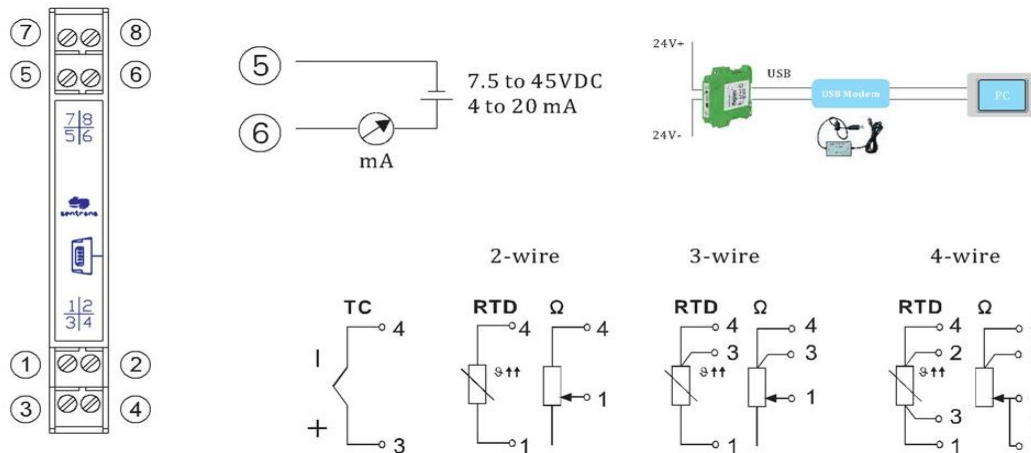
Technical data

Power supply	
Supply voltage	7.5 to 45 VDC (without display), polarity protected
Output	
Output signal	4 to 20 mA
Signal on alarm	Underranging Linear drop to 3.8 mA
	Overranging linear rise to 20.5 mA
	Sensor break; sensor open-circuit 3.6 mA
Load	max. $(V_{\text{power supply}} - 7.5 \text{ V}) / 0.022 \text{ A}$
Linearisation/transmission behaviour	Temperature linear, resistance linear, voltage linear
Installation conditions	
Installation instructions	Installation angle: no limit
	Installation area: Connection head accord. To DIN 43 729 Form B; TAF 10 field housing

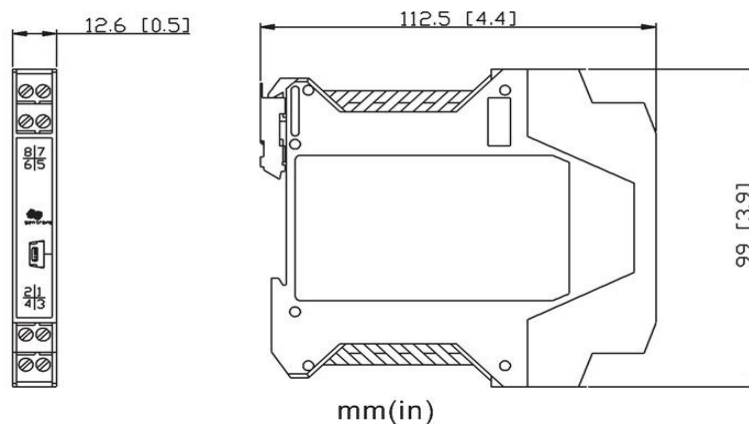
Input			
Input	Type	Measurement ranges	Min.meas.Ranges
Resistance thermometer(RTD)	Pt100	-200℃ to 850℃ (-328°F to 1562°F)	10K
	Pt500	▲ -200℃ to 250℃ (-328°F to 482°F)	10K
	Pt1000	▲ -200℃ to 250℃ (-328°F to 482°F)	10K
	Cu50	-50℃ to 150℃ (-58°F to 302°F)	10K
	Cu100	-50℃ to 150℃ (-58°F to 302°F)	10K
	*Ni100	-60℃ to 180℃ (-76°F to 356°F)	10K
	*Ni500	▲ -60℃ to 180℃ (-76°F to 356°F)	10K
	*Ni1000	▲ -60℃ to 150℃ (-76°F to 302°F)	10K
Resistance transmitter	Resistance(Ω)	0 to 400 Ω	10 Ω
		▲ 0 to 2000 Ω	20 Ω
Connection type:2-,3- or 4-wire connection			
Thermocouples(TC)	B(PtRh30-PtRh6)	0 to 1820℃ (32 to 3308°F)	500K
	E(NiCr-CuNi)	-270 to 1000℃ (-454 to 1832°F)	50K
	J(Fe-CuNi)	-210 to 1200℃ (-346 to 2192°F)	50K
	K(NiCr-Ni)	-270 to 1372℃ (-454 to 2501°F)	50K
	N(NiCrSi-NiSi)	-270 to 1300℃ (-454 to 2372°F)	50K
	R(PtRh13-Pt)	-50 to 1768℃ (-58 to 3214.4°F)	500K
	S(PtRh10-Pt)	-50 to 1768℃ (-58 to 3214.4°F)	500K
	T(Cu-CuNi)	-270 to 400℃ (-454 to 752°F)	50K
Voltage transmitters(mV)	Millivolt transmitter(mV)	-10 to 75mV	5mV
		▲ -100 to 100mV	5mV
		▲ -100 to 500mV	6mV
		▲ -100 to 2000mV	20mV
▲ on request			
Performance characteristics			
Response time	1 s		
Reference operating conditions	Calibration temperature: 23℃(73.4°F)5K		
Long term stability	≤0.05%/year		
Switch on delay	≤5s		
Influence of ambient	Negligible		
Load influence	Negligible		
Power supply influence	Negligible		
Self stability configuration	0 to 2%		
Filter configurating	0 to 160 μ A		
Resolution	0.3 μ A		
Maximum measured error	Input	Type	Measurement accuracy
	RTD	Pt100, Ni100	0.2K or 0.08%
		Pt500, Ni500	0.5K or 0.20%
		Pt1000, Ni1000	0.3K or 0.12%
		Cu50	0.2K or 0.08%
		Cu100	0.3K or 0.12%
TC	K, J, T, E N S, B, R	typ.0.5K or 0.08% typ.1.0K or 0.08% typ.2.0K or 0.08%	
Ω	0 to 400 Ω 0 to 2000 Ω	± 0.1 Ω or 0.08% ± 1.5 Ω or 0.12%	
mV	-10 to 75mV -100 to 100mV -100 to 500mV -100 to 2000mV	± 20 μ V or 0.08% ± 0 μ V or 0.08% ± 0 μ V or 0.08% ± 0 μ V or 0.08%	

Environment conditions	
Ambient temperature limits	-40 to 85°C (-40°F to 185°F)
Storage temperature	-40 to 100°C (-40°F to 212°F)
Condensation	Allowable
Degree of protection	IP 20
Shock and vibration resistance	4g/2 to 150 Hz as per IEC 60 068-26
Electromagnetic compatibility(EMC)	Interference immunity and interference emission according to GB/T17626.2-1998), compliance with IEC 61000-4-3:1995.
Explosion	Intrinsically safe: no limit
Others	
Weight	Approx. 90g
Materials	PA 66-FR

Electrical connections



Dimensions



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SIGNAL ISOLATOR

Series : I-Trans

Model : AI-7022

Features:-

- Low Cost & Effective.
- Configurable two I/Ps & O/Ps.
- Three port isolation.
- DIN rail mounting.

Technical Specifications:

Front End Specifications:

LED : Output 1 , Output 2 , Status

Input Specification:

Input Type :

Input Type	Range
TC_J	0~1200°C
TC_K	-50~1300°C
TC_R	-50~1700°C
TC_S	-50~1700°C
TC_T	-200~350°C
TC_B*	0~1800°C
TC_N	-50~1300°C
TC_E	0~1000°C
Pt-100	-200~900°C

DC Linear Inputs: 0-20mV;0-75mV;0-1V;0.2-1V0-2V
0-5V;0-10V;4-20mA;0-20mA

Output Specification:

Output 1 : 4-20mA;0-20mA;
0-10VDC (To Be Specified)

Output 2 : 4-20mA;0-20mA;
0-10VDC (To Be Specified)

Retransmission Accuracy:

0.3%FS $\pm$ 1 digit (Including I/P & O/P Error)

Isolation Withstanding Voltage:

Voltage between power,signal input & output
terminal $\geq$ 2300VDC;between I/Ps or two O/Ps
 $\geq$ 200VDC

Supply Voltage:

Supply Voltage : 24VDC

Environmental Specification:

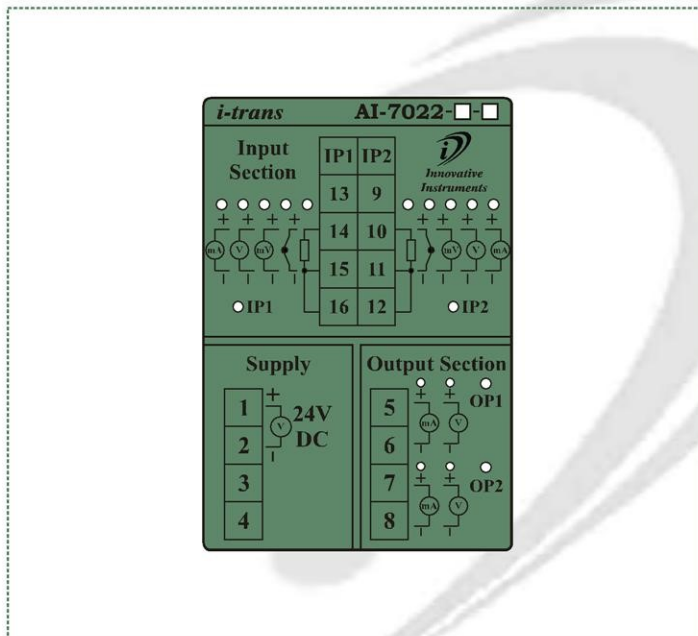
Operating Temperature : -10 To 60°C @Rh-90%

(*Note : B thermocouple obtains the above measurement accuracy only at range of 400~1800°C.Its measurement from 60~400°C is less accurate)

Order Code:

Type	Input	Output
AI-7022	1(Single Input)	1(Single Output)
	2(Dual Input)	2(Dual Output)

Terminal Diagram:



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