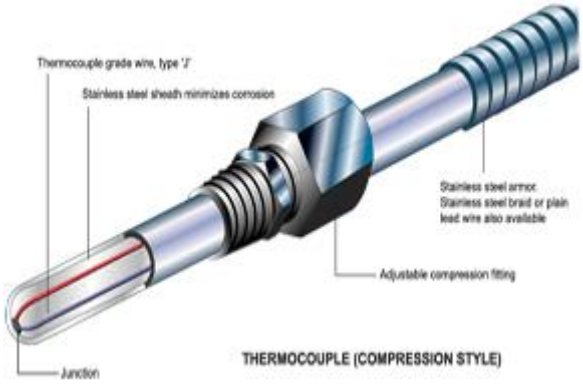
Конструкция на термодвойка



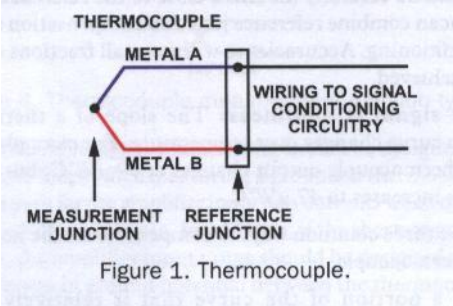
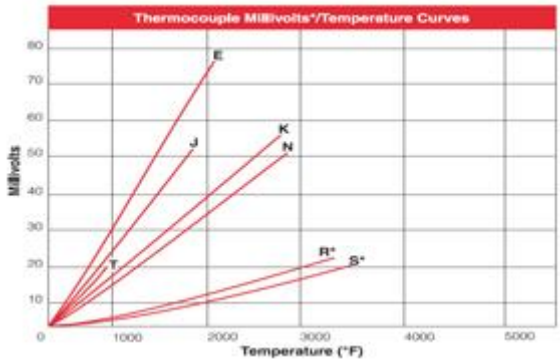


Figure 1. Thermocouple.

Зависимост на напрежението от температурата



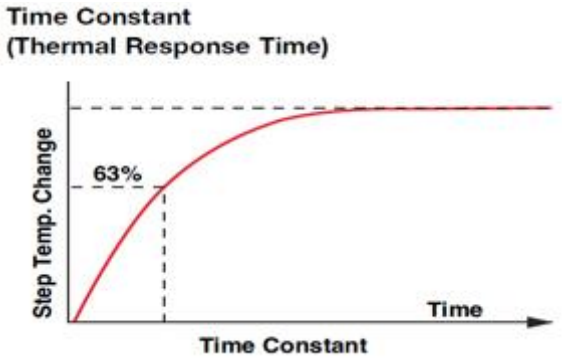
Типове термодвойки и коефициенти на Seebeck

Table 1. Voltage Change vs. Temperature Rise (Seebeck Coefficient) for Various Thermocouple Types at 25°C.

Thermocouple Type	Seebeck Coefficient (μV/°C)
E	61
J	52
K	41
N	27
R	9
S	6
T	41

Because the voltage signal is small, the signal conditi

Преходна характеристика



Компенсация на студения край при постоянна температура

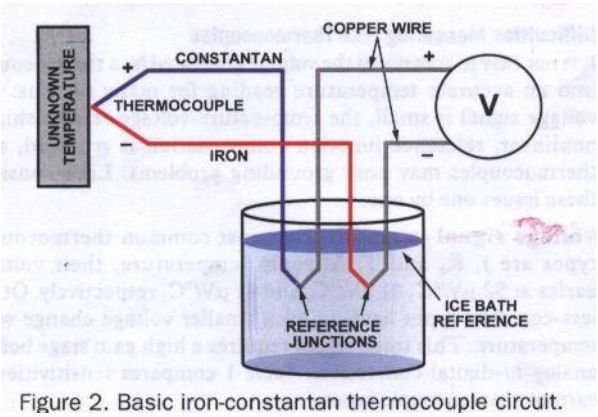
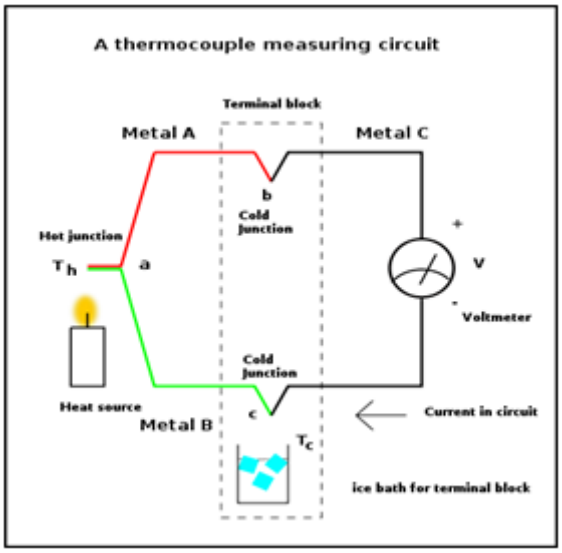


Figure 2. Basic iron-constantan thermocouple circuit.



Свързване посредством инструментален усилвател

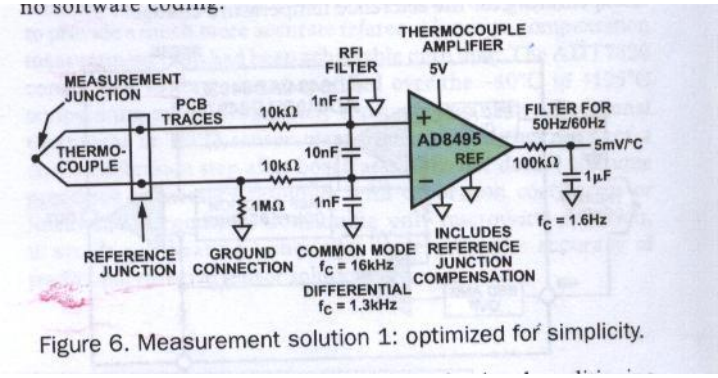


Figure 6. Measurement solution 1: optimized for simplicity.

Двуканална система с цифров изход

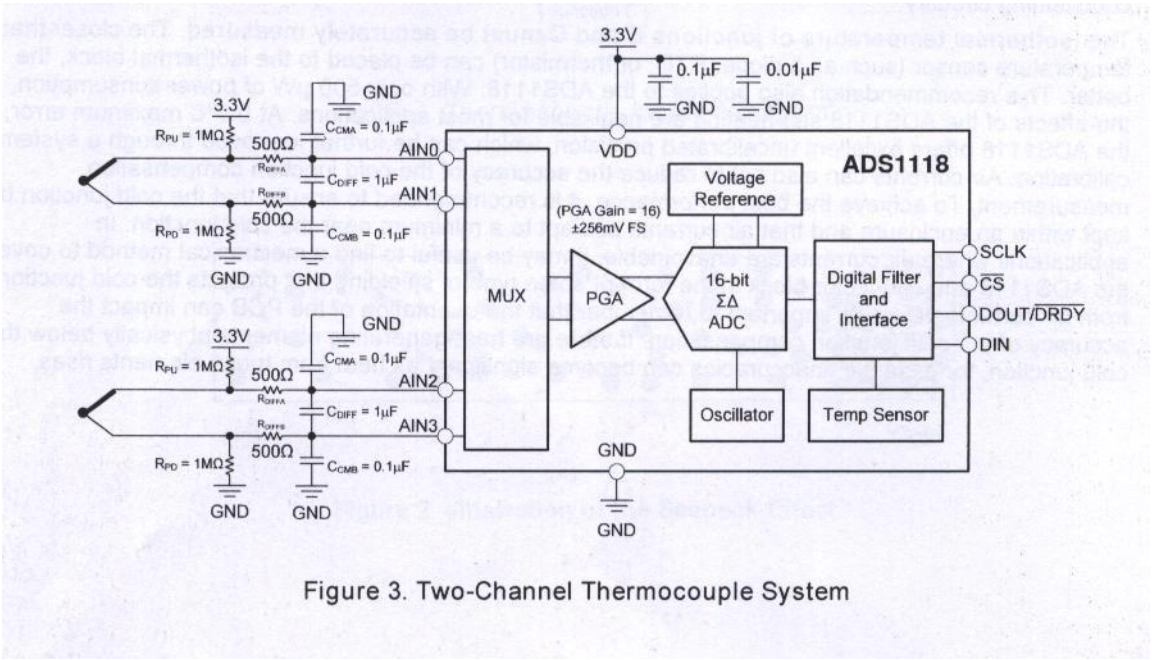
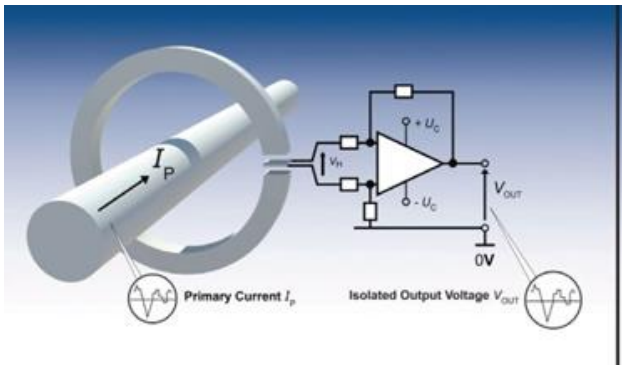
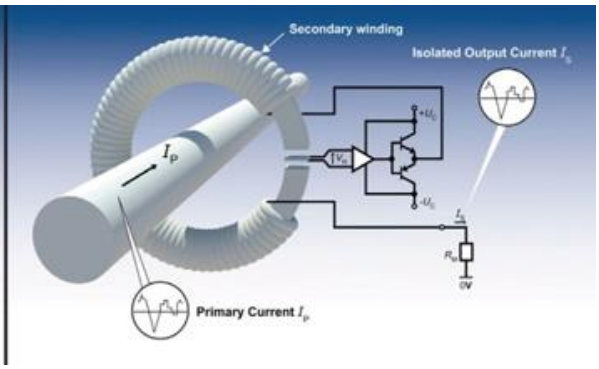


Figure 3. Two-Channel Thermocouple System

Температурна зависимост на съпротивлението

Temperature in °C	Resistance in Ω								
	ITS-90 Pt100[11]	Pt100 Typ: 404	Pt1000 Typ: 501	PTC Typ: 201	NTC Typ: 101	NTC Typ: 102	NTC Typ: 103	NTC Typ: 104	NTC Typ: 105
−50	79.901192	80.31	803.1	1032					
−45	81.925089	82.29	822.9	1084					
−40	83.945642	84.27	842.7	1135			50475		
−35	85.962913	86.25	862.5	1191			36405		
−30	87.976963	88.22	882.2	1246			26550		
−25	89.987844	90.19	901.9	1306		26083	19560		
−20	91.995602	92.16	921.6	1366		19414	14560		
−15	94.000276	94.12	941.2	1430		14596	10943		
−10	96.001893	96.09	960.9	1493		11066	8299		
−5	98.000470	98.04	980.4	1561	31389	8466			
0	99.996012	100.00	1000.0	1628	23868	6536			
5	101.988430	101.95	1019.5	1700	18299	5078			
10	103.977803	103.90	1039.0	1771	14130	3986			
15	105.964137	105.85	1058.5	1847	10998				
20	107.947437	107.79	1077.9	1922	8618				
25	109.927708	109.73	1097.3	2000	6800			15000	
30	111.904954	111.67	1116.7	2080	5401			11933	
35	113.879179	113.61	1136.1	2162	4317			9522	
40	115.850387	115.54	1155.4	2244	3471			7657	
45	117.818581	117.47	1174.7	2330				6194	
50	119.783766	119.40	1194.0	2415				5039	
55	121.745943	121.32	1213.2	2505				4299	27475
60	123.705116	123.24	1232.4	2595				3756	22590
65	125.661289	125.16	1251.6	2689					18668
70	127.614463	127.07	1270.7	2782					15052
75	129.564642	128.98	1289.8	2880					12932
80	131.511828	130.89	1308.9	2977					10837
85	133.456024	132.80	1328.0	3079					9121
90	135.397232	134.70	1347.0	3180					7708
95	137.335456	136.60	1366.0	3285					6539
100	139.270697	138.50	1385.0	3390					
105	141.202958	140.39	1403.9						
110	143.132242	142.29	1422.9						
150	158.459633	157.31	1573.1						
200	177.353177	175.84	1758.4						


I_P
V_H
+ U_C
- U_C
V_{OUT}
0V
Primary Current I_P
Isolated Output Voltage V_{OUT}


Secondary winding
Isolated Output Current I_S
I_P
V_H
+U_C
-U_C
I_S
R_M
0V
Primary Current I_P

Product Specification

Date:2015-8-6

Product Name	Hall current sensor	Model	HA55

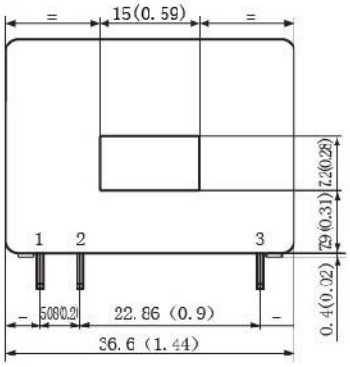
Characteristics:Closed loop, PCB mounting; For the electronic measurement of current: DC,AC,pulsed....

Technical Data

I_{PN}	Rated Input (Effective value)	50A
I_{PM}	Measuring range	±75A
V_{OUT}	Rated output	50mA
X	Accuracy	±0.5%
ε_L	Linearity	<0.1%
V_C	Supply voltage(± 5 %)	±15V
I_C	Current consumption	10mA+Im
R_L	Measured impedance	160Ω
V_{OE}	Zero offset, TA=25°C	≤±0.3mA
t_r	Response time	<1μs
BW	Bandwidth	DC..150kHz
T_A	Operating temperature	-10..+80℃
T_S	Storage temperature	-40..+85℃
V_d	Dielectric strength, 50 Hz, 1 min	2.5kV

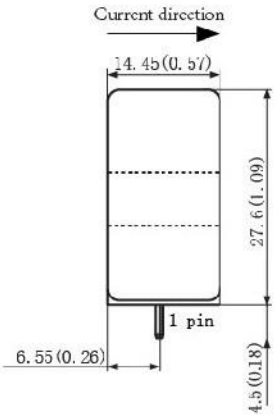
Fire resistance	UL94-V0
Mounting type	PCB
Standards	EN50178
Weight	17g

Dimension (mm(in). 1 mm= 0.0394 inch)



Front view

Double supply voltage model
1:M
2:-15V
3:+15V



Side view

Voltage Transducer CV 3-200

V_{PN} = 140 V

For the electronic measurement of voltages: DC, AC, pulsed..., with a galvanic isolation between the primary circuit (high voltage) and the secondary circuit (electronic circuit).

0630

Electrical data

V_{PN}	Primary nominal voltage rms	140	V
V_{PM}	Primary voltage, measuring range	0 .. ± 200	V
V_S	(Analog) secondary voltage @ $V_{PN\,max}$	10	V
K_N	Conversion ratio	200 V / 10 V	
R_L	Load resistance	☐1	kΩ
C_L	Capacitive loading	☐5	nF
V_C	Supply voltage (± 5 %)	± 15	V
I_C	Current consumption	32 + V_S / R_L	mA

Accuracy - Dynamic performance data

			Maxi	
X_G	Overall accuracy @ $V_{PN\,max}$	T_A = 25°C	± 0.2	%
		- 40°C .. + 85°C	± 0.6	%
V_O	Offset voltage @ V_P = 0	T_A = 25°C	± 5.0	mV
		- 40°C .. + 85°C	± 13.0	mV
t_r	Response time [1] to 90 % of V_{PN} step		0.3	µs
dv/dt	dv/dt accurately followed		200	V/µs
BW	Frequency bandwidth (- 1 dB) @ V_{PN}		DC .. 300	kHz

General data

T_A	Ambient operating temperature	- 40 .. + 85	°C
T_S	Ambient storage temperature	- 45 .. + 90	°C
P	Total primary power loss	3.1	W
R_1	Primary resistance	6.4	kΩ
m	Mass	560	g
	Standards	EN 50155: 1995	

Note: [1] With a dv/dt of 200 V/µs.

Features

- Closed loop (compensated) voltage transducer
- Isolated plastic case recognized according to UL 94-V0
- Patent pending

Advantages

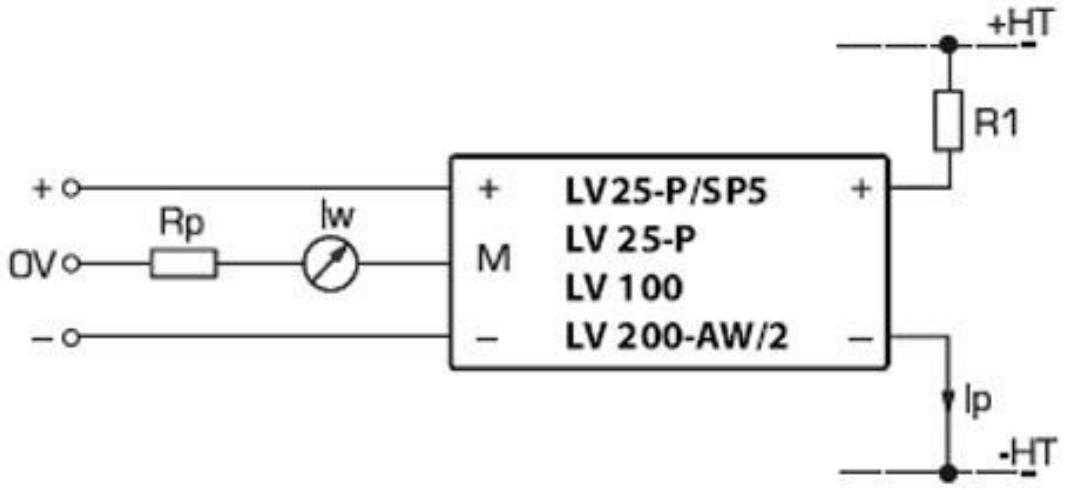
- Excellent accuracy
- Very good linearity
- Low thermal drift
- Low response time
- High bandwidth
- High immunity to external interference
- Low disturbance in common mode.

Applications

- AC variable speed drives and servo motor drives
- Static converters for DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Power supplies for welding applications.

Application domain

- Traction.


+HT
R1
+
0V
−
Rp
Iw
+
M
−
LV25-P/SP5
LV 25-P
LV 100
LV 200-AW/2
+
−
Ip
-HT