SLOVENSKI STANDARD
SIST EN 60751:1998/A2:1998

01-november-1998

Industrial platinum resistance thermometer sensors - Amendment A2 (IEC 60751:1983/A2:1995)

Industrial platinum resistance thermometer sensors

Industrielle Platin-Widerstandsthermometer und Platin-Meßwiderstände

Capteurs industriels à résistance thermométrique de platine

Ta slovenski standard je istoveten z: **EN 60751:1995/A2:1995**

ICS:

17.200.20	Instrumenti za merjenje temperature	Temperature-measuring instruments

SIST EN 60751:1998/A2:1998 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60751/A2

October 1995

UDC 621.317.39.084.2-034.231:536.531
ICS 17.200.20

Descriptors: Platinum resistance thermometer sensor, temperature/resistance relationship, tolerances, tests

English version

Industrial platinum resistance thermometer sensors
(IEC 751:1983/A2:1995)

Capteurs industriels à résistance thermométrique de platine
(CEI 751:1983/A2:1995)

Industrielle Platin-Widerstands-thermometer und Platin-Meßwiderstände
(IEC 751:1983/A2:1995)

This amendment A2 modifies the European Standard EN 60751:1995; it was approved by CENELEC on 1995-09-20. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 65B/224/DIS, future amendment 2 to IEC 751:1983, prepared by SC 65B, Devices, of IEC TC 65, Industrial-process measurement and control, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A2 to EN 60751:1995 on 1995-09-20.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1996-07-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 1996-07-01

Endorsement notice

The text of amendment 2:1995 to the International Standard IEC 751:1983 was approved by CENELEC as an amendment to the European Standard without any modification.

NORME INTERNATIONALE
INTERNATIONAL STANDARD

CEI
IEC
751

1983

AMENDEMENT 2
AMENDMENT 2

1995-07

Amendement 2

Capteurs industriels à résistance thermométrique de platine

Amendment 2

Industrial platinum resistance thermometer sensors

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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FOREWORD

This amendment has been prepared by sub-committee 65B: Devices, of IEC technical committee 65: Industrial-process measurement and control.

The text of this amendment is based on the following documents:

DIS	Report on voting
65B/224/DIS	65B/XX/RVD

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

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3.1 *Temperature/resistance relationships*

Replace the existing text of this subclause by the following:

The temperature/resistance relationships used in this standard are as follows:

– for the range –200 °C to 0 °C:

$$R_t = R_0 [1 + At + Bt^2 + C(t - 100\ °C)\ t^3]$$

– for the range of 0 °C to 850 °C:

$$R_t = R_0 (1 + At + Bt^2)$$

For the quality of platinum commonly used for industrial resistance thermometers, the values of the constants in these equations are:

$$A = 3{,}9083 \times 10^{-3}\ °C^{-1}$$

$$B = -5{,}775 \times 10^{-7}\ °C^{-2}$$

$$C = -4{,}183 \times 10^{-12}\ °C^{-4}$$

For resistance thermometers satisfying the above relationships, the temperature coefficient α, defined as:

$$\alpha = \frac{(R_{100} - R_0)}{100 \times R_0}$$ has the value 0,003 85 $°C^{-1}$

where

R_{100} is the resistance at 100 °C;

R_0 is the resistance at 0 °C.

(For calculation purposes, use the exact value of 0,003 850 55 $°C^{-1}$.)

These equations are listed as the basis for the temperature/resistance tables of this standard and are not intended to be used for the calibration of individual thermometers.

Values of temperature in this standard are on the International Temperature Scale of 1990 (ITS-90).

NOTE – Unless specified by the manufacturer, the resistance values defined by the above equations do not include resistance of the leads between the sensing resistor and the terminations.

Pages 12 and 13

Delete the existing table 1 and replace it by the following:

Tableau 1 – Relation température/résistance R(0) = 100,00 Ω

Table 1 – Temperature/resistance relationship

°C EIT-90	0	1	2	3	4	5	6	7	8	9	10	°C ITS-90
–200	18,52											–200
–190	22,83	22,40	21,97	21,54	21,11	20,68	20,25	19,82	19,38	18,95	18,52	–190
–180	27,10	26,67	26,24	25,82	25,39	24,97	24,54	24,11	23,68	23,25	22,83	–180
–170	31,34	30,91	30,49	30,07	29,64	29,22	28,80	28,37	27,95	27,52	27,10	–170
–160	35,54	35,12	34,70	34,28	33,86	33,44	33,02	32,60	32,18	31,76	31,34	–160
–150	39,72	39,31	38,89	38,47	38,05	37,64	37,22	36,80	36,38	35,96	35,54	–150
–140	43,88	43,46	43,05	42,63	42,22	41,80	41,39	40,97	40,56	40,14	39,72	–140
–130	48,00	47,59	47,18	46,77	46,36	45,94	45,53	45,12	44,70	44,29	43,88	–130
–120	52,11	51,70	51,29	50,88	50,47	50,06	49,65	49,24	48,83	48,42	48,00	–120
–110	56,19	55,79	55,38	54,97	54,56	54,15	53,75	53,34	52,93	52,52	52,11	–110
–100	60,26	59,85	59,44	59,04	58,63	58,23	57,82	57,41	57,01	56,60	56,19	–100
–90	64,30	63,90	63,49	63,09	62,68	62,28	61,88	61,47	61,07	60,66	60,26	–90
–80	68,33	67,92	67,52	67,12	66,72	66,31	65,91	65,51	65,11	64,70	64,30	–80
–70	72,33	71,93	71,53	71,13	70,73	70,33	69,93	69,53	69,13	68,73	68,33	–70
–60	76,33	75,93	75,53	75,13	74,73	74,33	73,93	73,53	73,13	72,73	72,33	–60
–50	80,31	79,91	79,51	79,11	78,72	78,32	77,92	77,52	77,12	76,73	76,33	–50
–40	84,27	83,87	83,48	83,08	82,69	82,29	81,89	81,50	81,10	80,70	80,31	–40
–30	88,22	87,83	87,43	87,04	86,64	86,25	85,85	85,46	85,06	84,67	84,27	–30
–20	92,16	91,77	91,37	90,98	90,59	90,19	89,80	89,40	89,01	88,62	88,22	–20
–10	96,09	95,69	95,30	94,91	94,52	94,12	93,73	93,34	92,95	92,55	92,16	–10
0	100,00	99,61	99,22	98,83	98,44	98,04	97,65	97,26	96,87	96,48	96,09	0
0	100,00	100,39	100,78	101,17	101,56	101,95	102,34	102,73	103,12	103,51	103,90	0
10	103,90	104,29	104,68	105,07	105,46	105,85	106,24	106,63	107,02	107,40	107,79	10
20	107,79	108,18	108,57	108,96	109,35	109,73	110,12	110,51	110,90	111,29	111,67	20
30	111,67	112,06	112,45	112,83	113,22	113,61	114,00	114,38	114,77	115,15	115,54	30
40	115,54	115,93	116,31	116,70	117,08	117,47	117,86	118,24	118,63	119,01	119,40	40
50	119,40	119,78	120,17	120,55	120,94	121,32	121,71	122,09	122,47	122,86	123,24	50
60	123,24	123,63	124,01	124,39	124,78	125,16	125,54	125,93	126,31	126,69	127,08	60
70	127,08	127,46	127,84	128,22	128,61	128,99	129,37	129,75	130,13	130,52	130,90	70
80	130,90	131,28	131,66	132,04	132,42	132,80	133,18	133,57	133,95	134,33	134,71	80
90	134,71	135,09	135,47	135,85	136,23	136,61	136,99	137,37	137,75	138,13	138,51	90
100	138,51	138,88	139,26	139,64	140,02	140,40	140,78	141,16	141,54	141,91	142,29	100
110	142,29	142,67	143,05	143,43	143,80	144,18	144,56	144,94	145,31	145,69	146,07	110
120	146,07	146,44	146,82	147,20	147,57	147,95	148,33	148,70	149,08	149,46	149,83	120
130	149,83	150,21	150,58	150,96	151,33	151,71	152,08	152,46	152,83	153,21	153,58	130
140	153,58	153,96	154,33	154,71	155,08	155,46	155,83	156,20	156,58	156,95	157,33	140
150	157,33	157,70	158,07	158,45	158,82	159,19	159,56	159,94	160,31	160,68	161,05	150
160	161,05	161,43	161,80	162,17	162,54	162,91	163,29	163,66	164,03	164,40	164,77	160
170	164,77	165,14	165,51	165,89	166,26	166,63	167,00	167,37	167,74	168,11	168,48	170
180	168,48	168,85	169,22	169,59	169,96	170,33	170,70	171,07	171,43	171,80	172,17	180
190	172,17	172,54	172,91	173,28	173,65	174,02	174,38	174,75	175,12	175,49	175,86	190
200	175,86	176,22	176,59	176,96	177,33	177,69	178,06	178,43	178,79	179,16	179,53	200
210	179,53	179,89	180,26	180,63	180,99	181,36	181,72	182,09	182,46	182,82	183,19	210
220	183,19	183,55	183,92	184,28	184,65	185,01	185,38	185,74	186,11	186,47	186,84	220
230	186,84	187,20	187,56	187,93	188,29	188,66	189,02	189,38	189,75	190,11	190,47	230
240	190,47	190,84	191,20	191,56	191,92	192,29	192,65	193,01	193,37	193,74	194,10	240
250	194,10	194,46	194,82	195,18	195,55	195,91	196,27	196,63	196,99	197,35	197,71	250
260	197,71	198,07	198,43	198,79	199,15	199,51	199,87	200,23	200,59	200,95	201,31	260
270	201,31	201,67	202,03	202,39	202,75	203,11	203,47	203,83	204,19	204,55	204,90	270
280	204,90	205,26	205,62	205,98	206,34	206,70	207,05	207,41	207,77	208,13	208,48	280
290	208,48	208,84	209,20	209,56	209,91	210,27	210,63	210,98	211,34	211,70	212,05	290
300	212,05	212,41	212,76	213,12	213,48	213,83	214,19	214,54	214,90	215,25	215,61	300
310	215,61	215,96	216,32	216,67	217,03	217,38	217,74	218,09	218,44	218,80	219,15	310
320	219,15	219,51	219,86	220,21	220,57	220,92	221,27	221,63	221,98	222,33	222,68	320