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DEVELOPMENT
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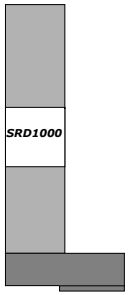
Calibration data SRD1000 sensor # 224-A

user guide, version REF-224-A-20100901



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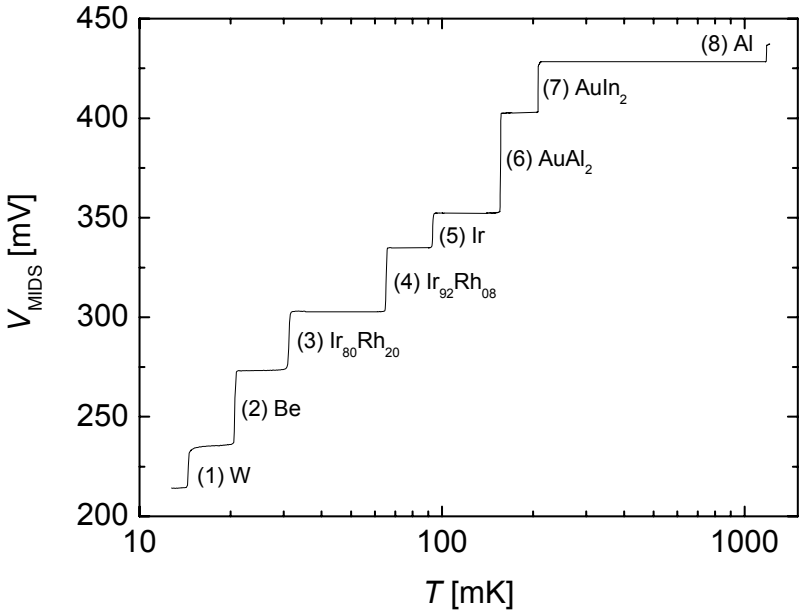

Figure 1. Output voltage V of the MIDS detection electronics versus sensor temperature T.

Table 2. Overview of the calibration data of SRD1000 # 224-A (run T79, August - September 2010)

#	material	T_{SC} / mK	T_{NC} / mK	T_C / mK	W_C / mK	U_{CT} / mK	U_{CT}%
1	W	13	18.0	**14.5**	0.4	0.1	0.7
2	Be	19.5	21.5	**20.6**	0.3	0.1	0.5
3	$Ir_{80}Rh_{20}$	27	33	**31.1**	0.6	0.2	0.6
4	$Ir_{92}Rh_{08}$	63	67	**65.4**	0.8	0.2	0.3
5	Ir	90.5	96	**93.1**	0.8	0.2	0.2
6	$AuAl_2$	147	159	**155.9**	0.7	0.2	0.1
7	$AuIn_2$	206	212	**207.8**	0.4	0.2	0.1
8	Al	1175	1188	**1181**	2.4	1.7	0.1

SRD1000 sensor # 224-A contains 8 standard reference points:
(1) W,
(2) Be,
(3) $Ir_{80}Rh_{20}$,
(4) $Ir_{92}Rh_{08}$,
(5) Ir,
(6) $AuAl_2$,
(7) $AuIn_2$,
(8) Al.

During the calibration the transitions were measured with detection electronics MIDS-202 serial no. 224 at channel A, operating at an AC primary current of 50 μA @ 976.5 Hz.

Figure 1 shows the output of the electronics versus the sensor temperature. Each voltage step is marked with the name of its corresponding reference point.

Table 1 overviews of the calibration data, with:

T_{SC} temperature at which the sample of the reference material is sufficiently in the superconducting state;

T_{NC} temperature at which the sample of the reference material is sufficiently in the normal state;

T_C the reference temperature at which 50% of the superconductive transition is completed;

W_C width of the transition: the temperature interval in which 80% of the superconductive transition occurs;

U_{CT} estimate of the total uncertainty of the determination of T_C;

U_{CT}% relative uncertainty 100 U_{CT}/T_C.

For more information on the definition of the superconductive transitions and the realisation of the reference points, please refer to the SRD1000 user guide: SRD1000-20100401.