



SRD1000 measurement systems for precision thermometry on the PLTS-2000

Overview SRD1000 measurement system

The SRD1000 system is an easy to use, modular and all-in-one measurement system for precision thermometry below 1.2 K, comprising several items:

- an SRD1000 device that supports up to 10 reference points for thermometry between 10 mK and 1.2 K using the stable superconductive transitions of various metal samples
- an optional CMN (Cerium Magnesium Nitrate) paramagnetic susceptibility thermometer that, once calibrated with the SRD1000 reference points, allows accurate and continuous temperature measurement along the scale
- a DCS-10 degauss tool and an ACS-10 current source to establish low magnetic field conditions in the SRD sensor unit and thus ensuring accurate reproduction of the reference points
- the MIDS-20X series of mutual inductance detection electronics: a 2-channel MIDS-202 for simultaneous reading of both an SRD1000 device and a CMN thermometer, or a 1-channel version MIDS-201 for single sensor use
- a calibration of the reference points

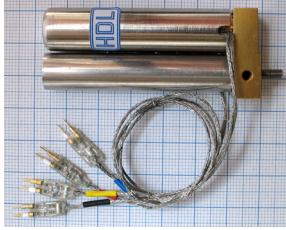
Product bundles of the individual system components are obtainable as standard items
Special system configurations are possible upon request

SRD1000 device

- Includes 10 stable reference points for thermometry between 10 mK and 1.2 K
- Uncertainty levels range from < 0.04 mK @ 15 mK to 0.8 mK @ 1.2 K
- Includes Cryoperm / niobium shieldings and a compensation coil to reduce ambient magnetic fields
- Filters suppress the effects of RF-interference

CMN thermometer option

- Provides continuous thermometry in the range of <10 mK to 1.2 K
- Reliable readings due to the 'on board' calibration points of the SRD sensor unit
- Resolution is better than 0.1 % for T < 0.5 K and better than 0.5 % for 0.5 K < T < 1.2 K



combined SRD and CMN sensor block

DCS-10 degauss tool

- A tool for demagnetizing the shielding of the SRD sensor unit

ACS-10 current source

- Battery powered precision current source for compensating residual magnetic fields in the SRD sensor unit



MIDS-202 mutual inductance detection system

- A 2-channel detection system for simultaneous reading of an SRD1000 device and a CMN thermometer
- 'Plug and play', no adjustments are required
- Analogue DC outputs proportional to the sensor signal level
- 24-bit ADC's with optical USB computer interface for precision reading of the sensor signals
- LabView VI for data acquisition and processing
- The MIDS-201 model is a 1-channel version of the MIDS-202



Calibrations

SRD1000 devices combined with the MIDS-20X type of electronics can be supplied with a calibration of the reference points:

- level A : a calibration with a certificate by PTB in Berlin. PTB (the Physikalisch-Technische Bundesanstalt) is the national metrology institute of Germany that measures with the highest accuracy and reliability - web site: <http://www.ptb.de>
- level B : a calibration performed with an uncertainty level of about 2% or less



Product bundles

system components	SRD1000 device	CMN sensor option	DCS-10	ACS-10	MIDS-202	MIDS-201	calibration level A	calibration level B
	10 points							
product bundles								
CONTINUOUS series								
high end	✓	✓	✓	✓	✓			✓
economy	✓	✓	✓		✓			
basic	✓	✓	✓					✓
REFERENCE series								
high end	✓		✓	✓	✓	✓	✓	
economy	✓		✓	✓		✓		✓
basic	✓		✓					

Further information

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