

# CRITICAL CURRENT MEASURING SYSTEM



The HTS-110 12 T "SuperCurrent" Electrical Transport Measuring System provides automated measurement of electrical transport properties as a function of magnetic field, field angle and temperature.

Completely cryogen-free  $I_c(T, B, \theta)$  to over 1200 A (optionally to 1600 A), with sample cooling to  $T < 15$  K.

## Applications

- Critical current in full-size superconducting wire sample
- $I_c(T, B, \theta)$
- n-value
- $R(T)$
- 1G, 2G,  $MgB_2$

## Features

- 0-12 T variable field (bipolar), 5 T and 8 T options
- Dedicated sample cooler using flowing He gas for high cooling capacity; Sample T from  $< 15$  K to 300 K
- Sample rotation 0-360°
- All measurement hardware including power supplies and meters
- Software suite for full automated control, LabVIEW- based

## Easy to use

- Complete automated measurement system
- Entirely cryogen-free operation; no handling of liquid helium or nitrogen, even for cool down
- Magnet safety monitoring electronics standard
- Rapid sample exchange and cooling

## Easy to site

- Low fringe field
- Compressors can be sited remotely (up to 10m)
- All measurement electronics mounted in movable rack

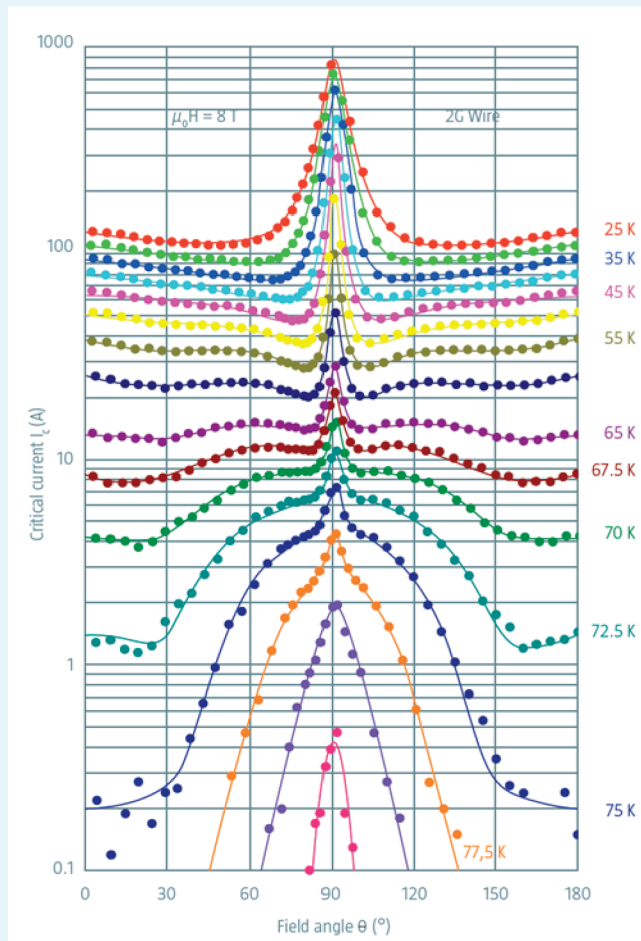


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## Standard system includes

- Magnet subsystem with integrated cryocooler
- Active magnet protection electronics linked to integrated temperature sensors and voltage taps
- Magnet energy dump system
- Bipolar power supply for magnet
- Sample environment cooled with a flowing He gas circuit
- Sample rotation stage
- Sample temperature control (LakeShore 336)
- Sample current source to 1200 A, with 1600 A optional
- Sample voltage preamplifier

- Built-in over-current protection measures for sample and measurement-current leads
- Field measurement incorporated in software
- Proven control software (in LabVIEW) for transport  $I_c$  measurement
- Sample probe
- 1 year warranty

## System Specifications

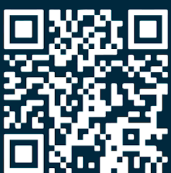
- 5, 8, 12 T full-field options
- Magnet cool down (room temperature to operating temperature) <60 h
- Sample cold-swap cool down time: 20 mins to 20 K
- Sample size: up to 12 mm x 60 mm x 3 mm as standard, nominal 10 mm voltage spacing
- Sample space:  $\varnothing$  20 mm

## System Requirements

- 50/60Hz 3P power for magnet and sample environment
- Helium gas supply required for sample exchange
- Vacuum pump for installation and maintenance; turbomolecular pump recommended with minimum pumping speed 40 l/s and ultimate pressure <10<sup>-7</sup> mbar

## System Options

- I-V curve analysis software
- Low maintenance vacuum pump
- Water chiller
- Lower capacity systems (field, sample temperature) available as options



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