8 T ELECTRICAL TRANSPORT MEASURING SYSTEM

HTS-110

Designed from the ground up for superconductor characterisation

The HTS-110 8 T 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 800 A, with sample cooling to T<20 K.

APPLICATIONS

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

FEATURES

- 0-8 T variable field (bipolar)
- Dedicated sample cooler using flowing He gas for high cooling capacity; Sample T from <20 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

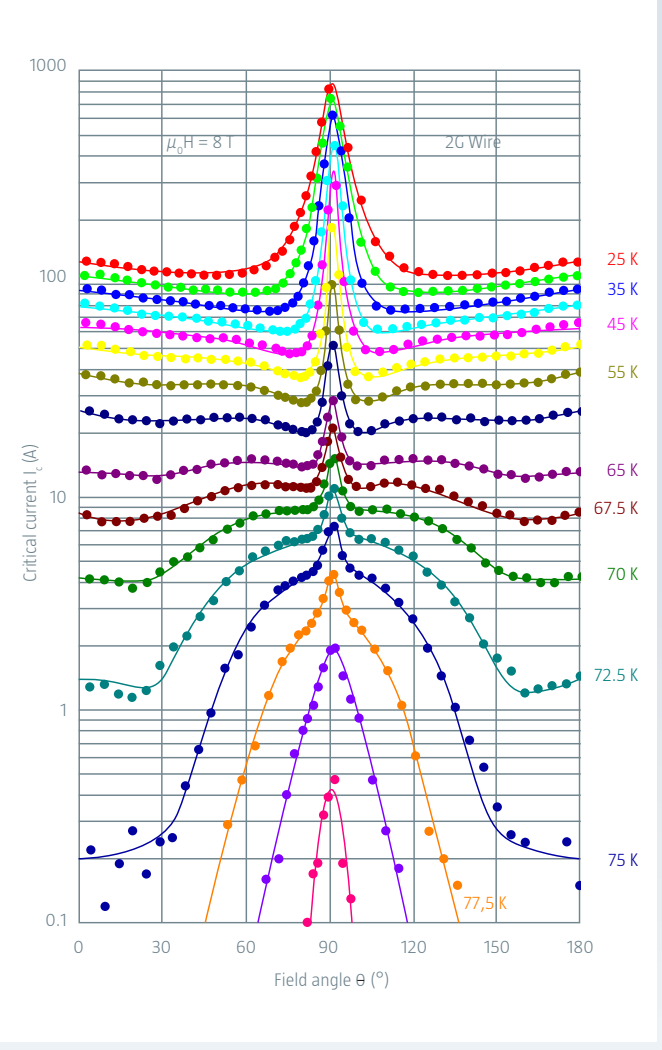
EASY TO SITE

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

SCOTT™

8 T ELECTRICAL TRANSPORT MEASURING SYSTEM

HTS-110



- Sample current source to 875 A (Agilent 6680A)
- Sample voltage preamplifier, DAQ (National Instruments 6211)
- Field measurement incorporated in software
- Proven control software (in LabVIEW) for transport I_c measurement
- Sample probe
- 1 year warranty

SYSTEM SPECIFICATIONS

- 0-8 T, Full field at 220 A
- Magnet cool down (room temperature to operating temperature) <60 h
- Sample cool down: 1 – 2 h
- Sample size: up to 12 mm x 120 mm x 3 mm as standard, nominal 10 mm voltage spacing
- Sample space: 20 mm ø
- Magnet mass: 650 kg

SYSTEM REQUIREMENTS

- 2.7 l/min and 7-10 l/min water cooling for sample and magnet compressors respectively
- 50/60Hz, ~5 kW (magnet), ~3 kW (sample)
- Scheduled maintenance on cryocooler every 13,000h (model dependant)
- 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^{-7} mbar

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)

SYSTEM OPTIONS

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

hts-110.com

SCOTT™

HTS-110
1B Quadrant Drive
Waiwhetu
Lower Hutt 5010
New Zealand

t +64 4 570 8880
e info@hts-110.com

LinkedIn:
nz.linkedin.com/company/hts-110

Technology developed in conjunction with:

TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI
VICTORIA UNIVERSITY OF WELLINGTON

Patent pending
[US Provisional Patent Nos: 61980337, 61980896]