



Customized cryosystems

Cryostats (metal, glass/carbon fiber reinforced resin)

Cooling and liquefaction systems

Cryogenic actuators, sensors and pumps

Energy storing systems (H₂, CH₄, ...)

LNG technology

Sensor calibration

Customized electronics

Individual software and visualization

Engineering, calculation and simulation

Heat to Power

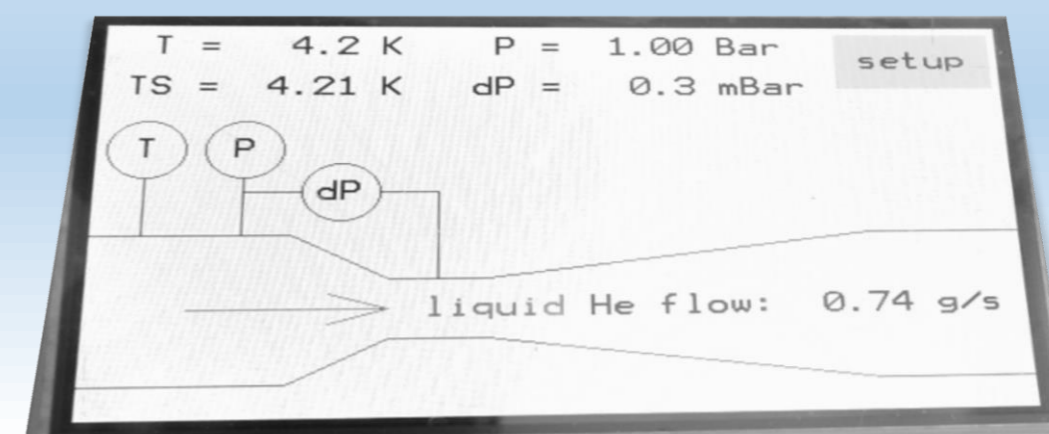
Thermal cycle and material tests (λ , α , c , P , ...)

Cryobiology – Life Sciences

Contact

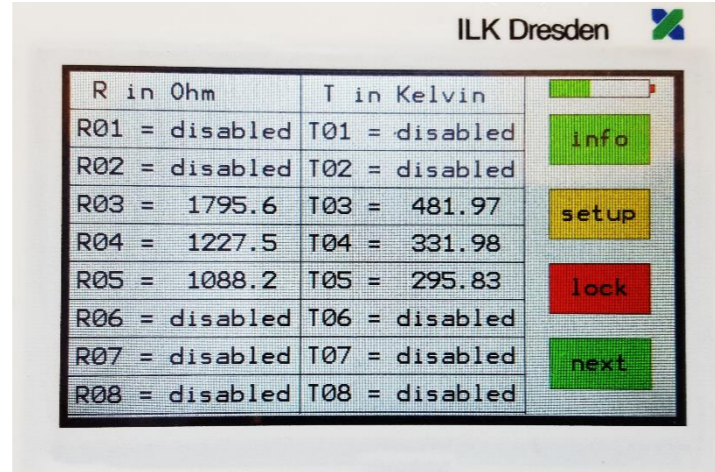
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Certificate in accordance
 with the requirements of the
 Pressure Equipment Directive
 DGRL 97/23/EG, Modul A1
 for cryostats
 Ident-No. CE 0525



Low Temperature Sensors and Electronic

Temperature measurement bridge



ILK Dresden	
R in Ohm	T in Kelvin
R01 = disabled	T01 = disabled
R02 = disabled	T02 = disabled
R03 = 1795.6	T03 = 481.97
R04 = 1227.5	T04 = 331.98
R05 = 1088.2	T05 = 295.83
R06 = disabled	T06 = disabled
R07 = disabled	T07 = disabled
R08 = disabled	T08 = disabled

Resistance Bridge

- 1.2 – 10 mV
- AC measurement
- Measuring rate 25/s
- Range up to 50 kOhm
- Precision better than 0.1%+30 mOhm
- Small size and integrable, very good function to price ratio
- Internal multiplexer for the connection of resistive sensors 8/16
- Interface for up to four slave cryogenically-appropriate 16x multiplexer
- Data connection via USB / RS485 bus / RS232
- Li-ion battery, USB power or wide range input (7 - 30 VDC) power, 2 W
- Display with touchscreen
- Size: 150 x 100 x 45 mm³

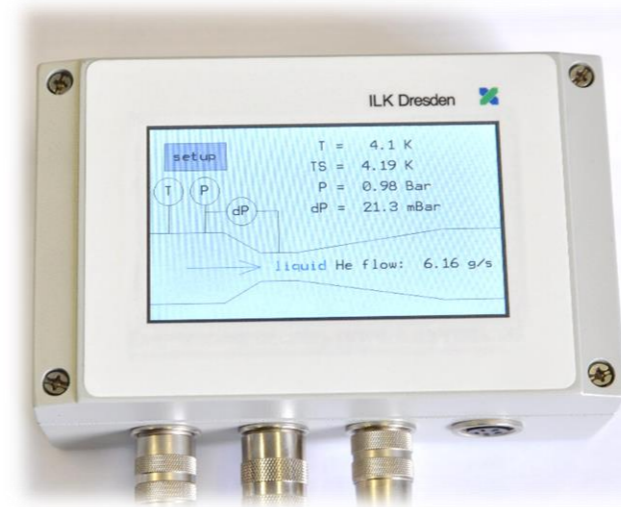
Slave Controller (up to four per bridge)

- Multiplexer for up to 16 resistance sensors
- Connection via 10-wire (no additional cables for more controllers)
- Slave-controller operation temperature range from 25 to 325 K
- Can be used for thermal coupling of sensors cables
- Vacuum operation possible
- Optional: resistive level probe, digital heater connection
- Power consumption < 1mW
- Size: 90 x 45 x 20 mm³

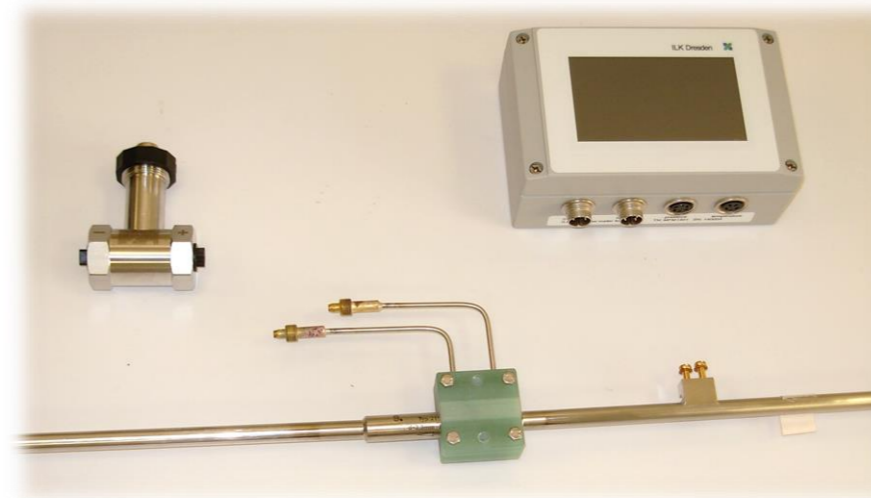
Software for PC

- Recording of data, display of resistance and temperature
- Assignment of calibration data for sensors
- Optional: almost any extensions

Design example for mass flow meter for cryogenic liquids



- Cryogen LHe, LH₂, LN₂ etc.
- Venturi tube technology
- Voltage 10 to 25 V
- Data connection RS485
- Power consumption 1.7 W



Design example for a superconducting level sensor



- 50 μm MgB₂ sensor wire
- 700 mm level range
- 99.9 % linearity
- Temperature range 1.5 to 28 K
- Pressure range 0 to 5 bar
- Time constant 4 s
- Operating current 100 to 500 mA
- With controller