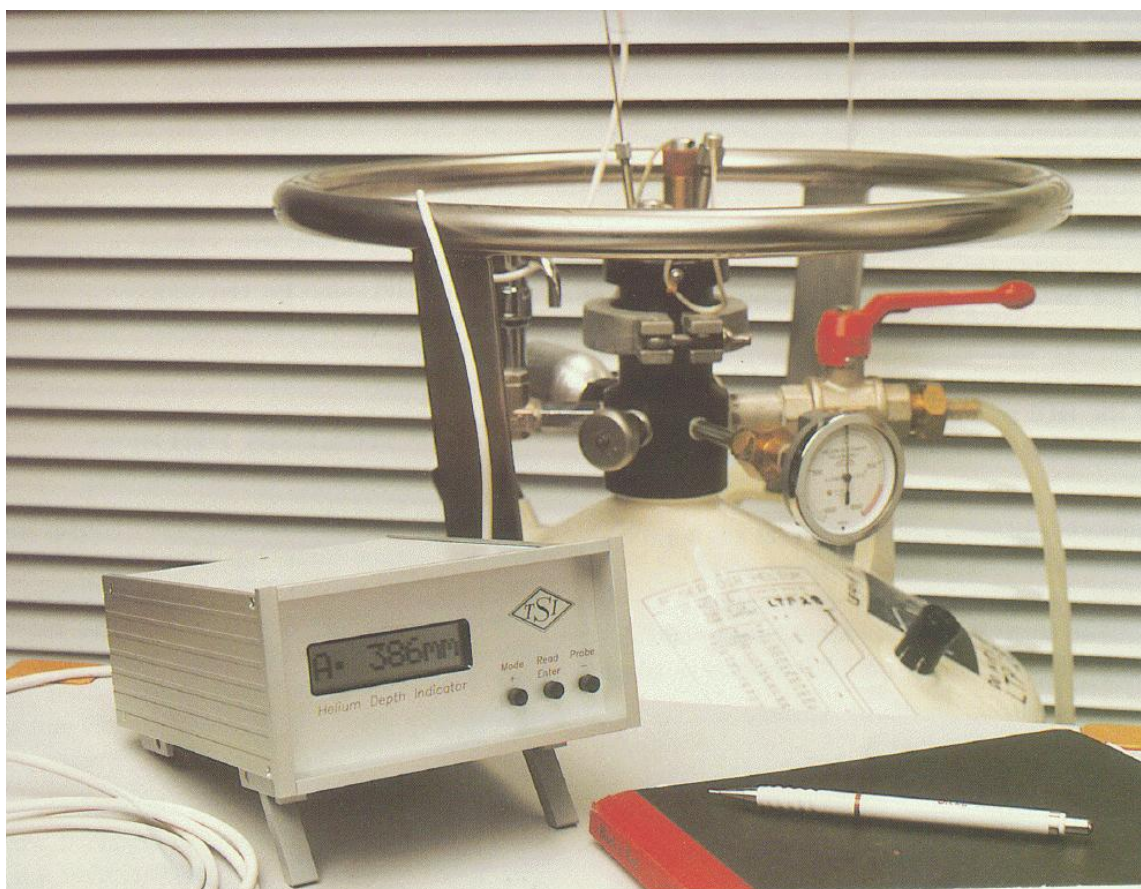




Twickenham  
Scientific Instruments

# Helium Depth Indicator



*The popularity of the Helium Depth Indicator (HDI) has led to its installation in laboratories, research institutes and industrial environments on every continent.*

The HDI, with suitable helium probes, is used in various designs of liquefiers, industrial superconducting magnet systems, test facilities at major research institutes, and individual research cryostats.

The instrument incorporates advanced microprocessor technology, a custom switched mode power supply and an intelligent LCD dot matrix display. Menu driven for ease of use, the HDI is fully configurable from the front panel. Alternatively, it can be controlled via the serial interface, for example with National Instruments' LabView.

The HDI is designed as a basic unit of high specification. Features that can be adjusted include: the currents used to energise the probe, so that operation at reduced or increased helium temperatures can be

optimised; the time interval between readings - in Slow mode - between 256 s to 18 h; for the Control and Alarm option, all the set-points and channel allocation.

All HDI units are factory fitted with a choice of one from three types of analogue output. In addition, there are options which can be selected to provide additional features.

All units are supplied with mains cable, 4 m probe cable, mating connectors for the Analogue output/External Inhibit, 24 V dc power connector, rack-mounting parts and any other parts for any selected options.

The HDI is specified as

HDI-X R [O<sub>1</sub>] [O<sub>2</sub>] ...

where

X is the code for the analogue output;

R states the range of probe that the unit is calibrated for;

[O<sub>n</sub>] are the codes for additional options.

All these options are described below.

## Physical

Size: 144w x 72h x 200d.

Weight: 1.5 kg.

Case is bench or panel mounting.

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## Front panel

Display: 8 Character large (9 mm) backlit Liquid Crystal Display.

Switches: 3 momentary make switches to control functions.

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## Back panel

Power input:

Mains: 95 - 125 V or 190 - 250 V ac (switchable) via fused IEC mains input.

Auxiliary: 24 V ac/dc via power jack socket.

Probe input: One 7 pin connector.

Serial port: In standard DB9-F connector.

Analogue output & External Inhibit: In shared 4 way MOLEX connector.

External Inhibit. Opto-isolated input, triggered by 5 - 20 V or 3 - 15 mA at terminals.

Analogue output is one of three factory fitted options:

A 4-20 mA;

V mV/mm analogue voltage; or

T 0-10 V analogue voltage.

All three options are short circuit protected.

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## Functional Parameters

Resolution: 1 mm.

Linearity: 1 LSD (Least Significant Digit).

Accuracy: 0.5%  $\pm$  1 LSD.

Compliance voltage: 55  $\pm$  5 V.

Maximum active length per channel: 2000 mm.

Probe current adjustment: 25-150 mA, for both the Boost and Measure.

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### Probe range and calibration

Calibration of the HDI to work with the original probe range, S, and the new range introduced in 2001, G, will, from autumn 2002 be explicitly stated in the product part number. Other literature is available to give more details on this matter.

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## Options

### Second probe input (2) option

Provides a second probe input socket on the back panel, and second probe cable. Allows two helium probes to be connected at the same time.

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### Lemo connector probe input (L) option

Functionally identical to the 2 option, a 1B series Lemo connector suitable for use with wire ended probes where the system wiring from the probe(s) runs directly to the HDI. Supplied with mating connector only.

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### Second analogue output (Z) option

This option is only available when the 2 or L option is also specified. It provides a second analogue output corresponding to the second probe. When the Z option is selected, the External Inhibit function is not available at the Molex connector.

If the External Inhibit function is also going to be needed, then the E option should be specified, where this function becomes available on a 2 pin 0B Lemo connector elsewhere the back panel.

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### Fischer connector probe input (F) option

Functionally identical to a standard single probe input connector, a 103 series Fischer connector suitable for use with wire ended probes or with the 7F terminated helium probes. Supplied with mating connector only.

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### Control and alarm (C) option

Two independent control signals are provided by no-volt relay contacts, rated at 24 V 0.5 A ac or dc. Alarm signal provided by an open collector output, 50 mA maximum. Set points and channel assignment via the front panel controls.

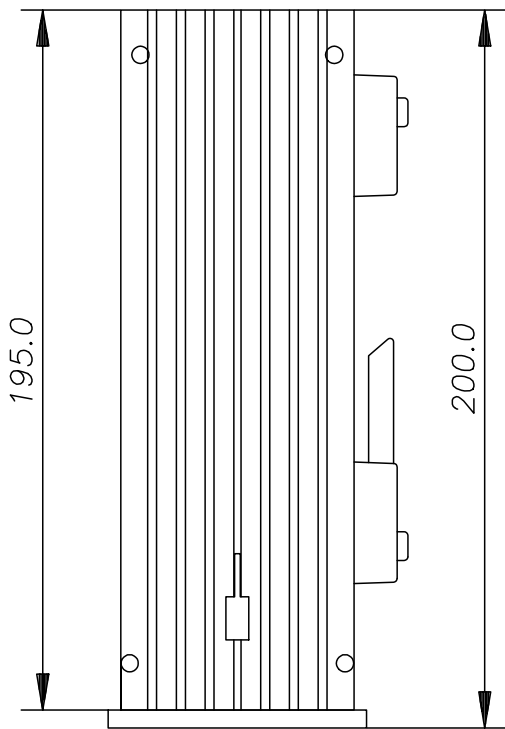
Connector: DB9-M connector on the back panel.



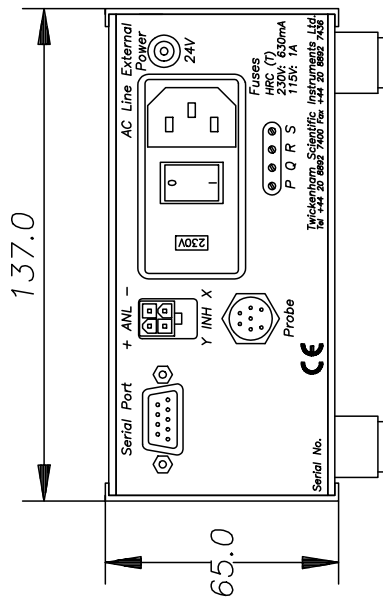
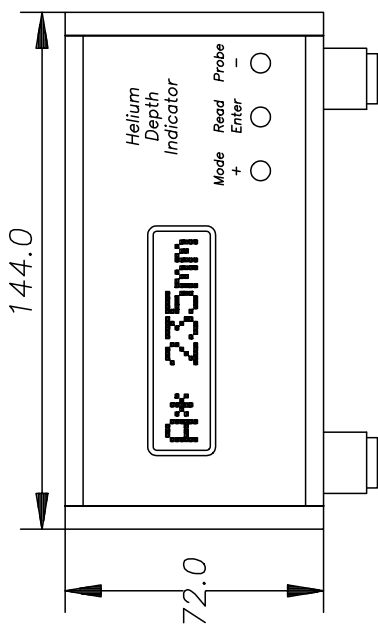
**Twickenham**  
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Panel mounting bolt assembly not shown; adds 5 to overall width when fitted  
 DIN 47300 standard cut-out.  
 Panel mounting cut-out: 138 x 66



Twickenham Scientific Instruments Ltd.	
Materials Specification:	Finish Specification:
TITLE Helium Depth Indicator Physical dimensions	
Serial no first used	Drawing No.
Dimensions:	Tolerance:
Scale:	Sheet of
Design	Drawn
Date	Date
Signed	
Issue	
Date	
Modifications	
<p><b>TSI</b></p> <p><b>Twickenham Scientific Instruments Ltd.</b>                  Twickenham Scientific Instruments Ltd.                  Registered office: 61a St Margaret's Road, Twickenham, TW1 2LL                  T: +44 20 8892 7400 F: +44 20 8892 7436                  E: design@twicksci.co.uk www.twicksci.co.uk</p>	