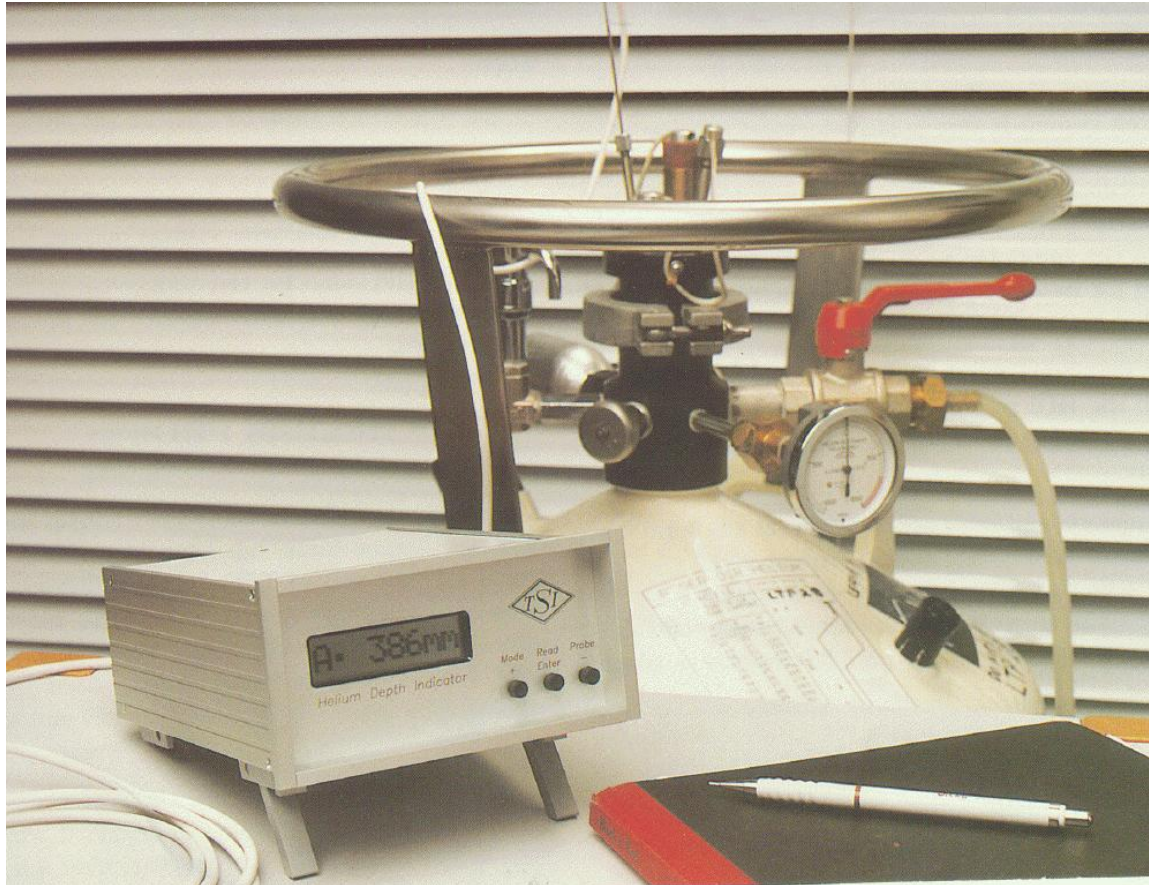




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# Helium Depth Indicator



*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 outputs/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 dc via power jack socket.

Probe input: One 7 pin connector.

Serial port: In standard DB9-F connector.

Analogue output & External Inhibit: In shared 6 way Wiedmüller S2L connector.

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

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## Options

*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.

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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.

*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% ± 1 LSD.

Compliance voltage: 55 ± 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, from 2001 the now default range, G, or any other range as introduced. The letter code for the range the unit is calibrated to is explicitly stated, . Other literature is available to give more details on this matter.

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*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*

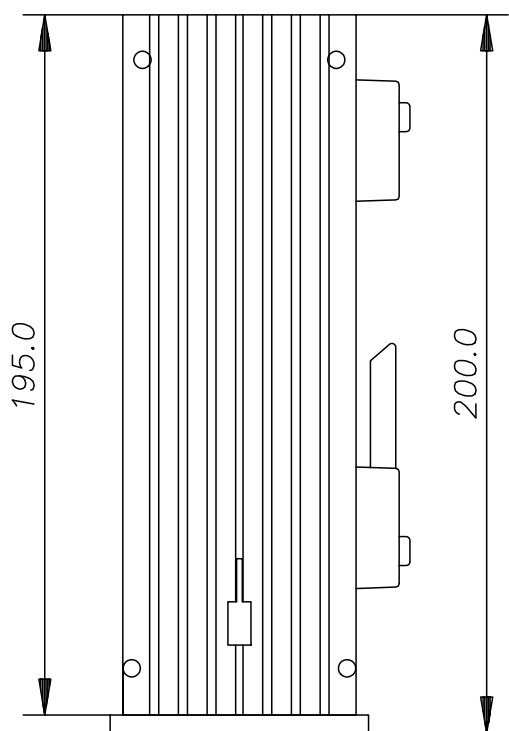
This option is only available when the 2 or L option is also specified. It provides a second analogue output corresponding to the second probe.



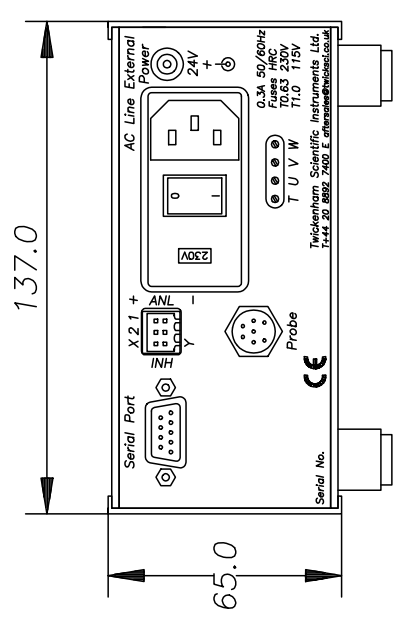
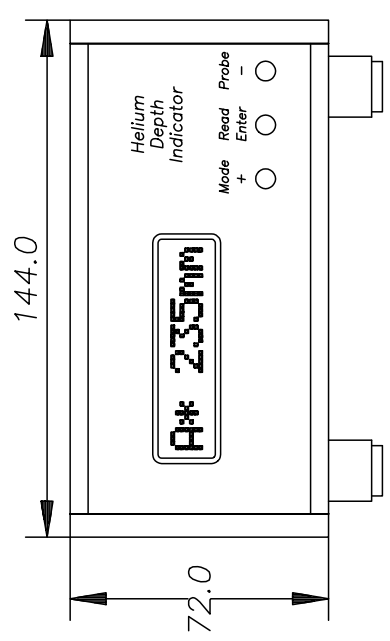
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Panel mounting bolt assembly not shown; adds 5 to overall width when fitted  
 DIN 47300 standard case.  
 Panel mounting cut-out: 138 x 66



Twickenham Scientific Instruments Ltd.		Finish Specification	
Materials Specification		Serial no first used	
TITLE Helium Depth Indicator			
Physical dimensions			
Dims	Paper	Tolerance	Scale
Design	Drawn	Date	Layer of
Twickenham Scientific Instruments Ltd. No. 2991094 (England) Registered office: 61d St Margaret's Road, Twickenham, TW1 2LL T: +44 20 8892 7400 E: design@twicksci.co.uk www.twicksci.co.uk VAT No 649 8817 72		Signed	
Issue	Date	Modifications	