

HEAT TRANSFER SERVICE UNIT H112



Year 1
study

Features

- ONE unit to connect with 15 options
- 15 Fundamental Heat Transfer Experiments may be used on the Heat Transfer Service Unit
- Investigation of Convection, Conduction, Radiation, Steady State and Transient Heat Transfer
- Investigation of Gas Laws and Pressure-Temperature Relationship for Water
- Safe and Suitable For Unsupervised Student Operation.
- Responds Rapidly to Control Changes
- Negligible Operating and Maintenance Costs
- Optional Computerised Data Acquisition Upgrade.

Description

A fully instrumented bench top Heat Transfer Service Unit providing regulated and adjustable AC power for all of the optional modules plus a number of auxiliary power outlets. The unit includes instrumentation that is common to all modules, this being a 12 point digital temperature indicator and digital current and voltage meter. Where appropriate, additional instrumentation is supplied with the various optional modules.

The range of optional modules currently include convection, conduction (steady state and transient), radiation, perfect gases, thermodynamic properties of fluids and solid materials, enhanced methods of heat transfer, thermoelectric heat transfer, boiling and condensing heat transfer and a closed cycle heat engine. However the range is continuously being expanded. Internal electronic and mechanical safety devices to allow for unsupervised operation by students. Optional data acquisition is available for attachment to this unit. The optional modules include: H112A: Linear Heat Conduction Module H112B: Radial Heat Conduction Module H112C: Laws Of Radiant Heat Transfer/Heat Exchanger Module H112D: Combined Convection And Radiation Module H112E: Extended Surface Heat Transfer Module H112F: Radiation Errors In Temperature Measurement Module H112G: Unsteady State Heat Transfer Module H112H: Thermal Conductivity Of Liquid And Gases Module H112J: Perfect Gas Laws Demonstration Module H112M: Marcet Boiler H112N: Thermal Conductivity Of Building Material Unit H112P: Free And Forced Convection From Flat, Pinned And Finned Plates H112Q: Thermoelectric Heat Pump H112R: Stirling Engine H112S: Boiling Heat Transfer Module

Related Laws/Applications

- Mechanical Engineering
- Nuclear Engineering
- Chemical Engineering
- Control and Instrumentation
- Plant and Process Engineering
- Building Services
- Engineering Physics
- Refrigeration
- Marine Engineering

Learning capabilities

- For detailed descriptions and experimental capabilities refer to individual data sheets for each optional unit.

Technical Specification

- Coated Steel Console
- 0...240Vac, 2A supply
- 8A Miniature circuit Breaker (MCB)
- 12 temperature inputs
- 0...999.9°C, 0.1°C resolution
- Residual Current Circuit Breaker (RCCB)

Recommended Ancillaries

- H112A - Linear Heat Conduction Module
- H112B - Radial Heat Conduction Module
- H112C - Laws Of Radiant Heat Transfer/Heat Exchanger Module
- H112D - Combined Convection And Radiation Module
- H112E - Extended Surface Heat Transfer Module
- H112E/HC - Extended Surface Heat Transfer Module Computer Linked
- H112F - Radiation Errors In Temperature Measurement Module
- H112G/115 - Unsteady State Heat Transfer Module
- H112G/230 - Unsteady State Heat Transfer Module
- H112H - Thermal Conductivity Of Liquid & Gases Module
- H112J - Perfect Gas Laws Demonstration Module
- H112M - Marcet Boiler
- H112M/230/HC - Marcet Boiler Computer Linked
- H112M/115/HC - Marcet Boiler Computer Linked
- H112N/230 - Thermal Conductivity Of Building Material Unit
- H112N/230/HC - Thermal Conductivity Of Building Material Unit Computer Linked
- H112N/115 - Thermal Conductivity Of Building Material Unit
- H112N/115/HC - Thermal Conductivity Of Building Material Unit Computer Linked
- H112N/A1 - H112N Set Of Test Samples - Set of 8 test samples (1 Chipboard, 2 x Plasterboard, 1 x Perspex, 1 x Expanded Polystyrene, 1 x Armaflex, 1 x Cork)
- H112N/A2 - H112N Granular Tray
- H112N/A3 - H112N Reference Specimen - 1 x Polystyrene Specimen (NAMAS Calibrated)
- H112N/A4 - H112N Reference Specimen - 1 x ACETYL Specimen (NAMAS Calibrated)
- H112P - Free & Forced Convection From Flat, Pinned And Finned Plates
- H112Q - Thermoelectric Heat Pump
- H112R/230 - Sterling Engine
- H112R/230/HC - Sterling Engine Computer Linked (230V / 50Hz)
- H112R/115 - Sterling Engine
- H112R/115/HC - Sterling Engine Computer Linked (115V / 60Hz)
- H112S/230 - Boiling Heat Transfer Module
- H112S/230/HC - Boiling Heat Transfer Computer Linked
- H112S/115 - Boiling Heat Transfer Module
- H112S/115/HC - Boiling Heat Transfer Computer Linked
- H112Z/230 - Water Chiller For Use With H112N

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What's in the Box?

- 1 x H112
- 1 x Transformer (115V Unit only)
- 1 x Power cable (115V Unit only)
- Instruction manual
- Packing List
- Test sheet

Weights & Dimensions

- Unit: 320(L) x 390(W) x 340(H)mm
- Nett Weight: 5 kg
- Gross Weight: 12.3 kg
- Packing Case Volume: 0.22 m³

Essential Services

- 220-240 Volts, Single Phase, 50Hz (With earth/ground). Line current up to 6A at 230V.
- 110-120 Volts, Single Phase, 60Hz (With earth/ground). Line current up to 10A at 110V.
- Water: 1.5 litres/minutes at a minimum 10metre head.

Operational Conditions

- Storage temperature: -10°C to +70°C
- Operating temperature range: +10°C to +50°C
- Operating relative humidity range: 0 to 95%, noncondensing

Ordering information

To order this product, please call PA Hilton quoting the following codes:

H112/230 - Heat Transfer Service Unit

H112/230/HC - Heat Transfer Service Unit Computer Linked

H112/115 - Heat Transfer Service Unit

H112/115/HC - Heat Transfer Service Unit Computer Linked

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