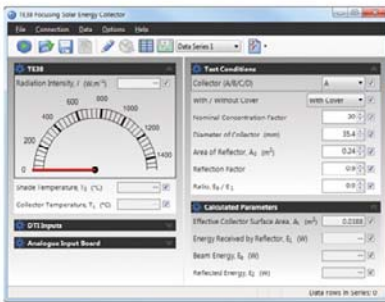




VDAS® TE38

FOCUSING SOLAR ENERGY COLLECTOR

Shows how a focusing solar energy collector works and allows students to study its performance



SCREENSHOT OF THE OPTIONAL VDAS® SOFTWARE



- Mobile, self-contained focusing solar energy collector specially designed for educational use
- Shows the principles, advantages and limitations of focusing solar energy collectors
- One of several TecQuipment products that show the use of renewable, environment-friendly solar energy
- Can connect to TecQuipment's optional Versatile Data Acquisition System (VDAS®) for automatic data acquisition
- Includes four different sizes of collector for studies of different energy concentration ratios
- Removable transparent cover allows students to compare the properties of shielded and unshielded collectors

FOCUSING SOLAR ENERGY COLLECTOR

DESCRIPTION

A focusing solar energy collector on a mobile frame. Specially designed for educational use, the apparatus shows the principles, advantages and limits of this method of capturing solar energy.

It is a highly-polished stainless steel parabolic reflector, supported on trunnion bearings on a turntable. By adjusting the horizontal and vertical position of the reflector, students focus solar energy onto an energy collector. The energy collector is a brass cylinder with an embedded thermocouple that measures the cylinder temperature.

To enable students to compare different concentration ratios, TecEquipment supply four different sizes of energy collector. Also supplied is a removable transparent cover for the collector, so students can study the properties of shielded and unshielded collectors.

Attached to the reflector carrier is a solarimeter (pyranometer) that measures the incident solar radiation. An extra thermocouple measures ambient temperature for reference.

The cylinder thermocouple, the solarimeter and the ambient temperature thermocouple connect to a Display Unit. The Instrumentation Unit shows ambient temperature, collector temperature and solar intensity from the solarimeter. It also has a socket for connection to TecEquipment's optional VDAS®.

The equipment works with TecEquipment's Versatile Data Acquisition System (VDAS®, not included). VDAS® allows accurate real-time data capture, monitoring, display, calculation and charting of all the important readings on a computer (computer not supplied).

STANDARD FEATURES

- Supplied with a comprehensive user guide
- Five-year warranty
- Manufactured in accordance with the latest European Union directives

RECOMMENDED ANCILLARIES

- Versatile Data Acquisition System (VDAS-B) – a bench-mounted version of TecEquipment's Versatile Data Acquisition System
- Stopwatch (SW1)

LEARNING OUTCOMES

- Demonstrations of the performance, advantages and limitations of a focusing solar energy collector
- Understanding the effective use of the direct component of solar radiation
- Measurement of the efficiency of the collector with and without a transparent cover
- Measurement of the maximum possible energy collector temperature.

ESSENTIAL SERVICES

ELECTRICAL SUPPLY:

110 VAC to 230 VAC, 50 Hz to 60 Hz

OPERATING CONDITIONS

OPERATING ENVIRONMENT:

Dry, outdoor conditions

STORAGE TEMPERATURE RANGE:

-25°C to +55°C (when packed for transport)

OPERATING TEMPERATURE RANGE:

+5°C to +40°C

OPERATING RELATIVE HUMIDITY RANGE:

30% to 95% (non-condensing)

SPECIFICATIONS

NETT DIMENSIONS AND WEIGHT:

Main part: 1100 mm wide x 1530 mm high x 850 mm front to back and 80 kg

Instrumentation unit: 400 mm wide x 180 mm high x 350 mm front to back and 7 kg

TOTAL PACKED DIMENSIONS AND WEIGHT:

Approximately 2.2 m³ and 100 kg.

PARABOLIC REFLECTOR:

Highly polished stainless steel

REFLECTOR-TO-COLLECTOR CONCENTRATION RATIOS:

15, 20, 25 and 30