

Charge-Coupled Device Measurement System

Accurately measures fluid volumes

APPLICATIONS

- Fluid level measurement tool for fluid volume calculations

BENEFITS

- Increased operator safety by remote operation
- Improved accuracy and simplified data acquisition
- Undisturbed sample equilibrium during volume measurements

FEATURES

- High-resolution CCD video camera for detailed image and accurate measurement
- High-resolution monitor
- Built-in leveling system in base plate
- Lens system for image magnification
- Motorized linear positioning stage with high-resolution encoder for precise positioning
- Linear or volumetric data readout
- Downloadable data-to-data acquisition

The charge-coupled device (CCD) video-based level measurement system was designed to accurately measure fluid volumes in visual cells without exposing the operator to the safety hazards of typical line-of-sight methods. The two components of the CCD measurement system are the optics and the mechanical components.

The optics component of the system is a high-resolution color camera equipped with a high-magnification telescopic lens and extension tube. This system acts as a long-distance microscope to view approximately 0.4 in [10 mm] of the pressure-volume-temperature (PVT) cell window. A high-resolution color monitor is used to view the camera output and accurately define phase volume set points.

The mechanical component of the CCD measurement system includes a motorized linear stage, used to position the camera relative to the fluid interface that is to be measured. The linear stage is equipped with a high-precision linear encoder that enables changes in fluid and subsequent volume levels to be measured with a high degree of accuracy. The motorized stage is operated from the control unit that incorporates the readout for the linear encoder. Users have the option to connect the control unit to a computer, allowing remote control and data acquisition.



Charge-coupled device apparatus.