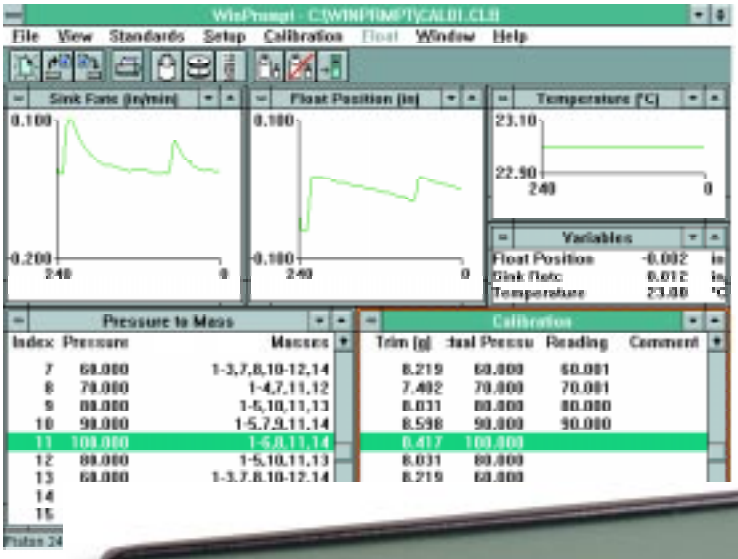
2455/WinPrompt

2455 / WinPrompt®

Deadweight gauge monitor and Software

- Automates piston gauge calibrations
- Monitors/displays piston gauge parameters
- Dual channel capability for crossfloat calibrations
- Software is Windows™-based
- Use software alone or in combination with deadweight gauge monitor for maximum automation
- Export data to create calibration certificates and reports



A Druck Company

MODEL 2455 / WinPrompt

Deadweight gauge monitor and Calibration software

Model 2455 Deadweight Gauge Monitor

Accounting for environmental factors when performing piston gauge calibrations is an important but tedious and time-consuming process. Ruska's Model 2455 Deadweight Gauge Monitor (2455 DGM) and WinPrompt® calibration software help automate this process. The Model 2455 DGM enhances measurement precision and consistency of critical piston gauge parameters including piston gauge temperature, float position, sink rate, air density, reference pressure (vacuum), and other parameters.

The Model 2455 Deadweight Gauge Monitor provides a single, consolidated display for critical piston gauge measurements including numeric and graphical float position, sink rate, and temperature. Dual channel capability allows crossfloat or elevated reference pressure differential calibrations.

A real-time graphic display shows all piston gauge sensor activity. The Model 2455 DGM also provides remote communication with personal computers, a truly invaluable feature for automatic data acquisition.

Temperature

The Model 2455 DGM uses precision 4-wire platinum resistance thermometers (PRTs) to monitor the piston gauge temperature. It actively monitors two PRTs and stores coefficients for up to ten. This minimises the risk of damage to sensitive PRTs by allowing the operator to move the Model 2455 DGM to another piston gauge location without moving the PRTs.

Float Position

Noncontact, inductive proximity sensors in the Model 2455 DGM accurately monitor the float position of the piston gauge with approximately 40 times the readability of the unaided eye, and over 150 times the normal readability when used in combination with WinPrompt calibration software.

Sink Rate

Sink rate is often used as an accurate indication of thermal stability, and for detecting leaks in the system that result in pressure measurement errors. In crossfloat applications, sink rate becomes a high resolution indication of differential pressure. Routinely monitoring the sink rate of your piston gauge promotes consistency and confidence in your pressure calibrations. The sink-rate-versus-time display (using WinPrompt calibration software) is particularly useful for evaluating system integrity and stability.

Air Density

The optional Air Density Module actively monitors relative humidity, barometeric pressure, and ambient air temperature. The Model 2455 DGM reads these signals and performs a real-time computation of the density of the air surrounding the masses on the piston gauge. WinPrompt calibration software computes the buoyant effect of the ambient air on the piston gauge masses, and adjusts the pressure or mass accordingly.

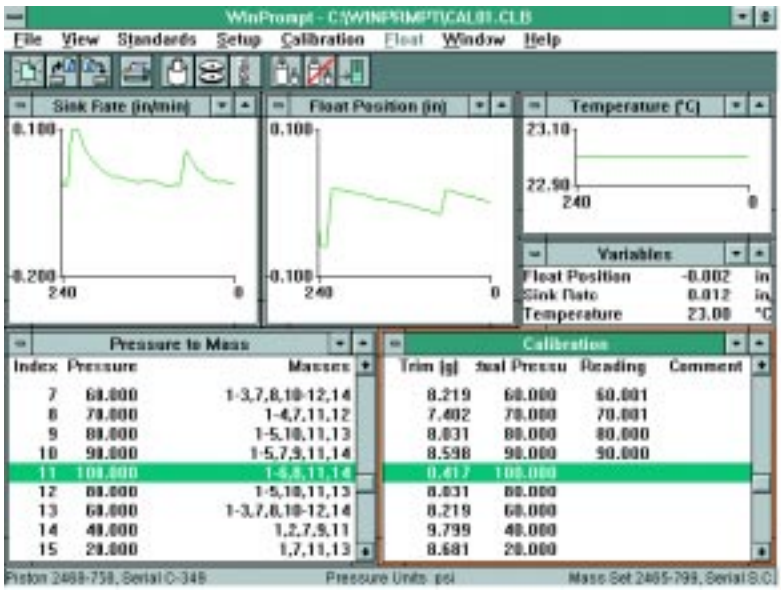
Units

Select the units of measure displayed by the Model 2455 DGM.

- Temperature: ºC or ºF
- Float position: cm or in
- Barometric pressure: inHg, kPa, mbar, psi, kg/cm², mmHg, cmHg
- Vacuum: µHg or mTorr
- Density: g/cm³, kg/m³, lb/in³
- Sink rate: cm/min or in/min

WinPrompt Calibration Software

WinPrompt calibration software increases calibration efficiency by providing full-color, Windows-based measurement for your process. This easy-to-use software can be used independently or in conjunction with the Model 2455 Deadweight Gauge Monitor. In either instance, WinPrompt provides the capability for customising calibration procedures and reports.



Shown: WinPrompt is reading information about the piston gauge from the Deadweight Gauge Monitor and displaying it real-time. The variables are being used to automatically adjust the pressure/mass values.

Data Storage

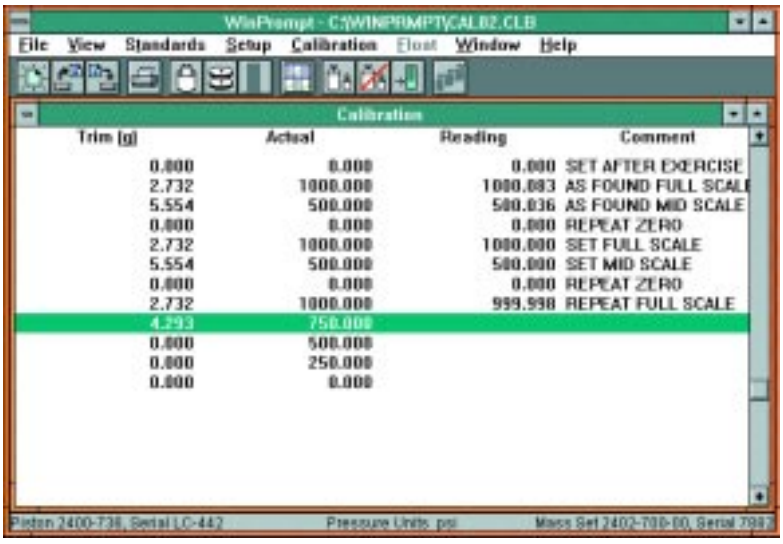
WinPrompt stores all of the calibration coefficients for your working standards, including piston/cylinder effective area, thermal coefficient of expansion, pressure deformation coefficients, and all calibrated mass values and associated density. It also stores all of the critical system and environmental parameters, including local gravity, head corrections, and ambient air density.

Calculations and Conversions

WinPrompt performs all the necessary calculations of pressure-to-mass and mass-to-pressure in both metric and Imperial units. When also using the Model 2455 DGM and the Air Density Module, WinPrompt computes the buoyant effect of the ambient air on the piston gauge masses, and adjusts the pressure or mass accordingly.

Process and Report Formatting

WinPrompt provides user-definable calibration procedures and technical calibration reports that can be exported in ASCII format and then imported into popular commercial spreadsheet and word processing software programmes to generate customised, formal calibration reports. Set up your own calibration report templates in Microsoft Word, Excel, or other popular programmes, adding your organisation's logo and other information to simplify and automate professional looking reports.



Shown: the WinPrompt calibration screen displays calibration values and allows for user comments. Export this information using dynamic data exchange (DDE) into your favourite word processing or spreadsheet programme to create calibration certificates and reports.

An Integrated Automation System

Although the Model 2455 DGM and WinPrompt are valuable when used separately, many users find maximum value from both the Model 2455 Deadweight Gauge Monitor and WinPrompt calibration software when the two are used together. When used in combination, the Model 2455 DGM and Air Density Module measure piston gauge parameters such as piston/cylinder temperature, sink rate, float position, and air density with unmatched precision and consistency. Then this information is sent to the WinPrompt software programme to calculate all necessary values, further simplifying the calibration process and minimising errors. This ease-of-use, accuracy, and precision make the Model 2455 DGM/WinPrompt combination unbeatable for calibration work.

Specifications

MODEL 2455 DEADWEIGHT GAUGE MONITOR

Display
Graphical vacuum fluorescent

Electrical power
100–250 VAC, 50/60 Hz

Temperature
Operating temperature 18–36 °C; storage temperature -20–70 °C

Humidity
5–95% relative humidity, noncondensing

Dimensions
10.7 cm H x 30 cm W x 25.2 cm D

Weight
3.8 kg

Requires appropriate Ruska Instrument adapter kit (connecting hardware for interface from deadweight gauge monitor to Ruska piston gauge). Consult factory.

FLOAT POSITION

Sensor type
Inductive

Resolution
Sink rate: 0.001 cm/min
Float position: 0.001 cm

Number of sensors
1 to 4 (up to 2 sensors per piston gauge, total of 2 piston gauges)

Range
approximately 0.13–1.90 cm

TEMPERATURE

Probe type
4-wire 100Ω PRT

Resolution
0.01 °C

Accuracy
±0.1 °C (conforms with ITS-90)

Number of sensors
1 or 2

Calibration
A calibration report providing traceability to NIST is provided with each PRT.

VACUUM

Resolution
1 mTorr

Number of sensors
1 or 2

Sensor type
silicon, micromachined thermal conductivity

COMMUNICATIONS

RS-232 standard, IEEE-488 optional

AIR DENSITY MODULE (OPTIONAL)

Accuracy
Temperature: ±2 °C
Humidity: ±15%
Pressure: ±5 mmHg

Sensor type
Temperature: thin-film platinum 1000Ω RTD
Humidity: capacitive IC humidity sensor
Pressure: piezoresistive, monolithic silicon transducer

Calibration
A calibration report providing traceability to NIST is provided with each air density module.

WINPROMPT CALIBRATION SOFTWARE

Hardware requirements
80386 33 MHz processor; 8MB RAM; programme requires 2MB available hard disk space

RS-232 or National Instruments GPIB interface (if WinPrompt software is used with Model 2455 Deadweight Gauge Monitor)

Monitor

Mouse or other pointing device

Software requirements
Microsoft® Windows™ version 3.1 or later. Not compatible with Windows NT.

Other products and services

Ruska manufactures a range of piston gauges for pressures from 14 mbar to 5000 bar and digital pressure controllers from 0.07 to 2750 bar, air data test sets, and portable pressure indicators. Ruska also offers a complete line of fluid phase behaviour instrumentation and ancillary items, mass-sorption systems (McBain-Bakr apparatus), and custom quartz component design and manufacturing. Repair and recalibration services are available to support our equipment worldwide. Regular training courses are held in Houston, Texas for all Ruska products.

Due to Ruska Instrument's process of continuous improvement, the printed specifications are subject to change without notice.

Ruska Instrument Corporation
P.O. Box 630009, Houston, TX 77263-0009
+(713) 975-0547 ■ Fax +(713) 975-6338
E-mail: ruska@ruska.com ■ http://www.ruska.com

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Agent:

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