



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



Strain Indicator and Recorder

FEATURES

- Four input channels
- Direct reading LCD display
- On-board data storage
- 0 to 2.5 VDC analog output
- Quarter-, half-, and full-bridge circuits
- Built-in bridge completion
- 120-, 350-, and 1000-ohm dummy gages
- Automatic zero-balancing and calibration
- Intuitive, menu-driven operations
- USB data link
- Operation from keypad or PC
- Portable, lightweight, and rugged
- Battery, USB, or line-voltage power
- Optional 10-pin transducer connectors



DESCRIPTION

The Model P3 Strain Indicator and Recorder is a portable, battery-operated instrument capable of simultaneously accepting four inputs from quarter-, half-, and full-bridge strain-gage circuits, including strain-gage-based transducers. Water-resistant grommets in the hinged cover allow the lid to be closed with leadwires attached. Designed for use in a wide variety of physical test and measurement applications, the P3 functions as bridge amplifier, static strain indicator, and digital data logger.

The Model P3 Strain Indicator and Recorder, utilizing a large LCD display for readout of setup information and acquired data, incorporates many unique operating features that make it the most advanced instrument of its kind. An extensive, easy-to-use menu-driven user interface operates through a front-panel keypad to readily configure the P3 to meet your particular measurement requirements. Selections include active input and output channels, bridge configuration, measurement units, bridge balance, calibration method, and recording options, among others.

Standard sensor input connection is via eccentric-lever-release terminal blocks. Optional transducer connection is available via side-mounted bayonet locking circular connectors.

Data, recorded at a user-selectable rate of up to 1 reading per channel per second, is stored on a removable flash card and is transferred by USB to a host computer for subsequent storage, reduction and presentation with the supplied software.

The P3 can also be configured and operated directly from your PC with a separate software application included with each instrument. Additionally, a full set of ActiveX components is provided for creating custom applications in any language supporting ActiveX.

A highly stable measurement circuit, regulated bridge excitation supply, and precisely settable gage factor enable measurements of $\pm 0.1\%$ accuracy and 1 microstrain resolution. Bridge completion resistors of 120, 350 and 1000 ohms are built in for quarter-bridge operation. Also, input connections and switches are provided for remote shunt calibration of transducers and full-bridge circuits.

The P3 operates from two readily available D cells. Battery life depends upon mode of operation but ranges up to 600 hours of continuous use for a single channel. It can also be powered by connection to an external battery or power supply, a USB port on a PC or with an optional external line-voltage adapter, the Model P3-A105.

Strain Indicator and Recorder

HARDWARE SPECIFICATIONS

All specifications nominal or typical at +23°C unless noted.

Inputs

Eccentric-lever-release terminal blocks accept up to four independent bridge inputs. Accommodates 16-28 AWG (1.3 to 0.35 mm diameter) wire.

The Transducer Option includes four 10-pin bayonet locking circular connectors mounted on the side of the case and wired in parallel to the lever-release terminal blocks. The supplied mating connector has a 0.046 inch (1.17 mm) diameter solder well.

Bridge Configurations

Quarter-, half-, and full-bridge circuits. Internal bridge completion provided for 120Ω, 350Ω and 1000Ω quarter bridges, 60 to 2000Ω half or full bridge.

Display

Full dot-matrix structure with 128 dots x 64 dots FSTN positive, gray transfective LCD with backlight. Display update is twice a second.

Data Conversion

High-resolution sigma-delta converter. 60 Hz or 50 Hz noise rejection. User selectable.

Basic Range

±31,000 microstrain (±1 microstrain resolution) at Gage Factor = 2.000

Accuracy

±0.1% of reading ±3 counts. (Normal mode operation at Gage Factor = 2.000)

Gage Factor Settings

Range 0.500 to 9.900

Balance

Single key operation to initiate automatic software balance

Bridge Excitation

1.5 VDC nominal. Readings are fully ratiometric, and not degraded by variation in excitation voltage

Communication Interface

Universal Serial Bus with type B connector. Used for transferring stored data and firmware.

Data Storage

Media: Removable Secure Digital or Multimedia Card (2GB max).

Data Recording Rate: 1 reading per second maximum.

Calibration

Shunt calibration across each dummy resistor to simulate 5000 microstrain (±0.1%). Remote calibration supported via accessible switch contacts at input terminal block.

Analog Output

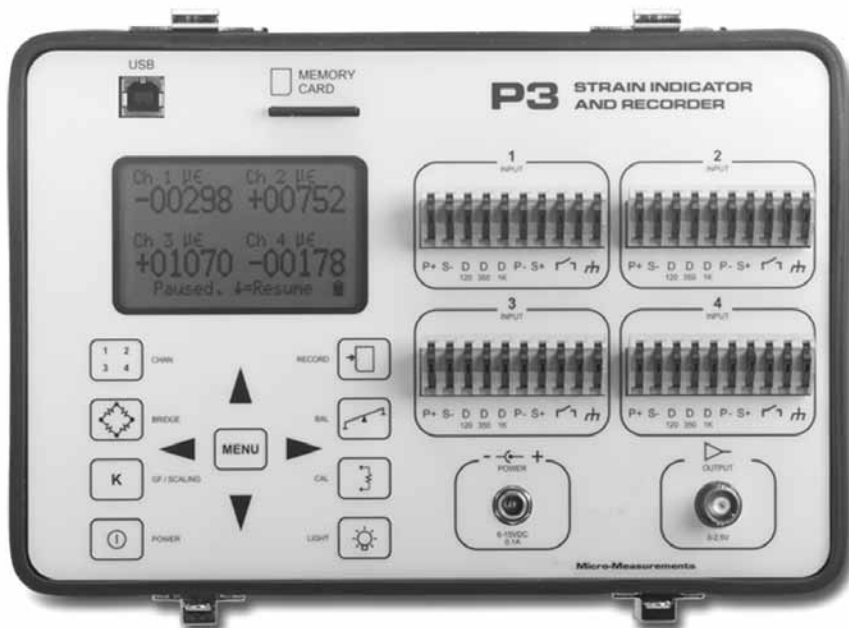
BNC connector. 0 to 2.5V maximum output. Device impedance of 2000Ω or greater. 480 samples/second DAC output update rate.

Power

Internal battery pack using two "D" cells. Battery life up to 600 hours (single channel, normal mode.) Can also be powered from USB or by external battery or other power source of 6 to 15 VDC. AC adapter optional (Model P3-A105).

Operational Environment

Temperature 0 to + 50°C. Humidity up to 90% RH, noncondensing



Strain Indicator and Recorder

FIRMWARE FEATURES**Display Update Rate**

2 readings per second

Recording Rates

Up to 64 data files

Automatic recording

1 reading every 1 to 3600 seconds

Individually selectable per channel

Manual recording

Automatic date/time stamping

Scaling

Automatic scaling for microstrain, based upon gage factor, with nonlinearity correction based upon bridge type

Automatic calculation of mV/V

Linear scaling for other engineering units

Units

$\mu\epsilon$	g	rpm	hp
mV/V	lbf	m	deg
psi	lb	s	rad
ksi	kg	A	oz
GPa	in	N	mV
MPa	mm	V	m/s ²
Pa	mil	Ohms	ton

Bridge Types

Quarter bridge

Half bridge, adjacent arms, equal and opposite strains

Half bridge opposite arms equal strains

Shear bridge, 2 active arms

Poisson half bridge

Full bridge 4 fully active arms

Shear bridge, 4 active arms

Full bridge, Poisson gages in opposite arms

Full bridge, Poisson gages in adjacent arms

Undefined full bridge

Undefined half bridge/quarter bridge

Bridge Balance

Automatic

Manual offset adjust

Disabled (Raw offset)

Backlight Control

Programmable on time while in run mode

5, 15 or 60 seconds

Manual off/on

If illuminated, backlight will remain illuminated while operating menus

Software Adjustable Contrast**Operating Modes**

Normal mode

Analog output (any one of four channels)

Data Link

USB interface

Windows-based P3 software provided for control and data storage

No device driver required (treated as an HID device)

Real-time Clock**System Calibration/Verification**

Requires Model 1550A Strain Indicator calibrator or other compatible calibrator

Calibration date stored in flash memory

Firmware UpgradeableView Showing
Optional Transducer
Input Connectors

Disclaimer

ALL PRODUCTS, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Vishay Precision Group, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay Precision Group"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

The product specifications do not expand or otherwise modify Vishay Precision Group's terms and conditions of purchase, including but not limited to, the warranty expressed therein.

Vishay Precision Group makes no warranty, representation or guarantee other than as set forth in the terms and conditions of purchase. **To the maximum extent permitted by applicable law, Vishay Precision Group disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.**

Information provided in datasheets and/or specifications may vary from actual results in different applications and performance may vary over time. Statements regarding the suitability of products for certain types of applications are based on Vishay Precision Group's knowledge of typical requirements that are often placed on Vishay Precision Group products. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application.

No license, express, implied, or otherwise, to any intellectual property rights is granted by this document, or by any conduct of Vishay Precision Group.

The products shown herein are not designed for use in life-saving or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay Precision Group products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay Precision Group for any damages arising or resulting from such use or sale. Please contact authorized Vishay Precision Group personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.