STRAIN/STRESS ANALYSIS INSTRUMENTS
STRAIN INDICATORS
STRAIN GAUGES

With the increasingly accelerated introduction of new materials, new fabrication techniques and new design concepts, experimental stress analysis forms an important part of the critical data in the analysis of prototype models and as an economical tool to prevent failures before a large investment has been made in moulds and specialized fabrication machinery. Continuous Strain measurement is also preferred in real time practical applications for monitoring of process and to set process limits.

IEICOS offers a wide range of Strain/Stress analysis instruments to meet the diversified applications. These instruments are manufactured with latest state of the art components and concepts making it easy to operate and at economical cost. These are designed as import substitution products with completely new integral design conceived to provide specific performance features most appropriate for precise measurements of Strain and related mechanical data under real life conditions.

Advanced integrated circuit engineering combined with careful consideration of user requirements of the specific objective has resulted in better accuracy & readability to various measurement problems.

APPLICATIONS
Strain Measurement is simplified by use of direct indicating IEICOS Digital Strain Indicators. Resistance Strain Gauges are attached to the member under investigation. Strain resulting from stress in the member can be directly read of from the display in terms of microstrains. Indication can also be obtained in terms of Torque Load, Pressure or any other Strain producing physical quantities by calibration with known inputs. These instruments have a very wide range application in the Industrial field of CONSTRUCTION, MACHINERY, CIVIL ENGINEERING, MINING, SPINNING, SHIP BUILDING, AIRCRAFT & SO FORTH

USES - *HERE ARE A FEW MORE*
VERIFY MATERIALS PROPERTIES
DEMONSTRATE STRESS CONCENTRATION.
CALIBRATE STRAIN GAUGES.
CREATE AND CONSTRUCT TRANSDUCERS.

For Experiments Demonstrations
TEACHING STRAIN DISTRIBUTION AT A POINT.
MEASURE MODULUS of ELASTICITY.
EVALUATE POISSONS RATIO.
IN INDUSTRY, RESEARCH AND EDUCATION.

IEICOS DIGITAL STRAIN INDICATORS

IEICOS Digital Strain Indicator Model-222
IEICOS Digital Strain Indicator Model-222 is a single channel instrument with 3 ½ digit display to read upto +/– 1999 microstrains and is suitable for connecting full arm bridge with built-in excitation supply, signal conditioning unit and display. Simple to use, it has built in bridge zeroing feature and is factory calibrated to read strain in microstrain units.

Optional: 4 ½ digit display instead of 3 ½ digit display to read upto +/- 19999 microstrains

IEICOS Digital Strain Indicator Model-222A
IEICOS Digital Strain Indicator Model-222A with advanced features for laboratory and field applications provided strain values in digital display with high resolution using +/- 19999 using microstrains 4 ½ digit panel meter.

Digital Strain Indicator with its salient features and advanced integrated circuit design with electronic digital readout measures strains upto +/- 19999 microstrains. Zeroing cancels instrument zero drift. Extremely versatile design for both laboratory and field use. It is suitable for quarter, half and full bridge net works, incorporates a highly stable integrated circuit a bridge power supply, bridge balance controls, DC Amplifier and Panel Meter readout. It features a switch to set the number of active arms, resistance selection, gauge factor, adjustment and balance controls enables a direct strain reading to be obtained without any extra calculations. It is powered by an AC Mains and has a wide range dynamic output for external recording or oscil1oscope display.

SPECIFICATIONS

Range :	0 to ± 19999 microstrains directly using 4 ½ digit panel meter.
Frequency Response:	DC to 10,000 Hz
Accuracy:	+/- 1 Digit.
Input configurations	1, 2, and 4 arms strain gauge networks. (quarter, half and full bridge networks).
Resistance of Strain	Nominal 120 Ohms, 300 Ohms. 600 Ohms in 1,2,4 gauge usable arm active networks and other values in 2&4 arm active network.
Bridge Balance	Ten Turn Potentiometer permits to get bridge balanced against difference in gauge resistances used upto ± 1.5%.
Calibration and Compensation Facility	A calibration switch and circuit is provided either to calibrate or compensate a preload. This circuit produces signal equivalent to 10000 microstrains. This also facilitates the user to study a very small dynamic strain over and above large static strain level.
Bridge Excitation	5 Volts DC Stabilized.
Gauge Factor Adjustment	1.5 to 4.5 continuous.
Indication	Digital Panel Meter - 4 1/2 digit.
Power Supply	230 Volts. 50Hz AC Mains (Battery operated on request at extra cost)

IEICOS MULTICHANNEL STRAIN INDICATORS: 5/10 Channel

IEICOS 5 Channel Digital Strain Indicator Model 222-5 with 4 ½ digit display to read strain upto + or – 19999 micron

IEICOS 5 channel digital strain indicator with manual selector switch to select each channel at a time to read on 4 ½ digit display, range upto 20,000 micron strain with internal calibration and compensation facility each channel provided with 4, 2, 1 arm active selection bridge resistance 120,300, 600 selection null balance control and excitation supply for bridge and input bridge connection facility.

IEICOS 10 Channel Digital Strain Indicator Model 222-10 with 4 ½ digit display to read strain upto +/– 19999 micron

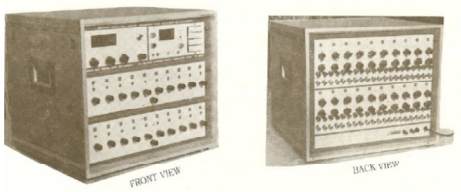
IEICOS 10 Channel Digital Strain Indicator with manual selector switch to select each channel at a time to read on 4 ½ digit display, range upto 19999 Micro Strain with internal calibration & compensation facility, Each channel provided with 4,2, 1 arm active selection, bridge resistance 120,300,600 selection. Null Balance control and excitation supply for bridge and input bridge connection facility.

IEICOS MULTICHANNEL DIGITAL AUTOMATIC DATA LOGGER FOR STRAIN AND RELATED PARAMETERS
10/20/50/100 CHANNELS

IEICOS Multichannel digital automatic datalogger for strain is a digital data processing system which scans various channel and measures strain data from these channels as detected by respective transducers/strain gauges, The system consists of a digital indicator, automatic channel scanning circuit with manual and automatic selection, DC excitation power supply, balancing unit for strain gauge bridges and transducers, The system facilitates high resolution measurement of strain using resistive strain gauge directly.

Optional computer interface facility is provided to record channel number and its corresponding data on the computer. Channel selection can also be programmed through computer

Digital indicator 4 ½ digits (19999) is provided to read accurately +/- 1 unit to +/- 19999 microstrains

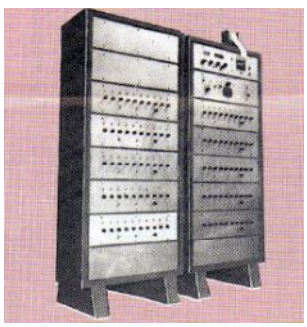


SPECIFICATIONS

No. of channels	10/20/50/100 (Digital display of channel number.)
Range	± 19999 units with 1 microstrain

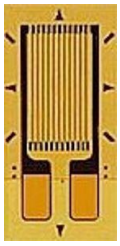
FOR STRAIN GAUGE BRIDGE

Input configurations	1, 2 & 4 arm strain gauge networks.
Resistance of Strain gauge	Nominal 120 Ohms, 350 Ohms and 600 Ohms in 1, 2 & 4 arm active networks and other values in 2 & 4 arm active networks.
Bridge balance	Ten-Turn Potentiometer permits to get bridge balanced against difference in gauge resistances upto 1.5%.
Bridge selection	Manual by digital selection switch. Auto by scanning system with the time interval between channels adjustable from 5 to 180 secs
Calibration and Compensation Facility	A Calibration switch and circuit is provided either to compensation facility calibrate or to compensate a preload. This circuit produces signal equivalent to +/ - 10000 microstrains. This facilitates the user to study very small dynamic strain over and above large static strain leve1.
Bridge excitation	Approx 5 Volts DC Stabilized.
Gauge factor adjustment	l.5 to 4.5 continuous.
Indication	Digital Panel Meter.
Power supply	230 Volts 50 Hz AC Mains.



IEICOS STRAIN GAUGES MODEL SG-350

IEICOS supplies both wire type and foil type strain gauges for all measurement applications. For better stability and temperature compensation foil type strain gauges are recommended. Strain Gauges are available in 350 ohms and can be provided in other resistance ranges such as 120 ohms, 600 ohms also. Detailed strain gauge catalog is available.



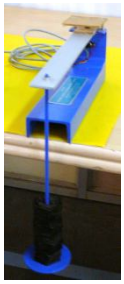
IEICOS STRAIN GAUGE TOOL KIT MODEL 224

Strain gauge tool kit is all in one kit for bonding of strain gauges. Kit includes surface preparation, cleaning materials and tools for bonding strain gauges. These materials, tools and multimeter are essential requirements for bonding. This kit facilitates to save time and makes it possible to bond the strain gauges with good quality on any surface. Kit is supplied in a briefcase with locking arrangements.

Kit is supplied with a free instruction book with details of "HOW TO BOND STRAIN GAUGES".

IEICOS CANTILEVER BEAM MODEL - 225.

Cantilever beams of 300mm length x 5mm thick and 40mm width (Nominal Dimensions) in M.S. or Aluminium bonded with strain gauge provided with pan and weight of 1 Kg. to enable apply load in steps of 100 grams and to study strain obtained for corresponding load applied to cantilever at one end when other end is rigidly fixed.



Theoretical strain for weight applied can be calculated using details of dimensions. Strain as indicated by the Strain indicator can be compared and hence the strain indicator calibrated.

IEICOS Computerised Strain Measuring Systems and Software

IEICOS provides computerized strain measuring systems and graphical menu driven software with data logging, data storage, real-time data display, real-time plotting, data retrieval, data analysis, graphing features. Almost all of our strain measuring systems can be computerized with minor additions.

Our products have optional built-in computer interface or computer interface can be added through provision of analog output along with data acquisition cards. High speed data acquisition cards for fast data sampling and acquisition are also provided on request.

Software is menu driven graphical user interface with easy to use layout with various features are provided. Software as a standard is provided for Windows based PC systems. Software can be provided for Linux based systems, Unix based systems, Mac based systems or any other platform.

Software is programmed using Visual C/C++, Visual Basic or Labview. Also options with program written in SCADA software programs such as Daqfactory, Wonderware etc can be provided. Linux Based Software can be provided using EPICS or other instrumentation & control system software.

INDUSTRIAL ENGINEERING INSTRUMENTS

203, 12th Main Road, 3rd Phase, Peenya Industrial Area,
Peenya, Bangalore-560 058. Karnataka, India.
Phone: 080 28394520 Fax: 080 28371386
Email: info@ieicos.com Web Site: www.ieicos.com