LVDT DISPLACEMENT SENSORS and DIGITAL DISPLACEMENT INDICATORS

Modern Scientific and Industrial operations are generally dependent in some degree on the accurate measurement and control of mechanical quantity. Many of those quantities can be measured directly in terms of distance or linear displacement.

Displacement or distance can be converted to electrical output by a linear variable differential transformer (LVDT) type displacement transducer for the purpose of remote indication, remote control, computation and/or amplification.

APPLICATIONS:

- Production, Inspection and Dimensional Gauging in process
- Measurement of deformation on concrete and steel constructions
- Measurement of oil film thickness in slide bearing
- Monitoring the relative axial and radial displacement between the rotor and the shell of turbines and compressors. Measurement of displacement of disc-clutches
- Measurement of Piston position in Hydraulic and pneumatic machines. e.g .. Plastic extrusion.
- Position feedback control creep testing
- Measurement of valve/piston displacement and injector needle position
- Measurement of Taper, slope, tilt, etc.
- Monitoring width and thickness of bar shaped products during manufacture
- Measurement of corrosion depth
- Extensometer in material testing machine
- Displacement Transducers used in positioning problems.

IEICOS Linear Variable Differential Transformer (LVDT) DISPLACEMENT TRANSDUCER

IEICOS LVDT displacement transducers are precision ac transducers designed for measurement of displacement. The LVDTs provide high level electrical signals proportional to mechanical position for recording and control. A rod shaped magnetic core positioned axially inside a proprietary design coil assembly consisting of a primary and two secondary coils provides path for magnetic flux linking the coils. Excitation of the primary coil with high frequency and movement of the core induces a differential voltage in the secondary which is proportional to the motion of the core.

IEICOS AC LVDT Displacement Transducers available in two models:

Model 400: LVDT coil housed in metallic cylindrical tube and the core is provided with or without a spring loaded assembly. The LVDT is provided with collet type cable assembly at one end for drawing out the sensor cable and threaded shank and locking nut at other end to provide precise positioning of the LVDT during measurement. The core is telescopic and moves inside the coil through the threaded shank end.

Specifications:

Range: 0.01. 0.1, 0.5, 1.0, 2.0, 5 0, 7.5, 10, 25, 50, 100, 150 mm.
Resolution: Infinite
Linearity: Better than ±0.5%
Excitation Voltage: AC Sinusoidal 1V, 4 KHz
Sensitivity: 1mV/0.01 mm displacement
Construction: Body – Non-Magnetic Stainless steel ; Core – Ferro-magnetic with non-magnetic stainless steel extension
Operating Temperature: 10°C to 50°C

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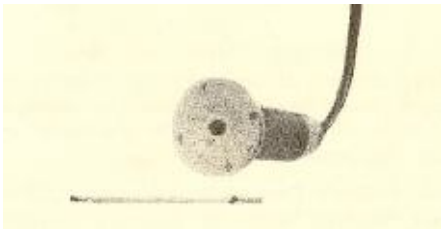


Model 410: LVDT coil is housed in a metallic cylindrical tube with collet type cable assembly at one end for drawing out the sensor cable and flange with three holes to facilitate fixing of transducers at other end. The core is held in a mandrel i.e., the core is fixed to the object whose movement is required.

IEICOS DIGITAL DISPLACEMENT INDICATOR Model 455:

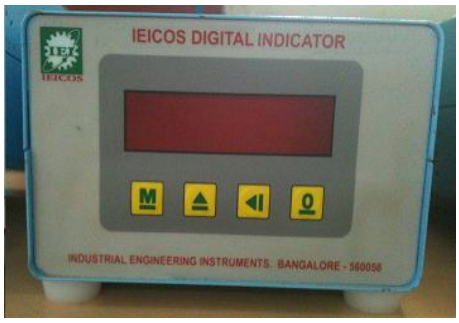
IEICOS Digital Displacement Indicator is designed to be operated with IEICOS LVDT displacement transducers to provide direct calibrated reading of displacement values. The Digital Displacement Indicator is an electronic instrument with an accurate carrier wave amplifier comprising of an AC amplifier, a phase sensitivity detector for decoding the differential secondary winding output, DC Amplifier and a digital panel meter. It also has built-in stable AC excitation supply for energizing the primary winding of the LVDT coil. Optional analog output is available for recording.

The Digital Indicator is factory calibrated to provide the read out in any engineering units – mm, cm, meters, inch, mils etc. or any other unit depending on the sensor/user.

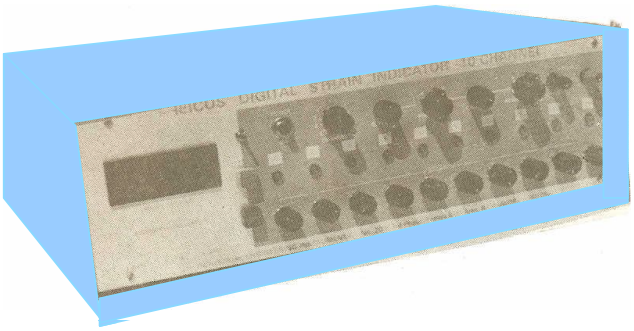
These digital indicators exhibit exceptionally good linearity without errors of parallax, reading interpretation or tracking, inherent in analog devices.

IEICOS DIGITAL MICROCONTROLLER BASED DISPLACEMENT INDICATOR – MODEL 455M

(with push button tare facility, Optional RS232 output)



IEICOS 10 CHANNEL DIGITAL DISPLACEMENT INDICATOR MODEL 455-10



IEICOS DIGITAL DISPLACEMENT INDICATOR – MODEL 455 (with potentiometeric tare, calibration controls)

IEICOS DIGITAL PROGRAMMABLE MICROCONTROLLER BASED DISPLACEMENT INDICATOR – MODEL 455DPM (with tare, Optional Set points, Software calibration, Optional RS232/485, Optional Analog output)

The Indicator incorporates an excitation supply. Tare Balance and Calibration Controls for operation of the lvdt sensor

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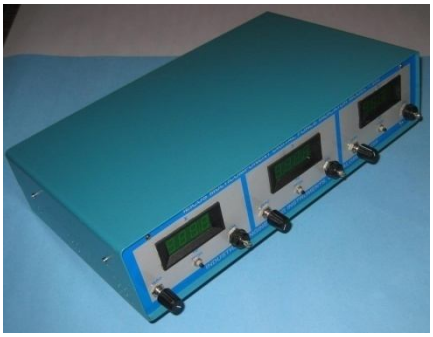
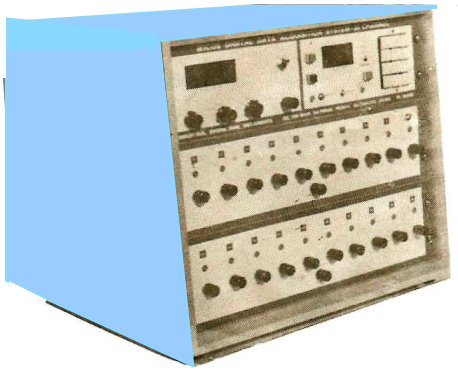
Inbuilt signal conditioning instrumentation amplifiers are designed for high performance with minimum zero drift and high reliability.

IEICOS 3 CHANNEL DIGITAL DISPLACEMENT INDICATOR– MODEL 455-3ID (with 3 independent display)



These indicators are available in Single, Two, Three, Four, Five, Ten and Multi-Channel Models with separate individual displays for each channel or with one single common display unit but with individual bridge balancing circuit. The indicators can be provided with special analog outputs such as 0 to 1V, 0 to 5V, 0 to 10V, -1V to 1V, -5V to 5V, -10V to 10V, 4 to 20mA etc., RS 232, RS 485 Digital outputs can also be provided for interfacing to computer and other process circuits.

IEICOS 20 CHANNEL DIGITAL DISPLACEMENT INDICATOR Microcontroller based with auto scanning - Model 455-20A



Specifications:

Model	- 455 Series
Channel	- Single, Two, Three, Four, Five, Ten, Multichannel
Display	- 3½ Digit/4½ Digit/6 Digit Seven Segment LED/LCD display.
Range	- 1999 counts for 3½ digit, 19999 counts for 4½ digit 199999 counts for 6 digit,
Linearity	- +/- 0.1% of Full scale.
Polarity	- + and – (Depends on the type of force)
Decimal	- Set according to range of transducer.
Stability	- Within +/- 1 Count + 1 digit.
Input Options	- AC LVDT input
LVDT Excitation	- 1 V AC Nominal, 2.5 KHz
Operating Temperature Range	- 10 to 50°C
Analog Output Options	- mV output, 0 to 1V, 0 to 5V, 0 to 10 V, -1V to 1 V, -5V to + 5V, -10V to 10V, 4 to 20 mA
Digital Output Options	- RS232, RS485
Setpoint	- 2 setpoints, 4 setpoints
Power Options	- 230 V/110V, 50 Hz/60 Hz, Battery Operated, Rechargeable Battery Operated.
Remote Display	- Option available

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IEICOS LVDT DISPLACEMENT SIGNAL CONDITIONERS – Model 455SC

IEICOS LVDT Displacement Signal Conditioners are also available with built-in instrumentation amplifiers and analog output options as mentioned above for use with PC Based systems, Process control equipments, research and laboratory applications. These signal conditioners have built-in excitation supply for the load cells, operate on mains or battery supply and are available in single and multichannel configurations. These do not have any displays. The signal conditioners are available as desktop top type units, rack mountable units, VME, PCI size units.

IEICOS LVDT DISPLACEMENT TRANSMITTERS – Model 455T

IEICOS Displacement Transmitters are available with built-in instrumentation amplifiers which provide standard 4 to 20 mA, 0 to 20 mA or 0 to 10V outputs for use in process industries. The LVDT Displacement Transmitters are available as small desktop units, miniature brick units with or without built-in excitation supply for the lvdt displacement, operate on mains or battery supply. These are external transmitters which can be used to retrofit existing lvdt displacement sensors or to new lvdt displacement sensors.

OTHER DISPLACEMENT MEASUREMENT OPTIONS:

IEICOS offers other displacement measurement options both contact and non-contact types depending on the application, range, resolution, accuracy etc. We are also well equipped to undertake complete measurement automation projects to provide systems that meet customer requirements.

We have necessary expertise and facility to undertake any high end research work in the field of displacement measurement as required by you or by your organization. If you or your staff are working towards research as part of their work/interest or towards their post graduate/Ph.D degree, we can provide necessary instrumentation, consultancy, guidance in development of equipment etc. Please feel free to contact us with your requirements.

Mechanical Dimensions, location of Components, Controls and Panel Meters may be changed without notice to incorporate latest state of the Art of Technology.

MANUFACTURERS OF:

ELECTRONIC MICROPROCESSOR BASED DIGITAL INSTRUMENTS, SYSTEMS AND TRANSDUCERS FOR MEASURING, RECORDING, PRINTING, TESTING, PROCESS AND QUALITY CONTROL, ANALYSIS, EVALUATION, SIMULATION OF TORQUE SPEED, POWER, PRESSURE, STRESS, STRAIN LOAD, FLOW LEVEL, DISPLACEMENT, VIBRATION, SOUND TEMPERATURE, HUMIDITY, ELECTRICAL PARAMETERS, DYNAMOMETERS FOR TESTING AND EVALUATION OF MACHINE TOOLS, ROTATING MACHINERY, LOADING FRAME WITH ELECTRONIC DATA LOGGERS FOR STRUCTURAL STUDIES IN THE FIELDS OF : INSTRUMENTATION, MECHANICAL ENGINEERING, PRODUCTION TECHNOLOGY, FLUID MECHANICS/HYDRAULIC LABORATORY, CIVIL/STRUCTURAL ENGINEERING, ELECTRICAL/ELECTRONICS ENGINEERING IN EDUCATION, R & D, INDUSTRY AND DEFENCE INSTITUTIONS.

INDUSTRIAL ENGINEERING INSTRUMENTS

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