Calibration and Test Instruments
Intelligent Measurement Systems

For today's solutions and beyond
Welcome to the world of Calibration Dynamics, innovators of calibration solutions designed to maximise process efficiency and save your company money. This Product Overview shows some of the cutting edge product and process innovations available from us and we trust that you will find this product overview of use in your decision making process.

Calibration Dynamics offer one of the widest, most comprehensive ranges of product solutions for high accuracy test, measurement and calibration of your parameters and are able to provide solutions ranging from hand held test instruments to complete turn key laboratory installations with bespoke software. We are able to back this with the highest levels of technical support, training and product evolution such that the products you select from us today will be the right ones and will perform reliably in your application for years to come.

Our key capabilities lie in the Pressure, Temperature and Vibration arenas and we provide solutions to many market segments including Aerospace, Automotive, Defence, Motorsport, Petro-chemical, Pharmaceutical, Process, and Research facilities. This list is not exhaustive and Calibration Dynamics are an extremely adaptable company. We work on a consultative basis to assist you in evolving your solutions.

New product innovations in this issue include a world class, fully comprehensive range of Dead Weight Testers offering accuracy ranges from 0.025% to 0.008% and beyond. We can augment this with real time true pressure calculations to facilitate reliable, high accuracy capability.

We are also expanding our already extensive range of pressure controllers to include hydraulic instruments, extending our maximum pressure capability and increasing our performance capabilities in the pressure controller segment.

Our range of portable calibrators has also been extended with new ATEX certified instruments, new multi-sensor instruments and an all new multi-parameter reference level calibrator for maximum calibration productivity.

A new precision Digital Pressure Gauge has been launched, available in one or two channel variants, accurate to 0.01% and available with Ethernet communications capability. This instrument can be used in either rack mount or bench top configurations and is able to be embedded into ATE systems.

Our product range extends way beyond the key instruments described in this brochure so if there is a particular requirement you have and can’t see something suitable here, please don’t hesitate to call us, we’ll be very happy to help!

Beyond product supply, we are able to fully support our product range, provide training, solution development and provide calibration support to ensure that your solution remains in top performing condition to allow you to maximise your investment.

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Intelligent Pressure Measurement Solutions

Calibration Dynamics offer a comprehensive range of Digital Pressure Transducers for high accuracy measurement and control applications. Widely used for barometric and wind tunnel applications, these instruments can be integrated into OEM type systems, incorporate digital and simultaneous analogue outputs with very high accuracy. Press range capability runs from 0 to 25mbar to 0 to 400 Bar and absolute or gauge modes are available. Accuracy is either 0.02% or 0.01% making these instruments suitable, in many applications, for use as a calibration reference. We are able to provide simultaneous analogue and digital outputs on RS-232 or RS-485 protocols. Calibration stability is excellent while the low drift rate on these sensors provide maximum confidence in application.

We have available one of the broadest ranges of multi-channel, Intelligent Pressure Scanning modules for a broad range of applications including gas turbine and turbo-machinery test, steam turbine test and wind tunnel wall measurement. These versatile instruments are Ethernet-ready pressure measurement modules that can simultaneously monitor 16 channels and digitally report them in temperature corrected engineering units at user configurable speeds of up to 500Hz per channel.

These robust scanners are manufactured in a variety of compact or for more industrial applications, ruggedised packages and are available for gas or liquid media enabling pressure ranges from 0 to 25mbar up to 0 to 100 Bar to be monitored. They are digitally temperature compensated and can be integrated into multi-scanner applications for maximum channel count and measurement capability.

All of these instruments are able to run in National Instruments Labview environments for ease of integration and drivers can be provided.

A broad range of configurations is available along with a custom engineering service and cost effective accessories supply boasting more than 3,000 different types of connector, tube or fitting, many of which are stocked at our UK facility for rapid despatch.
Portable Pressure Calibrators

Calibration Dynamics offer the most comprehensive range of portable calibrators available in the market today. We really do offer one for every application. You can specify from pocket sized instruments through to complete multi function, multi-parameter calibrators.

We have ATEX versions for operation in hazardous areas and documenting capability is available allowing the operator to process results for ISO9000/BSEN17025 requirements and we can back these with comprehensive software solutions for full asset management and calibration recall programmes.

Our CPH Range of instruments offer compact, pocket sized instruments that can also be supplied in kits. They offer superior accuracy and stability capabilities and can be used with multiple transducers to facilitate a cost effective, high performance spread in one instrument. ATEX Versions are available. Pressure ranges to 1000Bar are available.

The 2300 Digital Pressure Gauge offers market leading accuracy, very high stability and the option of two independent channels in one instrument. Pressure ranges from 0 to 25mbar to 0 to 400 Bar are available to suit your application and battery power is standard along with RS232 interfacing.

The MEP-DC range of Calibrators provides tough go-anywhere capability and incorporates pressure generation and control in the box along with storage capacity for adapters, fittings and electrical leads. Testing functionality is also incorporated for the closed loop testing of transmitters and pressure switches.

The comprehensive documenting Newton Pressure Calibrator incorporates high accuracy capability along with in the box pressure generation, high ease of use and real-time error analysis of the process signal. Software is provided to allow fast and convenient transfer of results into a database for manipulation and storage of results.

Extending this capability, our B-20 calibrator also offers ATEX approved capability for use in hazardous areas and provides our entry level for multi-parameter calibration. Full electrical functionality can be provided for the calibration of pressure, temperature and electrical capabilities can be specified. External transducers can enhance the operation of this and a number of our other calibrators so that only one instrument need be taken into the field. Combine this with our documenting capability and you have a truly complete solution.
Our all new Pascal range of calibrators is worth special mention alone! It integrates complete documenting capability with touch screen control and the ability to test and calibrate on up to four channels simultaneously. A pressure pump is integrated while electrical modules can be specified for each application and user-exchanged as required. The calibrator is available in tough IP Rated ABS or Aluminium cases and allows all process calibration adapters, fittings, tools and test leads to be carried in the box making this a true all-rounder.

This powerful range of instruments enable the operator to maintain a portable test laboratory that has the capability to grow with the application and if future-proof. We have ATEX versions in development at present as well as other enhancements while an electrical and temperature version is available immediately!

It is easy to see therefore that Calibration Dynamics really do offer Definitive Portable Calibrate-ability that enables users to instrument complete capability into your applications. We can provide ‘kit’ type solutions to carry multiple instruments and can assist in the engineering of a complete portable calibrator solution, not matter how big the process plant!

We are also able to provide full technical and service support for all of these instruments in-house and offer high speed turnaround on all repairs. We have demonstration units available and factory trained engineers in your area now, please call us if you would like to see one of these class-leading products.

Pressure Comparators

Calibration Dynamics offer one of the most comprehensive ranges of Pressure Comparators available.

We have hand held pressure pumps enabling generation and control from -950mbar to 35Bar pneumatic capability and have bench mountable pumps allowing class leading pressure generation and control capabilities to 7000Bar.

Also, we can also provide a range of reference standards to be used in conjunction with these instruments – call us today with your requirement!
Calibration Dynamics offer the most comprehensive and class defining range of Industrial Dead Weight testers or Pressure Balances available. We have gas instruments capable of operation from -1000mbar up to 100Bar, hydraulic instruments with 60 Bar minimum and 4000Bar maximum ranges and standard accuracy specifications of 0.015%, 0.010% and, most recently announced, our 0.008% capability.

**Special Features**
A single instrument base can be fitted with individual measuring elements and can include a patented concept for fast and safe replacement of the measuring systems, if required.

- Adaptation to specific customer requirements and documentation in the calibration certificate (traceable to national / international standards)
- High long-term stability with a recommended recalibration cycle of 5 years

Optional: Sets of trim-masses, Dirt traps, Purifiers, Sets of adapters, CPU 5000 Calibrator Unit for easy calibration of transmitters

**Easy Functioning**
Depending on the measuring range of the device under test the operator can fit the instrument base with the corresponding piston cylinder assembly. The pressure is applied via an integrated pump or, if an external pressure supply is available, via control valves. For fine adjustment an axially located variable volume with precision spindle is available. The weight applied is proportional to the desired pressure and provided by using optimally graduated weights. As soon as the measuring system reaches equilibrium, there is a balance of forces between pressure and mass-load. Due to the excellent quality of the system this pressure remains stable for several minutes so that, for instance, adjustments of the device under test can easily be effected.

**Intelligent Calibrator Unit CPU 5000**
When highly accurate measuring values where uncertainties of measurement of less than 0.025 % are required, complicated mathematical calculations and corrections are necessary. With this optional addition to the system all critical ambient parameters are registered and automatically corrected in real time. Furthermore a calibrator function for pressure transmitters can be integrated such that a voltage can be supplied to the sensors and sensor signals can easily be measured. No additional devices are required for that purpose.
Digital Pressure Gauges and Indicators

Digital pressure gauges are applied to many applications throughout industry and Calibration Dynamics range provides cost effective, accurate and reliable instruments that can be tailored to application. These can be stand-alone for immediate indication, portable for use in the field or embedded into automatic test systems for automated data capture.

We offer pressure ranges from as low as 0 to 25 mbar up to 0 to 700 Bar. This is application specific so that any range can be specified between these limits and gauge or absolute versions are available. In some instances dual channel capability can be integrated into a single instrument so that multiple applications or ranges can be easily served with one indicator.

Our model 2300 indicator is equally at home in the laboratory as it is in the field, offering single or dual channel capability and a class leading accuracy of 0.015%. It is fitted with a long life battery pack or can be mains powered and incorporates as RS232 interface.

It’s sister product, the 2400 is mains powered and bench or rack mounted and is a single channel instrument and offers a good price / performance ratio – it’s accurate to 0.03% and temperature compensated for laboratory use.

Our all new 2500 series instrument represents the very latest in technological advancement. It can integrate two independent channels and a barometer as an addition. Accuracy is 0.01% and the instrument is easy to use via its colour touch screen display. This instrument integrates RS232 and Ethernet communications and can optionally be provided with a GPIB-IEEE interface. This indicator can operate with pneumatic and some hydraulic media.

All of these instruments can be factory configured for barometric applications across a range of 750 to 1150 mbar where the accuracy can be expressed as a percentage of reading.

These versatile instruments offer full temperature compensation, have multiple unit capability and remote computer interfaces making them truly versatile.
Pressure Controllers

Calibration Dynamics offer one of the most comprehensive and complete ranges of pressure controllers in the world. We have Pneumatic instruments capable of calibrating from as low as 0 to 1 mbar (100Pa) for low pressure, clean room type applications up to 0 to 400 Bar in gauge and absolute modes. In many cases, our gas pressure controllers can be ranged to suit the individual application for maximum flexibility.

We also have a range of Hydraulic pressure controllers ranging, at present, up to 1600 Bar that can be used with oil or de-mineralised water. Our controllers have intuitive user-friendly colour display panels, some with touch screen capability and can be customer specified according to range and accuracy.

They offer accuracies of 0.025% and 0.010% with silicon reference transducers and, with our quartz sensors, we can offer percentage of reading accuracy capability up to 0.008%.

The innovative 600 and 8100 range of instruments provide the ultimate in user flexibility in that their reference transducers can actually be extracted from the instrument by the user, a feature that provides two unique benefits. Firstly, the instrument can be upgraded and re-ranged in line with the growth of an individual application and, importantly maximum operating capacity can be achieved during calibration period. If a spare sensor is carried it can simply be exchanged to allow the controller to be used even when it is being calibrated – no down time!!

We can provide multi-range, multi-channel controllers that can grow with the application for maximum process efficiency and future-proofing! A wide range of remote communication protocols can be specified for simple integration into ATE (Automatic Test Environments) including RS232, GPIB IEEE-488.2 and new Ethernet capability!

We offer controllers for a wide variety of test and calibration applications and can produce, working in conjunction with the customer, complete embedded ATE systems. We carry a wide variety of demonstration instruments, so if you wish to trial a controller on your application, we will be happy to have an experienced engineer visit to discuss your requirements.
Avionics Measurement, Calibration

**Avionics Measurement**
A range of high accuracy, high stability avionics indicators with user-definable altitude ranges from -4,000 to +100,000 feet and airspeed ranges from 0 to 1100 knots. This versatile product is available in mains or battery powered portable versions.

**Avionics Test**
A comprehensive range of Air Data Test Sets for a wide variety of applications with RVSM (Reduced Vertical Separation Minima) compliant Altitude ranges user definable between -4,000 to +100,000 feet and Airspeed capability from 0 to 1150 knots. Accuracy levels 0.01% of Full Scale Pressure. Available in 19” Rack Mounting configuration, laboratory, bench top or flight-line variants.

**Pressure Supply Modules**
Calibration Dynamics are able to provide a range of portable pressure and vacuum supply packs for use where shop air or vacuum supplies are not available. These cost-effective products enable the simple operation of Air Data test sets with no other ancillary equipment required.

**Wind Tunnel Instrumentation**
Calibration Dynamics have broad experience in the wind tunnel testing environment. We have a large range of miniature pressure scanners designed for in model use and can incorporate from 16 to 1024 measuring channels in a single system. This can be configured to scan at speeds of up to 500hz per channel per second and provide temperature corrected engineering data via USB straight in to your data acquisition system. We have a variety of form factors to suit different applications and can also provide a very wide range of connection and interfacing accessories.

Signal conditioning systems can be provided direct to a Digital Service Module that incorporates PC technology for fast collection and management of data or can be integrated via a low profile Remote A/D system that can also be embedded within the model.

We also provide scanners for wind tunnel wall pressure measurement and these instruments are self contained such that when powered they can stream temperature corrected pressure data in engineering units via ethernet.
Intelligent Temperature Measurement

Calibration Dynamics are pleased to present to the market a broad range of intelligent multi-channel temperature scanners for high speed dynamic measurement. These versatile instruments can be configured for the individual application, use a variety of thermocouple references enabling a wide temperature range to be covered, and are available in up to 64 input channel configuration. Accuracy is dependent on the type of thermocouple in use and is typically ±0.25ºC to ±0.5ºC.

Each channel incorporates its own 22bit A/D converter enabling rapid digitising of the signal such that information can be transmitted directly in corrected engineering units. Communication is available either via Ethernet, USB or RS232 (configuration only).

Temperature Calibration Instruments & Systems

A broad and flexible range of portable, fixed and bespoke temperature test and calibration instruments is available from Calibration Dynamics.

Portable Dry Block sources in a variety of ranges to 700ºC provide cost-effective, robust solutions for testing either at the measurement point or in the laboratory.

We also offer a range of immersion baths using either liquid media or aluminium oxide powder to allow temperature calibrations in the range -40ºC to 600ºC.

Beyond this we can provide high temperature horizontal or vertical furnaces with temperature ranges to 1700ºC. These quality instruments offer high stability, high accuracy reference sources that provide strong reliability in the most demanding applications.

This range of products enables testing of a wide variety of sensing instruments including resistance thermometers, IEC and DIN type thermocouples, temperature transmitters and switches all at high accuracy levels. A comprehensive portfolio of products are available as stand-alone calibration reference sources or can be integrated as part of fully automatic calibration systems.

Our experienced team of engineers will be happy to assist in specifying the product most appropriate for your application.
Vibration Calibration

The Win475 family of products offer a reliable, high efficiency, automated solution to the calibration of accelerometers, vibration sensors and displacement transducers. ICP, charge and voltage mode accelerometers can all be tested, while the system is driven though a PC interface.

Standard or custom calibration routines may be designed and stored for future recall and the software can store all generated calibration data. A paperless system can therefore be managed and information can be transmitted simply and electronically. This powerful solution, designed around the user, enables rapid testing of sensors in the bandwidth from dc to 10kHz and can calibrate sensors weighing up to 4.5kg. A wide range of shaker tables and frequency ranges are available along with jigs and fixtures for special applications.

High accuracy levels, PC oriented ease of use and the ability to eradicate data collection error on this system make the Win475 a cost effective solution even for relatively low inventory bases. In turn, this feature packed system improves productivity as down-time for calibrations can be dramatically reduced.

Costs of ownership remain low as only the reference requires calibration and this can be achieved in a short space of time at low cost.

Vibration Test and Control

Calibration Dynamics market a versatile Vibration Test and Control package that can be easily integrated into a broad variety of applications. Our solution is software driven and enables Sine Random and Shock capabilities to be applied via one of our own shakers or can be retro fitted to replace aging vibration controllers.

Our Win 2K5 system can be used in a dual shaker configuration to control two independent vibration test systems. It can also be integrated into environmental test applications cost effectively and reliably. The system connects simply via USB for ease negating the requirement for older legacy communications interfaces to be used making this system future proof. It also provides high flexibility because the DSP can be easily relocated to different systems for use in multiple applications.

Standard sequences can be created, saved and recalled for maximum process efficiency and up to 8 channels of data from reference accelerometers.
We retain demonstration stocks of the items detailed in this brochure and our experienced engineers are fully trained in their operation. We can set up demonstrations and trials on your application. For a no-obligation discussion around your application and for us to show you how we can maximise your process efficiency, don’t hesitate, call us today.

Calibration Dynamics, providers of test, high accuracy measurement and calibration instruments to industry. Partner today with us and see the benefit. Many already have.