Time Electronics
Calibration, Test and Measurement

5051Plus Multifunction Calibration System

Precision Multi Product Calibrator • 6½ Digit Multimeter • Touch Screen PC

www.timeelectronics.com

5051 Plus Multifunction Calibration System

- Integral Calibrator, DMM, and PC
- Source up to 1050V AC/DC voltage
- Source up to 22A AC/DC current
- Source up to 1GΩ resistance
- Thermocouple simulate and measure
- PT100 simulate and measure
- Source capacitance and inductance
- Oscilloscope calibration
- Clamp meter adaptor included
- EasyCal calibration software included

EasyCal

Calibrates

Digital/Analog Multimeters	R-C-L meters	Clamp Meters	Oscilloscopes
Transducers & Transmitters	Process Calibrators	Temperature Simulators	Decade Boxes
Frequency Meters	Temperature Indicators	Voltage & Current Sources	Data Loggers

And more

Calibrator / DMM / Touch Screen PC

The 5051 Plus Calibration System combines a high accuracy calibration source with a precision digital multimeter. Designed for a wide workload the 5051 calibrates both traditional and new test equipment quickly and accurately. The 5051 control software allows the operator to easily select the wide range of functions using mouse, keyboard, or touch screen.

Standard internal features include AC/DC voltage/current, resistance, frequency, thermocouple/PT100 simulation and measure, capacitance/inductance calibration, and oscilloscope calibration. Also supplied is a clamp meter adaptor for clamp calibration up to 1100A, and test lead set to provide the necessary connections for nearly all applications.

Compact System For The Calibration Process

The 5051 Plus is an inclusive package with features to cover and optimise the entire calibration process. By integrating the calibrator, DMM and PC in one unit minimal bench space is used. This also makes the 5051 ideal for site work with carry case supplied as standard.

The internal PC is preloaded with the EasyCal software suite, enabling automatic calibration to increase speed and efficiency of work. In addition EasyCal has features to manage and administrate both inventory and quality control. As a complete workstation the 5051 Plus is supplied with printer and connectivity kit for producing certificates and reports, as well as a bar code reader and label printer.

Technical Specifications

Function	Range / Values	Best 1 year Specification
Calibrator (source)		
Voltage DC	0 to ± 1050V	± 15ppm of setting
Current DC	0 to ± 22A	± 80ppm of setting
Voltage AC	1mV to 1050V (10Hz to 1MHz, sine-wave)	± 300ppm of setting
Current AC	10µA to 22A (20Hz to 1kHz, sine-wave)	± 0.05%
Clamp Meter Adaptor x50 turn	AC/DC Current up to 1100A (DC, 45 to 90Hz)	± 0.5%
Capacitance	1nF, 10nF, 100nF, 1µF, 10µF, 100µF (100V Max)	± 0.25%
Inductance	1mH, 1.9mH, 5mH, 10mH, 19mH, 50mH, 100mH, 190mH, 500mH, 1H, 10H	± 0.1%
Decade Resistance	1Ω to 1GΩ (decade values)	± 20ppm of setting
Full Range Resistance	1Ω to 120MΩ (variable)	± 100ppm of setting
Conductance	1s to 1ns (fixed values, decade steps)	± 20ppm of setting
Thermocouple Simulation	-270 to 1820°C (type J, K, R, T, S, B, E, N)	± 0.15°C
PT100 Simulation	-180 to 850°C	± 0.07°C
Oscilloscope Calibration		
Amplitude	6mV to 200V and 6mV to 2V 50Ω (Square-wave or DC)	± 0.05%
Frequency/Period	0.1Hz to 100MHz / 10ns to 10s (fixed values 1, 2, 5 sequence)	± 0.1ppm (0.1Hz to 10MHz / 100ns to 10s) ± 20ppm (20, 50, 100MHz / 50, 20, & 10ns)
Duty Cycle	3 frequencies: 100Hz, 1kHz, 10kHz, settable from 0 to 100%	–
Fast-Rise	< 400ps. Bandwidth checking up to 400MHz	–
Option 9769: Scope 2.2GHz Sweep	100MHz to 2.2GHz levelled sine-wave (0.5, 1, 1.5V pk-pk)	Amplitude ± 1%, Frequency ± 20ppm
6.5 Digit DMM (measure)		
Voltage DC	0 to 1000V	35ppm of rdg + 6ppm of rng
Current DC	0 to 3A	500ppm of rdg + 50ppm of rng
Voltage AC	0 to 750V	0.06% of rdg + 0.04% of rng
Current AC	0 to 3A	0.1% of rdg + 0.04% of rng
Resistance	0 to 100MΩ	100ppm of rdg + 50ppm of rng
Frequency	3Hz to 300kHz	0.01% of rdg
Thermocouple	-270 to 1800°C (Type J, K, R, T, S, B, E, N)	± 0.5°C
PT100	-180 to 850°C	± 0.08°C

PC Specifications/Details	
Processor	64 bit, dual core (or equivalent)
RAM	4GB (or higher)
Hard Drive	60GB solid state
Ports	4 x USB, 1 x Fast Ethernet
Display	10.4" Touch Screen LCD
Operating System	Windows 8.1
Included Software Programs	Calibrator and DMM control programs, EasyCal calibration software suite
Supplied Hardware/Accessories	USB keyboard, Inkjet Printer, Cal and ID Label Printer, DVD-RW, 4 port USB hub, Numeric key pad, USB memory stick

Options	
Oscilloscope Calibration Options	9769: Internal Scope 2.2GHz Levelled Sine Generator • 9762: External Rubidium Frequency Reference • 9764: Current Probe Adaptor
External Adaptors/Instruments	9790: 100 Amp AC Current Transformer • 9760: Power Amplifier (60V AC, 90V DC - 100mA) • TEG Digital Pressure Gauges 5077: Power Calibrator • Dry Block Calibrators • 7074: Black Body Calibrator • 8029: Electronic Load
EasyCal Software Accessories and Calibration Certificates	9779: Job and Address Label Printer • EC2FL/EC2WL: Additional User Licenses for separate PCs EAD: EasyAdmin Add-On • EWC: WebCerts Add-On • CREP: Crystal Reports Software • C134: UKAS Calibration Certificate

General Specifications	
Supplied Items	5051PLUS Calibration System • Clamp Meter Adaptor • Optical Tacho Adaptor • Premium Test lead Set Soft Carry Case • Printer and Connectivity Kit • Cal and ID Label Printer • Bar Code Reader 5051 Manual Control Software • EasyCal Calibration Software • Factory Calibration Certificate (NPL)
Warm up	30 minutes to full accuracy
Settling Time	Less than 5 seconds
Temperature Performance	Operating: 5 to 45°C. Calibration: 15 to 28°C. Storage: -10 to 50°C
Operating Humidity / Altitude	< 80% non condensing. Altitude: 0 to 3km. Non operating: 3km to 12km
Line Power	100 to 230V AC 50/60Hz. 200W maximum
Dimensions / Weight	w430mm, h202mm, d538mm. Weight: 23kg
Supplied Test Lead Set	High voltage (pair). High current (pair). Low thermal (pair). Shielded 4 wire. BNC test lead. BNC/thermocouple/spade adaptors. Test clips/couplers (pair). Wall mount lead holder. Carry case.

EasyCal Calibration Software

The comprehensive solution to calibration work and management

Manage, Automate and Optimise the Calibration Process

About Easycal

EasyCal is a complete software package with features covering all aspects of calibration work and management. It is designed to reduce workload, improve efficiency, and provide the essential platform for companies looking to create and sustain an effective calibration program. The comprehensive features simplify the administration process from reminder reports through to despatch. With a familiar and intuitive user interface all operators can quickly learn and navigate through the applications. This allows fast, straightforward implementation and integration of the software.

Communication and Control

EasyCal automates calibration runs by allowing the user to remotely control and communicate with compatible calibrators and DMMs. User friendly features and controls aid the process to further decrease calibration times. EasyCal can also read back values and data from compatible Time Electronics pressure and process instruments, and can be used with external instruments such as dry block calibrators.

For Multiple Industries and Disciplines

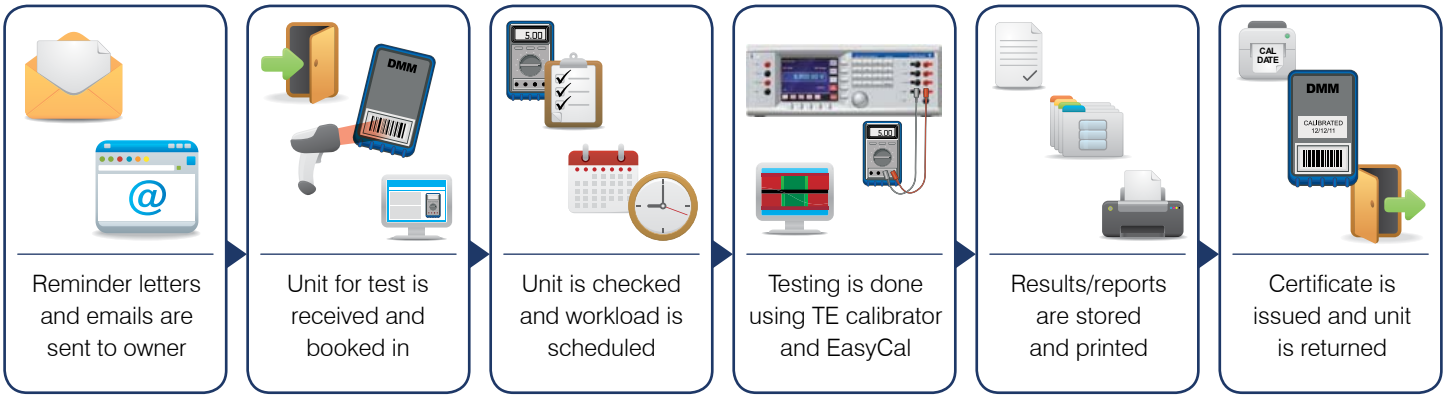
EasyCal is a versatile solution to multi-device calibration with the comprehensive functionality that is required across industries. It is globally used as the principal software in both calibration businesses and companies with on-site test facilities.

EasyCal is also designed for universal testing applications and can cover a wide range of disciplines. Users can calibrate and verify various instruments and devices: electrical and electronic; level, pressure, and flow; temperature and loop; mechanical and dimensional.

Features

- Communicate with calibrators, DMMs, bench modules
- Automated planning and scheduling
- For use with multiple devices and instruments
- Print/email/store certificates and reports
- Network compatible
- Produce calibration labels
- Quickly generate procedures using templates
- 1200+ pre-written test procedures included
- Calibration due reminder system
- E-mail reminder letters and lists
- Customise reports and certificates
- Create PDF reports and certificates (PDF engine)
- Print and read bar codes
- Universal instrument control
- HART and Foundation Fieldbus communication
- Secure user log in and electronic signatures
- Create uncertainty tables for laboratory & site
- WebCert feature for online certificates

Automating the Calibration Process with EasyCal



EasyCal: For the Calibration Process

Automating the calibration process brings important benefits and provides increased speed of calibration and consistency of results.

Pre-Calibration: The calibration management features of EasyCal make the planning and organisation of instrumentation calibration simple. A recall/reminder system informs the user of upcoming jobs, and search functions allow the user to quickly identify a unit for test.

Calibration: EasyCal controlled calibration significantly decreases testing times, meaning less instrument downtime and faster turnaround. This improves throughput meaning greater return on investment. EasyCal optimises the process by allowing the user to create procedures quickly and easily with the help of the included design wizards and pre-written templates.

Post Calibration: Easily produce calibration certificates and reports to ISO 9001, ISO 17025, and other quality standards. These can be printed, stored, or emailed as PDFs. EasyCal has a selection of preformatted certificate templates suitable for displaying typical calibration results.

The Core Benefits of using EasyCal

Achieve compliance with quality standards

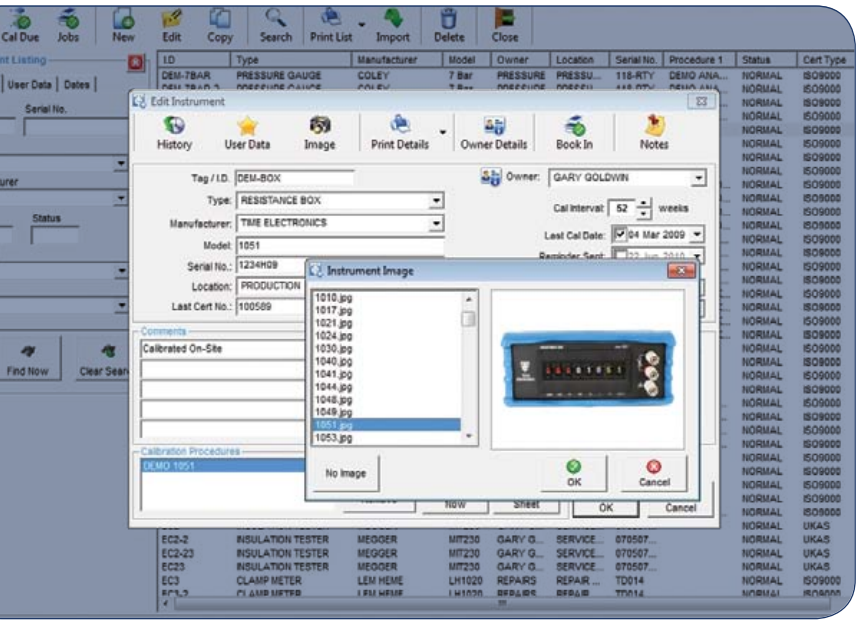
- **Automated document control ensures conformity and quality**
- **Establish procedures to maintain repeatability and monitor quality**
- **Schedule and maintain calibration intervals.**
- **Evidence of traceability to national standards**
- **Record calibration environmental conditions**
- **Produce calibration labels, maintain calibration history**
- **Reduce possibilities for errors or omissions**
- **Electronic record retention ensures integrity for successful audits**

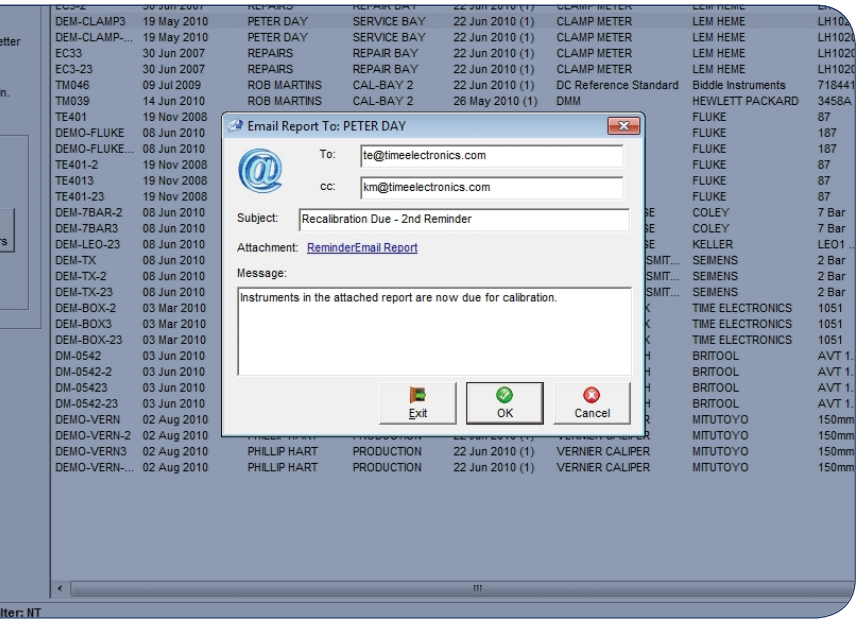
Create an efficient control and management system

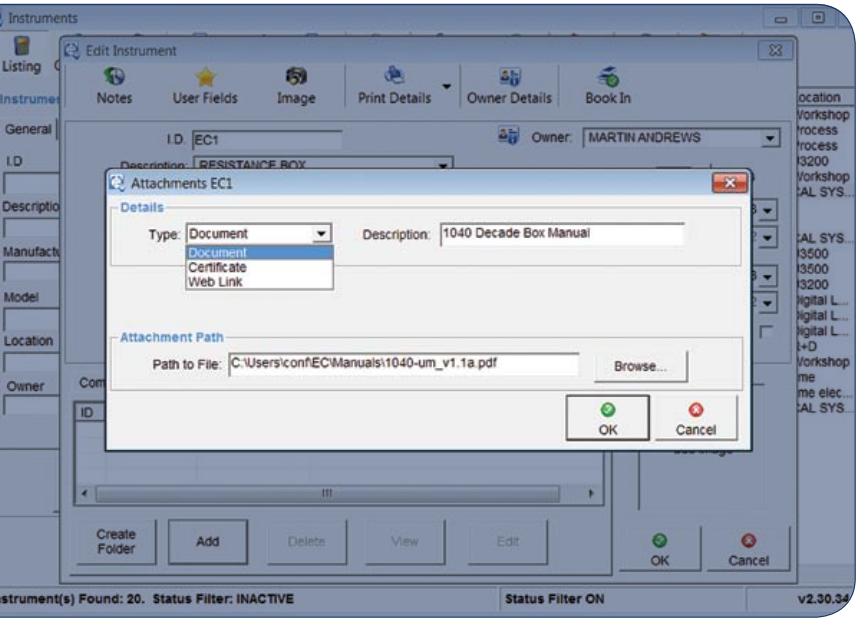
- **Reduce testing times**
- **Eliminate continual outsourcing calibration costs**
- **Full control over the calibration process**
- **Improve turnaround**
- **Quick and easy solution to instrument analysis when needed**
- **Internal scheduling for calibrations. No external factors**
- **Centralised document management**
- **On demand networked review of certificates and reports**

EasyCal Calibration Software

Overview of applications and features







Inventory, Reminders, and Jobs

A comprehensive inventory database can be created and customised to company requirements. For internal calibration and quality management, departments and users can be specified. Alternatively EasyCal can be used as the controlling system for a calibration business based around customers and owners.

Search

A powerful search feature enables the user to enter specific criteria to quickly find the required data. When adding details the user is aided by drop-down lists, which automatically update when new information is added.

Input Fields

Used to add details such as ID and serial number, manufacturer and model, instrument status and service notes. In addition custom fields can be created to integrate with a company system. Images can be uploaded to provide further reference.

Instrument Recall and Reminder System

Instruments which are due for calibration are listed on screen. Reminder letters and lists can be printed or emailed directly to the customer or department. An advanced notice period can be set to bring forward the recall date allowing for response time.

Job Management

When a unit for test is booked in the job process starts. Specific information about the job is entered; such as ‘service required’, ‘sub contracted’ and ‘accessories supplied’. A job sheet and label can be produced at this stage to accompany the instrument. As the job is put through the system these parameters can be updated, for example ‘quote price’, ‘job status’ and ‘invoiced’.

Attachments

Create links to technical files, specifications, web pages, word documents, videos, and more. These can be set to automatically display prior to the calibration run.

Devices and Standards used for Calibration

Traceability information for instruments and standards that perform the calibration work is stored and maintained by EasyCal.

Uncertainties

Uncertainty tables for laboratory and site can be created for each calibrating instrument. These are then automatically processed and applied to certificates as required.

Procedure Writing and Editing

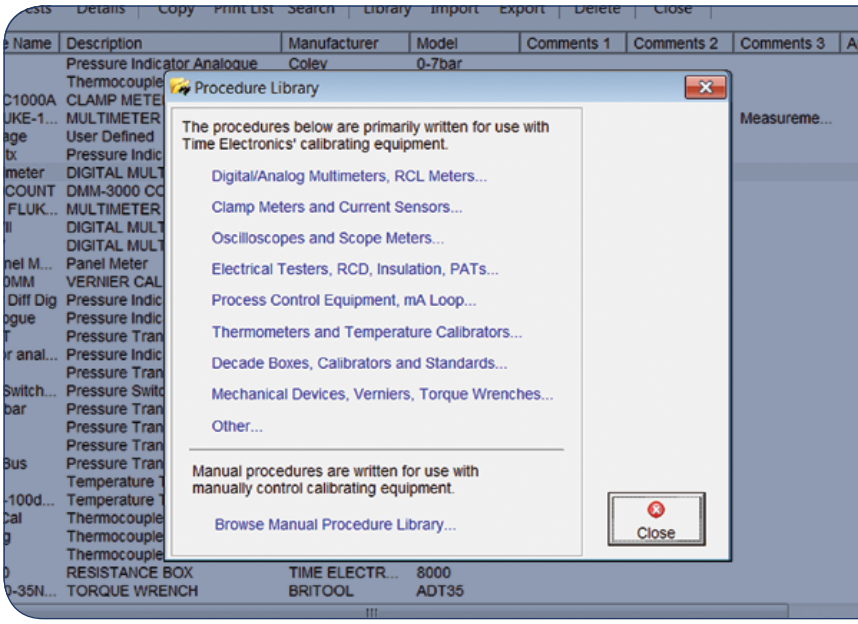
Creating and editing test procedures is made simple with an intuitive, user-friendly interface. Editing test information can be done by adding, inserting, or copy and pasting. EasyCal keeps track of each time a procedure is edited.

Procedure Library

A calibration library comprising of over 1200 procedures covering a wide variety of instruments and devices is included as standard.

Procedure Templates

Procedure templates for multimeters, clamp meters, decade boxes, insulation testers, and more can be used for creating any new procedures as required.



Fast Procedure Creation and Editing

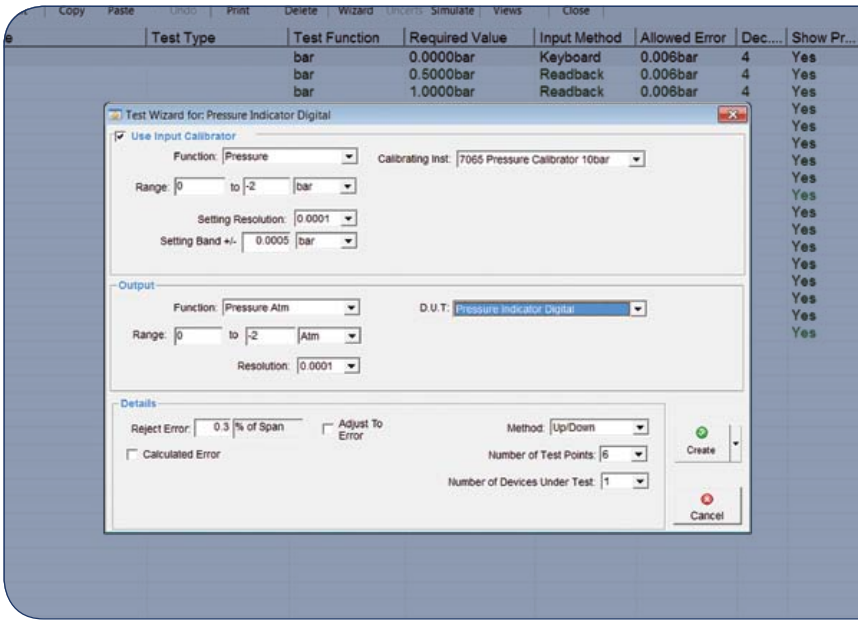
Copy and paste multiple tests. Globally edit a group of tests. Colour coded listing helps sort and identify different test types.

Procedure Simulation

The Calibration Run Simulator enables a procedure to be tested without the need for a controlling instrument. To further assist with development of procedures a test can also be edited during the actual calibration run.

Format Certificates

Colour code and add borders to test group titles. Add column headers where a change of layout is required. A preview feature allows the user to check the certificate layout to determine if formatting is correct.

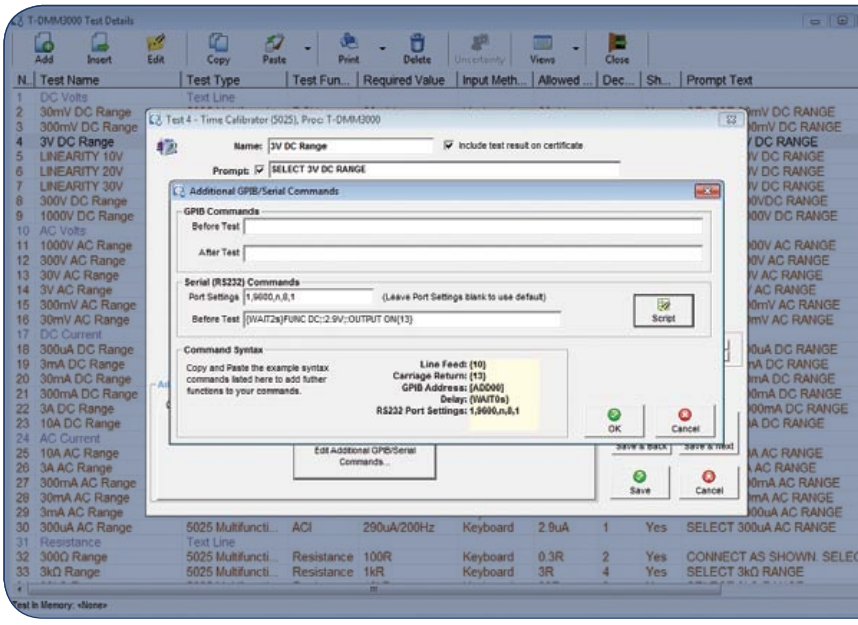


Conversion Tables

Conversion tables for thermocouples, RTDs, current transformers, and clamp meter adaptors are included. Alternatively user-defined tables can be created.

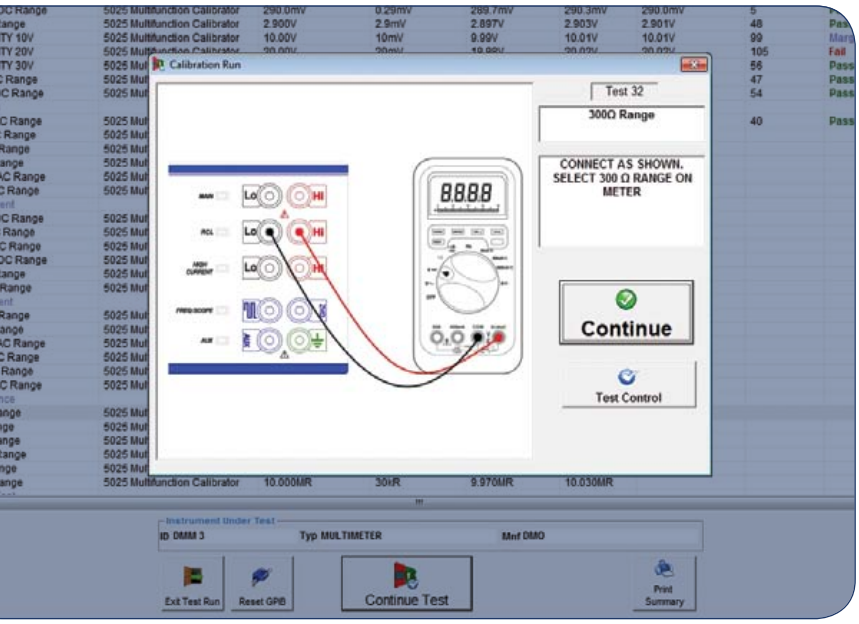
Remote Commands

For more complex instrument control, commands can be sent on a test-by-test basis or run as a script. Closed loop calibration is also achievable using the universal readback feature. This allows EasyCal to control third party calibration equipment and communicate with devices under test.



EasyCal Calibration Software

Overview of applications and features



Instrument and Device Calibration

Automated calibration run provides fast and accurate collection of data, whether using direct instrument control or manual entry. EasyCal guides the operator through the procedure using graphical test screens and user prompts.

Search

Selection of the device under test is quick and easy. With the use of a barcode scanner this selection becomes automatic.

Calibration Prompts

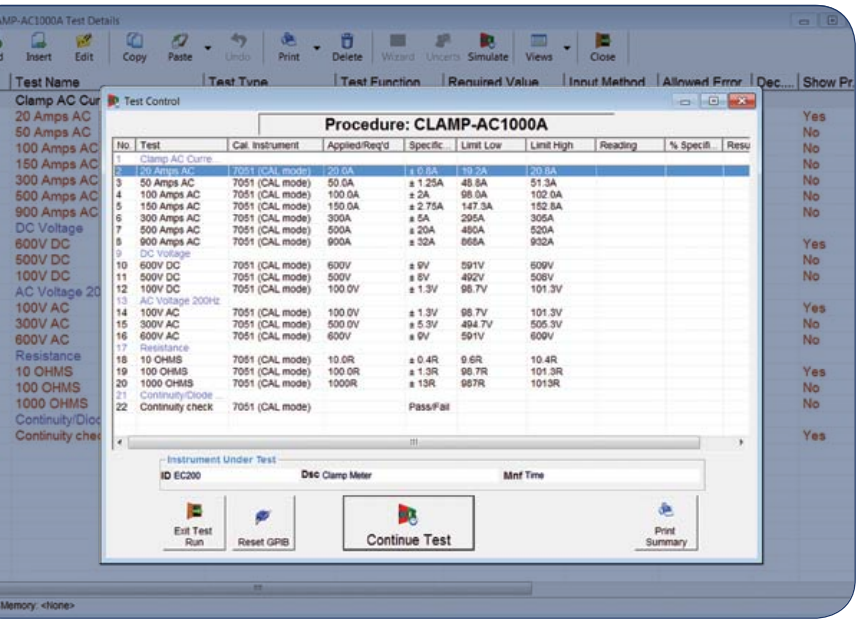
Text and graphical prompts aid the user with instrument range selection and connection. So even the most complex calibrations can be performed with relative ease.

Graphical Test Screen

The calibration run is made simple and efficient by a graphical user-interface, which increases speed of data entry. The colour coded indication bar displays the test limits. This allows the operator to easily identify out of tolerance results.

Test Control

At any stage during the calibration run a summary can be displayed, this includes both completed and remaining tests. Colour coding indicates tests passed or failed. The operator is able to move forward or backward through the procedure as required.



End of Calibration Run

Data for every test is stored, including a snap shot of the procedure used. If required calibration comments and service history can be updated. The operator is able to print the certificate, produce a calibration label and/or store the results to be issued as required.

Recovery Mode

If for any reason a calibration run is interrupted, recovery mode allows the user resume from the point of termination.

Calibration Test Forms

Alternatively ‘calibration test forms’ for hand written results are available. This data is then entered manually into EasyCal at a later date.

Certificates/Reports/Data Management

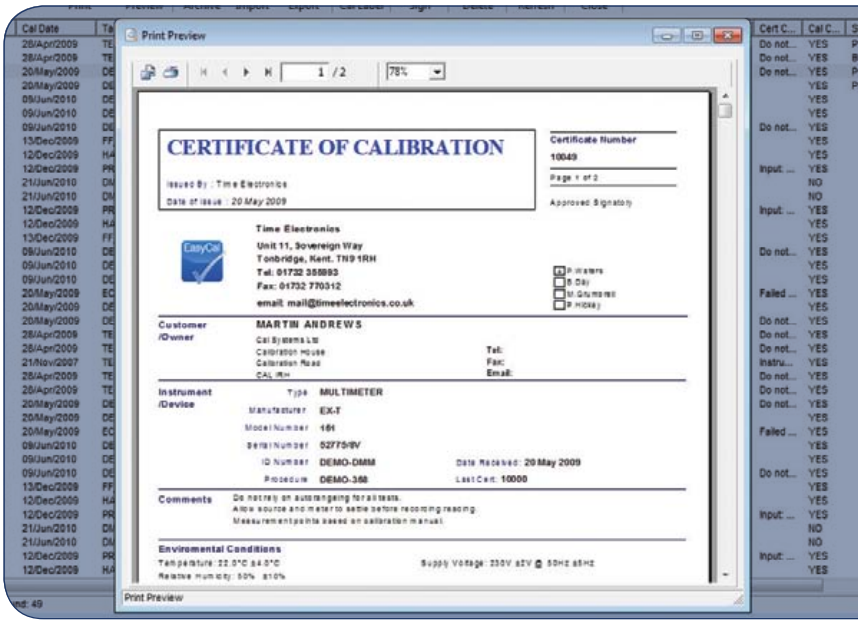
Produce, print, and store calibration certificates, reports, and labels. Simple search facilities enable the user to locate any data on demand. Keeping track of instrument history and servicing is made easy.

Certificate Templates

A range of pre-formatted templates are available for immediate use. A company logo can be added without the need for 3rd party software.

Electronic Signatures

Password protected electronic signatures allow management to approve certificates. In addition a scanned image of the signature can automatically be inserted, eliminating the need to print certificates.



Built-in PDF Engine

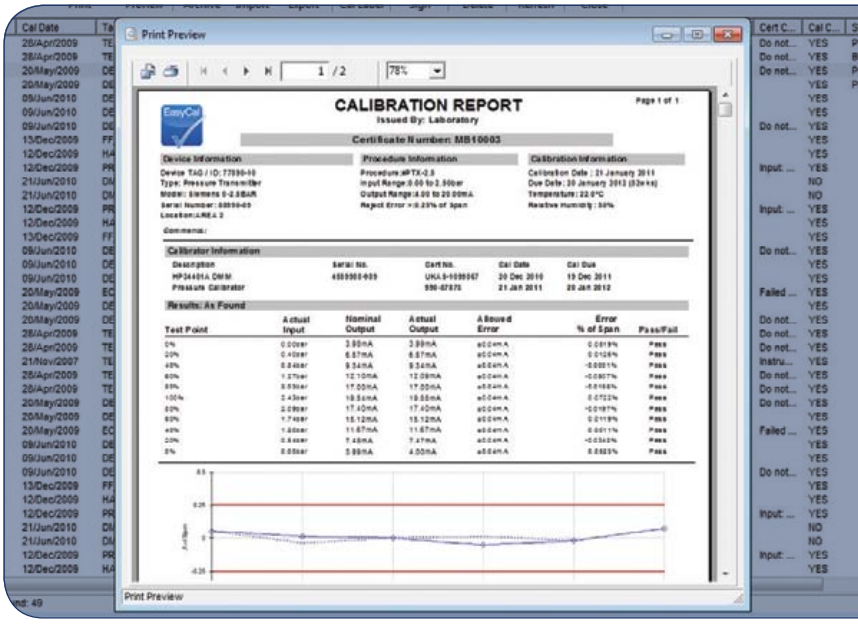
Generate PDF reports and certificates ready for emailing and universal review.

Calibration Reports

Documented traceability provides a recorded audit trail. Reports showing calibration duration times can assist with costing and assessments.

Archive

The results database can be streamlined by using the archive feature. This improves data organisation and management. Archives are quickly retrieved, giving instant access to historical certificate data.

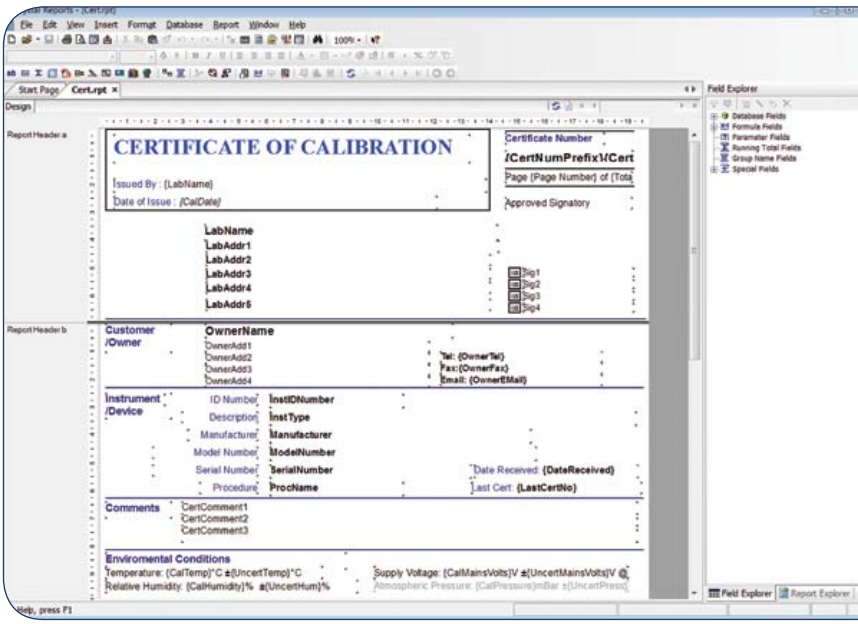


Import and Export

Exchange data from one system to another using the import/export feature. This method is ideal for site and field calibration work, where data is recorded externally then uploaded to the main database upon return.

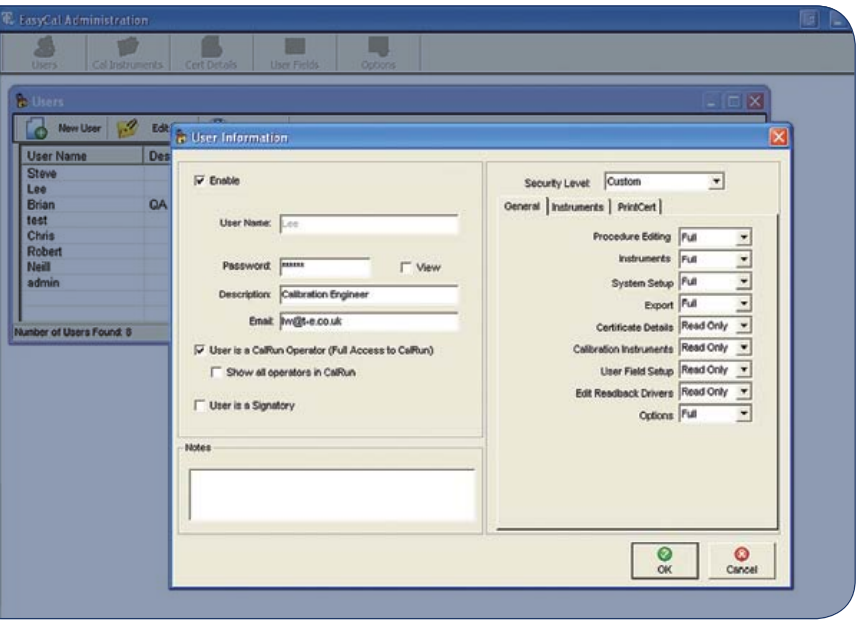
Customise

Crystal Reports (optional) allows full modification of certificate, label, and report layouts. Design custom reports using queries, formulas, and running totals.



EasyCal Add-Ons and Accessories

Optional enhancements and extras for increased functionality



EasyAdmin

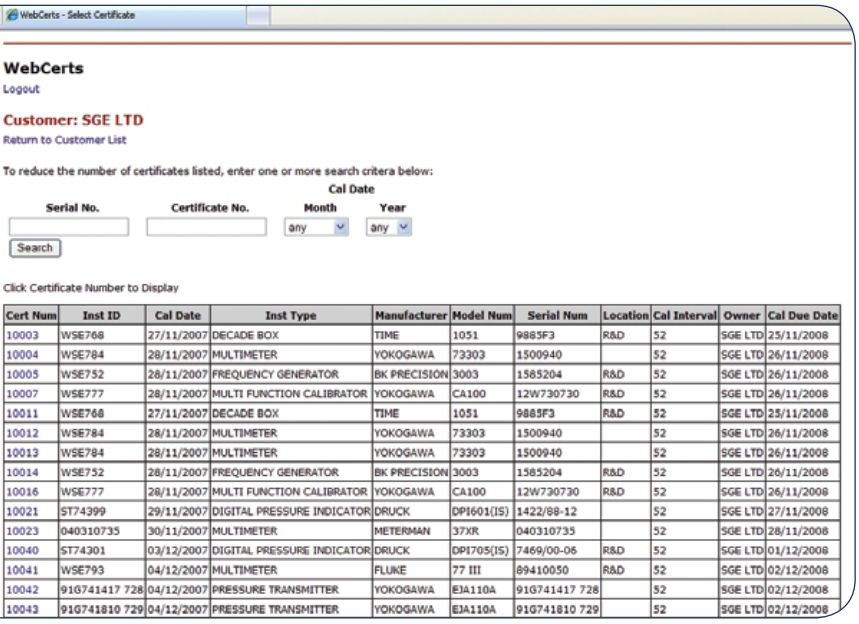
EasyAdmin is an add-on that provides increased security for EasyCal and it's users.

User Rights: A master user sets the user rights for the relative staff and defines log in criteria.

Access Levels: Setting access levels within EasyCal to limit secondary users can be done, safe guarding sensitive information.

Administration: EasyAdmin provides an administration point for calibration instruments, certificate information and user fields.

Predefined Pick-Up Lists: For instrument manufacturers, sub contractors, customer details and other information. These can be created to make EasyCal data entry quick, easy and uniformed.



Cert Num	Inst ID	Cal Date	Inst Type	Manufacturer	Model Num	Serial Num	Location	Cal Interval	Owner	Cal Due Date
10003	WSE768	27/11/2007	DECADE BOX	TIME	1051	9885F3	R&D	52	SGE LTD	25/11/2008
10004	WSE784	28/11/2007	MULTIMETER	YOKOGAWA	73303	1500940		52	SGE LTD	26/11/2008
10005	WSE752	28/11/2007	FREQUENCY GENERATOR	BK PRECISION	3003	1585204	R&D	52	SGE LTD	26/11/2008
10007	WSE777	28/11/2007	MULTI FUNCTION CALIBRATOR	YOKOGAWA	CA100	12W730730	R&D	52	SGE LTD	26/11/2008
10011	WSE768	27/11/2007	DECADE BOX	TIME	1051	9885F3	R&D	52	SGE LTD	25/11/2008
10012	WSE784	28/11/2007	MULTIMETER	YOKOGAWA	73303	1500940		52	SGE LTD	26/11/2008
10013	WSE784	28/11/2007	MULTIMETER	YOKOGAWA	73303	1500940		52	SGE LTD	26/11/2008
10014	WSE752	28/11/2007	FREQUENCY GENERATOR	BK PRECISION	3003	1585204	R&D	52	SGE LTD	26/11/2008
10016	WSE777	28/11/2007	MULTI FUNCTION CALIBRATOR	YOKOGAWA	CA100	12W730730	R&D	52	SGE LTD	26/11/2008
10021	ST74399	29/11/2007	DIGITAL PRESSURE INDICATOR	DRUCK	DPI601(IS)	1422/88-12		52	SGE LTD	27/11/2008
10023	040310735	30/11/2007	MULTIMETER	METERMAN	37XR	040310735		52	SGE LTD	28/11/2008
10040	ST74301	03/12/2007	DIGITAL PRESSURE INDICATOR	DRUCK	DPI705(IS)	7469/00-06	R&D	52	SGE LTD	01/12/2008
10041	WSE793	04/12/2007	MULTIMETER	FLUKE	77 III	89410050	R&D	52	SGE LTD	02/12/2008
10042	91G741417 728	04/12/2007	PRESSURE TRANSMITTER	YOKOGAWA	EJA110A	91G741417 728		52	SGE LTD	02/12/2008
10043	91G741810 729	04/12/2007	PRESSURE TRANSMITTER	YOKOGAWA	EJA110A	91G741810 729		52	SGE LTD	02/12/2008

WebCerts

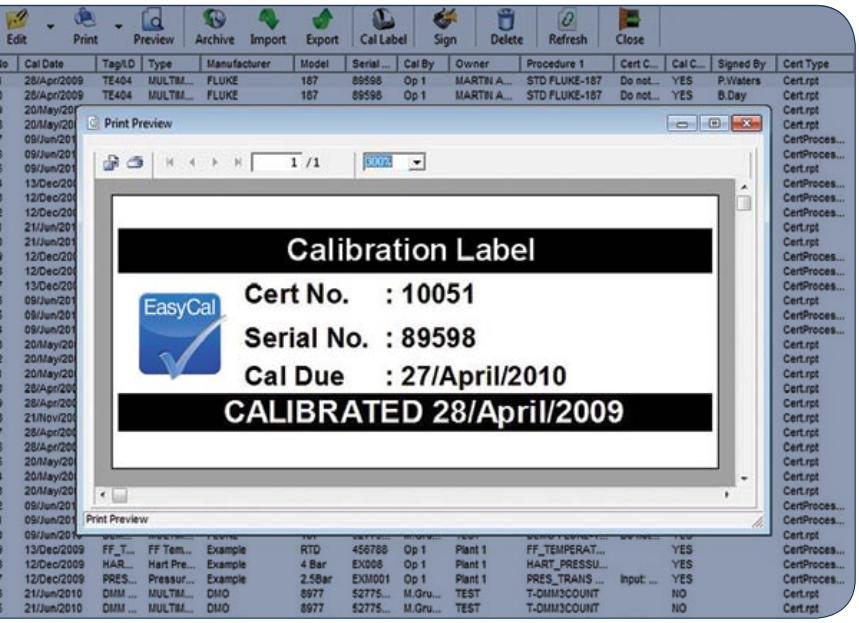
WebCerts is a web based application that enables EasyCal users to upload and retrieve certificates and reports online.

Simple Upload/Download: Uploading is incorporated into EasyCal by allowing the user to quickly and directly upload to their WebCert folders via FTP.

Secure User Log In: A security feature that allows users to access private folders with their relevant documentation. Ideal for companies with different sites or locations.

Search and Filter: Users can easily locate required data by using the filter tabs or the straightforward search fields.

Hosted Package: Time Electronics also offer a hosted WebCerts package where data is uploaded and stored on one of our designated WebCert servers. Retrieval and viewing of certificates is via the web based interface.



EasyCal Accessories

To complement and further optimise the calibration process Time Electronics offer a range of external options.

Printer and Connectivity Kit: Inkjet printer for calibration certificates and reports. Also includes a DVD-RW, 4 port USB hub, numeric key pad and USB memory stick.

Calibration and ID Label Printer: For printing labels to be placed on calibrated units. EasyCal has different layouts for required information to be shown.

Job and Address Label Printer: For printing information that accompanies a unit under test through the calibration process. Also for user tagging instruments.

Bar Code Reader: Enables fast identification of devices in the pre-calibration stage.

EasyCal to PC Communication Options: Interface cables and adaptors providing PC connectivity to Time Electronics calibrators or external instruments.

EasyCal Networking

With networking capabilities a multi-user system can be implemented

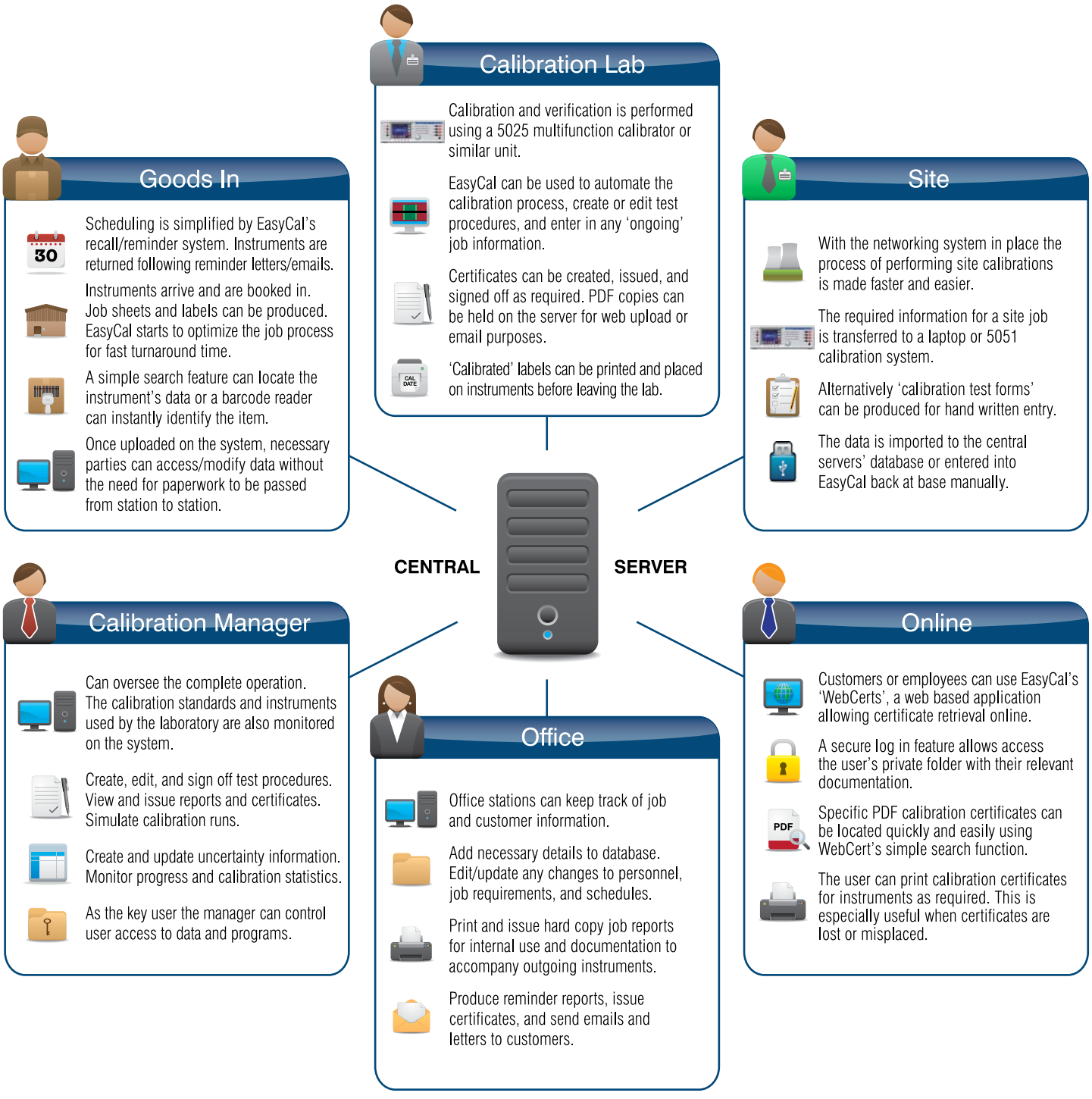
Networking with EasyCal

For multi-user systems EasyCal can be implemented as the universal software for administration, management, and control. With designated features for use in different workstations, EasyCal can provide a solution to calibration businesses with customers as well calibration departments within industrial plants.

Data can be shared and accessed on a central server, creating an organised and efficient networking set-up. EasyCal's pre-calibration features enable automated scheduling and also speed up the booking in process with quick instrument identification.

Calibration runs can be automated by using a compatible Time Electronics calibrator with EasyCal. Once calibration has been performed the data can be made available on the server to the necessary parties. Hard copy certificates and reports can be issued by authorised staff.

Enhanced security features can be added for increased protection, allowing a master user to control access rights to data and applications. Also available is an online application enabling users to upload and retrieve certificates.



Time Electronics

5051Plus Ordering Information

5051PLUS - Complete Calibration System Package

Included Items

- 5051PLUS Multifunction Calibration System
- Clamp Meter Adaptor
- Optical Tacho Adaptor
- Test Lead Set
- EasyCal Calibration Software
- 5051 Manual Control Software
- Printer and Connectivity Kit
- Cal and ID Label Printer
- Bar Code Reader
- Soft Carry Case
- User manuals
- Full Factory Calibration Certificate (NPL traceable)

OPTIONS

9769	Scope 2.2GHz Levelled Sine Generator (Internal)
9762	Rubidium High Stability Frequency Reference (External - scope option)
TE-TRQ	Torque Wrench Calibration Unit
9790	100 Amp AC Current Transformer
5077	Power Calibration (0 to 20KW AC and DC) - External Calibrator
9760	Power Amplifier (60V AC, 90V DC - 100mA)
8029	DC Electronic Load (80A, 80V, 300W)
9766	External Low Noise Attenuator 1000:1
9767	External Low Noise Attenuator 100:1
TEG	Digitial Pressure Gauges
7070	Dry Block Calibrator (-17 to 140°C)
7071	Dry Block Calibrator (33 to 320°C)
7072	Dry Block Calibrator (33 to 650°C)
C134	UKAS Calibration Certificate (ISO 17025)

EASYCAL EXTRAS

9779	Job and Address Label Printer
9794	USB - GPIB Adaptor for external instrument control
9597	GPIB Cable
EC2FL	EasyCal Full License (secondary user)
EC2WL	EasyCal Work Station License (full management/scheduling, no calibration run)
EAD2	EasyAdmin - 2 Users Security add-on
EAD5	EasyAdmin - 5 Users Security add-on
EAD10	EasyAdmin - 10 Users Security add-on
EAD10+	EasyAdmin - 10+ Users Security add-on
EWC	WebCerts Online application
EWCTE	WebCerts - Hosted by Time Electronics
CREP	Crystal Reports Software

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