About the 8060

The 8060 is a multifunction process calibrator module that offers excellent workload coverage on the Time Electronics CalBench. The module has source and measure capabilities for mV, mA, ohms, frequency, and pulses. It also simulates and measures 13 thermocouples and 11 RTDs to enable calibration of transmitters and other temperature devices commonly used in the process industry. Further features include the integrated 24 V loop power supply, pulse frequency output, cold junction compensation and HART communication for device readback and configuration.

Control Centre: The control centre is a PC with a 64 bit dual core processor, running Windows 10 Pro, with a 12.1" capacitive touch screen display. The calibrator control software allows the 8060 functions to be easily selected using mouse, keyboard, or touch screen.

Advanced Measurement Option (AVM65): This option integrates a 6.5 digit multimeter into the module, that measures DC voltage to 1000 V, AC voltage to 750 V, resistance to 100 MΩ, and frequency to 300 kHz. Operation is via the control centre, using the manual control application or EasyCal software (optional).

EasyCal Software: Enables automatic calibration to increase speed and efficiency of work. It has features to manage and administrate both inventory and quality control. Produce traceable calibration certificates and test reports for quality standards. Using EasyCal the operator can also read back and control compatible modules and external instruments such as dry block calibrators and portable test instruments.

8060Plus: A package that includes various options to enhance the 8060. It incorporates the AVM65 advanced measurement option, upgraded control centre, EasyCal software, printer kit, label printer, bar code reader, premium test lead set and factory calibration certificate. The package is designed to provide the optimal platform for both calibration work and management. For enhanced usability the CCPAD control centre numeric keypad module is available.

Features

- Source mV, mA, resistance & frequency
- Measure mV, mA, resistance & frequency
- Thermocouple simulate and measure (13 types)
- RTD simulate and measure (11 types)
- Touch screen PC control centre with 12.1" display
- Integral 24 V loop power supply
- Optional integral 6.5 digit multimeter
- HART communicator
- Optional EasyCal software for automated calibration
- Communicate with EasyCal compatible modules

Calibration Capabilities

• Temperature sensors, transmitters, indicators
• Thermocouples, RTDs
• Thermometers, PRTs, thermistors
• Recorders and controllers
• Loop and process calibrators
• Temperature switches
• Flow totalisers
• Pressure instruments using additional modules

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Using the 8060 on the CalBench

Control and Communication

The control centre provides users with a touch screen interface for manual operation or EasyCal driven calibration work. The CCPAD option enables a convenient method of data entry, deviation and navigation when using EasyCal. Operators can also use the supplied wireless keyboard and mouse on the desktop.

- 12.1" touch screen control centre central in console
- Manually operate the 8060 via control centre user interface
- EasyCal software for automation and management
- Control and readback from compatible modules
- Software applications for control centre operated modules like process communicators, oscilloscopes and others
- CCPAD keypad & jog dial module for EasyCal input and operation

Electrical and Temperature

The 8060 provides precision measurement and generation for process calibration work with electrical, temperature and frequency functions. The 8060Plus version integrates a 6.5 digit multimeter for advanced measurement capabilities. EasyCal communicates with the 7085A module and dry block calibrators to automate temperature calibration.

- 8060 generates, simulates & measures electrical & process signals
- 8060Plus features integral 6.5 digit multimeter
- EasyCal driven calibration and communication
- 7085A interfaces with EasyCal for batch testing of thermocouples
- Power supply modules like 7052 supplement testing applications
- Optional communicator module for Foundation Fieldbus (FF), operated via the control centre

Pressure

The control centre section of the 8060 communicates with pressure modules. EasyCal can drive pressure controllers and read back from regulated calibrators. XTEG modules are integrated pressure sensors, solely operated by the control centre via a virtual control software application or EasyCal software.

- EasyCal software drives pressure controller modules like 8030B
- Read back from RMTEG and MTEG pressure gauge modules
- XTEG sensor only modules with control centre user interface
- The 8060 provides precision mA measure for transmitters etc
- Read back and control external instruments like digital pressure gauges, via RS-232 communication with the control centre

About the 8060Plus

The 8060Plus is an advanced version of the module inclusive of options to provide an optimal solution. It features the integral multimeter option as standard. EasyCal software is included for automation and management, plus a selection of peripherals including printer kits for certificate printing and administration.

- Optimised 8060 with options for increased functionality and usability
- Includes advanced measurement (integral 6.5 digit multimeter)
- EasyCal calibration software supplied pre-loaded on control centre
- EasyCal extras include printer kit, label printer and bar code reader
- Premium test lead set supplied (option 9796)

8060 Specifications

Electrical Source

Range	Resolution	Accuracy
Voltage DC		
-10.000 to 75.000 mV	1 μV	0.02 % RDG + 8.5 μV
0 to 12.0000 V	0.1 mV	0.02 % RDG + 1.2 mV
Current DC		
0 to 22.000mA	1μA	0.02% RDG + 2.2 μA
Resistance		
1 to 400.00 Ω	10 mΩ	0.02 % RDG + 0.04 Ω
1 to 4000.0 Ω	100 mΩ	0.03 % RDG + 0.4 Ω
Frequency		
0 to 50000.0 Hz	0.1 Hz	0.005 % RDG +1 Hz
Pulse		
0 to 999999	1	–
24V DC Supply		
24 V	–	0.5 V

Electrical Measurement

Range	Resolution	Accuracy
Voltage DC		
± 75.0000 mV	0.1 μV	0.015 % RDG + 7.5 μV
± 30.0000 V	0.1 mV	0.01 % RDG + 3 mV
Current DC		
± 30.0000 mA	0.1 μA	0.015 % RDG + 3 μA
Resistance		
0 to 400.000 Ω	1 mΩ	2 wire/3 wire: 0.02 % RDG + 0.02 Ω 4 wire: 0.01 % RDG + 0.02 Ω
0 to 4000.00 Ω	10 mΩ	2 wire/3 wire: 0.02 % RDG + 0.2 Ω 4 wire: 0.01 % RDG + 0.2 Ω
Frequency		
0 to 50000.0 Hz	0.1 Hz	0.005 % RDG + 1 Hz
Pulse		
0 to 999999	1	–

Thermocouple Simulation and Measurement

Type	Range (°C)	Accuracy (°C) Measure	Accuracy (°C) Simulate
S IEC 584 (-50 to 1758 °C)	-50 to 400	1.0	1.1
	400 to 1000	0.6	0.6
	1000 to 1768	0.7	0.8
R IEC 584 (-50 to 1758 °C)	-50 to 200	1.4	1.4
	200 to 500	0.6	0.6
	500 to 1768	0.6	0.7
B IEC 584 (0 to 1820 °C)	50 to 450	3.8	3.8
	450 to 800	0.9	0.9
	800 to 1820	0.6	0.7
K IEC 584 (-270 to 1372 °C)	-250 to -200	1.0	1.1
	-200 to -100	0.4	0.5
	-100 to 600	0.3	0.3
	600 to 1372	0.4	0.5
N IEC 584 (-270 to 1300 °C)	-250 to -200	1.5	1.6
	-200 to -100	0.5	0.6
	-100 to 1300	0.4	0.5
E IEC 584 (-270 to 1000 °C)	-250 to -200	0.6	0.7
	-200 to -100	0.3	0.3
	-100 to 0	0.2	0.2
	0 to 700	0.2	0.3
	7000 to 1000	0.2	0.4
J IEC 584 (-270 to 1200 °C)	-210 to -100	0.3	0.3
	-100 to 1200	0.3	0.4
T IEC 584 (-270 to 400 °C)	-250 to -200	0.8	0.9
	-200 to 0	0.4	0.4
	0 to 400	0.2	0.2
C ASTM E988 (0 to 2315 °C)	0 to 1000	0.5	0.5
	1000 to 1800	0.7	0.9
	1800 to 2315	1.0	1.4
D ASTM E988 (0 to 2320 °C)	0 to 100	0.5	0.5
	100 to 1100	0.4	0.5
	1100 to 2000	0.6	0.9
	2000 to 2320	0.9	1.3
G ASTM E1751 (0 to 2315 °C)	0 to 200	2.4	2.4
	200 to 400	0.5	0.5
	400 to 1400	0.4	0.5
	1400 to 2315	0.7	1.0
L DIN 43710 (-200 to 900 °C)	-200 to -100	0.2	0.3
	-100 to 400	0.2	0.2
	400 to 900	0.2	0.3
U DIN 43710 (-200 to 600 °C)	-200 to 0	0.4	0.4
	0 to 600	0.2	0.3

Internal cold junction accuracy ± 0.2 °C.

RTD Simulation and Measurement

Type	Range (°C)	Accuracy (°C) Measure 2W/3W	Accuracy (°C) Measure 4W	Accuracy (°C) Simulate
Pt10 (385) IEC 751 (-200 to 850 °C)	-200 to 200	0.65	0.60	0.65
	200 to 600	0.82	0.72	0.82
	600 to 850	0.96	0.82	0.96
Pt100 (385) IEC 751 (-200 to 850 °C)	-200 to 200	0.15	0.1	0.15
	200 to 600	0.26	0.16	0.26
	600 to 850	0.34	0.20	0.34
Pt100 (3916) JIS 1604 (-200 to 850 °C)	-200 to 200	0.15	0.1	0.15
	200 to 600	0.26	0.16	0.26
	600 to 850	0.33	0.20	0.33
Pt200 (385) IEC 751 (-200 to 850 °C)	-200 to 200	0.37	0.32	0.69
	200 to 600	0.51	0.41	0.92
	600 to 850	0.61	0.48	1.08
Pt500 (385) IEC 751 (-200 to 850 °C)	-200 to 200	0.20	0.16	0.36
	200 to 600	0.32	0.22	0.54
	600 to 850	0.40	0.27	0.67
Pt1000 (385) IEC 751 (-200 to 850 °C)	-200 to 200	0.1	0.05	0.25
	200 to 600	0.2	0.10	0.42
	600 to 850	0.27	0.14	0.54
Cu10 (427) Minco Application Aid #18 (-100 to 260 °C)	-100 to 260	0.61	0.56	0.61
Cu50 (428) GOST 6651-94 (-50 to 150 °C)	-50 to 150	0.17	0.13	0.17
Cu100 (428) GOST 6651-94 (-50 to 150 °C)	-50 to 150	0.12	0.09	0.12
Ni120 (672) Edison curve #7 (-100 to 260 °C)	-100 to 260	0.07	0.05	0.07
Ni100 (618) DIN 43760 (-100 to 260 °C)	-100 to 260	0.08	0.06	0.08

8060 Specifications (continued)

Option AVM65: Integral 6.5 Digit Multimeter (included with 8060Plus version as standard)

Function	Range / Values	Best 1 Year Specification
Voltage DC	0 to 1000 V	35 ppm of rdg + 6 ppm of rng
Current DC	0 to 3 A	500 ppm of rdg + 50 ppm of rng
Voltage AC	0 to 750 V	0.06 % of rdg + 0.04 % of rng
Current AC	0 to 3 A	0.1 % of rdg + 0.04 % of rng
Resistance	0 to 100 MΩ	100 ppm of rdg + 50 ppm of rng
Frequency	3 Hz to 300 kHz	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

Control Centre Specifications and Software Options

Feature	Specification
Processor	64 bit, dual core (or equivalent).
RAM	16 GB.
Hard Drive	240 GB solid state.
Ports	Front of module: 4 x USB / Under console (LPAC section): 3 x USB, 2 x RS-232, 1 x HDMI.
Display	12.1" touch screen LCD.
Operating System	Windows 10 Pro.
Pre loaded Software Programs	8060: Manual control applications. 8060Plus: Manual control applications and EasyCal calibration software.
Keypad Module Option	CCPAD: Control Centre numeric keypad module with jog dial. For input/control of manual calibration applications and EasyCal software on the control centre.
Supplied Peripherals/Accessories	8060: USB keyboard and mouse. USB port blocker kit. 8060Plus: USB keyboard and mouse, laser printer, label printer, DVD-RW, 4 port USB hub, numeric key pad, USB memory stick, bar code reader, USB port blocker kit, back up drive.
Control Centre Operated Module Options	Pressure: 8030B, XTEG, RMTEG, MTEG modules (Pressure control apps and EasyCal software compatible). Signal analysis: CCSCOPE oscilloscopes / CC-FRQC frequency counter / CC-AFG function generators. Environmental monitoring: 8002 data logger (logging software application).
Modules with EasyCal Communication	Pressure: 8030B and 8030B-H controller / 8020B indicator / MTEG and RMTEG calibrators. Process: 7085A and 8085 temperature distribution modules / 7002, 7003 and 7004 process communicators. Electrical: 5065B and 5075B multimeters / 5030B electrical tester calibrator / 8029 electronic load.
External Products with EasyCal Communication	TEG digital pressure gauges, dry block calibrators, benchtop calibrators, multimeters, torque analysers.
EasyCal Software Add-ons and Options	9779: Job and address label printer / EC2FL/EC2WL: Additional EasyCal user licenses for separate PCs EAD: EasyAdmin add-on / CREP: Crystal Reports software

Additional and General Specifications

Functions/Options/Environmental	Specifications/Details
HART Communication	Integral communicator to support HART devices for readback and configuration.
9796 Test Lead Set Option (supplied as standard with 8060Plus version)	General purpose 4 mm test leads / 4 wire screened, 4 mm test leads / BNC test lead / BNC to 4 mm plug 4 mm test lead couplers / Low thermal 4 mm test leads & clips / 4 mm to mini thermocouple / 4 mm to spade adaptors Thermocouple male to male CU / Pair of 4 mm test clips / Wall mount/perfo panel lead holder / Carry case
Warm up	30 minutes to full accuracy.
Settling Time	Less than 5 seconds.
Temperature Performance	Operating: 5 to 45 °C. Full Spec: 22 °C ± 3 °C. Storage: -10 °C to 50 °C
Operating Humidity/Altitude	< 80 % non condensing. Altitude: 0 to 3 km. Non operating: 3 km to 12 km.
Line Power	100 to 230 V AC 50/60 Hz. 200 W maximum.
Dimensions	W 410 mm (492 mm with CCPAD option), H 201 mm (primary or secondary console fitting).

Due to continuous development Time Electronics reserves the right to change specifications without prior notice.

EasyCal Software on the 8060 - 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 control and communicate with modules and test instruments used on the CalBench. User friendly features and controls aid the calibration process to decrease testing times. EasyCal can also read back values and data from compatible pressure, process and electrical modules, 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.
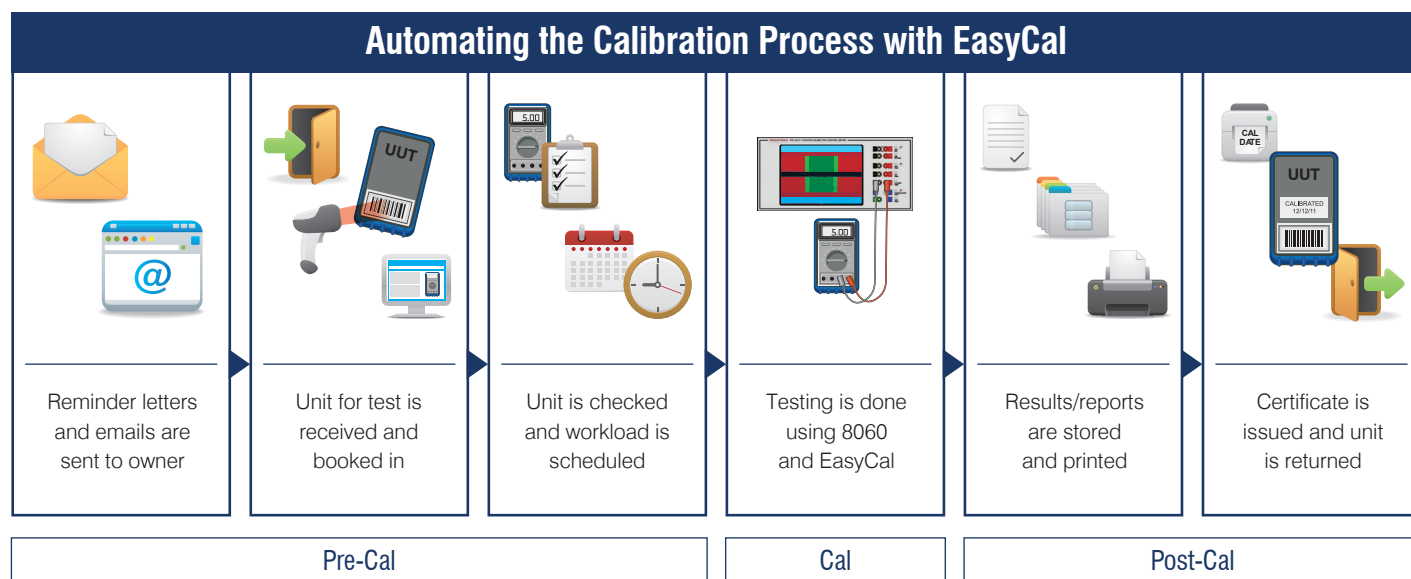
EasyCal is also designed for universal testing applications and can cover a wide range of disciplines. Users can calibrate and verify various instruments and devices: electrical and electronic; level, pressure, and flow; temperature and loop; mechanical and dimensional.

Features

- Pre-loaded on the 8060 control centre when ordered
- Supplied as standard with 8060Plus package
- Communicate with compatible CalBench modules
- Control dry block calibrators, pressure gauges, and more
- Automated planning and scheduling
- Print/email/store certificates and reports
- Network compatible
- Produce calibration labels
- Quickly generate procedures using templates and wizards
- 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
- HART communication application, optional Foundation Fieldbus
- Secure user log in and electronic signatures
- Create uncertainty tables for laboratory and site

EasyCal Software on the 8060

Automating the Calibration Process with EasyCal

| Reminder letters and emails are sent to owner | Unit for test is received and booked in | Unit is checked and workload is scheduled | Testing is done using 8060 and EasyCal | Results/reports are stored and printed | Certificate is issued and unit is returned |

| Pre-Cal | Cal | Post-Cal |

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 organization 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

Produce traceable calibration certificates and test reports for quality standards. These can be printed, stored, or emailed as PDFs. EasyCal has a selection of pre-formatted 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