How Altia helped Fluke win market leadership in process calibrators.

The Fluke 701 process calibrator: its customer focused design and ease-of-use helped propel it to the top of the market in just 18 months.

Fluke, a manufacturer of high-quality products for nearly 50 years, is a multi-million dollar company in the instrumentation market. The company is highly regarded as a manufacturer of handheld instrumentation for technicians testing electronics in the field. Fluke's traditional product design process included making a mock-up of an instrument and then, in conjunction with the industrial design department, matching up the functionality of the product with its look and feel. The process was expensive, time consuming, and inflexible.

"The use of Altia Design shortens the cycle, gets the customer involved earlier, and produces a final product that delights the customer."

Rick Pirret,
Fluke Project Manager

In the company's undertaking to develop its first process calibrator, Fluke sought a prototyping tool for the human interface design that was easy to use and could implement design changes in real time. Using Altia Design, Fluke was able to prototype the features of the product for a sample of potential customers, obtain design feedback, and restructure the instrument for optimum usability. As a result, the company moved from a zero-percent position to a leader in the process calibrator market within 18 months.

ALTIA
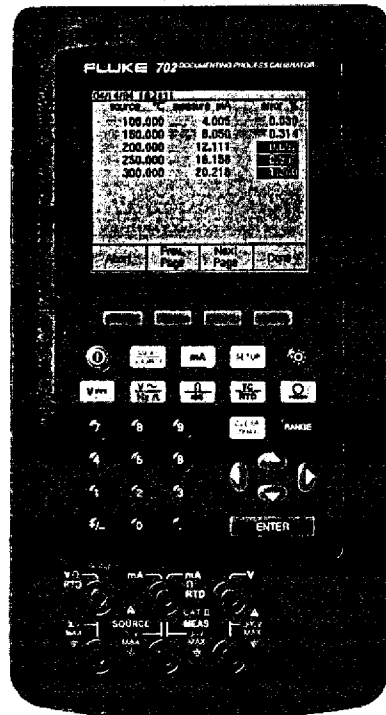
Fluke 702

The Fluke 701 and 702 are easy-to-use field calibrators designed specifically for use on control instrumentation in process plants. Rugged packaging allows the calibrators to perform dependably despite rough handling and hostile plant environments, while automatic documentation capabilities save time and ensure accurate results. Because the 701/702 are multipurpose tools, you can use them for troubleshooting and maintenance as well as calibration.

- One light, compact, rugged tool replaces several other calibrators
- Calibrate temperature, pressure, voltage, current, resistance, and frequency
- Simultaneously measure and source
- Automatically capture calibration results
- Document procedures and results to meet ISO 9000, EPA, FDA, OSHA and other requirements
- Measure/simulate eleven types of thermocouples and eight RTDs
- Store up to 8,000 readings in data logging mode (702 only)
- Operate at temperatures from -10°C to 50°C
- Protected against dirt, dust, and moisture; unaffected by vibration
- PC interface available (702 only)
- Easy-to-read graphical LCD; on-screen information available in English, French, German, Italian, and Spanish
- One- and two-year calibration cycles
- Three-year warranty (one year for pressure modules)

Easy to Use
The 701/702 calibrators feature a simple front panel, with an easy-to-read graphical LCD and handy grouping of dedicated keys. The user interface is the same for all functions, minimizing training time. Learning time is further reduced by the simple menu structure, use of operator prompts, and built-in, pre-programmed procedures.

701: A Complete Documenting Calibrator
The 701 is the economical choice for plants that don't use PCs or require traditional paper forms. It has enough storage capacity to hold more than a day's calibration and measurement data. When you're back at the shop, you can recall the data on screen to fill out calibration forms.

702: More Memory, Plus a PC Interface
The 702 has all the capabilities of the 701 plus a PC interface that lets you load procedures, lists, and instructions created with DPC/TRACK software - o unload data for printing, archiving, and analysis. With its expanded memory, the 702 can hold a full week of calibrations and procedures. The 702 also offers improved accuracy compared to the 701.

DPC/TRACK Software for Instrumentation Management
Manage your instruments and your calibration data with this easy-to use instrumentation management database. Create calibration procedures, lists, and instructions on your PC and load them to the 702. Unload your calibration data back to your PC. Print reports or export data in standard ASCII format.

The 702 is also supported by popular instrumentation management software to our Cornerstone, Honeywell Loveland, Sand Cove, and others.

Pressure Modules
An optional set of external pressure modules provides pressure calibration and measurement capabilities. Twenty-one modules are compatible with the 701 and 702, with total uncertainty specs to 0.05%. Ranges start at 0-10" H₂O (0-2.5 kPa) and go to 0-10,000 psi (0-70,000 kPa).

General Specifications

Size: 130 x 236 x 61 mm (5.1 x 9.3 x 2.4 in)
Weight: 1.4 kg (3 lb 1 oz)
Internal Battery Pack: NiCd, 7.2V, 1700 mAh
Battery Life: Typically over eight hours
Battery Replacement: Via snap-shut door without opening calibrator; no tools required

Ordering Information

Models

Fluke 701 Documenting Process Calibrator
Fluke 702 Documenting Process Calibrator
Fluke-700SW DPC/TRACK Software

Included with Instrument

Every Fluke 701 and 702 comes with two sets of TL24 industrial test leads, two sets of AC20 test clips, one set of TP20 test probes, a BP7217 battery pack, a BC7210 battery charger, and an instruction manual.

DPC/TRACK software includes software disks, an instruction manual, a serial port cable, and a DB9 to DB25 (9-pin to 25-pin) adapter.

Accessories

Fluke-700-Pxx Pressure Modules
Fluke-700-IV Current Shunt
Fluke-700PCK Pressure Calibration Kit
Fluke-700PMP Pressure Pump
Fluke-700TC1 Thermocouple Connector Kit
Fluke-700TC2 Thermocouple Connector Kit
C700 Hard Carrying Case
C789 Soft Carrying Case
C781 Soft Carrying Case
C75 Test Lead Case
BE9005 Battery Eliminator
BP7217 NiCd Battery Pack
BC7210 Battery Charger
80CJ-M Mini Thermocouple Connector, Type J
80CK-M Mini Thermocouple Connector, Type K
80PK-1 Type K Bead Thermocouple Probe
80PK-2A Type K Immersion Probe
80PK-3A Type K Surface Probe
80PK-IR Infrared Temperature Probe
80T-IR Infrared Temperature Probe
80T-150U Universal Temperature Module
80I-500s Clamp-on AC Current Probe
80I-1000s Clamp-on AC Current Probe
I-410 Clamp-on AC/DC Current Probe
I-1010 Clamp-on AC/DC Current Probe

Visit Fluke on the world wide web at:
http://www.fluke.com

Summary Accuracy Specifications (Model 702 for 1 Year)

	Measure		Source	
Range (full scale)	Accuracy (% of reading ± % of full scale)		Range (full scale)	Accuracy (% of reading ± % of full scale)
110.000 mV dc	0.025% + 0.015%		110.000 mV	0.01% + 0.005%
1.10000V dc	0.025% + 0.005%		1.10000V	0.01% + 0.005%
11.0000V dc	0.025% + 0.005%		11.0000V	0.01% + 0.005%
110.000V dc	0.05% + 0.005%			
300.00V dc	0.05% + 0.005%			
Vac, 20 to 40 Hz	2% + 10 counts			
Vac, 40 to 500 Hz	0.5% + 5			
Vac, 500 to 1 kHz	2% + 10			
Vac, 1kHz to 5 kHz	10% + 20			
30.000 mA dc	0.025% + 0.025%		Source 22.000 mA	0.01% + 0.04%
110.00 mA dc	0.05% + 0.05%		Simulate 22.000 mA	0.25% + .05%
11.000Ω	0.05% + 50 mΩ		11.000Ω	0.01% + 20 mΩ
110.00Ω	0.05% + 50 mΩ		110.00 Ω	0.01% + 40 mΩ
1.1000 kΩ	0.05% + 0.5Ω		1.1000 kΩ	0.02% + 0.5Ω
11.000 kΩ	0.1% + 10Ω		11.000 kΩ	0.03% + 5Ω
1.00 to 109.99 Hz	0.05 Hz		2.00 to 109.99 Hz	0.01 Hz
110.0 to 1099.9 Hz	0.5 Hz		110 to 1099 Hz	1 Hz
1.100 to 10.999 kHz	5 kHz		1.1 to 10.9 Hz	0.1 kHz
11.00 to 50.00 kHz	50 kHz		11 to 50 kHz	2 kHz

Temperature, RTDs and Thermocouples

Device	Measure Accuracy	Source Accuracy
10Ω Cu(427)	2°C	1°C
100Ω Pt(3916)	0.3°C	0.1°C
100Ω Pt(3926)	0.3°C	0.1°C
100Ω Pt(385)	0.3°C	0.1°C
200Ω Pt(385)	0.3°C	0.1°C
500Ω Pt(385)	0.3°C	0.1°C
1000Ω Pt(385)	0.3°C	0.1°C
120Ω Ni(672)	0.3°C	0.1°C
E	0.3°C	0.2°C
N	0.5°C	0.3°C
J	0.3°C	0.2°C
L	0.3°C	0.2°C
K	0.3°C	0.3°C
T	0.3°C	0.3°C
U	0.3°C	0.3°C
B	0.9°C	0.8°C
R	1.0°C	0.9°C
S	0.9°C	0.9°C
C	0.6°C	0.6°C

Resolution: 0.1°C, except 1°C for 10Ω Cu. Best case, mid-range accuracies. Sensor inaccuracies not included. For 2-wire and 3-wire RTD measurements, add 0.4°C. Thermocouple accuracies with external cold junction; for internal junction add 0.2°C.

Data Log	Measure V, mA, ohms, frequency, temperature, pressure
	1 to 60 readings per minute, 8000 readings max
Ramp	Source V, mA, Ω, frequency, temperature
	4 steps/second; trip detect on continuity or voltage
Loop Power	Selectable, 24V or 28V; 22 mA max
Environmental	701/702 specifications apply from +18°C to +28°C
	Operating Temperature, −10°C to 50°C (Typical specs to −20°C)
	Storage Temperature, −20°C to 60°C
	Pressure modules are totally compensated and specs apply 0° to 50°C
	Enclosure designed to meet IEC 529 IP52 (normal operating vacuum for dust)

1997/8 Catalog

Section 10