Fluke 744 Documenting Process Calibrator-HART Features

Whether you are calibrating instruments, troubleshooting a problem ,or running planned maintenance, the multifunction Fluke 744 Documenting Process Calibrator helps get the job done faster. It does so many different tasks, so quickly and so well, that it's the only process calibrator you need to carry.

- Versatile HART Protocol support
- HART Transmitter Calibration Application Note
- HART Operating Modes Supported
- Software
- Pressure Modules
- Automated Procedures
- Custom Units
- User-entered Values
- Limit Switch Calibration
- Differential Pressure Flow Instrument Calibration
- Additional Features

Versatile HART Protocol support

The 744 supports the commands contained in HART protocol Version 5.7. With 2 MB of memory, the 744 supports a substantial set of HART instructions:

- Universal commands provide functions that are implemented in all field devices, for example, read manufacturer and device type, read primary variable (PV), or read current output and percent of span.

- Common practice commands provide functions that are common to many but not all field devices, for example read multiple variables, set damping time, or perform loop test.
- Device-specific commands provide functions that are unique to a particular field device, for example sensor trim.

744 HART Version 2.0 Supports these Devices:

Manufacturer	Pressure Instruments	Temperature Instruments
ABB / Kent-Taylor	600T	658T[1]
ABB / Hartmann & Braun	Contrans P[1] AS 800 Series	
Endress & Hauser	CERABAR S DELTABAR S	
Foxboro Eckardt		TI / RTT20[1]
Foxboro	I/A Pressure	
Honeywell	ST3000	
Moore Products		344[1]
Rosemount	1151 2088 3001C 3051	3044C 644 3144
Siemens	SITRANS P DS SITRANS P ES	
SMAR	LD301	TT301[1]
Yokogawa	EJA	YTA 110 310

Revised November 10, 2000 [1]*Sensor Trim not supported.*

HART Transmitter Calibration Application Note

Revised November, 2000, this document covers the subjects on this page in greater detail. Because it has 16 pages, it may take time to open. Read the Application Note. (Adobe Acrobat format, 1.35MB)

HART Operating Modes Supported

- Point to Point operation , the most commonly used mode, connects the 744 to a single HART device in a 4-20 mA loop.
- In Multi-Drop mode , several HART instruments can be

bussed together. The 744 searches for each, identifies addresses in use, and allows you to select the instrument for calibration and related operations.

- In Burst Mode, the HART instrument transmits bursts of data without waiting to be interrogated by a master unit. The 744 can take transmitters out of burst mode during test or calibration, then later restore them to burst mode.

Software

744 Documenting Process Calibrator Software Upgrade V 2.0

New

The Fluke 744 Version 2.0 software upgrade includes:

- Device-specific calibration support for newer revisions of presently supported instruments: Honeywell ST3000 Rev 2, Rosemount 1151 Rev 6, Rosemount 3144 Rev 2, Rosemount 644 Rev 4, and Yokogawa EJA Rev 2
- Device-specific calibration support for additional instruments: Foxboro IAP/IDP/IGP Rev 1, SMAR LD301 Rev 3, Foxboro RTT20/Eckardt TI20 Rev 1, Yokogawa YTA 110 and 310 Rev 1, and ABB/Hartmann & Braun Contrans P (AS 800 series)
- New HART capability for supported transmitters: Change HART Temperature Sensor Configuration (e.g. TC to RTD) and Change HART Temperature Sensor Wire Configuration (e.g. 2-wire to 4-wire)
- Additional information about the software upgrade.

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 download them to the 744.
- Upload your calibration data back to your PC.
- Print reports or export data in standard ASCII format.
- Additional information about the Fluke DPC/TRACK.

Other Software Packages for Instrumentation Management

The scheduling of calibrations, creation of procedures and documentation of your calibration results can also be facilitated by a number of other instrumentation management software packages:

- Beamex QM6 Quality Manager Calibration Software
- Cornerstone Cal Station and Base Station
- Honeywell Loveland DocuMint
- Fisher Rosemount Asset Management Solutions
- Blue Mountain Quality Resources

Pressure Modules

Covers virtually any pressure application including gage, differential, dual (compound), absolute, and vacuum.

- Display pressure readings in any of 10 different pressure units you

specify in the calibrator setup.

- Rugged urethane molded cases protect the modules from rough handling and harsh conditions.
- Features internal temperature compensation from 0º to 50º C for full accuracy performance.
- Includes NIST-traceable calibration certificate.
- Modules can be calibrated locally, helping to control costs.

A family of 28 optional pressure modules provides pressure calibration and measurement capabilities. Twenty-eight modules are available, with basic accuracy specs to 0.05%. Ranges start at 0 — 10 in H_20 (0 — 2.5kPa) and go to 0 — 10,000 psi (0 — 70,000 kPa). Additional information about pressure modules is available on the Pressure Modules Home Page.

Automated Procedures

Allow you to quickly set up powerful, automated calibration procedures for linear transmitters, DP flow transmitters, and one- and two-point limit switches. Simply select the appropriate measure and/or source functions and fill out the procedure template. The 740 Series does the rest. It quickly performs the test, calculates the errors, and displays the final results, highlighting out of tolerance points.

Custom Units

Enable you to map one unit to another, such as mV to ºC or ºF. Allows you to use the Fluke 740 Series with millivolt output accessories such as the Fluke 80T-IR Temperature Probe, and to document tests using non-supported units such as parts per million or revolutions per minute.

User-entered Values

Enables technicians to record calibration results that were sourced and/or measured by other devices such as panel meters or readout-only devices.

Limit Switch Calibration

Procedures perform fast, automated calibration of one and two-point limit switches for voltage, current, temperature, and pressure.

Differential Pressure Flow Instrument Calibration

Routines use a square root function to directly calibrate DP flow instruments.

Additional Features

Multifunctional

Calibrate temperature, pressure, voltage, current, resistance, and frequency. Since it both measures and sources, you can troubleshoot and calibrate all with one rugged tool.

Powerful, yet easy to use

The easy-to-follow menu-driven display guides you through any task. Get up to speed in minutes, not days. Programmable calibration routines enable you to create and run automated as-found/as-left procedures to ensure fast, consistent, calibrations.

Records and documents results

To support your ISO-9000 or regulatory standards the Fluke 744

captures your calibration results, eliminating the need to juggle a pen and pad in the field. The RS-232 interface lets you transfer the results to a PC, thus saving the time of having to manually transcribe them when you return to the shop.

Truly hand-held

Small enough to fit easily into a tool bag and to use in tight spaces. Runs an entire shift on a rechargeable NiCd battery pack.

Rugged and reliable

Count on Fluke's rugged design to deliver top accuracy and reliability in harsh environments. Overmolded urethane case stands up to rough handling in industrial environments.

Bright white display

Lets you read your results in any kind of light.

Soft keys

Provide one-touch access to enhanced functions such as task lists, automated procedures, scaling, min/max, stepping and ramping, and review memory.

Three operating modes

Measure, Source, or simultaneous Measure/Source, - enable technicians to troubleshoot, calibrate, or maintain instrumentation with just one tool.

Multi-lingual interface

Displays instructions in English, French, German, Spanish, and Italian.

Built-in algebraic calculator

With four functions-plus square root-stores, recalls, and performs calculations required for setting up instruments or evaluating data in the field. Use it to set the source function to a calculated value. There's no need to carry a pencil and paper or a separate calculator.

Programmable measurement delay

Inside automated procedures permits calibrating instruments that respond slowly.