FLUKE®

753/754

Documenting Process Calibrator

Getting Started

PN 3377694
July 2011 Rev. 2, 7/23

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This Fluke product will be free from defects in material and workmanship for three years from the date of purchase. This warranty does not cover fuses, disposable batteries, or damage from accident, neglect, misuse, alteration, contamination, or abnormal conditions of operation or handling. Resellers are not authorized to extend any other warranty on Fluke's behalf. To obtain service during the warranty period, contact your nearest Fluke authorized service center to obtain return authorization information, then send the product to that Service Center with a description of the problem.

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Introduction

The 753 and 754 Documenting Process Calibrators (the Product) are battery-powered, hand-held instruments that measure and source electrical and physical parameters. In addition, the 754 supplies basic HART® communicator functions when used with HART-capable transmitters. See the *754 HART Mode Users Guide* for instructions on how to use the HART communication feature.

The Product helps troubleshoot, calibrate, verify, and document work performed on process instruments.

Note

All figures in this manual show the 754.

How to Contact Fluke

Fluke Corporation operates worldwide. For local contact information, go to our website: www.fluke.com

To register your product, view, print, or download the latest manual or manual supplement, go to our website.

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The latest software trial version of *DPCTrack2* can be downloaded at www.fluke.com/DPCTrack. For more information see *Communication with a PC* in the Users Manual.

753/754 Accessories can be found at www.fluke.com/process_acc.

Safety Information

⚠⚠ Warning

To prevent personal injury, use the Product only as specified, or the protection supplied by the Product can be compromised.

To prevent possible electrical shock, fire, or personal injury:

- **Read all safety Information before you use the Product.**
- **Carefully read all instructions.**
- **Use only correct measurement category (CAT), voltage, and amperage rated probes, test leads, and adapters for the measurement.**
- **The battery must be locked in place before you operate the Product.**
- **Recharge the battery when the low battery indicator shows to prevent incorrect measurements.**
- **Do not apply more than the rated voltage, between the terminals or between each terminal and earth ground.**
- **Limit operation to the specified measurement category, voltage, or amperage ratings.**
- **Do not exceed the Measurement Category (CAT) rating of the lowest rated individual component of a Product, probe, or accessory.**
- **Measure a known voltage first to make sure that the Product operates correctly.**
- **Do not touch voltages > 30 V ac rms, 42 V ac peak, or 60 V dc.**
- **Do not use the Product around explosive gas, vapor, or in damp or wet environments.**
- **Do not use and disable the Product if it is damaged.**
- **Do not use the Product if it operates incorrectly.**
- **Keep fingers behind the finger guards on the probes.**
- **Remove all probes, test leads, and accessories that are not necessary for the measurement.**
- **Only use probes, test leads, and accessories that have the same measurement category, voltage, and amperage ratings as the Product.**
- **Connect the common test lead before the live test lead and remove the live test lead before the common test lead.**

- **Use only current probes, test leads, and adapters supplied with the Product.**
- **Do not touch the probes to a voltage source when the test leads are connected to the current terminals.**
- **Use only cables with correct voltage ratings.**
- **Do not use test leads if they are damaged. Examine the test leads for damaged insulation, exposed metal, or if the wear indicator shows. Check test lead continuity.**
- **Examine the case before you use the Product. Look for cracks or missing plastic. Carefully look at the insulation around the terminals.**
- **Always put the stackable end of the test lead into a terminal of the Product.**

Symbols

Symbols used on the Product and in this manual are explained in Table 1.

Table 1. Symbols

Symbol	Meaning	Symbol	Meaning
	WARNING - RISK OF DANGER.		Earth
	WARNING. HAZARDOUS VOLTAGE. Risk of electric shock.		Consult user documentation.
	Application around and removal from uninsulated hazardous live conductors is permitted.	CE	Conforms to European Union directives.
	Double insulated		Equipotential
CAT II	Measurement Category II is applicable to test and measuring circuits connected directly to utilization points (socket outlets and similar points) of the low-voltage MAINS installation.	~	AC (Alternating Current)

Table 1. Symbols (cont.)

Symbol	Meaning	Symbol	Meaning
	Pressure	Li-ion	This product contains a Lithium-ion battery. Do not mix with solid waste stream. Spent batteries should be disposed of by a qualified recycler or hazardous materials handler per local regulations. Contact your authorized Fluke Service Center for recycling information.
⎓	DC (Direct Current)		This product complies with the WEEE Directive and its marking requirements. The affixed label indicates that you must not discard this electrical/electronic product in domestic household waste. Do not dispose of this product as unsorted municipal waste. For information about take-back and recycling programs available in your country, see the Fluke website.

Before You Begin

After you unpack the Product, charge the battery for 8 hours (if the battery is outside of the Product, charge for 5 hours). For more information, see *The Battery* in the *753/754 Users Manual*. When the Battery is inside the Product, it will only charge if the Product is off.

Standard Equipment

Items included with the Product are shown in Figure 1 and Table 2.
These items are also available:

- Calibration Manual (available from the Fluke website)
- Sample *DPCTrack2* application software (available from the Fluke website)
- NIST-traceable Certificate of Calibration

Table 2. Standard Equipment

Number	Description	Number	Description
①	TP220-1 Test Probe (3 Red and 3 Black)	⑧	Adjustable quick-release strap
②	754-8016, Alligator Clip Set (3 Red and 3 Black)	⑨	753/754 Getting Started Manual
③	AC280 SureGrip™ Hook Clip Set (2 Red and 2 Black)	⑩	Battery Charger/Universal Power Supply
④	Fluke-75X-Stackable Test Lead Set (3 Red and 3 Black) or Fluke-75X-Stackable Test Lead Set (2 Red and 2 Black)	⑪	Lithium Ion Battery Pack
⑤	TC Cap	⑫	USB Cable: 6 ft. type A to type mini-B
⑥	Fluke TL224 Industrial Test Lead Set (1 Red and Black)	⑬	HART Communication Cable (754)
⑦	Jumper for three-wire RTD measurement connections		

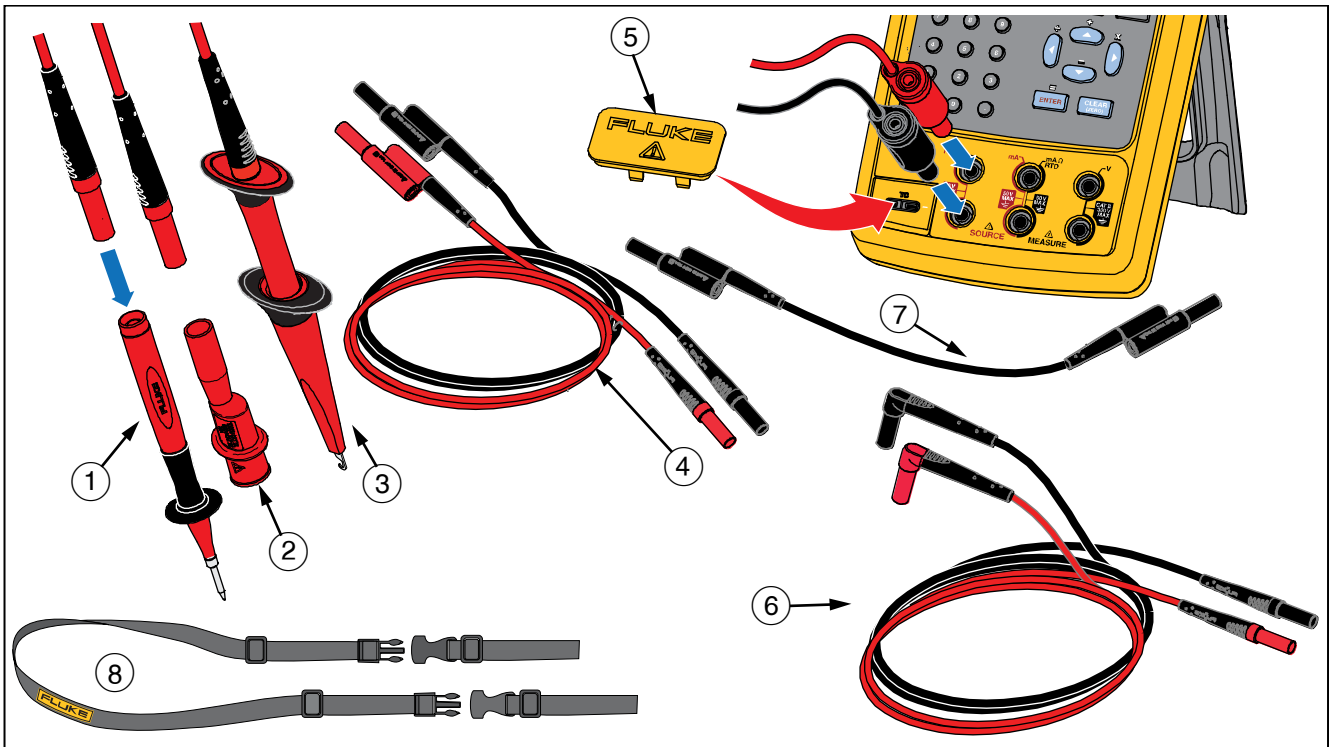

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Figure 1. Standard Equipment

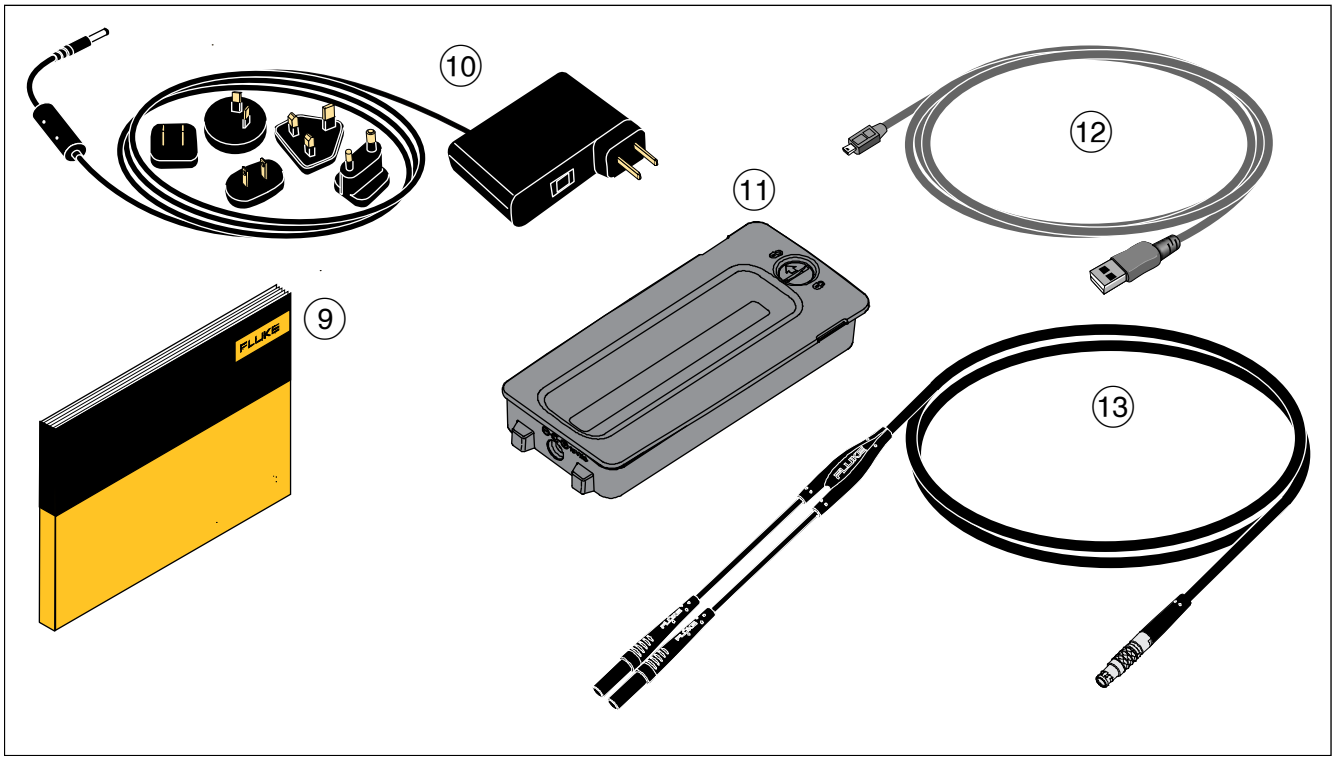

Figure 1. Standard Equipment (cont.)

Operation Features

Input and Output Jacks

Figure 2 shows the input and output jacks and connectors. Table 3 explains their use.

Table 3. Input/Output Jacks and Connectors

No.	Name	Description
①	HART jack (754 only)	Connects the Product to HART devices.
②	Pressure module connector	Connects the Product to a pressure module.
③	TC input/output	Jack to measure or simulate thermocouples. This jack accepts a miniature polarized thermocouple plug with flat, in-line blades spaced 7.9 mm (0.312 in) center to center.
④,⑤	⚠MEASURE V jacks	Input jacks to measure voltage, frequency, or three- or four-wire RTDs (Resistance Temperature Detectors).
⑥,⑦	⚠SOURCE mA, MEASURE mA Ω RTD jacks	Jacks to source or measure current, measure resistance and RTDs, and supply loop power.
⑧,⑨	⚠SOURCE V Ω RTD jacks	Output jacks to source voltage, resistance, frequency, and to simulate RTDs.
⑩	Battery Charger jack	Jack for the battery charger/universal power supply (referred to as the battery charger throughout this manual). Use the battery charger for bench-top applications where ac line power is available.
⑪	USB port (Type 2)	Connects the Product to a USB port on a PC.

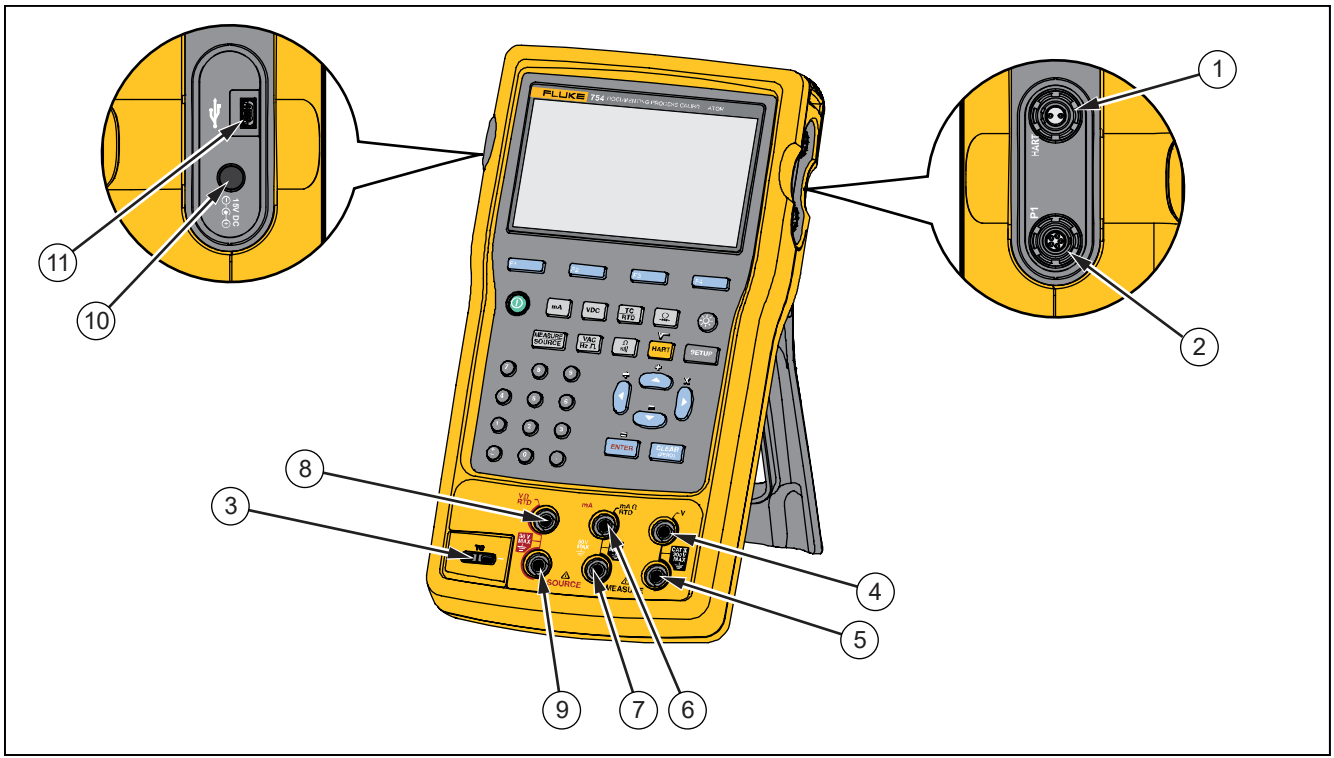

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Figure 2. Input/Output Jacks and Connectors

Buttons

Table 4 tells you about the Product button functions. The softkeys are the four (F1-F4) blue buttons below the display. Softkey functions are defined by the labels that show above the softkey during operation. Softkey labels and other display text are shown in this manual in bold type, for example, **Choices**.

Table 4. Buttons

Button	Description
⏻	Turns the Product on and off.
mA	Selects mA (current) measure or source function. For loop power on/off, go to the Setup mode.
VDC	Selects the dc voltage function in MEASURE mode, or selects dc voltage in SOURCE mode.
TC / RTD	Selects TC (thermocouple) or RTD (resistance temperature detector) measurement or sourcing functions.
	Selects the pressure measurement or source function.
F1 F2 F3 F4	Softkeys. Does the function specified by the label above each softkey on the display.
☼	Adjusts the backlight intensity (three levels).
SETUP	Enters and exits Setup mode to change operating parameters.
HART (754) RANGE (753)	(754) Toggles between HART communication mode and analog operation. In calculator mode, this key supplies the square root function. (753) Adjusts the Range of the Product.

Table 4. Buttons (cont.)

Button	Description	
⑩	▲, ▼, ◀, ▶	Push ▲ or ▶ to increase display intensity. Push ▼ or ◀ to decrease intensity (seven levels). Make choices from lists on the display. Increase or decrease the source level when using the step feature. In calculator mode, provides arithmetic functions (+ - ÷ ×).
⑪	CLEAR (ZERO)	Clears a partial data entry, or prompts for output value when in the SOURCE mode. When you use a pressure module, zeros the pressure module indication.
⑫	ENTER	Completes a numeric entry when a source value is set, or confirms a choice in a list. In calculator mode, acts as the equals arithmetic operator (=).
⑬	Ω	Toggles between resistance and continuity functions in MEASURE mode, or selects the resistance function in SOURCE mode.
⑭	VAC Hz ⎍	Toggles between ac voltage and frequency functions in MEASURE mode, or selects frequency output in SOURCE mode.
⑮	Numeric keypad	Used when a numeric entry is necessary.
⑯	MEASURE SOURCE	Cycles the Product through MEASURE, SOURCE, and MEASURE/SOURCE modes.

The Battery

Figure 3 shows how to change and recharge the Battery. The Battery can be charged inside or outside of the Product with the Battery Charger.

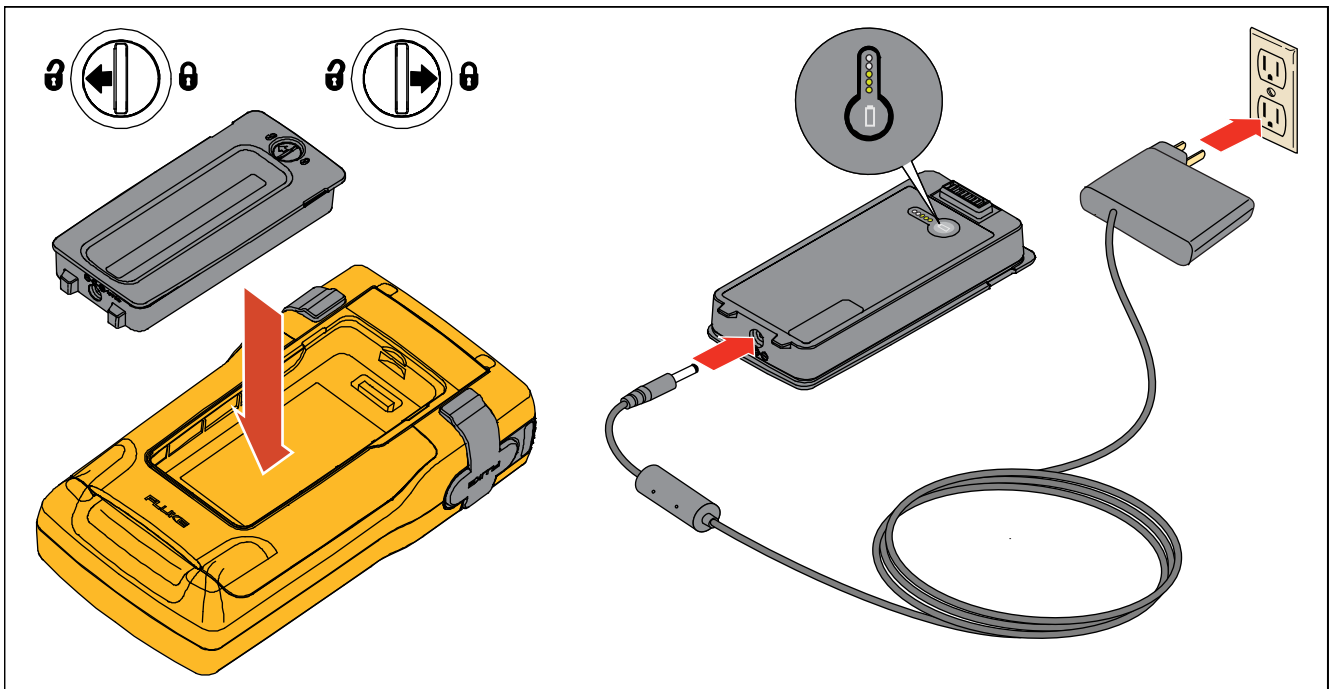

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Figure 3. Battery Removal and Charger Use

Display Languages

The Product shows information in five languages:

- English
- European French
- Italian
- German
- Spanish

To change the display language:

1. Push SETUP.
2. Push F3 twice.
3. Push ▼ three times.
4. Push ENTER.
5. Push ▲ or ▼ to highlight the language choice.
6. Push ENTER to confirm the language choice. This language is the power-up default.
7. Push SETUP to exit Setup mode.

Safety Specifications

Complete specifications are at www.fluke.com. See the 753/754 Product Specifications.

To achieve the best noise rejection, use battery power.

Safety

General ..... IEC 61010-1: Pollution degree 2

Measurement ..... IEC 61010-30: CAT II 300 V

Power ..... Internal battery pack: Lithium Ion, 7.2 V dc, 30 Wh
External Power Supply: 15 Vdc, 2 A

Operating Altitude ..... 3000 m (9842 ft)

Storage Altitude ..... 13000 m (42650 ft)

Operating Temperature ..... -10 to 50 °C

Storage Temperature ..... -20 to 60 °C

Relative Humidity (Maximum, non-condensing) ..... 90 % to 35 °C

75 % to 40 °C

45 % to 50 °C

Intrusion Protection ..... IEC 60529: IP52 non-operating

Maximum Voltage Between any Terminal and Earth Ground ..... 300 V

Electromagnetic Compatibility (EMC)

International ..... IEC 61326-1: Basic Electromagnetic Environment

CISPR 11: Group 1, Class A

Group 1: Equipment has intentionally generated and/or uses conductively-coupled radio frequency energy that is necessary for the internal function of the equipment itself.

Class A: Equipment is suitable for use in all establishments other than domestic and those directly connected to a low-voltage power supply network that supplies buildings used for domestic purposes. There may be potential difficulties in ensuring electromagnetic compatibility in other environments due to conducted and radiated disturbances.

Caution: This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.

Emissions that exceed the levels required by CISPR 11 can occur when the equipment is connected to a test object.

Korea (KCC)..... Class A Equipment (Industrial Broadcasting & Communication Equipment)

Class A: Equipment meets requirements for industrial electromagnetic wave equipment and the seller or user should take notice of it. This equipment is intended for use in business environments and not to be used in homes.

USA (FCC) 47 CFR 15 subpart B. This product is considered an exempt device per clause 15.103