Instrument Security Procedures

Model:

Fluke 279 FC

Product Name:

True-rms Thermal Multimeter

Instrument Description:

Handheld Multimeter with IR Camera

Memory Description

Multimeter:

1. U6, MICROCONTROLLER, TI, MSP430F5435A, 16 bit microcontroller with 129 Kbytes flash and 64 Kbytes RAM. The flash is nonvolatile memory containing operating code for the product. This memory also stores the following: calibration data and default switch function setting. The RAM is volatile memory that is used for program volatile variables and stack. The results of the MIN MAX AVG function are also temporarily stored in RAM.
2. U9000, MICROCONTROLLER, TI, AM3352BZCZD30, 32 BIT MICROPROCESSOR with 32 Kbytes L1 instruction cache, 32 Kbytes, data cache, 256 Kbytes of L2 cache, 176 Kbytes of boot ROM, 64 Kbytes of RAM, 64 Kbytes of L3 ram.
3. U9001, FLASH, EMMC04G-W100, 3 Gbit. This flash is non-volatile memory containing embedded code for the product. This memory also stores the following: user UI settings and IR camera images.
4. U9002, SDRAM, DDR3, MT41K64M16TW, 1 Gbit, volatile memory. The product's embedded code is loaded into this memory at power on time.

Bluetooth Low Energy Radio Module:

1. U1, MICROCONTROLLER, TI, CC2541F256, 8 bit microcontroller with 256 Kbytes flash and 8 Kbytes RAM. The flash is nonvolatile memory containing operating code for the product. The RAM is volatile memory that is used for program volatile variables and stack.

Thermal Camera (includes LWIR Sensor with USB output, 32k Pixel or 8k Pixel):

1. U2 MICROCONTROLLER – NXP LPC4330FET100 – 32-bit ARM Cortex-M4 MCU and ARM Cortex-M0 coprocessor
    a. 264 kB SRAM (RAM1: 128 KB, RAM2: 72 KB, and RAM4: 64 KB) for code and data
    b. 64 kB ROM containing boot code and on-chip software drivers
    c. 3x 128 bits One-Time Programmable (OTP) memory

SRAM(a) is volatile RAM loaded with run time code at boot from the U5 serial flash. It is also used as scratch pad for video calibration, processing and output during operation. RAM access to allocated registers is available by the USB port for read/write on individual bases. ROM(b) contains boot code and drivers in non-volatile memory and is not accessible to users. OTP(c) is used for control, boot and user specific data.

2. U5 SERIAL FLASH – Spansion, S25FL032P0XNFI011 – 32-Mbit 3.0V Flash Memory

   This flash is non-volatile memory containing embedded code for the product. This memory also stores sensor information including chip ID and calibration data, default or user specified settings.

   Factory only accessible data include: Bootloader, Run-time Code Image Select, Factory Settings, User Settings, and Run-time Code Images (there are 3 code images, 2 ping-pong and 1 factory default). A special key is required to read/write these pages.

   User accessible data include: All other pages.

3. U3 THERMAL SENSOR – Seek Thermal, TSI206 – Thermal Sensor, 206x156 Resolution, LWIR VOx Microbolometer Sensor, with SPI readout.

   This sensor includes a one-time programmable chip ID of size 48 bits. It is burnt at the factory and is read through the video bus only.

Memory Cleaning Instructions:

The user-controlled storage operation (other than calibration constants) consists of the following along with method of cleaning:

1. Device Name – Enter an empty string with Fluke Connect phone application.
2. Images – Delete using the front panel SETUP screens, or the Fluke Connect phone application, or with the Smart View Windows PC application.
3. User UI settings – Set using the front panel SETUP screens.
4. MIN MAX AVG values are cleared when the function switch is changed and also when the unit is powered off.