FPXI$_X$/FPVI Instrument Introduction

High-Voltage, High-Current Floating Programmable Power Supply

Automotive

Consumer

Power Management

IoT/IoV & Optoelectronics

Industrial & Medical

MCU

Mobility

Course Description

This eLearning material introduces the student to the Floating Power V/I Source (FPVIx) instrument. The training will provide the student with an overview of the instrument, the theory of operation, accessing help, and some simple test examples. On completion of the course, the student will be able to describe the components of the FPVIx, understand the theory of operation, be able to access the help documentation, add the instrument resources to a program, and be able to describe programming statements used in simple test examples. This is accomplished by a combination of multimedia presentations and interactive software demonstrations.

Course Outline

- FPVI$_X$ Product Overview
- Functional Blocks and Theory of Operation
- Programming – Test Examples
- Calibration
- Using the Unison Help System
- FPVI Product Overview

Course Length

- Self-paced – 2-3 hours typical depending on skill level

Prerequisites

- Six months test program experience
- Successful completion of the Unison Applications Programming class

Recommended

- C or C++ programming
- Familiarity with Linux Operating System
- English - written and spoken

- **8 Digital Channels per instrument**
- **Force/measure 4-quad ±60 V / 5 A per channel**
- **4:1 SmartMux**
- **Transient detection enables monitoring for unexpected voltages or currents at DUT**

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Course Modules

1 - FPVI$_X$ Product Introduction

This module is a foundation for the later modules, providing the student with an overview of the FPVI$_X$. On completion of this module the student will be able to:

- State on which system the FPVI$_X$ can be installed
- Identify target markets the FPVI$_X$ is intended to meet
- Summarize the Operating Specifications of the FPVI$_X$
- Recognize the instrument's major feature set

2 - FPVI$_X$ Functionality and Theory of Operation

This module provides an in-depth description of the FPVI$_X$ instrument functionality. Included in this module are functional block diagrams and illustrations to illustrate the operation of the instrument. On completion of this module the student will be able to:

- Identify High Power safety issues
- List the major features of the FPVI$_X$ instrument
- Recognize where the FPVI$_X$ instrument can be installed
- Recognize the need for the Cable Interface Board (CIB) and rack-mounted power supply
- Describe Automatic and Expert Power Supply Modes
- Identify Ganging and Stacking features
- Describe Continuous and Pulsed Power Modes
- Recognize Duty Cycle Credit System
- Recognize the Smart MUX capability

3 - FPVI$_X$ Programming – Test Examples

Designed to build on the student's existing knowledge of creating a Test Program in Unison, this section of the course consists of multiple modules and introduces the student to a High Current Inductor Charge Test example. This example will be completed by the student in multiple stages using interactive software demonstrations to reinforce the programming concepts introduced. On completion of this module the student will be able to:

- Review High Power safety issues
- Add FPVI$_X$ resources to an Adapter Board Object using the Unison Package Tool
- Recognize and use various Unison VI APIs
- Recognize the Smart MUX connect / disconnect APIs
- Recognize the features and benefits of the Unison Graphical Debug Tool (GDT)
- Complete a High Current Inductor Charge Test including Unison Sequences for use with time critical AP

4 - FPVI$_X$ Calibration

During this module the student will learn the correct process for checking the performance of the instrument and performing calibration. On completion of this module the student will be able to:

- Identify the difference between system calibration and checker
- Identify checker, verification and calibration programs
- Demonstrate the use of the Unison SMC+ tool
- Describe how the system's DMM is used during calibration and verification of the FPVI$_X$ board

5 - Using the Unison Help System

In this module the student will become familiar with the structure of the help system, and how to navigate to those areas where FPVI$_X$ information can be found. On completion of the module the student will be able to:

- Launch the help system from the Operator Tool
- Navigate to the FPVI$_X$ instrument manuals
- Create a PDF of the Unison help documents
- Navigate to the application programming instructions (API) documentation
- Be able to determine which APIs apply to the FPVI$_X$

At the end of each module the student will be required to pass a test, achieving a score of 75% or more.

6 - FPVI Product Overview

This module provides a product overview of the FPVI instrument - an enhanced version of the FPVI$_X$ instrument.

- **8 Digital Channels per instrument**
- **Force/measure 4-quad ±60 V / 5 A per channel**
- **4:1 SmartMux**
- **Transient detection enables monitoring for unexpected voltages or currents at DUT**

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Who Should Attend

- Test program development and support engineers

Related Classes

- Unison 1909, or later, Application Programming

Course Viewing Requirements

To view the course, you must have:

- Browser supporting HTML5
- Audio-listening capabilities (such as a headset or speakers)
- Connection speed of at least 600 kbps

Course Cost

- Free of charge for all Cohu Semiconductor Tester Customers

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