

# Diamond<sub>x</sub> DCTM<sub>x</sub> eLearning

Precision Data Converter Test Module  
Course # 2200E



## Course Description

This eLearning material introduces the student to the Data Converter Test Module (DCTM<sub>x</sub>) 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 DCTM<sub>x</sub>, 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

- Product Introduction
- Functionality and Theory of Operation
- Programming - Test Examples
- Calibration
- Using the Unison System Help

## Course Length

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

## Prerequisites

- Six months test program experience
- Successful completion of Unison Application Programming course

## Recommended

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



Automotive



Consumer



Power Management



IoT/loV & Optoelectronics



Industrial & Medical



MCU



Mobility

- Bench-top capability in Semiconductor ATE
- 24 bit Resolution Source/Measure
- Front-end Smart Matrix
- 4 x 4:1 Output Fan Out
- 4 x 2 Alternative Inputs

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### Course Modules

#### 1 - DCTM<sub>x</sub> Product Introduction

This module is a foundation for the later modules, providing the student with an overview of the DCTM<sub>x</sub>. On completion of this module the student will be able to:

- State on which system the DCTM<sub>x</sub> can be installed
- Identify target markets the DCTM<sub>x</sub> is intended to meet
- Summarize the Operating Specifications of the DCTM<sub>x</sub>
- Recognize the instrument's major feature set

#### 2 – DCTM<sub>x</sub> Functionality and Theory of Operation

This module various block diagrams to provide an in-depth description of the DCTM<sub>x</sub> instrument functionality. On completion of this module the student will be able to:

- List the major features of the DCTM<sub>x</sub> instrument
- Recognize where the DCTM<sub>x</sub> instrument can be installed
- Describe how the instrument is controlled by the tester
- Describe the DC Source and Measure Features
- Describe the AC (Audio) Source and Measure features
- Describe the Bucking DAC / AC Null Capability
- Recognize the Smart MUX capability
- Describe using AC Meter ALT Relays with Loadboard Notch filter

#### 3 - DCTM<sub>x</sub> Programming – Test Examples

Designed to build on the student's existing knowledge of creating a Test Program in Unison, this module will introduce the student to real-world test examples including a Vref and Input Threshold test. These examples will be completed by the student using interactive software demonstrations to reinforce the programming concepts introduced. On completion of this module the student will be able to:

- Add DCTM<sub>x</sub> resources to an Adapter Board Object using the Unison Package Tool.
- Recognize and use various Unison DSP APIs

- Recognize the Smart MUX connect / disconnect APIs
- List the preferred DC Source Signal API statement order
- List the preferred DC Measure API statement order
- Complete a Vref test for a voltage reference chip
- Complete a Input Threshold Test for a voltage ref chip

#### 4 - DCTM<sub>x</sub> 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 HP3458 DMM is used during calibration and verification of the DCTM<sub>x</sub> board

#### 5 - Using the Unison System Help

Unison provides an extensive 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 DCTM<sub>x</sub> 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 DCTM<sub>x</sub> 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 DCTM<sub>x</sub>

At the end of each module the student will be required to pass a test, achieving a score of 75% or more. The student is encouraged to take notes throughout the course, and repeat, or pause the presentation as needed.

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## Who Should Attend

- Test program development engineers

## Related Courses

- Unison 5.x, or later, Application Programming

## Course Viewing Requirements

To view the course, you must have:

- Microsoft® Internet Explorer® 9.0 (or later), Mozilla®, Firefox®, or Chrome®
- Audio-listening capabilities
- Connection speed of at least 600 kbps

## Course Cost

- Free of charge to all Diamondx and DxV Cohu customers

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