

Modular Instruments Switches Course (Online)

Overview

The instructor-led, online Modular Instruments Switches course covers fundamental concepts of Switches and prepares you to setup the hardware, configure the device, and program your application using LabVIEW. The course also introduces RF Switching concepts and examines the NI Switch Modules for a wide range of applications.

The online course combines interactive learning technology through the Internet with live instructor-led lectures and hands-on exercises to deliver many of the benefits of an instructor-led classroom course while reducing the cost of training and development.

Duration

Four (4) Hours

Audience

- New users and developers of National Instruments (NI) Switch products
- Users and managers evaluating NI Switch products in purchasing decisions

Prerequisites

- LabVIEW Core 1, or equivalent experience
- Basic circuit theory (voltage, current, resistance)

NI Products Used During the Course

- LabVIEW Professional Development System Version 8.6 or later
- NI Switch device
- NI-SWITCH
- NI-DAQmx

After attending this course, you will be able to:

- Connect and control your NI-Switch device
- Understand Switch specifications (relay type, topology, crosspoints, bandwidth)
- Learn important considerations for RF Applications
- Use LabVIEW to program Switch applications
- Use the functions on the NI-SWITCH function palette
- Understand the difference between NI-DAQmx Switch functions and NI-SWITCH functions
- Use a Switch with an NI DMM module
- Use the soft front panel of the device

Registration

Register online at ni.com/training or call (800)433-3488 Fax: (512)683-9300 info@ni.com

Outside North America, contact your local NI Office. Worldwide Contact Info: ni.com/global

Part Number

910776-69

System Requirements for Online Courses

- Windows XP, 98, 2000 or NT
- Broadband internet connection
- Internet Explorer 6 or greater
- Speakers or headphones
- Microphone

Suggested Next Courses

- LabVIEW Core 2
- LabVIEW Core 3
- LabVIEW Connectivity

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Lesson 1: Switch Basics

This lesson covers the fundamental concepts of Switches hardware and introduces the types of switch relays that NI offers.

- Relay Types
- Switch Topologies
- Switching Modes
- Building Larger Matrices

Lesson 2: National Instruments Switches

Nearly every test system today uses some aspect of switching. This lesson provides a basic introduction to NI's Switch Offering for switch selection compatible with your application.

- Why the Need for Switches?
- NI Switch Hardware Product Offering
- Form Factors
- Switch Applications

Lesson 3: RF Switch Concepts

In this lesson, the important concerns when introducing a switch into an RF application are explained. This includes a look at NI's RF Switches' capabilities and a discussion of how to avoid signal degradation due to attenuation and signal reflection.

- NI RF Switch Products
- Insertion Loss
- VSWR and Characteristic Impedance
- Crosstalk and Isolation
- Termination

Lesson 4: Connectivity and Expansion

Many Switch applications require a high number of channels or crosspoints, sometimes more than any one card offers. This lesson covers how to connect a signal to a switch and how to increase your channel count through Multiplexer and Matrix Expansion.

- Signal Connection
- SCXI Expansion
- PXI Expansion

Lesson 5: Control and Install NI Switches

This lesson covers what hardware you will need to control and install your PXI and SCXI Switch module in the system.

- Controlling NI Switches
- Installing NI Switches

Lesson 6: Programming NI Switches

This lesson examines the parts of the NI-SWITCH Driver and how it is used to create a program in LabVIEW. It also looks at programming NI Switches in scanning modes.

- The NI-SWITCH Driver
- Programming NI Switches in LabVIEW
- Scanning with Switches