

## groov EPIC LEARNING CENTER

- > Complete package of fully functional Opto 22 *groov* EPIC<sup>®</sup> hardware and suite of software
- > Ideal for demonstrating extensive capabilities and enlivening Proof of Concept projects
- > Designed to work with Opto 22's online, self-guided learning modules and downloadable project
- > Custom-designed, durable carrying case
- > FREE technical support and pre-sales engineering



## DESCRIPTION

The *groov* EPIC<sup>®</sup> Learning Center functions as a complete demonstration unit—providing a live experience for your pilot and Proof of Concept projects—and training unit, traveling with you to provide on-site instruction. The Learning Center also plays an integral role in the free OptoU Online Training (<https://training.opto22.com>), providing hands-on experience and the opportunity for more in-depth exercises.

**NOTE:** *The Learning Center is meant to be used as a demonstration unit. Do not use the Learning Center in production applications.*

### What's Included?

Hardware (load panel, I/O modules) and software (pre-developed software projects, strategies, flows, and more) designed to work in concert with online training.

### groov EPIC Parts

Mounted on an acrylic operator load panel are:

- 1 *groov* EPIC processor, [GRV-EPIC-PR2](#)
- 1 power supply, [GRV-EPIC-PSPT](#)
- 1 DC input module, [GRV-IACDCTL-24](#)
- 1 DC output module, [GRV-ODCI-12](#)
- 1 universal I/O module, [GRV-MM1001-10](#)
- 1 four-position chassis, [GRV-EPIC-CHS4](#)

### Operator Load Panel

- 2 illuminated push buttons
- 1 potentiometer
- 1 ICTD temperature probe with resistor
- 1 Sonalert alarm
- 3 multi-color LEDs: red, blue, and green

### Software on the GRV-EPIC-PR2

- **groov Manage**—to configure, commission, and troubleshoot the processor

- **PAC Control Engine**—a real-time control engine to run flowchart-based control programs
- **CODESYS Runtime Engine**—a real-time control engine to run IEC-61131-3 compatible control programs
- **groov View**—to build and view mobile and browser-based operator interfaces
- **Ignition Edge<sup>®</sup>**—from Inductive Automation<sup>®</sup>, provides drivers to PLCs (development license included)
- **MQTT with Sparkplug**—a secure, bi-directional, lightweight publish/subscribe protocol
- **Node-RED**—an open-source, multi-platform IIoT tool to connect databases, cloud apps, and APIs
- **SSH**—to download and run your custom application written in languages like Python, C/C++, and others, on an open, Linux<sup>®</sup>-based automation system

### Software for Control Program and HMI Development

Download these free software packages to your computer to develop flowchart-based or IEC-61131-3 compatible control programs, as well as HMIs:

- **PAC Control**—a flowchart-based industrial automation programming tool
- **PAC Display**—to build HMI operator interfaces for Microsoft<sup>®</sup> Windows<sup>®</sup>-based computers
- **CODESYS Development System**—a software platform for factory automation, providing IEC-61131-3 support
- **Opto 22 Library Package for CODESYS**—a library package to add to the CODESYS Development System

### Part Numbers

Part	Description
GRV-EPIC-LC2	<i>groov</i> EPIC Learning Center, carrying case, power supply cord, and temperature probe

## Training Resources

Online, self-guided learning modules available at <https://training.opto22.com/series/groov-epic-training-series>

Throughout the course, you'll find links to reference materials and learning tools, and be able to check your knowledge with quizzes.

In addition to online training, you can download the [groov EPIC Learning Center Package](#), which contains functional project files designed to run on the Learning Center. These project files demonstrate the broad range of functionality of *groov* View, Node-RED, CODESYS, PAC Control, and PAC Display. The [setup instructions](#) in form 2407 help you get the projects installed and running quickly.

## Additional Accessories

- Pelican™ 1557 Air Case; watertight, crushproof, and dust-proof
- AC/DC Adapter and power cable, input 100-240 VAC, 50-60 Hz @ 1.6 A, output 12 VDC @ 6 A
- Screwdriver to release or tighten module terminal connector

## Learn and Examine

Not just a product sample, the *groov* EPIC Learning Center includes the field-proven, real hardware and full-featured software used by customers all over the world.

Create and powerfully demonstrate Proof of Concept projects:

- Demonstrate how *groov* EPIC processor can be installed in a machine and be connected to an external monitor.
- Demonstrate how the unit can be set up as a controller and display HMI screens on the touchscreen, as well as a mobile device or computer.
- With the included Ignition Edge 8 development license, demonstrate how easily you can set up the Ignition Edge Gateway, connect to legacy PLCs, and begin collecting and publishing tag information to cloud services.

The Learning Center is also designed to work with the online training program on the Opto 22 website. With the training program, you will learn how to configure the processor, create control programs and HMIs, and share data with other systems and software.

## Initialize and Configure the *groov* EPIC Processor

After you turn on your Learning Center, you'll:

- Create user IDs & passwords and learn about the different access levels you can create
- Establish network connectivity and learn about the other ways you can connect the processor to a network
- Calibrate the integrated touchscreen and learn how you can connect the processor to external monitors

- Navigate through *groov* Manage both on the touchscreen and through a computer browser
- Compare and practice the different ways to configure I/O modules through *groov* Manage, PAC Control, Ignition Edge, and CODESYS

## Create Control Programs and Choose Programming Options

- Create a comprehensive control program with PAC Control that monitors and controls a fictional convenience store
- Download the CODESYS Development System and learn to create, download, and run a simple IEC61131-3 compliant program on the *groov* EPIC processor
- Learn how to access the optional SSH, Linux shell to download and run a custom program

## Create Human-Machine Interfaces (HMIs)

- Create an HMI for browsers and mobile devices with *groov* View
- Create an HMI for a Windows-based PC that includes graphics and trends with PAC Display
- Create a mobile responsive HMI with Ignition Perspective

## Collect Data from Cloud Services, Databases, and Other PLCs

- Obtain weather data from a cloud service and then display it on the HMIs, all through Node-RED
- Create a communication pathway between *groov* EPIC, databases, third-party PLCs, and field devices with Ignition Edge software
- Publish data or subscribe to data with MQTT/Sparkplug

## Computer Requirements

The *groov* EPIC processor does not require any special computer software or hardware, other than a web browser to access *groov* Manage and *groov* View.

The PAC Project Basic software has requirements listed in the *Specifications* tab of the product web page, [PACPROJECTBAS](#).

You can download the CODESYS Development System from the CODESYS Store. The computer requirements for this product are listed in the [Product Description](#) tab of the CODESYS Development System V3 product page. You will also need to download the [Opto 22 Library Package for CODESYS Development System](#), which is available on [www.opto22.com](http://www.opto22.com).

## LEARNING CENTER PRODUCT SUPPORT

Opto 22's free product support services are available to assist you with any problems relating to your work with the Learning Center. Call **(800) 832-6786** (toll-free in the U.S. and Canada) or **(951) 695-3080**, or email [support@opto22.com](mailto:support@opto22.com).