

## Evaluation kit for education on motor control and control systems



### Features

- Rotary inverted pendulum kit for education
- Included stepper motor and quadrature rotary encoder
- Low cost and easy to assemble interlocking acrylic frame
- Included power supply (100-240 V): 12 V, 1 A
- Based on the [NUCLEO-F401RE](#) development board
- [X-NUCLEO-IHM01A1](#) expansion board with [L6474PD](#) microstepping motor driver
- Open source educational material available

### Description

The [STEVAL-EDUKIT01](#) is designed to represent a complex, non-linear and unstable oscillator for university-level robotics projects. It consists of a transparent structure holding a free-swinging pendulum, whose movement has to be stabilized by a stepper motor with feedback from a high performance rotary encoder reading the pendulum angle.

The [STSW-EDUKIT01](#) firmware includes critical, high-speed algorithms that interpret encoder data and allow the stepper motor to counter the movement of the pendulum so that it remains vertical.

The educational set, with real-time Matlab viewer and interface, helps you build your understanding of ARM-based embedded architecture ([STM32CubeIDE](#)), stepper motor control and real-time systems based on proportional, integral, derivative (PID) control, as well as more advanced techniques such as State Space or State Space with linear quadratic regulator (LQR).

A further set of open source tutorials and training material is at your complete disposal at [www.st.com/motorcontrol-edu](http://www.st.com/motorcontrol-edu).

Product summary	
Evaluation kit for education on motor control and control systems	<a href="#">STEVAL-EDUKIT01</a>
Firmware for STEVAL-EDUKIT01	<a href="#">STSW-EDUKIT01</a>
Stepper motor driver expansion board based on L6474 for STM32 Nucleo	<a href="#">X-NUCLEO-IHM01A1</a>
STM32 Nucleo-64 development board with STM32F401RE MCU	<a href="#">NUCLEO-F401RE</a>
Applications	<a href="#">Factory Automation</a> <a href="#">Industrial Motor Control</a>

## Revision history

**Table 1. Document revision history**

Date	Version	Changes
04-Mar-2020	1	Initial release.

**IMPORTANT NOTICE – PLEASE READ CAREFULLY**

STMicroelectronics NV and its subsidiaries (“ST”) reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST’s terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers’ products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. For additional information about ST trademarks, please refer to [www.st.com/trademarks](http://www.st.com/trademarks). All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2020 STMicroelectronics – All rights reserved

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Power Management IC Development Tools](#) category:*

*Click to view products by [STMicroelectronics](#) manufacturer:*

Other Similar products are found below :

[EVAL-ADM1168LQEBZ](#) [EVB-EP5348UI](#) [MIC23451-AAAYFL EV](#) [MIC5281YMME EV](#) [DA9063-EVAL](#) [ADP122-3.3-EVALZ](#) [ADP130-0.8-EVALZ](#) [ADP130-1.2-EVALZ](#) [ADP130-1.5-EVALZ](#) [ADP130-1.8-EVALZ](#) [ADP1714-3.3-EVALZ](#) [ADP1715-3.3-EVALZ](#) [ADP1716-2.5-EVALZ](#) [ADP1740-1.5-EVALZ](#) [ADP1752-1.5-EVALZ](#) [ADP1828LC-EVALZ](#) [ADP1870-0.3-EVALZ](#) [ADP1871-0.6-EVALZ](#) [ADP1873-0.6-EVALZ](#) [ADP1874-0.3-EVALZ](#) [ADP1882-1.0-EVALZ](#) [ADP199CB-EVALZ](#) [ADP2102-1.25-EVALZ](#) [ADP2102-1.875EVALZ](#) [ADP2102-1.8-EVALZ](#) [ADP2102-2-EVALZ](#) [ADP2102-3-EVALZ](#) [ADP2102-4-EVALZ](#) [ADP2106-1.8-EVALZ](#) [ADP2147CB-110EVALZ](#) [AS3606-DB](#) [BQ24010EVM](#) [BQ24075TEVM](#) [BQ24155EVM](#) [BQ24157EVM-697](#) [BQ24160EVM-742](#) [BQ24296MEVM-655](#) [BQ25010EVM](#) [BQ3055EVM](#) [NCV891330PD50GEVB](#) [ISLUSBI2CKIT1Z](#) [LM2744EVAL](#) [LM2854EVAL](#) [LM3658SD-AEV/NOPB](#) [LM3658SDEV/NOPB](#) [LM3691TL-1.8EV/NOPB](#) [LM4510SDEV/NOPB](#) [LM5033SD-EVAL](#) [LP38512TS-1.8EV](#) [EVAL-ADM1186-1MBZ](#)