



Industrial Ethernet, Now in Software – RT-Labs Releases U-Phy for Python & C/C++

RT-Labs has updated U-Phy, a powerful software library for industrial Ethernet communication, and is now available as a software library for C/C++ and Python. U-Phy enables fast and flexible development of industrial devices with support for multiple network protocols – all in software.



Comprehensive protocol support – No extra hardware required

Traditionally, developers have needed to purchase separate hardware modules to enable industrial protocol support. With U-Phy and today's powerful processors, this is in many cases no longer necessary. Most protocols can now run entirely in software, reducing both costs and complexity. Only EtherCAT requires a hardware coprocessor. The U-Phy library runs on PC (Windows/Linux) as well as on selected embedded processors, including Infineon. Support for Microchip and STMicroelectronics is planned for 2025.

U-Phy comes preloaded with support for several widely used industrial Ethernet protocols:

- **PROFINET**
- **Modbus TCP**
- **EtherNet/IP**
- **EtherCAT**

Fast integration and easy configuration

U-Phy is designed to minimize integration time when developing industrial network devices. All protocols are managed in a unified configuration tool, which also automatically generates the necessary configuration files (GSDML, EDS, and ENI). This eliminates time-consuming manual work and allows developers to get started quickly.

Flexibility – From Embedded to PC-Based Systems

U-Phy runs on both embedded systems and PC platforms, enabling the development of everything from resource-constrained embedded devices to full-scale industrial systems on PC.

Often, it is easier to start development on a PC, where testing and debugging are more efficient, before transitioning to an embedded platform when the solution is ready for deployment. At the same time, a PC-based solution can often be the most efficient path to a production-ready device, making U-Phy a powerful option for any platform.

A Complete Solution – Use only the protocols you need

With U-Phy, developers get access to all protocols in a single software library, making it easy to integrate support for multiple network standards without managing separate solutions. Simply select the protocols you need, exactly when you need them.

Now Available for Download

U-Phy is available for free download, and the evaluation version can be used with full functionality for one hour at a time.

Learn more and download here: rt-labs.com/u-phy

"With this major update to U-Phy, we make it easier than ever to connect devices to multiple industrial Ethernet protocols—all in software. By removing the need for specialized hardware, we give developers and testers the flexibility to build, test, and scale faster. And this is just the beginning, U-Phy will continue to evolve with more protocols and smarter tools to meet the growing demands of industrial connectivity."

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RT-Labs is a development partner for industrial control systems. Our customers choose to work with us because our offering streamlines their product development, allowing new products to be launched faster, cheaper, and with better quality.