



## 1 OVERVIEW

This supplement shows how to integrate a Micro830 Programmable Logic Controller (PLC) to any scale equipped with the Arlyn UpScale Touchscreen Indicator with Modbus option. Follow the steps below to demonstrate MODBUS RTU communication with the attached PLC.

## 2 PRE-REQUISITES

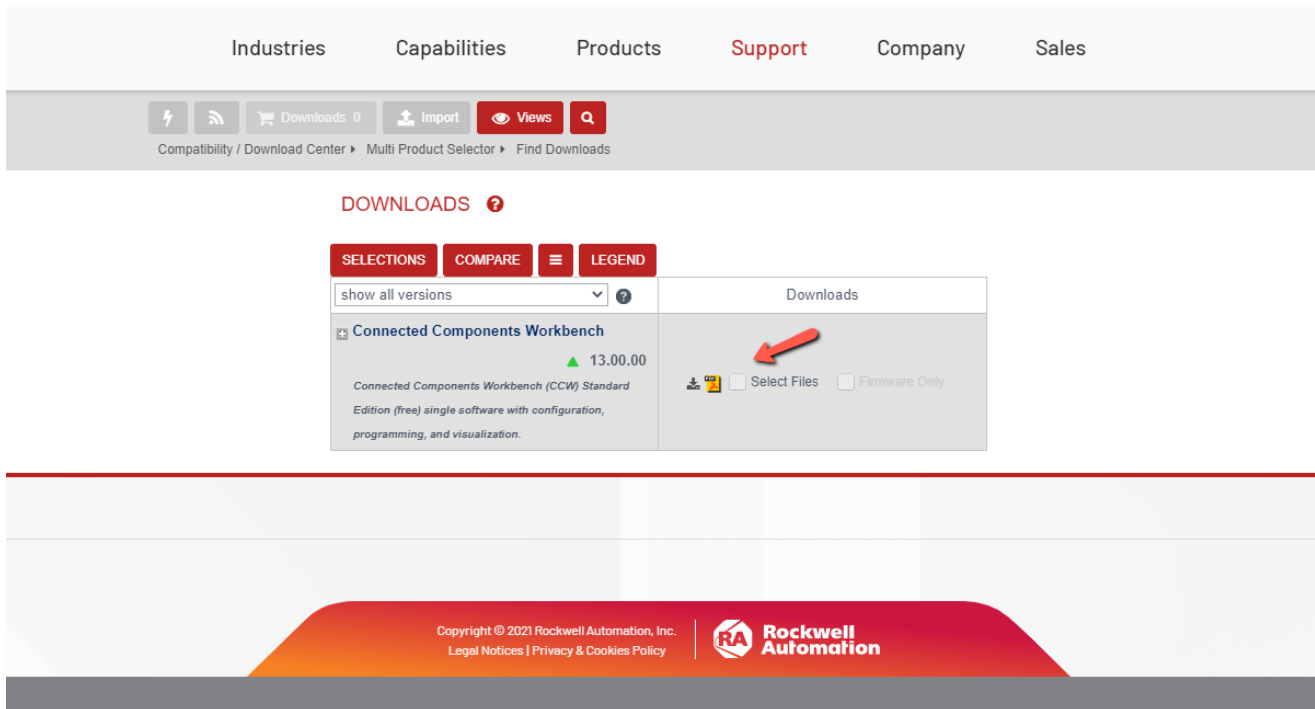
- a) Connected Components Workbench (CCW) Software
- b) Micro830 Programmable Logic Controller (PLC) by Allen Bradley (or similar)
- c) Scale equipped with Arlyn UpScale Touchscreen Indicator w/ MODBUS option
- d) Sample Projects
- e) LEDs, Pushbuttons, etc.

## 3 STEP BY STEP PROCESS

### 3.1 DOWNLOAD AND INSTALL SOFTWARE

To open the sample projects, you will need to install the Connected Components Workbench software.

- a) Go to [www.rockwellautomation.com](http://www.rockwellautomation.com) and sign up for a free account.
- b) Then head to this website:  
<https://compatibility.rockwellautomation.com/Pages/MultiProductFindDownloads.aspx?crumb=112&mode=3&refSoft=1&versions=59954>.
- c) Click on the “Select Files” button on the right to start downloading the files:



- d) Install the setup files downloaded and restart the PC if needed.
- e) Once the software is installed, explore the project files included in the Modbus Sample projects (see 3.4)

## 3.2 PLC SETUP

Once the software is installed in step 3.1, plug in the appropriate PLC to your PC using a USB connection (see wiring diagram). The PLC should automatically be recognized by your PC.

## 3.3 SCALE SETUP

Refer to the Arlyn UpScale user manual to setup Modbus RTU. On the Scale screen, press the 3-Dot Quick Menu on the top-right corner and go to Settings. Then scroll the left (blue) selector down and select “Modbus”. The right panel will show the Modbus Settings screen.

Confirm that the screen is set as below – and make modifications as necessary.

The screenshot displays the Arlyn UpScale interface. At the top, the scale is identified as '300 x 0.1 lb'. The left sidebar contains a menu with 'Modbus' selected. The main content area is titled 'Modbus Configuration' and features several settings sections:

- Modbus Configuration:** Mode is set to 'Slave' (radio button selected), and Protocol is set to 'RTU' (radio button selected). A green 'Connect Status' indicator is present, along with an 'APPLY' button.
- Communication Setting:** Baud Rate is 9600, Data Bits is 8, Stop Bits is 1, Parity is None, and Flow Control is None. The IP address is 192.168.1.102 and the TCP Port is 502.
- Master Setting:** Function Code is 03, Station Address is blank, First Register is 1, and Quantity is 10.
- Slave Settings:** This section is partially visible at the bottom.

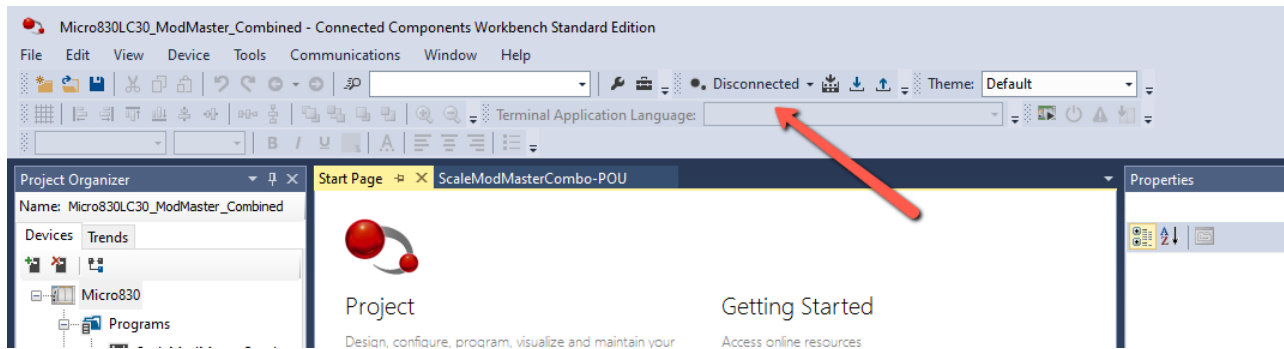
Then, connect the scale to the PLC as shown in the wiring diagram attached at the end of this document.

## 3.4 SAMPLE PROJECTS

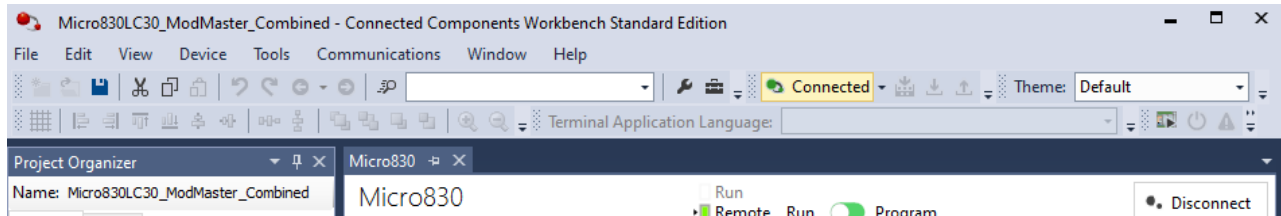
### 3.4.1 Running the Project

Follow the instructions below to get started with the Modbus Sample Projects.

- Sample projects can be downloaded from the following link:  
[https://www.arlynscales.com/modbus\\_sample\\_projects\\_ccw/](https://www.arlynscales.com/modbus_sample_projects_ccw/)
- Unzip the downloaded file on a known location.
- Open one of the Micro830LC30\*\* folders and double click on the \*.ccwsIn file to open the project in Connected Components Workbench Development Environment.
- If the Micro830 PLC is already connected to the PC, you will see the “Disconnected” sign at the top of the screen.



e) Drop down the arrow besides the sign and press Connect.



\*Note: You may experience dialog popups alerting you that an existing program already exists in your PLC. If this is the case, overwrite the program on the PLC (making sure it is OK to do so).

f) Once the program is running, you will see the “Connected” indicator on the CCW IDE.

If you are not familiar with CCW, the official CCW User Manual is included in the ZIP file noted above.

### 3.4.2 Sample Project Contents

There are 4 folders in this ZIP file

- **Micro830LC30\_ModMaster\_DisplayWeight** - This project enables the PLC to retrieve weight from the scale and use that weight comparatively to set and clear outputs on the PLC. LEDs can be wired to these outputs to experience the behavior.
- **Micro830LC30\_ModMaster\_Setpoint** – This project enables the PLC to retrieve setpoint status from the scale. These setpoints are then utilized in setting/clearing the outputs on the PLC. The project also demonstrates how to store the setpoints retrieved into a local PLC variable.
- **Micro830LC30\_ModMaster\_Combined** – This project is a combination of both projects above.
- **Tools\_Micro830** – This folder contains the CCW manual and a video demonstration on how to add components into CCW.

## 4 WIRING DIAGRAM

The wiring diagrams (attached) illustrates the connection between the PLC and scale. The connection to the PC is only required during the programming phase.

## 5 FURTHER READING

For more information on Modbus communication, see the Modbus section on the [Arlyn UpScale Touchscreen Indicator Online Manual](#) – or download the [PDF](#) and see page 79.



Connect the PLC to a PC to download the sample Modbus projects using USB connection. PC connectivity is not required for running PLC-Scale Modbus communication.

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