



DesignNews

Raspberry Pi 5 Automation Lecture Series

Day 1: Raspberry Pi 5 Automation Toolbox

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Webinar Logistics

- Turn on your system sound to hear the streaming presentation.
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- Participate in ‘Attendee Chat’ by maximizing the chat widget in your dock.

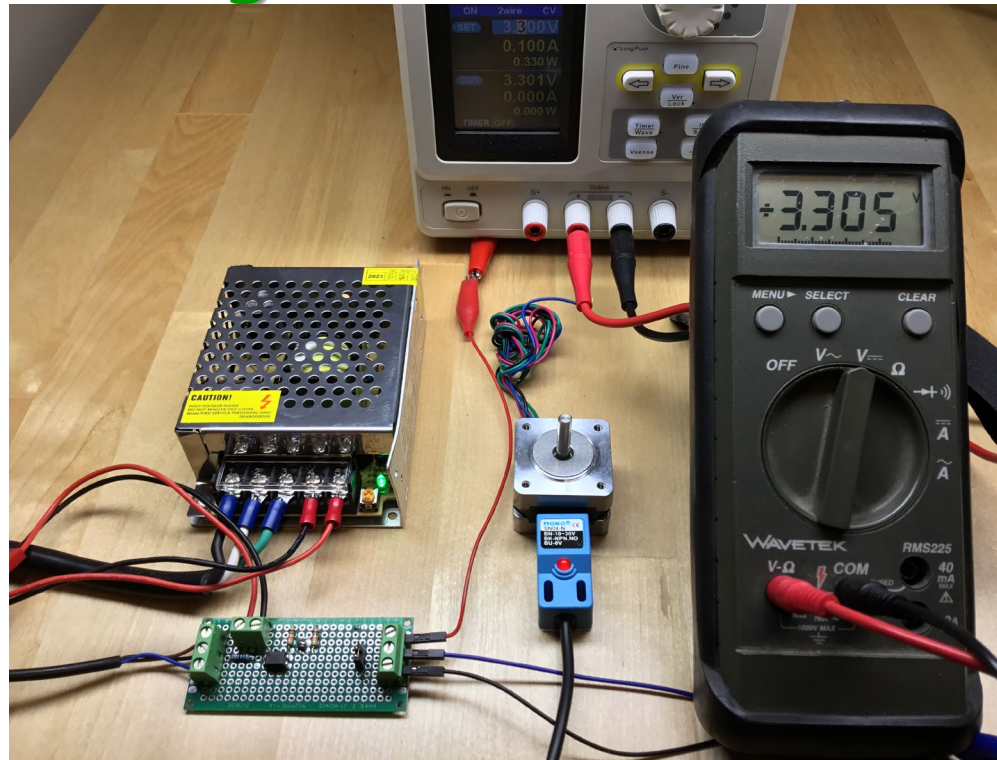
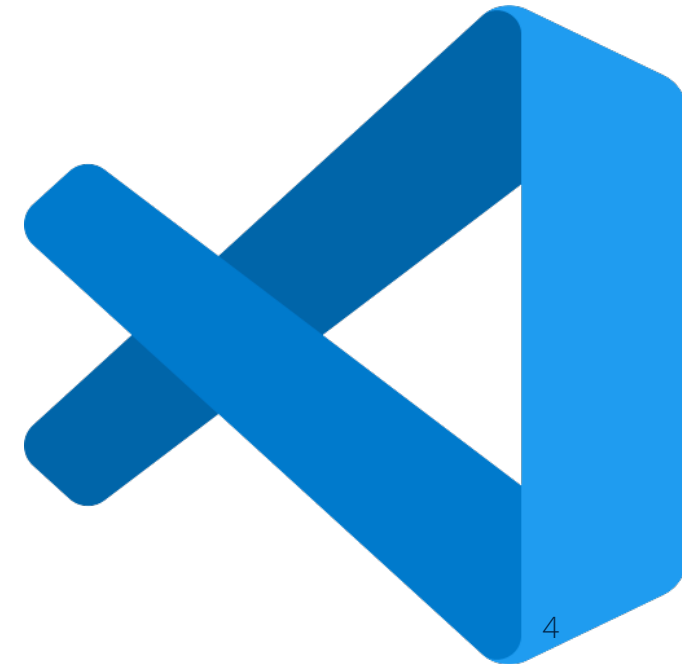


Fred Eady

Visit 'Lecturer Profile' in your console for more details.

AGENDA

- **Install Java JRE and Java SDK**
- **Install and Configure Eclipse**
- **Install PyDev**
- **Install and Configure Visual Studio Code**
- **Construct an Electromagnetic Sensor Interface**



Install Default Ubuntu Version of Java JRE

```
fred@shop-ubuntu-1770: ~  
fred@shop-ubuntu-1770:~$ java --version  
Command 'java' not found, but can be installed with:  
sudo apt install openjdk-11-jre-headless # version 11.0.20.1+1-0ubuntu1~22.04,  
or  
sudo apt install default-jre # version 2:1.11-72build2  
sudo apt install openjdk-17-jre-headless # version 17.0.8.1+1~us1-0ubuntu1~22.0  
4  
sudo apt install openjdk-18-jre-headless # version 18.0.2+9-2~22.04  
sudo apt install openjdk-19-jre-headless # version 19.0.2+7-0ubuntu3~22.04  
sudo apt install openjdk-8-jre-headless # version 8u382-ga-1~22.04.1  
fred@shop-ubuntu-1770:~$ sudo apt install default-jre
```

```
fred@shop-ubuntu-1770:~$ java --version  
openjdk 11.0.21 2023-10-17  
OpenJDK Runtime Environment (build 11.0.21+9-post-Ubuntu-0ubuntu122.04)  
OpenJDK 64-Bit Server VM (build 11.0.21+9-post-Ubuntu-0ubuntu122.04, mixed mode, sharing)  
fred@shop-ubuntu-1770:~$
```


Install the Default Ubuntu Version of Java JDK

```
fred@shop-ubuntu-1770: ~  
File Edit View Search Terminal Help  
  
fred@shop-ubuntu-1770:~$ sudo apt install default-jdk  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following packages were automatically installed and are no longer required:  
  dh-elpa-helper libjsoncpp25 librhash0 libwxbase3.0-0v5 libwxgtk3.0-gtk3-0v5 xsltproc  
Use 'sudo apt autoremove' to remove them.  
The following additional packages will be installed:  
  default-jdk-headless libice-dev libpthread-stubs0-dev libsm-dev libx11-dev libxau-dev  
  libxcb1-dev libxdmcp-dev libxt-dev openjdk-11-jdk openjdk-11-jdk-headless x11proto-dev  
  xorg-sgml-doctools xtrans-dev  
Suggested packages:  
  libice-doc libsm-doc libx11-doc libxcb-doc libxt-doc openjdk-11-demo openjdk-11-source  
fred@shop-ubuntu-1770:~$ javac --version  
javac 11.0.21  
fred@shop-ubuntu-1770:~$  
x11proto-dev xorg-sgml-doctools xtrans-dev  
0 upgraded, 15 newly installed, 0 to remove and 7 not upgraded.  
Need to get 76.9 MB of archives.  
After this operation, 90.6 MB of additional disk space will be used.  
Do you want to continue? [Y/n]
```

Install Eclipse

The screenshot shows the Eclipse Foundation website's download page for the Eclipse Installer 2023-12 R. The page is titled "Eclipse Installer 2023-12 R" and features a dark blue header with the Eclipse Foundation logo and navigation links. The main content area includes a section titled "Try the Eclipse Installer 2023-12 R" with a "Download" button and a list of operating systems and architectures. A yellow circle highlights the "Download" button and the list of operating systems and architectures. The page also includes a "5 Steps to Install Eclipse" section and a "Sponsored Ad" for Oracle's Enterprise Pack for Eclipse. At the bottom, there is a cookie consent banner.

Eclipse Installer 2023-12 R

The Eclipse Installer 2023-12 R now includes a JRE for macOS, Windows and Linux.

Try the Eclipse Installer 2023-12 R

The easiest way to install and update your Eclipse Development Environment.

884,029 Installer Downloads
789,706 Package Downloads and Updates

Download

macOS x86_64 | AArch64
Windows x86_64
Linux x86_64 | AArch64

5 Steps to Install Eclipse

We've recently introduced the Eclipse Installer, a new and more efficient way to install Eclipse. It is a proper installer (no zip files), with a self-extracting download that leads you through the installation process. For those who prefer not to use the Installer, the packages and zip files are still available on our [package download](#) page.

Sponsored Ad

ORACLE
Enterprise Pack for Eclipse

Download

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Install your favorite desktop IDE packages

[Learn More](#) [Download x86_64](#)

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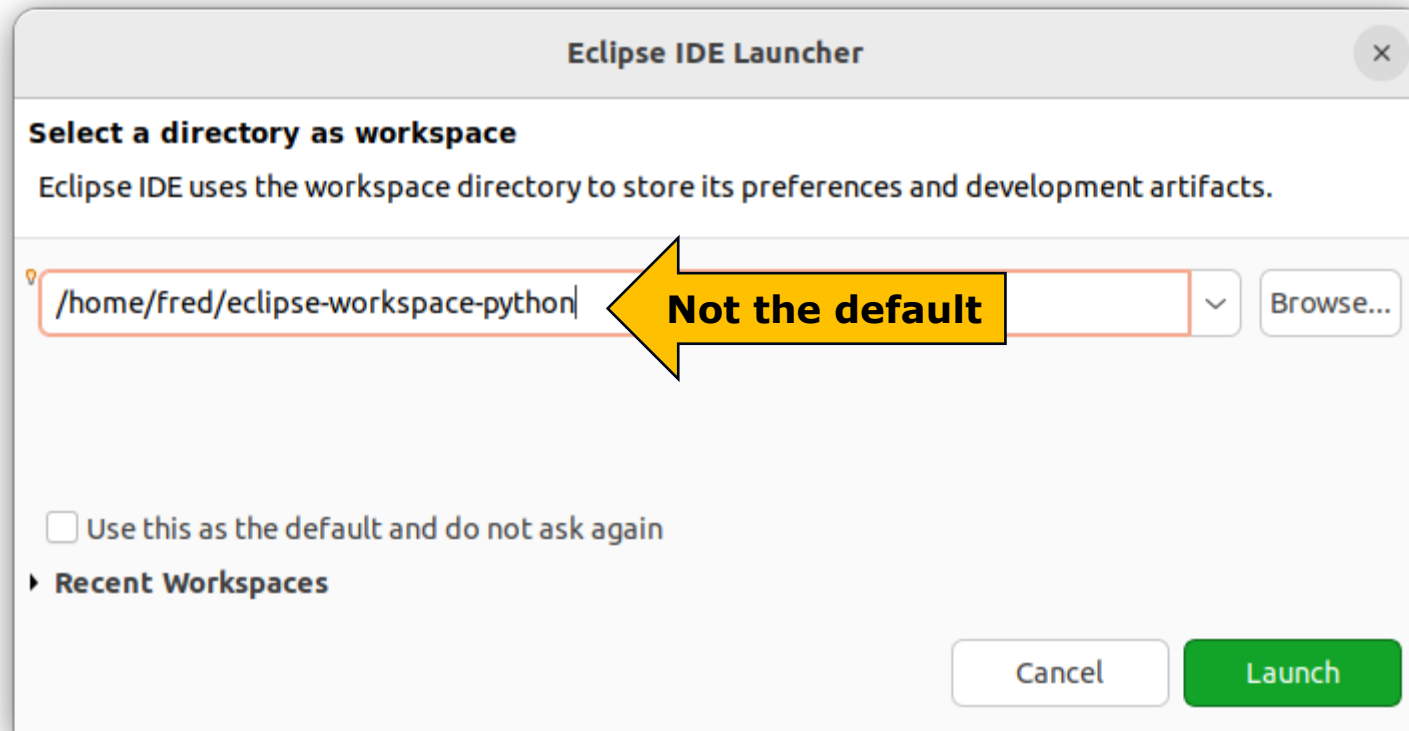
[Decline](#) [Allow cookies](#)

Install Eclipse



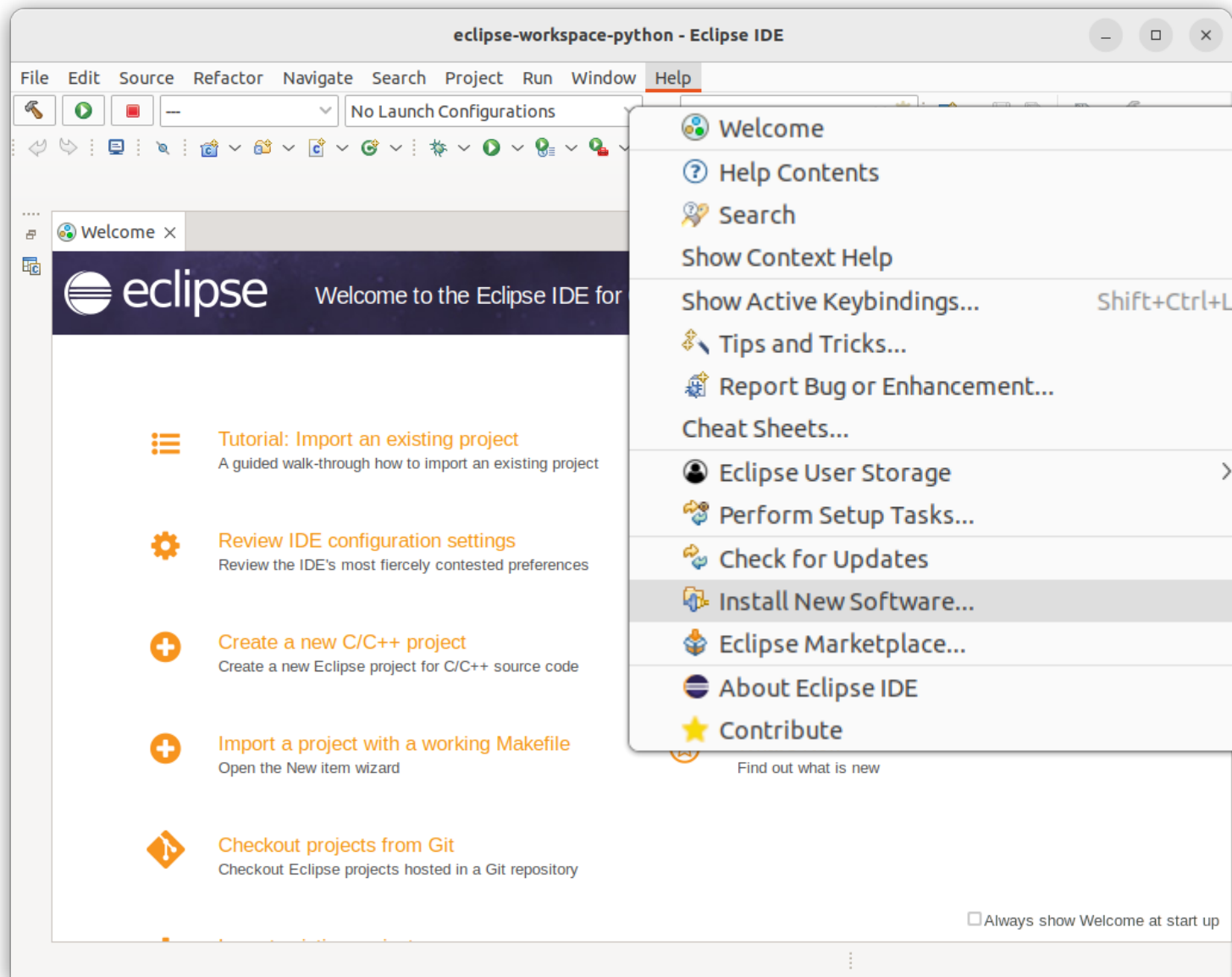
Install This One

Launch Eclipse

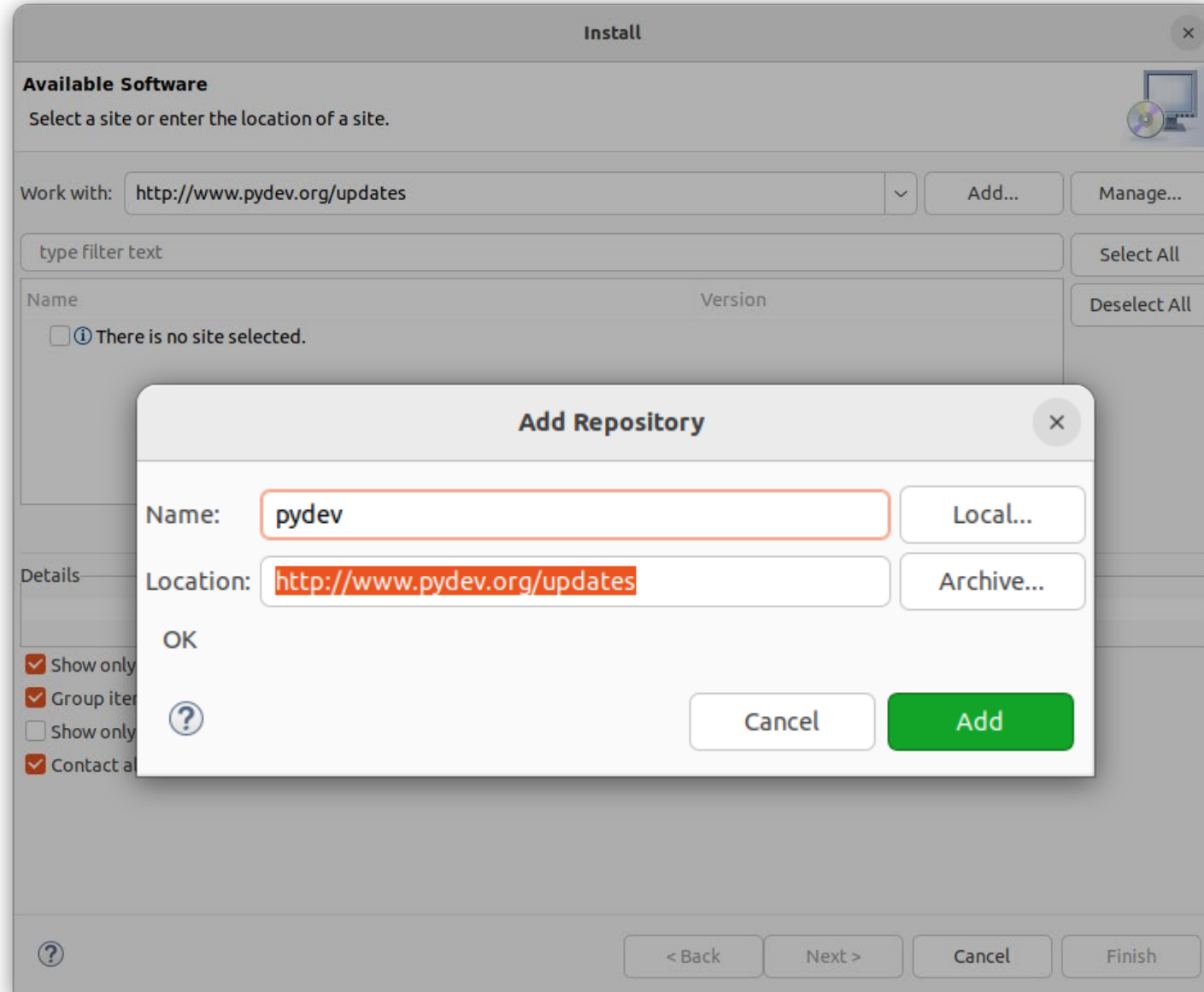


To configure Eclipse SSH capability reference *raspberrypi5_eclipse_how_to.pdf* in today's download package.

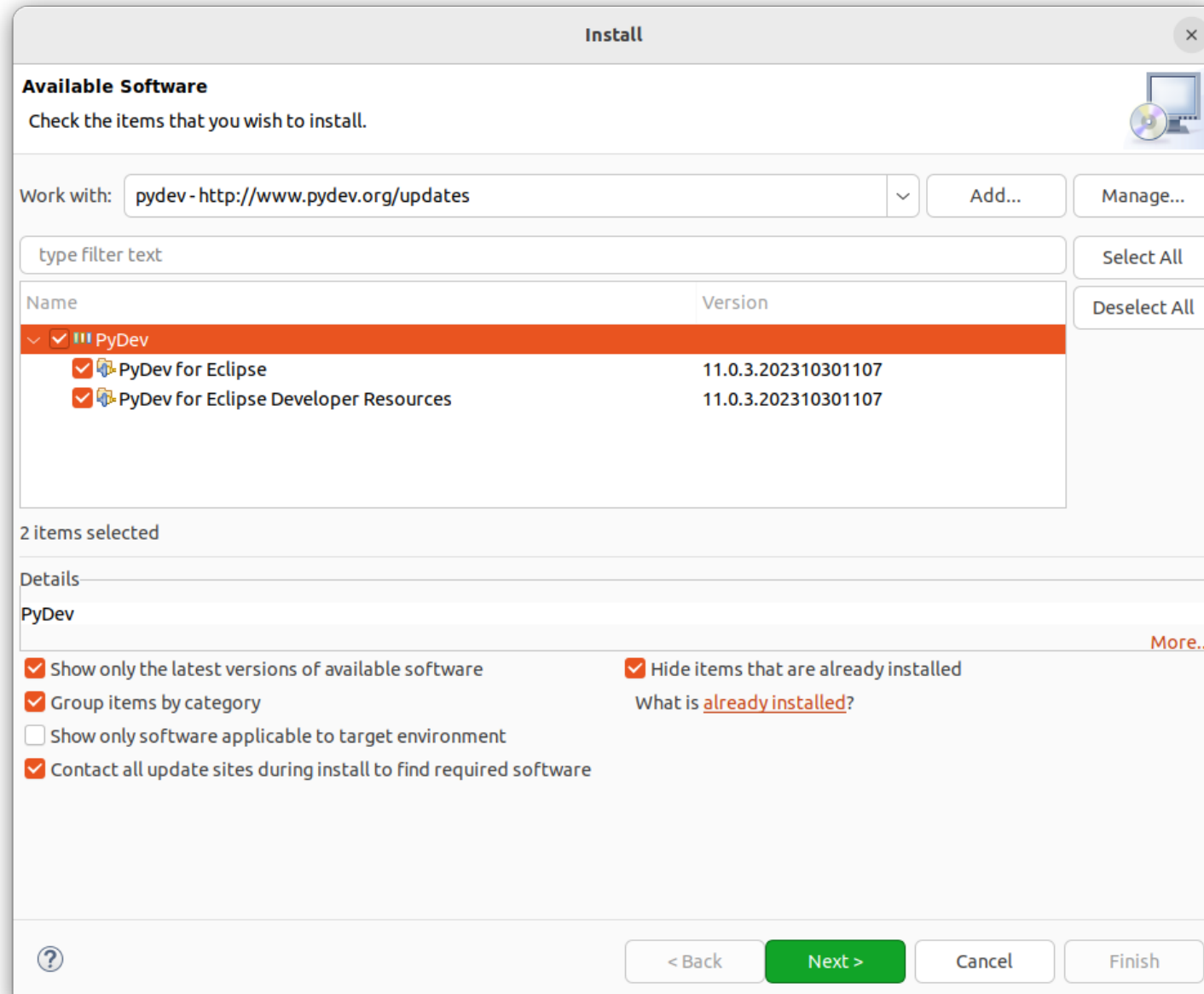
Install the PyDev for Eclipse Plugin



Point to the PyDev Repository



Download and Install PyDev for Eclipse Plugin



Verify the PyDev Installation

The screenshot shows the Eclipse IDE interface. The 'Window' menu is open, and 'Preferences' is selected. A red arrow points from the 'Preferences' menu item to the 'PyDev' section in the Preferences dialog. The 'PyDev' section is expanded, showing various sub-entries. The 'Check preferred Eclipse settings for PyDev on editor open' checkbox is checked. The 'PyDev version' is 11.0.3.202310301107. The 'Check preferred settings now.' button is visible.

eclipse-workspace-python - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

No Launch Configurations

Welcome x

eclipse Welcome to the Eclipse IDE

Tutorial: Import an existing project
A guided walk-through how to import an existing project

Overview
Get an overview of the features

Review IDE configuration settings
Review the IDE's most fiercely contested preferences

Tutorials
Go through tutorials

Create a new C/C++ project
Create a new Eclipse project for C/C++ source code

Samples
Try out the samples

Import a project with a working Makefile
Open the New item wizard

What's New
Find out what is new

Checkout projects from Git
Checkout Eclipse projects hosted in a Git repository

Preferences

type filter text

- > General
- > C/C++
- > ChangeLog
- > Docker
- > Help
- > Install/Update
- > Language Servers
- > Library Hover
- > Man pages
- > Mylyn
- > Oomph
- > **PyDev**
 - Builders
 - > Debug
 - > Editor
 - > Interactive Console
 - > Interpreters
 - Logging
 - PyUnit
 - Run
 - Scripting PyDev
 - Task Tags
- > Remote Development
- > RPM
- > Run/Debug
- > SystemTap
- > Terminal
- > TextMate
- > Tracing
- Validation
- > Version Control (Team)
- > XML

PyDev

PyDev version: 11.0.3.202310301107

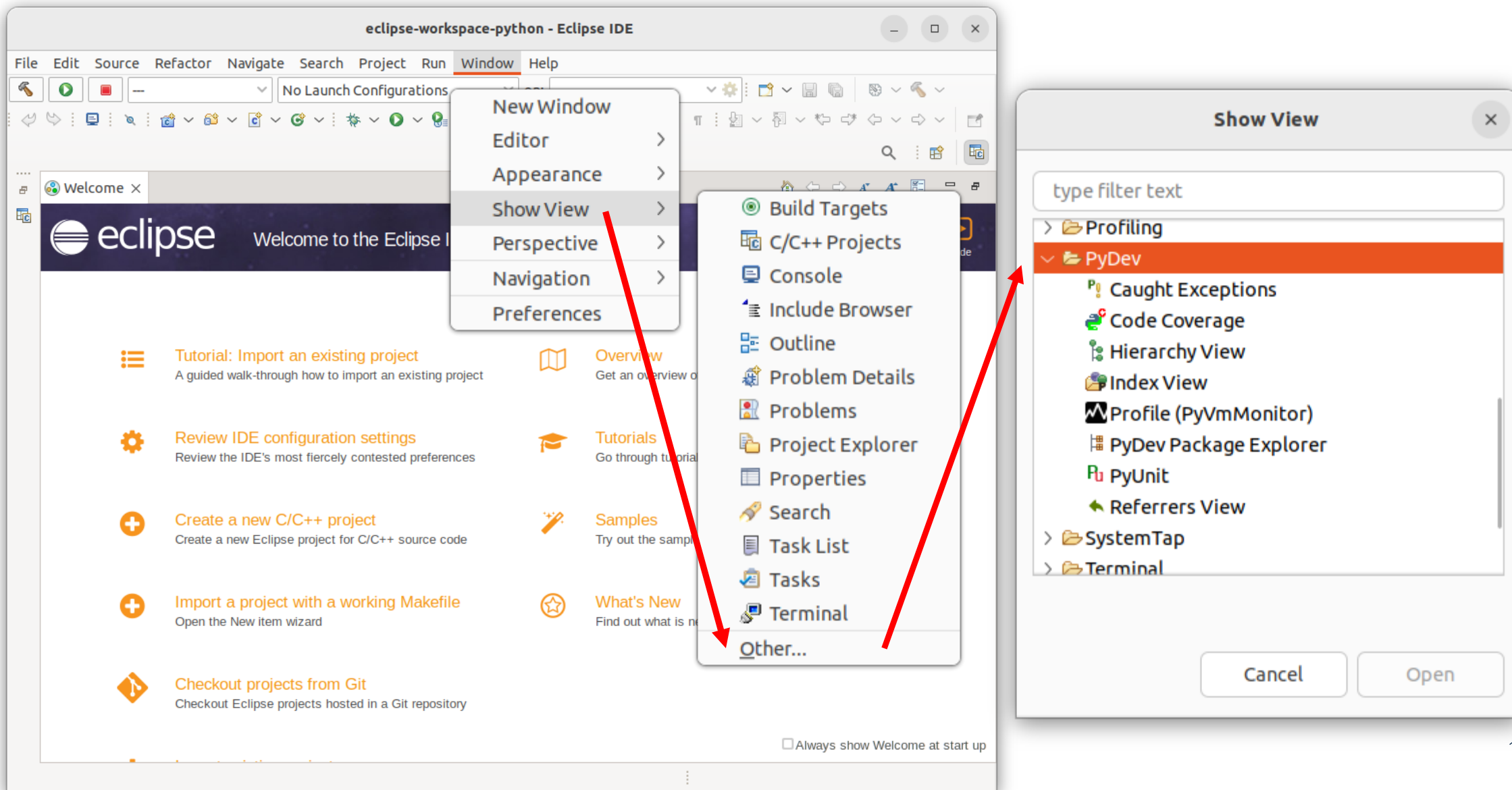
☒ Check preferred Eclipse settings for PyDev on editor open

Check preferred settings now.

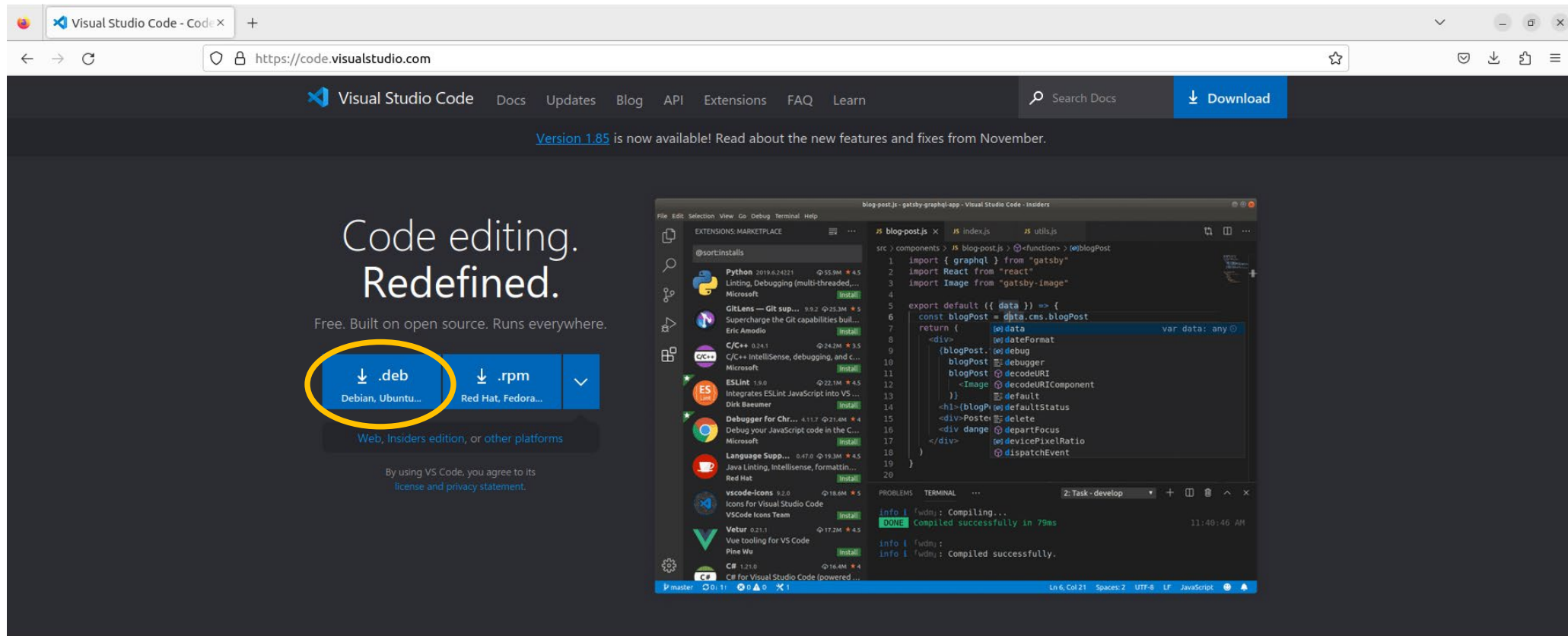
Restore Defaults Apply

Cancel Apply and Close

PyDev Views



Install Visual Studio Code



IntelliSense



Run and Debug



Built-in Git



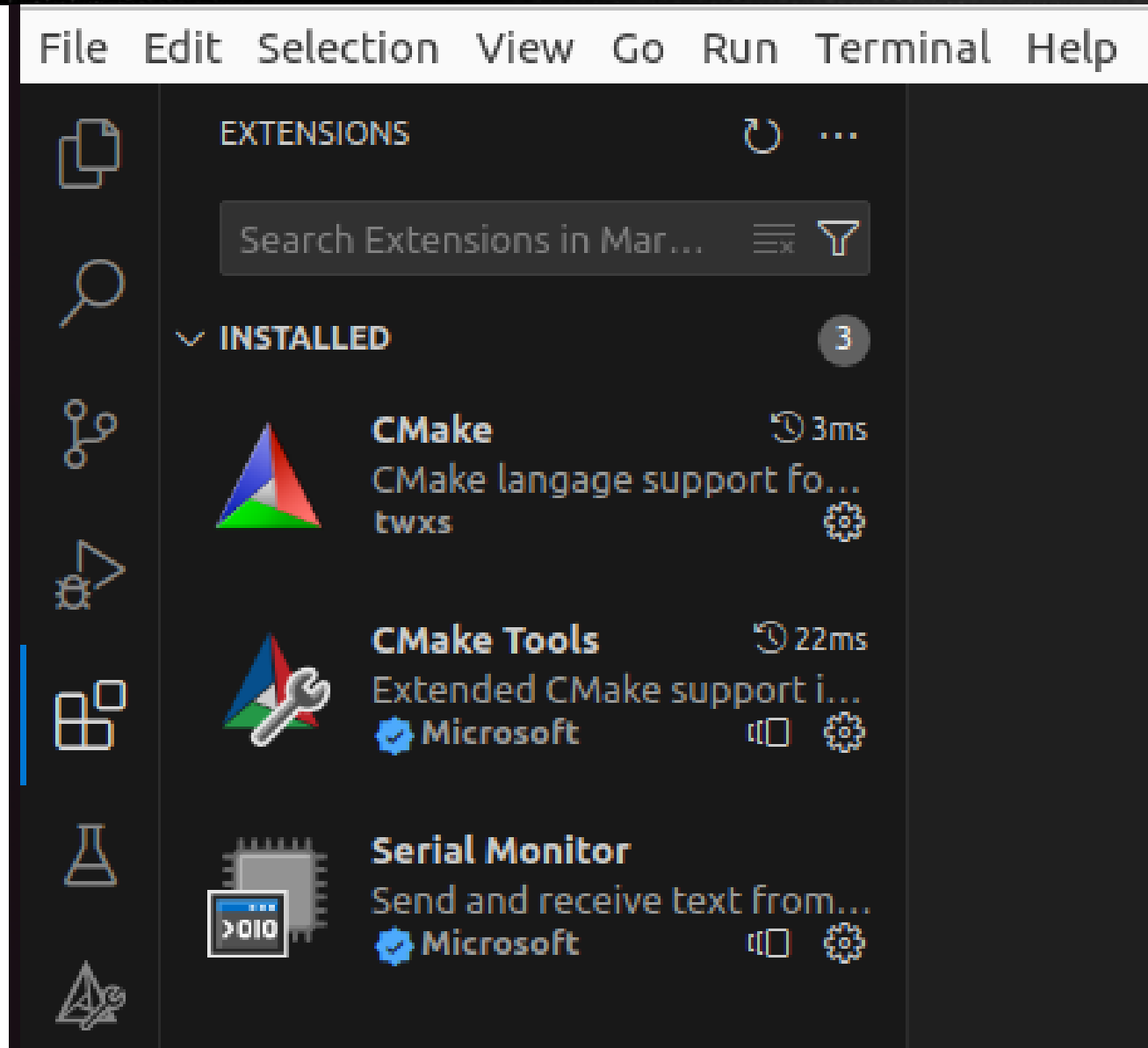
Extensions



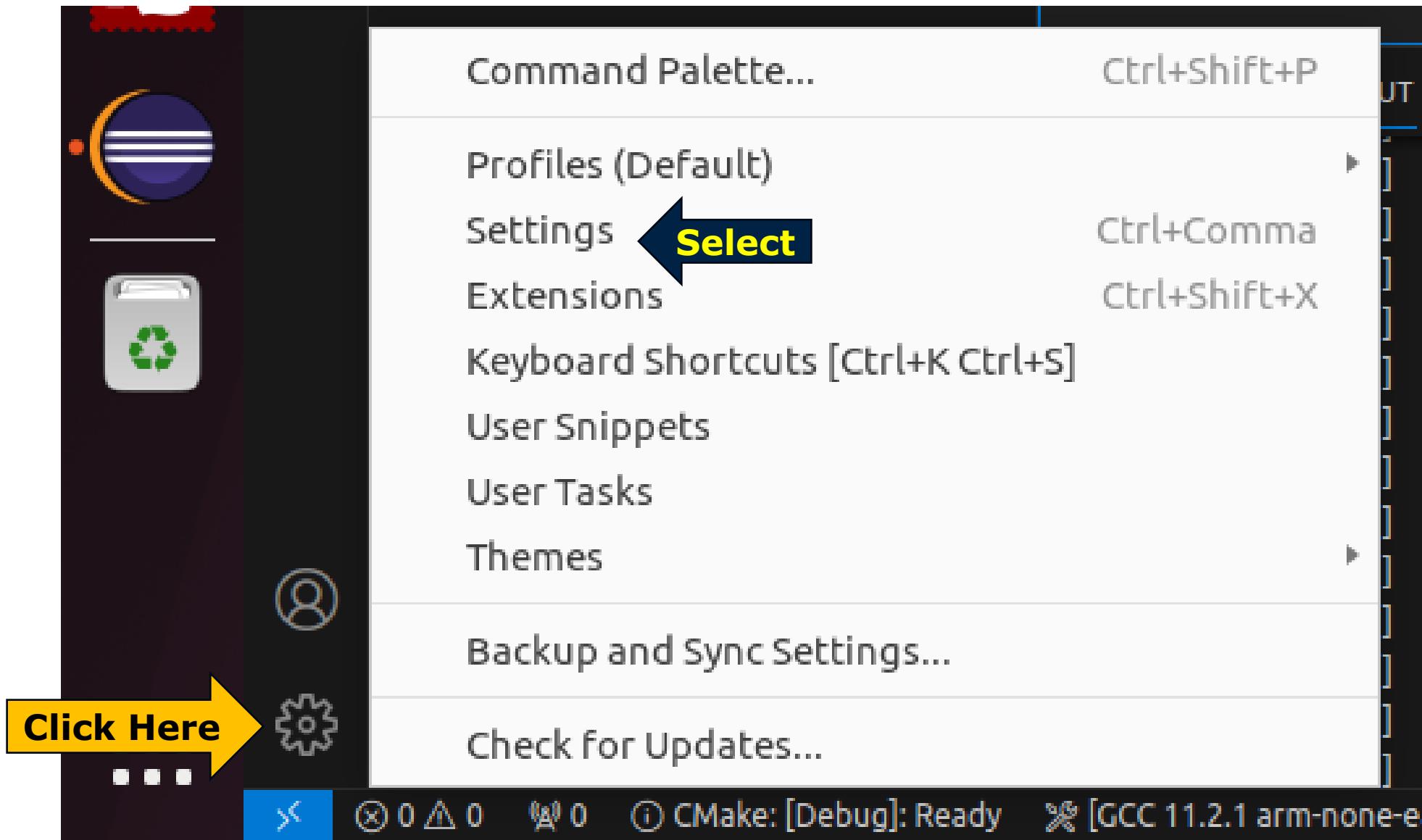
Meet IntelliSense.

Go beyond syntax highlighting and autocomplete with IntelliSense, which

Install Visual Studio Code Extensions



Configure Visual Studio Code



Configure Visual Studio Code

UserWorkspace

Commonly Used

> Text Editor

> Workbench

> Window

> Features

> Application

> Security

> Extensions

.ipynb Support

CMake Tools

Copilot

> CSS Language Features

Emmet

Git

CMake Tools

Cmake: Additional Compiler Search Dirs

Additional directories to search for compilers.

/home/fred/gcc-arm-11.2-2022.02-x86_64-arm-none-eabi/bin/

Add Item

Cmake: Additional Kits

Array of paths to custom kit files.

/home/fred/gcc-arm-11.2-2022.02-x86_64-arm-none-eabi/bin/

Add Item

Cmake: Build Environment

(Applies to all profiles)

Environment variables to pass to CMake during build.

Item

Value

PICO_SDK_PATH

/home/fred/pico/pico-sdk

Add Item

Cmake: Environment

Environment variables to set when running CMake commands.

Item

Value

PICO_SDK_PATH

/home/fred/pico/pico-sdk

Add Item

Cmake: Generator

The CMake generator to use.


Unix Makefiles

Cmake > Options: Status Bar Visibility

Configures how the extension displays the options in the Status Bar.

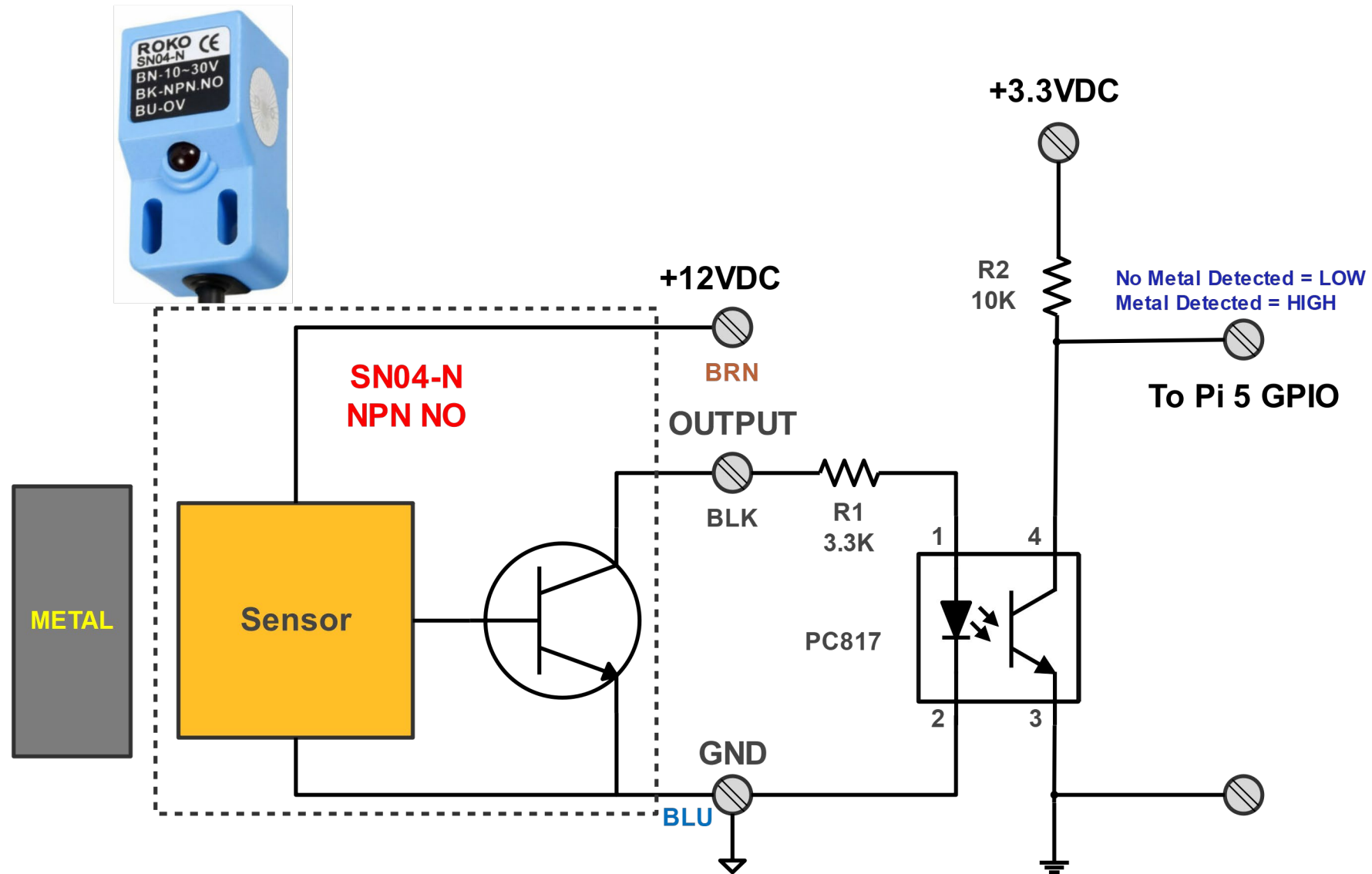
Status Bar Visibility setting. [More info.](#)

visible

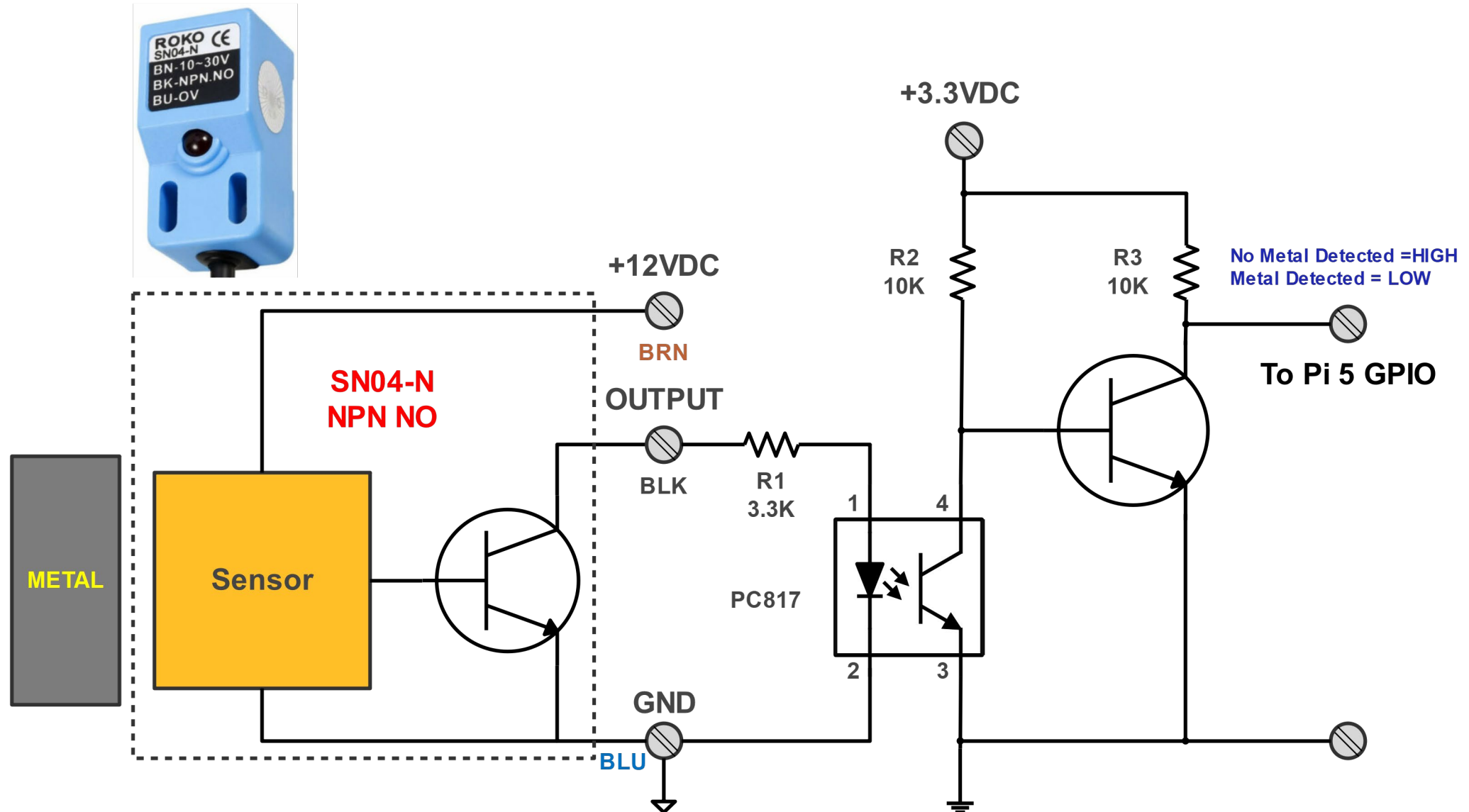


gcc-arm-11.2-2022.02-x86_64-arm-none-eabi.tar.xz

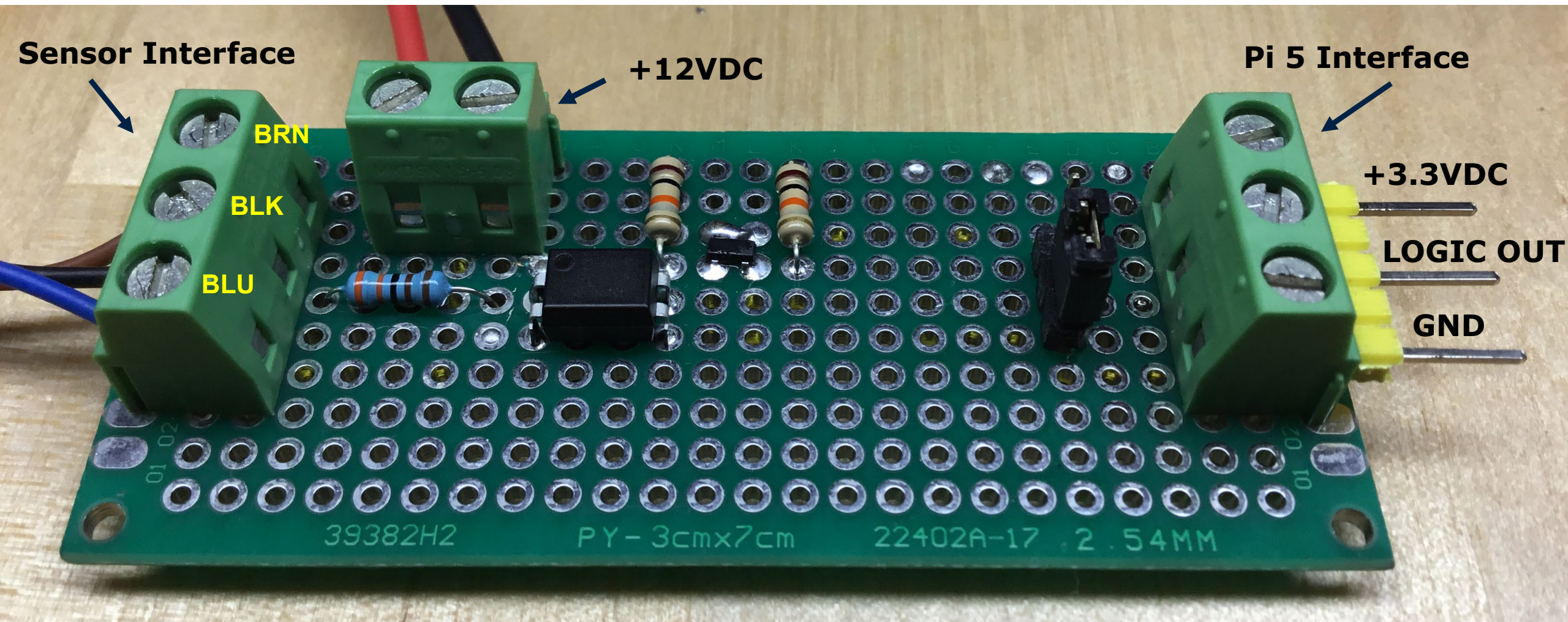
Opto-Isolated SN04-N Noninverted Output Interface



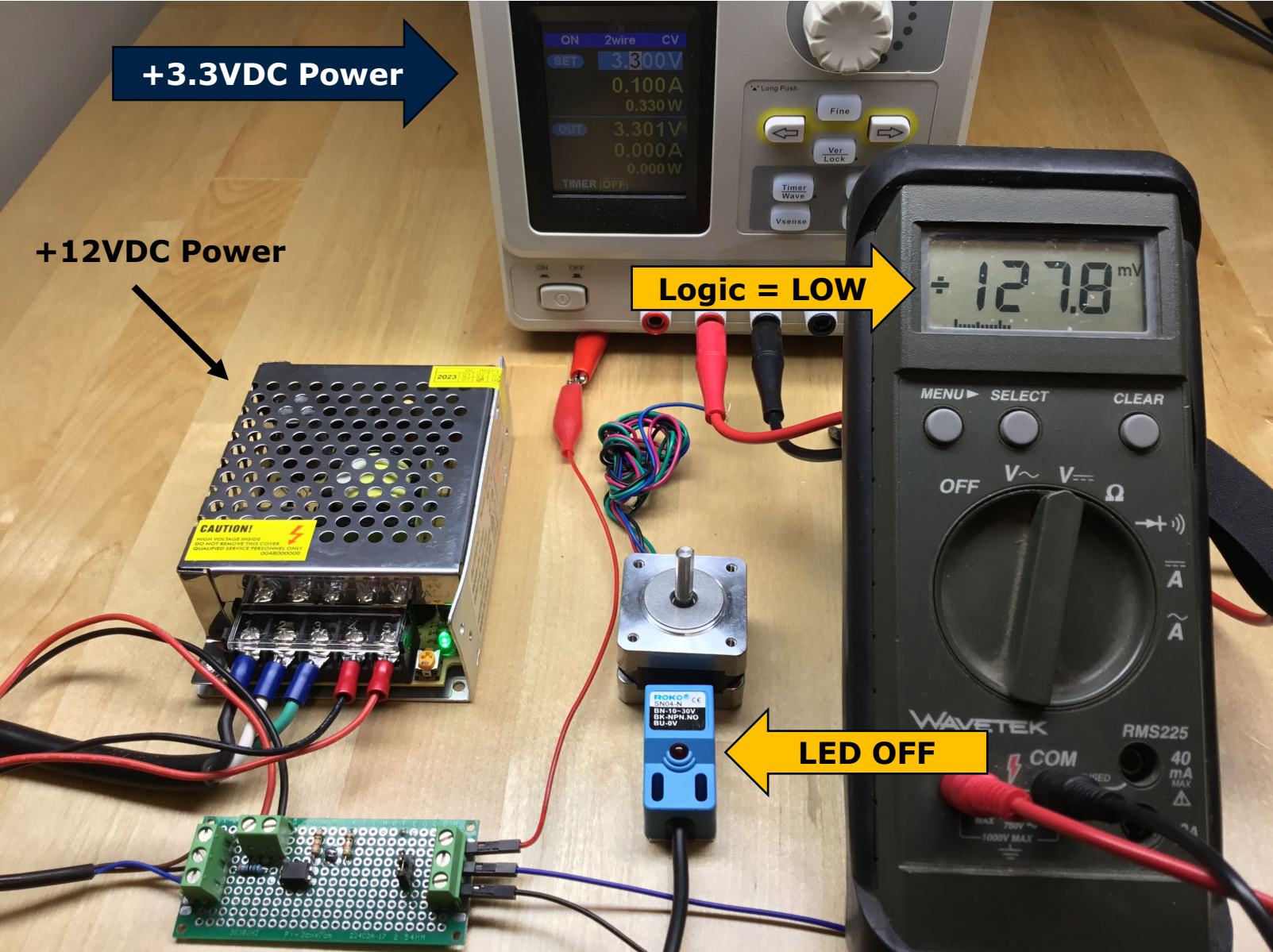
Opto-Isolated SN04-N Inverted Output Interface



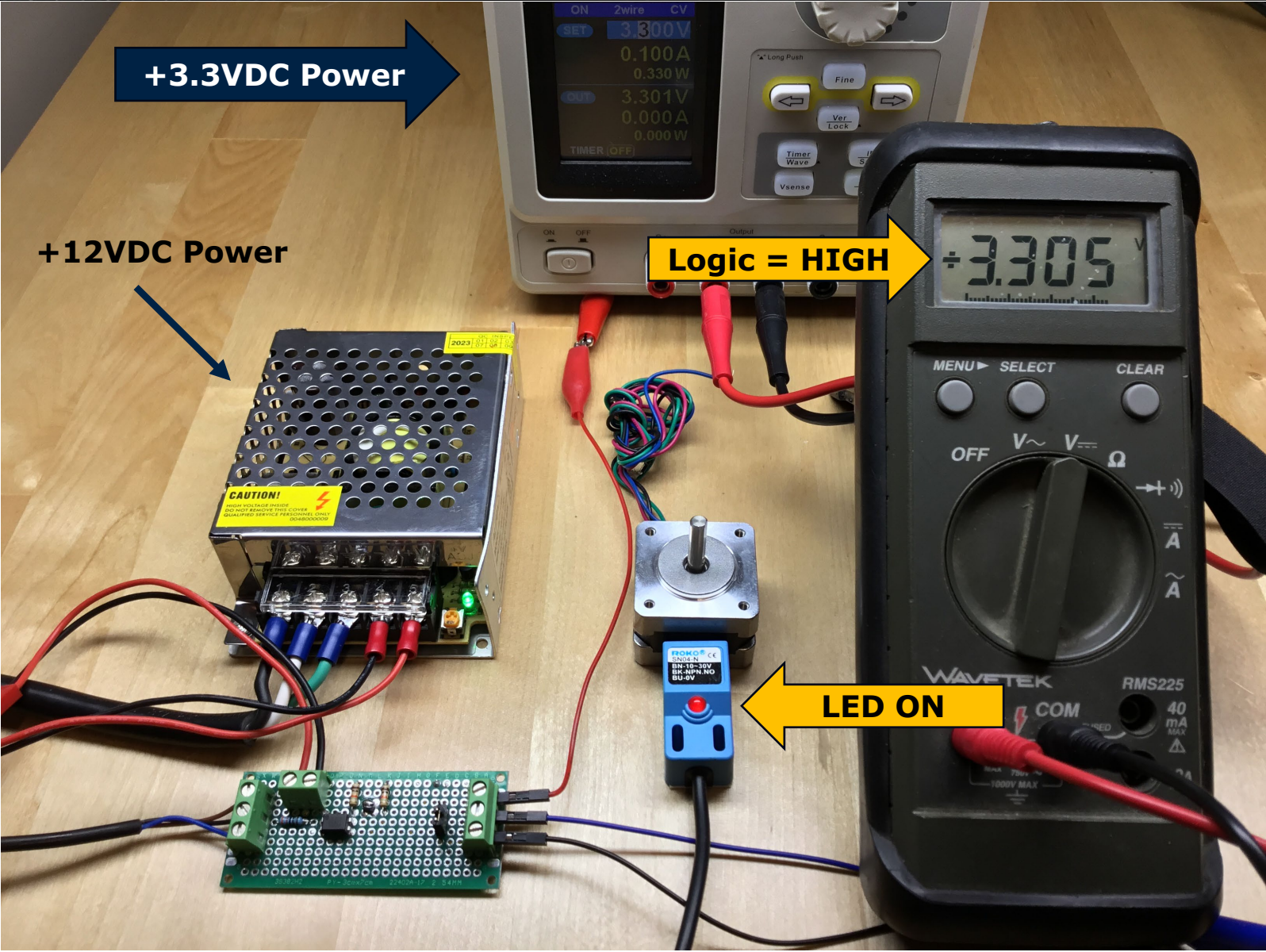
Opto-Isolated SN04-N Output Interface



Metal Not Detected (Noninverted Output)



Metal Detected (Noninverted Output)



Next Time...

MORE TO COME..

Thank you for attending!!!

Please consider the resources below:

- **Today's Download Package**
- **raspberrypi.org**
- **SN04-N Datasheet**





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Thank You

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