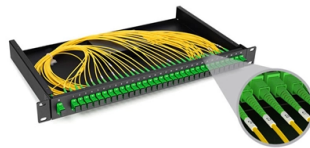


Demonstration of reading fiber optic sensor values via serial port



AI Overview

You can read fiber optic sensor values using an Arduino connected via USB, sending data over the serial port, and visualizing it with tools like Python GUI, Processing, or the Arduino Serial Plotter. Hardware Setup: Microcontroller: Use an Arduino Nano, ESP32, or similar board. Fiber Optic Sensor: Connect the LED light source and LDR (light detector) to the Arduino analog pins (e.g., A0 for channel A, A1 for channel B) as in the Fiber Optic Tester project. Power: Supply the Arduino via USB or an external 7-12V source. Fiber Connection: Insert the fiber optic cable between the LED and LDR to measure light intensity. Arduino Code Example: C++ Copy

```
int sensorA = A0; // LDR channel A
int sensorB = A1; // LDR channel B
int valueA, valueB;

void setup() {
  Serial.begin(9600); // Initialize serial communication
}

void loop() {
  valueA = analogRead(sensorA); // Read LDR A
  valueB = analogRead(sensorB); // Read LDR B
  Serial.print(valueA); Serial.print(","); Serial.println(valueB); // Send comma-separated values
  delay(100); // Adjust sampling rate
}
```

Explanation: `analogRead()` reads the sensor voltage (0-1023). `Serial.println()` sends the values over USB to the serial port.

Reading and Visualizing Data Using Arduino Serial Plotter: Open Arduino IDE → Tools → Serial Plotter. Select the correct COM port and baud rate (e.g., 9600). The Serial Plotter will graph the sensor values in real-time, showing trends and fluctuations.

Using Python GUI: Install Python with PyQt5 and pyserial. Connect to the Arduino COM port. Read serial data and parse comma-separated values. Display real-time charts and logs, similar to the Fiber Optic Tester GUI. Python Copy

```
import serial
import matplotlib.pyplot as plt

ser = serial.Serial('COM3', 9600)
plt.ion()
fig, ax = plt.subplots()
lineA = ax.plot([], [], label='Channel A')
lineB = ax.plot([], [], label='Channel B')
dataA, dataB = [], []

while True:
    line = ser.readline().decode().stri...
```

Article Content

Python Datalogger

NOTE: I will be using a DHT11 temperature sensor to produce data on the Arduino end. Since this is a tutorial on reading data from the serial port

LabVIEW Applications for Fiber-Optic Remote Test and Fiber Sensor ...

Results of the manual and automatic measurements and the analysis of the measurement trace obtained from the optical time domain reflectometer (OTDR) are shown the end,two applications of

How to connect analog output of FS-N11MN Fiber Optic sensor to

I am trying to get my FS-N11MN Fiber Optic sensor, which is an intensity-based sensor, to Arduino uno in order to get digital voltage value. I have already set up the circuit for the sensor

Optical Fiber Sensors

Optical fibers can be used as sensors by modifying a fiber so that the measurand interferes on the guided light and modulate light parameters such as intensity, phase, polarization, wavelength, or

Fiber Optic Sensor Technology: Introduction and Overview K. T.V ...

The successes of optical fiber sensor technology have been in areas such as hydrophones (underwater acoustic sensing), temperature, pressure and strain monitoring, and the fiber optic gyroscope (FOG)

Live Demonstration: Event-driven Serial Communication on Optical Fiber

Abstract—This demonstration presents the first implementation of “event-driven” serial asynchronous communication on optical fiber. “event-driven” communication is used by neuro-morphic ...

Fiber-optic sensor

A fiber-optic sensor is a sensor that uses optical fiber either as the sensing element ("intrinsic sensors"), or as a means of relaying signals from a remote sensor to the electronics that process the signals

Amirmobash/fiber-optic-tester

The device tests fiber paths A→A and B→B by emitting light through an LED and measuring the received light intensity with an LDR after passing through the fiber. The difference between ambient

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how to construct receiver circuit for optic fiber

I've recently built temperature monitoring (30degree-80degree) using plastic fiber-optic (pof) sensors with integration to iot. my project need me to

Fiber Optic Sensors: Fundamentals, Principles & Applications

Extrinsic Fiber Optic Sensors Fiber is Only an Information Carrier To and From a Black Box Light Signal Generation in Black Box Depending on the Arriving Information

Fault Detection System in an Optical Fiber Using Arduino

This paper proposed an intelligent fault detection system using Arduino in optical fiber communication. The idea behind this fault invigilating module is to monitor the received power supply

LabVIEW Applications for Optical Amplifier Automated Measurements ...

Recently, fiber optic sensor technology has gained interest from the research community. Optical fiber sensors offer a number of advantages over conventional electrical sensing technologies, which make

LabVIEW Applications for Optical Amplifier Automated Measurements ...

In the first section, the LabVIEW applications in fiber optic system and the basics of instrument connectivity are presented. Then, the aspects of hardware communication to external instruments

The FOA Reference For Fiber Optics

Designers of fiber optic cable plants and networks depend on these specifications to determine if networks will work for the planned applications. For the purposes of

Integrated Sensor-Optics Communication System Using

This paper introduces a new bidirectional integration approach that combines fiber sensor/free space optics (FSO) communication using an intensity

pmc.ncbi m.nih.gov

Hier sollte eine Beschreibung angezeigt werden, diese Seite lässt dies jedoch nicht zu.

Project | DIY fiber optic sensors, again | Hackaday.io

@patex1987 wrote graphical demonstration program in Python, asking periodically the MSP430 for measured values, parsing the output, displaying both numerical and graphic output, as

(PDF) Interrogation-Based Fiber Optic Sensors: A

The fiber optic sensors are able to monitor distributed temperature across the burner during different operation modes and can also detect local hot

How to read and plot sensor data

With an Arduino you can either read the sensor data via USB or Bluetooth (only HC-Modules are currently supported). The provided example code should be self-explanatory.

Fiber Optic Sensor

This paper reviews the fiber optic sensors that have been developed and applied to measure cable forces, including fiber Bragg grating, interferometer, and fully distributed sensors. The reviewed

Optical Fiber Communication with Arduino | Arduino-Powered Data ...

Arduino-Powered Data Transmission with Fiber Optics Welcome to our video tutorial on optical communication with Arduino, designed to be easy to follow,

(PDF) Demonstration of a refractometric sensor based

In this paper, we report the first theoretical and experimental study of a new type of refractometric sensor based on micro-fiber three-beam interferometer.

Demonstration of a Learning-Empowered Fiber

We report a simple and robust fiber specklegram refractive index sensor with a multimode fiber-single mode fiber-multimode fiber structure based

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Fiber Optic Sensor

Fiber optic sensors are defined as sensing devices that utilize optical fibers to convert lightwave properties into information about the state of structures, offering long-term durability, immunity to

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```
Raw read_serial.py import serial # this port address is for the serial tx/rx pins on the
GPIO header SERIAL_PORT = "/dev/ttyAMA0" # be sure to set this to the same rate
used on the
```

Sensemetrics

This will open the Device configuration settings. Select the type of fiber optic sensor that is on each channel. Click "Done" when finished and make sure to click "Save" to write the settings. Once saved,

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://energy-powertools.eu>

Email: info@energy-powertools.eu

Phone: +49 172 6389472

Address: Musterstraße 12, 10115 Berlin, Germany

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