

A to D Converter Read Instruction

Spoken Tutorial Project

<https://spoken-tutorial.org>

National Mission on Education through ICT

<http://sakshat.ac.in>

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Learning Objectives



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- **A to D (Analog to Digital) Converter Read Instruction**



System Requirements



System Requirements

- **Ubuntu Linux 18.04 OS**



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- **LDmicro**



System Requirements

- **Ubuntu Linux 18.04 OS**
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- **OpenPLC Mainboard**



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- **24V, 2A SMPS**



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- Ubuntu Linux 18.04 OS
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- USBasp programmer



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- Ubuntu Linux 18.04 OS
- LDmicro
- OpenPLC Mainboard
- 24V, 2A SMPS
- USBasp programmer
- Heater module



Pre-requisites



Pre-requisites

- Heater module



Pre-requisites

- Heater module
- Compare instructions



Pre-requisites

- Heater module
- Compare instructions



Pre-requisites

- Heater module
- Compare instructions

If not, please refer to the relevant tutorials in this series from

<https://spoken-tutorial.org>



Prerequisites - Hardware setup



A to D Converter Read



A to D Converter Read

- Reads the data collected by ADC built within a microcontroller



A to D Converter Read

- Reads the data collected by ADC built within a microcontroller
- The data collected will be stored in a variable



A to D Converter Read

- Reads the data collected by ADC built within a microcontroller
- The data collected will be stored in a variable
- This ADC variable can be manipulated using Compare and Arithmetic operations



A to D Converter Read

- ADC of ATmega16 is of 10-bit resolution
(i.e.) it outputs value from 0 to 1023



Example



Example

- **Control the temperature of the resistor of the OpenPLC Heater module**



Example

Conditions:

- If ADC value < 800 ,
Output: fan is ON and heat is OFF



Example

Conditions:

- If ADC value < 800 ,
Output: fan is ON and heat is OFF
- If ADC value > 900 ,
Output: fan is OFF and heat is ON



Summary

- **A to D Converter Read Instruction**



Assignment

Change the limit values:

- If ADC value < 750 ,
Output: fan is ON and heat is OFF
- If ADC value > 950 ,
Output: fan is OFF and heat is ON



About the Spoken Tutorial Project

- Watch the video available at https://spoken-tutorial.org/What_is_a_Spoken_Tutorial
- It summarises the Spoken Tutorial project
- If you do not have good bandwidth, you can download and watch it



Spoken Tutorial Workshops

The Spoken Tutorial Project Team

- Conducts workshops using spoken tutorials
- Gives certificates to those who pass an online test
- For more details, please write to contact@spoken-tutorial.org



Forum questions

- Questions in THIS Spoken Tutorial?
- Visit <https://forums.spoken-tutorial.org/>
- Choose the minute and second where you have the question
- Explain your question briefly
- The Spoken Tutorial project will ensure an answer

You will have to register to ask questions



Forum for specific questions

- Questions not related to the Spoken Tutorial?
- Do you have general / technical questions on the Software?
- Please visit the FOSSEE Forum
<https://forums.fossee.in/>
- Choose the Software and post your question



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THANK YOU!

For more Information, visit our website
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