Loss of Plate Temperature Controller

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ABSTRACT
Serial communication is the most commonly used to send data between data processing devices and other peripheral devices. In an embedded system serial communication is a way of transferring LPTC data and store to a PC and can be operated by using a PC. In this system, serial communication and LPTC system using PIC 18F46K22 is processed sending data and control. The system is mainly used PIC to control the electronic devices with PC by using RS232 connector & MAX 232 IC.

Keywords: Digital LPTC; Temperature Controller; LPTC; Loss plate temperature display;

I. INTRODUCTION:-

This controller, as the name indicates, is used to control the loss of plate temperature. It is available in the extruded aluminum enclosure as per DIN standard full-duplex. There will be a source and destination for each transmission mode. It is taken by processing the Universal Asynchronous Receiver Transmitter (UART) feature within the PIC microcontroller. The components of this system can be divided into four main sections.

- Input section
- Controlling section
- data processing section
- Output section

And define to Dual digital display and serial port to automatically read up and make a data sheet.
- **Input section:-**Analog signal is an input and ADC to covert the and display and the input is ampere form
- **Controlling section:-** The controlling section is the PIC microcontroller base. It controls the input and converts. Also it displays and communicates with the PC.
- **Data processing section:-**it is using serial communication which means the data will be transmitted in a bit or character on several data lines or buses at a time. Serial communication but used for long data transmission due to lower cost and practical reasons.
- **Output section:-**
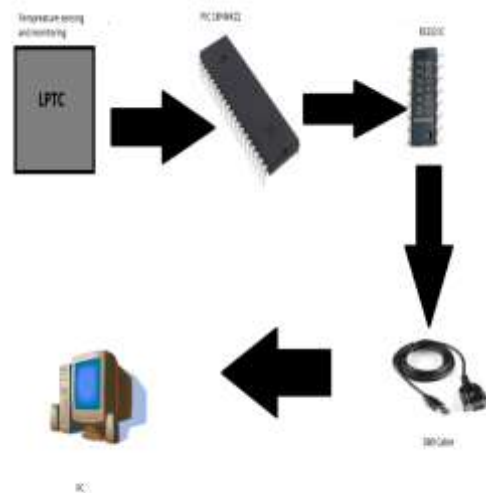
MAJOR COMPONENTS OF THE SYSTEM :
The major components used in this system are:
- PIC18F46k22
- LPTC circuit (Temperature sensor)
- MAX232 IC
- RS232(DB9) Connector
- 12V Power supply and Relay circuit
- Computer(PC)

The RS232 and PIC IC interface between LPTC Board RS232 IC connected to the PC with connector. The LPTC signal is fed to the relay driver circuit. Using the switch and the multi-turn trim-pots we can set the required temperature. Led indicates the relay condition. If any of the input exceeds the corresponding set point relay is de-energized. The temperature sensor converts this temperature into a square wave with a frequency proportional to the absolute temperature of its package, while drawing little supply current from the power source. The amplitude of the output signal is equal to the power supply of the system. RS232 is a standard for a serial communication interface that allows for sending and receiving data via at least three wires. On the pc, we will use a terminal program to send and receive data covert the Excel Sheet using PLX software.

ELECTRONIC DEVICES CONTROL PROCESS

Computer and PIC-based electronic device control steps can easily be understood by the algorithm below.

Input: Settings the circuit key one eight for controlling the output devices and key nine for emergency stop
Output: Control the device
Step 1: Power on to the circuit
Step 2: Set the all settings in the circuit
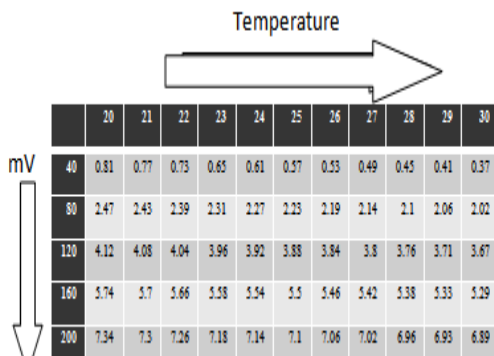Step 3: Begin the serial communication
Step 4: Check the sensor data
Step 5: Convert all data into an Excel sheet
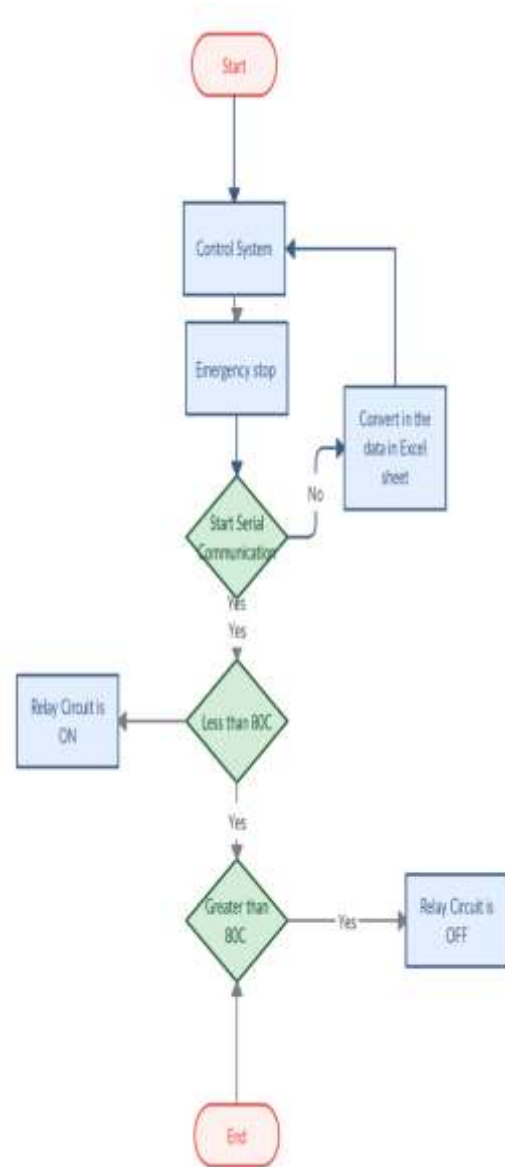Step 6: Control the system
Step 7: End the System

Temperature

mV	20	21	22	23	24	25	26	27	28	29	30
40	0.81	0.77	0.73	0.65	0.61	0.57	0.53	0.49	0.45	0.41	0.37
80	2.47	2.43	2.39	2.31	2.27	2.23	2.19	2.14	2.1	2.06	2.02
120	4.12	4.08	4.04	3.96	3.92	3.88	3.84	3.8	3.76	3.71	3.67
160	5.74	5.7	5.66	5.58	5.54	5.5	5.46	5.42	5.38	5.33	5.29
200	7.34	7.3	7.26	7.18	7.14	7.1	7.06	7.02	6.96	6.93	6.89

Temperature readings and mV
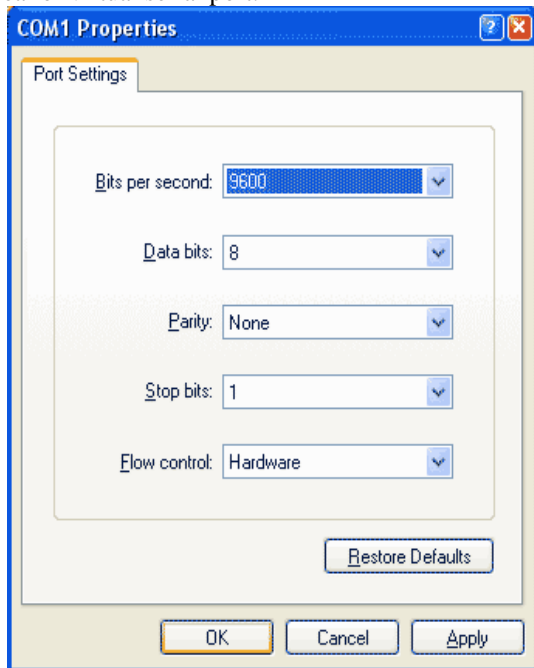

SERIAL COMMUNICATION

Where several bits are sent at one time, serial communication is the process of transmitting data bit by bit. In this system, we can communicate with a PC using a PIC microcontroller. This article shows how to do a simple communication via an RS232 interface with a PIC microcontroller. RS232 is a standard for a serial communication interface that allows to send and receive data via at least three wires. With the RS232 interface, it is possible to set up a connection between a microcontroller and a PC (via the PC's COM port) or between two microcontrollers.

In addition the use of the communication component UART present within the microcontroller

SOFTWARE TOOLS
Serial Communication :
We are using in Hyper terminal in serial communication. This software can easily read, record, and display data transmitted through any real or virtual serial port.

Baud rate is the measure of the speed of data transfer in serial communication in units of symbols per second. It may also be considered as the number of bits per second under some circumstances. Baud rate can be configured for different modes of UART using different formulae. For example, if a 9600 baud rate is to be used for an 8-bit asynchronous mode of data transfer baud rate is calculated with the formula

$$\text{Baud Rate} = \frac{\text{Fosc}}{64 \text{ X (SPBRG + 1)}}$$

$$\text{SPBRG} + 1 = \frac{\text{Fosc}}{(64 \text{ X Baud Rate})}$$

$$\text{SPBRG} = [\frac{8000000}{(64 \text{ X } 9600)}]$$

$$\text{SPBRG} = 12.02$$

Data Converter :
PLX Technology is a supplier of PCI Express (PLX) Bridges and Switches, and other standard input/output (I/O) interconnect silicon including PCI and PCI-X Bridges; USB controllers; I/O Accelerators; and Hyper Transport Bridges for the communications, server, storage, embedded-control, and consumer industries.

FEATURES:
- Plot or graph data as it arrives in real-time using Microsoft Excel
- Mark data in real-time or seconds since reset.
- Read/Write any cell on a worksheet
- Read/Set any of 4 checkboxes on the control interface
- Example code for the BS2, SX (SX/B), and Propeller available.
- Baud rates up to 128K

II. SUMMARY:
This controller, as the name indicates, is used to control the loss plate temperature. The RS232 and PIC IC interface between LPTC Board RS232 IC connected to the PC with connector. The LPTC signal is fed to the relay driver circuit. Using the switch and the multi-turn trim-pots we can set the required temperature. Computer and PIC based electronic devices control steps can easily be understood by the algorithm below.

Where several bits are sending at one time, serial communication is process of transmitting data bit by bit. In the transmit direction the CPU initiates a data transfer by writing transmit data to the DXR. Then the data are copied from the DXR into the XSR and clocked out to the DX output.

Serial communication is the most commonly used to send data between data processing devices and other peripheral devices. And define to Dual digital display and serial port to automatically read up make a data sheet.