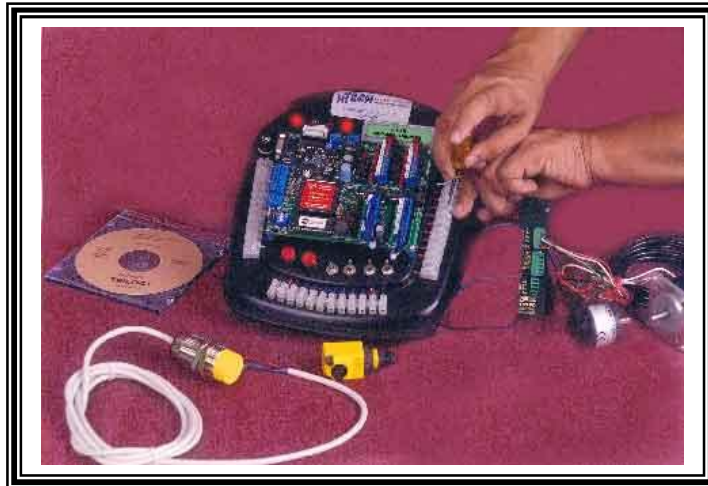


## PLC Trainer    PTS F88

### LAB EXPERIMENTS



**A Super trainer  
with advanced hardware and software features only  
found in very expensive equipment.**

**You won't find any similar equipment among our  
competitors at such affordable and hard-to-believe cost**

**More technologies**

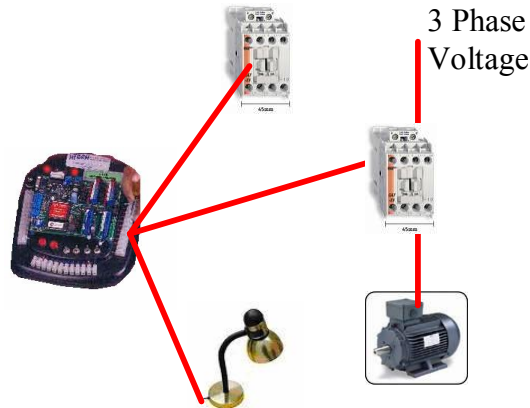
**More topics**

**More experiments**

**More fun**

**More powerful**

## Simple Control



### Materials:

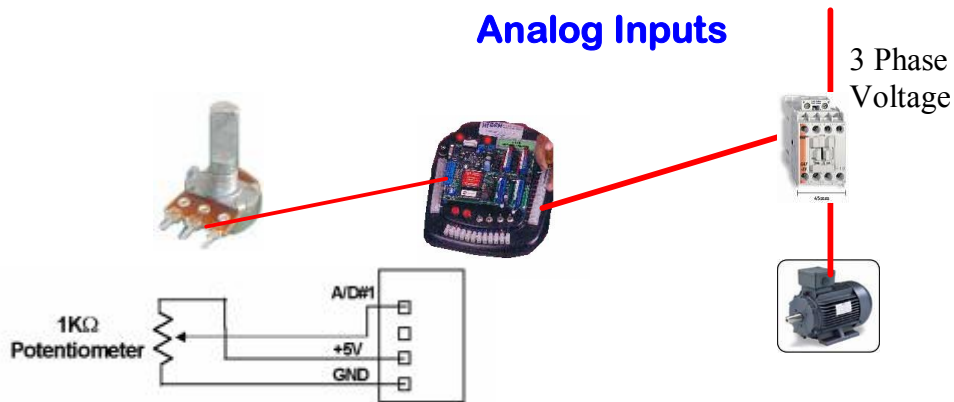
- Any 110VAC lamp
- Relay with 110VAC coil.
- Single phase or three phase motor and its driving contactor

### Description:

You can control Relays or the coil of a Contactor which can drive higher current loads such as 3 Phase AC motors. The trainer has four relays with 10 Amps contacts to drive any load like any lamp or appliance. Combining the outputs along with the push-buttons and switches you can write hundreds of control programs.

### Lab Experiments

- Turn on the lamps from the PLC, assigning each device to an input.
- Turn on a external device after a internal counter reaches certain value
- Make a sequencer that turns on and off the devices. Use different inputs to turn on and turn off the sequencer
- Using the LED on the trainer and the display make a program for a traffic light.

**Materials:**

- 1 K ohm Potentiometer
- Any single or three phase load

**Description:**

The PLC trainer has eight analog input channels and a built-in 5 VDC power supply, you can make sophisticated controls based on a low cost potentiometer. After making the proper connections to any of the analog input channels you can simulate analog conditions, just moving the knob.

**Lab Experiments:**

- Show a value from 0-100 in the LCD Display of the trainer
- Turn on an output (a Motor for instance) if the value is higher than 80.
- Set up a Minimum and a Maximum and keeping the Motor ON as long as the value is within the values of the analog window.
- Associate the analog value to a timer and be able to change the timing. As trigger you can use one the push-buttons on the trainer

## Modbus Communications (Master- Slave)



### Materials:

- Any AC load for every PLC trainer.
- Two meters of two lines shielded cable (can be normal wires for the experiment).

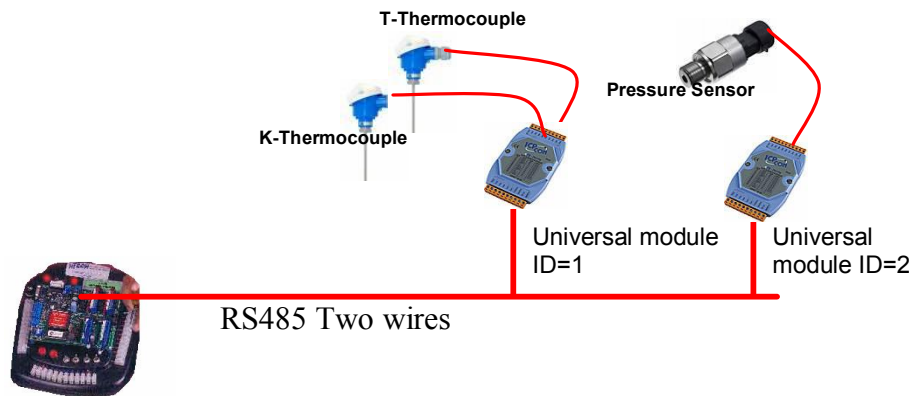
### Description:

The PLC Trainer has a RS485 port that supports Modbus commands either in master or slave mode. Wiring two lines from the RS485 ports on every trainer and having a different load for each side you can send Modbus commands (or any other implemented protocol) from one equipment to the other.

### Lab Experiments:

- Send TEXT from one Trainer to the other and see the text on the display.
- Assigning different text messages to two switches in every trainer, show then on the display of the other unit.
- Using any of the Pushbuttons on every trainer, control an output in the other.
- By simply pushing a button on one of the trainers, start a control sequence on the other trainer.
- Try to implement your own protocol.

## Measuring Remote Variables



### Materials:

- Any number of our Universal analog modules
- Any type of sensors (thermocouples or transmitters with voltage or current output)
- A RS232 to RS485 converter to program the Universal modules ( we provide a FREE software).
- A shielded two lines cable of any length (two meters is OK)

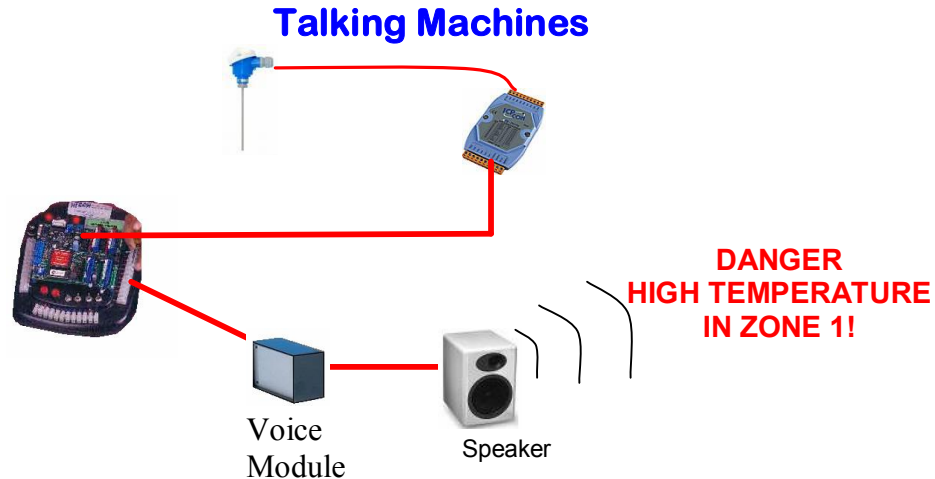
### Description:

Our Universal Modules are able to measure ANY analog variable like voltage (0-1, 0-5, 0-10 VDC), current (4-20mA, 0-20mA) or any thermocouple (J, K, T, R, S, B and others). Each channel can be configured to measure any variable, no matter the rest, using our free software for that purpose. You must use an rs232 to rs485 converter to make the programming from your PC.

Once you have every universal module programmed with an ID and the same communication speed (baud rate), you are ready for the experiments.

### Lab Experiments

- Put more than one module to have a RS485 network and read variables from any remote module.
- Separate the modules within 1Km of distance and experience with different baud rates.
- Alternate the presentation of data on the LCD display

**Materials:**

- Any type of sensor
- Universal module
- RS232 to RS485 Converter
- Voice module
- Speaker
- Compact Flash reader/writer

**Description:**

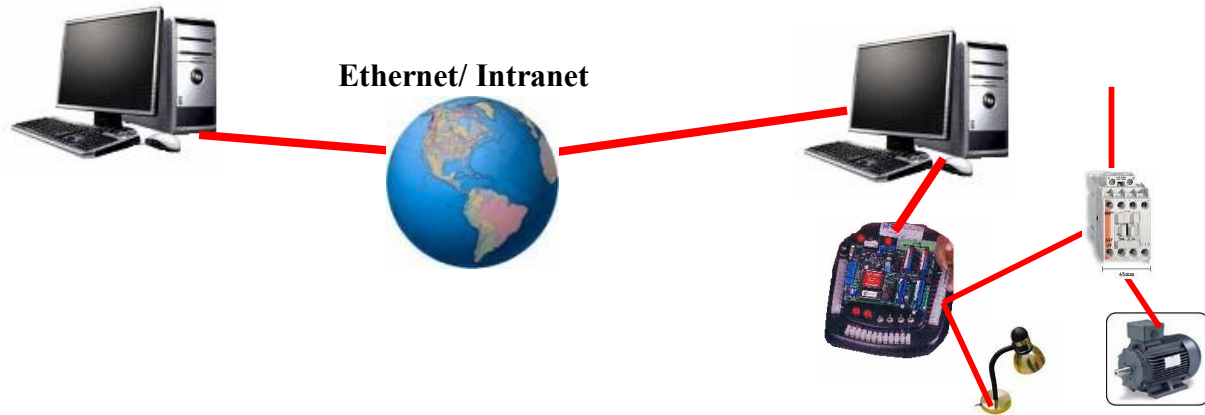
Experimenting with voice is something that brings innovation and fun together. In our case this is very simple and not expensive at all.

Our voice module can store up to 1 hour of audio adding up to 256 files WAV type of any duration. Using the Sound Recorder on any PC with Windows, you can record your files. Then, using a Compact Flash reader/writer, save them into the CF memory of our voice module. Connecting just four of the PLC outputs to the Voice module you can play a binary combination of up to 15 messages.

**Lab Experiments:**

- Measure a temperature with the universal module
- Display the measured value on the Display
- If the value is higher than a predetermined set up play a sound file.
- Make the system to introduce itself.
- Play a sound if one of the switches changes its state.
- Program the voice module to play a different message every time a single contact from the PLC trainer closes.

## Controlling a process from anywhere in the world.



### Materials:

- Any AC load(s)
- Two PCs with internet connection

### Description:

Imagine yourself being in any place of the world and being able to turn on or off any device in your home. The PTS F88 is internet ready, so you only need to connect your PLC trainer to a PC with internet/Ethernet connection and run the TL Server software (found in your CD ROM). From the other PC, that for practical purposes can be other of the INTRANET just use any browser to access a specific address and now you are on-line.

### Lab Experiments:

- Using the programming software connect to the PLC trainer from other PC located next room or a different PC in the network.
- Go home and make things happen on the Trainer left at the Lab.
- Send an Email form the Trainer to a particular email address notifying a failure or the end of a process.
- Saving a blank program in the Trainer and from your home make a program and download it to the trainer.
- Making a faulty program on purpose, have someone at home doing all the Troubleshooting.