



Rev3 uC

Training System

The Rev3 Training System is a direct revision from the Rev2 trainer board, so it has all the features list in Rev2 plus the following:

Rev3 uC Training System

New Features in Rev3

1. The TI/Tiva C Series LaunchPad ARM M4 module interface is included that can be used with all the available peripheral devices on the trainer board such as SPI, I2C, LEDs, LCD, Keypad, EEPROM, DAC, 2.4GHz transceiver, isolated stepper/DC motor driver, etc.
2. I2C interface via TCN75A temperature sensor
3. The 7-Segment interface is eliminated in Rev3
4. The GS Encoder via EVEGA2 is eliminated in Rev3

Embedded System Course & Lab Modules

LM1_Microcontroller Technology	LM2_ASM/C Language
LM3_Register Introduction	LM4_IO and Routine
LM5_IO_WDT	LM6_Interrupts
LM7_LCDs	LM8_Keypads
LM9_Stepper Motor	LM10_DC Motor
LM11_ADC and DAC Controls	LM12_Remote Data Logging
LM13_Wave Forms Generation	LM14_Parallel Control of DC Motors

"the flexibilities, supporting documents, IE curriculum and developed labs, lot of technical materials are there, you don't need to reinvent the wheel."

-Thomas Stout, July 2015



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Rev 2 Trainer Board



Power Selection:

1. Power jumper selection of +5V or +3.3V
2. Jumper selection of -5V or -12V power source for application and project
3. Positive and Negative power source test posts
4. Positive and Negative power source interfaces

Power FETs: Up to 2A on the trainer board and 15A if made on external interface

1. All digital control signals are isolated from the high power FES via 8 optical isolators to the power FETs via IRF530 or IEF540 with indicators: LEDs: 15-21
2. 2 Bidirectional terminal block connectors with LEDs: 11-14 indicators, used with H- Bridge or other applications.
3. 8 terminal block connections for any high power switch applications: Stepper, DC motors and solenoid controls and applications
4. Isolated external high power connector

Digital I/O:

1. 8 Input selections via S7: 1-8
2. 8 Output indicator selections via LEDs 3-10
3. 8 Output indicator or low or high power selections via LEDs 15-21
4. 8 SPDTs hardware debounced switch outputs and indicator: LEDs 23-30 for I/O uses and applications
5. 2 Snap action SPDT selection via: S8 and S9
6. 4 7-Segment Indicator via DIS1-DIS4

The Rev2 has the following features:

- The system could be used with Microchip (PICKit2, PICKit3), NXP/Philips (LPCX), and Arduino systems for programming, simulation operation, and debugging.
- Power options include +5V, +-12V, +3.3V, digital and analog I/Os, LCD, and LED displays, RS232 and USB communication capabilities, 2.4GHz wireless module, and high and low power isolation for digital/analog and motor drive controls.
- OPamp, EEPROM, DAC operations, and SPI Bus are accessible.
- FET/IRF530*8 power for stepper and DC motor controls are available.

Operation Selection:

1. DIP S1: 1-8 for different PIC MCU package selections
2. DIP S2: 1-2 for different PIC MCU operation selections
2. DIP S4: 1-8 for PICKit2 or PICKit3 Selections
3. DIP S6: 1-8 for PIC or LPCX operation selections
4. PICKit3 programmer module interface
5. Open VPP, DATA, & CLK programming interface for universal programming on any PIC microcontroller
6. Automatic isolation switches for PICKit2, PICKit3, and LPCX
7. NXP, LPCXpresso module interface for ARM M0 32 bit microcontroller core: LPC1114FN28

Modulus Part/Port:

1. Dual OPamps via MCP6024
2. GS encoder via EVEGA2 and interface
3. 64K EEPROM via 25LC256
4. 12 Bit DAC via MCP4822
5. 2.4GHz RF transceiver communication module: MRF24J40MA
6. 4*4 or 3*4 matrix interface
7. 40*2 or 20*2 LCD module interface
8. DB9 RS232 serial port and two channels TTL-RS232 interface
9. 40 Pin ZIF socket for different DIP MCU interface and applications
10. 2 Potentiometers for ADC interface and applications
11. All the interface are done with pre-made jumper wires between X connectors that



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