ETS-3000 Digital-Analog Training System

Feature

1. Suitable for basic electric circuits, linear circuits, combinational logic, sequential logic, microprocessor circuits, and FPGA.
2. User-friendly comprehensive power supply, function generator/ counter, digital meter, analog meter and testing devices.
3. Universal breadboard(1440 tie points) for circuit design, faya-Nugget breakout boards NGT-series and prototyping.
4. Tie points fitting solid leads AWG#22~30 (0.3~0.8mm).
5. USB Interface for optional fayaduino Nano board, FPGA, MCU.
6. Peripheral hardware:
   LED, Joy Stick switch, Rotate switch, Potentiometer, Pulser switch, Rotary encoder, Data switches, Speaker, Power supply, Digital displays, Function generator/counter, DCV/DCA meter, Analog meter, etc,
7. Options: FPGA board (with USB Blaster), MCU board, faya-Nugget Combo Pack.

Specifications

1. Function Generator/Counter
   1-1. Universal Counter
      a. Selector: Internal 20MHz,Ext Counter 20MHz, Internal 100MHz,Ext Counter 100MHz,Ext TH & TL, TH, TL, 20MHz, EXT TH&TL, TH, TL, 100MHz Internal 20MHz /100MHz, Ext Counter, TH&TL
      b. Frequency range: 1mHz~100.00000MHz
      c. Period range TH & TL:
      0.01μs~999999.99μs; 1μs~99999999μs
      d. Input signal:
      TTL or CMOS level or any level (Vmin≧+2.3Vp±10%)
      e. Display: 8-digit 7-segment LED display
      f . Mode switch: FG/FC
   1-2. Function Generator
      a. Output waveform:
      Sine, Square, Triangle, TTL (Square only)
      b. Frequency range: 1mHz~2MHz
      c. Amplitude range: 100mVpp~18Vpp (open circuit)
      d. DC offset: -10V~+10V
      e. TTL mode output level: +5V±10%
2. Digital DCV/DCA Meter
   2-1. DC voltage range: 2V, 40V
   2-2. DC voltage accuracy: ±0.3% of reading + 1 digit
   2-3. DC current range: 200μA, 2A
   2-4. DC current accuracy: ±0.5% of reading + 1 digit
   2-5. Project Fuse: 2A
3. Analog V/A Meter
   3-1. Voltmeter:
      0~30VDC full scale, class 2.5, impedance=320KΩ
   3-2. Ampere meter: 0~100mA & 0~1A
4. Logic Indicators
   8 sets of independent LED indicates high and low logic state
5. Joy Stick Switch
   5-1. X/Y- axis potentiometer: 5KΩ
   5-2. Switch type: momentary
6. Potentiometer
   6-1. Variable resistor: 1KΩ(B) ,4-pin output
   6-2. Variable resistor:100KΩ(B) ,4-pin output
7. Rotate Switch
   6 positions rotary switch, 2 set output
8. Pulser Switch
   8-1. Independent output, TTL level
   8-2. With A, $\bar{A}$ output, Pulse width > 5ms
9. Rotary Encoder
   9-1. PA, PB signal output
   9-2. TTL level
10. Data Switches
   8 sets independently control output High or Low, TTL level
11. Speaker
   8Ω/0.5W to be used for load

12. Adapter

For point tip / BNC socket exchange adapters, 2 sets

13. Adjustable Power Supply

13-1. Positive output voltage:

0~+15V±10%, continuously adjustable

13-2. Negative output voltage:

0~-15V±10%, continuously adjustable

13-3. Maximum output current: 500mA

13-4. Line regulation: <0.05% (Ta=25℃)

13-5. Load regulation: <30mV (Ta=25℃)

14. Fixed Power Supply

14-1. Fixed DC output: +5V±10%, 1A

14-2. Fixed DC output: +3.3V±10%, 1A

14-3. Fixed DC output: -5V±10%, 300mA

15. Digital Displays

15-1. 4 sets of independent 7-segment LED display

15-2. With BCD, 7-segment decoder/driver and DP input

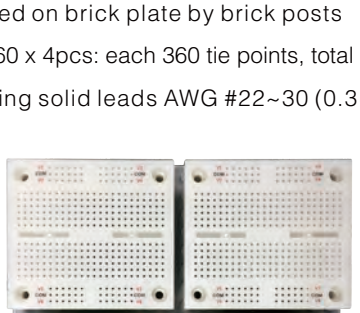
15-3. Input with 8-4-2-1 code

16. Breadboards

16-1. Fitted on brick plate by brick posts

16-2. LA-60 x 4pcs: each 360 tie points, total 1440 tie points

16-3. Fitting solid leads AWG #22~30 (0.3~0.8mm)



17. USB Jack

Type A on front panel and Type B at the rear

18. Power Switch and Fuse

Accessories

1. Power cord
2. USB Cable: A-B, A-mini

General Characteristic

1. AC Power Input: AC 110V/220V, 50/60Hz, ±10%, 1A
2. Weight: 4.5Kg
3. Operating temperature: ambient temperature

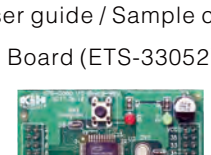
Options

1. FPGA Board (ETS-33051)

USB Blaster

a. Chip : Altera EPM 570T100C5
b. Operating voltage: +5V
c. Digital input pins : 20
d. Digital output pins : 16
e. Clock speed : 20MHz
f . Interface : JTAG
g. With USB Blaster
h. User guide / Sample code

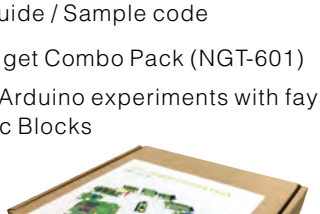
2. MCU Board (ETS-33052)



a. Chip : Atmel P89V51RD2+
b. Operating voltage : +5V
c. Digital I/O pins : 32
d. Clock speed : 8MHz
e. Interface : mini USB
f . User guide / Sample code

3. faya-Nugget Combo Pack (NGT-601)

Running Arduino experiments with fayalab Electronic Blocks



- Main controller :
  fayaduino NANO
- Modules :
  1. Touch Slider
  2. RGB LED
  3. Color Sticker
  4. Light Sensor
  5. Humidity & Temperature Sensor
  6. 3-axis Gyroscope
  7. IR Distance Sensor
  8. DC Motor
  9. Step Motor
  10. IR Receiver
  11. IR Transmitter
  12. Basic Logic Gates
- Accessories :
  1. Brick Post Pack
  2. Brick Cap Pack
  3. Mini USB Cable
  4. Power Wire Pack
  5. Signal Wire Pack
  6. Tutorial CD