ETS-9000

Advanced Digital Training System

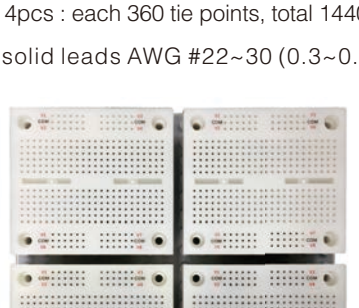
Feature

1. Suitable for combinational logic, sequential logic, microprocessor circuits, FPGA, etc.
2. User-friendly comprehensive power supply, function generator/ counter 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(3 mode), Potentiometer, Pulser switch, Rotary encoder, Data switches, Speaker, Power supply, Digital displays, Universal counter, Function generator, Logic probe.
7. All signal generators have TTL and CMOS level, controlled by CMOS/ TTL switch.
8. Options: FPGA board (with USB Blaster), MCU board, faya-Nugget Combo Pack.

Specifications

1. Function Generator/Counter
   (1) Universal counter
      a. Frequency range :
         1Hz~99.99999MHz, 10Hz~100.00000MHz
      b. Period range TH & TL :
         0.01μs~999999.99μs, 1μs~99999999μs
      c. Input signal :
         TTL or CMOS level or any level (Vmin≧+4.2Vp±10%)
      d. Display : 8-digit 7-segment LED display
      e. Mode switch : FG/FC
   (2) Function generator
      a. Output waveform :
         sine, square, triangle, TTL/CMOS (square only)
      b. Frequency range : 1mHz~1MHz
      c. Amplitude range : 100mVpp~18Vpp (open circuit)
      d. DC offset : -10V~+10V
      e. TTL/CMOS output level : +5V±10% for TTL mode, 3.3V~15V for CMOS mode
2. Potentiometer
   (1) Variable resistor : 1KΩ(B) ,4-pin output
   (2) Variable resistor : 100KΩ(B) ,4-pin output
3. Pulser Switch
   (1) Independent output
   (2) With A, Ā output, Pulse width > 5ms
   (3) TTL/CMOS level
4. Rotary Encoder
   (1) PA, PB signal output
   (2) TTL/CMOS level
5. Data Switches
   (1) 10 sets independently control output high/low
   (2) TTL/CMOS level
6. Logic Probe
   (1) TTL and CMOS level
   (2) MEM and Pulse switch
   (3) 5mm LED displays
   (4) “Lo” and “Hi” LED display, low/high logic state respectively
7. Speaker
   8Ω/0.5W to be used for load
8. Adapter
   For point tip / BNC socket exchange adapters, 2 sets

9. Adjustable Power Supply
   (1) Positive output voltage : 0~+15V±10%, pull to CMOS Level :1.25V~16.25V±10%, continuously adjustable
   (2) Negative output voltage : 0~-15V±10%, continuously adjustable
   (3) Maximum output current : 500mA
10. Fixed Power Supply
   (1) Fixed DC output : +5V±10%, 1A
   (2) Fixed DC output : +3.3V±10%, 1A
   (3) Fixed DC output : -5V±10%, 300mA
11. Digital Displays
   (1) 4 sets of independent 7-segment LED display
   (2) With BCD, 7-segment decoder/driver and DP input
   (3) Input with 8-4-2-1 code
12. Breadboards
   (1) Fitted on brick plate by brick posts
   (2) LA-60 x 4pcs : each 360 tie points, total 1440 tie points
   (3) Fitting solid leads AWG #22~30 (0.3~0.8mm)



13. Logic Indicators
   12 bits LED display : TTL/CMOS mode
14. USB Jack
   Type A on front panel and Type B at the rear
15. Power Switch and Fuse

Accessories

1. Power Cord
2. USB Cable (Type A to Type B)
3. User Manual

General Characteristic

1. AC Power Input : AC 110V/220V, 50Hz/60Hz, ±10%, 1A
2. Weight : 4Kg
3. Operating Temperature : ambient temperature

Options

1. FPGA Board (ETS-33051)

USB Blaster

   (1) Chip : Altera EPM 570T100C5
   (2) Operating voltage: +5V
   (3) Digital input pins : 20
   (4) Digital output pins : 16
   (5) Clock speed : 20MHz
   (6) Interface : JTAG
   (7) With USB blaster
   (8) User guide / sample code

2. MCU Board (ETS-33052)

USB ISP

   (1) Chip : Atmel AT89S52
   (2) Operating voltage : +5V
   (3) Digital I/O pins : 32
   (4) Clock speed : 8MHz
   (5) Interface : USB ISP
   (6) 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. IR Pulse Sensor
  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