VERITAS Engineering

Catalog
Of

Electrical Circuit Lab

Brand: VERITAS

Model: VECT-1501

Technical Specification

1. DC POWER SUPPLY

(1) Fixed DC power supply:

a. Voltage range: +/-5V, +/-12V

b. Max. Current output: 0.3A

c. With output over-load protection

(2) Dual DC power supply:

a. Voltage range ： +/-3V~ +/-18V, continuously adjustable

b. Max. Current output: 1A

c. With output over-load protection

2. AC POWER SUPPLY

a. Voltage range: 9V~0V~9V

b. Max. Current output: 500 m A

c. With output over-load protection

Electrical Circuit Lab Trainer with Module & Cabinet

3. SINGAL GENERATOR

(1) Pulse generator: (TTL level)

a. Frequency range: 1Hz~10KHz / 4 settings, continuously adjustable

b. Fan out: 10 TTL load

(2) Pulse switches:

a. 2 independent output, TTL level

b. With Q, Q output, pulse width > 5ms

c. Fan out: 10 TTL load

(3) Data switches

a. 8 sets independent control output, TTL level with De-bounce circuit.

b. Fan out: 10 TTL load

4. FUNCTION GENERATOR

(1) Output waveform: Sine, triangle, square

(2) Output frequency: 10~100KHz/4 settings, continuously adjustable

(3) Output amplitude: 18Vpp (open circuit) 9Vpp (50 O load)

5. TESTING AND DISPLAY

(1) 3 1/2 digital voltmeter/ammeter

a. DC voltage range: 2V, 200V

b. DC voltage accuracy: +/-(0.3% of reading +1 digit)

c. DC current range: 200

(2) Galvanometer

a. Current range 50mA

b. Accuracy Class 2.5

(3) LED indicator

a. 10 sets independent LED indicates high, low logic state

b. Input impedance: ≥100KΩ

(4) Digital display

a. 2 sets independent 7-segment LED

b. With BCD-7segment decoder/driver and DP Input

c. Input with 8-4-2-1 code Breadboard: 1680 tie-point breadboard on top panel can be easily put into and taken off

Accessories: Experiment manual, connection leads, connection plugs, breadboard

List of Module:

a. Basic Device Module

b. Basic Electricity Experiment Module

c. Sensor Module(1)

d. Sensor Module(2)

e. Diode, Clipper and Clamper Module

f. Rectifier, Differentiator Integrator Circuit Module

g. Transistor Amplifier Circuit Module

h. Multi-Stage Amplifier Circuit Module

i. FET Circuit Experiment Module

j. OP Amplifier Circuit Module 1, 2, 3, 4, 5

k. Combination Logic Circuit Experiment Module 1, 2, 3, 4, 5

l. Sequential Logic Circuit Experiment Module 1, 2

m. Load Unit Module

Basic Electrical/Electronic Circuit Lab with all Module and Complete teaching manual and advanced learning course

List of Experiments:

A) Basic Electricity Experiments

1.Basicelectricity

(1))Resistor measurement

(2)DC voltage/current measurement

(3)Ohm's law

(4)AC voltage/current measurement

(5)Series/parallel circuit

(6)Wheatstone bridge

(7)Kirchoff'slaw

(8)Thevenin'stheorem

(9)Norton'stheorem

(10)Maximum power transfer theorem

(11)DC RC and RL transient phenomena

(12)Power in DC circuit

(13)AC current/voltage experiment

(14)AC RLC series/parallel circuit

(15)Resonant circuit

(16)Power in AC circuit

2.Controlcircuit

(1)Water level control

(2)Metal detector

(3)Light controller

(B)Electronic Circuit Experiments

1. Diode experiments

(1)The Diode V-I characteristic curves

(2)The series diode clipping circuit

(3)The series diode clipping with bias circuit

(4)The parallel diode clipping circuit

(5)The parallel diode clipping with bias circuit

(6)The diode clamping circuit

(7)The diode clamping circuit with bias

(8)LED current characteristics

(9)Diode rectifier circuit

(10)Filter circuit

(11)Voltage multiplier

2. Transistorexperiment

(1)Measuring I,I,I and of PNP transistor

(2)Measuring I,I,I and of NPN transistor

(3)Transistor output characteristics curve EBC EBC β β

3. Transistor amplifier

(1)Fixed bias circuit

(2)Divide bias circuit

(3))Feedback bias circuit

(4)Common emitter transistor amplifier

(5)Common-collector transistor amplifier

(6)Common base transistor amplifier

4. Multistage amplifier

(1)RC-coupled amplifier

(2) Direct-coupled amplifier

(3)Transformer-coupled amplifier

(4)Push-pull amplification circuit

5. Darlington and FET circuit

(1)Darlington's circuit

(2)Field Effect Transistor (FET)type and characteristics

(3)JFET type and characteristics

(4) MOSFET type and characteristics

(5)Common source amplifier

(6)Common drain amplifier

(7)Common gate amplifier

6. OP amplifiers

(1) OP amplifier characteristics

(2) Non inverting amplifier

(3) Inverting amplifier

(4)Voltage follower circuit

(5)Adder circuit

(6)Differential amplifier

(7)Clipping circuit

(8) Constant -voltage circuit

(9)Constant -current circuit

(10)Differentiator circuit

(11)Integrator circuit

(12)Instrumentation amplifier

7. OP Amplifier Application circuits

(1) Active high -pass filter circuit

(2) Active low -pass filter circuit

(3) Active band -pass filter circuit

(4) Ton Control circuit

8. OP Amplifier comparators and oscillators

(1)Comparator

(2)Window comparator

(3)Schmitt trigger

(4)RC phase -shift oscillator

(5)Wien oscillator

(6) Monostable multivibrator

(7)Square generator

(8)The oscillator with adjustable duty cycle

9. Other circuits Crystal oscillator

(C) Digital Logic Experiments

1.Basic logic gates experiment

(1)TTL,CMOS characteristics

(2)Threshold voltage measurement

(3)Voltage/current measurement

(4)Basic logic gates function testing

(5)Combination logic circuit

(6)Comparator

2.Adder,subtractor experiment

(1)Half -adder circuit

(2)Full -adder circuit

(3)Half -subtractor circuit

(4)Full -subtractorcircuit

(5)4 –bitadder

(6)4-bitsubtractor

(7)BCD adder circuit

3.OP amplifier application circuits

(1) Active high-pass filter circuit

(2) Active low-pass filter circuit

(3)Active band-pass filter circuit

(4)Tone control circuit

3.Encoder,decoder circuit

(1)4-to-2encoder

(2)2-to-4decoder

(3)4-to-10decoder

(4))BCD-to-7-segmet decoder

4. Multiplexer, de-multiplexer experiment (1) (2) (3)1 (4)Analog multiplexer/de-multiplexer 2-to-1 multiplexer 8-to-1 multiplexer-to-2 de-multiplexer

5. Arithmetic elements

(1)ALU(Arithmetic and Logic Unit) circuit

(2)Parity generator circuit

6.Sequential logic circuit

(1)RS flip-flop

(2)D flip-flop

(3)JK flip-flop

(4)T flip-flop

(5)Constructing a shift register with D flip-flops

(6) Preset left/right shift register

7. Sequential logic application

(1) Asynchronous divide by 8 up-counter

(2) Asynchronous up counter with IC7490

(3)Synchronous binary up-counter

(4)Moving LED control

(5)Traffic light control