NTTF

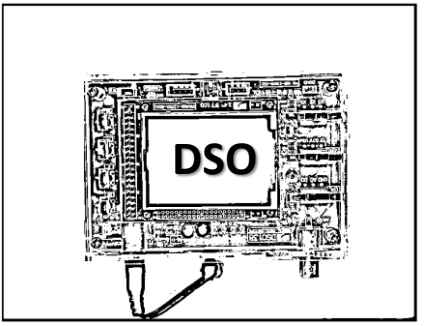
Securing Your Future With Your Own Hands

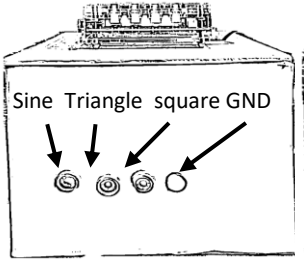
USER MANUAL

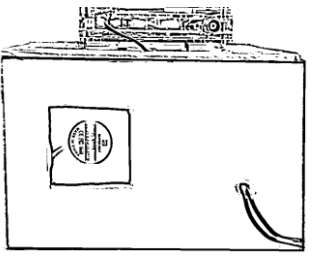
"PFD (Power Supply , Function Generator & Digital storage Oscilloscope) KIT"

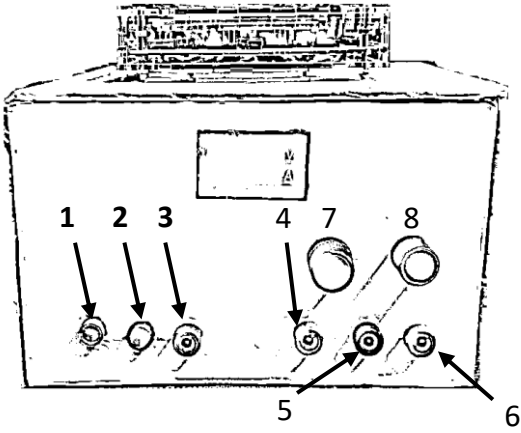
LOGISTIC INITIATOR

BE AN INITIATOR OF CHANGE


DSO


Sine Triangle square GND

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PFD KIT (POWER SUPPLY) OPERATING ELEMENTS

1) 3.3v terminal(RED)
2) Common ground (black)
3) 5v terminal (RED)
4) 12v terminal (RED)
5) Common GND
6) 0-12v terminal (RED)
7) Coarse knob
8) Fine knob

PFD KIT (FREQUENCY GENERATOR) OPERATING ELEMENTS

- Sine wave
- Triangular wave
- Square wave
- Common ground
- FM knob
- Duty cycle knob

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1.0) Power Supply

1.1 Digital Display

The digital display shows the value, and decimal point. It shows the value of voltage and current. Voltage is displayed with the unit **'V'** , it can measure up to 100V and current is displayed with the unit **'A' ,** it can measure up to 10A .

1.2 Voltage Variation

Only for voltage variation two potentiometers are used, one for coarse modulation and other one for fine modulation (10kohm & 100kohm respectively) .

1.3 Output Specifications

This function has two common GND terminal one for 3.3v o/p & 5v o/p and another for 12v o/p & 0-12v o/p .

SL NO.	VOLTAGE	CURRENT	PROTECTION (SHOT CIRCUIT)	DISPLAY (LED)
1.	3.3V	0-5A	*	
2.	5V	0-5A	*	
3.	12V	0-5A	*	
4.	0-12V	0-5A	*	*

2.0) Function Generator

2.1 Frequency & duty cycle modulation

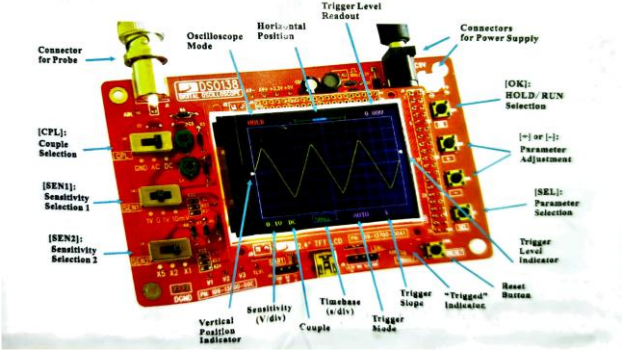
For frequency modulation a 10kohm potentiometer is used , and for duty cycle modulation a 1kohm potentiometer is used.
Rotate **FM** knob clockwise to increase the frequency and,
Rotate **DUTY CYCLE** knob clockwise to increase the duty cycle.

2.2 Output Specifications

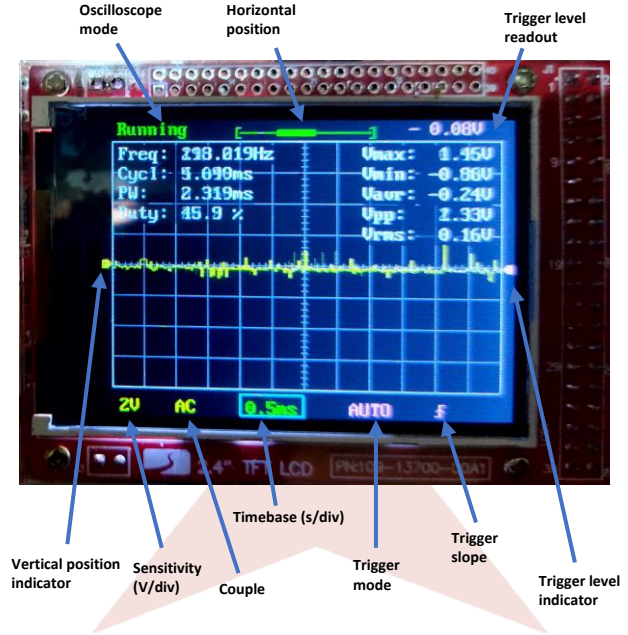
This function has a common GND terminal for **SINE ,TRIANGLE ,SQUARE** waves .

SL NO.	WAVE	FREQUENCY MODULATIO N	DUTY CYCLE MODULATION
1.	**SINE**	*	*
2.	**TRIANGLE**	*	*
3.	**SQUARE**	*	*

3.0) DSO (Digital Storage Oscilloscope)



3.1 TFT Display



3.2 Operations

* Press on [SEL] button: Select parameter to be adjusted. The selected parameter will be highlighted.
* Press on [+] or [-] button: Adjust the parameter selected by [SEL] button.

* Press on [OK] button: Freeze waveform refresh (entering HOLD state). Press on it again will de-freeze.
* Change [CPL] switch: Set couple to DC, Ac, or GND. When GND is selected the scope input is isolated from input signal and connected to ground (0V input).
* Change [SEN1] or [SEN2] switch: Adjust sensitivity. The product of [SEN1] and [SEN2] settings makes the actual sensitivity which Is displayed at the lower-left corner of the panel.
* Press on [Reset] button: Performance system reset and re-boots the oscilloscope.

0V Line Alignment

Sometimes you may find the 0V line (the trace corresponding to 0V input voltage) does not match with the VPOS indicator at the screen left border. This can easily be fixed by performing the “0V line

alignment" function. First, set the couple switch [CPL] to GND position. Then on [SEL] button to make VPOS indicator highlighted and hold down [OK] button for about 2 seconds. You will set the trace aligned to VPOS indicator when you release [OK] button. You may see some residue mismatch remains at the highest sensitivity settings. This is normal.

3.3 Triggers and their modes

Triggers are events that indicate signal voltage across a set level (i.e. trigger level) along a specified direction i.e. trigger slope, rising or falling). Oscilloscope uses triggers as reference points in time for stable waveform display and measurements.

Auto Mode

In auto mode oscilloscope will perform display refresh no matter triggers happen or not. When triggers are detected waveform display will be displayed with reference to trigger points. Otherwise,

display waveform at random reference points.

Normal Mode

In normal mode oscilloscope will only refresh when perform display there are triggers. If no triggers happen waveform display will stay unchanged.

Single Mode

Single mode is the same as normal mode except that oscilloscope will enter HOLD state after a trigger has been detected and waveform display has been updated. Normal and single modes are useful for capturing sparse or single waveform.

3.4 Output Specification

Specifications	
Max realtime sample rate	1MSa/s
Analog bandwidth	0 -- 200KHz
Sensitivity range	10mV/div - 5V/div
Max input voltage	50Vpk (1X probe)
Input impedance	1M ohm/20pF
Resolution	12 bits
Record length	1024 points
Timebase range	500s/Div -- 10us/Div
Trigger modes	Auto, Normal, and Single
Trigger position range	50%
Power supply	9V DC (8 – 12V)
Current consumption	~120mA
Dimension	117 x 76 x 15mm
Weight	70 gram (without probe)

4.0) Maintenance

Attention:
Disconnect all the circuits before giving the supply !

4.1) Fuses :

The 10 A fuse allows 5A of current to pass easily from the circuits .
If the blows , eliminate the cause of the overload before placing the instrument back to operation!

4.2) Replacement of fuses

Remove the top cover with DSO and then carefully desolder the defective fuse and replace it with the new one .
Again attach the top covering .
*for 2A of current usage :
type FF 2.5 A / 600v ~ ; 6.3mm x 32mm
*for 5A of current usage :
type FF 10 A / 600v ~ ; 6.3mmx32mm

ATTENTION !
Be absolutely certain that only the specified fuses as above are used. The use of fuse with different specifications may place the operator , the system & measuring instrument in danger . The use of short-circuiting of the fuse holder is prohibited.

4.3.3 FUSE TESTING :

After opening the top cover take a DMM (Digital Multimeter).
Select the CONTINUITY function .
Take both probes and place to the both terminals of the fuse
If continuity shows the fuse is in good condition .

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