Scope Meter

PCE –OC 2
User's Manual

SAFETY AND WARNINGS

The following safety precautions apply to both operating and maintenance personnel and must be observed during all phases of operation, service, and repair of this instrument. Before applying power, follow the installation instructions and become familiar with the operating instructions for this instrument.

The meter Digital Storage USB and design of IEC1010 with wavelet table 1 - safety norms, over-voltage electric measurement category III - 1000V CAT, Pollution protection level: 1.

Caution: The rules listed below should be carefully followed for safe operation.

1. NEVER apply voltage or current to the meter that exceeds the specified maximum for the function selected.

Function	Input Jacks	Maximum Input
V DC	V/ΩđCOM	1000Vp, within 10 seconds
V AC	V/ΩđCOM	700V AC RMS, within 10 seconds
mA AC/ DC	400mAđCOM	500mA DC/AC RMS, Fused
A AC/ DC	20AđCOM	20A DC/AC RMS, within 30 seconds with a 15 minutes cool down period

Ω	V/Ω⊣COM	250V DC + AC peak, within 10 seconds
Diode	V/Ω⊣COM	250V DC + AC peak, within 10 seconds
Capacitance	V/Ω⊣COM	250V DC + AC peak, within 10 seconds

2. Keep the meter leads away from the testing point when changing the measuring functions.
3. Pay attention to the warning given by the meter at the top of the LCD: the warning symbol " ", when the input voltage exceeds the safety voltage (36V DC or 25V AC) and the high voltage icon " if the voltage reaches 600V(DC+AC peak).
4. DO NOT measure voltage if the voltage on the "COM" input jack exceeds 500V above earth ground.
5. DO NOT measure AC current on any circuit whose voltage exceeds 250V AC.
6. NEVER connect the meter leads across a voltage source while the function selection is in the current, resistance, diode or capacitance mode.
7. ALWAYS discharge capacitors in power supplies and disconnect the power when making resistance or diode tests.
8. ALWAYS turn off the power and disconnect the test leads before opening the back cover to replace the fuse.
9. NEVER operate the meter unless the back cover is in place and fastened securely.

The International Safety Symbols

	This symbol, adjacent to another symbol or terminal, indicates the user must refer to the manual for further information.
	This symbol adjacent to one or more terminals identifies them as being associated with ranges that may, in normal use, be subjected to particularly hazardous voltages. For maximum safety, the test leads should not be handled when these terminals are energized.
	Double Insulation (Protection Class)
	This symbol advises the user that the terminal(s) so marked must not be connected to a circuit point at which the voltage, with respect to earth ground, exceeds (in this case) 500 VAC or VDC.
CAUTION	The CAUTION symbol indicated a potentially hazardous situation which, if not avoided, may result in minor or moderate injury
WARNING	The WARNING symbol indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death

CONTENT

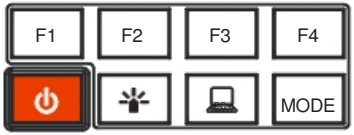
INTRODUCTION

Features

- Combination of a 4000 count auto-range True RMS DMM and a handheld Digital Storage Oscilloscope at the size and the cost of a multimeter.
- DMM functions include True RMS AC/DC voltage and current, resistance, capacitance, frequency, duty cycle, dBm, diode and continuity tests
- Full auto set up for volt/div and time/div of DSO
- DSO Trigger mode: Auto/normal/single
- DSO Auto measure: Vpp, Vavg, Vrms, dBm
- DSO Cursor readout: dV, dt, 1/dt (frequency)
- Screen hold function
- Save and recall up to 100 waveform and data
- High contrast FSTN LCD with white LED backlight
- Auto power off in 5~60min or continuous on

- Inner Polymer Li-Ion Battery with AC adapter
- Isolated USB/RS232 interface with PC

Overview of the Keys

Keys	Name	Function
		PC communications interface control and system Settings/Zero adjustment of options
		Turns the instrument of or off.
		Activates the backlight, toggles the backlight ON/OFF.
	MODE	Toggles the operation mode of DMM/DSO
	F1 ~ F4	Perform the function indicated on the LCD display.

	FUNCS.	DMM selection function (Voltage/Resistance/Hige/Diode/Capacitance/Current) / ADP mode (Temperature/Transistor/Crystals/External Clamp Head Measuring), DSO automatic measurement project selection (Vp, Vavg, Vrms - p, dBm)
	AUTO / RANGE	DMM automatically or manually choose range, automatic Settings, DSO zero self-adjustment
	DC/AC/ ⏚	Choose the DC/AC measurement DMM DSO or the input coupling
	HOLD/MEM	Maintain current measurement data or entering/exit data storage management functions
(on the rear of the instrument)	RESET	Resets the system.

BASIC OPERATION

Power On and Off

Pressing and holding the Power switch ⏻ for 2 seconds will turn the instrument on. Pressing and holding this button for 2 seconds again will turn the power off.

⚠ Caution: Before turning off the power, please keep the probe away from the testing point.

• Always remember to turn off the power in time after using the instrument..

Auto Power Off

If the meter idles for a certain time, the instrument will automatically shut off. The time of AUTO POWER OFF can be adjusted in the SETUP function. When AC power supply is used, this function will be suspended automatically.

To protect the rechargeable battery from over discharge, the instrument will automatic shut-down when the battery runs out.

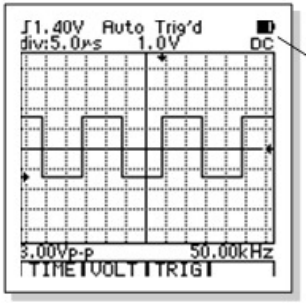
Backlight

Backlighting improves the LCD effect in dark environment. Extended use of backlighting will reduce the battery life. This meter has 3 levels of brightness for users to choose.

1. Press the backlight control button to turn on the backlight and the luminance will be getting higher one step per 0.5 seconds. If the button released at any bright level, the backlight will keep this luminance.
2. After a certain time, the backlight will shut off automatically. With the SETUP function the time of backlight auto off can be changed.
3. To turn the backlight off manually, press this button again.

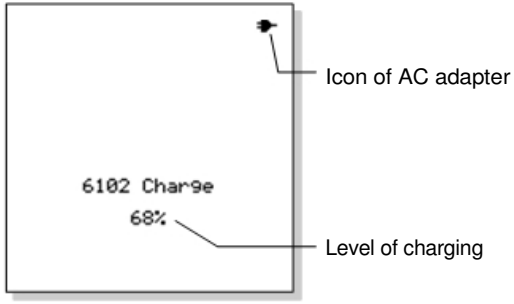
Battery Level Indicator

If the Scopemeter runs with the inner battery, there is an icon on the upper right corner of LCD to indicate the battery level. User can estimate the left time of the battery with this indicator.



Battery Charge

The inner polymer Li-Ion battery will be automatically recharged when the AC Adapter is connected.



If the AC Adapter is connected when the meter is off, it will enter charge function directly and display the progress of charging. When the rate of progress reaches 100%, the charging is done. No matter the charging is finished or not, when the AC adapter is cut off, the meter will turn off automatically.

There are only two buttons can be used in charging function, the power button, to turn on the meter, and the backlight button, to control the backlight.

If the AC Adapter is connected when the meter is on, power form the AC adapter will not only charges the battery but also keeps the meter operating.

The Use of AC Adapter

The major function of AC adapter is changing the inner battery of the meter, but it can also be the power supplier of the meter.

Under this condition, the power in the battery is not consumed. The AC adapter can be used whether the meter is on or off. If the AC adapter connected to the instrument, when the instrument is on, it will keep the meter operation and the only difference is the battery level indicator becomes the icon of AC adapter. If the meter is off, when the AC adapter connected, the meter will enter charge function. If turn on the meter at charge function, the meter will operate as usual. Turning off the meter, when using AC adapter to supply power, the meter will return to charge function until the AC adapter is unconnected. So, to make the meter turned off completely, the AC adapter would be cut off.

Icon of AC adapter

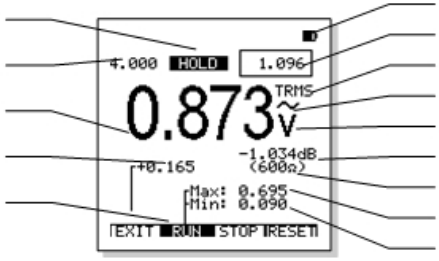
Caution: Using AC adapter for power supply may decrease safety performance of the instrument and introduce more electromagnetic disturbance. So, operating the instrument with the inner lithium battery is recommended for better Security and the best performance.

Warning: DO NOT measure Volts over 250VAC or 360VDC with the power supply of AC adapter. That may cause the instrument damage permanently, even endanger user's safety.

Reset the Instrument

In case of unusual behaviors of the keypad or the display, it is possible to reactivate the instrument by using the RESET function. Press the sunken RESET push button at the rear of the instrument and it will subsequently return to the manufacturer-programmed setup.

Caution: When you press the RESET push button, DO NOT use a sharp tool!


4.000
HOLD
1.096
0.873
TRMS
+0.165
-1.034dB
(600Ω)
Max: 0.695
Min: 0.090
EXIT
RUN
STOP
RESET