



MT-7601 Optical Power Meter

用戶手冊
USER'S GUIDE

English

繁體中文

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Optical Power Meter
MT-7601

Optical Power Meter



WARNING

You are cautioned that changes or modifications not expressly approved in this document could void your authority to operate this equipment.
To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

Precautions for Use

Use batteries

At the same time, can not use different style or different capacitance batteries. And only charge the rechargeable batteries.

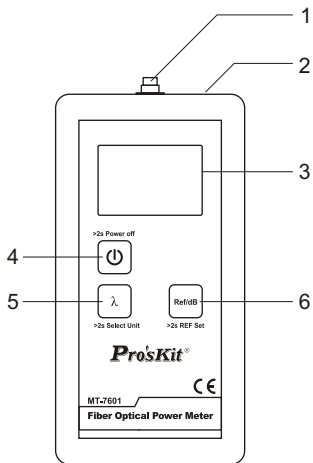
Avoiding condensation problems

As much as possible, avoid sudden temperature changes. Do not attempt to use the drive immediately after moving it from a cold to a warm location, to raising the room temperature suddenly, as condensation may form within the drive. If the temperature changes suddenly while using the drive, stop using it and take out batteries for at least an hour.

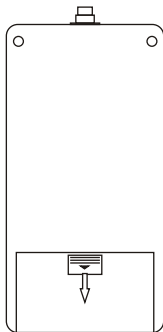
Storage

When long time no use, must take out the batteries to avoid destroying the device.

Description



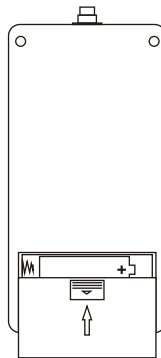
Installing the battery



1.Pull the battery cover



2.Installing the battery



3.Push the battery cover




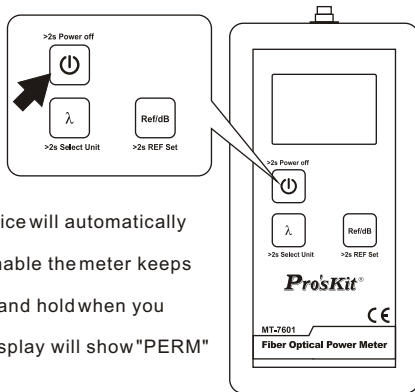
4.Complete

On/Off and Permanent On


Press “” button will turn on the meter.

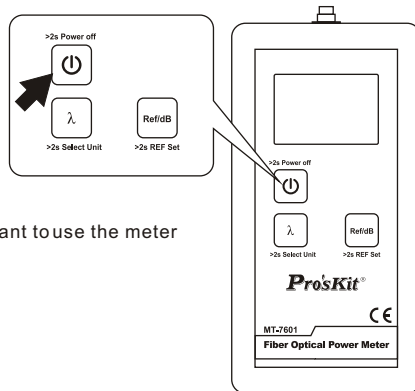
Press button again for two seconds or more will turn off the meter.

This meter has a power-saving function, normal boot and ten minutes without any operation, the device will automatically shut down. If you need to shield this function and enable the meter keeps on working, only need to press the “” button and hold when you boot the instrument. After two seconds, the meter display will show "PERM" which means permanent power on.

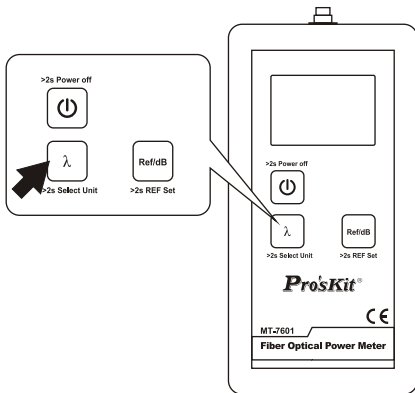


Backlight Function

Under boot status, short press the “” button, you can control the backlight function on or off. The backlight function is used when you want to use the meter at night or darker occasions.



Wavelengths

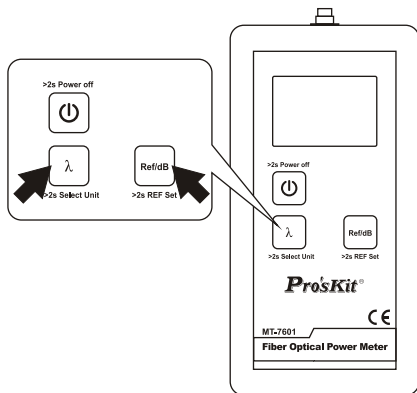


According to the project, we need to measure optical signals of different wavelengths. Then we need to select a corresponding wavelength to measure the optical power. If the wavelength needs to be measured does not match with the wavelength we select on the optical power meter, it will lead to the measuring values meaningless.

Press “ λ ” button after booting, the meter will switch to the measure status of a corresponding wavelength successively, and show on the display.

This series of optical power meter calibration measured wavelength are: 850nm, 1300nm, 1310nm, 1490nm, 1550nm, 1625nm.

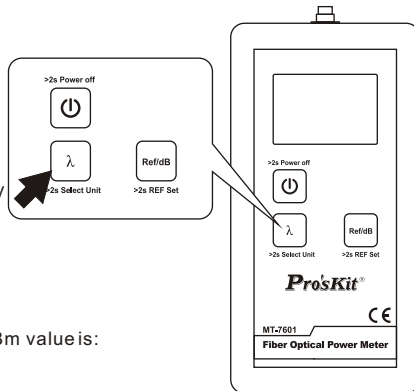
Wavelengths



The instrument has been equipped with activated wavelength identification function by the factory, and users can manually turn on or off this function. In the boot mode, please press the combination key " λ " and "RefdB", if the center of the screen shows NO, which means the wavelength identification function has been turned off; but if the center of the screen shows EN, which means it turned on. When the wavelength identification function starts, and connects with laser source which has wavelength identification function, the optical power meter can identify the current output wavelength and automatically switch to the wavelength to measure.

Unit

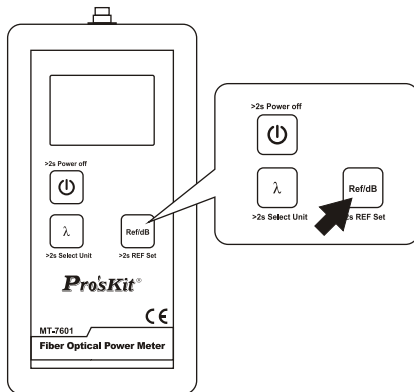
“ λ ” button can be used to change the display unit of the measurement data to meet the different requirement. When press and hold this button for two seconds, the display will successively show the dBm value and mW/uW value .



The numeric relationship between mW value and dBm value is:

$$10\lg(\text{mW}) = (\text{dBm})$$

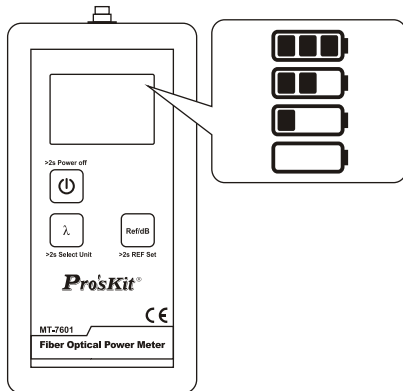
Reference



“ Ref/dB ” Button is used to set or check the reference value. Shortpress this button, the display will show 'REF' and the dBm value which has been set up. When long press for two seconds or more, the device will use the current measurements to overwrite the original setting value and set it as a new preference value. Meanwhile the 'REF' sign will flash three times on the display. After that will show the difference (dB).

(Each wavelength can set their own reference value)

Power Indicator



Four levels indication of power detection



Represents the remaining 80%---100% electricity



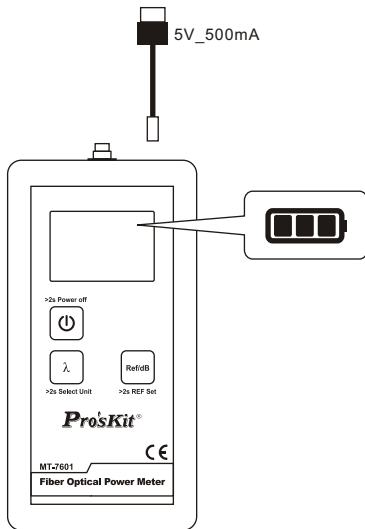
Represents the remaining 40%---80% electricity



Represents the remaining 20%---40% electricity



Represents the remaining electricity less than 20%



Charge

The instrument has a charging function. When use rechargeable batteries and a low battery indication shows on the instrument, you should promptly shut down it and recharge. Long time undervoltage will shorten the lifetime of the rechargeable battery.

Connect the AC adapter to the device correctly, it can charge Automatically. Besides, computer USB port can also be used for charging. The battery remaining indicator keeps flashing during charging. It will stop when the charging is finished. The battery has finished the fast recharge and can be used directly. If you do not stop recharging at this time, the instrument will continue the trickle charge state, using small current to supply natural discharge. But this process is not more than 48 hours.

The instrument can still be used while charging. But do not plug in the AC adapter when it is not rechargeable battery inside, or it will cause a high temperature and combustion, even explosion.

Meter Maintenance and Calibration

General maintenance

Optical fiber connect the adapter should avoid contacting with hard objects and keep clean.

Should be stored in a dry and ventilated place to avoid moisture.

When un use for long time, should remove the batteries before storage.

Fault and solution

Failure name	Failure Cause	Solution
Cannot boot	Check the battery has power or not	Check the batteries are installed correctly
Immediately shutdown after booting	Check the battery has power or not	Replace or recharge the batteries
Can display, but all operations are valid	The instrument program is disordered	Reboot
Cannot charge	Using did not use rechargeable batteries	Reinstall the rechargeable batteries
Garbled	Incorrect reset	Reboot

Detail Parameters

	MT-7601
Measurement Range	+10~-70dBm
Wavelength cal.	850nm,1300nm,1310nm,1490nm,1550nm,1625nm
Resolution	+10~-60dBm(0.01dB), -60~-70dBm(0.1dB)
Accuracy	(1550nm,1310nm)±0.2dB/(1490nm,1625nm)±0.3dB/(850nm,1300nm)±0.4dB *
Linearity	±2%
Detector type	InGaAs
Fiber optic adapter	FC/SC/ST & 2.5mm Universal
Power Display Units	dBm,mW,uW
Response range	700~1700nm
Freq. Identification	270Hz/1KHz/2KHz(Optic power>-30dBm)
Battery Type	AA/LR6 1.5Vx2 pcs
Battery lifetime	>100H
Key tone	Yes
Backlight	Yes
Automatic power off	10 min.(Can be cancelled)
Waterproof	Can prevent small splash
Operate temp.	-10℃~+60℃
Storage temp.	-20℃~+70℃
Relative humidity	<90% No dew
Size	165mm*80mm*35mm
Weight	180g(W/O battery)

Test conditions: -10dBm@1550nm23 ± 2 degrees Celsius, 40%~60% humidity using standard test fiber

* +10~+5 dBm and -62~-70dBm measurement data for reference

用户手册

光功率計

Optical Power Meter

MT-7601

光功率計



警告

進行任何本手冊未明確允許的改變或改裝將使您喪失操作本設備的權利。

要減少火災或電擊的危險,切勿將此設備暴露在雨中或潮濕的環境中。

為防止觸電,請不要打開外殼,必須由有資格的人員進行維修。

使用注意事項

使用電池

本設備可以使用一次性鹼性電池或可充電電池，不能混用不同型號或不同容量的電池。祇可對可充電電池進行充電。

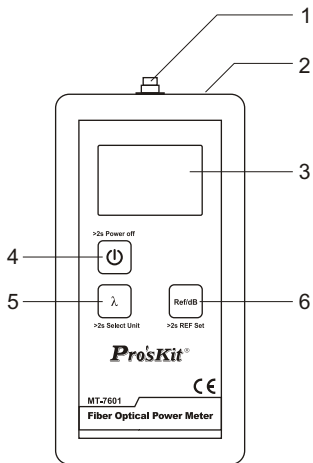
避免結露

應盡可能避免溫度的突然變化。將設備從冷的地方搬移到熱的地方後，或房間內突然升溫後，不要立即使用，因為設備內可能結露。使用設備時如果溫度突然變化，立即停止使用，並取出電池，待至少一小時後才可接通電源。

存放

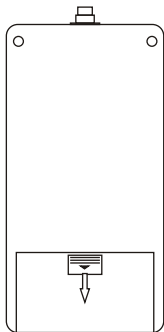
當設備長期存放而不使用時，應將電池取出存放，避免電池漏液造成設備損壞。

描述

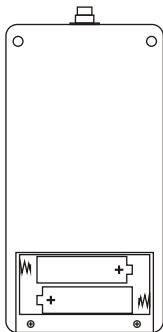


- 1 光功率探測器
- 2 充電插座孔
- 3 液晶顯示窗口
- 4 電源開關鍵
- 5 波長切換鍵,單位選擇鍵
- 6 參考值設定鍵

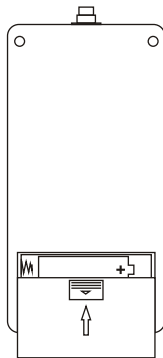
安裝電池



1.向下滑出電池蓋



2.按要求正確放置電池





3.向上滑上電池蓋

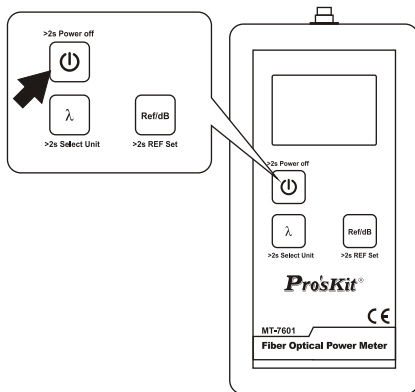


4.電池安裝完畢


開機，省電功能

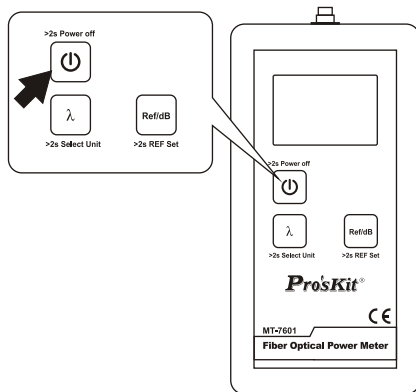
按下 “” 鍵後儀表將開啓。再次按下此鍵兩秒以上儀表關閉。

本儀表具有省電功能，正常開機後沒有任何操作十分鐘左右，設備將自動關閉。如果需要屏蔽此功能使儀表一直保持在工作狀態，祇需要在開機時按住 “” 鍵不放，兩秒後儀表顯示屏右下方會顯示 “PERM” 表示永久開機。

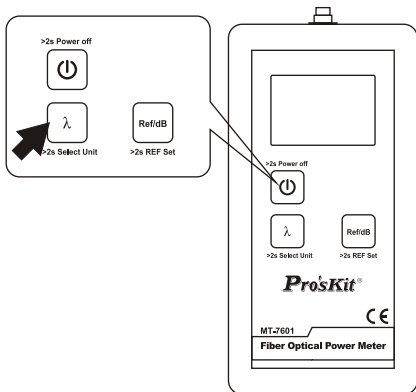


背光及可視故障探測儀控制


開機狀態下，短按 “” 鍵，可控制背光的開或者關，背光用以在夜間或者較暗的場合使用儀表。



測量波長



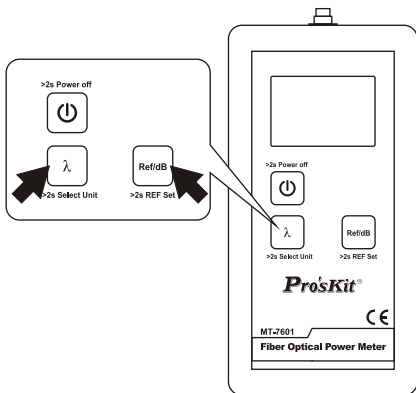
根據工程的需要,我們需要測量不同波長的光信號,此時需要選擇對應波長來測量光功率,如果被測光波長和光功率計選擇的波長不符,將導致測量值無意義。

儀表開啓後按“”鍵,光功率計將依次切換到對應波長的測量狀態,并在顯示屏上顯示出。

本系列的光功率計標定測量波長為:

850nm,1300nm,1310nm,1490nm,1550nm,1625nm。

開啓/關閉波長識別



對於出廠已選配激活波長識別功能的儀表，用戶可手動開啓或關閉波長識別功能。在開機狀態下，長按組合鍵“ λ ”與“Ref/dB”時，屏幕中央顯示NO，代表已關閉波長識別功能；屏幕中央顯示EN，代表已開啓波長識別功能。

開啓波長識別功能時，和配套帶有波長識別功能的光源鏈接，光功率計可得知光源當前輸出波長，並自動切換到該波長進行測量。

顯示單位



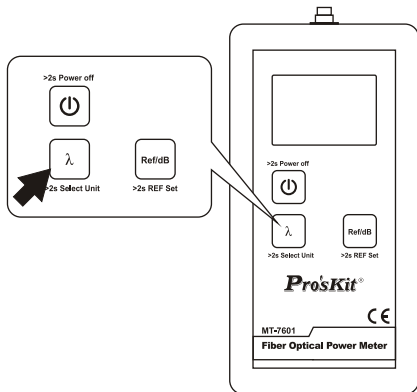
“ λ ” 鍵可用于改變測量數據的顯示單位，來適應不同的需要。每當按住此鍵兩秒，將依次輪循顯示dBm值、mW/uW值。

dBm 表示測得實際功率的對數值。

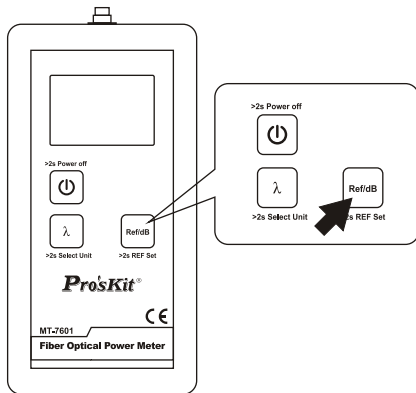
mW/uW 表示測得實際功率的絕對值。

$1\text{mW}=1000\text{uW}, 1\text{uW}=1000\text{nW}$

mW值與dBm值之間的關係是 $10 \lg(\text{mW}) = (\text{dBm})$



參考測量

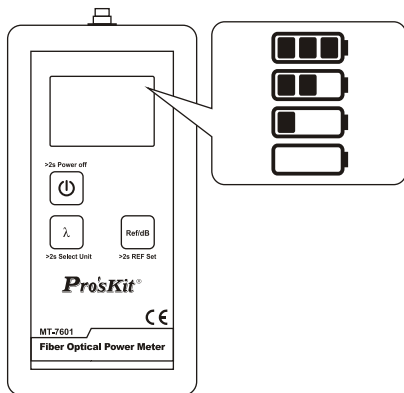


參考值的設定一般用于測量實際綫路前，預先去除不計算在實際綫路損耗中的衰減值，或用于比對與設定標準功率的差異。

“**RefdB**” 鍵用于設定或查看參考值。短按此鍵屏幕將顯示“REF”和所設定的dBm值。當長按此鍵達2秒或以上時，設備會將當前測量值覆蓋原來的設定值，并作為新的參考值。同時“REF”標誌將在顯示屏上閃爍三次，之後將顯示實際測量的相對差值（dB）。

（每個波長都可以設定自己的參考值）

電量指示




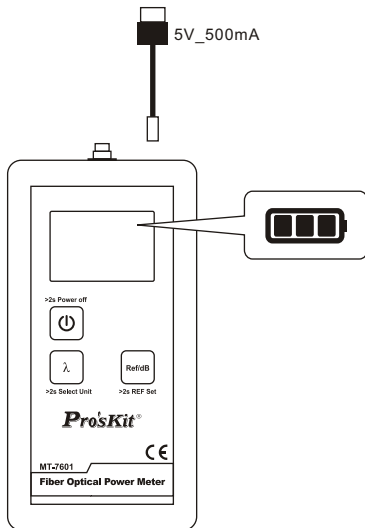
電量檢測有四級指示

 表示剩餘80%----100%的電量

 表示剩餘40%----80%的電量

 表示剩餘20%----40%的電量

 表示剩餘的電量不足20%



充電

本儀表具有充電功能, 當您使用可充電電池且儀表上指示電量不足時, 應及時關機並進行充電。長時間欠壓將會導致充電電池的壽命縮短。

充電祇要將交流適配器正確的連接到設備上就可以自動進行, 也可採用電腦USB接口進行充電。充電時電池餘量指示會閃爍, 當充電結束後, 電池餘量指示停止閃爍。此時, 電池已經結束快速充電, 可以直接使用。若此時不停止充電, 設備將繼續進入涓流充電狀態, 以小電流補充自然放電的電量, 但不宜超過48小時。

充電時仍可使用儀表, 切勿在不使用充電電池時插入交流適配器, 這將導致設備溫度升高而燃燒, 甚至爆炸。

儀表維護及校準

一般維護

光纖連接適配器應避免與硬物接觸，并保持清潔。

存放時因通風乾燥，避免受潮。

長期不使用時，應取出電池後存放。

用戶可處理的故障

故障名	故障原因	處理辦法
不能開機	檢查電池是否有電	檢查電池是否安裝好
開機後馬上關機	檢查電池是否有電	更換電池或充電
有顯示，操作均無效	設備程序紊亂	重新開機
不能充電	沒有使用充電電池	重新安裝充電電池
顯示亂碼	復位不正確	重新開機

詳細參數

	MT-7601
測量範圍	+10~-70dBm
校準波長	850nm,1300nm,1310nm,1490nm,1550nm,1625nm
分辨率	+10~-60dBm(0.01dB), -60~-70dBm(0.1dB)
精確度	(1550nm,1310nm)±0.2dB/(1490nm,1625nm)±0.3dB/(850nm,1300nm)±0.4dB*
綫性度	±2%
探測器類型	InGaAs
光纖適配器	FC/SC/ST & 2.5mm 通用
功率顯示單位	dBm, mW, uW
波長響應範圍	700~1700nm
自動頻率識別	270Hz/1KHz/2KHz(光功率>-30dBm)
電池類型	AA/LR6 1.5Vx2 pcs
電池壽命	>100H
操作提示音	有
背光功能	有
自動關機	10min.(可取消)
防水	可防少量潑濺
使用溫度	-10℃~+60℃
存儲溫度	-20℃~+70℃
相對濕度	<90%不結露
外觀	165mm*80mm*35mm
重量	180g(不含電池)

測試條件: -10dBm@1550nm 23±2攝氏度, 40%~60%濕度, 使用標準測試纖

* +10~+5 dBm和-62~-70 dBm測量數據供參考
