כומפניקס תקשורת ואלקטרוניקה בע"מ
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Model: 06020

OTDR Quick Guide

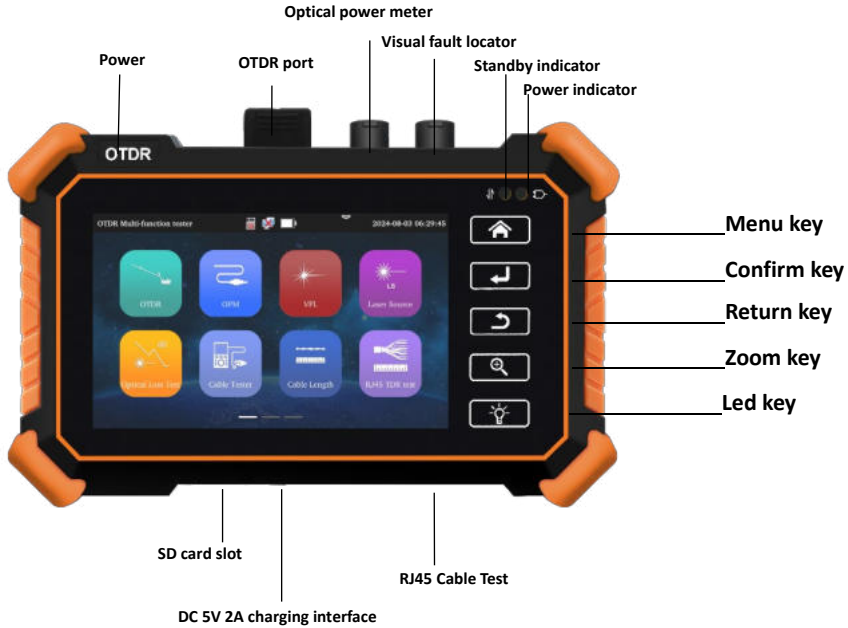
Warning

Avoid looking directly at the laser output port, laser will cause damage to human eyes! If don't use OTDR, VFL, OPM and laser source function, please turn off and cover with the protective cap

Do not disassemble the instrument since no component inside can be repaired by the user.

Safe Information

- The tester is intended to use in compliance with the local rules of the electrical usage and avoid to apply at the places which are inapplicable for the use of electrics such as hospital, gas station etc.
- Please use the original accessories, to avoid damage the tester caused by the use of non-certified accessories**.**
- If there is any question or problem while using the Multi-function OTDR tester, or damages occurred on the product, please contact our technical Department.
- Please take attention to the cleanliness of the machine interface, otherwise it may cause inaccurate test results.
- The battery cable inside battery cabin should be disconnected for safety during transportation!
- When the system is abnormal, disconnect all external cables, press and hold the power button until it automatically shuts down, and then restart the instrument.

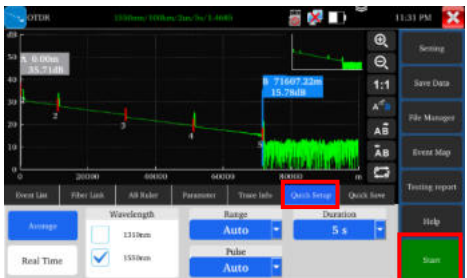

Optical power meter
Visual fault locator
Power
OTDR port
Standby indicator
Power indicator
OTDR
Menu key
Confirm key
Return key
Zoom key
Led key
SD card slot
DC 5V 2A charging interface
RJ45 Cable Test

Drop-down menu



Drop-down button, call menu, can test OTDR, optical power meter and visual fault locator at the same time

OTDR



Warning

Avoid looking directly at the laser output port, laser will cause damage to human eyes!

1. Fiber connection

Connect the fiber to the top optical interface of OTDR. It adopts SC-UPC optical connector.

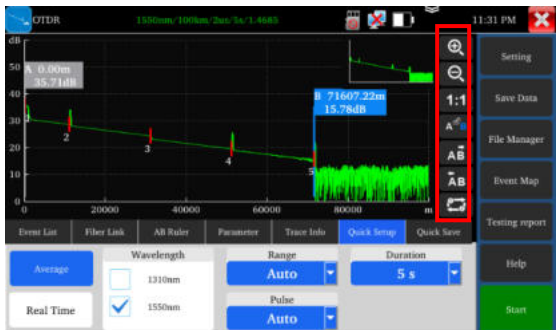
2. Auto OTDR test

Automatically set Pulse width and measurement duration, the test time is 5s

3. Quick Setup

Quick test can set laser wavelength, distance range, pulse width and measurement duration parameters.

OTDR—Trace zoom



Use the center point of the two fingers as the center to zoom

Horizontal amplification, enlarge the curve horizontally.

Horizontal reduction, reduce the curve horizontally.

1: 1 restore: restore the scaled curve in the original 1:1 ratio.

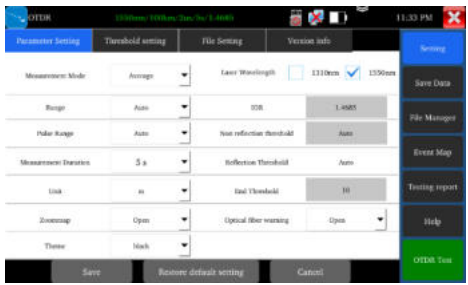
the left and right arrow keys move the a pole.

the pole A/B in the selected state will move to the left.

the pole A/B in the selected state will move to the right.

Tracking switch, switch between different curves.

OTDR—Parameter setting



Laser wavelength: Selected by user, it provides several options, wavelength of single mode fiber: 1310nm, 1550nm and 1610nm. (If the fiber over 100KM, Please select 1550nm wavelength for testing,

Distance scope: 0.5km-200km

If the length is uncertain, it is recommended to use automatic range, for known length, it is recommended to use a range containing 1.5 times the minimum length.

Measurement duration: 5s, 10s, 15s, 30s, 60s, 120s, 180s is optional. When need the meticulous and smooth curve, can select the longer measurement time.

Pulse width: Selected by user, 5ns~20000ns.

Measurement mode: Include “average measurement and real-time measurement”. When selected real-time measurement mode, the selected duration of measurement won’t play role in the measurement.

Refractivity: The default value is 1.4685. The refractivity is key parameter for calculating the length, please don’t modify it at will.

Unit: Include “m and ft”

Reflection threshold: No option or user setting is provided in OTDR instrument.

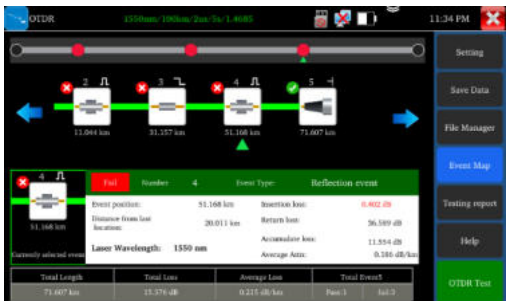
Non-reflection threshold: Input scope: 0.01~2.99, the default value is: auto. When the manual setting value is 0.00, it will transfer to auto value.

End threshold: It is used as the threshold value for looking over event point when the instrument treating data, i.e.: event points that lower than the set value of end threshold will be removed, while the event points that higher than the set value of bundling threshold will be displayed. For options set by user, input scope is: 1~19.99dB, the default value is: 5.00dB.

Optical warning of optical fiber: Options include “ON and OFF”, When in ON, if the optical fiber has optical signal, the instrument will pop up alarm.

Default setting recovery: Distance scope is “auto”, pulse width is “auto”, duration of measurement is “5 s”, laser wavelength is “1550nm”, measurement mode is “average mode”, length unit is “meter”, refractivity is “1.4685”, back scattering coefficient is “auto”, reflection threshold is “auto”, non-reflection threshold is “auto”, end threshold is “5.0dB”, When finished setting, please click “Save” to save the parameters.

OTDR——Event map



Display the quantity of event, link loss, link length, link attenuation coefficient. Click again to switch to trace.

Initial Event: The starting point of link.

Reflection Event: Connector, reflection event is shown as peak signal.

Non-reflection Event: Fusion point or optical fiber bending, non-reflection event is shown as drop of optical power.

End Event: The terminal of fiber, the end event with reflection peak is the normal end.

End Event: Optical fiber bending, the end event with non-reflection peak is the fracture

OTDR- File management



- Save data: Select the directory to save SOR file
- File management：Open, rename, copy and delete the file
- Test report：Create PDF file test report.
- Help：OTDR user instruction



Number	Type	Position[m]	Insertion loss[dB]	Attn coefficient [dB/km]	Return Loss[dB]	Cumulative Loss [dB]
3	Non reflective…	31157.18	1.110		---	7.430
	Fiber segment	20010.66	3.722	0.186		
4	Reflection event	51167.85	0.402		36.589	11.554
	Fiber segment	20439.35	3.822	0.187		

Click “Event list” to view the event list.

Serial number: Indicates the information of the nth event that currently displayed on the trace graph

Type: Indicates the event type of the event point.

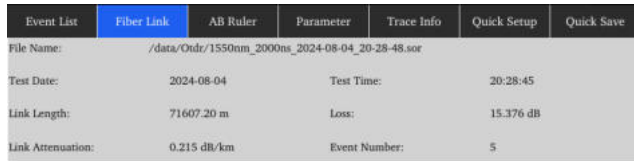
Position: Indicates the distance from the initial point of the optical fiber to the event point.

Insertion loss: Indicates the quantity of plug-in loss of the event.

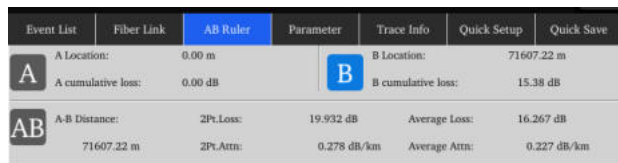
Attenuation coefficient: Indicates the attenuation characteristics of the optical fiber from the last event point to the current event point.

Return loss: Reflect the reflection value of the event point.

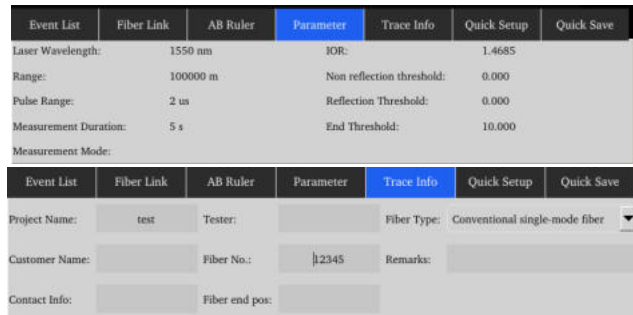
Accumulate loss: Indicates the loss value of optical fiber from the initial point to the current event point



Optical fiber link: Includes file name, measurement date, measurement time, link length, link loss, link attenuation coefficient, and quantity of event



AB Ruler： Includes position of point A (or B), insertion loss of point A (or B), return coefficient of point A (or B), accumulate loss of point A (or B), distance of A B section, loss between two points of AB section, attenuation coefficient between two points of AB section, and LSA attenuation coefficient of AB section

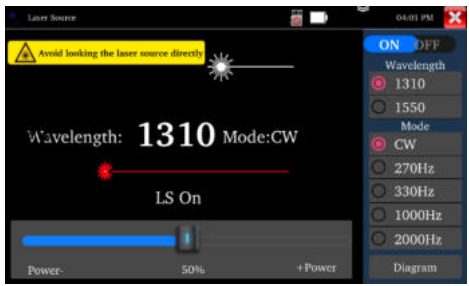


Measurement parameter includes laser wavelength, distance scope, pulse width, refractivity, back scattering coefficient, reflection threshold, bundling threshold, non-reflection threshold, and duration of measurement.

Trace information: Can editing project name, tester, fiber type, customer name, fiber number, fiber end position, when save the report, will auto record these information.

Quick Save: auto name and save the file

Laser source



Warning: Avoid looking directly at the laser output port, laser will cause damage to human eyes!

It is used to engineering and maintenance of optical fiber communication and CATV, fiber parameter setting, the production and research of optical components.

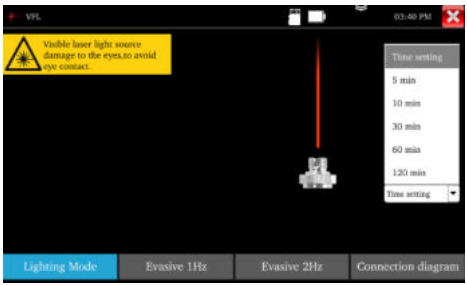
Open/Off: Turn on/off the laser source

Wavelength: 1310/1550/1610 are optional, the wavelength same as OTDR module

Mode: Switch the frequency of laser source, CW/270Hz/330Hz/1000Hz/2000Hz

Power: Through the slider to adjust the power, the power range is 1-100%

Visual fault locator



Warning: Avoid looking directly at the laser output port, laser will cause damage to human eyes!

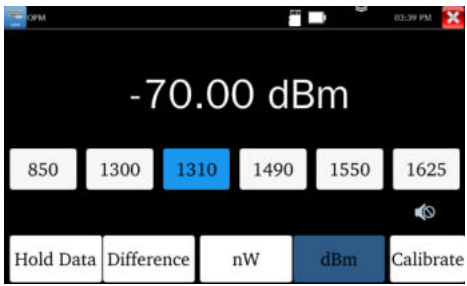
It is used to determine the continuity of optical fibers and locate faults

Steady mode: red laser source emits steady

Evasive mode: Evasive 1Hz" and "Evasive 2Hz", to enter pulse mode, red laser source emits at a certain frequency.

Time off: Time turn off can select the time

Optical power meter



Note: Please keep the fiber connector and the dust cap be clean, and clean the detector with the special alcohol.

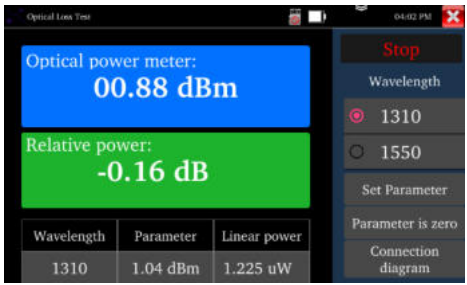
Connect the measured fiber to OPM port, liner or nonlinear optical power display, for optical power testing and Fiber link loss relative measurement.

with five wavelength 1625nm,1550nm, 1490nm, 1310nm,1300nm, 850nm

Hold date： Hold the display data

Difference: Save current value, then will display the difference of new measurement value and current value, can switch nW and dBm unit.

Optical Loss test



Note: Please calibrate before each test, the test results will be more accurate

It is used to test the insertion loss of optical passive devices.

Calibration: Connect standard jumper to meter's OTDR and OPM port, click "Start", after power is stable, click "Set Parameter"

Usage: After setting the reference value, let's talk about the optical device being connected to the OTDR and OPM interface of the instrument, click "Start", the relative power on the interface is insertion loss value of the tested device

Length test



Note: The measured cable cannot be connecte d to any device. If connected to other devices, it will cause incorrect measurement results!

It is used to measure cable's length in the open status.

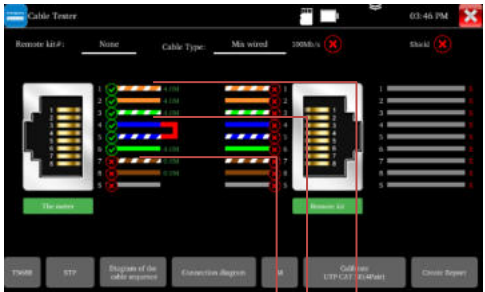
Usage: Insert accessory RJ45 to BNC converter into the UTP port and connect alligator clip to its BNC interface. The measured cable needs to be peeled out and exposed the copper core.

Cable type: BNC cable, network cable, RVV control cable, Telephone line and TVVB cable etc

Length test: measure the cable length.

Repeat test" can continue to test cable length, The short-circuit status will not display the cable length

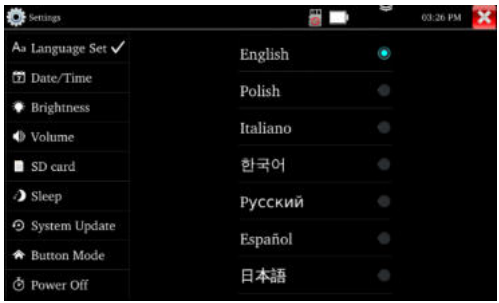
Cable Test



Test cable's continuity, length and fault locator of RJ45 cable connector. The number of the cable tester is 255. Connect LAN cable or telephone cable to RJ45 port of tester, the other end don't connect any device, can test fault locator of RJ45 cable connector and cable length. the other end connect to UTP port of wire receiver, enter cable test app to test cable's continuity and sequence.

1. The cable is normal, can test cable length
2. The cable is short circuit
3. The RJ45 cable connector is faulty, or a breakpoint 1 meter away from the RJ45 cable connector

Setting



Language: Support English, Chinese, Korean, Russian, Italian, Polish, Spanish, French or Japanese, German, Turkish, etc.

Date/Time: Set the Date/time of the IP tester

IP setting: Manually set the IP address, Subnet Mask, Default Gateway and DNS address (Optional)

Brightness: Set the desired brightness of the tester

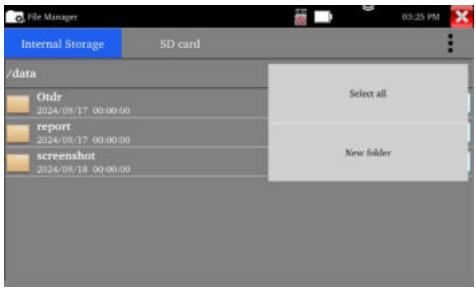
Volume: Set volume level

SD Card: Displays SD Card Capacity. You can also format the SD card or unmount it before removing it.

Power off: can select 1/2/5/10/20 minutes, auto power off

Version information: Shows applications version information

File Manager



It is used to view the report and picture.

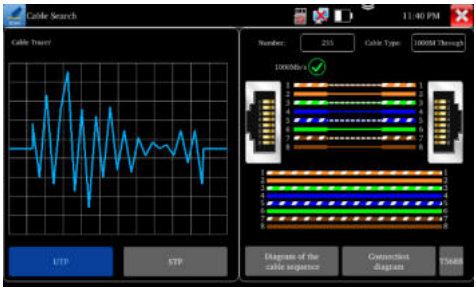
Click "File" on the top bar tool, can select internal or external storage. Click on the upper right corner Icon"... ". will pop-up menu, you can select other operation or create new folder.

otdr：Save the OTDR file

report：Save test report

screenshot：Save screenshot and picture

Cable Search (optional）



Connect tested cable or BNC cable to the UTP port

Support UTP mode and STP mode.

Cable tracer and Cable tester can be tested at the same time. It is better to judge whether the search network cable is accurate.

Connect the other end of the tested network cable to the "UTP" port of cable tracer, the cable sequence, continuity, test box number and network cable type will be displayed on the right side of the meter interface.

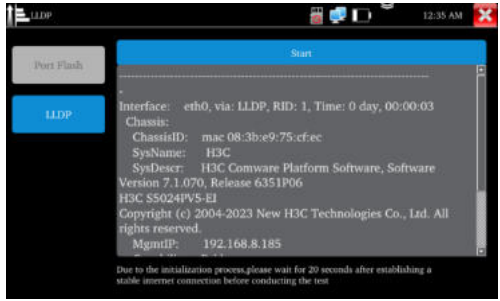
The "G" indicates the continuity of the shielded network cable. The 1-8 indicators of cable tracer will flash according to the cable sequence. The DIRECT / CROSS / OTHER three indicator lights display the type of network cable directly.

LLDP (Optional)



Quickly find the connected Ethernet cable

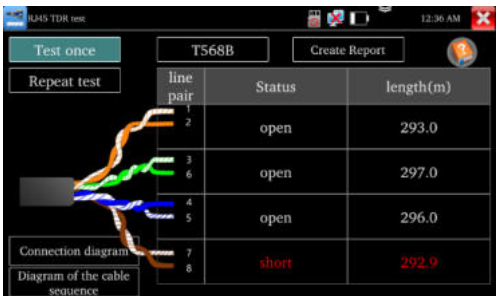
Click "Start". The tester will send special signals to make the connected LAN port flicker at special frequency



Used to detect the main capabilities, management addresses, device identification, interface identification, and other information of switches and other devices.

Note: The switch support LLDP protocol.

RJ45 TDR test (Optional)



Connect cable to the LAN port of tester, the other end connect or disconnect other device. Enter “RJ45 cable TDR test” app to test cable’s length. Test cable’s length, please don’t connect any device. **The max measurement length is 600 meter.**

If cable is open circuit or short circuit, can test the cable length, if screen display "online", the testing result would be not accurate.

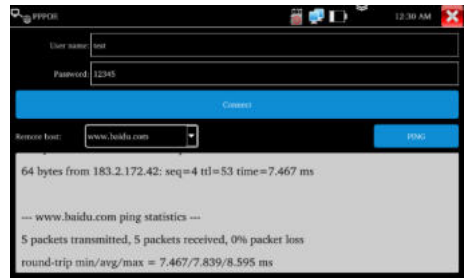
FTP Server (Optional)



Used to copy and edit the files from the SD card without the use of SD card reader.

Start the FTP server and then input the tester's FTP address in the PC's address bar.

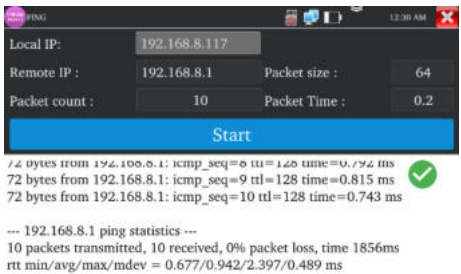
PPPOE(Optional)



Used to detect whether broadband PPPOE dialing is normal.

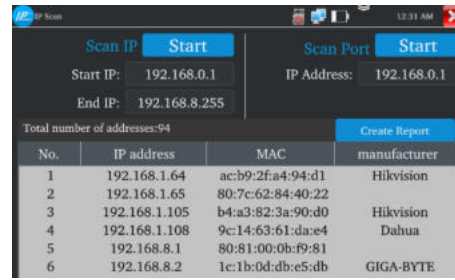
Connect the network cable to the LAN port of tester, enter the username and password, click “OK” to dialing test. After the dialing is successful, click “PING” to detect the internet

PING(Optional)



It is used for testing if the connected IP camera or other network equipment's Ethernet port is working normally and the IP address is correct.

IP Scan(Optional)



It is used for quickly find the IP address of the IP camera or other device connected to the instrument,supporting scanning MAC address, camera manufacturer, and scanning for IP conflicts.

Specifications:

Product	Optical Fiber + Network Cable Testing
Model	06020
OTDR Technical Specification	
Wavelength (nm)	1550
Dynamic range(dB)	24
Pulse width (ns)	5,10,20,30,50,80,160,300,500,800,1000,2000, 4000,6000,10000,20000
Testing range	≤150 Km
Event blind zone (m)	≤1.6m
Attenuation blind zone (m)	≤8m
Linearity (dB/dB)	± 0.05 dB/ dB
Loss threshold (dB)	0.05
Loss resolution ratio (dB)	0.01
Minimum distance resolution	0.05
External power supply Sampling point(K)	32-128
Distance uncertainty (m)	± (1 m + $5\times10^{-5}\times$ distance + sampling interval)
Distance scope (km)	0.5, 1,2, 5, 10, 25, 50, 100, 200
Typical real-time refreshing duration	1s
File format	SOR standard format/PDF/EXCEL
Measurement duration	5sec, 10sec, 15sec, 30sec, 1min, 2min, and 3min are selectable
Storage	FLASH (EMMC) + TF card
Interface type	SC-UPC
Remarks	
Size & Display	4 inch IPS touch screen, 800 × 480 resolution
UTP cable test	Test UTP cable connection status and display on the screen. Read the number on the screen. Detect the near-end, mid-end and far-end fault point of RJ45 cable connector, also can test shield cable
length measurement	Network cable length measurement, up to 3km
Optical power meter	Wavelength:1625nm,1550nm,1490nm,1310nm,1300nm,850nm,measurement range ,-70 ~ +6dBm, for optical power testing and Fiber link loss relative measurement
Visual fault locator	10mW visual fault locator with 650nm wavelength, emit red laser sources to test multi-mode and single mode fiber's bending and breakage, test range 8KM
Stable Laser Source	
Output wavelength	1550
Output power	-5dBm~0dBm adjustable
Frequency	270Hz/330Hz/1kHz/2kHz
Stability	CW, ±0.2dB/15min (Test after boot for 15min)
Power	
External power supply	Type-C 5V（2A）
Battery	Built-in 3.7V Lithium ion battery, 4000mAh.
Rechargeable	After charging 3 hours, normal working time 6 hours
Parameter	
Operation setting	Supported language: English, Chinese, Korean, Russian, Italian, French, Polish, Spanish, Japanese, Deutsch, Turkish, Portuguese, Czech etc
Auto off	5-30 (mins)
Working Environment	
Working Temperature	-10°C---+50°C
Working Humidity	30%-90%
Dimension/Weight	162mm x 102mm x 42mm /0.45kg

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