Termoscanner FL X1
User Manual

olivetti

Termoscanner

FL X1

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INDICE

1 OVERVIEW

1.1 INTRODUCTION

The Olivetti FL X1 was specifically designed to measure body temperature and detect temperature abnormity, without actual physical contact, at different application fields.

It normally alerts in case of

- abnormal body temperature
- person which doesn't wear a mask

FL X1 integrates also a facial recognition algorithm. This kind of feature has to be used in accordance with the Rules and Regulations regarding the personal data protection.

The main FL X1 product features are:

- **Fast**: response time < 0.5s
- **Accurate**:
  - **Accuracy: 0.1℃** (closeness of the measurements to a specific value), **best performer** in its category
  - **Precision** (discrepancy) ±0.3℃ (difference between the mean of the measurements and the reference value)
- **Functional**: horizontal detecting distance 35~50 cm, the most suitable for solutions integrated with the turnstile
- **Versatile**: abnormal temperature detection, mask detection, facial recognition
- **Robust and reliable**: MTBF > 50.000h
- **Easily readable**: display 8"
- **Light**: 1,7 Kg
- **Complete**: dual optical/IR cameras

The FL X1 can be set to work in different ways

- Abnormal temperature detection + mask detection + facial recognition
- Abnormal temperature detection + mask detection
- Abnormal temperature detection + facial recognition
- Abnormal temperature detection

N.B.: the facial recognition feature must be used in accordance with the Rules and Regulations regarding the personal data protection; the facial recognition feature can be activated only if accompanied by correct and complete information to people which will be recognized and after collecting their necessary consents.

The FL X1 device has a dual camera – optical and infrared – to acquire and display the optical image and to detect body temperature data.

The camera is able to detect images even in low light and / or backlit conditions, thanks to some solutions aimed at optimizing the image:

- Automatic gain and auto white balance, capable to display true color of image
- 2D/3D noise reduction and anti fog technology,
- Built in dimming light level sensor and front white light, to ensure low light recognition smoothening capability
- Support intelligent lightfilled setting

1.2 THE DEVICE – GENERAL FEATURES AND PACKING LIST

The FL X1 termoscanner is shaped like a PAD, with an 8" colour display.

Dimensions:
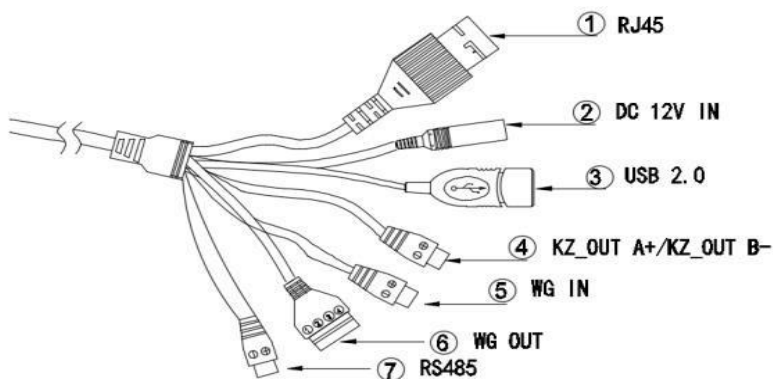- 252(L)*136(W)*26(H)mm

Weight:
- 1.7KG

Enclosed accessories are:
- Power cord + DC12V 2A adapter
  The electric plug is CEE 7/4 type (commonly called Schuko)

- multiple connector cable (Digital Output, WG IN, WG OUT, RJ45, USB, RS485）to connect the device to the network and to other devices, as detailed below:


Parte	Nome	Descrizione	Label
①	Network port	RJ45	
②	Power supply	DC12V IN	DC12V IN
③	USB	USB 2.0	
④	Digital output	A+/B-	KZ_OUT
⑤	Wiegand (WG) IN	vcc12V、GND、D0、D1	WG IN
⑥	Wiegand (WG) OUT	vcc12V、GND、D0、D1	WG OUT
⑦	RS485	RS485+ / RS485	RS485+ / RS485

The KZ_OUT connector is normally used to connect the termoscanner to turnstiles or automatic doors (see par. 2.4)
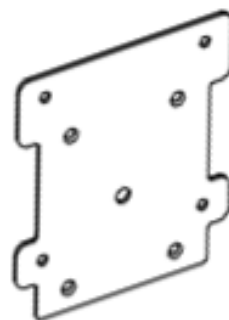
- protective flap, to be possibily used when the thermoscanner is located in an environment with direct exposure to sunlight.
The flap can be mounted on the thermoscanner simply by fitting it from above, without fixing it

- wall mount kit
  (50 mm x 70 mm – WxH; see par. 2)
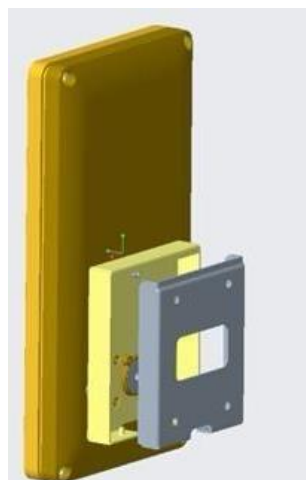
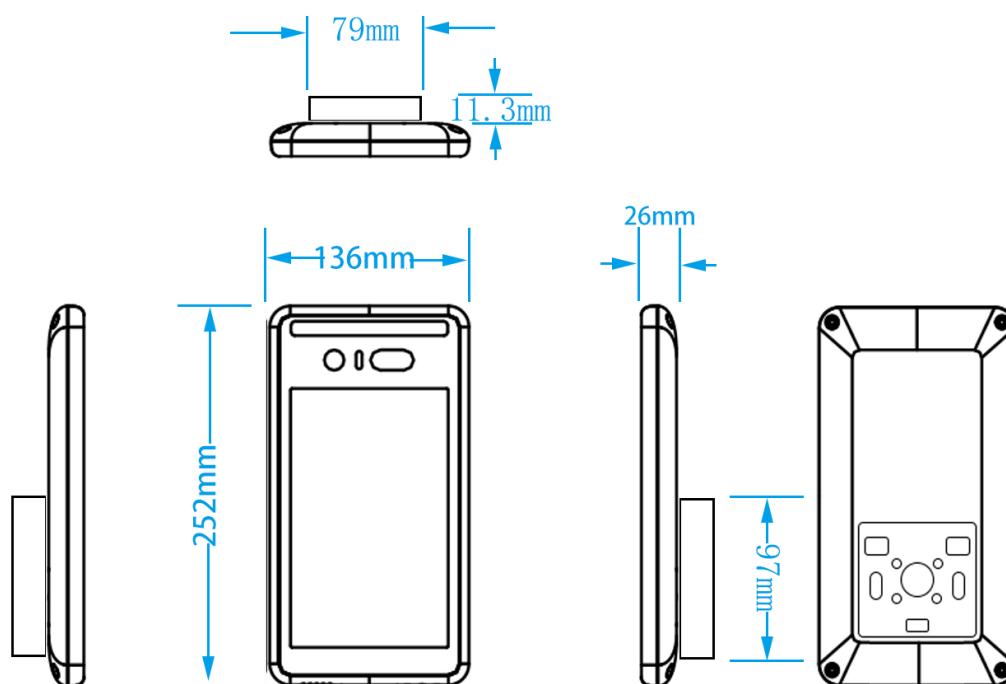- metal plate for mounting on Vesa (Video Electronics Standards Association) standard supports

2 INSTALLATION AND OPERATIONS

2.1 INSTALLATION

2.1.1 WALL MOUNT INSTALLATION

The Olivetti FL X1 is provided with a Wall-Mount kit:

For wall mounting, proceed according to the following diagram and description:

1. Release the 2 screws and take out the wall bracket from the device.
2. Check the installation height of the face recognition monitor. It is recommended to fix the bracket on the wall about 1.5m height.
3. Carefully align and push the main unit into the bracket mounted on the wall.
4. Align the bracket holes and gently slide it down tightly. After connecting the wires, fix the bottom cover with screws.

① ② ③ ④
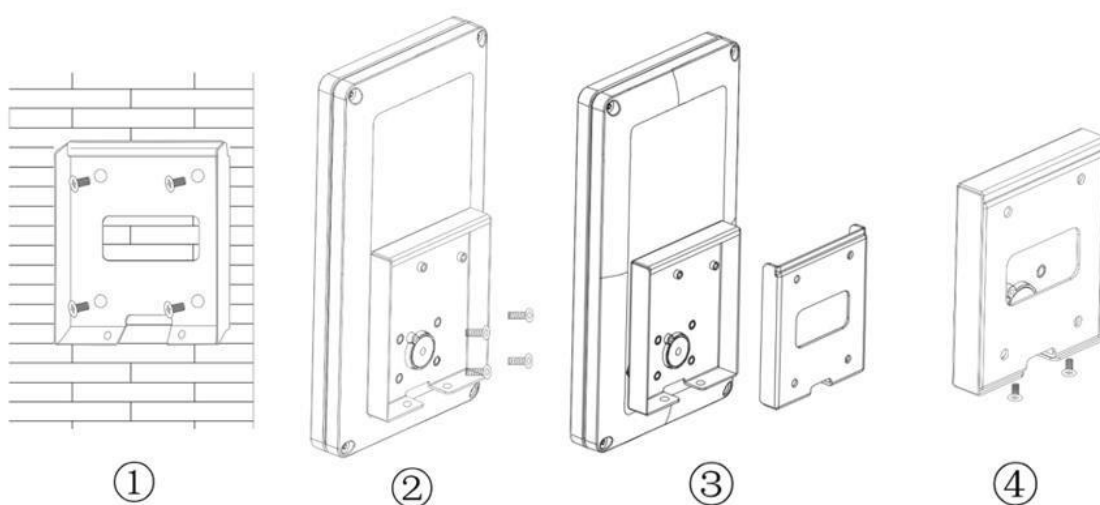
2.1.2 SUPPORT INSTALLATION

Optionally, it is possible to equip the Olivetti FL X1 with a support to position it on the table or on the ground.

The available supports are:

1. **FS1** Floor Stand (code B3980 000): it is a stand-alone column with the following characteristics

   - joint with adjustment of the inclination of the device
   - rectangular section H 1300 mm, with elliptical bearing base.
   - epoxy painted metal

2. **DS1** Desk Stand (code B3979 000): with the following characteristics

   - joint with adjustment of the inclination of the device
   - rectangular section H 1300 mm, with elliptical bearing base.
   - epoxy painted metal

The procedure for support mounting is similar to the wall mounting (see previous paragraph), bcause also the support munting requires the wall bracket supplied with the device:

I. Release the 2 screws and take out the wall bracket from the device.

II. Connect the bracket to the appropriate attachment of the support using the provided screws.

III. Carefully align and push the main unit into the bracket mounted on the support.

IV. Align the bracket holes and gently slide it down tightly. After connecting the wires, fix the bottom cover with screws.

2.2 CONNECTING NETWORK

To configure the FL X1, it's necessary to connect the device to a PC, either directly or using an Ethernet network, as described in the following paragraphs.

2.2.1 CONNECT TO PC DIRECTLY

Connect device and PC with a network cable through RJ 45 port (Ethernet port), as shown below:
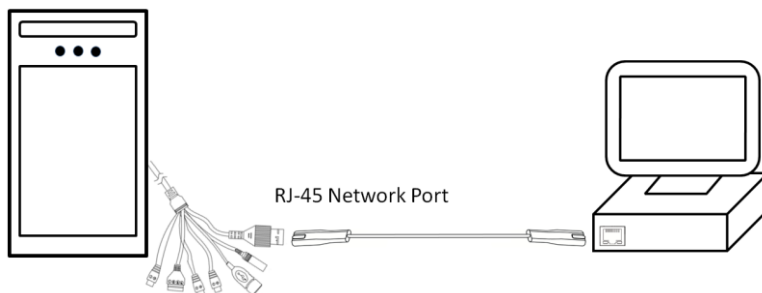
The default IP address on device is 192.168.2.10. Therefore, set PC IP address in the same network segment, for example, 192.168.2.1

Follow the steps below to set PC IP address at 192.168.2.1:

• Right click on the network icon at right side of the Windows task bar

• Select "Open Network and Internet settings " o "Open Network and Sharing Center" (depending on the Windows version)

• Click on Ethernet

• Select [Properties] or [IP Settings]

• Click on "Internet Protocol Version 4(TCP/IPv4)]" or "IP Settings"

• Select [Use the following IP address]. Fill [IP address] and [Subnet mask], as shown below:
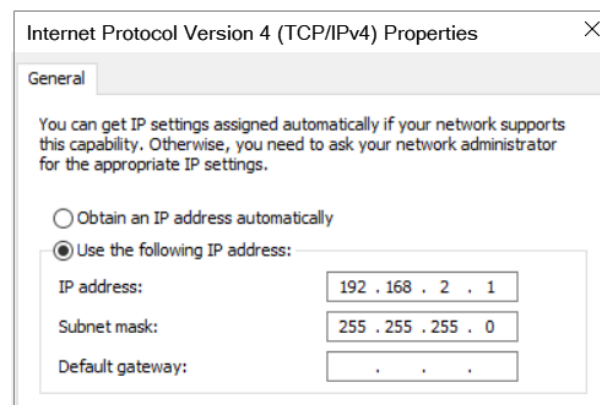
2.2.2 CONNECT BY ETHERNET LAN

To connect the FL X1 to ad Ethernet LAN, proceed as follows:

- connect the FL X1 to an Ethernet LAN, using the RJ45 connector.
  The device supports the DHCP protocol, to obtain automatically a dynamic IP address.

- turn on the device and check the IP address obtained from LAN. The IP address is shown at the lower right corner of display
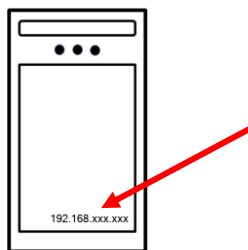
- on a PC connected to the same Ethernet LAN, open web browser (it's recommended to use **Google Chrome**) and input in the address bar the default IP address (192.168.2.10) or the dynamic IP address assigned by DHCP (see above)

- the browser shows the login window. Input the ID *admin* and the password *admin345*, and select the preferred language (the default language is English; other available languages are Italian, Spanish, Portuguese, Chinese, Japanese, Korean and Thai)
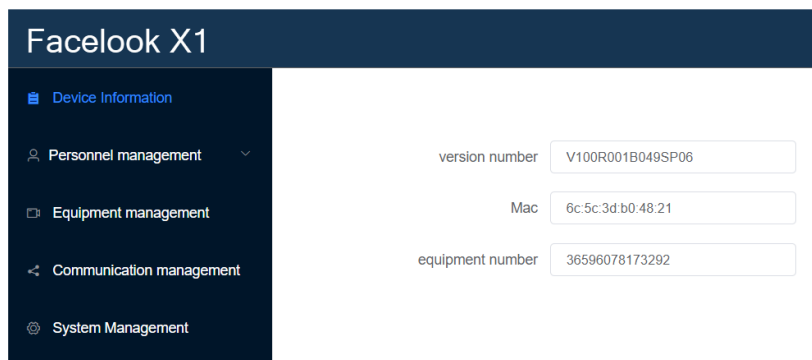
- select *Login*
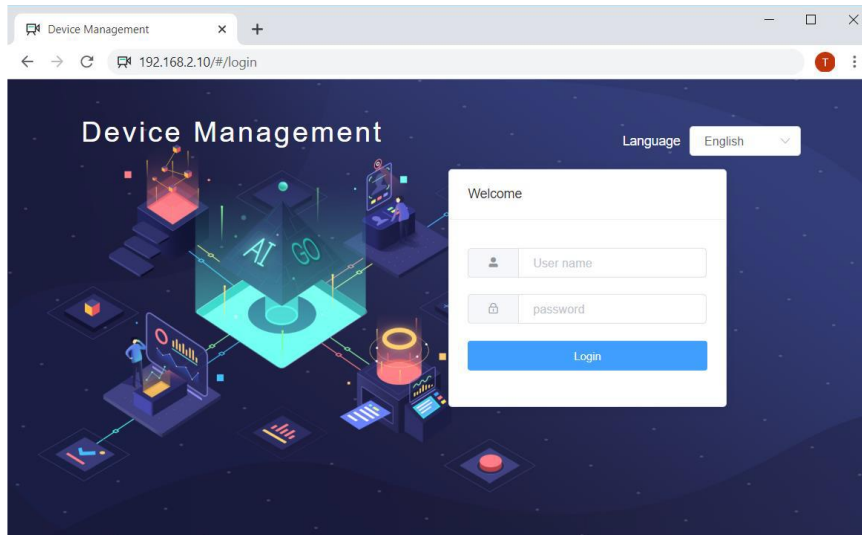
If the login button does not respond, change browser and try again; it is recommended to use **Google Chrome**.

2.3 DEVICE SETTINGS

The PC setting Menu shows the following features:

2.3.1   DEVICE INFORMATION

The device information page shows the device software version, the mac address and the device equipment number
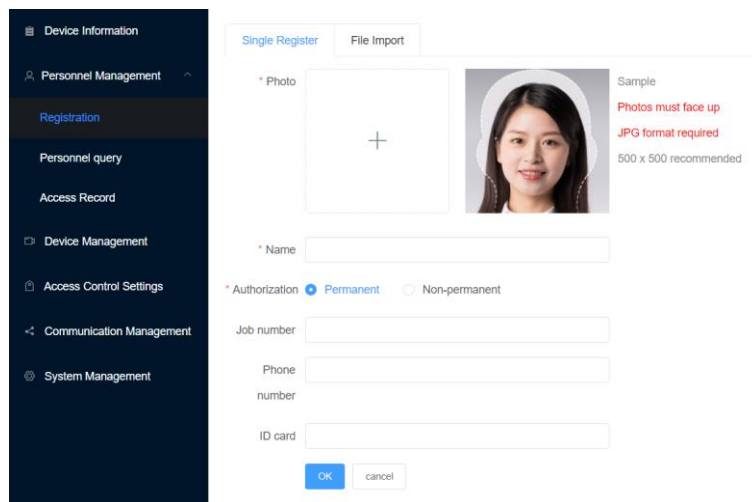

2.3.2   PERSONNEL MANAGEMENT

This section allows to configure the facial recognition feature.

N.B.:   the facial recognition feature must be used in accordance with the Rules and Regulations regarding the personal data protection; the facial recognition feature can be activated only if accompanied by correct and complete information to people which will be recognized and after collecting their necessary consents.
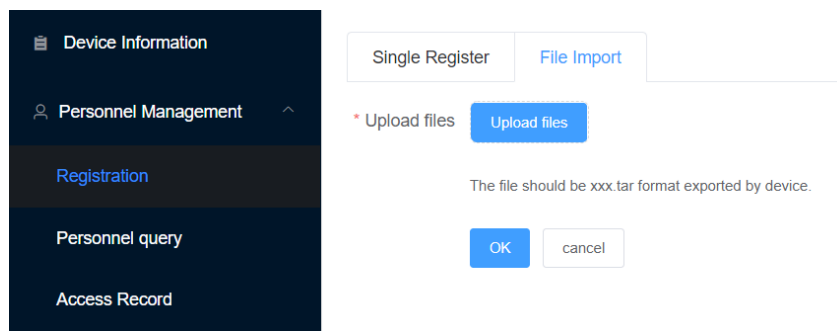
In this section there are two parts:

1.   **Registration**

    a.   To register a **single face image,** select it on the PC and import it. The photo must be face-up and JPG format; the recommended size is 500x500.
        Input the person's name, job number, phone number and ID card.
        For permanent authorizations, select "***Permanent***" and click [OK] to register
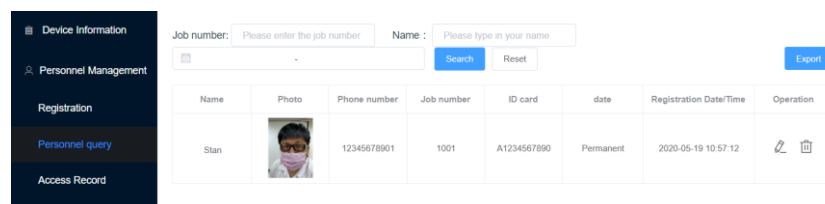   For temporarily authorizations, select "***Non-permanent***" and specify an expiration date.

b. To import a registration database, click *Upload File*, select the database to be imported and click **OK** to upload

2. **Personnel query**

    This feature allows to:

    -   find a registered person according to the job number or name (*Search*)
    -   revise the personnel information, by clicking on *Edit*
    -   delete the personnel information, by clicking on *Delete*
    -   export the personnel database (*Export*) and save it as a file in PC
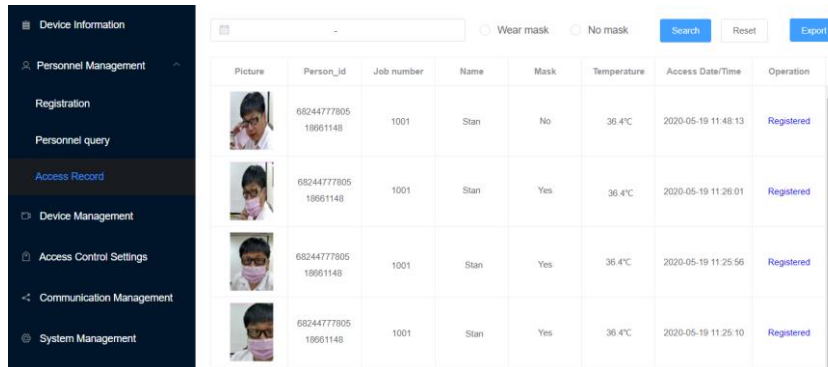
3. **Access Record**

These feature allows to consult the access record and do the following:

- Access to facial recognition records, with or without mask (by selecting "***Wear Mask***" or "***No Mask***")

- ***Register*** a person by using the related record, if this person not registered yet

- ***Export*** the access record as a file and save it in the PC

2.3.3 DEVICE MANAGEMENT

In this section there are four parts:

1. Detection Management

I. **Identification Settings**: select *1:N* or *Disable* to enable/disable the facial recognition feature
In the factory default setting, the facial recognition feature is enabled (*1:N* selected)
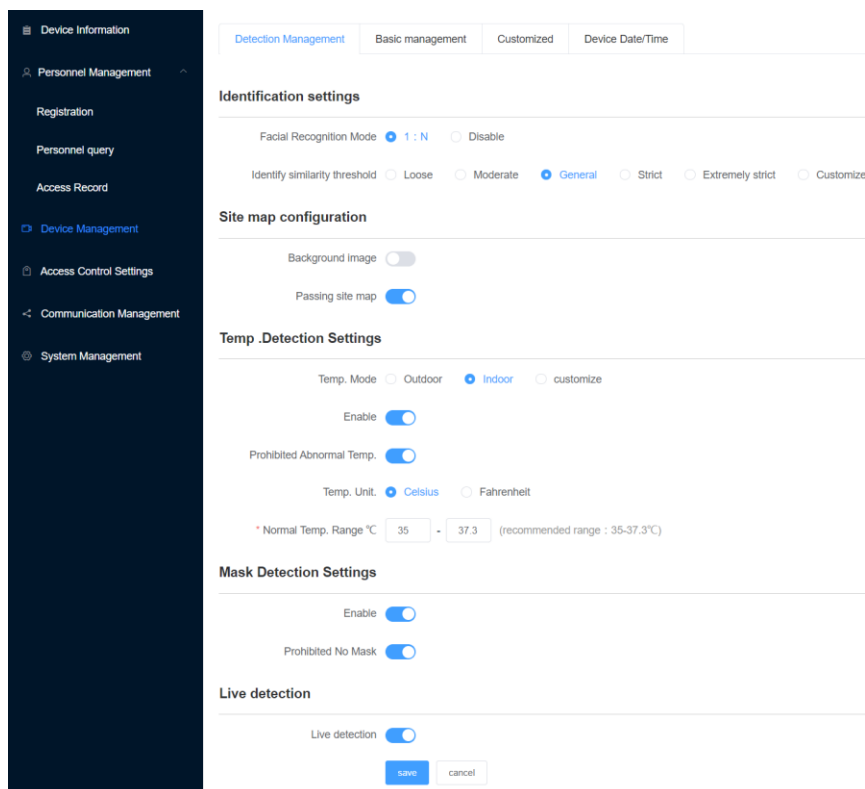
II. **Temperature detection Setting**: normally select *Indoor* and *Enable* to enable temperature detection.
Select "*Prohibited Abnormal Temperature*" to prohibit access to persons with an abnormal temperature.
Select the favorite temperature unit (*Celsius* or *Fahreneit*) and set the *Normal temperature range.*
In the factory default setting, the *Prohibited Abnormal Temperature* feature is enabled and the default normal temperature value is 35°-37.3° C, (i.e. the abnormal temperature starts from 37.4° C)

III. **Mask Detection Settings:** select "*Enable*" and "*Prohibited No Mask*" to enable the mask wearing control and prohibit access to a person who isn't wearing the mask .
In the factory default setting, the mask wearing control feature is disabled.

IV. **Live detection:** Select to recognize real human face only. This option prevents fake image from picture or mobile screen
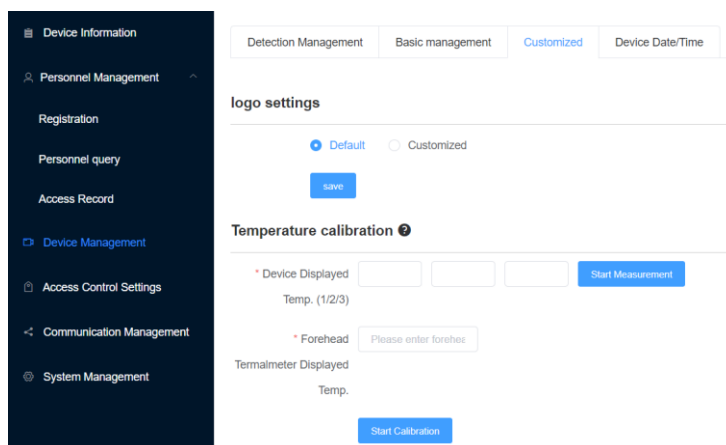
2. **Basic Management:** this section allows to manage some general setting such as light, volume, and display

   I.   **Auxiliary light**: select *Auto* to enable automatically emitting auxiliary light in case the ambient light is dimming; select *Customized* to specify the time to emit tauxiliary light

   II. **Device IP Display**: select to show device IP address on screen

   III. **Volume control e Brightness control**: these commands allow to set the speaker volume and the display brightness

   IV. **Screen Saver mode**: set the time to enter screen saver, after some seconds of inactivity. The range is 0~60 seconds. Set 0 for disable screen saver.

   V.   **Turn Off Display**: set the time to turn off the display, after some seconds of inactivity. The range is 0~60 seconds. Set 0 for disable the turn off feature
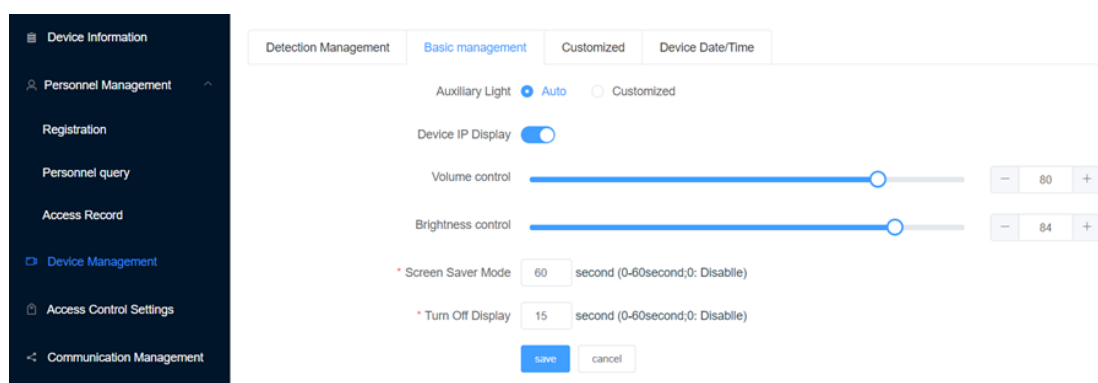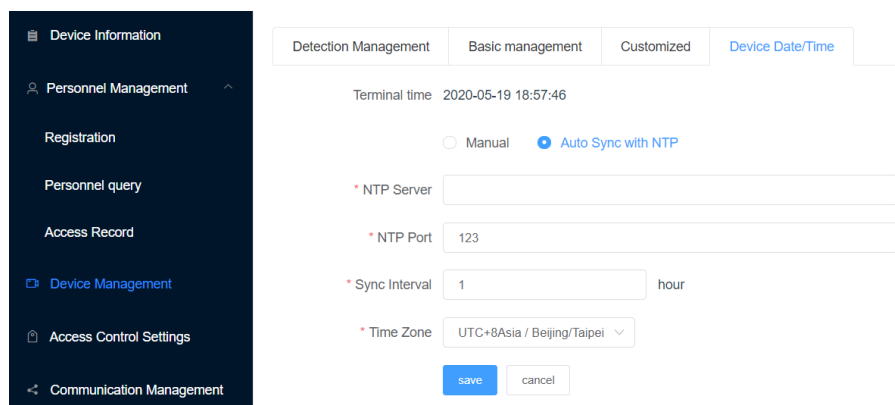
3. **Customize:** this page shows the commands to upload logo and calibrate temperature:

   I.   **Logo settings**: select *Customized* to upload a custom logo (.png format), which will be shown on the lower left corner of display

   II. **Temperature calibration**: face the FL X1 and click "***Start measurement***"; the device takes 3 temperature samples separately and automatically fills in the 3 columns. Fill the temperature detected by a forehead thermometer in "***Forehead Thermometer Displayed Temp***" and finally click ***Start Calibration*** to calibrate the temperature.

4. **Device Date/Time:** this windows shows the commands to synchronize the device time with a server/PC:
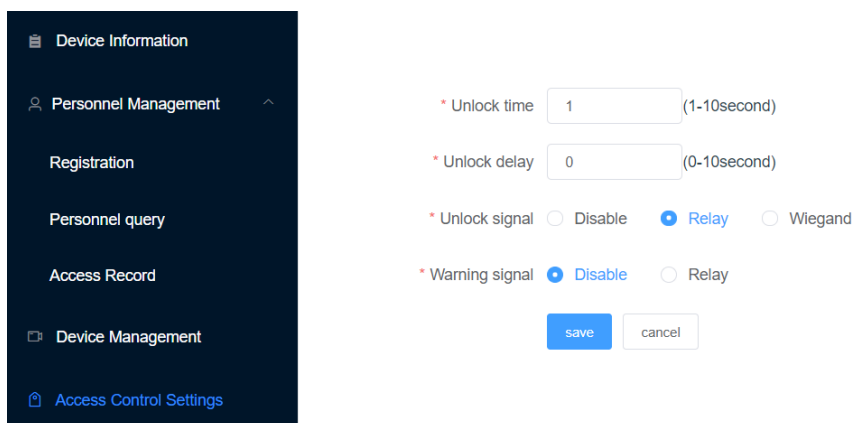
   I. **Manual**: select it to synchronize manually with the PC clock

   II. **Auto Sync with NTP**: select and fill the server address in the columns to synchronize automatically with the network server

2.3.4   ACCESS CONTROL SETTINGS

This section allows to set the interaction with an access control automatic system (eg turnstile, automatic door, automatic bar, etc). Once connected to the access control system, the FL X1 will send the trigger signal to enable a person's access:

- *Unlock Time*: this field allows to set the signal lasting time for open triggering
- *Unlock Time*: this field allows to set the delay time for open triggering
- *Unlock signal*: this field allows to select the interface to be used to send the trigger signal to the access control system. Select "Relay" to use the **Digital Output** interface (**KZ_Out**; see paragraph 2.4)
- *Warning signal*: this field allows to enable/disable the warning signal sending to the access control system. Select "Relay" to use the Digital Output interface (KZ_Out; see paragraph 2.4)

2.3.5 COMMUNICATION MANAGEMENT
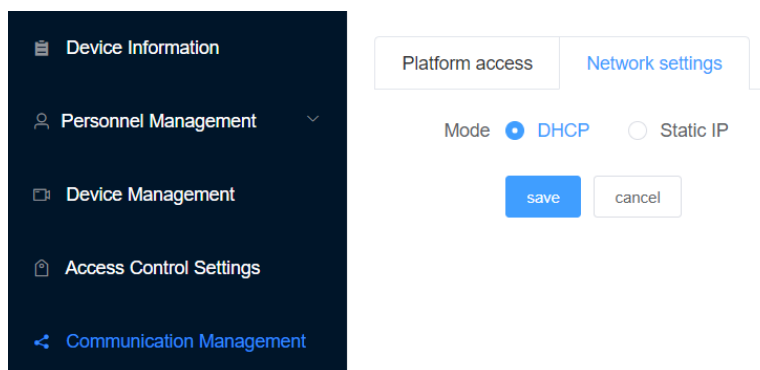
This section includes two parts:

1. **Platform access:** this windows allows to insert the local/cloud server address, where to save the data.

Optionally, all the field data will be centralized on the **Olivetti Platform**, to get an unique view of the different locations and to create custom dashboards.

2. **Network Settings:** this windows allows to select the preferred IP addressing mode to connect the FL X1 to the network (DHCP or static IP; see par. 2.2.2) .

2.3.6 SYSTEM MANAGEMENT

This section allows to restart the device (***Restart***), restore factory settings (***Factory Default***), upgrade the firmware (***Select File → Firmware Upgrade***; this operation has to be carried out by an expert technician) and set the language (***Device Language***; the default language is English; available options are Italian, Spanish, Portuguese, Chinese, Japanese, Korean, Thai).

2.4 CONNECTION TO AN ACCESS CONTROL SYSTEM

The Olivetti FL X1 can be used to enable/disable the automatic access control system (eg turnstile; automatic door; automatic bar, etc), through a specific connection to the access control system.

N.B.: to ensure a correct interaction between the Olivetti FL X1 device and the access control system, we recommend you to **consult your access control system installer**.

To connect the FL X1 and the access control system, use the **Digital Output** interface, by connecting the related **KZ_Out connector** (included in the multiple connector cable, see par. 1.2) to the corresponding interface/pair of trigger wires for triggering the gate to open.
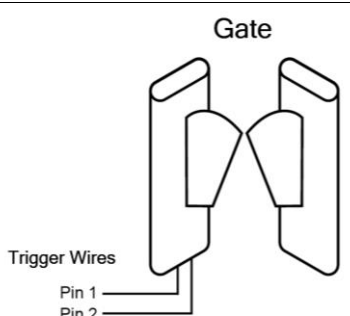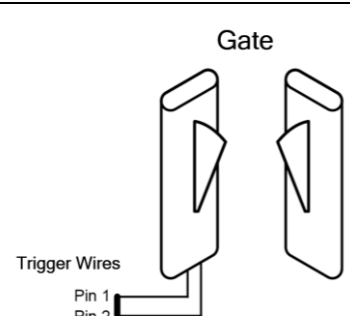
The access control system will be normally set in Gate Closed mode and it will be enabled to allow a person's access only when the FL X1 will send the trigger signal, i.e. when the termoscanner will test successfully the personnel temperature and the presence of the mask. In this case, the internal switch of the FL X1 will close the electrical circuit and send to the access control system the impulse to unblock the access (eg turnstile; automatic door; automatic bar, etc).

The system operation is summarized **in the following page**.

For the Olivetti FL X1 setting related to the Access Control functionality, see par. 2.3.4
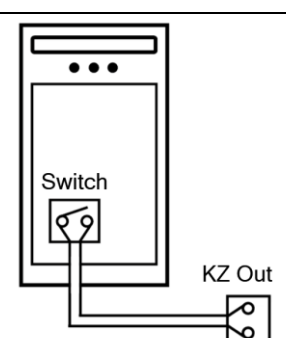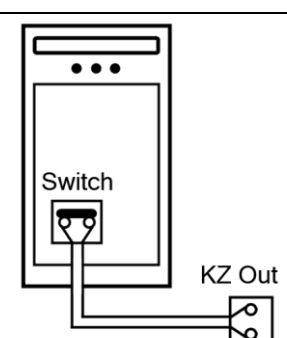
- **Access control system**
  Normally, the access control system integrates a pair of trigger wires for triggering the gate to open, basing on a trigger signal from an external device (in this case, the Olivetti FL X1 termoscanner). The following figures show how the Gate is set to remain in a "Gate Closed" mode until the Trigger Wires circuit is closed:

Separated Wires → Gate Closed	Wire Short → Gate Open
Separated wires (open circuit) → Gate keeps closed	Wire short (closed circuit) → Gate is triggered to open
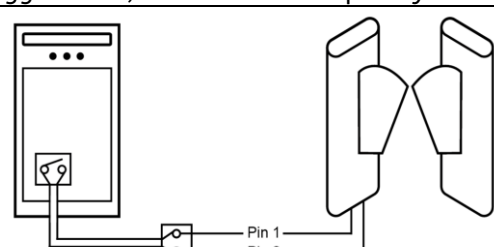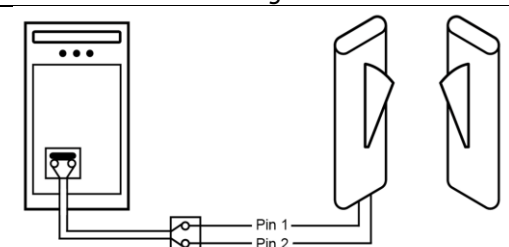
- **Olivetti FL X1 termoscanner**
  The FL X1 internal switch is set to remain in an open mode until the device has successfully tested the personnel temperature and the mask presence: In this case, the internal switch of the FL X1 closes the electrical circuit:

Non completed test → Switch Open	Successfully completed test → Switch Closed
Detection unverified → Switch keeps opened	Detection verified Trigger switch to close

- **Termoscanner-Access Control circuit**
  connecting the termoscanner Digital Output interface (KZ_Out connector) to the access control pair of trigger wires, the circuit is completely set and the access control unblocking solution is enabled.

Normally, the switch is open and the gate is closed.	When detection is verified, the switch is triggered to close and the gate is triggered to open.

3   TECHNICAL FEATURES

Temperature Detection	
Accuracy (closeness of the measurements to a specific value)	0.1℃
Discrepancy (closeness of the measurements to each other)	±0.3℃
Alert default setting	Temperature > 37.3℃
Detection distance (horizontal)	35~50cm
Temp Detect Range	30℃～45℃
Operating Temp.	15℃~35℃ (indoor)

Mask detection	
Response Time	< 0,5 sec
Precision	> 99%
Storage capacity	50.000 Capture Records
Detecting Range (vertical)	0.8~2.2m, adjustable angle
Face angle	Horizontal: 30° Vertical: 30°

Camera Specifications	
Camera	Binocular camera, Visible and near infrared, Support live body detection
MegaPixels	2.1 Mega Pixels (1920*1080)
Minimum Illumination	multicolor 0.01Lux @F1.2(ICR); Black and white 0.001Lux @F1.2 (ICR)
Signal to Noise Ratio	≥50db(AGC OFF)
Wide Dynamic	120db, ISP algorithm face partial exposure
Image sensor	1/2.8" Progressive Scan CMOS

Interfaces	
Digital Output	1 KZ_Out
Interfacce di rete	1 RJ45 10M / 100M adaptive Ethernet port
USB	1
Wiegand	1 WG in, 1 WG out
RS485	RS485+ / RS485

General Features	
MTBF (mean time between failures)	> 50000h
Size	252(L)*136(W)*26(H)mm
Display	8 inches
Processor	Dual-core processor+1G memory +16G Flash
OS	Linux
Speaker	Standard; pre-recorded contents
Env. operating conditions	0～90% RH (Indoor recommended)
Antistatic	Contact ±6KV, Air ±8KV
Power requirement	DC12V/3A
Power Consumption	20W(MAX)
Weight	1,7 Kg

4 FAQ

Q1. What happens in case the memory for access record is full?

A. The oldest records will be overwritten by new records. The memory keeps working. Connecting the device to a PC/Server, the records can be exported and saved (see par. 2.3.2 – 3). Optionally, all the field data will be centralized on the Olivetti Platform, to get an unique view of the different locations and to create custom dashboards.

Q2. When open web browser to login device, no response from device.

A. Try to refresh the screen by clicking refresh on web browser.

Q3. When upload firmware, select firmware file and click "upgrade", but no reaction at all.

A. Recommend to use **Google Chrome** to implement firmware upload and other configuration.

Q4. Try to login device, but no idea about the IP address for login.

A. Doing the initial setup for device, it is recommended to enable "showing IP address" which can be found at "Device Management → Basic Management" (see par. 2.3.3 - 2), so that the IP address is shown on the display.

Q5. Cannot detect any face in dimming environment.

A. It is recommended to set auxiliary light as "Auto" which automatically emits light while the ambient light is insufficient (see par. 2.3.3 - 2)

Q6. Why the auxiliary light is always on?

A. When set at auto and when the environment light is dimming, the auxiliary light is emitted automatically. Check the light sensor located at bottom edge of device is obstructed by stand or other tapes.

Q7. Can possibly take face picture and register by device directly?

A. Yes. When stand and face the device, the camera takes the picture for a person and adds an item for access record. Login the device by web browser and check the access record. On the record item, click "*Register*" to add this person (see par. 2.3.2 – 3).

Q8. May the facial recognition work also without mask wearing?

A. Whatever the picture is with or without mask wearing, it is capable to detect face with or without mask wearing.

Q9. Is the device able to connect to an automatic door/gate and control it?

A. Yes, the device can be connected to an automatic door/gate and controls an automatic door/gate. Mostly connect the trigger wires from door/gate to the connector of KZ_OUT on device (see par. 2.4).

Q10. When many units of devices are installed, how to manage all these devices?

A. Simply connect all the devices on local area network (LAN). Use a PC and login to each device by its IP address.
Optionally, all the field data will be centralized on the Olivetti Platform, to get an unique view of the different locations and to create custom dashboards.

5   SAFETY INFORMATION

This section presents important information intended to ensure safe and effective use of this product.

5.1 SAFETY PRECAUTIONS

- When the device cannot be exited or terminated, reset and restart it by powering off and on again.
- Using the device, avoid hard objects from impact and knock, and do not scratch with sharp objects to prevent damage to the device casing.
- Wipe the display and panel lightly with a soft cloth and other materials. Avoid using water and detergent.
- In the installation and use of this product, all nation and region electrical regulations must be checked.
- If the device does not work properly, do not disassemble it for repair, otherwise the device warranty will be invalid.
- Avoid extreme high temperature (or low temperature), high humidity, vibration, radiation, chemical corrosion and other harsh or extreme environments during installation and use
- Use only the standard power adapter supplied together with the device. The power supply is for indoor use
- Do not allow anything to rest on power cord. Do not locate this product where persons will walk on the cord.

6 CE CONFORMITY

- The quality requirements of this product are attested through placement of marking on the product.

- The full text of the EU declaration of conformity is available at the following address:www.olivetti.com - Support.

DIRECTIVE 2012/19/EU ON THE TREATMENT, COLLECTION, RECYCLING AND DISPOSAL OF ELECTRIC AND ELECTRONIC DEVICES AND THEIR COMPONENTS

1. FOR COUNTRIES IN THE EUROPEAN UNION (EU)

The disposal of electric and electronic devices as solid urban waste is strictly prohibited: it must be collected separately. The dumping of these devices at unequipped and unauthorized places may have hazardous effects on health and the environment. Offenders will be subjected to the penalties and measures laid down by the law.

TO CORRECTLY DISPOSE OF OUR EQUIPMENT:

a)   Contact your Local Authorities who will provide you with the practical information you need and instructions on how to deal with the waste correctly, for example, locations and opening times of the waste collection centres, etc.

b)   When you purchase a new device from us, return the used device similar to the one you are purchasing to the dealer for disposal.

The crossed dustbin symbol on the device signifies that: when the device reaches the end of its lifetime it must be taken to an equipped waste collection centre so that it can be disposed of separately from urban waste;

Olivetti guarantees activation of treatment, collection, recycling and disposal procedures in compliancy with the Directive 2012/19/EU (and subsequent amendments).

2. FOR OTHER (NON-EU) COUNTRIES

Treatment, collection, recycling and disposal of electric and electronic devices must be carried out in accordance with the laws in force in the country in question.