

## User manual SmartXcan

ART: KMS-TI-FS-B, KMS-TI-FS-RFID-B



### Safety instructions

- No modifications of any kind to Kentix GmbH products, other than those described in the relevant instructions, are permitted.
- To avoid malfunction, use only original parts and original accessories.
- Only operate the products within the defined temperature range.
- The products must not be brought into contact with paint or acids.
- The instructions should be passed on to the user by the person carrying out the installation.
- Kentix accepts no liability for damage to the equipment or components caused by incorrect installation.
- No liability is accepted for incorrectly programmed units. Kentix will not be liable for faults, damage to property or other damage.

### Use of the products, transport, storage

- Installation and commissioning may only be carried out by trained specialist personnel in accordance with the instructions.
- Protect the device from moisture, dirt and damage during transport, storage and operation
- You can find further information online at [docs.kentix.com](https://docs.kentix.com)

### Disposal

- Kentix would like to point out that Kentix appliances must be collected separately from unsorted municipal waste in accordance with the ElektroG.
- Used batteries must be removed from the old appliance before it is taken to a collection point and disposed of separately. Collection points for old electrical appliances are available for return. The addresses can be obtained from the respective city or local authority.
- If the device to be disposed of contains personal data, the user himself is responsible for deleting it.

### CE Declaration of Conformity

Kentix GmbH hereby declares that the equipment is in compliance with the essential requirements and relevant provisions of Directives 2014/53/EU and 2011/65/EU.

## 1. Basics SmartXcan

The Kentix SmartXcan is a device for contactless screening of groups of people for elevated temperature (fever). The measurement is carried out by an integrated thermal image sensor based on infrared technology to detect the naturally radiated heat of the skin surface of the face.

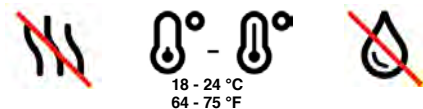
Kentix SmartXcan can select people with fever from fever-free people at entrances and exits in indoor environments, helping to prevent the spread of infectious diseases. By linking the SmartXcan to door or separation systems, automatic access authorisation or refusal of access can take place. By using various other sensors for position, distance and environmental conditions in addition to the infrared sensor technology, the SmartXcan enables a sufficiently accurate and fast derivation of the body core temperature by measuring the skin temperature in the area of the eyes and forehead.

Normal body temperature varies from person to person. For women, the value is on average slightly higher than for men. Overweight people also tend to have a higher temperature, whereas young people usually have a lower temperature than average. In addition, the body temperature drops while we sleep. If the average value today is between 35.7 °C (96,3 °F) and 37.3 °C (99,1 °F), everything is normal according to researchers at Stanford University. Because this range is relatively wide, the temperature at which someone has a fever also varies from person to person. Nevertheless, there is one guideline value: health authorities (e.g. the "US Center for Disease Control" US Department of Health and Human Services) assume a fever above 38 degrees Celsius (°C) or 100,4 degree Fahrenheit (°F)

**The SmartXcan is not a medical thermometer. A medical examination is always necessary to determine the exact temperature. The device does not replace the measurement by a doctor.**

## 2. Environmental conditions

In order to ensure accurate measurement, certain environmental parameters must be observed. These are specified by the IEC80601-2-59 standard. Outside these ranges, measurement errors may occur. Although the system tries to compensate for environmental influences by using various auxiliary sensors, this cannot always be guaranteed due to the complexity of the measurement and the many possible external influences. If faulty measurement results occur, it is usually only necessary to correct one external influence using the following instructions.



### Please note the following:

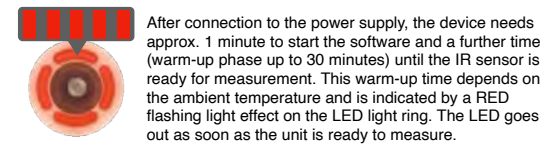
- Always use in air-conditioned interiors (ideal 18-24 °C / 64 - 75 °F)
- Do not use in damp rooms, relative humidity 10-75 %.
- Do not mount directly next to or align with heat sources
- The thermal image sensor must not detect any other heat/cold sources such as lights, radiators or air conditioning systems
- Do not point directly into the sun or against the open sky
- The device should be in the same environment at least 30 minutes before the first measurement
- Persons from cold environments such as outdoor areas, cold stores, etc. or after bicycle/motorbike rides must first acclimatize in the sensor environment, otherwise no accurate measurement is possible due to the cooled skin surface
- Acclimatisation of people can take different lengths of time depending on the ambient temperature, age or physical condition
- Avoid cold or warm draughts that affect the measuring environment and the instrument
- Ensure that the face is not covered by hair, glasses or other objects during measurement
- Maintain the recommended head position and distance from the device
- Persons from cold or very warm environments should only carry out a measurement after sufficient acclimatization in the sensor environment
- Persons should not sweat or have skin wetted with water
- When measuring a person with a mouth guard, it should not cover the upper cheek bones or the eyes

## 3. Connection & assembly

The Kentix SmartXcan should be mounted using the following sketches:



The device is equipped with a PoE-capable network interface (LAN) via which the device is also supplied with power. PoE (Power over Ethernet) is an established standard for the power supply of network-based devices. The device is connected to a network socket or a PoE-capable switch via a patch cable (included in the scope of delivery). If no PoE connection is available, a so-called PoE injector can be used (optional). For details of the LAN (PoE) connection, please refer to the data sheet.



### Front view



- LED temperature scale
- LED light ring
- Distance sensor
- IR sensor

### Rear view



- Reset button
- Mounting bracket
- Sticker Serial number
- Sticker Default values (MAC-Address)

### Connections



- Kentix Systemport
- Ethernet LAN-PoE
- SD-Karte (max 128 GB)

## 4. User interface

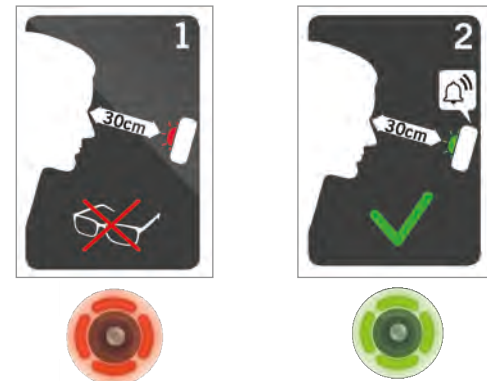
The measuring process is initiated as soon as the head is at a distance of approx. 50cm from the sensor. The LED ring lights red and thus indicates that the correct measuring distance has not yet been reached. From a distance of 30 cm to the lens, the LED ring lights green. The temperature measurement starts automatically and is completed by a signal tone. This happens in less than 1 second. Measuring errors are indicated by a flashing red signal and 3 short signal tones.

### The procedure of a correct measurement:

- Approach the SmartXcan, holding the head centrally above the device
- Focus the LED-Ring with your eyes
- Slowly approach the head to the device until the LED-Ring lights up green (distance in the range of 10 - 30 cm to the device)
- After the short signal tone the measurement is finished
- The LED scale directly displays the measurement result

The SmartXcan user interface displays several icons as well as visual and audible signals. The meaning of the individual signals is as follows:

### Display on the device (LED-Ring)



**Incorrect measurement:**  
Distance to the lens too great,  
Glasses recognized,  
Eyes not recognized

**Correct measurement:**  
Completion of the measurement  
takes place with a signal tone.

### Interface on the device (LED temperature scale)

The temperature display (LED bar) is only activated after a successful measurement and shows the following temperature ranges

LED Scale	Temperature Range (°C)	Temperature Range (°F)	Measurement Status
Green	35 - 37.8 °C	95 - 100 °F	Measurement successful. LED ring green. 5 of 8 LEDs light up. No increased body temperature.
Yellow	37.9 - 38.3 °C	100.2 - 101 °F	Measurement successful. LED ring red. 6 of 8 LEDs light up. Slightly increased body temperature.
Orange	38.4 - 39.3 °C	101.1 - 102.7 °F	Measurement successful. LED ring red. 7 of 8 LED light up. Increased body temperature.
Red	> 39.3 °C	> 102.7 °F	Measurement successful. LED ring red. 8 of 8 LED light up. High body temperature.

\* The measuring ranges can be set individually in the software

### Notes on measurement and interpretation of the results

As already described under point 2 "Environmental conditions", an accurate measurement depends essentially on the ambient conditions of the device and the person to be measured. It can also be said that the more temperature-stable the environmental conditions, the better the measurement results.

The system measures the temperature of the skin surface, especially the eye area, as this is where the most stable temperatures prevail. The measured temperature is corrected by a dynamic offset correction to the body core temperature, comparable to standard clinical thermometers for forehead or ear measurement. The offset can be corrected in comparison with a clinical clinical thermometer and can be set in the software interface. The advantage of the SmartXcan measurement is the high process fidelity due to a wide variety of sensors, i.e. the system ensures that the conditions regarding distance and position of the object to be measured (face) are almost always the same and compensates certain parameters dynamically. The number of warm measurement points is higher for febrile persons, the system evaluates them more strongly in order to better detect an increased temperature. Physical exertion such as sports, climbing stairs or increased outdoor temperature hardly affects the measurement and very rarely leads to an increased temperature measurement.

In general, low skin temperatures or a cooled face are rather problematic for a meaningful measurement. In this case, the persons have to acclimatize in the vicinity of the device for a few minutes before the measurement. Persons with an elevated temperature must be re-measured twice to verify the result. For the exact determination of fever, it is recommended to check with a clinical clinical thermometer.

## 5. Software

After connecting to a network, the device can be accessed via a web browser using the following data (default settings)

**IP-Address: 192.168.100.223 or DHCP (MAC-Adr. Printed on backside)**  
**User: admin**  
**Password: password**

The called Web-GUI shows a simple interface analogous to the case top with two central areas. The left area shows the temperature hotspots of the scanned face as thermal image. The right side shows a LED scale as seen on the SmartXcan. Here the measured temperature can be read.

### Factory reset - Reset to factory settings

- Restart the device (software or power reset)
- As soon as the LED RING flashes red, press the RESET button (1) on the back of the device. Keep the button pressed for 15 seconds until an acoustic feedback is heard
- The device is reset to factory settings and restarts
- After approx. 60 seconds the MultiSensor can be reached again via the standard settings

### ATTENTION! All settings will be lost!

## 5.1 Basic operation



Start page after calling it up via the web browser. The data is updated automatically. The LOGIN button for system login and configuration is located in the upper left corner below the logo.

## 5.2 Software configuration

After logging in with the user data specified under 5. software, you will be taken to the dashboard. General measured values, including room temperature, humidity etc. can be read here. In the menu item SENSORS all temperature ranges for measuring body temperature are determined. The default settings should be adjusted as necessary. The alarm signal and the alarm duration can also be configured. In the menu item CONFIGURATION all basic settings such as the name of the device, the language and time settings as well as network connection, communication, e-mail and Webhook settings are made. Further information on software configuration can be found at [docs.kentix.com](https://docs.kentix.com).

## 5.3 Network use

The Kentix SmartXcan comes standard with DHCP (Dynamic Host Configuration Protocol). This allows a quick and easy integration into the user network. If this is not possible, communication is enabled via the specified fallback IP address. In order to obtain the MAC address (Media Access Control) of the SmartXcan, a QR code is attached to the back of the device. Settings regarding network operation can be made online as described in 5.2 Software Configuration. We generally recommend operation in a network for easier system management and the distribution of updates.

## 5.4 Software update

The SYSTEM menu item takes you to the SYSTEM FUNCTIONS tab. There all software specific data can be found. In the area CREATE BACKUP a backup copy can be created before an update to avoid a possible loss of data.

Under FIRMWAREUPDATE the current version of the software is displayed. A message in this field automatically indicates when a new version is available (note network configuration). Download link to the latest software versions:

<https://docs.kentix.com> (DOWNLOADS)

By selecting the downloaded and unzipped data, the update can be performed under "Start Update". This process can take up to 5 minutes. During this time, the device must remain connected to a voltage source.

## 6. Calibration

The device is delivered in calibrated condition. Depending on the field of application and guidelines (e.g. according to IEC80601-2-59), an annual calibration must be carried out. For the calibration of the infrared measuring system, there is a special calibration procedure in the software interface which considerably simplifies the process. For calibration, an infrared calibrator (black body) with an emitter surface of at least 120 mm diameter and an emission value of ε=0.95 is also required. Calibration is performed at exactly 35 °C calibrator surface and 250 mm distance between housing surface and calibrator surface. The IR lens must be aligned centrally to the calibrator surface. The calibration process is automatically executed and confirmed in the software interface after starting.

We recommend the following types as infrared calibrators: Fluke Calibration Precision Infrared Calibrators Type: 4180/4181.

You can also send the device to Kentix factory service to perform the calibration.

## 7. Technical data

Software	Integrated web server (HTTPS), own certificate
Room temperature sensor	Measuring range 0 to 85 °C, 32 - 185 °F (accuracy ± 0.5 °C)
Air humidity sensor	Measuring range 0 to 100 % (accuracy ± 3 %)
IR sensor	1024 Pixel Infrarot Array, Measuring range 0-100 °C, Repeat accuracy ±0.30 °C/0.55 °F, Resolution 0.1 °C/°F, Emission factor 0.98, Ambient temperature 18/64-24/75 °C/°F
Distance sensor	Distance measurement with 1 mm resolution, Class 1 eye safety laser measurement in accordance with the IEC 60825-1:2014-3 standard
Vibration sensor	3-axis acceleration sensor with position and sabotage detection (sensitivity adjustable)
External inputs/outputs via Kentix system import	2x Digital INPUT, 2x Digital OUTPUT (Open collector 100mA) Connection with IO-Adapter (ART: KIO3)
Acoustic signal generator	Acoustic measurement confirmation via signal generator, 85 dB, 2.3 kHz
LED displays	12 LED (RED/GREEN) on top of the unit 2 LED at Ethernet socket (LNK/ACT)
Ethernet	10/100 MBit with PoE (Class 1) for power supply
SD card	Integrated Micro SD card holder as additional memory for data recording and backup, up to 128 GB
Software interfaces	E-Mail, SNMP V2/3 (GET, TRAP), Rest-API, Web-Hooks, HTTP/S Videocamera
Ambient temperature for Body temperature measurement	18 - 24 °C (64 - 75 °F) according to standard ISO80601-2-59 16 - 28 °C (61 - 82 °F) extended, lower accuracy possible
Ambient temperature Device operation	0 - 50 °C (32 - 122 °F) for pure device operation Air humidity 5-95% non-condensing
Housing	Size 120x120x44 mm, Weight around 150 g, Protection class IP30, Color: Black, Material: PS
Wall bracket	Size around 110x113x78 mm, Weight around 500 g, Material: Metal
Approvals	CE, FCC

Further information and technical data at [docs.kentix.com](https://docs.kentix.com) (data sheets)

## 8. Scope of delivery & accessories

<b>Included in delivery:</b>		
1 piece	SmartXcan sensor	<b>ART: KMS-TI-FS-B</b>
1 piece	Cover plate for connections	
1 piece	Metal wall bracket, device holder, fixing set	
1 piece	Slim-Line Patch cabel 3 m (CAT6)	
<b>Additional for version with RFID reader:</b>		<b>ART: KMS-TI-FS-RFID-B</b>
2 pieces	RFID key ring (MifareDESFire)	

### Optional accessories

- Place or stand for free installation in the room (ART: KMS-TI-FS-STAND1)
- PoE injector for power supply via network cable (ART: KPOE-150)
- I/O adapter for controlling external devices (ART: KIO3)

Further information and documentation can be found at [docs.kentix.com](https://docs.kentix.com)

**Kentix GmbH**  
Carl-Benz-Straße 9  
55743 Idar-Oberstein-Germany  
[kentix.com](https://www.kentix.com)