Smart Monitoring

TMS300 CS Multi-Tank User and Installation Manual

ENG

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Kingspan®

Contents

Summary of features

- Tank levels via Local screen, embedded webserver, App, online portal or emails
- Multi tank level measurement (wireless and wired, up to 18 channels)
- Connectivity options via Local Network, GSM (2G/3G) or Internet
- Volt free relay outputs for overfll/leak/low level alarms/sudden drop
- CE certificated
- Historical levels
- Levels (litres, percentage, mm)
- Alarms (sensor disconnection, leak, high and low alarms, email alerts)
- Dry contact inputs, up to 6

1. Specification

1.1. Dimensions

- **Width:** 300 mm
- **Height:** 180 mm
- **Depth:** 100 mm

Note: The information supplied in this manual is for guidance only – no part of this may be used for any agreement, whether express or implied, or to form any contract.

1.2. Electrical and environmental specification

- Supply voltage: 110-240 V AC or 12-24 V DC
- Max input power: 24 VA
- Operating temperature: 0°C - 40°C
- Relay's max switching current: 5 A

1.3. Inputs

- 6 channels, 4-20 mA with internal 12 V DC power supply
  - Compatible with any 4-20 mA sensor i.e. relative pressure, ultrasonic etc.
- Optional wireless module
  - 433 MHz
  - Compatible with Watchman®Sonic transmitter family

1.4. Outputs

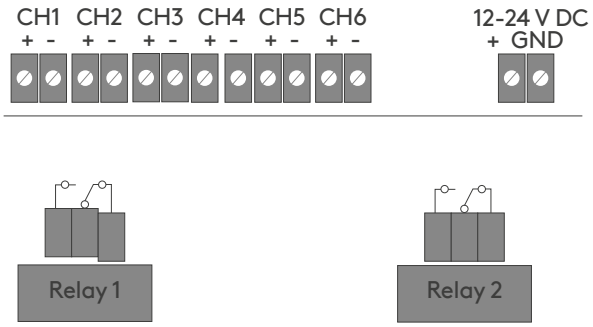
- 4-20 mA output (only with RF module)

1.5. Relay outputs

Note: The alarm relays are 2 contact arrangements which are isolated (volt-free). These relays may be used to trigger an external bell, warning lamp or digital communicator (telephone dialler).

1.5. Relay outputs

	Resistive load
Number of relays	2
Contact mechanism	DPCO
Max. switching voltage	250 V AC, 220 V DC
Max switching current	5 A



1.6. Connectivity

- Embedded Web Server
  - direct connection via ethernet cable
  - local network
  - Internet (port forwarding required)
  - Wi-Fi network (USB Wi-Fi adaptor required)
- Connect Sensor
  - GSM 2G/3G
  - Internet (port forwarding required)

1.7. Sensor

TMS300 is compatible with:

- Watchman® LT (24 V DC external power supply required) – 026769
- Watchman® Sonic 4-20 mA waveguide - 019052
- Watchman® Sonic Waveguide EU - 019369
- Watchman® Alarm Waveguide EU - 019371
- 4-20 mA pressure sensor - 004035
- Any 4-20 mA sensor
- Watchman® Sonic - 003963
- Watchman® Sonic EU 004644
- Watchman® Sonic Alarm - 004030
- Watchman® Sonic Alarm EU 004645
- Watchman® Sonic Plus - 002893
- Watchman® Sonic Plus EU 007041

1.8. Additional equipment

- RF module

- TP Link Wi-Fi adapter

2. Safety precautions

Installation

Note: This installation procedure is for guidance only, and its suitability should be verified by the installer.

The following safety precautions are strongly recommended:

- Before attempting to install and operate the unit, read the instruction and installation manual carefully.
- Installation and any maintenance should only be carried out by suitably qualified personnel.
- It is recommended that the unit be connected to the mains supply via a suitably rated isolating switch.

Warning! When the unit is connected to the mains supply and the cover is open, the circuits at mains voltage will be exposed. Therefore when installing the unit, ensure all required connections (including battery connected, if included), are made and covers replaced before turning on the mains supply. Ensure that all the connections made are secure. If any maintenance work e.g. installing a new battery, is required ensure that the unit is isolated from the mains supply before removing the cover. Never leave the unit unattended if the cover has been removed and the mains supply is connected.

- Do not exceed unit ratings as shown on the ratings label.
- It is advisable to route mains cables away from low voltage or sensor cables.

Note: For viewing comfort, the unit should be positioned at eye level. The ideal operating temperature of the unit is (0ºC to +40ºC). It is always good practice to keep electronic equipment away from cold, heat and electrical plant, as extremes of temperature may reduce the lifetime of the device, and heavy electrical loads, switches, relays or contactors too close to the device may cause electrical and electro-magnetic interference when switched on or off.

3. Mounting

Wall mount

- Drill four holes in the wall, according to the template and insert the wall plugs
- Remove the Front Lid by unscrewing two screws
- Disconnect the modules
- Separate the front cover by unscrewing two screws
- Remove the required knock outs from Back Box for the cables to pass through (always separate front cover before removing the knock outs)
- Insert the cable glands
- Screw in the Back Box to the wall
- Pass the cables through the glands
- Mount the Front Cover on the Back Box
- Insert the modules
- Connect the power supply cable and sensors
- Tighten the cable glands
- Mount the front lid

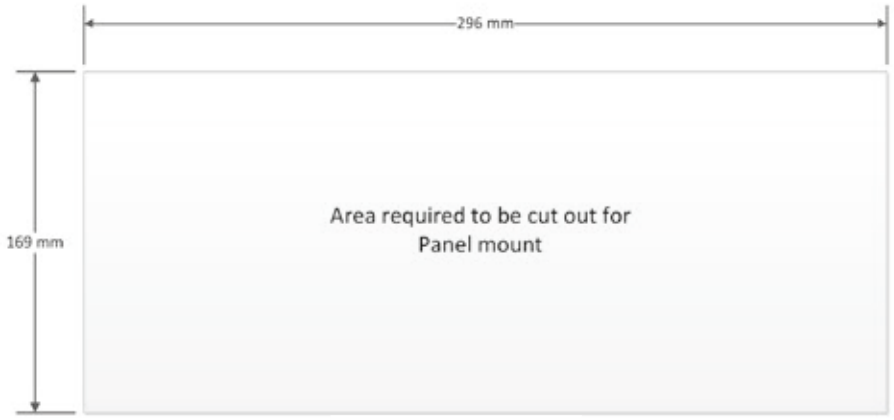
Panel mount (required panel mount kit)

- Cut a hole in the panel with the described dimensions (page 20)
- Remove the Front Lid unscrewing two screws
- Disconnect the modules
- Separate the front cover by unscrewing two screws
- Remove the required knock outs from Back Box for the cables to pass through (always separate front cover before removing the knock outs)
- Attach the Panelmount Seal, ensure that it is on the right position
- Insert the Back Box into the panel cut out
- Attach the four panel mount fixing clips (supplied), to the four studs at either side of the unit (page 20)
- Tighten the four Panelmount Fixing Screws
- Insert the cable glands
- Pass the cables through the glands
- Mount the Front Cover on the Back Box
- Insert the modules
- Connect the power supply cable and sensors
- Tighten the cable glands
- Mount the front lid

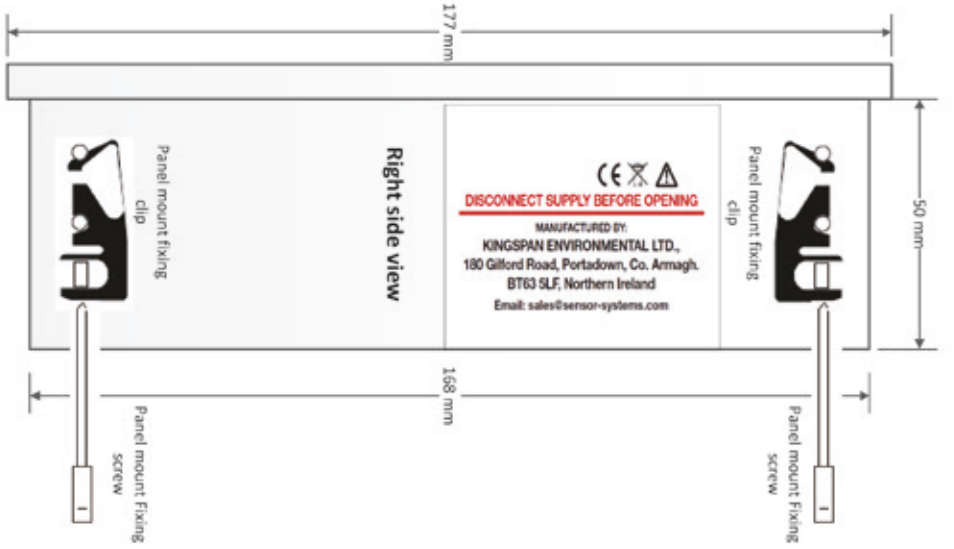
Note: This device should be properly earthed. Flexible wires simplify connection to the terminals. All connections should be secure and adequately tightened. It is good practice to keep mains cables away from sensor cables and other low voltage signal cables.

- Supply voltage: 110-240 V AC or 12-24 V DC
- Max input power: 24 V A
- Operating temperature: 0°C - 40°C
- Relay's max switching current: 5 A

3. Mounting

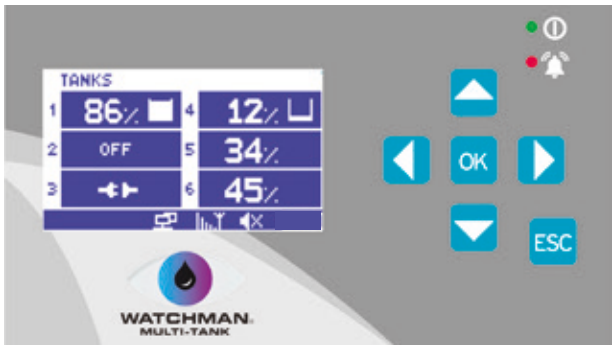


Template - page 20



4. Operation manual

In order to fully understand the operation of the unit, this section should be read carefully.



Power ON/OFF indicator

Alarm Triggered Indicator

Max. Volume Alarm Hard

Max. Volume Alarm Soft (blinking icon)

Min. Volume Alarm Hard

Min. Volume Alarm Soft (blinking icon)

LAN cable connected and IP obtained

GSM/GPRS signal strength

Buzzer OFF/Alarm muted

Channel OFF

Sensor disconnection

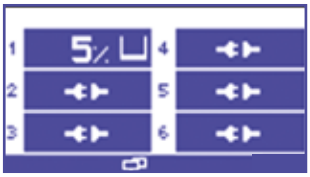
4. Operation manual

Main menu

This screen allows user to choose any options available.
To back to **Main menu** press the ESC key.

4.1. Tanks

These screens allow user to view all the sensor status for each channel, e.g. Level, Disconnection, Alarms.



Press the OK key to reveal the channel view, use ▼ or ▲ to change between channels.

4.2. Network

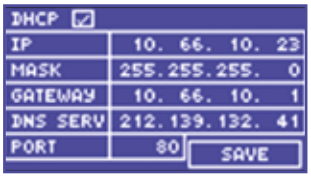
This screen allows user to set up the Network connection. User can choose **DHCP** option or manually enter the IP address.

To set Automatic Network Configuration, use the ▶ key to select **DHCP** and use the OK key to select or deselect this option.

DHCP ☑ Indicates that the DHCP is **OFF**.
DHCP ☐ Indicates that the DHCP is **ON**.

Select SAVE and use the OK key to save the settings.

It can take few minutes to save new settings.



To obtain the IP address please contact with your Network Administrator.

4.3. LCD contrast

This screen allows user to adjust the LCD contrast.

Use ◀ ▶ to adjust and press the OK key to confirm.

4.4. LCD backlight ON/OFF

This screen allows user to switch **ON/OFF 'auto backlight'** option.

Use ▲▼ to choose the option and press the OK key to confirm.

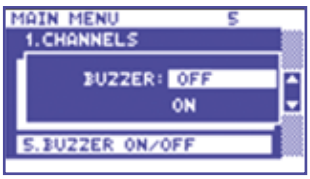
ON — Backlight will stay **ON** all the time.

AUTO OFF — Backlight will switch **OFF** automatically in approx. 2 minutes if no key has been pressed.

4.5. Buzzer ON/OFF

This screen allows user to switch **ON/OFF** internal buzzer sound.

Use ▲▼ to choose the option and press the OK key to confirm.



To mute the internal buzzer when alarm activated press any key.

4.6. Webserver password

This screen allows user to reset the webserver **'admin'** account password.

Use ◀▶▲▼ to choose the password and press OK key to confirm.

To change the password, user will need to confirm the old one. Default password is: last 4 digits of unit serial number.

4.7. Default setting

This option will reset all settings to the factory settings. **Password: Unit serial number**.

4.8. 4-20 mA output

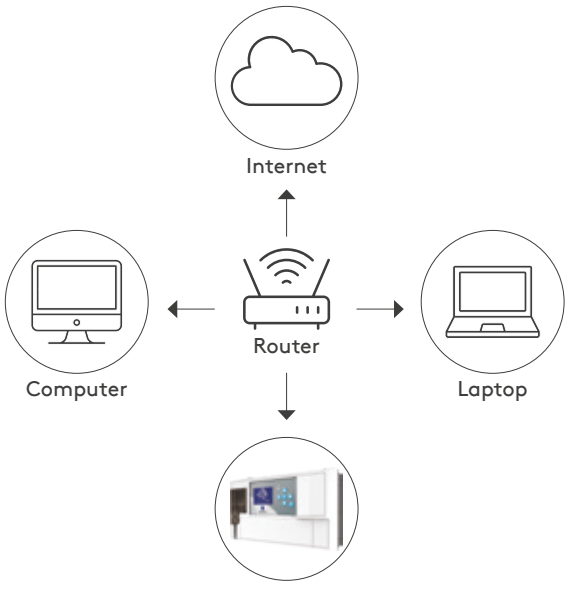
Use ▲▼ to choose the channel and press the OK key to confrm.

5. Web server connection

To connect with unit's embedded Web Server, connect unit to the network (switch, hub, router etc.) using Ethernet CAT-5 cable or directly to the network adapter on your computer and open a web browser - Windows Internet Explorer (version 8.0 or higher) or Firefox. Input the unit's IP address (default -192.168.0.2).

5.1. Network connection

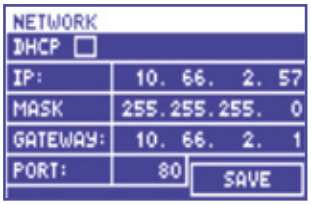
(please contact with your network administrator)



Internet - port forwarding required

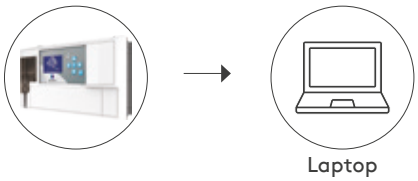
5.2. Direct connection

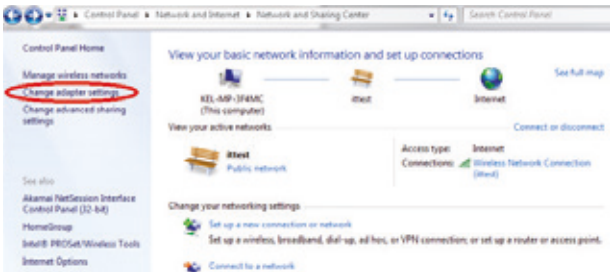
- Check the MTMS network settings.
  Use the keypad and navigate to the appropriate screen **MAIN MENU → NETWORK**

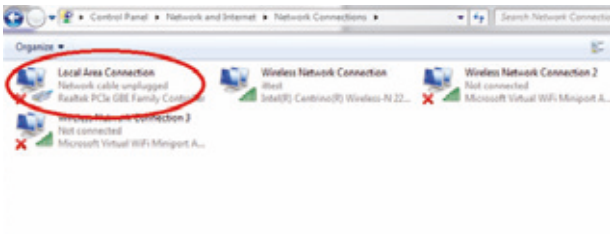


Note: The network setting may vary between devices.

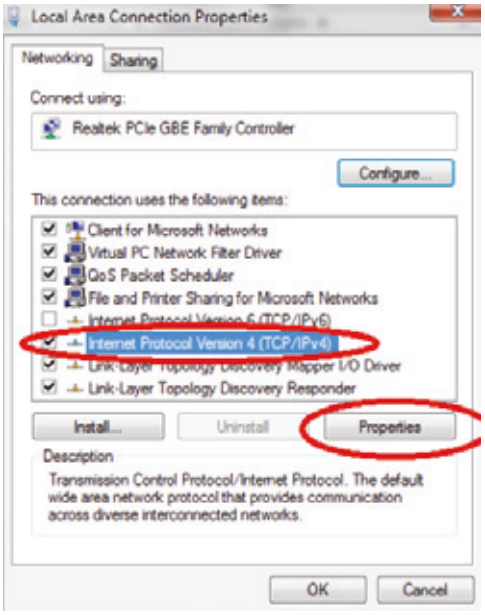
- Connect MTMS to the computer using Ethernet cable.
- Change the computer's network settings.

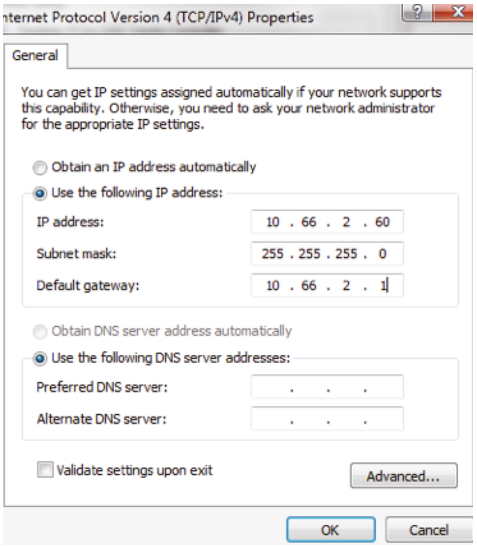






5.2. Direct connection





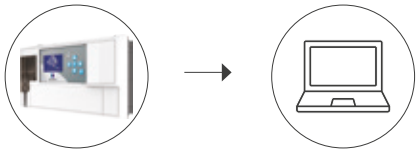
Note: The last octet of the computer's IP address ("60" in this example) should be different than the last octet of the MTMS IP address ("57" in this example). The subnet mask and default gateway should be identical.

Default username and password:
Administrator:
Username: admin
Password: last 4 digits of the units serial number
This password can be changed, see page 11.

User: (only for viewing levels)
Username: user
Password: last 4 digits of the units serial number
This password cannot be changed.

5.3. Wi-Fi connection (USB Wi-Fi adapter required)

The USB Wi-Fi adaptor lets you create a WiFi network from a unit to allow connection with webserver on all of your wireless devices including tablets, laptops / Ultrabooks and smartphones.



6. Configuring sensor and tank details

6.1. Channel wizard

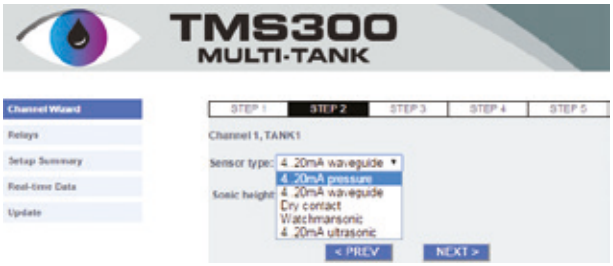
This screen allows user to configure sensor and tank details.

STEP 1

Choose the channel, set name and click **NEXT.**

STEP 2

Choose the sensor, fill in the required informations and click **NEXT.**



Watchman® Sonic avaiable only with RF module

- **4-20 mA Pressure Sensor**

- **4-20 mA Waveguide (Watchman® Sonic)**

Enter the Sonic Height.
Sonic Height - distance between the base of sensor to bottom of the tank.

- **4-20 mA utrasonic sensor**

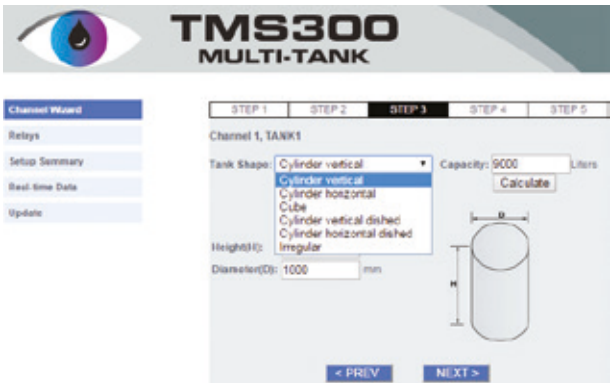
- **Watchman® Sonic (only with RF module)**

Enter the Sonic Height.
Sonic Height - distance between the base of sensor to bottom of the tank.

- **Dry contact**

STEP 3

Choose the tank shape and fill in dimensions.
Click **'Calculate'** to obtain tank capacity or type in manually.

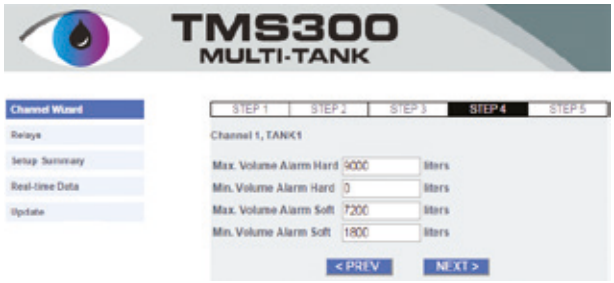


To add the strapping table, choose Irregular tank and click **'Next'** Fill in the table or upload file with existing strapping table.

6.1. Channel wizard

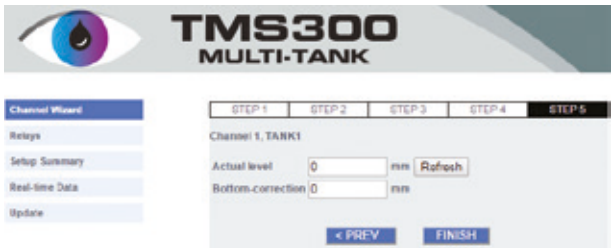
STEP 4

Set the alarm thresholds.



STEP 5

Check the actual reading from sensor and click **'FINISH'** to apply settings.



6.2. Connectivity wizard

This screen allows user to connect to remote server.

- GSM - Kingspan SIM CARD
  For SIM CARD activation please contact Customer Service.
  Click on **'Send registration file to connect sensor'** and wait for **'SUCCESS'**.

Warning! When success, FINISH button must be clicked to save the settings!

6.2. Connectivity wizard

- GSM - 3rd PARTY SIM CARD
  For connection using 3rd party SIM CARD.

Enter the APN details from your SIM CARD provider.

Please wait for GPRS reg: **OK** and then click **TEST** button. Test results will be displayed in few minutes.
If Success, click **FINISH**. Do not proceed if the test has failed as this will not allow to register on **Connect Sensor**.

- INTERNET (port forwarding required, please contact with your Network Administrator).

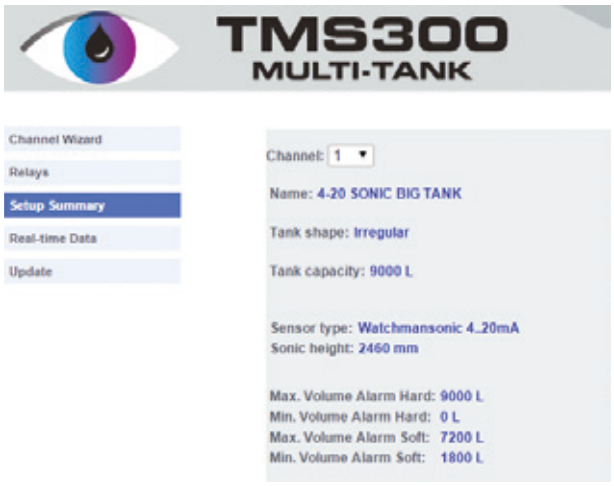
Clik **TEST** button. Test results will be displayed in few minutes.
If Success, click **FINISH**. Do not proceed if the test has failed as this will not allow to register on **Connect Sensor**.

6.3. Relays

This screen allows user to associate any channel with a number of relay outputs, (i.e. alarm relays) e.g. if channel 1 goes into alarm mode, each alarm associated with channel 1 will be triggered.

6.4. Setup summary

This screen allows user to view all the settings for each channel, e.g. tank details, relays etc.



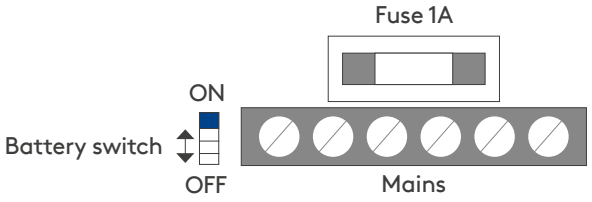
6.5. Real-time data

This screen allows user to view all the data from the channels.

7. Software upgrade by USB cable

STEP 1
Switch **OFF** the power supply.

STEP 2
Take off the front lid and switch the battery backup off.

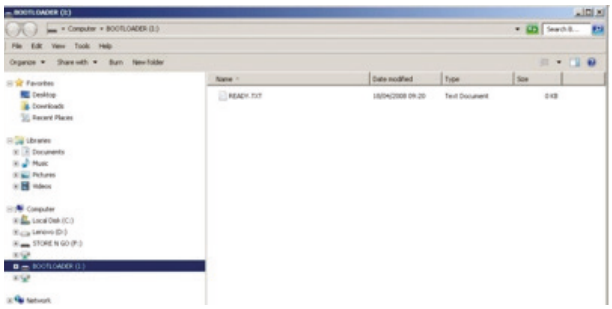


STEP 3
Press and hold the **"OK"** button.

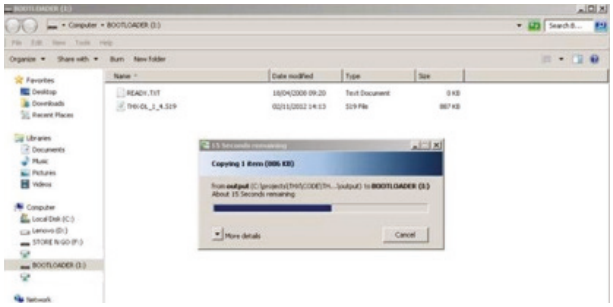
STEP 4
Connect the unit to PC via male-male USB cable.

STEP 5
Wait few seconds and release the button.

STEP 6
The unit should enumerate as a **"BOOTLOADER"** USB Mass Storage.



STEP 7
Open the **"BOOTLOADER"** folder and drag-n-drop the s19 file.



STEP 8
After copying file has been completed, disconnect the cable.

STEP 9
Switch the battery backup **ON**.

STEP 10
Close the lid and switch the power **ON**.

Warning: Always disconnect power supply from the unit before opening the lid.

8. Wall mount template

Wall mount template on the next page has **dimensions of 296x169 mm**.

It represents **in 1:1 scale** the area required to be cut out for panel mount.

The four studs at the corners are showing the exact position of the four panel mount fixing clips.

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Visit kingspanenergymangement.com to learn more about our products in over 40 countries. For local information on the Smart Monitoring Range please visit:

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