LK Webserver ICS.2

DESIGN

LK Webserver ICS.2 is used to access and control LK Room Temperature Control ICS.2 from your mobile phone, tablet or computer. An intuitive interface makes it easy to monitor, manage and control all the functions of the underfloor heating system.

All control operations are made using standard websites, which means that the system works with virtually all the current market systems such as smartphones, tablets or computers with associated operating systems and web browsers such as, Android, iPhone, iPad, Windows Phone, Windows PC, Mac, Linux, Firefox, Safari, Internet Explorer, and others.

LK Webserver ICS.2 continuously logs the underfloor heating system (temperature, heat on/off, etc.) making it possible to optimise system performance. The logs can be collected and analysed using the LK Analyzer ICS.2 software which you can download from LK System's website.

Initial start-up/installation of the web server typically requires a PC with the Windows OS, read more in the instructions below.
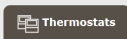
LK Webserver ICS.2 connects to the LK Receiver 8 ICS.2.

USER INTERFACE, FUNCTIONS

LK Webserver ICS.2 provides a simpler and more transparent user interface than if you make system settings via the room thermostat menu and setting parameters.

Menu tab Thermostats

The Thermostats tab gives you an overview of the system's receivers and the connected room thermostats. The names of thermostats and receivers can be changed to names of your choice, by way of suggestion use the room name/room number.
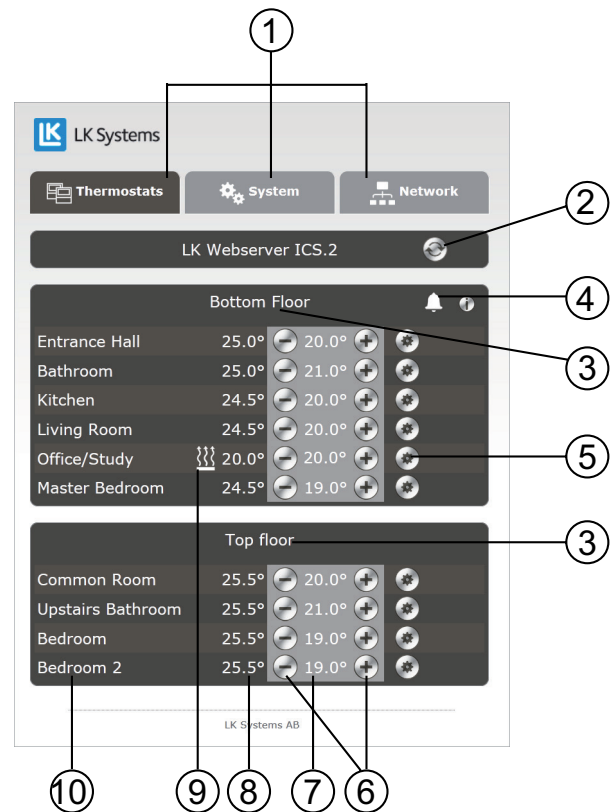
Basic functions

1. Menu tabs.
2. Refresh button. The website is automatically updated whenever a change is made from it. If no change is made, the website will self-refresh every 10 minutes. It is possible to force

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an update by pressing the update button.

3. Unit name, is the default receiver, i.e. Receiver 1 Click the *Receiver 1* name and rename the unit to a name of your choice. The unit is typically renamed to where it is located or the part of the system it serves.

4. Alarm symbol may be shown where applicable. Can also be displayed for a thermostat. Click the icon to read information about the alarm.

5. Gears icon, clickable, for access to the thermostat settings.

6. Decrease/increase the required room temperature.

7. Display of set room temperature.

8. Display of current/measured room temperature.

9. Heating symbol. If the heating symbol is lit, this means that the room thermostat is calling for heat.

10. Room thermostat is the default as *Thermostat*. Click the *Thermostat* name and rename the thermostat to a name of your choice. The thermostat is typically renamed to where it is located i.e. room name/room number.

Use the round keys ⊖ or ⊕ to set the required room temperature. The measured/current room temperature is next to this. There is a gear icon ⚙ for each thermostat. By clicking the icon you access the menu system for that particular room thermostat. All settings that can be made from the physical room thermostat can now easily be made here instead.
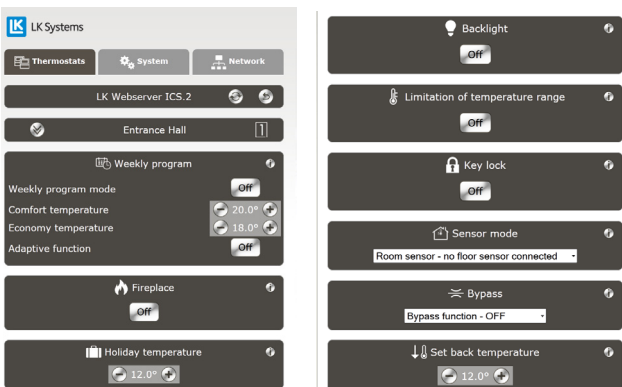

Menu Page for settings of individual room thermostat.

There is an i-icon/information icon 🛈 for each function which is clickable. Some information in brief is then available for the function. Additional information is available in the manual accompanying *LK Room Temperature Control LK ICS.2.* Any alarms will be presented as an icon in the shape of a bell 🔔. The alarm icon is clickable. Information about the current alarm will then be presented. For more information see the manual accompanying *LK Room Temperature Control LK ICS.2.*

Menu tab System

The System tab allows the setting of the general functions in the system, i.e. functions that will affect all the room thermostats in the system. For example, the *Holiday* function. If enabled, all the thermostats in the system will reduce the set room temperatures simultaneously. There is a i-icon/information icon that is clickable for each function. An important function under the *System* tab is *Set time and date,* i.e. setting the system date and clock. This should always be done. Click the *Set* button and the system will synchronize the clock and time with the device you are using i.e. PC, tablet or smartphone.

For more information see the manual accompanying *LK Room Temperature Control LK ICS.2.*
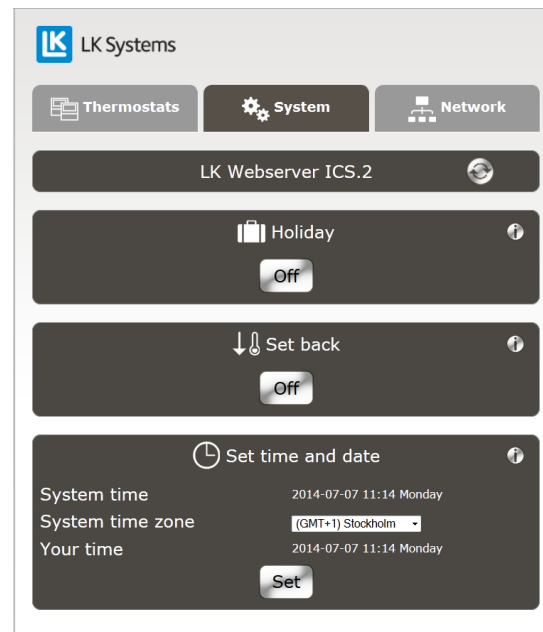
Menu tab System

Menu tab Network

There are settings and information under *Network* concerning network connections/connectivity of the web server to the local network or the Internet, along with information related to this. Read more in this document about settings under *Network*.

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Connection – with access from the local network
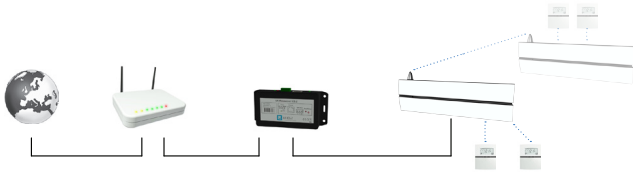
System example with the web server cable connected to the router. Several LK Receivers ICS.2 can communicate in the system. The web server is connected to the master receiver. Other receivers become slaves and communicate wirelessly with the master unit.

1. Connections are made using a three-core cable (min cable area 0.25 mm²) from LK Receiver 8 ICS.2 three-pole bus connector marked BUS to LK Webserver ICS.2's three-pole connector marked BUS ICS.2. Connect pole to pole i.e. to ensure that plus [+] is connected to plus [+], minus [-] to minus [-] and zero [0] to [0].

   In a system with multiple receivers (max. 8 pcs.) these are installed in your own network with wireless communication between the devices. All shared information is communicated to the system's master unit. LK Webserver ICS.2 is connected to the master unit. Keep in mind that only LK's 8-channel receiver LK Receiver 8 ICS.2 can be a master unit. In an installation with multiple receivers, an optional receiver is selected as the master. Read more about this in the manual for the LK Room Temperature Control ICS.2. If possible, select the receiver that is closest to the building's Internet connection as the master unit.

   In a system with only one LK Receiver 8 ICS.2, this represents the master unit.

2. Connect a standard network cable (CAT 5) between the web server's *Ethernet* connector and any available LAN port at the router/modem.

3. Connect the power adapter to a 230V AC wall outlet and its power cable to the web server's *Power* 5V DC input.

4. Connect a PC with Windows to your local network.

Initial start-up requires a PC with Windows. After completion of the installation, any computer, smartphone or tablet with any operating system can be used to control the system.

5. Enter the address that is pre-printed on the web server that is connected to the router, see image below. In this case, http://af301. A dialog box will then appear. Enter *Username* and *Password* here. Username and Password are pre-printed on the web server.
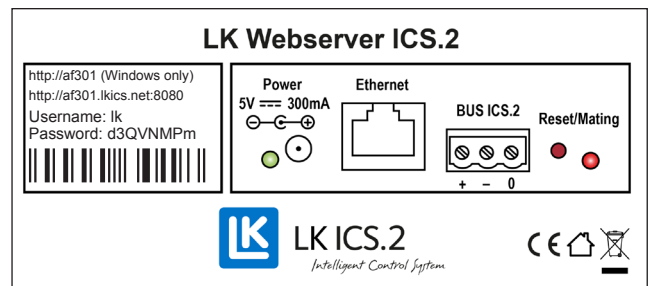
Label on web server

6. Once the program is open, select the *Network* tab.
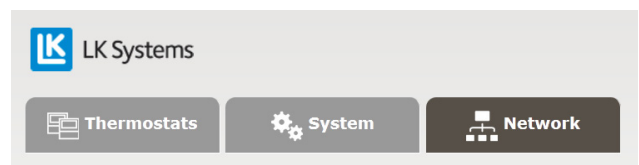
7. Note the addresses under the heading ***How to connect***.

You can use these addresses to connect to the web server via the Internet or locally. There are now two addresses to choose from for a local connection. The shorter address can only be used on PCs with the Windows operating system.

Bear in mind that the Internet address needs time to be registered online. It can take up to 72 hours before the address is registered, but this is normally significantly faster.

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Connection with a communication bridge

– with access from local network
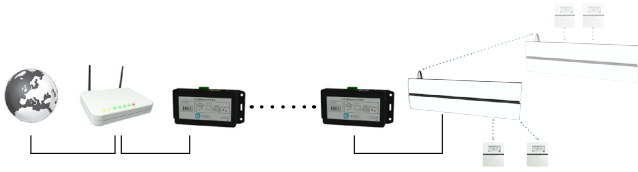
System example with two web servers that communicate wirelessly between each other where one is tasked to serve as a communication bridge. Several LK Receivers ICS.2 may be installed in the system. The web server is connected to the master receiver. Other receivers become slaves and communicate wirelessly with the master unit.

LK Webserver ICS.2 can also be used as a wireless communications bridge. This wireless communications bridge function is used when the Internet is unavailable in the property at the underfloor heating installation's receiver. A wireless communication can then be established between two LK Webservers ICS.2. The first web server is installed at the underfloor heating installation's receiver and the other at the building's Internet connection. The web server located at the receiver will now operate as a wireless communications bridge to the web server with an Internet connection.

Connection and learning are carried out according to the specifications below:
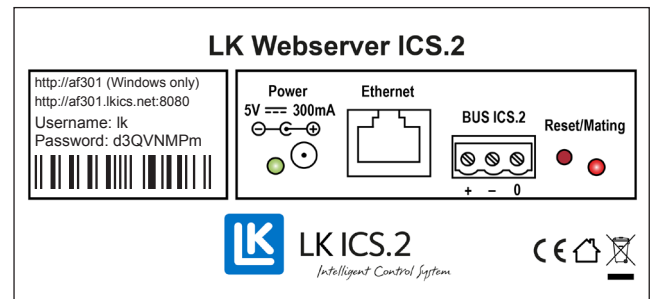
Connection:

1. Connections are made using a three-core cable (min cable area 0.25 mm^2) from LK Receiver 8 ICS.2 three-pole bus connector marked BUS to LK Webserver ICS.2's three-pole connector marked BUS ICS.2. Connect pole to pole i.e. to ensure that plus [+] is connected to plus [+], minus [-] to minus [-] and zero [0] to [0]. This unit will now operate as a wireless communications bridge in relation to the other web server that is to be located at the property's router/modem.

2. Connect the power adapter to a 230V AC wall outlet and its power cable to the Web server's *Power* 5 V DC input.

3. Connect the other web server to the property's router/modem. Use a standard network cable between the web server's *Ethernet* connector and any available LAN port at the router/modem.

4. Connect the power adapter to a 230V AC wall outlet and its power cable to the web server's *Power* input 5 V DC.

Establish wireless communication between the web server units:

1. Connect a PC with Windows to your local network.

   > *Initial start-up requires a PC with Windows. After completion of the installation, any computer, smartphone or tablet with any operating system can be used to control the system.*

2. Enter the address that is pre-printed on the web server that is connected to the router, see image below. In this case, http://af301. A dialog box will now appear where you enter the *Username* and *Password*. Username and Password are pre-printed on the web server.

Label on web server

3. Once the program is open, select the *Network tab.*
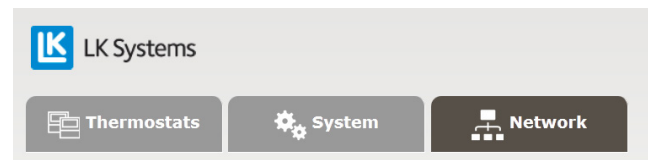
4. Go to the **Wireless connection** section under *the Network* tab. You can switch to the English instructions here or continue with these instructions.

5. Select any wireless channel, *Wireless channel.* In this case channel 6 is selected.

Wireless connection

To setup a wireless connection you need two web servers. Then follow this setup procedure:

1. Select a channel below.
2. Connect the second web server to your Master receiver. Do not connect any cable to the ethernet port.
3. Press the button on the second web server. The LED will start to blink.
4. Within 3 minutes, press the button on this web server.
5. Reload this page (press the Network tab above). The line below will tell you if the setup was successful. If the setup failed, the wireless channel will be reset to the previously selected channel.

- If you have problems with the wireless connection, try to change to a different channel and redo the setup procedure.
- To turn radio OFF, disconnect power, hold down button, connect power and release the button after 10 seconds (factory reset).

Wireless channel: 6

Wireless connection is OFF.

6. On the web server no. 2 that is connected to the receiver, press and release the red button. The LED light starts flashing.

7. Within three minutes, press and release the red button on web server no. 1 that is connected to the router/modem. The connection is established and the LED lamps stop flashing.

8. Reload the program page on your Windows PC. This is best done by pressing the *Network* tab once. The program will now tell you that the wireless connection is established. This can now be seen in the **Wireless connection** section where at the bottom you will see that, *Wireless connection* is *ON*.

9. Once the wireless communication between the web server units has been established, proceed to **How to connect** under the network tab. Note the addresses under **How to connect**.

How to connect

There are some different ways to reach this server with a web browser.

From internet:
http://ss306.lkics.net:8080   Works with all computers, tablets and phones. However, this link only works if your router supports UPnP and is compatible with the LK Webserver ICS.2.

From local network:
http://ss306   This link only works with Windows computers.
http://192.168.0.100   Use this link for all other computers, tablets and phones.

You can use these addresses to connect to the web server via the Internet or locally. There are now two addresses to choose from for a local connection. The shorter address can only be used on PCs with the Windows operating system.

Bear in mind that the Internet address needs time to be registered online. Note that it may take up to 72 hours before it is registered, but normally this is a lot quicker.

Access from the Internet, in general

Your web server is factory configured for access via the Internet by *UPnP* being enabled and that port 8080 is the default. This can be seen in the *Network* section under the *Network tab.*

If port 8080 were to be occupied by other equipment, you can select a different port between 1 and 65535.

Under *Network* the DHCP will normally always be unchecked. This is the default from the factory.

Access via the Internet requires that your router supports UPnP and that this function is enabled. It is normal that UPnP is enabled at the factory, but some routers require this function to be enabled manually. See the manual for your specific router or contact the manufacturer/Internet service provider.

In some exceptional cases, the LK Webserver ICS.2 is not compatible with the router's UPnP function. In this case, you must manually open a port that points to the web server's IP address, port 80. See the manufacturer's manual/instructions for more details. In principle, the following steps must be performed:

1. *Identify the web server's local IP address by connecting to the address at the top of the label using a Windows PC. Now click "Network", and read the "IP address" under "System Info". NOTE: Do not use the "External IP address".*
2. *Log into the router and find "Port forwarding".*
3. *Select a port, such as 8080 and set "port forward" from port 8080 to port 80 on the web server's IP address.*
4. *Save the settings on the router.*

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Resetting the web server

The web server can be reset to factory settings. A reset will clear any specified passwords, all names of thermostats and all log data. The password that appears on the web server's label will then apply. The web server can be reset as follows.

- *Unplug the power cord to the device.*
- *Hold the red button Reset/Mating in.*
- *Reconnect the power cord but continue to hold the red button in.*
- *Release the red button after 10 seconds.*

Dynamic DNS

Private individuals are normally assigned a dynamic IP number from their Internet service provider. You need to know this IP number in order to reach LK Webserver ICS.2 over the internet. The IP number can sometimes change, this may happen especially if you disable your router for a while. To make it easier to access your web server, LK Systems provides a free service called Dynamic DNS, which makes it possible to reach the web server via a URL instead of an IP address. This address is written on the second line of the web server's label (e.g. http://af301.lkics.net:8080). LK Systems will provide this service for around five years from the date of manufacture of LK Webserver ICS.2. However, when the service has ended, you can still reach the web server, but in this case via the external IP-address (e.g. http://123.456.789.123:8080). The external IP address to be used can be found at the bottom of the *Network* tab.

Password

It is possible to change the password from your pre-set one to a password of your choice.

Please note, be sure to choose a strong password preferably containing a combination of uppercase and lowercase letters and numbers.

If the web server is reset to the factory default, the password will return to the original one given to the device.

Technical data

Article number	241 70 35
Product name	LK Webserver ICS.2
Voltage	5V DC
Output	<2 W
Working temperature	-10 to +60°C
Storage temperature	-30 to +85°C
Relative humidity during use and storage	10-90% non-condensing
Connection MODBUS	RS485
Ethernet contact	RJ45, 10Mbit
Radio	433 Mhz
Channel separation	25 kHz, 69 channels
Modulation	GFSK
Output power	<10 mW
Protection class	IP20
Dimensions LxHxD	137 x 62 x 31 mm

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