LK Water Safety System WSS

Design

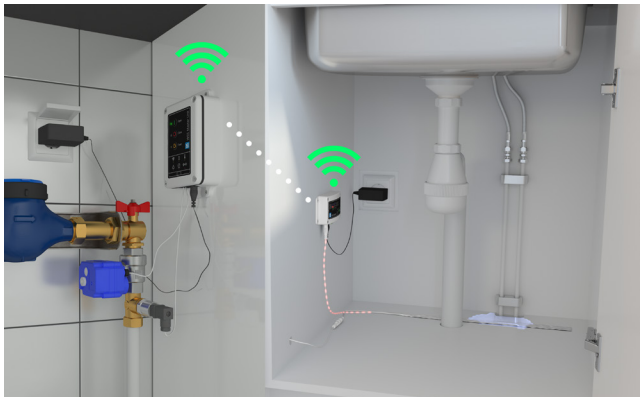
The LK Water Safety System WSS is a product designed to prevent or limit water damage. The system is developed to be user friendly with reliable functionality and attractive design. There are five different product packages adapted to various needs and system solutions.

System description

The LK Water Safety System WSS consists of a master unit, which is the brains of the system. A leakage detector can be connected to this to detect water in your house. This detector could be placed in a sink unit cupboard, under a dishwasher or in other locations where there is a risk for water leakage. In order to control the system, one or more control panels can be attached, normally placed at the entrance/exit to the house.

The leakage detector, control panel and input link also have built-in temperature monitoring to shut off the water at low temperatures. If a pressure sensor is used with the master unit, pressure changes resulting from leakage can also be detected. This function is active when the valve actuator is closed. The master unit, electric valve and pressure sensor are placed at incoming water after the water meter.

The system can be expanded up to 16 units. Communication between units can be either wireless or via BUS communication. If the water safety system is supplemented with the LK Webserver, the system can be controlled via the Internet from a computer, mobile phone or tablet. There is also an app for mobile devices running Android or Apple iOS.



BRANSCHREGLER SÄKER VATTENINSTALLATION

Accepterad
monteringsanvisning
2016:1

TABLE OF CONTENTS

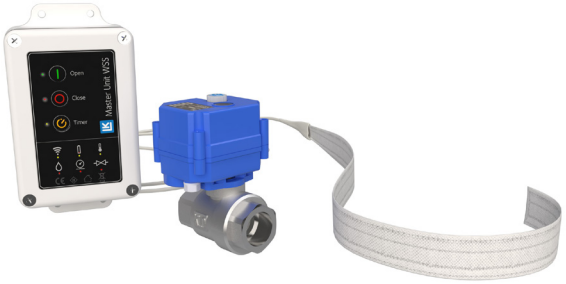
LK Systems

Product packages

LK Leakage Switch WSS (RSK 188 22 98)

The package includes a master unit, two ½" electric valves and two sensors. It can be used where the water needs to be shut off if a leakage is detected. This product package is a simple solution when you only need to shut off cold and hot water, perhaps in a sink unit cupboard.

LK Automatic WSS (RSK 188 23 54)



The package includes a master unit, one ½" electric valve and one sensor. It can be used where the water needs to be shut off if a leakage is detected, for example at a water dispenser or a coffee machine.

LK Start Package WSS (RSK 188 22 99)

The package includes a master unit, control panel and a ¾" electric valve. It can be used when you only need to shut off incoming water via a control panel.

LK Standard Package WSS (RSK 188 23 00)

The package includes a master unit, control panel, ¾" electric valve and a leakage detector including two sensors for detecting water leaks. The package may be used when one easily wants to open and shut off the water supply with a control panel, and when monitoring is desirable for a location, for example in a kitchen.

LK Standard Package Plus WSS (RSK 188 23 01)

The package includes a master unit, control panel, leakage detector including two sensors, T-piece with pressure sensor and a ¾" electric valve. It forms a complete system with leakage detectors and automatic control of the pipe system with installed pressure sensor. Control of the system with the pressure sensor takes place when the electric valve is shut off.

System assembly

Installing the electric valve and pressure sensor

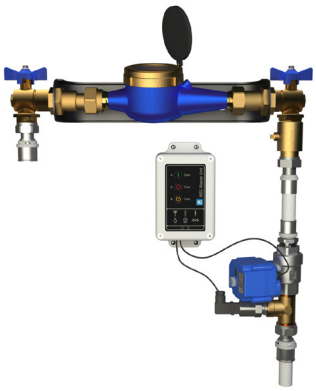
LK Electric Valve and LK Pressure Sensor with T-piece

Install the electric valve on the incoming water pipe directly after the water meter's isolation valve and possible check valve. Installation of the electric valve must be carried out by a qualified plumber in accordance with industry regulations for safe water installation.

NOTE!
Install the electric valve after any feed to a safety system that requires water.

Safety systems such as home sprinklers or emergency cooling for a solid fuel boiler etc. should be connected before the electric valve so there is no risk that these lose their water supply. An installation with a water filter that is backwashed should also be connected before the electric valve to avoid disrupting its functionality.

The system prevents water damage that may occur after the placement of the electric valve.



Installation of the master unit with electric valve and pressure sensor.

The LK Water Safety System WSS can alternatively be mounted in the LK Installation Cabinet.

Master unit with electric valve and pressure sensor mounted in installation cabinet.

Two electric valves can also be installed if you want to shut-off both the cold and hot water, such as in an apartment installation.

The LK Pressure Sensor with T-piece is fitted after the electric valve in the direction of the flow. The pressure sensor with T-piece is part of the Standard Package Plus but is also available as an accessory for all packages.

When installing in an existing system comprising electric valve, T-piece and pressure sensor, a pressure check must be carried out with the tap water system's existing water pressure, and all new joints should be inspected.

If the system is installed in a new building, a pressure check must be carried out with 1.43 x estimated pressure, i.e. 14.3 bar, and all new joints should be inspected.

Installing the master unit

The master unit is located near the electric valve and possible pressure sensor. The cables are about 0.8 m long and can be extended up to 3 m using the same cable area.

Install the supplied antenna by threading it onto the connector on the top of the master unit.

The master unit is screwed onto the wall using a suitable screw or alternatively mounted into an installation cabinet for a water meter/tap water manifold. If the unit is placed in the LK Installation Cabinet, the master unit can be fixed using the LK Bracket WSS or the LK Rail WSS LK Manifold Cabinet UNI.

Connecting the master unit

Dismantle the cover on the master unit. Be careful with the flex cable that connects the cover to the circuit board. The cable is loosened by pulling out the connector from terminal 13 on the circuit board. When the cover is to be reassembled, the polished connector pins are turned upwards towards the antenna. The flex cable should not be stranded.

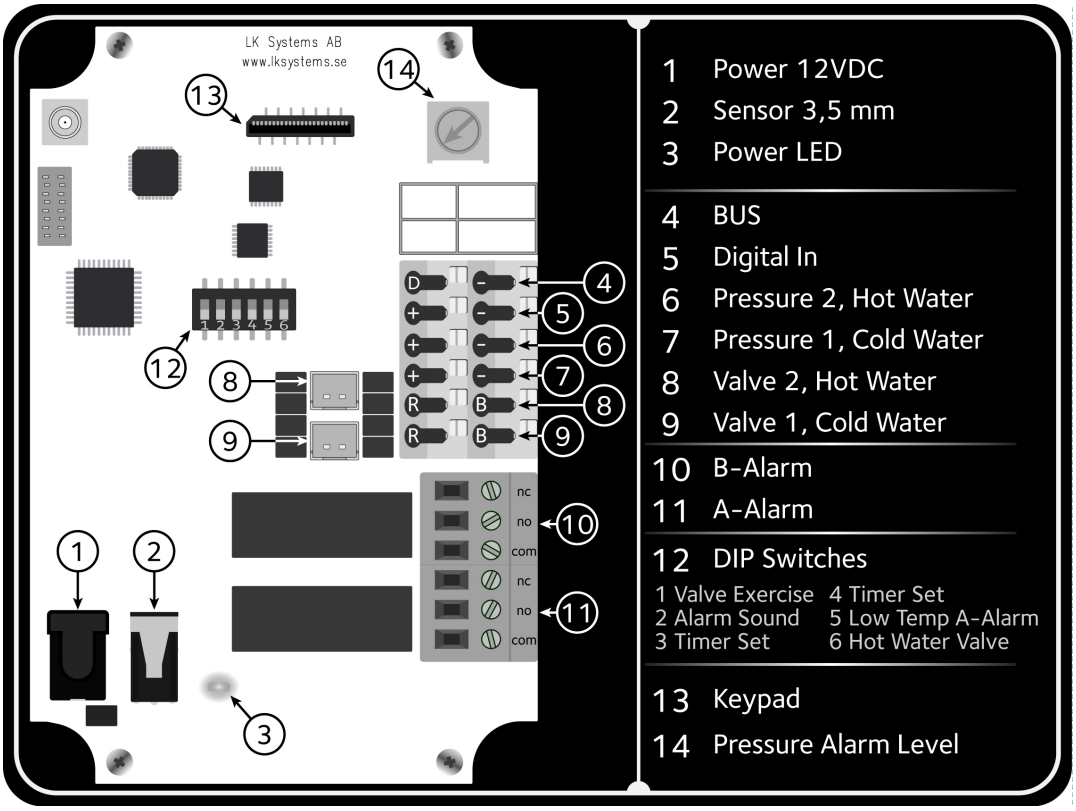
Terminals 4 and 9 are spring terminals. Press the button down to attach the cable. Terminals 10 and 11 are screw terminals.

Connecting the electric valve

Attach the electric valve's cable connector to the master unit. The electric valve for cold water is attached to contact 9 and if using an extra electric valve for hot water, this is attached to contact 8.

Note! If a electric valve is connected for hot water, DIP switch no. 6 should be switched up to ON in order to activate monitoring the electric valve.

If the electric valve's cables have been extended, the spring terminals can be used instead. These terminals have the same numbers as contact 8 and 9. The red cable is connected to R and the black table to B. A maximum of two LK Electric Valves can be connected to the master unit.



Connecting, LK Master Unit WSS.

Connecting a pressure sensor

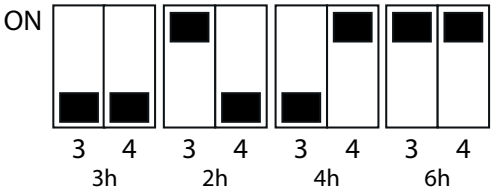
Attach the pressure sensor's cable for cold water to terminal 7. The brown cable is connected to + and the blue cable to -. If there is a pressure sensor for hot water, this is connected to terminal 6. The brown cable is connected to + and the blue cable to -. The brown cable + is connected to 1 and the blue cable - is connected to 2 in the pressure sensor's contact.

The pressure sensor's alarm level is at delivery set to 50% (MAX) of pressure upon closing. The alarm level can be adjusted using the potentiometer pos 14 down to 5% (MIN). After adjusting the alarm level, a function control should be carried out.

DIP Switches

The master unit has a row of switches as DIP Switches at pos 12 with the following functions.

- Valve exercise should take place once per week. This function can be closed by moving DIP switch no. 1 up to the ON position.
- The alarm signal can be closed by moving DIP switch no. 2 up to the ON position.
- The value of the delay timer can be adjusted using DIP switches 3 and 4. Refer to the matrix below to set the desired length in hours. On delivery, this is set to 3 hours.

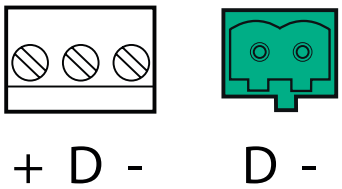


DIP switches 3 and 4 for setting the delay timer, time in hours.

- The temperature alarm can be closed by moving DIP switch no. 5 up to the ON position.
- Valve monitoring for the hot water valve is on delivery closed, and can be activated by moving DIP switch no. 6 to the ON position.

BUS conn. for leakage detector and control panel

If units such as leakage detectors or control panels are to be connected by cable for BUS communication, these are connected to the master unit's terminal 4. Connect the cable to D and - in the master unit. The equivalent marking is found on the units to be connected. Use 2-wire stranded cable 2 x 0.5 mm², such as telecom cable. Using BUS communication, it is possible to connect the units in a star network or in a series.



Terminal connection for BUS communication on the control panel and leakage detector.

Connecting sensors

If water detection is desirable underneath a water dispenser or a coffee machine, a sensor is connected to the master unit's contact 2. Sensors are included in the Leakage Switch WSS and Automatic WSS packages, or are available as accessories for other packages if one for example wants detection in a manifold cabinet or underneath a water meter.

Connecting a home security alarm or other external equipment

There is a digital input on the master unit's terminal 5 where a potential free contact may be connected to an external system, such as a home security alarm, to open or shut off the water supply. The water is shut off if there is a closure between the switches and opens when the closure ends.

If the home security alarm does not have an output but a smartplug that can be programmed so that it provides power when the alarm is on and no power when the alarm is off, the LK Smartplug module WSS can be used to control the master unit. The red cable for the smartplug module is connected to terminal 5 + and the black cable is connected to -. The mains adapter is connected first to the LK Smartplug module and then to the smartplug for the home security alarm. The LK Input Link accessory is available if wireless control is needed from an external system to the master unit.

There are also two terminals with outputs on the master unit for A-alarm terminal 11 and B-alarm

terminal 10. The A-alarm is the water alarm, pressure fault, valve fault and temperature alarm. The B-alarm is for communication and battery alarms. The sockets are connected to "com" and the desired function is set, "NO" (Normally Open) or "NC" (Normally Closed). Max. load per socket is 4A 250V AC.

Power supply

Power supply to the master unit is provided using the supplied network adapter which is connected to the unit's contact 1.

Cable holes

Remove the required number of holes in the rubber gasket for cables. Use the cable ties supplied for strain relief. The cable ties are fixed to the hole pattern in the black rubber gasket.

Reassembling the cover

Screw the cover back onto the main unit. The flex cable should not be stranded. When all of the units that should be connected with the BUS communication have been attached, the master unit's network adapter can be inserted into the wall outlet.

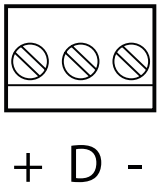
Installing the control panel

The control panel is used to open and close the water supply in your system. The control panel can indicate if there is an alarm. Place the control panel where you enter and leave your house. The location should be easily accessible and in a visible place to easily see any possible alarms. Several control panels can be installed if desired.

Remove the back plate from the control panel by carefully lifting the white catch on the underside and screw this onto the wall. Connect two alkaline batteries AAA 1.5V. Alternatively, you can connect the control panel to fixed voltage using an external 5-18V DC power feed.

The power feed is connected to + and - on the terminal in the back plate.

If the control panel is connected using a BUS cable, communication and power is supplied via the BUS cable. Connect the BUS cable to D and -. The cable should be stranded, 2 x 0.5 mm².



Terminal on control panel's back plate.

NOTE!
When the control panel is connected with BUS communication or using an external 5-18 DC current, no batteries should be used.

Only alkaline batteries should be used with the product, not rechargeable batteries.

The control panel has a built in temperature monitor. If the temperature is below +5 °C (default value, can be changed with LK Webserver), the unit will set off an alarm and transmit a signal to the master unit to tell it to shut off the water.

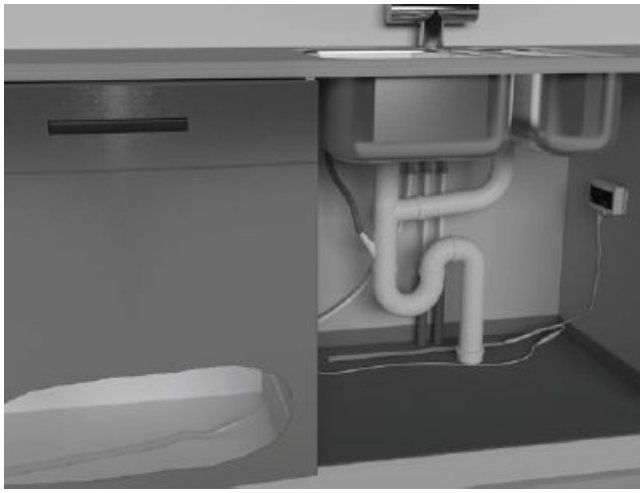
Installing the leakage detector

A leakage detector is placed in locations where you want to detect any possible water leakage. Suitable locations could be in the kitchen's sink unit cupboard, under a dishwasher or other household appliances such as coffee machines, water coolers or ice-makers. Other possible spaces could be utility rooms and under washing machines, toilets and in the bathroom.

Two sensors are included with each leakage detector. It is possible to expand using additional sensors with the LK Sensor and branch cable WSS or LK Splitter Cable as well as LK Extension Cable, refer to ***Accessories***.

The leakage detector has a built in temperature monitor. If the temperature is below +5 °C (default value, can be changed with LK Webserver), the unit will set off an alarm and transmit a signal to the master unit to tell it to shut off the water. Place the sensor in a location where any potential water leak can be detected at an early stage. The sensor is attached to the underlay using the velcro. Try to have the sensor as flat as possible to the underlay for a rapid detection of water.

The sensor is made from a strip of cloth that contains metal threads. If the material becomes wet or damp, the leakage detector will set off an alarm and transmit a signal to the master unit, which shuts off the water.



Example of leakage detector installation in a kitchen cupboard.

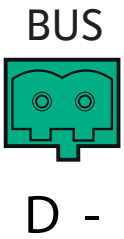
Loosen the cover on the leakage detector by unscrewing the four screws. Install the two alkaline batteries AA 1.5V if an external power supply or BUS communication are not used. Alternatively, an external power supply adapter can be connected to a DC connector, refer to ***Accessories***.

NOTE!
When the leakage detector is connected with BUS communication or using an external 5V DC current, no batteries should be used.

Only alkaline batteries should be used with the product, not rechargeable batteries.

This built-in temperature monitoring can be deactivated by moving the DIP switch to the ON position. This function is normally always activated.

If the leakage detector is connected using a BUS cable, communication and power is supplied via the BUS cable. Connect the BUS cable to D and -. The cable should be stranded, 2 x 0.5 mm^2.



The terminal on the leakage detector for BUS communication.

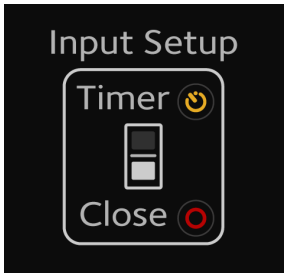
Reassemble the cover.

The leakage detector is placed at a suitable height from the floor so the sensor cable can reach down to its location. The detector should be easy to access for changing batteries and to reset any potential alarms that are indicated with a sound and diode lights. Attach the leakage detector with a suitable screw. Connect the sensor to the leakage detector.

Installing the Input link

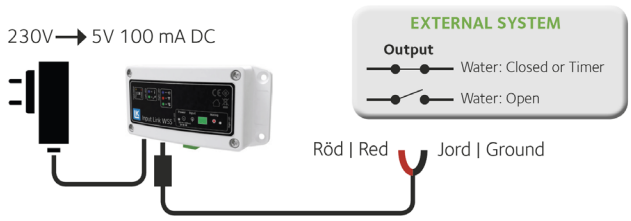
LK Input Link WSS is used for wireless transmission of a signal between the master unit device and another external system with a potential free output such as a home security alarm in order to turn the water on and off.

Loosen the cover on the input link by unscrewing the four screws. Select the input setting using the DIP Switch. There are two modes, Close or Timer. In Close mode, the water is switched off directly when the input is closed (factory setting), and in Timer mode (DIP Switch set to ON) the delay is activated and the valve then closes when the input is closed. Reassemble the cover.



Settings for the input.

Secure the input link near to the external system using an appropriate screw. Connect the cable supplied using a 3.5 mm contact, red and ground to the potential-free contact on the external system. Connect the 3.5 mm contact to the input link. Connect the mains adapter to the input link and insert the mains adapter in a wall socket.



Connect using a 3.5 mm cable.

The input link has a built in temperature monitor. If the temperature is below +5 °C (default value, can be changed with LK Webserver), the unit will set off an alarm and transmit a signal to the master unit to tell it to shut off the water.

Installing LK Webserver

LK Webserver and its user interface.

The LK Webserver accessory allows the system to be controlled and monitored using a mobile solution in order to switch the water on and off. The system can be controlled via the Internet from a computer, mobile phone or tablet, or using an app available for Android and Apple iOS.

The system sends an email or a notification if an alarm is triggered. It displays pressure, battery status, signal strength, current temperature for the control panel and leakage detector. In addition, it displays the master unit's configuration, possible alarms for each unit, and enables you to change the level for the temperature alarm 0-15°C. LK Webserver also includes functions for controlling and monitoring LK Systems' control system for underfloor heating LK Room Temperature Control ICS.2. For more information, see ***instructions for LK Webserver.***

LK Webserver only communicates wirelessly with the master unit. Configure the webserver using the instructions included.

Starting the system

Power up the master unit and other units with either battery power or an external power source.

Programming

If the system is connected using BUS communication, no programming is required. If the units are fitted with battery or external power, wireless communication must be established with the master unit as below.

Control panel

Programming the control panel is carried out by simultaneously pressing the Open and Timer buttons on the master unit for 2 seconds (the radio symbol begins flashing).

On the control panel, Open and Timer are pressed simultaneously for 2 seconds (the radio symbol begins flashing). If programming is successful, the radio symbol will show a solid light for a few seconds.

Programming the control panel.

Leakage detector

Programming the leakage detector is carried out by simultaneously pressing the Open and Timer buttons on the master unit for 2 seconds (the radio symbol begins flashing). The red button on the underside of the leakage detector is then pressed for 2 seconds (the right diode flashes green). If programming is successful, the right diode will show a green solid light for a few seconds.

Programming the leakage detector.

Input link

Programming the input link is carried out by simultaneously pressing the Open and Timer buttons on the master unit for 2 seconds (the radio symbol begins flashing). The red button on the underside of the input link is then pressed for 2 seconds (the right diode flashes green). If programming is successful, the right diode will show a green solid light for a few seconds.

Programming the input link.

Webserver

Connect the LK Webserver to the network as per the instructions included. Programming the webserver is carried out by simultaneously pressing the Open and Timer buttons on the master unit for 2 seconds (the radio symbol begins flashing). The red button on the underside of the Web server is then pressed (the right diode flashes red). If programming is successful, the right diode will show a red solid light for a few seconds.

Function control

After completing the installation and programming, a function control should be carried out.

Electric valve

Testing the electric valve is carried out by using the Open and Close buttons for water on the master unit. The alarm for a valve fault is activated if the valve moves too slowly, which may happen the first time the system is started. Reset any possible alarms by pressing the Open or Close buttons on the master unit for 5 seconds. The alarm should stop when you open and close the valve of few times.

Control panel

Test the control panel by opening and closing the electric valve with the I (Open) and 0 (Close).

Leakage detector

Test the leakage detector by moistening the sensor. The unit and master unit sets off an alarm with lights and sound and the electric valve should shut off. Reset the alarm by drying the sensor. Then briefly press the red button on the underside of the leakage detector. The open or close buttons on the master unit are then held down for 5 seconds on the master unit or control panel to reset the alarm.

Input link

Test the input link by activating the external system and checking that the water is switched off straight away, alternatively with a delay and make sure it is switched back on.

Pressure sensor

If a pressure sensor has been installed, test the pressure alarm by shutting off the water. When the valve has closed, wait 10 seconds and then open the water tap so the pressure alarm is activated. Reset the alarm by closing the tap and then press the open or close buttons for 5 seconds on the master unit or control panel.

Operating instructions

With the LK Water Safety System installed, the risk for water damage in the property is reduced. The system is steered and monitored by the master unit. A control panel, leakage detector and input link are connected to the master unit.

Buttons

There are three identical buttons on the master unit's control panel that are used to steer the system. When a button is pressed in, it either lights up or flashes.

Master unit and Control Panel.

	Open for water (Open) Indicated by green diode.
	Closed for water (Close) Indicated by red diode.
	Delay shutting off water (Timer) Indicated by yellow diode.

When you leave the house, you shut off the water with the Close button. If, say, a dishwasher is still running you can press the Timer button in order to delay shutting off the water. Factory set to 3h. This time can be changed in the master unit, see more under the heading ***Connecting Master unit / DIP Switches.***

When returning home, the water is easily reconnected by pressing on the Open button.

If you are unsure what the position is for the system when viewing the control panel, you can press the desired button to place the system in the correct operating mode. If you press the Timer button, earlier timer settings are removed and a new time period begins.
If you have connected to the digital input, with perhaps an intruder alarm, and select the timer function when you go out of the door. The timer function will then be inactivated as the intruder alarm will instead send a shut-off command. It is always the last command that is applied.

Alarm symbols

Alarms from the system are displayed when a diode lights up or flashes by the respective symbol on the master unit or control panel. The underside of the leakage detector and input link is fitted with two multi-colour diodes and an explanatory label on the cover. The following symbols and diode colours can be found on the four different units.

Leakage detector and input link.

	Water alarm (A-alarm) Indicated by red diode on the control panel and on the master unit by a red diode and sound. On the leakage detector the left diode flashes blue with an audible signal.
	Pressure alarm (A-alarm) Indicated by red diode on the control panel and on the master unit by a red diode and sound.
	Valve fault (A-alarm) Indicated on the control panel as the Open and Timer flash green and yellow and on the master unit with a red diode and audible signal.
	Temperature alarm (A-alarm) Indicated by red diode on the control panel and on the master unit by a red diode and sound. On the leakage detector, the right diode flashes blue and an audible signal is emitted. On the input link, the left diode flashes blue.

Communication alarm (B-alarm)
Indicated by a yellow diode on the master unit and control panel. On the leakage detector and input link, the right diode flashes red. It could take up to 6h before the alarm is activated. Both radio and BUS communication are monitored.

Battery alarm (B-alarm)
Indicated by a yellow diode on the master unit and control panel and on the leakage detector by the left diode flashing red.

External power supply to leakage detector and input link
Indicated by the left diode lighting up green.

Programming radio communication on the leakage detector and input link
Indicated by the right diode lighting up and flashing green.

Input active on input link
Indicated by the right diode lighting up blue.

It may take up to 15 min before the alarm is shown on the control panel. However, the alarm is displayed immediately on the master unit. If a leakage detector sets off an alarm for water or temperature, this alarm is immediately sent to the master unit and the valve closes. Communication is restricted between the units in order to maximise battery capacity. To see the status of the system, you can press on one of the buttons on the control panel. Information is then immediately fetched from the master unit.

In the event of an alarm

If the alarm is set off, you must identify which unit is issuing the alarm and the reason for the alarm.

A-alarm

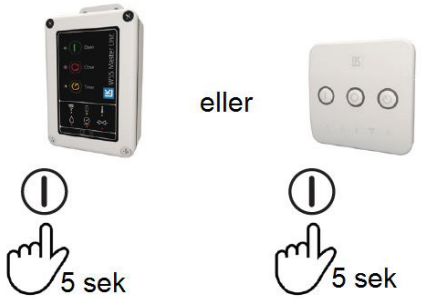
The leakage detector's water alarm is reset by pressing the red button on the underside of the leakage detector. The sensor may also need to be dried or the detector will alarm again.

The temperature alarm is silenced by pressing the red button on the underside of the leakage detector. The diode stops flashing when the temperature rises above the alarm limit. A temperature alarm from the control panel and input link is reset automatically and the diode stops flashing when the temperature rises above the alarm limit. Only when the temperature has risen over the limit on all units for which a temperature alarm has been triggered is the temperature alarm reset and a new alarm may be activated. The alarm limit is set at 5°C on delivery but can be changed if a webserver is connected.

Press the button on the leakage detector to reset.

In the event of a pressure alarm, start by checking all outlets in the property for dripping leaks, such as taps, toilets, and showers etc. Also check connections to household appliances that are connected to a water supply as well as unusual leaking from the hot water boiler's safety valve. If you cannot find the problem and rectify it, contact your plumber.

Resetting the A-alarm is carried out by holding in the Open or Close button for 5 seconds on the master unit or the control panel, upon which the water is turned back on.



Press the Open button on the master unit or control panel to reset the system.

In the event of a valve fault alarm, check that the white knob is pressed down and that the cable for the respective valves for cold and hot water is connected to the correct contact in the master unit.
If a electric valve is connected for hot water, DIP switch no. 6 must be switched up to ON, otherwise it should be switched to OFF. The valve is monitored, try exercising it by opening and closing it a few times. The A-alarm is reset by holding down the Open or Close button for 5 seconds on the master unit.

B-alarm

If a communication alarm is displayed on the control panel it may indicate that the control panel has poor communication or another unit has communication problems in the system. This is shown when the right diode on the leakage detector and input link flashes red. Find the unit that has poor communication and place it closer to the master unit or connect it with a BUS cable to the master unit.

The communication alarm is reset when the unit regains contact with the master unit. Press one of the buttons on the unit in order to send data to the master unit and to check whether the communication is functioning. If the LK Webserver accessory is connected, you can see which unit has poor communication.

If a battery alarm is displayed on the control panel, it may indicate low battery level for the control panel or for another unit. This is shown when the left diode on the leakage detector flashes red. Find the unit that has low battery and replace the battery. If the LK Webserver accessory is connected, you can see which unit has low battery.

Following a B-alarm for communication or battery, the alarm is automatically reset when communication is functioning again or when the battery is replaced.

Expanding the system

If you would like to add more units to the system, refer to the supplied Quick Guide or read under ***Starting the system*** in this instruction manual.

Removing units from the system

If you would like to remove units from the system and do not have a webserver installed, the system must be reset, see ***Resetting the system***. The desired units can then be reprogrammed. With the LK Webserver, you can use the interface to remove a specific unit.

The unit can be identified through its ID number or the name it has been given.

Resetting the system

Resetting the system to its factory setting is achieved by using the master unit as follows:

1. Disconnect the power to the master unit.
2. Press down the Timer button.
3. Reconnect the power at the same time as holding down the Timer button. The unit will flash during the reset. Continue to hold down the button until all three diodes show a solid light. The reset is now complete.

Only the master unit needs to be reset. The control panel, leakage detector and input link cannot be reset.

Following a reset of the master unit to its factory setting, you can reprogram the system, see ***Starting the system*** in this instruction manual.

Manually opening/closing a electric valve

It is possible to force a electric valve to open by raising the white handle (1) and turning it until you see the valve is open with the status indicator (2), press the handle down again. Closing can be achieved in the same way, turning the handle until the status indicator displays closed.

Valve with status indicator and emergency opening handle.

Valve exercising

The system has a built-in valve exercising function to prevent the electric valve from jamming. Exercise takes place if the valve is not used for a week. Valve exercise can be disabled using DIP switch 1 in the master unit if so desired.

Operation and maintenance

When the system has been installed, its functionality should be checked and then new checks should be made once every year.

Test leakage detectors by moistening the sensors. The unit and master unit sets off an alarm with lights and sound and the electric valve should shut off. Reset the alarm by drying the sensor. Then press the red button on the underside of the leakage detector. Then hold down the open or close buttons for 5 seconds on the master unit or on the control panel to reset the alarm.

If a pressure sensor has been installed, test the pressure alarm by shutting off the water. When the valve has closed, wait 10 seconds and then open the water tap so the pressure alarm is activated. Reset the alarm by closing the tap and then press the open or close buttons for 5 seconds on the master unit or control panel.

Technical data

Master unit
Operates on 12V 1A DC.
Contact for sensor connection: 3.5 mm.
Radio frequency: 433 MHz, bi-directional.
2-wire BUS communication.
Temperature measurement: -10 - 55 °C.
2 LK Electric valves can be connected.
2 LK Pressure Sensors 4-20mA can be connected.
1 digital input.
2 alarm outputs, max. resistive load 4A 250V AC.
3 buttons with 6 alarm indicators.
Dimensions: 162 x 90 x 45 mm.

Control panel
Runs on 2 AAA alkaline batteries or 5-18V, 100mA DC.
Radio frequency: 433 MHz, bi-directional.
2-wire BUS communication.
Temperature measurement: -10 - 55 °C.
3 buttons with 6 alarm indicators.
Dimensions: 85 x 85 x 20 mm.

Leakage detector
Runs on 2 AA alkaline batteries or 5V 100mA DC.
Contact for sensor connection: 3.5 mm.
Radio frequency: 433 MHz, bi-directional.
2-wire BUS communication.
Temperature measurement: -10 - 55 °C.
DIP switch to shut off the temperature alarm.
2 diodes for alarm indication and one buzzer.
Dimensions: 137 x 62 x 28 mm.

Input link
Runs on mains adapter 5V 100 mA DC.
Contact for external system connection: 3.5 mm.
Radio frequency: 433 MHz, bi-directional.
Temperature measurement: -10 - 55 °C.
Dip switch for input setting.
2 diodes for alarm indication.
Dimensions: 137 x 62 x 28 mm.

Pressure sensor
Pressure range: 0-10 bar.
Temperature range: 0-80 °C.
Connection: ½".
Output: 4-20 mA power feed 10-30V DC.
Material: stainless steel SS304.
Mounted cable.

Electric valve
Pressure range: 0-10 bar.
Temperature range: 0-80 °C.
Connection: ½", ¾" or 1".
Power supply: 12V DC.
Material: stainless steel SS304.
Cable with mounted quick connection.

433 MHz

Comment

Completely trouble-free operation cannot always be guaranteed with the technology available today that allows free use of the frequency band. Every installation should therefore be tested individually.

Environment

LK Systems is affiliated with El-Kretsen for collecting and recycling electronics and batteries.

Used batteries should be sorted as batteries or small batteries and given for battery recycling.

When the system has reached the end of its life, it should be sorted as electronics or other electronics and given in to a recycling centre.

Guarantee

LK Systems AB is responsible for faults in products that appear within two years from the delivery of the product to the buyer. If LK is responsible for the fault in the product, LK has the right to replace the product with either a new or repaired product. The liability period for the replacement or repair of a product or spare part does not exceed the liability period for the original product. The seller is not responsible for faults resulting from accidents, incorrect assembly, incorrect installation, incorrect care, abuse or other irregular use.

LK Systems AB is not responsible for any loss or damage caused by a non-functioning product. Its responsibility is strictly limited to the replacement of the product.

System approval

LK Water Safety System WSS is tested and approved in accordance with SINTEF Technical Approval No. 20598.

TEKNISK GODKJENNING TG 20598 SINTEF Certification

LK Systems

Accessories

	**LK Leak Detector WSS** RSK 188 22 97
	**LK Control Panel WSS** RSK 188 22 87
	**LK Input Link WSS** RSK 188 23 29
	**LK Smartplug module WSS** RSK 188 23 20
	**LK Power supply 5V** RSK 188 22 89
	**LK Pressure Sensor with T-piece ¾" WSS** RSK 188 22 20
	**LK Electric valve 12V** RSK 188 23 08 ½" RSK 188 22 86 ¾" RSK 188 24 03 1"
	**LK Webserver** RSK 241 70 35
	**LK Sensor with branch cable WSS** RSK 188 22 22
	**LK Branch Cable WSS** RSK 188 22 23
	**LK Extension Cable WSS** RSK 188 22 88
	**LK Bracket WSS Manifold Cabinet UNI** RSK 188 22 21
	**LK Rail WSS Manifold Cabinet UNI** RSK 188 23 21