



# User Guide

## Wireless Network Ticket Generator (SDS200W and POS Printer)

V1.00

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## **FCC CAUTION**

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and proven to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**This device meets the government's requirements for exposure to radio waves. This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government.**

The device contains a low power transmitter which will send out Radio Frequency (RF) signal when transmitting. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

## **CE CAUTION**

### **Declaration of Conformity with Regard to the 1999/5/EC (R&TTE Directive) for European Community, Switzerland, Norway, Iceland, and Liechtenstein**

#### **Model: SDS200W**

For 2.4 GHz radios, the device has been tested and passed the requirements of the following standards, and hence fulfills the EMC and safety requirements of R&TTE Directive within the CE marking requirement.

- Radio: EN 300.328.
- EMC: EN 301.489-1, EN 301.489-17,
- Safety: EN 60950-1 + A11,

#### **Caution:**

- This declaration is only valid for configurations (combinations of software, firmware, and hardware) provided and supported by 4ipnet Inc. The use of software or firmware not provided and supported by 4ipnet Inc. may result in the equipment no longer being compliant with the regulatory requirements.

European standards dictate maximum radiated transmit power of 100mW EIRP and frequency range 2.400-2.4835 GHz. This equipment is intended to be used in all EU and EFTA countries.

#### **Taiwan NCC Statement**

根據 NCC 低功率電波輻射性電機管理辦法 規定:

第十二條 經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條 低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時應立即停用，並改善至無干擾時方得繼續使用。

前項合法通信，指依電信法規定作業之無線電通信。

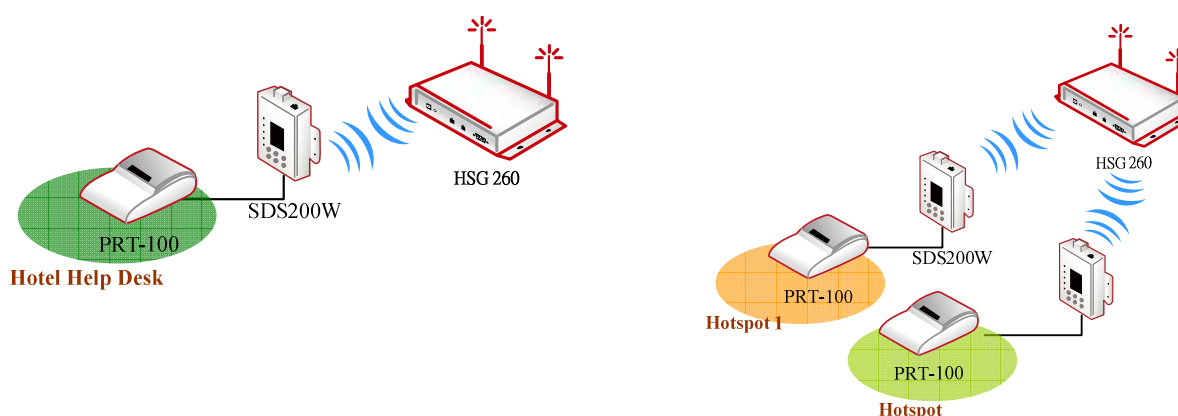
低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之擾。

## 1. Introduction

### Overview of Network Ticket Generator

SDS200W is an innovative product 4ipnet offers to facilitate the communication between 4ipnet hotspot gateway and serial POS printer. It is mainly used to have the connected printer fast-print necessary account information extracted from a 4ipnet hotspot gateway for a user who would like to access the Internet or managed networks, making provisioning of wired or wireless connection easier and more user-friendly. What is noteworthy is that, SDS200W supports wireless connectivity to the uplink gateway. That is, operators now can deploy a network with lesser physical wires.

Here lists some deployment examples:



## 2. Device Overview

### Keypad Panel Overview



### Useful Shortcut Keys

Combination	Function
<b>'Number' + ENTER</b>	To create and print out an on-demand account of an enabled billing plan of the uplink Hotspot gateway mainly for the user who purchased an account.
<b>'Number 1' + 'asterisk (*)' + 'Number 2' + ENTER</b>	Print a ticket of billing 'Number 1' with 'Number 2' units. For example, '8' + asterisk(*) + '3' + ENTER is equal to create an on-demand account of billing plan 8 with 3 units and have the POS printer print out the corresponding ticket. That is, the quota that billing plan 8 grants is multiplied by 3.
<b>FUNC + '1' + ENTER</b>	To print out the information of SDS200W, including (1) its IP address (2) the firmware version and the build number (3) the current listening port (4) uplink connection status (5) the IP address of the uplink 4ipnet gateway (HSG/WHG).
<b>FUNC + ENTER</b>	To clear what is pressed. This is used when the operator pressed a wrong button or combination. The system will also clear it automatically after five seconds.
<b>FUNC + '0' + ENTER</b>	To activate Safe Mode – disabling the <b>FUNC + '1' + ENTER</b> shortcut key in

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	order to protect SDS200W's information leakage.
<b>'4-digit' + ENTER</b>	To unlock Safe Mode. This 4-digit password can be changed on the WMI at "System >> Safe Mode (Password)." The default value is '0000.'
<b>'asterisk (*)' + ENTER</b>	To lock the keypad, excluding the TAS and the Reset button. In Lock Mode, the <b>Status</b> indicator will enter into <u>special flashing</u> . Press asterisk (*) + <b>ENTER</b> again to disable the function, and the LED indicator <b>Status</b> will go back to <u>short illuminated intervals</u> or <u>long illuminated intervals</u> .

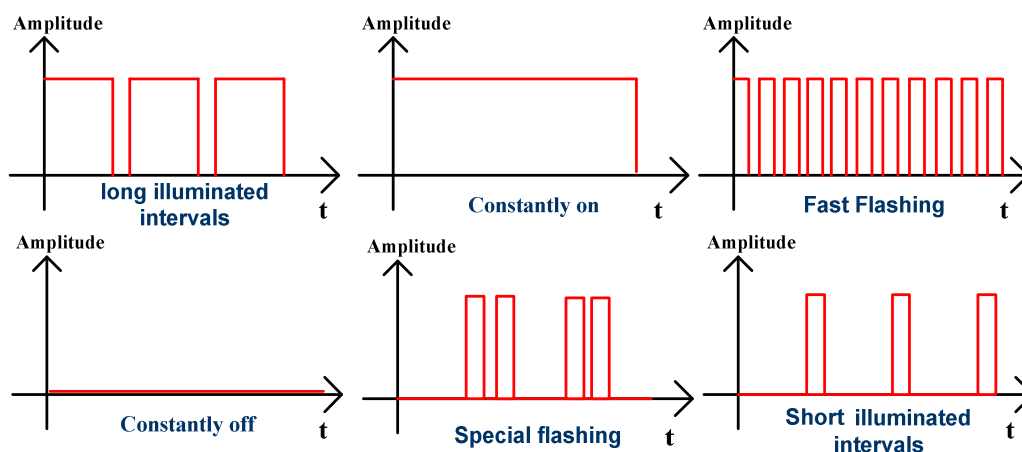
## LED Panel

LED indicators	
Power	When the power adapter is connected, <b>Power</b> will become <u>constantly on</u> ; when disconnected, the light turns into <u>constantly off</u> . Always check if <b>Power</b> is on before using SDS200W.
Status	<ol style="list-style-type: none"> <li>1. Short illuminated intervals means SDS200W successfully booted up. It flashes slowly.</li> <li>2. Long illuminated intervals means SDS200W and uplink device connected</li> <li>3. Special flashing means the keypad locked. The indicator fast-blinks twice periodically.</li> </ol> <p><i>Note: &lt;TAS Mode only&gt;</i></p> <ol style="list-style-type: none"> <li>4. Fast flashing means SDS200W trying to connect to uplink device.</li> <li>5. Constantly off for ten seconds means SDS200W fails to connect to uplink device after step 4. Afterwards, <b>Status</b> will go back to step 1.</li> <li>6. Constantly on for ten seconds means SDS200W succeeds in connecting to uplink device after step 4. Afterwards, <b>Status</b> will go to step 2.</li> </ol>
Ethernet	<b>Ethernet</b> turns into <u>constantly on</u> when an Ethernet cable is connected. <b>Ethernet</b> blinks when the system detects wired traffic passing Ethernet. It is <u>constantly off</u> when no cable is connected.
WLAN	<b>WLAN</b> behaves similarly as <b>Ethernet</b> - becoming <u>constantly on</u> when wireless connectivity is enabled (not necessarily connected. It just means that the RF card is ready to serve). <b>WLAN</b> blinks when the system detects wireless traffic. It

is constantly off if the RF card is disabled.

## Understanding the LED indicators

There are four LED indicators on the panel : **Power**, **Status**, **LAN**, and **WLAN** from left to right. Below summarizes all indication types in different states:



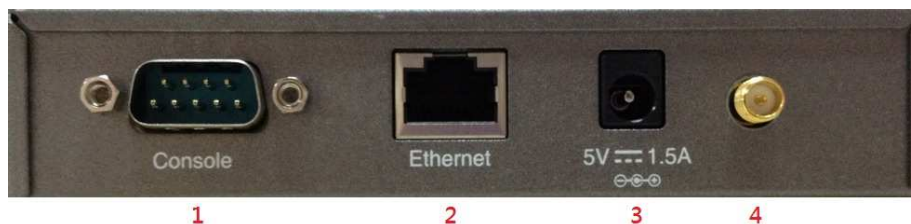
## Right Side Panel Overview



Right Side Panel	
1. Kensington Lock	Be used to lock the device to a pole.
2. Restart / Reset	Pole once to reboot the system. Poke for <u>five seconds</u> to make SDS200W set back to factory default settings.
3. TAS	Terminal Auto Setup (TAS). Press <u>three seconds</u> to initiate the auto uplink connection process. This will be introduced later.



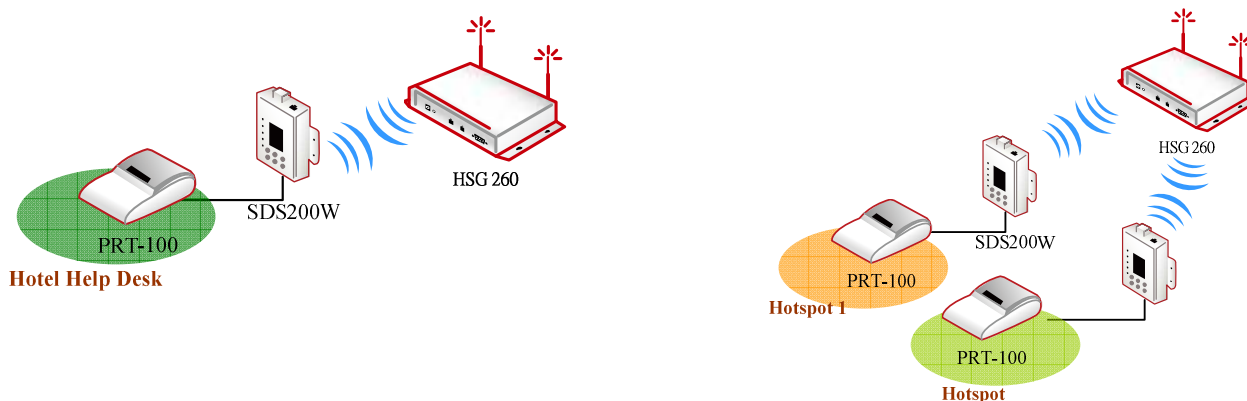
**Left Side Panel Overview**



Left Side Panel	
1. Console	Serial port for connecting to a POS printer.
2. Ethernet	RJ-45 Ethernet port Serial port for connecting to the uplink gateway via wire.
3. 5V / 1.5A	The DC power socket for connecting to an external power source through a DC power supply.
4. Antenna connector	Assemble the dipole antenna within the package here.

### 3. Including SDS200W into Your Network

The following diagram illustrates some deployment examples that show how to connect SDS200W to the POS printer and 4ipnet Gateways/Controllers.



1. Put relevant devices in place.
2. Attach a SDS200W to a power adaptor provided in the package.
3. Attach a POS printer to a power adaptor provided in the package and turn on the power switch situated on the left side of the device.
4. Connect a POS printer to the Console port of SDS200W by a RS-232 cable provided within the POS printer package.
5. Connect SDS200W to your 4ipnet Gateway/Controller via Ethernet port or wirelessly. If you are to do it wirelessly, conduct a site survey in the first place. The wireless coverage is subject to change.

►► **Note:**

You need to connect to the correct LAN port if your Gateway/Controller is operating in Port-based mode.

6. To verify if the deployment works fine. Press **FUNC** + '1' + **ENTER** to see if SDS200W is attached to a correct gateway and get an IP address from it. Additionally, press 'Number' + **ENTER** to see if an account with a certain billing plan can be printed out. If it is not working properly, go to Appendix A for trouble shooting.

## 4. Managing SDS200W on the Web Management Interface

SDS200W is designed specifically to operate in conjunction with all 4ipnet Gateways/Controllers, including both HSG and WHG series. If you are not using default settings, before connecting SDS200W to your 4ipnet Gateway/Controller, some configurations steps are required.

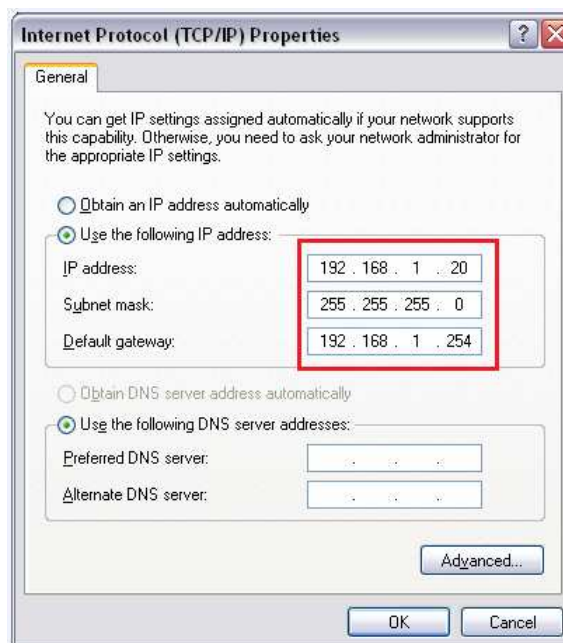
Go to the Web Management Interface (WMI) for SDS200W's relevant configurations. The default values are:

**IP address: 192.168.1.10**

**Subnet Mask: 255.255.255.0**

**Default Gateway: 192.168.1.254**

Remember to set the TCP/IP settings of the computer you use with a static IP address that is under the same subnet as SDS200W. For example: 192.168.1.20.



The settings of SDS200W are separated into seven categories, which are

1. **System** – to setup the system name and device control.
2. **Uplink** – to determine wired / wireless relevant parameters. Any change on this page will take effect

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Wireless Network Ticket Generator (SDS200W and POS Printer) **ENGLISH**  
after rebooting the system.

3. **Console** – to change console related settings for POS printers.
4. **Utility** – to upgrade the firmware version or backup/ restore SDS200W's configuration settings.
5. **Password** – to change administrator's password.
6. **Reboot** – to reboot (restart) the system.
7. **Status** – to overview device, system, uplink, and radio status if available.

## 5. SDS 200W with POS printer

### 5.1 Serial Settings

To make a POS printer properly functions with SDS200W, set up serial settings in advance in **Console** on SDS200W's WMI. The default values are for PRT-100 devices. Change the values if you use another POS printer.

### 5.2 Printing On-demand Tickets for Your Customers

Operators have two ways of printing on-demand account tickets for their customers. One is to go onto the WMI of 4ipnet Gateway/Controller and create one (or more). See the manual of the 4ipnet Gateway/Controller you use; the other is to use SDS200W by the following two shortcut keys.

- (1) 'Number' + **ENTER** or
- (2) 'Number 1' + **asterisk (\*)** + 'Number 2' + **ENTER**

For example,

'3' + **ENTER** is to have POS printer print out a billing 3 ticket;

'4' + **asterisk (\*)** + '2' + **ENTER** allows operator to print a single ticket of billing plan 4 with two units of the quota. That is, the given quota is multiplied by two. Note that the keys can only print out tickets one at a time. To Batch-create tickets, turn to

[Main Menu](#) > [Users](#) > [Authentication](#) > [On-demand User Server Configuration](#) > On-demand Account Batch Creation

on 4ipnet controller's WMI.

Use **FUNC** + **ENTER** or wait 5 seconds to clear the wrong number just pressed.

```

SN: $remain
$header
$header
$header
-----
Username : $username
Password : $password
Quota : $usage
Total Price : $price
External ID : $extid
-----
ESSID : $wlan_ess_id
Wireless Key : $wep_key
-----
Your first time login must be
done before $expire_time

The account is valid within
$duration days
after your first login.
-----
ssss
$footer
$footer
$footer

```

A printed ticket

## 6. SDS 200W with 4ipnet Gateway/Controller

SDS200W offers 'manual' and 'auto' connection to uplink 4ipnet Gateway/Controller. The former implies that administrator would have to go on to SDS200W's WMI, filling in necessary columns that are supposed to fit what is set up on the controller end. However, the auto connection – called Terminal Auto Setup (TAS) – is particularly designed for quickly establishing connection without any previous setting.

### 6.1 Manual setup

Connecting SDS200W to uplink 4ipnet Gateway/Controller manually, there are still two ways to achieve. One is through wired connection, and the other is via wireless connection.

#### Method 1: Wired Connection

Plug in an Ethernet cable between SDS200W and 4ipnet Gateway/Controller. Fill in Network Settings and make sure they match what is determined on the controller. The change will take effect after (1) clicking **Save** and (2) rebooting the system. After SDS200W and the uplink device has built up a successful connection, the **Status** indicator will blink with long illuminated intervals.

#### Method 2: Wireless Connection

Fill in Network Settings and Wireless Settings, click **Save**, and reboot the system. After SDS200W and the uplink device has successfully built up a connection, the **Status** indicator will blink with long illuminated intervals.

►► **Note:**

When wired connection is established, the wireless connectivity will be turned off by the system automatically, meaning wireless and wired connection will not co-exist at any time. Wired connection has a higher priority.

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The recommended step-by-step setup process is shown as follows.

**1** Basic Settings : Private

Network Interface

Operation Mode:  NAT  Router

IP Address: 192.168.1.254

Subnet Mask: 255.255.255.0

DHCP Server

Disable DHCP Server

Enable DHCP Server

Start IP Address: 192.168.1.1

End IP Address: 192.168.1.100

Preferred DNS Server: 192.168.1.254

Alternate DNS Server:

Domain Name: domain

WINS Server:

Lease Time: 1 Day

[Reserved IP Address List](#)

Enable DHCP Relay

System >> Zone Configuration (Service zones)

**2** Terminal Server Configuration

Item	Server IP	Port	Location	Remark
1	192.168.1.10	5000		

Add SDS200W into the terminal server list

Users > Authentication > On-demand User Server Configuration > General Settings > Terminal Server

**3** Billing Plans

Plan	Type	Quota	Price	Enable	Function
1	Usage-time	10 day(s) 2 hr(s) 3 min(s)	34	<input checked="" type="checkbox"/>	<a href="#">Edit</a>
2	Duration-time	From 2010/05/20 01:18:00 till 2010/06/25 07:15:00	45	<input checked="" type="checkbox"/>	<a href="#">Edit</a>
3	Usage-time	8 day(s) 9 hr(s) 30 min(s)	5	<input checked="" type="checkbox"/>	<a href="#">Edit</a>
4	N/A			<input type="checkbox"/>	<a href="#">Edit</a>
5	N/A			<input type="checkbox"/>	<a href="#">Edit</a>
6	N/A			<input type="checkbox"/>	<a href="#">Edit</a>

Users > Authentication > On-demand User Server Configuration > Billing Configuration

**SDS200W should be in the range**

When the settings are done completely on the 4ipnet Gateway/Controller side, go to SDS200W's WMI and check if every uplink setting matches that on the controller.

## 6.2 Terminal Auto Setup (TAS)

TAS refers to an automatic connection mechanism that requires **NO previous network settings**. Just press the TAS button on SDS200W for three seconds, and it will automatically look for and associate to a suitable 4ipnet gateway that supports this function. The connection building process is as follows

- 1st** D200W sees if wired connection to the uplink device is available.
- 2nd** Yes - establishes wired connection  
No - turns to wireless connection
- 3rd** Send a status report message 'failed' or 'successful' to the POS printer

The TAS connection will rewrite the previous manual settings. You will see the **Uplink** page of the WMI grayed out as well as **Status** show that the system is in TAS mode. TAS process takes about thirty seconds for completion. Whether the connection succeeds or fails the attempt, SDS200W will always have the printer print out if the connection is 'successful' or it 'failed.' Please make sure beforehand that

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Wireless Network Ticket Generator (SDS200W and POS Printer) **ENGLISH**  
the Ethernet cable is plugged/ the wireless environment is ok.

» **Note:**

Wired TAS uses port 5000 as the default value. The controller has to set the port to the number, as well. Additionally, when trying to deploy TAS, make sure that the table of Terminal Server Configuration on the controller side is not filled up. Otherwise, the connection must fail.



## Appendix A. Trouble Shooting

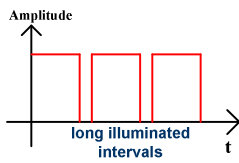
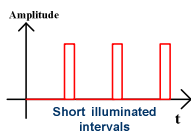
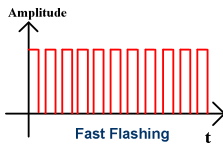
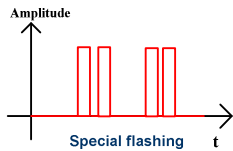
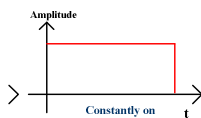
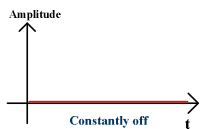
### Q1. SDS200W can not have the POS printer print out accounts

1. See if the printer is still connected to SDS200W.
2. Check if the panel is locked by looking at the **Status** indicator. If it belongs to special flashing, unlock the keypad by pressing **asterisk (\*) + ENTER**.
3. Press **FUNC + '1' + ENTER** to see SDS200W's state. Check if every value is proper.
4. See the Status indicator on the device panel. If it is short illuminated intervals, the device is then not connected to the controller. Try to establish the connection again.
5. Read through the section 'SDS200W with 4ipnet controller' to ensure the settings.

### Q2. The TAS triggered connection is not working.

1. Check if the capability is disabled by someone. Go to "System >> TAS button" on SDS200W's WMI to enable the function.
2. Make sure the cable is plugged and SDS200W is placed in the coverage of the hotspot gateway you want to associate to (wirelessly).
3. Check if the Terminal Server Configuration table on the gateway has at least one empty field for the controller for the system to automatically add SDS200W to the list. If not, clear one space for TAS.

## Appendix B. Connection Status with the Indicators

Display	State
<p>Long illuminated intervals</p> 	<p>SDS200W and the uplink device are connected.</p>
<p>Short illuminated intervals</p> 	<p>The system is ready, but uplink connection has not been set up yet.</p>
<p>Fast flashing</p> 	<p>(TAS) SDS 200W is trying to connect to the uplink controller.</p>
<p>Special flashing</p> 	<p>The keypad is locked. Unlock it by pressing <b>asterisk (*) + ENTER</b>. It is a 10-second state.</p>
<p>Constantly on</p> 	<p>(TAS) SDS 200W succeeds in connecting to the controller. It is a ten-second state.</p>
<p>Constantly off</p> 	<p>(TAS) SDS 200W fails to connect to the controller</p>

## Appendix C. Shortcut Keys

Combination	Function
'Number' + ENTER	Print a ticket of billing plan 'Number'
'Number 1' + asterisk (*) + 'Number 2' + ENTER	Print a ticket of billing 'Number 1' with 'Number 2' units.
FUNC + '1' + ENTER	To print out SDS200W's status.
FUNC + ENTER	To clear what is pressed.
FUNC + '0' + ENTER	To activate Safe Mode – disabling the FUNC + '1' + ENTER shortcut key in order to protect SDS200W's information leakage.
'4-digit' + ENTER	To disable Safe Mode.
asterisk (*) + ENTER	To lock the keypad.

►► **Note:**

Detailed information about the shortcut keys are explained in section ***Hardware and Appearance***