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# **AX Series Power Saving Guide**

### Edition 3

Document No. NTS-11-R-004

ALAXALA Networks Corporation

### Preface

The recent approach toward power saving being thoroughly spread throughout all of society is also required for IT equipment. ALAXALA has been attaching importance to environmental measures since it was established and has been leading the industry in the energy saving of network equipment. This document describes the abundant power saving functionality that the AX series supports and how to set these functionalities. The purpose of this document is to contribute to power saving by operating the AX series properly.

#### **Related documents**

- AX Series Dynamic Power Saving Functionality Application Guide

- AX Series Product Manual (http://www.alaxala.com/en/techinfo/manual/index.html)

#### Instructions for using this document

The information on the power consumption or performance described in this document stems from the results obtained when the information is executed in the verification environment of our company under specific conditions. These results are not guaranteed under all conditions. Understand that this document helps you take measures for power saving while using our products.

The OS software versions used during the creation of this document are as described below unless otherwise specified.

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AX6700S/AX6600S/AX6300S series	Ver. 11.9
AX3800S, AX3600S series	Ver. 11.9
AX2530S series	Ver. 3.3.4
AX2230S/AX1250S/AX1240S series	Ver. 2.4

For the sake of improvement, the contents of this document may be subject to change without prior notice.

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#### Conventions: The terms "Switch" and "switch"

The term Switch (upper-case "S") is an abbreviation for any or all of the AX series switches:

The term switch (lower-case "s") might refer to a Switch, another type of switch from the current vendor, or a switch from another vendor. The context decides the meaning

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#### Notations in this document

BCU	Basic Control Unit The BCU is home to the CPU. It manages the entire device, processes a spanning tree protocol and routing protocol, and controls the BSU and NIF. The BCU is installed in the AX6700S series.
BSU	Basic Switching Unit Using the installed transfer engine, the BSU switches packets to the NIF according to the MAC address table or routing table. It is installed in the AX6700S series.
CSU	Control and Switching Unit The CSU consists of a CPU block and a PSP block. It is installed in the AX6600S series.
MSU	Management and Switching Unit The MSU consists of a CPU block and a PSP block. It is installed in the AX6300S series.
NIF	Network Interface The NIF is an interface control block compatible with various media. There are NIFs of multiple types. The NIF processes a physical layer.
PSP	Packet Switching Processor

PSP switches packets in the CSU and MSU.

### **Revision history**

Edition	Rev.	Date	Description	Applicable sections
Edition 1	I	June 6, 2011	First edition	-
Edition 2	-	January 11, 2012	Added AX2530S-24T4X and AX2530S-48T2X.	2.5, 3.1
			Added AX3830S-44XW of the AX3800S series.	1.2(2), 2.3, 3.2(2) Appendix A.2
Edition 3	-	September 28, 2012	Added AX2230S-24T and AX2230S-24P of the AX2200S series.	1.2(2), 2.5, 3.1, Appendix A.4
			Added AX3830S-44X4QW.	2.3, 3.2(2)

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### **1.** Approach toward Power Saving by ALAXALA Products

#### 1.1 Overview

At present, the efforts toward power saving that have spread throughout society have been also become required for IT equipment. Especially for networks, non-stop operating environments have become the norm, and the power consumption of entire systems has been increasing with the rapid increase in communication traffic.

ALAXALA has been attaching importance to taking action to protect the environment and has been promoting *network energy saving* since the company was established. As a result, numerous power saving functions are provided with the AX series.

In general, power-saving measures can be roughly classified into three methods.

- Cutting wasted power: Turning off power to unused parts
- Power saving by green operation: Operating only the minimum parts required and stopping the remaining
  - parts
- Introduction of green products: Changing current products to new products which take power saving into consideration

Cases where these methods are applied to a network are shown in Table 1.1-1

Power saving measures	Measures for power saving in networks
Cutting wasted power	- Stop the wasted power consumption of network equipment
Power saving by green operation	- Review the network environment and reduce power consumption while maintaining the minimum performance required
Introduction of green products	<ul> <li>Introduce new products that conform to energy-saving design and energy saving-related laws</li> <li>Introduce products with a high allowable operating temperature, raise the air conditioning temperature, and reduce the power consumption of air conditioning equipment.</li> </ul>

#### Table 1.1-1 Measures for power saving in networks

In this document, an outline of the power saving functions that achieve *wasted power cutting* and *power saving* by green operation in the AX series are described in section 1.2, and the operation methods are described in section 1.3. Configuration setting examples are shown in Chapter 2. Also, the results of measurements taken of power consumption in the AX series are shown in Chapter 3.

#### 1.2 Power saving functionality of the AX series

The lists of power saving functionality supported by the AX series are shown in (1) Chassis-type switch and (2) Box-type switch.

In order to execute and cancel a power saving functionality, the following methods are available: full-time execution that is manually and fixedly set, and automatic control that is based on scheduled settings or traffic amounts. The full-time execution, the automatic control based on the scheduled settings, and the automatic control based on the traffic amount are described in section *1.3*.

#### (1) Chassis-type switch

#### Table 1.2-1 List of power saving functions supported using the chassis-type switch

Power-saving	Dower coving functionality		Applicable series and operation method <sup>#1</sup>					
measures	AX6700S AX6600S			AX6300S				
	Unused port power feed OFF functionality	R	S		R			
	Unused NIF power feed OFF functionality	R S			R			
Cutting wasted	Standby switch unit power feed OFF functionality (cold standby)	R	S	Т				
Ĩ	Standby NIF power feed OFF functionality (cold standby)	R	S					
	LED OFF functionality	R	S	Т	R			
Green operation	Switching to the power saving mode using online	R	S	Т				

#1 Legend R: Supports full-time execution

S: Supports automatic control based on scheduled settings

T: Supports automatic control based on the amount of traffic

--: Not supported

The power saving functions supported by the AX series using a chassis-type switch are outlined in (1-1) to (1-6) below.

#### (1-1) Unused port power feed OFF functionality

[AX6700S, AX6600S, and AX6300S]

This functionality can reduce power consumption by stopping the power supply to unused ports. (Notation in manual: Port power supply OFF)

#### (1-2) Unused NIF power feed OFF functionality

[AX6700S, AX6600S, and AX6300S]

This functionality can reduce power consumption by stopping the power supply to unused NIFs. (Notation in manual: NIF power supply OFF)

#### (1-3) Standby switch unit power feed OFF functionality (cold standby) [AX6700S and AX6600S]

This functionality can reduce power consumption by stopping the power supply to a standby unit among the redundant switch units.

When a failure occurs in an active switch unit, a standby switch unit is automatically started and switched to the operating status (cold standby). System switching is accompanied with the start of a standby switch unit, which requires time.

This functionality can be executed during redundancy of the BSU (AX6700S series) and the CSU (AX6600S series).

(Notation in manual: Standby BSU/PSP power supply OFF)

(1-4) Standby NIF power feed OFF functionality (cold standby) [AX6700S and AX6600S]

This functionality can reduce power consumption by stopping the power supply to a standby NIF among the redundant NIFs.

When a failure occurs in an active NIF and port, a standby NIF is automatically started for system switching (cold standby).

(Notation in manual: Standby NIF power supply OFF)

#### (1-5) LED OFF functionality

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This functionality can turn off all the LEDs of a NIF port. Even if the LED of a NIF port is set so that it goes off, it lights up by using the operation key on the system operation panel. The operating status of a port can be confirmed in this case. The LED that was turned on goes off 60 seconds after a key operation. (Notation in manual: NIF port LED OFF)

#### (1-6) Switching to power saving mode when online

This is a functionality for switching to the power saving mode when switching between normal power mode and power saving mode online without interrupting communication. The power saving mode can lower the internal operating clock frequency to reduce power consumption. This power mode is displayed with the SYSTEM2 LED of a device turned off in normal power mode, with the LED turned on and off in green during power mode switching, and with the LED turned on in green in power saving mode. This functionality can be executed during redundancy of the BSU (AX6700S series) and the CSU (AX6600S series).

(Notation in manual: BSU and PSP power controls)

#### (2) Box-type switch

Power	Power saving functionality		Applicable series and operation method <sup>#1</sup>												
measures			AX38 AX36	830S 650S	AX:	3640S	AX2	500S	AX2	200S	AX12 AX12	250S 240S			
Cutting wasted power	Unused port power feed OFF functionality		R	S	R	S	R	S	R	S	R	S			
	Link-down port power saving functionality			R	S			R	S	R	S	R	S		
	functionality Fu	OFF/ON by designating a time range			S				S	-	-		S		
		ti o Restoration op detecting recep jy packet		ion based on tion of WOL a		-				S	-	-	-	-	
				er	Restoration opt port link-up de	ion based on tection		-				S	-	-	-
	LED	luminance	Fixed	R	S			R	S	R	S	R	S		
	settin	g functionality	Automatically changed	R	S			R	S	R	S	R	S		
	Semi-fanless functionality <sup>#2</sup>			-			R		-	-	R				

#### Table 1.2-2 List of power saving functionality supported using the box-type switch

R: Supports full-time execution

S: Supports automatic control based on scheduled settings

--: Not supported

#1 Legend

#2 The semi-fanless functionality is supported by the AX2530S-48T and AX1240S-48T2C.

#### [AX6700S, AX6600S, and AX6300S]

[AX6700S and AX6600S]

The power saving functions supported by the AX series box-type switches are outlined in (2-1) to (2-5) below.

#### (2-1) Unused port power feed OFF functionality

[AX3830S, AX3600S, AX2500S, AX2200S, AX1250S, and AX1240S]

This functionality can reduce power consumption by stopping the power supply to unused ports. (Notation in manual: Port power supply OFF and port blocked)

#### (2-2) Link-down port power saving functionality

[AX3830S, AX3650S, AX2500S, AX2200S, AX1250S, and AX1240S]

This functionality reduces the power consumption of link-down ports. An optical port is not treated as an unused port which uses the power saving functionality. (Notation in manual: Link-down port power saving functionality)

#### (2-3) Sleep functionality [AX3830S, AX3650S, AX2500S, AX1250S, and AX1240S]

This functionality reduces power consumption significantly by putting the Switch into a sleep state for a scheduled time range. The PWR LED blinks in green for a long time while the device is in the sleep state. All switching functions or remote access functions stop in this case. The sleep state is canceled to start the device when the scheduled time range is completed. (Notation in manual: Device sleep functionality)

AX2500S supports restoration options based on WOL packet reception detection and port link-up detection, which can restore this Switch remotely from the sleep state.

- 1. Restoration option based on WOL packet reception detection [AX2500S] The sleep state is automatically canceled to start the system when WOL packet reception is detected on the specified port in the sleep state.
- 2. Restoration option based on port link-up detection [AX2500S] The device is put into a sleep state when link-down is detected on all specified ports in the scheduled time range. The sleep state is automatically canceled to start the system when link-up is detected on any of the specified ports.

#### (2-4) LED luminance setting functionality

[AX3830S, AX3650S, AX2500S, AX2200S, AX1250S, and AX1240S]

Through configuration, this functionality can set the luminance of the LEDs to normal luminance, darkening, or OFF. It can also set the timing of automatic operation through configuration and can select the setting for changing the three-level luminance automatically. (Notation in manual: LED luminance control functionality and LED luminance setting)

#### (2-5) Semi-fanless functionality [AX2530S-48T and AX1240S-48T2C]

This functionality monitors whether the temperature in the installation environment is properly set by monitoring the temperature of the device. The fan can stop to reduce power consumption when the forced cooling of a device is judged to be unnecessary.

(Notation in manual: Cooling fan control functionality and semi-fanless operation)

### 1.3 Operation of the AX series power saving functionality

The power saving functionality of the AX series enables fixed and dynamic operation (automatic control for execution and cancelation). Moreover, *Automatic control based on scheduled settings* and *Automatic control based on traffic amount* are available as automatic control.

The power saving schemes to be applied vary depending on how you control the execution and cancelation of the power saving functionality. Therefore, select a proper scheme. The examples of the corresponding power saving schemes are shown in Table 1.3-1. The images to be applied are shown in Figure 1.3-1 to Figure 1.3-3.

Operation		Control of power saving functionality execution and cancelation	Example of corresponding power saving scheme
Full-time execution of the power saving functionality		Executes a power saving functionality in a fixed way	<ul> <li>Shut down unused ports to save power.</li> <li>To save power, set a standby module to the cold standby state or set a standby device to the sleep state (Figure 1.3-1).</li> <li>Execute a power saving functionality other than one in the automatic control conditions with the automatic control set (Figure 1.3.2k)</li> </ul>
Automatic control of the power saving functionality through execution and cancelation	Automatic control based on scheduled settings	Controls the execution and cancelation of the power saving functionality automatically during the specified time of the specified date (or day of the week)	<ul> <li>Save power during a set time range, such as midnight or on holidays, in which a decrease in traffic amount is expected beforehand (Figure 1.3-2a).</li> <li>Specify the time range for when the power consumption is to be reduced and reduce the peak power of all the equipment (Figure 1.3-2b).</li> </ul>
	Automatic control based on traffic amount <sup>#1</sup>	Executes a power saving functionality automatically when traffic amount decreases continuously; cancels it automatically when traffic amount increases continuously	- Save power even when the time range in which traffic decreases cannot be determined (Figure <i>1.3-3</i> ).

### Table 1.3-1 Operation of power saving functionality and examples of corresponding power saving schemes

#1 The automatic control based on traffic amount is supported only in AX6700S and AX6600S.

The full-time execution of a power saving functionality can be used in combination with Automatic control based on scheduled settings or Automatic control based on traffic amount. During the execution of a power saving functionality by automatic control, the power saving functionality specified for automatic control takes priority. Automatic control based on scheduled settings and Automatic control based on traffic amount cannot be used together.

After that, the time range in which the schedule of a power saving functionality is set is called the *scheduled time range*. The time range in which no schedule is set and in which the automatic control based on traffic amount is not performed is called a *normal time range*.



Figure 1.3-1 shows operation when executing a power saving functionality in a fixed way and for turning off the power of an unused part at all times.





with the automatic control based on 9:00 p.m. as the power saving functionality



Figure 1.3-2b shows a case where the execution of a fixed power saving functionality is combined scheduled settings. It shows operation when specifying 9:00 a.m. to scheduled time and is controlling the execution and cancelation of the automatically.

Figure 1.3-3 shows a case where a power saving functionality is automatically executed due to the decrease in traffic amount through the automatic control based on the traffic amount and where it is automatically canceled due to the increase in traffic amount.



### **2.** Power Saving Settings in the AX Series

#### 2.1 Preparation for power saving settings

In setting the configuration of power saving measures, pay attention to the following:

- Plan the power saving functionality used and its operation through preparation after referring to Table 1.2-1 and *Table 1.2-2*.

Automatic control based on scheduled settings cannot be used jointly with Automatic control based on traffic amount.

In *Automatic control based on traffic amount*, the traffic amount is large at all times. Therefore, a power saving functionality may not be executed depending on the operating conditions.

- When Automatic control based on scheduled settings is used

Specify a command that states a scheduled time range and a command that specifies the operation of a power saving functionality in a scheduled time range.

- When Automatic control based on traffic amount is used

Specify a command that validates *Automatic control based on traffic amount* and a command that specifies the operation of the power saving functionality to be executed due to the decrease in traffic.

- When Automatic control based on scheduled settings or Automatic control based on traffic amount is used

Set the execution or cancelation of all power saving functionality that support the automatic control to be used.

A power saving functionality operates based on the default setting of each command when a configuration setting command is omitted.

To prevent a device from not operating as expected, set all corresponding power saving functionality explicitly when using automatic control.

The operation of each command when set to default settings is shown in Appendix A.

The configuration setting examples of power saving functions in each series are given in sections 2.2 to 2.6.

Change the italics in the "Configuration setting example" field appropriately according to the actual system state. The difference in the power consumption level when the relevant power saving functionality is executed and when it is not executed is shown in the "Rough standard of the power saving effect" field. It is a standard value based on the results of measurements obtained in the verification environment of our company under specific conditions. The result is not guaranteed under all conditions. Use the value as a reference value when testing the execution of a power saving functionality.

A list of section numbers and functions is shown below.

- 2.2 Power saving settings in AX6700S, AX6600S, and AX6300S
  - 2.2.1 Unused port power feed OFF functionality
  - 2.2.2 Unused NIF power feed OFF functionality
  - 2.2.3 Standby switch unit power feed OFF functionality
  - 2.2.4 Standby NIF power feed OFF functionality
  - 2.2.5 LED OFF functionality
  - 2.2.6 Switching to power saving mode while online
  - 2.2.7 Automatic control based on scheduled settings
  - 2.2.8 Automatic control based on traffic amount
- 2.3 Power saving settings in AX3650S
  - 2.3.1 Unused port power feed OFF functionality
  - 2.3.2 Link-down port power saving functionality
  - 2.3.3 Sleep functionality Setting OFF and ON by specifying the time range
  - 2.3.4 LED luminance setting functionality Fixed
  - 2.3.5 LED luminance setting functionality Changed automatically
  - 2.3.6 Automatic control based on scheduled settings
- 2.4 Power saving settings in AX3640S
  - 2.4.1 Unused port power feed OFF functionality
  - 2.4.2 Automatic control based on scheduled settings
- 2.5 Power saving settings in AX2500S, AX2200A, AX1250S, and AX1240S
  - 2.5.1 Unused port power feed OFF functionality
  - 2.5.2 Link-down port power saving functionality
  - 2.5.3 Sleep functionality Setting OFF and ON by specifying the time range
  - 2.5.4 Sleep functionality Restoration option based on the detection of WOL packet reception
  - 2.5.5 Sleep functionality Restoration option based on port link-up detection
  - 2.5.6 LED luminance setting functionality Fixed
  - 2.5.7 LED luminance setting functionality Changed automatically
  - 2.5.8 Semi-fanless functionality
  - 2.5.9 Automatic control based on scheduled settings

### 2.2 Power saving settings for the AX6700S, AX6600S, and AX6300S series

Configuration setting examples of the power saving functions for the AX6700S, AX6600S, and AX6300S series are given below.

			AX6700S	AX6600S	AX6300S		
2.2.1	Cutting wasted power	Unused port po	wer feed	d OFF fund	tionality		
Overview	The power supply of the	e unused port is set to OFF.					
Applicable models	AX6700S, AX6600S, A	X6300S series					
	For the full-time execut	ion of power saving functionalit	y (R)				
	(config)# inter	<b>face</b> gigabitethernet 3/2	4 - Shifte	d to the <b>config-if</b> n	node.		
	(config-if)# sh	utdown	- Turns	off the power of th	e port by setting	a port	
Configuration			to the	shutdown state.			
setting examples	For automatic control ba	ased on scheduled settings (S)					
	(config)# sched	ule-power-control shutdo	wn - Turns	off the power of th	e port by setting	a port	
	interface gigat	pitethernet 1/24	to the	shutdown state due	ring a scheduled t	ime	
			range.				
Rough standard of	A rough standard of the	power saving effect per port is	s follows:				
power saving	A 10GBASE-SR XF	P-SR transceiver is used:	1.0 (W)				
effects	A 1000BASE-SX SF 1000BASE_T:0.9 (W	P-SX transceiver is used:	0.1 (W)				
Notes	- In the $\Delta X6300S$ serie	/	n scheduled se	ttings is not suppor	ted		
Supplementary		s, the automatic control based of	ii scheduled se	tings is not suppor	iteu.		
items							
Related							
documents	AX0/00S/AX6600S/A2	X63008 Software Manual Confi	guration Guide	e vol.1			

2.2.2	Cutting waste power	ed Unus	Unused NIF power feed OFF functionality							
Overview	The power supply of	of unused NIFs	is set to OFF.							
Applicable models	AX6700S, AX6600	0S, AX6300S se	ries							
	For the full-time ex	xecution of pow	er saving functionali	ty (R)						
	(config)# no	power enabl	e nif 4		- Tu it	urns off the power to the disabled sta	of the NIF by set ite.	tting		
	For automatic cont	rol based on sch	eduled settings (S)							
setting examples	(config)# sc	g)# schedule-power-control shutdown nif 4 it to the disabled state during a schedu time range.						tting uled		
	A rough standard of a power saving effects per main NIF is as follows:									
	AX6700	S□	□AX66	00S		AX63	300S			
Rough standard of power saving	Type of NIF	Standard of power saving effect	Type of NIF	Standar of powe saving effect	rd er	Type of NIF	Standard of power saving effect			
effects	NK1G-24T	97 (W)	NK1G-24T	84 (W)		NH1G-24T	84 (W)			
	NK1G-24S	80 (W)	NK1G-24S	68 (W)	1	NH1G-24S	67 (W)			
	NK10G-4RX	83 (W)	NK10G-4RX	71 (W)		NH10G-1RX	17 (W)			
	NK10G-8RX	100 (W)	NK10G-8RX	88 (W)		NH10G-4RX	72 (W)			
Notes	- In the AX6300	S series, the au	itomatic control ba	used on sc	hedul	ed settings is no	t supported.			
Supplementary										
item										
Related document	AX6700S/AX6600	S/AX6300S Sot	ftware Manual Confi	guration G	uide V	/ol.1				

Note: The rough standard of the power saving effects described above is the difference between the power consumption level when a power saving functionality is not executed and when it is executed. It is based on the results of measurements obtained in the verification environment of our company under specific conditions. These results are not guaranteed under all conditions.

AX6600S AX6700S

**AX6300S** 

AX3830S AX3650S

**AX3640S** 

AX2500S AX2200S

AX2500S AX3640S AX3650S AX6300S AX6600S AX6700S

AX1250S AX1240S

	ANDIOUS ANDIOUS						
2.2.3	Cutting wasted power Standby switch unit power feed OFF functionality						
Overview	The power supply of the standby BSU/PSP is set to OFF.						
Applicable models	AX6700S, AX6600S series						
Configuration setting examples	For the full-time execution of power saving functionality (R)(config)# redundancy {max-bsu   max-psp] 1- The AX6700S series is max-bsu, and the AX6600S series is max-psp. The example on the left shows when the number of active BSUs/PSPs is 2, the device operates on the assumption that the number of standby-bsu is at andby-psp] cold2- The AX6700S series is max-bsu, and the AX6600S series is max-psp. The example on the left shows when the number of standby-psp. 						
of power saving	AX6700S series207 (W) per BSU-LA and 229 (W) per BSU-LBAX6600S series87 (W) per CSU-1A and 93 (W) per CSU-1B						
Notes	- Standby BSU/PSP is automatically started for system switching when a failure occurs in the active BSU/PSP while the power supply of the standby BSU/PSP is set to OFF by this setting. Since system switching is accompanied with the start of the standby BSU/PSP, it does take some time.						
Supplementary items	- This setting provides an effective power saving effect in the device configuration where the standby BSU/PSP exists.						
Related documents	AX6700S/AX6600S/AX6300S Software Manual Configuration Guide Vol.1 and Vol.2						

Note: The rough standard of the power saving effects described above is the difference between the power consumption level when a power saving functionality is not executed and when it is executed. It is based on the results of measurements obtained in the verification environment of our company under specific conditions. These results are not guaranteed under all conditions.

AVEZODE AVECODE

**AX6300S AX6600S AX6700S** 

AX3830S AX3650S

AX3640S

AX2500S AX2200S

	AX6700S	
	AX6600S	
	AX6300S	
AX3830S	AX3650S	
	AX3640S	
AX2500S	AX2200S	
AX1250S	AX1240S	

						AX6700S	AX6600S
2.2.4	Cutting wasted power	Stand	dby NIF Po	wer	Feed	OFF Funct	ionality
Overview	The power supply of the	e standby N	IF is set to OFF.				
Applicable models	AX6700S, AX6600S se	eries					
	For the full-time execut	ion of powe	r saving functionali	ty (R)			
	For automatic control b (config)# int (config-if)# max-active-pe (config-if)# (config)# int 1/1 (config-if)# (config-if)# (config-if)# (config-if)#	ased on sche cerface p channel ort 1 exit erface t channel lacp por exit erface t	engigabitethe. -group 10 mode rt-priority 20 engigabitethe.	rnet on rnet	n setting i - Sets c functi sets th Chan link-c - Regis static priori	tem thannel group 10. So to nality to channel g ne maximum number nel group 10 operator lown mode. ters port 1/1 in char link aggregation an ty level to 200. ters port 2/1 in char	ets a standby link group 10 and then er of ports to 1. es in the mel group 10 as d sets the port
Configuration	<pre>2/1 (config-if)# (config-if)# (config-if)# (config)# rec priority 1</pre>	channel lacp por exit lundancy	-group 10 mode rt-priority 30 nif-group 1 n	<b>e on</b> 20 <b>if</b> 1	static priori - Sets N	link aggregation an ty level to 300.	NIF redundant
examples	<pre>(config)# red priority 2</pre>	lundancy	nif-group 1 n	<b>if</b> 2	group group	and the priority lev	el of NIF in the
	For the full-time execut	ion of powe	r saving functionali	ty (R)			
	<pre>(config)# int tengigabiteti tengigabiteti (config-if-ra (config-if-ra)</pre>	cerface in hernet 1, hernet 2, ange)# sl	range /2-4, /2-4 nutdown		- Shuts redun	down any unused p dant group.	oort in a NIF
	(config)# red max-standby-	dundancy hif 1	nif-group 1		- Sets t NIFs	he maximum numb in a NIF redundant	er of standby group.
	For automatic control b (config)# scl shutdown into tengigabiteti (config)# scl	ased on sche edule-po erface ra hernet 1, hernet 2, hedule-po	eduled settings (S) <b>ower-control</b> ange /2-4, /2-4 <b>ower-control</b>		<ul> <li>Shuts</li> <li>during</li> <li>redun</li> <li>Sets t</li> </ul>	down any port that g a scheduled time r dant group. he maximum numb	is not used ange, in a NIF er of standby
	redundancy ni 1	.f-group	1 max-standby	-nif	NIFs sched	in a NIF redundant uled time range.	group during a
	The rough standard of a	power savi	ng effect per main N	NIF is as	s follows:	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
Rough standard of power saving	AX6700S Type of NIF	tandard power aving effect	AX660 Type of NIF	OS Star of po sav effe	ndard ower ing ect		
effects	NK1G-24T         9           NK1G-24S         8           NK10G-4RX         8           NK10G-8RX         10	7 (W) 0 (W) 3 (W) 00 (W)	NK1G-24T NK1G-24S NK10G-4RX NK10G-8RX	84 ( 68 ( 71 ( 88 (	W) W) W) W)		
Notes	- The standby NIF is a in a port while the po- accompanied with the	utomatically wer supply e start of star	y started for system of the standby NIF ndby NIF, it does ta	switchi is set to ke some	ng when OFF by t e time.	a failure occurs in t this setting. Since sy	he active NIF and ystem switching is
Supplementary items							
Related documents	AX6700S/AX6600S/A	X6300S Sof	tware Manual Conf	iguratio	n Guide V	Vol.1 and Vol.2	

AX6300S AX6600S AX6700S

AX3830S AX3650S

AX3640S

AX2500S AX2200S

			(	AX6700S		AX6600S	AX63008	5
2.2.5	Cutting waste power	d LE	D OFF func	tionality	7			
Overview	The port LED is tu	rned off.						
Applicable models	AX6700S, AX660	0S, AX6300S s	eries					
	For the full-tin functionality (R)	ne execution	of power savin	ıg				
	(config)#	system port	t-led disable		-	Turns off the LE	D.	
Configuration	For automatic cont	For automatic control based on scheduled settings (S)						
setting examples	(config)# disable	(config)# schedule-power-control port-led disable- Sets it so that the LED goes off during a scheduled time range.						
	For automatic cont	rol based on tra	ffic amount (T)					
	(config)# disable	adaptive-po	ower-control po	ort-led	-	Sets it so that LE the phenomenon	D goes off due of traffic	to
	The rough standard	l of a power sav	ing effect per main N	NIF is as follow	ws:			
	AX670	OS	AX660	005		AX63	300S	
Rough standard	Type of NIF	Standard of power saving effect	Type of NIF	Standard of power saving effect		Type of NIF	Standard of power saving effect	
of power saving	NK1G-24T	0.6 (W)	NK1G-24T	0.6 (W)		NH1G-24T	0.6 (W)	
effects	NK1G-24S	0.5 (W)	NK1G-24S	0.5 (W)		NH1G-24S	0.5 (W)	
	NK10G-4RX	0.3 (W)	NK10G-4RX	0.3 (W)□		NH10G-1RX	0.3 (W)	
	NK10G-8RX	0.7 (W)	NK10G-8RX	0.7 (W)		$\square$	0.7 (W)	
Notes	- In the AX63009 supported.	S series, the au	ntomatic controls bas	sed on schedu	led	settings and trat	ffic amount are	not
Supplementary items	- Even if the LEI system operation turned on goes o	O of a NIF port panel. The op ff 60 seconds a	t is set so that it goes perating status of a p fter key operation.	off, it lights ort can be co	up nfir	when using the o med in this case.	peration key on The LED that	the was
Related documents	AX6700S/AX6600	0S/AX6300S Sc	oftware Manual Confi	iguration Guid	le V	′ol.1		

AX6300S AX6600S AX6700S

AX3830S AX3650S

AX3640S

AX2500S AX2200S

2.2.6	Power saving by eco-operation	Switching to power s	saving mode while online
Overview	The operating clock fre	equency of the BSU/PSP is lowered	to reduce power consumption.
Applicable models	AX6700S, AX6600S ser	ies	
	For the full-time execution functionality (R)	on of power saving	
	(config)# powe:	r-control mode mode2	- Lowers the operating clock frequency of the BSU/PSP to reduce power consumption.
Configuration	For automatic control bas	sed on scheduled settings (S)	
setting examples	(config)# sched power-control n	dule-power-control mode mode2	- Lowers the operating clock frequency of the BSU/PSP during a scheduled time range to reduce power consumption.
	For automatic control bas	sed on traffic amount (T)	
	(config)# adapt power-control n	tive-power-control mode mode2	<ul> <li>Lowers the operating clock frequency of the BSU/PSP due to the decrease in traffic to reduce power consumption.</li> </ul>
Rough standard of power saving effects	AX6700S series 52 (W AX6600S series 26 (W	V) per BSU-LA and 55 (W) per BSU-L V) per CSU-1A and 27 (W) per CSU-1H	B 3
Notes	<ul> <li>Set the BSU/PSP as a poperates as described by The number of active pare installed.</li> <li>The device restarts who</li> </ul>	redundant configuration when changing below during changes in settings when t BSUs/PSPs decreases during changes in en the number of BSUs/PSPs is 1.	g the power control of the BSU/PSP. A device he standby BSU/PSP does not exist. n operation when multiple active BSUs/PSPs
Supplementary items	- The packet throughput varies depending on the conditions, and other factors	becomes approximately 50% (compar- the type of installed BSU, CSU, and N actors.	ed with the normal power mode). However, it IIF, the number of installed models, the load
Related documents	AX6700S/AX6600S/AX	6300S Software Manual Configuration	Guide Vol.1

AX6700S AX6600S

AX6300S AX6600S AX6700S

AX3830S AX3650S

AX3640S

AX2500S AX2200S

AX2500S AX3640S AX3650S AX6300S AX6600S AX6700S

AX1250S AX1240S

			AX6700S	AX6600S
2.2.7	Automatic control based on scheduled settings			
Overview	A time range is specified to execute a power saving funct	ionality.		
Applicable	AX6700S, AX6600S series			
Configuration setting examples	<pre>(config)# schedule-power-control shutdown interface gigabitethernet 3/24 (config)# schedule-power-control shutdown nif 4 (config)# schedule-power-control {max-bsu   max-psp} 1 (config)# schedule-power-control {standby-bsu   standby-psp} cold2 (config)# schedule-power-control shutdown interface range tengigabitethernet 1/2-4, tengigabitethernet 2/2-4 (config)# schedule-power-control redundancy nif-group 1 max-standby-nif 1 (config)# schedule-power-control port-led disable (config)# schedule-power-control mode mode2 (config)# schedule-power-control time-range 1 weekly start-time fri 2000 end-time mon 0800 action enable</pre>	Sets all power automatic cont In the example executed. For of - Turns off th to the shutde - Turns off th the disabled range. - The example number of a number of a number of a number of a number of a standby BSU - Sets the star and reduces - Shuts down scheduled ti group. - Sets the max NIF redunda range. - Turns off th - Reduces the BSU/PSP fc - Sets a sched left is given 20:00 on Fri week by ent	saving functions t trol based on the se e on the left, all fur details, see subsect the power of the por own state. The power of the NII I state during a sch e on the left shows active BSUs/PSPs the assumption the s/PSPs is 1 and the Us/PSPs is 1. adby BSU/PSP to de power consumption any port that is not ime range, in a NII e LED. the power consumption ant group during a the LED. to specify the sche iday and 08:00 on try No. 1.	hat support the cheduled settings. netions are tion 2.2.1 to 2.2.6. t by setting a port F by setting it to eduled time s when the is set to 1. If the Ps is 2, the device at the number of t the number of cold standby 2 on. t used during a F redundant standby NIFs in a scheduled time on of the an example on the edule between Monday every
Rough standard of power saving effects	The rough standard is based on the combined power savi to 2.2.6.	ng functionality	to be executed. Se	e subsection 2.2.1
Notes	<ul> <li>The power saving functionality operates based or configuration setting command is omitted.</li> <li>To prevent the device from not operating as expect explicitly when using automatic control.</li> </ul>	n the default so	etting of each corresponding power	ommand when a saving functions
Supplementary items	<ul> <li>The date and each day as well as the day of the week car When specifying a date</li> <li>date start-time <yymmdd> <hhmm> en</hhmm></yymmdd></li> <li>When specifying a day of the week</li> <li>weekly start-time {sun   mon   tue  </li> <li>{sun   mon   tue   wed   thu   fr:</li> <li>When specifying each day</li> <li>everyday start-time <hhmm> end-time</hhmm></li> </ul>	an be specified fond-time <yyr wed   thu   : i   sat} <hh me <hhmm></hhmm></hh </yyr 	or the scheduled ti mmdd> <hhmm> fri   sat} <hh hmm&gt;</hh </hhmm>	me range. nmm> end-time
Related documents	AX6700S/AX6600S/AX6300S Software Manual Configu	uration Guide Vo	ol.1	

Note: The rough standard of the power saving effect described above is the difference of the power consumption obtained when a power saving functionality is not executed and when it is executed. It is based on the actual measurement result that was obtained in the verification environment of our company under specific conditions. The result is not guaranteed under all conditions.

AX6300S AX6600S AX6700S

AX3830S AX3650S

AX3640S

AX2500S AX2200S

			AX6700S	AX6600S
2.2.8	Automatic control based	on traffic amoun	t	
Overview	The power saving functionality is automatica automatically canceled when traffic amount in	ally executed when traffic amo acreases continuously.	ount decreases co	ontinuously. It is
Applicable models	AX6700S, AX6600S			
Configuration	<pre>(config)# adaptive-power-control {max-bsu   max-psp} 1 (config)# adaptive-power-control {standby-bsu   standby-psp} cold2 (config)# adaptive-power-control port-led disable</pre>	<ul> <li>Sets all power saving function control based on the amount of In an example on the left, all it details, see subsection 2.2.3, 2</li> <li>The example on the left shot BSUs/PSPs is set to 1. If the BSUs/PSPs is 2, the device the number of active BSUs of standby BSUs/PSPs is 1</li> <li>Sets the standby BSU/PSP power consumption.</li> <li>Turns off the LED.</li> </ul>	ns that support the of traffic. functions are executed 2.2.5, and 2.2.6. ows when the number of inste- e operates on the /PSPs is 1 and the to cold standby	ne automatic ecuted. For imber of active talled assumption that nat the number 2 and reduces
setting examples	(config)# adaptive-power-control mode mode2	- Reduces the power consum operation	nption of the BS	U/PSP for
	(config)# adaptive-power-control decrease-traffic-debounce 60	Sets the control parameter bas - Sets the monitoring time, re functionality is started due the example on the left, the started when a small amound more than 60 minutes.	sed on the traffic equired until a p to traffic amoun power saving fu nt of traffic is co	amount. ower saving t, in minutes. In unctionality is ntinued for
	<pre>(config)# adaptive-power-control increase-traffic-debounce 1</pre>	- Sets the monitoring time, re functionality is canceled du In the example on the left, canceled when a large amo more than one minute.	equired until a p ue to traffic amou the power saving ount of traffic is c	ower saving unt, in minutes. g functionality is continued for
	(config)# adaptive-power-control enable	- Enables the power saving f amount	functionality base	ed on traffic
Rough standard of power saving effects	The rough standard is based on the combined 2.2.5, and 2.2.6.	power saving functionality to b	e executed. See	subsection 2.2.3,
	<ul> <li>The power saving functionality operates configuration setting command is omitted. corresponding power saving functions expli-</li> <li>The power saving functionality based on t set.</li> </ul>	based on the default setting To prevent the device from n citly when using automatic con raffic can be set when any of t	ng of each con not operating as ntrol. the configuration	mmand when a expected, set all ns below are not
Notes	<ul> <li>power-control model, redundate bsu-mode fixed, redundancy statime-range</li> <li>Set the BSU/PSP as the redundant configur power saving functionality based on traffic power control of the BSU cannot be cha amount is executed or canceled.</li> </ul>	acy bsu-load-balancing candby-bsu cold, sched ation when changing the power amount. When the number of 1 nged even if the power savin	g smac, red dule-power- r control of the F BSUs/PSPs in o g functionality	undancy control BSU/PSP using a peration is 1, the based on traffic
Supplementary items	<ul> <li>The time required until a power saving fund as the monitoring time of traffic amount. The Time required until execution: Time required until cancelation:</li> </ul>	ctionality is executed and cance he setting range is as follows: 60 (default) to 360 minut 1 (default) to 360 minut	eled can be respe ites es	ectively specified
Related documents	AX6700S/AX6600S/AX6300S Software Man	ual Configuration Guide Vol.1		

AX3830S AX3650S

AX3640S

AX2500S AX2200S

### 2.3 Power saving settings for the AX3830S and AX3650S series

Configuration setting examples of the power saving functions for the AX3830S and AX3650S series are given below.

					AX3830S	AX3650S
2.3.1	Cutting wasted power	Unused	port power fe	eed OF	F functio	onality
Overviews	The power supply of the	unused port is se	t to OFF.			
Applicable models	AX3830S, AX3650S					
	For the full-time executi	on of power savir	ng functionality (R)			
	(config)# inter	<b>face</b> gigabit	ethernet 1/0/24	- Shifted	l to the <b>config-i</b> t	f mode.
Configuration	(config-if)# s	hutdown		- Turns	off the power of	the port by the port by
examples	For automatic control ba	used on scheduled	settings (S)			
examples	(config)# sche shutdown interf	dule-power-c acegigabite	control	- Turns of a port to schedule	ff the power of t the shutdown s ed time range.	he port by setting tate during a
	The rough standard of	f a power saving e	effect per port is as foll	ows.		
	AX38305		AX	3650S		
Rough standard	UTP port (GbE)	1.1 (W)	UTP port (GbE)	0	.5 (W)	
of power saving	UTP port (FE)	0.4 (W)	SFP port (SFP-SX)	0	.3 (W)	
effects	SFP/SFP+ shared port (SFPP-SR)	1.4 (W)	SFP/SFP+ shared po (SFPP-SR)	ort 1	.6 (W)	
	QSFP+ port (QSFP-SR4)	7.5 (W)				
Notes						
Supplementary items						
Related documents	AX3800S Software Man AX3600S Software Man	ual Configuratior ual Configuratior	n Guide Vol.1 n Guide Vol.1			

Note: The rough standard of the power saving effects described above is the difference between the power consumption level when a power saving functionality is not executed and when it is executed. It is based on the results of measurements obtained in the verification environment of our company under specific conditions. These results are not guaranteed under all conditions.

AX6700S

AX6600S

AX6300S

(3830S (3650S

AX3640S

AX2500S AX2200S

			AX3830S	AX3650S
2.3.2	Cutting wasted power	Link-down port powe	er saving function	onality
Overview	The power consumptio 100BASE-TX, and 1000	n in a link-down state is reduced or BASE-T are used.	on an Ethernet port on w	hich 10BASE-T,
Applicable models	AX3830S, AX3650S			
	For the full-time executi	on of power saving functionality (R)	1	
Configuration	(config-if)# p cool-standby	ower-control port	<ul> <li>Enables the power savin link-down port.</li> </ul>	g operation of a
setting	For automatic control ba	sed on scheduled settings (S)		
examples	(config-if)# s power-control	chedule-power-control port cool-standby	<ul> <li>Enables the power savin link-down port during a range.</li> </ul>	g operation of a scheduled time
Rough standard of power saving effects	AX3830S: 0.05 (W) per AX3650S: 0.04 (W) per	port port		
	- This setting is collective	vely performed in a device. It cannot be	done in units of ports.	
Notes	- A port for which an op	otical signal is used cannot use this func	tionality.	
	- When this command than when it is not set.	is set, the link-up state of an Ethernet	port becomes longer by abo	out three seconds
Supplementary items	- A port in which the configuration.	e configuration command (shutdow	m) was set is also reduce	d by the power
Related	AX3800S Software Man	ual Configuration Guide Vol.1		
documents	AX3600S Software Man	ual Configuration Guide Vol.1		

AX3830S AX6300S AX6600S AX6700S AX3650S

					AX	3830S AX3650S
2.3.3	Cutting wasted power	Sleep speci	functionation	ality - time r	Setting ange	OFF and ON by
Overview	An unused scheduled tim	ne range is set i	into the device slee	ep state.		
Applicable models	AX3830S, AX3650S					
Configuration setting examples	For automatic control ba (config)# scher system-sleep (config)# scher time-range 1 w 2000 end-time n	sed on schedul dule-power dule-power eekly star non 0800 ac	-control -control -t-time fri	<ul> <li>Sets t</li> <li>Sets a</li> <li>left is</li> <li>20:00</li> <li>week</li> </ul>	he device slea a scheduled ti given to spea 0 on Friday an by entry No.	ep state. me range. An example on the cify the schedule between d 08:00 on Monday every 1.
Rough standard of power saving effects	AX3830S AX3830S-44XW AX3830S-44X4QW	160 (W) 198 (W)	AX3650S-24T6 AX3650S-48T4 AX3650S-20S6	AX3650S XW XW XW	57 (W) 67 (W) 60 (W)	
Notes	<ul> <li>When starting a devic front of the device (for device is started in the using a set power -</li> <li>Information that is not the device is turned office When the sleep state After the device starts,</li> </ul>	e from the slee r five seconds e schedule-dis control sc saved is not re f. exceeds 20 da it is put into th	ep state by forced or more) until all abled mode. Ther chedule enable etained because the ys, it is automatic he sleep state again	cancel op LEDs on efore, put Le comma e device sl cally cance n.	peration, hold the front part the device in and when retur leep state is the eled once ever	down the <b>RESET</b> button in nel light up. At that time, the nto the schedule apply mode rning it to the sleep mode. ne same as when the power of ery 20 days to start a device.
Supplementary items	- The date and each day When specifying the date start-t When specifying eac weekly start end-time {su When specifying eve everyday sta	as well as the date time <yymmo th day time {sur n   mon   ery day art-time  </yymmo 	day of the week ca dd> <hhmm> en n   mon   tue tue   wed   nhmm&gt; end-tin</hhmm>	an be spec nd-time e   wed thu   ne <hhm< td=""><td>ified for the s <yymmdd>   thu   fri   sat</yymmdd></td><td><pre>scheduled time range.   <hhmm> fri   sat} <hhmm> } <hhmm></hhmm></hhmm></hhmm></pre></td></hhm<>	ified for the s <yymmdd>   thu   fri   sat</yymmdd>	<pre>scheduled time range.   <hhmm> fri   sat} <hhmm> } <hhmm></hhmm></hhmm></hhmm></pre>
Related	AX3800S Software Man	ual Configurat	ion Guide Vol.1			
documents	AX3600S Software Man	ual Configurat	ion Guide Vol.1			

AX6300S | AX6600S | AX6700S

AX3830S AX3650S

AX2500S AX3640S AX2200S

Rough standard of power saving effects       AX383         Notes       AX380         Related       AX380         documents       AX380         Note: The rough standard of th	AX 330S-44XW 330S-44X4QW	X3830S Darkening 0.7 (W) OFF 1.0 (W) Darkening 0.7 (W) OFF 1.1 (W)	AX AX AX	A 3650S-24T6XW 3650S-48T4XW 3650S-20S6XW	X3650S Darkening 0.5 (W) OFF 0.9 (W) Darkening 0.7 (W) OFF 1.4 (W) Darkening 0.5 (W) OFF 0.9 (W)
Rough standard of power saving effects     AX383       Notes     AX380       Related     AX380       documents     AX360	30S-44XW 30S-44X4QW	Darkening 0.7 (W) OFF 1.0 (W) Darkening 0.7 (W) OFF 1.1 (W)		3650S-24T6XW 3650S-48T4XW 3650S-20S6XW	Darkening 0.5 (W)           OFF 0.9 (W)           Darkening 0.7 (W)           OFF 1.4 (W)           Darkening 0.5 (W)           OFF 0.9 (W)
Rough standard of power saving effects       AX38:         Notes       Related         AX380       AX380         Notes       AX380         Note:       AX380         Note:       The rough standard of the	30S-44X4QW	Darkening 0.7 (W) OFF 1.1 (W)	AX	3650S-48T4XW 3650S-20S6XW	Darkening 0.7 (W) OFF 1.4 (W) Darkening 0.5 (W) OFF 0.9 (W)
Notes       Related       AX380       Occuments       AX360			AX	3650S-20S6XW	Darkening 0.5 (W) OFF 0.9 (W)
Notes Related AX380 documents AX360 Note: The rough standard of th					
Note: The rough standard of th	00S Software N	Ianual Configuration Gu	ide Vol.1		
ower saving functionality is n verification environment of ou	ne power saving o not executed and ir company under	effects described above is th when it is executed. It is ba r specific conditions. These	ne difference used on the re- results are r	e between the power results of measurement not guaranteed unde	r consumption level when ents obtained in the er all conditions.

2.3.4

Overview

Applicable

Configuration setting

models

**Cutting wasted** 

power

AX3830S, AX3650S

disable }

The luminance of the port LED is fixed to darkening or OFF.

For the full-time execution of power saving functionality (R) (config)# system port-led {economy |

For automatic control based on scheduled settings (S)

AX6700S
AX6600S
AX6300S
X3830S X3650S
<b>~ ~</b>
AX3640S A
AX2500S AX3640S A AX2200S

AX3830S

- Sets the luminance of the LED. Darkening is

set as economy, with OFF as disable.

LED luminance setting functionality - Fixed

					AX3830S	AX3650S
2.3.5	Cutting wasted power	LED lumina Changed au	ince so utomat	etting fur tically	nctionality	-
Overview	The luminance of the (automatic LED operat	Port LED is controlled ion). The LED then dark	automaticatens and fin	ally. A specified ally goes out (O	l event causes the PFF).	LED to light up
Applicable models	AX3830S, AX3650S					
Configuration setting examples	For the full-time execu For automatic control (config)# sys console (config)# sys interface gig 1/0/1,gigabit (config)# sys For the full-time execu (config)# sys For automatic control (config)# sch port-led enab	tion of power saving fun based on scheduled setting tem port-led tri rabitethernet ethernet 1/0/20 tem port-led tri tion of power saving fun tem port-led ena based on scheduled setting edule-power-cont cle	ctionality ( ngs (S) Con gger gger gger mc nctionality ( ble ngs (S) rol	R) mmon setting ite - Sets a cons (link-up/dc during auto (R) - Sets LED c (ON). - Sets the LE time range	em sole, port 0/1, port 0 own), and MC (inse omatic LED operation operation to normal ED operation during to normal luminan	)/20 ertion/extraction) ion. l luminance g a scheduled ice (ON).
Rough standard of power saving effects	AX AX3830S-44XW AX3830S-44X4QW	3830S Darkening 0.7 (W) OFF 1.0 (W) Darkening 0.7 (W) OFF 1.1 (W)	AX36	A2 550S-24T6XW 550S-48T4XW 550S-20S6XW	X3650S Darkening 0.5 (W OFF 0.9 (W) Darkening 0.7 (W OFF 1.4 (W) Darkening 0.5 (W OFF 0.9 (W)	v)           v)           v)           v)
Notes						
Supplementary items	<ul> <li>During automatic op the link-up/down of</li> <li>The LED lights up d</li> <li>The current luminan last automatic operat</li> <li>The current state is f</li> </ul>	veration, multiple items of the specified port, and 3 uring automatic operation ce is shifted to power sa- ion.	can be selec ) the inserti n. aving lumin	cted from 1) log on and extractio nance (darkening	in/logout by conso n of a memory card g) after 60 seconds	le connection, 2) d (SD card).
Related documents	AX3800S Software Ma	anual Configuration Gui	de Vol.1 de Vol.1	n is lastly stille	to the power sav	ing iuminance.

AX1250S AX2500S AX3640S AX3650S AX6300S AX6600S AX6700S AX6700S

Note: The rough standard of the power saving effects described above is the difference between the power consumption level when a power saving functionality is not executed and when it is executed. It is based on the results of measurements obtained in the verification environment of our company under specific conditions. These results are not guaranteed under all conditions.

AX2500S AX2200S

2.3.6

AX6700S	
AX6600S	
AX6300S	
AX3830S AX3650S	
AX3640S	
AX2500S AX2200S AX3640S	

Overview	A time range is specified to execute a power saving functionality.			
Applicable models	AX3830S, AX3650S			
		Sets all power saving functions, not including the sleep function, that support the automatic control based on scheduled settings. However, only "Fixed" or "Auto change" can be set for an LED luminance-setting function. In the example on the left, all functions are executed. For details, see subsection 2.3.1, 2.3.2, 2.3.4, and 2.3.5.		
Configuration setting	<pre>(config)# schedule-power-control shutdown interface gigabitethernet 1/0/24</pre>	- Turns off the power of the port by setting a port to the shutdown state during a scheduled time range.		
examples	(config-if)# schedule-power-control power-control port cool-standby	- Enables the power saving operation of a link-down port during a scheduled time range.		
	(config)# schedule-power-control port-led {economy   disable}	- Sets the luminance of the LED during a scheduled time range. Darkening is set as economy, with OFF as disable.		
	<pre>(config)# schedule-power-control time-range 1 weekly start-time fri 2000 end-time mon 0800 action enable</pre>	- Sets a scheduled time range. An example on the left is given to specify the schedule between 20:00 on Friday and 08:00 on Monday every week by entry No. 1.		
Rough standard of power saving effects	The rough standard is based on the combined power savi 2.3.2, 2.3.4, and 2.3.5.	ng functionality to be executed. See subsection 2.3.1,		
Notes	- Power saving functionality other than a device sleep f combined. However, the device sleep functionality pre	functionality can be used with the specified schedule ferentially operates when it is set.		
Supplementary items	<ul> <li>The date and each day as well as the day of the week can be specified for the scheduled time range.</li> <li>When specifying the date</li> <li>date start-time <yymmdd> <hhmm> end-time <yymmdd> <hhmm></hhmm></yymmdd></hhmm></yymmdd></li> <li>When specifying each day</li> <li>weekly start-time {sun   mon   tue   wed   thu   fri   sat} <hhmm></hhmm></li> <li>end-time {sun   mon   tue   wed   thu   fri   sat} <hhmm></hhmm></li> <li>When specifying every day</li> <li>everyday start-time <hhmm> end-time <hhmm></hhmm></hhmm></li> </ul>			
Related documents	AX3800S Software Manual Configuration Guide Vol.1 AX3600S Software Manual Configuration Guide Vol.1			

Automatic control based on scheduled settings

Note: The rough standard of the power saving effect described above is the difference of the power consumption obtained when a power saving functionality is not executed and when it is executed. It is based on the actual measurement result that was obtained in the verification environment of our company under specific conditions. The result is not guaranteed under all conditions.

AX3650S

#### 2.4 Power saving settings for the AX3640S series

Configuration setting examples of power saving functions for theAX3640S series are given below.

			AX3640S	
2.4.1	Cutting wasted power	Unused port powe	r feed OFF functionality	
Overview	The power supply of the	unused port is set to OFF.		
Applicable models	AX3640S			
	For the full-time executi	on of power saving functionality (R	)	
	(config)# inte	<b>rface</b> gigabitethernet	- Shifted to the <b>config-if</b> mode.	
Configuration setting	0/24 (config-if)# s	hutdown	- Turns off the power of the port by setting a port to the shutdown state.	
examples	For automatic control based on scheduled settings (S)			
	(config)# sche shutdown inter 0/24	dule-power-control face gigabitethernet	- Turns off the power of the port by setting a port to the shutdown state during a scheduled time range.	
Rough standard of power saving effects	Rough standard of powe UTP port (1000BASE SFP port (SFP-SX) XFP port (XFP-SR)	r saving effect per port E-T) 1.0 (W) 0.3 (W) 2.2 (W)		
Notes				
Supplementary items				
Related documents	AX3600S Software Man	ual Configuration Guide Vol.1		

AX3640S

AX6700S

AX6600S

AX6300S

AX3830S AX3650S

AX3640S

AX2500S AX2200S

AX1250S AX1240S

2.4.2	Automatic control based on scheduled settings			
Overview	A time range is specified to execute a power saving functionality.			
Applicable models	AX3640S			
Configuration	<pre>(config)# schedule-power-control shutdown interface gigabitethernet 0/24</pre>	- Sets the power saving functionality used during a scheduled time range		
setting examples	<pre>(config)# schedule-power-control time-range 1 weekly start-time fri 2000 end-time mon 0800 action enable</pre>	- Sets a scheduled time range. An example on the left is given to specify the schedule between 20:00 on Friday and 08:00 on Monday every week by entry No. 1.		
Rough standard of power saving effects	See subsection 2.4.1.			
Notes				
Supplementary items	<ul> <li>The date and each day as well as the day of the week can be specified for the scheduled time range.</li> <li>When specifying the date</li> <li>date start-time <yymmdd> <hhmm> end-time <yymmdd> <hhmm></hhmm></yymmdd></hhmm></yymmdd></li> <li>When specifying each day</li> <li>weekly start-time {sun   mon   tue   wed   thu   fri   sat} <hhmm></hhmm></li> <li>end-time {sun   mon   tue   wed   thu   fri   sat} <hhmm></hhmm></li> <li>When specifying every day</li> <li>everyday start-time <hhmm> end-time <hhmm></hhmm></hhmm></li> </ul>			
Related documents	AX3600S Software Manual Configuration Guide Vol.1			

Note: The rough standard of the power saving effects described above is the difference between the power consumption level when a power saving functionality is not executed and when it is executed. It is based on the results of measurements obtained in the verification environment of our company under specific conditions. These results are not guaranteed under all conditions.

# 2.5 Power saving settings for the AX2500S, AX2200S, AX1250S, and AX1240S series

Configuration setting examples of power saving functions for the AX2500S, AX2200S, AX1250S, and AX1240S series are given below.

		AX2	500S /	X2200S	AX1250S	AX1240S
2.5.1	Cutting wasted power	Unused	port pov	ver fee	ed OFF fu	nctionality
Overview	The power supply of the u	nused port is set	to OFF.			
Applicable models	AX2500S, AX2200X, AX	1250S, AX1240	S series			
	For the full-time execution	n of power saving	g functionality	(R)	1	
	(config)# inter	<b>face</b> gigabi	tethernet	0/24	- Shifts to the	config-if mode.
	(config-if)# sh	utdown			- Turns off the setting a por state.	e power of the port by t to the shutdown
Configuration	For automatic control base	ed on scheduled s	settings (S)		1	
setting examples	AX2500S				- Turns off the	e power of the port by
	<pre>(config)# sch interface gig</pre>	<b>edule-power</b> abitetherne	-control sl et 0/24	hutdown	setting a por during a sch	t to the shutdown state eduled time range.
	AX2200S/AX1250S/A	AX1240S				
	(config)# sch interface 0/2	edule-power 24	-control sl	hutdown		
		Per AX2	500S port			
		UTP port (GbE)	SFP port (SFP-SX)	SFP/SFI (S	P+ shared port FPP-SR)	
	AX2530S-24T	0.5 (W)	0.2 (W)		-	
	AX2530S-48T	0.5 (W)	0.2 (W)	0	-	
	AX2530S-48T2X	0.5(W)	0.1 (W)		0.4 (W)	
Rough standard	AX2530S-24S4X	-	0.1 (W)	0	0.4 (W)	
of power saving				7		
effects	Per A2	X2200S port	(IFD)	_		
		(GbE)	(SFP-SX)			
	Common to all models	0.5 (W)	0.2 (W)			
	Per AX1250	OS/AX1240S poi	t	_		
		(GbF)	UTP port (FF)			
	Common to all models	0.5 (W)	0.2 (W)			
Notes						
Supplementary items						
Related documents	AX2500S Software Manua AX2200S Software Manua AX1250S/AX1240S Softw	al Configuration al Configuration vare Manual Con	Guide Vol.1 Guide Vol.1 figuration Guid	le Vol.1		

Note: The rough standard of the power saving effects described above is the difference between the power consumption level when a power saving functionality is not executed and when it is executed. It is based on the results of measurements obtained in the verification environment of our company under specific conditions. These results are not guaranteed under all conditions.

AX6700S

AX6600S

AX6300S

AX3830S AX3650S

AX3640S

1250S AX2500S 1240S AX2200S

		AX2500S	AX2200S	AX1250S	AX1240S
2.5.2	Cutting wasted power Lin	k-down port	: power sav	ving functio	onality
Overview	The power consumption in a 100BASE-TX, and 1000BASE-	link-down state is T are used.	reduced on an Et	hernet port on wh	ich 10BASE-T,
Applicable model	AX2500S, AX2200S, AX1250S	5, AX1240S			
Configuration	For the full-time execution of p (config)# power-con	ower saving functions	ality (R) L-standby	- Enables the p operation of a port.	ower saving a link-down
setting examples	For automatic control based on (config)# schedule- cool-standby	scheduled settings (S -power-control	) port	- Enables the p operation of a during a scher range.	ower saving 1 link-down port duled time
Rough standard of power saving effects	Per AX2500S portUTP port (GbE)0.05 (WPer AX2200S portUTP port (GbE)UTP port (GbE)0.05 (W	/) Per AX UTP port (C UTP port (F	1250S/AX1240S po       bE)     0.05 (       E)     0.06 (	ort (W) (W)	
Notes	<ul> <li>This setting is collectively performed in a device. It cannot be done in units of ports.</li> <li>An SFP port and SFP/SFP + shared port cannot use this functionality.</li> <li>The link-up time becomes longer when this command is set.</li> <li>For the AX1250S and AX1240S series The link state of all Fastethernet ports changes when this command is set. This influences communication. On a speed-fixed setting or an automatic MDIX function-disabled Fastethernet port, a port power saving functionality is not enabled. Therefore, set auto negotiation to Enable and set the automatic MDIX functionality to Enable (mdix auto) during operation when enabling the port power saving functionality.</li> </ul>				
Supplementary items	- The port to which a confi configuration.	guration command (	(shutdown) was	set is also reduced	d in the power
Related documents	AX2500S Software Manual Con AX2200S Software Manual Con AX1250S/AX1240S Software M	nfiguration Guide Vol nfiguration Guide Vol Manual Configuration	l.1 l.1 Guide Vol.1		

AX6700S

AX6600S

AX6300S

AX3830S AX3650S

AX3640S

AX1250S AX2500S AX1240S AX2200S

			A	X2500S	AX1250S	AX1240S
2.5.3	Cutting wasted power	Slee spec	p functional ifying the ti	ity - Sett me rang	ting OFF a e	and ON by
Overview	An unused scheduled tin	e range is set	t into the device sleep	state.		
Applicable models	AX2500S, AX1250S, AX	X1240S				
	For automatic control based on scheduled settings (S)					
	(config)# sche	dule-powe	r-control	- Sets the	e device sleep stat	e.
Configuration	system-sleep					
setting	(config)# sche	dule-powe	r-control	- Sets a s	cheduled time rar	ige. An example
examples	time-range 1 we	eekly <b>sta</b>	rt-time fri 200	0 on the l	left is given to spe	cify the schedule
	end-time mon 0	800 <mark>actio</mark>	n enable	betwee	n 20:00 on Friday	and 08:00 on
				Monda	y every week by e	entry No. 1.
	AX2500S		AX1250S/A	X1240S	7	
	AX2530S-24T	32 (W)	AX1250S-24T2C	16 (W)	-	
Rough standard	AX2530S-48T	62 (W)	AX1240S-24T2C	12 (W)		
of power saving	AX2530S-24T4X	46 (W)	AX1240S-48T2C	24 (W)	_	
effects	AX2530S-48T2X	72 (W)	AX1240S-24P2C	15 (W)		
Notes	<ul> <li>When starting a device from a sleep state by forced cancel operation, hold down the <b>RESET</b> button in the of the device (for three seconds or more) until all LEDs on the front panel light up. (Forced as cancelation) At that time, the device is started in the schedule-disabled mode. Therefore, put the device the schedule apply mode using a set power-control schedule enable command when return it to the sleep mode.</li> <li>Information that is not saved is not retained because the device sleep state is the same as when the power the device is turned off.</li> </ul>					ET button in fror up. (Forced slee put the device int nd when returnin when the power o
	After the device starts, it is put into the sleep state again.					
Supplementary items	<ul> <li>The date, each day, and infinity, as well as a day of the week, can be specified for the scheduled time range. When specifying the date</li> <li>date start-time <yymmdd> <hhmm> end-time <yymmdd> <hhmm></hhmm></yymmdd></hhmm></yymmdd></li> <li>When specifying each day</li> <li>weekly start-time {sun   mon   tue   wed   thu   fri   sat} <hhmm></hhmm></li> <li>end-time {sun   mon   tue   wed   thu   fri   sat} <hhmm></hhmm></li> <li>When specifying every day</li> <li>everyday start-time <hhmm> end-time <hhmm></hhmm></hhmm></li> <li>When specifying infinity (supported only in the AX2500S series)</li> <li>Do not set infinity as OFF or ON when specifying a time range. Only forced sleep cancelation is available to restore to the former state</li> </ul>					
Related	AX2500S Software Man	ual Configura	ation Guide Vol.1			
documents	AX1250S/AX1240S Sof	tware Manua	l Configuration Guide	Vol.1		

			AX2500S			
		Sleep function	hality - Restoration option			
2.5.4	Cutting wasted power	based on the detection of WOL packet				
		reception				
Omminen	During the specified time r	ange, the system is put into	the device sleep state. It is also restored when WOL			
Overview	packets are received in the sl	eep state.				
Applicable	AX2500S					
Configuration setting examples	For automatic control based (config)# schedul system-sleep (config)# schedul time-range 1 even end-time 0700 act (config)# schedul wakeup-option wol gigabitethernet (	on scheduled settings (S) .e-power-control .e-power-control .ryday start-time 0000 .ion enable .le-power-control L interface 0/23-24	<ul> <li>Sets the device sleep state.</li> <li>Sets a scheduled time range. The example on the left is given to specify the schedule between 00:00 and 07:00 every day by entry No. 1.</li> <li>Specifies the WOL packet reception detection port of the restoration option. In the example on the left, the device is restored even before the termination of the scheduled time range when WOL packets are detected on port 23 or 24 during a scheduled time range.</li> </ul>			
	AX25008					
Rough standard	AX2530S-24T 21	(W) AX2530S-24T4X	29 (W)			
of power saving	AX2530S-48T 42	(W) AX2530S-48T2X	<u>49 (W)</u>			
effects	AX2530S-24S4X 20	(W)				
Notes	<ul> <li>the device (for five second that time, the device is sta mode using a set powe:</li> <li>Information that is not sav device is turned off.</li> </ul>	rted in the schedule-disabled in r-control schedule en red is not retained because the	mode. Therefore, put the device into the schedule apply nable command when returning it to the sleep mode. device sleep state is the same as when the power of the			
Supplementary items	<ul> <li>The date, each day, and infinity, as well as a day of the week, can be specified for the scheduled time range. When specifying the date         date start-time <yymmdd> <hhmm> end-time <yymmdd> <hhmm>         When specifying each day         weekly start-time {sun   mon   tue   wed   thu   fri   sat} <hhmm>         end-time {sun   mon   tue   wed   thu   fri   sat} <hhmm>         weekly start-time {sun   mon   tue   wed   thu   fri   sat} <hhmm>         when specifying every day         everyday start-time <hhmm> end-time <hhmm>         When specifying infinity         Do not set infinity designation when using a WOL detection option. Since the device is restored in the         schedule suppress mode, the current state is not shifted to the sleep state of the next occurence when it is         not returned to the schedule apply mode using an operation command (set power-control         schedule).</hhmm></hhmm></hhmm></hhmm></hhmm></hhmm></yymmdd></hhmm></yymmdd></li> <li>It takes one minute or more from when the reception of WOL packets is detected until this Switch is restored to         the usable state.</li> <li>The models that can be specified for a WOL packet reception detection port are as follows:         <u>Model name         1-port selection         <u>2-port se</u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></u></li></ul>					
Related documents	AX2500S Software Manual	Configuration Guide Vol.1				

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AX3640S

AX2500S AX2200S

A	X Series Power Saving Guide (Edition 3)

**Cutting wasted** 

power

2.5.5

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AX3640S AX3650S

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AX1250S AX1240S

Overview	In the specified time range, a link-down state is detected on all specified ports so as to enter the device sleep state. The device is restored from the device sleep state when a link-up state is detected on any port or when the specified time range is terminated.				
Applicable models	AX2500S				
Configuration setting examples	For automatic control based on scheduled settings (S) (config)# schedule-power-control system-sleep (config)# schedule-power-control time-range 1 everyday start-time 0000 end-time 0700 action enable (config)# schedule-power-control wakeup-option linkup interface gigabitethernet 0/25-26 down-detect 10	<ul> <li>Sets the device sleep state.</li> <li>Sets a scheduled time range. The example on the left specifies the schedule between 00:00 and 07:00 every day by entry No. 1.</li> <li>Specifies the link detection port of the restoration option. In the example on the left, the device detects that a link-down state is continued for 10 minutes on ports 25 and 26 during a scheduled time range and enters the device sleep state. It is restored when a link-up state is detected on port 25 or 26.</li> </ul>			
Rough standard of power saving effects	AX2500S           AX2530S-24T         19 (W)           AX2530S-48T         40 (W)           AX2530S-24T4X         28 (W)           AX2530S-48T2X         46 (W)           AX2530S-24S4X         17 (W)				
Notes	<ul> <li>When starting a device from a sleep state by forced cancel operation, hold down the <b>RESET</b> button in front of the device (for five seconds or more) until all LEDs on the front panel light up. (Forced sleep cancelation) At that time, the device is started in the schedule-disabled mode. Therefore, put the device into the schedule apply mode using a set power-control schedule enable command when returning it to the sleep mode.</li> <li>Information that is not saved is not retained because the device sleep state is the same as when the power of</li> </ul>				
Supplementary items	<ul> <li>the device is turned off.</li> <li>The date, each day, and infinity, as well as a day of the week, can be specified for the scheduled time range When specifying the date date start-time <yymmdd> <hhmm> end-time <yymmdd> <hhmm> when specifying each day weekly start-time {sun   mon   tue   wed   thu   fri   sat} <hhmm> end-time {sun   mon   tue   wed   thu   fri   sat} <hhmm> When specifying every day everyday start-time <hhmm> end-time <hhmm> When specifying infinity infinity</hhmm></hhmm></hhmm></hhmm></hhmm></yymmdd></hhmm></yymmdd></li> <li>The monitoring time required from when all ports set to a link-up detection port using the down-detect parameter of a schedule-power-control wakeup-option command are linked down, until the device is shifted to the sleep state, can be set in minutes (in the range of 1 to 60 minutes). The default value is five minutes.</li> <li>A linked-up state can be detected on all ports.</li> <li>It takes one minute or more from when a linked-up state is detected until this Switch is restored to the usable state.</li> </ul>				
Related					

Sleep functionality - Restoration

based on port link-up detection

Note: The rough standard of the power saving effects described above is the difference between the power consumption level when a power saving functionality is not executed and when it is executed. It is based on the results of measurements obtained in the verification environment of our company under specific conditions. These results are not guaranteed under all conditions.

option

		AX2500	S AX22008	S AX1250S	AX1240S		
2.5.6	Cutting wasted power	LED lumina	nce setting	functionality	y - Fixed		
Overview	The luminance of the The AX2500S, AX1 OFF.	port LED is fixed to dark 250S and AX1240S sup	ening or OFF. oort darkening and	OFF, while the AX22	00S supports only		
Applicable models	AX2500S, AX2200S,	AX2500S, AX2200S, AX1250S, AX1240S					
	For the full-time execution of power saving functionality (R)						
Configuration	(config)# sy	rstem port-led {ec	conomy   disab	Le } - Sets the lun LED. Dark economy, disable.	ninance of the ening is set as with OFF as		
setting examples	For automatic control	based on scheduled setti	ngs (S)	·			
setting examples	(config)# schedule-power-control port-led       - Sets the lumina         {economy   disable}       - LED during a s         range. Darkenir       economy, with         disable.       - Sets the lumina				ninance of the g a scheduled time ening is set as with OFF as		
	AX	2500S		AX1250S/AX1240S			
	AX2530S-24T	Darkening 0.5 (W) OFF 0.5 (W)	AX1250S-24	T2C Darkening 0 OFF 0.6 (W	.4 (W) )		
	AX2530S-48T	Darkening 1.0 (W) OFF 1.2 (W)	AX1240S-24	T2C Darkening 0 OFF 0.5 (W	.4 (W) )		
Rough standard	AX2530S-24T4X	Darkening 0.3 (W) OFF 0.4 (W)	AX1240S-48	3T2C Darkening 2 OFF 2.7 (W	.0 (W) )		
of power saving	AX2530S-48T2X	Darkening 0.5 (W) OFF 1.2 (W)	AX1240S-24	P2C Darkening 0 OFF 0.6 (W	.4 (W) )		
effects	AX2530S-24S4X	Darkening 0.5 (W) OFF 0.6 (W)					
	A¥	22005					
	AX2230S-24T	OFF 0.6 (W)					
	AX2230S-24P	OFF 0.7 (W)					
Notes							
Supplementary items							
Related documents	AX2500S Software M AX2200S Software M AX1250S/AX1240S	Ianual Configuration Gui Ianual Configuration Gui Software Manual Configu	le Vol.1 le Vol.1 ration Guide Vol.1				

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		AX2500S	AX2200S	AX1250S AX1240S
2.5.7	Cutting wasted power	LED luminane automatically	ce setting fund	ctionality - Changed
Overview	The luminance of the (automatic LED operat The AX2500S, AX12 OFF.	Port LED is controlled au ion). The LED then darker 50S and AX1240S suppo	tomatically. A specified as and finally goes out (C rt darkening and OFF, y	event causes the LED to light up OFF). while the AX2200S supports only
Applicable models	AX2500S, AX2200S, A	AX1250S, AX1240S		
	For the full-time execu For automatic control (config)# sys For the AX2500S s	tion of power saving funct based on scheduled setting tem port-led trigg eries	ionality (R) s (S) Common setting ite er console	<ul> <li>Sets a console, port 0/1, port</li> <li>0/20 (link-up/down), and MC</li> </ul>
	(config)# s gigabitethe For the AX2200S/A	ystem port-led tri rnet 0/1,gigabitet X1250S/AX1240S series	gger interface	(insertion/extraction) during automatic LED operation.
Configuration setting examples	(config)# s 0/1,0/20 (config)# sys For the full-time execu	ystem port-led tri tem port-led trigg	gger interface er mc ionality (R)	
	(config)# sys	tem port-led enabl	e	- Sets LED operation to normal luminance (ON).
	For automatic control (config)# sche	based on scheduled setting	s(S) I port-led enable	- Sets the LED operation during a scheduled time range to normal luminance (ON).
	A	X2500S	AX	1250S/AX1240S
	AX2530S-24T	Darkening 0.5 (W) OFF 0.5 (W)	AX1250S-24T2C	Darkening 0.4 (W) OFF 0.6 (W)
	AX2530S-48T	Darkening 1.0 (W) OFF 1.2 (W)	AX1240S-24T2C	Darkening 0.4 (W) OFF 0.5 (W)
Rough standard	AX2530S-24T4X	Darkening 0.3 (W) OFF 0.4 (W)	AX1240S-48T2C	Darkening 2.0 (W) OFF 2.7 (W)
of power saving	AX2530S-48T2X	Darkening 0.5 (W) OFF 1.2 (W)	AX1240S-24P2C	Darkening 0.4 (W) OFF 0.6 (W)
effects	AX2530S-24S4X	Darkening 0.5 (W) OFF 0.6 (W)		
	AX2230S-24T AX2230S-24P	X2200S OFF 0.6 (W) OFF 0.7 (W)		
Notes				
Supplementary items	<ul> <li>During automatic op the insertion and ext</li> <li>The LED lights up d</li> <li>The current luminan last automatic operat</li> <li>The current state is t</li> </ul>	eration, multiple items car raction of the memory carc uring automatic operation. ce is shifted to power savi tion. hen shifted to OFF 10 min	be selected from 1) log (SD card), and 3) the lin ng luminance (darkening utes after it is lastly shift	in/logout by console connection, 2) hk-up/down of the specified port. g) after 60 seconds passes from the ed to the power saving luminance.
Related documents	AX2500S Software Ma AX2200S Software Ma AX1250S/AX1240S S	anual Configuration Guide anual Configuration Guide oftware Manual Configura	Vol.1 Vol.1 tion Guide Vol.1	

Note: The rough standard of the power saving effects described above is the difference between the power consumption level when a power saving functionality is not executed and when it is executed. It is based on the results of measurements obtained in the verification environment of our company under specific conditions. These results are not guaranteed under all conditions.

		AX2530S-48	Г	AX1240S-48T2C
2.5.8	Cutting wasted power	Semi-fanless functionality		
Overview	The fan automatically st	ops to reduce power consumption when the tempe	rature i	in the device is low.
Applicable models	AX2530S-48T, AX1240	)S-48T2C		
	For the full-time execut	ion of power saving functionality (R)		
Configuration setting examples	(config)# syst	em fan-control	- For for this far	or a temperature for which reed cooling is not required, is sets it so that the cooling n stops.
Rough standard of power saving effects	AX2530S-48T AX1240S-48T2C	3 (W) 1 (W)		
Notes	- The frequency at wh peripheral operating e	ich the fan stops varies depending on the instal nvironment.	llation	state of the device and the
	- Even when this setting	g is used, the fan operates for about 10 minutes aft	er the s	system starts.
	- The cooling importance mode setting has priority when the fan operating mode is simultaneously set to the cooling importance mode compatible with a long-life solution. The fan operates at all times.			
Supplementary items	<ul> <li>For the AX2530S-48T</li> <li>The fan stops after the state, in which the temperature in the device is 73°C or less, is continued for 10 minutes. It operates when a temperature of 74°C or more is detected in the device.</li> </ul>			
	- For the AX1240S-487 The fan stops after minutes. It operates	T2C he state, in which the temperature in the device i when a temperature of 47°C or more is detected in	s 46°C the dev	or less, is continued for 10 vice.
Related	AX2500S Software Mar	ual Configuration Guide Vol.1		
documents	AX1250S/AX1240S So	ftware Manual Configuration Guide Vol.1		

AX6700S

AX6600S

AX6300S

AX3830S AX3650S

AX3640S

AX1250S AX2500S AX1240S AX2200S

	AX2500S AX2200S	AX1250S AX1240S			
2.5.9	Automatic control based on scheduled	settings			
Overview	A time range is specified to execute a power saving functionality.				
Applicable models	AX2500S, AX2200S, AX1250S, AX1240S series				
Configuration setting examples	For AX2500S (config)# schedule-power-control shutdown interface gigabitethernet 0/24 For AX2200S/AX1250S/AX1240S (config)# schedule-power-control shutdown interface 0/24 (config-if)# schedule-power-control power-control port cool-standby (config)# schedule-power-control port-led {economy   disable} (config)# schedule-power-control time-range 1 weekly start-time fri 2000 end-time mon 0800 action enable	<ul> <li>Sets all power saving functions, not including a sleep function, that support the automatic control based on scheduled settings. However, only "Fixed" or "Auto change" can be set for an LED luminance-setting function.</li> <li>In the example on the left, all functions are executed. For details, see subsection 2.5.1, 2.5.2, 2.5.6, and 2.5.7.</li> <li>Turns off the power of the port by setting a port to the shutdown state during a scheduled time range.</li> <li>Enables the power saving operation of a link-down port during a scheduled time range.</li> <li>Sets the luminance of the LED during a scheduled time range.</li> <li>Sets the luminance of the LED during is set as economy, with OFF as disable.</li> <li>Sets a scheduled time range. An example on the left is given to specify the schedule between 20:00 on Friday and 08:00 on Monday every week by entry No. 1.</li> </ul>			
Rough standard of power saving effects	The rough standard is based on the combined power saving functionality to be executed. See subsection 2.5.1, 2.5.2, 2.5.6, and 2.5.7.				
Notes	- Power saving functions other than the sleep functionality can be used with the specified schedule combined. However, the device sleep functionality preferentially operates when it is set.				
Supplementary items	<ul> <li>The date, each day, and infinity, as well as a day of the week, can be specified for the scheduled time range When specifying the date</li> <li>date start-time <yymmdd> <hhmm> end-time <yymmdd> <hhmm></hhmm></yymmdd></hhmm></yymmdd></li> <li>When specifying each day</li> <li>weekly start-time {sun   mon   tue   wed   thu   fri   sat} <hhmm></hhmm></li> <li>end-time {sun   mon   tue   wed   thu   fri   sat} <hhmm></hhmm></li> <li>When specifying every day</li> <li>everyday start-time <hhmm> end-time <hhmm></hhmm></hhmm></li> <li>When specifying infinity (supported only in AX2500S)</li> </ul>				
Related documents	AX2500S Software Manual Configuration Guide Vol.1 AX2200S Software Manual Configuration Guide Vol.1 AX1250S/AX1240S Software Manual Configuration Guide Vol.1				

AX1250S AX2500S AX3640S AX3830S AX1240S AX2200S AX3650S

AX6700S

AX6600S

AX6300S

AX3830S AX3650S

AX3640S

AX1250S AX2500S AX1240S AX2200S

### **3.** Power Consumption in the AX Series

## 3.1 Power consumption of the L2 switch (based on the Law Concerning the Rational Use of Energy measurement method)

The Law Concerning the Rational Use of Energy that was revised and enforced in July 2009 applies to box-type L2 switches, and reference energy consumption efficiency was established in 2011. The results of measuring the energy consumption efficiency of a box-type L2 switch in the AX series, based on the measurement method prescribed using the Law Concerning the Rational Use of Energy, are shown in Table *3.1-1*.

### Table 3.1-1 Power consumption and energy consumption efficiency of a box-type L2 switch in the AX series<sup>#1#2</sup>

				Frame transfer of 1,518 bytes		Energy consumption efficiency			
Series name	Model name	mea	Number of surement p	orts	Measurement result of power consumption (W)	Measurement result of the maximum effective transmission rate (Gbps)	Measurement result (W/Gbps)	L2-SW category A reference value in 2011 (W/Gbps)	L2-SW category A reference achievement rate in 2011 #3
AX2500S	AX2530S-24T	1GbE 1GbE	(UTP) (SFP-SX)	x 24 x 4	34.1	28.0	1.2	2.2	183 %
	AX2530S-48T	1GbE 1GbE	(UTP) (SFP-SX)	x 48 x 4	70.8	52.0	1.4	2.1	150 %
	AX2530S-24S4X	10GbE 1GbE	(SFPP-SR) (SFP-SX)	x 4 x 24	57.7	64.0	0.9	1.5	166 %
AX2200S	AX2230S-24T	1GbE 1GbE	(UTP) (SFP-SX)	x 24 x 4	26.3	28.0	0.9	2.2	244 %
	AX2230S-24P	1GbE 1GbE	(UTP) (SFP-SX)	x 24 x 4	41.3	28.0	1.5	2.9	193 %
AX1200S	AX1250S-24T2C	1GbE FE	(SFP-SX) (UTP)	x 2 x 24	17.2	4.4	3.9	4.1	105 %
	AX1240S-24T2C	1GbE FE	(SFP-SX) (UTP)	x 2 x 24	16.4	4.4	3.7	4.1	110 %
	AX1240S-24P2C	1GbE FE	(SFP-SX) (UTP)	x 2 x 24	30.5	4.4	4.4	#4	#4
	AX1240S-48T2C	1GbE FE	(SFP-SX) (UTP)	x 2 x 48	27.7	6.8	4.1	4.7	114 %

#1 The results of the measurements are obtained under conditions where a power saving functionality is not executed.

#2 This measurement differs from the measurement conditions in which the rough standard of a power saving effect described in Chapter 2 was obtained.

#3 Reference achievement rate = (Reference value  $\div$  Measurement result)  $\times 100$  (%)

#4 According to the Law Concerning the Rational Use of Energy (revised in 2009), this applies to a device of within 16 in the maximum supply power rate of the PoE. The Law Concerning the Rational Use of Energy (revised in 2009) does not apply to the AX1240S-24P2C because the maximum supply power rate of the PoE is high (22.456).

Me	Measurement conditions of the box-type L2 switch's energy consumption efficiency				
(1)	Measurement frame	L2 unicast, frame length (1,518 bytes), specified MAC address with the L2 header transmission/reception opposed,			
		and all L2 data 0			
(2)	Ambient conditions	Ambient temperature 16-32°C			
(3)	Power conditions	Supply voltage 100 V AC $\pm$ 10%, 50 Hz			
(4)	Power consumption	Measures the effective power in an outlet plug when the effective transmission rate is maximized			

Note: The measured power consumption value above is obtained when one model selected at random is measured at our company. Therefore, this result is not guaranteed under all conditions.

## 3.2 Power consumption of the L3 switch (based on a measurement method under our own conditions)

As of September 2011, the Law Concerning the Rational Use of Energy does not apply to the L3 switch. The measured power consumption results of the AX series L3 switch under our own conditions are shown below.

#### (1) Power consumption of the AX series chassis-type L3 switch

The measured power consumption result of the AX series chassis-type L3 switch under our own conditions is shown in Table 3.2-1.

			Frame transfer of 256 bytes		
Model n	ame and configu	d measurement uration	Number of measurement ports	Measurement result of the maximum effective transmission rate (Gbps)	Measurement result of power consumption (W)
AX6708S BCU-S1 BSU-LA NK10G-4RX PS-A11 FAN-11 XFP-SR	x 1 x 2 x 8 x 4 x 4 x 4 x 32	Single configuration BSU double act Single configuration 4 installed per NIF	10 GbE 32 ports	320.0	1374
<b>AX6608S</b> CSU-1A NK10G-4RX PS-A11 FAN-11 XFP-SR	x 2 x 8 x 2 x 3 x 32	PSP double act Single configuration 4 installed per NIF	10 GbE 32 ports	201.3	1014
<b>AX6308S</b> MSU-1A NH1G-24T PS-A11 FAN-11	x 1 x 8 x 2 x 3	Single configuration	1 GbE 192 ports	99.8	926

Table 3.2-1 Power consumption of the AX series chassis-type L3 switch #1#2

#1 The measurement result is obtained under conditions where a power saving functionality is not executed.

#2 This measurement differs from the measurement conditions in which the rough standard of a power saving effect described in Chapter 2 was obtained.

Measurement conditions of the chassis-type L3 switch's power consumption

Our own measurement conditions of the power consumption shown above are described below.

(1) Measurement frame L2 unicast, frame length (256 bytes), specified MAC address with the L2 header transmission/reception opposed, and arbitrary L2 data

- (2) Ambient conditions Ambient temperature 16-32°C
- (3) Power conditions Supply voltage AC  $100V \pm 10\%$ , 50 Hz
- (4) Power consumption Measures the effective power in an outlet plug when the effective transmission rate is maximized.

Note: The measurement values above are measured under the verification environment of our company. They vary depending on the module type, count, and operating environmental conditions. Therefore, this result is not guaranteed under all conditions.

#### (2) Power consumption of the AX series box-type L3 switch

The measured power consumption result of the AX series box-type L3 switch under our own conditions is shown in Table 3.2-2.

					Frame trans by	sfer of 1518 tes
Series name	Model name	Number of measurement ports			Measurement result of the maximum effective transmission rate (Gbps)	Measurement result of power consumption (W)
AX3830S	AX3830S-44XW	10GbE 1GbE	(SFPP-CU1M) (UTP)	x 44 x 4	444.0	146.7
	AX3830S-44X4QW	40GbE 10GbE 1GbE	(QSFP-SR4) (SFPP-CU1M) (UTP)	x 4 x 44 x 4	604.0	188.9
AX36508	AX3650S-24T6XW	10GbE 1GbE	(SFPP-SR) (UTP)	x 6 x 24	84.0	72.7
	AX3650S-20S6XW	10GbE 1GbE 1GbE	(SFPP-SR) (UTP) (SFP-SX)	x 6 x 4 x 20	84.0	76.1
	AX3650S-48T4XW	10GbE 1GbE	(SFPP-SR) (UTP)	x 4 x 48	88.0	82.1
AX3640S	AX3640S-48T2XW	10GbE 1GbE	(XFP-SR) (UTP)	x 2 x 48	68.0	116.3
	AX3640S-48TW	1GbE 1GbE	(UTP) (SFP-SX)	x 44 x 4	48.0	103.8
	AX3640S-24T2XW	10GbE 1GbE 1GbE	(XFP-SR) (UTP) (SFP-SX)	x 2 x 20 x 4	44.0	69.7
	AX3640S-24S2XW	10GbE 1GbE	(XFP-SR) (SFP-SX)	x 2 x 24	44.0	57.2
	AX3640S-24TW	1GbE 1GbE	(UTP) (SFP-SX)	x 20 x 4	24.0	58.5
	AX3640S-24T	1GbE 1GbE	(UTP) (SFP-SX)	x 20 x 4	24.0	55.7
	AX3640S-24SW	1GbE	(SFP-SX)	x 24	24.0	46.0

 Table 3.2-2 Power consumption of the AX series box-type L3 switch
 #1 #2

#1 The measurement result is obtained under conditions where a power saving functionality is not executed.

#2 This measurement differs from the measurement conditions in which the rough standard of a power saving effect described in Chapter 2 was obtained.

Measurement conditions of the box-type L3 switch's energy consumption efficiency

Our own measurement conditions of the power consumption shown above are described below.

 Measurement frame L2 unicast, frame length (1,518 bytes), specified MAC address with the L2 header transmission/reception opposed, and all L2 data 0

- (2) Ambient conditions Ambient temperature 16-32°C
- (3) Power conditions Supply voltage AC  $100V \pm 10\%$ , 50 Hz
- (4) Power consumption Measures the effective power in an outlet plug when the effective transmission rate is maximized

Note: The measured power consumption value above is obtained when one model selected at random is measured at our company. Therefore, this result is not guaranteed under all conditions.

### Appendix A Power Saving Functionality Configuration Command List

# Appendix A.1 Power saving functionality configuration command list for the AX6700S, AX6600S, and AX6300S series

A list of power saving functionality configuration commands for the AX6700S, AX6600S, and AX6300S series and operation when the commands are set to the default setting are shown in Table *A.1-1*.

#### Table A.1-1 Power saving functionality configuration command list for the AX6700S, AX6600S, and #1 #2 AX6300S series

	Configuration command					
Power saving functionality	Full-time execution	Automatic control based on scheduled settings	Automatic control based on traffic amount			
Unused port power feed OFF	shutdown	schedule-power-control shutdown interface				
functionality	(Default: Power feed ON)	(Default: Power feed ON)				
Unused NIF power feed OFF	no power enable nif	schedule-power-control shutdown nif				
functionality	(Default: Power feed ON)	(Default: Power feed ON)				
	redundancy {max-bsu   max-psp}	schedule-power-control {max-bsu   max-psp}	adaptive-power-control {max-bsu   max-psp}			
Standby switch unit power feed	(Default: Number of BSUs in operation: 3, number of PSPs in operation: 2)	(Default: Number of BSUs in operation: 1, number of PSPs in operation: 1)	(Default: Number of BSUs in operation: 1, number of PSPs in operation: 1)			
functionality <sup>#3</sup>	redundancy {standby-bsu   standbye-psp }	<pre>schedule-power-control {standby-bsu   standby-psp}</pre>	adaptive-power-control {standby-bsu   standby-psp}			
	(Default: Power feed ON)	(Default: Power feed OFF)	(Default: Power feed OFF)			
Standby NIF power feed OFF functionality	redundancy nif-group max-standby-nif	schedule-power-control redundancy nif-group max-standby-nif				
	(Default: Two NIFs in an active state)	(Default: Only one NIF in an active state)				
LED OFF	system port-led	schedule-power-control port-led	adaptive-power-control port-led			
functionality	(Default: Lights)	(Default: OFF)	(Default: OFF)			
Switching to	power-control mode	schedule-power-control mode	adaptive-power-control mode			
mode while online	(Default: Normal power)	(Default: The power consumption of the BSU/PSP is reduced.)	(Default: The power consumption of the BSU/PSP is reduced.)			

#1 Legend --: Not supported

#2 The AX6300S series has support for the unused port power feed OFF functionality, unused NIF power feed OFF functionality, and LED OFF functionality, being executed at any time.

#3 The AX6700S series is max-bsu and standby-bsu. The AX6600S series is max-psp and standby-psp.

#### Appendix A.2 Power saving functionality configuration command list in AX3830S/AX3650S

A list of power saving functionality configuration commands for the AX3830S/AX3650S series and operation when the commands are set to the default settings are shown in .Table A.2-1.

Table A.2-1 Power saving functionality configuration command list in AX3830S/AX3650S <sup>#1</sup>

Power coving	Configuration command			
functionality	Full-time execution	Automatic control based on scheduled settings		
Unused port power	shutdown	schedule-power-control shutdown interface		
feed OFF functionality	(Default: Power feed ON)	(Default: Power feed ON)		
Link-down port power	power-control port cool-standby	schedule-power-control port cool-standby		
saving functionality	(Default: Normal power)	(Default: Normal power)		
		schedule-power-control system-sleep		
Sleep functionality		(Default: The device does not enter the sleep state irrespective of a scheduled time range.)		
LED luminance setting		schedule-power-control		
functionality	system port-led	port-led		
Tuncuonanty	(Default: Lights)	(Default: OFF)		

#1 Legend --: Not supported

# Appendix A.3 Power saving functionality configuration command list for the AX3640S series

A list of power saving functionality configuration commands for the AX3640S series and operation when the commands are set to the default settings are shown in Table *A.3-1*.

Power coving	Configuration command			
functionality	Full-time execution	Automatic control based on scheduled settings		
Unused port power	shutdown	schedule-power-control shutdown interface		
feed OFF functionality	(Default: Power feed ON)	(Default: Power feed ON)		

Table A.3-1 Power saving functionality configuration command list in AX3640S

# Appendix A.4 Power saving functionality configuration command list for the AX2500S, AX2200S, AX1250S, and AX1240S series

A list of power saving functionality configuration commands for the AX2500S, AX2200S, AX1250S, and AX1240S series, and operation when the commands are set to the default settings are shown in Table Appendix *A.4-1*.

# Table Appendix A.4-1 Power saving functionality configuration command list for the AX2500S, AX2200S, AX1250S, and AX1240S series

<b>Dewer coving</b>	Configuration command			
functionality	Full-time execution	Automatic control based on scheduled settings		
Unused port power feed	shutdown	schedule-power-control shutdown interface		
OFF functionality	(Default: Power feed ON)	(Default: Power feed ON)		
Link-down port power	power-control port cool-standby	schedule-power-control port cool-standby		
saving functionality	(Default: Normal power)	(Default: Normal power)		
Sleep functionality <sup>#2</sup>		schedule-power-control system-sleep		
		(Default: The device does not enter the sleep state irrespective of a scheduled time range.)		
		- Restoration option based on WOL packet detection schedule-power-control wakeup-option wol interface <interface id="" list=""></interface>		
		Contents of parameter		
		<interface id="" list=""> Specifies a WOL packet reception detection port. See the supplementary item in subsection 2.5.4 for the port that can be specified.</interface>		
		- Restoration option based on port link-up detection		
Restoration option of the sleep functionality <sup>#3</sup>		<pre>schedule-power-control wakeup-option linkup interface <interface id="" list=""> [down-detect <min>]</min></interface></pre>		
sleep functionancy		Contents of parameter		
		<pre><interface id="" list="">    Specifies a link-up detection port; all ports can be    specified.</interface></pre>		
		<pre>[down-detect <min>] Sets the monitoring time, required from when all set ports are linked down until they are shifted to the sleep state, in minutes. The range of value is 1 to 60. (Default: 5) (Default: A sleep state is not canceled by WOL packet</min></pre>		
		reception detection or link-up detection.)		
LED luminance setting	system port-led	schedule-power-control port-led		
functionality	(Default: Lights)	(Default: Lights)		
Semi-fanless functionality	(Default: The fan operates at all times.)			

#1 Legend --: Not supported

#2 The AX2200S series does not support the sleep functionality.

#3. The restoration option of the sleep functionality is supported only by the AX2500S series.

AX Series Power Saving Guide (Edition 3)



Edition 3 issued on September 28, 2012

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