

In order to find corrections with this revision, the descriptions added/changed are indicated in red characters.

UNIVERGE SV9300

Configuration Guide

9300V9

November 2021

NEC Platforms, Ltd.

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< Definition >

Following shows the meaning of terms of product name used in this document.

Terms in this document	Product Names Used in Market
SV8300	UNIVERGE SV8300
SV9300	UNIVERGE SV9300

Note: *This document explains SV9300 system configuration and its required equipment for all markets except for Japan. There is some discrepancy between the markets due to the technical specifications and/or market requirements. Therefore, if there is a description only for particular market, it is defined by remarks such as "for US", "for Australia" etc. If there is no remark, the description is common for all markets.*

REVISION TABLE (1/2)

ISSUE	DATE	DESCRIPTION	APPROVED BY	PREPARED BY
1.0	Sep 2014	9300V2	A. Yamamoto	M. Inaba
2.0	Jul 2015	9300V3 Major updates as follows; 1) Revised Table 4-2,4-3,7-1,8-1,8-2 8-3,9-1 2) Added Table 4-5,4-6 3) Added GCD-RGA 4) Deleted GCD-SVRU 5) Revised Appendix 1,2	A.Yamamoto	T.Onodera
2.1	Nov 2015	9300V3 Step2 Major updates as follows; 1) Added DT820 (Table 4-4 Terminal Power Factor) 2) Revised capacity of SIP Trunk(Table 9-1 System Port Capacity) 3) Error corrections of descriptions.	A.Yamamoto	T.Onodera
3.0	May 2016	9300V4 Major updates as follows; 1) Revised Table 3-2,3-4,3-6,4-2,4-3,4-5,6-9 ,7-1,8-1,8-2,8-3,9-1 2) Added Nurse Call System 3) Added GCD-SVR2 4) Revised Appendix 1,2,3	A.Yamamoto	T.Onodera
3.1	July 2016	9300V4 Update 1) Revised Appendix 3	A.Yamamoto	T.Onodera
4.0	May 2017	9300V5 Major updates as follows; 1) Added MCI on LAN connection 2) Deleted the following items -GCD-SVR2 (In-skin Server Blade) -GCD-RGA (In-skin Router Blade/ Conference Bridge) -GCD-ETIA (In-skin HUB Blade) 3) Revised Table 4-2,4-3,6-1,6-9,7-1,8-1 ,8-2,8-3 4) Revised Figure 6-18,6-19 5) Revised Appendix 1,2,3	A.Yamamoto	T.Onodera
5.0	July 2018	9300V6 Revised Table 4-4(Note), 7-1, 8-1	A.Yamamoto	A.Yamamoto

REVISION TABLE (2/2)

ISSUE	DATE	DESCRIPTION	APPROVED BY	PREPARED BY
6.0	June 2019	9300V7 Major updates as follows; 1) Added DT500/DT900 terminal. 2) Added the Note describes Multiline Terminal accommodation conditions in "Article 1 Introduction". 3) Added new COT blade. 4) Change the word DESI-less to Self-Labeling. 5) GCD-VM00 is discontinued. 6) Revised Table 4-2, 4-3, 4-4, 4-5, 4-7, 4-9, 6-9, 7-1, 8-1, 8-2, 8-3, 9-1 7) Revised Appendix 1, 2, 3	A.Yamamoto	A.Yamamoto
7.0	June 2020	9300V8 Major updates as follows; 1) Revised Table 7-1, 8-1 2) Revised Figure 6-14, Figure 6-16 3) Revised Appendix 1, 2	A.Yamamoto	A.Yamamoto
8.0	November 2021	9300V9 Major updates as follows; 1) Revised Table 4-2, 4-4, 7-1, 8-1, 8-3, 2) Revised Appendix 1, 2	Y. Sato	A.Murakami

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1. Introduction

The SV9300 is a full-featured IP based communications system providing a rich feature set of existing SV8300, with pure Voice over IP (VoIP) communications, across corporate Local and Wide Area Networks (LAN and WAN).

DT900/800 series telephones are designed to provide a converged infrastructure at the desktop, with a 10BASE-T/100BASE-TX/1000BASE-T connection to the LAN and built-in hub for a PC connection to the telephone itself. The SV9300 can provide peer-to-peer connections between DT900/800 series telephones with voice compression, offering existing DT700 telephone features with an enhanced user interface. On the WAN side, the system can provide peer-to-peer connections over IP networks with voice compression, on a CCIS basis (CCIS over IP), Remote Unit (Remote Unit) or SIP basis.

Besides, the SV9300 can provide legacy line/trunk interfaces to support the existing Time Division Multiplexing (TDM) based infrastructure, such as analog telephones, digital telephones (DT500/400/300 series), analog networks and digital networks (T1, ISDN etc.). The legacy line/trunk blades can be accommodated in the 2U Chassis.

At maximum configuration, the system can provide 2048 ports in standalone configuration or Remote Unit network configuration.

Communications between legacy stations / trunks and IP stations / networks are made via the VoIPDB, which converts packet-based voice data to TDM-based voice data, and vice versa. Both peer-to-peer connections and TDM-based connections are controlled by the CPU blade. The CPU incorporates a built-in Device Registration Server (DRS) and a single interface point for IP connection to IP telephone, PCPro and OAI / ACD servers. Figure 1-1 shows a simplified view of the SV9300 system connectivity.

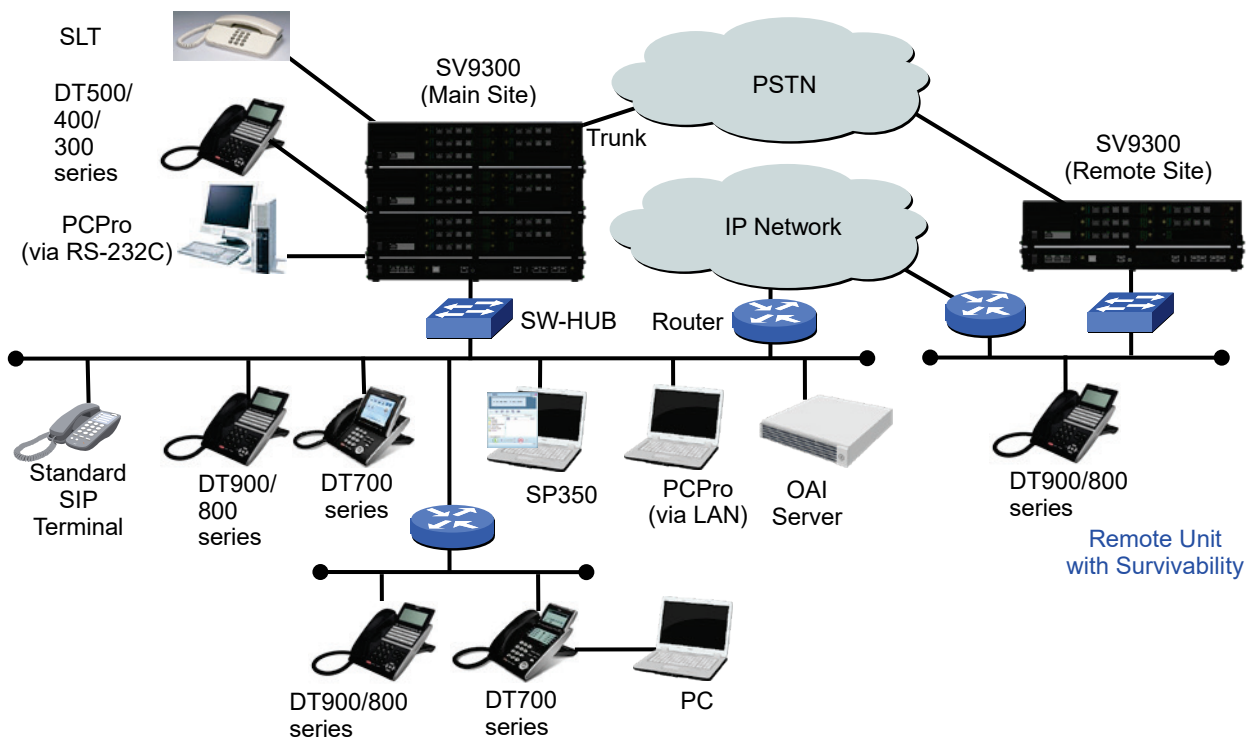


Figure 1-1 Simplified View of the SV9300 System Connectivity

Note: From the 9300V7 software, the Multiline Terminal model accommodated to the system is changed as follows.

Terminal Type	9300V2-V6	9300V7 or later
Digital Multiline Terminal	DT500 (Retro mode) DT400 DT300 Dterm Series-i	DT500 DT400
IP Multiline Terminal	DT900 (Retro mode) DT800 DT700 Dterm Series-i (IP)	DT900 DT800

Highlights of the SV9300 are as follows:

■ Pure IP System capable TDM configuration

The SV9300 supports both pure IP switching (peer-to-peer connections) and Time Division Switching. The pure IP switching is provided for communications between IP stations and for CCIS / Remote Unit connections with other SV9300 (CCIS over IP or Remote Unit) / SV9500 (CCIS over IP). On the other hand, the TDM switching is provided for communications between legacy stations/trunks. Connection between IP network and legacy network is made via VoIPDB on the CPU blade, which converts packet-based voice data to TDM-based voice data, and vice versa.

■ Powerful CPU Blade with Built-in Functionalities

The CPU blade of the SV9300 is the heart of pure IP connections and TDM-based connections. The CPU blade employs an Intel® Atom™(N2600) 1.6GHz Processor. With this processing power and DSP technology, it integrates the following functions. Some of these functions are managed with software license.

- DTMF receivers
- Caller ID receivers
- Caller ID senders
- MF / MFC senders / receivers
- Conference trunk
- Modem
- VRS
- Speech Synthesis
- VoIP Daughter Board (VoIPDB)

In addition, by means of today's advanced LSI technology, size of the CPU Blade is minimized, Maintenance port (Fast Ethernet) is built in and VoIPDB which has VoIP port (Gigabit Ethernet) is mountable without additional slots in the Chassis. The Maintenance port is linked with LAN / WAN for inter-work with PCPro, OAI, SMDR, MCI, PMS and SNMP, and the VoIP port is linked with LAN / WAN for control signaling and voice signaling (RTP) for IP stations, PCPro, OAI, SMDR, MCI, PMS, SNMP etc.

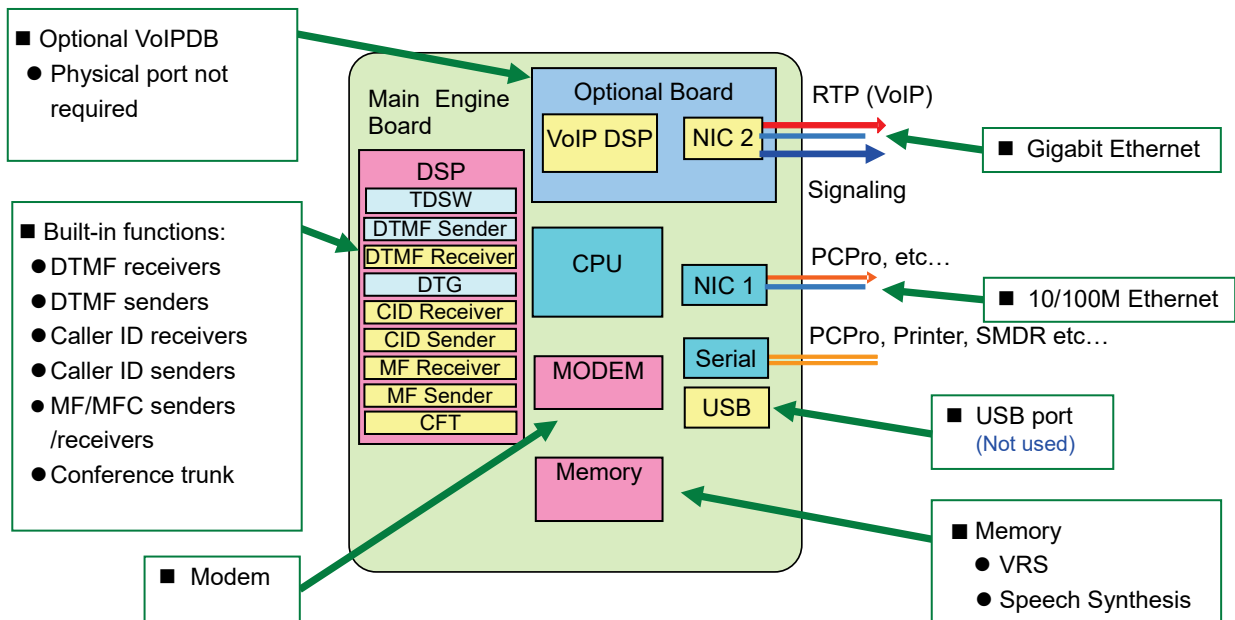


Figure 1-2 SV9300 CPU Blade Configuration

■ High Density Legacy Line/Trunk Blades

Major legacy line/trunk blades used in SV9300 are provided with main board + daughter board architecture. When the main board is only mounted in an initial supply, line/trunk interfaces can be easily expanded by adding the daughter board. The maximum number of circuits for the line/trunk blades is 16/eight circuits with daughter board, respectively. This allows the physical system size to be compact.

■ Universal Blade Slot (2U Chassis)

2U Chassis are used for legacy line/trunk blades. One 2U Chassis provides six universal blade slots. Also, these blade slots can be used for application blades without complicated limitations. As this makes for easy quotation and installation.

■ Large System Capacity

SV9300 provides maximum 2048 ports in standalone configuration or Remote Unit network configuration – 1536 ports for extension lines (DT900/800/700 series, DT500/400/300 series, SLT etc.) and 512 ports for trunks (SIP Trunk, ISDN, COT etc.).

■ Easy Installation (Front Cabling and Enhanced O&M Tool)

Cable connectors (RJ-45 or RJ-61) are located on the front panel of each chassis and blade. It increases efficiency of the cabling work.

Also, PCPro provides enhanced user interface. Quick Setup tool provides easy setup (system data programming) for a basic system configuration in shorter time.

■ Remote Unit with Survivability

SV9300 can provide Remote Unit configuration, main site and remote site(s) through IP network. The main site controls call processing and service features access for station users located in both main site and remote site(s). When the remote site cannot be connected with main site due to IP network failure or main site failure, the remote site initializes the system and re-starts operation by its own CPU (survival mode). In the survival mode, almost all service features are provided to the station users accommodated in the remote site. When IP network / main site is recovered, the remote site can be restored to normal mode with system initialization by manual operation or automatically (Selectable by system data setting).

■ Dual CPU System

SV9300 can provide a Dual CPU System with two CPU blades. One CPU runs as active and another runs as standby. The CPU with redundancy enables the SV9300 to uplift the system reliability. The system employs cold standby system. When a failure is detected in the active CPU, standby CPU restarts initialization and changes into active CPU. This feature is supported in Unit01 to Unit04.

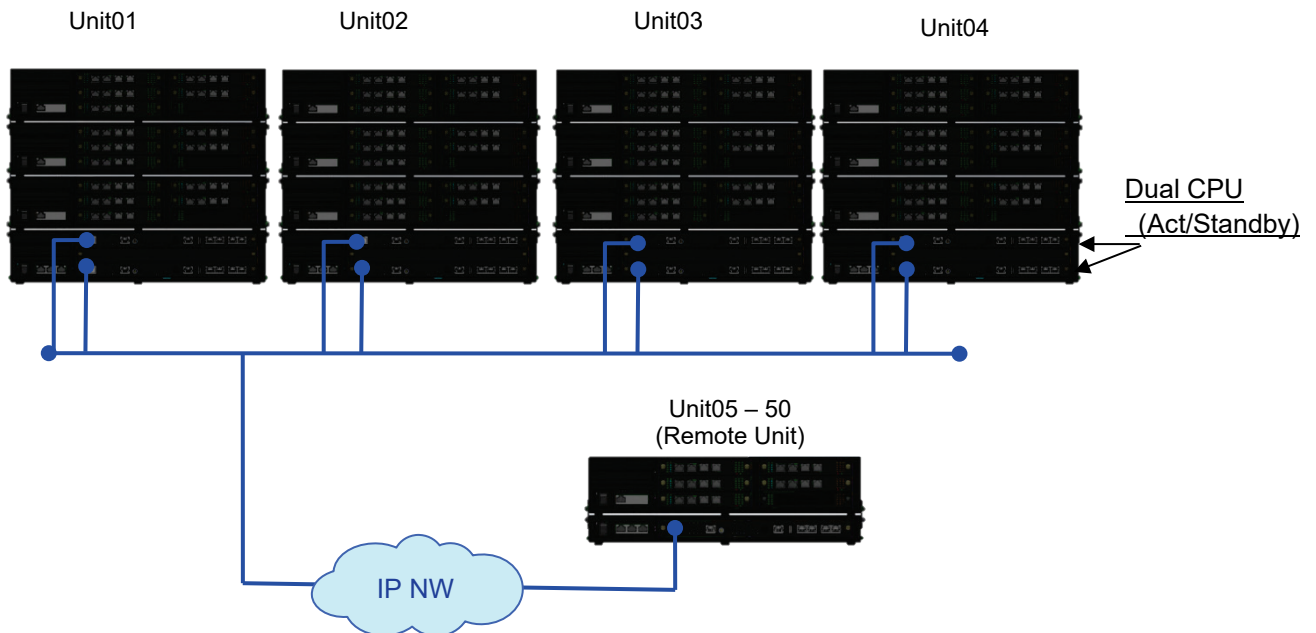


Figure 1-3 SV9300 Dual CPU System

■ Failover Mode Support

The SV9300 supports Failover mode with Secondary Unit that consists of 1U Chassis. A Secondary Unit is prepared as a standby unit in Remote Unit system, and the Secondary Unit automatically takes over Unit01 operation in the event of IP network disconnection/CPU or power failure in Unit01. This feature enables the system to continue the operation as a single system. This feature employs cold standby processing that will reset the system at the changeover from Primary Unit (Main Unit) to Secondary Unit.

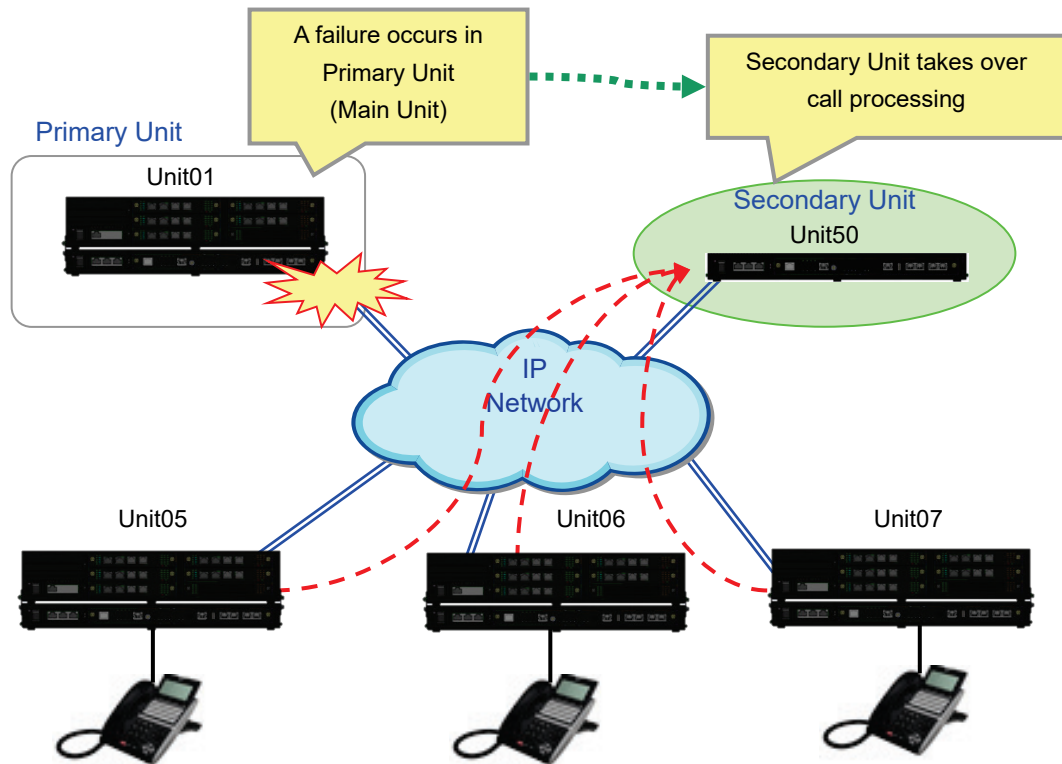


Figure 1-4 SV9300 Failover Mode

2. System Configuration

SV9300 consists of 1U Chassis/2U CP Chassis and 2U Chassis depending on the system configuration.

1U Chassis/2U CP Chassis mounts CPU blade, BUS Interface Blade, Power Supply Unit (PSU) and Cooling FAN.

2U Chassis mounts various Legacy Line/Trunk Blades, Application Blades, BUS Interface Blade, PSU and Cooling FAN.

The CPU blade in 1U Chassis/2U CP Chassis can control a maximum of three 2U Chassis; this configuration is called a "Unit". The SV9300 can be configured for maximum of four-Unit.

Figure 2-1 and Figure 2-2 show examples of maximum system configuration for IP-oriented system and TDM-oriented system, respectively.

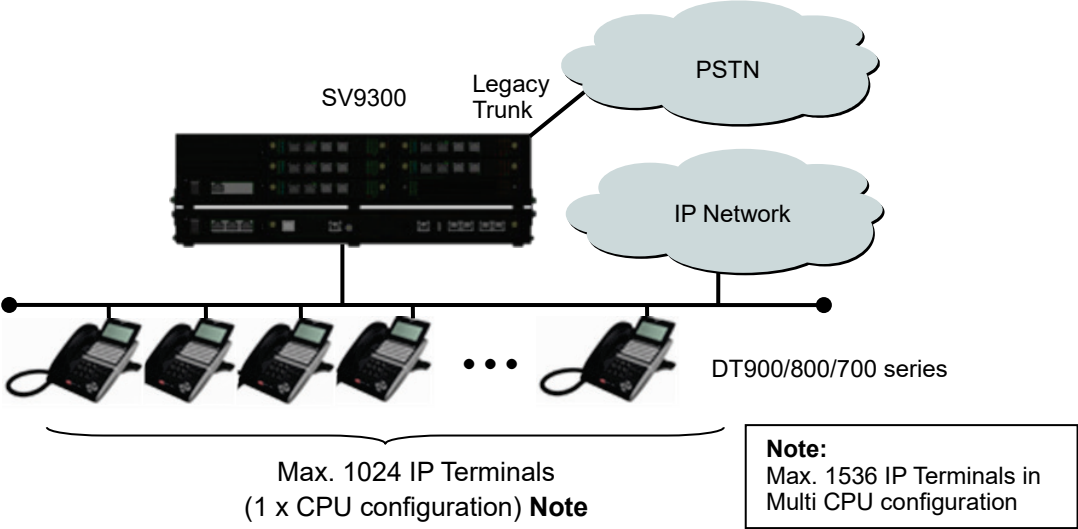


Figure 2-1 Example of System Configuration (IP-oriented System)

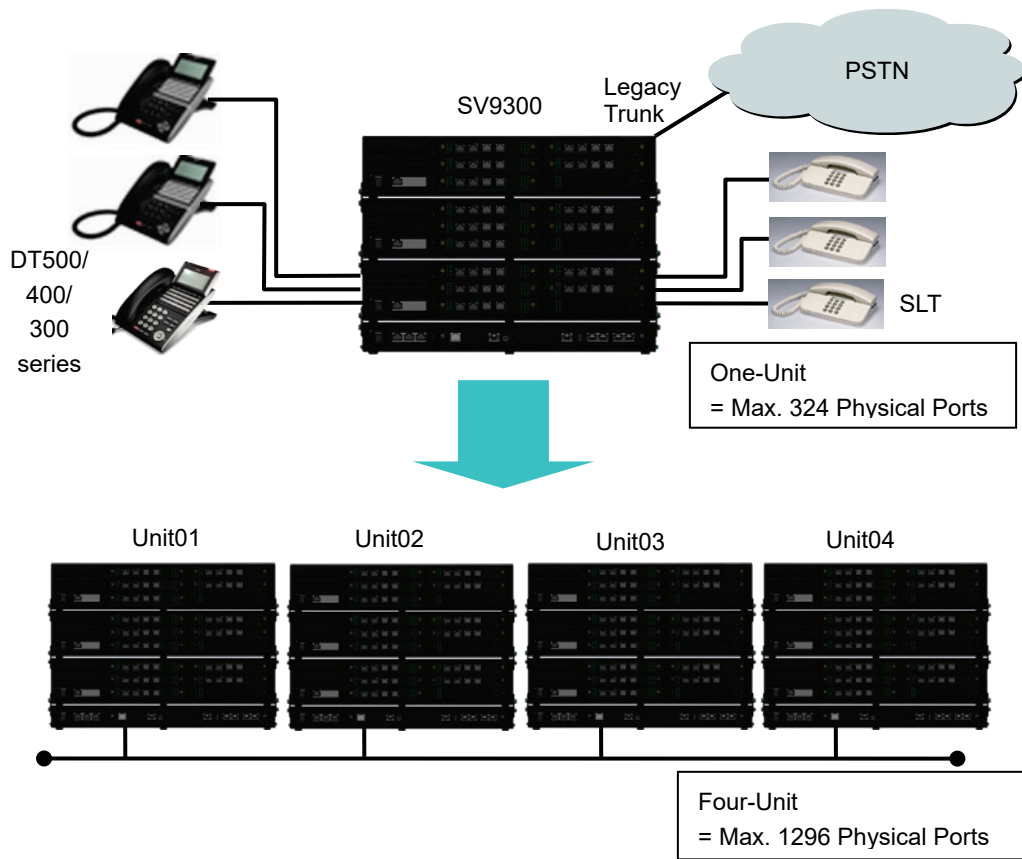


Figure 2-2 Example of System Configuration (TDM-oriented System)

3. Chassis and Battery Box

There are three types of Chassis, 1U Chassis, 2U CP Chassis and 2U Chassis.

- The 1U Chassis mounts the CPU blade, BUS Interface Blade, Power Supply Unit (PSU), Cooling FAN and optional short-term backup batteries. The 1U Chassis is used on single mode CPU configuration.
- The 2U CP Chassis (Dual CPU Chassis) mounts the CPU blades, BUS Interface Blade, PSU, Cooling FAN and optional short-term backup batteries. The 2U CP Chassis is used in Unit01-04 on Dual CPU configuration.
- The 2U Chassis has six universal blade slots for Legacy Line/Trunk Blades (Analog Line Circuits (LC), Digital Line Circuits (DLC), Central Office Trunks (COT), ISDN PRI Trunks (PRT), etc.) and Application Blades. It also houses the BUS Interface Blade, PSU, Cooling FAN and optional short-term backup batteries.

Instead of the built-in batteries, an optional Battery Box is available for long-term backup batteries.

3.1 1U Chassis

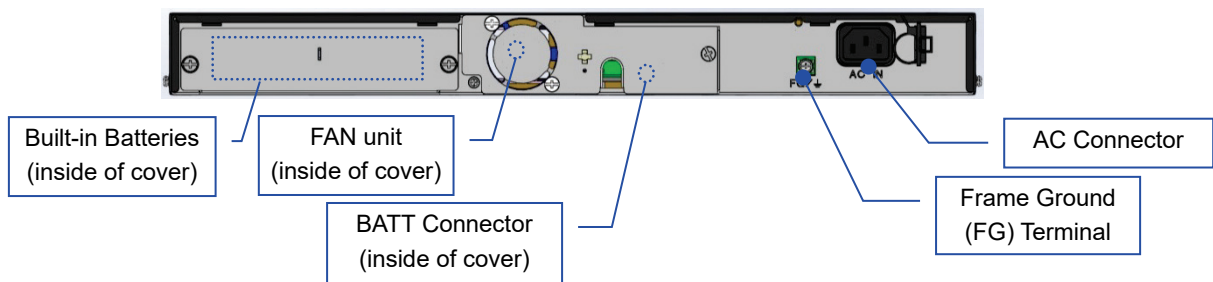
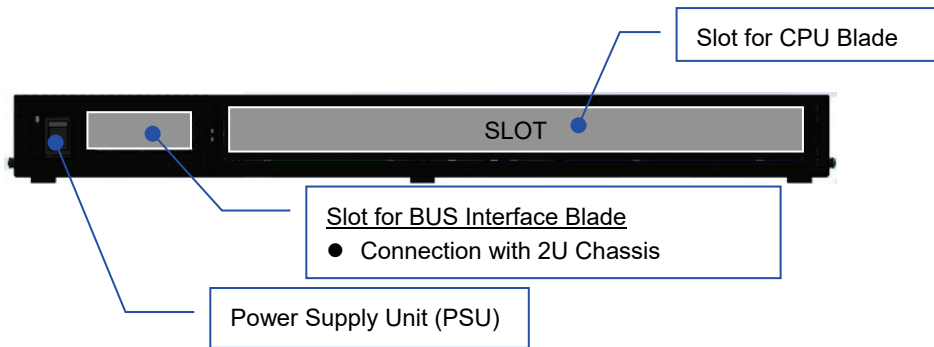


Table 3-1 Specifications of 1U Chassis

Item	Specification
Dimensions (W x D x H)	430mm (16.9 inch) x 400mm (15.7 inch) x 43mm (1.7 inch)
Weight	Approx. 5.0 Kg (176.4 oz) (when all slots occupied, however, no built-in battery included)
Input Power	AC 100V – 240 V (Automatically adjusted)
Slot	BUS Slot + CPU Slot
Operating Conditions	Ambient Temperature: 0 - 40 degree centigrade (When the ambient temperature will exceed this value during the holiday or the night, an air conditioner is required.) Relative Humidity: 20 - 90% (non-condensing)
Cooling	Cooling by FAN

In addition, short-term (about 10 minutes) backup battery can be mounted in each Chassis.
2 x 12V-0.8AH batteries are available for 1U Chassis.

Table 3-2 1U Chassis and its Related Equipment

Description	B Code	Feature
SN1779 LYRMA SN1785 LYRMG (for China)	---	1U CP Chassis (For CHS1UG(S)-xx) (BWB / PSU / FAN included)
CHSG BLANK SLOT COVER KIT(BUS)	BE113444	Blank slot cover for BUS slot
CHS1U FAN BOX SET	BE106728	FAN Unit for 1U Chassis (for Maintenance)
PZ-PW146	BE106730	Power Supply Unit (PSU) for 1U Chassis (for Maintenance) (for US)
PE12V0.8 battery (GS Yuasa) or equivalent	---	Short-term built-in battery for 1U Chassis (Provided locally) <ul style="list-style-type: none"> ● 12V-0.8AH ● Tyco.1-480318 connectors ● 2 x PE12V0.8 batteries required per 1U Chassis
NP0.8-12 battery (GS Yuasa) or equivalent	---	Short-term built-in battery for 1U Chassis (Provided locally) <ul style="list-style-type: none"> ● 12V-0.8AH ● Optional Tyco. 1-480318-0 connectors recommended When standard JST SVH-21T-P1.1 connectors applied, PZ-M710 additionally required <ul style="list-style-type: none"> ● 2 x NP0.8-12 batteries required per 1U Chassis
CHS1U BATT MTG KIT-A	BE107382	Short-term built-in battery mount kit for 1U Chassis

3.2 2U CP Chassis (Dual CPU Chassis)

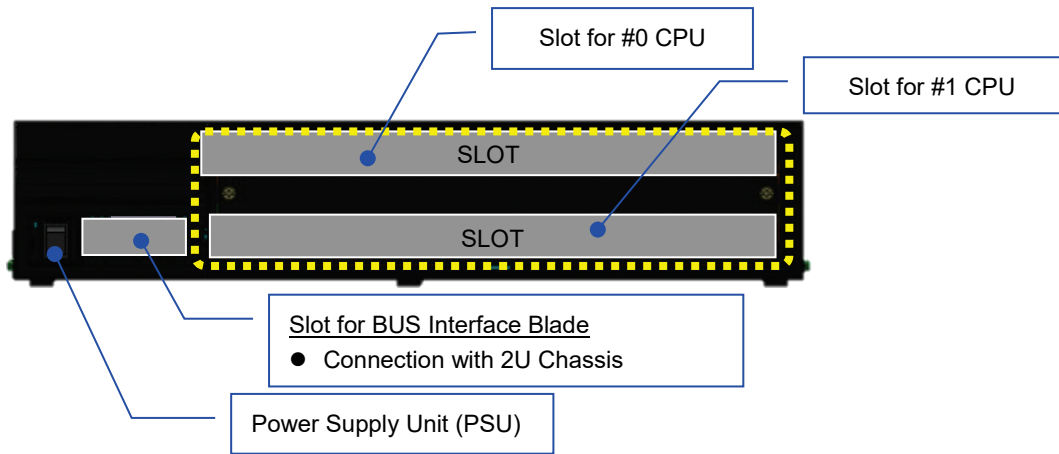


Figure 3-3 2U CP Chassis (Front View)

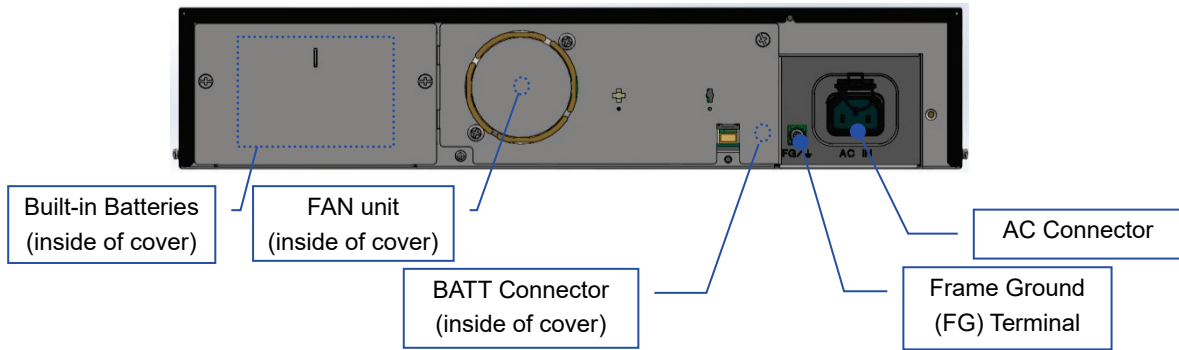


Figure 3-4 2U CP Chassis (Rear View)

Table 3-3 Specifications of 2U CP Chassis

Item	Specification
Dimensions (W x D x H)	430mm (16.9 inch) x 400mm (15.7 inch) x 88mm (3.5 inch)
Weight	Approx. 7.4 Kg (261.0 oz) (when all slots occupied, however, no built-in battery included)
Input Power	AC 100V – 240 V (Automatically adjusted)
Slot	BUS Slot + 2 CPU Slots
Operating Conditions	Ambient Temperature: 0 - 40 degree centigrade (When the ambient temperature will exceed this value during the holiday or the night, an air conditioner is required.) Relative Humidity: 20 - 90% (non-condensing)
Cooling	Cooling by FAN

In addition, short-term (about 10 minutes) backup batteries can be mounted in a Chassis. 4 x 12V-0.8AH batteries are available for the 2U CP Chassis.

Table 3-4 2U CP Chassis and its Related Equipment

Description	B Code	Feature
SN1780 LYRMB SN1788 LYRMJ (for China)	---	2U CP Chassis (For CHS2UG(D)-xx) (BWB / PSU / FAN included)
CHSG BLANK SLOT COVER KIT(BUS)	BE113444	Blank slot cover for BUS slot
CHS2U(D) FAN BOX SET	BE109996	FAN Unit for 2U CP Chassis (for Maintenance)
MPS7101	BE108044	Power Supply Unit (PSU) for 2U CP Chassis / 2U Chassis (for Maintenance) (for US)
NP0.8-12 battery (GS Yuasa) or equivalent	---	Short-term built-in battery for 2U CP Chassis (Provided locally) <ul style="list-style-type: none"> ● 12V-0.8AH ● JST SVH-21T-P1.1 connectors ● 4 x NP0.8-12 batteries required per 2U CP Chassis
CHS2U(D) BATT MTG KIT	BE109995	Short-term built-in battery mount kit for 2U CP Chassis Including; <ul style="list-style-type: none"> ● 1 x Battery mount kit w/ JST connector board ● 1 x DUAL CPU BATT CA INT-A Battery Cable (350mm (1.1ft.))

3.3 2U Chassis

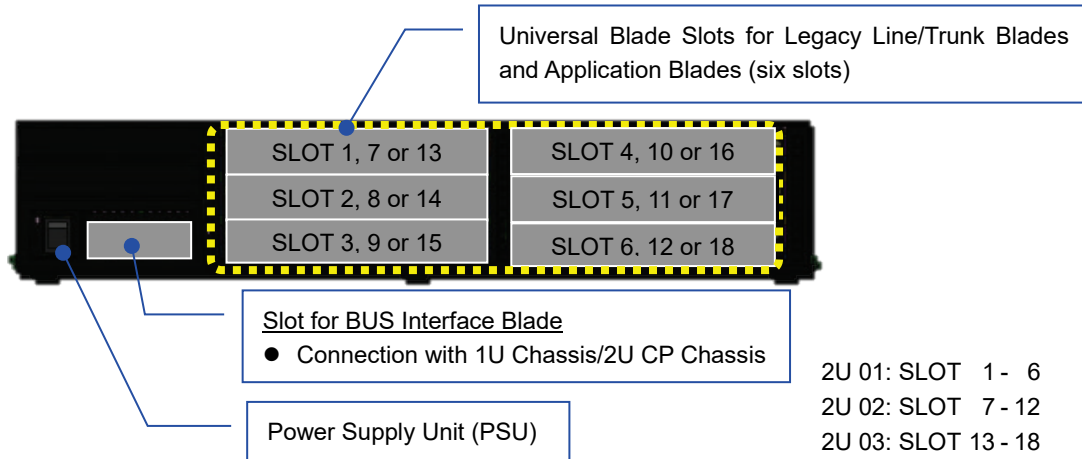


Figure 3-5 2U Chassis (Front View)

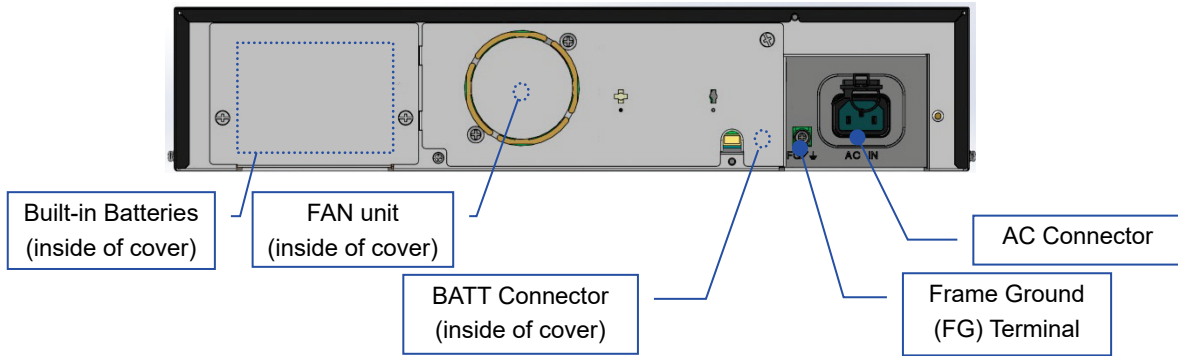


Figure 3-6 2U Chassis (Rear View)

Table 3-5 Specifications of 2U Chassis

Item	Specification
Dimensions (W x D x H)	430mm (16.9 inch) x 400mm (15.7 inch) x 88mm (3.5 inch)
Weight	Approx. 8.2 Kg (289.2 oz) (when all slots occupied, however, no built-in battery included)
Input Power	AC 100V – 240 V (Automatically adjusted)
Slot	BUS Slot + 6 option Slots
Operating Conditions	Ambient Temperature: 0 - 40 degree centigrade (When the ambient temperature will exceed this value during the holiday or the night, an air conditioner is required.) Relative Humidity: 20 - 90% (non-condensing)
Cooling	Cooling by FAN

In addition, short-term (about 10 minutes) backup batteries can be mounted in each Chassis. 2 x 12V-2.3AH batteries are available for the 2U Chassis.

Table 3-6 2U Chassis and its Related Equipment

Description	B Code	Feature
SN1782 LYRMD SN1786 LYRMH (for China)	---	2U Chassis (For CHS2UG-xx) (BWB / PSU / FAN included)
CHS2UG BLANK SLOT COVER KIT	BE113121	Blank slot cover for universal blade slot (1 / blank slot)
CHSG BLANK SLOT COVER KIT(BUS)	BE113444	Blank slot cover for BUS slot
CHS2U FAN BOX SET	BE106729	FAN Unit for 2U Chassis (for Maintenance)
MPS7101	BE108044	Power Supply Unit (PSU) for 2U CP Chassis / 2U Chassis (for Maintenance) (for US)
NP2.3-12 battery (GS Yuasa) or equivalent	---	Short-term built-in battery for 2U Chassis (Provided locally) <ul style="list-style-type: none"> ● 12V-2.3AH ● JST Faston tab 187 connectors ● 2 x NP2.3-12 batteries required per 2U Chassis
CHS2U BATT MTG KIT	BE106403	Short-term built-in battery mount kit for 2U Chassis

3.4 Battery Box

Instead of the short-term backup battery built-in each 1U/2U Chassis, an external Battery Box is available for long-term (45 minutes – 3 hours) backup batteries.

Table 3-7 Specifications of Battery Box

Item	Specification
Dimensions (W x D x H)	430mm (16.9 inch) x 364mm (14.3 inch) x 132 mm (5.2 inch)
Weight	Approx. 10 Kg (352.7 oz) (when no battery included)
Battery Tray	3 sets of 2 x FML1270 batteries (or equivalent) mountable

Table 3-8 Battery Box and its Related Equipment

Description	B Code	Feature
CHSG LARGE BATT BOX	BE113149	Max. 3 sets of 2 x FML1270 batteries mountable per CHS LARGE BATT BOX Including; <ul style="list-style-type: none"> ● 3 x Cable (Blue) 230mm ● 3 x Cable (Black/Red) 460mm ● 4 x Cable (Black/Red) 2060mm Chassis – BATT BOX (JST Faston tab 187 connectors) ● 2 x Upper joint bracket ● 8 x Screw M4
FML1270 battery (Furukawa Battery) or equivalent	---	Long-term external battery for 1U/2U CP Chassis and 2U Chassis (Provided locally) <ul style="list-style-type: none"> ● 12V-7AH ● JST Faston tab 187 connectors ● Max. 3 sets of 2 x FML1270 mountable per CHS LARGE BATT BOX

The cabling is shown in Chapter 6.3 (2).

4. Circuit Boards

4.1 General

The SV9300 has the following three types of circuit boards.

- Common Control Blades
 - CPU Blade
 - VoIPDB
 - BUS Interface Blade

- Legacy Line/Trunk Blades
 - Analog Line Circuit (LC)
 - Digital Line Circuit (DLC)
 - Central Office Trunk (COT)
 - ISDN PRI Trunk (PRT), etc.

- Application Blades
 - In-skin UMS Blade (Discontinued)

4.2 Common Control Blades

Most of the Common Control Blades are mounted in 1U Chassis/2U CP Chassis as follows.

1U Chassis

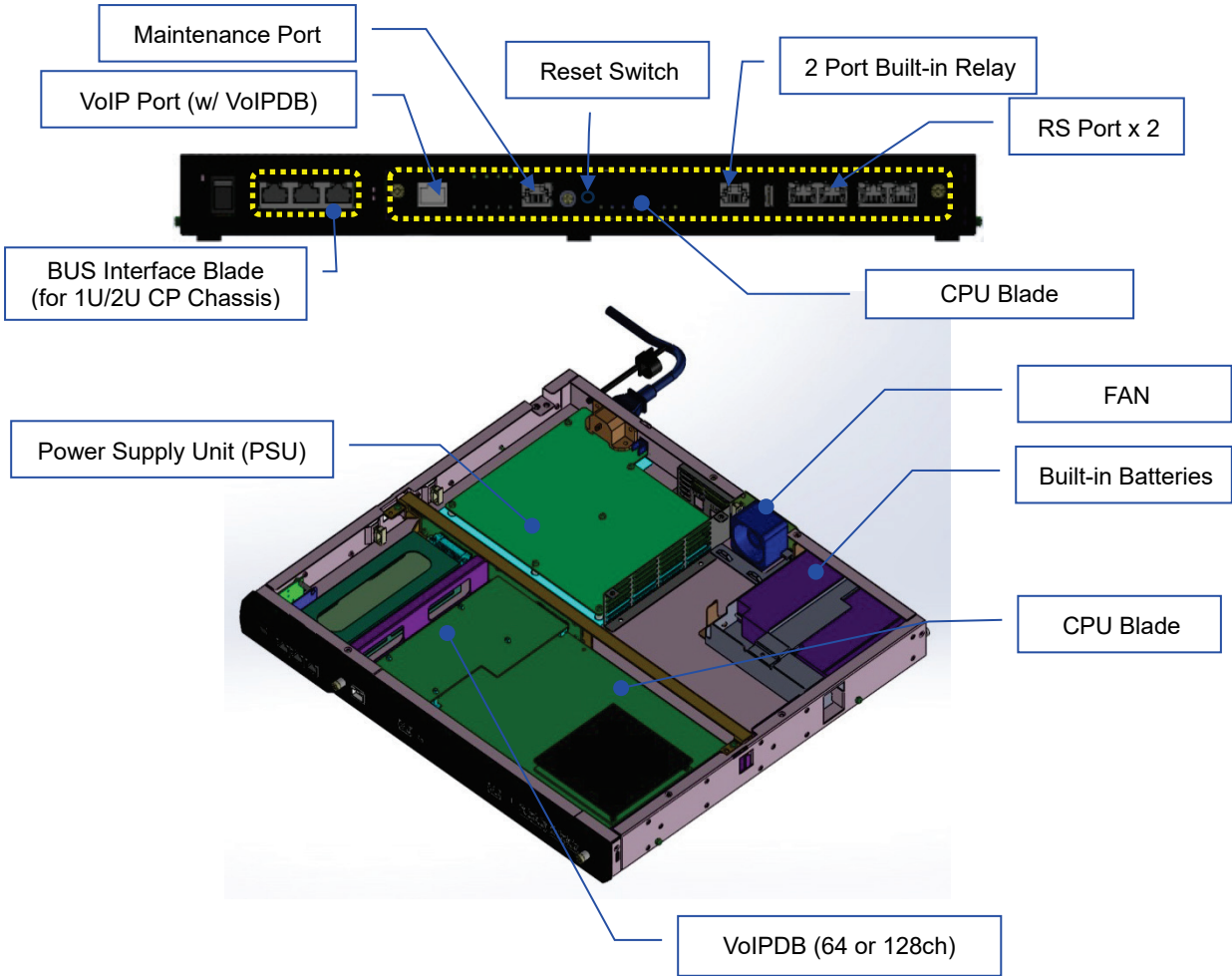


Figure 4-1 Location of Common Control Blades (1U Chassis)

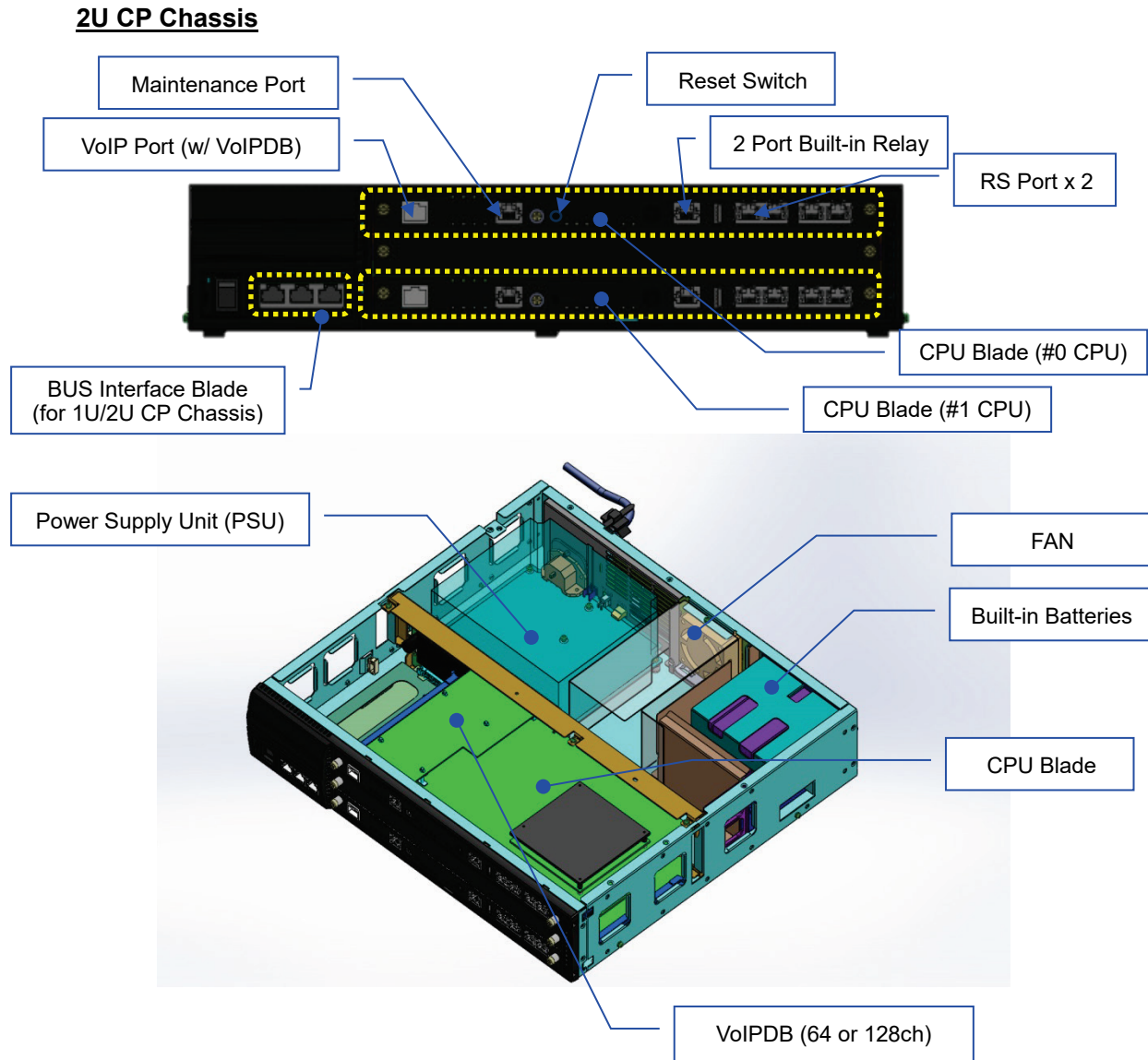


Figure 4-2 Location of Common Control Blades (2U CP Chassis)

Note: On Dual CPU configuration, there are the following limitations for the configuration.

- RS-232C ports, Relay port and EX IN / EX OUT port on either #0 CPU or #1 CPU can be used.
- #0 CPU and #1 CPU should be configured the same, Example: mounting of VoIPDB if required.

There are two types of BUS Interface Blades. One is mounted in the 1U Chassis/2U CP Chassis, and another is mounted in the 2U Chassis. For the BUS Interface Blade mounted in the 2U Chassis, please refer to Chapter 4.3 for the mounting location.

Major specifications and functionality of the CPU Blade are shown below:

- Central Processor: Intel ATOM(N2600) 1.6GHz
- System Memory:
 - DDR SDRAM 1GB
 - Flash ROM 256MB
 - Backup SRAM 8MB
- DSP Function:
 - Tone Generation
 - DTMF Sender / Receiver
 - MF / MFC Sender / Receiver
 - Caller ID Sender / Receiver
 - Time Switch Control
 - Conference Trunk
- 3-/4-Party Conference: 16 circuits
- Music-on-Hold: 8 melodies (**Note1**)
- Mini Jack: 1 port for external music source for Music-on-Hold (**Note2**)
- Ethernet Interface:
 - 10/100BASE-TX x 1 port (Maintenance Port)
 - 10/100/1000BASE-T x 1 port (VoIP Port (w/ VoIPDB))
- Serial Interface: RS-232C (RJ-45) x 2 ports (for PCPro, SMDR, MCI, Printer or PMS)
- Modem Interface: V.90 modem x 1 port
- USB Interface: USB1.1/2.0 x 1 port (Not used)
- PLO Function
 - Built-in SMDR (via RS-232C or LAN)
 - Built-in MCI (via RS-232C or LAN)
 - Built-in PMS (via RS-232C or LAN)
 - VRS: 16 circuits (max. 120sec./message)
 - Speech Synthesis (English/Japanese/Korean/Chinese)
 - DK x 2 circuits (relay drive only)
 - FTP-based CPU Program Download from PCPro (on-line mode / off-line mode)
 - One non-rechargeable lithium battery (BR2032) which provides battery back-up of SRAM memory for one week. (**Note3**)

DSP: Digital Signal Processor

DTMF: Dual Tone Multi Frequency

PLO: Phase Lock Oscillator

Note1: In case of *D^{term}IP* and DT900/800/700 series, synthesized melody is provided built in to the phone itself.

Note2: In case of *D^{term}IP*, synthesized melody is provided built in to the phone itself.

Note3: The lithium battery needs periodic replacement for every 6 years.

The following table shows Common Control Boards available in the SV9300.

Table 4-1 Common Control Boards

Category	Description	B Code	Feature	Daughter Board
CPU	CC-CP10-A	---	CPU blade for SV9300 Commonly used for single/dual mode CPU configuration	GPZ-64IPLD GPZ-128IPLD
VoIP	GPZ-64IPLD	BE113013	64ch VoIP Daughter Board	None
	GPZ-128IPLD	BE113015	128ch VoIP Daughter Board	None
BUS	GPZ-BS10	BE113016	BUS Interface Blade for 1U Chassis / 2U CP Chassis	None
	GPZ-BS11	BE113017	BUS Interface Blade for 2U Chassis (1 x BUS cable attached)	None

4.3 Legacy Line/Trunk Blades and Application Blades

The Legacy Line/Trunk Blades and the Application Blades are mounted in the 2U Chassis.

2U Chassis

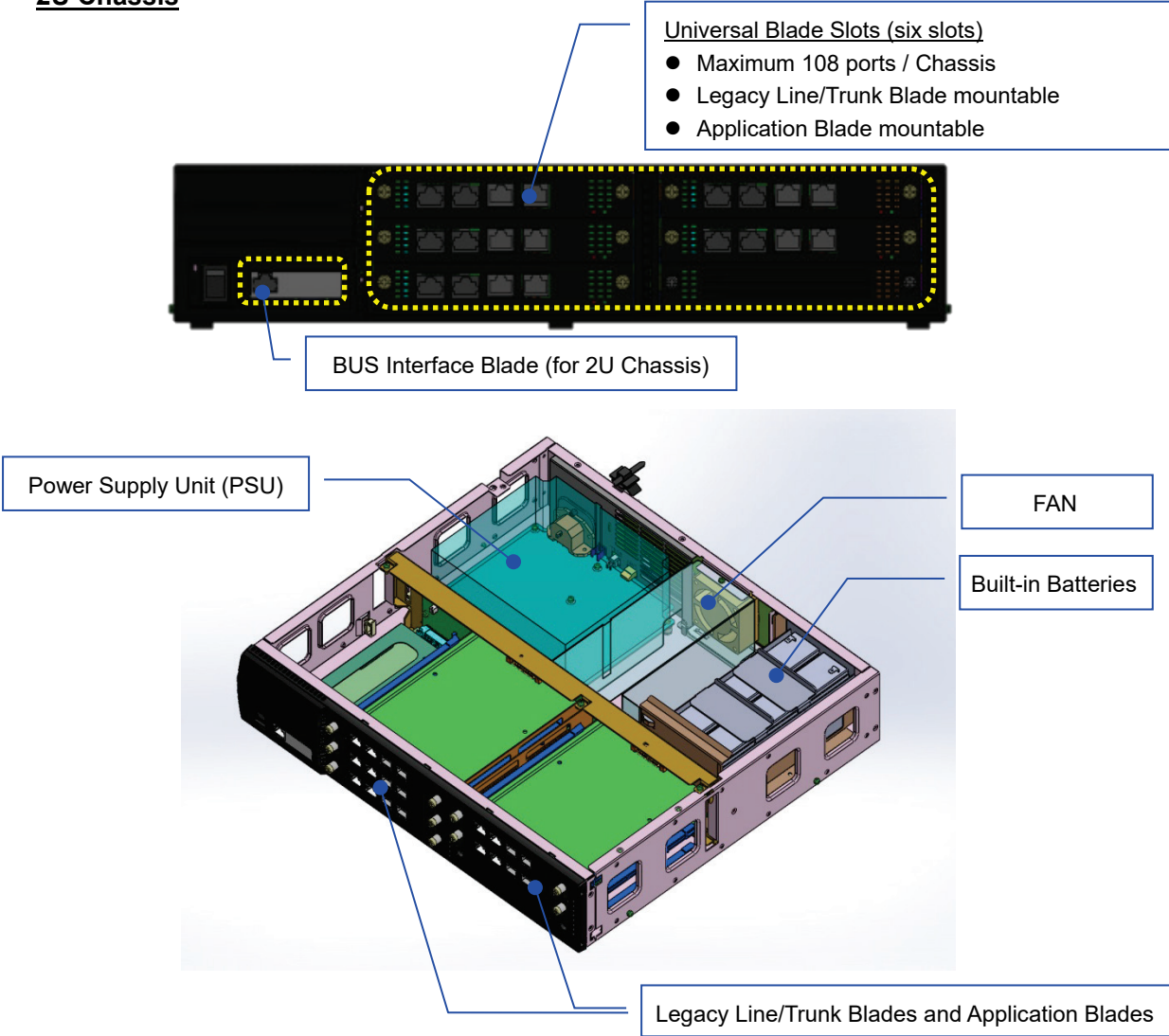


Figure 4-3 Location of Legacy Line/Trunk Blades and Application Blades (2U Chassis)

The following table shows Legacy Line/Trunk Blades and Application Blades available in the SV9300.

Table 4-2 Legacy Line/Trunk Blades and Application Blades

Category	Description	B Code	Feature	No. of Physical Ports (HWCH)	Daughter Board
DLC	GCD-8DLCA	BE113018	8L Digital Line Circuit Blade	16 (Note 3)	GPZ-8DLCB
	GCD-8DLCA-A	BE120392		8	None
	GPZ-8DLCB	BE113019	8L Digital Line Circuit Daughter Board	- (Note 3)	None
	GCD-16DLCA	BE113020	16L Digital Line Circuit Blade	16	None
	GCD-16DLCA-A	BE120393			
LC	GCD-4LCF	BE113434	4L Analog Line (SLT) Circuit Blade with MW and Caller ID (Note 1)	16 (Note 3)	GPZ-4LCF GPZ-8LCF
	GCD-8LCF	BE113435	8L Analog Line (SLT) Circuit Blade with MW and Caller ID (Note 1)	16 (Note 3)	GPZ-4LCF GPZ-8LCF
	GPZ-4LCF	BE113436	4L Analog Line (SLT) Circuit Daughter Board with MW and Caller ID (Note 1)	- (Note 3)	None
	GPZ-8LCF	BE113437	8L Analog Line (SLT) Circuit Daughter Board with MW and Caller ID (Note 1)	- (Note 3)	None
LC	GCD-4LCG	BE114107	4L Analog Line (SLT) Circuit Blade with MW and Caller ID (Note 1) (for China)	16 (Note 3)	GPZ-4LCG GPZ-8LCG
	GCD-8LCG	BE114108	8L Analog Line (SLT) Circuit Blade with MW and Caller ID (Note 1) (for China)	16 (Note 3)	GPZ-4LCG GPZ-8LCG
	GPZ-4LCG	BE114109	4L Analog Line (SLT) Circuit Daughter Board with MW and Caller ID (Note 1) (for China)	- (Note 3)	None
	GPZ-8LCG	BE114110	8L Analog Line (SLT) Circuit Daughter Board with MW and Caller ID (Note 1) (for China)	- (Note 3)	None
COT	GCD-4COTA	BE113026	4L Central Office Trunk Blade (Loop-start) with Caller ID (Note 2) (Power failure transfer circuit x 2 included)	8 (Note 3)	GPZ-4COTE GPZ-4COTG-A (Note 5)
	GPZ-4COTE	BE113028	4L Central Office Trunk Daughter Board (Loop-start) with Caller ID (Note 2)	- (Note 3)	None
	GCD-4COTC	BE113031	4L Central Office Trunk Blade (Loop-start) with Caller ID (Note 2) (Power failure transfer circuit x 2 included)	8 (Note 3)	GPZ-4COTG GPZ-4COTG-A (Note 5)
	GPZ-4COTG	BE113032	4L Central Office Trunk Daughter Board (Loop-start) with Caller ID (Note 2)	- (Note 3)	None
	GCD-4COTC-A	BE119151	4L Central Office Trunk Blade (Loop-start) with Caller ID (Note 2) (Power failure transfer circuit x 2 included) Changed from GCD-4COTA/4COTC.	8 (Note 3)	GPZ-4COTE, GPZ-4COTG, GPZ-4COTG-A
	GPZ-4COTG-A	BE119154	4L Central Office Trunk Daughter Board (Loop-start) with Caller ID (Note 2) Changed from GPZ-4COTE/4COTG.	- (Note 3)	None

(to be continued in next page)

Table 4-2 Legacy Line/Trunk Blades and Application Blades (cont'd)

Category	Description	B Code	Feature	No. of Physical Ports (HWCH)	Daughter Board
COT	GCD-4COTB	BE113029	4L Central Office Trunk Blade (Loop/Ground-start) with Caller ID (Note 2) (for US) (Power failure transfer circuit x 2 included)	8 (Note 3)	GPZ-4COTF GPZ-4COTF-A (Note 5)
	GPZ-4COTF	BE113030	4L Central Office Trunk Daughter Board (Loop/Ground-start) with Caller ID (Note 2) (for US)	- (Note 3)	None
	GCD-4COTB-A	BE119150	4L Central Office Trunk Blade (Loop/Ground-start) with Caller ID (Note 2) (for US) (Power failure transfer circuit x 2 included) Changed from GCD-4COTB.	8 (Note 3)	GPZ-4COTF, GPZ-4COTF-A
	GPZ-4COTF-A	BE119153	4L Central Office Trunk Daughter Board (Loop/Ground-start) with Caller ID (Note 2) (for US) Changed from GPZ-4COTF.	- (Note 3)	None
BRT / ILC	GCD-2BRIA	BE113033	2L ISDN BRI Trunk / 2L ISDN Line/ Circuit Blade 2L Nurse Call System Interface Blade (for Asia/China)	8 (Note 3)	GPZ-2BRIA
	GPZ-2BRIA	BE113034	2L ISDN BRI Trunk / 2L ISDN Line Circuit Daughter Board 2L Nurse Call System Interface Daughter Board (for Asia/China)	- (Note 3)	None
PRT / DTI	GCD-PRTA	BE113037	ISDN PRI Trunk (23B+D) / QSIG Trunk Blade	24	None
			ISDN PRI Trunk (30B+D) / QSIG Trunk Blade	32	
			T1 DTI Trunk Blade (Note 4)	24	
			E1 DTI Trunk Blade (Note 4)	32	
CCT	GCD-CCTA	BE113038	CCIS Interface (1.5M) Blade	24	None
			CCIS Interface (2M) Blade	32	
Analog Trunk	GCD-4DIOPA	BE113039	4L Direct Inward Dialing Trunk / Loop Dial Trunk / Long Line Circuit Blade (for US)	4	None
	GCD-4DIOPB	BE113040	4L Direct Inward Dialing Trunk / Loop Dial Trunk / Long Line Circuit Blade	4	None
	GCD-4ODTA	BE113041	4L E&M-2W/4W Trunk Blade (for US)	4	None
	GCD-4ODTB	BE113042	4L E&M-2W/4W Trunk Blade	4	None
APL	GCD-ETIA	BE113045	8-port in-skin HUB Blade PoE (802.3af)-supported	-	None
	GCD-VM00	BE113046	In-skin UMS Blade	16	None
	GCD-RGA	BE113292	Conference Bridge / In-skin Router Blade	32	None

Note 1: MW (Message Waiting) supports "High Voltage method" only. Caller ID (for Single Line Telephone) supports "Bellcore-FSK" and "ETSI-FSK".

Note 2: Caller ID (from Analog Trunk) supports “Bellcore-FSK” and “ETSI-DTMF”.

Note 3: For the line/trunk blades capable of main board + daughter board architecture, even if only the main board is mounted on the 2U Chassis, the following number of physical ports is forcibly assigned for the SLOT mounted. It is not changed by adding the daughter board.

- DLC: 16 (e.g. GCD-8DLCA: 16, GCD-8DLCA + GPZ-8DLCB: 16)
- LC: 16
- COT: 8
- BRT / ILC: 8

Note 4: The preinstalled firmware should be updated to the DTI firmware (either T1 or E1) by executing the blade firmware update.

Note 5: The combinations on system accommodation of new and current COT blade are as follows.

Main Board \ Daughter Board		Before Changed	After Changed
		GPZ-4COTE	GPZ-4COTG-A
Before Changed	GCD-4COTA	Available	Available with Main Board Firmware Upgrade to V9.0 or later
After Changed	GCD-4COTC-A	Available	Available

Main Board \ Daughter Board		Before Changed	After Changed
		GPZ-4COTG	GPZ-4COTG-A
Before Changed	GCD-4COTC	Available	Available with Main Board Firmware Upgrade to V9.0 or later
After Changed	GCD-4COTC-A	Available	Available

Main Board \ Daughter Board		Before Changed	After Changed
		GPZ-4COTF	GPZ-4COTF-A
Before Changed	GCD-4COTB	Available	Available with Main Board Firmware Upgrade to V9.0 or later
After Changed	GCD-4COTB-A	Available	Available

Conditions for Equipment Calculation

1. Limitation of Power Capacity

There are two types of power factors, Board Power Factor and Terminal Power Factors. Each power factor has an upper limit in each 2U Chassis and the total has to be within the limitations.

Table 4-3 Board Power Factor

Board Power Factor (Total has to be "7" or less in each 2U Chassis)	
Blade Type	Power Factor per blade
In-skin UMSBlade (GCD-VM00) (discontinued)	2
In-skin HUB Blade (GCD-ETIA) (discontinued)	2
Conference Bridge Blade (GCD-PVAA) (for US/Australia) (discontinued)	1
Conference Bridge Blade (GCD-RGA) (discontinued)	1

Table 4-4 Terminal Power Factor

Terminal Power Factor (Total has to be "80" or less in each 2U Chassis)		
Terminal Type		Power Factor per Terminal
SLT	Standard (-28V)	0.8
	Long Line (-48V)	2
DT500 series	DT510 (6-button)	0.8
	DT530 (12/24/32-button)	0.8
	DSS Console	2
	Analog Port Adapter w/ Ringer (APR)	2
	Ancillary Device Adapter (ADA)	2
DT400 series	DT410 (2/6/-button)	0.8
	DT430 (12/24-button)	0.8
	DT430 (Self-Labeling)	0.8
DT300 series	DT310 (2/6/12-button)	0.8
	DT330 (12/24/32-button)	0.8
	DT330 (Self-Labeling)	0.8
	DT330 (12-button) w/ PSA	2
	DT330 (12-button) w/ BCH	3
DT400/300 Option	DSS Console	2
	Analog Power Failure Adapter (PSA)	1.2
	Analog Port Adapter w/ Ringer (APR)	2
	Ancillary Device Adapter (ADA)	2
	Bluetooth HUB Adapter (BHA)	2
	Bluetooth Cordless Handset (BCH)	2
	Bluetooth Cradle Phone Adapter (BCA)	2
	Line Key Unit (8/16-button)	0
Desk Console (w/ AC Adapter)		0

Table 4-4 Terminal Power Factor (cont'd)

Terminal Power Factor (Total has to be "80" or less in each 2U Chassis)		
Terminal Type		Power Factor per Terminal
DT800 series (PoE from GCD-ETIA) (Note)	DT830 (12/24-button)	4
	DT830 (Self-Labeling)	4
	DT830G (12/24-button)	4
	DT820 (6-button)	4
	DT820 (Self-Labeling)	4
DT700 series (PoE from GCD-ETIA) (Note)	DT710 (2/6-button)	4
	DT730 (12/24/32-button)	4
	DT730 (Self-Labeling)	4
	DT730 (12-button) w/ PSA	4
	DT730G (12/24-button)	4
	DT750 (32-button)	6
	DT770G (2-button)	4
DT800/700 Option (PoE from GCD-ETIA) (Note)	DSS Console	2
	Analog Power Failure Adapter (PSA)	1.2
	Ancillary Device Adapter (ADA)	2
	Bluetooth Cradle Phone Adapter (BCA)	2
	Line Key Unit (8/16-button)	0
D ^{term} series i	2/4/8/16/32-button	0.8
D ^{term} series i Option	DSS Console	1
	Analog Port Adapter w/o Ringer (APA)	1
	Analog Port Adapter w/ Ringer (APR)	3
	Ancillary Device Adapter (ADA)	1
Paging Adapter		2

Note: The GCD-ETIA has been discontinued (EoL). When the DT800/700 Series are connected to the system using the external power source such as external PoE Hub, above terminal power factor considerations are not required.

2. Guideline of the Maximum Number of Calls Terminating at a time

For the maximum number of calls terminating at a time, refer to the following table.

Table 4-5 Guideline of the Maximum Number of Calls Terminating at a Time

Terminal	Maximum number of calls terminating at time
Single Line Telephone	48 per 2U Chassis
Digital Multiline Terminal	30 per 2U Chassis
IP Multiline Terminal	50 per Unit

Note1: As DT Series Terminals have the limitations above, care should be taken in the following cases:

- In case many Multiline Terminals accommodate a TAS service key.
- In case many Multiline Terminals accommodate a Trunk Line Appearance Key.
- In case many Multiline Terminals accommodate a sub line.

Note2: When Digital Multiline Terminals exceed the limitation above, perform the following 1) or 2)

1) With each Digital Multiline Terminal, configure the following settings (DT500/400/300 only):

- Ringer setting
- LCD back light setting

The following example shows a case connecting 96 terminals:

- 30 terminals (Ringer and LCD back light are set to ON)
- 66 terminals (Ringer and LCD back light are set to OFF)

2) Accommodate Digital Multiline Terminals in multiple 2U Chassis.

Note 3: When IP Multiline Terminals exceed the limitation above, or the traffic is high, add another CPU module(s) to accommodate the terminals.

3. Limitation of 32-party conference

To avoid generating echo in the trunk of 32-party conference, adjust the sum of the factors of Terminal/Line to 32 or less.

Table 4-6 Terminal/Line Factors per connection

Terminal/Line	Factors per connection (Total has to be "32" or less in system)
Single Line Telephone	2
Multiline Terminal	1
PRT/BRT/DTI/ODT	2
COT/LDT	8
CCIS/IP Trunk(P2P-CCIS)/SIP Trunk	2

4. VoIP daughter board (VoIPDB)

There are two types of VoIPDBs, GPZ-64IPLD and GPZ-128IPLD. To select either GPZ-64IPLD or GPZ-128IPLD, a detailed traffic calculation is necessary.

The following table shows the VoIPDB channels required in each call connection.

Table 4-7 VoIPDB Channels Required in Each Call Connection

UA=Unit A, UB=Unit B

		Unit A (A=01-50) (Note 1)					
		TDM Line (Note 5)	D ^{term} IP/D ^{term} SP30	DT900/800/700 Series/SP350	Standard SIP Terminal	SIP Trunk	P2P CCIS (Note 2)
Unit A (A=01-50) (Note 1)	TDM Line	UA: None	UA: 1ch	UA: 1ch	UA: 1ch	UA: 1ch	UA: 1ch
	D ^{term} IP/D ^{term} SP30	UA: 1ch	UA: None	UA: None (Note 4)	UA: 2ch	UA: 2ch	UA: None
	DT900/800/700 series/SP350	UA: 1ch	UA: None (Note 4)	UA: None	UA: 2ch	UA: 2ch	UA: None (Note 4)
	Standard SIP Terminal	UA: 1ch	UA: 2ch	UA: 2ch	UA: 0ch/2ch (Note 3)	UA: 2ch	UA: 2ch
	SIP Trunk	UA: 1ch	UA: 2ch	UA: 2ch	UA: 2ch	UA: 2ch	UA: 2ch
	P2P CCIS (Note 2)	UA: 1ch	UA: None	UA: None (Note 4)	UA: 2ch	UA: 2ch	UA: None
Unit B (B=02-50) (Note 1)	TDM Line (Note 5)	UA: 1ch UB: 1ch	UA: None UB: 1ch	UA: None UB: 1ch	UA: 2ch UB: 1ch	UA: 2ch UB: 1ch	UA: None UB: 1ch
	D ^{term} IP/D ^{term} SP30	UA: 1ch UB: None	UA: None UB: None	UA: None UB: None (Note 4)	UA: 2ch UB: None	UA: 2ch UB: None	UA: None UB: None
	DT900/800/700 series/SP350	UA: 1ch UB: None	UA: None UB: None (Note 4)	UA: None UB: None	UA: 2ch UB: None	UA: 2ch UB: None	UA: None UB: None (Note 4)
	Standard SIP Terminal	UA: 1ch UB: 2ch	UA: None UB: 2ch	UA: None UB: 2ch	UA: 0ch/2ch UB: 0ch/2ch (Note 3)	UA: 2ch UB: 2ch	UA: None UB: 2ch
	SIP Trunk	UA: 1ch UB: 2ch	UA: None UB: 2ch	UA: None UB: 2ch	UA: 2ch UB: 2ch	UA: 2ch UB: 2ch	UA: None UB: 2ch

Note 1: Unit A is not same as Unit B.

Note 2: P2P CCIS is accommodated in UNIT01 only.

Note 3: Resource channel of each Unit is different according to the connection.

Call via VoIPDB : 2ch

Call via Peer-to-Peer connection: 0ch

Note 4: One channel of each Unit is assigned for sending DTMF signal in each connection.

Note 5: When using an External Hold Tone, voice channels of VoIPDB are used as same as TDM Line.

To simplify the selection of the VoIPDBs, the following calculation method is recommended.

Table 4-8 Calculation Method of VoIPDB (Recommended)

	Standalone		Remote Unit Network	
	324 ports or less (1-Unit)	More than 324 ports (2-Unit or more)	Main site	Remote site
TDM System	---	GPZ-128IPLD x 1 per Unit	GPZ-128IPLD x 1 per Unit	GPZ-64IPLD x 1 or GPZ-128IPLD x 1
IP (+ TDM) System	GPZ-128IPLD x 1			

5. SIP Converter

When Standard SIP Terminals are accommodated in SV9300, SIP Converters should be assigned to each Unit to accommodate Standard SIP Terminals. One SIP Converter has three channels. The SIP Converters can be assigned maximum 32 per unit and maximum 128 per system.

The following table shows the SIP Converter channels required in each call connection.

Table 4-9 SIP Converter Channels Required in Each Call Connection

UA=Unit A, UB=Unit B

		Unit A (A=01-50) (Note 1)					
		TDM Line	D ^{term} IP/ D ^{term} SP30	DT900/800/700 Series/SP350	Standard SIP Terminal	SIP Trunk	P2P CCIS (Note 2)
Unit A (A=01-50) (Note 1)	TDM Line	None	None	None	UA: 1ch	None	None
	D ^{term} IP/D ^{term} SP30	None	None	None	UA: 1ch	None	None
	DT900/800/ 700 series/SP350	None	None	None	UA: 1ch	None	None
	Standard SIP Terminal	UA:1ch	UA: 1ch	UA:1ch	UA: 2ch	UA: 1ch	UA: 1ch
	SIP Trunk	None	None	None	UA: 1ch	None	None
	P2P CCIS (Note 2)	None	None	None	UA: 1ch	None	None
Unit B (B=02-50) (Note 1)	TDM Line	None	None	None	UA: 1ch	None	None
	D ^{term} IP/ D ^{term} SP30	None	None	None	UA: 1ch	None	None
	DT900/800/ 700 series/SP350	None	None	None	UA: 1ch	None	None
	Standard SIP Terminal	UB: 1ch	UB:1ch	UB: 1ch	UA: 1ch UB: 1ch	UB: 1ch	UB: 1ch
	SIP Trunk	None	None	None	UA: 1ch	None	None

Note 1: Unit A is not same as Unit B.

Note 2: They are accommodated in Unit01 only.

6. Limitation of Mounting Location

- GCD-2BRIA/GCD-PRTA
 - ✓ When GCD-2BRIA (BRT) / GCD-PRTA (PRT/QSIG/DTI) blades are mounted in a main site or a standalone system, at least one of the blades has to be mounted in Unit01 and the remaining blades can be mounted in any Units.
 - ✓ When unrestricted digital channels are required (e.g. G4 FAX), there are limitations as follows.
 - **For u-law systems (US and Hong Kong)**
The GCD-2BRIA (ILC/BRT) / GCD-PRTA (PRT) blades can be mounted in any Unit. However,
 1. 16 Time Slots are available for the unrestricted digital channels in each 2U Chassis. (The Time Slots available for the unrestricted digital channels can be flexibly assigned in the 2U Chassis.)
 2. Data communication using the unrestricted digital channels is available within each Unit. (Inter-Unit connection is not available.)
 - **For A-law systems**
The GCD-2BRIA (ILC/BRT) / GCD-PRTA (PRT) blades can be mounted in any Unit. However, data communication using the unrestricted digital channels is available within each Unit. (Inter-Unit connection is not available.)
- GCD-2BRIA (Asia/China)
The GCD-2BRIA(BRT) blades have to be mounted in Unit01 when using as Nurse Call System interface.
- GCD-CCTA (CCT)
When GCD-CCTA blades are mounted in a main site or a standalone system, at least one of the blades has to be mounted in Unit01 and the remaining blades can be mounted in any Units.
- GCD-8DLCA / GCD-8DLCA-A / GCD-16DLCA / GCD-16DLCA-A (DLC)
When Desk Consoles are accommodated in the SV9300, the GCD-8DLCA / GCD-8DLCA-A / GCD-16DLCA / GCD-16DLCA-A blades for the Desk Consoles have to be mounted in the Unit01.
(There are other limitations for the Desk Console accommodation. Please refer to Chapter 6.4 for more detail.)

5. Installation Type

To meet the specific needs of the customer's environment, SV9300 provides the various installation methods as follows:

- Floor Mounting Installation
- Wall Mounting Installation
- 19 inch Rack Mounting Installation
- Desktop Mounting Installation
- Floor Mounting / Desk Mounting Installation with Stand

Note: *Condition of Secondary Unit for Failover mode*

When floor mounting (w/o stand) / 19-inch rack mounting / desktop mounting, Secondary Unit (1U Chassis) can be installed on the top of another Unit.

When external batteries are required, Secondary Unit (1U Chassis) cannot be installed on the top of another Unit. The external batteries must be installed in close proximity of the Units.

5.1 Floor Mounting Installation

All Units at Main Site (Unit01-04) have to be installed at the same location.

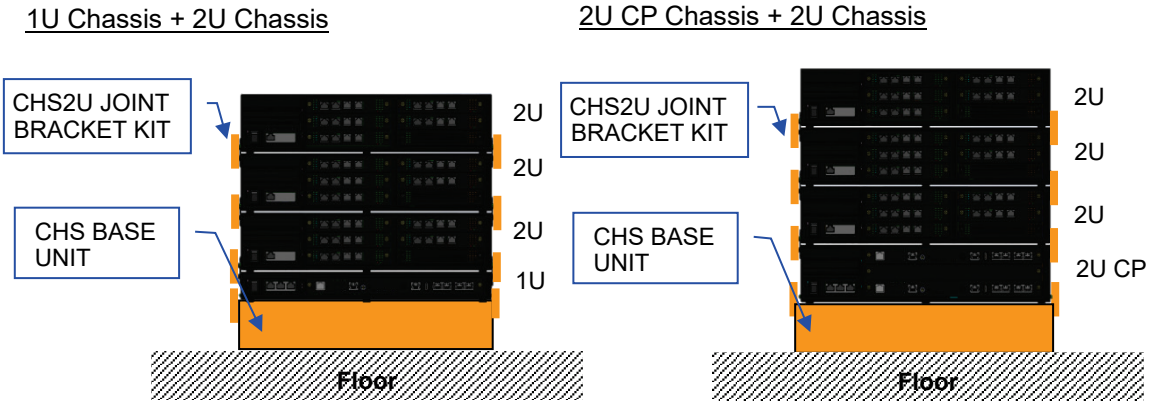


Figure 5-1 Floor Mounting Installation

Table 5-1 Hardware for Floor Mounting Installation

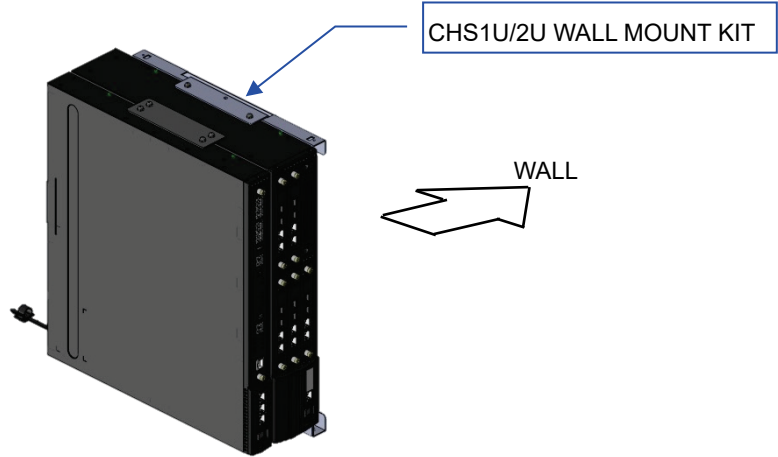
Description	B Code	Feature
CHS BASE UNIT	BE106406	Floor Mount Bracket
CHS2U JOINT BRACKET KIT	BE106414	Upper Joint Bracket Kit (2 x Joint Bracket)

5.2 Wall Mounting Installation

SV9300 can be mounted on the wall as shown below.

1U Chassis + 2U Chassis

Maximum of one 1U Chassis and one 2U Chassis can be mounted on the wall.



2U CP Chassis + 2U Chassis

Maximum one 2U CP Chassis and one 2U Chassis can be mounted on the wall, however, they have to be mounted respectively.

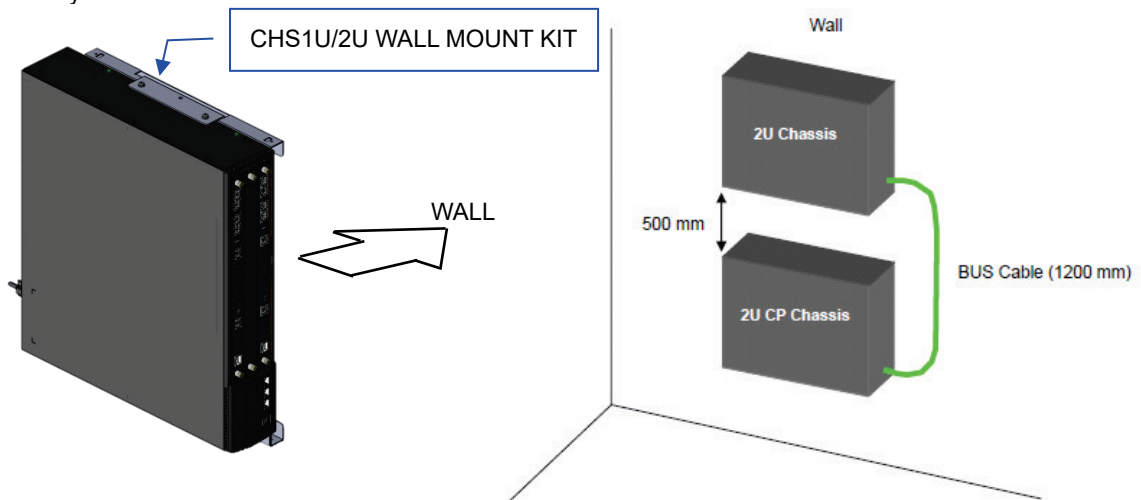


Figure 5-2 Wall Mounting Installation

Table 5-2 Hardware for Wall Mounting Installation

Description	B Code	Feature
CHS1U/2U WALL MOUNT KIT	BE106407	Wall Mount Kit (2 x Joint Bracket included)

5.3 19 inch Rack Mounting Installation

SV9300 can be mounted in the IEC-standard 19 inch rack.
(IEC: International Electrotechnical Commission)

All Units at Main Site (Unit01-04) have to be installed at the same location.
All Chassis of configured Unit have to be installed in series without any vacant space.

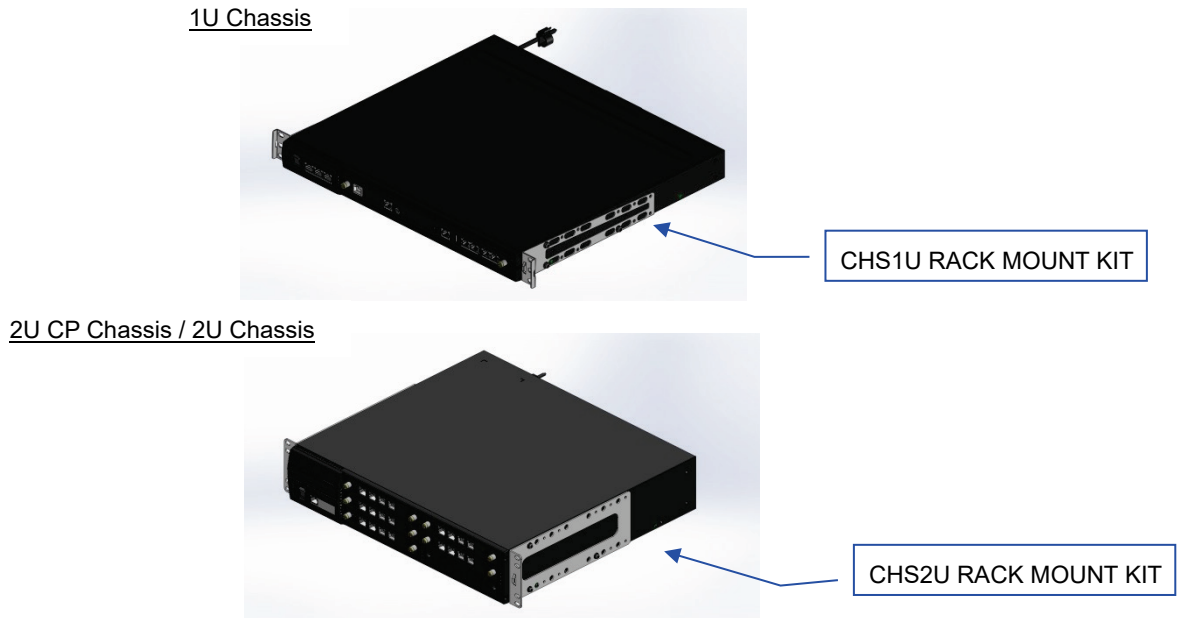


Figure 5-3 19 inch Rack Mounting Installation

Table 5-3 Hardware for 19 inch Rack Mounting Installation

Description	B Code	Feature
CHS1U RACK MOUNT KIT	BE106399	19 inch Rack Mount Kit for 1U Chassis
CHS2U RACK MOUNT KIT	BE106405	19 inch Rack Mount Kit for 2U CP Chassis / 2U Chassis

5.4 Desktop Mounting Installation

All Units at Main Site (Unit01-04) have to be installed at the same location.

1U Chassis + 2U Chassis

2U CP Chassis + 2U Chassis

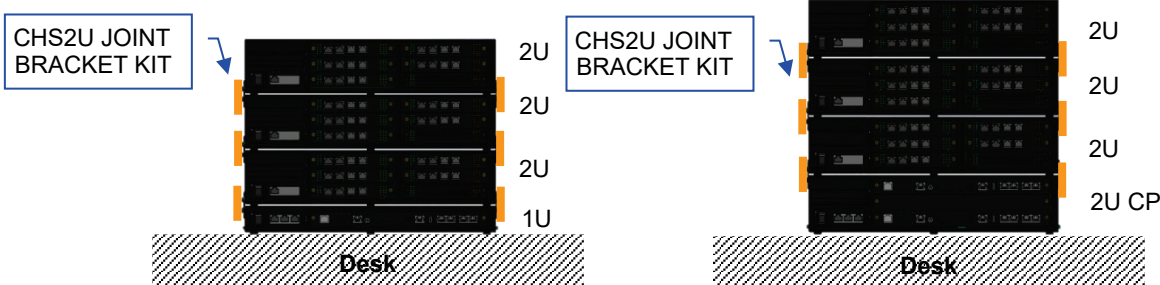


Figure 5-4 Desktop Mounting Installation

Table 5-4 Hardware for Desktop Mounting Installation

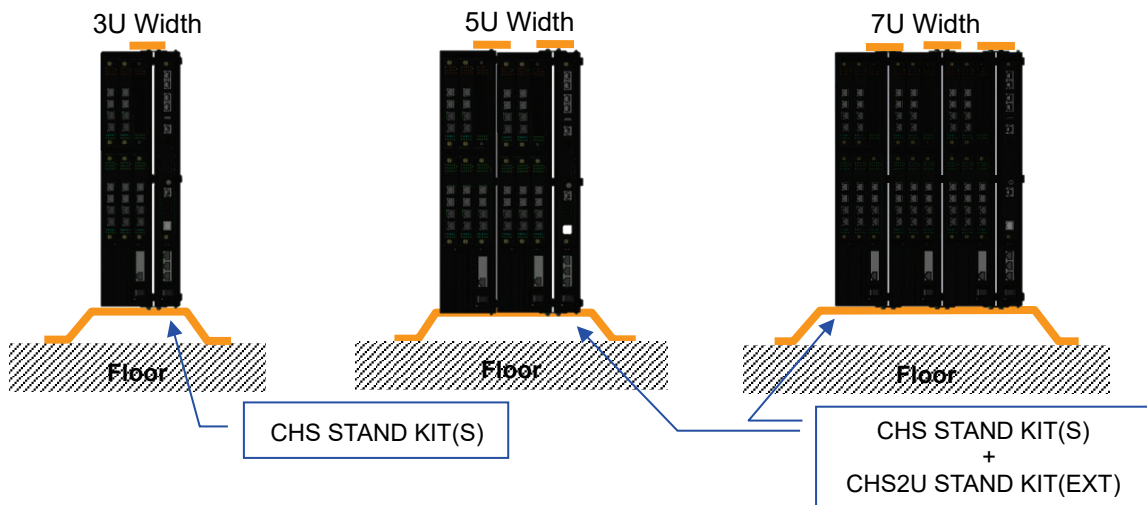
Description	B Code	Feature
CHS2U JOINT BRACKET KIT	BE106414	Upper Joint Bracket Kit (2 x Joint Bracket)

5.5 Floor Mounting / Desktop Mounting Installation with Stand

SV9300 can be installed on a floor / desk with vertical stand.

All Units at Main Site (Unit01-04) have to be installed at the same location.

1U Chassis + 2U Chassis



2U CP Chassis + 2U Chassis

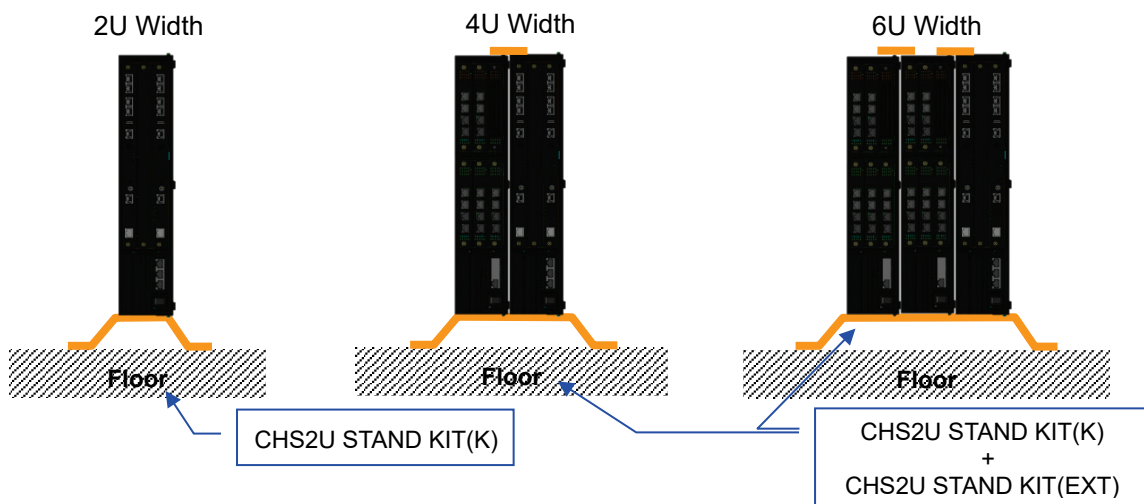


Figure 5-5 Floor Mounting / Desktop Mounting Installation with Stand

Note 1: CHS STAND KIT(S) is available for 3U width (1U Chassis + 2U Chassis).

To expand to 5U or 7U width, CHS2U STAND KIT(EXT) is additionally required.

The CHS2U STAND KIT(EXT) consists of 2U expansion plate x 2 and joint bracket x 2.

- 5U width (1U Chassis + 2U Chassis x 2): 2U expansion plate x 1 and Joint Bracket x 1 used
- 7U width (1U Chassis + 2U Chassis x 3): 2U expansion plate x 2 and Joint Bracket x 2 used

Note 2: CHS2U STAND KIT(K) is available for 2U width (2U CP Chassis).

To expand to 4U or 6U width, CHS2U STAND KIT(EXT) is additionally required.

The CHS2U STAND KIT(EXT) consists of 2U expansion plate x 2 and joint bracket x 2.

- 4U width (2U CP Chassis + 2U Chassis x 1): 2U expansion plate x 1 and Joint Bracket x 1 used
- 6U width (2U CP Chassis + 2U Chassis x 2): 2U expansion plate x 2 and Joint Bracket x 2 used

Table 5-5 Hardware for Floor Mounting / Desktop Mounting Installation with Stand

Description	B Code	Feature
CHS STAND KIT(S)	BE106408	Vertical Stand Kit (3U width) (1 x Joint Bracket included)
CHS2U STAND KIT(K)	BE106910	Vertical Stand Kit (2U width)
CHS2U STAND KIT(EXT)	BE106727	Expansion Plates Kit for Vertical Stand (2 x 2U expansion plate and 2 x Joint Bracket included)

6. Cabling

The following figures show internal / external cabling of the SV9300.

6.1 Inter-Chassis Connection

Inter-Chassis Connection inside of a Unit is made with BUS Cables as shown below. The BUS Cable is attached in BUS Interface Blade for 2U Chassis (GPZ-BS11).

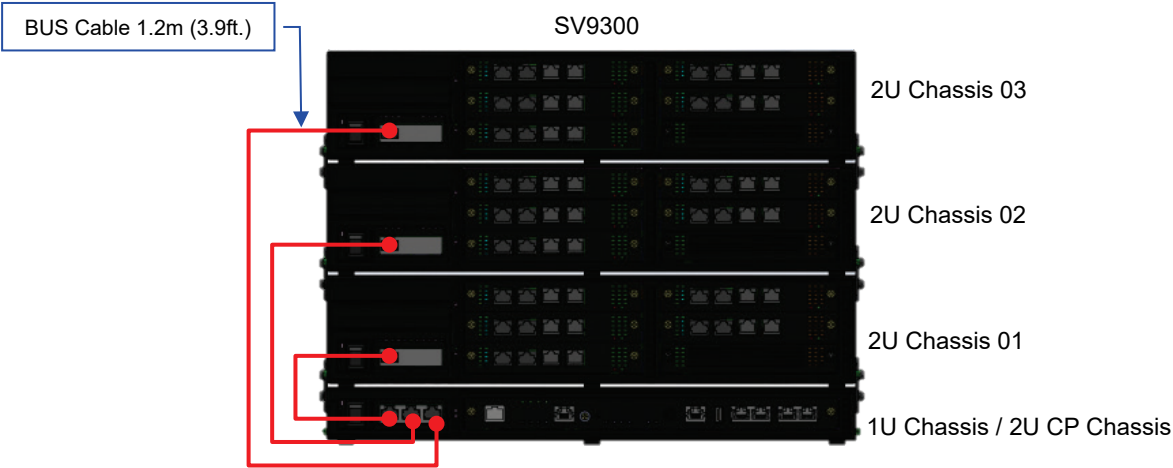


Figure 6-1 Inter-Chassis Connection

Inter-Unit connection inside of main site or standalone system is made with LAN Cable, same manner of Remote Unit. Please refer to "IP Connection" in this chapter.

6.2 AC Cord Connection

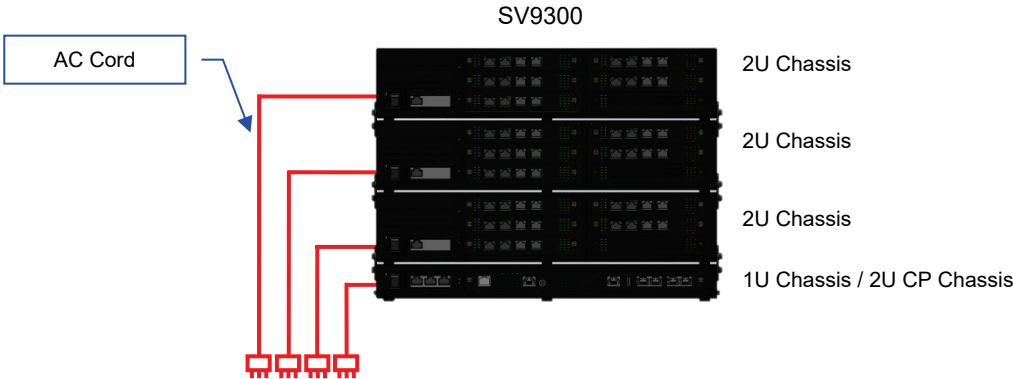


Figure 6-2 AC Cord Connection

Table 6-1 AC Cord

Description	B Code	Feature
IP3NE-3KSU-B1 AC CABLE	---	AC Power Cable (for US)
AC CORD(AU)	---	AC Power Cable (for Australia)
AC CORD(EU)	---	AC Power Cable (for EU / Asia / Russia)
AC CORD-B(CH)	---	AC Power Cable (for China)

6.3 Battery Cable Connection

(1) Built-in Battery Cable Connection

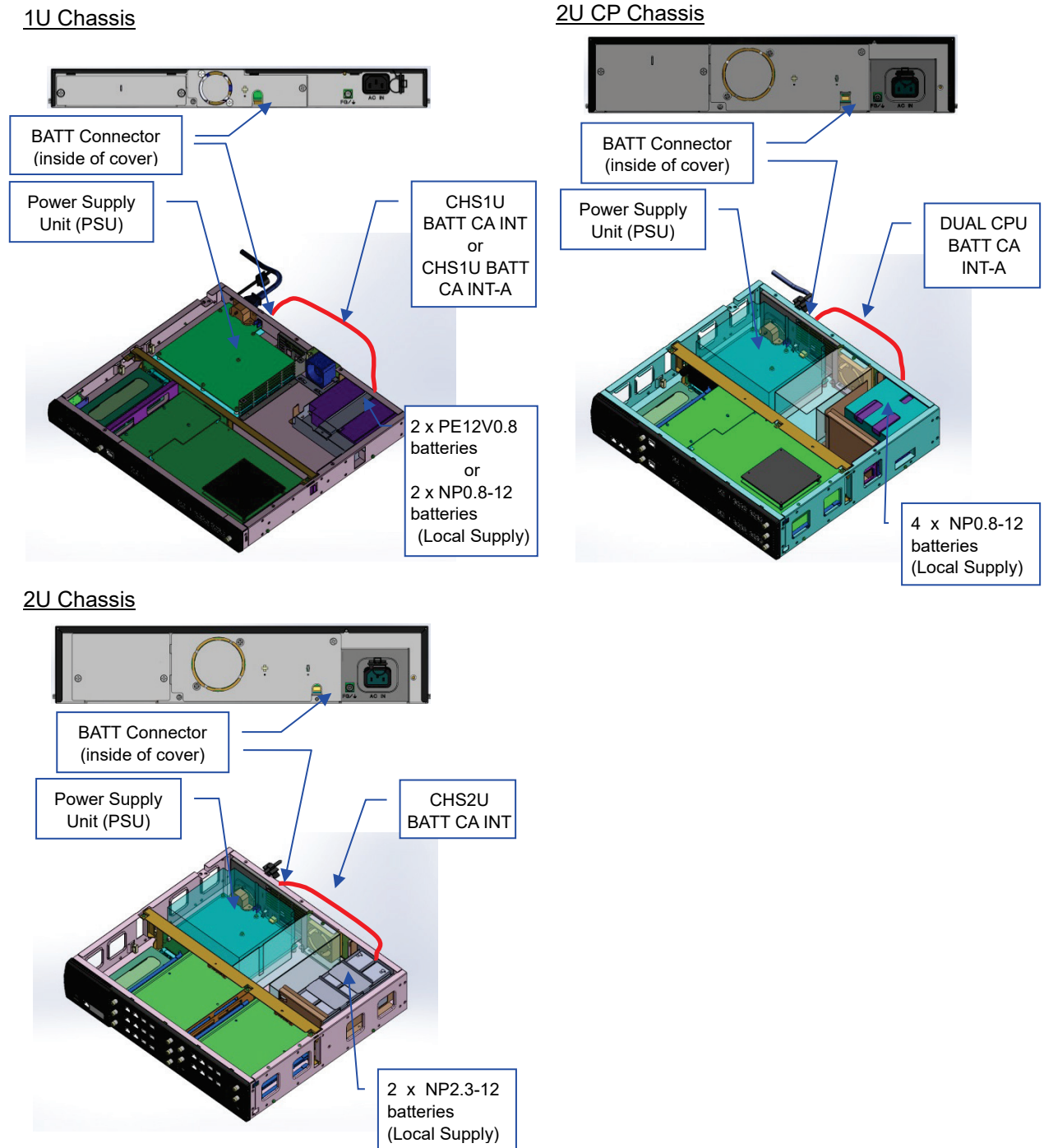


Figure 6-3 Built-in Battery Connection

Table 6-2 Built-in Battery Cable

Description	B Code	Feature
CHS1U BATT CA INT	BE106736	Battery Cable for short-term built-in batteries (with Tyco. 1-480318-0 connectors) for 1U Chassis Including; <ul style="list-style-type: none"> ● 1 x Cable (270mm (0.9ft)) Cable from 1U Chassis to batteries
CHS1U BATT CA INT KIT(GS-NP)	BE107370	Battery Cable for short-term built-in batteries (with JST SVH-21T-P1.1 connectors) for 1U Chassis (for EU / Australia etc.) Including; <ul style="list-style-type: none"> ● 1 x Cable (270mm (0.9ft)) Cable from 1U Chassis to batteries ● 1 x PZ-M710 JST connectors board ● Accessories for PZ-M710 mounting
DUAL CPU BATT CA INT-A	---	Battery Cable for short-term built-in batteries for 2U CP Chassis. Included in CHS2U(D) BATT MTG KIT. Please refer to Table 3-4.
CHS2U BATT CA INT	BE106737	Battery Cable for short-term built-in battery for 2U Chassis Including; <ul style="list-style-type: none"> ● 1 x Cable A (480mm (1.6ft)) Cable from 2U Chassis to batteries (JST Faston tab 187 connectors) ● 1 x Cable B (80mm (0.3ft)) Cable between batteries (JST Faston tab 187 connectors)

(2) External Battery Cable Connection w/ Battery Box

When CHSG LARGE BATT BOX is used, there are two types of the external battery cable. Connections are shown below.

The battery cables are attached in the CHSG LARGE BATT BOX.

Only Floor Mounting Installation is available.

The external batteries must be installed in close proximity of the Units.

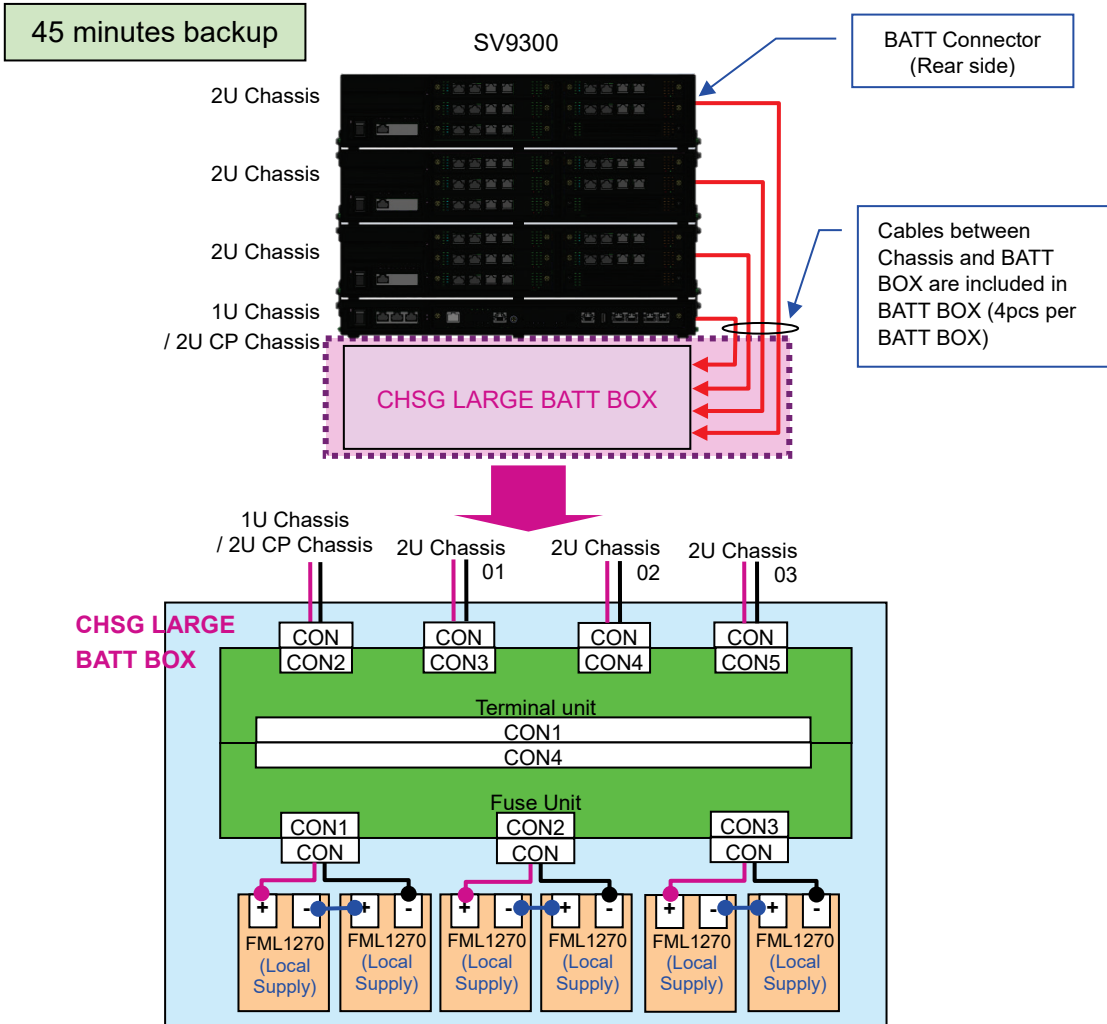


Figure 6-4 External Battery Connection (45 minutes backup)

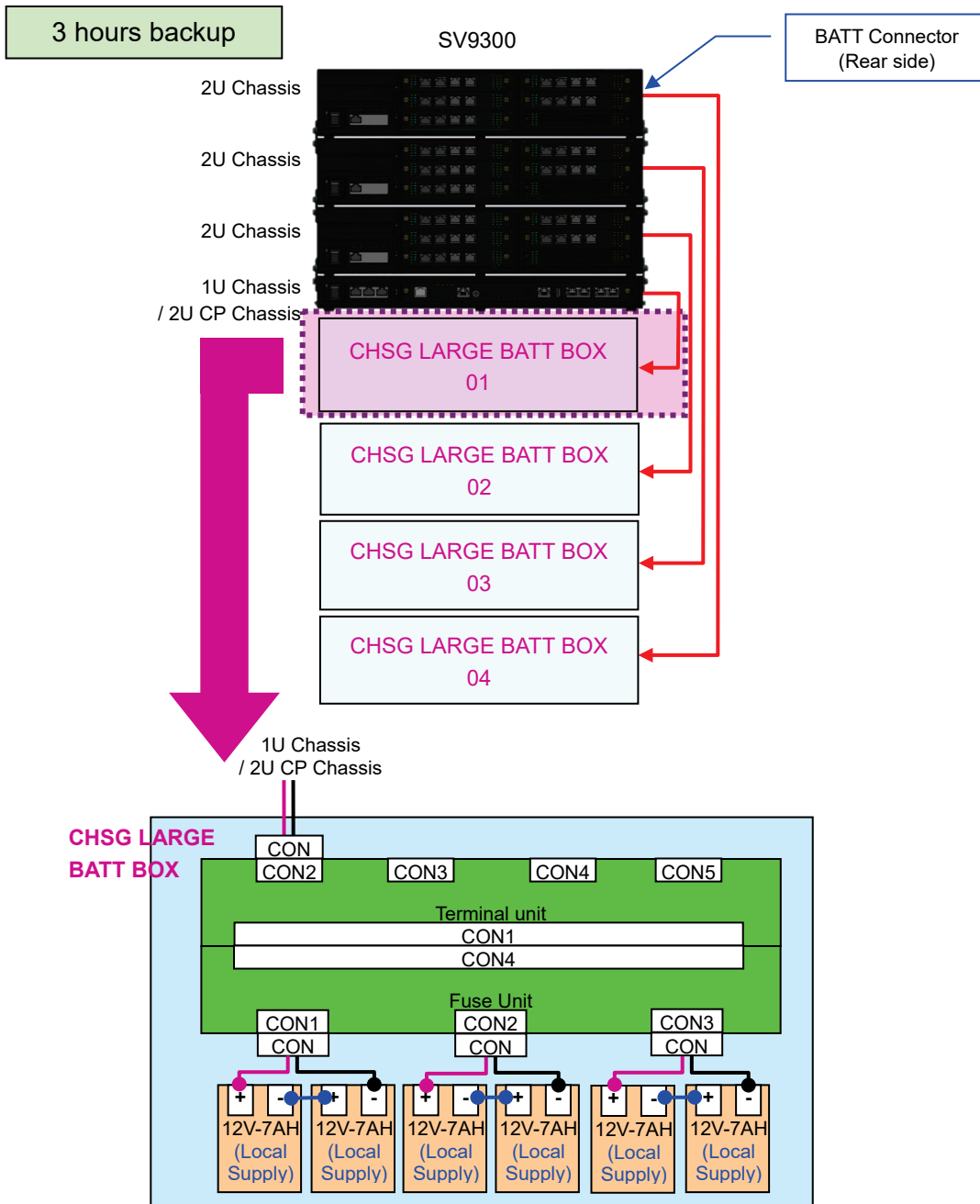


Figure 6-5 External Battery Connection (3 hours backup)

(3) External Battery Cable Connection w/o Battery Box

When external batteries are required, the external batteries must be installed in close proximity of the Units.

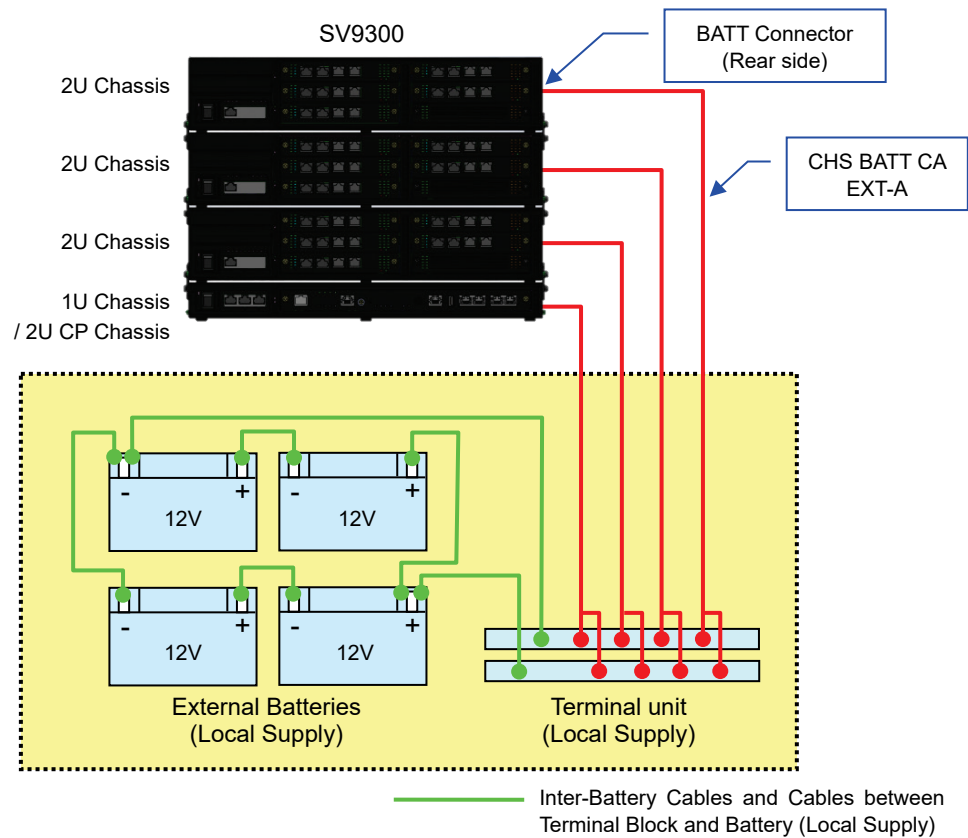


Figure 6-6 External Battery Connection w/o Battery Box

Table 6-3 External Battery Cable w/o Battery Box

Description	B Code	Feature
CHS BATT CA EXT-A	BE106738	External Battery Cable (1 per Chassis) Including <ul style="list-style-type: none"> 1 x Cable (400mm (1.3ft)) Chassis – Terminal Unit

Table 6-4 Battery Capacity of External Battery w/o Battery Box

Configuration	Battery Capacity (Number of Batteries)	Number of CHS BATT CA EXT-A
1U/2U CP	24AH (12V-24AH x 2 pcs)	1
1U/2U CP + 2U		2
1U/2U CP + 2Ux2	48AH (12V-24AH x 4 pcs)	3
1U/2U CP + 2Ux3		4

6.4 Desk Console Connection

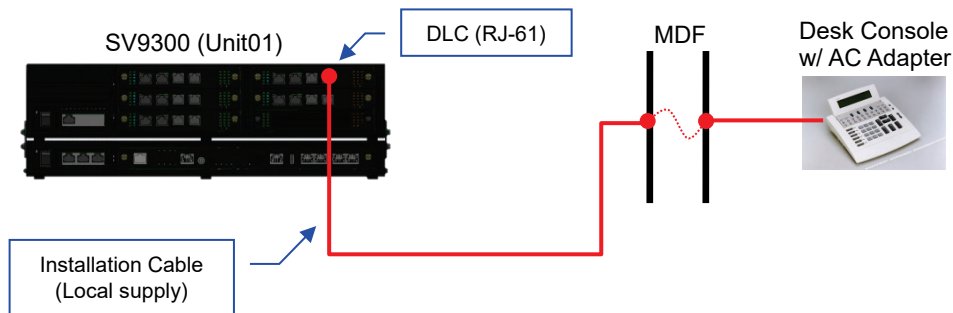


Figure 6-7 Desk Console Connection

Note: Desk Consoles can be accommodated in the SV9300 with the following limitations.

- 1) The following models of the Desk Consoles can be accommodated.
 - SN716 DESK CON A-C
 - SN753 DESK CON F-A (for EU)
- 2) The DLC blade and the Desk Console have to be updated to the following firmware (F/W) versions.
 - DLC Blade F/W: ver. 2.3 or higher
 - SN716 DESK CON A-C F/W: ver. 7A or higher
 - SN753 DESK CON F-A F/W: ver. 7A or higher
- 3) The DLC blades for the Desk Consoles have to be mounted in the Unit01.
- 4) Maximum 2 x Desk Consoles can be accommodated in a DLC blade.
DT500/400/300, D^{em}IP and DSS Console can be accommodated in the DLC blade together.
- 5) Maximum 8 x Desk Consoles can be accommodated in a system.
- 6) AC Adapter is mandatory for the Desk Consoles.

6.5 PCPro Connection

(1) PCPro Direct Connection



Figure 6-8 PCPro Direct Connection

Note 1: RS-232C ports in Unit01 are available for PCPro connection during the normal operation.

Note 2: On Dual CPU configuration, RS-232C ports on either #0 CPU or #1 CPU in Unit01 can be used.

Table 6-5 PCPro Connection Cable

Description	B Code	Feature
RS CONSOLE CA-A	BE106426	PCPro Connection Cable 2.0m (6.6ft)

(2) PCPro Remote Connection (via internal modem)

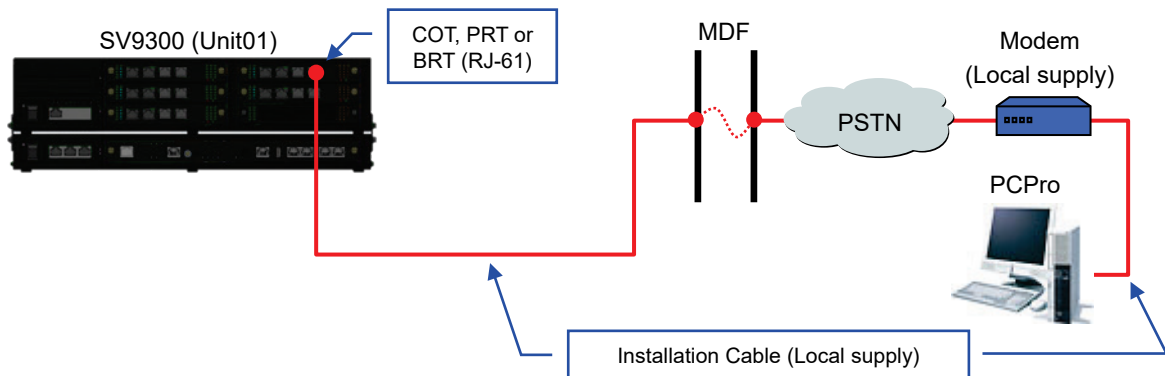


Figure 6-9 PCPro Remote Connection (via internal modem)

Note: Internal modem and COT/PRT/BRT in Unit01 is available for the PCPro remote connection.

(3) PCPro Remote Connection (via external modem)

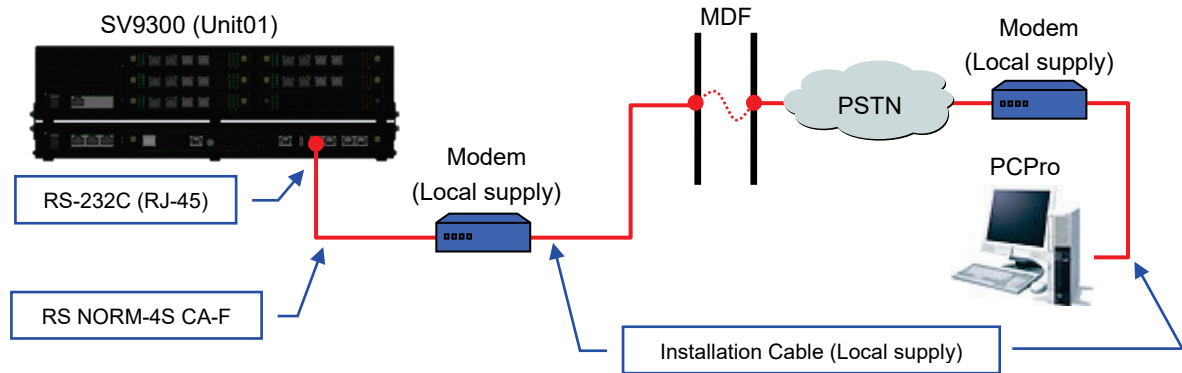


Figure 6-10 PCPro Remote Connection (via external modem)

Note 1: RS-232C ports in Unit01 are available for PCPro connection during the normal operation.

Note 2: Connection from PCPro is only available.

Note 3: On Dual CPU configuration, RS-232C ports on either #0 CPU or #1 CPU in Unit01 can be used.

Table 6-6 PCPro Remote Connection Cable (via external modem)

Description	B Code	Feature
RS NORM-4S CA-F	BE106427	RS-232C Cable (normal) 4.0m (13.1ft) (inch screw, MALE)

6.6 SMDR / Hotel Printer / MCI / PMS Connection

(1) SMDR / Hotel Printer / MCI / PMS Direct Connection (via RS-232C)

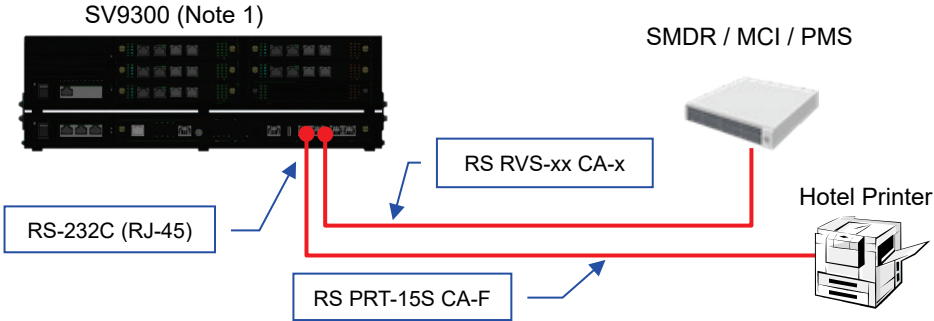


Figure 6-11 SMDR / Hotel Printer / MCI / PMS Direct Connection

Note 1: RS-232C ports in Unit01 are available for PCPro, SMDR, Hotel Printer, MCI and PMS connections. On the other hand, RS-232C ports in Unit02 and Unit03 are available for Hotel Printer, MCI and PMS connections.

Note 2: On Dual CPU configuration, RS-232C ports on either #0 CPU or #1 CPU in Unit01-03 can be used.

Table 6-7 SMDR / Hotel Printer / MCI Direct Connection Cable

Description	B Code	Feature
RS RVS-15S CA-F	BE106428	RS-232C Cable (reverse) 15.0m (49.2ft) (inch screw, MALE)
RS RVS-4S CA-F	BE106429	RS-232C Cable (reverse) 4.0m (13.1ft) (inch screw, MALE)
RS RVS-4S CA-G	BE106430	RS-232C Cable (reverse) 4.0m (13.1ft) (inch screw, FEMALE)
RS PRT-15S CA-F	BE106431	RS-232C Cable (Printer) 15.0m (49.2ft) (inch screw, MALE)

(2) SMDR / MCI / PMS Remote Connection (via external modem)

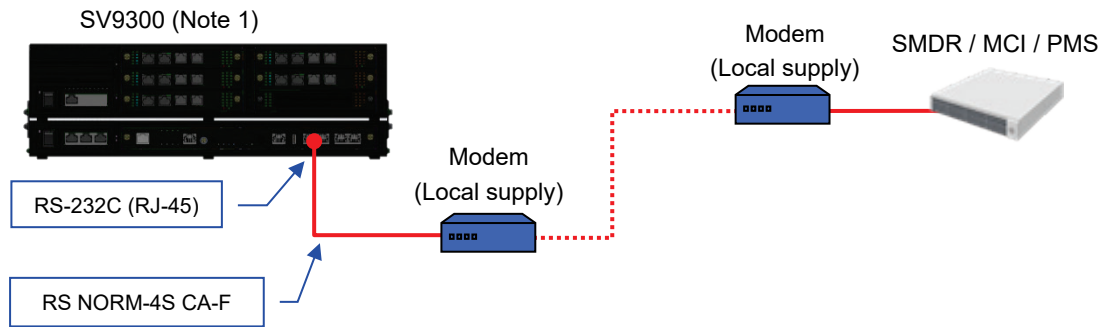


Figure 6-12 SMDR / MCI / PMS Remote Connection (via external modem)

Note 1: RS-232C ports in Unit01 are available for PCPro, SMDR, Hotel Printer, MCI and PMS connections. On the other hand, RS-232C ports in Unit02 and Unit03 are available for Hotel Printer, MCI and PMS connections.

Note 2: On Dual CPU configuration, RS-232C ports on either #0 CPU or #1 CPU in Unit01-03 can be used.

Table 6-8 SMDR / MCI Remote Connection Cable (via external modem)

Description	B Code	Feature
RS NORM-4S CA-F	BE106427	RS-232C Cable (normal) 4.0m (13.1ft) (inch screw, MALE)

6.7 TAS Equipment Connection

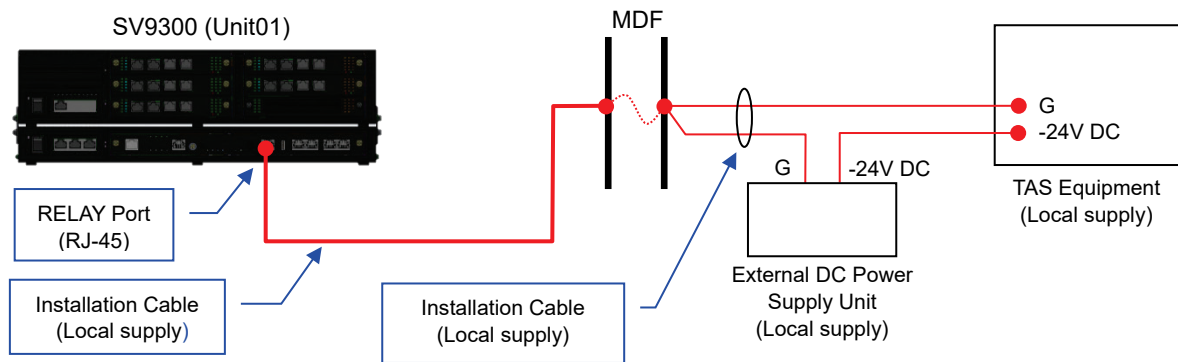


Figure 6-13 TAS Equipment Connection

Note: On Dual CPU configuration, Relay port on either #0 CPU or #1 CPU in Unit01 can be used.

6.8 External Paging Connection

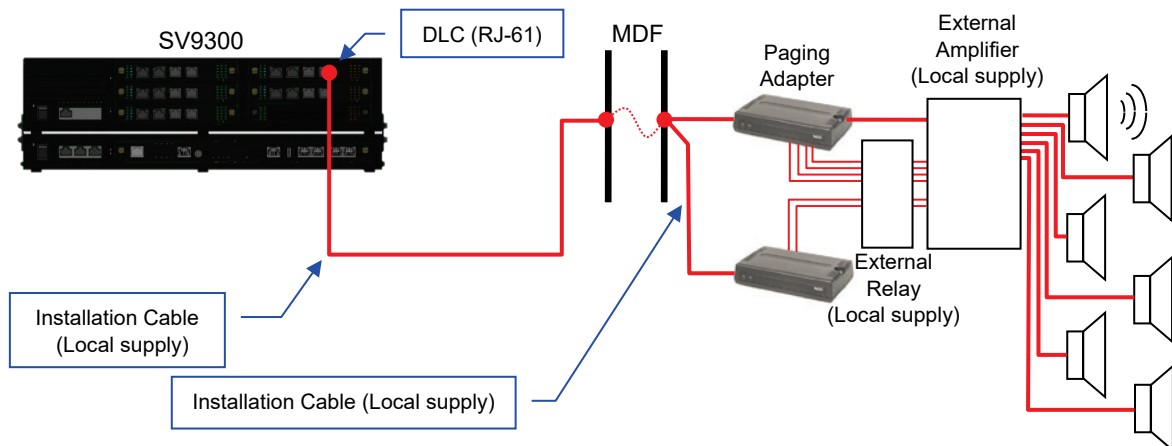


Figure 6-14 External Paging Connection

Note: Paging Adapter model is different in each market.

- PGD(2)-U10 ADP / IP8WW-2PGDAD-A (for US)
- PGD(2)-U13 ADP / IP8WW-2PGDAD-A (for Australia)
- IP1WW-2PGDAD / IP8WW-2PGDAD-A (for EU / Asia / Russia / China)

6.9 External Music Source Connection

(1) External Music Source Connection – Built-in MoH Port

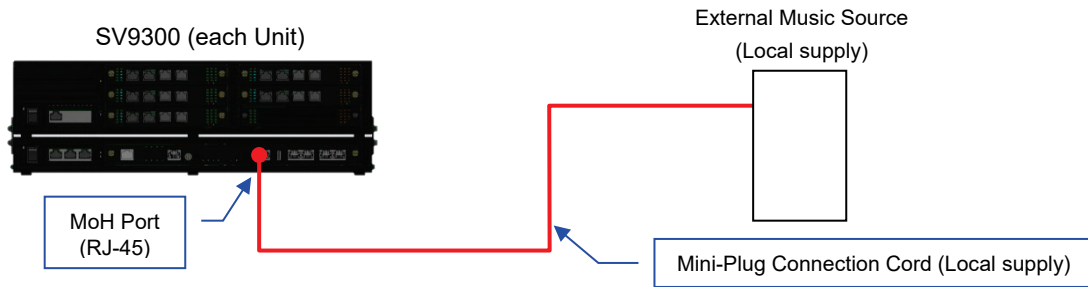


Figure 6-15 External Music Source Connection – Built-in MoH Port

Note: On Dual CPU configuration, the external music source needs to be connected to each MoH port on #0 CPU and #1 CPU in Unit01-04.

(2) External Music Source Connection – Paging Adapter

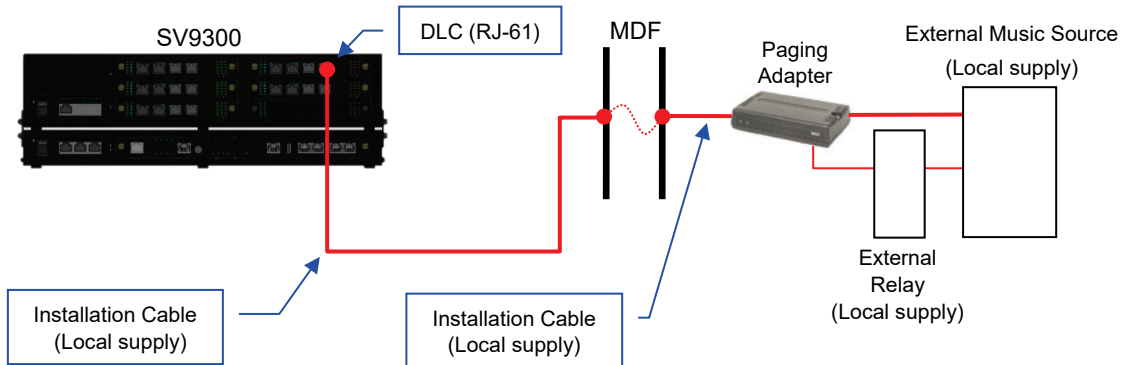


Figure 6-16 External Music Source Connection – Paging Adapter

Note: Paging Adapter model is different in each market.

- PGD(2)-U10 ADP / IP8WW-2PGDAD-A (for US)
- PGD(2)-U13 ADP / IP8WW-2PGDAD-A (for Australia)
- IP1WW-2PGDAD / IP8WW-2PGDAD-A (for EU / Asia / Russia / China)

6.10 Nurse Call System Connection (for Asia/China)

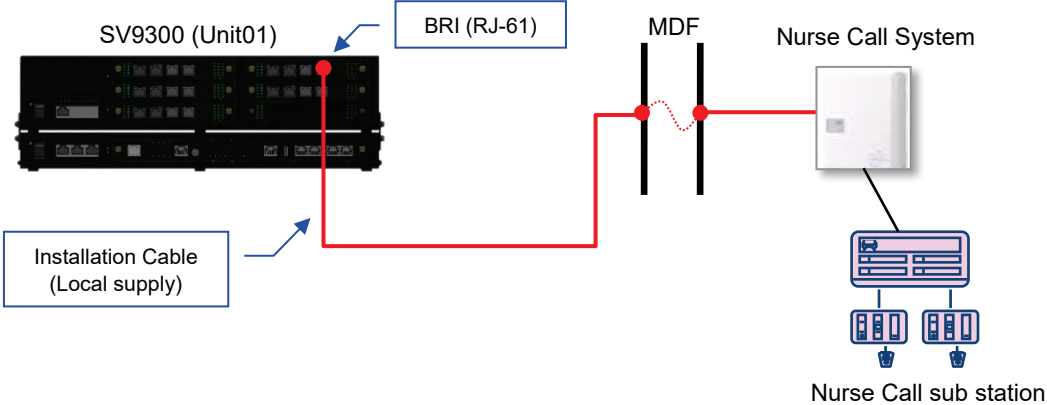


Figure 6-17 Nurse Call System Connection

- Note:** Nurse Call System can be accommodated in the SV9300 with the following limitations.
- 1) The BRI blades for the Nurse Call System have to be mounted in the Unit01.
 - 2) Maximum 2 x Nurse Call System can be accommodated in a BRI blade (2B+D).
 - Nurse Call System (2B+D): Max. 2/BRI
 - Nurse Call System (4B+D): Max. 1/BRI
 - 3) Maximum 63 x Nurse Call System (2B+D) or maximum 36 x Nurse Call System (4B+D) can be accommodated in a system.

6.11 IP Connection

There are two types of NIC ports in a CPU blade.

One is VoIP Port on VoIPDB. It is Gigabit Ethernet port (10BASE-T/100BASE-TX /1000BASE-T), which is mainly used for IP terminals.

Another is Maintenance Port on the CPU blade. It is Fast Ethernet port (10BASE-T /100BASE-TX), which is mainly used for PCPro. Only Maintenance Port in Unit01 is available during normal operation.

The availability of the NIC ports for each application is shown below.

Table 6-9 NIC Port Setting by Application

	Maintenance Port	VoIP Port	Remarks
IP Phone (DT900/800/700 series etc.)	NA	X	
P2P CCIS Trunk (Note 1)	NA	X	
SIP Trunk	NA	X	
SNTP	NA	X	GPZ-64IPLD or GPZ-128IPLD is required.
PCPro	X	X	Can use both ports at the same time
OAI (Note 1)	X	X	Select the port
SMDR (Note 1)	X	X	Select the port
MCI (Note 1)	X	X	Select the port
PMS (Note 1)	X	X	Select the port
SNMP (Note 1)	X	X	<ul style="list-style-type: none"> ● GET/SET commands from PC: Can use both ports at the same time ● TRAP command from PBX: Can use a port the default gateway is set
WLAN Controller / AP	NA	X	
Inter-Unit connection	NA	X	
Remote-Unit connection (Note 2)	NA	X	
Dual CPU Data Synchronization	X	NA	2U CP Chassis only
In-skin Server (for Collaboration on Meeting)	NA	X	

X: Available, NA: Not available

Note 1: Available at Main Unit (Unit01) only.

Note 2: Including Secondary Unit connection for Failover Mode

When both types of the NIC ports are used at the same time, the followings must be considered.

- The VoIP and Maintenance ports must be on a different subnet.
- Default gateway can be set to either the VoIP Port or the Maintenance Port, but not both.

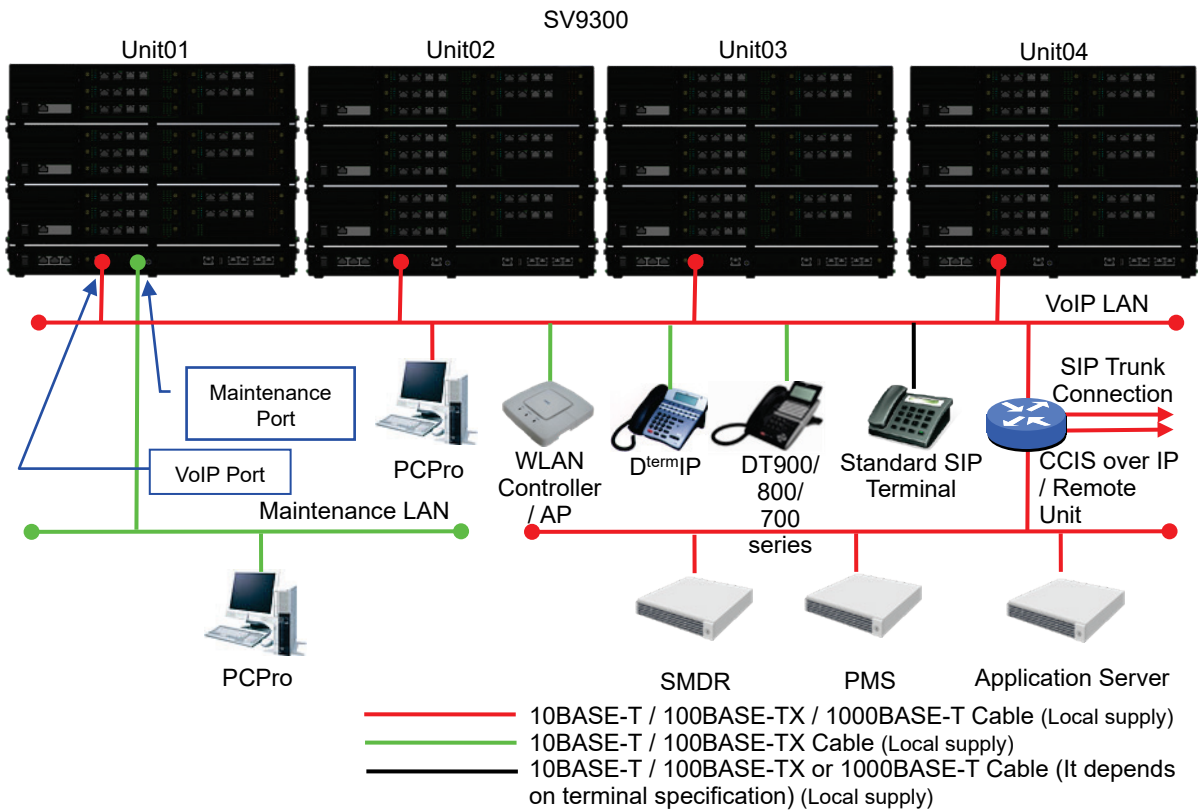


Figure 6-18 IP Connection (IP System or Multi-Unit configuration)

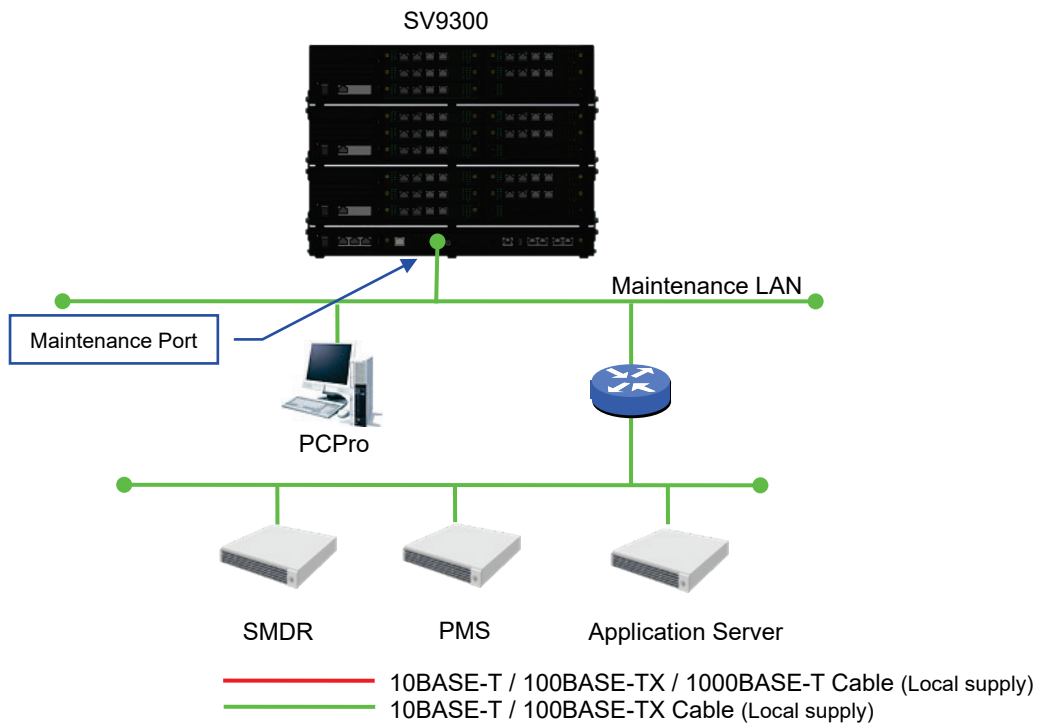


Figure 6-19 IP Connection (TDM System with 1-Unit configuration)

On Dual CPU configuration, CPU blades mounted in 2U CP Chassis have to be connected to each other to synchronize the system data, charging data, license data etc. The following connection methods are available.

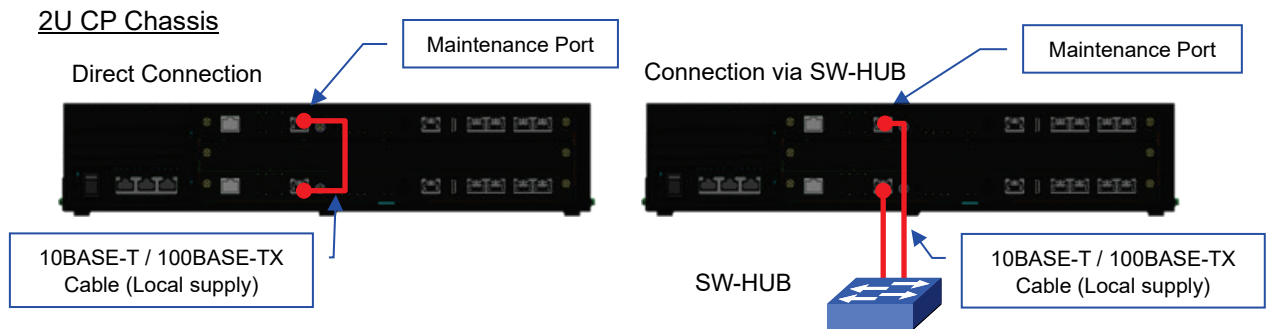


Figure 6-20 Internal Chassis Connection (2U CP Chassis)

A closed and bandwidth guaranteed network is preferable, such as IP-VPN (Layer 3 VPN) or Wide Area Ethernet service (Layer 2 VPN).

The following table shows the network requirement for the inter-Unit connection and the Remote-Unit connection.

Table 6-10 Network Requirement for inter-Unit/Remote-Unit connections

Item		Requirement	
		Inter-Unit connection (between Unit01 and Unit02-04)	Remote-Unit connection (Note) (between Unit01 and Unit05-50)
Protocol		TCP/IP transparent	
Maximum delay time		One-way: 100ms, Return-way: 200ms (Recommended) One-way: 120ms, Return-way: 240ms	
Required bandwidth	control	100kbps	50kbps
	voice	Depending on the traffic	

Note: Including Secondary Unit connection for Failover Mode

7. Software

Table 7-1 Software

Description	B Code	Feature
SC-4886 LYRA BSC PROG-V9	---	SV9300 Generic Program for V9
SA-2336 LYRA MAT PROG-IV9	---	SV9300 PCPro Program for V9

8. License

When installing the system and activating operational features beyond default system ports/features available initially, several licenses are required.

The required licenses (except System Version license) are combined and a license file is published on-line. The license file is loaded into the CPU blade and activated on-line.

Once the license file is loaded into the CPU blade and activated on-line, it cannot be used for any other systems (Copy protected).

Maximum 128 license files can be loaded into the CPU blade per system.

The following table shows license models available in SV9300.

Table 8-1 License

Category	Functions	Min	Max	License Model
System	Port Capacity	1	2048	SV93 PORT-1 LIC
	VoIP Channels	16	6400	SV93 VOIP CH-16 LIC (for US/ Australia)
	System Version License V9	ON/OFF		SV93 SYS VERSION 9 LIC
	Dual CPU	ON/OFF		SV93 SYS DUAL CPU OPTION
	Failover	ON/OFF		SV93 SYS FAILOVER OPTION
	Failover/Remote Extended License (30 days)	ON/OFF		SV93 SYS FO/RM 30 DAYS LIC (for US/ Australia)
	Failover/Remote Extended License (60 days)	ON/OFF		SV93 SYS FO/RM 60 DAYS LIC (for US/ Australia)
Extension	IP Phone (DT900/800/700/D ^{term} IP/MH240)	1	1536	SV93 IP PHONE-1 LIC
	D ^{term} SP30/SP350	1	1536	SV93 SOFTPHONE-1 LIC
	D ^{term} SP30/SP350 ACD	1	1536	SV93 SOFTPHONE ACD-1 LIC
	Standard SIP Terminal	1	1024	SV93 STD SIP PHONE-1 LIC
Trunk	SIP Trunk Channels	1	512	SV93 SIP TRUNK CH-1 LIC
	P2P CCIS Channels	1	512	SV93 P2P-CCIS TRUNK CH-1 LIC
Network	Remote Sites (Remote Unit)	1	46	SV93 REMOTE UNIT-1 LIC
	Mobility Access (MA) users	1	1536	SV93 MOBILITY ACCESS-1 LIC

(to be continued in next page)

Table 8-1 License (cont'd)

Category	Functions	Min	Max	License Model
Feature	CCIS Feature	ON/OFF		SV93 SYS CCIS NETWORK OPTION
	PMS Feature	ON/OFF		SV93 SYS HOTEL/MOTEL OPTION
	OAI Feature	ON/OFF		SV93 SYS OAI LIC
	Embedded Conference Feature	8	32	SV93 CONF PORT-8 LIC (up to three licenses available)
	VoIP Encryption (Note 1)	0	1000	SV93 SYS IP ENCRYPTION OPTION
	Nurse Call System	ON/OFF		SV93 SYS NURSE CALL OPTION (for Asia/China)
	Hardware Migration (from SV8300 to SV9300)	ON/OFF		SV93 SYS HW MIGRATION LIC
In-skin UMS	UM8000 Mailbox	1	2000	SV93 UM8K UMS CLIENT-1 LIC
	UM8000 Mail Multilanguage Support	1	23	SV93 UM8K LANGUAGE-1 LIC
	UM8000 Mail TTS for MS Outlook	1	6	SV93 UM8K SYS TTS PORT-1 LIC
	UM8000 Mail TTS Language	1	10	SV93 UM8K TTS LANGUAGE-1 LIC
	UM8000 Mail FAX Port	1	4	SV93 UM8K FAX PORT-1 LIC
	UM8000 Mail Hospitality / PMS	ON/OFF		SV93 UM8K HOTEL & PMS LIC
	UM8000 Mail Hospitality Language	1	10	SV93 UM8K HOTEL LANGUAGE-1 LIC
	UM8000 Mail Amis/Plus Net	ON/OFF		SV93 UM8K SYS AMIS NETWORK LIC
	UM8000 Hotel Site (for Hotel & 200-2000 mailboxes)	ON/OFF		SV93 UM8K HOTEL SITE LIC
PVA Conference	SMB8000 Multimedia Conference Ports	8	128	SV93 PVA CONF PORT-8 LIC
RGA Conference	RGA Conference Ports	8	256	SV93 RGA CONF PORT-8 LIC
	RGA Conference Enhanced Feature-I (Conference Call Recording)	1	1	SV93 RGA CONF ENH –I LIC
	RGA Additional Language	1	60	SV93 RGA CONF LANG-1 LIC

Note : One License(SV9300 ENCRYPTION LIC) equals 1000 users.

The following table shows the required licenses for each feature.

Table 8-2 Required Licenses

Feature	License required (Note 1)	Hardware required (Note 2)	Remarks
Terminal Accommodation			
Single Line Telephone	SV93 PORT-1 LIC	LC Blade	
DT500/400/300 series/ D ^{term} series i	SV93 PORT-1 LIC	DLC Blade	
DSS Console (TDM)	SV93 PORT-1 LIC	DLC Blade	
ISDN Terminal	SV93 PORT-1 LIC	ILC Blade	
DT900/800/700 series/ D ^{term} IP /MH240	SV93 PORT-1 LIC SV93 IP PHONE-1 LIC		
DSS Console (DT900/800/700 Side Option)	SV93 PORT-1 LIC		
Standard SIP Terminal	SV93 PORT-1 LIC SV93 STD SIP PHONE-1 LIC		
D ^{term} SP30 / SP350	SV93 PORT-1 LIC SV93 SOFTPHONE-1 LIC		
D ^{term} SP30 / SP350 ACD	SV93 PORT-1 LIC SV93 SOFTPHONE ACD-1 LIC		
Virtual station	(Not required)		
Trunk Accommodation			
Analog Trunk	SV93 PORT-1 LIC	Analog Trunk Blade	
ISDN Trunk	SV93 PORT-1 LIC	PRT/BRT Blade	
QSIG Trunk	SV93 PORT-1 LIC SV93 SYS CCIS NETWORK OPTION	PRT Blade	
CCIS Trunk	SV93 PORT-1 LIC SV93 SYS CCIS NETWORK OPTION	CCT Blade	
IP Trunk (P2P-CCIS)	SV93 PORT-1 LIC SV93 SYS CCIS NETWORK OPTION SV93 P2P-CCIS TRUNK CH-1 LIC		
SIP Trunk	SV93 PORT-1 LIC SV93 SIP TRUNK CH-1 LIC		

(to be continued in next page)

Table 8-2 Required Licenses (cont'd)

Feature	License required (Note 1)	Hardware required (Note 2)	Remarks
Others			
Dual CPU	SV93 SYS DUAL CPU OPTION	Dual CPU Blades	
Failover	SV93 SYS FAILOVER OPTION	Secondary Unit	
Remote Unit	SV93 REMOTE UNIT-1 LIC		
Failover/Remote Extended License	SV93 SYS FO/RM xx DAYS LIC		30 or 60 day license (System Max 60 Days) (for US/ Australia/LA/Asia)
Embedded Conference (32 Party)	SV93 CONF PORT-8 LIC		
VoIP Encryption	SV93 SYS IP ENCRYPTION OPTION		
Mobility Access (MA) user	SV93 MOBILITY ACCESS-1 LIC		
PMS	SV93 SYS HOTEL/MOTEL OPTION		
OAI	SV93 SYS OAI LIC		
Nurse Call System Interface	SV93 SYS NURSE CALL OPTION	BRT Blade	(for Asia/China)
UM8000	SV93 PORT-1 LIC	In-skin UMS Blade	
UM8000 Mailbox	SV93 UM8K UMS CLIENT-1 LIC		
UM8000 Mail Multilanguage Support	SV93 UM8K LANGUAGE-1 LIC		
UM8000 Mail TTS for MS Outlook	SV93 UM8K SYS TTS PORT-1 LIC		
UM8000 Mail TTS Language	SV93 UM8K TTS LANGUAGE-1 LIC		
UM8000 Mail FAX Port	SV93 UM8K FAX PORT-1 LIC		
UM8000 Mail Hospitality / PMS	UM8000 HOSPITALITY & PMS LIC		
UM8000 Mail Hospitality Language	SV93 UM8K HOTEL LANGUAGE-1 LIC		
UM8000 Mail Amis/Plus Net	SV93 UM8K SYS AMIS NETWORK LIC		
UM8000 Hotel Site (for Hotel & 200-2000 mailboxes)	SV93 UM8K HOTEL SITE LIC		
Conference Bridge	SV93 PORT-1 LIC SV93 PVA CONF PORT-8 LIC	Conference Bridge Blade (PVA Blade)	(for US/ Australia)
Conference Bridge	SV93 PORT-1 LIC SV93 RGA CONF PORT-8 LIC	Conference Bridge Blade (RGA Blade)	
RGA Conference Enhance I (Conference Call Recording)	SV93 RGA CONF ENH-I LIC		
RGA Additional Language License	SV93 RGA CONF LANG-1 LIC		

Note 1: System Version License is required to activate system version features.

Note 2: Number of System Port Capacity Licenses required for the hardware is described in Table 8-3.

The following table shows the required System Port Capacity Licenses for each blade/daughter board.

Table 8-3 Required System Port Capacity Licenses

Category	Description	No. of Required System Port Capacity Licenses	Remarks
DLC (Note 1)	GCD-8DLCA/8DLCA-A	8	
	GPZ-8DLCB	8	
	GCD-16DLCA/16DLCA-A	16	
	GCD-16DLCA-A	16	
LC	GCD-4LCF	4	
	GCD-8LCF	8	
	GPZ-4LCF	4	
	GPZ-8LCF	8	
	GCD-4LCG	4	
	GCD-8LCG	8	
	GPZ-4LCG	4	
	GPZ-8LCG	8	
COT	GCD-4COTA	4	
	GPZ-4COTE	4	
	GCD-4COTC/4COTC-A	4	
	GPZ-4COTG/4COTG-A	4	
	GCD-4COTB/4COTB-A	4	
	GPZ-4COTF/4COTF-A	4	
BRT/ILC	GCD-2BRIA	4	
	GPZ-2BRIA	4	
PRT/DTI	GCD-PRTA	23 (Note 2)	PRI (23B+D) / QSIG
		30 (Note 2)	PRI (30B+D) / QSIG
		24	T1 DTI
		30	E1 DTI
CCT	GCD-CCTA	23 (Note 2)	CCT (1.5M)
		30 (Note 2)	CCT (2M)
Analog Trunk	GCD-4DIOPA	4	
	GCD-4DIOPB	4	
	GCD-4ODTA	4	
	GCD-4ODTB	4	
APL	GCD-ETIA (discontinued)	-	
	GCD-VM00 (discontinued)	16	
	GCD-PVAA (discontinued)	16	Conference Bridge
	GCD-RGA (discontinued)	32	Conference Bridge

Note 1: When using DT500/400/300/D^{term} with APR, the following number of system port capacity licenses is required.

- Single Port Mode: One license per DLC-line
- Dual Port Mode: Two licenses per DLC-line

Note 2: The number of System Port Capacity Licenses required is different from the number of actual Physical Ports shown in Table 4-2.

9. System Capacity

9.1 Traffic Capacity

The following shows the traffic capacity and its conditions of the SV9300 system.

- Maximum Traffic Capacity: 12,000 BHCA
- Traffic Conditions:
 - (1) $2n + m < 12,000$ BHCA
 - n: Call Traffic from DT900/800/700 series and standard SIP terminals
 - m: Call Traffic from other terminals
 - (2) Call Mix
 - Outgoing Call: 30%
 - Incoming Call: 30%
 - Intra-office Call: 40%

Note: *When using SIP trunk, the traffic capacity is as follows;
5,000 BHCA/system, 2,400 BHCA/unit*

9.2 System Port Capacity

The following table shows the system port capacity of the SV9300 system.

Table 9-1 System Port Capacity

Item		1 Unit			2 Units	3 Units	4 Units	System Max.				
		2U x 1	2U x 2	2U x 3	2U x 6	2U x 9	2U x 12	Standalone	Remote Unit			
Blade Slots		6	12	18	36	54	72	72		900		
Port	Physical Port	108	216	324	648	972	1296	1296	2048	2048	2048	
	Virtual Port	1536			2048			2048		2048		
Physical Port	SLT (-28V)	96	192	288	576	864	1152	1152	1536	1536	1536	
	SLT (-48V)	24	48	72	144	216	288	288		1536		
	Digital Multiline Terminal (-48V) (DT500/400/300 series/D ^{term} series i)	96	192	288	576	864	1152	1152		1536		
	Digital Multiline Terminal (-48V) (DT500/400/300 series w/APR) (Note 1)	28 (28)	56 (56)	84 (84)	168 (168)	252 (252)	336 (336)	336 (336)		768 (768)		
	Digital Multiline Terminal (-48V) (D ^{term} series i w/APR) (Note 1)	21 (21)	42 (42)	63 (63)	126 (126)	189 (189)	252 (252)	252 (252)		768 (768)		
	DSS Console (for D ^{term} series i / DT500/400/300 series) (Note 2)	32						32		32		
	Desk Console (Note 4)	8						8		8		
	ISDN Terminal (BRI Bch) (Note 3)	48	96	144	256			256		256		
	In-skin UMS Port	48	96	128				128		128		
	16-Party Conference w/ PVA (ch)	96	128				128	128				
	32-Party Conference w/ RGA (ch)	96	192	256				256		256		
	Virtual Port	IP Multiline Terminal (D ^{term} IP)	1024			1536				1536		1536
IP Multiline Terminal (DT900/800/700 series)												
Softphone												
WiFi Handset (MH240)												
IP Single Line Telephone (SIP) (Standard SIP Terminal)		512			1024			1024	1024			
SIP Converter (for IP Single Line Telephone(SIP))		96			192	288	384	384	384			
DSS Console (for DT900/800/700 series) (Note 2)		32						32	32			
Physical Port	Central Office	COT		48	96	144	288	432	512	512	512	512
	Trunk	DID		24	48	72	144	216	288	288		
	Tie Line Trunk	E&M		24	48	72	144	216	288	288		
	BRI Trunk (Note 3)			48	96	144	256		256	256		
	PRI Trunk (Note 6)	23B+D	96	192	288	504			504	504		
		30B+D	93	186	279	496			496	496		
	DTI Trunk	T1	96	192	288	504			504	504		
		E1	90	180	270	510			510	510		
	CCIS Trunk (Note 6)	1.5M	96	192	288	384			384	384		
		2M	93	186	279	496			496	496		
Virtual Port	IP Trunk (P2P CCIS) (Note 4)	512						512	512			
	SIP Trunk	127			254	381	508	508	512			

Table 9-1 System Port Capacity (cont'd)

Item		1 Unit			2 Units	3 Units	4 Units	System Max.	
		2U x 1	2U x 2	2U x 3	2U x 6	2U x 9	2U x 12	Standalone	Remote Unit
VoIP Channel	w/ RTP	128			256	384	512	512	6400
Modem Channel (Note 4)		1						1	1
Speech Synthesis announcement (Note 4)		8						8	16
VRS Message (Note 4)		16						16	16
DTMF Sender		64						64	64
Caller ID Sender (FSK)		16						16	16
DTMF Receiver (Note 5)		32						32	32
MF Sender (Note 4, 5)		32						32	32
MF Receiver (Note 5)		32						32	32
Caller ID Receiver (FSK) (Note 5)		32						32	32
Caller ID Receiver (DTMF) (Note 5)		32						32	32
MFC Sender (Note 5)		16						16	16
MFC Receiver (Note 5)		16						16	16
3-/4-Party Conference (ch)		64			128			128	128
32-Party Conference (ch) (Note 7)		32						32	32

Note 1: When using DT500/400/300/D^{term} with APR (Dual Port Mode), the physical ports for analog station shown in parenthesis are required in addition to the physical ports for Multiline Terminal.

Note 2: The total number of following DSS Consoles is maximum 32 per system.

- DSS Console (for DT500/400/300 series /D^{term} series i)
- DSS Console (for DT900/800/700 series)
(DSS Console is not supported with DT820.)

Note 3: The required number of ports per blade is shown in Table 4-2.

(e.g. GCD-2BR1A + GPZ-2BR1A: 8 ports)

Note 4: Available at Main Unit (Unit01) only.

Note 5: The total number of following functions is maximum 32 per system.

- DTMF Receiver
- Caller ID Receiver (FSK)
- Caller ID Receiver (DTMF)
- MFC Sender
- MFC Receiver
- MF Sender
- MF Receiver

Note 6: The number of System Port Capacity Licenses required is different from the number of actual Physical Ports consumed. Refer to Table 8-2.

Note 7: The following conference groups can be configured.

- One, 32-party conference group
- Two, 16-party conference groups
- Four, eight-party conference groups

Appendix 1: MTBF

Category	Description	FIT	MTBF (Years)
for 1U Chassis / 2U CP Chassis			
Chassis	SN1779 LYRMA	11482	9.9
	SN1785 LYRMG	11482	9.9
	SN1780 LYRMB	18851	6.1
	SN1788 LYRMJ	18851	6.1
CPU	CC-CP10-A	9697	11.7
BUS	GPZ-BS10	3670	31.1
VoIP	GPZ-64IPLD	4094	30.6
	GPZ-128IPLD	4249	28.2
for 2U Chassis			
Chassis	SN1782 LYRMD	17598	6.5
	SN1786 LYRMH	17598	6.5
BUS	GPZ-BS11	1606	71.1
DLC	GCD-8DLCA/8DLCA-A	4985	22.9
	GPZ-8DLCB	4963	23.0
	GCD-16DLCA/16DLCA-A	6876	16.6
LC	GCD-4LCF	3303	34.6
	GCD-8LCF	3755	30.4
	GPZ-4LCF	1601	71.3
	GPZ-8LCF	2069	55.2
	GCD-4LCG	3303	34.6
	GCD-8LCG	3755	30.4
	GPZ-4LCG	1601	71.3
	GPZ-8LCG	2069	55.2
COT	GCD-4COTA	3658	31.2
	GPZ-4COTE	2942	38.8
	GCD-4COTC	3658	31.2
	GPZ-4COTG	2942	38.8
	GCD-4COTB	3866	29.5
	GPZ-4COTF	3281	34.7
	GCD-4COTC-A	3118	36.6
	GPZ-4COTG-A	2800	40.8
	GCD-4COTB-A	3580	31.9
GPZ-4COTF-A	3132	35.0	
BRT/ILC	GCD-2BRIA	3945	28.9
	GPZ-2BRIA	3456	33.0
PRT/DTI	GCD-PRTA	8988	12.7
CCT	GCD-CCTA	8988	12.7
Analog Trunk	GCD-4DIOPA	5239	21.7
	GCD-4DIOPB	5239	21.7
	GCD-4ODTA	4956	23.0
	GCD-4ODTB	4956	23.0
APL	GCD-ETIA (discontinued)	12228	9.3
	GCD-VM00 (discontinued)	3596	31.7
	GCD-PVAA (discontinued)	12520	9.1
	GCD-RGA (discontinued)	12900	8.8

Appendix 2: Maximum Power Consumption

Category	Description	Max. Power Consumption (mA)				Remarks
		3.3V	5V	-28V	-48V	
for 1U Chassis / 2U CP Chassis						
Chassis	SN1779 LYRMA	-	-	-	-	
	SN1785 LYRMG					
	SN1780 LYRMB					
	SN1788 LYRMJ	-	-	-	-	
CPU	CC-CP10-A	-	-	-	-	850mA with 12V
BUS	GPZ-BS10	240	-	-	-	
VoIP	GPZ-64IPLD	1900	-	-	-	
	GPZ-128IPLD	1900	-	-	-	
for 2U Chassis						
Chassis	SN1782 LYRMD	-	-	-	-	
	SN1786 LYRMH					
BUS	GPZ-BS11	80	-	-	-	
DLC	GCD-8DLCA	120	-	-	420	
	GCD-8DLCA-A	170	-	-	420	
	GPZ-8DLCB	70	-	-	420	
	GCD-16DLCA	180	-	-	840	
	GCD-16DLCA-A	250	-	-	840	
LC	GCD-4LCF	240	-	120	-	
	GCD-8LCF	400	-	230	-	
	GPZ-4LCF	160	-	120	-	
	GPZ-8LCF	330	-	230	-	
	GCD-4LCG	240	-	120	-	
	GCD-8LCG	400	-	230	-	
	GPZ-4LCG	160	-	120	-	
	GPZ-8LCG	330	-	230	-	
COT	GCD-4COTA	80	80	40	-	
	GPZ-4COTE	50	20	40	-	
	GCD-4COTC	80	80	40	-	
	GPZ-4COTG	50	20	40	-	
	GCD-4COTB	80	80	40	-	
	GPZ-4COTF	50	20	40	-	
	GCD-4COTC-A	206	-	12	-	
	GPZ-4COTG-A	70	-	12	-	
	GCD-4COTB-A	206	-	12	-	
	GPZ-4COTF-A	70	-	12	-	
BRT/ILC	GCD-2BRIA	400	10	-	10	(Note)
	GPZ-2BRIA	360	10	-	10	(Note)
PRT/DTI	GCD-PRTA	180	100	-	-	
CCT	GCD-CCTA	180	100	-	-	
Analog Trunk	GCD-4DIOPA	100	20	230	-	
	GCD-4DIOPB	100	20	230	-	
	GCD-4ODTA	80	30	120	-	
	GCD-4ODTB	80	30	120	-	
APL	GCD-ETIA (discontinued)	1640	-	-	-	
	GCD-VM00 (discontinued)	700	200	100	-	
	GCD-PVAA (discontinued)	1000	500	-	-	
	GCD-RGA (discontinued)	1300	300	200	-	

Note: Power consumption for power supply to connected ISDN terminals is not considered.

Appendix 3: Cable Length of Terminals

Equipment	Cable		Cable Length between SV9300 and Terminal	Remarks
	Kind of Cable	Pair		
D ^{term} series i /DT500/400/300 series (Note)	Twisted Pair Cable	1-pair	400m (1312ft) with 26 AWG	Same with or without AC adapter
			600m (1968ft) with 24 AWG	
			800m (2625ft) with 22 AWG	
DT900/800/700 series	LAN Cable (UTP cable 10BASE-T/100BASE-TX)	2-pair	100m (328ft) or less	Same with or without AC adapter
Analog Telephone (SLT, G3FAX etc.)	Twisted Pair Cable	1-pair	1000m (3281ft) with 26 AWG	Loop Resistance : Max. 600 ohms (including telephone set)
			1500m (4921ft) with 24 AWG	
			2500m (8202ft) with 22 AWG	
Long Line Telephone	Twisted Pair Cable	1-pair	4000m (13123ft) with 26 AWG	Loop Resistance : Max. 1500 ohms (including telephone set)
			6400m (20997ft) with 24 AWG	
			10600m (34777ft) with 22 AWG	
ISDN Terminal / G4FAX	Twisted Pair Cable	2-pair	100m (328ft) with 24 AWG	P-MP Connection (Short Passive Bus)
			300m (984ft) with 24 AWG	P-MP Connection (Extended Passive Bus) Distance between ISDN terminals : 50m (164ft) with 24AWG
			500m (1640ft) with 24 AWG	P-P Connection
DSS Console (for D ^{term} series i / DT500/400/300 series)	Twisted Pair Cable	1-pair	400m (1312ft) with 26 AWG	
			600m (1968ft) with 24 AWG	
			800m (2625ft) with 22 AWG	
Analog Power Failure Adapter (PSA)	Twisted Pair Cable	1-pair	Depending on Loop Resistance	Loop Resistance : Max. 1700 ohms (including the PSA [400 ohms])
Paging Adapter	Twisted Pair Cable	1-pair	600m (1968ft) with 26 AWG	
			800m (2625ft) with 24 AWG	
			800m (2625ft) with 22 AWG	
Desk Console w/ AC Adapter	Twisted Pair Cable	1-pair	400m (1312ft) with 26 AWG	
			600m (1968ft) with 24 AWG	
			800m (2625ft) with 22 AWG	

Equipment	Cable		Cable Length between SV9300 and Terminal	Remarks
	Kind of Cable	Pair		
SMDR / PMS / MCI (RS-232C)	RS-232C Cable (RS RVS-15S CA-F)	-	15m (49ft)	
SMDR / PMS / MCI (LAN)	LAN Cable (UTP cable 10BASE-T/100BASE-TX)	2-pair	100m (328ft) or less	
Hotel Server	LAN Cable (UTP cable 10BASE-T/100BASE-TX)	2-pair	100m (328ft) or less	
Printer	RS-232C Cable (RS PRT-15S CA-F)	-	15m (49ft)	
Nurse Call System	Twisted Pair Cable	2-pair	500m (1640ft) with 24 AWG	P-P Connection

Note: When the terminal type is DT430/DT330 (Self-Labeling) without AC adapter and it has both bottom and cradle options, the cable length is as follows.

- 250m (820ft) with 26AWG
- 400m (1312ft) with 24AWG
- 500m (1640ft) with 22AWG