aria-24ip

Installation Manual

Revision History

ISSUE	DATE	Contents of Changes	REMARK
ISSUE 0.1	2004.09	Field Test	

Table of Contents

Important Safety Instructions

Safety requirements

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

1. Read and understand all instructions.
2. Follow all warnings and instructions marked on the product.
3. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
4. Do not use this product near water, for example, near a bathtub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.
5. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
6. Slots and openings in the KSU and the back or bottom are provided for ventilation, to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on the bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or other heat source. This product should not be placed in a built-in installation unless proper ventilation is provided.
7. This product should be operated only from the type of power source indicated on the product label. If you are not sure of the type of power supply to your home, consult your dealer or local power company.
8. Do not allow anything to rest on the power cord. Do not locate this product where the cord will be abused by people walking on it.
9. Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.
10. Never push objects of any kind into this product through KSU slots or connectors as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.
11. To reduce the risk of electric shock, do not disassemble this product, but take it to a qualified person when some service or repair work is required. Opening or removing covers may expose you to dangerous voltages or other risk. Incorrect reassemble can cause electric shock when the appliance is subsequently used.
12. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
    a. When the power supply cord or plug is damaged or frayed.
    b. If liquid has been spilled into the product.
    c. If the product has been exposed to rain or water.
    d. If the product does not operate normally by following the operating instructions. Adjust only those controls, that are covered by the operating instructions because improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
    e. If the product has been dropped or the KSU has been damaged.
    f. If the product exhibits a distinct change in performance.
13. Avoid using a telephone during an electrical storm. They may be a remote risk of electric shock from lightning.
14. Do not use the telephone to report a gas leak in the vicinity of the leak.

Precaution

- Keep the system away from heating appliances and electrical noise generating device such as fluorescent lamps, motors and television. These noise sources can interfere with the performance of the aria-24 ip System.

- This system should be kept free of dust, moisture, high temperature(more than 40) and vibration, and should not be exposed to direct sunlight.

- Never attempt to insert wires, pins, etc. into the system. If the system does not operate properly, the trouble has been repaired by an authorized TELSTRA service center.

- Do not use benzene, thinner, or the like, or any abrasive powder to clean the KSU. Wipe it with a soft cloth.

Caution

- This system should only be installed and serviced by qualified service personnel.

- When a failure occurs which exposes any internal parts, disconnect the power supply cord immediately and return this system to your dealer.

- To prevent the risk of fire, electric shock or energy hazard, do not expose this product to rain or any type of moisture.

- To protect PCB from static electricity, discharge body static before touching connectors and/or components by touching ground or wearing a ground strap.

Warning

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Warning

This equipment will be inoperable when Mains Power fails, should it not be connected to an alternate power source.

The structure of manual

This installation manual is designed to provide as general information for the aria-24 ip System. It provides instructions for installing the hardware, and programming the aria-24 ip System using keyset.

The structure of this manual

This manual contains the following sections :

Section 1. Introduction
Provide general information on the aria-24 ip System, including the system specifications and capacity.

Section 2. Installation of the KSU
Describes the procedures to install the aria-24 ip System. Detail instructions for planning the installation site.

Section 3. Installation of the board
Describes general information of boards. Describes detail instructions for installing boards and add-on boards.

Section 4. Connection of the Terminal
Describe the kinds of Terminal, maximum distance, and the other device connection of Terminal.

Section 5. Starting the aria-24 ip System
Provides general information of starting the system and basic preprogramming.

Section 6. Troubleshooting
Provides information on the aria-24 ip System and Terminal troubleshooting.

The list of abbreviations

AAFB: Auto Attendant Function Board
AC: Alternating Current
ACD: Automatic Call Distributor
ACNR: Automatic Called Number Redial
AWG: American Wire Gauge
BRI: Basic Rate Interface
CN: Connector
CTI: Computer Telephony Integration
CTS: Clear To Send
DB: Database
DC: Direct Current
DKTU/DKT: Digital Key Telephone Unit
DSR: Data Set Ready
DTIB4: Digital Terminal Interface Board 4 ports
DTIB8: Digital Terminal Interface Board 8 ports
DTMF: Dual Tone Multi Frequency
DTR: Data Terminal Ready
ETS: European Telecommunications Standards
GND: Ground
HDLC: High-level Data Link Control
IEEE: Institute of Electrical and Electronics Engineers
IP: Internet Protocol
ISDN: Integrated Service Digital Network
LDP: Keyset series
KSU: Key Service Unit
LAN: Local Area Network
LANU: LAN interface board 1 port
LCOB: Analog CO(LCO) interface board 4 ports
Max.: Maximum
MBU: Main Board Unit
Min.: Minimum
MODU: Modem Unit
PCM: Pulse Code Modulation
PFT: Power Failure Transfer
PLLU: Phase Locked Loop Unit
PJ: Pin Jack
PR: Polarity Reversal
PSTN: Public Switched Telephone Network
PSU: Power Supply Unit
PBX: Public Exchange
R.F: Radio Frequency
RAM: Random Access Memory
RD: Received Data
ROM: Read Only Memory
RSSI: Received Signal Strength Indicator
RTC: Real Time Clock
RTS: Request To Send
RX: Receive Signal
SG: Signal Ground

SLIB4: SLT interface Board 4 ports
SLIB8: SLT interface Board 8 ports
SLT: Single Line Telephone
SMDI: Station Message Detailed Information
STIB: Basic Rate S/T Interface
TD: Transmitted Data
TDM: Time Division Multiplexing
TERM: Termination
TX: Transmitting signal
UCD: User Call Distribution
UTP: Unshielded Twisted Pair
VMIB: Voice Mail Interface Board
VOIP: Voice over IP

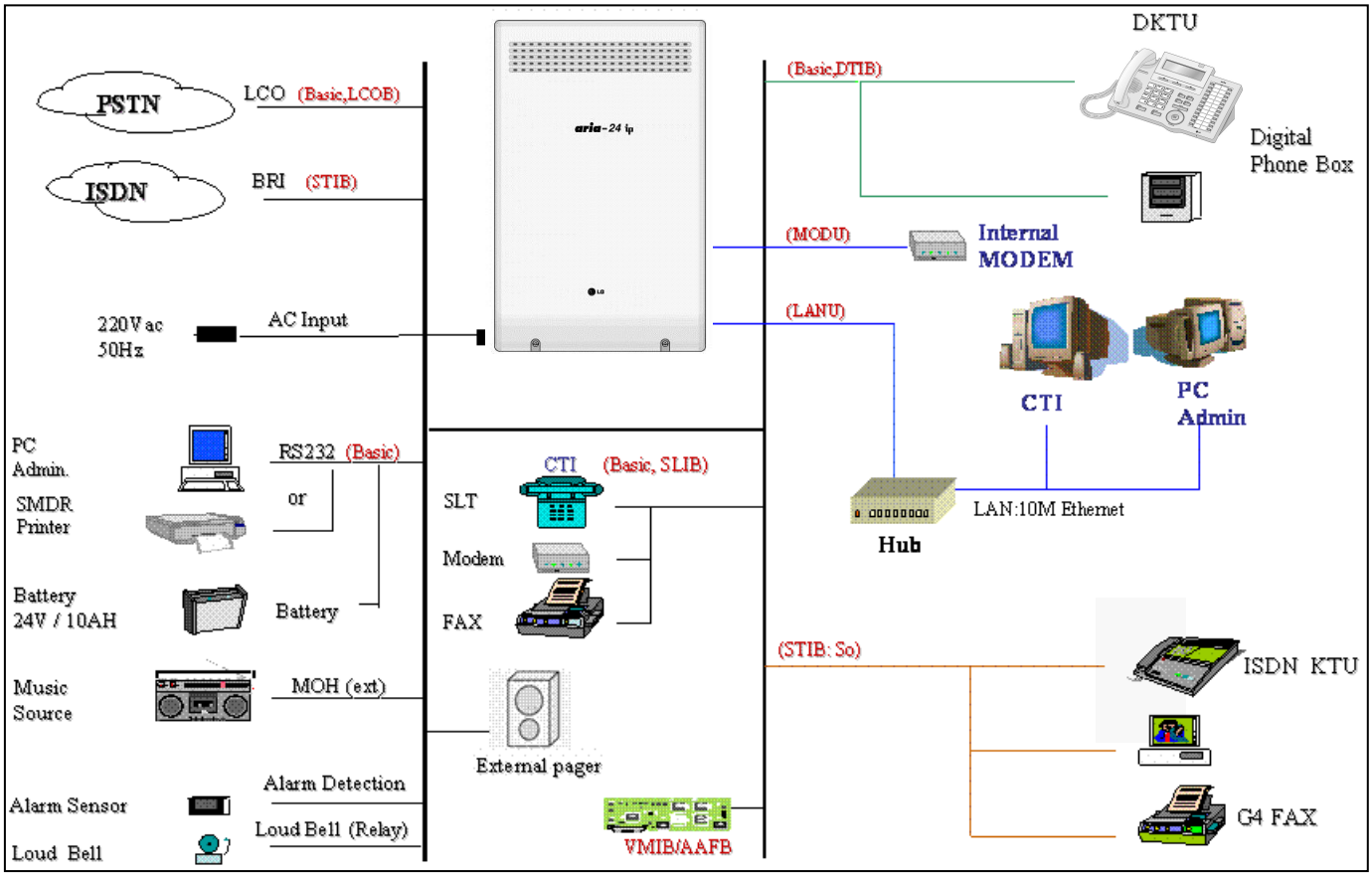
Section 1. Introduction

1.1 The aria-24 ip System highlights

- **Flexible architecture**
- **Optional LAN Interface**
- **Stable & enhanced voice features**
- **Simple installation & efficient system management**
  - Remote admin through BRI connection
  - Remote admin through PSTN modem
  - Remote admin through LAN connection

- **Value-added features**
  - Distinctive voice mail
  - CID (CO & SLT)

1.2 System connection diagram



1.3 System Components

ITEM	Description
KSU	Key Service Unit
PSU	Power Supply Unit, 70W

ITEM		Option Board	Description
Main board	**MBU**		Main Board Unit(4 LCOs, 1DKT, 3DKT/SLTs, and 4SLTs)
		CO board	Central Office Line interface board (LCOB, STIB)
		EXT board	Extension board (DTIB, SLIB)
		CPCU4	Caller-ID(FSK), & Call Progress Tone detection Unit
CO Line boards	**LCOB**		Loop Start CO Interface, 4 ports
		CPCU4	Caller-ID(FSK), & Call Progress Tone detection Unit
	STIB		ISDN Basic Rate (S/T) Interface Board, 2 lines (4channels)
Extension boards	**DTIB4**		Digital Terminal Interface Board, 4 ports
	DTIB8		Digital Terminal Interface Board, 8 ports
	SLIB4		SLT Interface (+36V Feed) Board, 4ports
	SLIB8		SLT Interface (+36V Feed) Board, 8ports
Other boards	**VMIB**		Voice Mail Interface Board, 3 channels
	AAFB		Auto Attendant Function Board, 2 channels
	LANU		LAN interface Unit(10Mbase-T only)
	MODU		MODEM unit(33Kbps)
	PLLU		Phase Locked Loop Unit(for STIB)

1.4 Specifications

1.4.1 General specification

Item	Description	Specification
PSU	AC Voltage Input	240 +/-10% Volt AC @47~63Hz
	AC Power	70W
	AC Input Fuse	1.0A @ 250Volt AC
	DC Output Voltage	+5, -5, +36Volt DC
Battery Backup	Input Voltage	24 Volt DC
	Battery Fuse	5.0A @ 250Volt AC
	Charging Current	MAX. 100mA
	Battery Load Current	Max. 2A(with Analog CO or ISDN CO)
External Relay Contact		1A @ 30 Volt DC
PFT Relay Contact		1A @ 30 Volt DC
Music Source Input		0 dBm @ 600ohm
External Paging Port		0 dBm @ 600ohm
Ring Detect Sensitivity		30Vrms @ 16~55Hz
DTMF Dialing	Frequency Deviation	Less than +/-1.8%
	Signal Rise Time	MAX.5ms
	Tone Duration, on time	Min.50ms
	Inter-digit Time	Min.30ms
Pulse Dialing	Pulse Rate	10 pps
	Break/Make Ratio	60/40% or 66/33%
Operating Environment	Temperature	0(℃)~40(℃)
	Humidity	0~80%(non condensing)
Dimension	KSU	260mm(W)*410mm(H)*86mm(D)
Weight	KSU	2.5(kg)
LAN	LAN Interface	10 Base -T Ethernet(IEEE 802.3)
	Speed	10 Mbps
	Duplex	Half duplex or Full duplex (Auto-Negotiation)
MODU	Analog modem	Bell, ITU-T, V.34, V.32BIS, V.90
		300bps up to 30Kbps speed rate
		Automatic rate negotiation

1.4.2 System capacity

Description	Capacity/Board	Total
Time Slots		96
CO Line Ports	4/MBU 4/LCOB or 4/STIB	Max. 8 (Analog CO and/or ISDN BRI)
Max direct Station connections	8/MBU 8/DTIB or 8/SLIB	Max. 16
Max LAN port	1/LANU	1
Max MODEM Channel	1/MODU	1
Attendant Positions	5/System	
Intercom Links	Non-blocking	
Paging -. All Call -. Internal		 1 zone 5 zones
Station Speed Dial	100/station, 24 digits each	500
System Speed Dial	24 digits each	500
Last Number Redial	10	32 digits
CO Line Group	8	8
Station Group	10	10
Conference	3-Party	no limit
Music Source Input	1/MBU	1
External Paging	1/MBU	1
External Control Contact	2/MBU	2
Power Failure Transfer	1/MBU	1
Alarm Input	1/MBU	1
RS-232C Port	1/MBU	1
DTMF Receiver	3/MBU, 2/SLIB	5
Auto Fax detection	1/MBU	1

Section 2. Installation of the KSU

2.1 Before installation

Please read the following guides concerning installation and connection before installing the aria-24 ip System. Be sure to comply with applicable local regulations.

Safety installation instructions

When installing the telephone wiring, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the followings;

1. Never install the telephone wiring during a lightning storm.
2. Never install the telephone jack in wet locations unless the jack is specifically designed for wet locations.
3. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
4. Use caution when installing or modifying telephone lines.
5. Anti-static precautions should be taken during installation.

Installation Precautions

The aria-24 ip System is designed for wall mounting or floor standing. Avoid installing in the following places.

1. In direct sunlight and hot, cold, or humid places. Temperature range : 0 to 40
2. Places in which shocks or vibrations are frequent or strong.
3. Dusty places, or places where water or oil may come into contact with the system.
4. Near high-frequency generating devices such as sewing machines or electric welders.
5. On or near computers, telexes, or other office equipment, as well as microwave ovens or air conditioners.
6. Do not obstruct the area around the aria-24 ip System (for reasons of maintenance and inspection)
7. Do not block the openings at top of the aria-24 ip System.
8. Do not stack up the optional service boards.

Wiring Precautions

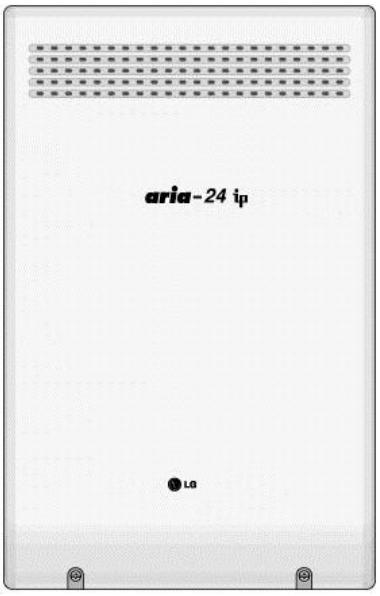
Be sure to follow these instructions when wiring.

1. Do not wire the telephone cable in parallel with an AC power source, computer, telex, etc. If the cables are run near those wires, shield the cables with metal tubing or use shielded cables and ground the shields.
2. If the cables are run on the floor, use protectors to prevent the wires from being stepped on. Avoid wiring under carpets.
3. Avoid using the same power supply outlet for computers, telexes, and other office equipment. Otherwise, the aria-24 ip System operation may be interrupted by the induction noise from such equipment.
4. The power switch and battery switch of the aria-24 ip System must be off during wiring. After the wiring is completed, turn the power switch on.
5. Mis-wiring may cause the aria-24 ip System to operate improperly.
6. If an extension does not operate properly, disconnect the telephone from the extension line and then connect again, or turn the power of the aria-24 ip System off and on again.
7. Use twisted pair cable for co line connection.

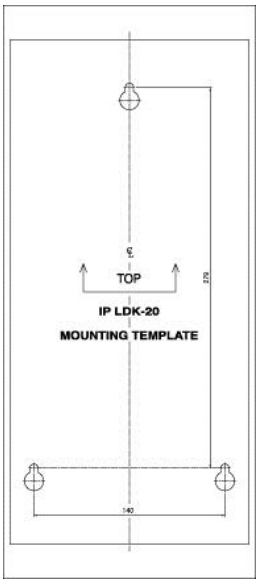
2.2 Installation of the KSU

2.2.1 Unpacking

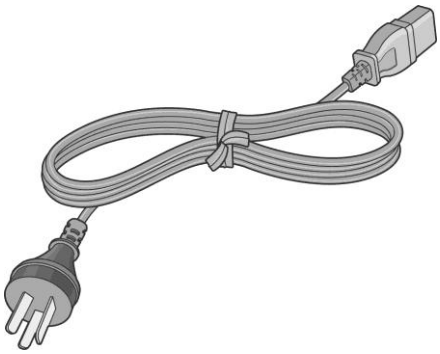
Open the box and check the items below:



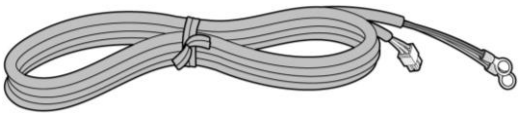
Key service unit



Mounting template



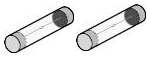
Power cord



Battery cable

Tie cable

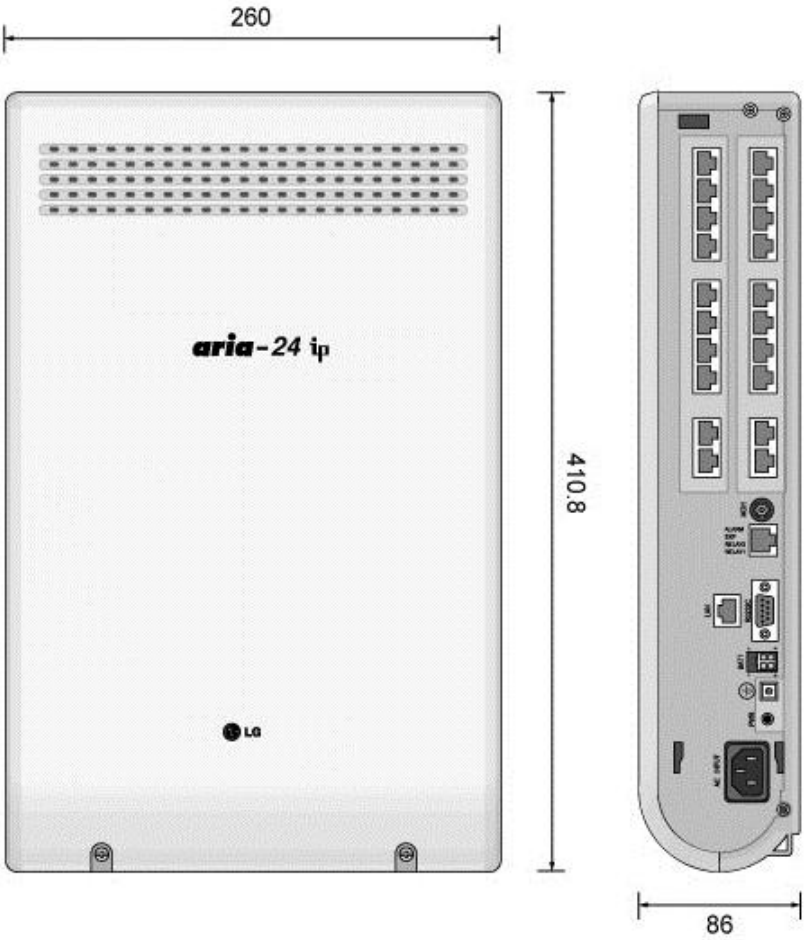
Anchor plug

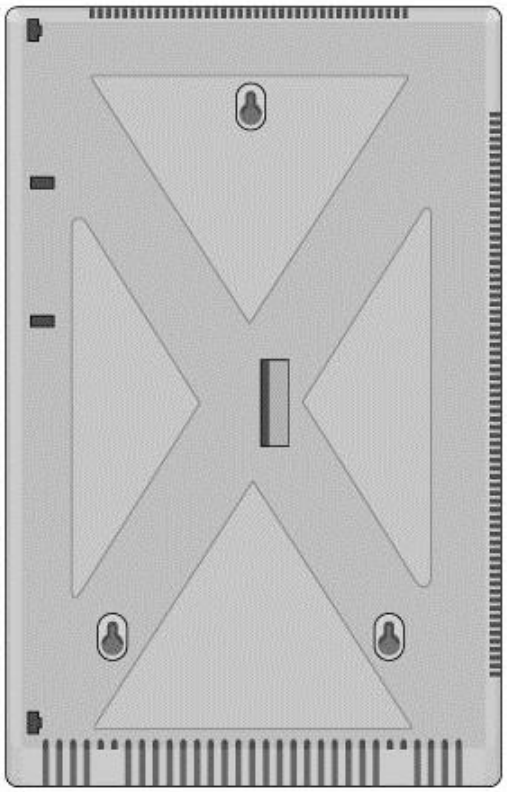


Fuse

Screw

2.2.2 KSU exterior and dimension

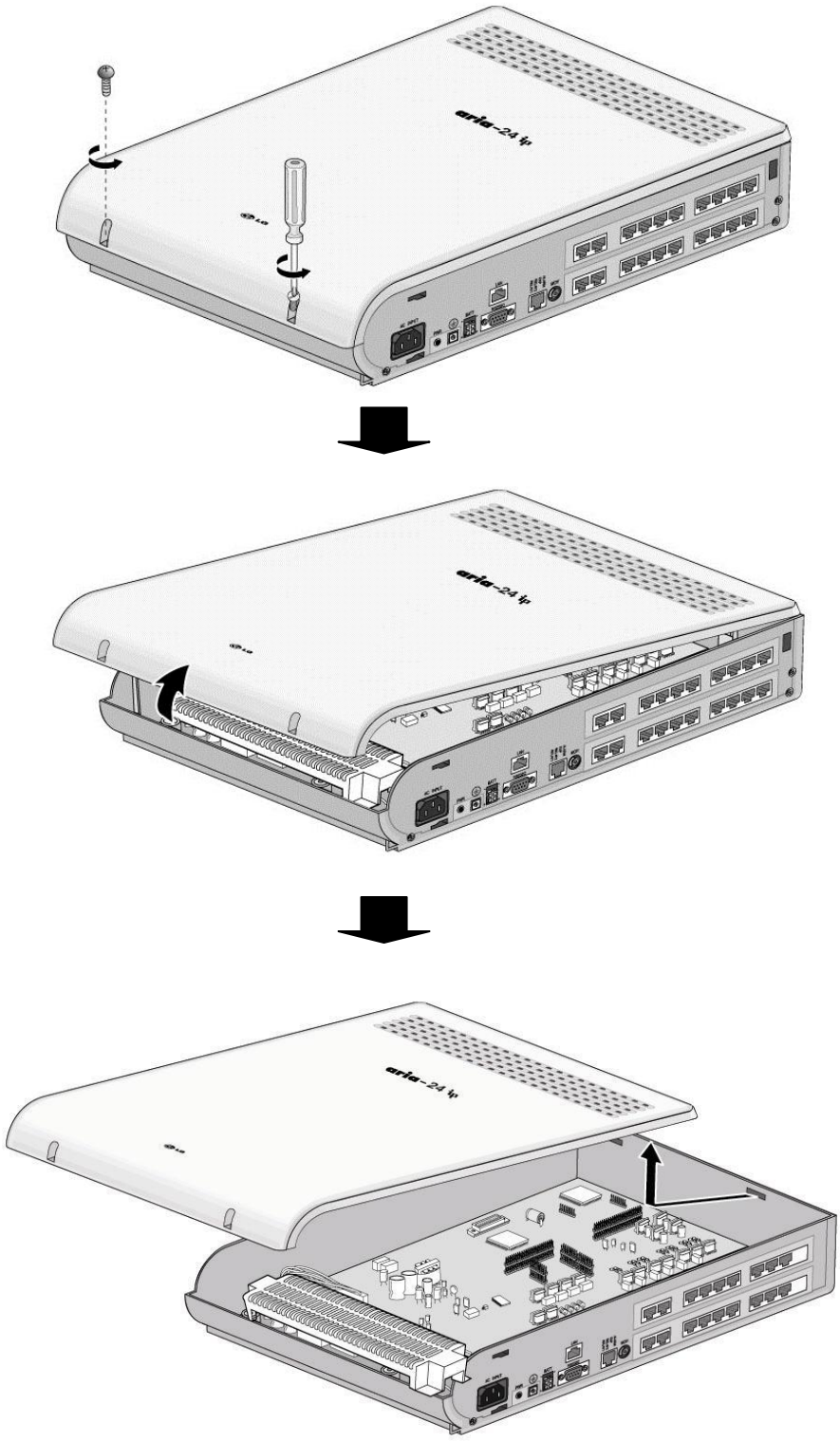




2.2.3 Opening and closing the front cover

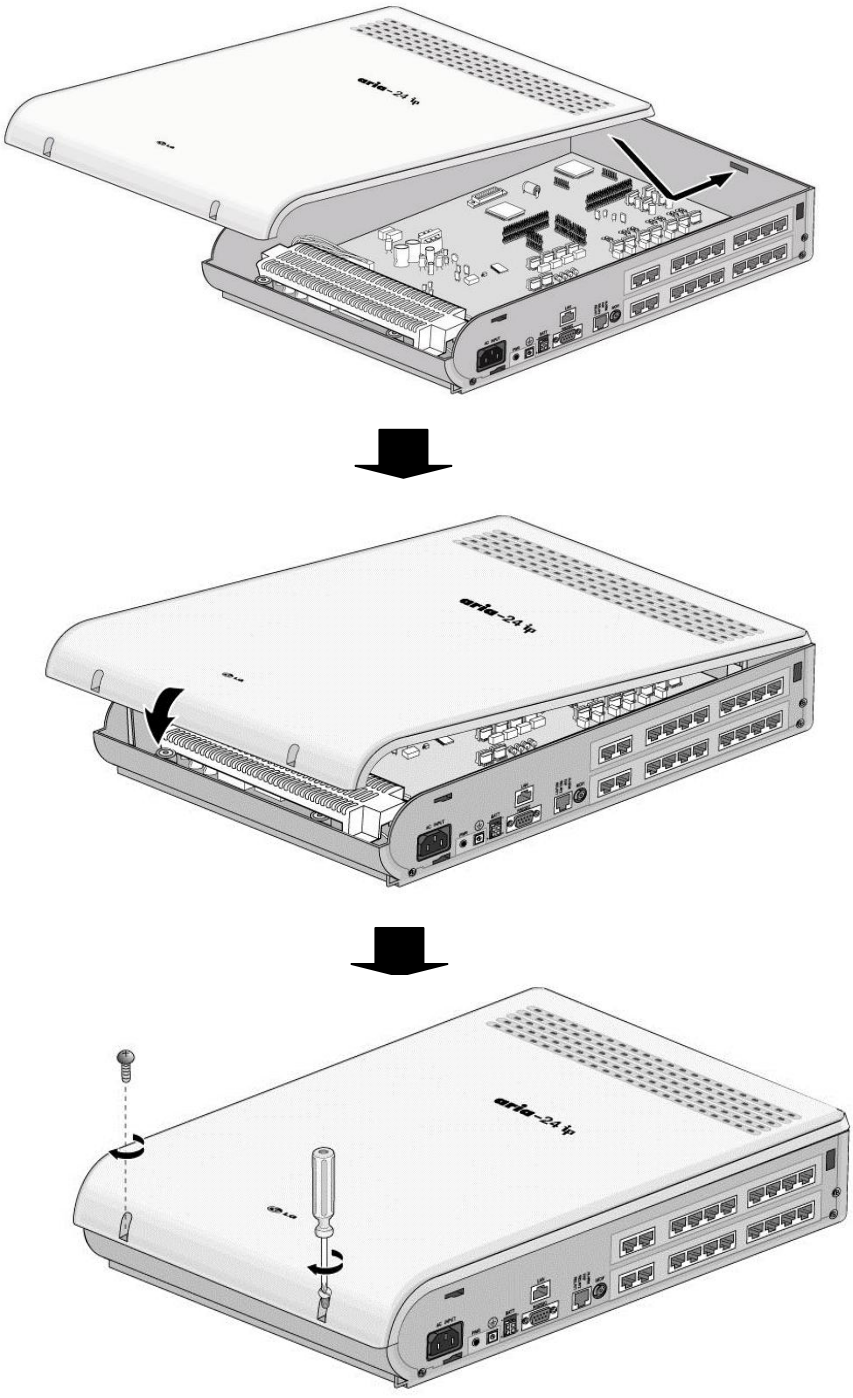
Opening the front cover

1. Turn the screw anticlockwise to loosen.
2. Lift the front cover in the direction of the arrow.



Closing the front cover

1. Insert the front cover into the receptacle of KSU. Then put the front cover down on the KSU in the direction of the arrow.
2. Turn the screw clockwise to tighten.



*** Note**

For safety reasons, close the front cover and tighten the screw when the aria-24 ip system is in operation.

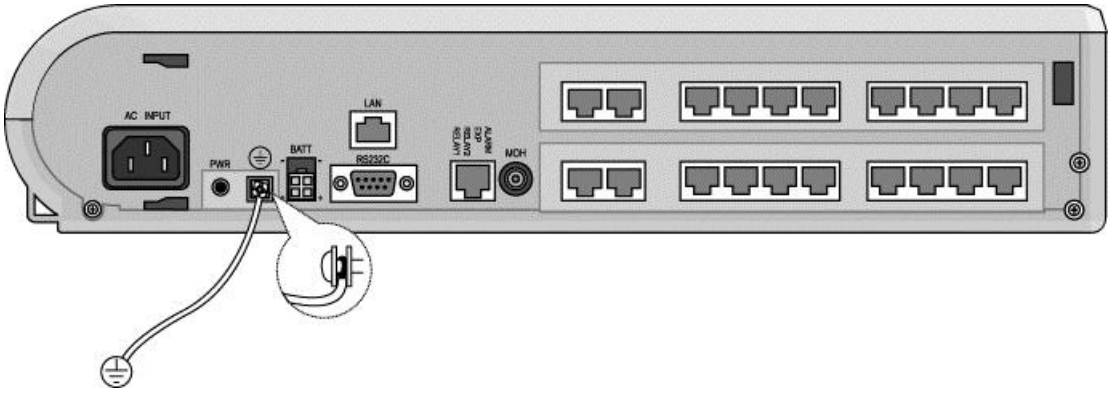
2.2.4 Frame Earth connection

Important

The installer shall connect the system to earth according to the following directions.

This is mandatory for proper installation of the system.

Connect the frame of aria-24 ip system to earth
1. Turn the screw anticlockwise to loosen. Then insert the earthing wire.
2. Tighten the screw. Then connect the earthing wire to earth.



CAUTION

1. **For earthing wire, Green-and-yellow insulation is required, and the cross-sectional area of the conductor must be more than UL 1015 AWG# 18(Diameter 1.0mm). It is recommended that the earthing wire be shorter than 1 meter (3.28 feet).**
2. **Be sure to comply with applicable local regulations.**
3. **Proper earthing is very important to protect the aria-24 ip system from the bad effects of external noise or to reduce the risk to the user of electrocution in the case of lightning strike.**
4. **The equipment shall be connected to a socket-outlet with a protective earth connection.**

2.2.5 Power supply unit installation

Before installation, assure that the AC plug is not plugged into the AC outlet. The PSU is located at the left-most area of the KSU as a basic unit and provides three kinds of power sources to MBU through the 7PIN connector, CN19.

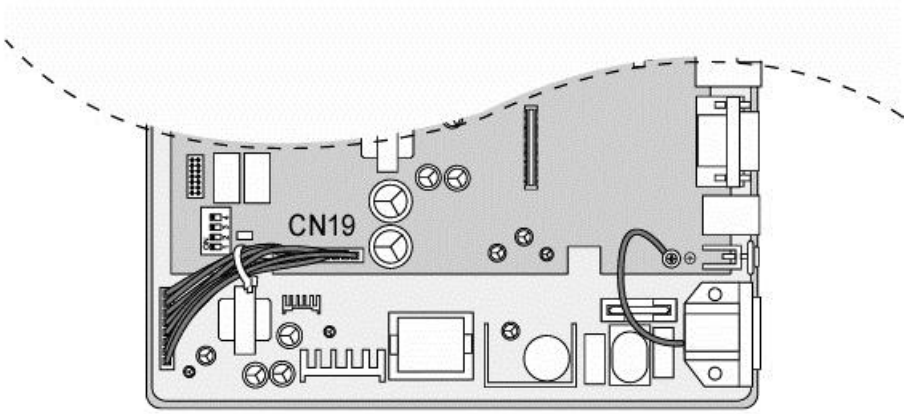
The AC input voltage and the fuse rating

The Range of Input Voltage	Connect to	Fuse Ratings
207V AC ~ 253V AC	CN19 on the MBU	2A @250V

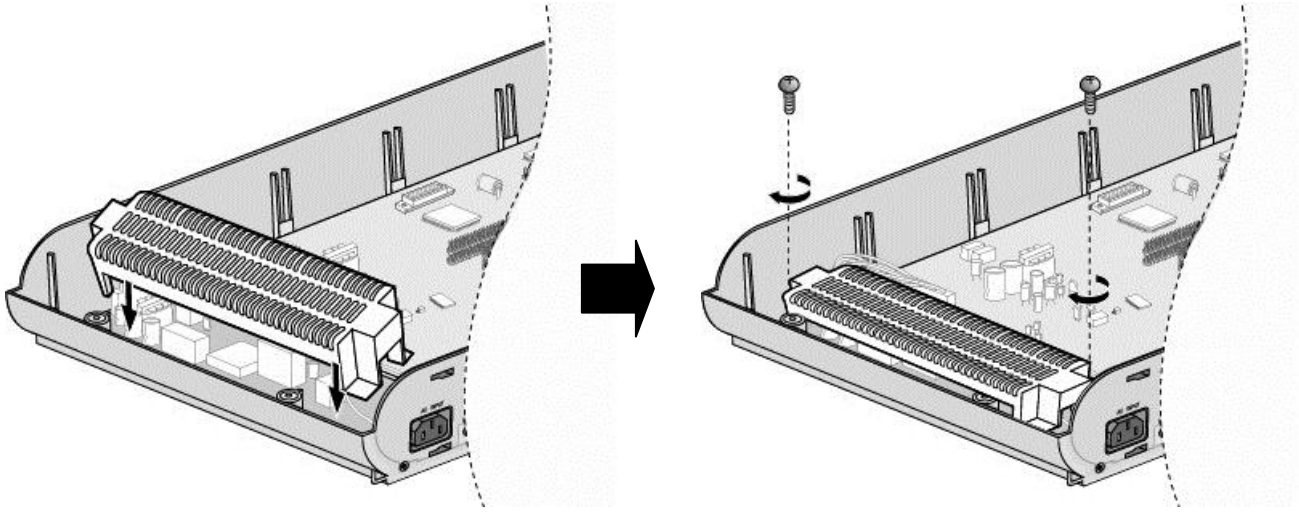
PSU capacity is as followings

PSU Type	+5V DC	-5V DC	+36V DC
aria-24ip PSU (SMPS)	2.5A	100mA	1.2A

1. To handle the wire of PSU as shown below, tie the wire with cable.

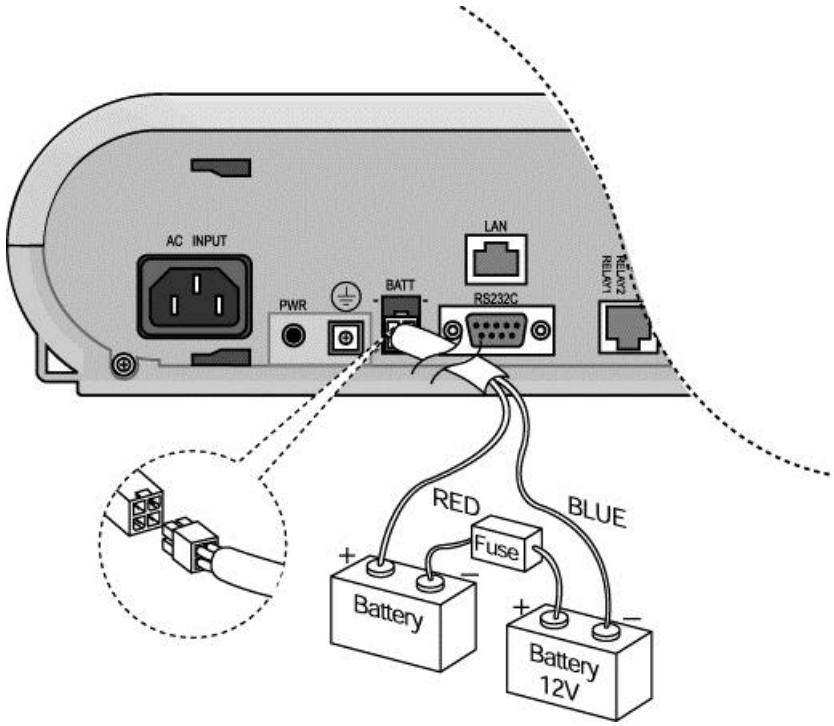


2. Place PSU cover on the PSU as shown below. Then turn the screws clockwise to tighten.



2.2.6 External backup batteries connection

In case of power failure, the external backup batteries automatically maintain the power for the aria-24 ip system without interruption.



*** Note: The cable for the battery connection is supplied with KSU in the same package.**

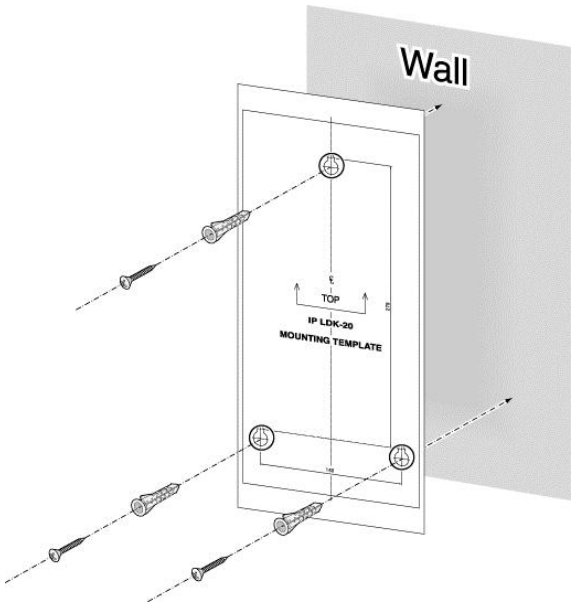
The external batteries must provide 24 Volts DC. This is generally accomplished by connecting two 12 Volt batteries in a series arrangement. Operation on batteries is controlled by the MBU. This aria-24 ip MBU will provide charging current to the batteries during normal AC power operation at a maximum of about 100mA. During battery operation, the battery operation of MBU will be stop if the AC power re-applied or the battery voltage is too low to maintain proper system operation.
The system operating time by external batteries depends on several elements as follows, battery charge state, condition of the batteries, capacity of the batteries, and the system configuration (number of station ports).

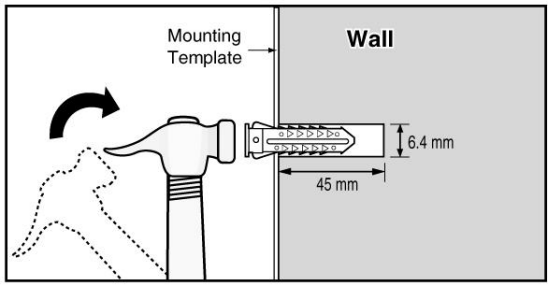
Warning

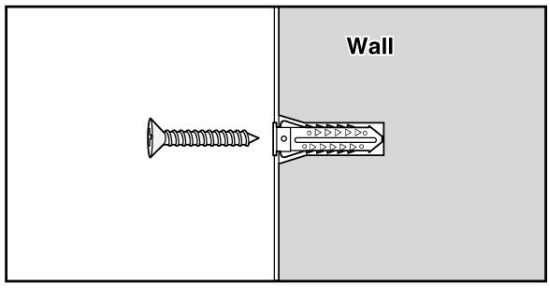
1. **Carefully check the battery polarity with cable colors(RED and BLUE) when connecting the battery to system.**
2. **Make sure that you do not short the external backup batteries or cables.**
3. **There is a danger of explosion if external backup batteries are incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.**
4. **It is recommended to use a fuse(5A @250V) between battery and system.**
5. **Recommended battery capacity is 24V/10AH MF battery. The aria-24 ip system will operate more than 5 hours with this battery.**

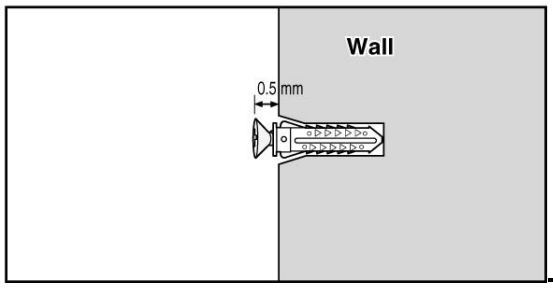
2.2.7 Wall mounting

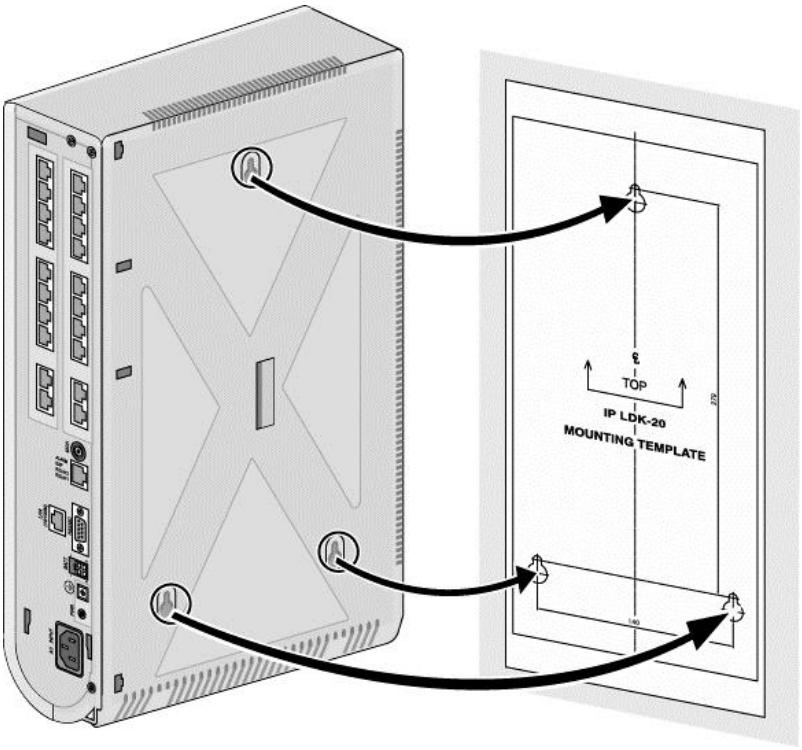
1. Install 3 anchor plugs in the wall with using mounting template. Fix the mounting template with 3 screws.
2. Hook the KSU onto the screw, making sure that the system slides down and check it securely.

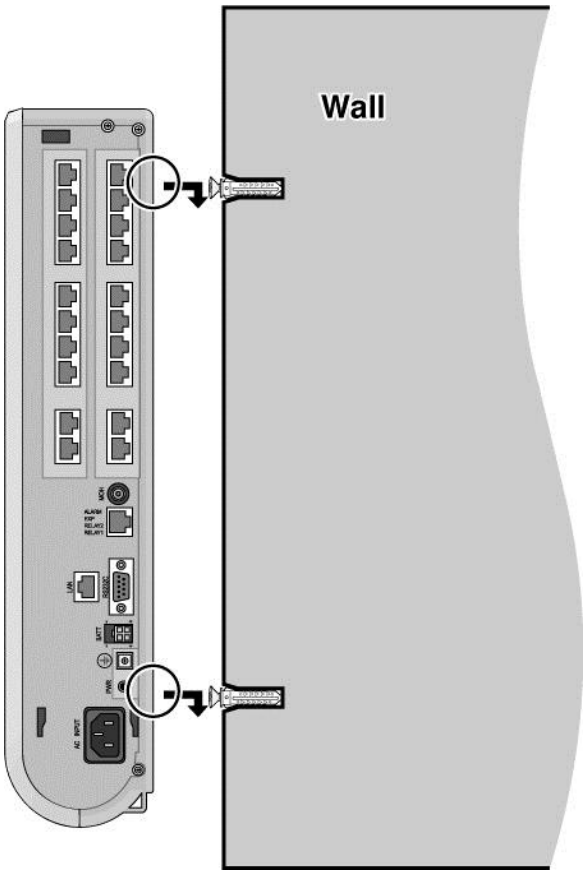








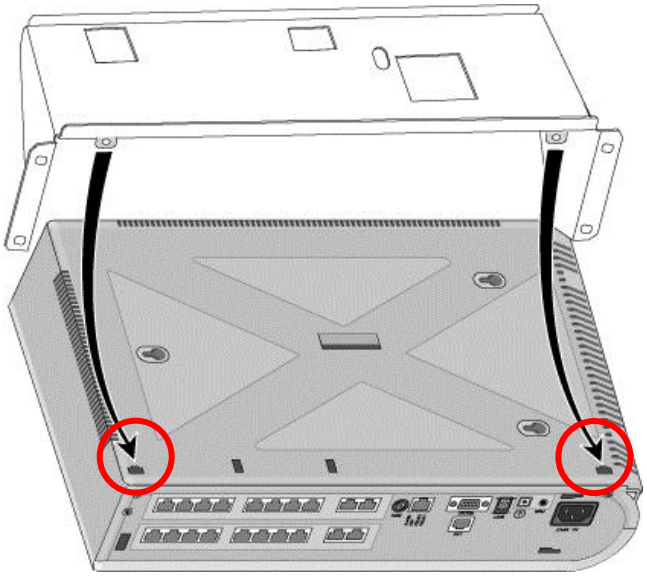




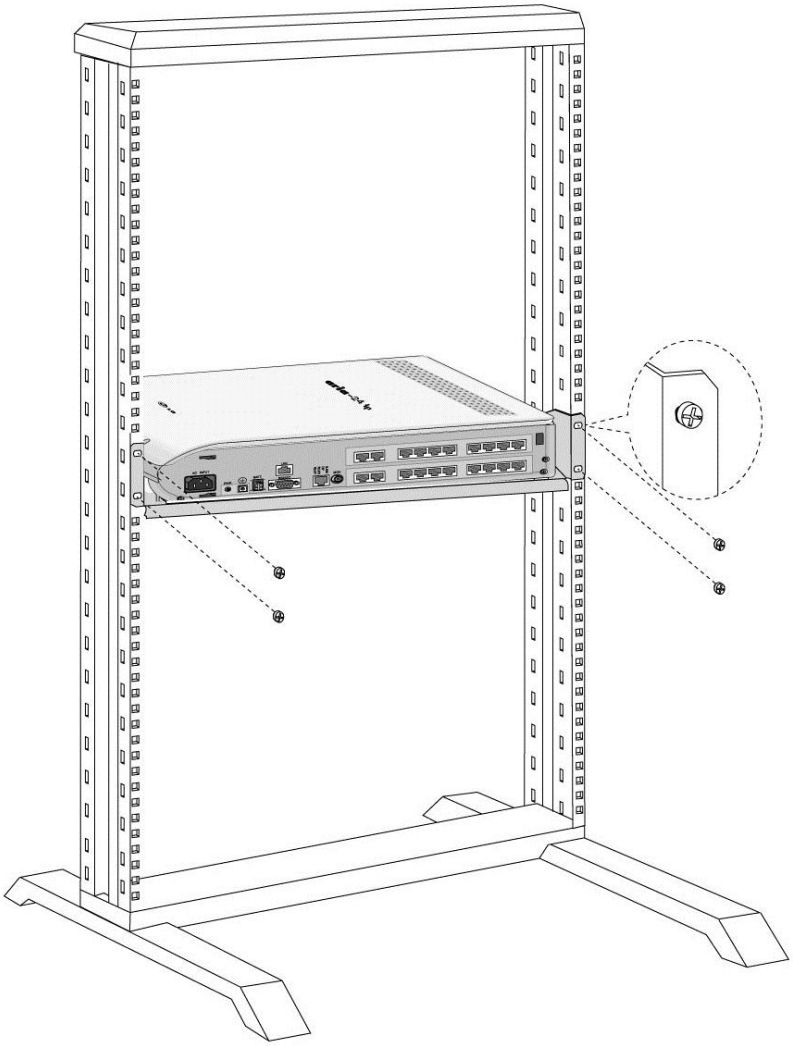
*** Note**
Be careful not to drop the KSU.

2.2.8 Optional mounting Rack

1. Attach the rack bracket to the bottom of the aria-24 ip system as shown below. And to fix the system securely, tighten the screw clockwise.



2. To hook the aria-24 ip system, fix the bracket with 4 screws.



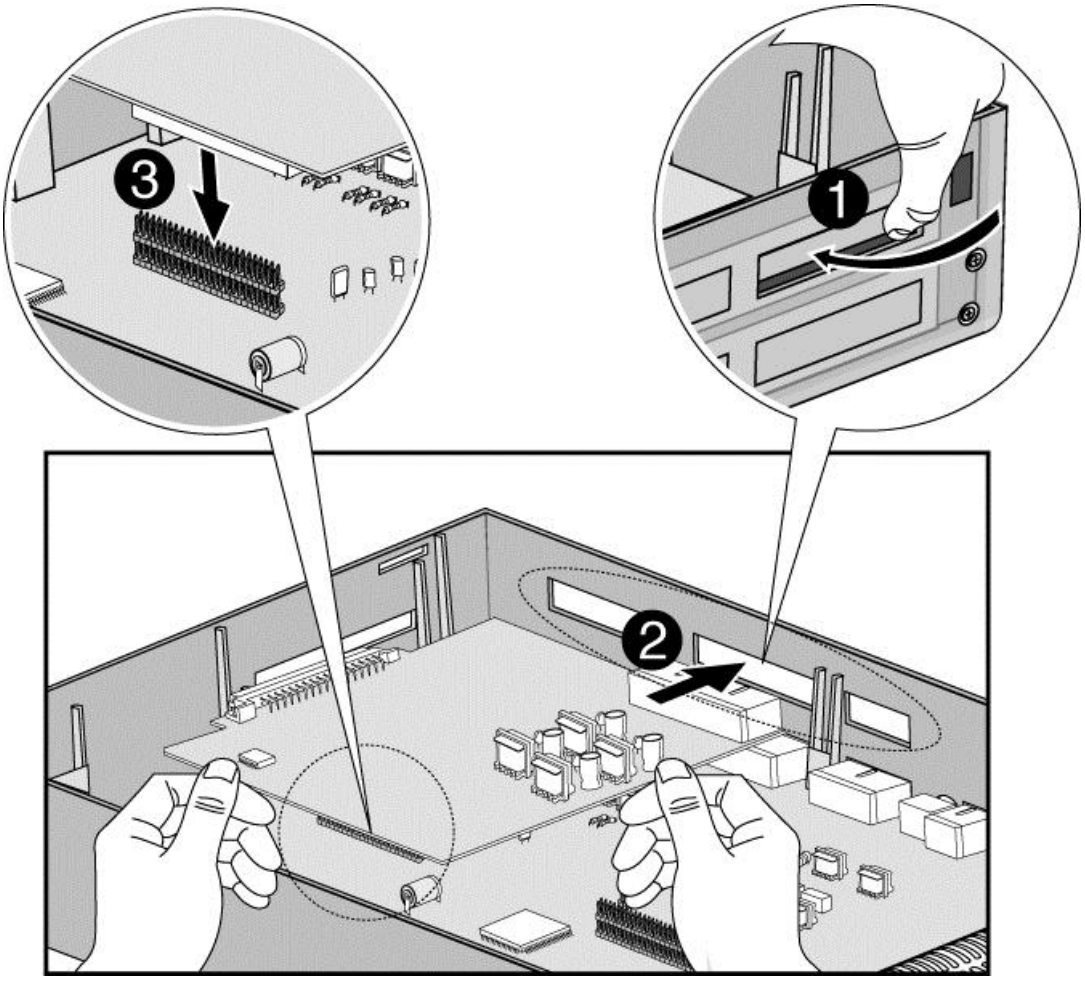
Section 3. Installation of boards

3.1 Installation of the boards

CAUTION

1. **Before installing and removing the board, Power must be turned off.**
2. **To protect the system from the static electricity, do not touch boards. To discharge static, touch ground or wear an earthing strap.**
3. **When all boards are unequally inserted, the connector pins(male pins) on MBU can become bent. You should insert it carefully.**

1. Before inserting the board, remove the dummy.
2. Holding the board as shown, insert the board in the direction of the arrow carefully so that the board is made to engage with the connector on the main board securely.



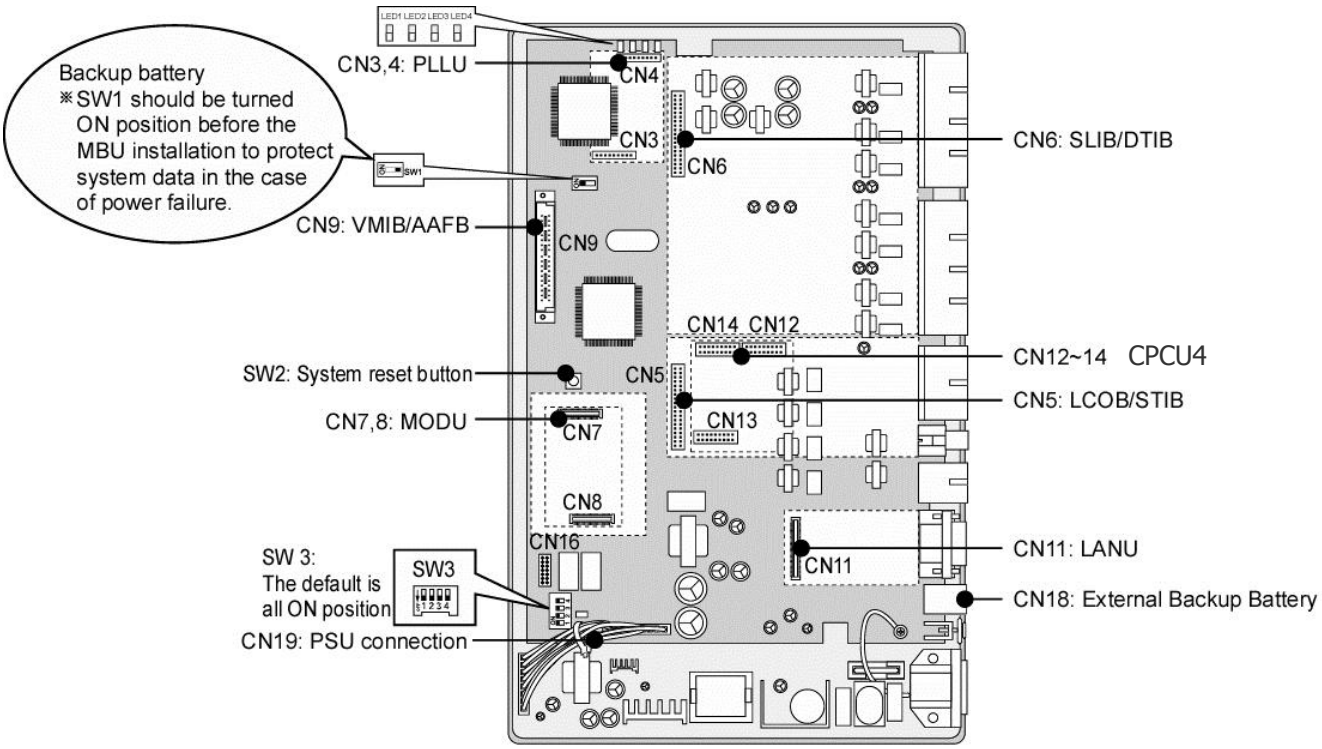
3.2 MBU (Main Board Unit)

Description

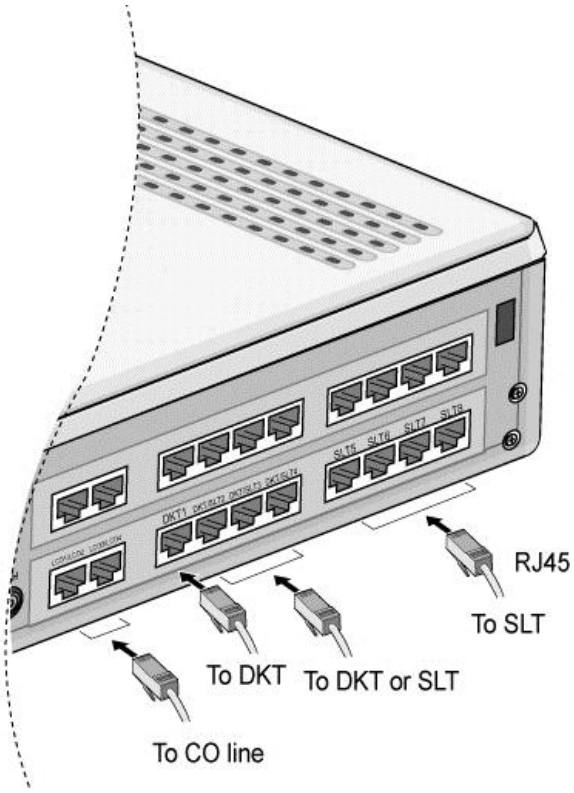
The MBU controls the communication between peripheral interfaces, supervises all resources in the system, controls the gain adjustment of PCM signal, generates system tone and manages call processing of the system.
The MBU incorporates the main control part that is composed of main microprocessor, RAM and ROM, the PCM management part, the CO/Extension interface circuits, and the miscellaneous functional circuits.

It provides Loop start CO interface circuits, Digital keyset and SLT interface circuits, DTMF receivers, Ring Generation Unit, two external relay contacts, one alarm detection circuit, one external PAGE port, internal/external MOH circuit, the peripheral device decoding circuit, the master clock generation circuit, the RS232C interface circuit, the system battery backup circuit, as well as system's PCM voice processing circuit that has a flash memory for PCM tone generation and PCM Gain control.

The MBU is installed in the KSU basically. It provides various kinds of connectors and RJ45 modular jacks for the connection of peripheral boards and miscellaneous functions.



MBU

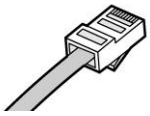
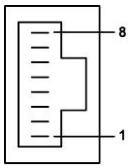


Connector/Modular jack/Switch functions

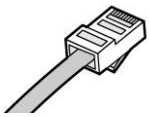
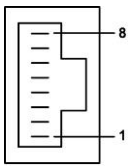
Switch/Connector	Functions	Remark
CN3 & CN4	PLLU installation	For STIB
CN5	CO board(LCOB, STIB) installation	
CN6	Extension board(DTIB, SLIB) installation	
CN7 & CN8	MODU installation	
CN9	VMIB/AAFB installation	
CN11	LANU installation	
CN12, CN13, CN14	CPCU4	
CN16	JTAG Port for emulator	
CN17	RS232C interface	
CN18	System Backup Battery connection	See clause 2.2.6
CN19	PSU connection(+5V, -5V, +36V)	
CN20	External GND Terminal	See clause 2.2.4
MJ1	4LCOs connection	
MJ2	1DKT and 3DKT/SLTs connection	
MJ3	4SLTs connection	
MJ4	External Relays, External Paging, & Alarm sense	
PJ1 (Red)	External MOH connection	
SW1	Lithium Battery ON/OFF switch for Memory and RTC	Database back-up
SW2	System reset button	
SW3	4 poles DIP switch for software usage	
SW4	1 pole DIP switch for JTAG reset	Reserved

Modular Jack(MJ1~MJ3) Pin assignment

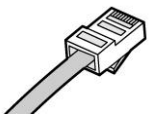
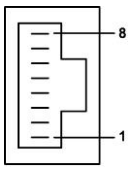
MBU MJ1(CO)

Connector	Pin Number	NO	SIGNAL NAME
RJ45 		1,2	CO-R, CO-T
		3	Reserved
		4,5	CO-R, CO-T
		6,7,8	Reserved

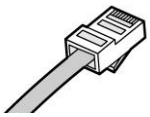
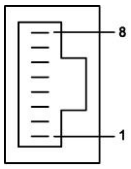
MBU MJ2-1(Extension)

Connector	Pin Number	NO	SIGNAL NAME
RJ45 		1,2,3	Reserved
		4,5	DKT-R, DKT-T
		6,7,8	Reserved

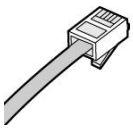
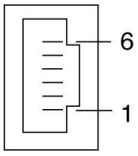
MBU MJ2-2,3 & 4(Extension)

Connector	Pin Number	NO	SIGNAL NAME
RJ45 		1,2	DKT-R, DKT-T
		3	Reserved
		4,5	SLT-R, SLT-T
		6,7,8	Reserved

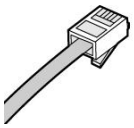
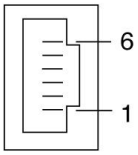
MBU MJ3(Extension)

Connector	Pin Number	NO	SIGNAL NAME
RJ45 		1,2,3	Reserved
		4,5	SLT-R, SLT-T
		6,7,8	Reserved

Terminal DKT

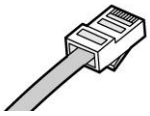
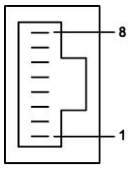
Connector Type	Pin Number	NO	SIGNAL NAME
RJ11 		1-2	RESERVED
		3	TIP
		4	RING
		5-6	RESERVED

Terminal SLT

Connector Type	Pin Number	NO	SIGNAL NAME
RJ11 		1-2	RESERVED
		3	TIP
		4	RING
		5-6	RESERVED

MJ4 Pin assignment

MBU

Connector	Pin Number	NO	SIGNAL NAME
RJ45 		1,2	Relay1-R, Relay1-T
		3,4	Relay2-R, Relay2-T
		5,6	EXT_PAGE-R, EXT_PAGE-T
		7,8	Alarm-R, Alarm-T

SW3 Functions : the default is all ON

Switch	Function	OFF	ON
3-1	Administration Programming Access	Disable	Enable
3-2	Command/Event Trace (The purpose of testing software)	Enable	Disable
3-3	SMDI (Simplified Message Desk Control –Voice Mail)	SMDI ON	SMDI OFF
3-4	Database default on power up	Disable	Enable

Before programming the system, switch 3-4 should be placed in the on position and power cycled off and on to initialize the system database to default. Once the database has been initialized, switch 3-4 should be placed in the OFF position so as to protect the database.
After putting the lithium battery switch (SW1) into ON to protect RAM/RTC data, install the option boards on the MBU.

CATUION

1. **The DIP switch, SW1 should be turned ON position to protect system data in case of a power failure.**

   " CAUTION : Not function properly if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturers instruction."

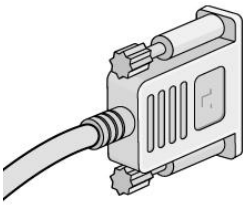
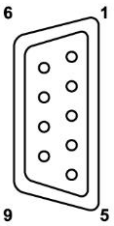
2. **The 4th pole (switch 4) of SW3 should be OFF to protect the variety features by Admin programming after the system power up and initialization.**

LED indications

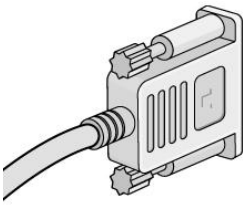
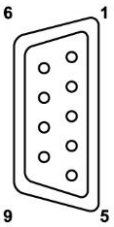
No.	Meaning
LED1 (Red)	Periodic toggle – ON: 2 sec., OFF: 100m sec.
LED2 (Red)	Periodic toggle – ON: 2 sec., OFF: 100m sec.
LED3 (Red)	Timer, Flashing every 100msec
LED4 (Red)	LCD active updating, Flashing every 300msec

CN17 Pin assignment

MBU

Connector	Pin Number	NO	SIGNAL NAME	FUNCTION
RS-232C 		1	RESERVED	
		2	TD	Transmitted Data
		3	RD	Received Data
		4	DSR	Data Set Ready
		5	SG	Signal Ground
		6	DTR	Data Terminal Ready
		7	CTS	Clear To send
		8	RTS	Request To Send
		9	RESERVED	

PC

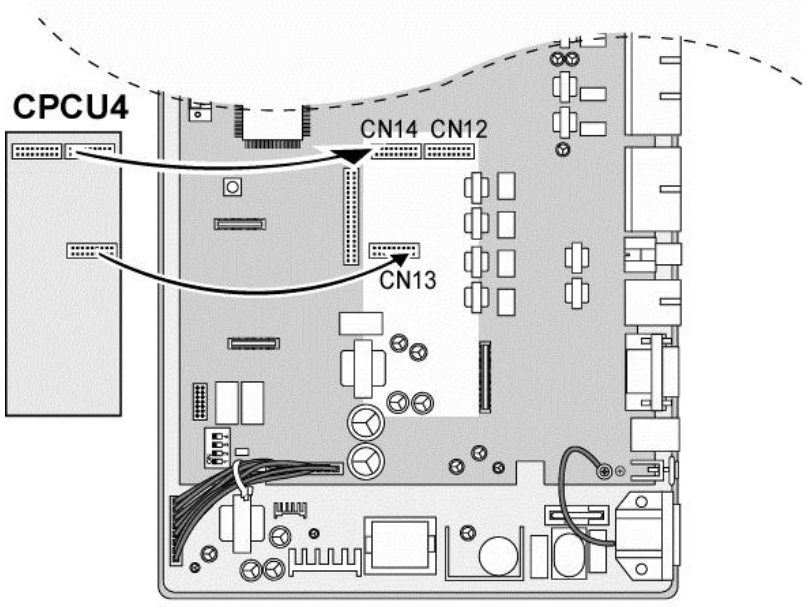
Connector	Pin Number	NO	SIGNAL NAME	FUNCTION
RS-232C 		1	RESERVED	
		2	RD	Received Data
		3	TD	Transmitted Data
		4	DTR	Data Terminal Ready
		5	SG	Signal Ground
		6	DSR	Data Set Ready
		7	RTS	Request To Send
		8	CTS	Clear To Send
		9	RESERVED	

3.2.3 CPCU4 (FSK CID, and CPT detection Unit)

Description

Provides four call progress tone detection to support ACNR feature(Auto Called Number Redial) and four FSK CID signal detection. It also provides four on-hook connection paths for SMS.

The CPCU4 can be optionally mounted on MBU.



MBU

3.2.4 Power Fail Transfer

There is a relay(RL14) on the MBU for switching SLT to CO line directly during power failure.
CO1 and SLT5 are assigned to implement Power Fail Transfer circuit.
In normal operation, SLT connected to SLT5_T/R port operates as an extension terminal SLT5 (e.g. its extension number is STA14).
In the meantime, SLT5 is transferred to an external CO line(CO1) directly without switching of the system during AC power is failed.

Also see, 2.2.6 External backup batteries connection.

3.3 Installation of the CO Line Board

Board	Port	Connector type	Description	Cable	Remark
LCOB	4 ports	RJ45	Loop Start CO Line Interface	2 wire	
STIB	2 lines (4Ch)	RJ45	ISDN Basic Rate Interface (2B+D)	4 wire	Switched T or S

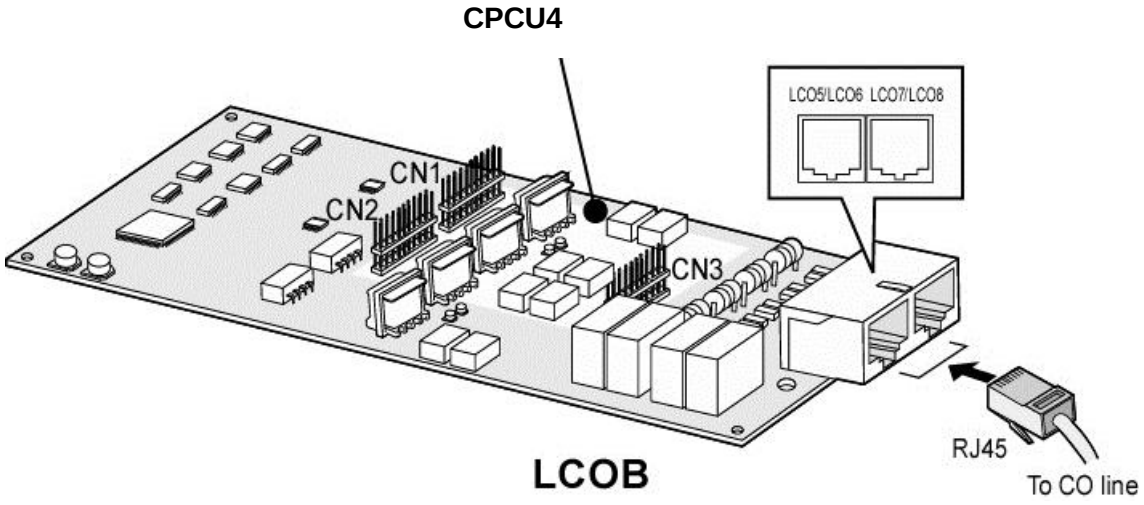
3.3.1 LCOB (CID Loop Start CO line Interface Board)

Description

The LCOB provides 4 CO/PBX Loop Start CO Line interfaces that support Pulse/DTMF signal. Each Interface contains ring and loop current detection circuits, A/D and D/A conversions, and pulse signaling circuit.
LCOB can be optionally equipped with a CPCU4 (FSK CID, & Call Progress Tone detection Unit 4) to detect FSK signal for the incoming Caller-ID.

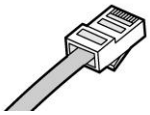
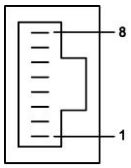
The LCOB can be installed on the 'LCOB/STIB' connector.

Add-on board: CPCU4



Pin assignment

LCOB

Connector	Pin Number	NO	SIGNAL NAME
RJ45 		1,2	CO-R, CO-T
		3	Reserved
		4,5	CO-R, CO-T
		6,7,8	Reserved

Various connectors functions

Connector	Function	Remark
CN2 and CN3	PRCPTU4 or PRU4 connection	See clause 3.3.1.1 clause 3.3.1.2
CN1, CN2 and CN3	CPCU4 connection	See clause 3.3.1.3
MJ1	2 ports RJ45 type CO line connection.	

3.3.1.3 CPCU4 (FSK CID, PR and CPT detection Unit)

Description

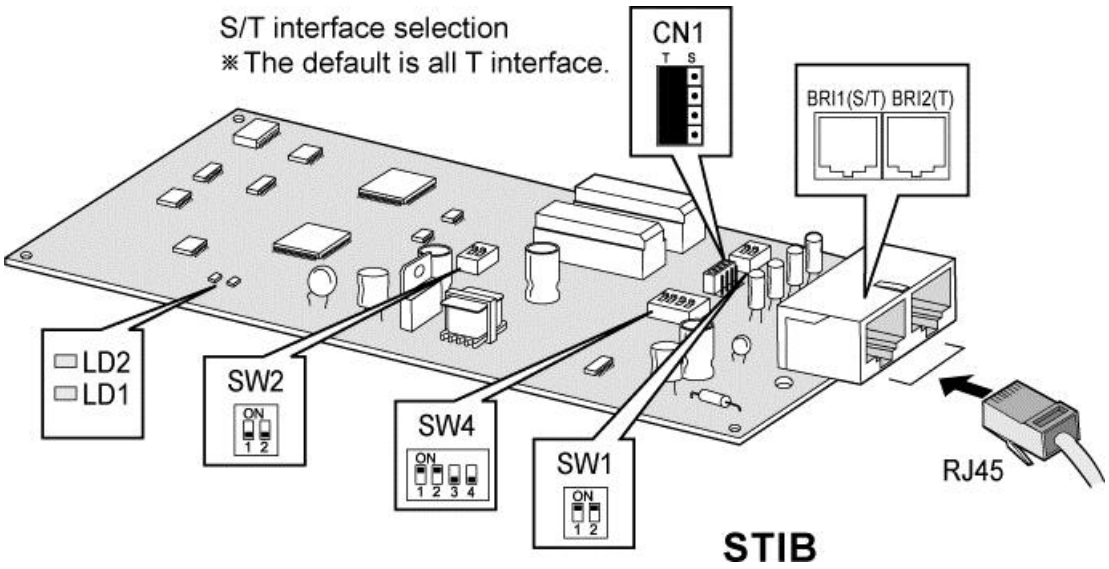
Provides four call progress tone detection to support ACNR feature (Auto Called Number Redial) and four FSK CID signal detection. It also provides four on-hook connection paths for SMS.
The CPCU4 can be optionally mounted on LCOB.

3.3.2 STIB (Basic Rate Interface Board : Selectable S/T interface)

Description

The STIB supports T-interface or S-interface.
The 1st BRI port can be operated to T-mode and S-mode and the 2nd port can be set to only T-mode.

STIB should be installed on the 'LCOB/STIB' connector.



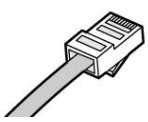
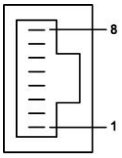
- S/T Interface selection on BRI1(Ch1) : The default is T Interface
 # SW2 : The default is all OFF position
 # SW4 : The default is 1, 2 pin's ON position and 3, 4 pin's OFF position

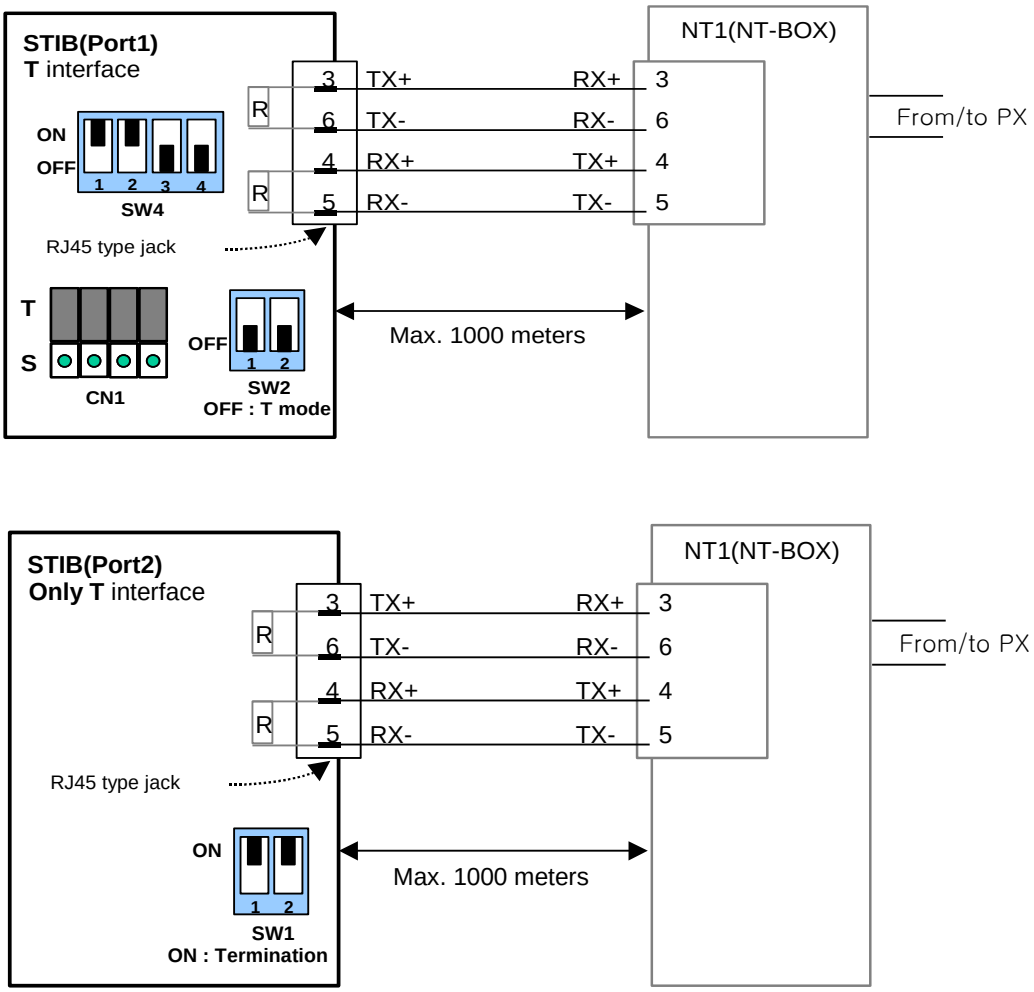
- BRI2(Ch2) provides T interface only.
 # SW1 : The default is ON position

Refer to PGM 203 to set the TEI type.

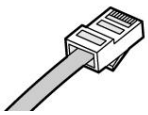
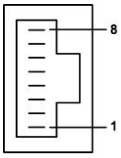
Pin assignment

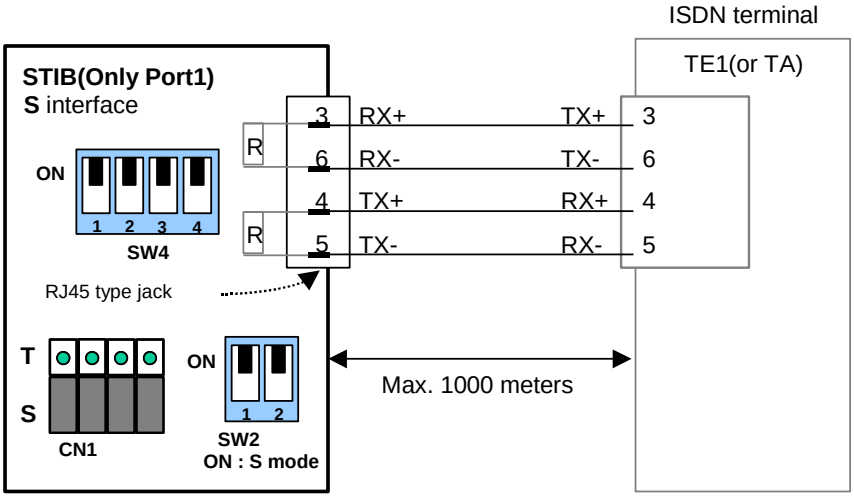
1) T mode

Connector	Pin Number	NO	SIGNAL NAME	FUNCTION
RJ45 		1,2,7,8	Reserved	
		3	TX+	Transmit Data
		4	RX+	Receive Data
		5	RX-	Receive Data
		6	TX-	Transmit Data



2) S mode

Connector	Pin Number	NO	SIGNAL NAME	FUNCTION
RJ45 		1,2,7,8	Reserved	
		3	RX+	Receive Data
		4	TX+	Transmit Data
		5	TX-	Transmit Data
		6	RX-	Receive Data



LED indications

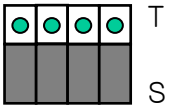
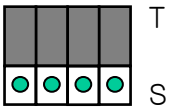
LED		Status		Line No.	Remark
		ON	OFF		
LED1	RED	ERROR	IDLE	1	STIB
	GREEN	IN-USE			
LED2	RED	ERROR	IDLE	2	STIB
	GREEN	IN-USE			

The line connector and terminating resistors

SW 1and SW4's 1, 2 pin setting : the default is all ON position.

Line No	RJ45 type jack	Terminating Resistors			Remark
		Switch	Pin1, 2 ON	Pin3, 4 OFF	
Line 1	MJ1	SW4	Termination	Open	
Line 2	MJ1	SW1	Termination	Open	

T or S Switch Setting

Line No	Mode	Switch and Connector			Remark
		SW4 Pin 3, 4	SW2	CN1	
Line 1	S	ON	ON		
	T	OFF	OFF		Default
Line 2	T Only				

*** NOTE**

1. **SW4(Pin3, 4) : -40V Power Feeding.**
2. **SW2 : The mode Change of the BRI transceiver.**
3. **CN1 : Set four 2pin jumpers like the above figure according to each mode.**

3.4 Installation of the Extension Board

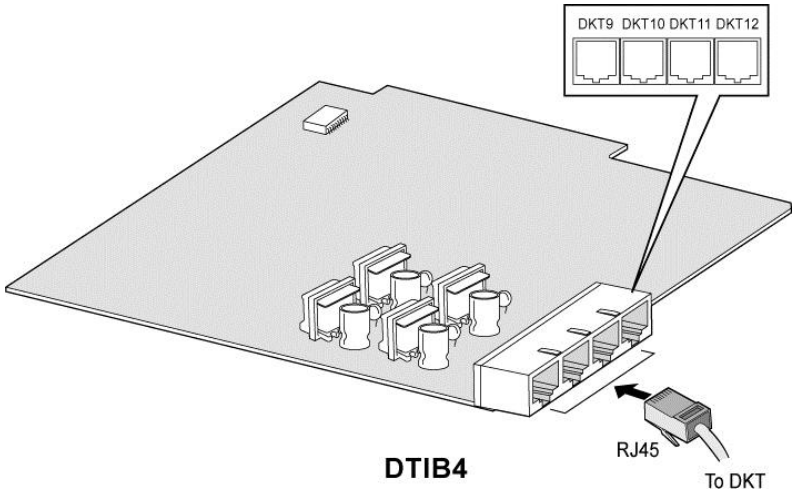
Board	Port	Connector type	Remark
DTIB4	4 DKT ports	RJ45	Digital Terminal Interface (+36V): 4 ports
DTIB8	8 DKT ports	RJ45	Digital Terminal Interface (+36V): 8 ports
SLIB4	4 SLT ports	RJ45	Single line telephone Interface (+36V): 4 ports
SLIB8	8 SLT ports	RJ45	Single line telephone Interface (+36V): 8 ports

3.4.1 DTIB4 (Digital Terminal Interface Board)

Description

The DTIB4 provides Digital Keyset interface of 4 ports. It also provides 2-wire connection to Digital Keysets. It has a module connector, MJ1, which is used to connect Digital Keyset lines to the DTIB4.

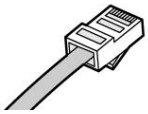
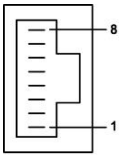
DTIB4 can be installed on the 'SLIB/DTIB' connector.



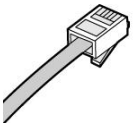
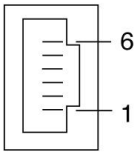
DTIB4

Pin assignment

DTIB4

Connector	Pin Number	NO	SIGNAL NAME	FUNCTION
RJ45 		1,2,3,6,7,8	Reserved	
		4	DKT_RX	Receive Data
		5	DKT_TX	Transmit Data

DKT

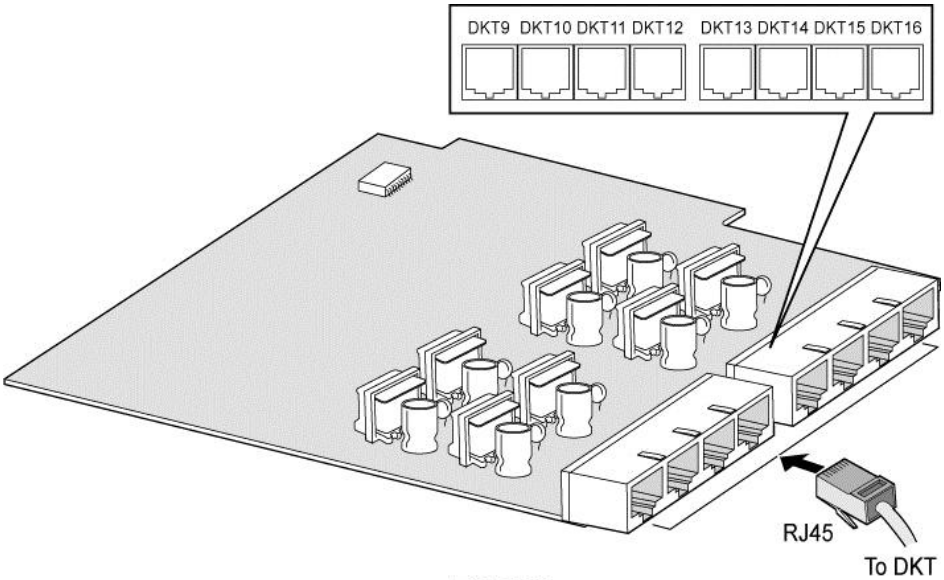
Connector Type	Pin Number	NO	SIGNAL NAME
RJ11 		1-2	RESERVED
		3	TIP
		4	RING
		5-6	RESERVED

3.4.2 DTIB8 (Digital Terminal Interface Board)

Description

The DTIB8 provides Digital Keyset interface of 8 ports. It also provides 2-wire connection to Digital Keysets. It has module connectors, MJ1 and MJ2, which is used to connect Digital Keyset lines to the DTIB8.

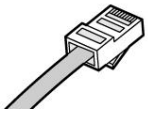
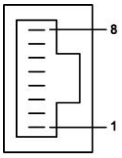
DTIB8 can be installed the 'SLIB/DTIB' connector.



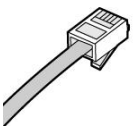
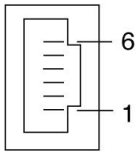
DTIB8

Pin assignment

DTIB8

Connector	Pin Number	NO	SIGNAL NAME	FUNCTION
RJ45 		1,2,3,6,7,8	Reserved	
		4	DKT_RX	Receive Data
		5	DKT_TX	Transmit Data

DKT

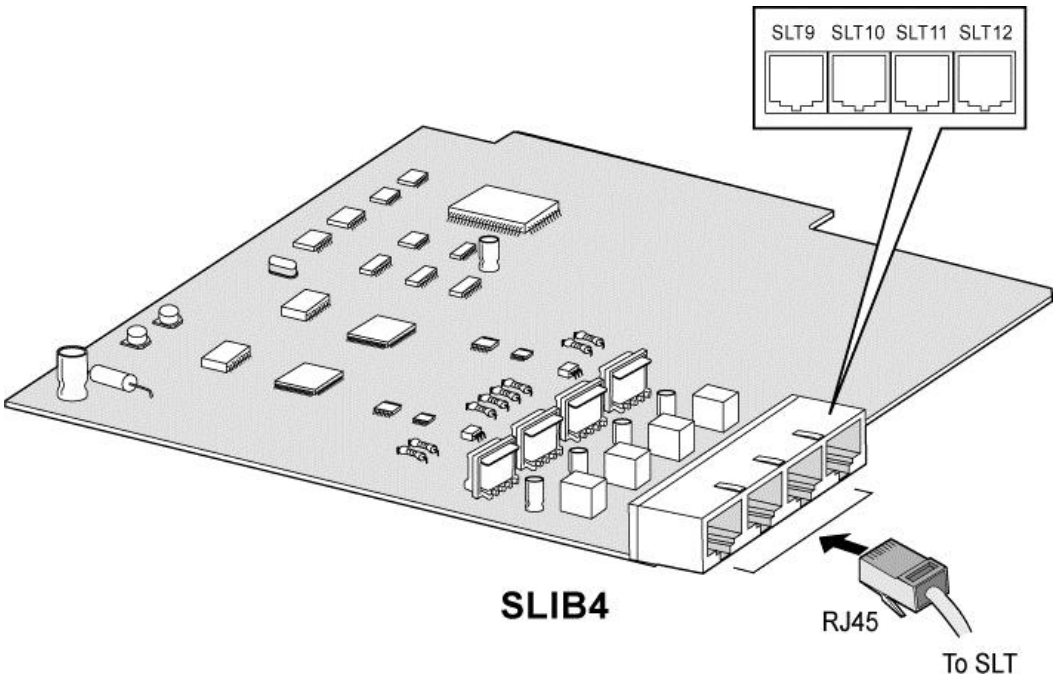
Connector Type	Pin Number	NO	SIGNAL NAME
RJ11 		1-2	RESERVED
		3	TIP
		4	RING
		5-6	RESERVED

3.4.3 SLIB4 (Single Line Interface Board)

Description

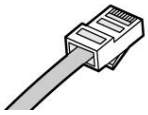
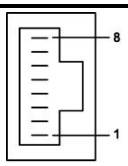
The SLIB4 provides the four (4) ports of SLT interface and two DTMF receivers. The connection between the SLIB4 and Single Line Telephone is performed through RJ45 Modular Jack, MJ3.

SLIB4 can be installed the 'SLIB/DTIB' connector.

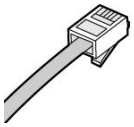
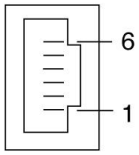


Pin assignment

SLIB4

Connector	Pin Number	NO	SIGNAL NAME	FUNCTION
RJ45 		1,2,3,6,7,8	Reserved	
		4	SLT_RX	Receive Data
		5	SLT-TX	Transmit Data

SLT

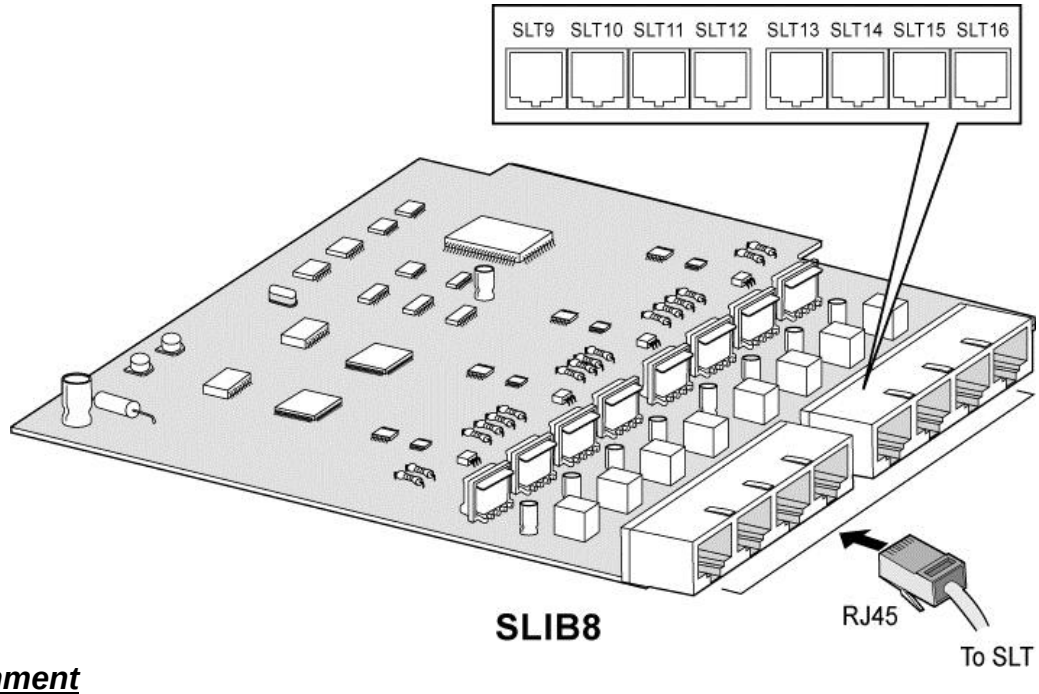
Connector Type	Pin Number	NO	SIGNAL NAME
RJ11 		1-2	RESERVED
		3	TIP
		4	RING
		5-6	RESERVED

3.4.4 SLIB8 (Single Line Interface Board)

Description

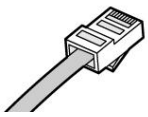
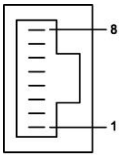
The SLIB8 provides the eight (8) ports of SLT interface and two DTMF receivers. The connection between the SLIB8 and Single Line Telephone is performed through RJ45 Modular Jacks, MJ2 & MJ3.

SLIB8 can be installed the 'SLIB/DTIB' connector.

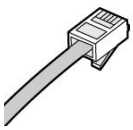
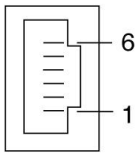


Pin assignment

SLIB8

Connector	Pin Number	NO	SIGNAL NAME	FUNCTION
RJ45 		1,2,3,6,7,8	Reserved	
		4	SLT_RX	Receive Data
		5	SLT-TX	Transmit Data

SLT

Connector Type	Pin Number	NO	SIGNAL NAME
RJ11 		1-2	RESERVED
		3	TIP
		4	RING
		5-6	RESERVED

3.5 Installation of other Boards

3.5.1 VMIB (Voice Mail interface board)

Description

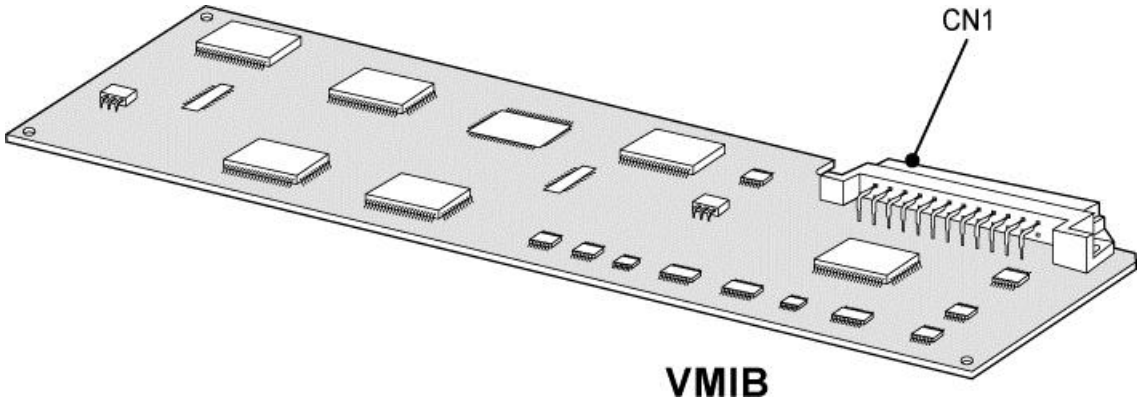
VMIB provides system announcement, ACD/UCD announcement, and User Greeting.

Item	Record/Play	MOH
Channel	2 channels	1 channel
Max record time: System/time stamp User record time	100 Min 28 Min 72 Min	60 Sec.
Max. Number of User voice message	400 EA	

*** Note:**

User Greeting is not lost by system power off or reset because of this message is stored in FLASH memory. MBU SW3-4 controls the protection of recorded messages.

The VMIB can be installed on the 'VMIB/AAFB' connector.



VMIB

3.5.2 AAFB(Auto Attendant Function Board)

Description

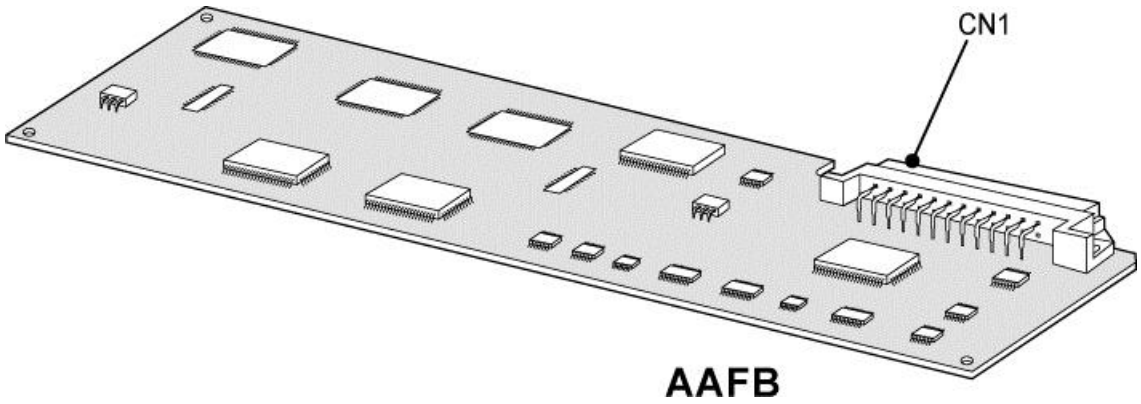
AAFB provides system announcement, ACD/UCD announcement, and User Greeting.

Item	Record/Play	MOH
Channel	2 channels	-
Max record time: System/time stamp User record time	28 Min 28 Min Not Possible	-

*** Note**

User Greeting is not lost by system power off or reset because of this message is stored in FLASH memory. MBU SW3-4 controls the protection of recorded messages.

The AAFB can be installed on the 'VMIB/AAFB' connector.

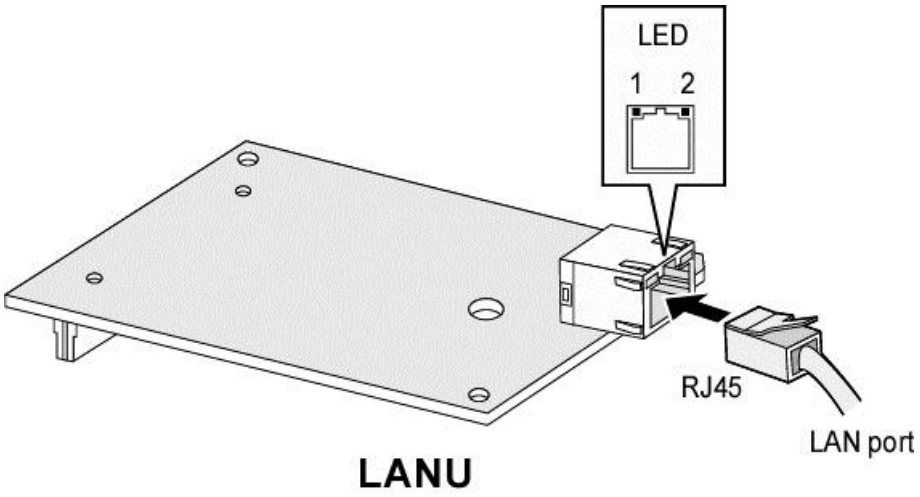


3.5.3 LANU(LAN interface Unit)

Description

The LANU provides 1 LAN port of 10Base-T networking.
RJ45 Modular Jack, MJ1, is used to interface Wide Area Network(WAN) or PC and has two LEDs that indicate the operation state of LAN port.

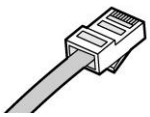
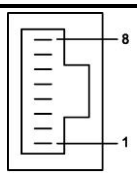
LANU should be installed on the 'LANU' connector.



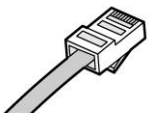
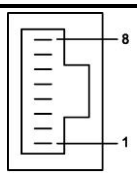
LANU

Pin assignment

LANU

Connector	Pin Number	NO	SIGNAL NAME	FUNCTION
RJ45 		4,5,7,8	RESERVED	
		1	TX+	Transmit Data
		2	TX-	Transmit Data
		3	RX-	Receive Data
		6	RX+	Receive Data

PC

Connector	Pin Number	NO	SIGNAL NAME	FUNCTION
RJ45 		4,5,7,8	RESERVED	
		1	TX+	Transmit Data
		2	TX-	Transmit Data
		3	RX-	Receive Data
		6	RX+	Receive Data

The LED indication of MJ1

No.	Meaning	
LED1 (Green)	OFF: No Link	ON: Link, Toggle: Data Transfer
LED2 (Orange)	OFF: Link and activity at 10MBps	ON: Link and activity at 100MBps

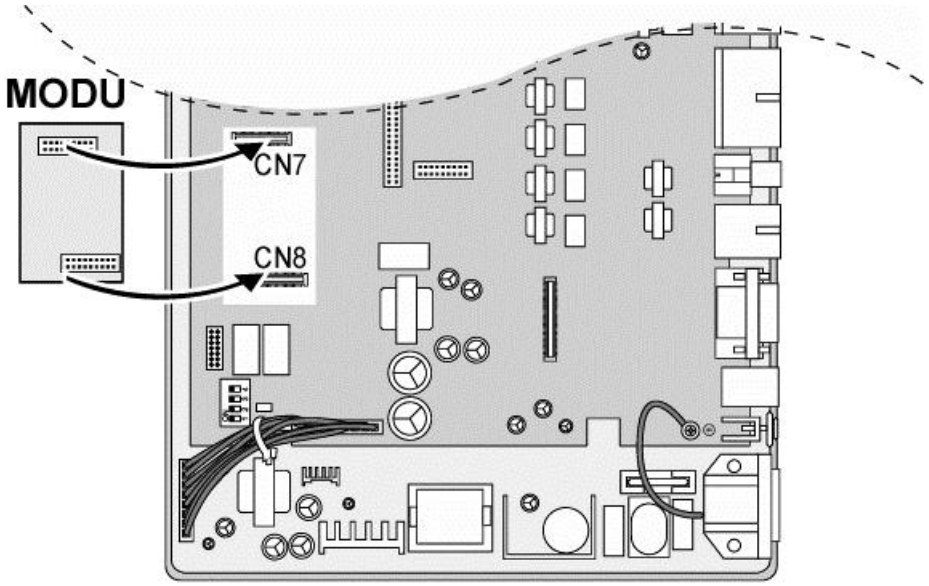
3.5.4 MODU (MODEM function Unit)

Description

MODU provides analog modem connection.

- Supports Bell, ITU-T, V.34, V.32BIS, V.90 Protocol
- 300bps up to 33Kbps speed rate
- Automatic rate negotiation

MODU should be installed on the 'MODU' connectors.

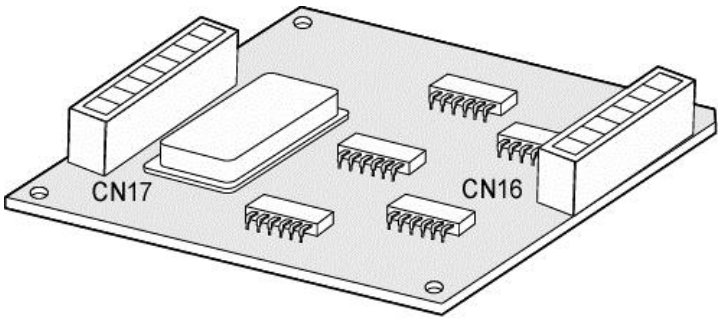


3.5.5 PLLU (Phase Locked Loop Unit)

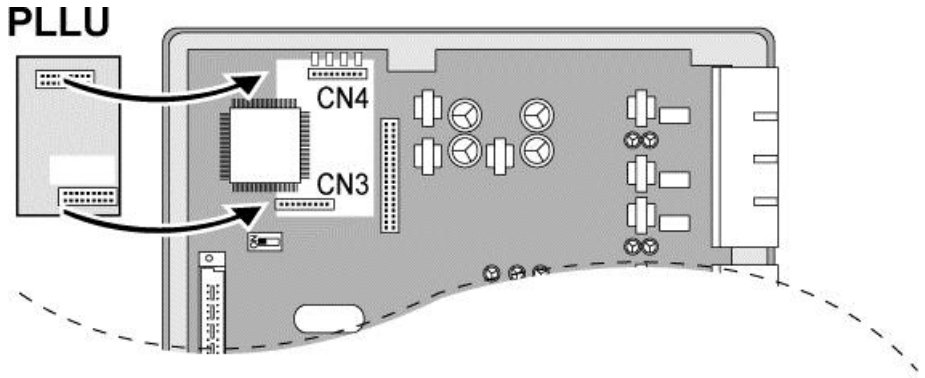
Description

PLLU provides system clock, 32MHz, phase locked to BRI line to system clock generation circuits. When STIB is installed on the MBU, PLLU must be installed for clock synchronization.

PLLU should be installed on the 'PLLU' connectors.



PLLU



The LED function

No.	Function	Remark
LED1	The status of PLL (ON : ACT, OFF : INACT)	

Section 4. Connection of the Terminal

4.1 The model of the Terminal

Various types of digital terminals are used with aria-24 ip MBU/DTIB4/DTIB8 as below:

Model	Description
LDP-7008D	8 Flexible Button Display
LDP-7016D	16 Flexible Button Display
LDP-7024D	24 Flexible Button Display
LDP-7024LD	24 Flexible Button Large Display
LDP-7048DSS	48 Button DSS Console

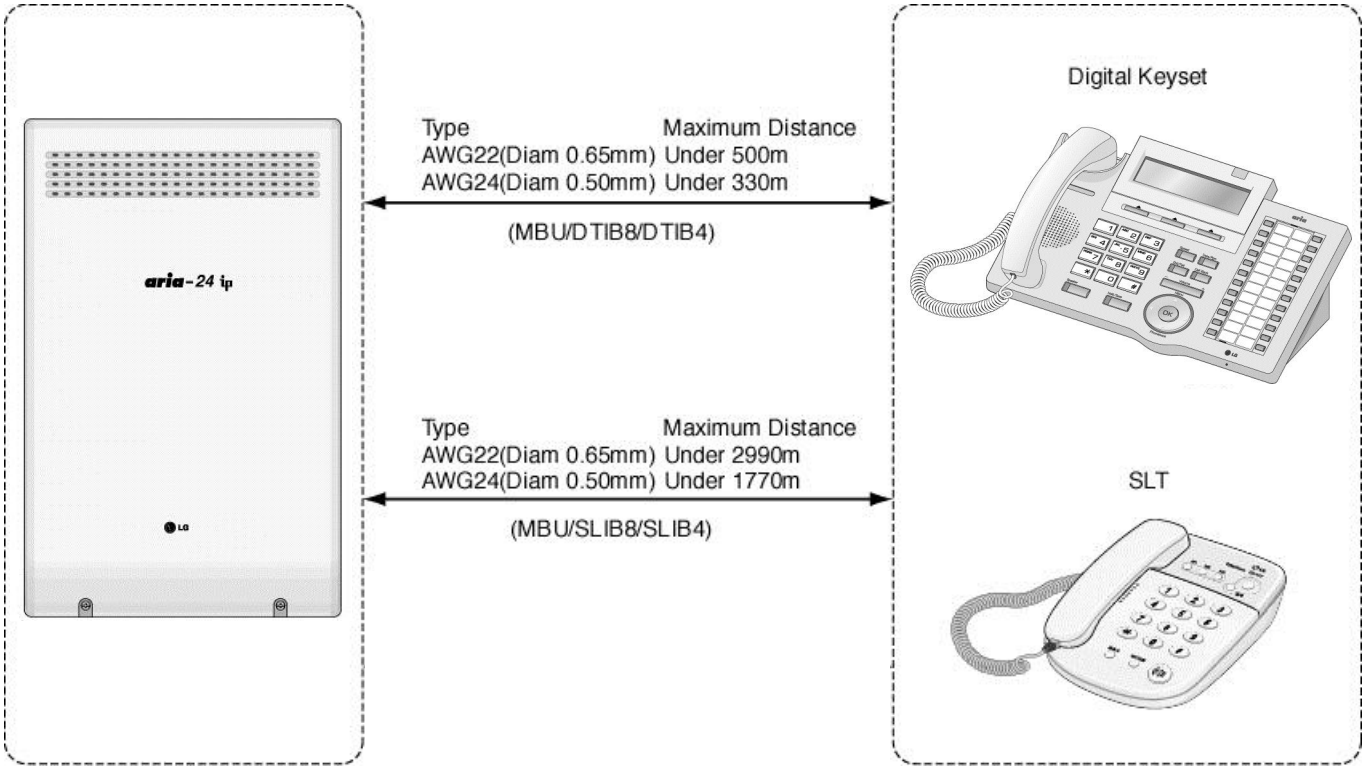
LDP-7008D

LDP-7016D

LDP-7024D

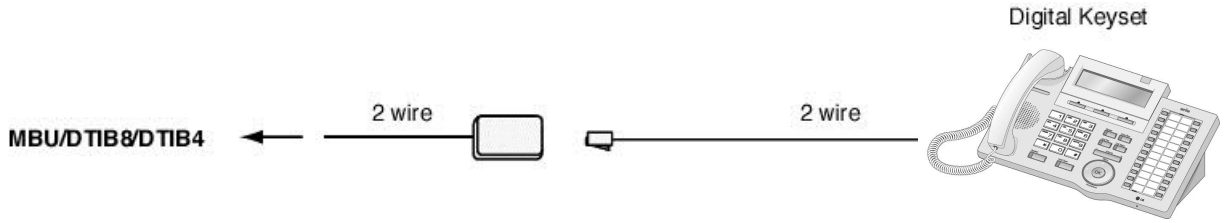
LDP-7024LD

4.2 Maximum cabling distance of the Terminal

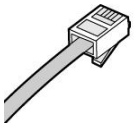
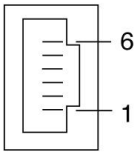


4.3 Connection of the keyset

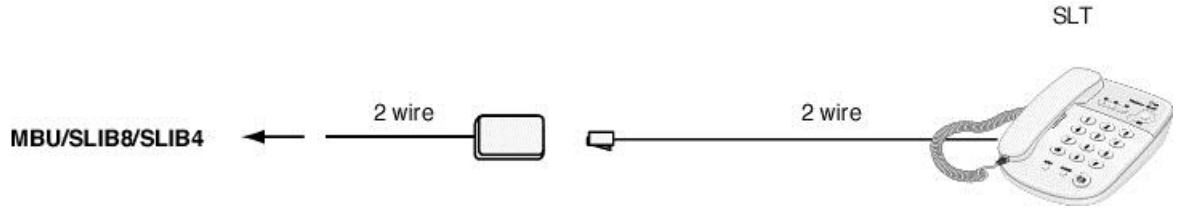
4.3.1 Digital keyset



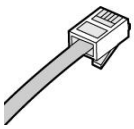
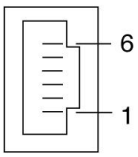
Pin assignment

Connector Type	Pin Number	NO	SIGNAL NAME
RJ11 		1-2	RESERVED
		3	TIP
		4	RING
		5-6	RESERVED

4.3.2 SLT

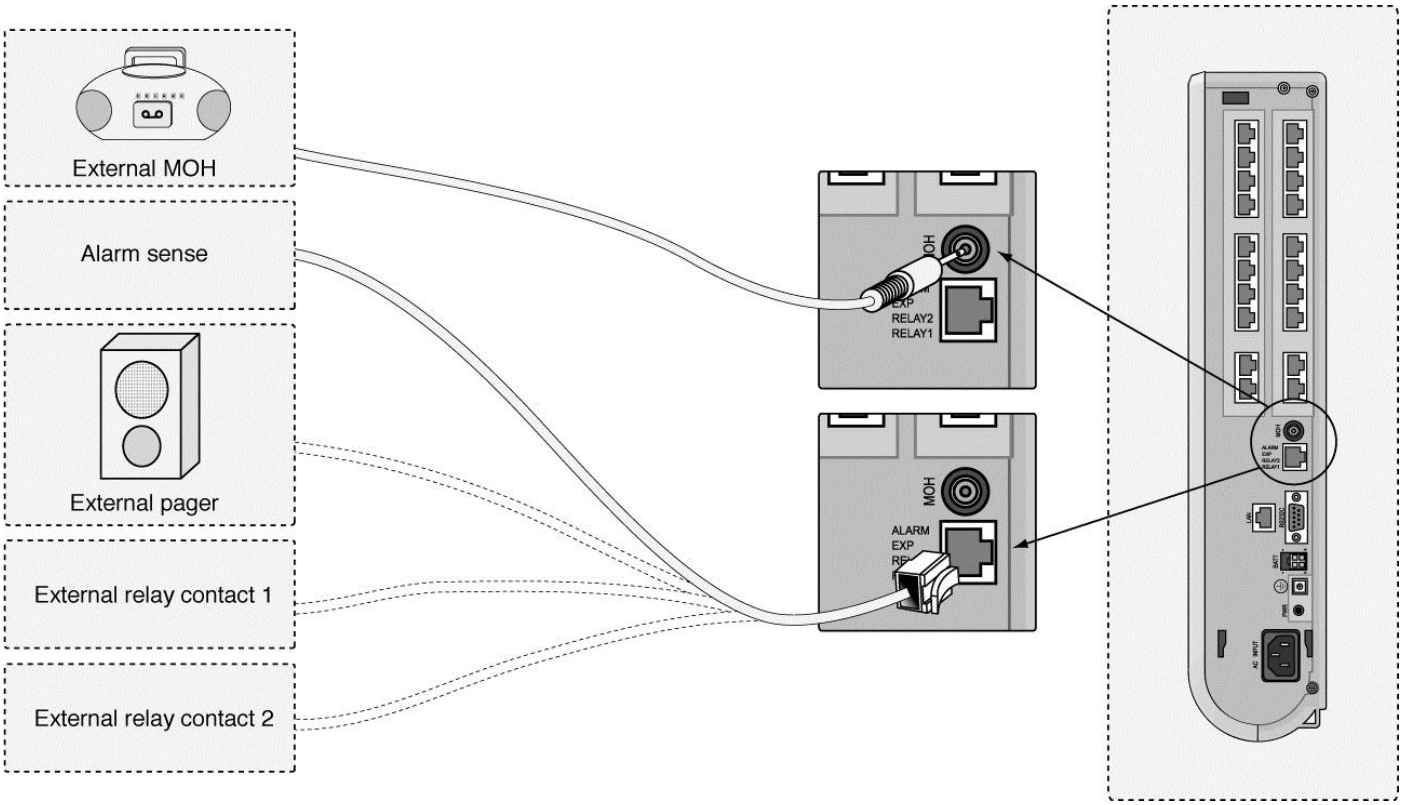


Pin assignment

Connector Type	Pin Number	NO	SIGNAL NAME
RJ11 		1-2	RESERVED
		3	TIP
		4	RING
		5-6	RESERVED

4.4 Connection of the additional terminals

4.4.1 Connecting the additional terminal to MBU



MBU provides connections for 1 external music source, 1 external page port, 2 relay contacts, and an alarm/door-bell input monitor through PJ1 audio jack and MJ4 RJ45 Modular Jack.

External Music Source wiring

MBU accommodates 1 port of external music source through PJ1 (RED) audio Jack.

Relay Contacts

MBU provides 2 relay contacts that are used for loud bell or external paging through pin No. 1-2 & 3-4 of MJ4.

External Paging wiring

MBU supports 1 external paging port through Pin No.5-6(paging port) of MJ4.

Alarm Detection wiring

MBU provides an external alarm detection input, which can be used to notify to extensions when the external switch is closed or opened. This alarm detection input is provided through pin No.7-8 of MJ4. Close or open detection is programmable by ADMIN. Programming.

Section 5. Starting the aria-24 ip System

5.1 Before starting the aria-24 ip System

1. **The DIP switch (SW1) of memory backup Battery should be turned ON before the MBU installation to protect system data in the case of a power failure.**
2. **Set the DIP switch (SW3) on the MPU to ON.**
   -. To initialize all the data in Admin programming, the 4th pole of SW3 should be set ON.
3. **Plug the AC power cord into the aria-24ip System and AC outlet.**
4. **Program the country code as expected.**
5. **Make a reset of the aria-24 ip System.**
6. **Set the 4th pole of SW3 on the MBU to OFF when the system operates normally.**
   -. The 4th pole of SW3 should be OFF to protect the variety features by Admin programming after the system power up and initialization.

5.2 Basic preprogramming

The aria-24 ip System can be programmed to meet each customer's individual need.

This section contains the following topics :

- **Before ADMIN programming**
- **Button explanation**
- **How to enter the programming mode**
- **Permanent update procedure**
- **How to reset the system**

5.2.1 Before ADMIN programming

The aria-24 ip System can be programmed to meet each customer's individual need.

There are two ways in ADMIN Programming.

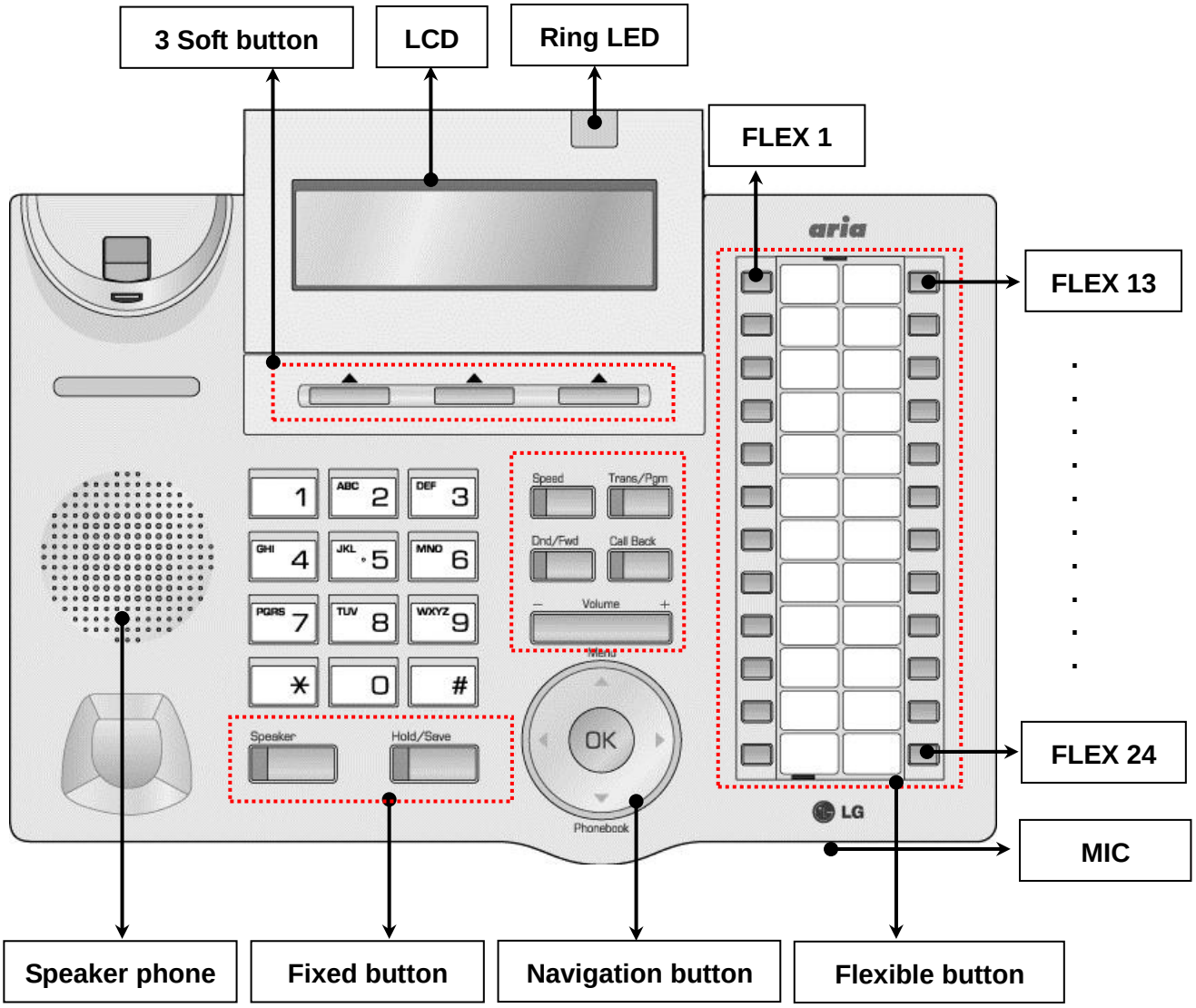
- ✓ **PC ADMIN (Refer to the PC ADMIN programming manual.)**
- ✓ **DKTU(In this manual we explain DKTU(station 10) in ADMIN Programming):**

All programming is done at station 10 (station port # 00) using LDP-7024D digital key telephone.

Additional programming stations may be assigned (PGM 113 – FLEX 1), but only 1 DKTU can be active in programming mode at any one time.

Upon entering the program mode, the station 10 cannot operate as a normal telephone but as a programming instrument with all of the buttons redefined. The keys of the dial pad are used to enter the various data fields and to enter numerical information. The 24 buttons located at the top of the phone (Flexible Buttons) are used to indicate the specific data field and to enter information. Sometimes the **[SPEED]** button and '*' of the dial pad is used to delete the data or to indicate end of data input and the **[REDIAL]** button is used to delete one digit or character from the end of entered digits or characters.

5.2.2 Button explanation



Description of LDP-7024D button

There are many kinds of DKTU connecting to the aria-24 ip system. This model of LDP-7024D is a sample that just shows each button. The detailed information about DKTU and other keyset is described in “DKTU USER GUIDE and INSTALLATION MANUAL”.

5.2.3 How to enter the programming mode

1. Lift handset or press the **[MON]** button on the ADMIN station, and hear ICM dial tone (optional).
2. Press the **[TRANS/PGM]** button and dial *** #** (Confirmation tone is heard).
   ※ Enter ADMIN password if the password has been set. This places the station into the ADMIN programming mode (Confirmation tone is heard).
3. Each program is accessed by pressing the **[TRANS/PGM]** button and dialing the three-digit program number. If an error is made while entering data, the **[TRANS/PGM]** button can go the previous status. When the **[TRANS/PGM]** button is pressed, the LCD will display;

ENTER PGM NUMBER

*** NOTE :**

1. **To return the parent state while ADMIN programming, press the [CONF] button. Pressing the [CONF] button, temporary data fields are cleared.**

5.2.4 Permanent update procedure

When the data has been entered, the **[HOLD/SAVE]** button is used to store the data permanently.
If all data was entered correctly, confirmation tone is heard when pressing the **[HOLD/SAVE]** button.
If there were any errors in the entry, then an error tone is presented and data is not stored in the permanent memory.

5.2.5 How to reset the system

To reset the system, enter PGM 450 – FLEX 15 and press **[HOLD/SAVE]** button. Or press Reset button on MBU, located next to the MODU Unit.

5.2.6 Pre-programming

Location PGM-Nation code & Site Name (PGM100)

The 4th pole of the DIP switch (SW 3) on the MPB : On

PROCEDURE

-. Nation Code

+ 100 + (PGM NUMBER)


+ Enter 7 +


※ Press the reset button after setting the nation code.(restart the system)

-. Site Name

+ 100 + (PGM NUMBER)


+ Enter Site Name (Range: Max 23 digits) +


. – 13 1 – 10	A - 21 B - 22 C - 23 2 - 20	D - 31 E - 32 F - 33 3 - 30
G – 41 H - 42 I - 43 4 – 40	J - 51 K - 52 L - 53 5 - 50	M - 61 N - 62 O - 63 6 - 60
P - 71 R - 72 S - 73 Q - 7* 7 – 70	T - 81 U - 82 V - 83 8 - 80	W - 91 X - 92 Y - 93 Z - 9# 9 - 90
*1 - Blank *2 - : *3 - ,	0-00	#

LKD (Aria select) Type Handsets

. – 13 1 – 10	A - 21 B - 22 C - 23 2 - 20	D - 31 E - 32 F - 33 3 - 30
G – 41 H - 42 I - 43 4 – 40	J - 51 K - 52 L - 53 5 - 50	M - 61 N - 62 O - 63 6 - 60
P - 71 R - 72 S - 73 Q - 74 7 – 70	T - 81 U - 82 V - 83 8 - 80	W - 91 X - 92 Y - 93 Z - 94 9 - 90
*1 - Blank *2 - : *3 - ,	0-00	#

LDP-7000 series handsets

NATION	CODE	NATION	CODE	NATION	CODE
America	1	Argentina	54	**Australia**	**61**
				Telstra-Australia	***61**
Bahrain	973	Bangladesh	880	Belgium	32
Bolivia	591	Brazil	55	Brunei	673
Burma	95	Cameroon	237	Chile	56
China (Taiwan)	886	CIS	7	Colombia	57
Costa Rica	506	Cyprus	357	Czech	42
Denmark	45	Ecuador	593	Egypt	20
El Salvador	503	Ethiopia	251	Fiji	679
Finland	358	France	33	Gabon	241
Germany	49	Ghana	233	Greece	30
Guam	671	Guatemala	502	Guyana	592
Haiti	509	Honduras	504	Hong Kong	852
India	91	Indonesia	62	Iran	98
Iraq	964	Ireland	353	Israel	972
Italy	39	Japan	81	Jordan	962
Kenya	254	Korea	82	Kuwait	965
Liberia	231	Libya	218	Luxembourg	352
Malaysia	60	Malta	356	Mexico	52
Monaco	377	Morocco	212	Netherlands	31
New Zealand	64	Nigeria	234	Norway	47
Oman	968	Pakistan	92	Panama	507
P.N.G	675	Paraguay	595	Peru	51
Philippines	63	Portugal	351	Qatar	974
Saudi Arabia	966	Senegal	221	Singapore	65
South Africa	27	Spain	34	Sri Lanka	94
Swaziland	268	Sweden	46	Switzerland	41
TELKOM	*27	Thailand	66	Tunisia	216
Turkey	90	U.A.E.	971	United Kingdom	44
Uruguay	598	Venezuela	58	Y.A.R.	967

NUMBERING PLAN TYPE (PGM 104)

PROCEDURE

\+ 104 + Enter Number Plan Type(1 digit) +

(PGM NUMBER)

Range: 1~8

BTN	ITEM	INTERCOM RANGE	DEFAULT	REMARK
1	Number Set Type 1	10 – 37	Yes	As the basic type, the 1st digit of station number should be 1 – 4.
2	Number Set Type 2	10 – 37	No	The station number can be changed within 79.
3	Number Set Type 3	10 – 37	No	
4	Number Set Type 4	700 – 727	No	
5	Number Set Type 5	200 – 227	No	
6	Number Set Type 6	10 – 37	No	
7	Number Set Type 7	100 – 137	No	
8	Number Set Type 8	10 – 37	No	The station number can be changed within 99.

FLEXIBLE NUMBERING PLAN (PGM 105)

PROCEDURE

TRANS/PGM + 105 + Enter Station Range + *HOLD/SAVE*

(PGM NUMBER)

Dial two station numbers
- Range start station number
& range end station number

000	001	002	003
100	101	102	103

(1) **[TRANS/PGM]** + 105.

000	001	002	003
100	101	102	103

- Station Number Assign. You will see the 4 station numbers corresponding to the 4 port numbers. Station number length is in the range of 2 digits through 4 digits. There are two methods for changing station number.

  Dial two station numbers - Range start station number & range end station number, then LCD shows dialed range value. Press the **[HOLD/SAVE]** button, then station numbers changed from the first station number on current LCD to range end (All LEDs of BTNs are off.).

  Press one of FLEX 1-4 (Each FLEX 1-4 is assigned to station number 1- 4 on the current LCD), then LED of pressed Flexible button is steady on. Dial new station number and press the **[HOLD/SAVE]** button, or press other Flexible button to assign station number to other station without saving (The LED of pressed Flexible button is on.).

  If you want to delete all station numbers, press the **[SPEED]** button and press **[HOLD/SAVE]** button, then all station numbers are cleared.

  If you want to change next 4 station numbers then press [▼] button. If you want to change previous 4 station numbers, then press [▲] button.

000	001	002	003
100	400	102	103

(2) Press the **[HOLD/SAVE]** button for saving database permanently. (Ex: Press FLEX 2, dial 400 and press **[HOLD/SAVE]** button.)

FLEXIBLE NUMBERING PLAN (PGM 106-107)

PROCEDURE

TRANS/PGM + 106 + Enter FLEX BUTTON + Enter Code + HOLD/SAVE
(PGM NUMBER) (Range: BTN1~BTN24)

TRANS/PGM + 107 + Enter FLEX BUTTON + Enter Code + HOLD/SAVE
(PGM NUMBER) (Range: BTN1~BTN22)

Flex Numbering Plan A (PGM 106)

FLEX	ITEM	DEFAULT VALUE (at Numbering Plan Type 1)
1	Station Group Pilot Number Range	620 – 629
2	Internal Page Zone Number Range	501 – 510
3	Internal All Call Page	543
4	Meet Me Page	544
5	External Page Zone	545
6	All Call Page (Internal/External)	549
7	SMDR Account Code	550
8	Flash Command to CO Line	551
9	Last Number Redial (LNR)	552
10	Do-Not-Disturb	553
11	Call Forward	554
12	Speed Dial Program	555
13	MSG Wait/Call-Back Enable	556
14	MSG Wait/Call-Back Answer	557
15	Speed Dial Access	558
16	Cancel DND/CFW/Pre-selected MSG Features	559
17	SLT Hold	560
18	Forced Log In	561
19	Forced Log Out	562
20	SLT Program Mode Select	563
21	ACD Reroute	564

Flex Numbering Plan B (PGM 107)

FLEX	ITEM	DEFAULT VALUE (at Numbering Plan Type 1)
1	Alarm Reset	565
2	Group Call Pick-Up	566
3	UCD Group DND	568
4	Night Answer	569
5	Call Park Location Range	601 – 608
6	Direct Call Pick-Up	7
7	Access CO Line Group	801 – 808 (8 + CO Group Number)
8	Access Individual CO Line	8801 – 8812 (88 + CO Line Number)
9	Tie Routing Access	8901
10	Access Held CO Line Group	8*
11	Access Held Individual CO Line	8#01 – 8#52 (8# + CO Line Number)
12	Access to CO line in the 1st available CO Line Group	0
13	Attendant Call	9
14	Door Open – 1	*1
15	Door Open – 2	*2
16	VM MSG Wait Enable	*8
17	VM MSG Wait Cancel	*9

IP setting for System (PGM 108)

PROCEDURE

-. IP Name (Use the # to skip)

+ 108 + 

+ Enter Code + 

(PGM NUMBER) (Range: 16 Characters)

-. Server IP Address

+ 108 + 

+ Enter Server IP Address + 

(PGM NUMBER) (Range: 12 digits)

-. CLI IP Address

+ 108 + 

+ Enter CLI IP Address + 

(PGM NUMBER) (Range: 12 digits)

-. Gateway Address(Use the # to skip)

+ 108 + 

+ Enter Gateway Address + 

(PGM NUMBER) (Range: 12 digits)

-. Subnet Mask Address(Use the # to skip)

+ 108 + 

+ Enter Subnet Mask + 

(PGM NUMBER) (Range: 12 digits)

Section 6. Troubleshooting

PROBLEM	CAUSE / SYMTOM	SOLUTION
System power failure	Power short circuit in some board(s)	Exchange the bad board for normal one. Remove the things like dust on each board.
	Off or blinking is the light of LD6 LED on the MBU	Check the PSU fuse. Replace the PSU with the appropriate type.
System does not operate	Power short circuit in some board(s)	Check the connection of each board with MBU. Try to press Reset button.
	Bad board connection	Check the PSU. Check the short circuit on MBU or other boards.
	System database broken	Press reset button when the dip switch (for database protection purpose) is the default position.
DKTU does not operate	Bad extension circuit	Exchange the abnormal board for normal one.
	Bad connection between the MBU/DTIB and keyset	The connection between the system and the keyset must be repaired. It must be checked that the connection is right, and there is the mismatch between the line of SLIB and DTIB on the MDF .
	The limit of installation distance	Check the distance between the MBU/DTIB and keyset.
	Bad keyset	Take the keyset and plug it into another extension port that is working. If the keyset does not work, replace the keyset.
SLT does not operate	Bad MBU or SLIB board	Exchange the board for normal one.
	Bad connection between the MBU/SLIB and SLT	It should be checked that the board connection is right and there is the mismatch of the lines of SLT and DKT on the MDF.

PROBLEM	CAUSE / SYMTOM	SOLUTION
CO line operation	ACNR Fail	Check the PRCPTU4, and CPCU4
	Bad connection	The bad connection must be checked
ISDN board does not operate	The position of switch	Check the switch of term and So/To position
	Network problem	Check the network side.
Noise on External Paging port	Induced noise on the wire between the system and the amplifier	Use a shield cable as the connection wire between the system and amplifier. A short shield cable is recommended.
Distorted External MOH	Excessive input level from external music source	Decrease the output level of the external music source by using the volume control on the music source.