Panasonic

Digital Super Hybrid System

MODEL **KX-TD1232G**

Installation Manual

Please read this manual before connecting the KX-TD1232G.

Thank you for purchasing the Panasonic Model
KX-TD816SL/KX-TD1232SL, Digital Super Hybrid System.

System Components

	Model	Description
Service Unit	KX-TD816SL	Digital Super Hybrid System (Main Unit)
	KX-TD1232SL	Digital Super Hybrid System (Main Unit)
Proprietary Telephone (PT)	KX-T7230SL	Digital proprietary telephone with display
	KX-T7235SL	Digital proprietary telephone with large display
	KX-T7250SL	Digital proprietary telephone with monitor
Optional Equipment	KX-T7240SL	Digital DSS Console
	KX-TD170SL	8-Station Line Unit
	KX-TD280SL	2-ISDN S0 Line Unit
	KX-TD281G*1	4-ISDN S0 Line Card
	KX-TD282G*2	2-ISDN S0 Line Card
	KX-TD192G*1	System Inter Connection Cards (2 Cards and 1 Cable)
	KX-TD196G*1	2400bps Remote Card

System Components Table

- In this Installation Manual, the suffix “SL” or “G” of each model number is omitted.
- The Proprietary Telephone is abbreviated as “PT.”

The models marked *1 can be installed in KX-TD1232 only.

The models marked *2 can be installed in KX-TD816 only.

Attention

- Keep the unit away from heating appliances and electrical noise generating devices such as fluorescent lamps, motors and television. These noise sources can interfere with the performance of the Digital Super Hybrid System.
- This unit should be kept free of dust, moisture, high temperature (more than 40˚C / 104˚F) and vibration, and should not be exposed to direct sunlight.
- Never attempt to insert wires, pins, etc. into the vents or other holes of this unit.
- If there is any trouble, disconnect the unit from the telephone line. Plug the telephone directly into the telephone line. If the telephone operates properly, do not reconnect the unit to the line until the trouble has been repaired. If the telephone does not operate properly, chances are that the trouble is in the telephone system, and not in the unit.
- Do not use benzine, thinner, or the like, or any abrasive powder to clean the cabinet. Wipe it with a soft cloth.
- This unit may only be installed and serviced by Qualified Service Personnel.

WARNING

- THIS UNIT IS EQUIPPED WITH AN EARTHING CONTACT PLUG. FOR SAFETY REASONS THIS PLUG MUST ONLY BE CONNECTED TO AN EARTHING CONTACT SOCKET WHICH HAS BEEN INSTALLED ACCORDING TO REGULATIONS.
- THE POWER SOCKET WALL OUTLET SHOULD BE LOCATED NEAR THIS EQUIPMENT AND BE EASILY ACCESSIBLE.
- TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS PRODUCT TO RAIN OR ANY TYPE OF MOISTURE.

The serial number of this product may be found on the label affixed to the bottom of the unit. You should note the serial number of this unit in the space provided and retain this book as a permanent record of your purchase to aid in identification in the event of theft.

MODEL NO.: _____

SERIAL NO.: _____

For your future reference

DATA OF PURCHASE _____

NAME OF DEALER _____

DEALER'S ADDRESS _____

Introduction

This Installation Manual provides technical information for the Panasonic Digital Super Hybrid System, KX-TD816/KX-TD1232. It is designed to serve as an overall technical reference for the system and includes a description of the system, its hardware and software, features and services and environmental requirements.

This manual contains the following sections:

Section 1, System Outline.
Provides general information on the system including system capacity and specifications.

Section 2, Installation.
Contains the basic system installation and wiring instructions, as well as how to install the optional cards and units.

Section 3, Features.
Describes all the basic, optional and programmable features in alphabetical order. It also provides information about the programming required, conditions, connection references, related features and operation for every feature.

Section 4, System Programming.
Provides step-by-step programming instructions for a proprietary telephone.

Section 5, List.
Lists tone/ring tone and default values of system programming.

Section 6, Troubleshooting
Provides information for system and telephone troubleshooting.

NOTE
The following document may be used in conjunction with this manual:

- User Manual for KX-TD816/KX-TD1232 System, Proprietary Telephones, DSS Console and Single Line Telephones

Contents

*1 : Available for KX-TD1232 only.
*2 : Available for KX-TD816 only.

Contents

*:Available for KX-TD1232 only.

Contents

Contents

Contents

Contents

*: Available for KX-TD1232 only.

Contents

*: Available for KX-TD1232 only.

Contents

Contents

*: Available for KX-TD1232 only.

Contents

Section 1
System Outline

This section provides general information on the system, including system capacity and specifications.

1.1 System Highlights

System Capacity

		Basic System	Module Expansion	System Connection
KX-TD816	ISDN S0 line	**0**	**4**	**—**
	Extension	**8**	**16**	**—**
KX-TD1232	ISDN S0 line	**0**	**6**	**12**
	Extension	**16**	**32**	**64**

Module Expansion

Expansion modules are used to increase the system capacity. Extension modules and ISDN modules can be added to the basic system to add extensions and ISDN lines.

EXtra Device Port (XDP)

Each extension jack in the system supports the connection of a proprietary telephone/DSS Console and a single line device. The devices have different extension numbers and are treated as two completely different extensions.

Paralleled Telephone Connection

Every jack in the system also supports the parallel connection of a proprietary telephone and a single line device. They share the same extension number and are considered by the system to be one extension.

Super Hybrid System

This system supports the connection of proprietary telephones, DSS Consoles and single line devices such as single line telephones, facsimiles, and data terminals.

System Connection*

With the addition of optional System Inter Connection Card, two Digital Super Hybrid Systems can be connected together to expand the system capacity. The two systems function as one, however, some functions such as paging and music on hold are duplicated.

Proprietary Telephones (PT)

The system supports three different models of proprietary telephones.

Programming System

The system can be programmed from a proprietary telephone or from a personal computer.

*: Available for KX-TD1232 only.

1.1 System Highlights

Trunk (CO Line) Answer From Any Station (TAFAS)

Ringing occurs over the external paging system; call can be answered from any station.

Charge Fee Reference

Allows the user to see charges and to print out the charges.

Budget Management

Limits the telephone usage to a pre-assigned amount.

Hotel Application

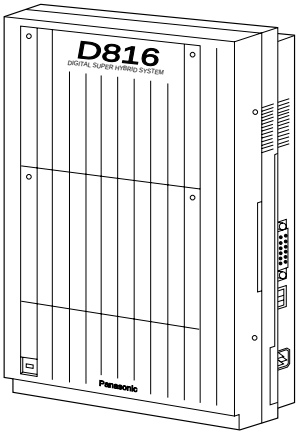
Allows to handle the front and operator services such as check-in/check-out and wake-up call setting.

Uniform Call Distribution (UCD)

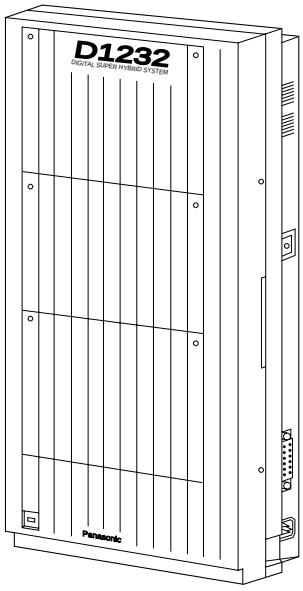
Allows an incoming calls to be distributed uniformly to a specific group of extensions.

1.2 Basic System Construction

The KX-TD816 has a basic capacity of eight extensions, and the KX-TD1232 has a basic capacity of 16 extensions. It is capable of supporting Panasonic proprietary telephones, DSS Consoles and single line devices such as single line telephones, facsimiles.
To expand its capabilities the system can be equipped with optional components or customer-supplied peripherals such as external speakers and external music sources (e.g., radios).



KX-TD816



KX-TD1232

1.3 Proprietary Telephones/Proprietary Single Line Telephone

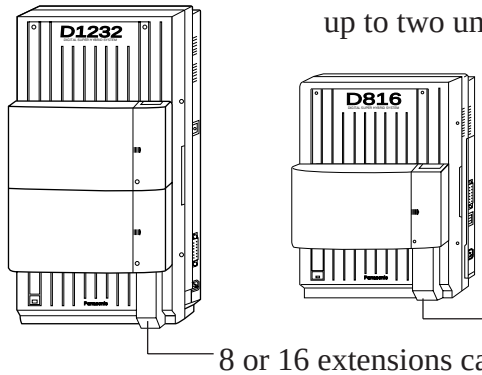
The following Panasonic proprietary telephones (PT) are available with this system.

Proprietary Telephone	Description
KX-T7230	Digital, display, speakerphone, 24 CO
KX-T7235	Digital, large display, speakerphone, 12 CO
KX-T7250	Digital, monitor, 6 CO

Note: CO: CO line access button

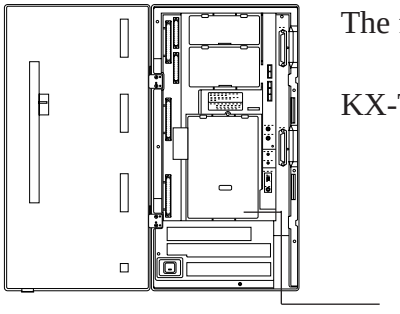
1.4 Options

1.4.1 Station Line Unit (KX-TD170)



Each unit adds eight extensions. One unit for KX-TD816 and up to two units for KX-TD1232 can be installed per system.

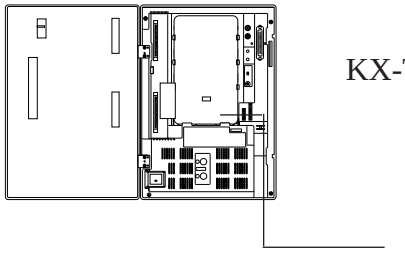
1.4.2 ISDN S0 Line Card (KX-TD281)*1



The following card can be installed per system.

KX-TD281: Adds four ISDN S0 lines. (Basic Rate Interface)

1.4.3 ISDN S0 Line Card (KX-TD282)*2



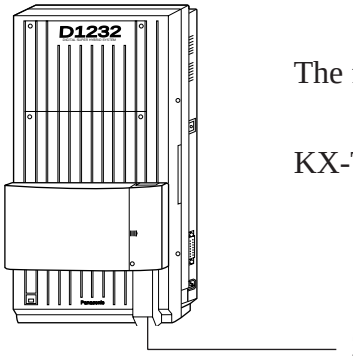
The following card can be installed.

KX-TD282: Adds two ISDN S0 lines. (Basic Rate Interface)

*1: Available for KX-TD1232 only.
*2: Available for KX-TD816 only.

1.4 Options

1.4.4 ISDN S0 Line Unit (KX-TD280)

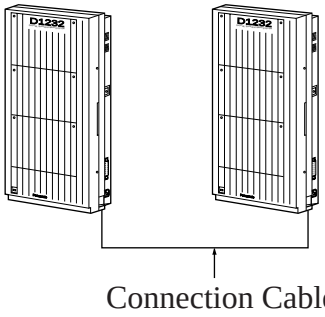


The following unit can be installed per system.

KX-TD280: Adds two ISDN S0 lines. (Basic Rate Interface)

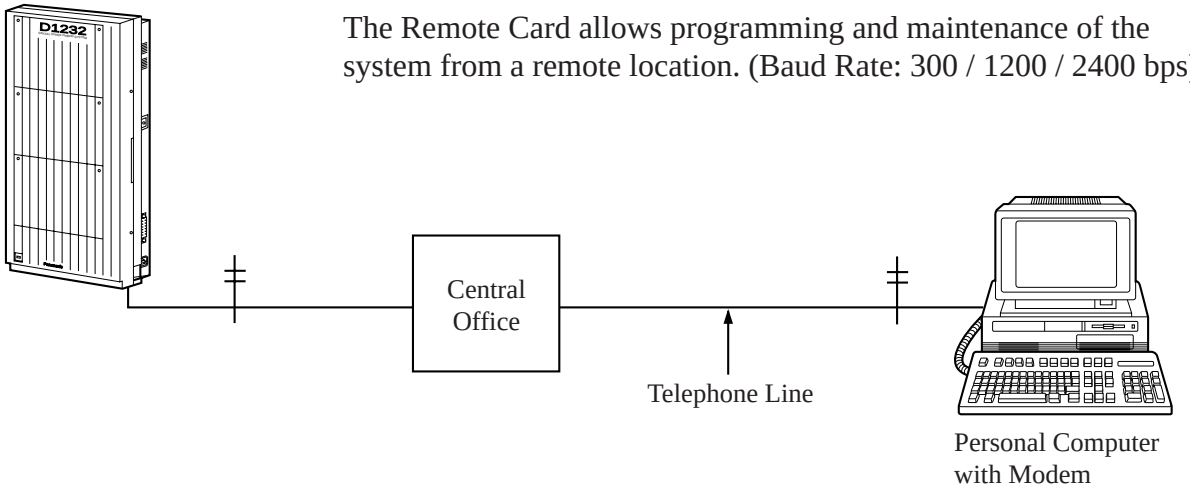
Note: The KX-TD1232 is illustrated as a main unit.

1.4.5 System Inter Connection Cards (KX-TD192)*



Permits two KX-TD1232 to be connected together — to double system capacity.

1.4.6 Remote Card (KX-TD196)*

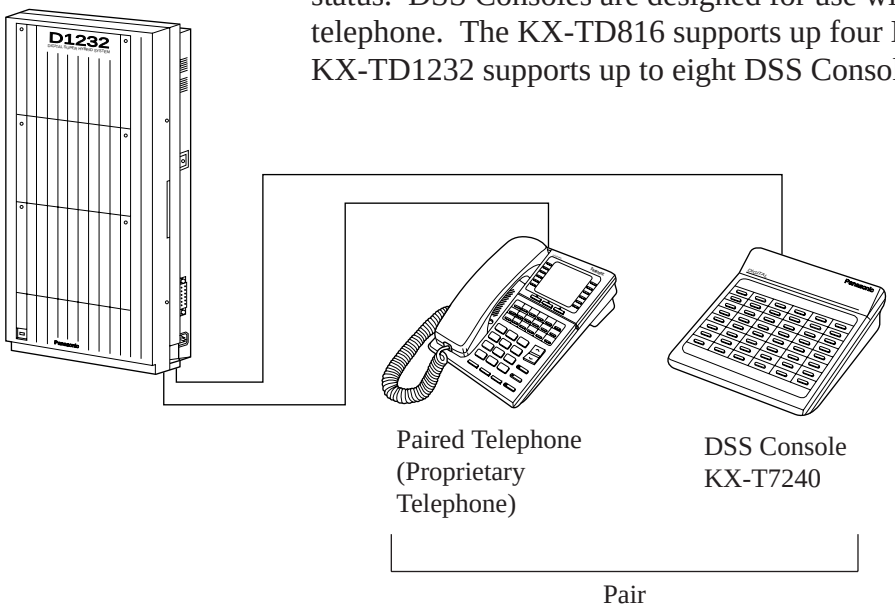


The Remote Card allows programming and maintenance of the system from a remote location. (Baud Rate: 300 / 1200 / 2400 bps)

1.4 Options

1.4.7 DSS Console (KX-T7240)

Permits easy and quick access to stations and features. The Busy Lamp Field (BLF) shows the idle, busy or Do Not Disturb state of each station. If the Operator uses a DSS Console as well as a proprietary telephone, the BLF will show the check-in/check-out status. DSS Consoles are designed for use with a proprietary telephone. The KX-TD816 supports up four DSS Consoles. The KX-TD1232 supports up to eight DSS Consoles per system.



Note: The KX-TD1232 is illustrated as a main unit.

1.5 Specifications

1.5.1 General Description

System Capacity	KX-TD816	— ISDN S0 lines	4 max.
		Stations	16 max. (32 max. with XDP)
	KX-TD1232	— ISDN S0 lines	6 max.
		Stations	32 max. (64 max. with XDP)
Control Method	Stored Program CPU: 16 bits CPU Control ROM: 1 MB, Control RAM: 256KB		
Switching	Non Blocking PCM Time Switch		
Power Supplies	Primary Power		230 VAC, 50 Hz
	Secondary		Station Supply Volt: 30V Circuit Volt: ± 5V, ± 15V
Dialing	Internal		Dial Pulse (DP) 10 pps Tone (DTMF) Dialing
Connector	ISDN S0 lines		4-pin Connector
	Stations		Amphenol Connector
	Paging Output		Pin Jack (RCA JACK)
	External Music Input		Two-conductors Jack (MINIJACK 3.5 mm/9/64 inch diameter)

Extension Connection Cable

Single line telephones	1 pair wire (T, R)
KX-T7230, KX-T7235, KX-T7240, KX-T7250	1 pair wire (D1, D2): T and R are not necessary. or 2 pair wire (T, R, D1, D2)

SMDR (Station Message Detail Recording)

Interface	V. 24 (RS-232C)
Output Equipment	Printer
Detail Recording	Date, Time, Extension Number, Department Code, CO Line Number, Dialed Number, Call Duration, Charge Fee, Account Code

1.5 Specifications

1.5.2 Characteristics

Station Loop Limit

KX-T7230 / KX-T7235 / KX-T7250.....40 ohms
Single Line Telephone .....600 ohms including set
Doorphone.....20 ohms

Minimum Leakage Resistance

15 000 ohms

Maximum Number of Station Instruments per Line

1 for KX-T7230, KX-T7235, KX-T7250 or single line telephone
2 by Parallel or eXtra Device Port Connection of a proprietary telephone and a single line telephone

Ring Voltage

65 Vrms at 32 Hz depends on Ringing Load

Primary Power

230 VAC, 50 Hz

Central Office Loop Limit

1 600 ohms max.

Environmental Requirements

0 – 40 °C / 32 – 104 °F, 10 – 90%

1.5 Specifications

1.5.3 System Capacity

Lines, Cards, Station Equipment

Item	KX-TD816 Max. Quantity	KX-TD1232 Max. Quantity	
		Single System	System Connection
System Inter Connection Card	—	—	2
Service Unit	1	1	2
ISDN S0 Line Card	1	1	2
ISDN S0 Line Unit	1	1	2
ISDN S0 Line (Baud Rate Interface)	4	6	12
Station Line Unit	1	2	4
Extension Jack	16	32	64
Station Terminal (including DSS Consoles)	32	64	128
{DSS Console}	{4}	{8}	{16}
Remote Card	—	1	1
Doorphone	1	1	2
Door Opener	2	2	4
External Music Source	2	2	4
External Pager	2	2	4
External Relay	1	1	2
External Ringer	1	1	2
External Sensor	1	1	2

System Data

Item	Max. Quantity	
Operator	2	
System Speed Dialing	500	
One-Touch Dialing	24	per station (proprietary telephone)
Station Speed Dialing	10	per station

1.5 Specifications

Call Park	10
Absent Message	9
CO Line Group	8
Toll Restriction Level	8
Extension Group	8
Class of Service	8
Message Waiting	128
Uniform Call Distribution Group	8

Section 2
Installation

This section contains the basic system installation and wiring instructions, as well as how to install the optional cards and units.

2.1 Before Installation

Please read the following notes concerning installation and connection before installing the system.

Safety Installation Instructions

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

1. Never install telephone wiring during a lightning storm.
2. Never install telephone jacks 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.

Installation Precautions

This set is exclusively made for wall mounting only. Avoid installing in the following places. (Doing so may result in malfunction, noise, or discoloration.)

1. In direct sunlight and hot, cold, or humid places. (Temperature range: 0°C – 40°C / 32°F – 104°F)
2. Sulfuric gases produced in areas where there are thermal springs, etc. may damage the equipment or contacts.
3. Places in which shocks or vibrations are frequent or strong.
4. Dusty places, or places where water or oil may come into contact with the unit.
5. Near high-frequency generating devices such as sewing machines or electric welders.
6. On or near computers, telexes, or other office equipment, as well as microwave ovens or air conditioners. (It is preferable not to install in the same room with the above equipment.)
7. Install at least 1.8 m (6 feet) from radios and televisions. (both the main unit and proprietary telephones)
8. Do not obstruct area around the main unit (for reasons of maintenance and inspection — be especially careful to allow space for cooling above and at the sides of the main unit).

Wiring Precautions

Make sure to keep the following instructions when wiring.

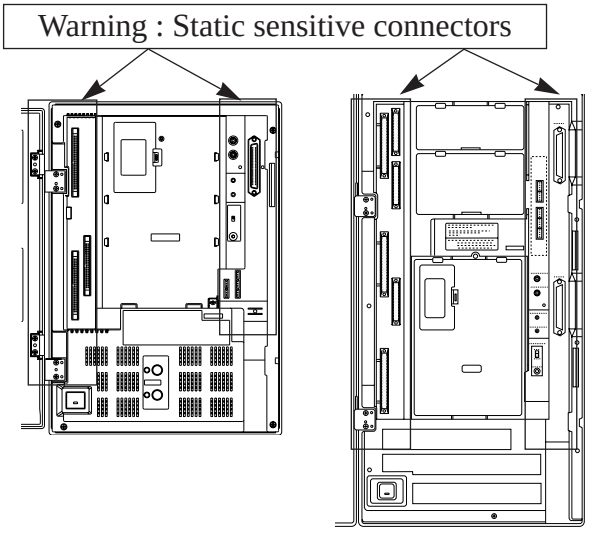
1. Do not wire the telephone cable in parallel with an AC power source, computer, telex, etc. If the cables are run near those wires, shield the cables with metal tubing or use shielded cables and ground the shields.

2.1 Before Installation

2. If cables are run on the floor, use protectors or the like to protect the wires where they may be stepped on. Avoid wiring under carpets.
3. Avoid using the same power supply outlet for computers, telexes, and other office equipment. Otherwise, the system operation may be interrupted by the induction noise from such equipment.
4. Please use one pair telephone wire for extension connection of (telephone) equipment such as single line telephones, data terminals, answering machines, computers, voice processing systems, etc., except proprietary telephones (KX-T7230, KX-T7235, KX-T7250 etc.).
5. Unplug the system during wiring. After all the wiring are completed, plug the system.
6. Mis-wiring may cause the system to operate improperly. Refer to Section 6.1.1 “Installation” and Section 6.1.2 “Connection.”
7. If an extension does not operate properly, disconnect the telephone from the extension line and then connect again, or unplug the system and then plug the system again.
8. The system is equipped with a 3-wire grounding type plug. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the purpose of the grounding-type plug.
9. Use twisted pair cable for CO line connection.
10. CO lines should be installed with lightning protectors. For details, refer to Section 2.4.3 “Lightning Protectors Installation.”

Warning:

Static sensitive devices used.
To protect printed circuit boards from static electricity, do not touch connectors indicated on the right picture without first discharging body static by touching a grounded or wearing a properly installed grounding strap.



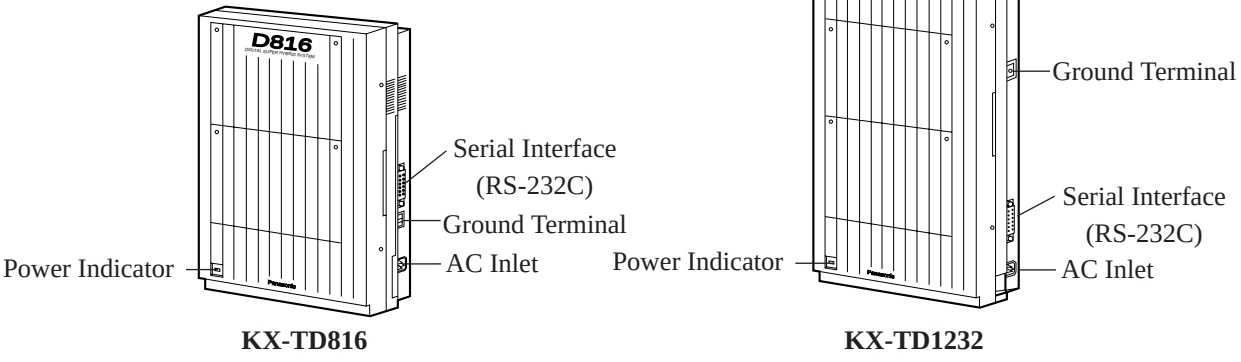
2.2 Installation of the Main Unit

2.2.1 Unpacking

	KX-TD816	KX-TD1232
Main Unit	one	one
AC Cord	one	one
Templet	one	one
Screw	three	four
Anchor Plug	three	four
Pager Connector	two	two
Music Source Connector	two	two
Doorphone, Door Opener Connector	five	five
Expansion Line Cord Holder	one	one
Ferrite Core	—	two
User Manual	one	one
Reference Manual for Single Line Telephone	one	one
Overlay for a proprietary telephone	one	one

2.2.2 Name and Location

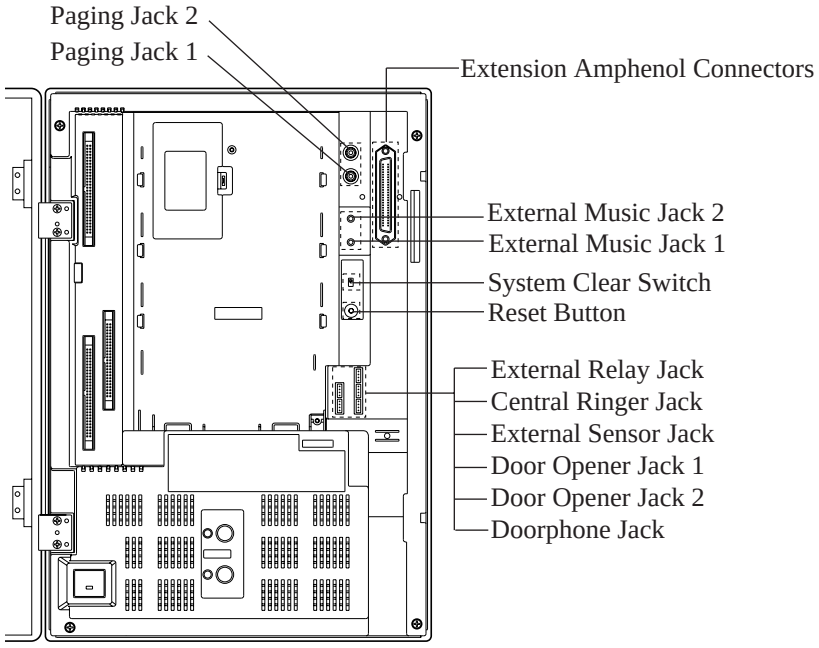
Overview of the Main Unit



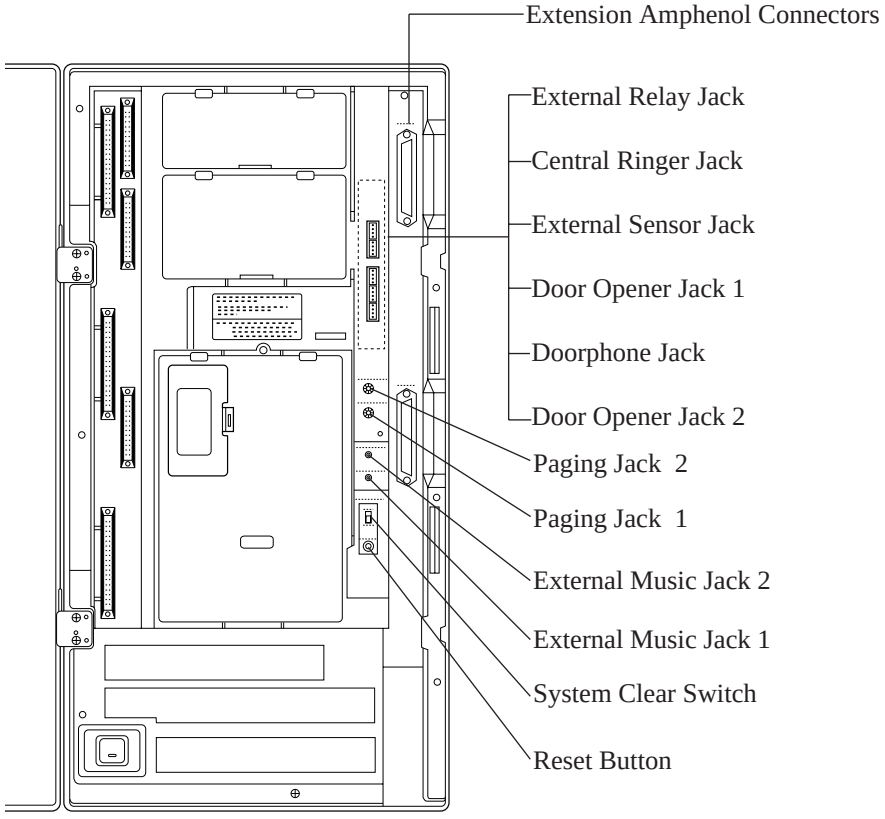
2.2 Installation of the Main Unit

Inside View of the Main Unit

KX-TD816



KX-TD1232

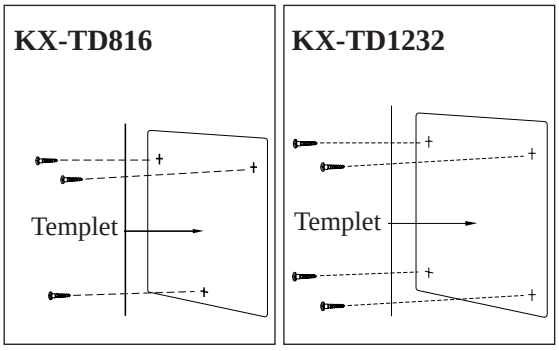


2.2.3 Wall Mounting

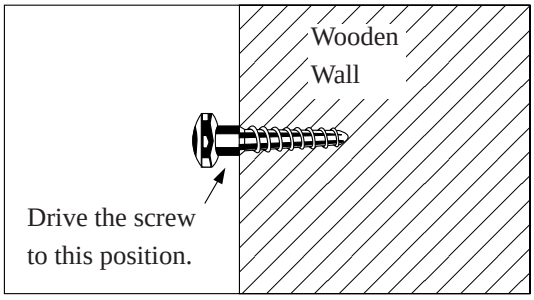
This set is exclusively made for wall mounting only. The wall where the main unit is to be mounted must be able to support the weight of the main unit. If screws other than the ones supplied are used, use the same-sized diameter screws as the enclosed ones.

Mounting on Wooden Wall

1. Place the templet (included) on the wall to mark the screw positions.

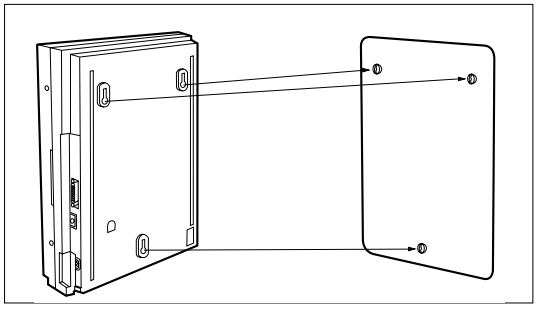


2. Install the screws (included) into the wall.



3. Hook the main unit on the screw heads.

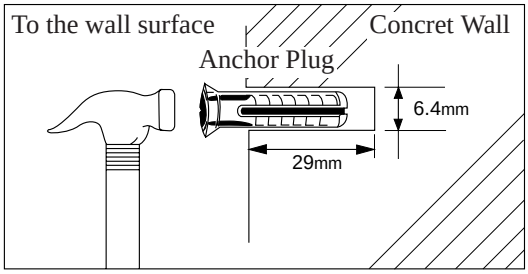
KX-TD816



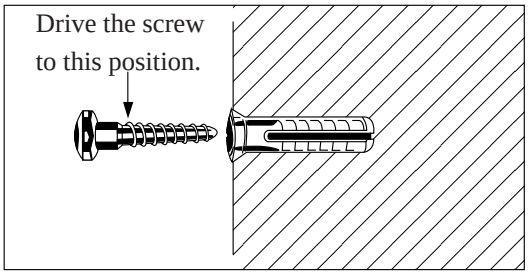
Mounting on Concrete or Mortar Wall

1. Place the templet (included) on the wall to mark the screw positions.

2. Drill holes and drive the anchor plugs (included) with a hammer, flush to the wall.

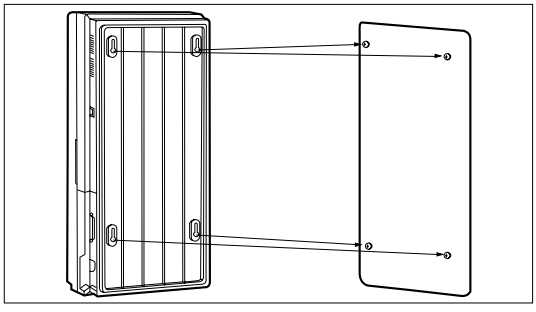


3. Install the screws (included) into the anchor plugs.



4. Hook the main unit on the screw heads.

KX-TD1232

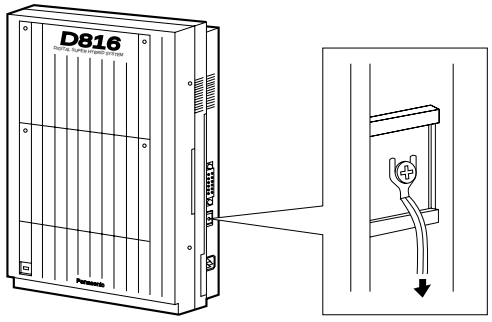


2.2 Installation of the Main Unit

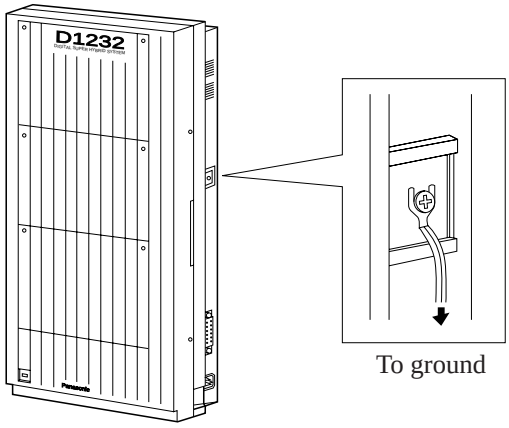
2.2.4 Frame Ground Connection

IMPORTANT!!!
Connect the frame of the main unit to ground.

KX-TD816



KX-TD1232



Test Procedure

1. Obtain a suitable voltmeter and set it for a possible reading of up to 250 VAC.

2. Connect the meter probes between the two main AC voltage points on the wall outlet. The reading obtained should be 220-240 VAC.

3. Move one of the meter probes to the 3rd prong terminal (GND). Either the same reading or a reading of 0 volt should be obtained.

4. If a reading of 0 volt at one terminal and a reading of 220-240 VAC at the other terminal is not obtained, the outlet is not properly grounded.
This condition should be corrected by a qualified electrician (per article 250 of the National Electrical Code).

5. If a reading of 0 volt at one terminal and a reading of 220-240 VAC at the other terminal is obtained, then set the meter to the "OHMS/RX1" scale, place one probe at the GND Terminal and the other probe at the terminal which gave a reading of 0 volt.

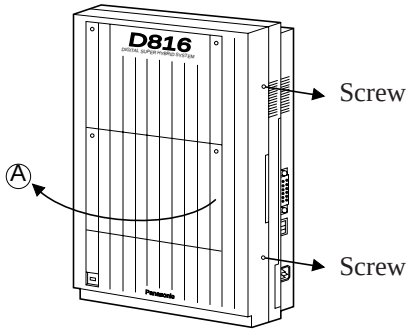
A reading of less than 1 ohm should be obtained.
If the reading is not obtained the outlet is not adequately grounded, see qualified electrician.

2.2 Installation of the Main Unit

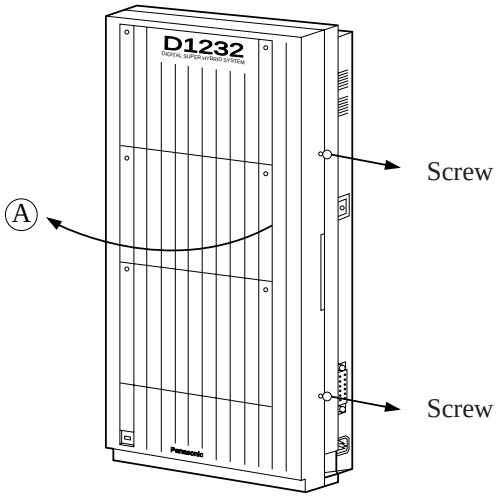
2.2.5 Opening Front Cover

1. Loosen two screws on the right side of the main unit.
2. Open the front cover in the direction of arrow Ⓐ .

KX-TD816



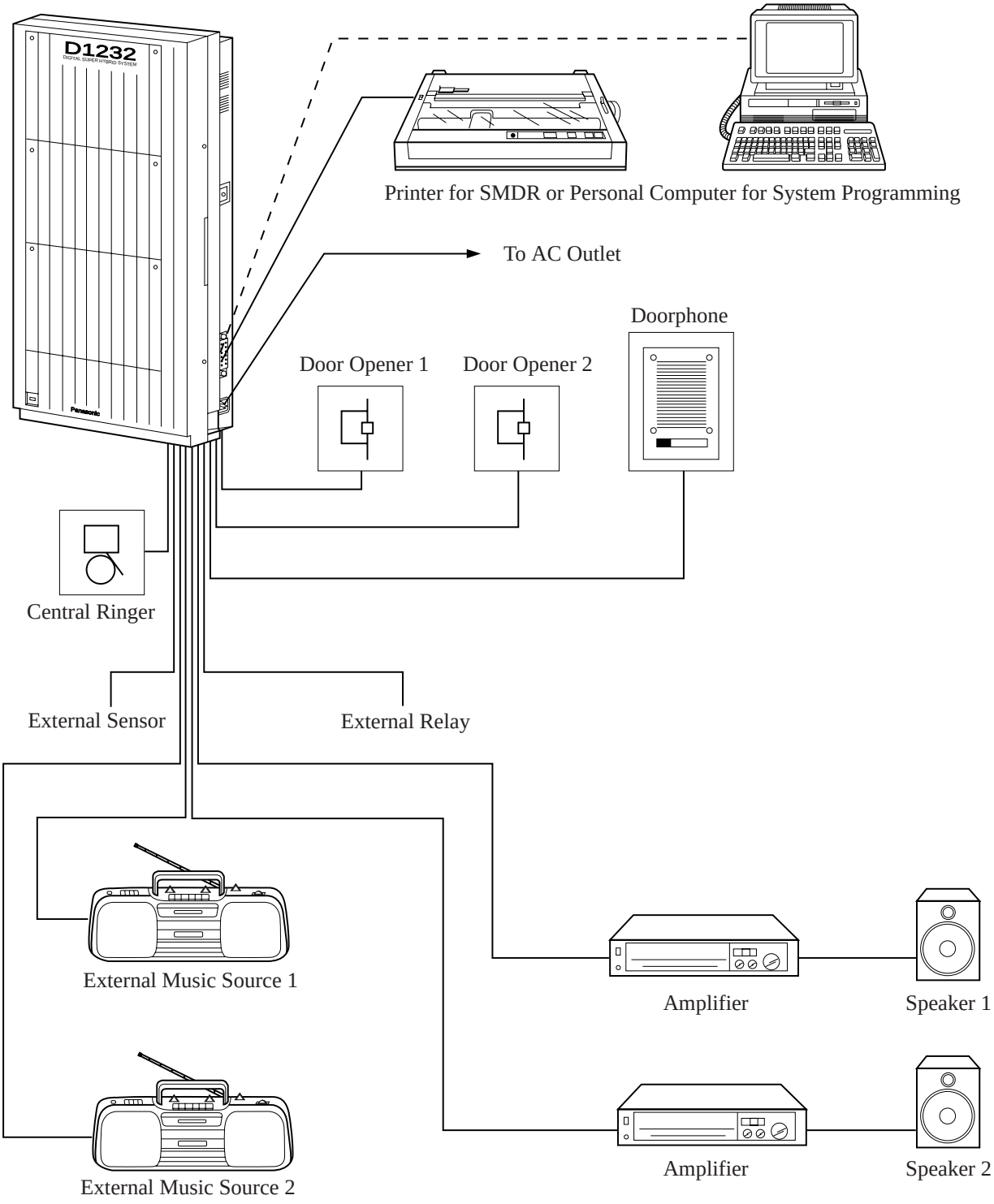
KX-TD1232



Note Two screws are attached to the front cover with springs so that they will not be lost.

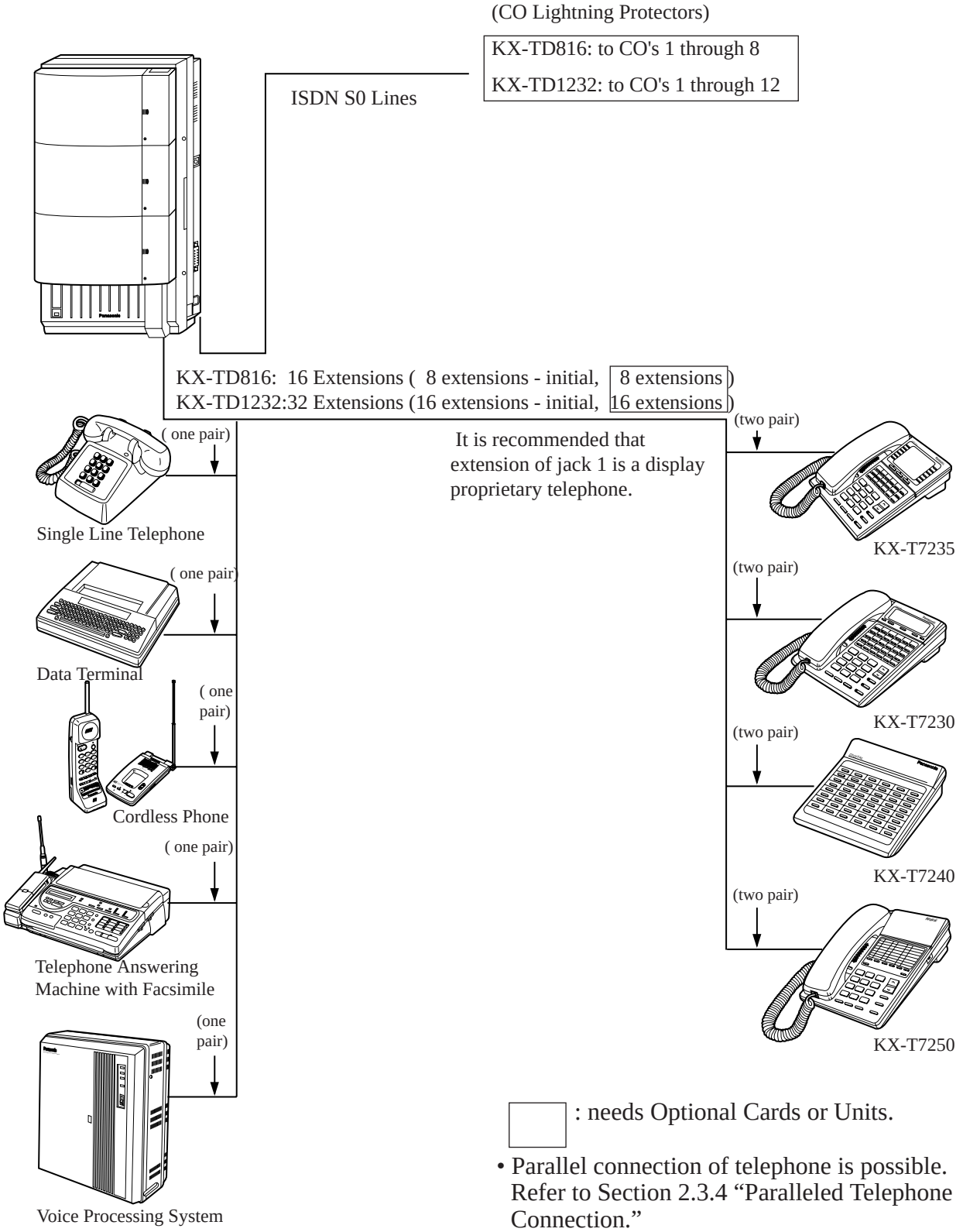
2.3 Connection

2.3.1 System Connection Diagram



Note: The KX-TD1232 is illustrated as a main unit.

2.3.1 System Connection Diagram



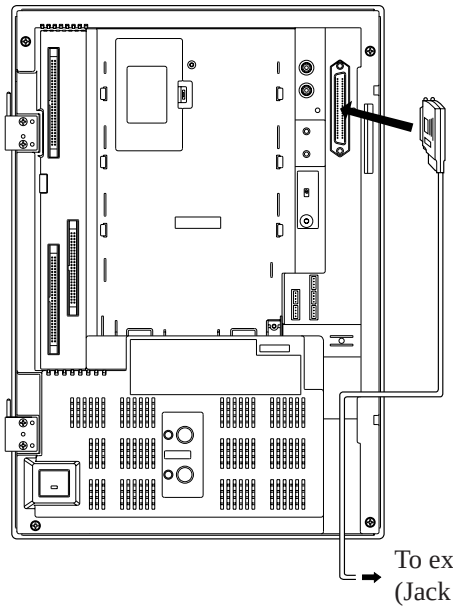
- Parallel connection of telephone is possible. Refer to Section 2.3.4 “Paralleled Telephone Connection.”
- The KX-TD1232 is illustrated as a main unit.

2.3.2 Extension Connection

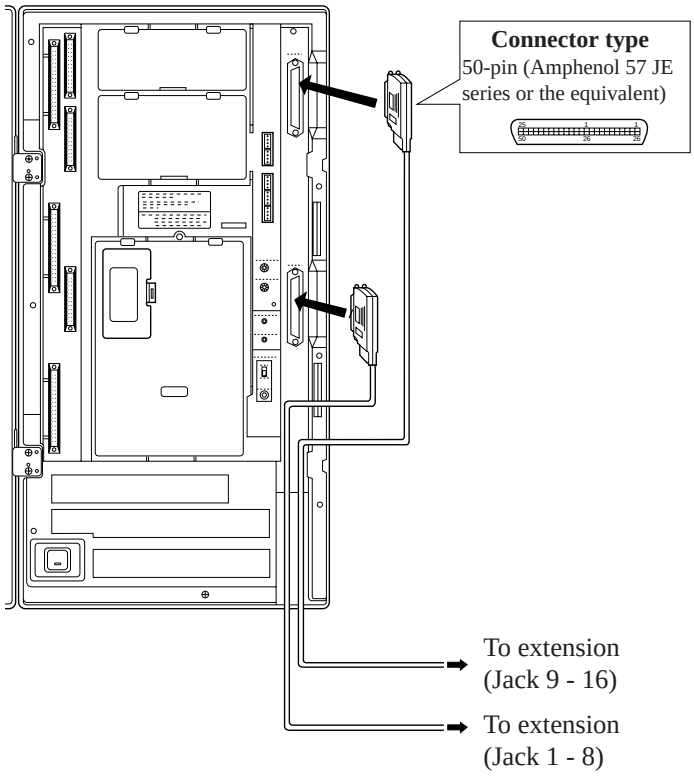
for Proprietary Telephones, Single Line Telephones and DSS Consoles

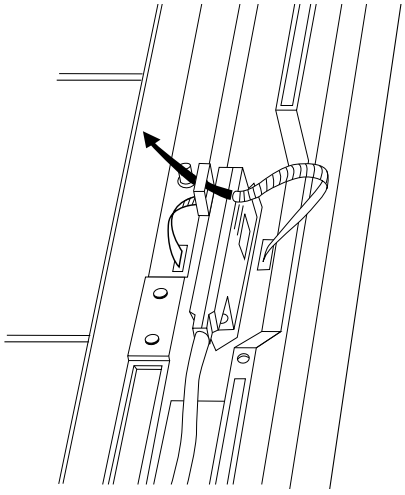
To connect extension jacks, insert the connector(s) to the system as shown.
For Cable Pin Numbers to Be Connected, see page 2-13.

KX-TD816



KX-TD1232





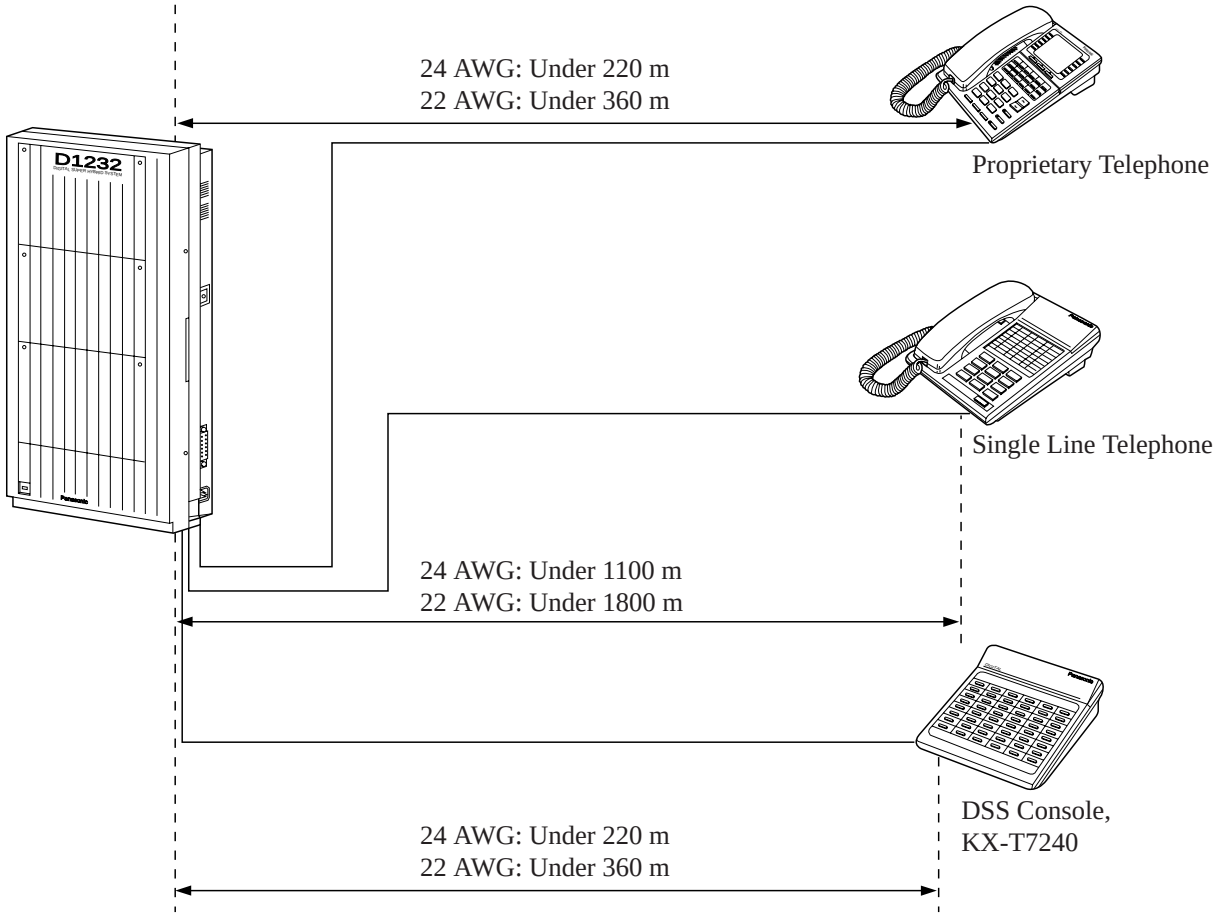
After inserting the connector, fasten the connector with the nylon tie.

2.3.2 Extension Connection

for Proprietary Telephones, Single Line Telephones and DSS Consoles

Maximum cabling distance of the extension line cord (twisted cable)

The maximum length of the extension line cord (twisted cable) that connects the main unit and the extension is shown below:



Note: The KX-TD1232 is illustrated as a main unit.

2.3.2 Extension Connection

for Proprietary Telephones, Single Line Telephones and DSS Consoles

Cable Pin Numbers to Be Connected

CONN. PIN	CABLE COLOR	CLIP NO.	EXTN. 1-8		EXTN. 9-16 8EXTN†1		8EXTN†2		8EXTN†2	
26	WHT-BLU	1		T		T		T		T
1	BLU-WHT	2	Jack	R	Jack	R	Jack	R	Jack	R
27	WHT-ORN	3	No.1	D1	No.9	D1	No.17	D1	No.25	D1
2	ORN-WHT	4		D2		D2		D2		D2
29	WHT-BRN	7		T		T		T		T
4	BRN-WHT	8	Jack	R	Jack	R	Jack	R	Jack	R
30	WHT-SLT	9	No.2	D1	No.10	D1	No.18	D1	No.26	D1
5	SLT-WHT	10		D2		D2		D2		D2
32	RED-ORN	13		T		T		T		T
7	ORN-RED	14	Jack	R	Jack	R	Jack	R	Jack	R
33	RED-GRN	15	No.3	D1	No.11	D1	No.19	D1	No.27	D1
8	GRN-RED	16		D2		D2		D2		D2
35	RED-SLT	19		T		T		T		T
10	SLT-RED	20	Jack	R	Jack	R	Jack	R	Jack	R
36	BLK-BLU	21	No.4	D1	No.12	D1	No.20	D1	No.28	D1
11	BLU-BLK	22		D2		D2		D2		D2
38	BLK-GRN	25		T		T		T		T
13	GRN-BLK	26	Jack	R	Jack	R	Jack	R	Jack	R
39	BLK-BRN	27	No.5	D1	No.13	D1	No.21	D1	No.29	D1
14	BRN-BLK	28		D2		D2		D2		D2
41	YEL-BLU	31		T		T		T		T
16	BLU-YEL	32	Jack	R	Jack	R	Jack	R	Jack	R
42	YEL-ORN	33	No.6	D1	No.14	D1	No.22	D1	No.30	D1
17	ORN-YEL	34		D2		D2		D2		D2
44	YEL-BRN	37		T		T		T		T
19	BRN-YEL	38	Jack	R	Jack	R	Jack	R	Jack	R
45	YEL-SLT	39	No.7	D1	No.15	D1	No.23	D1	No.31	D1
20	SLT-YEL	40		D2		D2		D2		D2
47	VIO-ORN	43		T		T		T		T
22	ORN-VIO	44	Jack	R	Jack	R	Jack	R	Jack	R
48	VIO-GRN	45	No.8	D1	No.16	D1	No.24	D1	No.32	D1
23	GRN-VIO	46		D2		D2		D2		D2
50	VIO-SLT	49								
25	SLT-VIO	50								

Notes

- "8EXTN†1" in the table indicates an extension expansion area for KX-TD816. There are two expansion areas on the main unit. Up to one station line unit can be installed to any area. It is required to designate which is Station Line Unit by System Programming.
- "8EXTN†2" in the table indicates an extension expansion area for KX-TD1232. There are three expansion areas on the main unit. Up to two station line units can be installed to any area. It is required to designate which is Station Line Unit 1 and which is 2 by System Programming.
- If a telephone or answering machine with an A-A1 relay is connected to the main unit, set the A-A1 relay switch of the telephone or answering machine to OFF position.
- Mis-connection may cause the system to operate improperly.

2.3.2 Extension Connection

for Proprietary Telephones, Single Line Telephones and DSS Consoles

Connection of a Proprietary Telephone, KX-T7230, KX-T7235 or KX-T7250

4-conductor wiring is required for each extension.
Connect pins “D1” and “D2” only.
If the Method 2 in Section 2.3.4 “Paralleled Telephone Connection,”and in Section 2.3.5 “EXtra Device Port (XDP) Connection”is used for parallel connection of a PT and a standard telephone, connect pins “T,” “R,” “D1” and “D2.”

Connection of a Single Line Telephone,

2-conductor wiring is required for each extension.
Connect pins “T” and “R.”

Connection of a DSS Console, KX-T7240

4-conductor wiring is required for each extension.
Connect pins “D1” and “D2” only. (“T” and “R” are not necessary.)

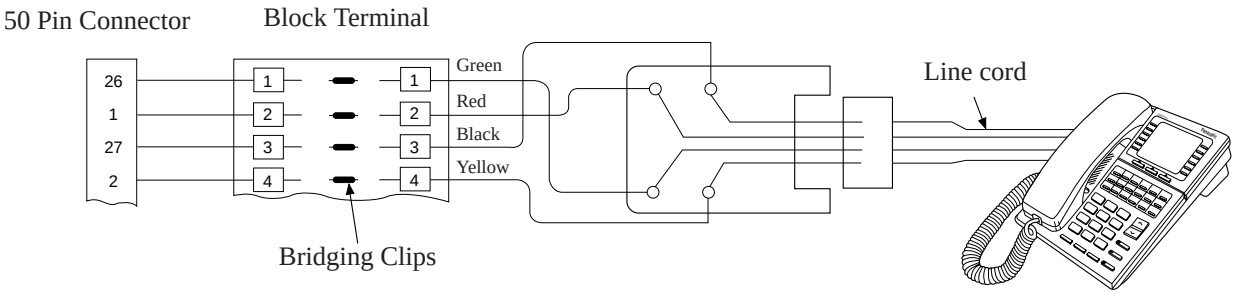
Notes

- Up to four DSS Consoles can be installed for KX-TD816. Up to eight DSS Consoles can be installed for KX-TD1232 per system. As the DSS Console itself cannot work alone, it always requires a proprietary telephone used in pair. Place the DSS Console and the paired telephone side by side on your desk.
- It is necessary to designate the jack numbers of paired DSS Consoles and the proprietary telephones by System Programming.

2.3.2 Extension Connection

for Proprietary Telephones, Single Line Telephones and DSS Consoles

Station Wiring (2-pair twisted cabling):



Programming References

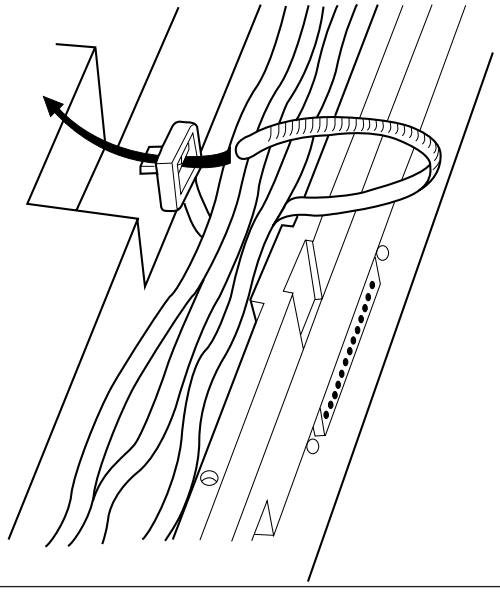
Section 4, System Programming,
[007] DSS Console Port and Paired Telephone Assignment
[109] Expansion Card/Unit Type

Feature References

Section 3, Features,
DSS Console (KX-T7240)
Module Expansion

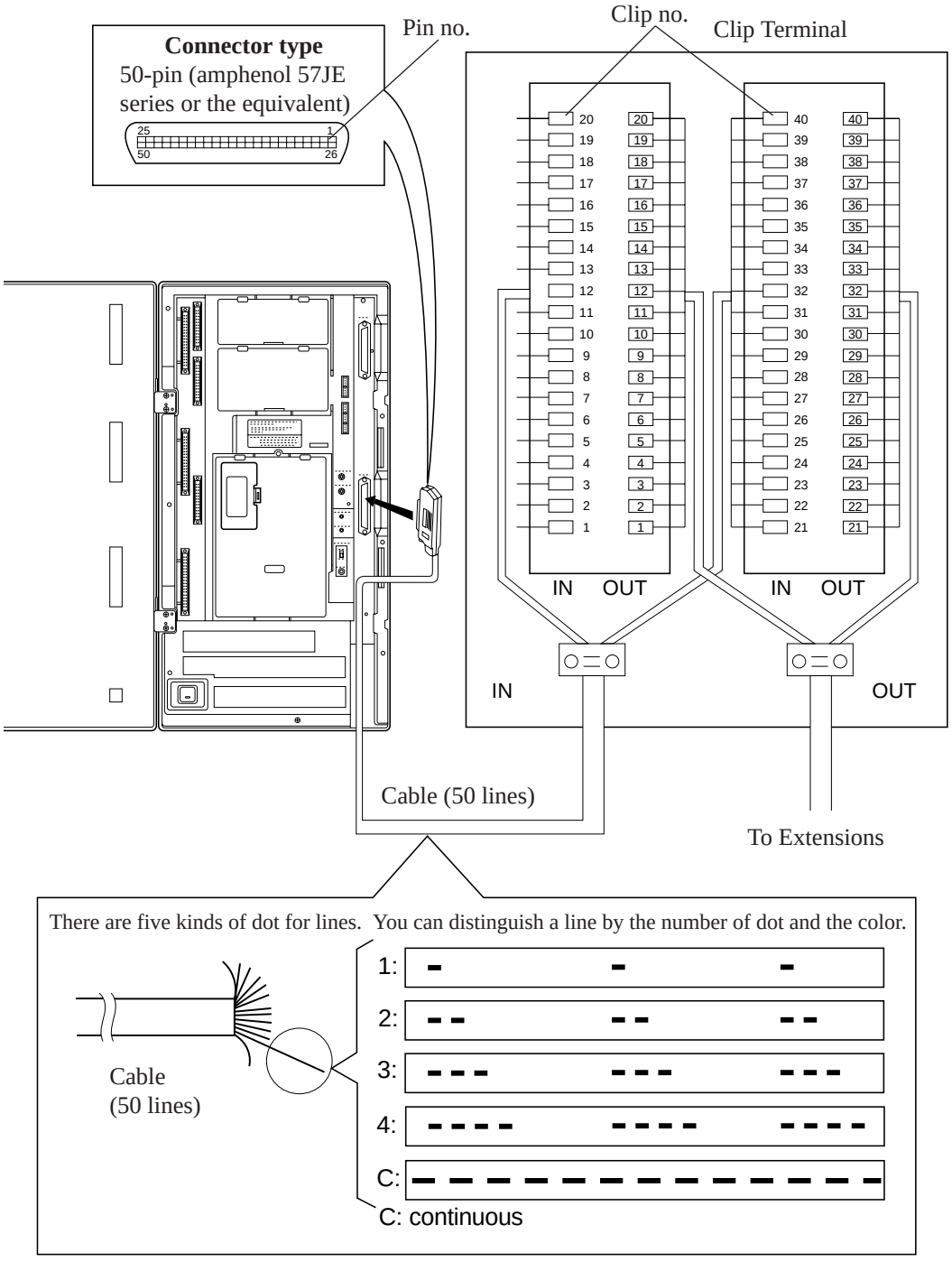
Note

After completing all the required inside cabling, including ISDN S0 lines, extensions, external pagers, external music sources and so on, fasten the cables with the nylon tie (included) as shown.



2.3.3 Optional Extension Connection of Clip Terminal*

If you use the Clip Terminal to connect eight extensions, connect a cable shown below to the clip terminal as follows. Refer to "Connection Chart" on the following page.



 *: Available for KX-TD1232 only.

2.3.3 Optional Extension Connection of Clip Terminal*

Connection Chart

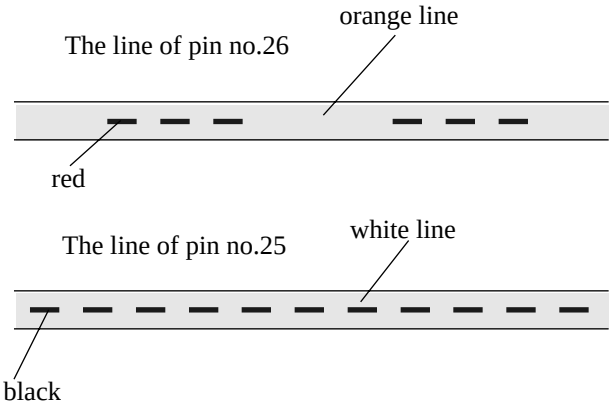
This chart is used for the Panasonic cable KX-A204 only.

Pin no.	Cable Color	Clip no.	Number of Dot	Jack no.	
26	orange-red	1	1	T	1, 9, 17 or 25
1	orange-black	2	1	R	
27	yellow-red	3	1	D1	
2	yellow-black	4	1	D2	
29	grey-red	7	1	T	2, 10, 18 or 26
4	grey-black	8	1	R	
30	white-red	9	1	D1	
5	white-black	10	1	D2	
32	yellow-red	13	2	T	3, 11, 19 or 27
7	yellow-black	14	2	R	
33	green-red	15	2	D1	
8	green-black	16	2	D2	
35	white-red	19	2	T	4, 12, 20 or 28
10	white-black	20	2	R	
36	orange-red	21	3	D1	
11	orange-black	22	3	D2	
38	green-red	25	3	T	5, 13, 21 or 29
13	green-black	26	3	R	
39	grey-red	27	3	D1	
14	grey-black	28	3	D2	
41	orange-red	31	4	T	6, 14, 22 or 30
16	orange-black	32	4	R	
42	yellow-red	33	4	D1	
17	yellow-black	34	4	D2	
44	grey-red	37	4	T	7, 15, 23 or 31
19	grey-black	38	4	R	
45	white-red	39	4	D1	
20	white-black	40	4	D2	

Pin no.	Cable Color	Clip no.	Number of Dot	Jack no.	
47	yellow-red	43	C	T	8, 16, 24 or 32
22	yellow-black	44	C	R	
48	green-red	45	C	D1	
23	green-black	46	C	D2	
50	white-red	49	C	not use	
25	white-black	50	C		

C : continuous

EXAMPLE:



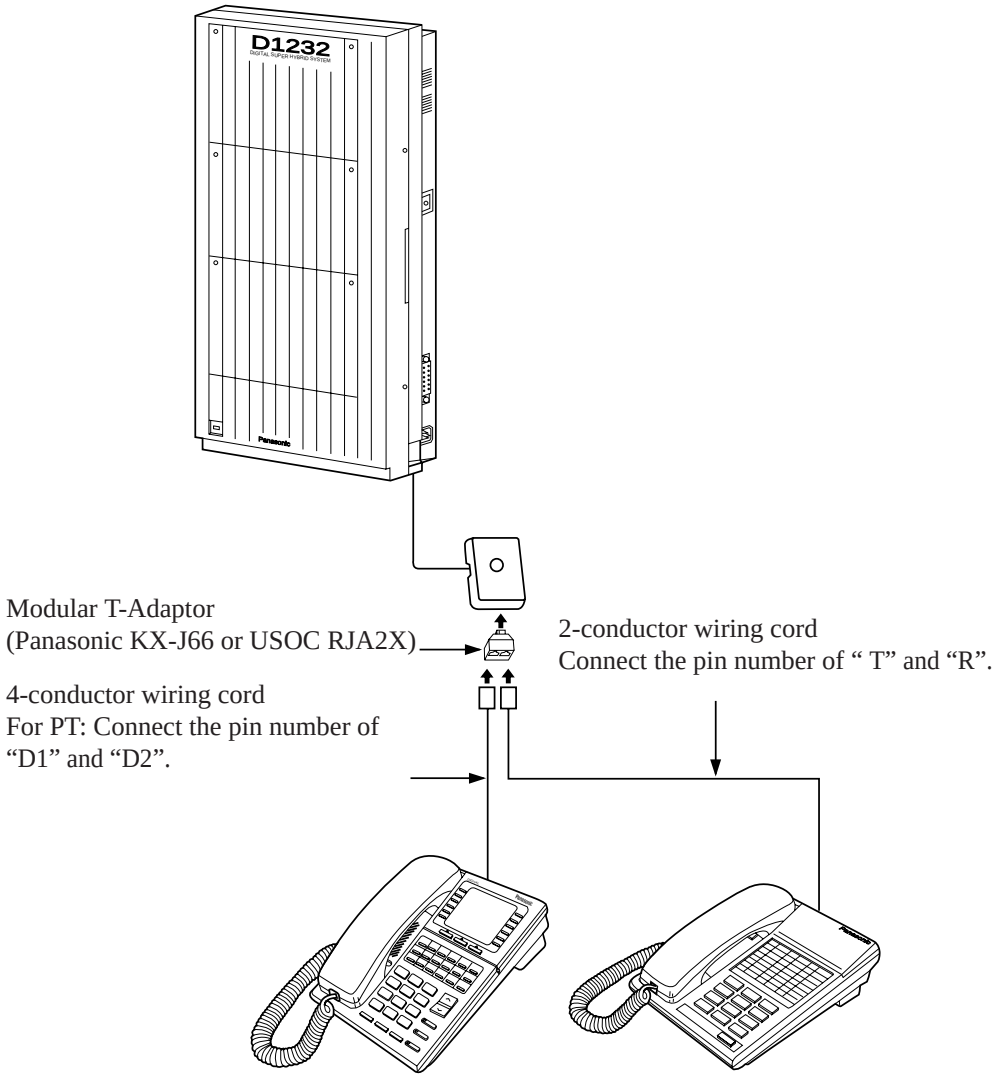
*: Available for KX-TD1232 only.

2.3.4 Paralleled Telephone Connection

for a Proprietary Telephone and a Single Line Telephone

Any single line telephone can be connected in parallel with a proprietary telephone as follows:

Method 1: Using a Modular T-Adaptor

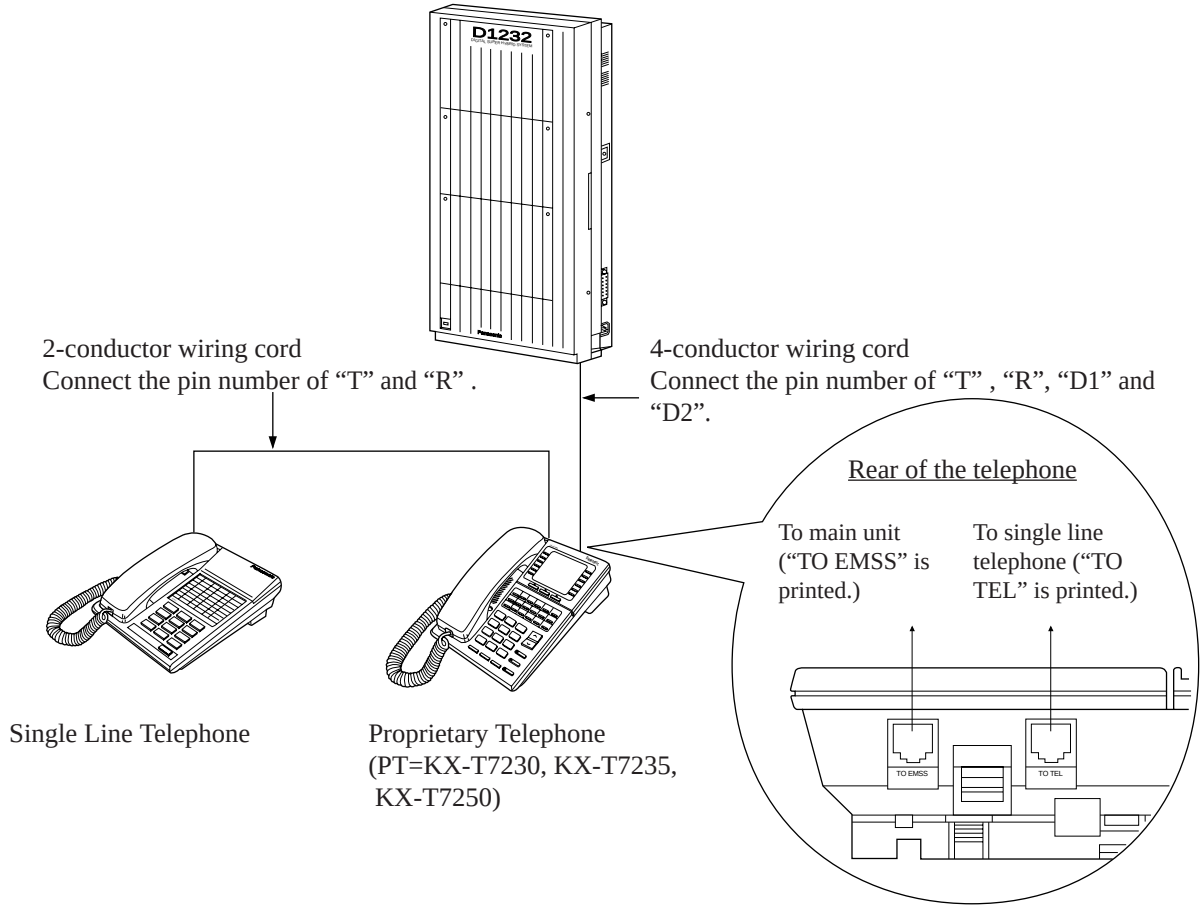


Note: The KX-TD1232 is illustrated as a main unit.

2.3.4 Paralleled Telephone Connection

for a Proprietary Telephone and a Single Line Telephone

Method 2: Using a PT Jack



Notes

- Not only a single line telephone but a single line device such as an answering machine, a facsimile or modem (personal computer) etc. can be connected in parallel with a proprietary telephone.
- The KX-TD1232 is illustrated as a main unit.

Feature References

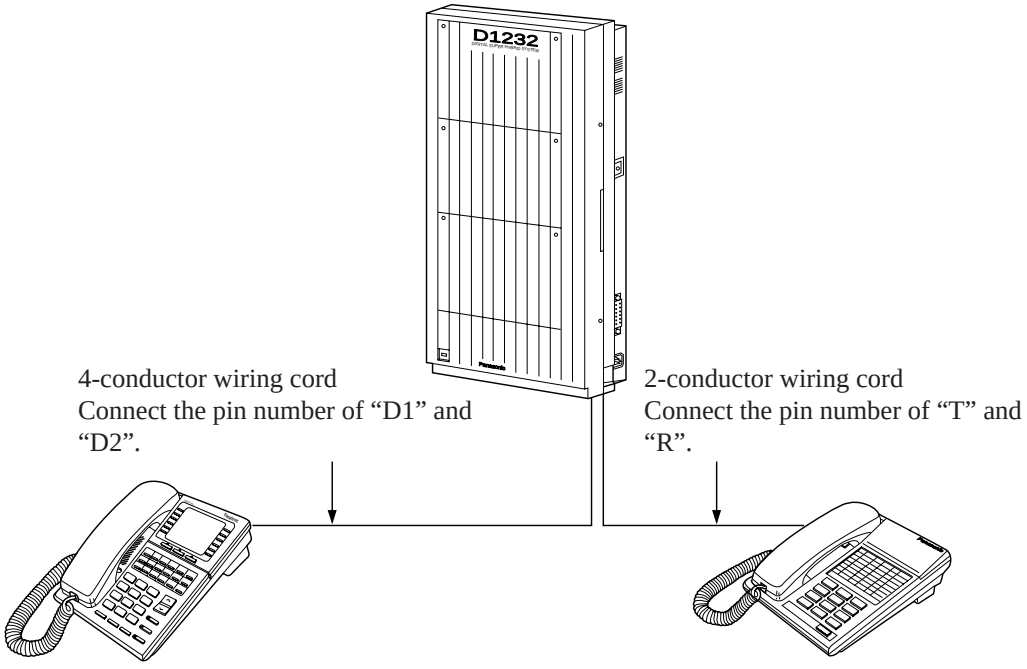
Section 3, Features,
Paralleled Telephone

2.3.5 EXtra Device Port (XDP) Connection

for a Proprietary Telephone and a Single Line Telephone

A proprietary telephone (KX-T7230, KX-T7235 or KX-T7250) and a single line telephone can be connected to the same extension jack yet have different extension numbers (eXtra Device Port feature). System Programming is required.

Method 1



Method 2

Section 2.3.4 “Paralleled Telephone Connection, Method 2” is also available for XDP connection.

Note

- The KX-TD1232 is illustrated as a main unit.

Programming References

Section 4, System Programming,
[600] EXtra Device Port

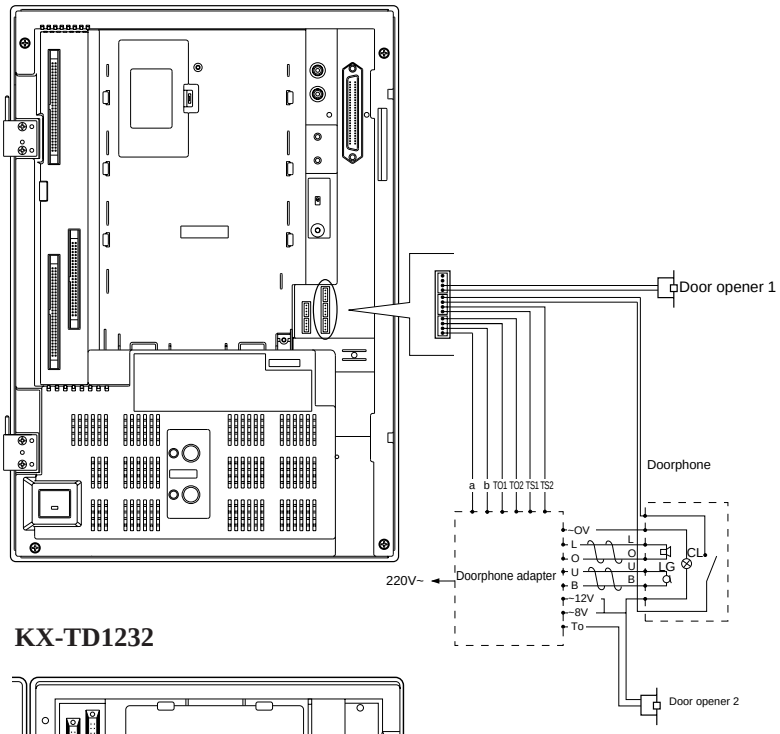
Feature References

Section 3, Features,
EXtra Device Port (XDP)

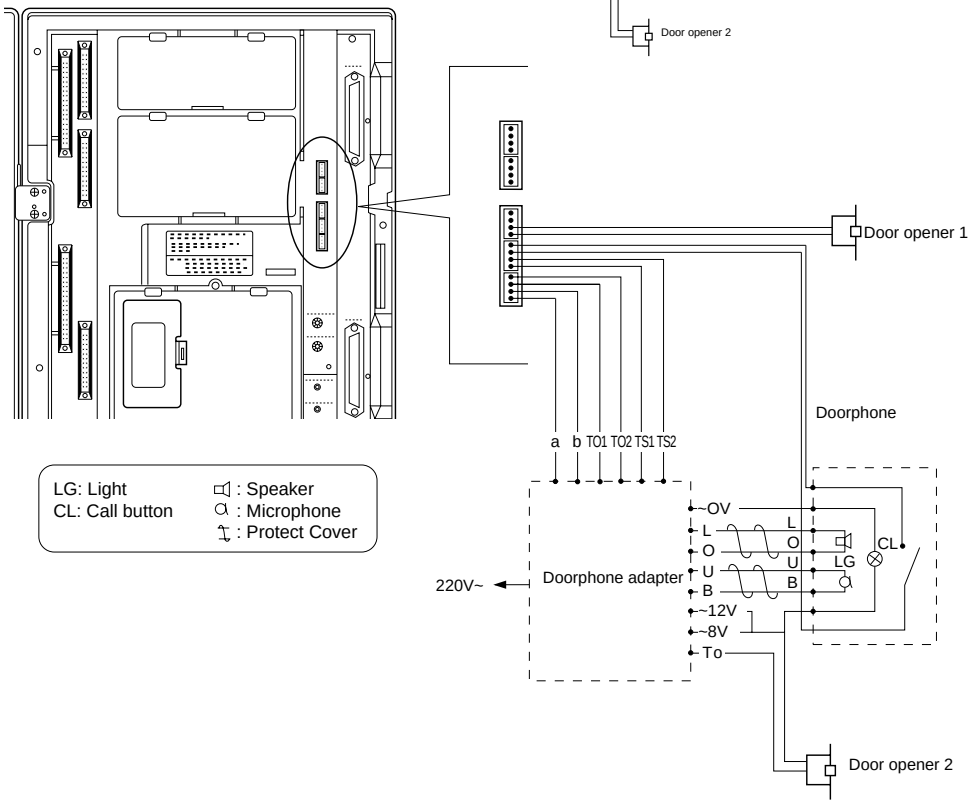
2.3.6 Doorphone and Door Opener Connection

A maximum of one doorphone and two door openers can be connected per system. They are user-supplied devices.

KX-TD816



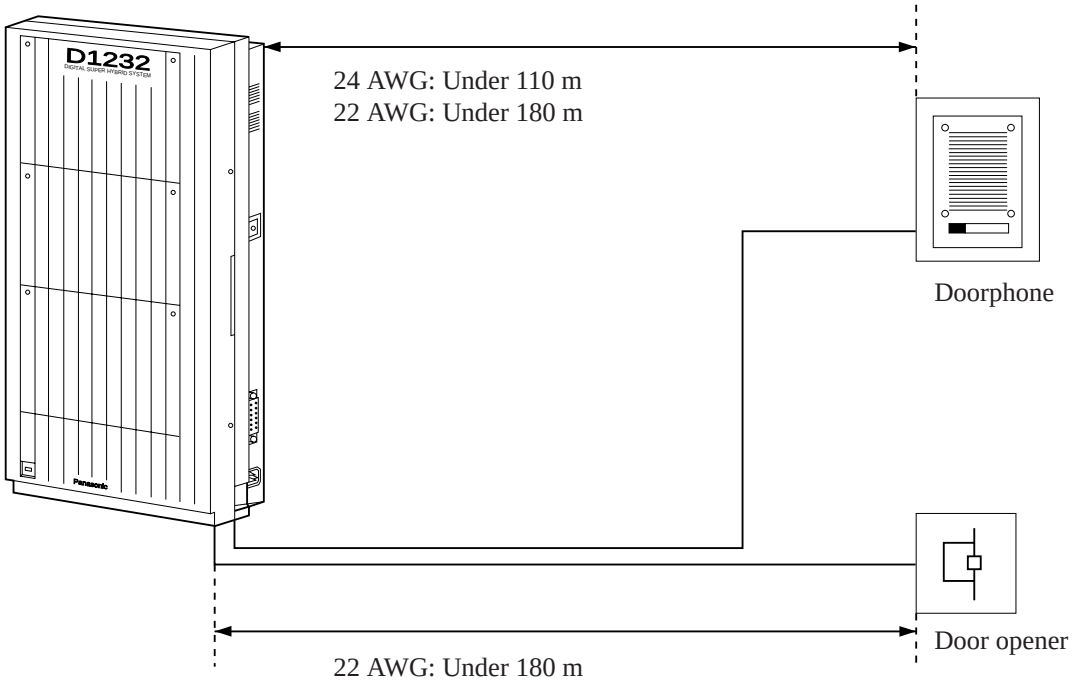
KX-TD1232



2.3.6 Doorphone and Door Opener Connection

Maximum cabling distance of the doorphone and the door opener line

The maximum length of the doorphone and door opener line that connects to the main unit is shown below:



Note • The KX-TD1232 is illustrated as a main unit.

Programming References

Section 4, System Programming,
[122] Automatic Door Open
[511] Door Opener Access
[607]–[608] Doorphone Ringing Assignment — Day / Night

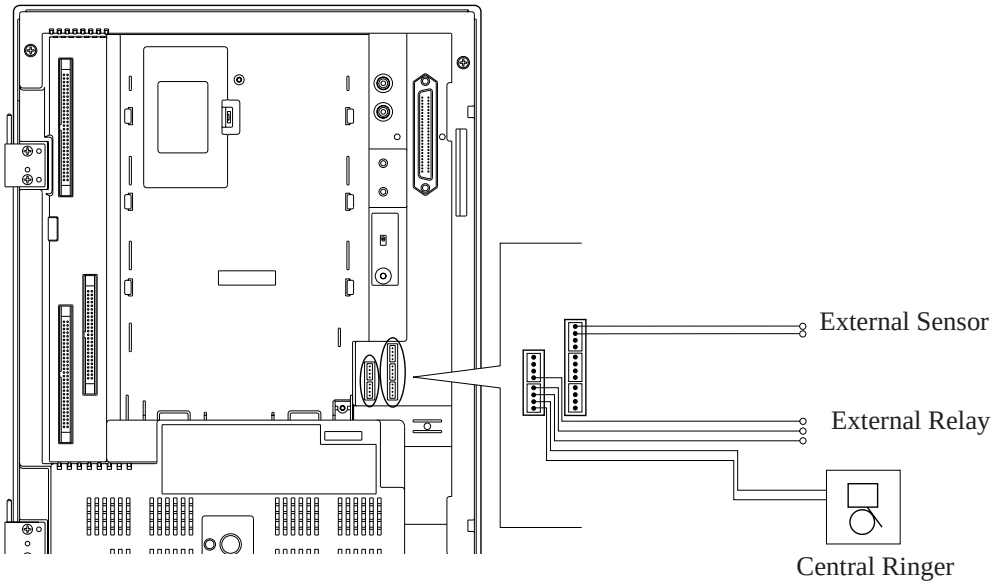
Feature References

Section 3, Features,
Door Opener Doorphone Call

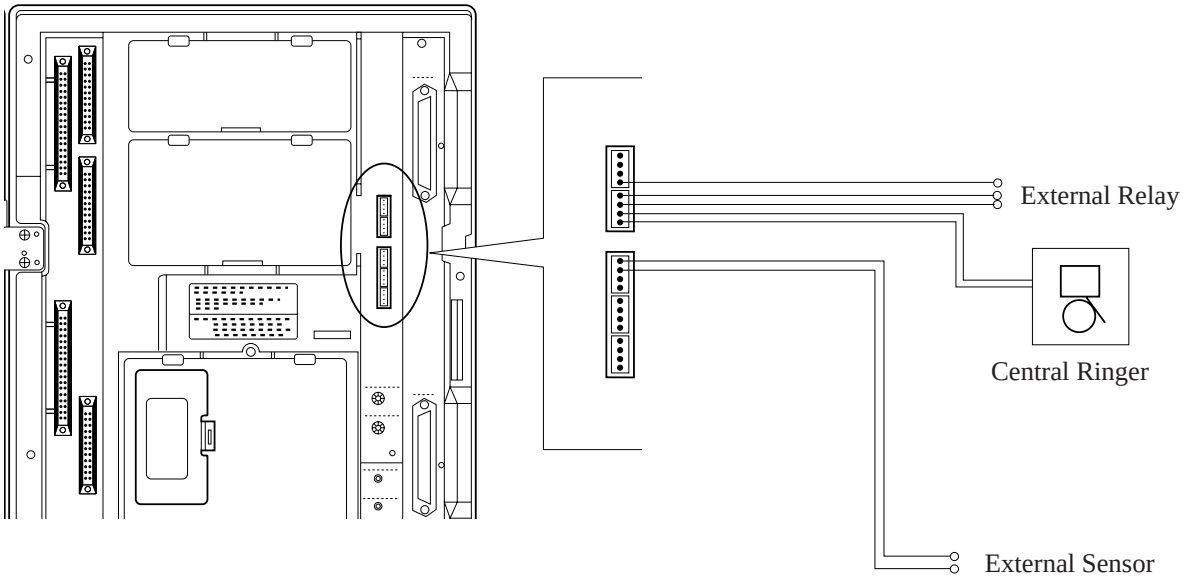
2.3.7 External Relay, External Ringer and External Sensor Connection

A maximum of one user-supplied external relay, external ringer and/or external sensor can be connected per system.

KX-TD816



KX-TD1232



Note • System Connection* permits a maximum of two of each device.

*: Available for KX-TD1232 only.

2.3.7 External Relay, External Ringer and External Sensor Connection

— External Relay

Programming References

Section 4, System Programming,
[213] External Relay Connecting Time
[512] External Relay Access

Feature References

Section 3, Features,
External Relay

— External Ringer

Programming References

Section 4, System Programming,
[418] External Ringer Assignment
[813] Floating Number Assignment

Feature References

Section 3, Features,
External Ringer

— External Sensor

Programming References

No programming required.

Feature References

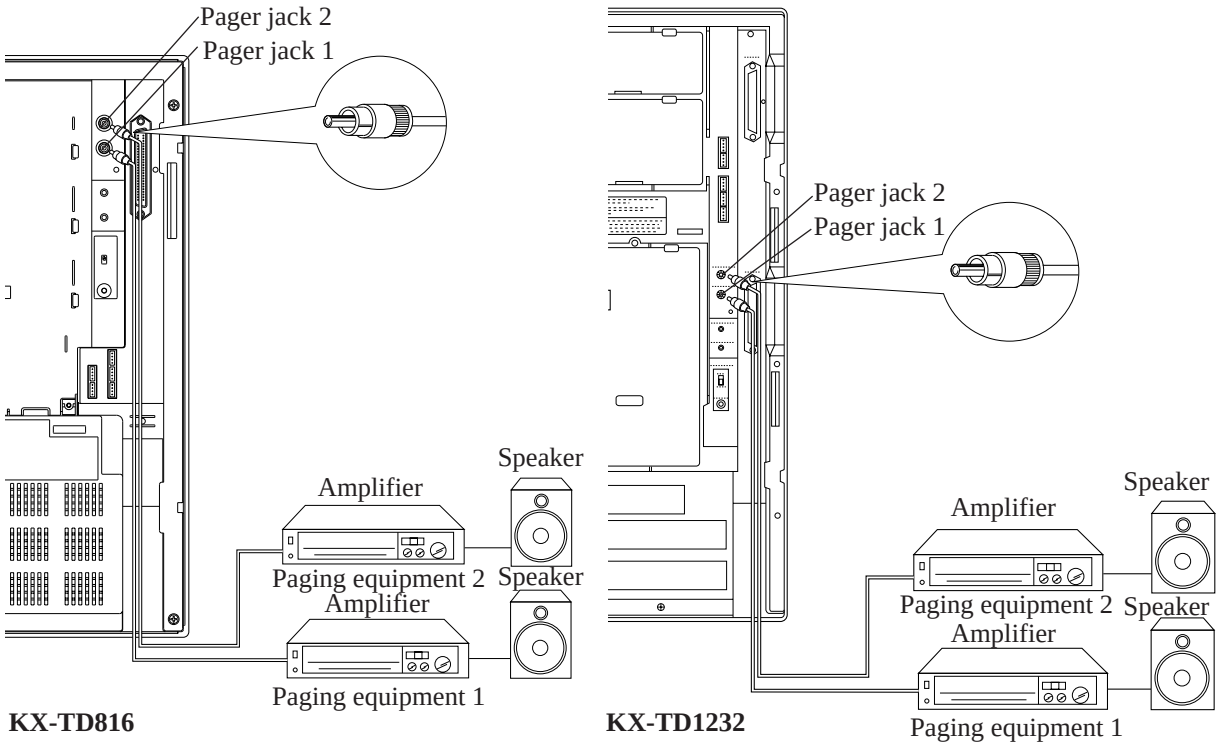
Section 3, Features,
External Sensor

2.3.8 External Pager (Paging Equipment) Connection

A maximum of two external pagers (user-supplied) can be connected per system as illustrated below.

Use an RCA connector and shielded cable.
- Output impedance: 600 Ω

Maximum length of Cable
18-22 AWG, under 10 m (33 feet)



Notes
- System Connection* permits a maximum of four external pagers.
- It is programmable that which external pager will send background music and whether all the pagers will generate confirmation tone.
- To adjust the sound level of the pagers, use the volume control on the amplifiers.

Programming References

Section 4, System Programming,
[804] External Pager BGM
[805] External Pager Confirmation Tone
[813] Floating Number Assignment

Feature References

Section 3, Features,
Background Music (BGM) – External Paging – External
Paging – All
Trunk (CO Line) Answer From Any Station (TAFAS)

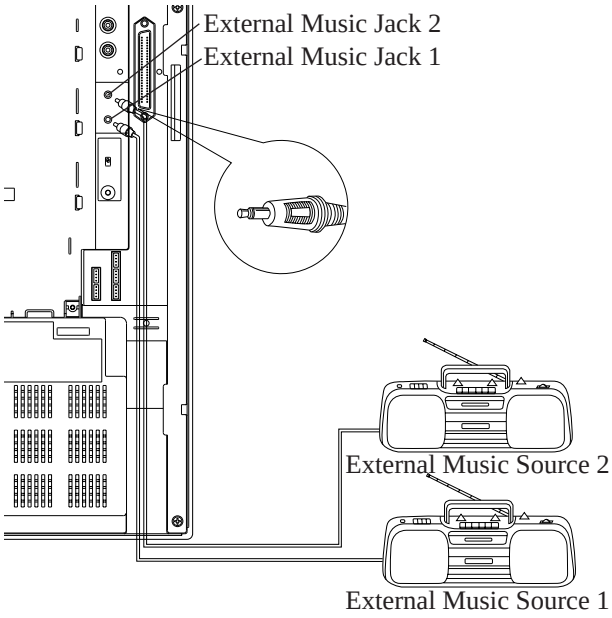
*: Available for KX-TD1232 only.

2.3.9 External Music Source Connection

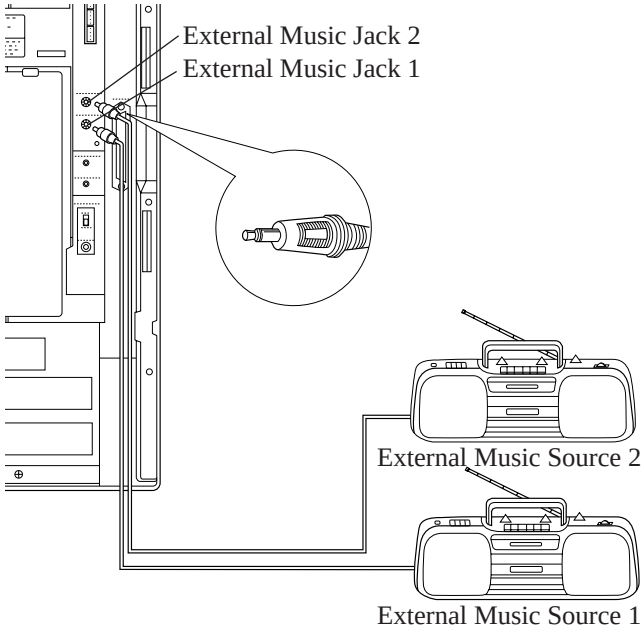
Up to two music sources such as a radio (user-supplied) can be connected per system as illustrated below.

Insert the plug to the earphone / headphone jack on the external music source.
Use a two-conductor plug {3.5 mm (9/64 inch) in diameter}.
• Input impedance: 8 Ω
Maximum length of Cable
18-22 AWG, under 10 m (33 feet)

KX-TD816



KX-TD1232



Notes
- System Programming of music sources used for Music on Hold and Background Music is required.
- To adjust the sound level of the Music on Hold, use the volume control on the external music source.
- The system is provided with an internal music source. By default setting, internal music source is used as Music Source 1 for the systems. System Programming is required to select internal music source.

Programming References

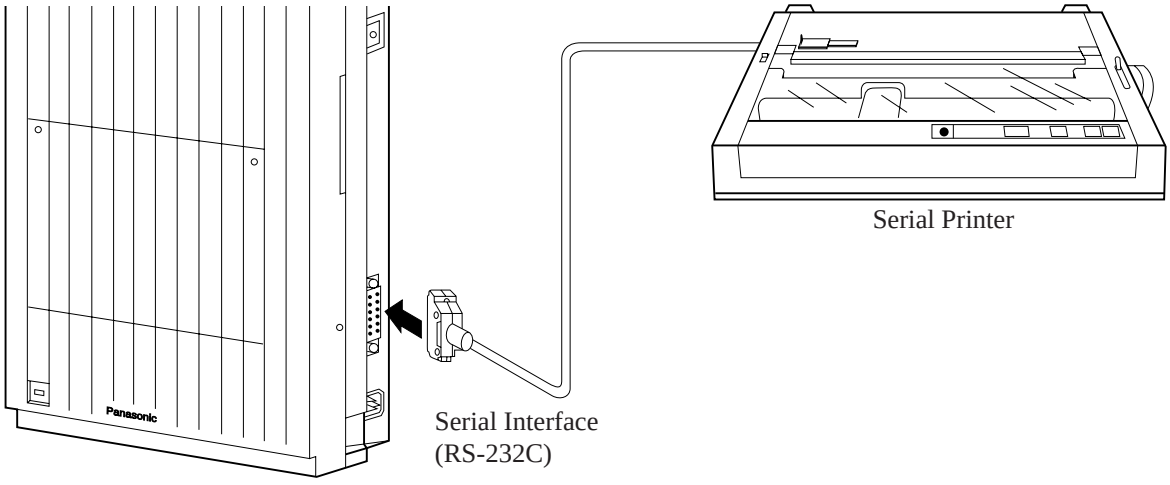
Section 4, System Programming,
[803] Music Source Use
[804] External Pager BGM
[990] System Additional Information, Field (20)

Feature References

Section 3, Features,
Background Music (BGM) Background Music (BGM) – External Music on Hold

2.3.10 Printer Connection

A user-supplied printer can be connected to the Serial Interface (RS-232C) Connector on the main unit. The printer is used to print out SMDR call records and system programming data.
Connect the Serial Interface (RS-232C) connector of the printer to the Serial Interface Connector. Cables must be shielded and the maximum length is 2 m (6.5 feet).



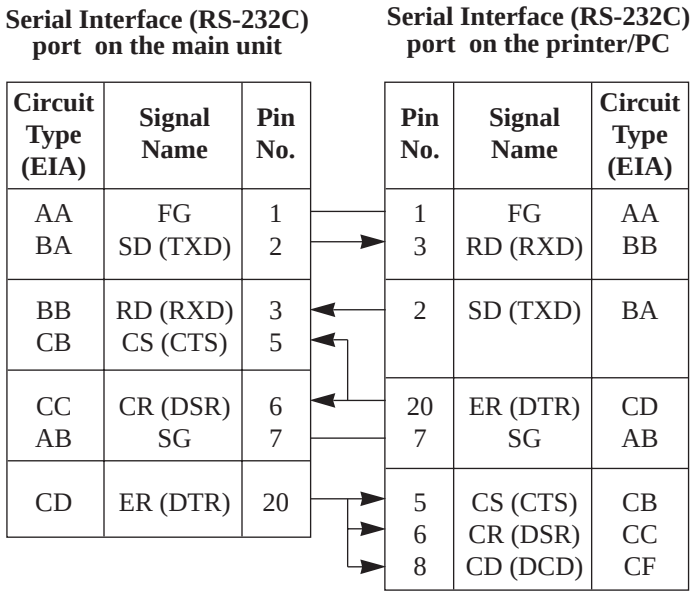
Note: The KX-TD1232 is illustrated as a main unit.

The pin configuration of Serial Interface (RS-232C) Connector is as follows:

Pin No.	Signal Name		Circuit Type	
			EIA	CCITT
1 2	FG SD (TXD)	Frame Ground Transmitted Data	AA BA	101 103
3 4	RD (RXD) RS (RTS)	Received Data Request To Send	BB CA	104 105
5 6	CS (CTS) CR (DSR)	Clear To Send Data Set Ready	CB CC	106 107
7 8	SG CD (DCD)	Signal Ground Data Carrier Detect	AB CF	102 109
20	ER (DTR)	Data Terminal Ready	CD	108.2

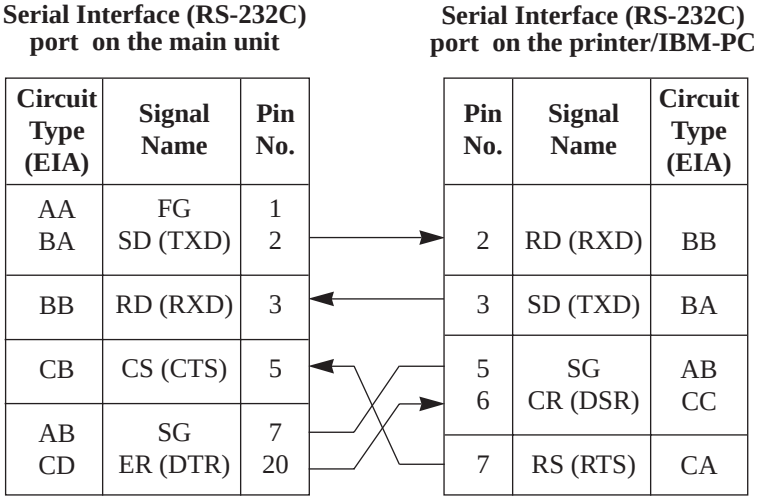
2.3.10 Printer Connection

Connection Chart for Printer / Personal Computer (25-pin)



Connection Chart for IBM Personal Computer (9-pin)

If you connect an IBM-PC to your system, see the chart below.



2.3.10 Printer Connection

Serial Interface (RS-232C) Signals

Frame Ground: FG
Connects to the unit frame and the earth ground conductor of the AC power cord.

Transmitted Data: SD (TXD) .....(output)
Conveys signals from the unit to the printer. A “Mark” condition is held unless data or BREAK signals are being transmitted.

Received Data: RD (RXD).....(input)
Conveys signals from the printer.

Request to Send: RS (RTS).....(output)
This lead is held ON whenever CR (DSR) is ON.

Clear To Send: CS (CTS).....(input)
An ON condition of circuit CS (CTS) indicates that the printer is ready to receive data from the unit. The unit does not attempt to transfer data or receive data when circuit CS (CTS) is OFF.

Data Set Ready: CR (DSR).....(input)
An ON condition of circuit CR (DSR) indicates the printer is ready. Circuit CR (DSR) ON does not indicate that communication has been established with the printer.

Signal Ground: SG
Connects to the DC ground of the unit for all interface signal.

Data Terminal Ready: ER (DTR) .....(output)
This signal line is turned ON by the unit to indicate that it is ON LINE. Circuit ER (DTR) ON does not indicate that communication has been established with the printer. It is switched OFF when the unit is OFF LINE.

Data Carrier Detect: CD (DCD) .....(input)
The ON condition is an indication to data terminal (DTE) that the carrier signal is being received.

2.3.10 Printer Connection

Programming References

Section 4, System Programming,
[800] SMDR Incoming / Outgoing Call Log Printout
[801] SMDR Format
[802] System Data Printout
[806]-[807] Serial Interface (RS-232C) Parameters – Port 1 / Port 2

Feature References

Section 3, Features,
Station Message Detail Recording (SMDR)
System Programming and Diagnosis with Personal Computer