

(b) **Door Station**

A Door Station option provides door chime and intercom facilities to all telephone stations.

(c) **Room Monitor Station**

This station allows a room to be monitored from any station, either on-hook or via the handset.

(d) **Station Amplifier**

One or two Station Amplifiers may be installed on each 4-Wire extension, as an alarm or public address.

(e) **Horn Speaker**

A horn speaker may be provided with each Station Amplifier for high volume applications.

(f) **Headset Facilities**

A headset with adaptor and modified hookswitch may be provided at any Key Station.

## **1.6 OPERATING INSTRUCTIONS**

### **1.6.1 Main Equipment**

#### **Priority Night Switch**

Ring priority can be selected for station 9 and 10. Ring will occur only at the telephone selected unless priority is reprogrammed from the selected station.

#### **Access Barring**

Outgoing exchange line access may be barred to individual Key Stations or Standard (2-Wire) Telephones, at the time of installation, by internal software programming in the main equipment. Stations 1 and 2 (if equipped with optional power fail equipment) will have outgoing exchange line access during power failure.

#### **Powerfail Reset**

If an exchange line call is in progress when a power failure occurs the connection is retained until the completion of the call. At the completion of all calls in progress when a power failure occurred, press the POWERFAIL RESET button to correct exchange line allocation for further calls until power resumes normal operation. (ie: LINE 1 – Station 1, LINE 2 – Station 2).

### **1.6.2 Key Telephone Station**

**NOTE:** On a T210 Key Telephone Station the LINE key may be preselected, i.e. pressed just before lifting the handset to implement the function.

## General - Operating Instructions

### Visual Indications

LINE LAMP	INDICATION	FLASHING RATE
Steady	Other Station using line	Steady
Slow Flash	User's line busy	2s ON/0.2s OFF
Flash	Call on hold	0.6s ON/0.6s OFF
Rapid flash	Incoming call	0.1s ON/0.1s OFF

The **SPKR/DND** Lamp is ON steady while using **SPKR/DND**, on-hook dialling and monitoring facilities.

### Audible Signals

Incoming Call	: 0.4s ON/0.2s OFF/0.4s ON/2s OFF; 730 Hz/590 Hz modulated by 11 Hz.
Intercom Call	: 0.1s ON/0.1s OFF/0.1s ON/0.1s OFF/ 0.1s ON/0.1s OFF/ 0.1s ON/1s OFF; 600Hz single tone
On Hold Alarm	: 0.5 ON/9s OFF repeated; 600 Hz single tone (signal starts 3 minutes after call placed on hold).
Confirmation Tone	: 0.1s ON/0.1s OFF/0.1s ON; 600 Hz single tone.
Confidence Tone	: 0.5s ON; 590 Hz single tone.
Door Station 1	: Chime tones
Door Station 2	: 0.07s ON/0.06s OFF (Repeated for 1s)/1s OFF/ complete cycle repeated for 7s; 700 Hz (Pi Pi Pi tone).
Barred Access Alarm	: Continuous tone 600 Hz.
Tone Burst	: 0.1s ON/0.1s OFF/ 0.1s ON/ 0.1s OFF/ 0.1s ON

Tone burst is heard before all paging messages.

**NOTE:** The volume of incoming signals will be lowered when the station handset is off hook.

### Placing an Exchange Line Call

To make an exchange line call.

- Check that a LINE lamp is OFF.
- Lift handset and press the LINE key for a free outside line.
- The LINE lamp will flash slowly.
- When dial tone is heard, dial the required number.
- To disconnect, replace the handset.

The LINE lamp will go OFF after a short time, and the line will be released.

### Last Number Redial

The T210 system provides this facility on Key Telephone Stations.

- Check that a LINE lamp is OFF.
- Lift handset and press the LINE key for a free outside line.
- The LINE lamp will flash slowly.
- Press the Access **Pause/Redial** key (#) twice.

After a short pause, the last number dialled will be automatically redialled.

The Commander T210 incorporates special software programming for access control by digital analysis. Once programmed for appropriate PABX access codes no special procedures are necessary for access. A pause will be inserted automatically if the last number dialled was dialled through the PABX.

### On Hook Dialling

The progress of a dialled call may be followed without lifting the handset.

Press the LINE key for a free outside line. SPKR/DND lamp will glow steadily and the LINE lamp will flash slowly.  
Dial the required number.

The progress of the call will be audible on the station speaker. The volume may be adjusted by the volume control.

When the call is answered

Lift handset. The SPKR/DND key will release automatically and the SPKWDND lamp will go OFF.  
Proceed with the conversation. If the call is unanswered, press the SPKR/DND key to release the line.

On-hook dialling operates the same way for individual Intercom Calls

**NOTE:** If the SPKR/DND key is not released, the call cannot be terminated.

### Answering an Exchange Line Call

To signal an incoming call, the LINE lamp flashes rapidly at all Key Telephone Stations, and exchange ring signal is heard.

The audible ring signal from each exchange line at a telephone station may be disabled by station user programming.

To answer a call

- Lift handset at any station. The LINE key need be pressed **only** if audible signal is inhibited at that station.

The LINE lamp will glow steadily at all other stations.

The call is now available at the answering telephone station

To disconnect, replace the handset. The LINE lamp will go OFF after a short time, and the line will be released.

The volume of the exchange ring signal at a telephone station may be adjusted by the volume control.

### Holding an Exchange Line Call

An exchange line call may be placed on hold while internal enquiries are made.

While on hold, the outside caller cannot hear internal conversations.

The caller will hear an electronic tune provided by the Music On Hold feature.

To place a call on hold

Advise the caller that call is being placed on hold.  
Press the HOLD key.  
The LINE lamp will flash.

Internal enquiries or intercom calls may now be made.

To return to the caller, press the LINE key.  
The LINE lamp flash slowly.

### **Automatic Hold**

When a station user is dealing with calls on both outside lines 1 and 2 simultaneously, one line is placed on hold every time the alternate LINE key is pressed.

There is no need to press the HOLD key between outside line selections.

### **On Hold Alarm**

An On Hold Alarm is generated 3 minutes after a telephone station holds an exchange line call. The On Hold Alarm sounds at all Key Telephone Stations.

To stop the On Hold Alarm, retrieve the call from hold by pressing the appropriate LINE key at any Key Telephone Station.

### **Placing an Intercom Call**

An intercom call to Key Telephone Stations may be of the following 4 types:

An individual intercom call (signalled by intercom ring signal at the called telephone station). or

An individual call page (signalled by a tone burst and the caller's voice at the called telephone station). or

An all call page (signalled by a tone burst and the caller's voice at all key stations)  
or

A zone call page (signalled by a tone burst and the caller's voice at selected telephone stations).

The following points apply to all four types of intercom calls:

Intercom ring signal will sound at the called station, even if the called party is engaged on an exchange call.

The volume of an intercom signal may be adjusted by the volume control.

When the called party answers, a normal handset to handset call may proceed.

Intercom page will not operate if the called telephone station is off-hook (or with SPKR/DND key depressed).

Intercom page or tone calls may be answered from any station (call pick-up) by dialling 94.

### **Individual Intercom Call**

Lift handset.  
Dial the required number.  
A rapid intercom ring is heard.  
Wait for called party to respond.

After a tone burst, the caller's voice will be heard from the called station speaker.

### **Individual Call Page**

Lift handset  
Dial required number twice.  
Announce the page.

After a burst of tone, the caller's voice will be heard from the called station speaker.

### **All Call Paging**

Lift handset  
Dial 93  
Announce the page.

After a tone burst, the voice page will be heard via the speakers at all other T210 Key Stations.

### **Zone Call Paging**

To make a voice page to selected telephone stations

Lift handset  
Dial **9\*** for zone 1 (stations 1 – 4)  
      **9#** for zone 2 (stations 5 – 8)  
Announce the page

After a tone burst, the voice page will be heard at the selected zone stations.

### **Answering an Intercom Call**

If the called station is free, an intercom call (signalled either by intercom ring signal or voice) is answered by lifting the handset.

If the called station is engaged in an exchange line call, an incoming intercom call is still indicated by a reduced ring signal. The called station may answer the intercom call after placing the exchange line call on hold and momentarily depressing the switchhook.

### **Alternative Answering**

To answer a page call or intercom call to an unattended station

Lift handset  
Dial 94 to speak to the calling party.

Conversation can then be held in the normal manner. Replace handset to disconnect line.

### **Call Shifting**

When a called station is busy or does not answer, you may dial another station without going on hook. Your call will be redirected to the new number.

### **Calling the Standard Telephone**

To call the Standard Telephone (station 9 and 10).

Lift handset.  
Dial 99 for station 9 or  
90 for station 10.

If the Standard Telephone is not busy, ring tone will be heard at the calling station and the Standard Telephone ringer will sound.

### **Do Not Disturb**

When a telephone station is in the Do Not Disturb mode, audible signals and voice paging will not be heard at that station, except for the door chime which is at a reduced level.

To set a Key Telephone Station to Do Not Disturb

Press the **SPKR/DND** key.

While in Do Not Disturb, visual indication of the exchange line status is still given by the LINE lamps.

No indication is given to the other stations whether a Key Telephone Station is in Do Not Disturb or involved in an intercom call.

### **PBX Recall**

If the T210 system is connected as a PBX extension, PBX recall may be effected by pressing the LINE key.

### **Transferring Calls**

An exchange line call can be transferred to any other station via intercom or page call.

Place the call on hold.  
Dial the wanted station number.

When the called station answers announce the call. The call will be transferred to that telephone station automatically when

You replace the handset or  
The other station presses the LINE key.

When transferring a call, indication that the call has been accepted by another station is given by the LINE lamp changing from flashing (while on hold) to glowing steadily.

### **Unsuccessful Transfer**

If the called party cannot accept the call, return to the outside call by pressing the LINE key.

### **Exchange Conference (Secrecy Release) Calls**

To convene an Exchange Conference (if Secrecy Release has been programmed on installation):

- Answer the call at any Key Telephone Station.
- Ask the caller to wait while the other party is informed.
- Advise the other party either vocally or by an individual intercom call, to enter the conference after the LINE lamp stops flashing.
- Return to the exchange line call by pressing the LINE key.
- The other party joins the conference by pressing the appropriate LINE key after the LINE lamp has stopped flashing.

### **Abbreviated Dialling**

Frequently called telephone numbers can be stored in the system and redialled, as required, using only two digits.

To programme up to twenty numbers for the whole system, use Station 1

- Lift handset
- Press \* key
- Dial required memory address (00 to 19)
- Dial the desired telephone number up to 18 digits in length
- Press \* button again
- A confirmation tone will be heard
- Replace the handset

These 20 stored numbers may be accessed from all stations

To Programme up to ten numbers for each key station

- Lift handset of station into which the number is to be programmed
- Press \* key
- Dial required memory address (60 to 69)
- Dial the desired telephone number up to 16 digits in length
- Press \* button
- A confirmation tone will be heard
- Replace the handset

These 10 numbers can be called only from the Key Station into which they are programmed.

**NOTE:** The handset does not have to be replaced in a continuous programming of numbers.

If the T210 system is an extension from a PABX it is necessary to press the # key twice for a pause to be inserted between the access code and the outside number.

To use Abbreviated Dialling

- Lift handset
- Select a free outside line
- Press # key
- Dial memory address number

The stored number will be automatically dialled.

### **Access Barring**

If a station user attempts to dial a barred number the Commander will cease dialling and a continuous single tone will be heard. If this occurs, replace handset and check the number.

### **Enquiry Calls**

To obtain additional information from another station while speaking on an exchange line call.

Place call on hold.

Dial the wanted station number.

When the enquiry call is completed let the other station go on hook then retrieve the exchange line call from hold.

### **Ring Selection**

Any key station can be programmed to ring or not ring in response to incoming exchange calls.

To program ringing

Lift handset of the station to be programmed

Press # key

Press desired selection code

10 exchange line 1 ring stopped

11 exchange line 1 ring allowed

20 exchange line 2 ring stopped

21 exchange line 2 ring allowed

Press \* key

A confirmation tone will be heard

Replace handset

**NOTE:** When ring is stopped, automatic answering is also stopped. incoming exchange calls will be indicated by a rapid flash of the LINE lamp. To answer, lift handset and press the LINE key.

### **Key-in Confidence Tone**

A confidence tone can be invoked by pressing the HOLD and \* keys simultaneously. Repeat procedure to disable confidence tone.

## **1.6.3 Data Communication Through Commander T210**

The Commander T210 can be used to link a data terminal or a computer to the telephone network or to other data terminals and computers in the premises.

For an introduction into the general data transfer capabilities for Commander systems and the methods of connection of data equipment to a Commander system refer to the booklet, "Data Communication through Telecom Commander Systems".

Only data equipment which uses V Series modems and which transmit at rates not exceeding 4800 bps can be connected to the Commander T210.



### **Using a Commander T210 Extension Line**

Data equipment can only be connected to a Commander extension line by use of a “parallel” connection to the telephone station. A Special Connector is available for this purpose from Telecom.

To fit the Special Connector

- Switch off the power to the main equipment
- Un-plug the telephone station
- Insert the Special Connector into the Wall Socket
- Plug in the telephone station and the data equipment into the corresponding positions marked on the Special Connector
- Turn on the power to the main equipment

**NOTE:** That auto-dial/auto-answer modems cannot use their auto dial and auto-answer facilities on this type of connection. Also this type of connection is unsuitable for Telecom’s Computerphone; Viatel terminals without manual dial facility and manual modems with integral telephones (refer to “Using a Commander T210 Two-Wire Interface”).

To Transmit Data

- Lift handset or press **SPKR/DND** key
- Select a free exchange line, (if making an external call)
- Dial telephone number of distant computer
- OR
- Dial station number of computer or terminal in your premises
- When carrier tone is heard from host computer, transfer control of the line to your data equipment (refer to your equipment’s instruction booklet for correct procedure).
- If call was made with handset off hook, press **SPKR/DND** key and replace handset
- Proceed to use your data equipment for the transfer
- At the conclusion of the transfer return control of the line to your Commander T210.
- Press **SPKR/DND** key to release the line

To Receive Data

- answer incoming call in usual manner
- When carrier tone is heard from distant computer, transfer control of the line to your data equipment.
- Continue as in “To Transmit Data”

### **Using Commander T210 Two Wire Interface**

For use with “Computerphone”, Viatel Auto-dialling terminal, auto-dial/ auto-answer modems, and modems with a telephone incorporated.

**NOTE:** These must all be decadic dialling types or be capable of sending decadic pulses.

These modems can be plugged directly into the extension line socket of a two-wire interface.

Ensure that your Commander T210 is programmed to suppress 'Intrusion' tones which would otherwise corrupt data transfers through the interface. This will be done at no charge at the time the Interface is installed, or for a nominal fee when subsequently done by Telecom.

**To Transmit Data Using Manual Modem**

Select a free exchange line, (if making an external call).  
Dial telephone number of distant computer  
OR  
Dial station number of other data equipment in your premises  
Follow the operating procedures in the instruction booklet supplied with your modem

**To Receive Data Using Manual Modem**

Follow the operating procedure in the instruction booklet supplied with your modem

**To Transfer Data Using 'Computerphone', Viatel Auto-Dial Terminal and Auto-Dial/Auto-Answer Modem**

Follow the operating procedures in the instruction booklet supplied with your data equipment

**NOTE:** When entering telephone numbers on your terminal, or computer for auto-dialling, precede the number with the exchange line access code "0" and a dialling pause. (Refer to your data equipment's instruction booklet for the procedure for inserting the dialling pause).

For internal calls simply enter the number of the station associated with the computer in your premises.

## **1.6.4 Standard (2-Wire) Telephones**

### **General Description**

A 2-wire telephone interface provides the option of connecting up to two Standard (2-wire) Telephone circuits to the system. These telephones are extensions 9 and 10 in the system configuration. To the user it appears as a normal station with limited function restrictions.

The Standard (2-wire) Telephone may be any standard, premium or feature Telecom telephone, with decadic dialling.

The Standard (2-wire) Telephone has most T210 facilities, with the following limitations

- No Abbreviated Dialling.
- No last number redial.
- No on-hook dialling.
- No Do Not Disturb.
- No conference calls.
- No indication/reception of page calls.
- No zone paging.
- No line status indications.

Other features and facilities are available as for key stations 1 through 8.

The operations of these telephones differ from the key stations in selected functions listed below.

### **Placing an exchange line call**

Lift the handset.  
Dial "0".

If an exchange line is available for dialling, dial tone will be heard.

Dial the call as usual.  
Replace the handset to disconnect.

If both exchange lines are in use, a busy tone will be heard after the "0" is dialled

### **Exchange Call Waiting Tone**

When a Standard (2-wire) Telephone is off hook engaged in a call, a call waiting tone will be heard instead of the ring of an incoming call.

### **To Hold an Outside Call**

Ask the outside party to wait.  
Press the switchhook for approximately one half second.  
The call is now on hold. (a short burst of music will be heard to confirm call is on hold).  
An outgoing call cannot be placed on hold during first 90 seconds.

### **To Retrieve a Call from Hold**

Press switchhook again for approximately one half second.

### **To Transfer a Call**

Ask the outside party to wait.  
Press switchhook for approximately one half second.  
The call is now on hold.  
Dial the wanted station.  
When the station answers, announce the call.  
Replace the handset.  
The call will be automatically transferred.

### **To Programme Ring Selection for outside lines**

Lift handset.  
Dial 97 to stop ringing on line 1 or  
98 to stop ringing on line 2.  
Replace handset.

To regain audible signals for outside lines repeat procedure that inhibited ring.

### **Priority Night Switching**

Ring priority can be selected for stations 9 and 10 using the NIGHT SWITCH on the Main Equipment. Ringing will occur only at the standard station selected unless priority is reprogrammed at the selected station.

#### **To Reprogramme Ring Selection**

Lift handset of station selected on the Night Switch

Dial desired code

95 for ring at station 9

96 for ring at station 10

Replace handset and incoming calls will ring at the programmed station

A busy signal after reprogramming is completed indicates programming was performed at the wrong extension.

To return priority to original selection repeat the above procedure using code for the original station selected on the Night Switch.

**NOTE:** The night switch will override programmed ring selections for stations 9 and 10.

All other features and facilities are performed in the same manner as for the key stations 1 to 8.

### **1.6.5 Room Monitor Station**

The telephone station performing the monitoring may do so on-hook (via the speaker) or off hook (via the handset for privacy).

Room Monitor Switch Station must be ON prior to operation.

#### **On Hook Monitoring**

Press the SPKR/DND key at the monitoring station.

The SPKR/DND lamp will come ON.

Dial 91 for Room Monitor 1 or

92 for Room Monitor 2.

Sounds at the Room Monitor Station will be heard via the telephone station speaker.

Press the SPKIUDND key again to stop monitoring.

The SPKR/DND lamp will go OFF.

#### **Off Hook Monitoring**

Lift the handset at the monitoring telephone station.

Dial 91 for Room Monitor 1

92 for Room Monitor 2.

Sounds at the Room Monitor Station will be heard via the telephone station handset.

Replace the handset to stop monitoring.

Switch Room Monitor OFF at the Room Monitor Station.

From the Standard Telephone, only off hook monitoring can be performed.

### **1.6.6 Door Station**

#### **Door Chime Operation**

When a visitor presses the Door Station call button, a distinctive 7 second tone is heard at all T210 Key Telephone Stations along with a ring at the Standard Telephones.

This chime overrides all tones, exchange and intercom ring signals.

The chime will become a reduced level “bee-boo” tone at a Key Telephone Station which is off hook.

#### **Communicating with the Door Station**

Any telephone station may converse with the Door Station.

To answer a Door Station Call

Lift Handset within 8 seconds after door chime stops ringing.  
Speak to calling party.

If the station is engaged in an exchange line call, the outside party must first be placed on hold, and the handset placed momentarily on hook before answering the Door Station.

To call a Door Station

Lift the handset.  
Dial 91 for Door Station 1 or  
92 for Door Station 2.

The T210 system can handle an exchange line call and a Door Station call simultaneously (from different telephone stations).

### **1.6.7 Station Amplifier**

The Station Amplifier provides amplification of the following signals to any Key Telephone Station.

- a. Incoming exchange ring on system lines.
- b. Incoming internal ring.
- c. Individual, Zone or All Call page announcements.
- d. Door chime.
- e. On Hold Alarm.

Any or all key stations may have up to 2 Station Amplifiers connected.

The Station Amplifier may be turned on or off at the switch on its face panel and the output volume level can be adjusted with the volume control knob by the user.

### 1.6.8 Headset Facilities

To use the headset on a station

Replace handset and cord with headset and adaptor.

Install Hookswitch Actuator.

Put headset on.

Ensure that the hookswitch actuator is down in the on hook position.

The headset is now ready for use. To use the station slide hookswitch actuator up to go off hook. Use other Commander T210 features and facilities in normal manner. Slide hookswitch actuator down to go on-hook at the completion of the call.

## 1.7 SYSTEM LINE LIMITS

### 1.7.1 Internal Cabling Limits

Equipment	Loop Resistance	Cable Length 0.5 mm Cable
Key Telephone Station	35 ohms	200 m
Standard (2-Wire) Telephone	700 ohms	4.0 km (2.6 km with 0.4 mm U/g cable)
Door Station	40 ohms	235 m
Room Monitor	35 ohms	200 m
Station Amplifier	200 ohms	1100 m
Horn Loudspeaker	1 ohm	5.5 m

Table 1.1 – Internal Cabling Limits

### 1.7.2 Remote Extension Limits

#### Standard (2-wire) Telephone

The limits for 2-wire extension telephones will vary according to the type of telephone to be used. For information on the planning of outdoor or remote extension lines refer to Engineering Instruction, Planning, Transmission, E7210 -“Private Telephone Network, Definitions and Limits”.

## 1.8 SYSTEM COMPONENTS

### 1.8.1 Main Equipment

The Main Equipment may be equipped with the boards and sub-assemblies listed in Table 1.1.

Refer to the Appendix for ordering of equipment.