



Access Integrator AI-K Handbook



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1.0 Access Integrator-K Overview



Overview

Access Integrator-K combines an easy to use messaging Interface with alarm and data inputs, and user or team messaging output to DECT handsets.

The Access Integrator-K may be used with the Multitone CS600 and CS100 DECT and messaging server system.

The CS600 and CS100 are branded products from Kirk Telecom, and the Access Integrator-K may also be used with the Kirk DECT1500Z and 500 systems as well as any other OEM variant of the Kirk product supplied to other distributors.

Features

Data input through a configurable serial port. This can process data from nursecall systems, factory alarm processing systems or other external data source, either directly, or through Multitone's Field Configurable Protocol Converter (FCPC).

The serial input port can accept Multitone's MEP protocol, European ESPA 4.4.4 protocol and the commonly used TAP protocol, to provide messaging output to DECT handsets.

One serial port is dedicated to the CS100 / 600 CCFP.

In addition AI-K has 16 configurable Input or output alarm contacts.

Access Integrator is both transparent and intuitive to the user.

Access Integrator-K supports:

- Messaging to DECT handsets - Single or team messaging
- Integrated browser for system administration and messaging Interface
- Direct Line Input and output connections for alarm management
- Alarm data input through serial port with messaging output
- Remote management of the alarm contacts and associated device from the DECT handset

1.1 Access Integrator - Components & defaults

Access Integrator requires that the following checks are carried out prior to Installation.

- Check that all necessary components, power supplies and space for the unit are available before commencing Installation.
- Confirm that the TCP/IP address required for the Integrator can be made available by the network administrator. In the event that the Access Integrator will not be connected to a Network, an Ethernet crossover cable will be required for direct connection to the Access Integrator.

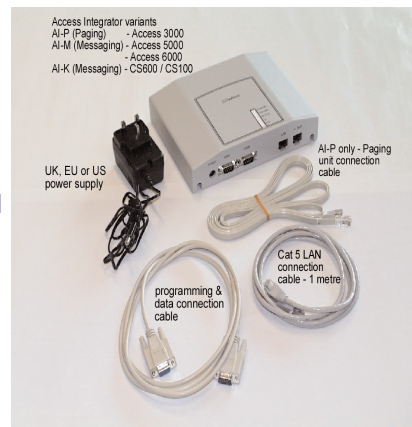
Access Integrator components

- 1 x UK English or German user guide
- 1 x Access Integrator unit AI-K
- 1 x 2 metre 9wd - 9wd serial cable
- 1 x 1 metre straight cat 5 cable
- 1 x set pre-loaded flash software.

CCFP-SIO data cable, Ethernet hubs and cross-over cables are NOT supplied.

Order a power supply seperately

UK 3 pin, EU 2 pin at 230 volts or North American 110 volt power supply



1.2 Technical Information

Network defaults

The AI-K is supplied with default network setting that may have to be changed. If so contact your network administrator.

Default network addresses

Access Integrator default TCP/IP/IP address - 192.168.99.253 with a Subnet mask of 255.255.255.0 .

Internet Explorer and the AIK browser

The Access Integrator has a built in browser for system administration and configuration. Only Internet Explorer revision 5.5 or later is supported. Selection of any menu or screen option is via the left mouse button, OK or ENTER.

The default LOGIN name is **Administrator** with no password.

Installation and Initial configuration of the Access Integrator, and associated communications equipment should be carried out by personnel trained on the CS600 or CS100 and familiar with TCP/IP

1.3 Typical Installation Planning

Identify the location for installing the Access Integrator and ensure that the power and CCFP cables are within reach of the nearest power supply and AI-K.

The Access Integrator power supply is a 230 volt 7.5 volt, 600mA plugtop design for European markets and a 110 volt 800mA supply for North America. Both power supplies have a 2 metre lead. This is plugged into the POWER connector located on the bottom left hand side of the unit and a fused wall socket. This socket should be labelled to prevent accidental removal of the power pack or being turned off.

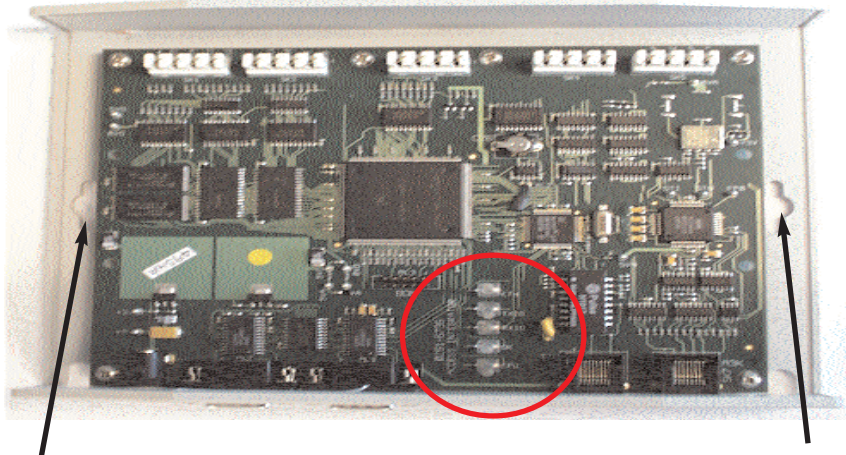
The location of the Access integrator needs to be within 1 metre of an Ethernet LAN connection point if the network cable supplied is used.

1.4 Removal of Access Integrator cover

The PCB enclosure cover has been designed to prevent easy access by unauthorised personnel. Therefore we recommend that all cabling, wiring and fixing is carried out before replacing the cover.

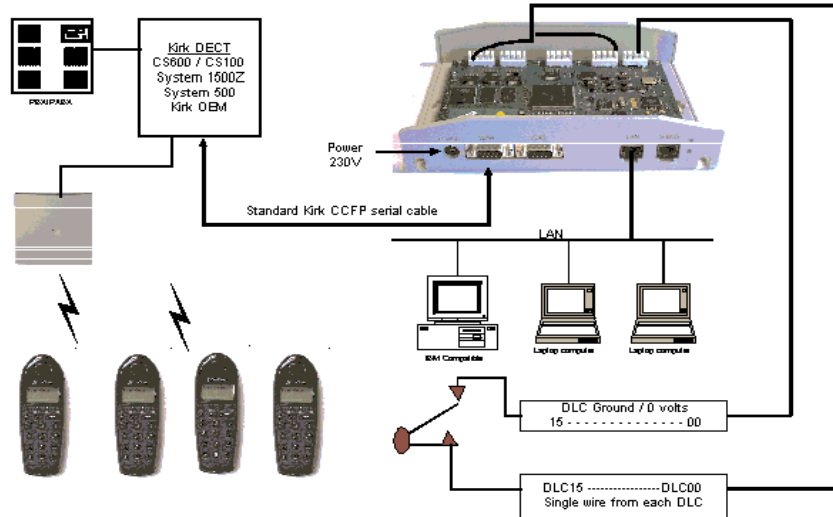
To remove the cover grip the unit on either side and gently pull outwards, or use the thumb to push the top corner away from the main body of the unit. Once a gap is open a broad bladed screw driver may be inserted under the rim to gently lift the cover away from the casing.

DO NOT push the screw driver into the unit as the PCB may be damaged. Keep away from the LED light extender units as these are easily dislodged.



Access Integrator is designed for wall mounting and has two mounting keyhole slots located on the rear. Drill two holes, level, at 188mm centres and fit rawl plugs if required. The head of the mounting screws should not be more than 10mm wide. Fitting screws and plugs are not supplied. Tighten the screw until the mounting is firm when the AI-K is fitted.

Schematic for Access Integrator-K



1.5 Wiring the alarm contacts

If the the alarm contacts will be used, we recommend that the Access Integrator is permanently wired to external Krone or other terminating strips. The displacement connectors are numbered from left to right as SK1 to SK5. DLC contacts are numbered from the right of SK2 which is 00 to SK4 terminal 15.

The DLC numbers may be located on the PCB.

DLC15 -----DLC00 Ground termination



The terminal marked 0VA on SK5 is used for the ground for each DLC. Each DLC contact used will require a 0VA terminal on the ground terminating Krone strip common.

Terminating strips for DLC alarm contacts

The recommended method for wiring the DLC alarm contacts and ground is to use 3 x 10 way terminating strips with the third strip being used for the ground common. This provides the terminal strip for all DLC 0 volts.

Refer to sections 3.4 and 3.5 on pages 17 and 18 for further details on wiring and installation.

2.0 Configuration Overview

There are several possible combinations for using an Access Integrator AI-K. The unit has two serial ports, one dedicated for the connection to the CS100/600 and the second that may be used for input from TAP, MEP, ESPA, Austco and other data formats, by using a Multitone Field Configurable Protocol Converter.

In addition the AI-K has 16 alarm contacts which may be used as inputs. When activated they will send a message to a user or teams of users. When configured as an output activated, they can be used to operate a remote device such as alarm, relay, lamp or mains powered electrical hardware using a power switching relay.

A DECT handset user may also remotely open or close a contact using the MSF feature. This can be used to remotely activate external devices such as gates, doors, valves and other electro-mechanical devices.

AI-K is designed for use with Multitone CS600, CS100, Kirk dectz-1500, Kirkdectz-500 and OEM variants of the system.

2.1 Installing the Access Integrator

With the AI-K fixed to the wall, power connected, a network cable installed and any external data input device ready for connection, the access Integrator is ready for programming.

Set up the Access Integrator as a web server on your network. This requires that the AI-K has a unique network address that can be accessed from anywhere on the network.

Check with the Network Administrator before making any changes or seek their assistance with setting up the Access Integrator.

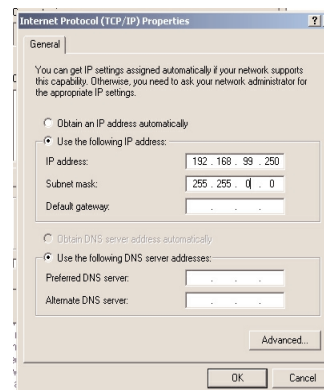
Adjust the PCs network settings to put it on the same network and subnet mask as the Access Integrator (by default, this is **192.168.99.253** with a subnet mask of **255.255.255.0**).

If the Installer needs to change the TCP/IP address, the AI-K can be accessed using a crossover cable connected to the Ethernet card on the PC or laptop and the Ethernet port on the AI-K.

To carry out this change on Windows 98 you will need to reset your default IP address to the same netmask as AI-K. For example 192.168.99.250 with a subnet mask of 255.255.255.0. Windows 98 requires that you restart your computer once this has been set up through the network properties.

Windows 2000 and XP will allow you to add another network address without restarting your computer.

You will be able to access the online user and administration browser programme by opening Windows Explorer and entering the AI-K default address in the address bar and Enter (192.168.99.253). Login in to AI-K using Administrator and no password (refer to section 3.0) and select **Configuration** and **Network**



TCP/IP settings

2.2 Configuration of the Access Integrator

The Access Integrator requires the following settings when used with the CS600, CS100, Kirk System1500, Kirk System 500 or OEM variants of these products.

- Hostname For user information only (AI-K for example)
- Domain For user information only
- IP Address The IP address to be used by the Access Integrator
- Netmask The Netmask to be used by the Access Integrator
- Gateway Not used by AI-K
- MIP Server Not used by AI-K. **Do not change the default setting**
- MSF Kirk messaging protocol format I or II. Note a license may be required if format II messages are used.
- Length of Telephone Numbers 2 to 5 digits - set the same as the PBX
- Leading Digit Not used by AI-K. **Do not change the default setting**

The screenshot shows the 'Access Integrator-K' configuration interface. On the left is a navigation menu with options: Home, Administration, Configuration, Network, Backup / Restore, Software, Miscellaneous, View Diagnostics, and Serial Ports. The main content area is divided into three sections:

- TCP/IP:** Hostname: Multitone, Domain: AI-K, IP Address: 192.168.99.253, Netmask: 255.255.255, Gateway: 192.168.99.253. An 'Apply' button is present.
- Messaging Server:** MSF: I, Length of Telephone Numbers: 2, Leading Digit (if necessary): 0. Messaging format I or II. An 'Apply' button is present.
- Syslog Server:** Syslog Server: 0.0.0.0. An 'Apply' button is present.

2.3 Serial Port and DLC Configuration

Serial port A is permanently configured for connection to the CS600 or CS100. Section 4.0 covers the configuration of serial port B, which can be configured for connection to a range of external devices and protocols. Section 3.4 details the wiring and configuration of DLC alarm contacts.

The screenshot shows the 'Access Integrator-K' configuration interface for serial ports. The navigation menu is the same as in the previous screenshot. The main content area shows two sections:

- Serial Port A:** Baud Rate: 19200, Parity: None, Data Bits: 8, Stop Bits: 1, Protocol: Kirk SIO. An 'Apply' button is present.
- Serial Port B:** Baud Rate: 1200, Parity: Even, Data Bits: 7, Stop Bits: 2. Protocol options include PPP, AUSTCO, TAP (selected), TAP+CR, MEP, and ESPA. TAP settings include TAP Connection: Direct, Timeout: 3s, Node Address: 1, and Delay/Response Times: 100ms/3s. An 'Apply' button is present.

2.4 Software

The software screen shows the following information

- Ethernet MAC address
- Boot version
- Main software version
- Date of software issue

The AI-K has been designed to have new features implemented through the flash programme and it may be necessary to reload programme or to upgrade software in which case the **Software Upload** facility may be used.

Select **Browse** to locate the flash file followed by **Upload**. The file will be loaded on to Access Integrator and then processed. Progress is shown on screen. Once the software flash is completed, a re-start of the Integrator will be made. Check the software version is now correct.

The screenshot shows the web interface for the Multitone Access Integrator-K. On the left is a navigation menu with options: Home, Administration, Configuration, Network, Backup / Restore, Software, Miscellaneous, View Diagnostics, and Serial Ports. The main content area is titled 'Access Integrator-K' and includes a 'Logout' link. Below this is a 'Software Information' section with a table:

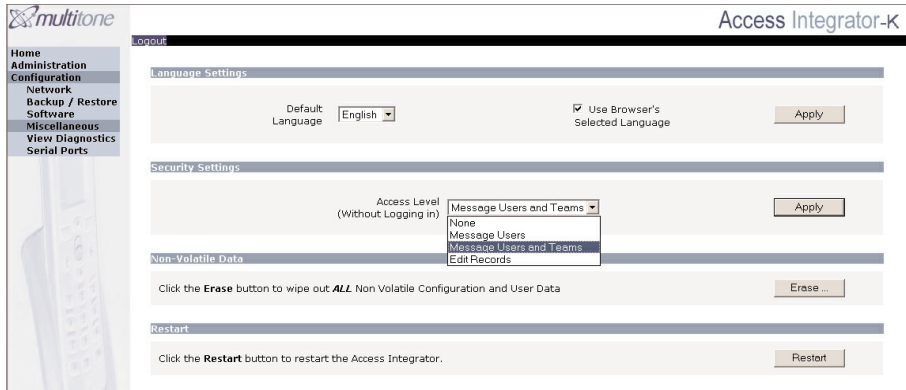
Ethernet MAC Adr	00:08:2e:00:03:f8
Boot Version	01.02
Main Software Version	AIK 01AE
Date	Jul 21 2003

Below the table is a 'Software Upload' section. It contains the text: 'Here you can upload new software to the Access Integrator. Select a file using the **Browse** button, then press **Upload** to send the file to the Access Integrator. Once the file has been uploaded, it will be programmed into the flash memory of the Access Integrator.' There is a text input field for 'Filename' containing 'A:\Integrator\xxx.BIN', a 'Browse...' button, and an 'Upload' button.

2.5 Miscellaneous settings

There are a number of options that may be set when configuring the Access Integrator for the first time. These will become customer settings.

- **Default language** for AI-K at the time of publishing this guide is English. Other Languages may be available as and when required. If you require another language contact Multitone on Info@Multitone.com
- **Use browsers selected language**- If this is applied the browser language will be as selected but the Integrator language will remain in english
- **Security settings** - These settings allow the Administrator to set the level of access for any user on the network with out logging in. These are:
 - **None** All users must log in and the timeout periods will apply
 - **Message Users** Only DECT users may be sent a message
 - **Message users and teams** DECT Users and teams may be sent a message
 - **Edit records** Users may also edit records.
- **Non Volatile Data** This will erase all non volatile data.
- **Restart** Used to restart the Integrator after changing or re-loading the software or changing the setting on serial port 2. The Access Integrator will be taken out of service for a short period of time.



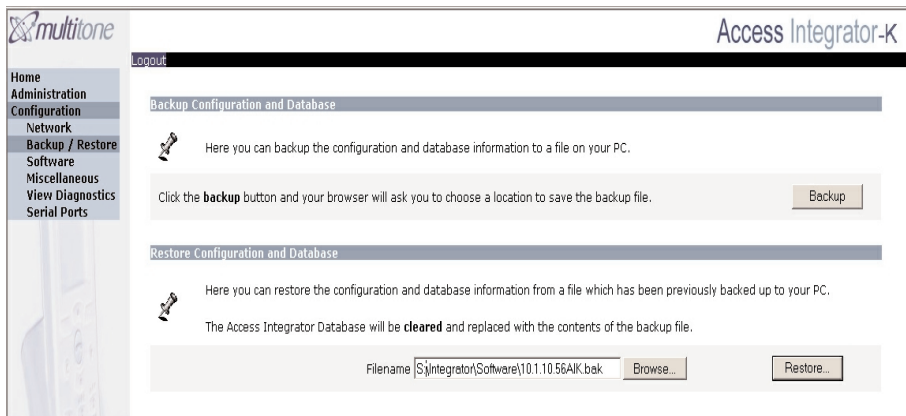
2.6 Backup & Restore of user data

Backup and restore allows the system administrator to back up the Access Integrator user records and restore.

Select the **Backup** button and two boxes will appear.

- File download with the network address of the Access Integrator
- Getting file information.

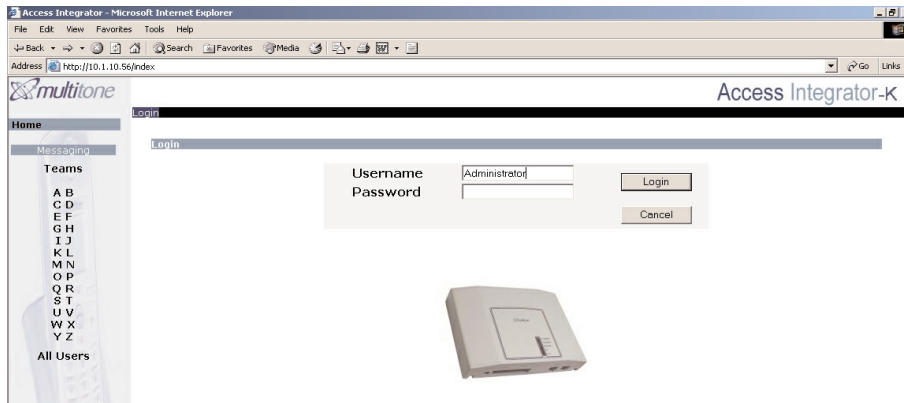
Select **Save** and browse to the folder that you wish to save the user data. This folder should only be accessible by authorised administrators.



To restore user data simply browse to the folder where the file is saved. Restoring data will over write all existing data.

Any backup of system data or the flash programme should be retained in a safe, but east to access location or or a floppy disc, that is retained by the system administrator.

3.0 System Administration overview



Access to Access Integrator Homepage

The Access Integrator hosts an online intranet site dedicated to the Access Integrator. Using Internet Explorer anyone on the local network with access rights can send a message to single DECT handset user or team of DECT handset users.

Any PC or laptop computer connected to the local network can use AI-K **depending on the security settings.**

Default **Security settings** allows any PC connected to the local network to send messages to DECT users or teams of users without logging in to the system. There are 4 setting for security:

- None
- Message users
- Message users and teams (Default)
- Edit records

Using the Access Integrator

The network address for AI-K will be either the default address of 192.168.99.253 or an address allocated by the network MIS manager. This address could then be named and set as the Home Page for Access Integrator. (for example MESSAGING).

New accounts may be added at any time by the Administrator.

The following sections show how to carry out system administration, set up users, set up teams, personalise the system and to send messages.

3.1 Administration - Passwords

Setting up new user accounts

This is required for anyone who is permitted to have system administration responsibilities. There are 4 user right options.

1. To access the menu for changing passwords or creating new accounts:-

Login - Name = Administrator (Default)

Password - Password = Password or blank (Default)

The menu screen now has an option for "Administration"

2. Select **Administration** followed by **Passwords**

You are now in the **Password** menu.

From the Administration section, you can access the following:

ÿ Add new user account -
Select **New Account**

ÿ Delete / Edit user -
Select the existing user
account

3. Edit or delete an existing account - Select the name of the user to edit.

The details of an existing user are displayed. You can now set or change the features for the account:

- User name and password
- Password timeout
- Account administration rights
 - A user account may be set with 1 of 4 **Access** options
 - Message users only
 - Message users and teams
 - The above and edit records
 - The above and edit configuration

The password time-out may be set between 1 minute to 8 hours or unlimited. We recommend that most users have a 10 minute timeout set and system administrators 30 minutes

Create will save the data to file.

If a number of changes have been made a backup of the data should also be made.

4. To create a new account

- Select **New account** to display the new password account entry box
- Enter the user name and a password if required.
 - A password is not essential.
- Allocate the **Access** rights
- Set the password timeout period

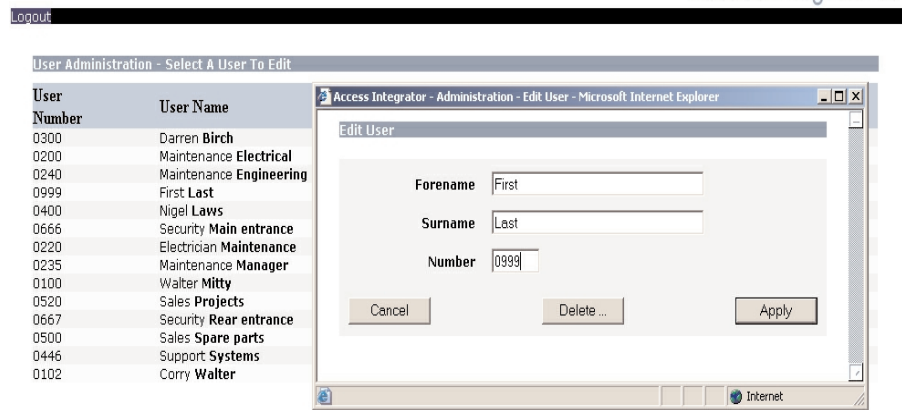
3.2 Creating a new user

To create a new user name from the “Administration Users” screen

- Select **New Account** and the administration box will appear
- Enter **Forename** - This name is shown first on the user list, and can be a job title, name, working place
- Enter **Surname** - This name, job title or work place is shown second on the user list and is shown in bold type on screen
- Enter the extension number. This may be 2,3 or 4 digits. The number should reflect the PBX numbering scheme and will be shown with leading 0's once created

If the user record number is already in use, you will see a message box with “**User Number Already Exists**” - “The User Number is being used by another User Record.” User Numbers must be unique

Order of programming.



Users

- At the time of installation all of the users must be created before TEAMS. Users and teams can be added or amended at a later date. Back up the user data once you have completed any changes.

Teams

- All teams must be created before configuration of the DLC's. Back up the user data once you have completed any changes.

Alarm contacts (DLC's) Section 3.4

- Collect the DLC device information before you configure the DLC's and have any electrical isolation hardware available for the Installation.

Output DLC's Section 3.4

- Configure output DLC's before Inputs as the selection of the Output is from a drop down menu. IE If its not configured you will not be able to select it.

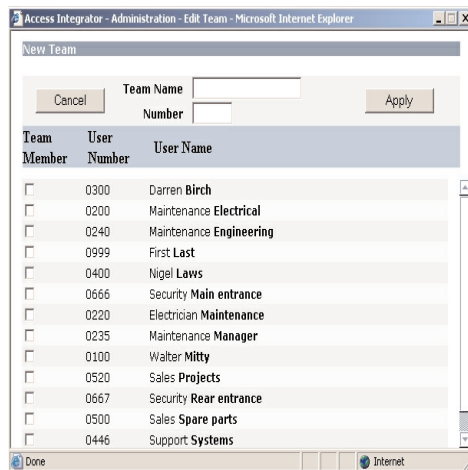
3.3 Creating a new Team

To create new teams select “Teams” from the “Administration Users” screen.

- Select **New Team** from the menu and the **Edit Team** box will appear

- Complete the data entry for the following.

- Team name
- Team number. Start numbering from 00. Do not use letters A-Z
- Select the users to be included in the team. A maximum of 20 users per team recommended.
- **Apply** to create the team.



If the team is not created you will see an error message. Check your data input and ensure you have selected more than two users

Planning considerations

A DECT system is normally planned for site coverage first and traffic at a later date. The reason for this is that when personnel become mobile they will change many of their working habits as they are free to “Manage on the move”. However they will still congregate in leisure and eating areas as well as meeting rooms. These locations may present a traffic problem if the number of base station channels is not equal to the number of users in the traffic zone.

In the event that the number of users exceeds the number of base station channels, there will be a minimal delay on some of the messages sent until the channels clear. This is normally several seconds but may take several minutes if the number of base stations is limited.

Messaging formats I and II

There are 2 selectable messaging formats with format I as standard. In the event that long message lengths are required, repeat messages and some other features, format 2 must be selected. To use format II the customer requires a PIN / license number to release the features. There is a charge for the PIN number.

If you have any concerns, contact your DECT system supplier.

3.4 Configuration and wiring of DLC alarm contacts

DLC layout

The DLC alarm contacts are numbered from 00 to 15 and are located on the Acces Integrator motherboard PCB. The Krone displacement connectors for the DLC contacts are named as SK1 to SK3 with the left hand terminal of SK1 being DLC contact 15. DLC contact 00 is located on SK3 on the right hand side. A punch tool is required for wiring.

Operating voltages and currents

Terminal blocks SK 1 to SK4,(00 to 15) have a voltage of +5 volts. Terminal block SK5 - 0Va is used for the 0 volts (Ground).

The maximum current loading that can be applied to the contact is 90mA. If the contact is used to drive loads greater than 90mA, an external load driver or relay must be used.

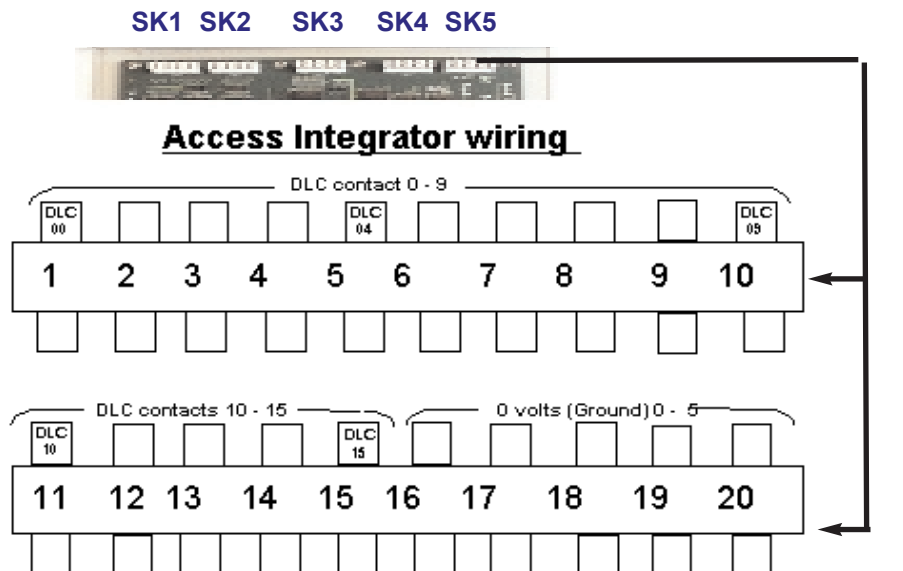
Do not use the alarm contact for voltages greater than 5 volts.

Zero volts (Ground) wiring

Because the SK5-0Va terminal will only accept a single wire, the 0 volt common must be wired out separately to a terminal block. This allows the ground to be jumpered to any DLC contact.

Recommended wiring

The diagram below shows the layout of the Krone connection strip on the AI-K. Terminals 0 - 15 are wired to Krone connecting points 1 - 15 and the 0 volts (Ground) is terminated on 16 - 20



3.5 Programming of DLC contacts

The DLC alarm contacts may be configured in several different ways. The input may be configured to activate on a high (5 volts input) or a low (0 volts input). DLC input contacts can also be configured to automatically operate another output contact. This contact can then operate another electronic or electro-mechanical device, either directly or through a high voltage relay.

Do not exceed the voltage or current limitations of the DLC.

DLC programming

To make a new DLC or edit an existing DLC follow this procedure:

DLC Administration - Select A DLC To Edit

Contact Number	Label	Type	Current State
00	Maintenance - Compressor warning	Input	Inactive
01	Compressor 3 disable	Input	Inactive
02	Rear gate entry	Input	Inactive
03	Reception - After hours security	Input	Inactive
04		Input	Inactive
05		Input	Inactive
06		Input	Inactive
07		Input	Inactive
08		Input	Inactive
09		Input	Inactive
10		Input	Inactive
11		Input	Inactive
12		Input	Inactive
13		Input	Inactive
14		Input	Inactive
15	Compressor disable -DLC 15 (output)	Output	Inactive

Example - Activation of Input DLC alarm contact 00 will cause Output DLC alarm contact 15 to become Active

LOGIN - ADMINISTRATION - DLC's and you will see the screen listing all 16 DLC contacts.

To begin configuration of the first DLC select contact number 00. The screen will show the following:

3.6 DLC data entry and configuration

Notes on connection of alarm input devices

Device or alarm **output** voltages of 0 or 5 volts - Alarm input voltage to AI-K

- Device outputs 5 volts - DLC set to active low input - DLC Inactive
 - 5 volts applied to the AI-K input will activate the alarm and send a message to DECT user or team.
- Device outputs 0 volts -DLC set to active high input - DLC active.
 - 0 volts applied to the AI-K input will activate the alarm and send a message to DECT user or team.
- DLC as an output - The external relay, alarm or device should be 0v or 5v DC at a maximum of 90 mA current.

If the external DC volts or current parameters are exceeded electrical

isolation is required and the 5 volt supply must be + / - 1 volt

Programming a DLC

The DLC screen displays the following information.

- **Contact number**

The contact number is two digits, 00 to 15. Select a contact

- **Label**

The label is for information purposes only and should be used to describe the function of the DLC contact - enter a description with a maximum of 36 characters including spaces. If the DLC is interrogated from the handset, the DLC label will be displayed.

- **DLC type**

This defines whether the contact is an Input or output. An input will receive alarm data.

Input or output - Configuration of a DLC

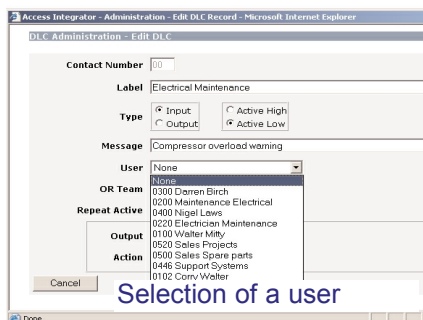
To begin configuration of a DLC you must first know what the alarm output will be from the device you will connect to in order to activate the DLC.

It must be either 5 volts or 0 volt (ground). Any other alarm output must be isolated from the Access Integrator input.

- Select the DLC type as Input or Output
- Select the DLC as active high or low (See next section for further information)
- Enter a message up to 60 characters including spaces. This message will be displayed at the handset as rolling screens of 36 characters with a 2 second interval between screens.

Type
Input
Input
Input <input type="button" value="Edit Dlc"/>
Input

- From the drop down menu select a user to receive the message, or go to the team menu and select a team.



Example

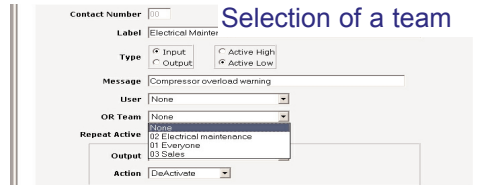
The example on page 18 shows DLC contacts 00 to 03 configured as inputs and DLC 15 is configured as an output.

The operation of DLC 01 will automatically operate DLC 15 to disable compressor 3. The output of DLC 15 would require either a 5 volt logic interface to the compressor or a 5 volt mains switching relay.

F5 will refresh the screen to check if the state of any DLC has changed

recently.

- Select the team from the drop down menu, as the message recipients.



3.7 DLC configuration options

The DLC alarm contacts may be configured in several different ways:

Input which is the most common use, and has a default **Active low**. This means that the contact is at 0 volts (ground) and an alarm from a device will need to input 5 volts to activate it.

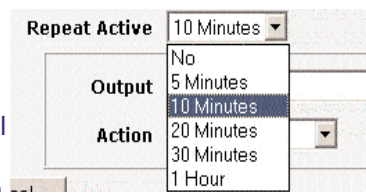
Input changed to **Active High** means that the DLC contact will be at 5 volts and an alarm from a device will need to be 0 volts (ground) to activate it.

In either case the **input** DLC can be used to turn activate an **Output**, to switch on or of an alarm bell, lamp or release a permanently held relay or other device.

Output means that the DLC contact is only used as an output and may not be configured to operate with a user or team. It may be configured to operate when an Input is triggered and therefore operate an external device such as a valve, door or contact.

Message is the text message sent to the handsets. This is limited to 36 characters, including spaces. This will allow for text wrapping. If the number of characters exceeds 36 then text will not be wrapped.

Repeat Active is used to select how often you want the message to be sent if the contact is closed or active. The range is from None to 1 hour



Output DLC configuration

When a DLC contact is set as an **Output** all of the text boxes below are greyed out except for the **Label**. **Teams and users can not be configured**

It is recommended that **Output** DLC's are configured before the Inputs as you can then select the output DLC from the **Output** box on the Input configuration

Action allows the operation time of the DLC contact to be set. The options are to **De-activate or Activate** or activate for very short periods of 50mS up to 1 hour.

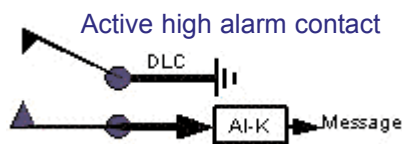
3.8 Typical DLC applications

The options to configure the AI-K alarm contacts is extensive, and can often be the reason for the customer to order a DECT system from you.

The following examples of using DLC contacts are used frequently with Multitone Access 3000 paging system, P318 messaging interface and Access Integrator.

An example of DLC configuration

Many mechanical or electrical device will have a simple alarm outputs for protection. It may be a closing or opening contact that can be configured to switch a 0 volts (ground) or 5 volts signal, or a data output that can be used



by the AI-K on the second serial port. Typical example of a closing contact that will trigger a DLC set to **Input** and **active high (5 volts)**

Alternatively this could be an opening contact that removes 0 volts (ground) from the DLC or applies a 5volt DC to

the DLC.

Alarms from machines, buttons and switches

Typically used in the manufacturing and processing industry, or for manually operated alarms, door bells or other manually or automated closing or opening contact alarms.

An alarm in this application can often save precious time if the cause is failing machinery. As the message is sent to a mobile handset, the users are able to quickly co-ordinate what action to take and who will be responsible. The cost of machine failure is often very expensive and the investment in a mobility system and Access Integrator immediately repaid

A closing or opening contact will send a message to a user or team of users. Repeat alarm times will define the urgency

Thermostats, fridges, freezers, boilers and high temperature devices

Typically used in the leisure, hotel, motel, food processing or any industry where fridges or freezers or high temperature devices are required, alarms are an essential item of the business.

Alarms may be opening or closing contact and would normally be linked into a PC based alarm system. The weakness of these systems is that screen alarms are often ignored, unheard because of background noise or if the PC fails the alarm fails with it. Hard wired alarms will not fail in the same way

The loss of the contents in a fridge or freezer can be very expensive.

Security, hotels, shopping centres, health

Many businesses operate on minimal staff in order to reduce costs, often leaving parts of the premises open to theft. In addition customer, patients or members of the public will require attention.

A simple pressure pad can be easily used to send a message to a mobile user or team of users when someone enters the protected location. This can be an effective method of ensuring that your customers are attended to while managing business elsewhere on the premises.

3.9 Data processing and Field Configurable protocol converter

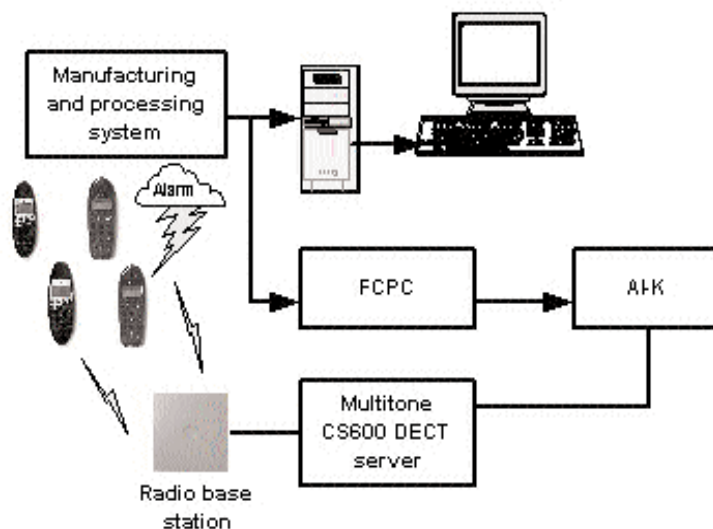
In environments where the monitoring equipment for manufacturing or processing machinery uses a Data output to PC or server based alarm equipment, Multitone can often integrate with the system using the Field Configurable Protocol Converter (FCPC).

This product can be configured to take the customer data as an input, and output messages using Multitone's MEP protocol. This output is connected to the serial port on the Access Integrator allowing users and teams to be alerted to any alarms immediately.

Using the Field Configurable protocol Converter

Typical alarm processing using FCPC and Access Integrator. FCPC can manage a wide range of data types, including fire alarms, manufacturing and processing, nursecall systems and many more.

Further information can be obtained from the Multitone web site.



4.0 Configuration of serial ports

4.1 Overview

There are two serial ports on Access Integrator. Serial port A is dedicated to the messaging interface to the CS600 CCFP. The configuration of this port can not be changed.

Access Integrator is supplied with a 1 metre 9wd cable for this connection.

4.2 Serial port B

Serial port B supports a number of different protocols. The formats presented at the serial port and the options for configuration are the same as those used for Access 3000 Paging. The serial port is data input only. Some protocols may not function if there have been any changes to the source protocol specified or if the protocol has not been fully implemented by Multitone.

Multitone can not guarantee that any protocol is fully compliant with all features specified in the original or current specification.

if you have any problems with the operation of a selected protocol, contact Multitone via our web site or contact your account manager.

The screenshot shows the 'Access Integrator-K' configuration page. On the left is a navigation menu with options: Home, Administration, Configuration, Network, Backup / Restore, Software, Miscellaneous, View Diagnostics, and Serial Ports. The main content area is titled 'Serial Port B' and contains the following configuration fields:

- Baud Rate: 1200
- Parity: Even
- Data Bits: 7
- Stop Bits: 2
- Protocol: Radio buttons for PPP, AUSTCO, MSP, TAP (selected), TAP+CR, MEP, and ESPA.
- TAP Connection: Direct (dropdown)
- Timeout: 3s (dropdown)
- Node Address: 2 (dropdown)
- Delay/Response Times: 100ms/3s (dropdown)

There are 'Apply' buttons for both the Serial Port A and Serial Port B sections.

Configuration of serial port B

Serial ports may be accessed from menu **Configuration** and **Serial ports**. From this screen any of the following protocols may be configured.

MEP- Multitone's proprietary protocol which is used on all products manufactured by Multitone, and is available for OEM developers to develop applications that need to connect to Multitone products

TAP or TAP+CR - Telelocator applications protocol is used on cellular networks and other messaging networks and may be configured with or without carriage return

ESPA 4.4.4 - Is a European messaging protocol often found on PABX systems and nursecall products. There is a later version of ESPA however this has not been implemented by Multitone

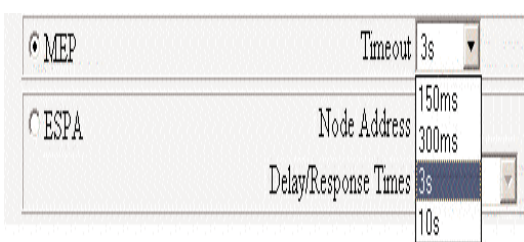
Austco - Is a protocol developed by Austco and implemented by Multitone to allow integration of the Austco Nursecall products.

PP- This protocol is not fully implemented and should not be used

MSP - A protocol designed for use with Eclipse nursecall systems and is an input only.

MEP configuration

MEP can be used with any Multitone product that supports MEP messaging output. This includes Access 3000 paging systems, P318, and some personal security products.



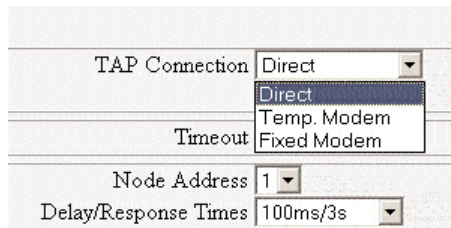
To configure for MEP, select the MEP tan and using the drop down menu select the timeout required.

Apply to configure and back up the data.

TAP and TAP + CR configuration

TAP output is available on some Multitone products as an alternative to MEP and can be configured in a number of ways.

TAP is only available as an input on the Access Integrator. The Multitone P318-TC which has 32 DLC contacts has a TAP output that may be configured as direct or Modem connected.



Direct -The AI-K serial port input is connected directly to another device that outputs TAP or TAP+CR.

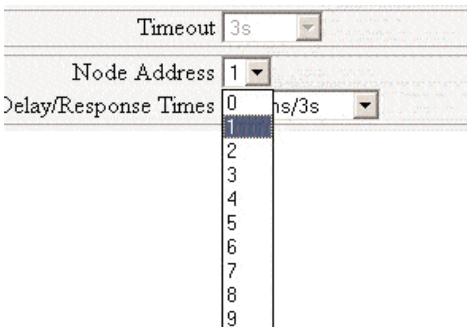
Timeout - A timeout time may be set for inactivity or data receive times.

Modem - The AI-K serial port may have a modem connected that can be configured to communicate with a compatible remote device that has access over the telephone network via a remote modem. The Multitone P318 messaging interface is such a device.

Node address - It is possible to have multiple remote devices with node addresses.

ESPA 4.4.4 configuration

Serial port B may be configured for ESPA 4.4.4 only. A copy of the specification used is available from Multitone Electronics



Node address - It is possible to have multiple remote devices with node addresses

Timeout - A timeout time may be set for inactivity or data receive times

Delay response times - Delay response times may be configured

Austco nursecall configuration

The Access Integrator is designed to work with some version of nursecall products manufactured by Austco. This Interface will be updated in 2003 to provide an improved feature Interface

MSP - The Multitone simple protocol is designed for use with Eclipse nursecall systems. The protocol may also work with other Paging systems or devices that output a simple messaging protocol.

4.3 Adding DLC contacts - P318 messaging Interface

It is possible to increase the number of DLC contacts by 32 by adding the P318-TC messaging Interface. This product is a Multitone Paging encoder with 32 on board DLC contacts that can be configured in the same way as AI-K.. The programming interface is DOS based but can be configured using Windows notepad. Programming will require a trained installation engineer as it is not customer programmable.

The output from the P318 is TAP, and uses serial port B of the Integrator for messaging input.

When any changes are made to the serial port, the Access Integrator-K should be re-started.

5.0 Using DECT handsets with AI-K

5.1 Overview

There are two Multitone handset ranges that may be used with the Access Integrator.

The **CH70** is a Multitone branded handset and is also known under the Kirk brand name of 3040.

This handset may be used from version PIE 3 and later.

Version PIE 4k which has some additional features such as the “long press” function under keys 0, 1 to 9 may also be used with the AI-K.



CH70



**CH72
CH74**

The soft keys on this handset and subsequent versions will have additional features developed for use with a range of applications.

The CH72, CH74 and CH76 are also known under the Kirk brand name as the 4020, 4040 and 4080. The CH72 and CH74 product range will be available from January 2004, and the CH76 at the end of 2004.

Multitone have implemented a number of features for the soft keys that can be used with the AI-K.

5.2 Handset features

The handset has a number of features that use the MSF function of the CS600 to interrogate the Access Integrator DLC status and retrieve messages. If the entry is not recognised the handset will either return to its standby state or return an error message.

CH70 - PIE 3 to 4I (No “long press function”)

- | | |
|--------------------------------------|--|
| Menu -- < (MSF) -- OK -- 0 | Entry of a 0 will return details of the last 3 messages but not the message content. |
| Menu -- < (MSF) -- OK -- 1 | Entry of a 1 will return details of the most recent message. |
| Menu -- < (MSF) -- OK -- 2 | Entry of a 2 will return details of the second most recent message. |
| Menu -- < (MSF) -- OK -- 3 | Entry of a 3 will return details of the third most recent message. |

Messages may be up to 180 characters in length and will automatically scroll through the message at 2 second intervals. The message may be re-read using the MSF function or “long press” key.

CH70 - PIE 4K and later and CH72, CH74 handsets

Keys 0, 1, 2 and 3 each have a message interrogation function included. These keys must be pressed for 3 seconds or longer to retrieve the message data.

Long press 0	This will retrieve details of the last three message but not the message content.
Long press 1	Entry of a 1 will return details of the most recent message.
Long press 2	Entry of a 2 will return details of the second most recent message.
Long press 3	Entry of a 3 will return details of the third most recent message.

Checking and controlling DLC's

The state of a DLC may be checked by using an MSF feature code.

An **output** DLC may be opened or closed from the DECT handset by using a DLC feature .

Input DLC's can not be opened or closed from the handset.

5.3 Checking the state of a DLC

The current state of a DLC may be checked using the MSF feature

The MSF feature codes for DLC contacts are

8	DLC
00 to 15	Contact number
0	De-activate
1	Activate
3	Check the state (On or off)

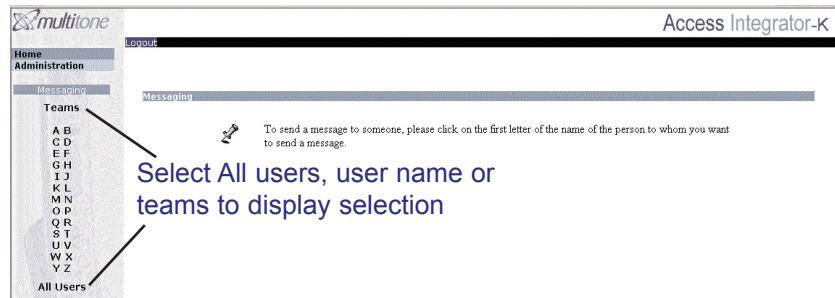
Menu -- < (MSF) -- OK -- 8003 will check the state of DLC 00. Details of the DLC will be displayed and its current state of on or off.

Output DLC's may be remotely opened or closed from the DECT handset. This feature allows alarms to be reset or remote device to be turned on or off, or to open or close gates or doors. The remote device is normally isolated by a 5volt relay driver or other electro-mechanical interface.

Menu -- < (MSF) -- OK -- 8001 will activate DLC 1 provided it is configured as an output.

DLC contacts may be cascaded so that an activated alarm input will open or close an output to drive a remote device. If this were an alarm bell then the bell could be turned of by opening the contact from the DECT handset.

6.0 Sending Messages



User Access rights

Any user on the network, who has network rights to the Access Integrator, may send a message to a single user or team of users with DECT handsets.

Note that the DECT handsets MUST be a Multitone CH60, CH70, CH40 or Kirk 3040, 40xx or other OEM branded version of the Kirk handset that is designed to work with the Kirk DECT systems.

Access Integrator Homepage

When you enter the Access Integrator home page, the User Database (Messaging) is displayed on the left menu bar. To find a user, you can either select 'All', or click the appropriate first letter of the recipients surname.

If you wish to send a message to a team then select the TEAM item. A list of the teams will be displayed.

Send a message to a single user

In the 'Messaging - Select ALL User', and a list of all users in the database will be displayed. Select the desired recipient from the list, and the 'Enter Message' box will appear.

Sending a message to a team

In the 'Messaging - Select ALL User', and a list of all users in the database will be displayed. Select the desired recipient from the list, and the 'Enter Message' box will appear.

Message transmission

A message of up to 180 characters and spaces may be entered into the message box. If your message requires more characters, then split the message into multiple transmissions.

When you are ready to send your message, click "Send", and a confirmation message will be displayed to confirm transmission.

7.0 Fault finding and diagnostics

7.1 Overview

This section of the guide is only designed to assist with fault finding and for the supply of diagnostic data to Multitone in the event of a system problem that can not be solved.

The diagnostics are primarily for the use of Multitone engineering and development personnel.

Access Integrator-K

Logout

Syslog Viewer

Call Logging Mip Serial Port A Serial Port B Other Debug

Show Last 5% Auto Update Display

```
0002 <143> CKirk: Port A is now running Kirk Protocol
0062 <143> <CI_B: Port B is now running TAP Protocol Baud 1200, Data 8, Stop 1, Parity E
0082 <143> <CI_B: Port B DCD down
0102 <143> <CI_B: Port B DCD up
```

7.2 Using diagnostics

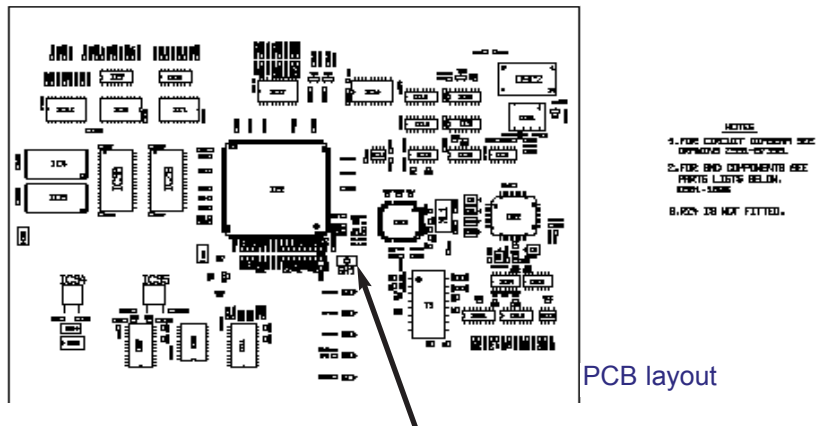
The diagnostic tool can be used for testing the correct operation of serial port A SIO and any device on serial port B.

- Call logging** - Check this box to observe all call operations between serial ports.
- MIP** - Do not check this box. This is a MULTitone development tool only.
- Serial port A** - Check this box to log activity on the SIO connection to the CCFP and correct operation.
- Serial port B** - Check this box to log activity on the serial port to any other device.
- Other debug** - Do not check this box. This is a MULTitone development tool only.
- Show last x%** - Set the % of data in the buffer to be viewed.
- Auto update** - Check this box to automatically update screen data
- Display** - Select this function to view the data.

7.3 Common configuration problems

- Q. I am unable to access the Integrator from a PC or laptop using the local LAN.
- A. Has your local IT manager allocated a TCP/IP address in the range of 192.168.99.253, the default address of the AI-K? If the answer is no, or another address has been set, you must first change the default address on the Access Integrator as described in chapter 2.
- Q. I can not programme my PC or laptop to get access to the Integrator.
- A. The network address you set on the PC or laptop must be the same network mask, but **not** the same address as the AI-K. For example when setting up the TCP/IP address it must be in the range of 192.168.99.200 to 299 but must not be 192.168.99.253. The subnet mask must be 255.255.0.0 The TCP/IP properties must not be set to “obtain an IP address automatically”.
- Q. I am not getting messages at the handsets.
- A. Check the following points
- The connecting cable between the CCFP and Access Integrator is properly connected and is the correct cable.
 - The numbering scheme set on the “Length of telephone number in section 2.1 is 2,3 or 4 digits, and the same as the telephone system.

Access Integrator reset button



The Access Integrator reset button is located on the PCB to the right of the processor.

If the AI-K has a problem that can not be resolved, the reset button may be used to return it to its default TCP/IP settings. (192.168.99.253)

Use the system and data back up files to restore the unit to its original configuration. To reset the Access Integrator to the default address, switch of the power, press and hold the reset button, switch on the power and hold the reset button for at least 10 seconds. Release the button, switch the power off and on again to restart the Integrator.

8.0 Glossary of terms

Access 3000

Access 3000 is a modular and therefore highly versatile paging system from Multitone. Advanced design is combined with ease of use and operation to achieve a reliable expandable paging solution. The system can be tailored to suit any number of users.

Access Integrator - AI-P(aging), AI-M(essaging) and AI-K CS100 & CS600

A multi-purpose Interface that provides connectivity for a range of communications systems and protocols. The Access Integrator is developed and manufactured by Multitone and supports enhanced text messaging between mixed platforms, input and output of a range of protocols and Integration between Access 3000 and Access 5000/6000 as well as CS100 and CS600 DECT servers.

System administration and programming for the Access Integrator is browser based, and requires Internet Explorer or Netscape. Alphanumeric messages can be sent from Access Integrator to any local DECT handset or paging configured on the system.

AI-P

For use with Access Multitone 3000 Paging systems. When using the **AI-P** all of the functionality for alarm DLC's contacts and data inputs is retained on the Paging system. Access Integrator provides the messaging Interface to the local PABX system, Access 5000 or Access 6000. Single and team speech calls are also supported.

AI-M

For use with the Multitone Access 5000 and Access 6000 PABX/DECT communications systems. AI-M provides 16 on board alarm contacts, network messaging and speech calls to DECT handsets.

AI-K

This product is designed to work with the Multitone C600 and CS100 DECT server systems, Kirk System dect-1500z and 500, and OEM variants of the Kirk DECT products. This will only operate with the Multitone branded or Kirk designed DECT handsets.

CCFP

Cordless Communication Fixed Part is the DECT radio server that houses the interface cards, power supply and motherboard as well as the Interworking interface to the host PABX.

DECT

Digital Enhanced Cordless Telecommunication. This is a digital transmission standard for cordless telephones. It enables internal calls to be made between a number of handsets at no charge. Telephones that operate according to the DECT standard are less susceptible to tapping than cordless analogue telephones.

Device

A term used for any electrical or mechanical item of machinery that has alarm contacts that could be connected to the Access Integrator. The alarm contact would open or close to apply or remove 0 volts or 5 volts from the alarm cable connected to the AI-K

DLC or Alarm contacts

There are 16 alarm contacts on the AI-K which may be configured as Inputs or Outputs. These contacts are wired to a terminal block and then connected to any alarms that may be required to alert a user or team of users.

Encoder

An encoder is a Paging device that translates data into a form suitable for transmission to a specifically addressed receiver, or group of receivers.

Ethernet

This is the most common form of LAN networking. A number of computers integrated in a network can use a single network line to communicate with each other at data rates ranging from 10 to 1,000 kbit/s. Ethernet allows different network protocols to be used simultaneously, for example TCP/IP, AppleTalk, IPX/SPX or NetBEUI and TCP/IP.

LAN

Local Area Network. LANs are digital networks, e.g. a company or corporate network. They are often formed from extremely different computer systems.

MAC Address

The MAC address is an 8-byte number that is defined for every Ethernet network card in the electronic network. It provides a unique identification for this card anywhere in the world. Do not change this address.

Paging

Communications system that uses a Transmitter and receiver, the Paging to receive text messages in which an intended receiver is alerted to receive a message. Also known as "Bleeps"

PPP

Point-to-Point Protocol. This protocol makes it possible to transfer the data of a number of network protocols (such as TCP/IP, IPX/SPX or Net-BEUI) via serial circuits. PPP also negotiates the communication parameters when a connection is being set up and is in charge of authenticating the users by means of PAP or CHAP.

Repeater

A WRFP or wireless repeater is attached to a base station (RFP) by wireless links and only requires a mains power supply. It has two voice channels instead of four and is used in low traffic areas to extend radio cover

RFP

Radio Fixed part is the wireless base station that provides the communication path back to the CCFP. It is connected to the CCFP by a pair of wires. The RFP may be located up to 2Km away from the CCFP. It has four voice channels.

System Administrator

The person who would normally add or delete users from the Access Integrator, or generally manage the system for the customer.

User

In this user guide a user is assumed to be a mobile person carrying a DECT handset, CH70, CH72 or CH74 for communications.

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