

Installation Guide

DFT 100





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Safety

Read Instructions - All the safety and operating instructions should be read before the unit is operated.

Retain instructions - The safety and operating instructions should be retained for future reference.

Heed warnings - All warnings on the unit and in the operating instructions should be adhered to.

Follow instructions - All operating and user instructions should be followed.

Cleaning - Unplug the unit from the outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

Attachments - Do not use attachments not recommended by the product manufacturer as they may cause hazards.

Water and Moisture - Do not use this unit near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, near a swimming pool, in an unprotected outdoor installation, or any area which is classified as a wet location.

Accessories - Do not place this unit on an unstable stand, tripod, bracket, or mount. The unit may fall, causing serious injury to a person and serious damage to the unit. Use only with a stand, tripod, bracket or mount recommended by the manufacturer, or sold with the product. Any mounting of the unit should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.



An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

Ventilation - Openings in the enclosure are provided for ventilation and to ensure reliable operation of the unit and to protect it from overheating. These openings must not be blocked or covered. This unit should not be placed in a built-in installation unless proper ventilation is provided.

Power Sources - This unit should be operated only from the type of power source indicated on the manufacturer's label. If you are not sure of the type of the power supply you plan to use consult your appliance dealer or local power company. For units intended to operate from battery power, or other sources, refer to operating instructions.

Grounding or Polarization - This unit may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

Alternately this unit may be equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. 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 safety purpose of the grounding-type plug.

Power-Cord Protection - Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

Overloading - Do not overload outlets and extension cords as this can result in a fire or electric shock.

Object and Liquid Entry - Never push objects of any kind into this unit through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the unit.

Servicing - Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage of other hazards. Refer all servicing to qualified service personnel.

Damage Requiring Service - Unplug the unit from the outlet and refer servicing to qualified service personnel under the following conditions:

(a) When the power-supply cord or plug is damaged.

(b) If liquid has been spilled, or objects have fallen into the unit.

(c) If the unit has been exposed to rain or water.

(d) If the unit does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the unit to its normal operation.

(e) If the unit has been dropped or the cabinet has been damaged.

(f) When the unit exhibits a distinct change in performance this indicates a need for service.

Replacement Parts - When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer. A replacement lithium battery is available from Dedicated Micros Ltd.

Safety Check - Upon completion of any service or repairs to this unit, ask the service technician to perform safety checks to determine that the unit is in proper operating condition.

Coax Grounding - If an outside cable system is connected to the unit, be sure the cable system is grounded.

UNPACKING - The shipping carton is the safest container in which the unit may be transported. Save it for possible future use.

WARNING - TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user of this equipment that there are dangerous voltages within the enclosure which may be of sufficient magnitude to constitute a risk of electric shock.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

FCC AND DOC INFORMATION**(U.S.A. and Canadian Models Only)****WARNING**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

If necessary, the user should consult the dealer or an experienced radio/television technician for corrective action. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to identify and Resolve Radio-TV Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington, DC20402, Stock No. 004-000-00345-4.

This reminder is provided to call the CATV system installer's attention to Art. 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

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1 Introduction

DVST is the generic name for a range of products designed to store and transmit digital pictures at a higher quality and speed than previously possible.

DFT-0100 Transceiver

The DFT-0100 (Digital Fast Transmission) transceiver will process the images from up to sixteen cameras for transmission or reception over ISDN or PSTN telephone lines.

Telemetry

The DFT 0100 can control telemetry cameras at a remote site using Dedicated Micros telemetry equipment.

Event monitoring (Alarm) option

The optional alarm verification system for DFT0100 transmitter allows the unit to monitor and act on external events. This can freeze a picture from the camera that corresponds to a specific alarm input. The unit will then transmit this picture to the receiving station where the operator can acknowledge the event and take relevant action.

This versatile alarm interface can be supplied as a light duty 16 input / 2 output, or a heavy duty 16 input / 6 relay output unit.

Audio option

Audio transmission is available allowing two way, half duplex, (one way at a time) communication. (Transmission medium must be 19200baud or faster)

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2 Unpacking the unit

2.1 Items in packing

The unit should be carefully unpacked and the packing materials retained. Check that all the contents on the following checklist are present:

- DVST Unit
- Power Lead with molded IEC connector
- Rack mount conversion kit
- Installation Guide
- Returns procedure (single sheet)
- Customer returns note (single sheet)

The keyboard is packed separately.

- Keyboard with integral 2m lead

2.2 Packing the DVST

If the DVST is to be returned for repair or transported to another location the original packing should be used.

The rack mount kit, if fitted, should be removed before transit.

The unit should first be wrapped in the polythene bag. The preformed end pieces are then placed at either side of the unit which can then be placed inside the cardboard box. The box should be firmly sealed using appropriate tape.

If the unit is to be returned for repair ensure a valid returns note is clearly written on the side of the box.

3 Operation

3.1 Front panel

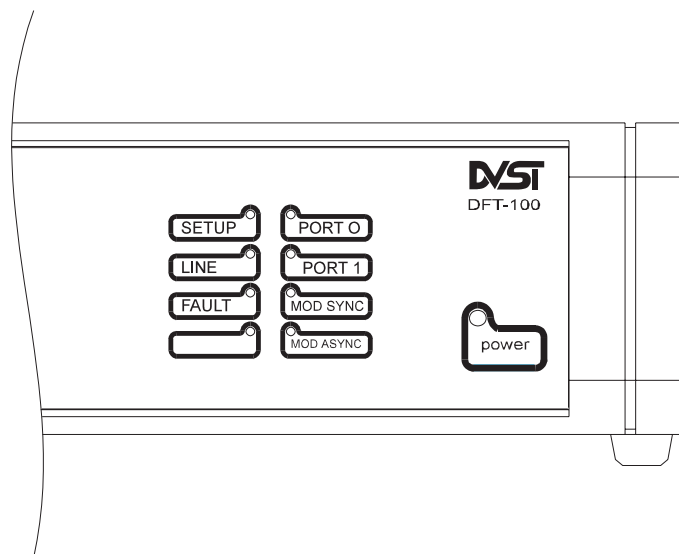


Fig: 1 DFT 0100 front panel

The DVST front panel display status.

The lamps on the front panel indicate the status of the DFT 100, and indicate the following when illuminated:

SETUP	DFT 100 is in set up mode
LINE	DFT 100 is on line, or in communication with another unit
PORT 0	X21 port 0 is in use.
PORT 1	X21 port 1 is in use.
MOD SYNC	V24 (MODEM) port is communicating synchronously
MOD ASYNC	V24 (MODEM) port is communicating asynchronously

3.2 Keyboard

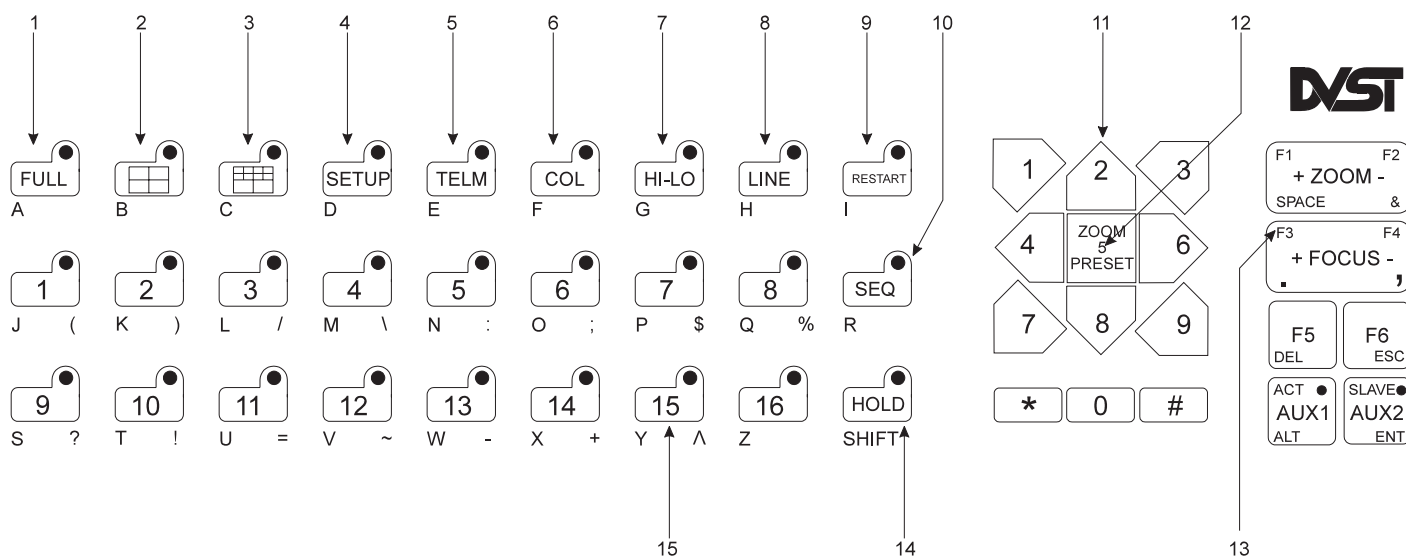


Fig: 2 Keyboard

- 1Full** Press to select full screen display. Press again to select **x2** zoom feature. Use arrow keys to move around screen, press Full again to deselect zoom.
- 2Quad** Use to select 4 section (Quad) screen.
- 3Multi-screen** Press to select 16 camera display or Periscope mode display (dependent on status of Hi/Lo key).
- 4Setup** Enter setup mode.
- 5Telem** Selects telemetry control of PTZ (fully functional) cameras
- 6Col** A toggle action key to request Colour or Monochrome transmission of images.
- 7Hi/Lo Res** Requests High or Low resolution transmission of images.
- 8Line** Press the Line key to display the Dial list of pre-programmed telephone numbers (Dial Menu). Use UP/DOWN arrow keys to select telephone number, press line key again to dial selected number. Press and retain line key to disconnect.
- 9Restart** Press to remove the dial menu or dialog box from the screen.
- 10Seq** Sequence Key - not yet implemented.
- 11Arrow/ numeric** Directional control for telemetry, numeric entry in setup mode, segment control in quad and multi-screen modes, select telephone number, request callback.
- 12Zoom / Preset** Selects x2 zoom, if Telemetry is selected requests a preset position when followed by a numeric key.
- 13Function keys** Use dependent on telemetry and alarm options fitted.
- 14Hold** In FULL screen mode freezes the image on screen.
- 15Camera Select** Press to view selected camera in full screen mode or select the camera to be viewed in each segment of a quad or multi screen. Acknowledge incoming alarms.

3.3 Making a call

Press the LINE key.

The dial menu will appear on the screen.

Select the desired number by using the UP/DOWN arrow keys. (2/8)

Press the LINE key when the desired number is highlighted.

The dial menu will be replaced by the dialog box which will indicate how the call is progressing.

When connected the system name of the remote site will appear on the bottom of the screen and then pictures from the remote site will be received.

Note: When the dial menu is on the screen **NO INCOMING CALLS ARE ALLOWED**, the dial menu screen can be cleared at any time by pressing the RESTART key.

The dial menu will automatically clear from the screen after a user defined period of time.

3.4 Disconnecting a call

Pressing the LINE key at any time will disconnect the call and the dialog box will report on the length of call along with remote system details.

The dialog box can be removed from the screen by pressing the RESTART key.

3.5 Viewing a remote system

There are several different display options available. These can be high or low resolution, colour or monochrome.

FULL Screen

The FULL key selects a full screen display.

Press the FULL key again, or press the zoom key, (number 5 on the numeric keypad) to view a section of the image using x2 electronic zoom. The magnified area is moved around by using the directional arrow keys. On screen indication "ZOOMED" appears in the top left corner of the screen when the Zoom feature is in use.

The **Hi/Lo** key toggles resolution, The **Col** key toggles between Colour and Monochrome operation.

QUAD Split

The QUAD key selects a 4 section screen. This is initially cameras 1,2,3 & 4 although any camera can be selected to be displayed in any position.

The arrow keys are used to take control of individual screen segments, the segment in use will show a ">" to the left of the camera number. Press any camera key to display the corresponding camera in that segment. A "*" will show to left of camera number to indicate the camera has been accessed.

The **Hi/Lo** and **Col** keys have the same operation as in the Full screen mode.

MULTI screen

When the MULTI screen key is pressed the current status of the **Hi/Lo** key is critical. If Hi is selected (lamp is lit) a sixteen way display appears on screen. If Lo is selected the PERISCOPE shot display is actuated.

PERISCOPE shot

PERISCOPE shot display is a unique high speed display updating just a specific section of the screen.

This is selected by pressing the MULTI screen key and ensuring the Hi/Lo key status is low (lamp off).

The **Col** key works as normal.

Select High / Low resolution.

Resolution is selected by a toggle action key marked **Hi/Lo**. High resolution is indicated by the key lamp being illuminated.

As indicated above the Hi/Lo key has a different operation in MULTI screen and PERISCOPE shot displays.

Note: Update times will be faster using Low resolution.

Select Colour / Monochrome

The **Col** key selects transmission of images in either colour or monochrome.

Note: Monochrome (black & white) images are transmitted 20% faster than colour images.

Freeze full screen image

FULL screen images can be frozen or held using the HOLD key. While the image is frozen the HOLD key lamp will be illuminated.

3.6 Controlling telemetry cameras

Control of a remote system's cameras is possible using DM DTMF equipment.

Select the required camera to be displayed FULL screen.

Press the TELEM key on the extended keyboard, when the TELEM lamp is lit, all the keyboard telemetry functions are available to the operator.

When the directional arrow keys or the ZOOM + or ZOOM - keys are in use the centre section of the screen (about one quarter screen size) drops to low resolution and is updated rapidly to allow the operator to accurately position the telemetry controlled camera.

When the FOCUS +or FOCUS - keys are used the centre section of the screen (about one sixteenth size) is displayed in very high resolution along with a fast update speed. This allows the operator to accurately focus the telemetry camera.

3.7 Callback

The callback feature allows an operator at a monitoring station to call a DFT0100 transmitter on site and configure the unit to automatically call them back, ensuring that the telephone call is charged to the transmitting and not the receiving site.

On sending a callback request, the monitoring station disconnects and waits for the transmitting site to call back. With callback enabled, connection time is approximately twice that of normal connection time.

3.8 Optional Alarms Feature

The optional alarm system for the DFT0100 transmitter allows the unit to freeze the pictures from cameras that correspond with the alarm inputs that have been triggered. These pictures are then transmitted to a receiving station where they can be acknowledged and the relevant action taken.

On an alarm the transmitter will automatically call the telephone number stored in telephone entry 0.

If this number is busy then it will call the fall back number stored in telephone entry 1.

If the fall back number is busy the transmitter will automatically keep calling between telephone entries 0 and 1 until one becomes free.

Depending on how the transmitter has been configured, incoming alarms are handled in different ways.

3.9 Alarm indication on baseline

When a system is receiving alarms the baseline on the display alternates between the remote system ID and an alarm banner line.

The banner line indicates which alarms are presently active at the remote site. These appear as numbers 1 to 16, placed in numeric order. When an alarm input is not active the number appears as a dot, or pair of dots.

3.10 Freeze all alarms

Each alarm activation stores the corresponding camera image and transmits the frozen image to the receiver.

The frozen pictures with a record of the time, date and camera number will be stored in memory until the alarms have been acknowledged.

Alarms are acknowledged by pressing the corresponding camera key that is displayed on the screen. If another alarm is pending, that frozen on alarm image will be displayed and must be cleared in a similar way.

When all alarms have been acknowledged the alarm banner line will no longer alternate with the system ID and control of the remote site can continue as normal.

3.11 Offline frozen alarm

The first alarm activation stores the corresponding camera image and transmits the frozen image to the receiver.

This single alarm is acknowledged by pressing the corresponding camera key that is displayed on the screen.

Any further alarms on the system do not need to be acknowledged.

The alarm banner line will still display alarm status.

3.12 Dialog box

The dialog box reports the ongoing state of the DVST unit to the user and includes details of successful calls and also the system identification of any remote stations contacted.

4 Installation

The DVST Transceiver is supplied as a desktop unit which can be readily rack mounted using the rack mount kit supplied with each machine.

When used with the 19 inch rack mount kit the DVST Transceiver is 2U in height.

4.1 Rear Panel connections

The DVST Transceiver uses BNC connectors for all video inputs and outputs. Other data connections are made via standard D type connectors. The optional keyboard is connected by a 9 pin D type female plug.

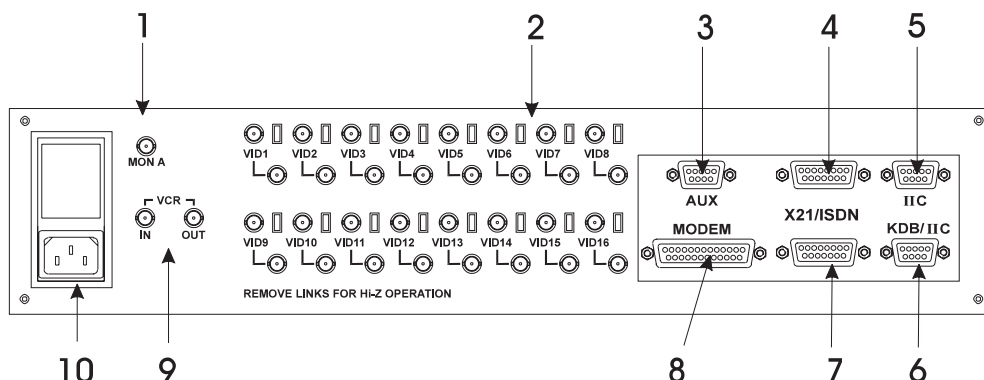


Fig: 3 Rear panel layout

WARNING: DO NOT CONNECT THE UNIT TO OTHER EQUIPMENT WITH POWER ON.

Key to Fig: 3

- 1 Monitor
- 4 X.21/ISDN Port
- 17 X.21/ISDN Port
- 010 Power Connection
- 2 Camera Inputs
- 5 IIC Socket
- 8 Modem
- 3 Aux (PC input)
- 6 Keyboard
- 9 VCR IN/OUT Connections

4.2 Power Inputs

The DVST Transceiver is powered via a standard mains IEC cable which plugs into the rear panel.

The power supply is self adjusting to the mains input and can accept a voltage from 90 to 260 volts.

Mains supply frequency can be either 50 or 60 cycles.

4.3 Loop through video (camera) Inputs

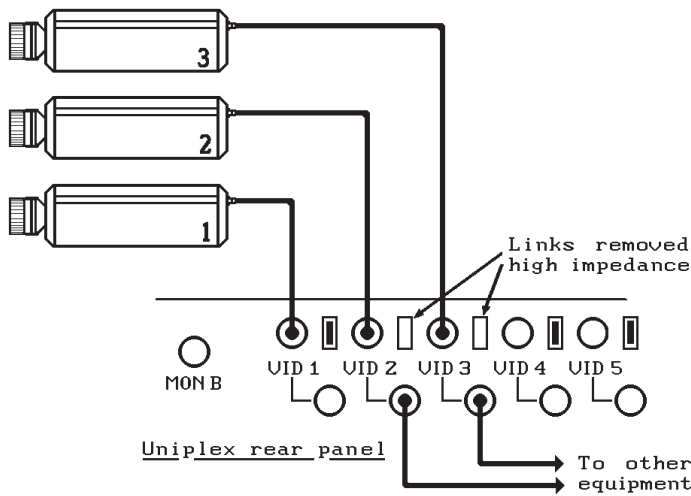


Fig: 4 Looping inputs

Video, or camera, inputs are via BNC sockets marked VID 1 to VID 16. These are duplicated as loop through sockets to allow the camera signals that feed the DVST unit to be passed through to other equipment.

The unit is supplied with all inputs terminated at 75 ohms. If the loop through option is in use the input termination should be made high impedance by removing a small link accessed through a cut-out hole adjacent to each socket.

In a camera system where less than all the available video inputs are to be used the lower number inputs should be used first.

Example: If there are five cameras in a system, the inputs VID 1 to VID 5 should be used.

4.4 Monitor Outputs

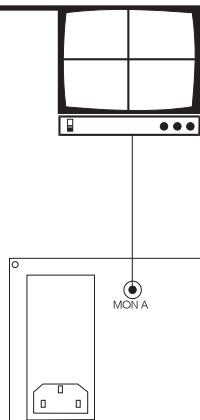


Fig: 5 Monitor connections

The Monitor is connected to the MON A socket and should be terminated at 75 ohms. Most monitors have a switch at the rear that should be set to 'LOW', 'ON' or '75ohm' as opposed to the 'Hi Z' or 'OFF' position.

As the Monitor will be displaying multi-screen compressed pictures the monitor should have at least a 12 inch screen. For comfortable desktop operation a 14 inch monitor is recommended.

4.5 Setting up the Monitor

Most of the time the Monitor will be displaying the digital output from the DVST Transceiver. Some monitors may have part of the digital picture off the screen. This is due to the monitor overscanning.

The DVST unit has been designed to display the digital picture centrally on a studio standard monitor with no overlap at the edges of the screen.

If the main monitor cannot display the digital picture without losing information at the edges of the screen, then the monitor is out of adjustment and should be realigned.

Most monitors have overall width and height controls located internally. This adjustment is simple but due to the high voltages present in monitor circuits this alignment should only be entrusted to qualified personnel.

Warning: Voltages at the rear of a monitor can be in the region of 25,000 volts and the greatest care must be taken when working on this type of equipment. Remember these voltages persist even after the monitor has been turned off.

4.6 Video Recorder Connection

If a video recording is required this should be from the MON A output.

VCR IN/OUT connections are provided only for future expansion.

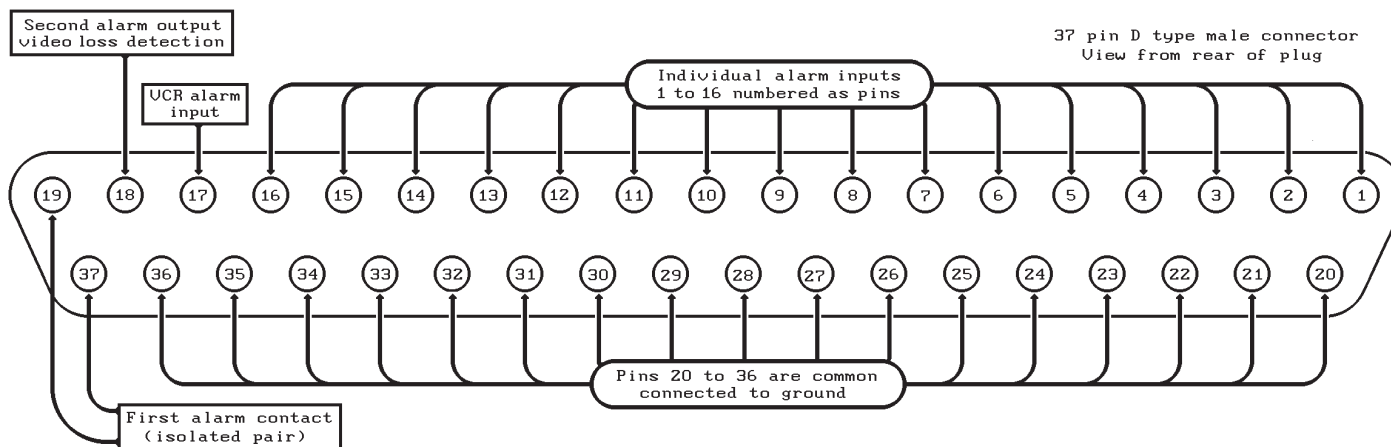


Fig: 6 Alarm input/output connections

5 Setup (Basic)

5.1 General

Setup of the DVST DFT-0100 is undertaken either using the keyboard or a PC (Personal Computer) connected to the AUX port on the rear of the unit.

The setup mode is entered by pressing the **<SETUP>** key on the keyboard. The DVST screen will go blank and the command prompt **CMD>** will appear on screen. The DVST is ready to accept direct commands from the keyboard or PC.

If a PC is being used, with a communications program, local setup mode can be entered by typing “**+++**” on the keyboard. The DVST commands will also appear on both the screen of the PC and the system monitor.

If a password has been set the screen will go blank and the prompt **PASSWORD>** will appear on the screen and a valid password must be entered followed by pressing the **<ENTER>** key. If this entered correctly the prompt **CMD>** will appear on screen. More details on the operation of passwords appear later in this manual.

Typing **HELP** and pressing the **<ENTER>** or return key will list all the available DVST commands. These are listed with brief descriptions to assist users familiar with set up of the DVST. All these commands are explained in detail within the manual, and have been grouped in a logical order to make set up of the DVST easy.

Typing **VIEW** and then pressing **<ENTER>** will list the present settings of the DVST.

To exit the **SETUP** mode type **QUIT** then **<ENTER>**, or press the **SETUP** key on the front panel keyboard. The DVST will then return to normal operation.

5.2 Set up via keyboard

When the setup mode is entered the normal operation of the keyboard is suspended and the keyboard becomes alpha numeric.

The keys A to Z will initially generate upper case letters. Use the <HOLD> key toggle Upper / Lower case letters. The lamp on <HOLD> key is **on** for Upper case letters and **off** for lower case letters.

Note: The <HOLD> key is a toggle on / off type operation and hold should not be held down while typing on other keys.

Some *special characters*: () / \ ; ; \$ % ? ! = ~ - + ^ , appear on alpha keys. These can be accessed by first pressing the <ALT> key (also marked AUX 1) the keylamp will illuminate to indicate that the next key pressed will send a *special character*.

Once the key has been pressed and the *special character* sent, the keylamp on the <ALT> key goes off and the keyboard will generate normal characters.

To send another *special character* the process must be repeated.

Numeric keys generate numeric characters as normal.

The blank space character is generated by the <F1> key and the ampersand “&” is generated by the <F2> key. Full stop is <F3> and comma is <F4>.

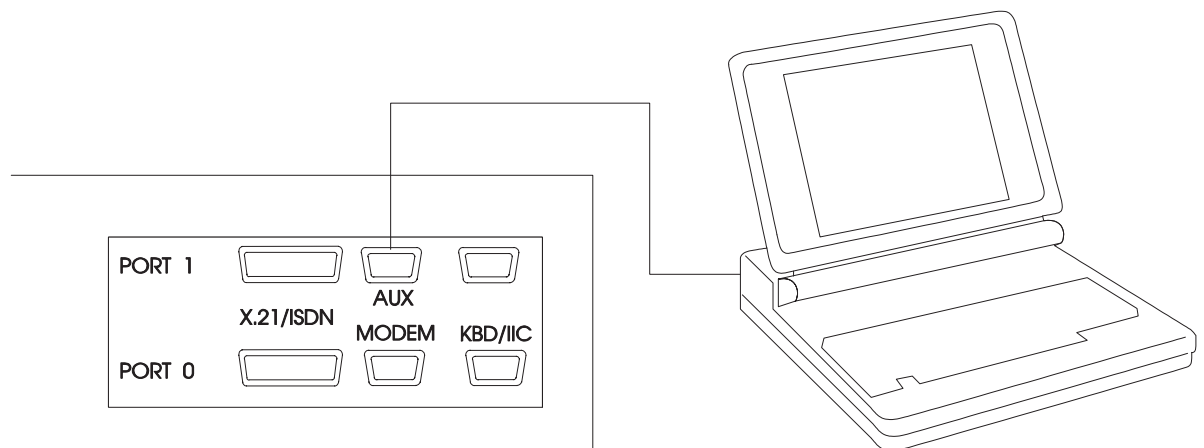


Fig: 7 PC Connections

The <F5> key is DELETE and will erase typed characters from right to left.

The <F6> key operates as ESCAPE.

5.3 Remote Setup

Remote DVST units can also be set up in the same manner as a local DVST. The same procedure should be followed when the DVST is on line to a remote unit. When the SETUP key is pressed the screen will go blank and the command prompt **REM>** will appear on screen.

Proceed as for the local system.

Note: A PC cannot initiate remote set up with the “+++” command.

5.4 DVST Commands

Most commands are typed in direct and terminated by pressing the <ENTER> key on a PC or the key marked **ENT** on the extension keyboard.

HELP *Lists all commands available.*

Note: Paragraphs 4.6 onwards detail the command information listed by the help option and have been grouped together in the logical order that should be used when setting up a DVST system.

QUIT *Exits the SETUP mode.*

This returns the DVST to normal operation. If a MODEM is connected and the DVST is set to MODEM=ON the initialisation strings will be sent to the MODEM.

RESET *Resets DVST to factory defaults*

This command is used to completely reset the DVST system.
(All values are reset to their default values.)

Note: These values are stored in an integrated circuit called an EEPROM. This is not dependent on a battery backup and will retain its settings indefinitely without a power supply.

VIEW *Display current DVST settings*

This will display all the current DVST settings.

BARS= *Sets screen display for Off line/standby mode **ON**,
OFF.
(default , ON)*

This option has been provided to remove the display of vertical colour bars to prevent monitor burn.

5.5 Define Camera Inputs

MAX=nn *Sets maximum number of cameras
(default, 8)*

Range is 1 to 16.

Correct settings of this ensures that any receiving station does not spend time trying to collect invalid camera inputs.

COL=nn *Set camera to Colour*
MON=nn *Set camera to Monochrome*
(default, all cameras set to colour)

Format is COL=01, COL=05 etc.

Format is MON=06, MON=15 etc.

It is important that camera inputs are correctly defined as colour or monochrome.

CAMnn= *Set camera title nn to ...
(default, Camera 01=CAMERA 01 etc.)*

Format is CAM01=FRONT DOOR

5.6 Auxiliary Port

The auxiliary port on the DVST can be used for programming the DVST with a PC or for generating printer reports. Protocol is RS232 8 characters, no parity, one stop bit, default at 19,200 baud.

AUX= *Set AUX port usage: **TERM, PRINT, DATA, PKT, BLK**
(default, **TERM**)*

TERM is for terminal operation, control by PC.

PRINT operates as a printer connection.

DATA operates as an in band data channel.

PKT operates as packet data transmission.

BLK operates as block data transmission.

Note: Altering this command from a PC is valid, but after changing the setting the PC it will no longer communicate with the DVST. The reason is that the port has now been assigned a different task. The keyboard can be used as normal and also to set the port back to terminal operation.

ABAUD= *Set AUX port baud rate.
(default, 19200)
1200, 2400, 4800, 9600, 19200, 38400*

This is the speed that data will be transferred from the AUX port. Care should be taken altering this command while using a PC. The change in data rate will result in a loss of communication from the PC to the DVST. It can be re-established by changing the PC speed of transmission to match the DVST.

6 P.C. Operation

6.1 Set up via PC

To set up the DVST using a PC you will need the following:

A personal computer with an RS232 port.

A connection cable between the serial port of the computer and the serial port (AUX) of the DVST unit. (Details are in the cable section of this manual)

A suitable communications program for your PC that can operate at 19,200 baud.

i.e. Procomm.

Procedure:

Turn off the power supply to the DVST and the PC.

Connect the two units together using a serial cable.

Power up both DVST and the PC then start the communication program.

Make sure that the speed and protocol of the communications program are as follows:

Baud Rate	=	19,200
Parity	=	None
Data Bits	=	8
Stop Bits	=	1

6.2 PC and Printer Connection

Connection to a PC serial port or a printer requires a 9to9 cable. Some PCs and Printers use a 25 pin connector. Adaptors can be easily sourced if needed.

7 Demonstration Mode

This is provided to allow two DVST units to be connected back to back without the need for connection to MODEMs or Terminal Adapters.

A special demonstration cable is used, details of this are explained later in the chapter.

7.1 Demonstration mode

DEMO= *Turn the demonstration mode **ON / OFF***

Turns the demonstration mode on or off. The demonstration mode is quit if the power to the DVST is turned off.

EXTCLK= *Select demonstration speed, **1 to 6**
(default, 6)*

This command selects the synchronous transmission speed used in the demonstration mode.

- 1 external clock = 9600 baud
- 2 external clock = 14400 baud
- 3 external clock = 19200 baud
- 4 external clock = 38400 baud
- 5 external clock = 56000 baud
- 6 external clock = 64000 baud

Note: Two demo cables can be used to simulate dual ISDN operation.

7.2 Demo Cable

This cable allows two DVST units to be connected back to back without the need for connection to MODEMS or Terminal Adapters.

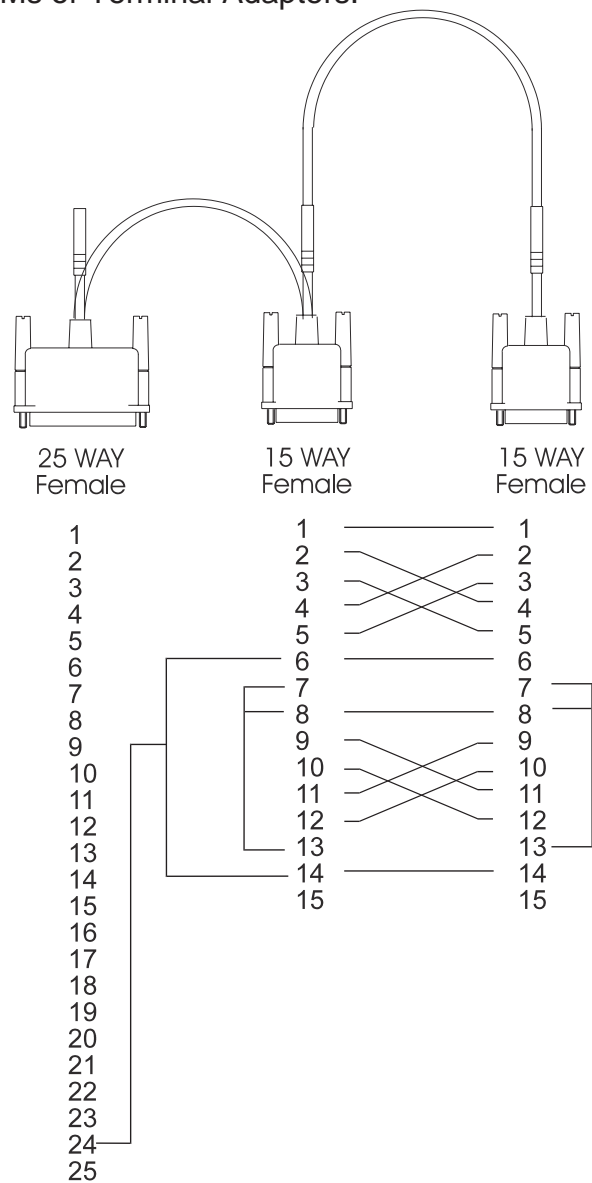


Fig: 8 Wiring details for demo cable

Tech Note:

This is a synchronous balanced transmission. Transmit and receive lines therefore cross yet maintain polarity. The flying lead is used to source a clocking signal from the MODEM port.

7.3 Connecting the demo cable

Single cable operation

The cable connects PORT 0 on the transmit unit to PORT 0 on the receive unit. The small flying lead connects to the MODEM port on the receive unit.



Fig: 9 Demo cable connections

Dual cable operation

The first cable connects PORT 0 on the transmit unit to PORT 0 on the receive unit. The

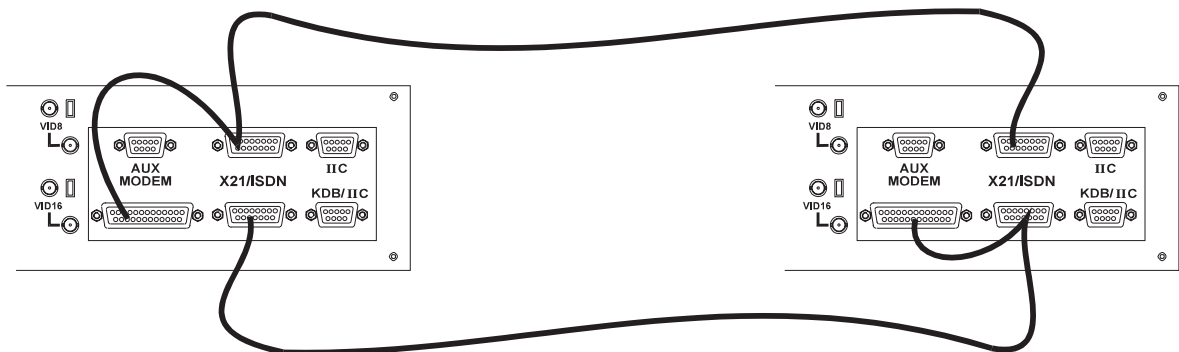


Fig: 10 Demo cable connections - dual mode

small flying lead connects to the MODEM port on the receive unit.

The second cable connects PORT 1 on the receive unit to PORT 1 on the transmit unit. The small flying lead connects to the MODEM port on the transmit unit.

7.4 Asynchronous test cable

This cable allows two DVST units to be connected back to back to test the asynchronous operation of the units.

This will simulate asynchronous MODEM operation only and does not offer a serious alternate to the normal demo mode.

8 Modems

8.1 PSTN Connection (Modem)

Connection to a PSTN telephone line is via a modem and modem port.

8.2 MODEM Commands

MODEM= *Sets MODEM operation, three parameters:*

The MODEM= command controls three distinct parameters.

ON, OFF
(default, OFF)

Only if a MODEM is in use should the setting be set to ON.

Tech note: The reason is as follows; if set to ON the DVST attempts to communicate with the MODEM when starting up, exiting set up mode etc. The DVST will wait a set period of time for replies before giving up. This will considerably slow the system if no MODEM is attached.

DIRECT, ATMODE
(default, ATMODE)

The DIRECT mode is used if the MODEM has its telephone numbers stored internally and the DVST does not pass telephone numbers for dialling.

The ATMODE is most often used. The DVST passes numbers from the dial menu to the MODEM which then initiates a call.

SYNC, ASYNC
(default, SYNC)

The sync or synchronous mode relies on the modem generating clock signals to the DVST.

In the asynchronous mode the MODEM controls the flow of data using RTS/CTS signals.

MODEM

Modem switches from the command mode **CMD>** to allow direct control of a connected MODEM. The speed of communication with the MODEM will be as set with the MBAUD= command.

This is called transparent MODEM mode and is terminated by pressing the ESCAPE or ESC key.

MBAUD= *Set MODEM port ASYNC baud rate.*
(default, 19200)
9600, 19200, 38400

This command sets the speed of communication between the DVST and the MODEM when in the asynchronous mode. The speed of communication in the Synchronous mode is determined by the clock signal supplied by the MODEM.

8.3 Modem configuration strings

All MODEMs need special configuration, depending on how the MODEM is to be used and how the DVST will interact with it.

Standard MODSTR set ups configure the MINIT and SREG strings, the USER string is left free for any extra configuration that may be needed.

MODSTR= *Set type of modem: **FAST, SYNC, or ASYNC**
(default, FAST)*

This setting (shortened form of MODem STRings) automatically sets up the DVST to operate with one of the three recommended MODEMs.

FAST

This sets the MINIT and SREG strings for correct synchronous operation with the MOTOROLA 326x VFAST MODEM. The MODEM configuration strings are set up as follows:

```
MINIT=AT&M1 &D2 &C1 *FLO *AA1 *DE12 *OC1
SREG=ATS10=30
```

SYNC

This sets the MINIT and SREG strings for correct synchronous operation with the MICROCOM 4232bis MODEM. The MODEM configuration strings are set up as follows:

```
MINIT=AT&M1 &D2 \GO \EO E1 &C1 \JO
SREG=ATSO=1
```

ASYNC

This sets the MINIT and SREG strings for correct synchronous operation with the Trailblazer MODEM. The MODEM configuration strings are set up as follows:

```
MINIT=ATSO=1 &C1 &K3 E1 V1 &MO
SREG=ATS7=60 S10=7 S37=7
~S50=255 ~S51=5 ~S52=1 ~S110=0 ~S104=0
```

USER=... *Available for user configuration
(Default, blank)*

The USER string is for any extra commands that the user may need to send to the modem in addition to the MINIT and SREG settings.

SEND

Send current modem configuration

This transmits the information contained in the MINIT, SREG and USER strings to the MODEM.

Although this command can be issued from the command mode at any time, it is also invoked at the termination of any call and when the command mode is exited with the QUIT command.

DIAL=

*Modem dial string
(default, ATDT)*

This is the command that must precede all numbers that the MODEM has to dial. Typically the MODEM will dial using either pulse or tone dialling. This is dependent on the telephone exchange the MODEM is connected to, most modern exchanges are able to accept tone dialling which is faster than the older pulse dialling method.

For tone dialling: DIAL=ATDT

For pulse dialling: DIAL=ATDP

Tip: Extra information can be linked to the above commands, internal exchanges that require a "9" to be dialled to access outside lines can have this added to the dial string, typically ATDT9.

8.4 Modem Operation

All modern modems respond to a set of "Hayes" commands. There are several differences in these commands from manufacturer to manufacturer. It is important to use the correct commands with each modem and not to attempt to use one manufacturer's set up with another manufacturer's modem.

If possible modems should be linked to DVST in the synchronous mode. Some modems, for example those using PEP (Packet Ensemble Protocol), can only be used in the asynchronous mode.

Cables for connection to synchronous and asynchronous modems are different and are not interchangeable. Refer to the Cable Assemblies chapter for further details.

8.5 Connecting a modem in direct mode

This mode uses a modem in a `dumb' mode, and purely relies on the hardware control lines. Telephone number selection, and all other configuration must be performed at the modem.

The modem is controlled using DTR (Data Terminal Ready), and indicates it's status using DCD (Data Carrier Detect).

Note: This mode is not recommended, easier operation is achieved in **ATMODE**.

Call request

A call is requested by making DTR active (high). At this point the MODEM dials it's stored number, and attempts to establish the call with the remote end. When the call connect has been completed the modem raises it's DCD line, confirming it is connected with the remote location.

A call already being active is indicated by the DCD line being active (high) from the MODEM.

Call answer request

If a call is incoming, the modem answers the call, establishes the physical link, and then raises DCD to inform the DVST unit that a call is present. The DVST unit responds to this by taking DTR active (high).

Call disconnect.

This is requested by dropping the DTR signal. A successful disconnect is confirmed by the DCD line being dropped by the MODEM. In this mode the DTR line remains low.

Configuration of modem in direct mode

No configuration can be performed by the system, however the following are required of the modem :

- Select synchronous operation.
- Dial stored number on low to high transition of DTR.
- Disconnect on a high to low transition of DTR.
- DCD must follow remote carrier.
- Ignore DTR to answer.
- Auto-answer. (If required).
- No flow control enabled.

8.6 Using a modem in ATMODE

In this mode the Hayes set of commands is used, all of which begin with the letters AT.

Both call setup and configuration are performed using these commands.

The commands can be configured on the DVST unit in setup mode.

The modem is also controlled using DTR (Data Terminal Ready), and indicates it's status using DCD (Data Carrier Detect).

Call request

The DTR is normally active, unless the modem channel is turned off, or the unit is in setup mode.

To dial a call the system sends the dial string (set by DIAL= in the DVST setup menu) to the modem, followed by the number selected.

For synchronous operation the modem switches to synchronous mode on connection. When the call connect has been completed the modem raises it's DCD line, confirming it is connected with the remote location. A call already being active is indicated by the DCD line being active (high) from the modem.

Call answer request

If a call is incoming, and the DTR line is high, the modem answers the call, establishes the physical link, and then raises DCD to inform the DVST unit that a call is present.

Call disconnect

This is requested by a high to low transition on DTR. A successful disconnect is confirmed by the DCD line being dropped by the modem.

In this mode the DTR returns high after a short delay.

8.7 General settings for modems in ATMODE

The modem is configured from the DVST unit using the following strings:

MINIT=general modem configuration.

SREG=typically used for setting of s-registers.

USER=optional string, typically for individual customisation.

DIAL=string used to dial, typically ATDT for tone dialling.

The configuration details stored in MINIT, SREG & USER are sent on power-up, leaving setup mode, and on disconnecting a call. If a MODEM is not present a large delay will be experienced while the system waits for replies from the MODEM. To avoid this the command MODEM=OFF should be selected from the DVST setup menu. It is also possible to transmit or send these values to the MODEM using the SEND command in setup.

It is also possible to communicate with the modem directly using the MODEM command.

MODEM Requirements

Although there are default settings for three MODEMs, other MODEMs can be configured to operate with DVST.

As the settings vary from manufacturer to manufacturer there is not a set series of commands that are guaranteed to work. The following tables detail possible configurations, all should be checked against the MODEM manual. Before attempting these suggested settings the MODEM should be reset to factory defaults with the command AT&F or ATZ

The following settings are required as a minimum:

All modems:

Action required of MODEM	Possible AT settings
DCD (Data Carrier Detect, sometimes abbreviated to CD) must be set to follow the carrier. This signal indicates to the DVST that a connection to another unit has taken place.	&C1
The call must disconnect on a high to low transition of DTR (Data Terminal Ready). Only answer a call if DTR is present.	&D2
Auto-answer may be set if required.	S0=1 Check MODEM manual Country specific
Echo commands.	E1

Synchronous Modems:

Extra action required of Synchronous MODEM	Possible AT settings
Asynchronous mode must be set to dial the number and the modem must switch to synchronous mode on carrier detect.	&M1
Flow control must be disabled.	&K0 Check MODEM manual
The modem should ignore RTS.	&R1

Asynchronous Modems:

Extra action required of Asynchronous MODEM	Possible AT settings
Asynchronous mode must be enabled.	&M0
Flow control must be enabled on RTS/CTS.	&K3
Error correction enabled (if needed).	Refer to MODEM manual

Note

It is strongly recommended that once the modem has been configured as above, it is set in such a mode that this configuration is recalled automatically on power up. This will help to ensure correct operation after a power failure. Consult you modem instructions for details of how to achieve this.

8.8 MOTOROLA VFAST

Cable required to connect to DVST: (9 to 25 - V24 SYNC)

When installing the VFAST MODEM the following procedure should be followed:

Connect the MODEM and DVST as in the installation chapter.

Power up the DVST (leave the MODEM without power).

Enter the setup mode and configure the DVST for operation with the VFAST MODEM by typing the command MODSTR=FAST (default setting).

Power up the MODEM and wait for the self test to finish.

Type SEND then <ENTER>.

The DVST will program the MODEM.

It is good practice to store these values permanently in the MODEM.

Then the values will not be lost if power is removed from the MODEM.

To store these values proceed as follows:

Type: USER=AT&Y1 &W1 <ENTER>

Type: SEND <ENTER>

Wait until the MODEM reports settings stored.

Type: USER=<ENTER>

The MODEM will then always power up with the correct operational configuration.

Country specific settings

The answer on number of rings command *AA1 is not valid in some countries (France, xx) and the MINIT string should be reprogrammed with the value *AA2.

The MINIT string is programmed as:

MINIT=AT&M1 &D2 &C1 *FLO *AA2 *DE12 *OC1

No Dialtone

In some cases the MODEM will not recognise the presence of a dial tone from the exchange. The following codes will allow blind dialling and if these are needed permanently they should be followed by AT&W1 to store these settings.

ATX3 Dial blind without presence of dial tone

AT*BD0 Wait two seconds before dialling

AT&W1 Store above settings in option 1

Note: This feature is country specific and may not be available in some versions of the MODEM's software. Please refer to the literature supplied with your MODEM.

Transmission speed

The MODEM can be a little ambitious in setting the line speed. It is likely that a link will be established at a higher speed than the line can support without an unacceptable level of errors.

In these cases it may be necessary to limit the speed of transmission until a reliable point is reached.

Maximum line speed may be set by the command:

AT*MXn

where the following baud rate applies:

n=1124,000

n=1021,600

n=919,200

n=816,800

n=714,400

n=612,000

n=59,600

n=47,200

n=34,800

n=22,400

n=11,200

n=0300

To limit the speed of transmission to 14,400 use **AT*MX7**. This could be stored in the USER= string.

8.9 Microcom V3242

Cable required to connect to DVST 9to25 (Part No.AS-DVST-ASYNC)

Synchronous mode :

&M1Dial async, switch on connect.

&D2Hangs up with on to off transition of DTR - needed for auto answer.

\G0Disables modem flow control.

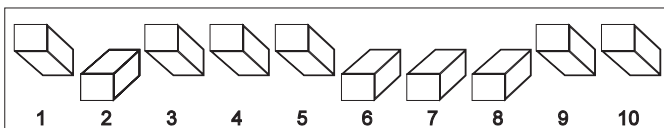
\E0Do not echo data !

E1Echo commands.

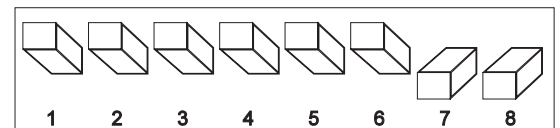
&C1CD follows carrier.

\J0Turn off baud rate adjust.

DIP Switch Settings Synchronous Operation

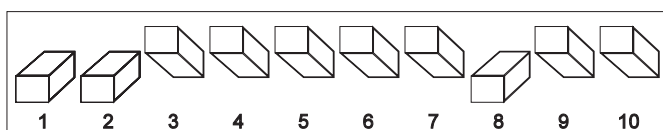


Front panel switches

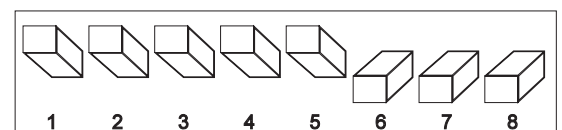


Rear panel switches

DIP Switch Settings Asynchronous Operation



Front panel switches



Rear panel switches

8.10 Trailblazer

Cable required to connect to DVST 9to25 (Part No. AS-DVST-ASYNC)

Async mode

Trailblazer in Conventional Command mode.

&C1CD follows carrier.
&k3RTS/CTS flow control.
E1Echo commands
V1Textual result codes
&M0Async mode

s7=60Wait 60 seconds for carrier.
s10=7Carrier loss to disconnect time.
s37=7Attempt to connect in PEP mode.
~s50=255Operate in PEP mode.
~s51=519200 bps operation.
~s52=1Modem hangs up on DTR, only autoanswer on DTR.
~s110=0PEP data compression disabled.
~s104=0Disable auto dialling.

8.11 OCTOCOM OSI 8196A

Cable required to connect to DVST 9 to25 (Part No.)

Manufacturer:

Octocom Systems, Inc.
One Executive Drive
Chelmsford,
MA 01824
USA

No DIP switches are used.

A single DATA push button on the front panel serves to unhook the modem.

When the modem is unpacked and used for the first time the CD line is held on. This means that the DVST unit believes that there is an incoming call and waits for data.

Proceed as follows to clear this condition:

Wait for the DVST unit to time out
and then press **<SETUP>**

At the command prompt CMD> type **MINIT= <RET>**

At the command prompt CMD> type **SREG= <RET>**

At the command prompt CMD> type **USER=AT <RET>**

At the command prompt CMD> type **SEND <RET>**

Wait for the information to be sent to the modem.

At the command prompt CMD> type **MODEM <RET>**

The unit will reply - Modem Mode

Type **AT <RET>**

The reply from the modem is "OK"

Type in the following, **AT&M1&C1&D2&K0&R1<RET>**

The reply from the modem should be "OK", if the reply is "ERROR", try again.

Type **AT&W**

The modem will now power up without the CD line held on.

Press the **<ESC>** key to exit modem mode.

At the command prompt CMD> type. **MINIT=&M1 &C1 &D2 &K0 &R1.**

&M1Dial async, switch to sync on connect.

&C1CD follows remote carrier.

&D2Hangs up with on to off transition of DTR - needed for auto answer.

&K0Modem flow control is disabled.

&R0Modem ignores RTS, CTS is on when the modem is online.

9 Terminal Adapters

TA(s) or Terminal Adapters allow the DVST to communicate over digital ISDN telephone lines.

9.1 ISDN Connection (Terminal Adapter)

Connection to an ISDN line is via a terminal adapter and Port 0. On systems using dual ISDN lines both Port 0 and Port 1 should be connected.

The type of cable required to connect to the terminal adapter can vary.

DUALISDN= ...Sets dual ISDN support *ON* or *OFF*
 (*default, on*)

ISDN= ...Sets ISDN for *X21*, *V35* or *DIRECT* mode
 (*default, DIRECT*)

Options are ISDN=X21, ISDN=V35 or ISDN=DIRECT

DIRECT

DIRECT mode relies upon the terminal adapter dialling a stored number or a network only accessing a single remote point.

X21

X21 refers to X21 dialling where the numbers to be dialled are stored in the DVST dialling menu.

Note: Some terminal adapters do not support X21 dialling. This may be supported in later versions of terminal adapter software. In some cases the DVST may have to be set to X21 dialling to accept calls originated from X21 dial units. For further information see the chapter Terminal Adapters.

V35

V35 is used where the terminal adapter or network requires a V35 interface.

Note: To use the V35 option (via either ISDN port 0 or 1) there are some hardware modifications that are required. Please contact Technical Support for this information.

Connection can be made in the direct mode, where the number to be called is stored in the terminal adapter, or in the X21 dialling mode where the DVST passes the number to be dialled to the Terminal Adapter.

9.2 Connecting a terminal adapter in direct mode

This uses the signalling lines; C (control) and I (indicate), to respond to and initiate calls.

Making a Call

- The DVST initiates a call by raising C
- The TA then dials its stored number
- When the call is connected the TA raises I
- Call continues

Answering a Call

- The TA indicates an incoming call by raising I
- The DVST responds by raising C
- Call continues

Call disconnection

- The DVST ends a call by dropping C
- The TA confirms disconnection by dropping I

Configuring a Terminal Adapter for direct mode operation

As the control lines I & C are used to control calls, the following is required of the system:

- Answer : C
- Originate : C
- Disconnect : C
- Alerting : I
- DCD/I : Delay

Note: The above settings are the basic requirements. TAs have many other settings which can affect transmission such as speed of call, type of call, circuit switch etc.

Configuring a Terminal Adapter for X21 dialling

Due to the wide variance of TAs please refer to the section relevant to your terminal adapter for individual configuration details.

9.3 Gandalf TA1

Cable required 15 to 25 (2 of Part No. AS-DVST-TA1)

The Gandalf TA1 is a dual port unit capable of simultaneously using both ISDN B channels on an ISDN2 connection.

The Gandalf has two X21 ports, PORT0 & PORT1. They must be configured as follows for DIRECT connection:

Direct Connection

Configure the Gandalf as follows:

```
CALL MODE =CKT SWITCH AUTO
CALL TYPE =BOTHWAY
CALL SPEED =NEGOTIATE
ANSWER =C
ORIGINATE      =C
DISCONNECT =C
ALERTING =I
DCD/I =DELAY
```

X21 Dialling

Configure the Gandalf as follows:

```
CALL MODE =DSU
CALL TYPE =BOTHWAY
CALL SPEED = NEGOTIATE
PORT TYPE =SYNCHRONOUS
PORT SPEED =64000
ANSWER = C
ORIGINATE =X.21
DISCONNECT = X.21
ALERTING =BEL
DCD/I =DELAY
```

Note: Early versions of the Gandalf TA1 may not support X21 dialling. Versions not supporting the setting PORT SPEED are not capable of X21 dialling. Please refer to Gandalf for advice on the suitability of a software upgrade or for technical help.

9.4 IBM 7820

Cable required 15 to 15 (2 of Part No.AS-DVST-X21)

Tech note: The IBM can have two X21 adapters fitted, these are called Interface 1 and Interface 2 respectively.

The IBM uses sub addressing. The ISDN telephone number is appended with a sub address; 01 for port 1 and 02 for port 2.

Customise Base

Network Type = 30U
Current loop detector = No
TEI Mode = Automatic

Customise Interface 1

1/Type (X.21) = X.21
1/Mode = Switched
1/Call NBR =
1/Speed = 64000
1/Calling ID = No
1/Interworking = No
1/SP Attached = No

Customise Interface 2

(As for interface 1, but settings preceeded with 2/)

Note: Network type may change, the value stated (30U) is valid in the UK.

9.5 GPT Bluephone

Cable required 15 to 15 (Part No. AS-DVST-X21)

This TA has only a single X21 interface but has the advantage of a phone handset that can be used for normal speech connections. Data and speech can be used simultaneously, this uses both ISDN channels.

X21 Dialling

Configure for X21 dialling as follows:

Selected data rate= 64 Kbs

Call control = DTE

Number to dial = Variable

Auto Answer = On

9.6 ASCOM 5000 / CITAM

Cables required - 2x 15 to 15 (Part No. AS-DVST-X21)

Switch Position

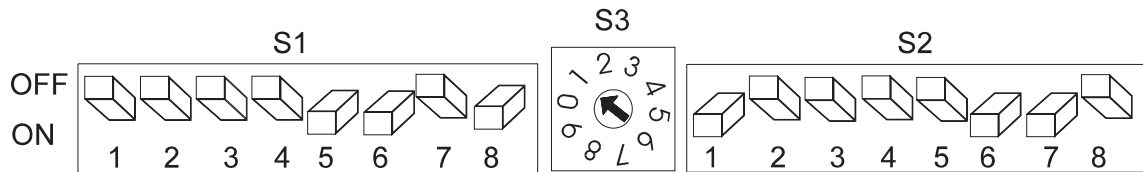


Fig 11: ASCOM internal dip switch settings

Note: Dip switch settings can be used and should be set as follows:
Switch 3 selects the sub address, if used.

Step	Instruction	Remarks
1	Using the pull handle, remove the circuit board module from the Citam 5000	
2	Adjust the dip switches as shown in Figure 11 (page 50)	The Citam will now perform a self test. On completion the display will read ISDN .
3	Press the select key four times so that the legend ' CONF ' appears on the display.	
4	Press the enter key once and it will say ' PRT1 ', press the select key twice it will say ' TA ', press the enter key it will say ' SHOW '.	
5	Press and hold select until the display reads ' CHNG ', remove your finger from the select key and press the enter key, ' INDB ' will be displayed.	
6	Press the enter key, the message will be ' ON ', use the select key to turn this to ' OFF ', then press the enter key.	
7	Hold the select key and press the enter key, the display will return to ' CONF '.	This has turned of the in-band test feature of the unit.
8	At ' CONF ' press the enter key, the display will read ' PRT1 ' for port 1.	

Cont.

Step	Instruction	Remarks
9	Press the enter key, it will read ' SHOW '. Hold the select until this changes to ' CHNG ', press the enter key, display will then show ' DIPS ' for dip switch.	
10	Press the enter key, it should read ' INAC ' for inactive, press the select key to change this to ' ACTV ' for active, press the enter key to return to ' DIPS '.	
11	Hold the select key down and press the enter key, this will return unit to ' CONF '.	
12	Press the enter key and the display will read ' PRT1 ', press the select key to change this to port 2.	
13	Press the enter key and ' SHOW ' will appear, hold the select key for three seconds, the display will change to ' CHNG '.	
14	Press the enter key it will change to ' DIPS ', press the enter key and it will say ' INAC ', press the select key and ' ACTV ' will be displayed, press the enter key and display will return to ' DIPS '.	
15	Hold the select key and press the enter key, returning the display to ' CONF '.	The unit has now had the dip switches made active on both ports 1 and 2.

The Citam is configured to operate on DVST.

9.7 British Telecom - BT X21 / DS Datentechnik TA X21

Cable required - 15 to 15 (Part No. AS-DVST-X21)

Direct Connection

Configure the unit as follows:

DATA RATE =64K

OPER MODE =NORMAL

SETUP MODE =DTE INITIATED

CLEAR MODE =CLR IND

DEST NUMBER =Telephone number to dial

ORIG NUMBER = No entry (leave blank)

B-CHAN MAP =MAP ON B1 (alternatively MAP ON B2)

Tech Note:

This unit is widely available in Europe. On some units a V36 interface replaces the X21. Dialling may have to be initiated using the built in keypad.

10 Leased Line Transmission

Leased line transmission is generally used when a dedicated or private line is available to connect the transmit and receive units.

There are many different types of leased line, 2 wire and 4 wire, with many variants depending on what is offered by the PTT companies.

Most conventional Modems can operate on leased lines although the cables will differ from those used on a standard telephone connection.

Baseband Modems offer faster transmission rates over standard Modems and an example using one of these is given at the end of this chapter.

10.1 Leased line terminology

In leased line terms the receiver or calling unit is set as ORIGINATE.

The transmit unit is set to ANSWER.

10.2 DVST set up for leased line operation

When leased line operation is selected, the type of transmission selected (via the X21 or the V24 port) is determined by the dial type set in telephone number 0.

If telephone number 0 is set to MODEM, the V24 or Modem port will be used. If either ISDN 0 or 1 is specified, X21 ports 0 or 1 will be used.

LEASED= *Leased line operation, options are:
(default, OFF)*

ORIGINATE

The Receiver unit is set to originate.

ANSWER

The Transmitter unit is set to answer.

OFF

This disables the leased line feature.

10.3 Leased line operation

When leased line operation has been set up, the DVST will attempt to communicate with a remote site when clocks are received. This does not require hardware handshaking.

If the line is broken for any reason, the units will attempt to reconnect and when communication is restored will automatically establish video transmission of images.

The units can be disconnected (taken off line) by pressing the LINE key. Pressing the LINE key again will establish image transmission.

10.4 ASCOM 64000 Baseband Modem

The am-64000 is a good alternative to using a conventional PSTN MODEM in leased line mode. It also has a greater data transfer rate for short or private wire connections, the speed is 64kbps for the AM-64000 and 128kbps for the AM-128000, the max distance between the two units is 14 kilometres on a 0.64 mm cable or a -50 db loss.

Set Both Dvst Units In The Direct Mode

Using the cursor keys on the front of the ASCOM unit set the system up as follows.

SET UP TX OR MASTER END

RATE MENU64K

OPTION MENUX21

CONFIGURATION MENU MASTER MODE

HIGH RATE

X21 LOOPS OFF

BIT SYNC

64K MODE OFF

POWER 0 dBm

MENU UNLOCKED

SET UP RX OR SLAVE END

OPTION MENUX21

CONFIGURATION MENU SLAVE MODE

HIGH RATE

X21 LOOPS OFF

POWER 0 dBm

MENU UNLOCKED

Connect both units to the line and confirm that the status menu reads C=off and I=on. This confirms the units are in communication.

11 Calls

11.1 Passwords

Passwords can be set and used by the system. When a PASSWORD is set it provides protection for the system at two points:

- 1) Whenever a remote system calls it must send the correct password, otherwise no connection will be established.
- 2) Whenever the SETUP key is pressed, the password will be requested before the setup mode is entered.

Method:

Enter SETUP mode is by pressing the SETUP key on either keyboard.

If a password has been set the screen will go blank and the prompt PASSWORD will appear on the screen. At this point a valid password must be entered followed by pressing the <ENTER> key. If this entered correctly the prompt CMD will appear on screen.

PASSWORD= *Set system password to ...*

The system password can be up to 10 alpha numeric, case sensitive, characters.

Once this has been set only calling units that have the associated password linked to the telephone number can access the system.

PASSn= *Set telephone entry n password to ...
Range is 0 to 9 (passwords not available 10-19)*

This is linked to the designated telephone number and is the keyword that will unlock the remote system that is being called. It may be up to 10 alpha characters in length.

Format: **PASS4=BERLIN**

In the above case the system called would have the password set to BERLIN. Only then could the system be accessed.

Default: None set

SPASSWORD= *Set SETUP password to ...*

This feature allows an additional password to be allocated just to provide security for the set up mode. This can be used to prevent a remote user accessing the system and altering the settings.

Default: None set

Note: To maintain security, passwords cannot be read back from the system. Care should be taken to ensure passwords are not lost as this will require a new EEPROM chip to be fitted to the DVST.

11.2 On Screen Titling

SYSTEM= *Set system ID string to ...*

This is a 40 character title which appears on the front screen of the DVST. When a transmitter sends to a receiver this title is transferred from the transmitter and appears on the baseline of the receiving monitor.

TIME= *Set current time in HHMM format*

The time is based on the 24 hour clock. 4 digits must be entered.

DATE= *Set current date in DDMMYY format*

Date is always set as a six figure format.

Two optional messages are superimposed on camera images sent from the transmitter. The first is the camera title and the second is the time and date.

TLPOS= *Set camera title position (default, 1)*

When the images are transmitted the camera title appears at the top of the screen. This setting adjusts the height of the camera title.

TDPOS= *Set clock screen position (default, 28)*

When the images are transmitted the time & date appears at the bottom of the screen. This setting adjusts the height of the time & date information.

Note: The range available for both TLPOS and TDPOS is from 1 to 29, 1 is at the top of the screen and 29 at the bottom. Settings for TLPOS and TDPOS should be 2 numbers apart to avoid overlap. Setting either value to 0 removes the text from the screen.

11.3 Telephone Number Entries / Connection Commands

TELn= *Set telephone entry n to ...
(default, blank)*

Twenty telephone numbers can be stored in memory.

Format: TEL2=01044617944965

If the MODEM or ISDN Terminal Adapter is to work in the DIRECT mode, the entry can be left blank.

Telephone number 0 is the default number dialled when alarms are used to initiate a call to another system. The fall back number if this is engaged is always stored in telephone number 1.

Where a number is used with dual ISDN dialling it is automatically linked with that number plus 10. Therefore Tel number 4 & 14 would be dialled if dual ISDN was selected for that telephone number.

TELn *Set telephone entry n as current*

This selects the number that will be dialled initially if the up/down keys are not used to select another.

Format: TEL2

TYPEn= *Set telephone entry type to dial via **ISDN0, ISDN1, ISDNx2 (dual), or MODEM**
(default, ISDN0)*

Each of the telephone numbers can be linked to either a PSTN MODEM or an ISDN terminal adapter.

This command determines which of the external ports (MODEM, ISDN Port0, or ISDN Port1) will be used when a particular telephone number is selected.

Format:

```
TYPE1=MODEM
TYPE2=ISDN0
TYPE3=ISDN1
TYPE4=ISDNx2
```

TIMER= *Call connection timeout period
(default, 60 seconds)*

This is the period of time that the DVST will wait while trying to connect a call. This will vary depending on the type of call (ISDN or PSTN) and as there may be a delay in establishing International calls, the timer value should be increased.

DIALCLR= *...Sets time dial menu remains on screen
(default, 30 seconds)*

11.4 **Callback**

This feature allows an operator to dial a remote unit and then have that unit automatically call the operator back. This can be a useful security feature. The operation of callback is as follows:

Local unit calls remote unit.

Call connects.

Local unit passes the dial menu number (0 to 9) that the remote unit will call back.

Call disconnects.

The local unit waits for a return call.

Remote unit waits for ten seconds then calls local unit.

Local unit answers and contact proceeds as normal.

CALLBACK= *Set call back **ON** or **OFF**
(Default, off)*

When the callback feature is switched on the option appears on the dialling menu to make either a normal call or a remote callback call.

Normal call is the default and this is highlighted. By using the left and right arrow keys remote callback can be selected and deselected.

MYMODEM= *Set modem call back number
(default, 0)*

When a local unit calls via MODEM with a remote callback request, this is the dial menu number that the transmitter will attempt to call back via MODEM.

Format: MYMODEM=x

where x is 0 to 19 and selects tel no. 0 to 19

MYISDN0= *Set ISDN call back number
(default, 0)*

When a local unit calls via ISDN with a remote callback request, this is the dial menu number that the transmitter will attempt to call back via ISDN.

Format: MYISDN0=x

Where x is = 0 to 19 and selects tel no. 0 to 19

Note: ISDN0 indicates X21 port 0 is used.

12 Images and Transmission

Screen display - Periscope mode

CAMLO=Sets low resolution cameo operation:

Options are:

QUADHI	High resolution quad size image
QUADLO	Low resolution quad size image
CAMHI	Sixteenth screen size high resolution

Default:

QUADLO

12.1 Image size

Target image size =

In the different screen modes of DVST each image is compressed to a target size and then transmitted.

SIZEFHI=Set target size (K):	FULL HI RES
SIZEFLO=	FULL LO RES
SIZEQHI=	QUAD HI RES
SIZEQLO=	QUAD LO RES
SIZEMULT=	MULTISCREEN

DUALFHI=	As above but for dual isdn operation
DUALFLO=	
DUALQHI=	
DUALQLO=	
DUALMULT=	

Target Picture Sizes :

SIZEFHI =	20000	(20000)
SIZEFLO =	12000	(12000)
SIZEQHI =	8000	(8000)
SIZEQLO =	4500	(4500)
SIZEMULT=	2500	(2500)
DUALFHI =	20000	(20000)
DUALFLO =	14000	(14000)
DUALQHI =	8000	(8000)
DUALQLO =	4500	(4500)
DUALMULT=	2500	(2500)

14 Alarms & Events

14.1 Purpose & intended use

Alarm devices connected to DVST transmission products are intended to allow verification and response to remote events.

14.2 Versatile Alarm Adapter

Two versions of alarm adapter are available, light duty and heavy duty. Connection to the DVST for both models is as follows:

Disconnect power to the DVST unit before connecting the alarm box. Unplug the extended keyboard (if fitted) and connect the alarm adapter via the flying lead supplied with the unit. Plug the extended keyboard into the free socket on the alarm adapter.

When connected and powered up the DVST unit will recognise that an alarm box is present in the system.

Light Duty Alarm Adapter

Alarm inputs are fully protected against transient voltages and will respond to free contact and logic level operation.

Heavy Duty Alarm Adapter

Six relays are supplied which are single pole changeover types rated at 5 amps.

Tech Note: The alarm adapter shares the same input as the extended keyboard. This is an IC bus which can be used to communicate short range with a number of devices. The cable should not be extended as the reliability of operation may be reduced.

14.3 Alarm Connections

Alarm connections are made via a 37 pin D type male connector which plugs into the end panel of the alarm adapter.

WARNING: The alarm outputs are light duty reed relay types and should not be used for switching heavy loads.

14.4 DVST Alarm Input Cable Assembly

This consists of two nine way female to nine way female D type connectors wired pin to pin.

14.5 ALARM Settings

ASYS= *Set alarm system **ON** or **OFF**
(default, OFF)*

The alarm system is dormant until activated by the ASYS=ON command. When active the main display of the DVST will carry the message POLLING ALARM CONTACTS.

Note: Polling is the technical term used for checking if any alarm contacts are active.

When an alarm condition is detected the DVST transmitter dials stored number **TELO** from the dial menu. If a connection cannot be made to this number the unit dials stored number **TEL1** from the dial menu. The transmitter will continue calling until a connection is made and the alarm is acknowledged from the receiver.

AON=n *Enable alarm contact n*
AOFF=n *Disable alarm contact n*
 (default, all alarm contacts enabled)

By default all contacts are ON, or able to respond to contact closures on the alarm input.

Alarm inputs that are not used should be set to off.

Each input can respond to a contact closure or a contact opening, or respond to both.

ANOnn *Set contact nn normally open*

ANCnn *Set contact nn normally closed*

Images transmitted on alarm

The action taken on detection of an alarm is for the DVST unit to store a point of alarm image, dial the telephone number stored in dial menu number 0 and transmit the image.

The resolution of alarm images, and the screen mode in which they are transmitted can be selected with the following command:

ATYPEn= *HI* Selects a High resolution alarm image
 LO Selects a Low resolution alarm image

The alarm settings are displayed in the view mode as follows, (type VIEW <ENTER> and press a key until the following display appears)

Alarm Number	AlarmScreenType	contacts
01: ALARM	01OnFULLHIN/O	
02: ALARM	02OnFULLLON/O	
03: ALARM	03OnFULLHIN/C	
04: ALARM	04OnFULLLON/C	
05: ALARM	05Off	
06: ALARM	06Off	
07: ALARM	07OnFULLHIN/O	
08: ALARM	08OnFULLLON/O	
09: ALARM	09OnFULLHIN/O	
10: ALARM	10OnFULLLON/O	
11: ALARM	11OnFULLHIN/O	
12: ALARM	12OnFULLLON/O	
13: ALARM	13OnFULLHIN/O	
14: ALARM	14OnFULLLON/O	
15: ALARM	15OnFULLHIN/O	
16: ALARM	16OnFULLLON/O	

When the alarm full command is set to on, any alarms occurring when the unit is on line will cause the respective camera to be displayed full screen.

AOUT= *Set alarm outputs **AUTO / MANUAL**
(default is AUTO)*

The two alarm contacts can be configured for automatic or manual operation.

AUTO

In automatic mode relay 1 acts as a line indicator and closes whenever the DVST is on line. Relay 2 closes only if an alarm has occurred and not yet been acknowledged.

MANUAL

In manual mode the AUX1 key on the local unit controls relay 1 on the remote unit, this works as a momentary contact. AUX2 on the local unit controls relay 2, which works as a toggle on/off (latching) control.

ALMODE= *...Set Alarm operation mode **OLNFRZ / FRZALL**
(default, **OLNFRZ**)*

OLNFRZ

Offline alarm freeze - Only freezes the first alarm image and then transmits this image to the receiver. Subsequent alarms incoming while the unit is transmitting to a receiver are flagged on the baseline but are not frozen, nor do they need to be acknowledged.

FRZALL

Freeze all alarm images - All alarm images are frozen. All must be acknowledged by the receiving station before the alarm can be cleared.

15

Audio

The Digital Audio Interface (DAL100) is a sound unit for the DVST range of products working on an intercom basis i.e. push-to-talk. Microphone and speaker connections are provided together with volume control and indicators for power, transmit, receive

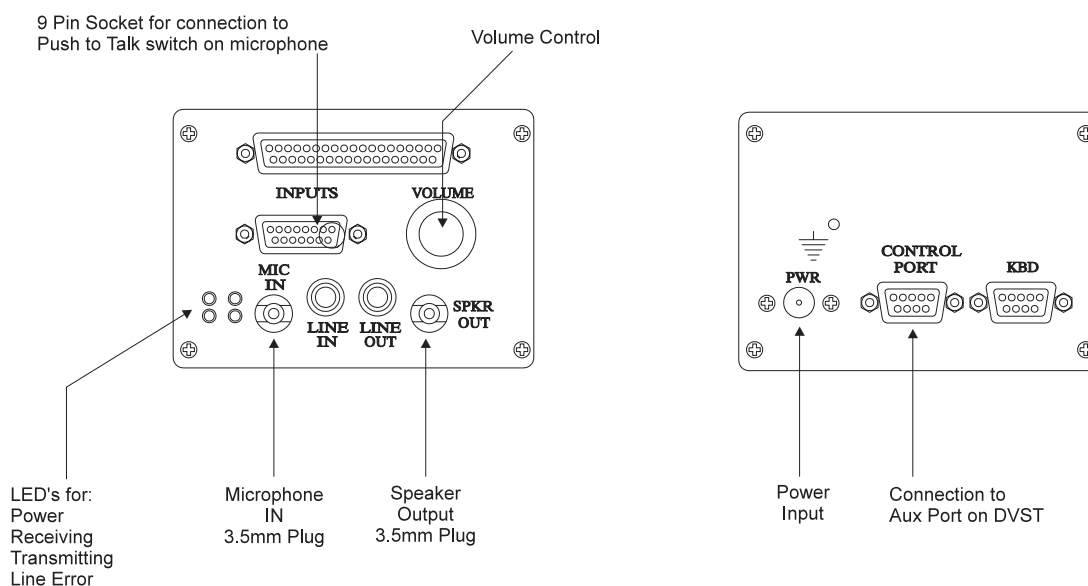


Fig: 12 End Panel Layouts

and line error.

15.1 Equipment required but not supplied

The following lists equipment you will need to complete your installation of the DAL100 audio unit.

- Microphone with automatic gain control and complete with push-to-talk switch and 3.5mm jack connector.
- Speaker capable of handling a 2W into 8 Ohm input.

15.2 Connecting the DAL100

Microphone (refer to fig. 13)

Connect the 3.5mm jack plug of the microphone into socket on end panel. Connect the microphone press-to-talk lead to pins 1 and 9 of a 15way male connector and plug into socket on end panel,

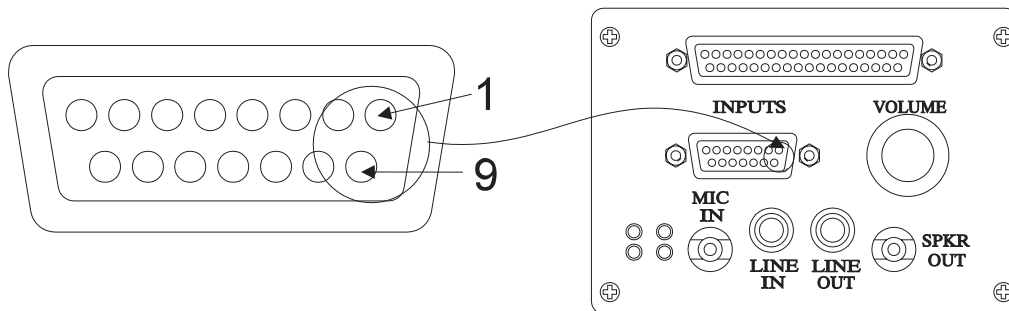


Fig: 13 Microphone connection

Speaker (refer to fig. 13)

Connect the 3.5mm jack plug of the speaker to the SPEAKER OUT socket.

Power Supply (refer to fig.12)

Connect the power supply to the socket marked PWR on the end panel.

DVST Connection (refer to fig.13)

Using the 9 way to 9 way cable connect the DAL100 unit to the AUX port on the DVST. (Details are in the cable section of this manual).

Establish Connection

Power off the DVST unit and with the DAL100 audio unit connected switch the power on again. This has to be done because the DVST unit `scans' its connection ports to establish what, if any, additional equipment is connected.

16 Cable Assemblies

The following pages detail cable assemblies with connectors for use with DVST transceivers which are available from Dedicated Micros. The cables are fully screened for EMC compatibility.

For prices and availability please contact our Sales Departments at the addresses below.

Northern UK Sales

Dedicated Micros Ltd
Pendlebury Industrial Estate, Bridge St, Manchester, M27 1FJ,
United Kingdom
Tel: 0161-727-3200 Fax: 0161-728-4142
Outside UK : Int +(44) 161-727-3200 Fax: Int +(44) 161-728-4142

Southern UK Sales

Dedicated Micros Ltd
3 Cannon Court, Warren Farm, Stratford Road,
Wolverton Mill, Milton Keynes MK12 5NS
Tel: 0908-225199 Fax: 0908-225197

In the United States

Dedicated Micros Inc.
11515 Sunset Hills Road, Reston, Virginia 22090, U.S.A.
Tel: Int +(1) 703-904-7738 Fax: Int +(1) 703-904-7743

In Australasia & the Far East

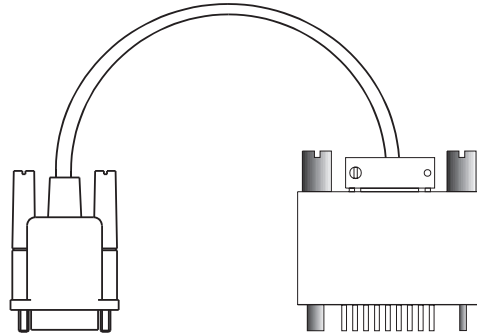
Dedicated Micros (Asia) PTE Ltd
1, Tannery Road, #05-04/05 Cencon I, Singapore 1334
Tel: Int +(65)-741-0138 Fax: Int +(65)-741-0221

Dedicated Micros (Australia) PTY
Unit 1, 30 Leighton Place, Hornsby NSW2077, Australia
Tel: Int +(612) -482-1857 Fax: Int +(61) 2-482-1657

In France, Germany and Benelux

Dedicated Micros Ltd
Interleuvenlaan 64, B-3001 Leuven, Belgium,
Tel: Int +(32)-16-40-1228 Fax: Int +(32)-16-40-0243

16.1 X21 to V35 Cable Assembly

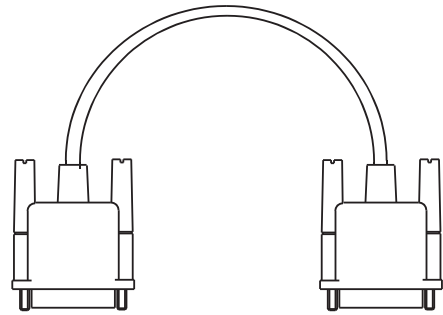


9 WAY Female	V35 Male	Signal Name	CCIT Number
1			
2 ← Purple →	P	SD-A	103
3 ← Red →	H	DTR	108.2
4 ← Orange →	R	RD-A	104
5 ← Brown →	F	CO	109
6 ← Green →	V	SCR-A	115
7 ← →	AA	SCT-B	114
8 ← Black →	B	Gnd	102
9 ← Grey →	S	SD-B	103
10			
11 ← Yellow →	T	RD-B	104
12			
13 ← Blue →	X	SCR-B	115
14 ← White →	Y	SCR-A	114
15			

KEY

SC = Clock
 T = Transmit
 R = Recieve
 SD = Transmit Data
 RD = Recieve Data
 A/B = Signal Pairs

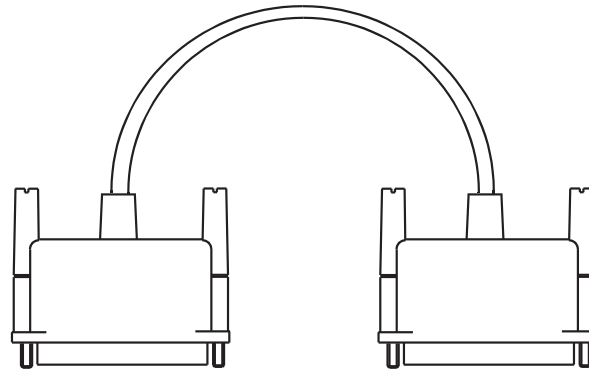
16.2 X21 Cable Assembly



15 WAY Male		15 WAY Female
1	←→	1
2	←→	2
3	←→	3
4	←→	4
5	←→	5
6	←→	6
7	n/c	7
8	←→	8
9	←→	9
10	←→	10
11	←→	11
12	←→	12
13	←→	13
14	n/c	14
15	n/c	15

n/c = No Connection

16.3 V24 Async Cable Assembly

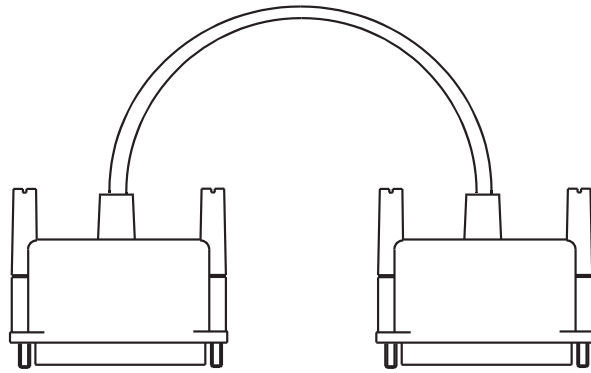


25 WAY
Male

25 WAY
Female

1 ←————→ 1
to All connections to
Pin to Pin to
25 ←————→ 25

16.4 V24 Sync Cable Assembly

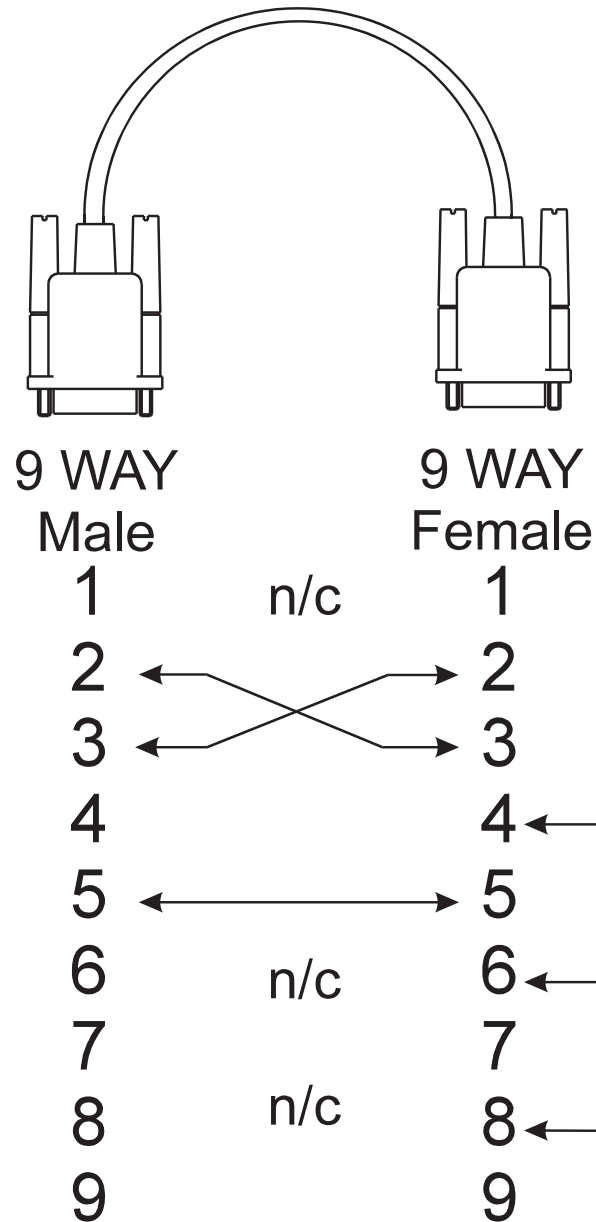


25 WAY
Male

25 WAY
Female

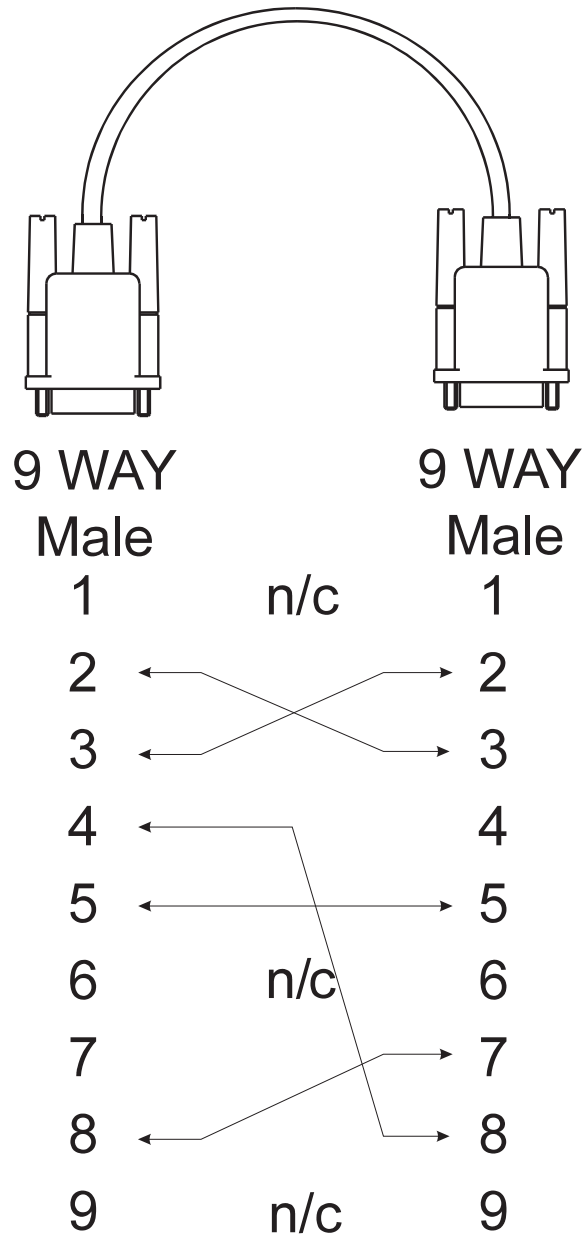
1 ←————→ 1
to All connections to
Pin to Pin
25 ←————→ 25

16.5 RS232 Cable Assembly (DVST-PC)



n/c = No Connection

16.6 RS232 Cable Assembly (DVST-DAL)



n/c = No Connection

17

Glossary

DVST	Digital Video Storage and Transmission
ISDN	Integrated Services Digital Network - A digital telephone system capable of transmitting data, speech, images and text.
PSTN	Public Subscriber Trunk Network - The standard telephone system used for speech and fax communication.
Speed of Update	The time taken to refresh a single picture.
Software Compression	Video data compression achieved by computer program processing.
Hardware Compression	Video data compression taking place in specialised purpose built microchips.
k bytes	Measurement expressing the size of digital computer memory
k bits per second	Measurement expressing the speed at which data can be transmitted.
Compression	Taking standard video signals and reducing these into compact digital data.
Decompression	Taking digitally compressed DVST information and restoring this to normal video images.
Complete compression	Each time the picture is transmitted, or stored to memory, the entire picture is compressed.
Conditional Updating	Update only the parts of the picture that have changed. The first time the picture is transmitted the entire picture is compressed. Thereafter only the parts of the picture that change are transmitted.
Teleconferencing	Providing a live, two way, sound & video link between two conference / meeting points.
DAT	Digital Audio Tape, the new technology for recording digital information on a special tape cassette. Massive storage can be achieved in a very small package.
MODEM	MOdulator/DEModulator used to connect the DVST unit to a standard telephone line.
Terminal Adapter	Used to connect the DVST to an ISDN digital telephone line.

17

Returns Procedure

In the Event of Difficulty

In the event of a fault, first approach your dealer or distributor. Dedicated Micros operates a Technical Support Group where most technical problems can be solved over the telephone. The addresses of Dedicated Micros are listed on the front page of this manual.

If, for what ever reason, this is not possible, the unit can be returned directly to a Dedicated Micros Repairs Department. In this event please follow the returns procedure as detailed below to avoid delay.

Photocopy the EQUIPMENT RETURN ADVICE. Contact the Customer Services Department to obtain a returns number.

The following information must be available to give to the Customer Services Department when requesting a returns number.

- Model type
- Serial number
- Full Account/Invoice address or Return Address if different
- Contact name
- Fax number and Telephone number
- Customer order number - for repair cost not exceeding £100
- Full description of the fault
- Previous returns number(s) (if applicable)

If the unit is rack mounted, the rack mount kit must be removed before the unit is packed. Wrap the unit in the original polythene bag. Fit preformed end pieces at either side of the unit.

If the unit is not returned in it's original packing, Dedicated Micros Repair Department will automatically re-box the unit, and there will be a charge of £11.75 inc VAT.

Mark the return number, obtained from the Customer Services Department, clearly on the outside of the box. Return the unit to the address on the front page of this manual, a completed copy of the EQUIPMENT RETURN ADVICE must be sent with the unit.

If the unit crosses a national boarder, enter Airway Bill number on the copy of the EQUIPMENT RETURN ADVICE and fax Dedicated Micros for the attention of the Despatch Department. This will avoid any delays in returning the unit after it has been repaired.

Notes:

Dedicated Micros tries to maintain a fast turnaround procedure for repairing equipment, incomplete or inaccurate documentation may result in delay.

If the unit is not under warranty a charge will be made for the repair.

If the unit has its warranty void, due to misuse or damage, the Repairs Department will contact the account customer to advise cost.

Upon examination of the unit if the repair cost is likely to exceed £100, the Repairs Department will contact the account customer for authorisation before work is undertaken.

Repairs not exceeding £100 will automatically be carried out and invoiced on the official order number stated by the account customer on the EQUIPMENT RETURN ADVICE.

EQUIPMENT RETURN ADVICE

Company Name:

Contact Name:

Invoice Address:

Tel. No.:

Fax No.:

Model/Type of
Equipment Returned:

Serial No.:

Returns Number:

Official Order Number:

Master Airway Bill Number:

Previous Returns Number: (if applicable)

Details of Reported Fault:

Returns Address for Unit:

DEDICATED MICROS

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