Advance DR4+

Owners Operating & Installation Guide

DM

c-bus and DTMF Tone compatible

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Important Safeguards

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 dry 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.
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 or 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.

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, U.S.A. models only. Section 810 of the National Electrical Code. ANS/NFPA No. 70 1981, provide information with respect to proper grounding of the mount/supporting structure. The grounding of the coax a discharge unit, the size of grounding conductors location of discharge unit. The wires and the connection of ground wires.

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.

Regulatory Notes

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.

CE Mark
This product is marked with the CE symbol and indicates compliance with the European Community EMC directive 89/336/EEC.

This mark indicates that this product meets the following technical standards.

* EN 55022 1987 - "Limits and Methods of Measurement of Radio Interference Characteristics of information Technology Equipment".

* BSEN 50082-1 - "Electromagnetic compatibility - Generic immunity standard Part 1: Residential, commercial, and light industry".

* IEC 801-2 1984, IEC 801-2 1991 - "Electromagnetic compatibility for industrial process measurement and control equipment Part 2: Electrostatic discharge requirements".

* IEC 801-3 1984 - "Electromagnetic compatibility for industrial-process measurement and control equipment Part 3: Radiated electromagnetic field requirements".

* IEC 801-4 1988 - "Electromagnetic compatibility for industrial-process measurement and control equipment Part 4: Electrical fast transient/burst requirements".

A "Declaration of Conformity" in accordance with the above standards has been made and is recorded at: Dedicated Micros Ltd., Pendlebury, Manchester, England.

1.1   The Advance DR4+ Control System

The Advance DR4+ can be used in conjunction with any Dedicated Micros product that is telemetry compatible, as shown in the diagram below. It can also be driven by a personal computer via the RS232 interface.

The Advanced RX is supplied with or without a housing in a variety of voltages, these are 230V AC, 24V AC and 12V DC. If the Advance DR4+ is purchased without a housing the PCB must be mounted in an enclosure that conforms to IP67 for external mounting [360(W) x 270(D) x 181(H)].

The Advance DR4+ is fully compatible with Dedicated Micros' c-bus network. For more details refer to chapter 6, c-bus control.

This manual explains in detail how to install, set up and operate the Advance DR4+. Wherever possible diagrams and tables have been used to clarify detail.

CAMERAS 1 - 16

Uniplex

DTMF 20

Local DVST

ISDN

Unicord

DTMF 1600

Remote DVST
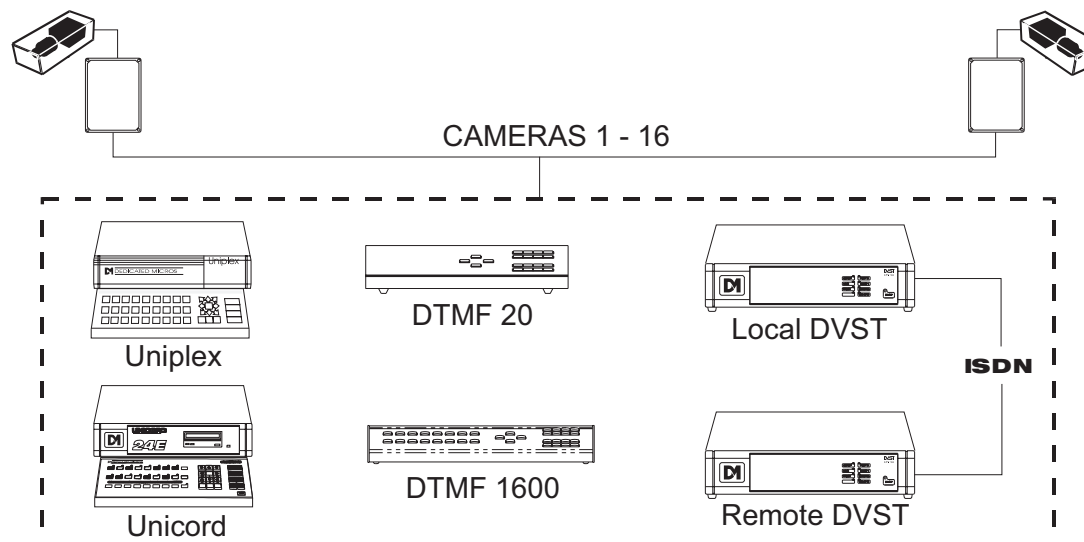
1.2 Available Features of the Advance DR4+

The following indicates some of the available features of the Advance DR4+.

FUNCTION/FEATURE	NOTE
* AUTOMATIC SET-UP	Sets up unit with one command
* PAN	Relay Driven
* TILT	Relay Driven
* ZOOM	12V dc Half Bridge Drive
* FOCUS	12V dc Half Bridge Drive
* IRIS	12V dc Half Bridge Drive (no feedback available)
* LENS SPEED CONTROL	10% - 100% in 10% Steps
* PRESETS	100
* SEVEN SEGMENT DISPLAY	Display indicates system information
* AUXILIARY OUTPUT RELAYS	3 on PCB, 8 on Alarm Board
* ALARM INPUTS	16 Optional on the Alarm Board
* PARK MODE	Return camera to a common point of reference
* PATROL MODE	Random preset patrol of 99 preset positions
* AUTO PAN	Mimic presence of Security Personnel
* GLOBAL PRESET	Send all heads to a preset zone
* P.C. CONTROL	Control via RS232/obtain Installation information
* ONLINE COMMAND HELP	Via RS232
* ONLINE PRESET STATUS	Via RS232

*	CONSTANT FAULT MONITORING	Motors monitored and shut down if failure detected on a preset movement
*	PASSWORD PROTECTION	System commands protected
*	FULL SYSTEM DOWNLOAD	Via the RS232
*	DEADBAND CONTROL	Prevents overshooting of the presets
*	ENGINEERING MODE	Enables safe maintenance
*	ALARM RELAY	Programmable white light on an Alarm Condition 1 - 999 Seconds
*	ALARM INTERFACE	Signals available to drive a Multiplexer on an Alarm Event
*	ALARM PRESETS	16 presets available for each Alarm Event
*	AUTOMATIC ALARM SET-UP	Sets up Alarm system Contact States automatically

1.3   Documentation Available

As the Advance DR4+ is a product requiring minimum set up due to it's unique **AUTO SETUP** feature this manual "Advance DR4+ Owners Operating & Installation Guide" is the only documentation provided. The manual describes all the features of the Advance DR4+ and how to use them. The double sided Quick Reference Card, at the rear of this manual, can be removed for ease of use by the Installation Engineer and the End User.

1.4   Customer Feedback Invitation

The Returns Procedure (Chapter 11), contains instructions that must be used in the event of a fault. We hope that this would not be the only reason you would contact us. Our aim is to constantly improve and extend our product range and we would welcome comments from customers and users for future improvements.

Product development is continuous and it is possible to incorporate suggested improvements in future software releases, upgraded hardware or a completely new product.

1.5   Recommended Equipment and Spares

The following are equipment and recommended spares that an Installation Engineer should have when visiting a site that has Advance DR4+ units.

* Advance DR4+ Owners Operating & Installation Guide

* Tone Dial Telephone Handset (fitted with an RJ11 type connector)

Note   The tone dial handset may have an RJ45 connector, if this is the case, using crocodile clips connect pins 2 and 5 of the RJ45 to test pins P11 and P13 of the Advance DR4+ PCB.

* A Digital Multimeter

* A Portable Computer - 386 and above

* RS232 Serial Cable - 3 wire: TX, RX and Ground

* Fuses   FS3 - 1 Amp, 250V, Anti-surge fuse
                     FS4 - 2 Amp, 250V, Anti-surge fuse

The Advance DR4+ can be supplied as an add on unit to any Dedicated Micros equipment that is telemetry compatible, i.e. Uniplex Series 2, DVST, DTMF 20, DTMF 1600. Refer to the relevant manual for use with the receiver.

The following information will allow an Engineer to fully install an Advance DR4+. There will be diagrams where necessary to describe connections.

2.1   Connecting the keyboard

The telemetry keyboard lead terminates in a 9 way D-type female connector and is connected to the telemetry controller via the 9 way D-type male connector, marked KBD IN

2.2   Connecting the Telemetry Adapter

The telemetry adapter is supplied with a 12v PSU and an 8 way DIN plug.

Connect the 12v PSU to the connector marked POWER situated on one of the end panels of the telemetry adapter.
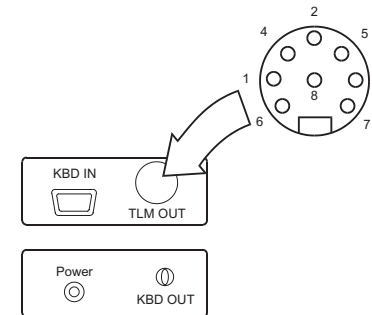
Fig. 1 Telemetry Adapter End Panels

2.3   Telemetry Control Cable

Connect a 2 wire DTMF control cable to pins 2 and 7 of the 8 pin DIN plug supplied. Insert the 8 way din plug into the telemetry adapter TLM OUT.

For reliable data transmission and telemetry operation, the maximum cable distance should not exceed 2Km (unless specified otherwise by the telemetry transmitter). The Drop Wire No. 10 can be installed in either Star, Daisy chain or a combination of both.

2.4   c-bus Control Cable

To connect to the c-bus, P7 is used, the table below shows the connections.

PIN NUMBER	FUNCTION	COMMENTS
1	NONE	NOT CONNECTED
2	C-BUS +VE	
3	C-BUS -VE	
4	SIGNAL GROUND	CONNECT TO SHIELD

In most cases the cable to be used will be grade 5 UTP due to the long cable lengths required.

2.5 Installation Flowchart

The following flowchart must be followed when installing the Advance DR4+.

LOCATE FIXING POINT FOR **ADVANCE RX**, NOT MORE THAN 20M FROM HEAD

COMPLETE THE WIRING PAYING CLOSE ATTENTION TO THE WIRING INSTALLATION NOTES. (CHAPTER 2, SECTION 2.6)

SET THE PHYSICAL PAN & TILT END STOPS ON THE HEAD MECHANISM

SET THE CAMERA's SYSTEM ADDRESS USING LINKS SUPPLIED (REFER TO CHAPTER 2 SECTION 2.7 SETTING HEAD ADDRESS) IF THE UNIT IS c-bus COMPATIBLE, THE ADDRESS MUST BE SET. (REFER TO CHAPTER 6, c-bus CONTROL FOR INFORMATION).

CHECK WIRING THEN SWITCH ON. IF OK SEVEN SEGMENT LED WILL ILLUMINATE

USING A TELEPHONE (OR A SUITABLE CONTROLLER) SELECT THE CAMERA USING THE *2XX COMMAND IF OK THE SEVEN SEGMENT DISPLAY WILL ROTATE (REFER TO CHAPTER 7 TELEPHONE KEYPAD)

NOW ENSURE THAT ALL THE MOTORS ARE DRIVEN CORRECTLY I.E. PAN LEFT ACTUALLY PANS LEFT, PRESS # TO STOP IF USING A TELEPHONE HANDSET

REFER TO CHAPTER 3 SETUP, FIG. 3 QUICK SETUP FLOWCHART

2.6   Connecting the Telemetry Receiver

Mount the telemetry receiver as close as possible to the head it is to control. Fig. 2 details all connectors for the Advance DR4+, more detailed diagrams are shown within this chapter. For ease of connecting the receiver all pinouts are detailed on the base plate of the receiver.

Fig. 2 Telemetry Receiver PCB

2.7   Advance DR4+ Pre-wiring Details

Important Installation Notes

Before wiring the receiver the following points **must** be observed.

* DO NOT MIX AC AND DC SIGNALS DOWN THE SAME MULTI-CORE CABLE, this is against the British Standard Code of Practice and will result in poor accuracy on preset commands.

* A full installation will require two cables:
    (i) 9 core, 1 Amp, 440V (RMS) for AC wiring - this cable does not need to be screened. If lamps or wash and wipe are needed, more cores will be needed in this   cable. Also the current rating may need to be increased
    (ii) 12 core, 1 Amp, 440V (RMS) for DC wiring - this cable must be screened otherwise preset accuracy will be compromised.

* Both AC and DC cables may share the same conduit

* The Advance DR4+ lens motor common has an active switched output and must not be connected to the motorised lens common/screen, or system common.

* Before powering up the unit check the option links are set for correct operation. If the unit is being installed in an existing installation ensure the address is set to the same as the video input on the user equipment.

* If c-bus controlled, ensure that the c-bus address is set to the controlling multiplexer address

* When powering up the telemetry receiver, if the unit has not been programmed previously the peripherals will be configured to the default options, if the unit has already been programmed then these options will be selected automatically.

* When entering cable entry points please ensure that these entry points are sealed to IP67, using suitable grommets/sealant.

* When removing the backplate to create suitable mounting holes for the unit, ensure that the backplate and PCB are placed in a safe position.

2.8   Setting Receiver Addresses

2.8.1   Setting head addresses

Each telemetry receiver must have an individual Head Address, this unique address is transmitted by the control unit. Links are fitted on the receiver board to identify the Head Address.

If the telemetry receiver is being installed on an existing installation ensure that the Head Address is the same as the video input on the system. As the Head Address is only read once (i.e. on power-up) to change the address the unit must be powered off. The Head Address is set up on jumper J2 of the receiver PCB.

The example shows a telemetry receiver set for Head Address 13.

This ident denotes Pin 1

ADDRESS	L7-8	L5-6	L3-4	L1-2
1	1	1	1	1
2	0	1	1	1
3	1	0	1	1
4	0	0	1	1
5	1	1	0	1
6	0	1	0	1
7	1	0	0	1
8	0	0	0	1
9	1	1	1	0
10	0	1	1	0
11	1	0	1	0
12	0	0	1	0
13	1	1	0	0
14	0	1	0	0
15	1	0	0	0
16	0	0	0	0
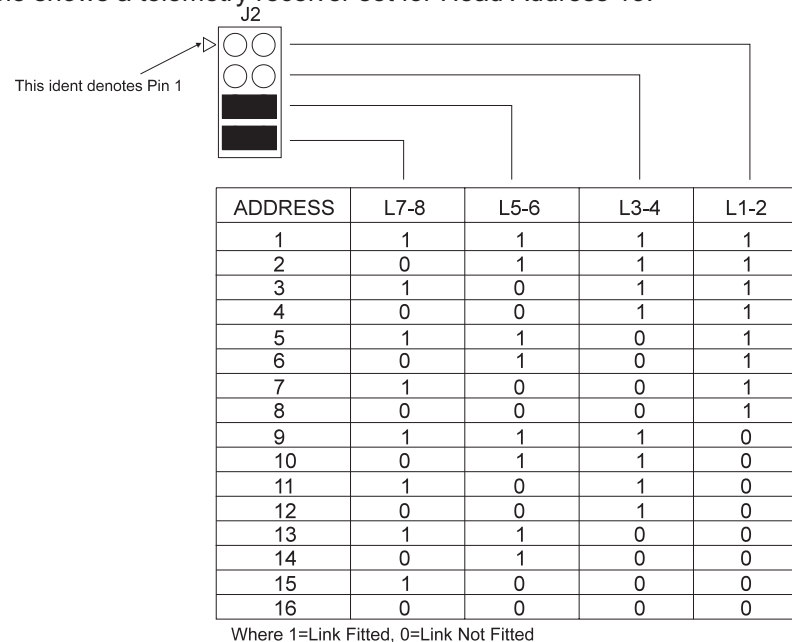
Where 1=Link Fitted, 0=Link Not Fitted

2.8.2   Setting c-bus address. This function is detailed completely in chapter 6 - c-bus control.

2.9   Safety Link

This link is fitted as factory default and must be removed for normal operation after installation is completed.

Safety mode is used to prohibit head movement allowing the Engineer to carry out work on the receiver. When the link is fitted to pins 1-2 of the jumper J4 the seven segment LED display, on the receiver PCB, will flash the letters En. This informs the Engineer that the receiver is in Safety/Engineer Mode. The link can be used in conjunction with the Engineer Code (*881 003).

Note   After the necessary work has been carried out the link must be removed to re-enable the head.

ENG MODE
RS232 ENABLE

This ident denotes Pin 1
J4
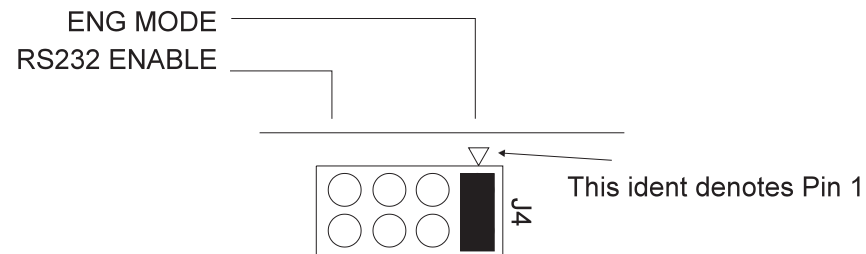
2.10   Power Supply Connections

The power supply is connected to P20 on the receiver PCB and should be configured as shown.

P20
Neutral
Earth
Live

NEUTRAL
EARTH
LIVE
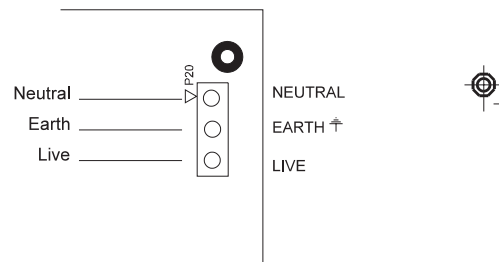
Note   The EARTH line coming into the receiver must first be connected to the EARTH STUD of the Advance DR4+, a separate wire is then used to connect the EARTH to the board.

WARNING THIS UNIT MUST BE EARTHED PROPERLY TO COMPLY WITH THE EMC DIRECTIVE. FAILURE TO DO THIS MAY AFFECT PERFORMANCE AND COMPROMISE SAFETY. IT MUST ALSO BE POWERED WITH A VOLTAGE AS INDICATED ON THE VOLTAGE LABEL LOCATED ON THE MOUNTING PLATE.

2.11 Pan & Tilt Drive Connections

The pan & tilt motor drivers are connected to P18 and P19 respectively. This is wired through the AC multicore cable.
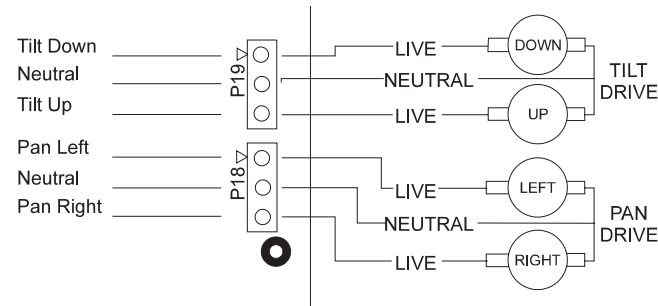
Note Neutral from the receiver is common to P18 and P19

2.12　Auxiliary Connections

There are three auxiliary connectors AUX 1, AUX 2 and AUX 3 these are connected to P15, P16 and P17.

Contact Specifications

7A Resistive, 3.5A Inductive, Max AC Voltage 250VAC or 30Vdc, when used they must be Fused appropriately by the user.
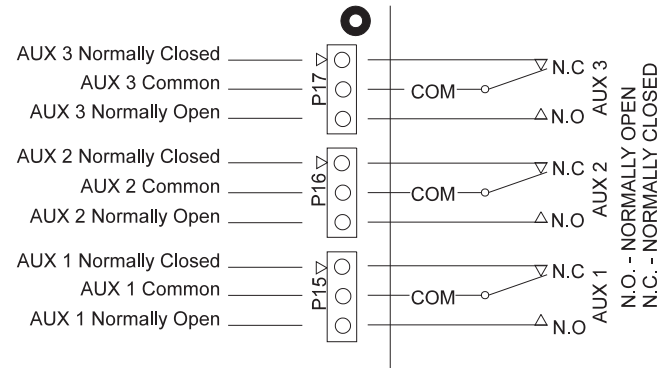
Aux 1 - Momentary contact - Wash Wiper

Aux 2 - Latching contact - Infra Red Light

Aux 3 - User definable (*435 - ON, *430 - OFF)

2.13　DC Motor Drive Connections

The DC Motor drivers are connected to P10 and control the Zoom, Focus and Iris of the camera. This is wired through the DC multicore cable.

WARNING DO NOT CONNECT THE MOTOR COMMON TO THE SYSTEMS 0V

Note Iris drive must be enabled, refer to Chapter 3 Setting Iris Drive
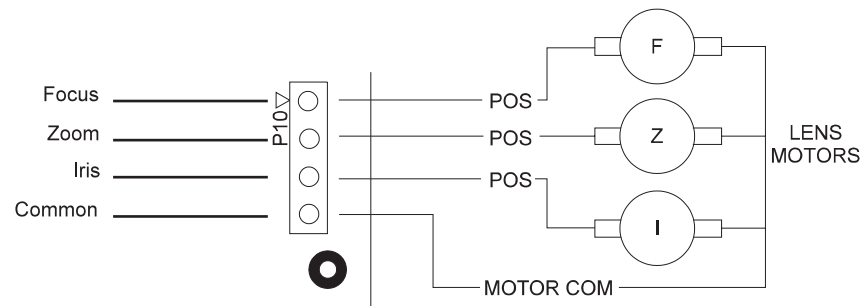
2.14   Feedback Connections

The feedback connections are for the Lens and Head feedback, these are connected to P9 and P8 respectively. This is wired through the DC multicore cable.
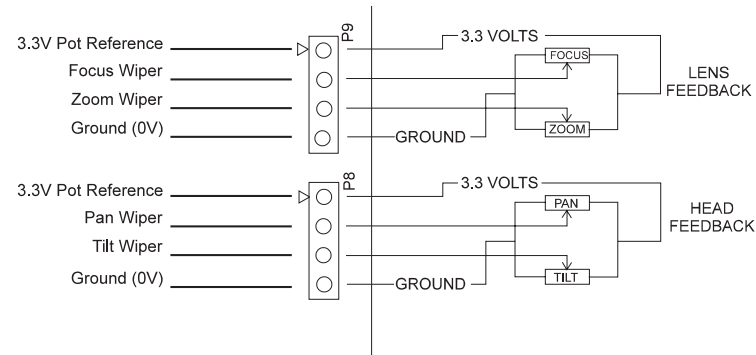
It is not essential the wipers are wired as detailed however, this is a recommendation by Dedicated Micros

2.15 RS232 Connections

An RS232 connector is provided for connection to additional communication devices. These are made via P3 and P5.

RS 232
COMMS

(OUT)
TXD ──── TX Data
GND ──── Ground   P3

(IN)
RXD ──── RX Data
GND ──── Ground   P5
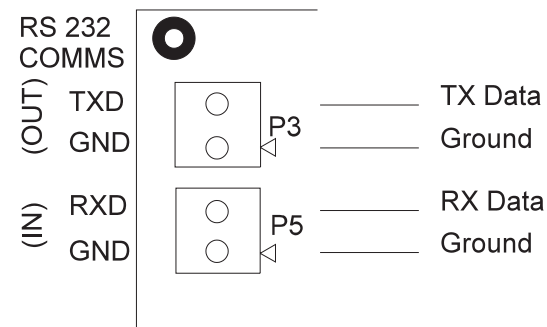
The following pin connections are used when connecting a personal computer to the Advance DR4+ via the RS232 port.
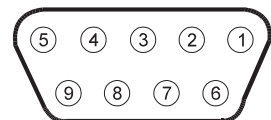
PIN	CONNECTION
1	N/C
2	TX Data
3	RX Data
4	N/C
5	Ground
6 - 9	N/C
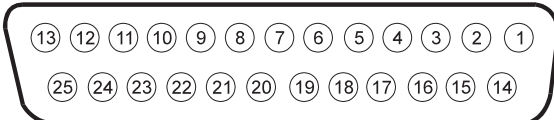
PIN	CONNECTION
1	N/C
2	RX Data
3	TX Data
4	N/C
7	Ground
6 - 25	N/C

N/C = No Connection

Note   No RTS/CTS is required.

2.16 Telemetry Connections

The DTMF line can be connected to one of the following connectors on the Advance DR4+ PCB.

* P14 - Telephone Jack Plug (RJ11)

* P11 & P13 - Clip connectors (P11 = Negative and P13 = Positive)

* P12 - Two way terminal block - recommended for Installation use
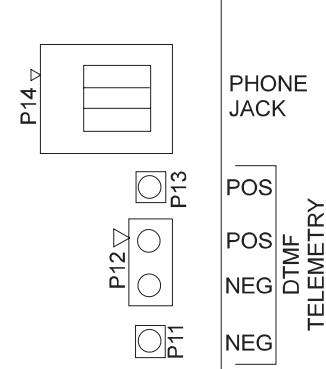
2.17 Alarm Board Connections

The Alarm Board is connected to the Advance DR4+ PCB via the following connectors

* P1 - 10 Way IDC

* P2 - 2 way Power Connector (Pin 1 = Negative and Pin 2 = Positive)
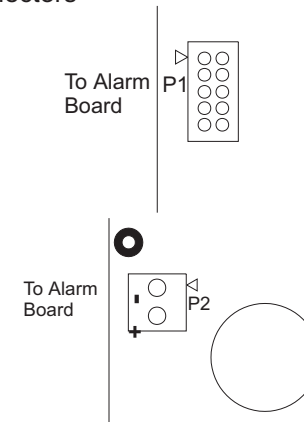
2.18 c-bus Connections

These connections are detailed earlier in this chapter. See 2-4 c-bus control cable.

Once the unit has been installed and all connections made the unit can be setup. Setup is dependent on the type of installation, if the unit does not have feedback pots there is no setup required. However if there are feedback pots fitted then the Quick Setup Flowchart (Fig. 3) can be followed.

Note: Ensure that the correct receiver type is selected for each particular camera.
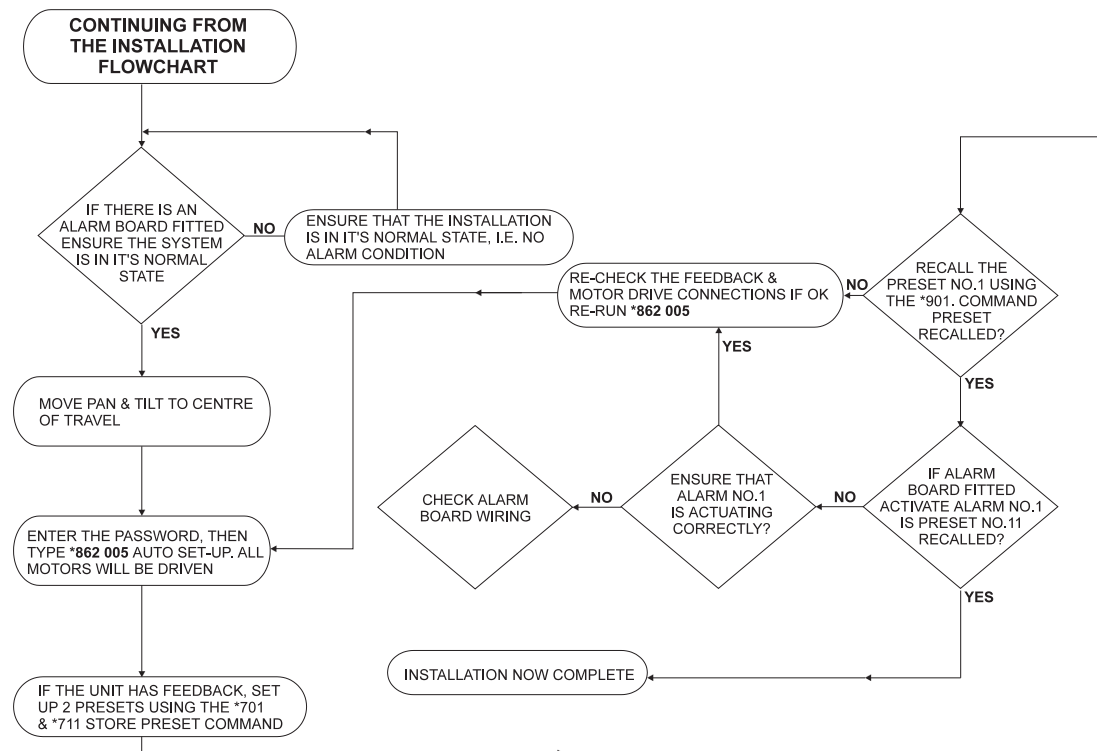
Fig. 3 Quick Setup Flowchart/Guidelines

3.1 Quick Setup

The Quick Setup flowchart (refer to Figure 3) gives step by step details on how to set up the Advance DR4+. Auto Setup is incorporated in this flowchart and will automatically set up the head.

3.2 Installer Access Code

This code must be entered before any programming can take place. Once this code has been entered the Engineer has 30 minutes to program the Advance DR4+, if programming is not completed before the time runs out the code must be re-entered.

3.3 Auto Setup   *862 005

If any changes, i.e. re-wiring of the feedback is made to the unit once auto setup has been run, then it must be executed again to incorporate these changes.

IMPORTANT

All physical end stops must be set, and the head must be left in the centre of these end stops before Auto Setup is executed. Auto Setup pans and tilts the head left/right and up/down for 4 seconds approx. Therefore if the head is not left in the centre it may reach an end stop before the 4 second duration, this could result in motor damage. While the receiver is in auto setup mode, do not issue telemetry commands through the RS232 port or manually from the controller keyboard.
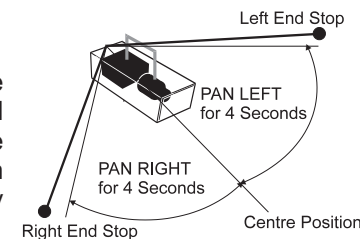
Once the code ***862 005** has been entered the Advance DR4+ is automatically setup, the procedure takes approximately 20 seconds and carries out the following checks then stores the information to memory.

* Pan Pots - this will check if pan pots are fitted and sense in which direction the voltage is, i.e. pan left goes positive.

* Tilt Pots - this will check if tilt pots are fitted and sense in which direction the voltage is, i.e. tilt down goes positive.

* Zoom Pots - this will check if zoom pots are fitted and sense which direction the voltage is, i.e. zoom in goes positive.

* Focus Pots - this will check if focus pots are fitted and sense in which direction the voltage is, i.e. focus near goes negative.

* Alarms - if the alarm board is fitted it will read the alarm contact state. The sixteen alarm inputs are configured to Normally Open as default. Refer to Chapter 6 Alarm Board.

* It will sense where the feedback pot is connected, i.e. which pin each wiper is connected to. Although the Installation Engineer can wire the wipers to any of the wiper inputs, it is recommended that they are wired as shown on the back plate of the unit. (Refer to Chapter 2 Installation).

* Presets - checks if either have been set and resets them to the correct settings.

* Then all the information is stored to the EEPROM.

This command **must** be used before any programming is carried out, i.e. presets, end stops, as all information (except presets) is reset to default once the auto setup code is entered.

3.4   Setting End Stops   *861 00x

Once the physical end stops and the quick setup flowchart have been carried out then the electronic end stops can be set.

	Instruction	**Remark**
LEFT	Pan the head left to the required maximum point, and enter the code ***861 005**.	This will automatically store this position in the receiver memory as the LEFT END STOP. The seven segment LED display will flash **Pl** when the code is entered.
	Move the head away from this position and then back.	Checks that the head does not go beyond the end stop.
RIGHT	Pan the head right to the required maximum point, and enter the code ***861 006**.	This will automatically store this position in the receiver memory as the RIGHT END STOP. The seven segment LED display will flash **Pr** when this code is entered.
	Move the head away from this position and then back.	Checks that the head does not go beyond the end stop.

UP	Tilt the head up to the required maximum point and enter the code ***861 007**.	This will automatically store this position in the receiver memory as the TILT UP END STOP. The seven segment LED display will flash **Tu** when this code is entered.
	Move the head away from this position and then back.	Checks that the head does not go beyond the end stop.
DOWN	Tilt the head down to the required maximum point and enter the code ***861 008**.	This will automatically store this position in the receiver memory as the TILT DOWN END STOP. The seven segment LED display will flash **Td** when this code is entered.
	Move the head away from this position and then back.	Checks that the head does not go beyond the end stop.

3.5   Clearing End Stops   *861 009

This code will automatically clear any previously programmed end stops.

3.6   Setting Preset Positions   *7xx

The Advance DR4+ can have up to 100 presets per head, these are set for 00 - 99. Presets are essential for the Park and Patrol Modes to work, where preset 00 is the Park Mode preset. The password must be entered to set up this function.

Note   When the Alarm Board is fitted Presets 11 - 26 are reserved for alarm presets.

To set up a preset position carry out the following:

Step	Instruction	Remark
1.	Move the head to the desired position. Enter the code * 7xx, where xx is the number for the preset. e.g. * 701 will be preset 1.	This will store this position in the receiver's memory and when recalled the head will return to this preset position. Note: Preset 00 is the Park Mode Preset.

Each preset is set up as the above, and each one is recalled individually (refer to Recalling a Preset *9xx). Preset 00 will always be the Park Mode Preset and the position the head will return to when Park Mode is activated.

Note   When setting presets there must be sufficient space between each preset, presets that are close together will be ignored because the movement time of the head would be too short.

3.7   Recalling Presets   *9xx

A preset position can be recalled by entering *9xx where xx represents the preset number. Entering *913 will automatically send the head to preset number 13.

3.8   Clearing Individual Preset   *883 xxx

Presets can be cleared individually by using the code *883 xxx where xxx represents the preset number. Entering *883 013 will clear preset number 13.

3.9   Clearing All Presets   *881 001

This code will automatically clear all previously set presets.

3.10   Setting Park Mode   *852 xxx

When the receiver is put into Park Mode the head will automatically travel to Preset 00 after the Delay to Park Time. Giving the user the knowledge that even if the head has been moved away from this position, it will always return to this preset. The head will remain in the preset 00 position until the user moves it, or if an alarm is activated when the Alarm Board is fitted.

To activate Park Mode enter the code: ***852 001**

To turn Park Mode off enter the code: ***852 000**

When Park mode is set Patrol Mode is cancelled.

3.11   Setting Park Delay Time   * 851 xxx

The Park Delay timer starts counting from 000 to xxx minutes, after the last manually transmitted telemetry command to the receiver address has been received. The timer is also reset to 000 when a preset position has been actioned. This delay time is set by entering the code *851 xxx where xxx represents the time in minutes. The time can be between 001 - 999 minutes.

Note   The set time for Park Delay will be doubled in the event of an alarm

3.12   Setting Number of Presets for Patrol Mode   *857 xxx

This command **must** be used to set the number of presets to be patrolled when patrol mode is activated.

Depending on your installation it may not be necessary to patrol all presets. For example, you may have 15 preset but only require 10 of them to be patrolled. Enter the code *857 xxx where xxx represents the number of cameras. By using this command you can prioritise your patrol presets, i.e. set the most common as presets 01 - xx, this could be used for night time patrol.

Example   Presets = 15
                    Number of presets to be patrolled = 10
                    Code = *857 010

Note   **The presets that are to be patrolled must be set from the bottom up, i.e. preset 1 and upwards.**

3.13   Setting Patrol Mode   * 854 xxx

Patrol mode is dependent on presets, therefore presets must be set before activating Patrol Mode. For Patrol Mode to operate it is necessary to inform the receiver how many presets are to be patrolled, i.e. Set the Number of Presets to Patrol Mode.

When the receiver is put into patrol mode the head will randomly scan presets previously set. This will be activated after the Patrol Delay Time.

Activating Patrol Mode will cancel Park Mode.

The advantage of random patrol mode is, that it gives the impression to any would be intruder that the site is being monitored.

To activate Patrol Mode enter the code: ***854 001**

To turn Patrol Mode off enter the code: ***854 000**

3.14   Setting Patrol Delay Time   ***853 xxx**

The Patrol Delay timer starts counting from 001 to xxx minutes, after the last manually transmitted telemetry command to the receiver address has been received. The timer is also reset to 000 when any preset position has been actioned.

This delay time is set by entering the code *853 xxx where xxx represents the time in minutes. The time can be between 001 - 999 minutes.

3.15   Setting Auto Pan (with delay)   ***858 xxx**

This is an alternative to patrol mode. Auto pan sets the receiver to pan between presets 1 and 2, using the patrol delay timer as a timebase between each preset.

When Patrol Mode is activated it randomly patrols all presets, it is difficult to be random with only two presets, therefore if only two presets are stored and patrol mode is enabled it will behave as if the receiver is in auto pan. The random preset selection will not allow the same preset to be selected consecutively.

To activate Auto Pan Mode enter the code: ***858 001**

To turn Auto Pan Mode off enter the code: ***858 000**

When Auto Pan is enabled Patrol and Park Mode are cancelled

Note   Auto Pan is not to be confused with heads fitted with the HARDWARE Auto Pan facility.
              Advance DR4+ Auto Pan is a purely SOFTWARE driven facility.

3.16   Setting Iris Drive   ***862 006/7**

This command will allow you to drive a motorised iris lens. Normally pressing iris open button pulses AUX 3 on the PCB for 100mS for connection to an iris override system. When iris motor drive is enabled this override 'pulse' will not be produced when the iris open button is pressed.

Note   Motorised iris drivers are not supported on the keyboards of the Uniplex, DVST, however the
              DTMF 1600 and the DTMF 20 will support motorised iris lens.

To enable iris drive enter the code: ***862 006**

To disable iris drive enter the code: ***862 007**

3.17 Setting DC Motor Speed Control   *865 xxx - *869 xxx

The zoom and focus motors can have their drive speed altered independently. The range for each speed is 10% - 100% in 10% steps. The following is an example of an equation that would produce the graph:

Equation 1		Equation 2	
Set starting speed to 0%	*865 000	Set starting speed to 0%	*865 000
Set finishing speed to 100%	*866 100	Set finishing speed to 100%	*866 100
Set ramp time to 1 second	*869 001	Set ramp time to 5 seconds	*869 005
This will give you MIN to MAX in 1 second		This will give you a MIN to MAX in 5 seconds	
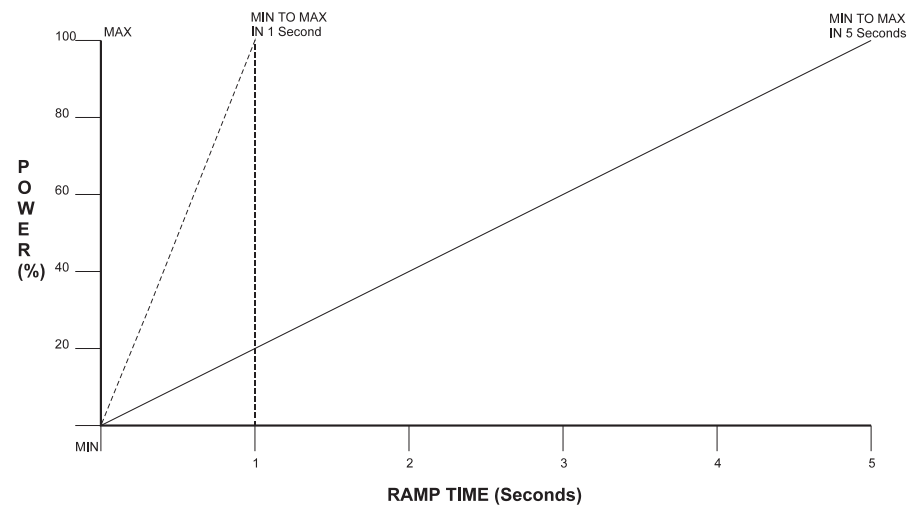
Step	Instruction	Remark
1.	Enter the minimum starting speed of the focus drive.	***865 xxx** where xxx represents the percentage number (in steps of 10%).
2.	Enter the maximum finishing speed of the focus drive.	***866 xxx** where xxx represents the percentage number (in steps of 10%).

3.	Enter the minimum starting speed of the zoom drive.	***867 xxx** where xxx represents the percentage number (in steps of 10%).
4.	Enter the maximum finishing speed of the zoom drive.	***868 xxx** where xxx represents the percentage number (in steps of 10%).
5.	Enter the time it takes to get from the minimum start to the maximum finish	***869 xxx** where xxx represents the time in seconds (in steps of 10%).

It is recommended that the user experiment with these commands to find a drive level suitable for their application. It may not be necessary to alter both the focus and zoom drivers, if this is the case follow the relevant steps.

WARNING If the setting is set too low the dc motor power may be insufficient to drive the motor and the lens will not operate. If this occurs set the unit to a level which is above the cut off point.

3.18   Set Engineering Mode   *881 003

This command puts the receiver into Engineer's mode, effectively disabling the head. It also clears down all the error information and re-enables motors that may of shut down due to a motor error.

This code can be used in addition to the Safety Link fitted to J4. Once the code is entered the Engineer can carry out work on the head without fear of it moving. When this code is entered En will flash on the seven segment LED display indicating Engineer Mode is set and the head is disabled.

To return the unit to normal operation the link (if fitted) must be removed and the code to disable Engineering Mode must be entered, this code is ***881 004**. If the link is fitted this code will be ignored and the head will remain immobilised.

3.19   Set DeadBands   *885 xxx - *888 xxx

DeadBands can be set for the Pan, Tilt, Zoom and Focus of each fully functional camera. This set of commands allow the user to tune the point at which the head reaches preset positions. It is possible for heads to overshoot presets, these codes reduce that over shoot and give the head a DeadBand of approximately 2 degrees.

This will allow tuning of presets on an individual basis.

Note   If this command is misused the receiver will appear to have lost it's preset recall 'accuracy'.

Set Pan Motor DeadBand: ***885 xxx** where xxx can be 000 - 005 (000 = 0°, 005 = 2° approx.)

Set Tilt Motor DeadBand: ***886 xxx** where xxx can be 000 - 005 (000 = 0°, 005 = 2° approx.)

Set Zoom Motor DeadBand: ***887 xxx** where xxx can be 000 - 005 (000 = 0°, 005 = 2° approx.)

Set Focus Motor DeadBand: ***888 xxx** where xxx can be 000 - 005 (000 = 0°, 005 = 2° approx.)

Note   No DeadBand is provided for the Iris motor

3.20   Set Auxiliary Relays (AUX 1 - AUX 3)   *4nx

If the alarm board is fitted then this command can control all ten relays, these being:

   *   AUX 1, AUX 2 and AUX 3 on the Advance DR4+ PCB. AUX1 of the Advance DR4+ is a
       momentary relay and can be connected to external equipment such as the wash wiper. AUX 2
       of the Advance DR4+ is a latching relay and can be connected to external equipment such as
       infra red lights. AUX 3 can be used for the Auto Iris Control, or general purpose.

   *   AUX 0 and AUX 4 - 9 are on the alarm board. AUX 4 - 8 are the heavy duty switch relays and
       AUX 0 & AUX 9 are light duty switch relays. RELAY 3 is the Alarm relay.

The code ***4nx** is as follows:
   n =   the Auxiliary number
   x =   0 - off
                     5 - on

The commands to drive AUX 1 & AUX 2 are programmed into the controller, there is no need to enter the
command manually. For further operational information on the AUX 0, AUX 3 - AUX 9 refer to Chapter 6
Alarm Board.

This chapter gives an explanation of the features on the Advance DR4+ telemetry receiver. It will describe in full each of it's operations and features.

4.1   Installer Access Code

When entered this enables the Installation Engineer to program the Setup information into the Advance DR4+ as required. "Password" protection eliminates the possibility of information, already programmed into the receiver, being altered by any unauthorised personnel.

The following commands are password protected

* * Storing a Preset ***7xx**

* * Alarm Auto Setup ***850 000**

* * All commands from ***861 xxx onwards** (Refer to Appendix B)

Once the Installer Access code is entered, the Installation Engineer has 30 minutes to program the receiver. If the time runs out before programming is complete, the Installer Access code will have to be re-entered. When the Installer Access code has not been entered, the seven segment LED display, on the receiver PCB, will flash the letters **Pd** identifying that the Installer Access code must be entered before programming can be carried out.

As the Installer Access code is used to protect the system it is recommended that only the Installation Engineer is aware of this code.

4.2   Auto Setup   ***862 005**

Note: The auto setup procedure is not required on heads with no feedback pots fitted.

The auto setup feature takes away all the complexity of programming and setting up of the head. Once the receiver and head have been installed and wiring is completed entering this command will automatically set up the receiver within 20 seconds approx. The following are tested during the auto setup:

* * Pan Pots Fitted?

* Tilt Pots Fitted?

* Zoom Pots Fitted?

* Focus Pots Fitted?

* Contact States if Alarm Board is fitted

All this information is then saved on the EEPROM, this is also part of the auto setup routine.

If any changes, i.e. re-wiring of the feedback is made to the unit once auto setup has been run, then it must be executed again to incorporate these changes.

WARNING **It is essential that all physical end stops are set for the pan & tilt head. The head must then be left in the centre of these end stops as the auto setup pans and tilts the head for the 4 seconds in all directions.**

4.3 Presets *7xx

Note For Presets to be set there must be feedback pots fitted to the head.

There can be upto 100 presets for each pan & tilt head, these are presets 00 to 99 and are set by using the code ***7xx** where xx is the number of the preset. These can be recalled individually using the code ***9xx** inserting the number of the preset where xx is.

Note Preset 00 is the Park position for the head when Park Mode is in use, therefore care must be taken when setting this preset. Preset 00 is not included as one of the randomly selected presets for Patrol Mode

Presets must be set for Park mode and Patrol mode to work. Refer to Park Mode and Patrol Mode for further details.

Presets can be individually or universally cleared, once any preset is cleared it can no longer be recalled or used in the Park or Patrol Mode.

If an Alarm Board is fitted then presets 11 - 26 are used as the alarm presets.

4-2 *Operation*

4.4   Park Mode   *852 00x

Note   For Park Mode to be enabled there must be feedback pots fitted to the head.

This mode allows the user to set a position that the head will go to when the camera is not in use, i.e. the Main Entrance of a building.

When Park Mode is enabled, using the code ***852 001**, the head will return to the Park position after the Park Delay Time. To disable Park Mode enter the code ***852 000**.

The "set time" that the head remains idle before returning to the Park position is the Park Delay Time. This can be set using the code ***851 xxx** where xxx can be from 001 to 999 minutes. This is activated after the last operator command, i.e. after the last key press is received by the Advance DR4+. If the unit is not used for this set time then the head will automatically return the Park position.

When Park Mode is selected the head will return to the Park position even if that particular head is not in use and another camera has been selected for control. The head will remain in it's Park position until the operator moves it.

If the unit has an alarm board fitted and an alarm is activated the Park Delay Time will automatically be doubled, allowing the head to remain at the alarm position for longer.

Selecting Park Mode will disable Patrol Mode and Auto Pan.

4.5   Setting the Number of Presets for Patrol   *857 xxx

Using the code ***857 xxx** where xxx is the number of presets, informs the Advance DR4+ how many presets there are to be patrolled. This must be entered before Patrol Mode is enabled.

4.6   Patrol Mode   *854 00x

Note   For Patrol Mode to be enabled there must be feedback pots fitted to the head.

This mode sends the head on random preset patrol, giving an impression of a manned site.

When Patrol Mode is enabled, using the code ***854 001**, the head randomly moves between preset positions, stopping at each preset for the Patrol Delay Time. To disable Patrol Mode enter the code ***854 000**.

The Patrol Delay Time is the set time that the unit remains idle before Patrol Mode is initiated. This timer can be set using the code ***853 xxx** where xxx can be between 001 and 999 minutes. This is also the time that the head remains at each preset before moving onto the next preset. There can be upto 99 presets programmed for Patrol Mode, these must be identified using the code for Set Number of Presets for Patrol Mode.

When Patrol Mode is operating the head will remain patrolling even if that particular head is not in use, and another camera has been selected. It will remain patrolling until the operator moves the head.

If the unit has an alarm board fitted and an alarm is activated the Patrol Delay Time will automatically be doubled.

Selecting Patrol Mode will disable Park Mode and Auto Pan.

4.7   Auto Pan   ***858 xxx**

Note   For this feature to be utilised it is essential that presets 1 and 2 are set and feedback pots
   are fitted to the head.

This mode allows the user to pan between the two most used positions automatically. To enable Auto Pan enter the code ***858 001**, to disable this feature the code ***858 000** is entered.

When Auto Pan is operating the head will travel between presets 1 and 2, the head will remain at each preset for a set time, this is the Patrol Delay Time previously explained.

Selecting Auto Pan will disable the Park and Patrol Modes.

4.8   Manual Control

All modes of operation (Patrol, Park, Auto Pan and Alarm) can be manually overridden by operator intervention. The operator controls the head from the control unit (i.e. Uniplex keyboard etc.) The arrow keys will be used to move the head in the direction required. Once the operator has finished using the receiver it will resume it's previous mode of operation (Patrol, Park or Auto Pan) restarting it's delay timer after the last telemetry command has been received.
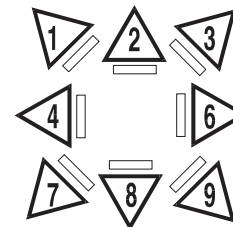
4.9   Engineering Mode   ***881 00x**

Entering the code ***881 003** will disable the head and also used to clear all error information. This re-enables motors that have shut down when a motor error has occurred.

Selecting Engineering Mode disables the Park and Patrol Mode, these will need to be re-selected when the Engineering Mode has been cleared.

Although this code disables the head it is not recommended to be used when an Engineer is carrying out work on the head, the Safety Link must be fitted in this situation.

To return to normal operation the unit must be taken out of Engineering Mode by entering the code***881 004**

4.10   DeadBand
*885 00x - *888 00x

This allows the Engineer to tune the point at which the preset is reached. If the pan/tilt or lens motors are overshooting the preset position, it is possible to add a DeadBand allowing the motor to stop before the preset is reached. This allows for inertia and slack in the gear systems.

The following are the codes used for setting the DeadBands of the Pan, Tilt, Zoom and Focus of each head:

   *   Pan Motor DeadBand   ***885 00x**

   *   Tilt Motor DeadBand   ***886 00x**

   *   Zoom Motor DeadBand   ***887 00x**

   *   Focus Motor DeadBand   ***888 00x**

The DeadBand range is 000 to 005, where 005 is approximately 2 degrees

Note   Caution must be taken when incorporating DeadBands, as the accuracy of the receiver can be lost, too much DeadBand causes the unit to stop short, too little causes the unit to overshoot.
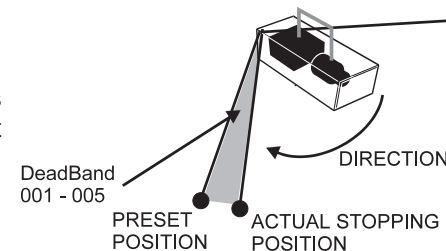
4.11   Auxiliary Relays   *4nx

There are 3 auxiliary relays on the Advance DR4+ PCB, these are AUX 1, AUX 2 and AUX 3.

AUX 1 is a momentary relay this can be connected to external equipment such as wash wipers. As AUX 2 is a latching relay and can be connected to infra red lights etc., AUX 3 can be used for Auto Iris Control or further general purpose output. When used they require fuses to protect the unit.

There are five heavy duty auxiliary relays and two light duty auxiliary relays located on the Alarm PCB (when fitted). These are AUX 4 - 8 and AUX 0 & AUX 9 respectively. RELAY 3 on the Alarm Board is the "Alarm Relay". AUX 1 & AUX 2 are controlled directly from the control unit keyboard.

4.12   DC Motor Speed Control   *865 xxx - *869 xxx

The Zoom and Focus motors can have their drive speeds altered independently. The speed set is configured by:

1. Setting the minimum starting speed (*865 xxx - Focus, *867 xxx - Zoom)

2. Setting the maximum running speed (*866 xxx - Focus, *868 xxx - Zoom)

3. Setting the time it takes to get from the minimum to the maximum speed, Ramp time (*869 xxx).

It is recommended that the Installer test these commands to find a drive level suitable for the units.

Note   If the setting is set too low the DC motor power maybe insufficient to drive the motor and the lens will not operate. If this is the case it is advisable to set the unit to a level which is above this cut off point.

4.13   Serial Port

The serial port echoes all tones received, it can also be used for debug purposes. The serial port is set to 9600 baud, No parity, 8 data bit, 1 stop bit. Error reports are also echoed out of the serial port. Without debug enabled only tone characters received are transmitted, this allows the user to drive telemetry systems on RS232 daisy chain.

4.14   Seven Segment LED Display

This display is used for five purposes:

*   Tones received will be displayed - 0-9, A, b, C, d. The '#' is displayed as a 'H' and the '*' as a 't'

*   To display error codes

*   To display En when Engineering Mode is selected

*   The outer segments rotate when in normal operation and logged on, if logged off the three inner segments are strobed

* To display the type of preset action being undertaken - Pt xx when Patrolling, Pa when Parked, Pr xx when travelling to a preset, Al xx when travelling to an alarm preset and TU/TD/PR/PL when setting end stops (where xx = preset or alarm being actioned)

Refer to Appendix A for a full description of the error codes shown on the seven segment LED display.

4.15   System Monitoring

The Advance DR4+ checks the feedback during any preset movement (not operator driven). If the unit does not see any movement for a period of five seconds, the drive for that motor will be removed and the relevant error code displayed on the seven segment LED display. Any preset movement involving the suspect motor will now be denied. This is due to the fact that the Advance DR4+ does not know how to resolve the preset position without any feedback.

There can be three reasons for the feedback failing:

1. Any connections to the feedback potentiometers have been disconnected

2. A motor drive connection has become disconnected

3. There is an obstruction in the mechanism

Although the drive is not removed for operator actions as feedback is not required for manual operation, the Advance DR4+ will ignore all attempts at presets.

To regain control of the unit there needs to be an investigation into the reason for the failure. Once this has been carried out and the error is cleared the unit can be used for presets.

4.16   Global Presets   *5xx

This function sends all heads, with presets set, to it's alarm preset position (Presets 11 - 26).

To send the heads to their alarm preset enter the command *5xx where xx is 01 to 16, these correspond to the alarm presets 11 to 26. To send the heads to the global Park Position enter the command *500.

Example: *501 - Alarm Preset 11, *509 - Alarm Preset 19, *516 - Alarm Preset 26

This function can be used to verify that the alarm preset positions are as previously programmed for the selected heads, i.e. it simulates an alarm condition.

Note   Although this command sends the heads to an alarm preset it is not necessary to have an alarm board fitted, it can be used to send a selection of cameras to user definable positions.

The Advance DR4+ can be controlled from two sources. The primary source is the DTMF line the secondary is the serial port (RS232).

The serial connections are made to the following connectors on the Advance DR4+ PCB

   *   P3 - Transmit

   *   P5 - Receive
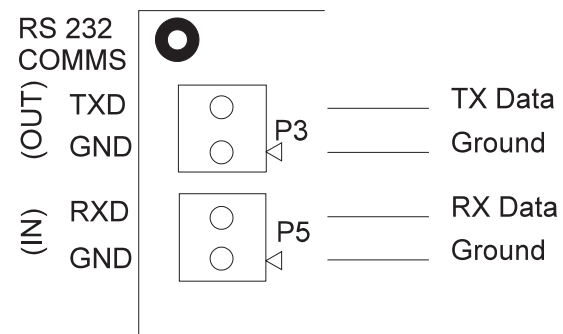
There is no priority when using DTMF tones and serial control on the Advance DR4+, therefore if a command is entered through the DTMF line and another is entered through the serial port simultaneously, both commands will be added to one another producing an unrecognised command. Refer to Appendix B for details on the command set for the Advance DR4+.

5.1   Personal Computer Control

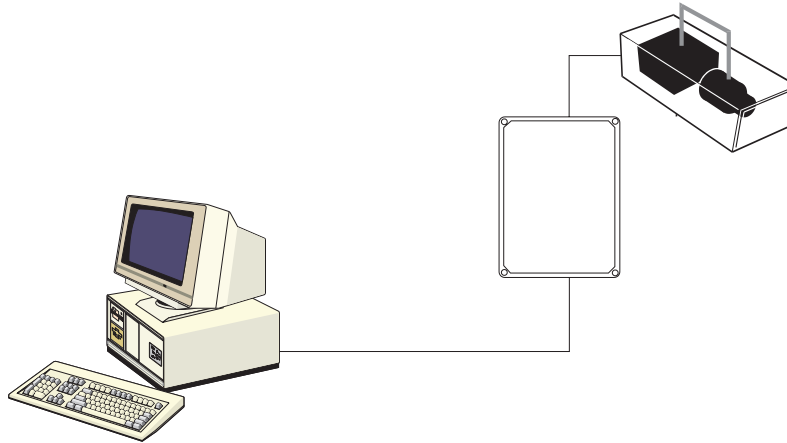A personal computer can be used to control the Advance DR4+. All commands are entered at the keyboard, refer to Appendix B for the Command Set.

5.2   DEBUG

The serial port can be used to down load information to a PC, this is known as DEBUG. The serial port is set to 9600 baud, No parity, 8 data bits, 1 stop bit.

To enable DEBUG a link must be connected to pins 7-8 of the jumper J4.

Note: When the DEBUG link is connected for information to be down loaded onto the PC, the telemetry control of the daisy chain must be broken from the receiver that has the link fitted.

This ident denotes Pin 1

J4

ENG MODE

RS232 ENABLE
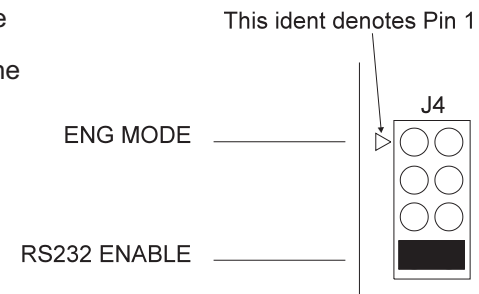
The following diagram shows how the PC interrupts the Daisy Chain when DEBUG is being used.

Note   The maximum distance between Advance DR4+ receivers over the RS232 link is 100 metres.
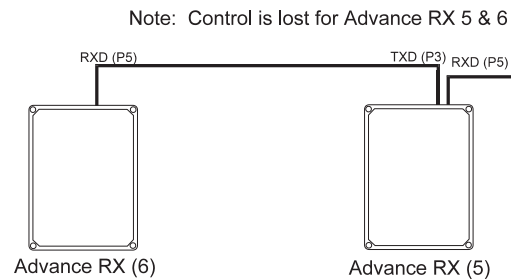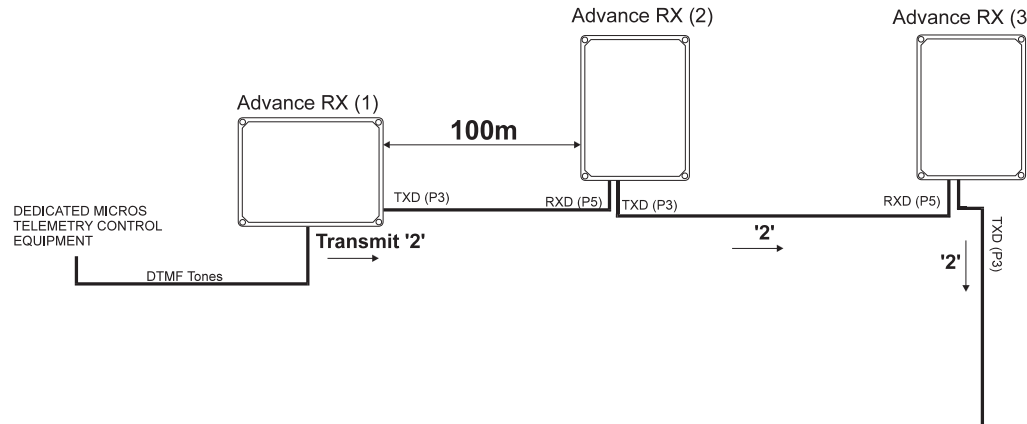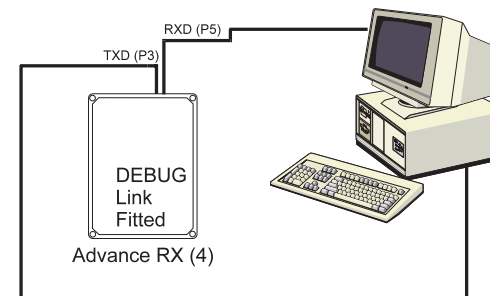
Downloading Information Using DEBUG

Note   When using a PC for downloading DEBUG information, the connections between Advance DR4+ that the PC is connected to must be removed from any other Advance DR4+.

The diagram shows the PC connected to Advance DR4+ 4, the connections are removed to Advance DR4+ 3 and Advance DR4+ 5.

Once the necessary information has been downloaded to the PC, connection previously removed **must** be re-connected for full control of all the Advance DR4+'s.

The following information can be downloaded when using DEBUG.

5.3   Display Receiver Setup   *800 000

This will down load all setup information for the relevant Advance DR4+ receiver onto the PC. The terminal emulation software being used should be set to 132 column mode. The following is an example of the information that would be downloaded:

MMTRB VER xxx(xx.xx)   The focus min timer is 10
Logged On   The focus max timer is 100
Initialised bit S   Iris drive off
Park Mode Off   The pan right sense is -
Patrol_mode Off   The zoom in sense is -
No of presets for patrol mode 0   The focus far sense is +
No of presets stored 0   The tilt down sense is +
Auto Pan Off   The pan deadband is 0
Pan pot status WIPER CONNECTED TO P8 PIN 2   The tilt deadband is 1
Tilt pot status WIPER CONNECTED TO P8 PIN 3 The zoom deadband is 1
Zoom pot status WIPER CONNECTED TO P9 PIN 2 The focus deadband is 3
Focus pot status WIPER CONNECTED TO P9 PIN 3 Atlm fitted
The ramp time is 1 second   Current Pan Position is 573
The Heavy Duty Relay on Time is 60 secs   Current Tilt Position is 504
The delay to Park is 5 Mins   Current Zoom Position 369
The delay to Patrol is 1 Min   Current Focus Position is 547
The zoom min timer is 30   Analogue Feedback
The zoom max timer is 100

5.4   Display Command Set   *800 001

This command will display all the system commands, i.e. *8xx xxx commands. Refer to Appendix B for a full explanation of all *8xx xxx commands.

5.5   Display Alarm Setup   *800 002

This command is only applicable if the Alarm Board is fitted. Entering this command will display the current alarm contact settings on the alarm PCB. There are two settings:

* Normally Open (default)

* Normally Closed

5.6   Display Preset Status   *800 003

Entering this command will display the current preset status, i.e. set or cleared.

5.7   RS232 Daisy Chain Control

When the DEBUG link is not fitted to J4 the Advance DR4+ can be connected to other Advance DR4+ in a serial daisy chain configuration. When a tone is received the character is transmitted down the RS232 TX pin. The diagram shows the Number '2' being transmitted from the control unit through all the Advance DR4+ units.

Note   The maximum distance between Advance DR4+ receivers over the RS232 link is 100 metres.
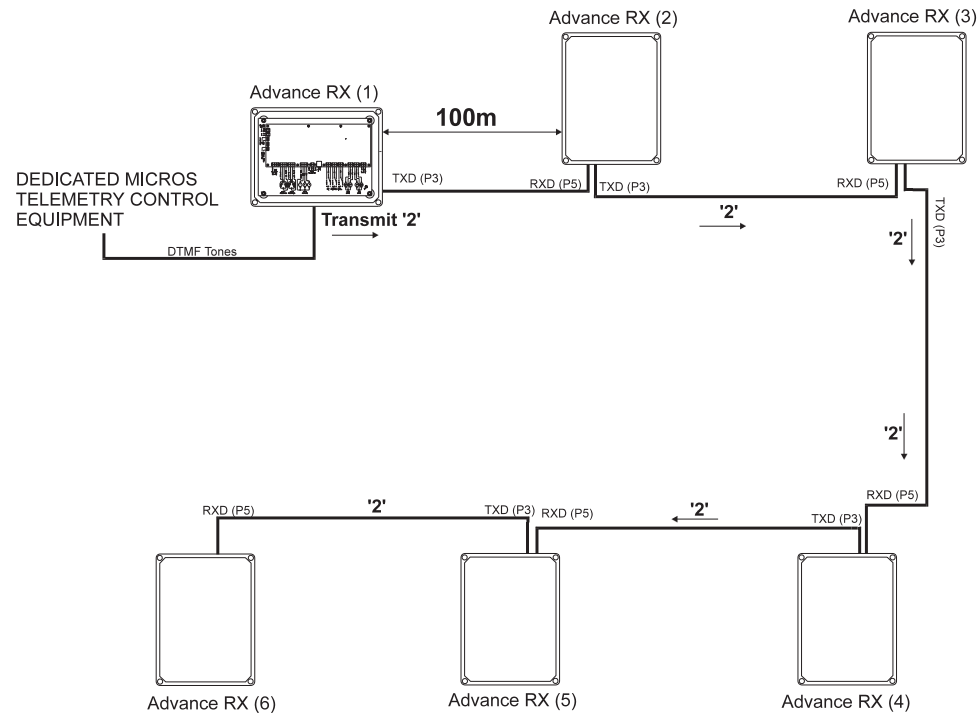
RS232 Daisy Chain Control

Note   Daisy Chain control is Simplex operation only, i.e. one direction.

The Advance DR4+ is connected to the c-bus network via the Advance TI, (see Advance TI manual for details on setting the address for this unit).

The Advance DR4+ must be set to reflect the camera input to which it is attached. This is done by changing the link settings on J3 as detailed in the table below.

J3 1-2	J3 3-4	J3 5-6	J3 7-8	Cam. Number
OFF	OFF	OFF	OFF	1
OFF	OFF	OFF	ON	2
OFF	OFF	ON	OFF	3
OFF	OFF	ON	ON	4
OFF	ON	OFF	OFF	5
OFF	ON	OFF	ON	6
OFF	ON	ON	OFF	7
OFF	ON	ON	ON	8
ON	OFF	OFF	OFF	9
ON	OFF	OFF	ON	10
ON	OFF	ON	OFF	11
ON	OFF	ON	ON	12

J3 1-2	J3 3-4	J3 5-6	J3 7-8	Cam. Number
ON	ON	OFF	OFF	13
ON	ON	OFF	ON	14
ON	ON	ON	OFF	15
ON	ON	ON	ON	16

When using the Advance DR4+ in conjunction with a Multiplexer, the telemetry type must be set separately for each camera input. See the relevant multiplexer manual ofr complete details.

Note   A Manual is provided with this unit containing specific information on the Alarm Board

The Alarm Board can be fitted to the Advance DR4+ adding extra Auxiliary relays and alarm inputs. The alarm board is detected at power up, and will be configured during Auto Setup (*862 005). If an alarm board is fitted after the receiver Auto Setup has been executed the unit will not have it's alarm setting configured, therefore the alarm auto setup command must be entered.

The alarm board is connected to P1 of the Advance DR4+ PCB and the power supply to P2.

There are sixteen alarm inputs which are configured to Normally Open as default. There are seven auxiliary relays that can be controlled on the Alarm PCB, these are:

AUX 0, AUX 4 - AUX 9. AUX 0 and AUX 9 are the light duty switching relays and AUX 4 - AUX 8 are the heavy duty switching relays. RELAY 3 is the 'Alarm Relay'.

When an alarm is received the pan & tilt head will automatically go to the corresponding preset position. The alarm presets are always presets 11 - 26 (where alarm No. 1 is preset 11 and alarm No. 16 preset 26). RELAY 3 on the alarm board will actuate and remain on for the Set Relay On Time, this relay can be used to switch on "WHITE LIGHT" i.e. an Halogen Lamp, to illuminate the allocated area.

The following are observed when an alarm is activated.

*   If Patrol Mode is in operation this will automatically be cancelled and resumed after double the delay to patrol time has elapsed.

*   If Park Mode is in operation this will automatically be cancelled and resumed after double the delay to patrol time has elapsed.

*   Alarm operation, i.e. head travelling to the corresponding preset, will be carried out regardless of whether the head is logged on or off.

*   Alarm inputs 1 - 16 are mapped to preset positions 11 - 26 of each receiver.

*   The Engineer's switch SW1 on the alarm board will emulate the safety link, this will toggle in it's operation. By pressing SW1 on the alarm board, the unit will enter Engineering Mode and act as the Safety Link, which overrides the necessity of fitting the safety link to J4.

When an alarm is activated any presets selected will be overridden by the alarm preset. The Delay to Park/Patrol time will also be doubled.

The contacts are configured automatically by running the receiver Auto Setup command *862 005, (which overrides any information previously entered). If at a later date one or two contacts need to be changed, the following commands can be used.

7.1   Alarm Auto Setup   *850 000

Alarm Auto Setup allows the Engineer to automatically configure the alarm board contact settings. The code is entered when the alarm contacts are in their normal state, i.e. no alarm present.

Once the code is entered the receiver will scan the alarm contacts three times. If the contact data is the same on all three occasions the information will be stored to the EEPROM as the normal contact data. When a contact changes from this normal setting an alarm preset will be executed and the pan & tilt head will automatically travel to this position, (if a preset has been set).

This command overrides any information entered by the manual command *871 nxx.

7.2   Configure Alarm Contacts Manually   *871 nxx

This command allows the Engineer to configure individual alarm contacts.

*871 nxx   n = 0 - Normally Closed

                  n = 1 - Normally Open

                  xx = alarm contact number.

7.3   Set Alarm Relay On Time   *872 xxx

When an alarm is activated RELAY 3 on the alarm PCB is also activated for a time set by the code *872 xxx, where xxx = the time in seconds 001 - 999. This relay contact could be used for controlling 'White Light' in a protected area, i.e. a Halogen lamp can be used to illuminate the protected area, or an alarm can be sounded.
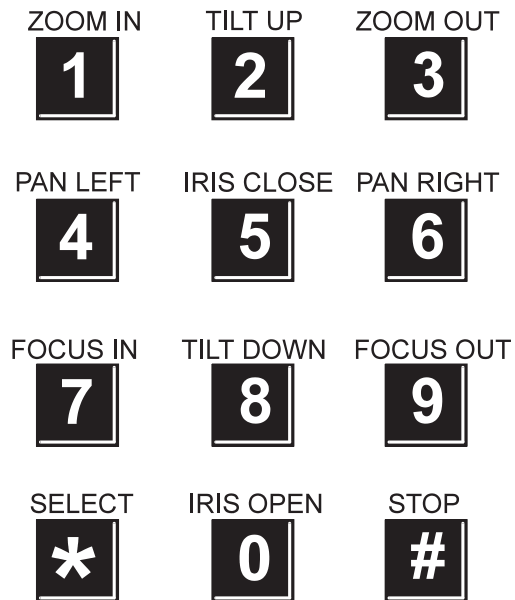
Note   RELAY 3 contact will change state on alarm, and the timer will commence when the receiver reaches the preset position.

8.1   Using the Telephone Keypad

To enable the Installation/Test Engineer to check the functions of the telemetry receiver, a telephone can be plugged into the Advance DR4+ PCB using the RJ11 socket provided (P14), or by connecting to the test point P11 & P13. Pressing any of the keys on the telephone keypad will turn on that particular motor. To stop the motor you must press the # button. All * commands may also be entered using the telephone handset.

Note   The tones being sent are shown on the seven segment LED display.

ZOOM IN	TILT UP	ZOOM OUT
1	**2**	**3**
PAN LEFT	IRIS CLOSE	PAN RIGHT
4	**5**	**6**
FOCUS IN	TILT DOWN	FOCUS OUT
7	**8**	**9**
SELECT	IRIS OPEN	STOP
*	**0**	**#**

To control an Advance DR4+ with a telephone handset the unit must be logged onto, as follows:

*2xx where xx = receiver number   e.g. *201 logs onto receiver number 1

8.2   Test AUX

*4nx where n = Auxiliary number (1, 2, or 3)

    and   x = ON or OFF (5 - ON, 0 - OFF)

e.g. *425 = AUX 2 ON

    *430 = AUX 3 OFF

8.3   Restrictions

On systems with more than one receiver, only one telephone can be plugged into the system at any one time.

When an Engineer is working on the motorised head & there is a possibility that another user could drive the head, they must make sure that the safety link is fitted (Refer to Chapter 2 Installation). In this mode, the motorised head can not be set into motion unexpectedly.

The following describes tests that should be carried out to enable an Installation Engineer to logically eliminate and locate suspected faults on the Advance DR4+. These tests have been provided so that the Installation Engineer can narrow down the area in which they have a problem, before contacting the Technical Support Department at Dedicated Micros Ltd. The results from the tests will allow the Technical Support Engineer to give prompt and accurate advice.
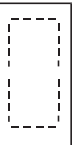
The equipment needed to carry out these tests are as described in Chapter 1 Introduction, section 1.5 Recommended Equipment and Spares.

9.1   Receiver Tests

Unable to log on and gain manual control of a specific Advance DR4+

This test is carried out with a tone dial telephone handset at the receiver.

Step	Instruction	Remark
1.	Ensure that the link on J6 is fitted.	Refer to Chapter 2 Installation, Fig. 2 for location. J6 link disables tones and must be fitted as default.
2.	Check that the receiver head address is set correctly.	Refer to Chapter 2, Section 2.7 Setting Head Address.
3.	If the head address is incorrectly set it must be reset appropriately.	The Advance DR4+ must be powered off and on so that the new head address can be read.
Q	**Is the seven segment LED display illuminated?**	
NO	Using the digital voltmeter check the mains supply to the Advance DR4+ (P20). Check fuses FS3 and FS4.	If both the mains supply and the fuses are okay, refer to Chapter 10 Returns Procedure.

Instruction	Remark
YES Check the display for one of the following:	
EN, this indicates the Safety/Engineering Mode is set and the head is disabled.	If a link is fitted to pins 1 and 2 of J4, remove it. If the link is not fitted enter the code to disable Engineering Mode (*881 004).
When the inner segments of the LED display flash it indicates the receiver has not been logged onto.	Check the address and log on using the code *2xx where xx is the number of the receiver.
When the outer segments of the LED display flashes it indicates that the receiver is logged on, and manual control should be possible.	If the relays on the unit are operating the Engineer should be able to hear them.
Using the telephone keypad try moving the head.	Refer to Chapter 7 Telephone Keypad.
If the Engineer can hear the relays check fuse FS4 and the wiring from the receiver to the head.	If the fuse and wiring are okay, refer to Chapter 10 Returns Procedure.

Unable to log onto any Advance DR4+ on the system

Step	Instruction	Remark
1.	Check the DTMF control cable is connected to the Telemetry Adapter.	Connections are made to Pins 2 and 7.
2.	Connect the telephone handset across pins 2 and 7 of the telemetry adapter.	The Engineer should be able to hear line noise down the telephone handset.
3.	If the Engineer cannot hear line noise check the 12Vdc power supply is connected to the Telemetry Adapter.	

Q **Can you log on to and control any of the receivers?**

	Instruction	Remark
NO	Check that the link is connected to J6. Transmit a tone directly to the receiver from the telephone and check that it is being displayed on the seven segment LED.	The head should move in the direction of the request **Note:** Press the '#' key stop the head.
	Check the DTMF cabling to the receiver by connecting the telephone handset locally. The Engineer should be able to hear line noise.	If line noise is not present the wiring is faulty.
	Ensure that the control unit is in telemetry mode.	
	With the handset connected to pins 2 and 7 of the telemetry adapter, transmit a DTMF tone from the control keyboard.	The Engineer should be able to hear the tones down the handset.
	If the Engineer does not hear tones then extend the DTMF one transmission length using the code *818 075 or #890 007.	If the control unit is a Uniplex Series 1/2 make sure the code is entered when the unit is in Live mode.
	Check if the tones can be heard down the handset.	If no tones are heard the telemetry adapter must be replaced and the above test repeated with the new adapter.

DTMF tones are being transmitted by the control unit but the head is not responding to the tones, the head can be controlled by a telephone handset.

Step	Instruction	Remark
1.	Check the DTMF tones transmission length by using the code *818 075 or #890 007.	If the control unit is a Uniplex Series 1/2 make sure the code is entered in Live mode.

9.2   Preset Problems

Note   Before carrying out the following section, ensure the Advance DR4+ with the problem can be logged onto using the code *2xx and manually controlled. If this is not possible refer to Receiver Test above.

Manual control is possible but presets can not be stored.

Step	Instruction	Remark
1.	Check that pan/tilt and lens feedback potentiometers are fitted.	If feedback pots are not fitted then preset functions are not available.
2.	Enter the Installer Access Code.	**Note:** Storing preset positions is password protected and can not be carried out until the Installer Access code has been entered.
3.	Enter the Auto Setup command *862 005 and check that the pan/tilt and lens motors are driven.	Refer to Chapter 3 for a full explanation of the Auto Setup procedure. If they have not been driven within a 20 second period there is a problem with the receiver wiring or the Installer Access Code was entered incorrectly.
4.	If the unit runs through the Auto Setup routine, move the head to the position required and enter the code to store a preset *7xx.	xx will be the number of the preset position.
5.	Move the pan/tilt and lens motors away from the position and recall the preset using the code *9xx.	xx will be the number for the previously stored preset. If the unit does not correspond to the recall preset command the motor that has a fault will automatically shut down after 5 seconds. A motor error command will flash on the seven segment LED display. (Refer to Chapter 11 Appendix A).

Step	Instruction	Remark
6.	Locate and fix the motor fault.	
	To clear the error codes and re-enable preset capability enter and then exit Engineer Mode (*881 003/*881 004).	**Note:** This must only be carried out after the motor fault has been rectified.

Presets can manually be recalled but Patrol Mode does not work

Step	Instruction	Remark
1.	Set the number of presets to Patrol using the code *857 0xx.	This will dependent on how presets have been set on the unit.
2.	Enable Patrol Mode by entering the code *854 001.	
3.	Reset the Delay to Patrol Mode to 1 minute using the code *853 001.	Wait for a minute and the head will travel to any of the presets.

No control on c-bus

Step	Instruction	Remark
1.	Ensure c-bus positive and negative control signals are the correct way around.	
2.	Ensure the c-bus address links are connected to the correct controlling multiplexer.	

10.1   Advance DR4+ Specification

Voltages:	230 Volt AC 24 Volt AC 12 Volt DC

Functions

Lens Drive:	Zoom in, Zoom out, Focus near, Focus far, Iris open, Iris close 9-12V dc PWM drive.
Lens Speed Control	Zoom and Focus motor drive speed independently configurable between 10 and 100% of normal speed (in 10% steps).
Presets:	100 configurable from 00-99. With 00 reserved for a parking position. Presets 1 and 2 reserved for auto-pan. If an Alarm Board is fitted presets 11 - 26 become alarm presets.
Auxiliaries:	Auxiliary 1 - momentary contact Auxiliary 2 - Latching contact Auxiliary 3 - user definable on/off
Alarm Inputs:	Optional Alarm Board providing 16 programmable Normally Open or Normally Closed contacts.
Alarm Outputs:	Six Heavy Duty Relay Outputs - five for general use. RELAY 3 is an alarm output relay which remains energised for a user determined time after an alarm. Two Light Duty Relay Outputs.
Park Mode:	Configured as preset 0, head returns to preset 0 after a set time.
Auto Pan:	Pan & Tilt head and lens travels automatically between two points.
Patrol Mode:	Random Patrol between presets, time delay between presets configurable between 1 and 99 minutes.

Global Preset:		Sends all pan & tilt heads and lenses to their alarm preset or park preset position
PC Control:		Controlled via RS232, with port set at 9600 Baud, 8 data bit, No parity, 1 stop Bit. Enables setup, function drive, on-line monitoring.

Physical Aspects

Data Input:		DTMF two wire connection, not polarity conscious
Dimensions:	Enclosed	360 (W) x 270 (D) x 181 (H)
	Chassis	318 (W) x 213 (D) x 76 (H)
Weight:	Enclosed	3.14Kg
	Chassis	1.34Kg

10.2   Suggested Cable Types

AC Wiring

* Pan motor, Tilt motor, Camera, wash/wipe, lamps, etc.:
  440 Volt RMS, 1 Amp per core, 7/0.2mm stranded, unscreened (500 metre reel)

DC Wiring

* Focus drive, Zoom drive, Lens Feedback and Head Feedback, etc.:
  440 Volt RMS, 1 Amp per core, 7/0.2mm stranded, Overall braid screen (500 metre reel)

Telemetry Cable

* Telemetry cabling
  Drop wire No. 10 as manufactured by BICC (500 metre reel)

Serial Cable (if required)

* Advance DR4+ to Personal Computer
  440 Volt RMS, 1 Amp per core, 7/0.2mm stranded, unscreened

*   Advance DR4+ to Advance DR4+

        440 Volt RMS, 1 Amp per core, 7/0.2mm stranded, overall braid screen

c-bus cable

*   Cable type - UTP grade 5 data cable. (Farnell 436.768)

*   For harsh noisy environments, use screened data cable (Farnell 143.072)

Note: When screened cable is used it is inportant to take the screen to ground at one point only. The continuity of the screen should be maintained throughout the c-bus cable.

10.3   Fuses

Refer to Figure 2 for location of the following components.

FS1 and FS2 are self-resetting thermal fuses. FS1 protects the 12V dc input and is only fitted on the 12V dc version of the Advance DR4+. FS2 protects the DC motor drive and 12V power for the alarm board.

Warning   When Fuses FS1 and FS2 are tripped the temperature of the components will increase. To reset, power down the board and leave for approximately one minute for the components to cool.

FS3 is a 1 Amp anti-surge (slow blow) fuse, protecting the main board.

FS4 is a 2 Amp anti-surge (slow blow) fuse, protecting Pan and Tilt motors. Very heavy-duty heads may require a larger fuse, up to 6.3 Amps rated, do not fit a larger fuse unless it is necessary. Ensure that the wiring is up-rated appropriately if the fuse rating is increased.

11   Returns Procedure

11.1   In the Event of Difficulty

Receiver technology is reliable and faults are rare. Most user problems are concerned with installation and set up. If you are in difficulty first approach your dealer or distributor. Dedicated Micros operates a Technical Support Group where most technical problems can be solved over the telephone, however it is important that this manual has been followed before calling the Technical Support Group.

The following are the telephone numbers for all Dedicated Micros Technical Support Departments:

U.K.	Int +(44) 161 727 3241
Belgium	Int +(32) 1640 1228
U.S.A	Int +(703) 904 7738 or (800) UNIPLEX
Asia	Int +(65) 741 0138
Australia	Int +(612) 482 1857

Note   This manual must be available when contacting Dedicated Micros as reference will be made to it.

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 any 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 rear cover of this manual, a completed copy of the EQUIPMENT RETURN ADVICE must be sent with the unit.

If the unit crosses a national border, enter the Airway Bill number on the copy of the EQUIPMENT RETURN ADVICE and fax to 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 it's warranty void, due to misuse or damage, the Repairs Department will contact the account customer to advise the 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:

12.1   Error Codes

Note   Although an error code has been indicated manual operator movement will still be available.

The error codes displayed on the seven segment LED display are detailed in full in the chapter.

E1- PAN MOTOR FAULT	When the user selects a preset position involving **PAN** movement and the pan motor fails, after five seconds the motor will shut down and pan drive will be removed for any presets. **E1** will flash on the LED display.
E2 - TILT MOTOR FAULT	When the user selects a preset position involving **TILT** movement and the tilt motor fails, after five seconds the motor will shut down and tilt drive will be removed for any presets. **E2** will flash on the LED display.
E3 - ZOOM MOTOR FAULT	When the user selects a preset position involving **ZOOM** and the zoom motor fails, after five seconds the motor will shut down and Zoom drive will be removed for any presets. **E3** will flash on the LED display.
E4 -FOCUS MOTOR FAULT	When the user selects a preset position involving **FOCUS** and the focus motor fails, after five seconds the motor will shut down and Focus drive will be removed for any presets. **E4** will flash on the LED display.

E5 to E7 have not been allocated.

E8 - ALARM BOARD FAULT   If the I^{2}C cable from the alarm board becomes disconnected then **E8** will flash on the LED display.

E9 - WATCHDOG RESET ACTIONED   If the processor has crashed during operation and has been internally reset then **E9** will flash on the LED display.

Note   Motor errors can only be detected on heads with feedback pots fitted.

To clear error codes and re-instate preset capability enter Engineer Mode and then exit this mode. Entering Engineer Mode will cancel all error information from the display.

Faults are also echoed to the serial port if DEBUG is enabled, therefore the error will be downloaded to the PC stating which motor has a fault, e.g. PAN FAULT.

13.1   System Commands

This chapter can be used in conjunction with the Quick Reference Card on the rear cover of this manual.

COMMAND	RANGE	FUNCTION	PASSWORD PROTECTED
*1xx	01 - 02	Monitor Selection; 01 - Main, 02 - Spot	NO
*2xx	01 - 16	Camera Select CAM 1 - CAM 16	NO
*4nx	n = AUX No. x = 5 ON x = 0 OFF	Control Auxiliary Relays	NO
*5nn	00 - 16	Global goto command for receivers. Sends all receivers to preset positions, 00 Park Mode preset for heads	NO
*7xx	00 - 99	Store a preset position, 00 is always Park Mode preset	YES
*800 000		Download information via RS232 serial port	NO
*800 001		Display command set via RS232 serial port	NO
*800 00x	2 or 3	2 - Display alarm contact setup via RS232 Serial port 3 - Display preset status via RS232 port	NO

COMMAND	RANGE	FUNCTION	PASSWORD PROTECTED
*850 000		Alarm Board Auto Setup	YES
*851 nnn	001 - 999	Set Delay to Park Mode in minutes	NO
*852 nnn	000 - 001	000 - Park Mode Disabled 001 - Park Mode Enabled	NO
*853 nnn	001 - 999	Set Delay to Patrol Mode in minutes	NO
*854 nnn	000 - 001	000 - Patrol Mode Disabled 001 - Patrol Mode Enabled	NO
*857 nnn	001 - 999	Set number of presets for patrol	NO
*858 nnn	000 - 001	000 - Auto Pan Disabled 001 - Auto Pan Enabled	NO
*861 005		Set pan left ELECTRONIC End Stop	YES
*861 006		Set pan right ELECTRONIC End Stop	YES
*861 007		Set tilt up ELECTRONIC End Stop	YES
*861 008		Set tilt down ELECTRONIC End Stop	YES
*861 009		Cancel all ELECTRONIC End Stops	YES
*862 005		Auto Setup	YES

COMMAND	RANGE	FUNCTION	PASSWORD PROTECTED
*862 006		Iris Motor Drive Enabled	YES
*862 007		Iris Motor Drive Disabled	YES
*865 nnn	010 - 100	Focus Drive minimum 10% - 100% in 10% steps	YES
*866 nnn	010 - 100	Focus Drive maximum 10% - 100% in 10% steps	YES
*867 nnn	010 - 100	Zoom Drive minimum 10% - 100% in 10% steps	YES
*868 nnn	010 - 100	Zoom Drive maximum 10% - 100% in 10% steps	YES
*869 nnn	001 - 005	DC Motor start-up time minimum to maximum in seconds	YES
*871 nxx		Set alarm contact type used with the Alarm Board	YES
*872 nnn	001 - 999	Relay on time for RELAY 3 in seconds	YES
*881 001		Clear all presets	YES
*881 003		Engineer Mode Enabled	YES
*881 004		Engineer Mode Disabled	YES

COMMAND	RANGE	FUNCTION	PASSWORD PROTECTED
*883 nnn	000 - 099	Clear an individual preset	YES
*885 nnn	000 - 005	Set pan motor preset DeadBand	YES
*886 nnn	000 - 005	Set tilt motor preset DeadBand	YES
*887 nnn	000 - 005	Set zoom motor DeadBand	YES
*888 nnn	000 - 005	Set focus motor DeadBand	YES
*9nn	00 - 99	Recall preset position for an individual preset	NO

DEDICATED MICROS (UK) LTD.
11 Oak Street, Swinton, Manchester, M27 4FL, United Kingdom
* Lloyd's Register and BSIA accredited

DEDICATED MICROS (BELGIUM) LTD
Interleuvenlaan 64, 3001 Leuven, Belgium

DEDICATED MICROS (USA) INC.
11515 Sunset Hills Road, Reston, Virginia 22090, U.S.A.

DEDICATED MICROS (ASIA) PTE. LTD.
1 Tannery Road, #05-04/05 Cencon I, Singapore 1334.

DEDICATED MICROS (AUSTRALIA) PTY
Unit 1, 30 Leighton Place, Hornsby, NSW 2077, Australia

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