B A X A L L

**ZKX2-K and ZKX2-J Keyboard
Installation and Operation Instructions**

IMPORTANT

The first few pages of these instructions contain important information on safety and product conformity. Please read, and ensure that you understand this information before continuing.

<div align="right">

PRODUCT SAFETY
</div>

Please follow these instructions as you install your keyboard and retain them for future use. If you have any problems, contact your Baxall agent.

⚠ WARNING

Installation is only to be carried out by competent, qualified and experienced personnel.

Wire in accordance with your national wiring regulations. Failure to do so can result in injury or death by electric shock.

Use a class 2 isolated power supply for the 12V DC.

This product must not be used for intrinsically safe or medical applications.

△ CAUTION

Do not exceed the voltage and temperature limits given in the specification.

<div align="right">

ELECTROMAGNETIC COMPATIBILITY (EMC)
</div>

△ CAUTION

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

This product is intended for use in general purpose CCTV applications in a residential, commercial or light industrial EMC environment, and has no other use. Refer to Baxall Security before using the product in an industrial EMC environment.

The product must be installed in accordance with good installation practice to enable the product to function as intended and to prevent problems. Refer to your agent for installation guidance.

Contact Baxall Security Limited to obtain a specification defining the acceptable levels of product degradation with regard to EMC immunity.

<div align="right">

MANUFACTURER'S DECLARATION OF CONFORMANCE
</div>

Baxall Security Limited declare that the product supplied with this manual is compliant with the essential protection requirements of the EMC directive 89/336 and the Low Voltage Directive LVD 73/23 EEC. Conforming to the requirements of standards EN 55022 for emissions, IEC801 parts 2, 3 and 4 for immunity and BS415 superseded by EN 60950 for Electrical Equipment safety.

<div align="right">

UNPACKING
</div>

Keep your packaging for use if your keyboard is stored for a time or needs to be returned for whatever reason. The packaging should contain:-

• ZKX2-.. keyboard

• BAX-NIL2/RJ

• These Instructions

Check the product code on the serial number label. If you have an incorrect item or it is damaged then inform Baxall Security Limited and the carriers immediately. If the equipment is incorrect or damaged, do not attempt to use it.

BAX-RKIT - Remote keyboard wiring kit, for connecting a keyboard at a distance greater than 10 metres from the main unit. It can also be used to connect multiple keyboards. Kit includes PSU11/T power supply, 2 x BAX-NIL2/RJ, 2 x BAX-NAP screw terminal to RJ45 adapters.

BAX-NIL1 - 1 metre lead, RJ45 to 6 pin mini-din

BAX-NIL2/RJ - 2 metre lead, RJ45 to RJ45

BAX-NIL4 - 4 metre lead, RJ45 to 6 pin mini-din

BAX-NIL9 - 9 metre lead, RJ45 to 6 pin mini-din

These leads are for connecting your keyboard to the ZTX6 matrix or ZMX multiplexer. The maximum length of this connection is 10 metres.

BAX-NILA - 1 metre lead, 2 x 6 pin mini-din

This lead is for connecting local main-units together. It only makes the network connections.

BAX-NAP - Network Access Point. RJ45 to screw terminal adapter

BAX-CON1 - Back-to-back RJ45 connector

PSU11/T - 12V DC Class 2 isolated power supply

BaxNet

Your keyboard can control ZMX+, ZMXStorm, ZMX/../9, ZMX/../16 and ZTX6/.. units over the BaxNet network. Note throughout this manual, ZMX+, ZMXStorm, ZMX/../9, ZMX/../16 are referred to collectively as ZMX.. .
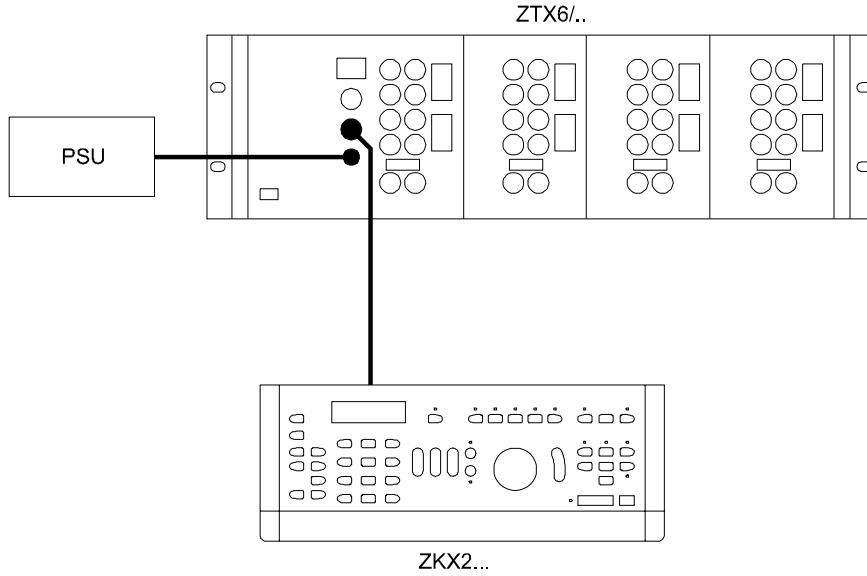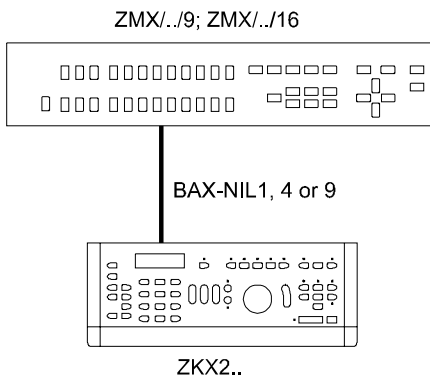
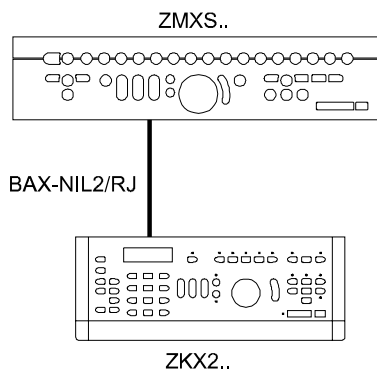Fig. 1 Connection to a ZTX6

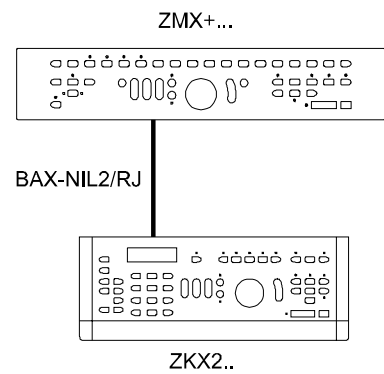Fig. 2 Connection to a ZMX..   Fig. 3 Connection to a ZMXS..   Fig. 4 Connection to a ZMX+

You can connect multiple keyboards, multiple ZMX.. and multiple ZTX6/.. units on a single network providing that the total number of devices does not exceed 32. A BAX-RKIT provides the facility for remote keyboard connection via screw terminal network access points.
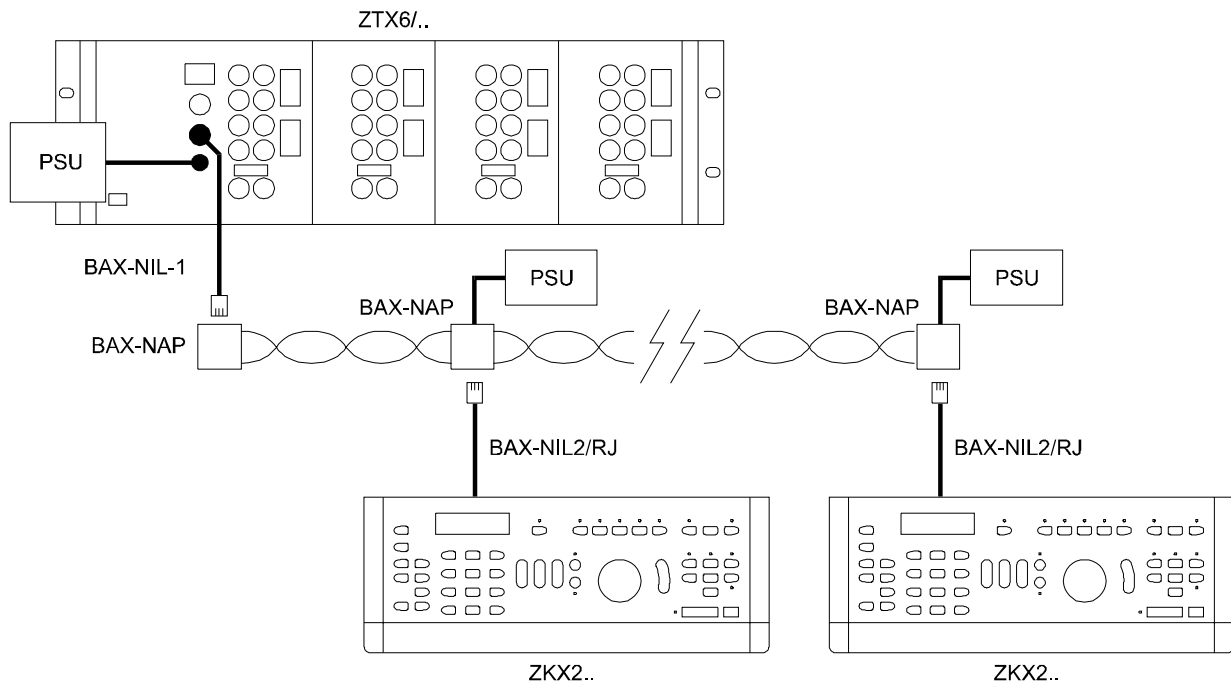
Fig. 5 BaxNet system showing multiple keyboards

If you wish to wire your network using 8 pin RJ45s then Appendix A gives details of the RJ45 connections on the rear of your keyboard.

DESCRIPTION OF UNIT IDS

Each unit on the BaxNet network requires a Unit ID number. This Unit ID is used to select a unit for control. The keyboard Unit ID determines the control priority over other keyboards (lower number keyboards take precedence over higher number keyboards).

The table below defines the maximum number of units which can be installed on a single BaxNet network and their valid unit IDs. For a more full explanation see 'Unit IDs - Legal Values'. Note that Unit ID 0 is reserved do not use it.

Unit	Possible Unit IDs	Maximum Units
ZKX2-..	1 to 8	8
ZMX..	9 to 32	*
ZTX6/..	9 to 32	*

Total number of devices connected including keyboards must not exceed 32. Therefore with 8 keyboards 24 other devices may be connected, with 3 keyboards, 29 other devices etc.

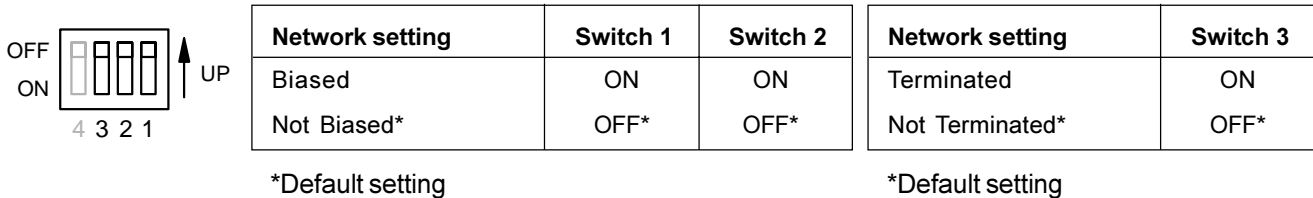**CONNECTING A SINGLE KEYBOARD TO A SINGLE ZMX.. OR ZTX6/..**

The keyboard accepts power over the BaxNet network (max distance 10 metres) from a ZMX.. or a ZTX6/.. . Each can power a single keyboard.

Connect the leads as shown in figures 1, 2, 3, 4 or 5.

If you are only using a single keyboard, the installation is now complete. The ZTX6/.. Unit ID is displayed on power-up. The ZMX.. Unit ID will need setting in the 'COMMUNICATIONS, RS485' menu, refer to your ZMX.. instructions.

The keyboard has built in network termination and/or biasing. For most small to medium sized installations, it should not be necessary to change the switches from their default settings. Only for large installations should your network require biasing and/or terminating. Contact Baxall Security Limited for advice. The switches are shown below for your reference. The default setting for switches 1, 2 and 3 is OFF. Switch 4 is not used.

OFF
ON
4 3 2 1
UP

Network setting	Switch 1	Switch 2
Biased	ON	ON
Not Biased*	OFF*	OFF*

*Default setting

Network setting	Switch 3
Terminated	ON
Not Terminated*	OFF*

*Default setting

The Unit ID is a number between 1 and 32. It is used to select a ZMX.. or ZTX6/.. for control from your keyboard and also to decide the priority of one keyboard over another (lower numbers take precedence).

The priority of keyboards over each other is determined by the value of the Unit ID. Keyboards with a lower value Unit ID take precedence over keyboards with a higher Unit ID. A higher priority keyboard can take control of a ZMX.. or ZTX6/.. immediately and at any time from a lower priority keyboard. A lower priority keyboard must wait for 30 seconds from the last command by the higher priority unit before it can take control. If another command from the higher priority keyboard is sent in this time then it must wait another 30 seconds. The following control messages are displayed on on the ZKX keyboard:

CONTROL LOST   Indicated when a higher priority keyboard on BaxNet has taken control or when the current keyboard has timed out.

CONTROL UNIT #n   Indicated when the current eyboard has control over all other keyboards on the BaxNet connection.

To re-activate control of a keyboard that has timed-out (CONTROL LOST), operate the pan or tilt keys.

IMPORTANT NOTE: Use the table to decide the Unit IDs. ZKX2-..s Unit IDs must be between 1 and 8

Setting the unit ID is included in the ZTX6/.. instructions, setting the unit ID on a ZMX.. is done in the 'COMMUNICATIONS, RS485' menu and setting the unit ID on the keyboard is described below.

The following table gives the valid unit IDs for the listed products. Note that Unit ID 0 is reserved do not use it.

Unit	Possible Unit IDs
ZKX2-..	1 to 8
ZMX..	9 to 32
ZTX6/..	9 to 32

Read these instructions thoroughly before attempting to change the Unit ID.

1. Disconnect the power from your keyboard

2. Reconnect the power

3. Within 5 seconds of reconnecting the power, press the two keys shown below simultaneously.

⟨⬆⟩ AND ⟨▤⟩

4. The LCD display should change to:

   Special Config

5. Within 5 seconds press the Reverse Play key ◁

6. The LCD display should change to:

   Change KBD Id

7. Within 5 seconds enter the new ID number (1 - 9) and press the enter key.

8. The LCD display should change to:

   Change KBD Id

   New SELFUNT = 00n
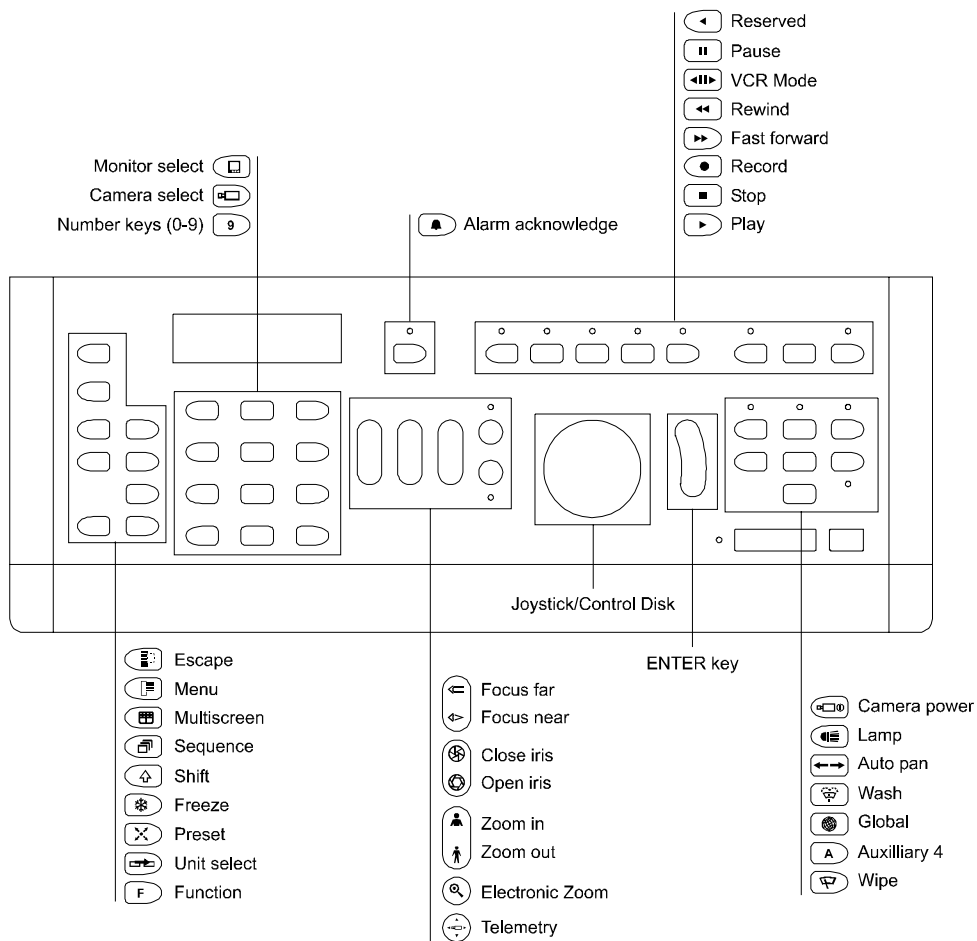
   where n is the new unit number.

BASIC OPERATIONS

Fig. 6 ZKX2.. Keyboard layout and key descriptions

BASIC OPERATIONS

ZKX2-.. keyboards are provided with a means of controlling cameras fitted with pan/tilt heads. Depending upon the keyboard model, this may be either a two axis joystick (ZKX2-J) or a control disk (ZKX2-K). Where on screen programming is required, these controls serve to input text, navigate through menus, etc. **Important Note**: During power-up, the keyboard performs a joystick calibration function. Do not move the joystick during this period until the keyboard has been properly initialised.
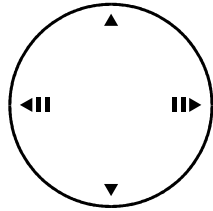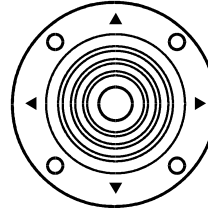
                Control Disk   Joystick

Note: In the following function table + indicates an action followed by another action e.g. Unit ID + ⬚ means enter the Unit ID number using the numerical keys then press the Select Unit key. AND indicates the simultaneous action of two keys e.g. Ⓕ AND ⬚ means press the Function and Menu keys simultaneously.

FUNCTION TABLE

FUNCTION	DESCRIPTION	KEYSTROKE
Select Unit	You must select a unit in order to control it. To select a unit:	Unit ID No. + ⬚ AND ⬚
Select Camera	Enables a specific camera to be selected	Camera No. + ⬚
Select Monitor	Enables a specific monitor to be selected	Monitor No. + ⬚
Select Monitor A to E [†]	Selects Monitor A - E (1=A, 2=B, 3=C, 4=D, 5=E).	⬚ + ⬚
Select Sequence	Starts a predefined sequence on the current monitor To stop the sequence, select a camera.	Sequence No. + ⬚
Select Preset	Selects a preset camera position	Preset No. + ⬚
Select Preset [†]	Selects a preset camera position	⬚ + Preset No. + ⬚
Record Preset	Records a preset camera position	Ⓕ + Preset No. + ⬚
Selecting a Macro [†]	Selects and runs a predefined Macro	Macro No. + Ⓕ
Adjusting the LCD	Allows the LCD contrast to be adjusted. (Use Focus Near ⬚ and Focus Far ⬚ keys to adjust followed by enter ⬚ to store the setting).	Ⓕ AND ⬚
Enable Beep	Switches on the beep-on-keypress function	Press and hold Ⓕ then press ⬚ + ⬚ + ⬚
Disable Beep	Switches off the beep-on-keypress function	Press and hold Ⓕ then press ⬚ + ⬚ + ⬚

[†] ZMX... only

Responding to an alarm on the ZMX..

1. Select the ZMX.. : Unit ID No. + ⌂ AND ⊡

2. Press the Alarm Acknowledge key ◖

Responding to an alarm on the ZTX6/..

1. Select the ZTX6/.. : Unit ID No. + ⌂ AND ⊡

2. Select the alarm monitor: Monitor No. + ⊡

3. Press the Alarm Acknowledge key ◖

This action allows you to manually activate an alarm using your ZKX2-.. :

1. Press and hold the Shift key ⌂

2. Press the number key corresponding to the camera associated with the alarm.

3. Press the Camera key ⊡

This action allows you to store a camera position as a preset in enhanced mode:

Ⓕ + preset number using the number keys + ⊗

This action allows you to record a full screen camera sequence using your multiplexer's Autolist™ feature (ZMXplus series). See the ZMX+ manual for a detailed description of the Autolist™ function.

To start Autolist™ recording

1. Enter full screen live mode for the desired Monitor

2. Press and hold the Shift key ⌂

3. Press the number key '1' followed by the Sequence key ⊡

To stop Autolist™ recording, press the number key '1' followed by the Sequence key ⊡

To start the Autolist™ camera sequence, press the number key '1' followed by the Sequence key ⊡

To stop the Autolist™ camera sequence, press the number key '1' followed by the Sequence key ⊡

The following special operations are not operator functions. Only in exceptional circumstances should it be necessary to change these settings. Refer to Baxall Security Limited for guidance. They must all be performed within 5 seconds of power connection.

Change the number of Keyboard Retries (default setting is 003)

1. Press ⌂ AND ⊞

2. Press the Pause key ⏸

3. Enter a number using the numerical keypad

4. Press the Enter key

Note that high keyboard retry values will cause the keyboard to wait for long periods before responding to further operator input.

<div align="right">

SPECIAL POWER-UP SEQUENCES
</div>

Performing a Factory Reset

This operation allows you to reset your keyboard to its factory default settings. Note that after performing this procedure the Unit ID will need to be re-entered - see page 8.

1. Press ⌂ AND 🔲

2. Press the Play key ▷

Change Timeout setting (default setting is 035 units. Each unit = 5ms)

1. Press ⌂ AND 🔲

2. Press the Forward/Reverse key ◁▷

3. Enter a number using the numerical keypad

4. Press the Enter key

<div align="right">

KEY FUNCTIONS
</div>

The following table shows the keys and briefly describes their function. Not all keys will function. Their use depends upon the type of equipment being controlled by the keyboard.

| KEY	DESCRIPTION
🔲	Used in menu functions. Cancels the current menu level and returns to the previous level (where supported)
🔳	Selects Menu mode for ZTX6/.. and ZMX.. (shift key must also be depressed to enable menu selection)
⊞	Toggles the multiple picture display on a multiplexer
▤	Allows you to select a camera sequence
⌂	Shift key - allows multiple use of keys
✳	Electronically freezes the picture on a multiplexer
⊠	Enables a specific preset to be selected, displayed or recorded
⊟	Allows you to select which remote unit to communicate with (shift key must also be depressed to enable remote selection)
F	Used in conjunction with other keys to modify their actions; enable disable macros
▯	Enables a specific monitor to be selected
▭	Enables a specific camera to be selected
9	Numerical keys (0-9).
⇐	Focus on a distant object for cameras with controllable lenses.
⇒	Focus on a near object for cameras with controllable lenses.
⊛	Close the iris for cameras with controllable irises.
⊚	Open the iris for cameras with controllable irises.
⬆	Zoom in for cameras with controllable zoom lens.
⬇	Zoom out for cameras with controllable zoom lens.
⊕	Electronically zooms the display on the monitor when used in conjunction with a multiplexer.
⊙	Allows telemetry control (multiplexer specific key).
◁	Reserved for future use.
❚❚	VCR Pause.

KEY	DESCRIPTION
⊲▮▮▶	Switches the keyboard to VCR mode enabling VCR control keys - see Controlling a VCR
◀◀	VCR Rewind.
▶▶	VCR Fast Forward.
●	VCR Record; Selects Record mode on multiplexer.
■	VCR Stop; Selects Live mode on multiplexer
▶	VCR Playback; Selects Playback mode on multiplexer
⊏▭◖	Toggles camera power relay on/off for a selected camera (Aux 1). May be used globally.
⊏▤	Toggles lights on/off for a selected camera (Aux 5). May be used globally
⬅➡	Starts Autopan for selected camera
☂	Selects wash for selected camera (Aux 2). May be used globally.
▽	Selects wipe for selected camera (Aux 6). May be used globally.
◉	Applies certain selected functions globally. E.g. ◉ + ☂ will wash all cameras.
Ⓐ	Auxiliary 4

CONTROLLING A VCR

Your ZKX2.. keyboard can control a VCR connected to a multiplexer via an RS232 link. To enable VCR control, the keyboard must be switched to VCR mode using the VCR mode key ⊲▮▮▶. This key has a toggle action and the led above the key will be lit indicating that the keyboard is in VCR control mode. To exit VCR mode, press the VCR mode key again. When the keyboard is in VCR mode, the following keys are available to control your VCR.

Note. Ensure that the submacros in your multiplexer are programmed correctly for the type of VCR in use. Refer to your multiplexer and VCR manuals for further details.
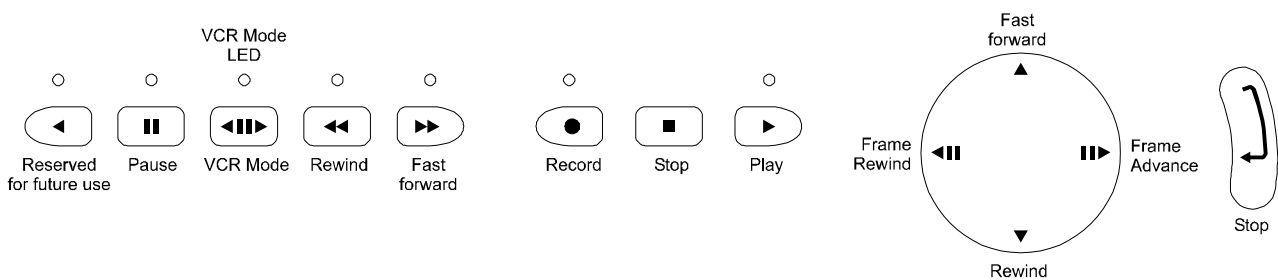
CAMERA TITLE EDITING USING THE ZKX2

When editing the camera title on a multiplexer, the character set can only be changed using the sequence key.

SUMMER/WINTER TIME ADJUSTMENT USING THE ZKX2

Summer/Winter time adjustment on a multiplexer must be performed using the appropriate keys on your multiplexer front panel.

SPECIFICATIONS

The BaxNet Network

Maximum network length 1.2km. Maximum number of nodes 32.

The 32 nodes can be a combination of ZMX.., ZTX6/.. and ZKX2-.. units.

The ZKX2-.. Keyboard

Can control multiple ZTX6/.. and ZMX.. units

ZKX2-K   50 keys with 16 status LEDs, 16x2 LCD and buzzer for messaging

ZKX2-J   46 keys with 16 status LEDs, 16x2 LCD and buzzer for messaging

Each ZTX6 or ZMX can power a single keyboard (less than 10 metres away) from the BaxNet connectors.

Inputs and Outputs

2 x 8 pin RJ45 BaxNet connectors for daisy-chaining of network and power connections to a single keyboard.

Mechanical

ZKX2-K 132 (D), 56 (H), 340 (L) Weight 1.26 kg

ZKX2-J 132 (D), 80 (H), 340 (L) Weight 1.72 kg

Material Mild-steel and aluminium

Colour

Case: Graphite-grey. Keys: blue, orange and grey.

Temperature Specification

Operational temperature limits:-

-10ºC to +50ºC at 10% to 80% relative humidity (non-condensing)

Storage temperature limits:-

-20ºC to +60ºC at 10% to 95% relative humidity (non-condensing)

Network Wiring

2 BaxNet connections via 8 pin RJ45 sockets.

For Standard BaxNet use shielded twisted pair cable Belden 8723. Maximum network length 1.2 kilometres.

For BaxNet and keyboard power use 4 core shielded cable type Belden 8723, maximum length 10 metres.

Power

Power Consumption: Maximum 3 VA

The connections on the 8 pin RJ45 sockets are given here for your information.

Pin	Connection
Shield	Chassis Ground
1	Signal Ground
2	Power supply positive (+12 volts unregulated)
3	RS485 wire 1 (signal +)
4	No connection
5	No connection
6	RS485 wire 2 (signal -)
7	Signal Ground
8	Power supply positive (+12 volts unregulated)