

RADAMEC BROADCAST SYSTEMS

ADVANCED ROBOTIC CONTROL

Shot Control Panel Operators Manual



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1 INTRODUCTION

The Shot Control Panel or 'SCP' is used to provide remote control movement of several cameras. The SCP can be used to control up to eight cameras with profiled movements over the axis' PAN, TILT, ZOOM and FOCUS.

2 PANEL FEATURES

2.1 Overview

The SCP can be broken down in to three distinct areas through which the user will control camera movements. These are;

- KEYBOARD
- TRIMS (Consisting of joystick, encoder, and throttle bar)
- LCD DISPLAY with built in TOUCHSCREEN

2.2 Keyboard

The SCP keyboard consists of eight dedicated camera select buttons CAM1 – CAM8. The keys are used purely for selecting or deselecting which camera is to be controlled. Each of these keys has a built in lamp. Situated above the eight camera select keys are eight red LED's. These LED's are used to indicate that a camera is currently ON AIR. This is discussed in more detail later.

A numeric keypad is provided consisting of digits '0' – '9' as well as a 'DECIMAL,' 'CLEAR' and an 'ENTER' key. The numeric keyboard is used to input values into various fields as required for camera control. Note that none of the keys within the numeric pad array have lamps built in.

Three large keys which are regularly used in camera control are provided on the left hand side of the panel, these are 'STOP', 'CUT' and 'FADE'. Each of these keys is fitted with a lamp.

Finally four blank keys incorporating lamps are provided above the numeric pad. These keys are programmable function keys and may be programmed to perform some of the actions available using touch screen buttons.

2.3 Trim Control

2.3.1 JOYSTICK

The SCP incorporates a three-function joystick that provides flexible control over the PAN, TILT and ZOOM axis.

- PAN : LEFT / RIGHT
- TILT : FORWARDS / BACKWARDS
- ZOOM : ROTATE CLOCKWISE / ANTI-CLOCKWISE

2.3.2 ENCODER

A continuous rotation encoder, situated to the right of the camera select keys provides focus control.

2.3.3 THROTTLE BAR

A throttle bar is provided above the 'STOP' key and this is used to vary the Time value associated with a shot, or to vary the speed of a fade once it has started.

2.4 Display and Touch Screen

The main feature of the SCP is the ¼ VGA Liquid Crystal Display with integrated touch screen. The display is used to report all necessary status to the operator and via simple graphical user interface, the operator can also access various utility functions and operating modes.

The display pages incorporate various touch screen regions that when pressed will perform specific operations. These regions are generally in the form of 3D style buttons but can also be areas of the display where data is displayed. By using the touch screen buttons the operator can access extra display pages which in turn incorporate a different range of buttons and functions.

3 DISPLAY PAGES

This section provides illustrations of some of the more important display pages which will be encountered as the operator uses the system. In addition there are various other pages however the majority of these extra pages only incorporate a different sub set of touch screen buttons.

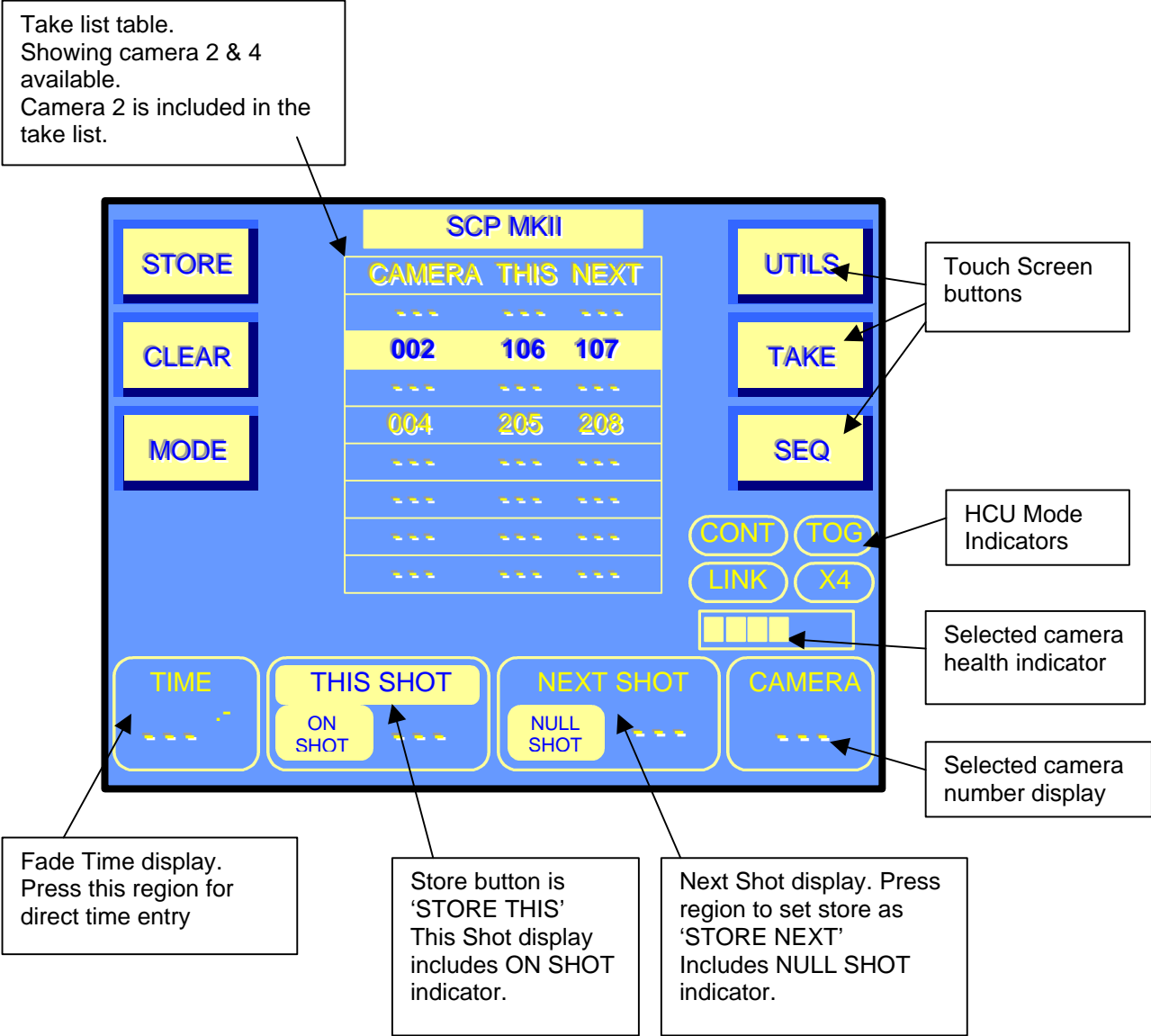
3.1 System start up page

When the system is powered on, the panel will start by running some internal initialisation, upon completion of this the display will show the following page. After approximately five seconds the SCP MKII MAIN page will load.



3.2 SCP MKII main page

In general the page shown below will usually be displayed during operation of the panel. This page is classed as the top-level menu page.



The graphical display consists of the following regions

- Six touch screen buttons
- A Take list table in the centre of the display which shows any on line HCU's,
- Panel mode indicators (CONT), (TOG), (LINK), (X4)
- Current camera selection display box.
- Next Shot display box with NULL SHOT indicator.
- This Shot display box with ON SHOT indicator.
- Time display box.
- Status message bar.
- Selected camera health indicator.

3.3 Sequence Editor

The Sequence editor is a secondary main operating page. When the operator wishes to use the panel in LINK mode running a programmable sequence of shots, this page will need to be selected.

Sequence data. Item 5 is high lighted as for next shot. Press these regions to select them.

Sequence number 2 is loaded. Press this region to enter a new sequence number.

Status message indicating sequence has changed and should be saved.

Link mode is active.

The graphical display consists of the following

- Six touch screen buttons
- An array of twenty shot boxes which display the shot numbers programmed into the current selected sequence. The list of shots is read from left to right, top to bottom with the top left box showing the first shot in the sequence and the bottom right showing the last shot in the sequence.
- Panel mode indicators (CONT), (TOG), (LINK), (X4)
- Current camera selection display box.
- Next Shot display box.
- This shot display box
- Time display box

- Sequence display box.
- Status message bar.
- Selected camera health indicator.

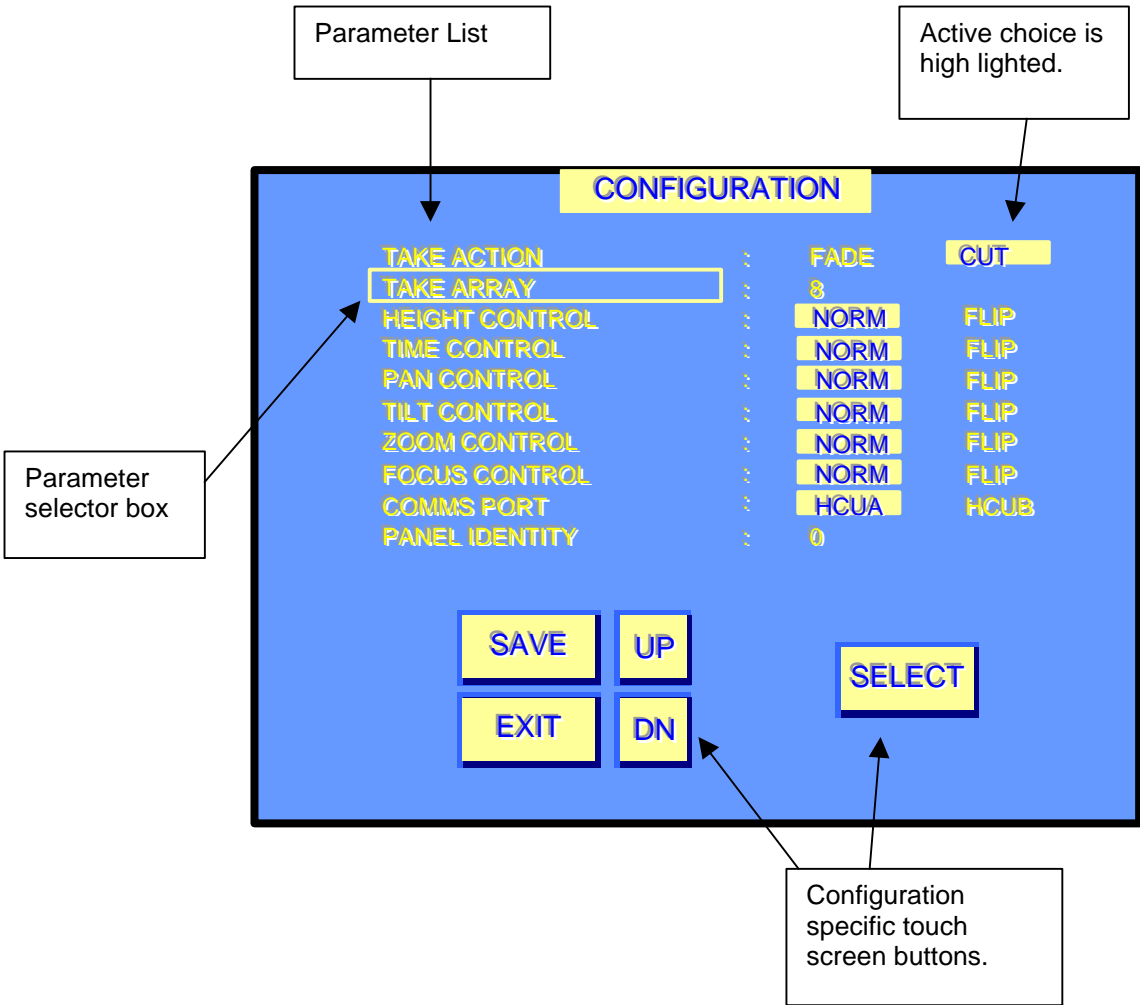
3.4 HCU Mode Selection

The Mode selection page is accessible from either the MAIN PAGE or the SEQUENCE PAGE. This graphical display incorporates the standard display elements from the MAIN PAGE less the take list, but provides the operator with different touch screen buttons which can be used to activate or de-activate HCU control modes. In addition the operator may access this page for setting the SOFT LIMITS.

The Mode Selection page incorporates a touch screen button labelled [BACK] and pressing this button reload the previous menu page.

3.5 Configuration Page

The configuration page is accessible through the Utilities button which can be found on the SCP MKII main page.



4 BASIC OPERATIONS

4.1 Camera Selection

4.1.1 Select & De-Select Actions

Camera selection is carried out using the CAM1 – CAM8 pushbuttons on the panel. The camera select keys are mutually exclusive such that selection of one channel will automatically cause the de-selection of the previously selected channel. The selected channel button will illuminate upon being pressed, if the channel does not receive a response from the desired HCU the button lamp will be automatically extinguished leaving no channels selected. When an illuminated button is pressed the channel will be deselected and the lamp will be extinguished.

Once communication has been successfully established the display will update showing the camera number selected, full health bar indicator and 'this shot', 'next shot', 'time' if these fields are reported as non zero by the HCU.

4.1.2 Affect on vision switcher outputs

The action of selecting a camera causes the vision switcher interface to operate. The actual operation of the vision switcher contacts is configurable with in the SYSTEM menu.

4.1.3 Camera selection in a multiple panel configuration

When the panel is used in a multiple panel configuration it may not be possible to select a valid camera. This is due to another panel already having control it, depending upon the configuration settings in the HCU it may be possible to double press the camera select button in order to take over control from the other panel.

4.2 Trim Control

4.2.1 Joystick Control

The joysticks and encoders on the panel control the camera and lens functions. The trims will only perform these functions while a camera is selected.

The three-axis joystick incorporates a small 'dead-zone' within which movement of the joystick will not result in any camera movement. Outside this zone, the speed of movement of the functions increases with the displacement of the joystick from its central position.

The joystick and encoder directions can be reversed in the CONFIGURATION menu. This is discussed in more detail later.

4.2.2 Zoom Correction

Zoom correction is a facility which allows pan and tilt speeds to be related to the zoom angle such that movements which include both zoom and pan/tilt allow pan/tilt to appear constant velocity rather than appearing to speed up when zooming in. This facility is enabled in the HCU and not the on the panel.

When 'x4' mode is enabled in the mode selection page, pan and tilt will respond more rapidly.

To activate / de –activate 'x4' mode:

- i. Press [MODE] button on the display.
- ii. Press [X4] button on the display.
- iii. The 'X4' mode indicator should change state.
- iv. Press [BACK] to return to previous page.

4.2.3 Trim Limits

Trim movement may be limited by operator programmable soft limits, which can be set as follows:

- i. Press [MODE] button on the display.
- ii. Press [LIMITS] button on the display.
- iii. Press the button on the display corresponding to the limit you wish to configure.
Example - [PAN].
- iv. Press either [SET LO] or [SET HI] depending on the desired limit to configure.
- v. The message '**MOVE TRIM**' will now flash indicating that you need to move the trim.
- vi. Once the trim has been moved to the correct position, complete the operation by pressing the [SET LO] / [SET HI] button again.

Note that the [RESET] button found on each limit configuration page will actually reset all soft limits set for every axis.

4.3 Entering a shot number

The shot number is entered using the numeric keys 0-9. A shot number in the range 1 – 600 may be entered into the NEXT SHOT display field. Numbers are displayed from the right-hand least significant digit first. Thus keying 4, 3 and 2 in order will be displayed in the NEXT SHOT region as shots 4, 43 and 432 respectively. A zero or blank shot number is displayed as '---'.

When a shot number is entered the system will treat each digit as a potentially required shot and the time associated with it will be displayed. If the message 'NULL SHOT' appears in the NEXT SHOT display region, then the shot has no data information stored.

Press the CLEAR button on the numeric keypad to erase NEXT SHOT display for error correction.

4.4 Setting a time value

A time value can be entered into the time display field using one of two possible methods.

4.4.1 FADE RATE bar

The time value can be adjusted by moving the FADE RATE bar accordingly. If no time is displayed in the field the bar must be pushed forward first to initiate time entry.

4.4.2 Direct Time entry

The time can be entered directly using the numeric pad. To initiate direct time entry first touch the display region where the time value would normally be shown. The status message on the display now shows <TIME ENTRY>, this indicates to the operator that any entry on the numeric pad will now be directed to the TIME field. Using the digits 0-9 and the decimal point

the time can now be entered. When the desired time is shown correctly in the time field press the numeric pad ENTER key to finish.

Note that whichever method is used to adjust the time value the time is not stored with the 'NEXT SHOT' number unless a store next shot action is executed.

4.4.3 *Minimum time value*

Any time value stored is checked by the microprocessor, this in turn calculates the actual possible minimum time (i.e. the CUT time) that it would take to reach the shot from the current position. If this CUT time is greater than stored in the time field, the microprocessor will ignore the entered time and instead display the minimum time.

4.5 Storing Shots

4.5.1 *Store button location*

The store button is located on the display as a touch screen button. The ability to store a shot is only available within two display pages:

- SCP MAIN PAGE
- SEQUENCE EDITOR

4.5.2 *Store button action*

The store button operates in two modes; these are STORE NEXT and STORE THIS. The operator can identify the current operation mode by observing the 'THIS SHOT' and 'NEXT SHOT' display areas. If the text 'THIS SHOT' is highlighted then the action performed by pressing store will be a STORE THIS. Alternatively if the text 'NEXT SHOT' is highlighted then the action performed will be 'STORE NEXT'.

The store key action is configured by pressing either the 'NEXT SHOT' display area or the 'THIS SHOT' display area. The highlight marker will move according to which area is pressed.

4.5.3 *Store NEXT*

By pressing the store button when the panel is configured for STORE NEXT operation all the trim positional information and fade time will be stored into the shot number shown in the NEXT SHOT display area. The ON SHOT message will appear in the 'THIS SHOT' display region to show that all functions are now at the stored position.

4.5.3.1 *Increment mode*

If the panel is in increment mode, indicated by the TOG indicator ***not shaded***, then the panel will acknowledge a store next operation by transferring the NEXT SHOT number to the THIS SHOT number and incrementing the NEXT SHOT number by one. Any new fade time associated with the new NEXT SHOT number will be displayed in the TIME display area. In this way, shot positions may be copied to incremental shot numbers by continuously pressing the store key.

4.5.3.2 *Toggle mode*

If the panel is in toggle mode, indicated by the TOG indicator ***shaded***, then the panel will acknowledge a store next operation by exchanging the shot numbers displayed in THIS

SHOT and NEXT SHOT. The fade time displayed in the TIME display area will reflect the fade time associated with the new NEXT SHOT number (i.e. which was the old THIS SHOT number).

To activate / de –activate toggle mode:

- i. Press [MODE] button on the display.
- ii. Press [TOG] button on the display.
- iii. The toggle mode indicator should change state.
- iv. Press [BACK] to return to previous page.

4.5.4 Store THIS

The store this facility is intended for use in trimming and re-storing existing shots.

A recalled shot that is still on shot may need a little trimming of one or more functions. Whilst in 'STORE THIS' mode these small changes can be updated quickly and easily simply by pressing the store button. This avoids having to reload the shot number in the next display field then performing the updates.

The system will store the amended shot to the number displayed in the 'THIS SHOT' display and will not change the fade time value which is already associated with this shot. The ON SHOT message appears on the display to show that all functions are now at the stored position.

The action is independent of whether the panel is in Increment or Toggle mode.

Note that performing a store this does not update the time value.

4.6 Erasing Shots

4.6.1 Null Shot

A null shot is a shot number where no valid trim or time data is stored. This occurs on a new system where the shot memory has not yet be filled. In addition to this shots can be 'nulled' deliberately. A camera system will ignore a null shot either by not performing the cut/fade or by passing it completely in continuous fade mode.

4.6.2 Nulling a shot

The process of erasing a shot is to store a null shot. To enable this action to be performed easily a CLEAR touch screen button is available on the display. Similar to the store button the clear action differs depending if NEXT SHOT or THIS SHOT is highlighted.

Pressing the clear button while THIS SHOT is highlighted will null the shot number that was displayed in THIS SHOT. Alternatively pressing the clear button while NEXT SHOT is highlighted will null or erase the shot number that was displayed in the NEXT SHOT display.

Erasing multiple shots can be achieved by using the clear button with THIS SHOT highlighted. Ensure the panel is in increment mode and then press CLEAR followed by the CUT button to call up the next shot. Repeat this operation [CLEAR] then [CUT] until all the desired shots are nulled.

4.6.3 *Clear button location*

As with the store button the clear button is only available within one display pages:

- SCP MAIN PAGE

5 RECALLING SHOTS

5.1 General Description

When a shot is stored, the current position of each of the trim functions of the selected camera and the fade time displayed on the panel are memorised in the battery-backed memory of the HCU. Hence even when the power to the HCU is switched off the shot information will still be available for recall when the power is re-established.

Recalling of shots occurs in a controlled and smooth manner, all arriving at the same time to a high degree of accuracy. The movement from the current position to the recalled position is a profiled movement containing acceleration and a deceleration profile to ensure that the movement is of the highest quality.

A shot can be recalled using either the CUT or FADE keys.

5.2 Cuts and Fades

5.2.1 Fade to a shot

Pressing the FADE key will initiate a profiled move to the shot number shown in the NEXT SHOT display. The move will take exactly the time displayed in the TIME field. All trims will complete their moves simultaneously and during the fade the time can even be adjusted using the Fade Rate bar. While a Fade is in progress the button will illuminate and also the status message <FADING> will be shown on the display.

5.2.2 Cut to a shot

If the CUT key is used then the next shot is moved to in the fastest possible time. While a CUT is in progress the button will be illuminated and the status message bar will show <CUTTING>.

5.2.3 Emergency stop

During a Cut or a Fade, movement can be completely halted by pressing the STOP key. When the STOP is pressed it will be illuminated for a short period then it will automatically extinguish.

5.3 Take function

5.3.1 Take description

The shot control panel provides an advanced operation with involves the ability the force a camera that is not selected to cut or fade to its next shot. The take function is only available from the top-level display page:

- SCP MAIN PAGE

5.3.2 *Displayed information*

In the SCP MAIN display page a table is shown which lists all the cameras which are online and responding the poll requests from this panel. The table is divided into three information columns. The first column shows the camera number which is determined by the HCU identity number, while the second and third column show the camera current shot (THIS) and (NEXT) shot.

5.3.3 *Adding a camera to the take list*

Each row of the table except the heading is actually a touch screen active region. By touching this area of the display the row will can be selected and deselected. A camera is included in the take list if its row in the table is highlighted. Only rows within the table, which are displaying a valid camera number, may be selected or deselected.

Currently the table supports up to maximum of eight cameras. The size of the table can be adjusted in the configuration menu to display 2, 4, 6 or 8 cameras. This is useful when there are less than eight cameras in the system, as the touch screen regions become larger and are therefore easier to activate. However the cameras in the system should be configured to start from the lowest identity number as the table always starts from camera 1.

5.3.4 *Performing the take*

When one or more of the cameras in the table are selected a take can be initiated by pressing the touch screen TAKE button. The action of pressing the take button tells each HCU to either cut or fade to its next shot. It is important to understand that each camera has its own mode settings and do not copy the current panel settings. For example camera 2 may be in toggle mode while camera 3 is in continuous mode, in this instant the take will have a different effect on each camera. Within the panel configuration menu the take action can be set up for either a cut or a fade, however certain configurations of the HCU may override the panel request.

6 LINK SEQUENCE MODE

6.1 General Description

The link sequence facility allows up to 20 shots to be grouped together and stored as a sequence. A single camera can store up to 99 different sequences. In each sequence shot numbers are entered in the order in which they need to be recalled. The operator does not need to fill all twenty shot entries and blank entries or those containing null shots will be ignored by the HCU.

6.2 Operating in link sequence mode

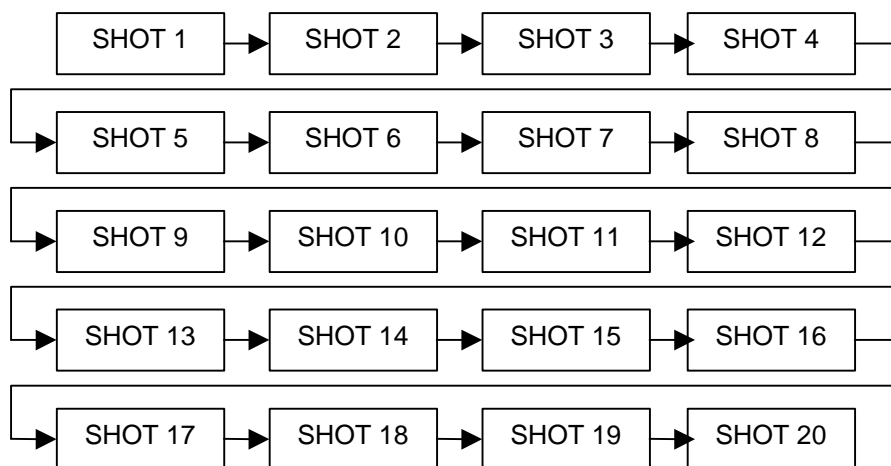
6.2.1 Selecting the SEQUENCE EDITOR page

To use the link sequence mode the operator will need to select the sequence editor page. Pressing the touch screen button [SEQ] on the SCP MAIN display page will cause the sequence editor page to load.

6.2.2 Display layout

Upon selecting the SEQUENCE EDITOR display page it will become apparent that the display now incorporates a Sequence number display field and a twenty shot table. The standard display areas such as time, this shot, next shot, camera number and mode indicators remain but now there is no take list table or indeed take button.

The order in which the twenty shot's items are displayed is illustrated below:



6.2.3 Sequence number entry

The sequence number is displayed in the display area just above the time field. Generally if the HCU has had a sequence previously selected, the number of that sequence will be displayed here. If however the HCU has never had a sequence loaded before the field will be

blank showing '---'. To enter a new sequence number press the sequence display region of the touch screen, the display box should now be highlighted and the status message should report <SEQ ENTRY> which informs the operator that numeric keypad presses will be directed to the sequence number field. Enter the desired number in a similar fashion to that of entering the time, remembering that a valid sequence number is in the range 1 – 99. When the correct number is shown in the field press the keypad ENTER key to accept the number and load the link sequence data.

6.2.4 *Editing a sequence shot entry*

To edit one of the sequence table entries, press the touch screen display box corresponding to the desired shot position so that it is highlighted. Now press the touch screen button labelled [EDIT], the status message <EDIT SEQ SHOT> should appear and now the numeric pad can be used to enter the desired shot number. When the correct shot number is displayed in the field press the ENTER key to accept.

Editing a shot number will not automatically update the sequence in the HCU. The operator must save the sequence. So long as the sequence shown on the display does not correspond to that stored in the HCU the status message <SEQ CHANGED> will be reported. This should be used as a prompt to save the sequence data.

If the sequence is changed but not saved, the panel will automatically reload the correct sequence data after about 10 seconds. This is to avoid the confusion of the operator running the sequence with data that is incorrect. Every time the touch screen edit button is pressed the timer will reset enabling multiple shot edits to one save.

If the LINK flag is highlighted, hence link mode active, only the sequence table items which have a shot number displayed in them may be edited. The reason for this is that in pressing the sequence data area while the LINK flag is active the operator is also trying to select a start position for the next shot number. The HCU validates the shot number and if it identifies this as an invalid shot it immediately skips over it.

6.2.5 *Saving the sequence data*

To save the shot data displayed back to the HCU press the touch screen button labelled [SAVE]. The message <SEQ CHANGED> should disappear.

6.2.6 *Inserting a new shot into the sequence data*

If the operator suddenly decides that a shot has been missed out or indeed a new shot is now required the touch screen button [INSERT] can be used to add a blank entry into the sequence table at the current selected position. All sequence data after this position will be shifted one item towards the end of the sequence resulting in the last item being removed.

Using the [INSERT] function only adds the blank space into the sequence and does not allow immediate editing of the actual shot number.

Similar to the [EDIT] procedure the sequence will need to be saved to avoid automatic reload of the actual sequence.

6.2.7 *Running the sequence*

To configure the panel so that it will CUT or FADE through sequence table first ensure that the desired sequence is loaded and then activate the LINK flag via the MODE SELECTION page. On the sequence editor page pressing a data region displaying a shot number will

cause the HCU to set this as the next shot. A CUT or a FADE will now move to this shot and then load up the next shot from the sequence.

7 AUTO ON AIR

7.1 General description

The special feature AUTO ON AIR is available in SCP software V1.06 and later. Auto on air is a mode which when enabled will allow the SCP to automatically select the camera which has just been placed on air.

7.2 Activating AUTO ON AIR

The feature 'AUTO ON-AIR', is enabled by pressing the region labelled CAMERA. This is located on the main page and is the area in where the camera number is displayed. If this region is highlighted then AUTO ON AIR is active.

When multiple panels are operated together only one of the panel can be used in AUTO ON AIR mode. This panel is typically referred to as the MASTER panel and must be configured with an ID of 0, therefore only a panel with an ID of 0 can use the AUTO ON AIR facility.

Configuration of the panel ID number is described in paragraph 8.3.10.

8 PANEL UTILITY FUNCTIONS

From the top-level display page the touch screen button labelled [UTILS] allows the operator to move to the UTILITIES display page. Various special functions can be accessed from this page included:

- Built in Diagnostics
- Software version information
- Panel configuration
- System page
- Touch Screen calibration

8.1 Diagnostics

Selecting the DIAGNOSTICS page will allow the operator or field engineer to run some basic tests on the panel hardware. It is recommended that the tests are executed without a Camera selected.

8.1.1 TRIMS test

Selecting Trims test will allow the operator to test that all the trims are operating correctly by monitoring the values displayed. The expected ranges for movement of the trims is detailed below:

- | | | |
|---------|--------------|----------------------|
| • PAN | -125 to +125 | |
| • TILT | -125 to +125 | |
| • ZOOM | -125 to +125 | |
| • FOCUS | -999 to +999 | (no camera selected) |
| • FADE | -8 to +8 | |

8.1.2 KEYS test

This will test that each key is recognised correctly. Press the touch screen button [START] to start the test then press every key in turn and observe that the correct key description is displayed at the bottom of the display. The test will automatically timeout after 3 seconds if a key is not pressed.

The test will also report if the on air input relays are activated.

8.1.3 LAMPS test

This test will illuminate each lamp in turn and then extinguish each lamp. The test also activates the relays contacts outputs on the vision switcher port. Note that the numeric pad keys do not have any lamps.

A progress bar is displayed on the screen to show how much of the test has been completed.

8.1.4 REPORT test

The report test has been included only for engineering diagnostics. The data displayed represents current information from the selected HCU.

Generally an operator should not use this test.

8.1.5 COMMS test

The communications test allows quick evaluation of any errors that are occurring on the communication port. Errors are counted for each serial channel on the panel, no errors should be reported if the serial ports are operating correctly.

8.2 Software information

Pressing the touch screen button [SWVER] in the UTILITIES PAGE will display information about the current software running on the panel. This information includes the following:

**TITLE
PART NUMBER
VERSION
RELEASE DATE
INFORMATION ABOUT THE KEYBOARD SOFTWARE**

8.3 Configuration

The configuration page allows the operator to adjust some of the panel operating parameters. The configuration page is loaded by selecting [CONFIG] from the UTILITIES menu. The configuration page consists of five touch screen buttons – Save, Exit, Up, Down (Dn) and Select, in addition to a list of currently ten parameters and their corresponding variables settings.

The touch screen [UP] and [DN] buttons are used to move the selection box to the desired parameter. The [SELECT] button is then used to change the value of the selected parameter. Upon completion the configuration can be saved such that it is remembered when the panel is switched off or alternatively just used for this session, hence until the panel is power cycled.

The [SAVE] button is used to save the configuration information and the [EXIT] button moves back out of the configuration display page.

8.3.1 Take Action

The take action parameter determines the type of movement requested by the panel when the TAKE button is pressed. The options available are CUT or FADE.

It is important to note that other configurable parameters within the HCU's may contradict with this setting.

8.3.2 Take Array

The configuration of the take array parameter determines the size of the take table displayed on the main operating page. The options available are 2, 4, 6 or 8. The take list will always start with camera one therefore if the take array value is set to four only camera 1,2,3 and 4 are displayable.

8.3.3 Joystick Profile

This parameter is currently not used by the panel.

8.3.4 Time Control

The time control parameter determines the direction of the fade rate trim.

8.3.5 Pan Control

The pan control parameter determines the direction of the pan trim.

8.3.6 Tilt Control

The tilt control parameter determines the direction of the tilt trim.

8.3.7 Zoom Control

The zoom control parameter determines the direction of the zoom trim.

8.3.8 Focus Control

The focus control parameter determines the direction of the focus encoder.

8.3.9 Comms Port

This parameter is currently not used by the panel.

8.3.10 Panel Identity

The panel identity number is used when multiple panels are connected in a system. Each panel must have a unique identity number so that the HCU's can recognise a controlling panel.

8.4 System

The system page is used to allow an engineer to configure the advanced settings of the panel. Access to these features is protected by a numeric password. While the password has not been entered into the system the system pages will only display two touch screen buttons [LOGIN] and [EXIT]. To proceed into the advanced setting pages [LOGIN] must be pressed.

8.4.1 Login

Upon pressing the [LOGIN] touch screen button, a text field will be displayed with the label 'Password' and beneath this label will be eight blank character fields. The password always consists of ***numbers only*** and these are entered directly from the numeric keypad. The password can be of variable length up to eight digits. Once the password has been entered the ENTER key on the numeric pad must be pressed, the system will validate the password and if correct show the additional system function buttons on the display. If the password is entered incorrectly the password numeric fields will be cleared and the operator can retry. All digits entered into the password field can be completely erased by pressing the CLEAR button on the numeric pad.

8.4.2 Logout

If the login has been successful the system page will show a [LOGOUT] touch screen button. In order to protect any system settings from unauthorised changes the logout button should be pressed to prevent further access to the system features.

8.4.3 Password changing.

In order to change the current password the operator must be logged in. Whilst logged in, the system page will show a [PWRD] touch screen button. Pressing the [PWRD] button will display a field labelled 'New Password'. As for the login process the operator may now enter the new desired password – remember only numbers are allowed!

The new password is set as soon as the operator presses the [ENTER] key.

8.4.4 Function key programming.

The touch screen button [FUNCS] will load a new page enabling the operator to set up certain functions to be controlled directly using the four function keys situated above the numeric pad. The 'FUNCTION KEYS' page allows the operator to scroll through a list of available functions using the touch screen shuttle control buttons [<<] and [>>].

When the desired function appears in the description field the operator can then assign this to one of the function keys by simply pressing the touch screen [F?] key. A description of the functions already assigned to keys is shown next to the touch screen function key in the command display field.

To ensure that the settings are stored even if the power is lost press the [SAVE] key.

8.4.5 Vision Switcher contact configuration.

To enter the vision switcher configuration page press the [VS MODE] button on the touch screen, this is located in the system page.

The vision switcher configuration page allows the relay contact operation to be defined for each camera independently. This feature enables that the panel to be configured to control almost any vision switcher in a manor suited to the studio.

The vision switcher configuration page lists all eight channels and their current settings. Each of these display regions can be pressed in order to select that channel for configuration. A thicker border indicates the channel is selected. Each channel consists of three programmable variables:

- RELAY CONTACT DEFINITION
- SWITCHING ACTION
- CONTACT 'ON' TIME

In order for the control panel to remember the settings the [SAVE] button must be pressed.

8.4.5.1 Relay contact definition

The relay contact may be set as either 'normally open' (N/O) or 'normally closed' (N/C). The field is changed by pressing the touch screen button [RELAY].

8.4.5.2 Switching action

The switching action determines when the control panel will activate the relay. This option can be modified using the touch screen button labelled [ACTION]. There are three possible settings:

- **DIRECT**

In this mode the relay will activate as soon as the camera select key is pressed.

- **RESPONSE**

Response mode indicates that the relay will only be activated if there is a Radamec HCU responding which corresponds to the camera number selected.

- **SELECTED**

This mode defines that the relay contact will only be activated when the panel has actually gained control of the desired Radamec HCU. Hence in this mode the vision switcher will not be activated if another panel has control of the desired camera.

8.4.5.3 Relay active time

The relay activation time is shown in milliseconds, this variable can be set to any value from 0 (shown as ---) to 250 using the [TIME+] and [TIME-] touch screen buttons. When the time value is displayed as '---' then the contact will be permanently active until another camera is selected.

The default time is 100ms and this provides enough time for the relay to energise correctly.

8.5 Touch Screen Calibration

The touch screen can be re-calibrated by pressing the button labelled [CAL TS] from the utility page. It is best to calibrate the touch screen using a fine blunt pointed object such as the back of a pen rather than using a finger.

Touch screen calibration is performed as follows:

- i. Two small dots are displayed on the screen (BOTTOM LEFT and TOP RIGHT)
- ii. The text 'PRESS BOTTOM LEFT' is displayed on the screen.
- iii. Press and hold the area of the dot on the bottom left corner of the display.
- iv. Once the processor has obtained a sufficient sample it will display the message 'THANK YOU'.
- v. The operator should now stop pressing the touch screen.
- vi. A new message 'PRESS TOP RIGHT' will now appear on the display.
- vii. Press and hold the area of the dot on the top right of the display.
- viii. Once the processor has obtained a sufficient sample the calibration process will be completed.

Once the calibration procedure has been performed the new values will be used immediately. However to ensure that the new calibration values are reloaded each time the panel is switched on the operator should move to the configuration menu and select the [SAVE] button.

9 EXTERNAL CONNECTIONS

All external connections required for operating the SCP are located on the rear of the panel. In all there a five connectors as described below:

9.1.1 POWER SUPPLY

The connection for applying power to the panel is made via the 4 pin XLR connector labelled PL.A. The panel operates from a +12v D.C. supply voltage. The dc supply is generated using an appropriate power supply module available from Radamec.

9.1.2 HCU PORT A

The 9 Way D-type socket labelled PL.B is a differential RS422 serial link primarily used for communicating with a camera Head Control Unit (HCU). Multiple HCU's can be connected together up to a maximum of eight so long as each HCU has a unique identity number.

9.1.3 HCU PORT B

The 9 Way D-type socket labelled PL.C is a differential RS422 serial link. This port has been incorporated as a spare should any major fault occur with HCU port A.

[Currently unsupported by software.]

9.1.4 EXPANSION

The 9 Way D-type socket labelled PL.D is a third differential RS422 serial link. This port is for future expansion of the system and will allow communication with external panels providing additional functionality.

[Currently unsupported by software.]

9.1.5 VISION SWITCHER I/F

The 37 Way D-type plug labelled PL.E is used for driving a vision switcher from the camera selection buttons. This will allow automatic switching of a preview monitor to aid an operator in setting the shot positions. The outputs on the vision switcher connector are all volt relay contacts.

In addition to providing support for a vision switcher this port also incorporates volt free contact inputs which can be connected to a system indicating the on air status of each camera. The panel will reflect the on air status indicated on these contacts by illuminating the appropriate on air LED above the camera select keys.

9.1.5.1 Vision Switcher Connector pin out

PIN	DESCRIPTION	PIN	DESCRIPTION
1	VISION O/P #1 Contact A	20	VISION O/P #1 Contact B
2	VISION O/P #2 Contact A	21	VISION O/P #2 Contact B
3	VISION O/P #3 Contact A	22	VISION O/P #3 Contact B
4	VISION O/P #4 Contact A	23	VISION O/P #4 Contact B
5	VISION O/P #5 Contact A	24	VISION O/P #5 Contact B
6	VISION O/P #6 Contact A	25	VISION O/P #6 Contact B
7	VISION O/P #7 Contact A	26	VISION O/P #7 Contact B
8	VISION O/P #8 Contact A	27	VISION O/P #8 Contact B
9	ON AIR I/P #1 Contact A	28	ON AIR I/P #1 Contact B
10	ON AIR I/P #2 Contact A	29	ON AIR I/P #2 Contact B
11	ON AIR I/P #3 Contact A	30	ON AIR I/P #3 Contact B
12	ON AIR I/P #4 Contact A	31	ON AIR I/P #4 Contact B
13	ON AIR I/P #5 Contact A	32	ON AIR I/P #5 Contact B
14	ON AIR I/P #6 Contact A	33	ON AIR I/P #6 Contact B
15	ON AIR I/P #7 Contact A	34	ON AIR I/P #7 Contact B
16	ON AIR I/P #8 Contact A	35	ON AIR I/P #8 Contact B
17	+5 VOLTS	36	+5 VOLTS
18	GND	37	GND
19	N/C		