

Typical eTCP17 Screen Shots

TIS-018 Rev 4.0

The following document is designed to simplify the understanding of the electronic theatre control panel (eTCP17) to assist users in informing Starkstrom what controls are required and in which format.

MAIN MENU / SUMMARY



The top portion of the screen will be permanently visible. From this section, the user can navigate to the individual display pages for the various control functions as detailed on the following pages; each individual page will have a HELP and a MUTE button located in the bottom left-hand corner, which will allow the users to access the help menu for that particular screen and silence any audible alarm conditions. The audible alarm will sound on activation of any alarm condition.

From this section, the user can view the overall condition of the systems being monitored. GREEN indicates a healthy condition and RED indicates an alarm.

- Touching the relevant indicator will take the user to that screen to see the exact cause of the alarm.
- The current temperature and humidity is also displayed in this section; as well as the ability to adjust the set-point for the temperature.
- The user also has control of the following functions from this section;
 - o IN USE LIGHTS (THEATRE, X-RAY and LASER)
 - o GENERAL and CANOPY LIGHTING
 - o TIME ELAPSED CLOCK

The fire alarm is also continually displayed in this section - This is a two stage alarm that will either be GREEN for No Fire Alarm or AMBER for an ALERT and RED for an EVACUATE signal.

The user is also able to 'LOCK' the screen so that controls cannot be accessed while cleaning. Pressing the button will lock the screen for 30-seconds – if the screen is touched at any time during this count-down the timer will be reset. The screen should be left untouched for 30-seconds to allow control to return.

On activation of any alarm condition, the estates/maintenance department should be informed.

CONVENTIONAL VENTILATION SCREEN



This page displays the current status of the ventilation plant. The main portion of this screen shows a typical view indicative of a theatre, showing differing colours of arrows to indicate the condition of the plant that can be viewed easily and from a distance.

- GREEN – Plant Healthy (running in NORMAL mode with no faults)
- AMBER – Plant Healthy (running in SETBACK mode)
- RED – Plant Fault (running in NORMAL or SETBACK mode)

In addition, there is user control of the ventilation plant between the NORMAL and SETBACK modes via the blue actuators. The relevant indicator light will illuminate to show the current status (whether the plant is running in NORMAL or SETBACK; the panel will assume OFF if neither state is being shown).

There are also alarms associated with the ventilation plant;

LOW AIR FLOW, FILTER DIRTY (REPLACE FILTER), HUMIDITY LOW, PLANT FAILED

On activation of any alarm condition, the estates/maintenance department should be informed.

Typical eTCP17 Screen Shots

TIS-018 Rev 4.0

ULTRA CLEAN VENTILATION



This page displays the current status of the UCV plant. The main portion of this screen shows a typical view indicative of a theatre including a canopy, showing differing colours of arrows to indicate the condition of the plant that can be viewed easily and from a distance.

The arrows will be coloured dependant on the condition of the UCV and Ventilation Plants and is as detailed in the table below;

AHU	UCV Terminal	Indicator Light	Comment
Off or Fault	Off or Fault	RED	Ventilation not operating at a suitable level to commence surgical procedures
Off or Fault	On (Set-back)	RED	
Off or Fault	On (Full Speed)	RED	
On (Set-back)	Off or Fault	RED	
On (Full Speed)	Off or Fault	RED	
On (Set-back)	On (Set-back)	RED	
On (Full Speed)	On (Set-back)	AMBER	Ventilation provided to at least conventional theatre standard
On (Full Speed)	On (Full Speed)	GREEN	Full UCV standard conditions
-	-	BLUE	HEPA-filter resistance causing low air flow

Table 1

In addition, there is user control of the ventilation plant between the NORMAL and SETBACK modes via the blue actuators. The relevant indicator light will illuminate to show the current status (whether the plant is running in NORMAL or SETBACK; the panel will assume OFF if neither state is being shown).

There are also alarms associated with the ventilation plant;

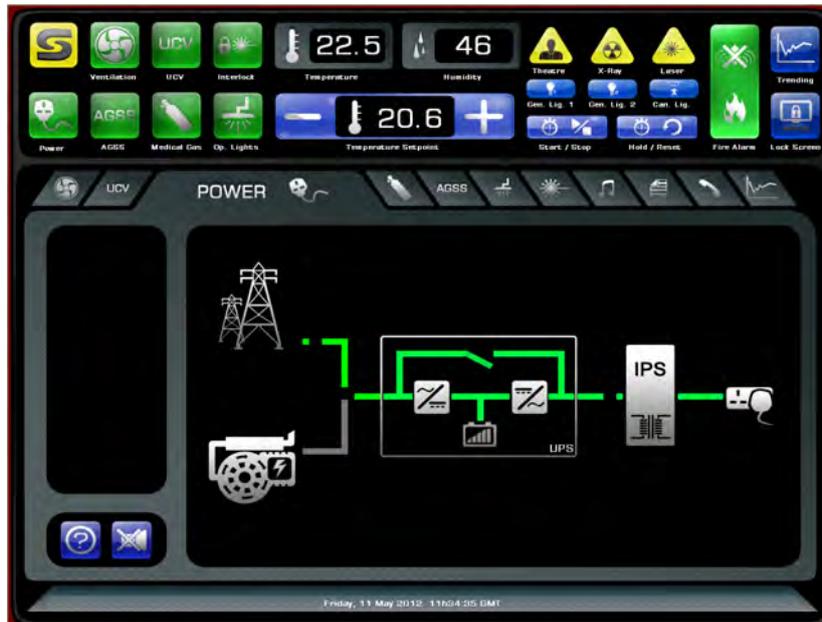
- OFF/FAULT
- CHANGE HEPA FILTER (blue; flashing red text)

On activation of any alarm condition, the estates/maintenance department should be informed.

Typical eTCP17 Screen Shots

TIS-018 Rev 4.0

POWER SUPPLY SCREEN



Mains Failed – Generator Running



IPS Alarm



UPS Mains Failed – On Battery



UPS Mains Failed – On Battery and Battery Low



UPS Bypass Active



This page displays the current situation regarding the Power Supply within the theatre.

There are alarms associated with the following items;

- MAINS SUPPLY FAILED
- GENERATOR RUNNING (ON LOAD)
- IPS COMMON ALARM
- UPS MAINS FAILED
- UPS LOAD ON BYPASS
- UPS BATTERY LOW
- UPS NORMAL MODE NOT ACTIVE

A green flow line will indicate when healthy, should a problem occur, the relevant line will change colour to indicate where the source of supply is being derived, and indicate where the alarm has occurred.

On activation of any alarm condition, the estates/maintenance department should be informed.

MEDICAL GAS ALARM SCREEN



This page displays the current status of the medical gas system pipeline pressures supplying the theatre. The system will alarm on either a HIGH or LOW pressure within the relevant gas pipeline;

- O₂ – Oxygen
- N₂O – Nitrous Oxide
- O₂/N₂O - Entonox
- MA₄ – 4-Bar Medical Air
- SA₇ – 7-Bar Surgical Air
- VAC – Vacuum (Low pressure only)
- On either HIGH or LOW pressure of a particular gas; the relevant alarm indicator will activate.

On activation of any alarm condition, the estates/maintenance department should be informed.

ANAESTHETIC GAS SCAVENGING SYSTEM SCREEN



This page displays the current status of the anaesthetic gas scavenging system supplying the theatre.

The user can switch the system ON and OFF from this screen.

The screen will indicate whether the AGSS system is running or not as well as provide alarms for;

- PLANT FAULT
- PLANT EMERGENCY

On activation of any alarm condition, the estates/maintenance department should be informed.

OPERATING LIGHT CONTROL SCREEN (marLED – LED Technology)



From this page; the user can switch ON and OFF the operating lights as well as control the intensity and focus (dependant on light type and manufacturer).

This screen also shows the condition of the Battery Backup system supporting the Operating Lights.

There are two alarms associated with the following items;

- OPERATING LIGHTS ON BATTERY SUPPLY
- BATTERY BACKUP CHARGER FAILED

In addition the user can test the functionality of the battery backup system by pressing the BATTERY TEST button; this will disconnect the mains supply feeding the lights for the stated time; forcing the lights onto the battery supply – pressing the actuator again at any time will cancel this test.

On activation of any alarm condition, the estates/maintenance department should be informed.

LASER INTERLOCK SYSTEM (LASERMET)



The Laser Interlock System prevents unauthorised and unsafe operation of the Laser equipment and is configured to provide automatic shut-off of the laser beam if safety doors, covers or blinds are opened.

In order to operate the system; the power switch should be ON.

The system will monitor up to 4x interlocks or groups of interlocks. The number of monitored interlocks is indicated by the RHS LED's being coloured GREEN (BLACK if not being monitored).

The LHS LED will display the current status of that particular interlock;

GREEN – interlock healthy : AMBER – interlock open : BLACK – interlock not monitored

Only authorised users are able to enable the laser by entering a password.

The system can be setup to either automatically disable the laser when the safety circuit is interrupted, or require the user to disable it. As default the system requires the user to disable it.

Only once enabled and when the safety circuit is healthy (all interlocks and emergency stop circuits are healthy) is the user able to arm the laser.

A keypad is supplied outside the area to allow authorised access while the laser is still active; while inside the area a door release is provided to allow the staff to exit the area while maintaining the laser – this will indicate as an amber 'OVERRIDE ON' indicator.

In case of emergency, an EMERGENCY STOP and/or EMERGENCY BREAK-GLASS are provided which will automatically disconnect the laser in case of emergency.

Typical eTCP17 Screen Shots

TIS-018 Rev 4.0

AUDIO PLAYER



From this screen the user will have access to the audio player enabling track selection, volume etc. Connection could be either via Bluetooth or a 3.5mm microphone jack.

DOCUMENTATION



From this screen the user will have access to the O&M Manuals and any other relevant documentation regarding the equipment supplied as part of the specific contract.

Pressing the associated button will open an Adobe Acrobat Document for viewing.

CONTACT DETAILS

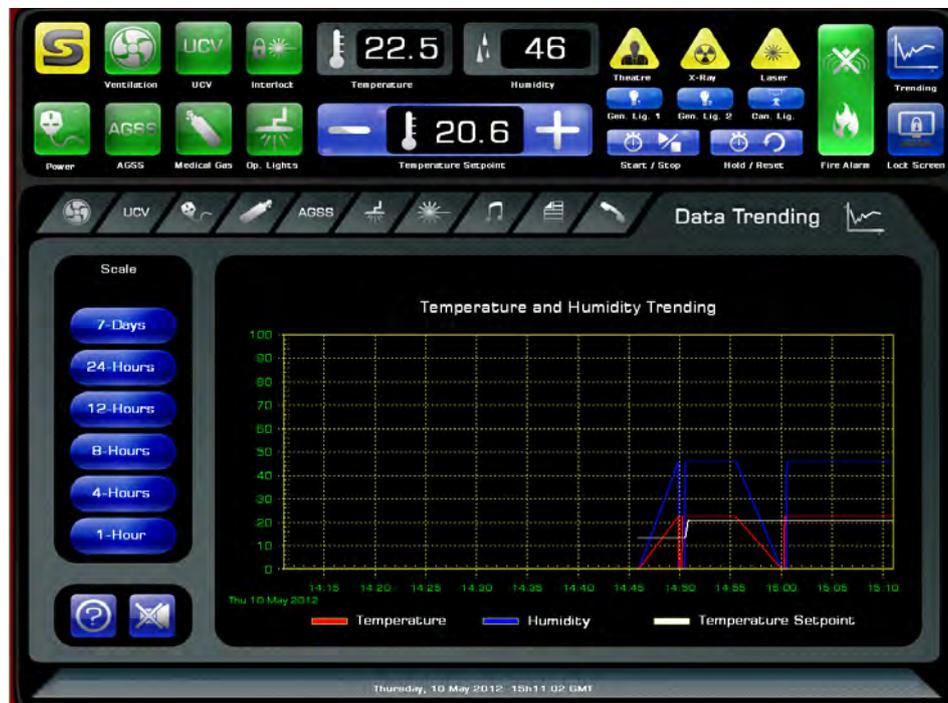


From this screen the user will be able to view the contact details for Starkstrom including Starkstrom project reference number, which should be quoted when contacting Starkstrom.

In addition the page displays a log of the latest alarms activated.

The page will include a SETUP button, whereby a competence user could access the setup menus to allow alterations to various variables.

TRENDING



From this screen the user will be able to view historical Temperature and Humidity (and temperature set-point) values.

www.starkstrom.com

256 Field End Road, Eastcote, Ruislip, Middlesex, HA4 9UW, UK
Tel +44 (0) 20 8868 3732 Fax +44 (0) 20 8868 3736

