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Total Solution

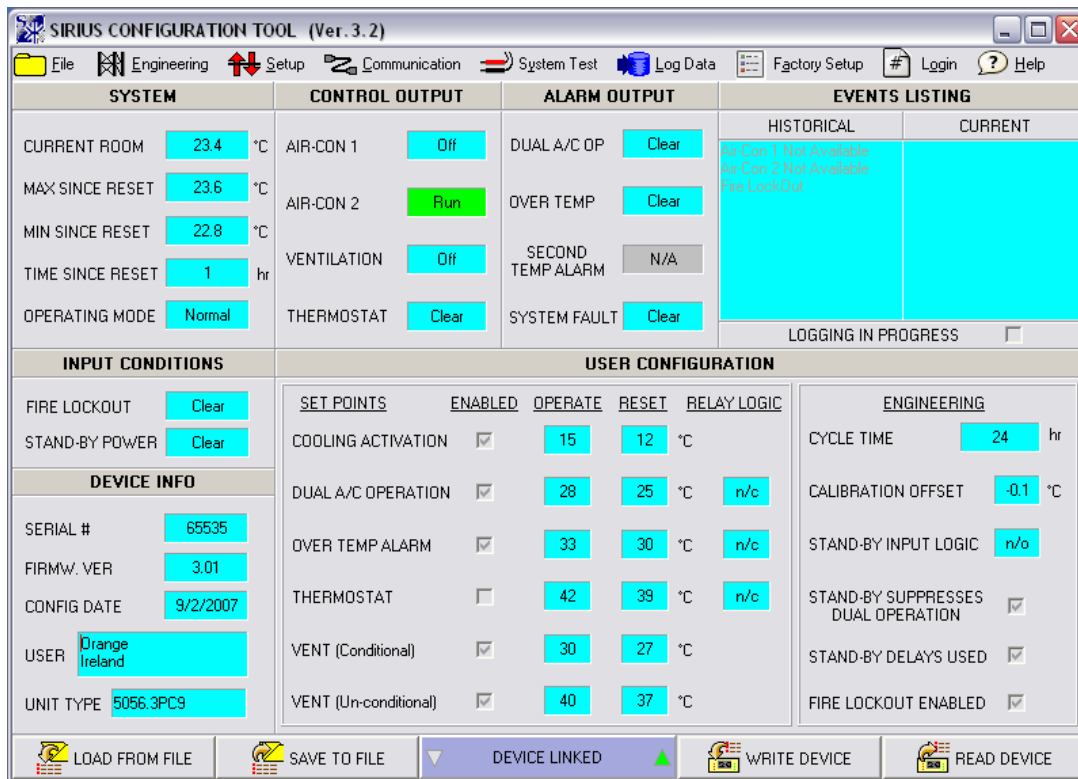Sirius Cooling Control Unit (CCU)

Sirius CONFIGURATION TOOL

(Windows®-based configuration application.)

All units are at the time of shipment to customer <u>configured ready for operation</u> to a user specific hardware and firmware setup as was agreed to at the time of ordering or during initial system engineering. Hard copies of the 'as delivered' configuration details are shipped with each unit and held on record in a Tautech user specific data base for future reference and re-order purposes. Manual CCU setup is possible using the push-buttons and LCD visual annunciator on the unit (refer separate documentation) or by using this PC-based Configuration Tool.

Run the Sirius Configuration Tool on a PC and use a serial cable to connect to the CCU that has auxiliary DC power supply established to it. USB to Serial converters can be used to make this connection. The Tool will automatically attempt connection with the comm port that the device is connected to on the PC and the message 'Device Linked' at the bottom of the main page indicates successful dialog between the device and the PC with self explanatory failure messages.

The main page of the Tool is split into a top and bottom half indicating operational and configuration information respectively. The usual access to drop down menus to system function facilities is provided at the very top of this window.

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Sirius Cooling Control Unit (CCU)

Operational Information

1. Equipment room temperature is sensed by way of a digital temperature probe on the CCU enclosure. The equipment room temperature is displayed on the unit and used for system control according to the specific user setup requirements.

2. In the normal operation mode, historical equipment room minimum and maximum temperatures are recorded and made available to the user. This is a record of the extremes that the equipment room temperature reached since the previous time that the system was reset during a service call. Time since reset is therefore also recorded. (See section on more advanced Log Data functionality later in this document.)

3. System operating mode is indicated and could be:

   - Normal: For when the actual equipment room temperature is taken from the temperature probe,

   - Force: Which is a test function that applies a simulated fixed temperature to the system for testing and commissioning checks,

   - Test: Which is a test function that applies a simulated varying temperature to the system for further testing and commissioning checks.

4. Run A/C1, Run A/C2 and Ventilation operation control outputs are indicated as *Run* or *Off* as the case may be at any time. When control system activation timing delays apply to withhold *Run* on any unit it will be highlighted as *Timing*.

5. Similarly the optional Thermostat Output will indicate *Active* or *Clear* as applicable. A grey *N/A* indicates that this functionality is not configured.

6. Dual Operation, Room Over Temperature, Second Room Temperature or System Alarms Status are further indicated *Active* or *Clear* as the case may be at any time.

7. Current and historical events are recorded in separate schedules. Current alarms will clear from this list as alarms present are cleared but will remain on the historical alarms list until the system is reset from when a new historical list will be recorded as events occur. (See paragraph 15 below on resetting the system.)

8. Should the CCU be set up for continual Log Data, this condition will be indicated in the check box in this section of the main window.

Input Conditions

9. The status on control Inputs to the CCU relaying to Fire Lockout and Stand-by Power Running condition will similarly indicate *Active* or *Clear* as the case may be.

Device Info

10. Device serial number, firmware version running on the device, configuration date and user reference information is recorded on each CCU. The Unit Type field is used to give the makers product code allocated according to the configuration. Device data is displayed to the user but only configurable by Tautech.

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Configuration

11. User specific device configuration being function activation, Operate / Reset levels and alarm relay logic selected is summarised in this section of the main window. The functions for which set points are available are Cooling Activation, Dual Air-conditioning unit operation, Room Over Temperature Alarm, (optional) Second Room Temperature Alarm (if configured), and Emergency Ventilation control (if configured).

12. Under the Engineering heading this section also records CCU the configured equal cycling time period, temperature calibration offset and Stand-by Power Running Input logic. Indication is further given of the status related functions, cycle time configuration and records whether the standard Fire Lockout and optional Emergency Ventilation or Thermostat Outputs are configured on the specific ACCU in question.

DROP DOWN MENUS

File

13. Standard practice configuration control should include that the user have on safe record that or those configuration records of all the types of CCU's on a network which are saved as file type .ini data. Should it be necessary to re-configure a serviced or replaced CCU the appropriate configuration file can be downloaded to such a CCU in a single *Write Device* operation without having to access each an every variable and set point on the CCU. In addition to the Configuration Tool providing quick access to individual CCU parameters the point made here is that for reasons of ease and consistency different CCU's can very easily be maintained at 'standard' settings.

14. Any change to *Engineering* or *Setup* data is saved on the device that is worked on and can be saved as a new configuration file for configuration record purposes or downloading on other CCU's within the same network.
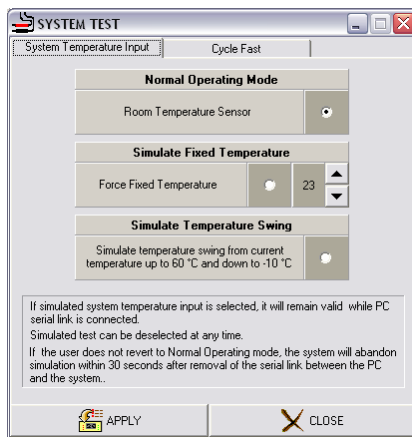
Engineering
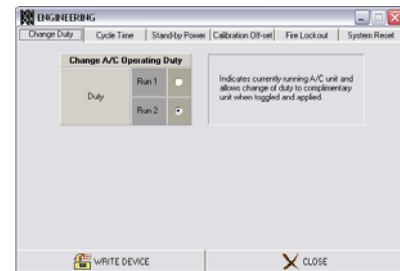
15. In the Engineering/Change Duty window, the currently active air-conditioning unit in operation is displayed and if required, it can be toggled to change to the complimentary unit.

16. Run 1 and Run 2 equal cycle time is programmable under the Engineering/Cycle Time window to any number of whole hours from 1 to 99 with a shortcut to 24 hours. This window also allows for disabling air-conditioning unit duty cycling.

17. The Engineering/Stand-by Power window allows the user the option to configure a different response from the CCU for when the source of mains power to the site changes to Diesel Stand-by Power – temporarily or permanent. The *Stand-by Running* control input to the CCU controls this function and the system can be configured to suppress dual air-conditioning operation when this is not possible off a mains power supply of limited capacity and/or set up extended air-conditioning unit activation delays to allow more time between when the stand-by power to the site is established and when air-conditioning units are allowed to start running.

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18. The user has access to the required system calibration offset setting under the Engineering/Calibration Offset window. An CCU will always be delivered calibrated but if a user requires manipulation of the set point, it is made possible with this window.

19. Standard system response to a fire condition (indicated from the Vega Station Alarm Panel or similar) is to immediately shut off all air movement by air-conditioning units or the ventilation system. In the Engineering/Fire Lockout window this function can be deselected.

20. System reset operation is allowed for under the Engineering/System Reset window to clear all historical records from the events listing and reset the system minimum/maximum temperature record. *Time Since Reset* will of course also be reset to zero when this operation is executed.
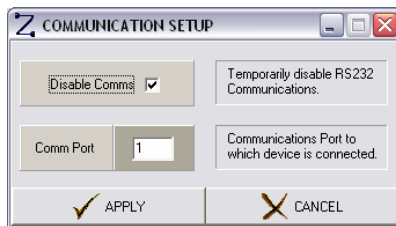
Setup

21. The Setup window allows access to the set points at which the fundamental system operations will occur. Operate (initiate) and reset (recover) room temperature levels are

provided for separately and these set points will typically be programmed with a margin of at least one but more likely three degrees difference to obtain clear break points over a dead band.

22. The Setup/Cooling Activation, Dual Operation, Room Over Temperature, Second Room Temperature/Thermostat and Emergency Ventilation setup should follow clearly from the explanatory text in the respective windows. It is also in these windows that the user will nominate whether alarm output contacts from the CCU are provided normally open or normally closed.

23. Setup/Emergency Ventilation allows the user to select the required emergency ventilation response at all or any one or both of conditions when mains power is available to the air-conditioning units and when it is not and then at individually configured set points.

24. Standard configuration of a CCU is with an alarm output indicating general cooling *system failure* which is driven off any one of a number of unhealthy conditions, an alarm output indicating that the system has entered *dual air-conditioning unit operation* mode and finally a *room over temperature* alarm output. In addition to these, provision is also made for optional hardware that can be configured either as a *second room over temperature* alarm output or as a *thermostatic* (set/reset type) control output for any undisclosed application at a site – controlling mains power feed etc.

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Communication

25.   The Communication window is used to configure the PC serial Com Port to which an CCU device is connected when the user wishes to gain control over the automatic detection facility.

System Test
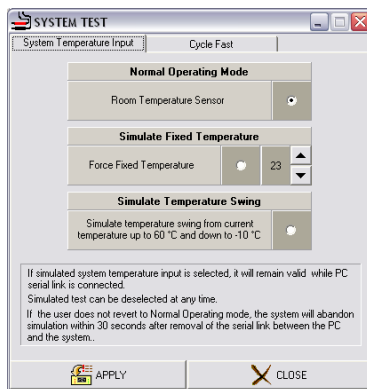
26.   During site commissioning or trouble shooting it may be necessary to have the system respond to a temperature different from the equipment room temperature at the time of the test. Using the System Test/System Temperature Input window any simulated fixed temperature can be set up temporarily or alternatively, the system can be set to a simulated temperature swing whereby an artificial incremental room temperature increase to 60 Deg C and decrease to –10 Deg C is applied to the CCU.

27.   An accelerated cycling mode with a 10 minute period can also be set up under the System Test/Cycle Fast window allowing for further commissioning tests.

28.   Both the above test modes are self recovering which means that should an engineer not deselect these functions the CCU will revert to normal operating mode automatically.

Log Data
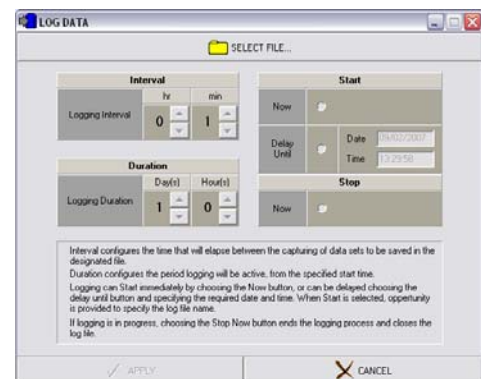
29.   In addition to the minimum and maximum room temperature recording and uptime (since previous system reset) available from an independent device, an advanced logging function is available for detailed full functional logging by the user to a PC connected for the duration of the log to a .csv file intended for advanced site cooling performance analysis or fault location.

30.   Logging can be set up to occur at any number of minute or hourly intervals and for a set period of hours or days as required commencing now or at a designated future date and time.

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Notes:

1.   This **Sirius Configuration Tool** is one of a growing family of related products that includes the Vega Station Alarm Panel and the active cooling and ventilation hardware.

2.   For the control of systems comprising of three or four items of active cooling plant, please direct enquiries to Tautech for support.

End

Tautech (Pty) Limited
Tel: +27 12 329-2614
info@tautech.co.za