

Venturi Fume Hood
Auto Sash Controller
R3 Option

Operation
& Calibration
Guide

Operation & Calibration Guide

Features

The Tiptronic Auto Sash Controller contains the following features

1. Auto Close
2. Auto Open (user selectable - enabled/disabled/auto open if auto closed only)
3. Tiptronic Open/Close -touch sensitive sash movement (menu selectable)
4. Manual sash operation
5. Keypad Pushbutton Open/Close
6. Footswitch Open/Close (optional)
7. BMS inputs: Open/Close + Emergency Open/Close + Fire Alarm Close
8. BMS outputs : Sash Open/Closed volt free contact+ Sash position (0-10v/4-20mA) + External Alarm Sounder output.

Operation

The Tiptronic Auto Sash Controller operation is as follows

- 1. User Present**
When the user is detected the sash can be moved in the following ways:
 - a. Manually - if the tiptronic feature is enabled the sash can be manually moved if it is kept moving for more than 1 second.
 - b. Tiptronic - if the sash is manually moved for less than 1 second the sash will auto drive to its calibrated position.
 - c. Up/Down pushbuttons - if pressed the sash will auto drive to its calibrated position.
 - d. Footswitch (open and close options) - if operated the sash will auto drive to its calibrated position.
- 2. User not detected**
When the user is not detected the sash will auto close to its calibrated position following a preset delay time unless:
 - a. The sash beam is broken (object detected in the sash opening).
 - b. The controller detects no movement in the sash when the motor is driving.
- 3. Auto Open (user configurable)**
When enabled the sash will drive open when the operator returns following a pre set time delay:
 - a. If the sash was Auto closed the sash will Auto open back to the same position the sash was in before the Auto close.
 - b. If the sash was closed by any other method (manually, tiptronically, pushbutton, BMS etc) the sash will Auto open back to its calibrated position.

The sash will not Auto open if:

 - a. The sash beam is broken (object detected in the sash opening).
 - b. The controller detects no movement in the sash when the motor is driving.

Operation & Calibration Guide

Operation *(continued)*

*The Tiptronic Auto Sash
Controller operation is
as follows*

4. BMS inputs:

The sash can be set to operate from the BMS inputs as follows:

- a. Open/Close - for single start or end of day operation from BMS input. The sash will only drive if the user is not present and the sash beam is clear.
- b. EV (Emergency) Open / Close (EV audible alarm tone will sound while the EV input is active). The sash will only drive if the user is not present and the sash beam is clear. In EV mode the sash can be manually moved if the user is detected. The sash will then auto drive closed/open again if the EV input is still active when the user is not detected.
- c. Fire Alarm Close (Fire Alarm audible alarm tone will sound while the Fire Alarm input is active). The sash will only drive if the user is not present and the sash beam is clear. In Fire Alarm mode the sash can be manually moved if the user is detected. The sash will then auto drive closed/open again if the EV input is still active when the user is not detected.

Startup

*Ensure that the Auto
Sash Controller is
fully installed before
attempting to calibrate
the controller.*

On power up:

1. The alarm performs a self-test of its functions, LEDs and audible alarm (approximately 3 seconds).
2. During the self test period, all inputs and outputs are deactivated.
3. At the end of the delay, the unit will do one of two things:
 - a. If the controller has previously been calibrated, the controller enters normal operating mode (displays current status or alarm condition).
 - b. If the unit has not been calibrated, when the Tilt switch input is open the display will show "Sash Drive Inhibited", when the Tilt switch input is closed the display will show "Auto Sash Not Configured".

Operation & Calibration Guide

Calibration

*Tiptronic 1, 2, or 3
Position Calibration*

1. Press and Hold the ENTER button for approx 5 seconds or Until the MAIN MENU appears.
2. The display will show the current Hardware and Software versions e.g. “1. HW2.0 FW1.1”
3. Use the down arrow to scroll down and select “2. Setup” and press ENTER.
4. Enter the PASSWORD (Factory default is 1-0-0-1) using the Up arrow and Enter buttons.
5. In the Set up menu the controller will display “ Keypad Tones”
6. Use the Down arrow to scroll through the menu and select “Sash 1 Settings” and press Enter.
7. In the S1 Settings menu the display will show “1. S1 Enabled”
8. Use the Down arrow to scroll through the menu and select “8. S1 Calibration” and press Enter.
9. The display will show on screen instructions.
10. Set the sash opening to approximately 9 inches.
11. Press the Up and Down arrows to find which arrow represents the sash closing (e.g. down button) and Press Enter. Note - this tells the controller which direction the motor needs to drive to close the sash.
12. Set the sash to the bottom position and Press Enter.
13. Press Quit (Mute button) if only bottom position required (close only) OR:
14. Set the sash to the normal working height (e.g. 18 inches) and press Enter for 2 position operation.
15. Press Quit (Mute button) if only 2 position (bottom and middle) required OR:
16. Set the sash to the full opening height (e.g. 28 inches) and press Enter for 3 position operation.
17. Bottom, middle and top positions are now calibrated, press Enter to quit calibration mode.
18. Use the Down button and select “Back to Set up menu” and press Enter.
19. Use the Down button and select “Exit and Save Changes” and press Enter.
20. The controller will now go to run mode.

Calibration Notes:

Even though the sash drive has acceleration and deceleration the sash may slightly over run past the calibration points if the sash motor drive is set to a very fast speed. When calibrating the sash positions allow a margin for the sash to over travel past the calibration height e.g. bottom position calibration, close sash fully and open 1/2 inch before calibrating, normal height calibration, open sash to the normal height and lower by 1/2 inch before calibrating.

Operation & Calibration Guide

Operation Indication

In run mode the display will show the current

status:

1. "User present" - the user is detected, the sash drive is inhibited, Tiptronic & manual drive is enabled.
2. "XX Seconds to close" - the user is not detected; the sash will close following the countdown delay time.
3. "Sash Closing" will be displayed when the sash is driving closed (tiptronic, auto close or pushbutton).
4. "Sash Closed" - The user is not present and the sash has closed. (Keypad Backlight dimmed).
5. "XX Seconds to open" the user is detected; the sash will open following the countdown delay time. (Auto open enabled)
6. "Sash Opening" will be displayed when the sash is driving open (auto open, tiptronic or pushbutton).
7. "Operator Manual Move" will be displayed if the sash is manually opened or closed.
8. "Sash Inhibited" will be displayed if the Tilt switch input is open, drive is inhibited until Tilt switch is closed.
9. "Sash Disabled" will be displayed if the sash drive has been disabled in the menu settings.

If the Auto open feature is enabled in the menu and is switched on from the keypad: "*" (asterix) will be displayed in the left hand corner of the screen, e.g. "* User present".

To enable Auto open press and hold the Mute button for 5 seconds or until the "*" symbol is displayed.

To disable Auto open press and hold the Mute button for 5 seconds or until the "*" symbol disappears.

Note: Auto open can be set to disabled / enabled / enabled if auto closed. If set to enabled if auto closed the sash will only Auto open if the sash has Auto closed, closing the sash manually or by using the pushbuttons will inhibit the Auto open when the user returns to the Fume Hood.

Alarm Indication

In an Alarm condition the display will show the current alarm:

1. "Obstruction Detected" will be displayed if the sash beam is broken when the sash starts to close - remove obstruction and press the Mute button to reset the alarm.
2. "Sash Fault" will be displayed if the sash does not close or open when expected - press Mute to reset alarm. Check sash drive for faults.

Operation & Calibration Guide

BMS Input Indications

When a BMS input is in an active condition the display will show the current alarm:

1. “Fire Alarm” will be displayed along with the normal text (e.g. “Fire Alarm, User present”) when the fire alarm input is activated - the sash will drive closed if the user is not detected and the sash is clear. The sash can be operated manually if the user is detected (auto open, tiptronic & pushbuttons are disabled).
2. “BMS open” will be displayed along with the normal text if the user is not detected when the BMS Open input is activated - the sash will drive open if the user is not present and the sash is clear. The sash can be operated normally if the user is detected (auto open, tiptronic & pushbuttons are active).
3. BMS close input - when the BMS Close input is activated the sash will drive closed if the user is not present and the sash is clear. The sash can be operated normally if the user is detected (auto open, tiptronic & pushbuttons are active).
4. “Emergency (up)” will be displayed along with the normal text if the user is not detected when the EV Open input is activated - the sash will drive open if the user is not present and the sash is clear. The sash can be operated manually if the user is detected (auto open, tiptronic & pushbuttons are disabled).
5. “Emergency (dn)” will be displayed along with the normal text if the user is not detected when the EV Close input is activated - the sash will drive closed if the user is not present and the sash is clear. The sash can be operated manually if the user is detected (auto open, tiptronic & pushbuttons are disabled).

BMS Input Settings Menu

1. Fire Alarm BMS Input - (Disabled/IP1-4 Open/IP1-4 Closed).
2. Open Sash BMS Input - (Disabled/IP1-4 Open/IP1-4 Closed).
3. Close Sash BMS Input - (Disabled/IP1-4 Open/IP1-4 Closed).
4. EV Open Sash BMS Input - (Disabled/IP1-4 Open/IP1-4 Closed).
5. EV Close Sash BMS Input - (Disabled/IP1-4 Open/IP1-4 Closed).

Operation & Calibration Guide

S1 Settings Menu

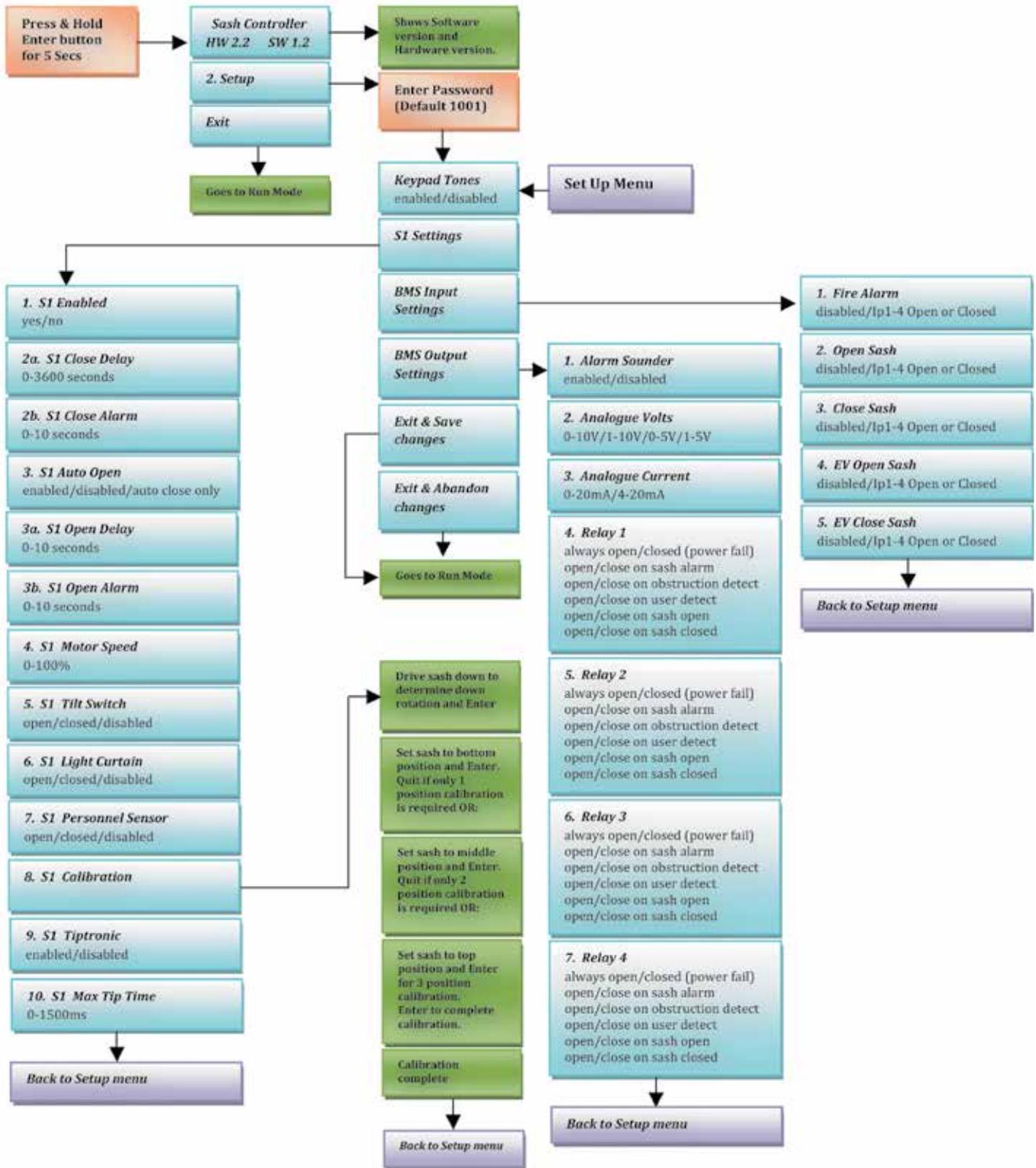
1. S1 Enabled - Set to disable to permanently disable the drive (Enabled/Disabled).
 - 2a. S1 Close delay - Sets the time delay before the sash closes (0-3600 seconds).
 - 2b. S1 Close Alarm - Sets alarm time delay - Time before Alarm activates before the sash closes (0-10 seconds).
 3. S1 Auto Open - Set to enable or disable Auto Open feature (Enabled/Disabled/Auto Close Only).
 - 3a. S1 Open Delay - Sets the time delay before the sash opens (0-10 seconds).
 - 3b. S1 Open Alarm - Sets alarm time delay - Time before Alarm activates before the sash opens (0-10 seconds).
 4. S1 Motor Speed - Sets motor drive speed (0-100%)
 5. S1 Tilt Switch - sets input activation (Normally Open/Normally Closed/Disabled).
 6. S1 Light Curtain - sets input activation (Normally Open/Normally Closed/Disabled).
 7. S1 Personnel Sensor - sets input activation (Normally Open/Normally Closed/Disabled).
 8. S1 Calibration - Calibrates sash position sensor and motor direction.
 9. S1 Tiptronic - Enables or Disables Tiptronic touch sash to open or close feature (Enabled/Disabled).
 10. S1 Tiptime - Sets Tiptronic touch sensitivity (0-1500ms - 0-1.5 seconds)
- Note:** This is the minimum time the sash must travel to be operated manually, below this time the sash will drive to the calibrated position.

BMS Output Settings Menu

1. Remote Alarm Sounder - Enabled/Disabled
2. Analogue V Output - 0-10V/1-10V/0-5V/1-5V (Analogue output voltage for sash position indication)
3. Analogue C Output - 0-20mA/4-20mA (Analogue output current for sash position indication)
4. Relays 1 to 4 - Always open/closed, Open/Close on sash alarm, Open/Close on obstruction detected, Open/Close on user detected, Open/Close on sash open, Open/Close on sash closed.

Operation & Calibration Guide

Menu Block Diagram



Operation & Calibration Guide

Controller Face Plate



Controller Enclosure





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