



S3 Control System



Instruction manual



1	INSTALLATION	3
1.1	INTRODUCTION	3
1.2	ORDER SPECIFIC SOFTWARE/FUNCTIONALITY	3
1.3	INSTALLATION	3
1.4	FIRST TIME THE SLIDING WINDOW IS OPERATED	3
2	OPERATION	4
2.1	OPEN AND CLOSING THE SLIDING WINDOW	4
2.1.1	<i>Sliding windows with "hold-to-run" buttons</i>	4
2.1.2	<i>Sliding windows with "hold-to-run" buttons and "one-touch" buttons</i>	4
2.2	ALARM CLOSING	4
3	SPECIFIC SITUATIONS	5
3.1	SYSTEM RECOVER AFTER POWER LOSS	5
3.2	SYSTEM RECOVER AFTER ALARM CLOSING	5
3.3	CALIBRATION	5
3.3.1	<i>Simplified calibration</i>	5
3.3.2	<i>Full calibration</i>	6
4	S3 MAIN UNIT LED EXPLANATION	6
5	SOFTWARE OR FUNCTIONALITY UPGRADE	8

1 Installation

1.1 Introduction

This instruction manual describes an electrical sliding windows equipped with the S3 control system.

A sliding window can have one, two or more sliding glasses. Materials other than glass can also be used. For the sake of simplicity, this instruction manual describes a sliding window with one sliding glass but it is also applicable on other variants.

The S3 system can be programmed with various functions and it can be delivered with different control switches. This instruction manual describes a conventional open/close control switch connected to port C1. If the system is delivered with a control switch for alarm closing, this manual assumes that it is connected to port C2 or to Input 1-2. The instruction manual is nevertheless applicable to other variants.

The S3 Main Unit is available in two different versions, Standard and Premium. The Premium version is provided with I/O connections for communication with third-party systems. This instruction manual covers both versions.

1.2 Order specific software/functionality

The S3 system is a software-based system. The software may contain customized functions depending upon customer requirements. Instructions to order specific software/functionality are attached to this instruction manual.

1.3 Installation

The S3 system consists of a S3 Main Unit located near the sliding window, and one or more small slave units (circuit boards) placed within the frame of the sliding window. The combination of the S3 Main Unit and the slave units make up the S3 system. It is important that the correct S3 Main Unit is connected to its designated sliding window.



If two or more S3 equipped sliding windows are delivered on the same order, a sticker with a serial number is placed on the topside of the S3 Main Unit. That serial number shall correspond to the serial number of the sliding window (normally located on the frame of the sliding glass).

- Connect the 8-pin round connector from the sliding window to port D1 on the S3 Main Unit
- Connect the open/close control switch to port C1 on the S3 Main Unit
- If the sliding window is delivered with a control switch for alarm closing, it shall be connected to port C2 on the S3 Main Unit.
- If the sliding window is prepared for connection to e.g. a fire alarm, it shall be connected to Input 1-2 on the S3 Main Unit (requires the Premium version). The connection shall be made to a potential free circuit that is normally closed (NC). If the fire alarm circuit is a powered circuit (e.g. 24 V DC), it can be configured to pull a relay that opens the potential free circuit in case of a power loss in the alarm circuit.
- Connect the power cord (24 V) of the S3 Main Unit to the transformer (or Power Supply/battery backup)
- Connect the transformer (or Power Supply/battery backup) to a 230 V AC wall socket

1.4 First time the sliding window is operated

When the system has powered up it is necessary to perform a simplified calibration according to section 3.3.1.

2 Operation

2.1 Open and closing the sliding window

The sliding window's control system is programmed with either "hold-to-run" buttons or with a combination of "hold-to-run" buttons and "one-touch" buttons.

Information about the type of programming on this system can be found on the order acknowledgement.

2.1.1 Sliding windows with "hold-to-run" buttons

The sliding window is opened and closed using a control switch connected to port C1. The sliding glass will move in the opening direction as long as the open button is pressed, and it will stop moving as soon as the open button is released again. When the sliding window has opened fully the motor will stop automatically, regardless of whether the open button is released or not.

Closing the sliding window is done similarly with the close button.



The control system has an electronic transmission relief that will stop the sliding glass if the movement is interrupted, for instance if a person or an object is blocking the opening. The power and the energy of motion can however be significant. It is important to operate the sliding glass in such a manner that it does not hit a person or an object. **The window operator must ensure that the window area is clear of objects and people before and during operation.**

2.1.2 Sliding windows with "hold-to-run" buttons and "one-touch" buttons

The sliding window is opened and closed using a control switch connected to port C1. To open or close a sliding window with "one-touch" buttons it is enough with a short push on the open and close button respectively.

The sliding glass starts to move in the opening direction as soon as the open button is pushed. If the button is released immediately, the sliding window will continue to open until it is fully open, or until the button is pushed one more time. If the button is not released immediately, the system will switch over to "hold-to-run" buttons after a short delay (see section 2.1.1)

Closing the sliding window is done similarly with the close button.



The control system has an electronic transmission relief that will stop the sliding glass if the movement is interrupted, for instance if a person or an object is blocking the opening. The power and the energy of motion can however be significant. It is important to operate the sliding glass in such a manner that it does not hit a person or an object. **The window operator must ensure that the window area is clear of objects and people before and during operation.**

2.2 Alarm closing

The control system for certain sliding windows is provided with a special alarm closing function. The alarm closing is normally used with a fire alarm or an assault alarm. During an alarm closing, the sliding window is exposed to increased mechanical wear and tear compared to a normal closing. The alarm-closing function should not be used except in alarm situations since it can shorten the products life span and it can cause limitations to the guarantee

Alarm closing is either activated by a dedicated control switch for alarm closing connected to port C2 (assault alarm) or by a third party system (assault alarm or fire alarm). Third party systems are connected to Input 1-2 on the block terminal found on the Premium version of the S3 Main Unit.

After an alarm closing, it is necessary to perform a system recovery according to the instructions in section 3.2.

3 Specific situations

3.1 System recover after power loss

During certain circumstances, the sliding glass can be moved manually when the power to the system is cut. When the system is restarted, the actual position of the sliding glass may differ from the last known position. As a result, it may be necessary to perform a simplified calibration according to section 3.3.1 in order to determine the exact position of the sliding glass.

3.2 System recover after alarm closing

During an alarm closing, there is an increased risk of slipping in the sliding window's powertrain, causing the control system to loose track of the exact position of the sliding glass. As a result it may be necessary to perform a simplified calibration according to section 3.3.1 in order to determine the exact position of the sliding glass.

3.3 Calibration

3.3.1 Simplified calibration

When there is a risk that the actual position of the sliding glass does not correspond to what is stored in the control system's memory, is necessary to perform a simplified calibration in order to determine the exact position of the sliding glass.

The situation will arise after a power loss or an alarm closing and can be recognised by reading the LEDs (*Figure 1*) on the S3 Main Unit. The sliding window will only operate at very slow speed as long as the system remains in calibrating mode.

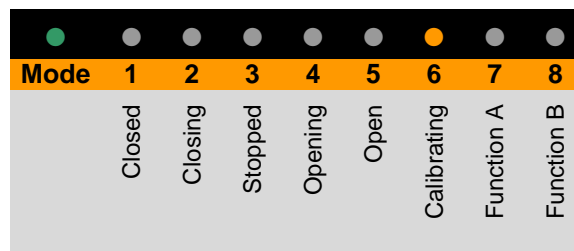


Figure 1

If the sliding glass is in fully closed position: Hold down the open button on the control switch to move the sliding glass to fully open position *without stop*. If the calibration was successful the LEDs will display:



Figure 2

If the sliding glass is in fully open position: Hold down the close button on the control switch to move the sliding glass to fully closed position *without stop*. If the calibration was successful the LEDs will display:



Figure 3

If the sliding glass is stopped between open and closed position: Use the control switch to move the sliding glass to either fully open or fully closed position. Next, use the control switch to move the sliding glass to the other end position *without stop*. If the calibration was successful the LEDs will display according to *Figure 2* or *Figure 3*.

3.3.2 Full calibration

A full calibration of the sliding window and its control system is performed while testing the sliding window at the manufacturer and during normal circumstances it is not necessary to perform another full calibration. After reprogramming of the control system or while troubleshooting it can however be necessary to perform a full calibration.

Pushing the S3 Main Unit's calibration button starts the calibration. The calibration button is located within a small hole next to the C2 port (labelled *Calibrate*, see *Figure 4*) Use a paper clip or other sharp object to push the button. The calibration procedure can be interrupted at any time by pushing the calibration button one more time, or by pushing on the control switch's open or close button.



Figure 4

During the full calibration procedure the sliding glass will first move automatically to one of the end positions, followed by automatic movement to the other end position.



Ensure that the sliding glass reaches all the way to both end positions during calibration. The calibration has failed if the sliding glass stops too early at one or both end positions, and the procedure must be repeated.



If the full calibration is not done correctly, the control system will receive incorrect information about the sliding window's open and closed positions. The system will not operate correctly. This can lead to situations where the sliding glass will move with high speed into the end positions, resulting in extreme mechanical wear, increased risk for injuries, and increased risk for object damage.

4 S3 Main Unit LED explanation

Mode	1	2	3	4	5	6	7	8
	Closed	Closing	Stopped	Opening	Open	Calibrating	Function A	Function B

Figure 5: The sliding glass is stationary at fully closed position

Mode	1	2	3	4	5	6	7	8

Figure 6: The sliding glass is moving in the closing direction

Mode	1	2	3	4	5	6	7	8

Figure 7: The sliding glass is stationary somewhere between fully closed and fully open position



Figure 8: The sliding glass is moving in the opening direction



Figure 9: The sliding glass is stationary at fully open position



Figure 10: The system is in calibration mode (see section 3.3)



Figure 11: The system is calibrating the sliding glass in the closing direction



Figure 12: The system is calibrating the sliding glass in the opening direction



Figure 13: The sliding glass is moving in the closing direction after the alarm closing has been activated (see section 2.2)



Figure 14: The system is executing a full calibration in the closing direction

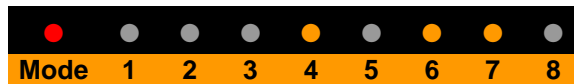


Figure 15: The system is executing a full calibration in the opening direction



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Figure 16: During power up the LEDs number 1 through 8 are lit one by one

5 Software or functionality upgrade

Upgrade of functionality is done using dedicated software with separate instructions

