

SAFEBOX S1

SAFETY SYSTEM

Everything safe – All in one





SAFEBOX S1

- Replaces electromechanical components in the lift shaft
- Analysis electronics in which safety-relevant switching and control functions are implemented

MAIN FEATURES

- Replaces conventional safety functions
- Reduces material expenses
- Reduces installation work
- Optimal addition to the FST-2XT family
- Operation and diagnostics via FST-2XT/s graphics display

SAFEBOX S1

SAFETY SYSTEM

Safe positioning and control system

The FST-S1 safety system is a safe positioning and control system for lift systems. It consists primarily of three components: magnetic tape, position sensor and Safebox S1.

MAGNETIC TAPE

The magnetic tape holds the unique position information as a magnetic code. It is mounted free-hanging in the shaft and monitored for presence by means of a switch. Querying of the absolute magnetic tape coding by the sensor is, thus, always contact-free. The magnetic tape is characterised by its simple and fast mounting as well as its ability to withstand heat, cold and humidity.

POSITION SENSOR

The SIL3 position sensor transfers the position data of the car to the Safebox S1 via a safe bus with millimetre precision. The redundant and self-monitoring sensor, certified in accordance with EN81-20/50, stands out over other systems due to its insensitivity to dirt, moisture and smoke. The nearly contact-free measurement principle of magnetic tape and sensor guidance is largely both wear-free and silent.

SAFEBOX S1

The Safebox S1 is used to safely monitor the car position, acceleration, deceleration and speed as well as various control functions that are performed via the inputs of the SIL3-certified safety electronics. Depending on requirements or type of failure, the self-monitoring system interrupts or bridges parts of the safety circuit according to EN81-20/21. In addition, it is possible to safely control and monitor emergency brake systems. The hardware components, such as relay contacts and microprocessors, are each present twice to ensure redundancy of all functions. The S1 Safebox can be installed in or on the control cabinet as well as in the machine room or in the shaft. The connection is pluggable, thereby enabling a fast, uncomplicated connection. The S1 Safebox is operated/diagnosed via the CAN interface of the FST-2XT/s. The system states are thereby clearly conveyed to the lift engineer via the FST-2XT/s graphic display. Operational instructions and information are communicated via the FST Guide to help ensure uncomplicated and fast commissioning as well as diagnostics of the complete system. The S1 and FST status and error messages are centrally stored in chronological plain text messages in the FST error list. This amalgamation of both systems enables optimum operation, diagnostics and transparency, all from a single source.

INTEGRATED MONITORING AND CONTROL FUNCTIONS

■ SHAFT POSITIONING SYSTEM

The S1 shaft positioning system replaces the conventional absolute positioning system.

■ SPEED MONITORING AND TRIGGERING

The absolute position control of the S1 speed monitoring enables permanent monitoring in both directions of travel.

■ SHAFT DOOR MONITORING (EMERGENCY RELEASE)

The emergency release contacts are monitored by the S1.

■ PROTECTED SPACE MONITORING

The protected space alternative measures are monitored by the S1. The protective measures are not necessary if a "pre-triggered stopping system" is used (option).

■ INSPECTION END SWITCHES

The need for the classic inspection end switches is eliminated through the absolute, reliable position control.

■ EMERGENCY END SWITCH

The need for the classic emergency end switch is eliminated through the absolute position control.

■ DOOR BYPASS

The car and blocking-agent contacts are bypassed for "approach and re-levelling with open door" by the S1. The magnet switches and magnets do not need to be installed.

■ LOCKING OF THE INSPECTION DRIVE EQUIPMENT IN ACCORDANCE WITH EN81-20

Per the requirements of EN81-20, the locking of the inspection drive equipment of car and pit as well as priorities for auxiliary mode control and bypass is performed by the S1.

■ UCM-A3 DETECTION AND TRIGGERING

No additional UCM-A3 sensors and analysis units need to be mounted; these functions are performed by the S1.

■ DECELERATION MONITORING IN THE END FLOORS

Monitoring of the deceleration in the end floors is performed by the S1; shortened set-down buffers can thereby be used.

TECHNICAL DATA

SAFEBOX S1

Dimensions (L x W x H)	134 mm x 134 mm x 220 mm
Connection	Pluggable
Operating temperature	-10 °C to +70 °C (-25 °C to +85 °C on request)
Cable length	3 m, 5 m (others on request)
Installation location	In or on the control cabinet, in the machine room or in the shaft
Protection type	IP 54 (higher on request)
Power supply	24 V DC

MAGNETIC TAPE

Dimensions (W/W1 x H)	10 mm/8 mm x 1.35 mm
Operating temperature	-20 °C to +70 °C
Protection type	Carrier strip made of stainless steel

POSITION SENSOR

Dimensions (L x W x H)	58 mm x 50.5 mm x 31 mm
Connection	9-pin SUB-D connector
Operating temperature	-10 °C to +70 °C (-20 °C to +75 °C on request)
Cable length	2 m, 5 m (others on request)
Maximum measurement length	262 m
Maximum drive speed	10 m/s
Measurement principle	Absolute
Protection type	IP 54 (higher on request)

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