

SELF-PROPELLED SCISSOR LIFTS

Background

Self-propelled scissor lifts, the most common type of Mobile Elevating Work Platforms (MEWPs), move vertically through folding supports in an 'X' pattern, known as a scissor mechanism. They are classified in 2 main categories based on how they are powered and where they are used. 1. Battery-powered (or electric) scissor lifts are used mainly indoors on slab surfaces, while 2. Engine-powered lifts are used outdoors where the surfaces are frequently uneven (for this reason they are commonly referred to be for 'rough terrain'). Regardless of how they are powered, they include many sensors and controls to manage movement, safety, and mainly stability (operators on the platform are subject to fall hazards, therefore safety is a priority).

Solution

Operator Controls:

For decades, Sensata has been a market-leading supplier of complete platform control systems for scissor lifts, either battery or engine powered. The platform control unit and the electronic control unit (or ground control unit for the engine powered) can connect and control a variety of digital and analog machine interface as joysticks, sensors, limit switches, motor controllers, pushbuttons, and alarms controlled through a dedicated CAN-bus system.

The new K610 generation of scissor lift controllers integrate an open source platform, CoDeSys, which enables manufacturers to create their own customized functionality.

Motor Controls:

The M701 is a highly efficient DC pump motor controller designed for industrial vehicle platforms. With IP67 ingress protection, advanced MOSFET drive technology, and short circuit protection, it allows for a high degree of safety and reliability.

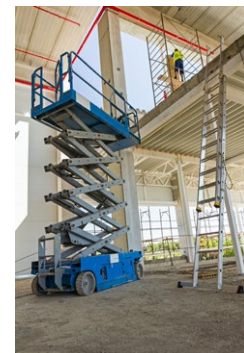
Sensors:

Sensata can also supply a complete set of main sensors: the high-pressure sensor (PTE series) that controls the hydraulic pressure of the main cylinder, the angle sensor (9360 Series) used to determine the height of the platform, and the inclinometer (T series or other) to control the chassis inclination for safety reasons. The pressure and angle sensor used in combination are also aimed to control the platform overload condition, which is required to comply with ANSI 92 and EN280 safety standards.

"All functions and movements are controlled using Sensata's platform control systems and sensors to guarantee compliance with international safety standards"











Rough Terrain (engine-powered) scissor lift



Slab (battery-powered) scissor lift



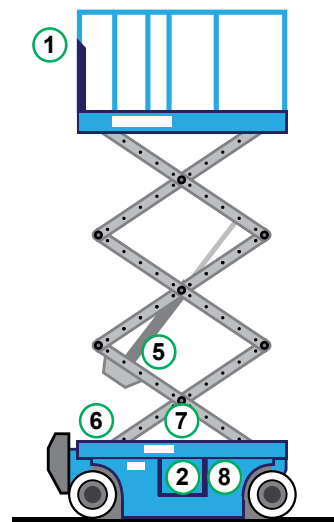
RELATED PRODUCTS

Reference on Diagram	Product	Features	Function
1	 P610	<ul style="list-style-type: none"> • 3 Analog Inputs integrated • IP65 • USB • 2 CAN, 2 USB 	Platform Control Unit
2	 E610	<ul style="list-style-type: none"> • 40 input/output • Multi-language, • Large LCD display 	Electronic Control Unit
3	 PCU100	<ul style="list-style-type: none"> • Extensive integrated controls • IP65 	Platform Control Unit
4	 ECU120	<ul style="list-style-type: none"> • CAN, MCU • 70 input/output • High pressure 	Ground Control Unit
5	 PTE7500	<ul style="list-style-type: none"> • MSG (Micro Silicon Strain Gauge) • CANopen output; Easy integration into ECU 	Pressure Sensor
6	 9360 Series	<ul style="list-style-type: none"> • Hall effect sensor • IP67 	Angle Sensor
7	 T Series	<ul style="list-style-type: none"> • High resolution 0.01° • High accuracy 0.1° 	Inclinometer
8	 M701	<ul style="list-style-type: none"> • Highly efficient motor controller • Advanced MOSFET drive technology and short-circuit protection • IP67 ingress protection 	DC Motor Controller

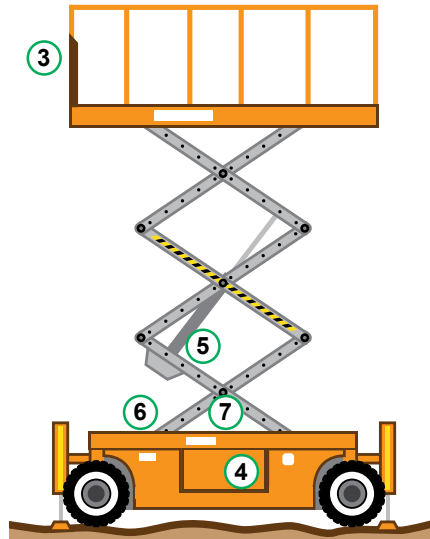


GENERAL DIAGRAM

Slab (battery-powered) scissor lift



Rough Terrain (engine-powered) scissor lift



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