

# 西门子触摸屏广州授权总代理商

产品名称	西门子触摸屏广州授权总代理商
公司名称	西门子低压软启动总代理商
价格	.00/台
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## 产品详情

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### Semiautomatic mode (SAM)

- 1) SNL: Sway neutralization load position
- 2) SND: Sway neutralization trolley position

The operating mode is selected (depending on the functional scope) by the PLC by setting the appropriate control bit.

### Manual mode (MAN)

In the manual mode, the speed is specified manually from a higher-level controller. The trolley is accelerated or decelerated to the set speed in such a way that the load sway has been eliminated when the set speed is reached.

Sway control is active in manual mode either throughout the complete traverse, or only during at stop.

A new function Soft Approach is added to the manual mode to assist crane drivers for approaching softly the target position with minimal risk of collision. This function can be well applied for smart slowdown of a trolley and for soft landing of a hoist.

### Positioning (POS)

In the positioning mode, the higher-level controller or the internal encoder can specify a target position for each individual axis. This position is approached automatically after enabling. The axes are controlled in such a way that the load sway is eliminated not only when the maximum speed is reached, but also at the target position. The direct path

between the current position and the target position must be free of obstacles.

### Sway neutralization (SNL/SND)

The sway neutralization mode (only for the version with camera) is used to eliminate swaying movements of the load from standstill.

Sway neutralization is linked to a positioning function. The target position is either the current trolley position (SND) or the load position (SNL) at the time the sway neutralization is activated.

Sway neutralization results in slight travel movements to both sides of the target position.

The position of the load is acquired by the camera measuring system.

### Trim, list and skew control (TLS control)

TLS control controls the trim, list and skew positions of a spreader.

The TLS control function assumes that

the length or

the pivot points

of the 4 support cables of a spreader can be adjusted by hydraulic cylinders, or an additional electric system with the aid of the camera.

#### Schematic diagram of TLS movements

Each cylinder can be traversed individually for calibration purposes. Through actuation of these hydraulic cylinders in pairs, the spreader can be tilted to the left or right (trim), inclined towards the waterside or landside (list) or rotated in a clockwise or counterclockwise direction (skew). All of these TLS movements can be carried out simultaneously. The specified positions of all 4 cylinders can be saved as zero positions and approached again. For TLS positioning, either the last TLS position at the landside (LS) and at the waterside (WS) or the last TL position at the LS and at the WS with an externally definable rotational position can be approached.

The TLS control function is subdivided into two categories, each of which requires a separate license:

#### TLS Basic modes

##### Cylinder inching

##### Approach zero position without skew damping

##### TLS inching without skew damping

#### TLS Advanced modes

##### Approach zero position with skew damping

TLS inching with skew damping

TLS positioning with skew damping

Skew damping

Skew&nbsp;damping

Skew damping is an electronic antisway function which eliminates the skewing motion of the spreader by means of the hydraulic cylinder control or an additional electric system. The skewing motions are recorded by the same camera as for sway. In the conventional mechanical design, TLS positioning as well as skew damping is performed via the hydraulic system. In a combined mechanical system using a hydraulic system and an electrical system, TLS positioning is performed via the hydraulic system and only skew damping is performed by the electrical system. This ensures more efficient and more dynamic damping.

Semiautomatic mode (SAM)

The semiautomatic mode allows the system to be set up so that the load is traversed along an optimal trajectory. The trajectory is specified to ensure that the spreader or grab does not collide with the crane structure or with containers or other obstacles, and also reaches its target position rapidly and accurately. This operating mode can be used for ship to shore cranes (STS) and ship unloaders (GSU). A seamless switchover between manual mode (MAN) and SAM makes different operation possible.

The obstacles are stored in the system as blocked regions and traversing is only permitted outside these areas. Depending on the starting point and the target position, the fastest possible trajectory is generated from the data about the blocked regions. Both axes (trolley and hoist) must be operated coordinately in the semiautomatic mode.

The container profile can be specified externally by a 2D/3D laser system or a bay scanner (point laser) connected to the crane controller or acquired internally by learning during the motion.

The trajectory is calculated on the basis of a layout of the working area in which blocked regions are defined. Blocked regions are individual or several combined obstacles or also areas which the crane must not enter for safety reasons to avoid collisions. A distinction is made between fixed and variable blocked regions.

A blocked region is described by two trolley positions and one hoisting position.

The types of blocked regions and their purposes are shown in the following graphic.

Layout of blocked regions

If a bay scanner is used, the signal of the obstacle height is evaluated in addition to the traveled curve. The distance from the scanner to the surface of the container stack is measured (see graphic below, dashed lines).

This value must be converted to a laser value in the PLC which corresponds to the distance from the scanner to the top edge of the container stack at this point (see graphic below; converted laser value). The vertical distance between 2 valid measuring points is set to the height of the highest measuring point.

Measurement of the height of the container stack with the laser scanner

## Additional functions in the grab crane application area

### Semiautomatic mode with unloading on the fly

In the ship unloader application (GSU), unloading on the fly utilizes the maximum swaying of a grab when unloading bulk goods and saves turnover time in this way. The trolley is decelerated before reaching the target position while the grab is swinging to the target (e.g. hopper). During swaying over the target area, the grab is opening for unloading. As soon as the grab reaches its target position, the trolley starts to travel back. In this way the trolley eliminates the stop time for unloading over the hopper and the grab remains longer over the hopper area.

Grab crane (GSU)

### Additional functions for application OHBC, Gantry crane

This application includes overhead bridge cranes (OHBC) and gantry cranes, as well as RTGs and RMGs with two axes in the plane (trolley, gantry) and an additional axis (either slewing gear or hoisting gear). In case of the slewing gear, the sway control works to damp the rotary oscillation.

Either manual mode (MAN: a speed setpoint is set on the master switch) or positioning mode (POS: a target position is set), can be selected. The operating mode of each axis can be switched over, e.g. from manual mode to positioning mode and vice versa, while the axis is moving.

Each axis moves independently from the other axes.

Note:

Various licenses which cover combinations of the operating modes described above are available for the sway control systems (see Selection and ordering data).

### 更多信息 Siemens product support

The latest information about SIMOCRANE products, product support and FAQs can always be found on the Internet at

<http://support.automation.siemens.com/WW/view/en/10807397/130000>

Additional information about Crane Application Notes can be found on the Internet at

<http://support.automation.siemens.com/WW/view/en/48342008/136000>

### Training