SafeMotion
IndraDrive

The drive-integrated safety technology from Bosch Rexroth forms the basis for avoiding unwanted machine movements. From simple Safe Torque Off (STO) with or without Safe Brake Control (SBC) to comprehensive safety functions for safe braking, holding, moving and position monitoring, SafeMotion provides customized safety solutions for a wide range of machines and systems.

- Maximum safety level (Cat. 4, PL e, SIL 3) for all safety functions
- Safe absolute end position replaces hardware limit switches by software
- 31 safe cam ranges configurable
- Reduced commissioning effort thanks to semiautomatic support
- Device swap without PC in case of servicing

For more information, please visit: www.boschrexroth.com/cat-id-saf

### Functions

<table>
<thead>
<tr>
<th>Safe Torque Off (STO)</th>
<th>Safe Brake Control (SBC)</th>
<th>Safe Braking and Holding System (SBS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>▶ torque safely switched off Stop Category 0 as per EN 60204-1: safe drive torque release</td>
<td>▶ safe control of the brakes For safe actuation of an electrically releasing holding brake.</td>
<td>The Safe Braking and Holding System controls, monitors and tests two independent brakes</td>
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<th>Safe Operating Stop (SOS), Safe Stop 2 (SS2-r)</th>
<th>Safe Stop 1 (SS1-t)</th>
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<td>▶ safe standstill monitoring ▶ safe stop 2 ramp-monitored Stop Category 2 as per EN 60204-1: safely monitored stopping with safely monitored standstill and controlled torque</td>
<td>▶ safe stop 1 time-controlled Stop Category 1 as per EN 60204-1: safely monitored stopping, control-guided or drive-guided with safe drive torque release</td>
<td>▶ safe stop 1 ramp-monitored Stop Category 1 as per EN 60204-1: safely monitored stopping with safely monitored standstill and controlled torque</td>
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Service hotline: +49 9352 405060
Functions

Safely Monitored Deceleration (SMD)
Safe monitoring of deceleration on stopping with predetermining characteristics

Safe Brake Test (SBT)
To test the holding function of the connected brakes

Safe Limited Speed (SLS)
If enabled signal is given, a safely limited speed is monitored in special operating mode

Safe Monitored Oscillation (SLS-LT)
Prevents the drive from not exceeding a preset speed limit value for longer than a preset time by means of two-channel monitoring

Safe Speed Monitor (SSM)
Safe output signal when the actual speed is within a defined speed window

Safe Maximum Speed (SMS)
The maximum speed is safely monitored regardless of operation mode

Safe Direction (SDI)
In addition to safe movement, the direction (left, right) is safely monitored

Functions

Safely Limited Increment (SLI)
With consent, a limited increment is safely monitored in special operating mode

Safe Limited Position (SLP, SLE)
» safely limited position and end position
Monitoring of safe software limit switches in special operation mode or in all modes

Safe Monitored Position (SMP)
In addition to safe movement, the absolute position range is safely monitored

Safe Cam (SCA)
Safe output signal for up to 31 cam ranges

Safe Door Locking (SDL)
When all drives in a safety zone are secure, the safe door locking is unlocked

Safe inputs/outputs (SIO)
For selecting safety functions or to provide the status via safety bus to the control; connection of safety peripherals via two channels locally at the drive or decentralized via the safety zone module

Safe Communication (SCO)
For selecting/deselecting the safety functions via a safe fieldbus