

Servo drives
SafeMotion



Servo drives

SafeMotion**Documentation**

- Instructions

**Intelligent and reliable**

- Safety category 3, PL d, SIL 2
- Extensive safety functions
- Minimum response times
- Independent of the control system
- Easy integration into the machine

Whether for machine tools, printing or packaging machines, or assembly, handling and robotics applications – protecting people from uncontrolled machine movements is a top priority.

Clear guidelines issued by the EU

All machine manufacturers are obliged to carry out a hazard evaluation and risk analysis prior to design. This is stipulated in the European Machinery Directive 2006/42/EC. Moreover, any potential hazards detected must be eliminated step by step. Safety should be integrated in the machinery and meet the "state of the art".

How safe can you get

IndraDrive is redefining the state of the art because it integrates safety directly in the drive, resulting in ultra-short response times. IndraDrive therefore demonstrates what safety technology today can and must deliver – IndraDrive is faster because the movement is monitored directly where it is generated. This is the critical advantage, especially when it comes to monitoring direct drives or other high-dynamic drives, for example.

Minimum reaction times despite maximum drive dynamics

With the new IndraDrive generation from Rexroth, a variety of safety functions are available right inside the drive – without any detours through the control. This increases reliability, saves on additional monitoring components, and reduces installation cost and effort.

This is all made possible by redundant software and hardware components in the drive. The non-contact monitoring of all set limit values enables very short response times of less than 2 ms. As soon as a fault is detected, all the drives are automatically stopped depending on the stop category selected (0, 1 or 2).

Safety functions inside the drive effectively protect people and machines

High reliability due to certified integrated safety functions

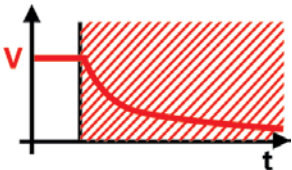
Extremely fast reaction times (< 2 ms) on actuation by internal monitors

No need for additional measuring systems or evaluation devices

Online dynamic sampling of the inputs and shutoff paths while work is in progress

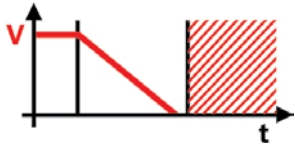
PROFIsafe interface with reduced configuration and installation effort and safe, decentralized I/Os

Reduced certification effort and short series start-up times

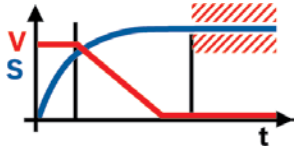
Technical data**Safe Torque Off (STO)**

- Safe Torque Off, stop category 0, in accordance with EN 60204-1: safe drive torque cutoff

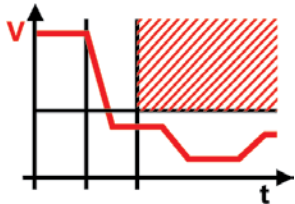
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SafeMotion**Safe stop 1 (SS1)**

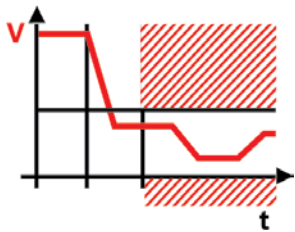
- Safe Stop 1, stop category 1 in accordance with EN 60204-1: safely monitored stop, control- or drive-controlled with safe drive torque cutoff

Safe Stop 2 (SS2, SOS)

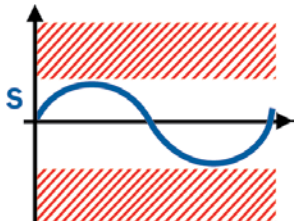
- Safe Stop 2, Safe Operating Stop, stop category 2 in accordance with EN 60204-1: safely monitored stop with safely monitored standstill at controlled torque

Safely Limited Speed (SLS)

- Safely Limited Speed – If enable signal is given, a safely limited speed is monitored in special operating mode

Safe direction (SDI)

- Safe Direction – Monitoring of a safe direction (clockwise, counterclockwise) in addition to safe motion

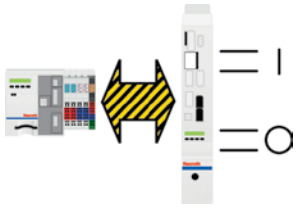
Safely Monitored Position (SMP)

- Safely Monitored Position – Monitoring of safely limited position range in addition to safe motion

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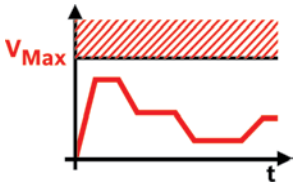
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Safe Inputs/Outputs (SIO)



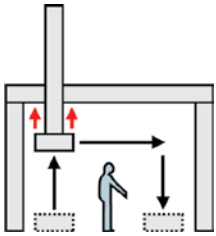
- Safe I/O – Dual-channel safety peripherals can be connected to the drive and made available to the controller via the safety bus

Safe Maximum Speed (SMS)



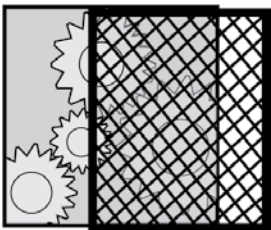
- Safe Maximum Speed – The maximum speed is safely monitored irrespective of the mode of operation

Safe Braking and Holding System (SBS)



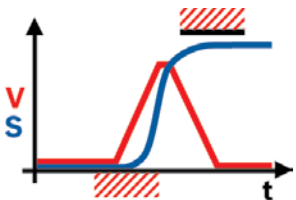
- Safe Braking and Holding System (SBS) – The safe braking and holding system controls and monitors two independent brakes

Safe Door Locking (SDL)



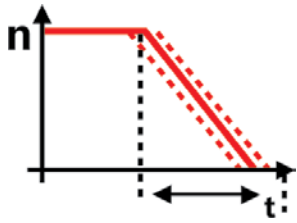
- Safe Door Locking – When all the drives in one protection zone are in safe status, the safety door lock is released

Safely Limited Increment (SLI)

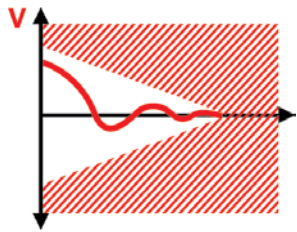


- Safely Limited Increment (SLI) – If enable signal is given, a safely limited increment is monitored in special operating mode

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SafeMotion**Safely Monitored Deceleration (SMD)**

- Safely Monitored Deceleration – Safely monitored deceleration ramp when stopping with predetermined characteristics

Safely Limited Position (SLP)

- Safely Limited Position – Monitoring of safe software limit switches

Safe Communication (SCO)

- Safe Communication – Selection/deselection of safety functions and transfer of process data (e.g. actual position values) via safety bus

**Safe
Communicaton**

Bosch Rexroth AG

Postfach 13 57
97803 Lohr, Germany
Bgm.-Dr.-Nebel-Str. 2
97816 Lohr, Germany
Tel. +49 9352 18-0
Fax +49 9352 18-8400
www.boschrexroth.com/electrics

Local contact information can be found at:

www.boschrexroth.com/adressen

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It must be remembered that our products are subject to a natural process of wear and aging.