

**Contents**

<b>1 Introduction</b>	<b>2</b>
1.1 Purpose	2
1.2 Scope	2
1.3 Abbreviations	2
<b>2 Safety Functions SLS and SSR</b>	<b>3</b>
<b>3 SLS and SSR Implementation</b>	<b>4</b>
3.1 Circuit Diagram	5
3.2 Safety Function Operation and Timing	11
3.2.1 Initial Conditions	11
3.2.2 Fault Handling	11
3.2.3 SLS Operation	11
3.2.4 SSR operation	11
3.3 Parameters and Configuration	13
<b>4 Ordering Data for DOLD Components</b>	<b>16</b>
4.1 Frequency Monitor	16
<b>5 Functional Safety-related Data</b>	<b>17</b>
5.1 SIL Calculation	17
<b>Index</b>	<b>18</b>

# 1 Introduction

## 1.1 Purpose

This manual describes how to implement the safety functions Safely Limited Speed (SLS) or Safe Speed Range (SSR) using DOLD UH 6937 frequency monitor without encoder.

The DOLD module can be used with the following products:

- VLT® HVAC Drive FC 102
- VLT® Refrigeration Drive FC 103
- VLT® AQUA Drive FC 202
- VLT® Midi Drive FC 280
- VLT® AutomationDrive FC 301
- VLT® AutomationDrive FC 302
- VACON® 100 Industrial
- VACON® 100 Flow
- VACON® NXP Liquid Cooled
- VACON® NXP System Drive
- VACON® NXP Air Cooled
- VACON® NXP Common DC Bus
- VACON® NXP Liquid Cooled Enclosed Drive
- VACON® NXP Liquid Cooled Common DC Bus

## 1.2 Scope

This manual is intended for application designers, for realizing safe speed functions of frequency converters without encoder feedback, using an external frequency monitor.

## 1.3 Abbreviations

PL	Performance Level
SIL	Safety Integrity Level
SLS	Safely Limited Speed
SSR	Safe Speed Range
STO	Safe Torque Off

Table 1.1 List of Abbreviations