

# Functional Safety of Machinery (ISO13849-1 /2) Safety Education

## SICK LifeTime Services Training Course



### Description

This training module covers how current functional safety standards (ISO13849-1 /2) dictates the design and proof of functional safety for machines. Participants learn how the selection of components affects performance levels achieved based on category structure, MTTFd, diagnostic coverage, common cause failure, and standard engineering principles. Practical examples will demonstrate applying technical measures during the risk reduction process.

In addition to the technical requirements, students will learn about quality assurance measures, and documentation for lifecycle design and validation. The instructor will share presentations using either an online meeting tool, or when delivered at customer site or at the SICK North American Training Center, a hands on learning experience. Exercise tasks will be used to monitor participant's competency as the training progresses.

### Objectives

- Defining new standards regarding safety of machinery
- Review types of technical measures for risk reduction
- Identifying safety functions of machines
- Identifying circuits, schematics and examples
- Performing calculations (ISO13849-1)
- Introduction to SISTEMA
- Defining a validation plan
- Completing documentation

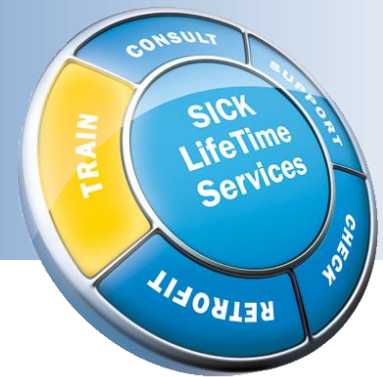
### Course Benefits

- Learn how to correctly apply functional safety concepts to the SRP/CS (Safety Related Parts of a Control System) to meet ISO13849 and OSHA requirements
- Learn how to identify shortcomings of component selection to replace with an appropriate device to avoid degrading the system safety rating
- Learn how to build a Validation Plan to ensure the safety functions are evaluated properly to meet ISO13849
- Obtain practical hands-on experience to reduce design and implementation costs



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### Target Audience

Application engineers, system integrators, developers, and safety specialists

### Prerequisites

- Knowledge of risk assessment process
- Familiarity with safety products
- Basic computer skills

### Recommended Additional Course(s)

Risk Assessment Training  
SISTEMA Training and Labs

### Duration

4 Hours

### Class Size

Maximum of 8

### Where Offered

- Customer site
- SICK North American Training Center
- Online meeting

### Format

Presentation and exercises/quizzes

### Testing Available

Yes

### Customer Required Materials

For training at customer site, at a minimum, for every two participants:

- Minimum of two (2) 110 VAC outlets
- For virtual training:
- Online meeting tool installed (if necessary) prior to attending

### Logistics

The following must be made available for the duration of the training:

- A suitable training room/area

Failure to have the customer required material and/or logistics available may lead to ineffective training and may result in the class not being able to achieve the described objectives and course benefits.

### Part Number

1065480

Travel expenses additional. Please contact SICK for information.

### SICK Training & Education

From product training, start-up assistance and engineering and consulting services – SICK provides the necessary support before and after field installation through an established network of field personnel. Review our training, service and support programs and let SICK help you reach your goals with our innovative, cost-effective solutions.

SICK offers several types of training programs to help you learn more about our innovative products and systems. Many of our training modules offer hands-on, real-world application examples and problem-solving experiences. Please visit our website at <http://www.sickusa.com> for more information