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Our reference: 20160258  
Your reference:

### Calculation of the achieved performance level according to DIN EN ISO 13849-1:2016 of the laser safety shutdown type FLSCU16 with FLHPS16 or FLHPS16E

Dear Mr. Waldherr,

On basis of the documentation provided by you, we have come to the following conclusion by means of the software tool SISTEMA of the Institute for Occupational Safety and Health of the German Social Accident Insurance (Institute für Arbeitsschutz der deutschen gesetzlichen Unfallversicherung):

<b>FLSCU16 with FLHPS16</b>			
<b>Emergency stop:</b>		<b>Interlock</b>	
Performance Level:	e	Performance Level:	e
Category:	3	Category:	3
DC <sub>aqv</sub> :	90% (Mittel)	DC <sub>aqv</sub> :	90% (Mittel)
PFH <sub>D</sub> :	4.29 x 10 <sup>-8</sup> 1/h	PFH <sub>D</sub> :	6.50 x 10 <sup>-8</sup> 1/h

<b>FLSCU16 with FLHPS16E (Single MOSFET)</b>			
<b>Emergency stop:</b>		<b>Interlock</b>	
Performance Level:	e	Performance Level:	e
Category:	3	Category:	3
DC <sub>aqv</sub> :	90% (Mittel)	DC <sub>aqv</sub> :	90% (Mittel)
PFH <sub>D</sub> :	4.29 x 10 <sup>-8</sup> 1/h	PFH <sub>D</sub> :	6.34 x 10 <sup>-8</sup> 1/h

<b>FLSCU16 with FLHPS16E (Dual MOSFET)</b>			
<b>Emergency stop:</b>		<b>Interlock</b>	
Performance Level:	e	Performance Level:	e
Category:	3	Category:	3
DC <sub>aqv</sub> :	90% (Mittel)	DC <sub>aqv</sub> :	90% (Mittel)
PFH <sub>D</sub> :	4.29 x 10 <sup>-8</sup> 1/h	PFH <sub>D</sub> :	6.22 x 10 <sup>-8</sup> 1/h

Conditions for safe use:

- Compliance with the basic and well-tried safety principles according to DIN EN ISO 13849-2:2013 when integrating the device into the safety function of the machine (in particular overvoltage protection, ...)
- Connection of two forced emergency stop contact elements which meet the requirements of DIN EN ISO 13850:2016
- Integration of two contactors with forced contacts as well as feedback contacts which meet the requirements of the basic and well-tried safety principles according to DIN EN ISO 13849-2:2013
- The requirements of DIN EN ISO 11553-1 for door monitoring (interlock) must be complied

Yours sincerely

DEKRA EXAM GmbH



Jens Kötting



Alex Müller