

DIN EN ISO 13855:2010-10 (E)

Safety of machinery - Positioning of safeguards with respect to the approach speeds of parts of the human body (ISO 13855:201 0)

Contents	Page
Foreword	3
Introduction	4
1 Scope	5
2 Normative references	6
3 Terms, definitions, symbols and abbreviated terms	6
3.1 Terms and definitions	6
3.2 Symbols and abbreviated terms	8
4 Methodology	9
5 General equation for the calculation of the overall system stopping performance and minimum distances	11
5.1 Overall system stopping performance	11
5.2 Minimum distance	12
6 Calculation of minimum distances for electro-sensitive protective equipment employing active opto-electronic protective systems	12
6.1 General	12
6.2 Detection zone orthogonal to the direction of approach	13
6.3 Detection zone parallel to the direction of approach	16
6.4 Detection zone angled to the direction of approach	18
6.5 Addressing possible circumventing of electro-sensitive protective equipment by reaching over the detection zone	20
6.6 Indirect approach -- Path from detection zone to hazard zone restricted by obstacles	23
7 Method of calculating the positioning of pressure-sensitive mats or floors	25
7.1 General	25
7.2 Step mounting	26
8 Two-hand control devices	26
9 Interlocking guards without guard locking	26
Annex A (informative) Worked examples	28
Annex B (informative) Termination of hazardous machine functions	37
Annex C (informative) Example for considering indirect approaches	38
Annex D (informative) Measurement and calculation of overall system stopping performance	40
Annex E (informative) Number of beams and their height above the reference plane	42
Bibliography	43
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC	45