

iSENS HES A2B Switch

Applications

- Cranes
- Lifting equipment
- Winches

Special Features

- Positive-break limit switch
- Fully enclosed electrical component
- Type-specific monitoring of the connecting cable via an integrated resistor circuit
- in combination with an original weight that can be separated for installation
- Reliable protection against environmental influences



iSENS HES

Description

The iSENS HES anti-two block (A2B) limit switch consists of a switching unit combined with a removable actuator weight that can be separated for installation.

When installed properly, the A2B limit switch functions as a positive-break limit switch for use on winches, hoists, and cranes.

Depending on the model, one or two range resistors are built in to monitor the connection cable's wires for short circuits or cable breaks.

The electrical component is fully encapsulated, ensuring reliable protection against environmental influences.

Technical Data

General	
Standard	IEC/EN 60947-5-1
Actuation force	37 N max.
Contact travel	7.5 mm
Electrical connection	depending on the model, via various connectors or a molded cable with an open end
Weight (without accessories)	0.77 kg
Ambient temperature	-40 ... +75°C
Protection class	IP 67 acc. EN 60529, electrical functional part completely sealed
Switching system	positive-break limit switch (combined with WMC operating weight 6 kg)
Utilization category	AC-15 250V/4A
Rated insulation voltage U_i	250 V AC
Rated impulse withstand voltage	2.5 kV
Conv. thermal current I_{th}	4 A
Short-circuit protection	4 A gG (IEC 60269-1)
Line monitoring	yes, depending on the type, via integrated range resistors (for details, see "Resistor circuits")
Mech. lifespan	> 1 Mio. switching cycles
Switching point hysteresis	± 0.1 mm
Shock/Impulse resistance	50 g/6 ms
Reachable Performance Level (details see below)	
Mobile Crane	PLd
Gantry Crane	PLd

Safety Parameters A2B switch for Mobile Cranes

Declared channel	Conventional approach for single channel: MTTFd = 2 x MTBF@DC = LOW		Category acc. EN13849	Maximum reachable PL
Functionality	MTTFd [years]	DC _{avg} [%]		
A2B with functional test	2066.68	90	2	d
A2B without functional test		< 60	1	c

Environmental conditions	
Level	Ground floor (GF)
Mean ambient temperature	40° C

Mechanical conditions	
Functional test of A2B function	min. 1x /24h, prescribed for DC _{avg} = 90 %
d _{op} (average number of operating days per year)	200
h _{op} (average number of operating hours per day)	8
t _{cycle}	600 sec. (e.g. 6x per hour = 1x per 10 min.)
Maximum service life	20 years

In other use cases the MTTFd value must be recalculated!

Safety Parameters A2B switch for Gantry Cranes

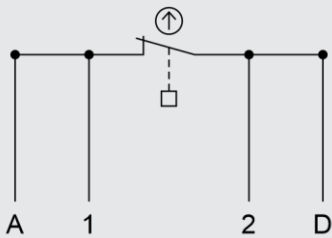
Declared channel	Conventional approach for single channel: MTTFd = 2 x MTBF@DC = LOW		Category acc. EN13849	Maximum reachable PL
Functionality	MTTFd [years]	DC _{avg} [%]		
A2B with functional test	379.96	90	2	d
A2B without functional test		< 60	1	c

Environmental conditions	
Level	Ground floor (GF)
Mean ambient temperature	40° C

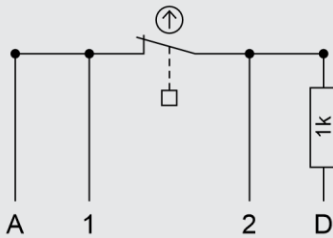
Mechanical conditions	
Functional test of A2B function	min. 1x /24h, prescribed for DC _{avg} = 90 %
d _{op} (average number of operating days per year)	200
h _{op} (average number of operating hours per day)	8
t _{cycle}	600 sec. (e.g. 6x per hour = 1x per 10 min.)
Maximum service life	20 years

In other use cases the MTTFd value must be recalculated!

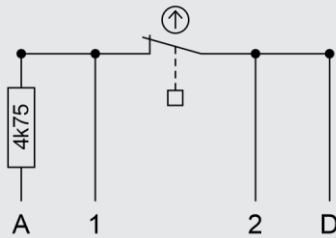
Resistor circuits



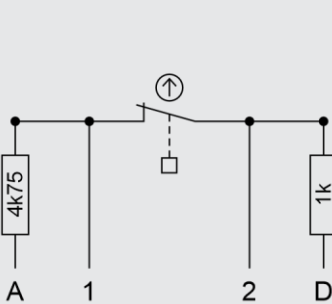
Type 00: none



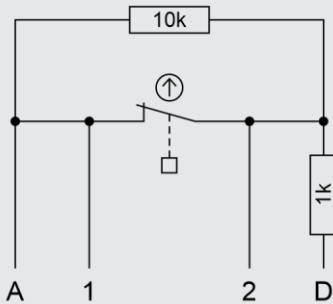
Type 01: 1k



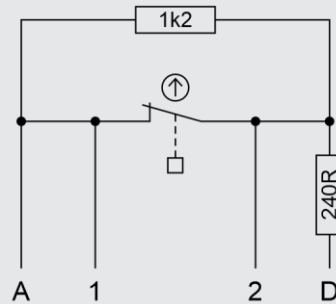
Type 02: 4k75



Type 03: 4k75 / 1k



Type 04: 10k / 1k



Type 05: 1k2 / 240R

Product code

I S E N S _ H E S _ 0 0 2 / X X X X - X X / X X - X X X / X X X - X X X - X X - X X - X X X X - X

Product

Anti-two-block switch H E S

Construction series

002 0 0 2

Type

Consecutive number # # # #

Interface

None 0 0

Hardware Revision

Consecutive number # #

Number of poles

2-pole	0 2 P
3-pole	0 3 P
4-pole	0 4 P
5-pole	0 5 P

Connection type

open cable end	0 0 0
Female	_ B U
Male	S T I
Female and male	- Y -

Connector type

open cable end	0 0 0
Connector Deutsch Delphi/Packard	D D P
Socket housing Harting	H A R
Junction box Hirschmann	H I D
Connector M12, 4-pole, male	R 0 1
Connector M12, 5-pole, male	R 0 2
Connector CANNON, 3-pole, RoHS-conform	R 1 0
Connector CANNON, 3-pole, non-RoHS-conform	R 1 2
Connector CANNON, 2-pole, RoHS-conform	R 1 3
Socket CANNON 2-pole, non-RoHS-conform	R 1 4
Special system wiring	S 0 0
Wireless W1	W 0 1

Accuracy class

IFA-approved B G

Resistance circuit [Ω]

None	0 0
1k	0 1
4k75	0 2
4k75 / 1k	0 3
10k / 1k	0 4
1k2 / 240R	0 5

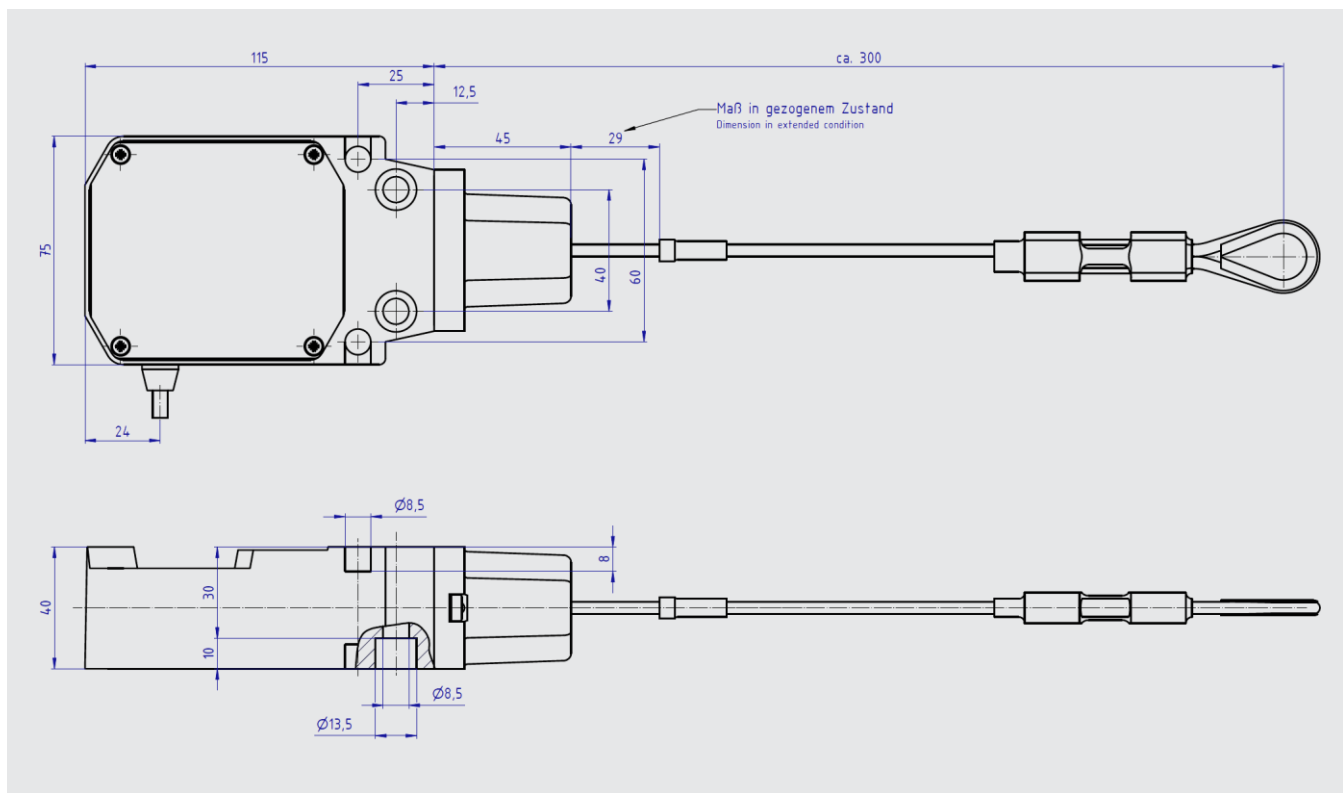
Cable length

Cable length [cm] # # # #

Crimp sleeve

None	0
Yes	1
Yes, incl. retainer	2

Dimensions in mm



We reserve the right to make technical changes without prior notice. The individual specifications in this datasheet are warranted properties if they are expressly confirmed by us in writing in the respective case.

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