

1. Task

Limit switches, which are operated by cams attached to the moving part of the machine, are frequently used for easy position detection of linear or rotary movements in machines and systems. In this case it is only possible for the machine control system to assign the limit switch signal definitely to the position if a separate limit switch is used for each position.

By using transponder-based WIDENT/P sensors, which e.g. in safety engineering are known as non-contact SIDENT safety switches, it is possible to detect several different positions with only one sensor. A further advantage in this case is insensitivity to dirt, maladjustment and manipulation and the avoidance of components susceptible to wear.

2. Function and configuration

Transponder-based actuating elements are attached to the moving part of the machine instead of the operating cams with the result that the WIDENT/P, which is mounted on the stationary machine part, can detect the actuating elements and read their intrinsic information as they move past. A specific code is assigned to each of the actuating elements so that the WIDENT/P's position detector can detect which actuating element is currently within its reading range based on the code. An associated output switching signal which can be processed in the machine control system is generated in the WIDENT/P in line with the information read out.

This principle can also be used, for example, to control a roller shutter as shown in the diagram above.

All the electronics of this position detector are accommodated in a sensor housing. Connection is made by a 12-pin connector. There are four green and two yellow LED's as position indicators. A further green LED serves as a status indicator.

3. Versions

3.1 WIDENT/P for 8 positions (NO contact)

Position detector for detection of eight different codes with eight outputs (NO contact).

3.2 WIDENT/P for 8 positions (NC contact)

Position detector for detection of eight different codes with eight outputs (NC contact).

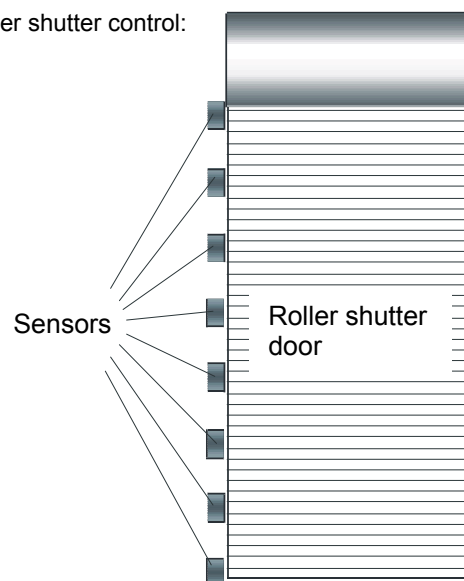
3.3 WIDENT/P for 15 positions (Binary code)

Position detector for detection of 15 different codes with four binary coded position outputs and one strobe output (NO contact).

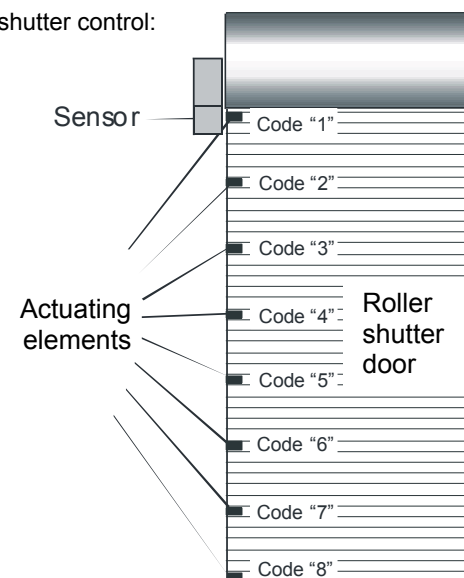
Other versions of the WIDENT/P position detector on request.

3.4 Application example with 8 positions

Conventional roller shutter control:

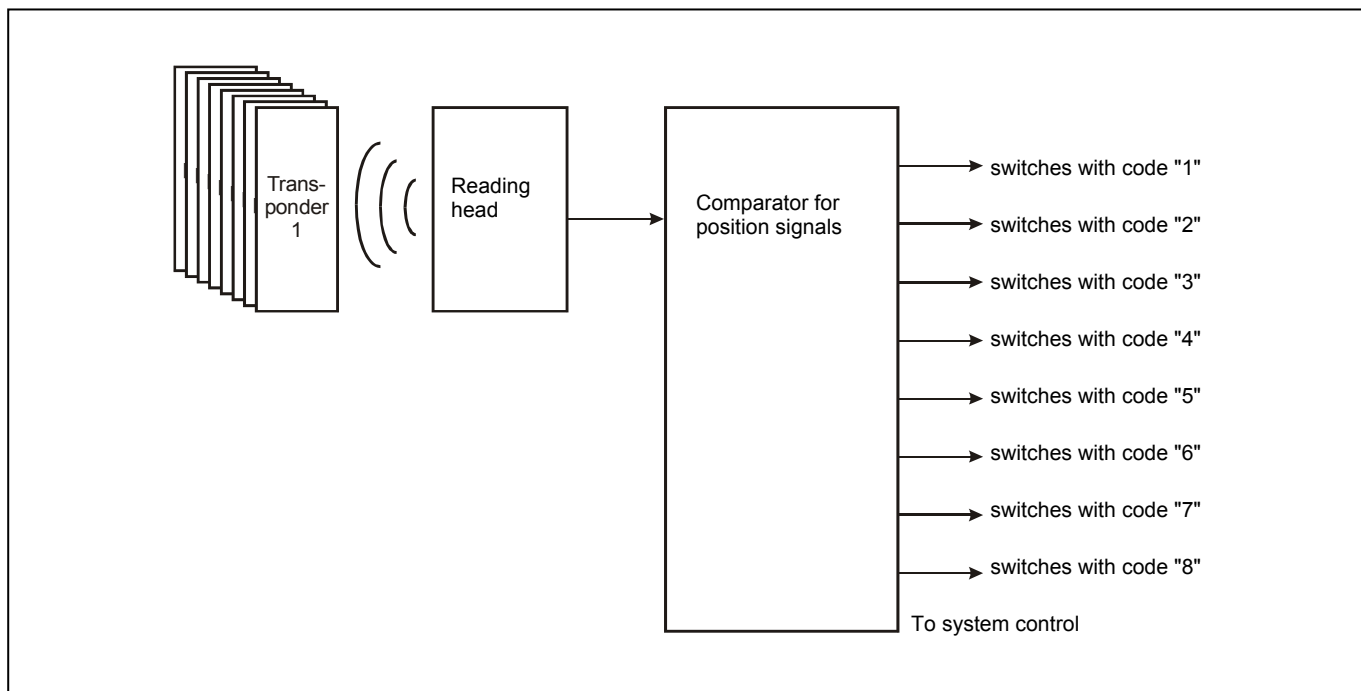


Innovative roller shutter control:



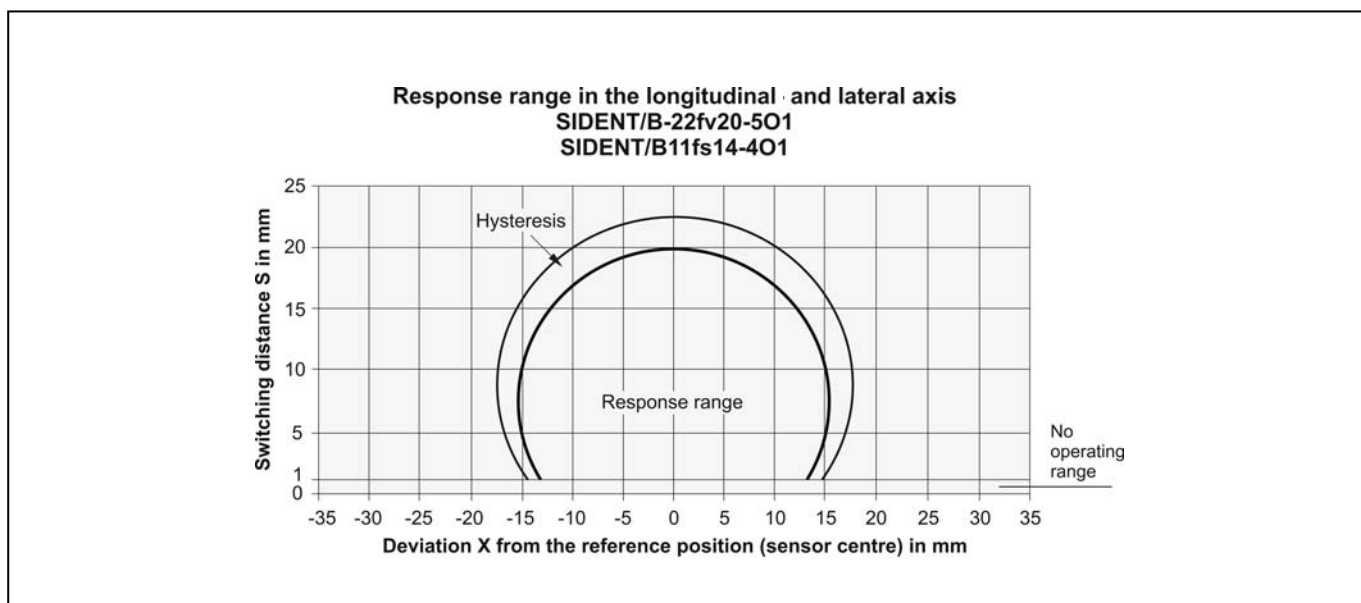
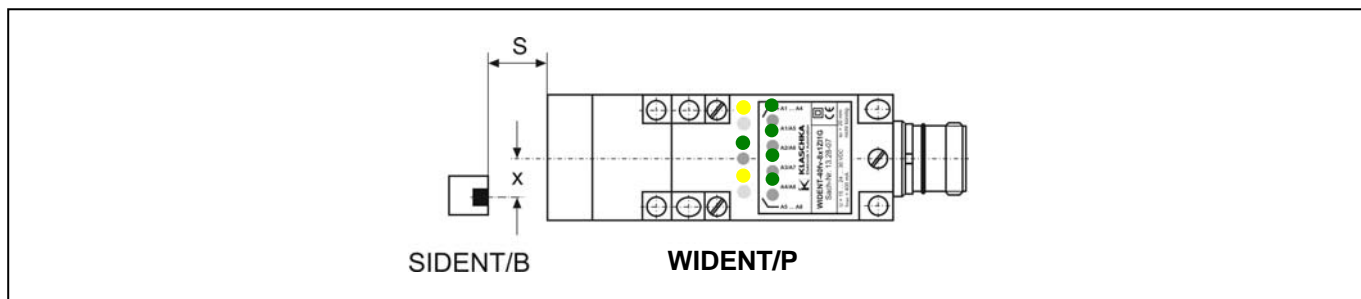
Note:

The mounting instructions and terms of use in the device description must be observed when using the WIDENT/P.

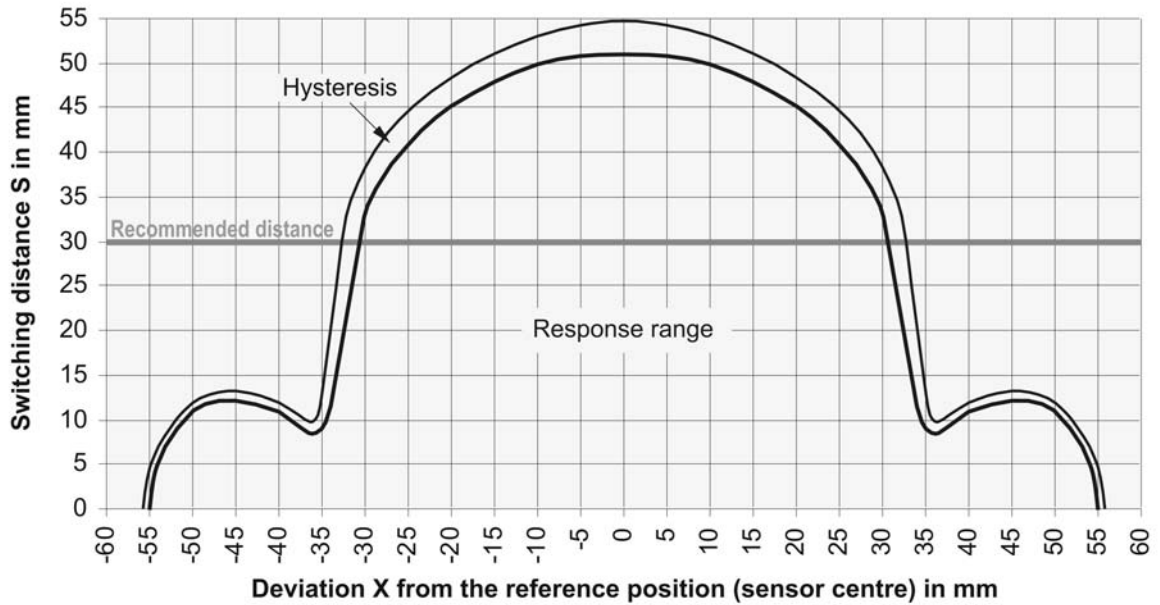


4. Response range

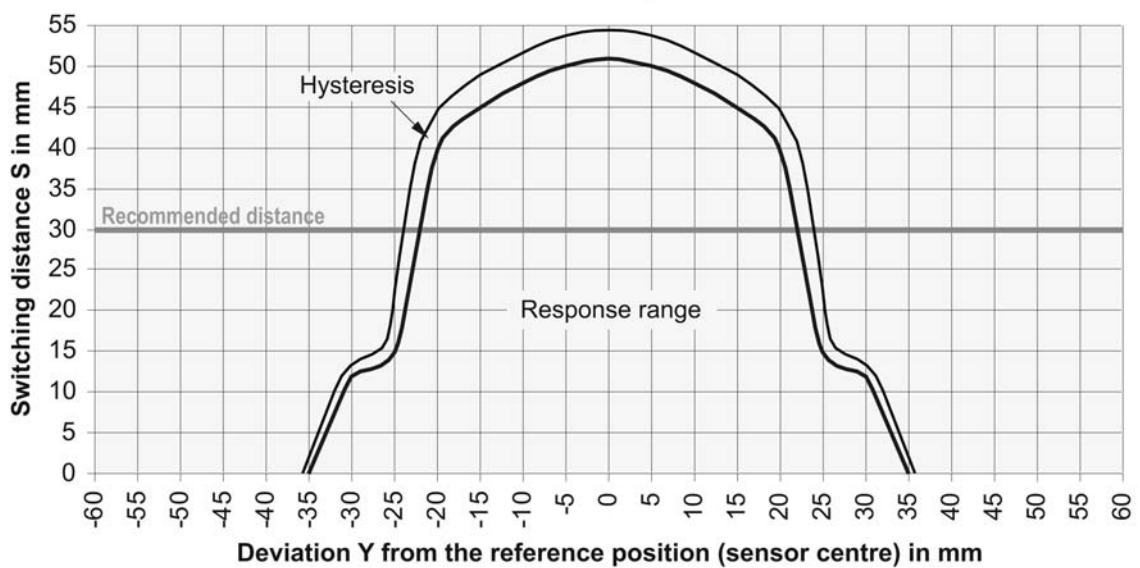
The following values are applicable for parallel and central alignment of the sensing faces of sensor and actuating element. If the sensing faces are inclined towards each other, this results in deviations from the values mentioned by around $\pm 10\%$ at an angle of inclination up to 30° .




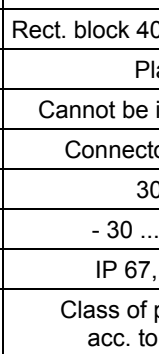
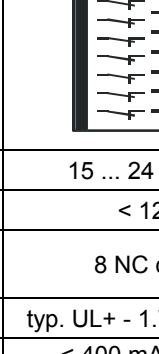
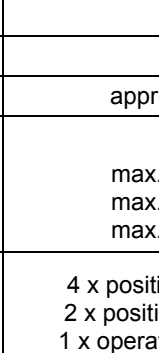
**Response range in the longitudinal axis
SIDENT/B-40fq100-401**



**Response range in the lateral axis
SIDENT/B-40fq100-401**

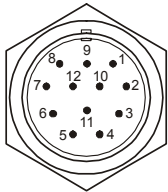



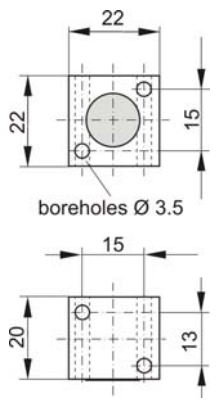
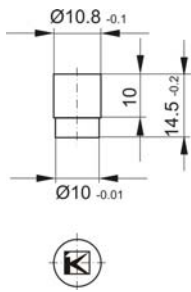
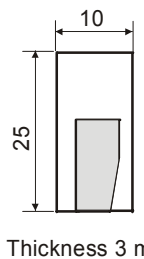
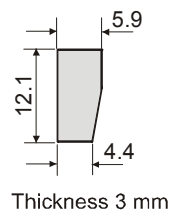
5. Technical data

Type	WIDENT/P-40fv-8x1Z1G	WIDENT/P-40fv-8x1Z1G	WIDENT/P-40fv-8x1Z1G
Ref. no.	13.28-07	13.28-07-100	13.28-07-200
Positions	8	8	15
Switching distance, hysteresis SIDENT/B-22fv20-4O1 SIDENT/B-11fs14-4O1 SIDENT/B-40fq100-4O1	20 mm*, < 15 % 20 mm*, < 15 % 50 mm*, < 15 %	20 mm*, < 15 % 20 mm*, < 15 % 50 mm*, < 15 %	20 mm*, < 15 % 20 mm*, < 15 % 50 mm*, < 15 %
Assured switching-off distance SIDENT/B-22fv20-4O1 SIDENT/B-11fs14-4O1 SIDENT/B-40fq100-4O1	35 mm 35 mm 100 mm	35 mm 35 mm 100 mm	35 mm 35 mm 100 mm
Design	Rect. block 40 x 40 x 130 mm	Rect. block 40 x 40 x 130 mm	Rect. block 40 x 40 x 130 mm
Housing material	Plastic	Plastic	Plastic
Installation specification	Cannot be installed flush	Cannot be installed flush	Cannot be installed flush
Connection	Connector, 12- pole	Connector, 12- pole	Connector, 12- pole
Max. permissible lead length	300 m	300 m	300 m
Ambient temperature range	- 30 ... + 70 °C	- 30 ... + 70 °C	- 30 ... + 70 °C
Protection rating, weight	IP 67, 300 g	IP 67, 300 g	IP 67, 300 g
Protective insulation 	Class of protection II acc. to IEC 947	Class of protection II acc. to IEC 947	Class of protection II acc. to IEC 947
Wiring			
Operating voltage range UL	15 ... 24 ... 30 VDC	15 ... 24 ... 30 VDC	15 ... 24 ... 30 VDC
Current consumption	< 120 mA	< 120 mA	< 120 mA
Operating mode	8 NO contacts	8 NC contacts	4 NO contacts, binary code 1 NO contacts, strobe
Output voltage	typ. UL+ - 1.75 V (100 mA)	typ. UL+ - 1.75 V (100 mA)	typ. UL+ - 1.75 V (100 mA)
Output current	< 400 mA per output max. 800 mA in total	< 400 mA per output max. 800 mA in total	< 400 mA per output max. 800 mA in total
Response time	typically 10 ms	typically 10 ms	typically 10 ms (A1 ... A4)
Drop-off time (pulse expansion)	typically 200 ms	typ. 200 ms	typically 200 ms (A1 ... A4)
Turn-on check A5			typically 80 ms after A1 ... A4
Turn-off check A5			typically 60 ms before A1 ... A4
Switch-on delay	approx. 1 s	approx. 1 s	approx. 1 s
Traversing speed SIDENT/B-22fv20-4O1 SIDENT/B-11fs14-4O1 SIDENT/B-40fq100-4O1	max. 1 m/s max. 1 m/s max. 3 m/s	max. 1 m/s max. 1 m/s max. 3 m/s	max. 0.8 m/s max. 0.8 m/s max. 2.5 m/s
Indicators	4 x position (green) 2 x position (yellow) 1 x operation (green)	4 x position (green) 2 x position (yellow) 1 x operation (green)	4 x pos. (binary code) (green) 1 x Code detected (yellow) 1 x strobe (yellow) 1 x operation (green)
Reverse polarity protection, short-circuit protection	Built-in	Built-in	Built-in

* Switching distances may be reduced when installing the actuating elements in a metallic environment.

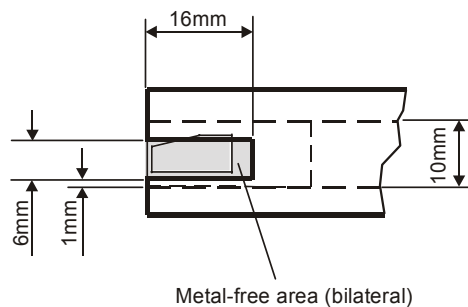
Table: Connector pin and lead assignment

	Pin number	1	2	3	4	5	6	7	8	9	10	11	12
	Function	A5	A6	---	A7	A8	---	L+	A1	A2	A3	A4	L-
	Core colour	White	Brown	Green	Yellow	Grey	Pink	Blue	Red	Black	Violet	Grey / pink	Red / blue

Position detection	Actuating element	Actuating element	Actuating element	Actuating element
Type	SIDENT/B-22fv20-401	SIDENT/B-11fs14-401	SIDENT/B-10fs25-401	SIDENT/B-6fs12-401
Ref. no.	13.14-30	13.14-40	13.14-64	13.14-66
Position 1	13.14-30-012	13.14-40-012	13.14-64-012	13.14-66-012
Position 2	13.14-30-022	13.14-40-022	13.14-64-022	13.14-66-022
Position 3	13.14-30-032	13.14-40-032	13.14-64-032	13.14-66-032
Position 4	13.14-30-042	13.14-40-042	13.14-64-042	13.14-66-042
Position 5	13.14-30-052	13.14-40-052	13.14-64-052	13.14-66-052
Position 6	13.14-30-062	13.14-40-062	13.14-64-062	13.14-66-062
Position 7	13.14-30-072	13.14-40-072	13.14-64-072	13.14-66-072
Position 8	13.14-30-082	13.14-40-082	13.14-64-082	13.14-66-082
Position 9	13.14-30-092	13.14-40-092	13.14-64-092	13.14-66-092
Position 10	13.14-30-102	13.14-40-102	13.14-64-102	13.14-66-102
Position 11	13.14-30-112	13.14-40-112	13.14-64-112	13.14-66-112
Position 12	13.14-30-122	13.14-40-122	13.14-64-122	13.14-66-122
Position 13	13.14-30-132	13.14-40-132	13.14-64-132	13.14-66-132
Position 14	13.14-30-142	13.14-40-142	13.14-64-142	13.14-66-142
Position 15	13.14-30-152	13.14-40-152	13.14-64-152	13.14-66-152
Design	Rectangular block 22 x 22 x 20 mm	Cylinder Ø 10.8 mm	25 x 10 x 3 mm	12,1 x 5.9 x 3 mm
Housing material	Plastic			
Installation specification	Do not install flush; attach preferably with one-way screws or glue in		Do not install flush; attach preferably with one-way screws or glue in to prevent manipulation	
Protection rating, weight	IP 67, 13 g	IP 67, 2 g	IP 67, 1 g	IP 67, 0.8 g
Protective insulation 	Class of protection II to IEC 947			
Dimensions				
Identification	by 6-digit numerical code			
Structure	Transponder			
Ambient temperature range	- 30 ... + 70 °C			

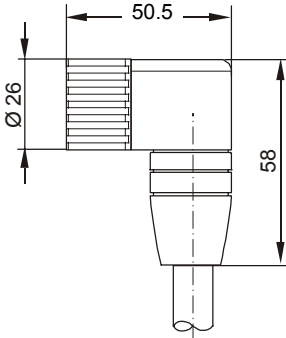
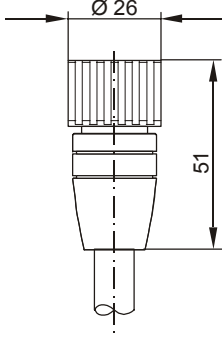
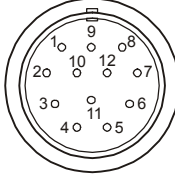
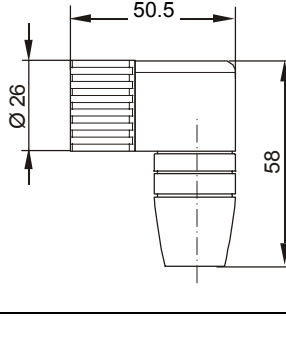
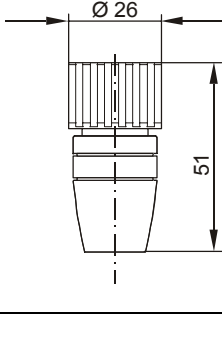
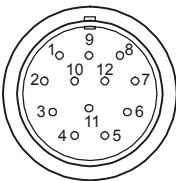
Installation example:

SIDENT/B-10fs25-401

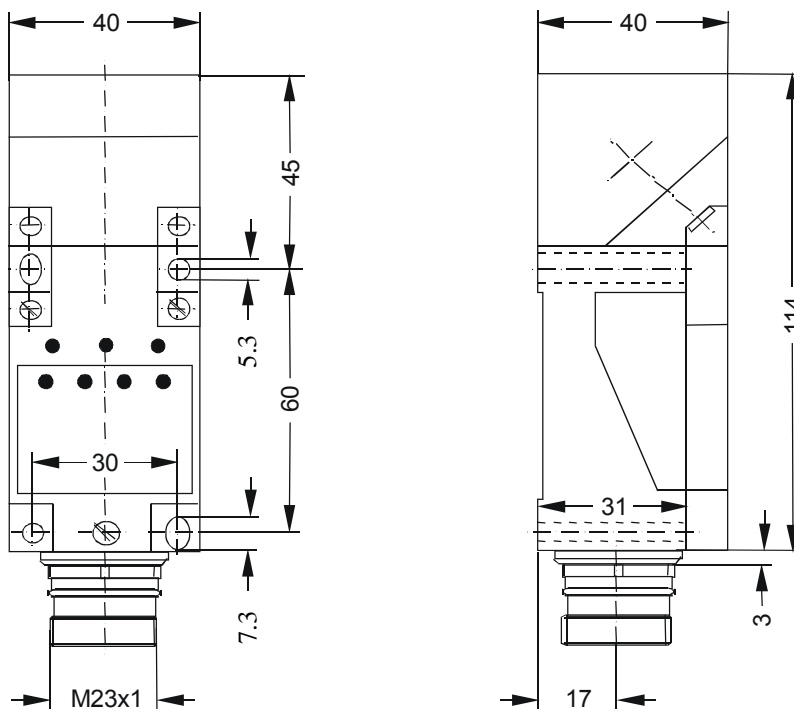


Note: Other versions of the actuating elements available on request.

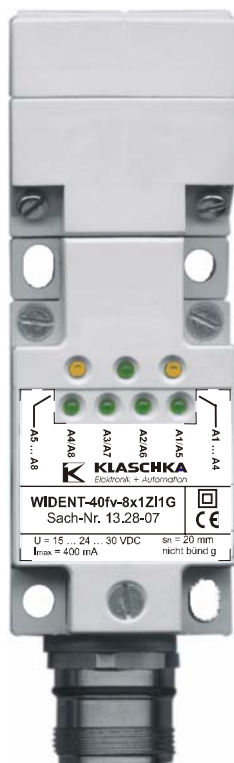
Position detection	Actuating element		
Type	SIDENT/B-40fq100-401		
Ref. no.	13.14-68		
Position 1	13.14-68-012	Position 9	13.14-68-092
Position 2	13.14-68-022	Position 10	13.14-68-102
Position 3	13.14-68-032	Position 11	13.14-68-112
Position 4	13.14-68-042	Position 12	13.14-68-122
Position 5	13.14-68-052	Position 13	13.14-68-132
Position 6	13.14-68-062	Position 14	13.14-68-142
Position 7	13.14-68-072	Position 15	13.14-68-152
Position 8	13.14-68-082		
Design	Rectangular block 40 x 25 x 100 mm		
Housing material	PA radiation cross-linked		
Installation specification	Metal parts sideways of or behind the actuating element are permissible, but may affect the operating range.		
Protection rating, weight	IP 67, 125 g		
Protective insulation <input type="checkbox"/>	Class of protection II to IEC 947		
Dimensions			
Identification	by 6-digit numerical code		
Structure	Transponder		
Ambient temperature range	- 30 ... + 70 °C		

	Connecting lead	Connecting lead
Type	VLG 12E/12/X-2	VLG 12E/12/X-3
Ref. no.	20.18-52	20.18-55
Housing material	Metal	
Protection rating	IP 65	
Protective insulation <input type="checkbox"/>	Class of protection II acc. to IEC 947	
Dimensions		
Connector pin diagram / Insulated core colours	 <ul style="list-style-type: none"> 1: white 2: brown 3: green 4: yellow 5: grey 6: pink 7: blue 8: red 9: black 10: violett 11: grey/pink 12: red/blue 	
Cross-section	12 x 0.5 mm ²	12 x 0.5 mm ²
Description	LIYY, flexible, PVC grey	
Ambient temperature range	- 30 ... + 70 °C	
Connection	Socket, 12-pole	
	Connector	Connector
Type	JKYIrZ-O-1	JKYIaZ-O-2
Ref. no.	13.99-46	13.99-48
Housing material	Metal	
Protection rating	IP 65	
Protective insulation <input type="checkbox"/>	Class of protection II to IEC 947	
Dimensions		
Connector pin diagram		
Ambient temperature range	- 30 ... + 70 °C	
Connection	Socket, 12-pole, crimp contact	

6. Dimensions



↙ Sensing face
 Orientation modifiable



↙ 12-pole Coninvers connector

7. Order data**7.1 Position Detector WIDENT/P****WIDENT/P-40fv-8x1ZI1G** Ref. no. 13.28-07Position detector for detection of
8 different codes with
8 outputs (NO contact)**WIDENT/P-40fv-8x1ZI1G** Ref. no. 13.28-07-100Position detector for detection of
8 different codes with
8 outputs (NC contact)**WIDENT/P-40fv-8x1ZI1G** Ref. no. 13.28-07-200Position detector for detection of
15 different codes with
4 binary coded position outputs and
one strobe output (NO contact)**7.2 Connecting leads**Please indicate the lead length X when ordering.
(standard value X = 5 m)**VLG 12E/12/X-2** Ref. no. 20.18-52Connecting lead with angled outlet,
12-core, (12 x 0.5 mm²),
with Coninvers connector**VLG 12E/12/X-3** Ref. no. 20.18-55Connecting lead with straight outlet,
12-core, (12 x 0.5 mm²),
with Coninvers connector**7.3 Connectors****JKYIrZ-O-1** Ref. no. 13.99-46Coninvers connector,
coupling, RC series,
angled outlet,
12-pole, crimp contacts**JKYIaZ-O-2** Ref. no. 13.99-48Coninvers connector,
coupling, RC series,
straight outlet,
12-pole, crimp contacts**7.4 Actuating elements**

SIDENT/B-22fv20-4O1		SIDENT/B-11fs14-4O1		SIDENT/B-10fs25-4O1		SIDENT/B-6fs12-4O1		SIDENT/B-40fq100-4O1	
Actuating element rectangular block 22 x 22 x 20 mm		Minimal actuating element cylinder Ø 10.8 mm		Actuating element in fork holder		Actuating element without housing		Actuating element rectangular block 40 x 25 100 mm	
Pos.	Ref. no.	Pos.	Ref. no.	Pos.	Ref. no.	Pos.	Ref. no.	Pos.	Ref. no.
1	13.14-30-012	1	13.14-40-012	1	13.14-64-012	1	13.14-66-012	1	13.14-68-012
2	13.14-30-022	2	13.14-40-022	2	13.14-64-022	2	13.14-66-022	2	13.14-68-022
3	13.14-30-032	3	13.14-40-032	3	13.14-64-032	3	13.14-66-032	3	13.14-68-032
4	13.14-30-042	4	13.14-40-042	4	13.14-64-042	4	13.14-66-042	4	13.14-68-042
5	13.14-30-052	5	13.14-40-052	5	13.14-64-052	5	13.14-66-052	5	13.14-68-052
6	13.14-30-062	6	13.14-40-062	6	13.14-64-062	6	13.14-66-062	6	13.14-68-062
7	13.14-30-072	7	13.14-40-072	7	13.14-64-072	7	13.14-66-072	7	13.14-68-072
8	13.14-30-082	8	13.14-40-082	8	13.14-64-082	8	13.14-66-082	8	13.14-68-082
9	13.14-30-092	9	13.14-40-092	9	13.14-64-092	9	13.14-66-092	9	13.14-68-092
10	13.14-30-102	10	13.14-40-102	10	13.14-64-102	10	13.14-66-102	10	13.14-68-102
11	13.14-30-112	11	13.14-40-112	11	13.14-64-112	11	13.14-66-112	11	13.14-68-112
12	13.14-30-122	12	13.14-40-122	12	13.14-64-122	12	13.14-66-122	12	13.14-68-122
13	13.14-30-132	13	13.14-40-132	13	13.14-64-132	13	13.14-66-132	13	13.14-68-132
14	13.14-30-142	14	13.14-40-142	14	13.14-64-142	14	13.14-66-142	14	13.14-68-142
15	13.14-30-152	15	13.14-40-152	15	13.14-64-152	15	13.14-66-152	15	13.14-68-152

We are certified according to DIN EN ISO 9001

Subject to changes!