Honeywell

MICRO SWITCH Miniature Precision Limit Switches

14CE Series

002387 Issue 5

Datasheet



DESCRIPTION

All MICRO SWITCH[™] 14CE Series miniature precision switches incorporate fluorocarbon diaphragm sealing to provide reliable protection, meeting IP65, IP66, IP67, and IP68, as well as NEMA 1, 2, 3, 3R, 4, 6, 6P, and 13 requirements. Versions with a boot seal also meet NEMA 12 requirements (dust, falling dirt, liquid media with solid contaminates). The cable or connector and basic switch terminals are encapsulated in an epoxy sealant, offering excellent resistance in harsh environments. For low temperature applications (down to -40 °C, -40 °F), CE Series switches can be supplied with low temperature seals and lubricant.

The CE Series switches are rugged and versatile switches which can be applied indoors in many harsh factory floor applications, as well as on outdoor equipment in extreme temperatures. A full range of actuators are available, including pin plungers, roller plungers, side rotary, multi-directional wire, and manually operated. The switches are also available with the industry standard, M12 micro-change 4-pin connector. MICRO SWITCH 14CE products meet European and Asian CE requirements.

VALUE TO CUSTOMERS

- Big performance in a small package
- Delivers consistent performance in many demanding environments where petroleum, synthetic, or water based fluids are present
- Product variation within defined nomenclature

FEATURES

- Rugged, miniature construction means minimal real estate on equipment
- NEMA 1, 2, 3, 3R, 4, 6, 6P, 12 (boot seal), 13, and IP65/66/67/68 environmental sealing
- Pre-leaded (Cenelec cable) or supplied with a M12 four-pin connector
- Wide selection of actuators and cable length variations with side and bottom exit cable/connector options
- 25 mm mounting centers engineered with a MICRO SWITCH SM switch for consistent, precise actuation
- Well suited for up to 10 million actuation cycles (Up to 5 million actuation cycles for wobble actuators)
- Gang mounting capability to provide a multi-plunger limit switch
- Low temperature variants available for indoor and outdoor applications
- CE approvals for European and Asian use

POTENTIAL APPLICATIONS

- Machine tools
- Off-road equipment
- Material handling
- Access and mobility solutions
- Textile machinery
- Robotics
- Packaging equipment
- Commercial appliances
- Print trade machinery
- Agricultural machinery

DIFFERENTIATION

- Diaphragm seal between the actuator and the switch cavity for high performance sealing
- CE Series incorporates MICRO SWITCH SM basic switch for consistent, precise actuation
- Side exit termination for space constraints

PORTFOLIO

Honeywell's MICRO SWITCH 14CE limit switch is part of a comprehensive offering of rugged and reliable limit switches. To view the entire product portfolio, click here.

MICRO SWITCH Miniature Precision Limit Switches, 14CE Series

Table 1. Specifications

Characteristic	Parameter					
Description	compact enclosed limit switch					
Actuators	 Top pin plunger (14CE1-) Cross roller plunger (14CE3-) Top pin plunger with boot seal (14CE18-) Wobble (14CE20-) Top pin plunger, panel mount (14CE27-) Top roller plunger, parallel and panel mount (14 Top roller plunger, parallel and boot sealed (144) Top roller plunger, perpendicular, boot seal (144) 	(14CE29-) CE31-)				
Terminations	Harmonized Cenelec PVC sheathed 4 x 0,75 mm² (18 AWG) cable Connector (dc), 4-pin male, M12 thread (-Q) Connector (ac), 4-pin male, 1/2 in x 20 thread (-Q1)					
Switching options	SPDT, snap action contacts (1NC/1NO) Form C					
Sealing	IP65, IP66, IP67, IP68* NEMA 1, 2, 3, 3R, 4, 6, 6P, 12 (boot seal), 13					
Operating temperature	0 °C to 70 °C [32 °F to 158 °F]; optional -40 °C to 70 °C [-40 °F to 158 °F]					
Mechanical life	up to 10 million; up to 5 million (wobble actuator	s) cycles				
Thermal current	1 A, 3 A, 5 A (depending upon model)					
Rated insulation voltage (Ui)	250 V					
Rated impulse withstand voltage (Uimp)	1.5 kV					
Short circuit protection device (SCPD)	Quick blow fuse suitable for rated current of swite	ch				
Pollution degree	3					
Min. actuation speed	0.003 m/s					
Max. actuation speed	0.1 m/s					
Max. actuation frequency	ac – 200 Hz; dc – 20 Hz					
Shock	50 g – IEC 60068-2-27					
Vibration	10 g - IEC 60068-2-6					
Approvals	CE					
Conforming to standards	EN 60947-5-1; AC-14 D300, DC-13 R300					

*IP68 sealing submerged in one meter of water for 24 hours

Table 2. Electrical Ratings (in amperes)

Model example	Contacts	Rating
14CE	Silver contacts	А
14CE G	Gold contacts	В
14CEQ, -AQ, -AQ1	Silver contacts	C with 4-pin connector

Rating code		Make	Break
	240 Vac, ind.	1.2	0.2
	240 Vac, res.	5	5
А	28 Vdc, res.	3	3
28 Vdc, ind.		3	3
	5 A, 1/10 HP, 125 Vac or 250 Vac	-	-
В	5-25 mA 5-50 Vdc	_	-
С	3 A, 125 Vac or 250 Vac	_	_

SWITCHING AND LEAD IDENTIFICATION



PINOUTS



CONNECTOR VERSIONS

The 14CE Series is available with a 4-pin, M12 size connector in both bottom and side exit versions.



MOUNTING

MICRO SWITCH 14CE Series switches are mounted by using two M5 screws. The mounting holes are counter bored to keep the screw heads within the overall switch housing dimensions.

GANG MOUNT CAPABILITY

The housing on the 14CE Series has been designed to enable the user to build his own multiple plunger switch by gang mounting several switches. All pin plunger and roller plunger types are suitable for gang mounting. There is a 16 mm distance between the plungers. Both Series are very versatile that even a lever-type version could be added at the end of the row.

BOTTOM EXIT OR SIDE EXIT ORIENTATION

The CE Series has been designed with a pre-wired cable or connector fitted in the bottom of the switch housing. Other variations are available with a side-exit cable or connector.

GOLD CONTACT VERSIONS

For low energy applications, gold contact versions of the 14CE switches can be supplied upon request.

GENERAL DIMENSIONS • ALL SWITCHES



PRODUCT SPECIFICATIONS AND LISTINGS

Contact your Honeywell rep or distributor for additional listings

14CE1 • Pin Plunger 14CE27 • Pin Plunger	r Panel Mount	Con- tacts	Elec Rating	Cable/ Connector Position	Free Posi- tion (FP)	Operating Position (OP)	Options	Listing
Ø 10,0 mm + + + [Ø0.39 in] 	17,5 15,7 12,7 BRN	Silver	А	Bottom	17,5 mm [0.69 in]	15,7 mm [0.62 in]	_	14CE1-1
GRY-E GRY-E GRY-E	-BLK	Gold	В	Bottom	17,5 mm [0.69 in]	15,7 mm [0.62 in]	Gold-plated contacts	14CE1-1G
GRY-BRN 15,8 Pretravel • 1,8 mm [0.071 in]	Silver	А	Side	17,5 mm [0.69 in]	15,7 mm [0.62 in]	Side exit cable	14CE1-1A	
12 mm [0.49 in] THREADED LENGTH	. travel • 0,1 mm [0.004 in] rtravel • 3,0 mm [0.118 in]	Silver	С	Bottom	17,5 mm [0.69 in]	15,7 mm [0.62 in]	dc-type connector	14CE1-Q
	r. force • 11,8 N [2.65 lb] 31,1 29,3 26,3	Silver	А	Bottom	31,1 mm [1.23 in]	29,3 mm [1.15 in]	Panel mount	14CE27-1
GRY-B GRY-E GRY-E	-BLK			·		· · · · ·		
				Cable/		Operating		

14CE <mark>18</mark> • Boot Se	aled Pin Plunger	Con- tacts	Elec Rating	Cable/ Connector Position	Free Posi- tion (FP)	Operating Position (OP)	Options	Listing
Ø7.0 mm - Hannel BOOT SEAL	26,7 24,9 21,9 GRY-BRN GRY-BLK	Silver	А	Bottom	26,7 mm [1.05 in]	24,9 mm [0.98 in]	_	14CE18-1
PT G G G OP FF P	GRY-BLK GRY-BRN	Silver	А	Side	26,7 mm [1.05 in]	24,9 mm [0.98 in]	Side exit cable	14CE18-1A
	Pretravel • 1,8 mm [0.071 in] Diff. travel • 0,1 mm [0.004 in]	Silver	С	Bottom	26,7 mm [1.05 in]	24,9 mm [0.98 in]	dc-type connector	14CE18-Q
	Overtravel • 3,0 mm [0.004 m] Oper. force • 22,5 N [5.06 lb]							

14CE <mark>66</mark> • Ball Bea	aring Plunger	Con- tacts	Elec Rating	Cable/ Connector Position	Free Posi- tion (FP)	Operating Position (OP)	Options	Listing
7.9 mm [0.31 in] DIA BALL BEARING	26,2 24,4 21,4 GRY-BRN GRY-BLK GRY-BLK	Silver	А	Bottom	26,2 mm [1.03 in]	24,4 mm [0.96 in]	_	14CE66-1
	GRY-BRN 24,5	Silver	А	Side	26,2 mm [1.03 in]	24,4 mm [0.96 in]	Side exit cable	14CE66-1A
	Diff. travel • 0,1 mm [0.004 in] Overtravel • 3,0 mm [0.118 in] Oper. force • 11,8 N [2.65 lb]							

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14CE2 • Roller Plur 14CE28 • Roller Plu	nger Inger Panel Mount	Con- tacts	Elec Rating	Cable/ Connector Position	Free Posi- tion (FP)	Operating Position (OP)	Options	Listing
Ø12,4 mm – [Ø0.49 in] PT		Silver	А	Bottom	30,3 mm [1.19 in]	28,5 mm [1.12 in]	_	14CE2-1
	30,3 28,5 25,5 GRY-BRN GRY-BLK	Gold	В	Bottom	30,3 mm [1.19 in]	28,5 mm [1.12 in]	Gold-plated contacts	14CE2-1G
GRY-BLK GRY-BRN 28,6 Pretravel • 1,8 mm [0.071 in] Diff travel • 0.1 mm [0.004 in]	Silver	С	Bottom	30,3 mm [1.19 in]	28,5 mm [1.12 in]	dc-type connector	14CE2-Q	
	Pretravel • 1,8 mm [0.071 in] Diff. travel • 0,1 mm [0.004 in]	Silver	А	Side	30,3 mm [1.19 in]	28,5 mm [1.12 in]	Side exit cable	14CE2-1A
M14 X 1 IHREAD	Dvertravel • 3,0 mm [0.118 in] Dper. force • 11,8 N [2.65 lb]	Silver	А	Bottom	44,3 mm [1.75 in]	42,5 mm [1.67 in]	Panel mount, 2 m cable	14CE28-2
	44,3 42,5 39,5 GRY-BRN GRY-BLK GRY-BLK A2,6							
				Cable/		Operating		



14CE31 • Boot Se	aled Roller Plunger	Con- tacts	Elec Rating	Cable/ Connector Position	Free Posi- tion (FP)	Operating Position (OP)	Options	Listing
ROLLER Ø 12,4 mm x 4,7 mm Ø 0.48 in x 0.020 in]	36,2 34,4 31,4 GRY-BRN	Silver	А	Bottom	36,2 mm [1.43 in]	34,4 mm [1.36 in]	_	14CE31-1
	GRY-BLK GRY-BLK GRY-BRN	Silver	А	Bottom	36,2 mm [1.43 in]	34,4 mm [1.36 in]	Fluorocarbon seals, 6 m cable	14CE31-6V

14CE3 • Cross Rol	ller Plunger	Con- tacts	Elec Rating	Cable/ Connector Position	Free Posi- tion (FP)	Operating Position (OP)	Options	Listing
[∅12,4 mm [∅0.49 in]	30,3 28,5 25,5 GRY-BRN GRY-BLK	Silver	А	Bottom	30,3 mm [1.19 in]	28,5 mm [1.12 in]	_	14CE3-1
	GRY-BLK GRY-BRN 28.6	Silver	А	Side	30,3 mm [1.19 in]	28,5 mm [1.12 in]	3 m of cable, side exit	14CE3-3A
	Pretravel • 1,8 mm [0.071 in] Diff. travel • 0,1 mm [0.004 in]	Silver	С	Bottom	30,3 mm [1.19 in]	28,5 mm [1.12 in]	dc-type connector	14CE3-Q
	Overtravel • 3,0 mm [0.118 in] Oper. force • 11,8 N [2.65 lb]							

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14CE <mark>55</mark> • Boot Se Plunger	aled Cross Roller		Con- tacts	Elec Rating	Cable/ Connector Position	Free Posi- tion (FP)	Operating Position (OP)	Options	Listing
ROLLER Ø 12,4 mm x 4,7 mm Ø 0.48 in x 0.020 in]	36,2 34,4 3 GRY-BRN GRY-BLK	1,4	Silver	А	Bottom	36,2 mm [1.43 in]	34,4 mm [1.36 in]	3 meters of cable	14CE55-3
BOOT SEAL DI DI CONVIDU V		¢							
	Pretravel • 1,8 mm [0.071 in]								
	Diff. travel • 0,1 mm [0.004 ir	-							
	Overtravel • 3,0 mm [0.118 ir Oper. force • 17,5 N [3.93 lb]	1]							
14CE <mark>16</mark> • Side Rot	tary		Con- tacts	Elec Rating	Cable/ Connector Position	Free Posi- tion (FP)	Operating Position (OP)	Options	Listing
or GRY-BLK GRY-BRN	- I '	Silver	А	Bottom	0°	30°	-	14CE16-11	
	GRY-BLK		Gold	В	Bottom	0°	30°	Gold-plated contacts, 3 meters of cable	14CE16-3G
uator shaft	Pretravel • 30° Diff. travel • 3°		Silver	С	Bottom	O°	30°	dc-type connector	14CE16-Q ³
07.32 mm 00.288 in]	Overtravel • 40° Oper. force • 0,34 Nm [3 in-lb]]							
14CE <mark>20</mark> • Random Wire Actuator	Motion		Con- tacts	Elec Rating	Cable/ Connector Position	Free Posi- tion (FP)	Operating Position (OP)	Options	Listing
ALL DIRECTIONS EXCEPT DIRECT PULL			Silver	А	Bottom	_	28 mm [1.10 in] max.	_	14CE20-1
0 28 max. GRY-BRN GRY-BLK GRY-BLK GRY-BLK GRY-BLK GRY-BLK GRY-BLK GRY-BLK GRY-BLK GRY-BLK GRY-BLK GRY-BLK GRY-BRN Dper. position • 28 mm [1.10 in] max.									
		nax.							
	Oper. force • 0,55 N [0.12 lb] ma	ax.							

 $^{\rm 1}$ Switch operates on clockwise and counterclockwise rotation of lever shaft

Note: Most part numbers are shown with 1 meter of cable. The -X indicates the number of meters of cable provided: 2-meters, 3-meters, 4-meters, and 5-meters. Custom lengths are also available.

Table 5. Levers for Use with 14CE Side Rotary Switches							
	Catalog Listing	Roller Material	Roller Dia. mm [in]	Roller Width mm [in]			
Fi	xed length l	ever; 38,1 m	m [1.5 in] rad	lius			
	GLZ51A	Nylon	19,0 [0.75]	6,35 [0.25]			
CO	GLZ51B	Steel	19,0 [0.75]	6,35 [0.25]			
U	GLZ51C	Nylon	25,4 [1.00]	12,7 [0.50]			
R	GLZ51E	Bronze	19,0 [0.75]	6,35 [0.25]			
C I	GLZ51T	SST	19,0 [0.75]	9,5 [0.38]			
Fixed	l length offs	et lever; 38,1	L mm [1.5 in]	radius			
	GLZ55A	Nylon	19,0 [0.75]	6,35 [0.25]			
D	GLZ55B	Steel	19,0 [0.75]	6,35 [0.25]			
Li C	GLZ55E	Bronze	19,0 [0.75]	6,35 [0.25]			
Adjustal	ole 38,1 mm	to 89,0 mm	[1.5 in to 3.5	in] radius			
ß	GLZ52A	Nylon	19,0 [0.75]	6,35 [0.25]			
ſ	GLZ52B	Steel	19,0 [0.75]	6,35 [0.25]			

Table 3. Levers for Use with 14CE Side Rotary Switches

ADDITIONAL MATERIALS

- Product installation instructions
- Product range guide
- Product nomenclature tree
- Product application-specific information
 - Limit and enclosed switches application information
 - Limit and enclosed switches operating characteristics
 - Limit and enclosed switches reference standards
 - Limit and enclosed switches typical applications
 - Product flyer: CE Family Miniature Limit Switches

A WARNING PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

WARNING MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

Warranty/Remedy

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship during the applicable warranty period. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgment or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items that Honeywell, in its sole discretion, finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While Honeywell may provide application assistance personally, through our literature and the Honeywell web site, it is buyer's sole responsibility to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this writing. However, Honeywell assumes no responsibility for its use.

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<u>14CE1-2</u> <u>14CE1-2G</u> <u>14CE1-2GL</u> <u>14CE1-2K</u> <u>14CE1-2L</u> <u>14CE1-3</u> <u>14CE1-3AH</u> <u>14CE1-3AH</u> <u>14CE1-3AK</u> <u>14CE1-3AK</u> <u>14CE1-3AK</u> <u>14CE1-3AK</u> <u>14CE1-3GK</u> <u>14CE1-3K</u> <u>14CE1-4</u> <u>14CE1-4K</u> <u>14CE1-5</u> <u>14CE1-6</u> <u>14CE1-6KV</u> <u>14CE1-7</u> <u>14CE18-1</u> <u>14CE18-1A</u> <u>14CE18-3X</u> <u>14CE18-6A</u> <u>14CE1-6A</u> <u>14CE1-AQ</u> <u>14CE1-Q</u> <u>14CE2-1L</u> <u>14CE20-1</u> <u>14CE20-3</u> <u>14CE20-6</u> <u>14CE2-1A</u> <u>14CE2-1A</u> <u>14CE2-1G</u> <u>14CE2-1L</u> <u>14CE2-1L1</u> <u>14CE2-2X</u> <u>14CE2-2KV</u> <u>14CE2-3X</u> <u>14CE2-3A</u> <u>14CE2-3G</u> <u>14CE2-3K</u> <u>14CE2-3KV</u> <u>14CE2-4</u> <u>14CE2-5</u> <u>14CE2-6</u> <u>14CE2-6KV</u> <u>14CE27-1</u> <u>14CE27A</u> <u>14CE28-2</u> <u>14CE29-1</u> <u>14CE2-AQ</u> <u>14CE2-Q</u> <u>14CE3-1</u> <u>14CE31-2L</u> <u>14CE31-2L</u> <u>14CE31-3</u> <u>14CE3-3KV</u> <u>14CE3-4AG</u> <u>14CE3-6</u> <u>14CE3-AQ</u> <u>14CE3-2</u> <u>14CE3-2</u> <u>14CE3-3A</u> <u>14CE3-3AH</u> <u>14CE3-3KV</u> <u>14CE3-3KV</u> <u>14CE3-4AG</u> <u>14CE3-6</u> <u>14CE3-AQ</u> <u>14CE3-Q</u> <u>14CE3-2</u> <u>14CE3-3AH</u> <u>14CE3-3KV</u> <u>14CE3-3AG</u> <u>14CE3-6</u> <u>14CE3-AQ</u> <u>14CE3-Q</u> <u>14CE5-3</u> <u>14CE3-3AH</u> <u>14CE3-3KV</u> <u>14CE3-4AG</u> <u>14CE3-6</u> <u>14CE3-AQ</u> <u>14CE3-Q</u> <u>14CE5-3</u> <u>14CE102-12</u> <u>14CE102-12</u> <u>14CE102-12</u> <u>14CE101-13</u> <u>14CE101-4</u> <u>14CE101-6</u> <u>14CE102-12</u> <u>14CE102-12</u> <u>14CE102-13</u> <u>14CE102-3G</u> <u>14CE102-5</u> <u>14CE102-6</u> <u>14CE102-66-4A</u> <u>14CE102-33</u> <u>14CE102-3G</u> <u>14CE102-5</u> <u>14CE102-66</u> <u>14CE102-12</u> <u>14CE102-13</u> <u>14CE102-13</u> <u>14CE102-13</u> <u>14CE102-66</u> <u>14CE102-13</u> <u>14CE102-66</u> <u>14CE102-13</u> <u>14CE102-13</u> <u>14CE102-66</u> <u>14CE102-13</u> <u>14CE102-13</u> <u>14CE102-13</u> <u>14CE102-13</u> <u>14CE102-66</u> <u>14CE102-13</u> <u>14CE102-16</u> <u>14CE102-66</u> <u>14CE102-16</u> <u>14CE102-16</u> <u>14CE102-66</u> <u>14CE102-17</u> <u>14CE102-37</u> <u>14CE102-57</u> <u>14CE102-66</u> <u>14CE102-66</u> <u>14CE102-67</u> <u>14CE102-76</u> <u>14CE102-76</u> <u>14CE102-76</u> <u>14CE102-76</u> <u>14CE102-76</u> <u>14CE102-76</u> <u>14CE102-78</u> <u>14CE102-78</u> <u>14CE102-76</u> <u>14CE102-78</u> <u>14CE102-78</u> <u>14CE102-78</u> <u>14CE102-78</u> <u>14CE102-78</u> <u>14CE</u>