

Easyflow by Neles™ K-series limit switches

The Easyflow by Neles K-series features versatile range of limit switches for quarter turn actuators and valve assemblies. With the K-series limit switches our customers receive reliable information of the limits of desired rotary travel set by the customer. Limit switch shaft is coupled directly to the actuator shaft with NAMUR (VDI/VDE 3845) adaptation. Actuator movement is transferred via the unit shaft to preset cams that actuate either inductive or mechanical switch elements. The switches are prewired to terminal strips for easy connection to an external monitoring system.



BENEFITS

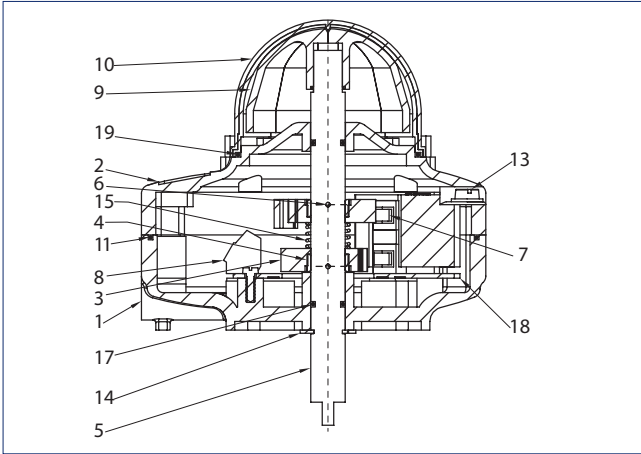
- The versatile K-series limit switches can be mounted on top of virtually any rotary actuator
- - VDI/VDE 3845 mounting face
- K-series limit switch is very cost competitive solution for sensing the limits of rotary travel
- Its compact size makes it easy to fit even to tight spaces
- K-series limit switches are suitable even for the most harsh weather conditions with three different housing material options and IP67 ingress protection class as standard
- Switch elements can be chosen between mechanical, inductive and reed type switches
- SOV termination provided inside the limit switch box (with D, E, F, H, R and V switch elements)

FEATURES

- Two product series
 - KS = K-series, standard housing
 - KC = K-series compact housing
- Three housing material options
 - Epoxy powder coated, low copper die cast aluminum (LM6)
 - Stainless steel (CF8M, equivalent to AISI316)
 - Polycarbonate (LEXAN 3412R) (only for KC-series)
- Cable entry options
 - M20x1,5
 - ½"NPT
 - ¾"NPT (KS only)
- Choice of 9 switch element variants
 - Inductive
 - Mechanical
 - Reed type
- Large visual indicator
 - Inside a shatter proof polycarbonate dome
- VDI/VDE 3845 mounting face with NAMUR shaft
- Four different temperature ranges
 - General: -20 °C to +80 °C
 - Cold: -40 °C to +80 °C
 - Arctic: -50 °C to +80 °C
 - High: -20 °C to +100 °C
- KS-series with two or four cable entries and KC-series with three cable entries
 - M20x1.5, ½"NPT, or ¾"NPT (Only with KS)
- Easily adjustable cams
- Cams color coded to ease up installation
- IP67 as standard
- Switch elements connected to terminals via PCB to ensure good short circuit protection

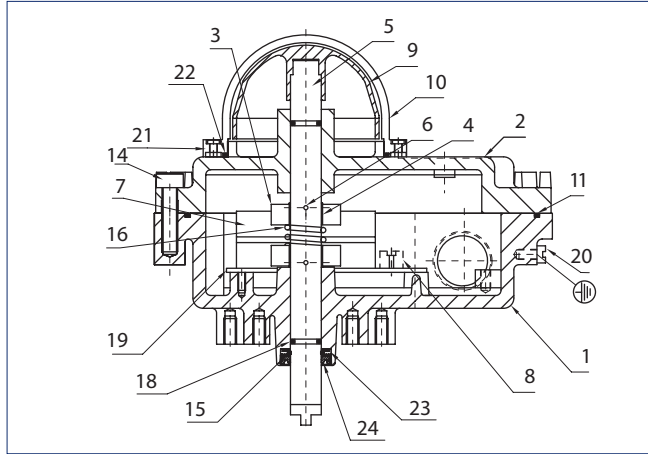
ASSEMBLY DRAWING AND MAIN PARTS

Series KC



S.NO.	DESCRIPTION	QTY.
1	HOUSING	1
2	COVER	1
3	CAM	2
4	CAM-LOCK 2	2
5	SHAFT	1
6	SPRING DOWEL	2
7	SWITCH ELEMENTS	2
8	TERMINAL BLOCK	4
9	INDICATOR	1
10	INDICATOR COVER	1
11	GASKET	1
13	NON FALLING SCREW	4
14	'E' TYPE CIRCLIP	1
15	SPRING	1
17	O-RING	2
18	PRINTED CIRCUIT BOARD	1
19	O-RING	1

Series KS



S.NO.	DESCRIPTION	QTY.
1	HOUSING	1
2	COVER	1
3	CAM	2
4	CAM-LOCK	2
5	SHAFT	1
6	SPRING DOWEL	2
7	SWITCH ELEMENTS	2
8	CONNECTOR STRIP	1
9	INDICATOR	1
10	INDICATOR COVER	1
11	GASKET	1
14	NON FALLING SCREW	8
15	EXTERNAL CIRCLIP	1
16	SPRING	1
18	O-RING	2
19	PRINTED CIRCUIT BOARD	1
20	SCREW FOR EARTH CONN.	2
21	PHILIPS HEAD SCREW	4
22	O-RING	1
23	WASHER	1
24	CUP SEAL	1

OPERATION PRINCIPLE

The K-series limit switches include from two to four inductive, mechanical or reed type switch elements. They are activated by cams that are directly driven by the actuator shaft through the limit switch shaft. Cams are set by the customer to the desired rotary travel limits. The switch elements are prewired to terminal

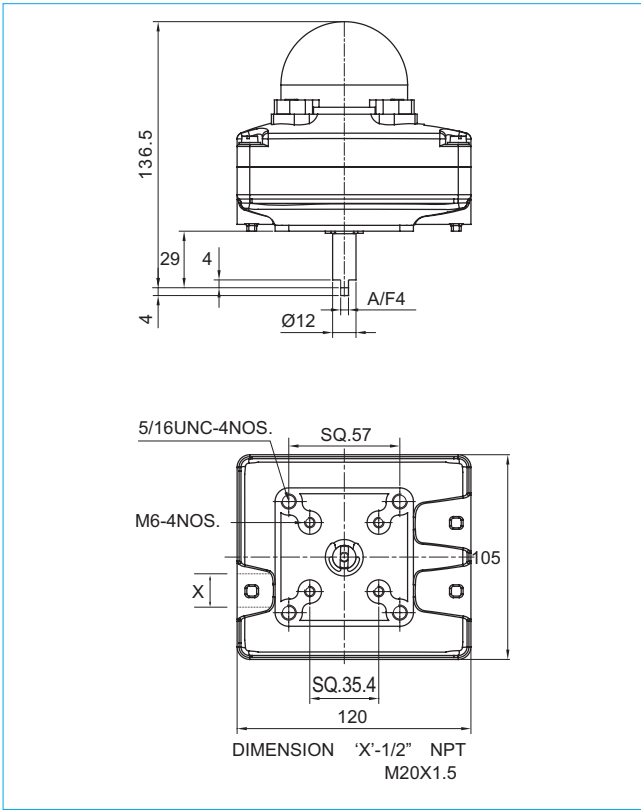
strip in the enclosure, permitting easy connection of switch output to external electrical monitoring system or indication devices. K-series limit switches also include a visual indicator on top of the enclosure cover that indicates 90° rotary travel between open and closed valve position.

TECHNICAL SPECIFICATION

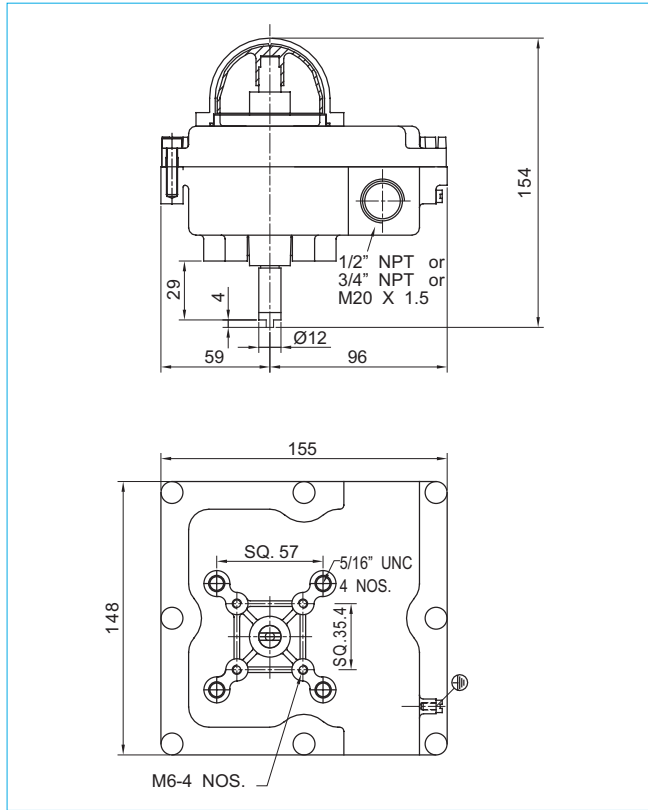
Ambient temperature:		D1 :	Inductive proximity switch, P+F NJ2-V3-N 2-wire type, Namur NC
General:	-20 ... +80 °C / -4 ... +176 °F	Supply voltage:	5 - 25 V DC, nominal 8 V DC (Ri = approx. 1 kOhm)
Cold:	-40 ... +80 °C / -40 ... +176 °F	Output current:	
Arctic:	-50 ... +80 °C / -58 ... +176 °F	Active face free:	> 3 mA
High:	-20 ... +100 °C / -4 ... +212 °F	Active face covered:	< 1 mA
	(Not applicable with polycarbonate body)	Nominal sensing range:	2 mm
Protection class:	IP67	D2 :	Inductive proximity switch, P+F NBB3-V3-Z4 2-wire type, NO
Body:		Supply voltage:	5 - 60 V DC
KS series:	Epoxy powder coated, low copper die cast aluminum (LM6) / stainless steel (CF8M)	Output current:	
KC series:	Epoxy powder coated, low copper die cast aluminum (LM6) / stainless steel (CF8M) / polycarbonate (LEXAN 3412R)	Operating current:	4 - 100 mA
Pointer cover:	Shatter proof polycarbonate (INFINO SC-1220UR)	Off-state current:	0,4 - 0,55 mA
Internal parts:		Nominal sensing range:	3 mm
Shaft:	AISI304 / AISI316 (SS body)	F1:	Inductive proximity switch, P+F SJ3.5-N 2-wire type, Namur NC
Cams:	ABS	Supply voltage:	5 - 25 V DC, nominal 8 V DC (Ri = approx. 1 kOhm)
PCB:	Grade FR4	Output current:	
Fasteners:	AISI304	Active face free:	> 3 mA
Sealing:	Nitrile rubber (NBR) (General temp range) Silicon (Cold temp range) Fluoro silicon (Arctic temp range) Viton (High temp range)	Active face covered:	< 1 mA
Conduit entry:		Slot width:	3,5 mm
KS series:	2 x M20 or 2 x 1/2 NPT or 2 x 3/4 NPT 4 x M20 or 4 x 1/2 NPT or 4 x 3/4 NPT	F2 :	Inductive proximity switch, P+F SJ3.5-SN 2-wire type, Namur NC
KC series:	3 x M20 or 3 x 1/2 NPT	Supply voltage:	5 - 25 V DC, nominal 8 V DC (Ri = approx. 1 kOhm)
Weight:		Output current:	
KS series:	Die cast aluminum 1.7 kg / 3.8 lbs, stainless steel 4.5 kg / 9.9 lbs	Active face free:	> 3 mA
KC series:	Die cast aluminum 0.7 kg / 1.6 lbs, stainless steel 2.5 kg / 5.5 lbs, polycarbonate 0.6 kg / 1.3 lbs	Active face covered:	< 1 mA
Switches:		Slot width:	3,5 mm
A1:	Inductive proximity switch, P+F NJ2-12GM-N 2-wire type, Namur NC	R1:	Reed proximity switch, Metso R1 220 V AC/DC
Supply voltage:	5 - 25 V DC, nominal 8 V DC (Ri = approx. 1 kOhm)	Supply voltage:	
Output current:		Output current:	2000 mA
Active face free:	> 3 mA	Operating current:	0 mA
Active face covered:	< 1 mA	Off-state current:	
Nominal sensing range:	2 mm	V1:	Mechanical micro switch, Honeywell V15S05-CZ100A05-01, SPDT type
A3 :	Inductive proximity switch, P+F NBN4-12GM40-Z0 2-wire type, NO	Electrical values:	5 A @ 125/250 VAC, 100 mA @ 48 VDC or 125/250 VAC
Supply voltage:	5 - 60 V DC	W1:	Mechanical micro switch, Honeywell V15S05-CZ100A05-01, DPDT type
Output current:		Electrical values:	5 A @ 125/250 VAC, 100 mA @ 48 VDC or 125/250 VAC
Operating current:	2 - 100 mA		
Off-state current:	0 - 0,5 mA		
Nominal sensing range:	4 mm		

DIMENSIONAL DRAWINGS, mm

Series KC



Series KS



Easyflow by Neles™ K-series limit switches type code

1. sign KC KS								PRODUCT GROUP
								Compact enclosure, weather proof
								Standard enclosure, Ex d capable
	2. sign	Note						QUANTITY OF SWITCHES
	2							2 switches
	3	Not applicable with 1. sign KC Not applicable with 9. sign EN						3 switches
	4	Not applicable with 1. sign KC Not applicable with 9. sign EN						4 switches
	3. sign	INDUCTIVE PROXIMITY SWITCHES						SWITCH TYPE
		Manufacturer	Model				Note	
	A1	P&F	NJ2-12GM-N				Cylindrical	
A3	P&F	NBN4-12GM40-Z0				Cylindrical		
D1	P&F	NJ2-V3-N				Flat	8V DC, 3mA, NC	
D2	P&F	NBB3-V3-Z4				Flat	10-60V DC, 100mA, NO	
F1	P&F	SJ3.5-N				Slot	8 VDC, >3 mA ; <1 mA (NC)	
F2	P&F	SJ3.5-SN				Slot	8 VDC, >3 mA ; <1 mA (NC)	
	REED TYPE PROXIMITY SWITCHES						Electrical values	
	Manufacturer	Model				Note		
R1	Metso	R1				SPDT, Not applicable with 1. sign KC Only applicable with 7. sign G and C	2 A, 400 VAC/VDC	
	MECHANICAL MICRO SWITCHES						Electrical values	
	Manufacturer	Model				Note		
V1	Honeywell	V15S05-CZ100A05-01				SPDT	5 A, 125 OR 250 VAC, 100 mA, 48 VDC (NO/NC), 30 mA, 250 VDC (NO/NC)"	
W1	Honeywell	V15S05-CZ100A05-01				DPDT Not applicable with 1. sign KC Only applicable with 2. sign 2"	5 A, 125 OR 250 VAC, 100 mA, 48 VDC (NO/NC), 30 mA, 250 VDC (NO/NC)"	
4. sign	Note						ENCLOSURE MATERIAL	
A							Diecast aluminum (LM6)	
S							Stainless steel CF8M (AISI 316 / CF8M)	
P	Only with 1. sign KC						Polycarbonate (LEXAN 3412R)	
5. sign	Note						QUANTITY OF CONDUIT ENTRIES	
2	Only with 1. sign KS						2 entries	
3	Only with 1. sign KC						3 entries	
4	Only with 1. sign KS						4 entries	
6. sign	Note						CABLE ENTRY	
M							M20x1.5	
N							1/2NPT	
L	Only with 1. sign KS						3/4NPT	
7. sign	Note						TEMPERATURE RANGE	
G							General (-20 - +80 °C)	
C	Only with 3. signs F2, R1, V2 and W2						Cold temperature (-40 - +80 °C)	
A	Only with 3. sign F2						Arctic temperature (-50 - +80 °C)	
H	Not applicable with 8. sign EN Not applicable with 4. sign P						High temperature (-20 - +100 °C)	
	Only applicable with 3. signs A1, D1, F1, F2 and R1 With aluminum indicator, no polycarbonate dome Only to temperature class T4							
8. sign	Note						VISUAL INDICATOR	
R							Red and yellow	
G							Red and green	
9. sign	Note						APPROVALS	
NN							No approvals	
EN	Only with 1. sign KS						ATEX / IECEx Ex d	
KS	2	A1	A	2	M	G	R	NN

Neles

Vanha Porvoontie 229, 01380 Vantaa, Finland.
Tel. +358 10 417 5000.

neles.com

S100-1EN - 7/2020