

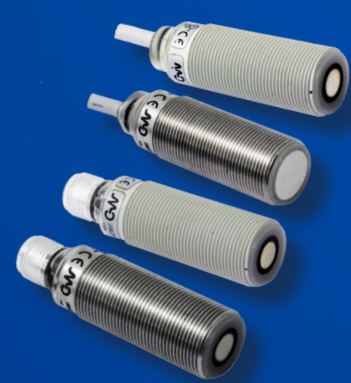


# UK6 series

M18 cylindrical short body direct diffuse & retro-reflective Ultrasonic Sensor UK6



M18 short body with Teach-In button



## features

- M18 diffuse sensors with short housing
- Digital output
- Analogue output

## web contents



- Application notes
- Photos
- Catalogue / Manuals



## code description

	UK	6	A	/	H	1	-	0	E	UL	IO	AN
series	UK	M18 Ultrasonic sensor										
function		Diffuse models										
	R	Retroreflective models										
housing type	6	M18 Short housing										
nominal sensing distance Sn	A	40...300 mm (diffuse models), 50...300 mm (retroreflective models)										
	C	60...800 mm (diffuse models), 80...800 mm (retroreflective models)										
	D	80...1,200 mm (diffuse models), 100...1,200 mm (retroreflective models)										
adjustment	H	Teach-In by cable										
output	1	0...10 V single voltage analogue output										
	2	4...20 mA single current analogue output										
	P	PNP - NO/NC digital output										
	N	NPN - NO/NC digital output										
housing materials	0	Axial plastic housing										
	1	AISI 316L (DIN 1.4404) stainless steel housing (axial)										
cable exit / connector	E	M12 plug cable exit										
	A	2 m cable exit										
cULus	UL	cULus certified										
IO-Link	IO	IO-Link models										
ATEX	AN	ATEX certified, Cat.3, 2.22 Zone										



## available models

### diffuse models

M18 short body  
with Teach-In button

housing	material	output	distance (mm)	PNP - NO/NC	NPN - NO/NC	analogue output 0...10 V	analogue output 4...20 mA
M18	plastic	M12	40...300	UK6A/HP-0EUL	UK6A/HN-0EUL	UK6A/H1-0EUL	UK6A/H2-0EUL
			60...800	UK6C/HP-0EUL	UK6C/HN-0EUL	UK6C/H1-0EUL	UK6C/H2-0EUL
			80...1,200	UK6D/HP-0EUL	UK6D/HN-0EUL	UK6D/H1-0EUL	UK6D/H2-0EUL
		cable	40...300	UK6A/HP-0AUL	UK6A/HN-0AUL	UK6A/H1-0AUL	UK6A/H2-0AUL
			60...800	UK6C/HP-0AUL	UK6C/HN-0AUL	UK6C/H1-0AUL	UK6C/H2-0AUL
			80...1,200	UK6D/HP-0AUL	UK6D/HN-0AUL	UK6D/H1-0AUL	UK6D/H2-0AUL

housing	material	output	distance (mm)	PNP - NO	NO/NC	analogue output 0...10 V	analogue output 4...20 mA
M18	metal	M12	40...300	UK6A/HP-1EUL	UK6A/HN-1EUL	UK6A/H1-1EUL	UK6A/H2-1EUL
			60...800	UK6C/HP-1EUL	UK6C/HN-1EUL	UK6C/H1-1EUL	UK6C/H2-1EUL
			80...1,200	UK6D/HP-1EUL	UK6D/HN-1EUL	UK6D/H1-1EUL	UK6D/H2-1EUL
		cable	40...300	UK6A/HP-1AUL	UK6A/HN-1AUL	UK6A/H1-1AUL	UK6A/H2-1AUL
			60...800	UK6C/HP-1AUL	UK6C/HN-1AUL	UK6C/H1-1AUL	UK6C/H2-1AUL
			80...1,200	UK6D/HP-1AUL	UK6D/HN-1AUL	UK6D/H1-1AUL	UK6D/H2-1AUL

## available models

### retroreflective models

housing	material	distance (mm)	plastic housing		metal housing	
			PNP - NO/NC	NPN - NO/NC	PNP - NO/NC	NPN - NO/NC
M18	M12	50...300	UKR6A/HP-0EUL	UKR6A/HN-0EUL	UKR6A/HP-1EUL	UKR6A/HN-1EUL
		80...800	UKR6C/HP-0EUL	UKR6C/HN-0EUL	UKR6C/HP-1EUL	UKR6C/HN-1EUL
		100...1,200	UKR6D/HP-0EUL	UKR6D/HN-0EUL	UKR6D/HP-1EUL	UKR6D/HN-1EUL
	cable	50...300	UKR6A/HP-0AUL	UKR6A/HN-0AUL	UKR6A/HP-1AUL	UKR6A/HN-1AUL
		80...800	UKR6C/HP-0AUL	UKR6C/HN-0AUL	UKR6C/HP-1AUL	UKR6C/HN-1AUL
		100...1,200	UKR6D/HP-0AUL	UKR6D/HN-0AUL	UKR6D/HP-1AUL	UKR6D/HN-1AUL




## available models

### IO-Link

housing	material	output	output	distance	model
M18	stainless steel AISI 316L	M12 connector	IO-Link or push-pull	40...300	UK6A/HP-1EIO
				80...1,200	UK6D/HP-1EIO

UK6 - UKR6



	UK6A/H*-**	UK6C/H*-**	UK6D/H*-**
			
nominal sensing distance	300 mm	800 mm	1.200 mm
minimum sensing distance	40 mm	60 mm	80 mm
beam angle	7° ± 2°	8° ± 2°	
switching frequency	8 Hz	5 Hz	5 Hz
operating voltage	10...30 Vdc		
max ripple content	5 %		
output type	PNP or NPN - NO/NC selectable analogue output: 0...10 V or 4...20 mA		
output current	100 mA		
output voltage drop	≤ 2,2 V (@ I = 100 mA)		
no-load supply current	≤ 35 mA @ Val = 30 V		
leakage current	≤ 10 µA @ 30 V		
power on delay	≤ 100 ms		
temperature range	-20°C...+70°C		
temperature drift of Sr	≤ 5 %		
short-circuit protection	● (autoreset)		
induction protection	●		
voltage reversal protection	●		
weight	plastic version: 65 g connector / 75 g cable metallic housing: 80 g connector / 140 g cable		
LEDs	yellow: output green: alignment		
protection degree	IP67		
EMC	conforming to EMC Directive, according to EN 60947-5-2		
housing material	plastic housing: PTB metal housing: AISI316L		
active head material	epoxy - glass resin		
connection	M12 plug cable exit 2 m cable exit		

<sup>(1)</sup> metallic target 100 x 100 (UK6A)

<sup>(2)</sup> metallic target 200 x 200 (UK6C - UK6D)

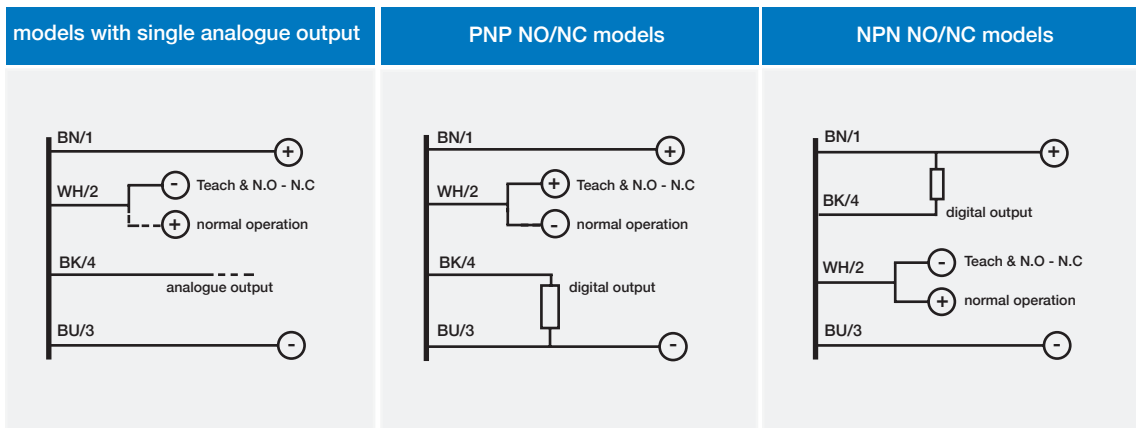


# technical specification

M18 short body  
with Teach-In button

	UK6RA/H*~**	UKR6C/H*~**	UKR6D/H*~**
nominal sensing distance	300 mm	800 mm	1,200 mm
detection distance Sr	270 mm	720 mm	1,080 mm
minimum distance from background	50 mm	80 mm	100 mm
beam angle	7° ± 2°	8° ± 2°	
switching frequency	8 Hz	5 Hz	3 Hz
operating voltage	10...30 Vdc		
max ripple content	5 %		
output type	PNP or NPN - NO/NC selectable		
output current	100 mA		
output voltage drop	≤ 2,2 V (@ I = 100mA)		
no-load supply current	≤ 35 mA @ Val = 30 V		
leakage current	≤ 10 µA @ 30 V		
power on delay	≤ 100 ms		
temperature range	-20°C...+70°C		
temperature drift of Sr	≤ 5 %		
short-circuit protection	● (autoreset)		
induction protection	●		
voltage reversal protection	●		
weight	65 g plastic version / 80 g metallic version		
LEDs	yellow: output green: alignment		
protection degree	IP67		
EMC	conforming to EMC Directive, according to EN 60947-5-2		
housing material	plastic housing: PTB metal housing: AISI316L		
active head material	epoxy - glass resin		
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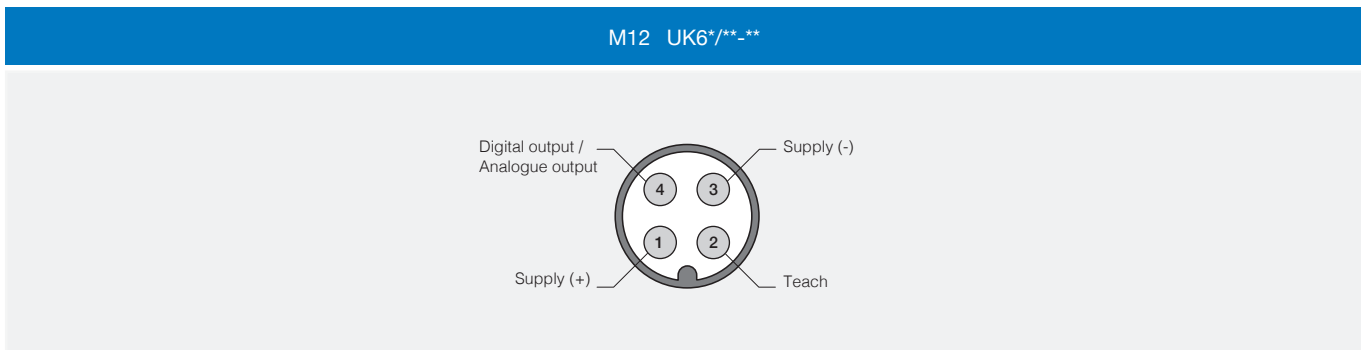
# electrical diagrams of connections



- BN** brown
- BU** blu
- BK** black
- WH** white

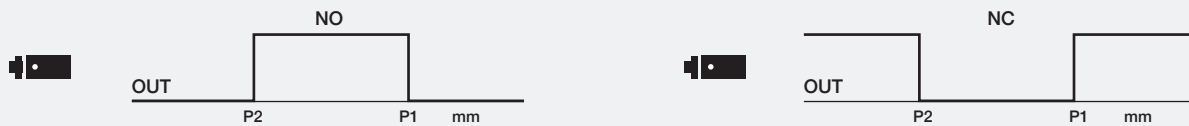
M18 short body  
with Teach-In button

## connector

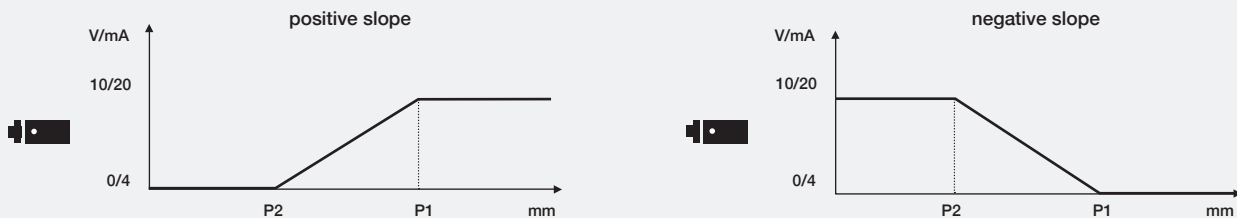


## available outputs

### models with single digital output



### models with single analogue output



UK6 - UKR6

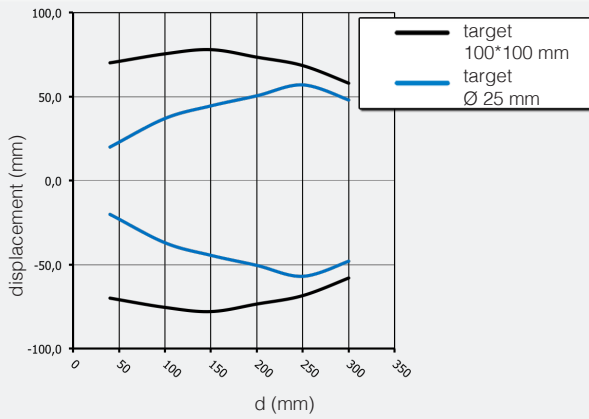


# response diagrams

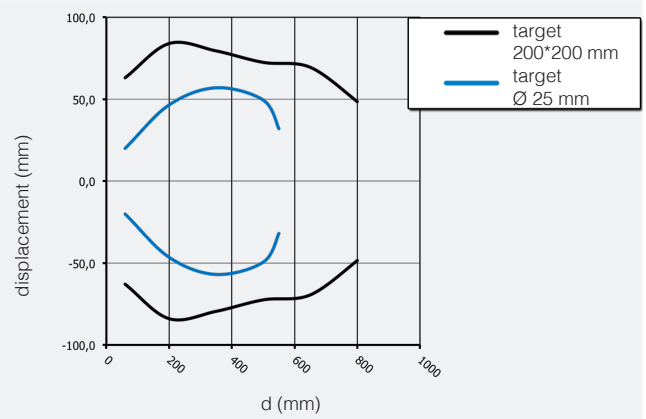
direct diffuse models

M18 short body  
with Teach-In button

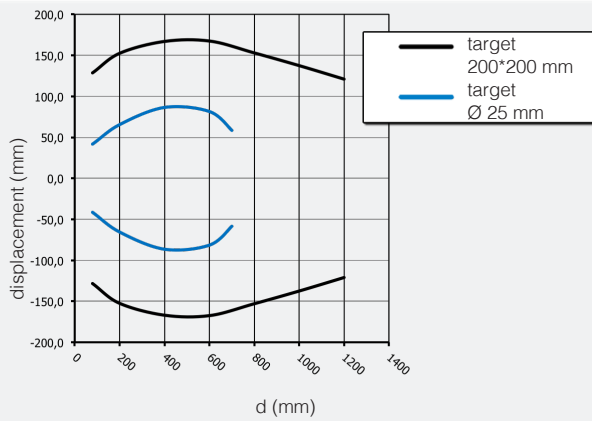
UK6A/\*\*-\*\* parallel displacement

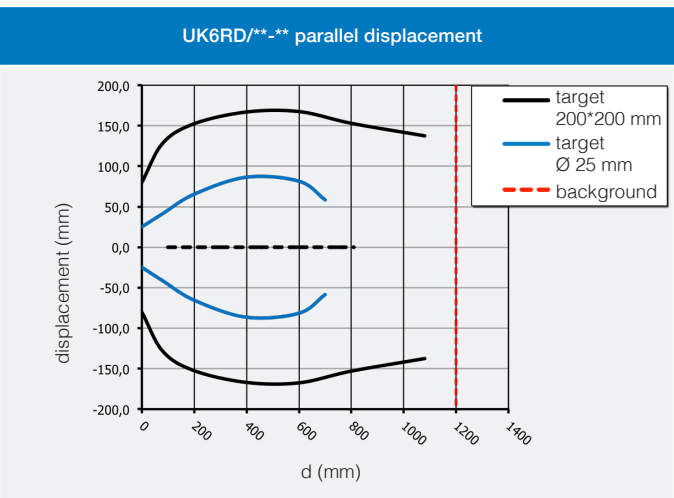
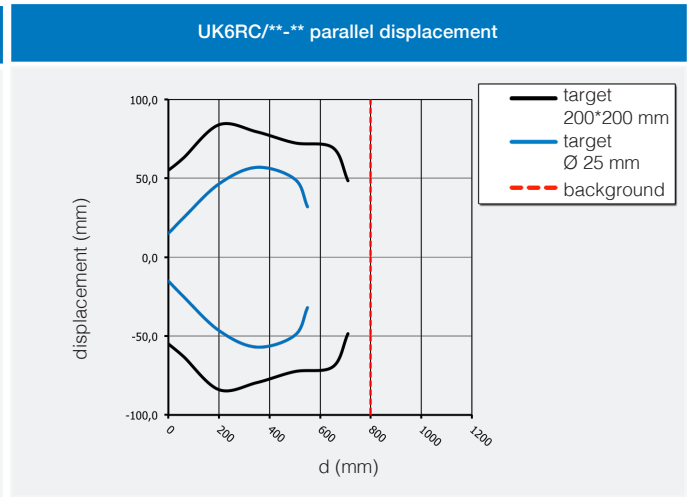
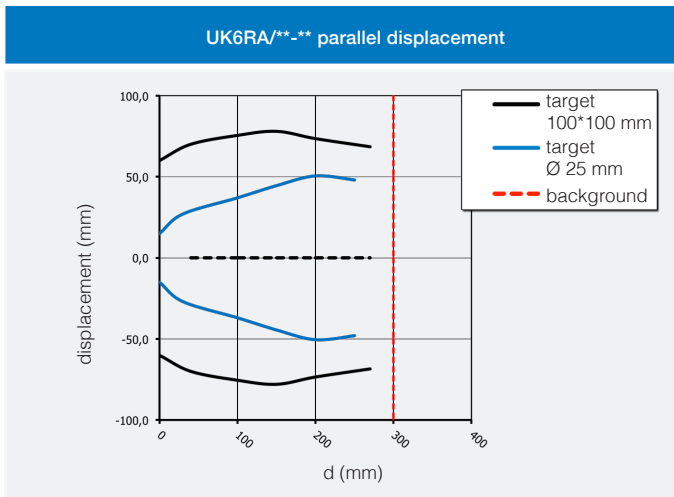


UK6C/\*\*-\*\* parallel displacement



UK6D/\*\*-\*\* parallel displacement





## adjustment

### Reflector detection (Sd)

Install the sensor in the correct position. Install the background (any solid, flat, fixed surface) perpendicularly to the sensor's axes. Connect the Teach-in wire to +24V (PNP models) or to 0V (NPN models) for 2 sec. Yellow LED blinks for 5 times, after that, the sensor acquires the background position (Sd distance).

### NO/NC selection

Connect the Teach-in wire to +24V (PNP models) or to 0V (NPN models) for a time > 8 sec. Yellow LED blinks quickly until the teach-in wire is released, then 5 blinks confirm the change of working state. The sensor change its working mode from NO to NC and vice versa.

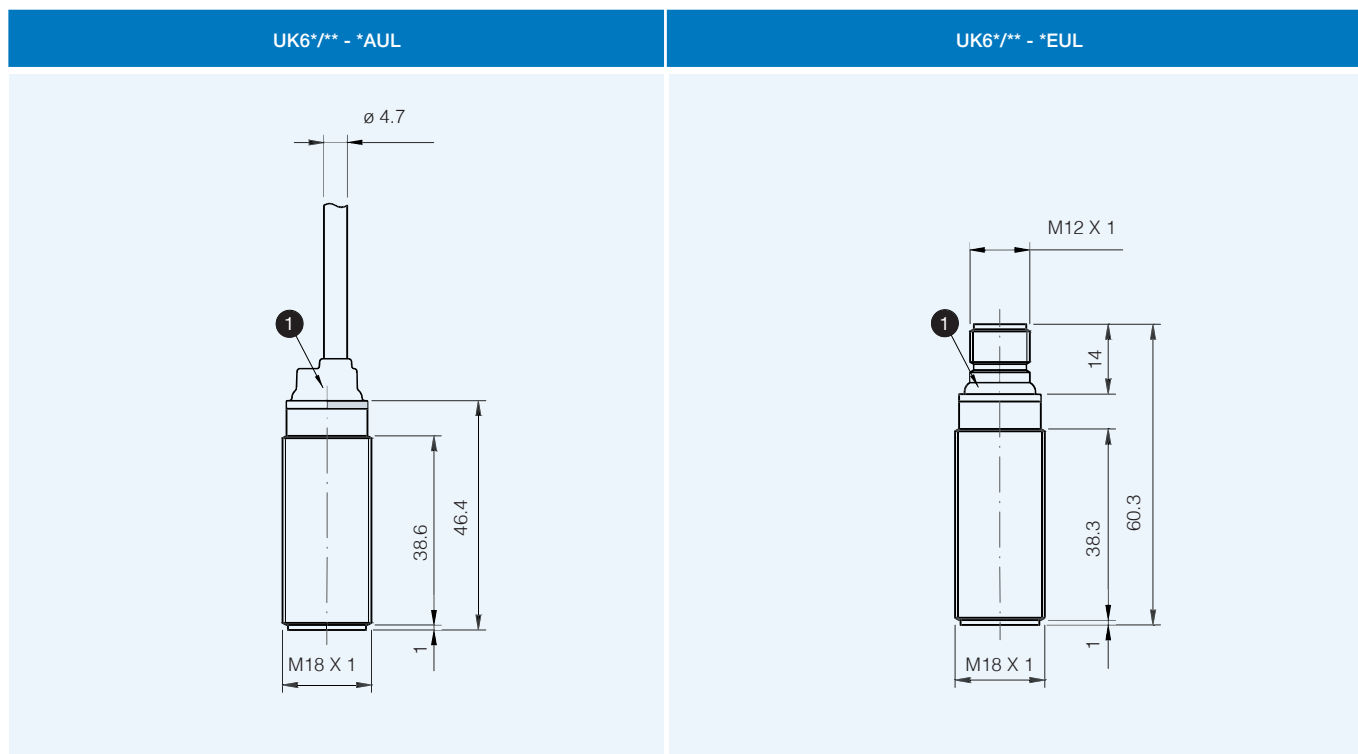
### Operating distance (Sr)

The effective operating distance (Sr) is equivalent to background distance (Sd) decreases of 10%. This hysteresis allows the correct detection of the target even if the background is vibrating during the machine normal operations.



## dimensions (mm)

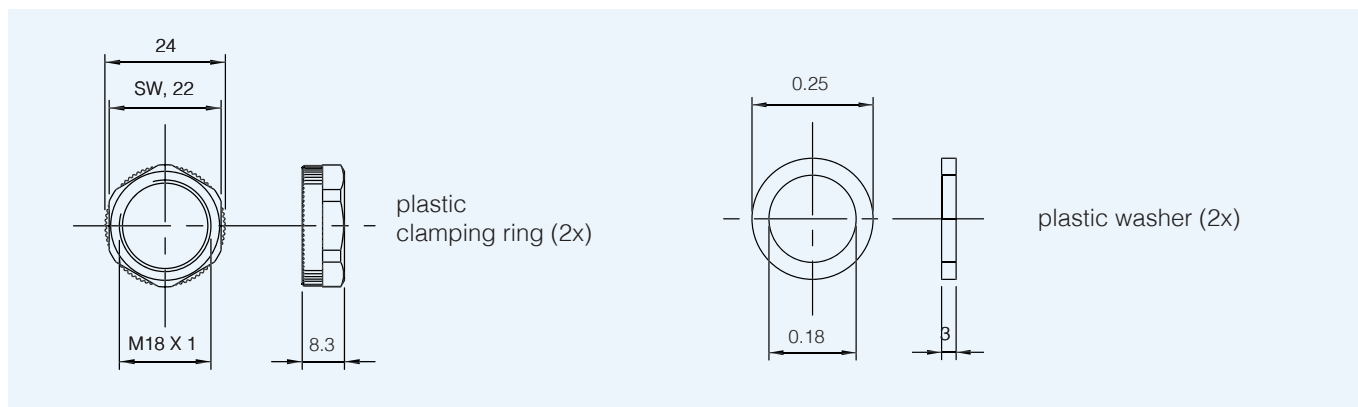
M18 short body  
with Teach-In button



1 LED

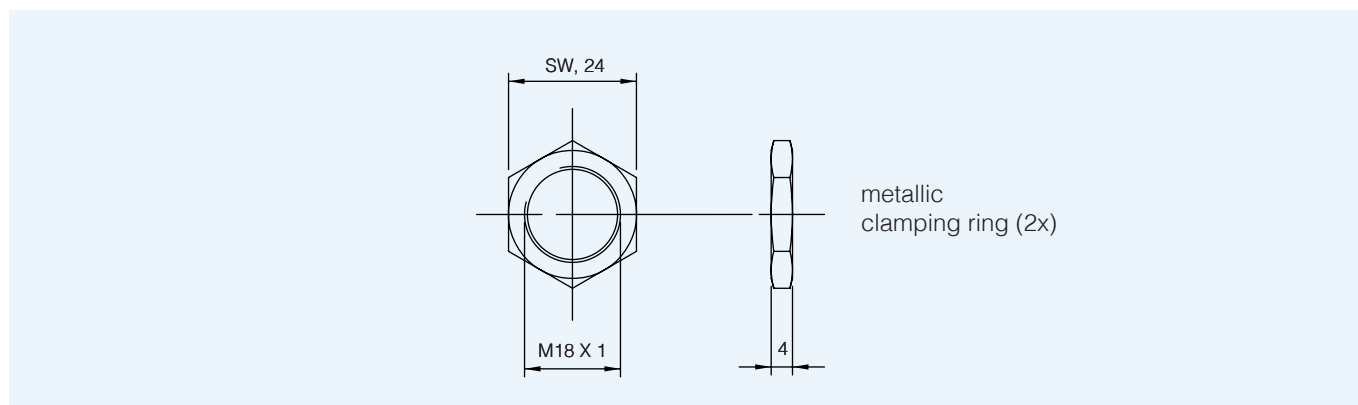
## dimensions (mm)

accessories included in all plastic models



## dimensions (mm)

accessories included in all metallic models



UK6 - UKR6