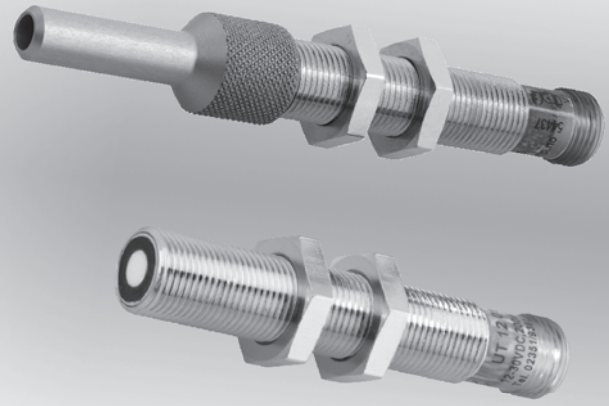


design	M12x1
dif. refl. sensor (normal)	sens. range 20 ... 200mm
dif. refl. sensor (beam column.)	sens. range 2 ... 82mm
dif. refl. sensor (normal)	det. range 10 ... 200mm
dif. refl. sensor (beam column.)	det. range 5 ... 70mm



- ✓ very small angle of beam spread
- ✓ nearly linear sonic cone because of version with attached beam columnator
- ✓ status display and alignment mark by LED
- ✓ setup via teach-in input
- ✓ integrated amplifier

analog output 0 to 10V or switching output with teach-in



function

ipf-ultrasonic sensors operate as non-contact position switches determining distances by the echo-propagation time process. The temperature compensated propagation time measurement enables a very exact sensing of position over a wide temperature range for sound reflecting objects of any color and material.

The high sonor frequency makes the ultrasonic sensor insensitive to interference.

By connecting the teach-in input with the supply voltage the desired sensing range can be taught.

An LED-display which supports the setting in the teach mode, serves as an alignment mark and a setting control.

Analog sensors: Any random interval within a measuring range (measuring range section $\geq 5\text{mm}$) can be taught in for the analog output.

Switching sensors: The sensing range within the detection range can be taught for the PNP with very high accuracy.

Design featuring a beam columnator: By aligning the sensors on this specially-produced attachment element, the lateral prolongation of the sonic cone is reduced and straightened (quasi linear).

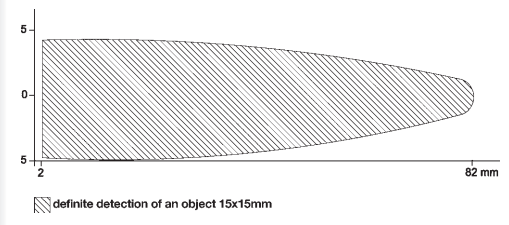
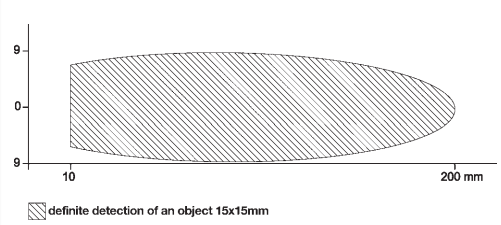
applications

- ▶ filling level measurement of bulk materials
- ▶ measurement of heights, e.g. packages on conveyor belts or pallets
- ▶ distance measurement, e.g. detection of materials that are impossible to recognize optically
- ▶ winding and unwinding control for any type of film
- ▶ control of material tensioning by means of slack measurement
- ▶ detection of thickness and diameters
- ▶ length measurement systems

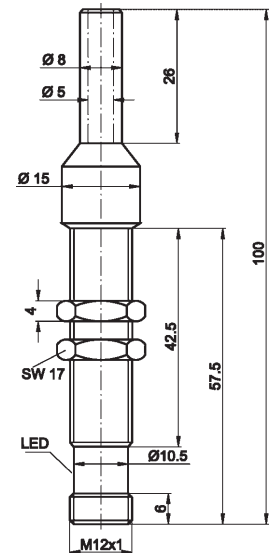
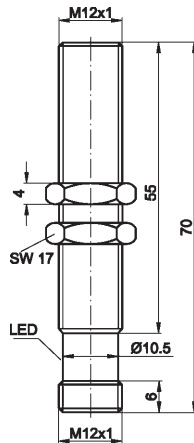
article-no.	UT120020	UT120021
version	dif. reflection sensor	dif. reflection sensor with beam columnator
output	0 ... 10V DC	0 ... 10V DC

TECHNICAL DATA

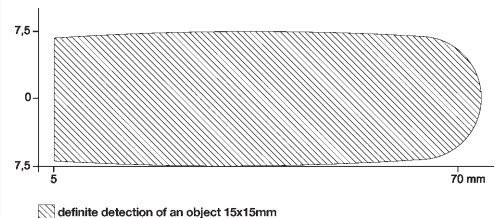
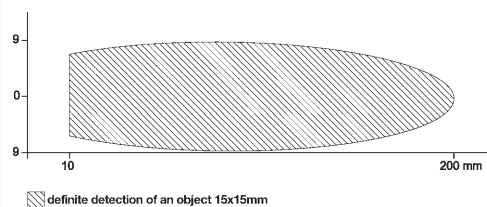
measuring range (S)	20 ... 200mm	2 ... 82mm
sensing range (S teach)	20 ... 200mm	2 ... 82mm
sonic cone angle	6°	-
output signal	analog / see above	analog / see above
operating voltage	15 ... 30V DC	15 ... 30V DC
current consumption	≤ 35mA	≤ 35mA
output current	≤ 20mA	≤ 20mA
interval / resolution	≥ 5mm / ≤ 0.3mm	≥ 5mm / ≤ 0.3mm
temperature drift	≤ 2% S teach	≤ 2% S teach
repeat accuracy	≤ 0.5mm	≤ 0.5mm
carrier frequency	380kHz	380kHz
response / decay time	≤ 30msec / ≤ 30msec	≤ 30msec / ≤ 30msec
display (range/alignment mark)	yellow + red LED / flashing LED	yellow + red LED / flashing LED
teach-in	remote-teach-input (supply on pin 2)	remote-teach-input (supply on pin 2)
short-circuit protection	+	+
reverse polarity protection	+	+
design	M12x1	M12x1
length (thread/complete)	55 / 70mm	42.5 / 88mm
housing material	nickel-plated brass	nickel-plated brass
temperature range	-10 ... +60°C	-10 ... +60°C
system of protection (EN 60529)	IP67	IP67
connection	M12-connector, 4-pin	M12-connector, 4-pin
connection accessories	e.g. VK200321 , 2m, angular, PUR	e.g. VK200321 , 2m, angular, PUR
accessories	holder: see page 4 / teach-adaptor: AV000114	holder: see page 4 / teach-adaptor: AV000114



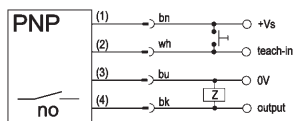
article-no.	UT120120	UT120121
version / output	dif. reflection sensor / pnp, no	dif. refl. sensor with beam columnator / pnp, no
article-no.	UT120220	-
version / output	dif. reflection sensor / pnp, nc	-
article-no.	UT121120	-
version / output	dif. reflection sensor / pnp, no	-



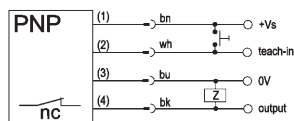
TECHNICAL DATA		
detection range (S)	10 ... 200mm	5 ... 70mm
sensing range (S teach)	30 ... 200mm	5 ... 70mm
sonic cone angle	6°	-
output signal	digital / see above	digital / see above
operating voltage	12 ... 30V DC	12 ... 30V DC
current consumption (w/o load)	≤ 35mA	≤ 35mA
output current (max. load)	200mA	200mA
voltage drop (max. load)	2V DC	2V DC
temperature drift	≤ 0.18% S/K	≤ 0.18% S/K
repeat accuracy	≤ 0.5mm	≤ 0.5mm
carrier frequency	380kHz	380kHz
response / decay time	≤ 10msec / ≤ 10msec	≤ 10msec / ≤ 10msec
display (signal/alignment mark)	green LED / flashing LED	green LED / flashing LED
teach-in	remote-teach-input (supply on pin 2)	remote-teach-input (supply on pin 2)
short-circuit protection	+	+
reverse polarity protection	+	+
design	M12x1	M12x1
length (thread/complete)	55 / 70mm	42.5 / 100mm
housing material	nickel-plated brass	nickel-plated brass
temperature range	-10 ... +60°C	-10 ... +60°C
system of protection (EN 60529)	IP67	IP67
connection	M12-connector, 4-pin	M12-connector, 4-pin
connection accessories	e.g. VK200321 , 2m, angular, PUR	e.g. VK200321 , 2m, angular, PUR
accessories	holder: see page 4 / teach-adaptor: AV000114	holder: see page 4 / teach-adaptor: AV000114



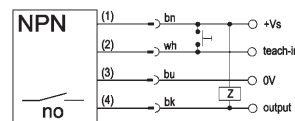
connection UT12012x



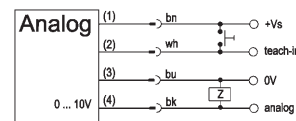
UT12022x



UT12112x



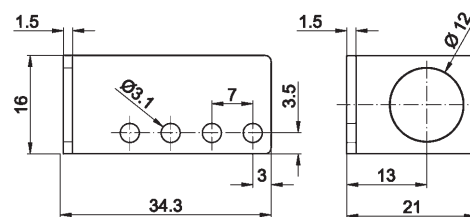
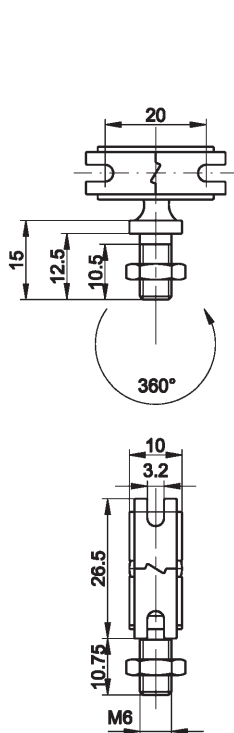
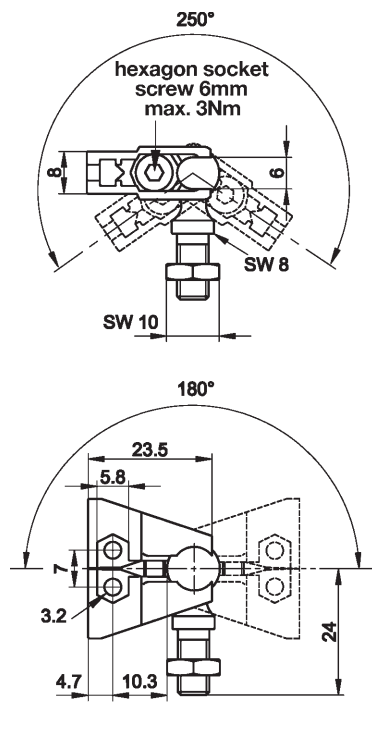
UT12002x



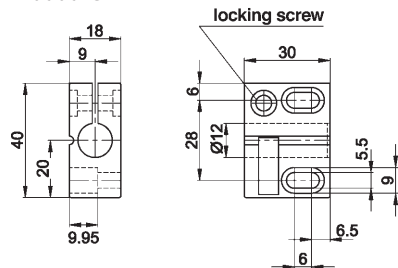
wire colors: bn = brown (1), wh = white (2), bu = blue (3), bk = black (4)

fastening-parts kit AY000090 composed of base module ...

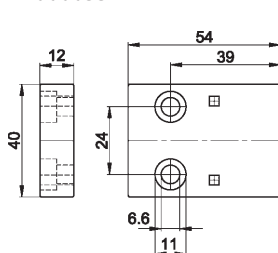
... and fitting panel



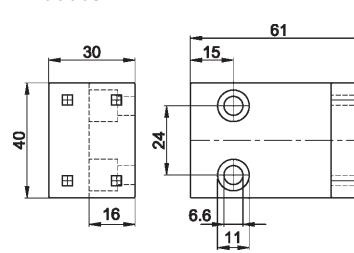
AY000049



AY000053



AY000054



ACCESSORIES

article-no.	description	notes
AY000090	universal mounting / fixture kit, metal	fitting panel with base module
AY000049	quick clip 12, plastic	for sensor M12, round
AY000053	base, straight, plastic	for quick clip 12 and 18, round
AY000054	base, angular, plastic	for quick clip 12 and 18, round

The list of articles contains the standard versions only. Kindly request the availability of other output- and connection functions.

We will be pleased to supply the matching cable socket for your devices with connector. Please refer to the list in catalog chapter "accessories" under "cable sockets ipf-SENSORFLEX®" or search our website for "VK".

Warning: Never use these devices in applications where the safety of a person depends on their functionality.