Compact range K0

Overview

Compact range K0 with separate and fixed sensors

The Sonar proximity switches of compact range K0 are ready-to-use units with a rectangular enclosure. They are available with two sensing ranges.

- Operate as diffuse sensors
- Adjustable via potentiometer
- Can be synchronized
- Temperature compensation
- Solid-state outputs:
  - switching output
  - analog output
- Connection via M12 connector, type F

Design

The devices of compact range K0 are supplied in the standard version with permanently installed sensors.

The devices of compact range K0 can also be supplied with separate sensors. Due to its small dimensions, the sensor is especially suitable in confined spaces.

The ultrasonic sensor is installed in a cylindrical enclosure separated from the other electronics. In devices of type 3RG63 42, the sensor is installed in an M18 shell and in devices of type 3RG63 43 it is installed in an M30 shell with a length of 25 mm in both cases.

Two nuts are supplied for fixing. The connecting lead of 1.6 m in length is molded onto the sensor. The connection to the evaluation electronics located in the enclosure of compact range K0 is established via the preassembled coaxial cable plug. The plug-in socket is installed on the end face of the enclosure.

Function

Compact range K0 is designed for simple applications. The devices are only suitable for operation as diffuse sensors.

The sensors can be supplied with analog outputs. The end of operating range or analog range can be set using a potentiometer.

Up to 6 devices can be synchronized with each other.

Technical specifications

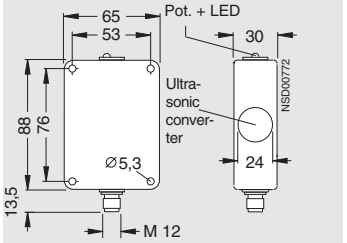
Type		3RG63 42	3RG63 43
Sensing range	cm	6 ... 30	20 ... 100
Standard target	cm	1 1	2 2
Hysteresis *H*	mm	5	10
Repeat accuracy *R*	mm	± 0,45	± 1,5
Operational voltage (DC)	V	10 ... 35 (including ± 10% residual ripple, at 10 V to 18 V sensitivity reduced by approx. 30%)	
Rated operational current I_e	mA	100	
No-load supply current I_0	mA	max. 35	
Ultrasonic frequency	kHz	400	200
Switching frequency *f*	Hz	8	5
Response time	ms	70	90
Power-up delay t_v	ms	7	7
Switching status display		Yellow LED	
Enclosure material		CRASTIN; epoxy resin converter surface	
Degree of protection		IP65; IP68 with separate sensor	
Ambient temperature			
• During operation	°C	0 ... +55	
• During storage	°C	–40 ... +85	

Selection and Ordering data

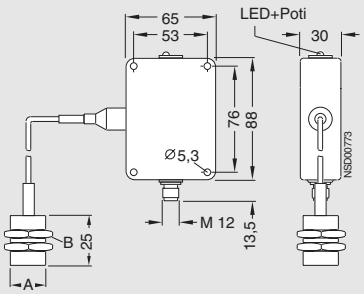
	Sensing range	Rated operational current	Switching output	Analog output	Order No.
	cm	mA	pnp		
Fixed sensor					
	6 ... 30	100	1 NO	–	**3RG63 42–3AB00**
	20 ... 100	100	1 NO	–	**3RG63 43–3AB00**
	6 ... 30	100	1 NC	–	**3RG63 42–3AA00**
	20 ... 100	100	1 NC	–	**3RG63 43–3AA00**
	6 ... 30	100	–	0 ... 10 V	**3RG63 42–3JK00**
	20 ... 100	100	–	0 ... 10 V	**3RG63 43–3JK00**
Separate sensor					
	6 ... 30	100	1 NO	–	**3RG63 42–3AB01**
	20 ... 100	100	1 NO	–	**3RG63 43–3AB01**
	6 ... 30	100	1 NC	–	**3RG63 42–3AA01**
	20 ... 100	100	1 NC	–	**3RG63 43–3AA01**
	6 ... 30	100	–	0 ... 10 V	**3RG63 42–3JK01**
	20 ... 100	100	–	0 ... 10 V	**3RG63 43–3JK01**

Dimensions

3RG 63 4.–3..00



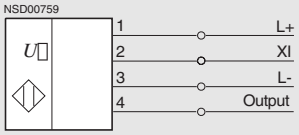
3RG 63 4.–3..01



Type	A	B
3RG63 42–3..01	M18	SW 24
3RG63 43–3..01	M30	SW 36

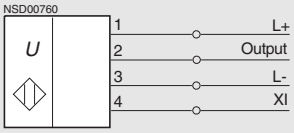
Schematics

NSD00759



NO or frequency output

NSD00760



NC

View from rear onto device

NSD01042a

3SG16 compact type

Overview

3SG16 compact type

The sonar proximity switch in compact form for DC is a complete, factory-assembled unit, ready for connection. It cannot be combined with devices from the compact range.

- Operates as diffuse sensor or reflex sensor
- Foreground and background suppression
- Adjustable by means of plug-in jumpers
- Solid-state outputs:
  - 2 switching outputs
- Terminal compartment with screw terminals

Design

All components are located in a single box-shaped enclosure. The ultrasonic converter and the terminal compartment are arranged on the same enclosure level.

The electrical connections are made via screw terminals in the terminal compartment; cable entry is through an M20 cable gland.

Aligning unit

To make it easier to align the Sonar proximity switch with the object to be detected, a 3SX6 287 aligning unit is available.

This unit allows swiveling about a horizontal and a vertical axis with an angle of rotation in each case of up to 30.

Function

Range definition and adjustability

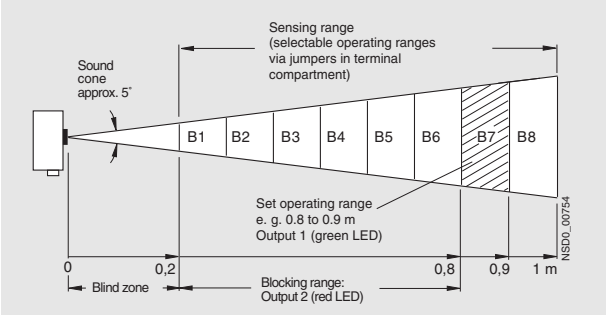
The sonar proximity switch outputs a signal while an object is located in the set operating range or inhibit range outside the blind zone (see figure).

The sensing range between 0.2 and 1 m is subdivided into 8 equal operating ranges of 0.1 m. Each operating range B1 to B8 can be selected using a connector in the terminal compartment.

The Sonar proximity switch signals with one output and one LED in each case whether objects are located in the set operating range or in the so-called inhibit range that precedes it.

With the help of the supplied programming plug, two to eight of the separate operating ranges (B1 to B8) can be combined to form an extended operating range.

The switching range is defined by two programming plugs. The plug is fitted to a pin connector in the terminal compartment of the device. The possible pin assignments are shown in the cover of the terminal compartment.



Modes

Standard operating mode, diffuse sensor

The sonar proximity switch switches when an object enters the sound cone from any direction, output 14 (NO) outputs a 1-signal if the object is located within a set operating range (B1 to B8). Output 24 (SX) outputs a 1-signal if the object is in the inhibit range. Objects in the blind zone do not cause a utilizable signal change on outputs 14 and 24.

Reflex sensor

If a reflector is permanently fixed within a set operating range, the ultrasonic beam will be interrupted by all objects in the inhibit range even those that absorb sound.

In this case, output 14 (NO) changes to the 0-signal. In the case of reflective objects in the inhibit range, output 24 (SX) changes to the 1-signal at the same time.