

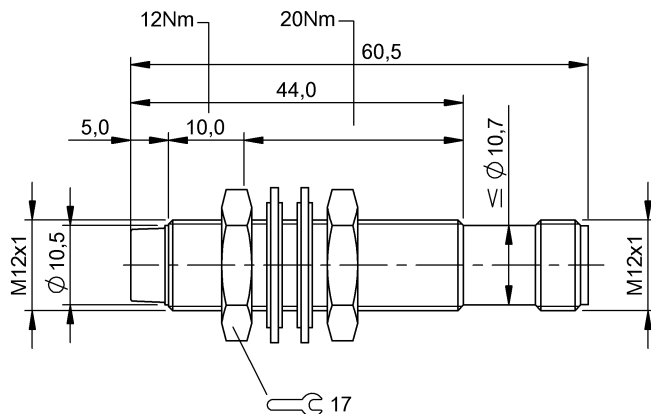
**BES 113-356-SA31-S4**  
**Ordering code: BES02M8**

**Inductive sensor**  
**M12x60,5 mm**  
**Diagnostic function**

**DC, direct current**  
**PNP/Normally open (NO)**  
**4 mm**  
**Non embeddable**

**BALLUFF**

sensors worldwide



**Characteristic data**

Assured operating distance Sa	3,2 mm
Eff. switching distance Sr	4,00 mm
Tolerance Sr	±10 %
Hysteresis H max. (in % of Sr)	15 %
Repeat accur. R max. (% of Sr)	5 %
Ambient temperature	0...70 °C
Temp. drift max. (% of Sr)	10%
Switching freq. f max.	300 Hz
Ready delay tv max.	10 ms
Utilisation category	DC 13
Short-circuit protected	Yes
Protected against polarity reversal	Yes
Protected against reverse connection	Yes
Degree of protection as per IEC 60529	IP67
Principle of operation	Inductive

**Electrical data**

Operating voltage	20...30 V DC
Ripple max. (% of Ue)	15 %
Rated operating voltage Ue DC	24,0 V
Voltage drop static max.	3,5 V
Rated insulation voltage Ui	75 DC V
Effective operating current Ie	130 mA
No-load current Io damped	10 mA
No-load current Io undamped	10 mA
Off-state current Ir max.	110 µA

Minimum operating current Im	5 mA
Rated short circuit current	100 A
Output resistance Ra	Open collector
Load capacitance max. (at Ue)	0,15 µF

**Mechanical data**

Connection type	Connector
Connector type	M12x1-S04
Housing material	Stainless steel
Sensing surface material	LCP
Mounting length	39 mm
Shock rating	Shock, half-sinus, 30 gn, 11ms
Vibration rating	55 Hz, 1 mm ampl., 3x30 min
Degree of contamination	3
Tightening torque max.	12 Nm / 20 Nm

**Basic data**

Basic standard	IEC 60947-5-2
Base type	BES 516-356-SA6

**Remarks**

Additional features With internal function checking  
 The sensor is functional again after the overload has been eliminated.  
 Max. cable length: 50 m.  
 Test pulses ≤ 0.5 ms typ. 160 Hz are overlaid on the output signal, which pulses may be missing when there is a sensor fault (simple fault).



**BES 113-356-SA31-S4**  
**Ordering code: BES02M8**

Inductive sensor  
M12x60,5 mm  
Diagnostic function

DC, direct current  
PNP/Normally open (NO)  
4 mm  
Non embeddable

**BALLUFF**  
*sensors worldwide*

