



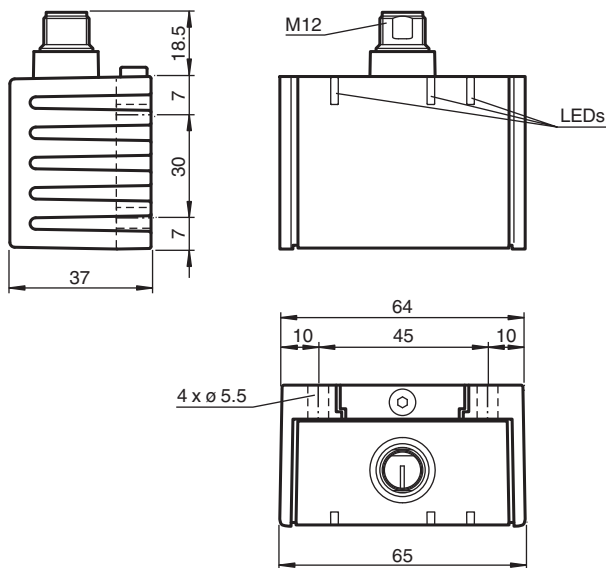
## Acceleration sensor ACY04-F99-2I-V15

- E1-Type approval
- Analog output 4 mA ... 20 mA
- Fixed evaluation limits
- High shock resistance
- Teachable zero point
- Measuring range -2 g ... +2 g
- Increased noise immunity 100 V/m

2 axis acceleration sensor



### Dimensions



### Technical Data

#### General specifications

Type	2 axis acceleration sensor
Measurement range	-2 ... 2 g
Resolution	≤ 5 mg
Repeat accuracy	≤ ± 5 mg
Frequency range	0 ... 100 Hz

#### Functional safety related parameters

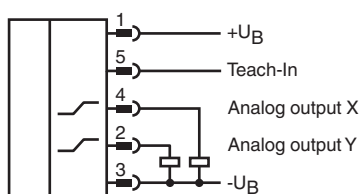
MTTF <sub>d</sub>	304 a
Mission Time (T <sub>M</sub> )	20 a

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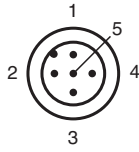
## Technical Data

Diagnostic Coverage (DC)	0 %	
<b>Indicators/operating means</b>		
Operation indicator	LED, green	
Teach-In indicator	LED, yellow	
<b>Electrical specifications</b>		
Operating voltage	$U_B$	10 ... 30 V DC
No-load supply current	$I_0$	$\leq 25$ mA
Time delay before availability	$t_v$	$\leq 100$ ms
<b>Analog output</b>		
Output type	2 current outputs 4 ... 20 mA (one output for each axis)	
Zero signal	12 mA	
Slope of output characteristic	4 mA / g	
Linearity error	$\pm 1.2$ %	
Load resistor	0 ... 200 $\Omega$ at $U_B = 10 \dots 18$ V 0 ... 500 $\Omega$ at $U_B = 18 \dots 30$ V	
<b>Temperature influence</b>		
Offset	$\leq \pm 4$ $\mu$ A / K	
Slope	$\leq \pm 20$ $\mu$ A / g	
<b>Compliance with standards and directives</b>		
Standard conformity		
Shock and impact resistance	100 g according to DIN EN 60068-2-27	
Standards	EN 60947-5-2:2007 IEC 60947-5-2:2007	
<b>Approvals and certificates</b>		
UL approval	cULus Listed, Class 2 Power Source	
CCC approval	CCC approval / marking not required for products rated $\leq 36$ V	
E1 Type approval	10R-04	
<b>Ambient conditions</b>		
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)	
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)	
<b>Mechanical specifications</b>		
Connection type	5-pin, M12 x 1 connector	
Housing material	PA	
Degree of protection	IP68 / IP69K	
Mass	240 g	

## Connection



## Connection Assignment

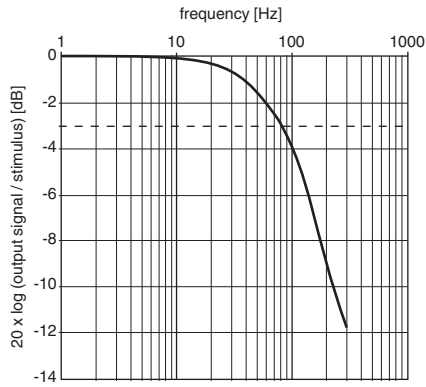


Wire colors in accordance with EN 60947-5-2


1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)
5	GY	(gray)

## Characteristic Curve

### Frequency response



## Accessories

	<b>V15-G-2M-PUR</b>	Female cordset, M12, 5-pin, PUR cable
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## Mounting

### Installation orientation

On delivery, the zero position of the sensor axes is achieved when the sensor is mounted flat on a horizontal plane and the electrical connection of the sensor points horizontally sideways.

## Additional Information

### LED display

Displays dependent on the operating state	LED green: Power	LED yellow 1	LED yellow 2
Normal operation	on	off	off
<b>Teach In of reference point</b> <b>Teach In (Pin 5 connected to +U<sub>B</sub>) for 1 s ... 10 s</b> falling slope at Teach In input then sensor returns to normal operation.	on on on	on flashes 3 x off	off off off
<b>Reset to factory settings:</b> <b>Teach In (Pin 5 connected to +U<sub>B</sub>) for 20 s ... 25 s</b> falling slope at Teach In input then sensor returns to normal operation.	on on on	on flashes 3 x off	off flashes 3 x off
Undervoltage	flashes	off	off

### Factory settings

see Technical Data

### Teach-in of reference point (output S1)

1. Move sensor to reference position
2. Apply supply voltage (+U<sub>B</sub>) to Teach In input (Pin 5) for 1 s ... 10 s
3. Teach In LED lights up for confirmation
4. Disconnect Teach In input (Pin 4) before the 10 s time elapses
5. Teach In LED flashes 3 x for confirmation
6. Reference point is now programmed and the sensor returns to normal operation (see LED display)

### Resetting the sensor to factory settings

1. Apply supply voltage (+U<sub>B</sub>) to Teach In input (Pin 5) for 20 s ... 25 s
2. Teach In LED lights up for confirmation
3. Disconnect Teach In input (Pin 4) before the 25 s time elapses
4. Teach In LED and Out LED flash 3 x for confirmation
5. The sensor is now reseted to factory settings and returns to normal operation (see LED display)

### Undervoltage detection

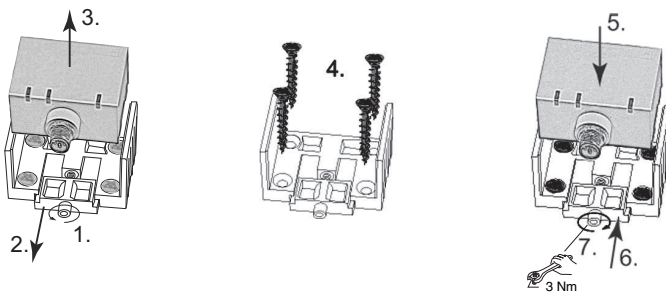
If the supply voltage falls below a value of approx. 7 V, all outputs and yellow LEDs are deactivated. The green "power" LED flashes rapidly. If the supply voltage rises above a value of approx. 8 V, the sensor continues with normal operation.

## Mounting

### Mounting of the sensor

Sensors from the -F99 series consist of a sensor module and accompanying cast aluminum housing. Select a horizontal flat surface with minimum dimensions of 70 mm x 50 mm to mount the sensor.

Mount the sensor as follows:



1. Loosen the central screw under the sensor connection.
2. Slide back the clamping element until you are able to remove the sensor module from the housing.
3. Remove the sensor module from the housing
4. Position the housing at the required mounting location and secure using four countersunk screws. Make sure that the heads of the screws do not protrude.
5. Place the sensor module in the housing.

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6. Slide the clamping element flush into the housing. Check that the sensor element is seated correctly.
  7. Finally tighten the central screw.
- The sensor is now mounted correctly.

## Technical Features

### EMC Properties

Interference immunity in accordance with  
DIN ISO 11452-2: 100 V/m

Frequency band 20 MHz up to 2 GHz

Mains-borne interference in accordance with ISO 7637-2:

Pulse	1	2	2	3	3	4
		a	b	a	b	
Severity level	I	I	I	I	I	I
	I	I	I	I	I	I
Failure criterion	C	A	C	A	A	C
EN 61000-4-2:	CD: 8 kV		AD: 15 kV			
	/					
Severity level	IV		IV			
EN 61000-4-3:	30 V/m (80...2500 MHz)					
Severity level	IV					
EN 61000-4-4:	2 kV					
Severity level	III					
EN 61000-4-6:	10 V (0.01...80 MHz)					
Severity level	III					
EN 55011:	Klasse A					

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