

CSB18 Cylindrical Ultrasonic Sensor-Quick Start

- Small blind spot
- Echocardiography
- Proximity Fine Inspection



Precautions

- Please read the operating instructions of DADISICK before commissioning.
- Connection, installation and configuration must be carried out by trained DADISICK specialists.
- During debugging, the equipment should be protected from moisture and contamination.
- This device does not constitute a safety component according to the corresponding machine safety standards.
- Do not allow moisture or water to enter the internal components of the sensor and the output contacts of the wiring board.
- Protected against use in explosive atmospheres.
- Do not use solvents, paraffin, propylene glycol, gasoline or other chemically active substances to clean the sensor.
- The sensor should be installed away from moisture, water droplets, dust, corrosive and harmful substances, as well as high temperature, discharge and vibration.
- Do not use the sensor in corrosive environments where the atmosphere contains acids, alkalis, and other corrosive substances.
- In the process of operation and maintenance, DADISICK professionals recommend that you abide by the requirements of "User Electrical Equipment Technical Operation Regulations" and "Labor Protection Regulations in Electrical Equipment Operation". Before connecting the sensor, you must ensure that all connections are correct and that the power and signal lines must not be mixed, otherwise the sensor may be damaged or personnel may be injured.
- Sensors that have reached the end of their useful life should be disassembled and DADISICK recommends disposing of them through a facility that recycles ferrous and non-ferrous metals.

Packaged content

Sensor	1 pcs
Mounting Nut	2 pcs
Manual	1 pcs

Dimensions

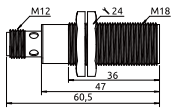


Figure 1 - Overall dimensions
CSB18 series J45

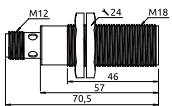


Figure 2 - Overall dimensions
CSB18 series J55

Model range

	CSB18			
Working Distance				
Working Distance 30...300 mm	300			
Working Distance 50...500 mm	500			
Working Distance 60...1000 mm	1000			
Shell (size, material), shell length			J45 J55	
Output signal type				I U IU
Analog output: 4...20mA				E2/E4
Analog output: 0...10V				E3/E5
Dual analog outputs: 4...20mA + 0...10V				E7/E9
Switch output: 1 x NPN				E6/E8
Switch output: 1 x PNP				IE4
Switching output: 2 x NPN				IE5
Switching output: 2 x PNP				UE4
Dual output: 4-20mA + 1 x NPN				UE5
Dual output: 4-20mA + 1 x PNP				R4
Dual output: 0-10V + 1 x NPN				
Dual output: 0-10V + 1 x PNP				
Digital output: RS-485 (Modbus RTU)				

Parameter

Parameter	30...300mm	50...500mm	60...1000mm
Detection Range	30...300mm	50...500mm	60...1000mm
Blind Spot	30mm	50mm	60mm
Signal Frequency	300kHz	200kHz	
Running Media	Air (velocity ≤16 m/s)		
Resolution	0.1mm	0.15mm	0.17mm
Repeatability	±0, 15%		
Absolute Accuracy	±1mm		
Response time	22ms	32ms	52ms
Output type	PNP / NPN / 4...20mA / 0...10V / RS-485		
Switching Hysteresis	2mm		
On-off level	45Hz	31Hz	19Hz
Power-Up Timer	<500ms		
Operating Voltage	DC 10...30 V		
Overpower Protection	200mA		
Load impedance	1-300 Ohm, U > 1 kOhm		
No-load current	≤30mA		
Housing type	Cylinder, thread M12×1		
Shell material	Nickel plated copper, plastic fittings, glass filled epoxy.		
Protection Class	IP67		
Connection type	M12 x 1.0 connector (5-pin)		
Ambient temperature	-25...+70°C		
Atmospheric pressure	460...918 mm p.s.l		
Storage Temperature	-40...+85°C		
Weight	35g		38g

Electrical connection

symbol/connection: (E2/E4,NPN)	connection mode
	1.BN DC 10...30V
	2.WH NPN
	3.BU GND
	4.BK
	5.GY Teaching Signal

symbol/connection: (E3/E5,PNP)	connection mode
	1.BN DC 10...30 V
	2.WH Unused
	3.BU GND
	4.BK PNP
	5.GY Teaching Signal

Symbols/Connections: (IU, analog current + analog voltage)	connection mode
	1.BN DC 10...30 V
	2.WH Unused
	3.BU GND
	4.BK Analog voltage U or analog current I
	5.GY Teaching Signal

Symbol/Connection: (IU, analog current + analog voltage)	connection mode
	1.BN DC 10...30 V
	2.WH Analog current 4-20mA
	3.BU GND
	4.BK Analog voltage 0-10V
	5.GY Teaching Signal

Analog voltage 0-10V symbols/connections: (IE5/UE5, analog + switch PNP)	connection mode
	1.BN DC 10...30 V
	2.WH PNP
	3.BU GND
	4.BK Analog current I or analog voltage U
	5.GY Teaching Signal

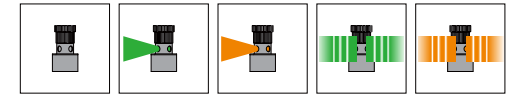
Symbols/Connections: (IE4/UE4, analog + switch NPN)	connection mode
	1.BN DC 10...30 V
	2.WH NPN
	3.BU GND
	4.BK Analog current or analog voltage + NPN
	5.GY Teaching Signal

Standard symbols/connections: (E7/E9, dual NPN output)	connection mode
	1.BN DC 10...30 V
	2.WH NPNoutput
	3.BU GND
	5.GY Teaching Signal

Symbol/connection: (E6/E8, double PNP output)	connection mode
	1.BN DC 10...30 V
	2.WH PNP output
	4.BK PNP output
	3.BU GND
	5.GY Teaching Signal

symbols/connections: (RS485 output)	connection mode
	1.BN DC 10...30 V
	2.WH Signal A (RS-485)
	3.BU GND
	4.BK Signal B (RS-485)
	5.GY Unused

Indicator status



LEDs on the sensor housing indicate the status of the sensor. (DADISICK professionals remind: switch product overload protection green light, red light are on at the same time)

- Off - the sensor is off;
- Green - object detected;
- Red light on - no object detected;
- Green light flashes - the sensing range of the object is set;
- Blinking red light - complete setup for no object sensing range.

Instructions



Figure3-Ultrasonic sensor operating range



Figure 4 - Detecting non-smooth objects

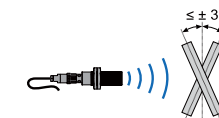


Figure 5 - Detecting smooth objects

- The sensor is installed at a distance from the object corresponding to "Zone 2" or "Zone 2+3" (see Figure 3), depending on the object and operating conditions (see points 8 and 15).
- The object must not be within a distance of "Zone 1" or "Zone 4" from the sensor corresponding to the "Zone"
- The sensor should be placed in front of the object so that the reflective surface perpendicular to the sensor axis does not deviate more than 3° from the vertical axis (Fig. 5). If the obliquity of the object increases, the reflected ultrasonic pulse may not be able to pick up the reflected sound waves, making the measurement impossible.
- If the surface of the object is uneven (e.g. gravel, gravel), the permissible deviation of the sensor from the vertical is 3° (Fig. 5). During installation, the sensor may deviate more than 3° from the vertical (Figure 4).
- The sensor should be placed in front of the object so that the reflecting surface is perpendicular to the sensor axis, with a permissible deviation of no more than 3° from the vertical axis (Fig. 5).
- If the tilt angle of the object increases, the reflected ultrasonic pulses may not reach the transducer, making measurements impossible. If the surface of the object is uneven (e.g. gravel, gravel), the permissible deviation of the sensor from the vertical is 3° (Fig. 5).
- During installation, the sensor may deviate from vertical by more than 3° (Fig. 4).

