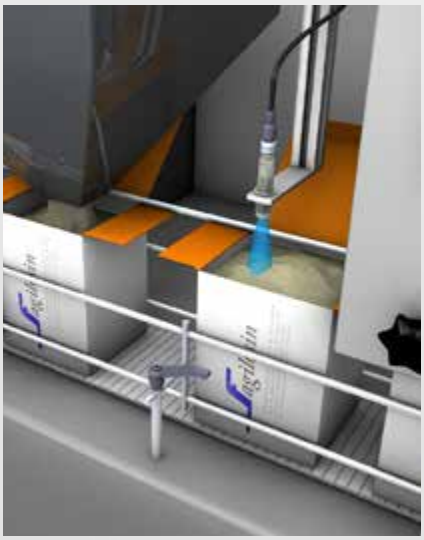
# / ULTRASONIC SENSORS

## THE ALL-ROUNDERS AMONG THE SENSORS

Ultrasonic sensors are used whenever optical systems reach their limits. Hence, partially and fully transparent or extremely dark objects can be detected just as easily as objects with reflecting surfaces or objects in dusty, vaporous or humid environments.





# //ULTRASONIC SENSORS, CUBIC HOUSING

## SPECIALISTS FOR REFLECTIVE SURFACES

Our ultrasonic sensors in the cubic design feature a very good background suppression based on the reliable runtime measurement. Due to the largely surface-independent switching behavior, they are particularly well-suited for sound-reflecting materials.

### /// 18 series

This ultrasonic sensor features a high sound pressure and is thus suitable even for air transport systems.

**Benefits:**

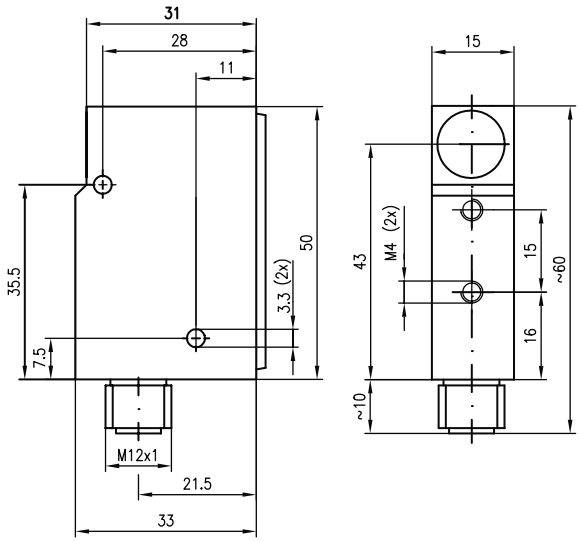
- Detection of narrow gaps
- Reliable object detection even in humid and foggy environment
- Metal housing
- Sensitivity adjustment via step switch
- Insensitive to dust

Direct access to the online product selector at **www.leuze.com/en/br18u**

| Part no. | Part description | Operating range | Switching frequency | Switching output 1 | Switching output 2 | Sound cone Angle of radiation | Description |
|---|---|---|---|---|---|---|---|
| 50103365 | ► LSSU 18-S12 | 0 … 0.65 m | 100 Hz | | | Standard Front | Operational controls: step switch, connector, M12, 5-pin |
| 50103364 | ◄ LSEU 18/24-S12 | 0 … 0.65 m | 100 Hz | Transistor, PNP, make-contact (NO) | Transistor, NPN, make-contact (NO) | Standard Front | Operational controls: step switch, connector, M12, 5-pin |

► transmitter / ◄ receiver
Operating range: over the whole temperature range, measured object ≥ 20×20 mm²

### Dimensioned drawings: 18 series




18 series

## /// 420 series

From narrow to wide, this diffuse reflection ultrasonic sensor offers three different opening angles and sound lobes.

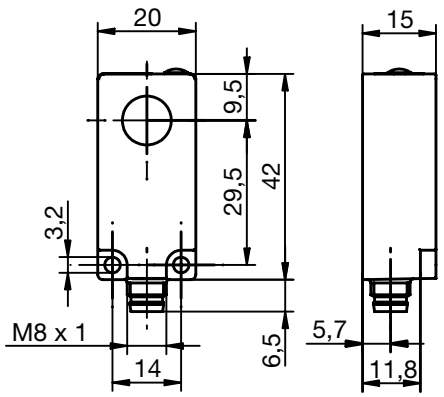
**Benefits:**

- Small ultrasonic sensor in plastic housing with degree of protection IP 67
- Various opening angles and sound cone geometries
- Switching behavior largely independent of surface properties
- Precise switching point adjustment through teach-in on the device and via a cable
- Protection against erroneous operation by automatically locking teach button

Direct access to the online product selector at **www.leuze.com/en/br420u**

| Part no. | Part description | Operating range | Switching frequency | Switching output 1 | Sound cone Angle of radiation | Description |
|---|---|---|---|---|---|---|
| 50113989 | HRTU 420/4NC.2-S-S8 | 0.01 … 0.2 m | 50 Hz | Transistor, PNP, break-contact (NC) | Narrow Front | Operational controls: teach button, connector, M8, 4-pin |
| 50113992 | HRTU 420/4NO.2-S-S8 | 0.01 … 0.2 m | 50 Hz | Transistor, PNP, make-contact (NO) | Narrow Front | Operational controls: teach button, connector, M8, 4-pin |
| 50113983 | HRTU 420/2NC.2-S-S8 | 0.01 … 0.2 m | 50 Hz | Transistor, NPN, break-contact (NC) | Narrow Front | Operational controls: teach button, connector, M8, 4-pin |
| 50113986 | HRTU 420/2NO.2-S-S8 | 0.01 … 0.2 m | 50 Hz | Transistor, NPN, make-contact (NO) | Narrow Front | Operational controls: teach button, connector, M8, 4-pin |
| 50113988 | HRTU 420/4NC.2-S8 | 0.04 … 0.4 m | 20 Hz | Transistor, PNP, break-contact (NC) | Standard Front | Operational controls: teach button, connector, M8, 4-pin |
| 50113991 | HRTU 420/4NO.2-S8 | 0.04 … 0.4 m | 20 Hz | Transistor, PNP, make-contact (NO) | Standard Front | Operational controls: teach button, connector, M8, 4-pin |
| 50113982 | HRTU 420/2NC.2-S8 | 0.04 … 0.4 m | 20 Hz | Transistor, NPN, break-contact (NC) | Standard Front | Operational controls: teach button, connector, M8, 4-pin |
| 50132082 | RKU 420/2NC.2-S8 | 0 … 0.4 m | 20 Hz | Transistor, NPN, break-contact (NC) | Standard Front | Operational controls: teach button, connector, M8, 4-pin |
| 50113985 | HRTU 420/2NO.2-S8 | 0.04 … 0.4 m | 20 Hz | Transistor, NPN, make-contact (NO) | Standard Front | Operational controls: teach button, connector, M8, 4-pin |
| 50113987 | HRTU 420/4NC.2-L-S8 | 0.1 … 1 m | 10 Hz | Transistor, PNP, break-contact (NC) | Wide Front | Operational controls: teach button, connector, M8, 4-pin |
| 50113990 | HRTU 420/4NO.2-L-S8 | 0.1 … 1 m | 10 Hz | Transistor, PNP, make-contact (NO) | Wide Front | Operational controls: teach button, connector, M8, 4-pin |
| 50113981 | HRTU 420/2NC.2-L-S8 | 0.1 … 1 m | 10 Hz | Transistor, NPN, break-contact (NC) | Wide Front | Operational controls: teach button, connector, M8, 4-pin |
| 50113984 | HRTU 420/2NO.2-L-S8 | 0.1 … 1 m | 10 Hz | Transistor, NPN, make-contact (NO) | Wide Front | Operational controls: teach button, connector, M8, 4-pin |

## Dimensioned drawings: 420 series




420 series

# ACCESSORIES: ULTRASONIC SENSORS, CUBIC HOUSING

## Connection technology

Connection cables

| Part no. | Part description | Connection 1 | No. of pins | Cable length | Sheathing material |
|---|---|---|---|---|---|
| 50104762 | K-D M12W-5P-5m-PUR | Connector, M12, angled, female | 5-pin | 5,000 mm | PUR |
| 50104556 | K-D M12W-5P-2m-PVC | Connector, M12, angled, female | 5-pin | 2,000 mm | PVC |
| 50104569 | K-D M12A-5P-5m-PUR | Connector, M12, axial, female | 5-pin | 5,000 mm | PUR |
| 50104555 | K-D M12A-5P-2m-PVC | Connector, M12, axial, female | 5-pin | 2,000 mm | PVC |
| 50130869 | KD U-M8-4W-V1-020 | Connector, M8, angled, female | 4-pin | 2,000 mm | PVC |
| 50130871 | KD U-M8-4W-V1-050 | Connector, M8, angled, female | 4-pin | 5,000 mm | PVC |
| 50130848 | KD U-M8-4A-V1-020 | Connector, M8, axial, female | 4-pin | 2,000 mm | PVC |
| 50130850 | KD U-M8-4A-V1-050 | Connector, M8, axial, female | 4-pin | 5,000 mm | PVC |

Further connection cables can be found on our website

## Mounting systems

Mounting brackets

| Part no. | Part description | Design | Fastening at device | Fastening at system | Material |
|---|---|---|---|---|---|
| 50020833 | BT 95 | Angle, L-shape | Screw type | Through-hole mounting | Metal |

Further mounting brackets can be found on our website

Rod mounts

| Part no. | Part description | Design | Fastening at device | Fastening at system | Material |
|---|---|---|---|---|---|
| 50117255 | BTU 200M-D12 | Mounting system, clampable, adjustable, turning, 360 ° | Screw type | For 12 mm rod, sheet-metal mounting | Metal |

Further rod mounts can be found on our website

# //ULTRASONIC SENSORS, CYLINDRICAL HOUSING

## EXPERTS IN CYLINDRICAL DESIGN

The cylindrical ultrasonic sensors with particularly thin sound cone are specially designed for the detection of small objects or objects in very small openings and for distance, height and dimension measurements of objects in many different areas of application.

### /// 412 series

The cylindrical M12 design with two different opening angles ensures high flexibility during installation and use.

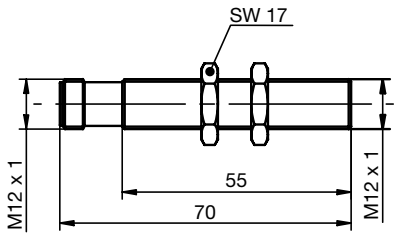
**Benefits:**

- Metal housing M12
- Precise switching point adjustment via line teach
- Especially narrow sound cone available

Direct access to the online product selector at **www.leuze.com/en/br412u**

| Part no. | Part description | Operating range | Switching frequency | Switching output 1 | Sound cone Angle of radiation | Description |
|---|---|---|---|---|---|---|
| 50113995 | HRTU 412/4NC.2-S-S12 | 0.01 … 0.2 m | 50 Hz | Transistor, PNP, break-contact (NC) | Narrow Front | Teach input, connector, M12, 4-pin |
| 50113993 | HRTU 412/4NO.2-S-S12 | 0.01 … 0.2 m | 50 Hz | Transistor, PNP, make-contact (NO) | Narrow Front | Teach input, connector, M12, 4-pin |
| 50113999 | HRTU 412/2NC.2-S-S12 | 0.01 … 0.2 m | 50 Hz | Transistor, NPN, break-contact (NC) | Narrow Front | Teach input, connector, M12, 4-pin |
| 50113997 | HRTU 412/2NO.2-S-S12 | 0.01 … 0.2 m | 50 Hz | Transistor, NPN, make-contact (NO) | Narrow Front | Teach input, connector, M12, 4-pin |
| 50113996 | HRTU 412/4NC.2-S12 | 0.04 … 0.4 m | 20 Hz | Transistor, PNP, break-contact (NC) | Narrow Front | Teach input, connector, M12, 4-pin |
| 50113994 | HRTU 412/4NO.2-S12 | 0.04 … 0.4 m | 20 Hz | Transistor, PNP, make-contact (NO) | Narrow Front | Teach input, connector, M12, 4-pin |
| 50114000 | HRTU 412/2NC.2-S12 | 0.04 … 0.4 m | 20 Hz | Transistor, NPN, break-contact (NC) | Narrow Front | Teach input, connector, M12, 4-pin |
| 50113998 | HRTU 412/2NO.2-S12 | 0.04 … 0.4 m | 20 Hz | Transistor, NPN, make-contact (NO) | Narrow Front | Teach input, connector, M12, 4-pin |

### Dimensioned drawings: 412 series




412 series

## /// 418 series

Short design, teachable and up to 2 independent switching outputs are the key features of this series. Also optionally available with angled head, which enables a sound outlet at 90 ° to the longitudinal axis of the M18 sensor. Versions available with temperature compensation and IO-Link.

IO-Link

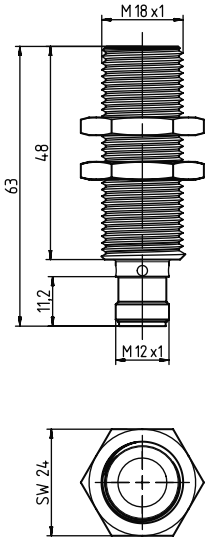
**Benefits:**

- Precise switching point adjustment through teach or via IO-Link
- One teach button per switching output
- Models with temperature compensation
- Operating mode setting and configuration via IO-Link (multiplex, parallel, throughbeam)
- Small dead zone at long range

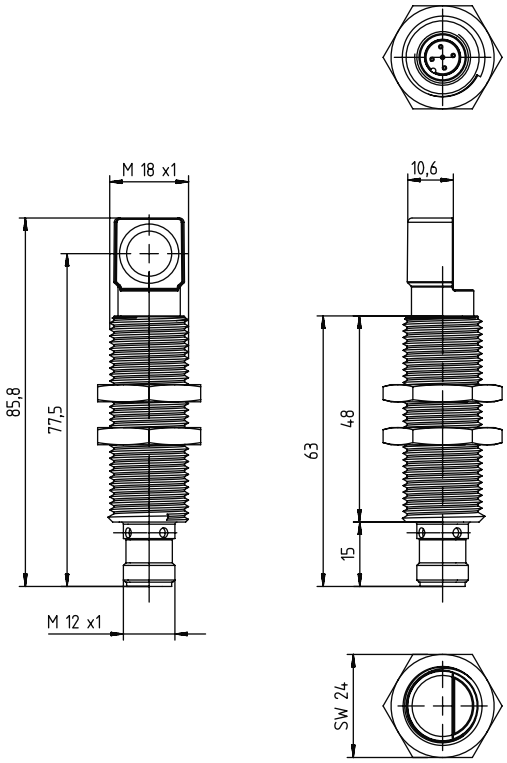
Direct access to the online product selector at **www.leuze.com/en/br418u**

| Part no. | Part description | Operating range | Switching frequency | Switching output 1 | Switching output 2 | Sound cone Angle of radiation | Description |
|---|---|---|---|---|---|---|---|
| 50127764 | HTU418B-400/PTX-M12 | 0.025 ... 0.4 m | 7 Hz | Transistor, PNP, break-contact (NC) | | Standard Front | Teach input, connector, M12, 5-pin |
| 50129826 | HTU418B-400.W/4T4-M12 | 0.025 ... 0.4 m | 7 Hz | Transistor, PNP, make-contact (NO) | Transistor, PNP, break-contact/ make-contact | Standard 90 ° deflection | Teach input, connector, M12, 5-pin, 2 independent switching points |
| 50129824 | HTU418B-400.W/4TX-M12 | 0.025 ... 0.4 m | 7 Hz | Transistor, PNP, make-contact (NO) | | Standard 90 ° deflection | Teach input, connector, M12, 5-pin |
| 50124268 | HTU418B-400/4T4-M12 | 0.025 ... 0.4 m | 7 Hz | Transistor, PNP, make-contact (NO) | Transistor, PNP, break-contact/ make-contact | Standard Front | Teach input, connector, M12, 5-pin, 2 independent switching points |
| 50124269 | HTU418B-400/4TX-M12 | 0.025 ... 0.4 m | 7 Hz | Transistor, PNP, make-contact (NO) | | Standard Front | Teach input, connector, M12, 5-pin |
| 50124267 | HTU418B-400.X3/LT4-M12 | 0.025 ... 0.4 m | 7 Hz | Transistor, push-pull, IO-Link / NC/NO | Transistor, PNP, break-contact/ make-contact | Standard Front | Interface: IO-Link; Operational controls: control buttons, 2 independent switching points, connector, M12, 5-pin |
| 50131020 | HTU418B-700/4TX-M12 | 0.1 ... 0.7 m | 8 Hz | Transistor, PNP, make-contact (NO) | | Standard Front | Teach input, connector, M12, 5-pin |
| 50129825 | HTU418B-1000.W/4TX-M12 | 0.15 ... 1 m | 8 Hz | Transistor, PNP, make-contact (NO) | | Standard 90 ° deflection | Teach input, connector, M12, 5-pin |
| 50124270 | HTU418B-1000/4TX-M12 | 0.15 ... 1 m | 8 Hz | Transistor, PNP, make-contact (NO) | | Standard Front | Teach input, connector, M12, 5-pin |
| 50129827 | HTU418B-1300.W/4T4-M12 | 0.15 ... 1.3 m | 8 Hz | Transistor, PNP, make-contact (NO) | Transistor, PNP, break-contact/ make-contact | Standard 90 ° deflection | 2 independent switching points, connector, M12, 5-pin, teach input |
| 50124272 | HTU418B-1300/4T4-M12 | 0.15 ... 1.3 m | 8 Hz | Transistor, PNP, make-contact (NO) | Transistor, PNP, break-contact/ make-contact | Standard Front | Teach input, connector, M12, 5-pin, 2 independent switching points |
| 50124271 | HTU418B-1300.X3/LT4-M12 | 0.15 ... 1.3 m | 8 Hz | Transistor, push-pull, IO-Link / NC/NO | Transistor, PNP, break-contact/ make-contact | Standard Front | Interface: IO-Link; Operational controls: control buttons, 2 independent switching points, connector, M12, 5-pin |

## Dimensioned drawings: 418 series




418B series




418B ... W series

## /// 430 series

Whenever large ranges are needed, the M30 sensors from the 430 series are the right choice. Two separate switching outputs can be set independently by means of teach button or IO-Link. A total of 10 of these sensors can be easily synchronized with a cable.

IO-Link

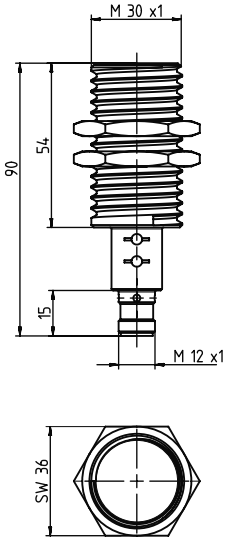
**Benefits:**

- Particularly compact design: M30
- Precise switching point adjustment through teach or via IO-Link
- One teach button per switching output
- Operating mode setting and configuration via IO-Link (multiplex, parallel, throughbeam)
- High accuracy through temperature compensation
- Small dead zone at long range

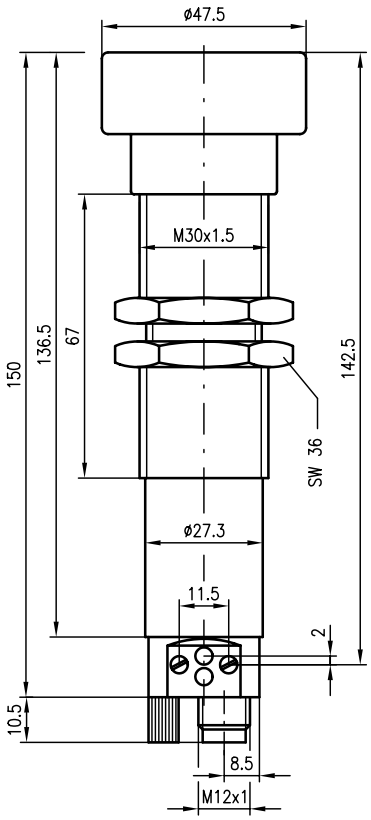
Direct access to the online product selector at **www.leuze.com/en/br430u**

| Part no. | Part description | Operating range | Switching frequency | Switching output 1 | Switching output 2 | Sound cone Angle of radiation | Description |
|---|---|---|---|---|---|---|---|
| 50124273 | HTU430B-3000.X3/LT4-M12 | 0.3 … 3 m | 4 Hz | Transistor, push-pull, IO-Link / NC/NO | Transistor, PNP, break-contact/ make-contact | Standard Front | Interface: IO-Link; Operational controls: control buttons, 2 independent switching points, connector, M12, 5-pin |
| 50036264 | VRTU 430M/P-1110-6000-S12 | 0.6 … 6 m | 1 Hz | Transistor, PNP, break-contact/ make-contact | Transistor, PNP, break-contact/ make-contact | Standard Front | Operational controls: 270 ° potentiometer, synchronization input, connector, M12, 5-pin |

## Dimensioned drawings: 430 series




430B series




430 series

# ACCESSORIES: ULTRASONIC SENSORS, CYLINDRICAL HOUSING

## Connection technology

Connection cables

| Part no. | Part description | Connection 1 | No. of pins | Cable length | Sheathing material |
|---|---|---|---|---|---|
| 50130694 | KD U-M12-4W-P1-050 | Connector, M12, angled, female | 4-pin | 5,000 mm | PUR |
| 50130690 | KD U-M12-4W-V1-050 | Connector, M12, angled, female | 4-pin | 5,000 mm | PVC |
| 50104762 | K-D M12W-5P-5m-PUR | Connector, M12, angled, female | 5-pin | 5,000 mm | PUR |
| 50104556 | K-D M12W-5P-2m-PVC | Connector, M12, angled, female | 5-pin | 2,000 mm | PVC |
| 50130648 | KD U-M12-4A-V1-020 | Connector, M12, axial, female | 4-pin | 2,000 mm | PVC |
| 50130652 | KD U-M12-4A-V1-050 | Connector, M12, axial, female | 4-pin | 5,000 mm | PVC |
| 50104569 | K-D M12A-5P-5m-PUR | Connector, M12, axial, female | 5-pin | 5,000 mm | PUR |
| 50104555 | K-D M12A-5P-2m-PVC | Connector, M12, axial, female | 5-pin | 2,000 mm | PVC |

Further connection cables can be found on our website

## Mounting systems

Mounting brackets

| Part no. | Part description | Design | Fastening at device | Fastening at system | Material |
|---|---|---|---|---|---|
| 50113548 | BT D18M.5 | Angle, L-shape | Screw type | Through-hole mounting | Stainless steel |

Further mounting brackets can be found on our website

Rod mounts

| Part no. | Part description | Design | Fastening at device | Fastening at system | Material |
|---|---|---|---|---|---|
| 50117490 | BTU D18M-D12 | Mounting system, clampable, adjustable, turning, 360 ° | Screw type | Through-hole mounting | Metal |

Further rod mounts can be found on our website

Other mounting systems

| Part no. | Part description | Suitable for | Fastening at device | Fastening at system | Material |
|---|---|---|---|---|---|
| 50125860 | BTX-D18M-D30 | Sensors with M18 design | Screw type | Mounting thread | Stainless steel |

Further mounting systems can be found on our website