

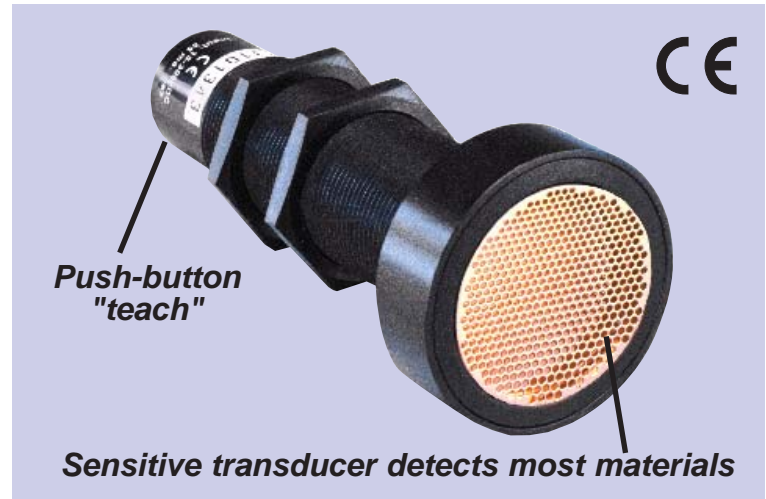
Ultrasonic Distance Sensor

Voltage Output and Push-Button "Teachable"

ULTRA-30-VA

*Non-Contact
Ultrasonic
Air Distance
Measurement*

ULTRA-30 ultrasonic distance sensors provide an output between 0 and 10 volts DC that is proportional to the distance of a measured target. The voltage output range can be calibrated to span the distance between any two distance "end-points" in the sensor's range. The slope can either increase or decrease with distance. Both endpoints are push-button adjustable. It includes a sensitive transducer and electronics in a small threaded, rugged, anodized aluminum enclosure that is easily mounted. Typical applications measure roll diameters, and object sizes and height.



Features

- Designed for indoor or dry environment applications
- Standard 0-10 VDC output has adjustable distances and polarity
- Long range, short deadband
- High sensitivity for weak or non-woven targets
- Simple pushbutton "teach" setup of many features, and calibration using actual targets
- Rear LED Status indicator quickly identifies proper and improper target conditions
- CE compliant for use in EU
- Output response filter for stability with unstable targets
- Security "Lock" prevents accidental mis-adjustment
- All in one small package!

Easy Installation

- Simple 3-wire interface—power, ground and voltage output
- Threaded aluminum housing quickly bolts into a round mounting hole
- Permanently attached 2-meter cable
- Simple push-button TEACH setup - no potentiometers!
- Rear pushbutton is used with rear indicator to accomplish all TEACH features
- Rear indicator displays target status conditions including too close, no target and target out of calibrated range.

Reliable Operation

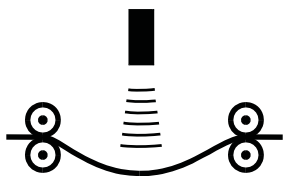
- Detects both hard and soft objects
- Stable outputs and output filter options
- No light or laser beam required
- Works in the dark
- Works with optically reflective, transparent or opaque materials
- Unaffected by target color

Dual Range

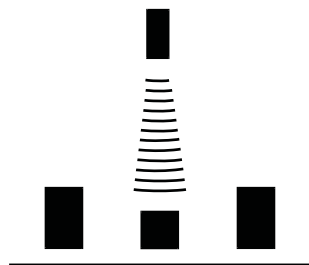
The ULTRA-30-VA has two operating ranges, selected using the TEACH button:

- **Short:** 3-40 in. (76-1000 mm)
- **Long:** 5-80 in. (127-2030 mm)

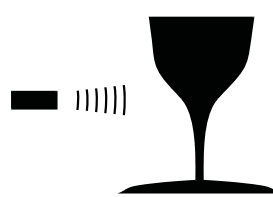
Web/Loop Control



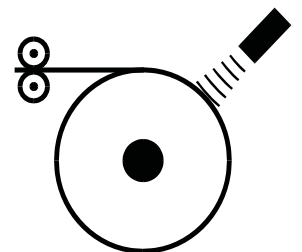
Dimension or Sort



Object Detection



Roll Diameter



ULTRA-30 Teachable Ultrasonic Distance Sensor

Specifications

Range - Short	3-40 in. (76-1000 mm)	Range - Long	5-80 in. (127-2030 mm)
Resolution	0.078 in. (2 mm)	Adjustments	Push-button, permanently stored
Enclosure	Anodized aluminum, black	Transducer	High sensitivity electrostatic
Protection	NEMA-1, IP30	Input Power	15-30 VDC @ 30 ma. nominal
Measure Rate	20 per second	Humidity	0 to 95% non-condensing
Response Time	50 mSec with response filter off, approx. 4 seconds 10-90% with response filter ON		
Beam Pattern	15 degrees total angle (nominal) @ -3db, conical shape		
Repeatability	Greater of 0.5% of target distance or +/-2mm at constant temperature		
Temperature	0 to 70 degrees C (32 to 158 degrees F)		
Voltage Output	0 to 10 volts DC, 100-ohm impedance, teachable endpoints, reversable slope		
Connections	Permanently attached cable, 6 feet (2 meters)		

Adjustments

Rear Status Indicator

This LED has four functions:

(1) ON continuously when a stable target is within the adjusted 0-10 VDC span, (2) flashes slowly for targets out of span but in sensor's range capability, (3) flashes quickly when no target is detected or target is closer than the minimum range and (4) flashes slowly during TEACH setup.

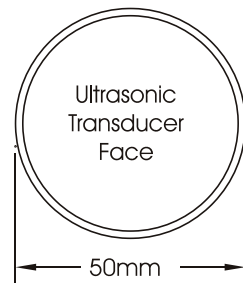
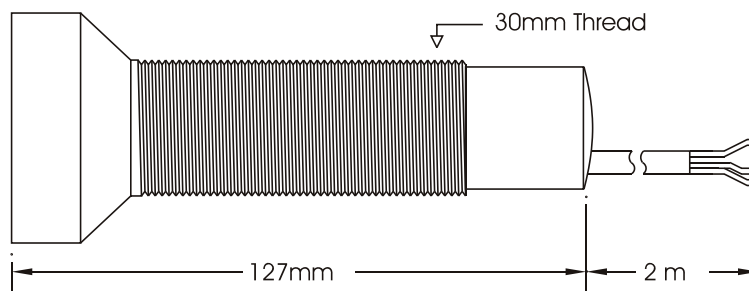
Push-button Switch

Used to set the TEACH features listed in table. To TEACH, count the status indicator flashes while switch is pressed and held.

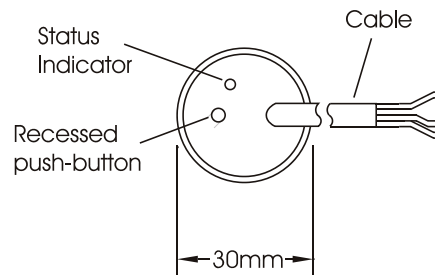
TEACH Flashes	Sensor Feature Selected
4	Set the 0 VDC distance endpoint (anywhere in range, using a target)
5	Set the 10 VDC distance endpoint (anywhere in range, using a target)
6	Set response time = SLOW (step change approx. 10-90% in 4 seconds)
7	Set response time = FAST (updates every 50 mSec.)
10	Unlock/lock sensor for adjustment. Relocks automatically after 15 minutes or power is recycled.
12	ULTRA-30-VA: Set LONG range and all factory defaults ULTRA-30L-VA: Set factory defaults with 8-in. (203 mm) minimum range
13	ULTRA-30-VA: Set SHORT range and all factory defaults ULTRA-30L-VA: Set factory defaults with 6.5-in. (165 mm) min range

Note: Adjust a feature by holding TEACH button pressed until the LED flashes the number of times in the "TEACH Flashes" column, then release it. The sensor must first be unlocked using 10 flashes. If any TEACH feature is attempted before Unlocking, the rear indicator will display 3 successive short-long flashes then the sensor resumes operation and all features remain unchanged.

Dimensions



Front



Rear

Dimensions

Dimensions are in mm

Mounting Hole: 1.2 in. (30.5 mm) diameter

Standard Cable: 6.5-ft (2 m)

Wiring (3-wire cable)

Brown	DC+ IN
Blue	GND
Black	0-10 VDC (Output)