Knowledge Article

Product Family:	**MD Ultrasonic Sensor**		**Number:**	**KB-SEN-004**
Subject:	**Configure UK1 with Single Analog Output**		**Date Issued:**	**March 03, 2021**

Part Numbers

UK1A-G1-0A	UK1A-G1-0E	UK1A-G1-1E	UK1A-G2-0A	UK1A-G2-0E	UK1A-G2-1E
UK1C-G1-0A	UK1C-G1-0E	UK1C-G1-1E	UK1C-G2-0A	UK1C-G2-0E	UK1C-G2-1E
UK1D-G1-0A	UK1D-G1-0E	UK1D-G1-1E	UK1D-G2-0A	UK1D-G2-0E	UK1D-G2-1E
UK1F-G1-0A	UK1F-G1-0E	UK1F-G1-1E	UK1F-G2-0A	UK1F-G2-0E	UK1F-G2-1E
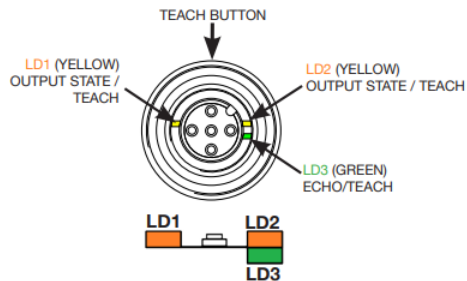
Button and LED locations

The teach button is always "active" meaning you can set P1 and P2 any time you momentarily press the button (minus the block feature). There is not a "teach" mode, it is always in teach mode, hence the reason for the Teach Block feature. Once you have your setpoints configured, it is best to enable the Teach Block to prevent someone from accidentally pressing the teach button and making new setpoints.

Teach Block Enable/Disable

Press the teach button for 8 seconds. LD1 and LD2 will start blinking quickly. Once the fast blink rate happens, then you can release the button. To disable the Teach Block, press the teach button for 8 seconds. Once the fast blink rate happens, then you can release the button.

If Tech Block is enabled, new setpoints cannot be set. If Teach Block is **not** enabled, then new setpoints to be set.

There is no way to tell if you are turning the Block mode On or Off. If Block mode is active, then momentarily pressing the teach button will cause LD1 and LD2 to blink once, to tell you that the button press is locked out. If LD1 and LD2 start flashing, that means that a new P1 setpoint has been entered.

If a new P1 has been acquired (LD1 and LD2 blinking continuously), you can undo the change by cycling power to the sensor. This will cause the sensor to revert to previously entered setpoints.
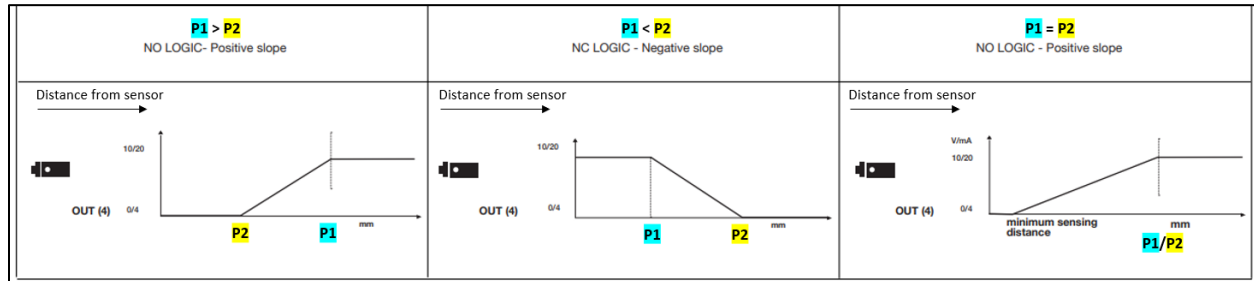
Sensor Outputs

Out(4) is pin 4 on the M12 connector. That is the analog output, which is typically the Black wire.

Selecting Setpoints

> **Note:** LD3 (green LED) must be ON when teaching setpoints. LD3 indicates that the sensed object is within the sensor's sensing distance. If the sensed object is not within the sensing range (while teaching P1), then pressing the teach button will cause LD1 and LD2 to blink 5 times and reset P1 and P2 back to default settings.

Place the object for the first setpoint location (P1), press the teach button. LD1 and LD2 will start blinking, waiting for P2 to be set. Move the object to the second setpoint location (P2) and press the teach button again. That will set P1 and P2. LD1 and LD2 will blink 5 times to acknowledge that the setpoints have been set.   If P2 was closer to the sensor than P1, then P1 > P2. If P1 was closer to the sensor than P2, then P1 < P2. This is important because that will change the output from Positive Slope to Negative Slope.

P1 > P2

Out(4) will be at its minimum value, it will remain at its minimum value until the sensed object reaches P2. At that point, Out(4) will start increasing towards its maximum value as the sensed object moves towards P1. Out(4) will remain at its maximum value as the sensed object continues past P1 setpoint.

P1 < P2

Out(4) will be at its maximum value, it will remain at its maximum value until the sensed object reaches P1. At that point, Out(4) will start decreasing towards its minimum value as the sensed object moves towards P2. Out(4) will remain at its minimum value as the sensed object continues past P2 setpoint.

P1 = P2

At the minimum sensing distance, Out(4) is at its minimum value. Out(4) will start increasing until it reaches maximum value at P1/P2. Out(4) will remain at it's maximum value as the sensed object continues past P1/P2 setpoint.

Technical Assistance: If you have questions regarding this Knowledge Article, please contact Technical Support for further assistance.

Clear Sensor back to Default

With the sensed object within the sensor's sensing range, press the teach button once. This will set P1 and LD1 and LD2 will blink constantly. Then move the sensed object outside the sensing range of the sensor, LD3 will turn off. Press the teach button again. LD3 (green) will blink 5 times, to signal that the sensor has been returned to default settings.

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