

DIP Switch 1: Output Slope Select

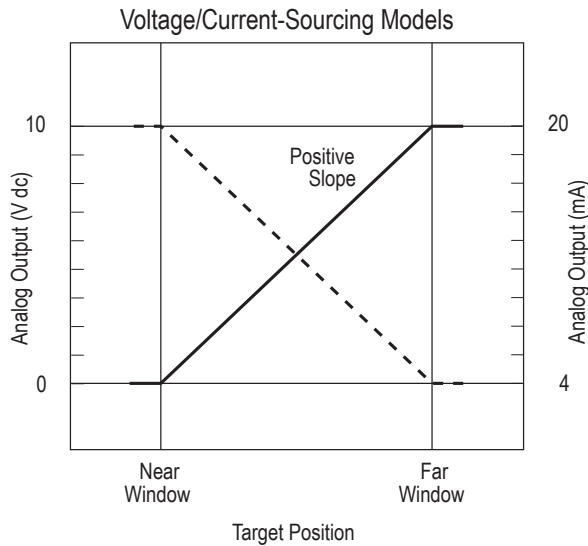


Figure 3. Output as a function of target position

On = Direct = Output value (voltage or current) increases with increasing distance of the target from the sensor

Off* = Inverse = Output value decreases with increasing distance of the target from the sensor

DIP Switch 2: Output Mode Select

On = The 4 to 20 mA current output (white wire) is enabled

Off* = The 0 to 10V dc voltage output (black wire) is enabled

This switch configures the D/A driver to use either the current output or the voltage output driver. This output function can only be set with the power to the sensor turned off.

DIP Switch 3: Loss of Echo Mode Select

On = Min - Max Mode

Off* = Hold Mode

This switch determines the output response to the loss of echo. The "Hold Mode" (Switch 3 Off*) maintains the output at the value present at the time of echo loss. The "Min - Max Mode" (Switch 3 On) drives the output to either the minimum value (0V or 4 mA or the maximum value (10V or 20 mA) when the echo is lost. Minimum or maximum value is selected by DIP switch 4.

DIP Switch 4: Min-Max Default

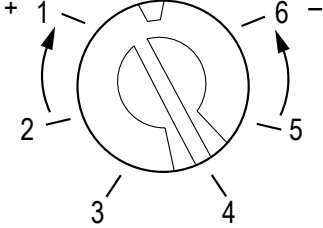
On* = Default to maximum output value at loss of echo

Off = Default to minimum output value at loss of echo

Switch 4 selects the output response to loss of echo when "Min - Max Mode" is selected by DIP switch 3.

Response Speed Adjustments

The speed of the output response is set using the single-turn potentiometer. There are six values for response speed, which relate directly to the number of sensing cycles over which the output value is averaged. The response value is set by aligning the slot of the potentiometer with one of the marked positions.

Position	Response Speed	Potentiometer Positions
1	80 milliseconds (2 cycles)	 <p>Figure 4. Response adjustment positions This example shows the potentiometer set at position number 4. There are no numbers on the actual product label.</p>
2	160 milliseconds (4 cycles)	
3	320 milliseconds (8 cycles)	
4	640 milliseconds (16 cycles)	
5	1.28 seconds (32 cycles)	
6	2.56 seconds (64 cycles)	

Programming the Window Limits

Use the “Limits” push button, located under the transparent top cover, to program the near and the far limits. The near limit may be set as close as 100 mm (4 inches) and the far limit may be set as far as 1400 mm (55 inches) from the transducer face. Minimum window width is 10 mm (0.4 inches). Whenever possible, use the actual target to be sensed when setting the window limits. The following procedure begins with the sensor in Run mode.

Step	Description	LED Indicator Status
1	Access Limit Programming Mode. Push and hold until the green indicator LED turns off (approximately 2 seconds).	Green: Goes off
		Amber: Solid on to indicate ready for teaching first limit
		Red: Flashes to indicate strength of echo or is off if no target is present
2	Set the First Limit (Near or Far). Place the target at the first limit and press the push button for less than 2 seconds.	Green: Remains off
		Amber: Flashes at 2 Hz to indicate ready for teaching second limit
		Red: Solid on for a moment, then resumes flashing to indicate strength of echo
3	Set the Second Limit (Far or Near). Place the target at the second limit and press the push button for less than 2 seconds	Green: Remains off, then comes on solid (returns to Run mode)
		Amber: Solid on for a moment, then is either on or off to indicate output state (returns to Run mode)
		Red: Solid on for a moment, then resumes flashing to indicate strength of echo (returns to Run mode)

Notes Regarding Window Limit Programming

1. Either the near or far limit may be programmed, first.
2. There is a 2-minute time-out for programming of the first limit. The sensor will return to Run mode with the previously programmed limits. There is no time-out between programming of the first and second limit.
3. The programming sequence may be cancelled at any time by pressing and holding the push button for ≥ 2 seconds. The sensor returns to Run mode with the previously programmed limits.
4. During limit programming, the 5-segment moving dot indicator displays the relative target position between 0 and 1500 mm (the maximum recommended far limit position is 1400 mm (55 inches)).
5. If the target is positioned between 1400 mm (55 inches) and 1500 mm, the 5th segment of the moving dot indicator flashes to indicate that a valid echo is received, but the target is beyond the recommended 1400 mm (55 inches) maximum far limit.
6. If a limit is rejected during either programming step, the sensor will revert to the first limit programming step (Step 2 in programming chart). This will be indicated by Green - off, Red - flashing to indicate signal strength, and Amber - solid on.
7. If both limits are accepted, the sensor will return to Run mode, which is indicated by the solid on Green LED.