

U-GAGE™ S18U Series Sensor — Analog Output

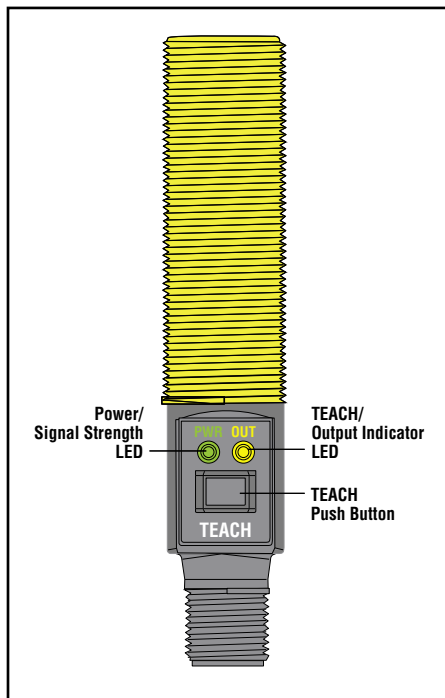


Figure 1. Sensor features

Sensor Programming

Two TEACH methods may be used to program the sensor:

- Teach individual minimum and maximum limits, or
- Use Auto-Window feature to center a sensing window around the taught position.

The sensor may be programmed either via its push button, or via a remote switch. Remote programming also may be used to disable the push button, preventing unauthorized personnel from adjusting the programming settings. To access this feature, connect the gray wire of the sensor to 0 - 2V dc, with a remote programming switch between the sensor and the voltage.

NOTE: The impedance of the Remote Teach input is 12 kΩ.

Programming is accomplished by following the sequence of input pulses (see programming procedures starting on page 4). The duration of each pulse (corresponding to a push button “click”), and the period between multiple pulses, are defined as “T”:

$$0.04 \text{ seconds} < T < 0.8 \text{ seconds}$$

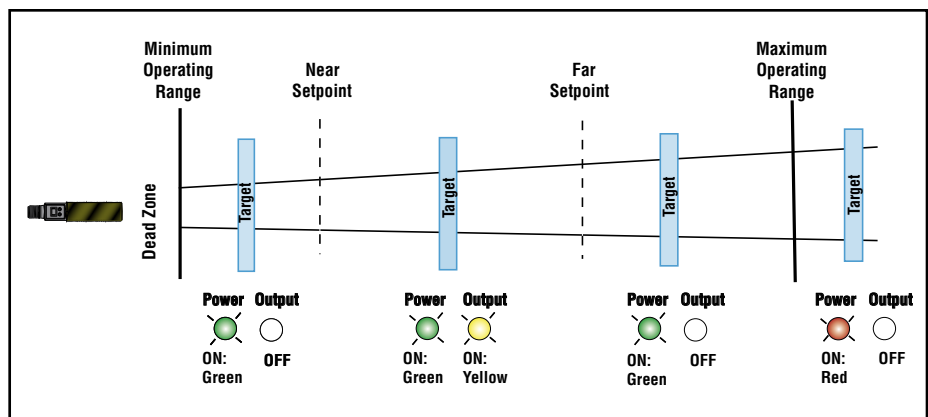


Figure 2. TEACH Interface

Status Indicators

Power ON/OFF LED	Indicates
OFF	Power is OFF.
ON Red	Target is weak or outside sensing range.
ON Green	Sensor is operating normally, good target.

Output/Teach LED	Indicates
OFF	Target is outside window limits.
Yellow	Target is within window limits.
ON Red (solid)	In Teach Mode, waiting for first limit.
ON Red (flashing)	In Teach Mode, waiting for second limit.

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Teaching Minimum and Maximum Limits

General Notes on Programming

- The sensor will return to Run mode if the first Teach condition is not registered within 120 seconds.
- After the first limit is taught, the sensor will remain in Program mode until the Teach sequence is finished.
- To exit Program mode without saving any changes, press and hold the programming push button > 2 seconds (before teaching the second limit). The sensor will revert to the last saved limits.

Analog Output Slope:

The U-GAGE S18U sensor may be programmed for either a positive or a negative output slope, based on which limit is taught first (see Figure 3). If the Near limit is taught first, the slope will be positive. If the Far limit is taught first, the slope will be negative. Banner's scalable output automatically distributes the output signal over the width of the programmed sensing window.

In the event of signal loss, the analog output goes to 3.6 mA or 0V dc, which may be used to trigger an alarm.

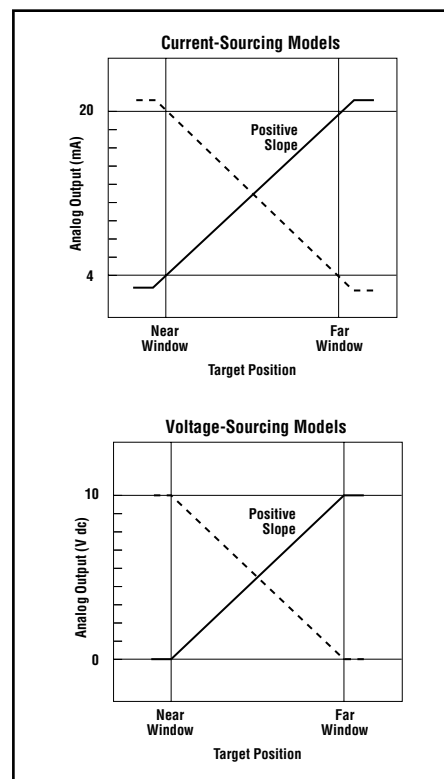


Figure 3. Analog output slope

	Procedure		Result
	Push Button 0.04 < "click" < 0.8 sec.	Remote Wire 0.04 sec. < T < 0.8 sec.	
Programming Mode	Push and hold the push button 	No action required; sensor is ready for 1st limit teach	Output LED: ON Red Power LED: ON Green (good signal) or ON Red (no signal)
Teach First Limit	Position the target for the first limit	Position the target for the first limit	Power LED: Must be ON Green
	"Click" the push button 	Single-pulse the remote line 	Teach Accepted (Sensor learns the 0V dc or 4 mA limit) Output LED: Flashing Red Teach Unacceptable Output LED: ON Red
Teach Second Limit	Position the target for the second limit	Position the target for the second limit	Power LED: Must be ON Green
	"Click" the push button 	Single-pulse the remote line 	Teach Accepted (Sensor learns the 10V dc or 20 mA limit) Output LED: Yellow or OFF Teach Unacceptable Output LED: Flashing Red