

## Customer

Wilkinson Baking Company, Walla Walla, WA  
[www.wilkinsonbaking.com](http://www.wilkinsonbaking.com)

## Customer Requirements

Consistent, accurate measurement of dry and wet ingredients for fully automated in-store bread bakery

## Partner

Automation Solutions, Beaverton, OR  
[www.automationsolutions.cc](http://www.automationsolutions.cc)

## Banner Solution

- Q60AFV adjustable-field sensor
- U-GAGE<sup>®</sup> S18U ultrasonic sensor
- K50FL EZ-LIGHT<sup>®</sup>

## Why Banner?

**Background suppression** – Detects objects within a defined sensing field, ignoring objects beyond the sensing field cutoff

**Design** – Right-angle sensing head on the U-GAGE S18U saved valuable vertical space in a compact installation

**Simplicity** – Flat pack design facilitated deployment of the EZ-LIGHT onto the bakery

## Customer Benefits

**Ease-of-use** – Push-button and remote programming makes setup quick and easy

**Consistency** – Microprocessor design on the S18U ensures reliable performance across the entire sensing window

**Longevity** – Low power consumption LEDs on the K50FL offer years of reliable service

## Learn More

Visit [www.bannerengineering.com](http://www.bannerengineering.com) for product information and to locate a distributor

- [Q60AFV adjustable-field sensor overview](#)
- [U-GAGE S18U ultrasonic sensor overview](#)
- [K50FL EZ-LIGHT overview](#)

## Accurately Measuring Wet & Dry Ingredients – Wilkinson Baking Company Chooses Banner –



*Wilkinson Bread Bakery in operation at Super 1 Foods in Walla Walla, WA*

## Background

Baking is a mixture of creativity, precision and attention to detail. The Wilkinson Baking Company has added technical innovation to the mix. The Wilkinson Bread Bakery is a compact, completely self-contained and fully automated bread bakery. This unique machine combines technology with tradition to transform simple raw ingredients into bakery fresh bread at 40 loaves an hour.

Intended for use in grocery stores and similar retailers, this new concept in on-site baking is designed to be functional and engaging. Its transparent build allows customers to view all of the bakery's primary functions, beginning with measuring and mixing ingredients, then kneading and forming the dough into a loaf, and ending with proofing, baking and cooling.

Precision is critical to baking; miscalculations can easily ruin the final product. Wilkinson needed sensors capable of exact measurements that would perform consistently with repeatable accuracy over time. The sensors had to be compact, capable of fitting discretely into a confined space where dust, moisture and temperature would pose regular challenges. Wilkinson also wanted to integrate an at-a-glance status light indicating ingredient levels.

## Dry Ingredients

The process begins by loading dry ingredients into the bakery hopper. From there they are automatically measured into the mixing chamber in single loaf portions. Surface inconsistencies, the low-reflectivity of the ingredients and even the container can pose challenges to sensor



*View of the Bread Bakery with dry ingredient hoppers, water and mixing chambers displayed*

## Q60AFV Features

The Q60AFV adjustable-field sensor is ideal for detecting objects with low reflectivity, while ignoring background objects.



*Q60AFV adjustable-field sensor with background suppression*

- Detects within a defined sensing field
- Features two-turn, logarithmic adjustment of sensing field cutoff from 0.2 to 2 m
- Available in infrared, visible red LED or laser sensing beam variants



*Q60AFV adjustable-field sensors are used to measure bread mix inside highly polished stainless steel hoppers*

accuracy. The fine-grained consistency of the ingredients may promote dust build-up on internal surfaces and on the sensor itself, affecting performance and longevity.

Working with Automation Solutions, a Banner partner serving the Western U.S., Wilkinson selected the Q60AFV adjustable-field sensor with background suppression. This robust sensor uses optical triangulation for reliable object detection regardless of color, reflectivity, surface irregularities or background conditions. Simple adjustments with a screwdriver allowed Wilkinson to define a precise sensing range. Push-button and remote programming options made setup

easy. The sealed housing and protected circuitry ensured that the Q60 would perform reliably, despite environmental challenges.

## U-GAGE S18U Features

U-GAGE S18U ultrasonic sensors offer superior measurement in a versatile, compact form factor.



*U-GAGE® S18U ultrasonic sensors with right angle and straight sensing heads*

- Senses from 30 to 300 mm
- Available in analog or discrete models
- Simplified setup with push-button and remote TEACH-mode programming

Additionally, Wilkinson installed the K50FL EZ-LIGHT® onto the bread bakery. The three-color dome indicates the level of dry ingredients inside the hopper, alerting the system operator when levels run low. The EZ-LIGHT was easy to install and matched the function and design aesthetics established by Wilkinson.

## Wet Ingredients

Once the dry ingredients have been added, the bread bakery measures out enough water to make a single loaf and adds it to the mixing chamber. Clear liquids, like water, can be very difficult to detect using standard photoelectric sensors, and the associated moisture can have an adverse effect on sensor operation and reliability.

Automation Solutions recommended the U-GAGE® S18U ultrasonic sensor. This highly accurate sensor uses sound waves rather than light to detect for object presence and level. Temperature compensation circuitry corrects for environmental variations. The available right-angle sensing head made it easy to install the sensor. The S18U features programmable background suppression using on-board push buttons or remote TEACH wire. The leak proof encapsulated enclosure provides protection against moisture.



*U-GAGE® S18U ultrasonic sensors are used to detect water levels inside sealed chambers*

## K50FL EZ-LIGHT Features

Rugged and easy-to-install, K50FL indicator lights provide easy-to-see operator guidance and indication of equipment status.

*K50FL EZ-LIGHT® with three-color LED display*



- Low power consumption LED design will provide years of reliable service
- Fully encapsulated IP67 or IP69K variants
- Compact, completely self-contained device requires no controller

## Conclusion

Wilkinson needed sensors capable of precisely measuring ingredients over many hours of operation. The robust sensing and background suppression capabilities of the Q60AFV adjustable-field sensor made it ideal for dry ingredient detection. The U-GAGE S18U offered superior measurement accuracy for wet ingredients and the compact size and right-angle sensing head made it easy to integrate into the bakery. The K50FL EZ-LIGHT provided Wilkinson with an easy-to-see ingredient level indicator light. The Banner products provided the Wilkinson Bread Bakery with the measurement accuracy and consistent performance required to produce 40 loaves of freshly baked bread an hour for thousands of operational hours.