

VSN™

VISUAL GUIDANCE SYSTEM



VSN™, the technology advancement, transforms machine guidance through emerged crops.

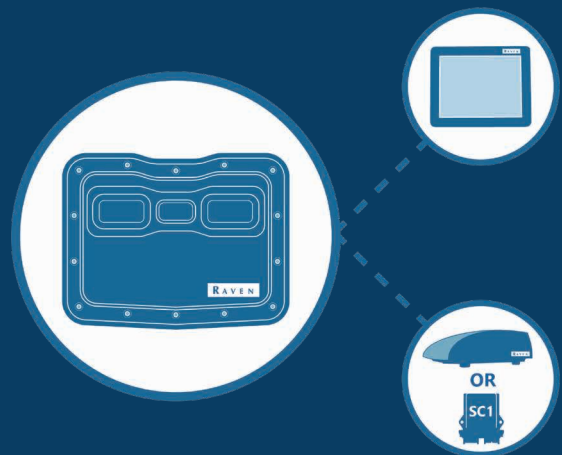
This patent-pending innovation utilizes a non-contact stereo vision camera to navigate crop rows, allowing the operator to focus on all other aspects of effective application control. Minimizing crop damage, covering more acres in a day and essentially providing an easier machine operation leads to a quick return on investment to maximize yield profitability.

VSN™

VISUAL GUIDANCE SYSTEM

VSN SOLUTIONS

- Reduces operator fatigue and crop damage
- Track machine paths accurately to the actual planting vs theoretical
- Allows machine ability to automatically adjust to planting inconsistencies or adjustments
- Enables faster vehicle speed
- Works in areas of limited GPS/GNSS coverage
Next to tree lines, ditches, hills, etc



FEATURES & BENEFITS

- Enhanced machine control for sprayer efficacy
- Reduces operator fatigue and crop damage
- Uses state-of-the-art image sensor and processing technologies to deliver quick response rate and better control
- Crop types: corn, soybeans, cotton, and sorghum
 - Crop height range 4 inches to approx. 90% cano py (10cm)
 - Row spacing 20-40 inches (50 cm - 1 m)
 - Weed coverage ≤30%
- Performance
 - Vehicle speeds exceeding 20 mph (32 km/hr)
 - Grades up to 8 degrees
 - Cross winds up to 15 mph (24 km/hr)
- Live video row overlays in Viper 4+ platforms
- In-field calibration
- ISO UT user interface, custom control widgets
- Software update support (OTA)



COMPATIBLE PRODUCTS

- RS1
- SC1
- Viper4+ and CR12 / CR7
- Slingshot



3 MODES OF PERFORMANCE

GPS/GNSS MODE

- Uses GNSS and guidance lines
- Traditional steering/ path planning

VSN MODE

- Row guidance utilizing the image sensing of the VSN Camera
- Guides machine when camera quality is above user defined threshold

VSN+ MODE

- Fall back to GPS guidance (quality below user defined threshold)
- Ability to use GPS for line acquire and then transition to VSN Mode

	RAVEN VSN™	COMPETITOR
System Compatibility	RS1™/SC1™ and Viper® 4+	Gen 4 CommandCenter™
Crop Types	Corn, Soybeans, Cotton, Sorghum	Corn, Soybeans, Cotton, Sorghum
Height Range	4 inches (10 cm) to 90% Canopy	6 inches (15 cm) to 90% Canopy (requires mechanical feelers)
Row Spacing	20 - 40 inches (50 cm - 1 m)	22 - 40 inches (56 cm - 1 m)
Weed Coverage	≤ 30%	No data
Number of Cameras	1	1
Number of Lens/Solutions	Stereo Vision	Monocular Camera
Non-contact solution	✓	✗
Wind Speed Cross	Cross 15 mph (24 kph)	No data
Vehicle Speed	> 20 mph (32 kph)	18 mph (29 kph)
Slope/Terrain	≤ 8°	≤ 2°
Row Type	Contour, Straight	Straight
Hours of Operation	30 min after sunrise; 30 min prior to sunset	30 min after sunrise; 30 min prior to sunset
Fallback Modes	✓	✓
High Speed Telematics	✓	✗
Live Video on Monitor	✓	✓
ScreenCapture Image	✓	✗
Full Canopy Mode	✓	✓
Support of Front boom sprayers	✓	✗



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HELPING FARMERS FEED THE WORLD

R A V E N

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