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Agricultural Electronics **1-800-SENSOR-1**



4-16 Row
Seed Flow Monitor

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Introduction

Congratulations on your purchase of a Sensor-1 Monitor. It was designed to take the guess work out of your planting operation. Anytime a row (runner) is plugged, or for any reason seeds are not going to the ground, the monitor will sound an alarm and will indicate by means of numbered row lamps which planter row unit has stopped. This Sensor-1 monitor is designed to monitor 1 through 16 rows and give a visual and audio alarm when any seed sensor is not planting properly. The monitor system consists of a console for 4, 6, 8, 12, and 16 rows, which is mounted on the tractor hood, fender, or within the cab. The Photoelectric seed sensors are mounted in each planter tube in the planter or drill harness, which connects the individual seed sensors to the console.

The tractor battery (12 volts DC) powers the monitor. The console receives information from each of the sensors and translates this information for the operator, to let him know whether or not all rows are planting properly. Each time a seed sensor detects a seed, the row indicator light on the console corresponding to that row will flash. A steady flow of seeds results in a steady flashing of row indicator lights. The rate of seed flow is proportional to the rate of flashing. If a planting unit is planting at a slower rate than the others, it will be indicated by a slower rate of flashing on the row indicator light. If one of the sensors detects a seed flow stoppage, the console alarm will sound to alert the operator and a row indicator light or display corresponding to the row containing the fault will stop flashing. The seed sensor is a photoelectric device, which is installed in each planter or drill runner normally at the lower end of the seed delivery tube. These sensors are located at the point to quickly detect seed flow stoppage to the ground. The planter harness is installed on the planter or drill and connects the seed sensors to the console.

Row Indicator Lights

The light indicator switch has several functions:

Mode 1:

The light will flash each time a seed is dropped. When an alarm condition occurs, when a row fails, if there are no seeds going down the tube or seed blockage, the indicator will stop flashing and the alarm will sound.

Mode 2:

The lights will be off when the rows are planting in a normal condition. The indicator lights will come on and stay on if there is an alarm condition. If all rows are not planting, an alarm will sound for a few seconds and the light indicator will remain on until normal planting occurs. If one or more rows are not planting, the alarm will sound until the problem is fixed.

The operator can cancel a failed row by pushing the MODE switch up; this will cancel any row that is not working. Sensor-1 can program 2 to 12 second delays on seed drops to accommodate different seeds. Do not use setup mode if you are not planting. The indicator lights can be changed into Mode 1 or Mode 2 while planting.

The Setup Mode switch has three functions. All these functions will take place when the SET-UP switch is pushed.

Setup Mode Light Dimming & Set Seed Dropping Rate

Function 1: If the operator wants to dim the indicator lights.

Function 2: To cancel a failed row.

Function 3: When pressed the monitor will tell the operator if a row(s) drops below 50% of the setup value. Only use setup when you are planting.

Console Installation

The Console should be mounted within easy view and access of the operator without obstructing his/her normal vision. The console can be mounted on the hood, fender (tractors without a Cab), or within the cab on the cab frame member. Where the console can be easily viewed and operated. The console can be mounted two ways. The first is to use two bolts to secure the mounting bracket. The second is to use a single bolt to secure the mounting bracket, which allows the console to swivel.

NOTE: Do Not Leave monitor exposed to harsh weather conditions for long periods of time. Extreme moisture may damage the unit.

Photoelectric Seed Sensors

The photoelectric seed sensors are mounted in each planter shank near the bottom of the seed delivery tubes. As seeds flow through the sensor, they break the light path between the light source and the photo detector. This location enables the sensors to quickly detect plug-ups or absence of seed flow from the hopper.

Since planter or drill shanks differ with different planter or drill models, sensors are designed for specific planter models and are not interchangeable between planters. The photoelectric sensors will detect corn, soybean, cotton, beets, sorghum, peanuts and most other seeds normally planted.

Standard Harness

The harness has a molded junction that secures at the center of the planter tool bar with a single cable extending to the planter or drill hitch. The individual row leads fan out from the molded junction with row 1 located on the left side of the planter.

Planter or Drill Operation

Turn console on by pushing the On/Off switch. All row indicator lights are turned on, the alarm sounds momentarily and then the console enters the operate mode. Begin planting and observe the row indicator lights. If in Mode 1, all indicator lights should be flashing at approximately the same rate. If one of the row lights is flashing at a slower rate than the others, the planter row units should be checked for proper seed population.

Row Failure

The monitor continuously checks for seed flow while planting, as indicated by the flashing row indicator lights on the console. If any planter unit sensor is not detecting seeds, the alarm will sound continuously and the row indicator light corresponding to the planter row unit will stop flashing, when this happens, stop planting and check to see what is wrong with the planter unit. If you cannot solve the problem and you don't have a spare sensor, turn the monitor off and on and then push the setup switch while planting and the failed row will not trigger an alarm. The corresponding row light will stay off until you reset the monitor.

Battery Leads for the Console

The Sensor-1 planter and drill monitor operates on 12 volts DC only. The console battery lead has two wires; a black and red wire each terminated in a ring terminal. The red wire must always be connected to the positive battery terminal and the black wire should always be connected to the negative battery terminal.

Note: The red lead must be connected to the positive battery terminal regardless of whether the batteries use a positive ground (positive battery terminal connected to tractor chassis). If two 12 volts batteries are connected in series always make power connection on batteries, which are grounded to the tractor chassis. If two 6 volts batteries are connected in series, make sure power battery terminals are not connected to each other.

Signal Cable

The signal cable from the console is terminated in a 37-pin connector. Route this cable to the rear of the tractor near the hitch.

NOTE: Follow the side of the tractor opposite the alternator and spark plug. Secure the cable with tie wraps in a location where it will not be pinched, cut, stepped on, or damaged in any way. Make certain that the planter can be unhitched from the tractor without removing any tie wraps.

Harness for the Planter or Drill

The planter or drill harness installation is not difficult, but you must use care to locate the harness where it will not be pinched, cut, or damaged by moving parts during normal operation or transport of your planter or drill.

The standard harness is available in 2-32 row planters or drills, and can be used on Sensor-1, Case-IH, or DICKEY-john monitors. If you have a John Deere harness, pin location must be made on the monitor or harness to operate correctly. Sensor-1 has power (red wire) on pin 24 and ground (black wire) on pin 26 locations.

All Row Failure

When you lift your planter at the end of the row and seed flow stops in all planter units, the alarm will sound and all row indicator lights will stop flashing and remain on. After approximately 2 to 4 seconds the alarm will stop sounding.

Troubleshooting

The general procedure to use if a problem occurs is to isolate the cause to a sensor, sensor lead, planter harness, console cable, or the console, in that order. Make necessary repairs after the problem has been isolated.

Sensors: Check for excessive dirt inside the sensor. Check for cut or damaged wires. Connect sensor to the planter harness in a row that is operating properly. If it then operates correctly, the sensor is good. In some cases, static electricity may cause dust and seed treatment to accumulate on the sensing elements in the sensor. Enough may accumulate to cause the sensor to malfunction, which can cause the monitor to indicate a failure condition. Low humidity and dry soil conditions tend to cause this condition. If this condition occurs, clean the inside of the sensors by using a dry bottlebrush. If for any reason a sensor becomes inoperative and a replacement sensor is not immediately available, use setup option to cancel out that row. Setup is only used while planting. Restart the monitor while planting and then push the setup switch up for 1 to 2 seconds. This will keep the alarm from sounding for this row only. Replace the defective seed sensor as soon as possible. If the monitor is turned off for any reason setup must be reset to cancel any non-working rows. After the sensor is replaced make certain the monitor is turned off and back on to reactivate the new sensor. Repair damaged wire or wires by soldering wires together, being sure to match wire colors. Tape each repaired wire and then tape over cut cable covering. If necessary, move and secure cable so that the same type of damage will not occur again. To check a non-working sensor, exchange it with another row. If the problem follows, the problem is in the seed sensor.

Upgrading Your Monitor

Sensor-1 can upgrade your pre-existing monitor to any row configuration, or to a Sensor-1 Population Monitor, for a standard upgrade cost. Sensor-1 can also upgrade your harness. This will reduce your total replacement cost of a new harness.

Some harnesses cannot be upgraded. If you change to a population monitor, your seed flow sensors need to be population sensors or at least one sensor should be to get a correct population count.

No exchange will be given for upgrading the Monitor Harness and Sensors. Sensor-1 can modify your monitor for up to 48 rows.

Call us for details.

Planter Harness

Examine the planter or drill harness for damage. Check if the harness is cut or pinched, and carefully cut away the cable covering. Repair damaged wire or wires by soldering wires together, being sure to match wire colors. Tape each repaired wire and then tape over cut cable covering. If necessary, move and secure cable so the same type of damage will not occur again. To cancel a row on the harness, just jump the green wire to the black wire on the harness row that is failing.

The Sensor-1 Monitor is set up with a 37 Amp Receptacle connector to a DICKEY-john, Case-IH, and a Sensor-1 harness. The power is on pin 24 and 25 and ground pins are on 26 and 27. If using a John Deere harness, power is on 27 pin and ground is 28 pin.

Sensor-1 can modify the monitor to meet your needs.

Sensor-1 Warranty

Sensor-1 warrants to the original purchaser for use that, if any part of the product proves to be defective in material or workmanship within **one year** from the date of original purchase, Sensor-1 will (at our option) either replace or repair said part. This warranty does not apply to damage resulting from misuse, neglect, accident, or improper installation and maintenance.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES OF MERCHANTABILITY FITNESS FOR PURPOSE AND OF ANY OTHER TYPE, WHETHER EXPRESSED OR IMPLIED.

Sensor-1 neither assumes nor authorizes anyone to assume for it any other obligation or liability in connection with said part and will not be liable for consequential damages. Purchase accepts these terms and warranty limitations unless product is returned within thirty days for a full refund if the product is not used.

A 5% restocking fee will apply to all returned items.

Special orders are non-refundable.

Sensor-1 Return Policy

Sensor-1 offers a full refund or replacement for merchandise returned unused in resalable condition. All merchandise must be returned in its original packaging within **30 days** or original invoice date. All returned items must be accompanied by a Return Merchandise Authorization number (RMA#).

You may obtain an RMA# by calling a Sensor-1 service representative at 1-800-736-7671. All returns may be subject to a 15% restocking fee. Any item that is returned within the warranty period, as defective, will be tested by one of our technicians and either repaired or replaced. Any parts returned that have been used will be replaced or repaired and returned to sender.

If credit is required, a 15% restocking fee is charged. Parts returned due to customer error will be subject to a restocking fee and any non-catalog or custom items are non- returnable.

All shipping charges are non-refundable.

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