

OPERATOR'S MANUAL

version 3.2

VISUM MONITOR



J.ASSY
AGRICULTURAL

Visum Monitor

Manual
v. 3.2

Product
v. 2.0

Software
v. 4.4

This device contains **FCC ID 2AD66-RF2401F20**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

For further information, please visit www.fcc.gov.

This device contains **IC ID 21278- RF2401F20**

IC compliance

This device complies with Industry Canada license-exempt RSS standard(s).

Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Conformité aux normes d'IC

Cet appareil est conforme à la(aux) norme(s) RSS sans licence d'Industry Canada.

Son utilisation est soumise aux deux conditions suivantes:

- (1) Cet appareil ne doit pas causer d'interférences et
- (2) Il doit accepter toutes interférences reçues, y compris celles susceptibles d'avoir des effets indésirables sur son fonctionnement.



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Operation Instructions

Specifications

Radiofrequency communication at 2.4GHz.

GFSK Modulation.

Omni-directional antenna, 5dBi, 50 Ohms, SMA connector.

Supply voltage: 10Vdc to 30Vdc.

Display with 2 character, 7 segments.

2 Red/Green/Yellow Leds.

Resistant to dust and water splash.



Installation

1. Disassemble the bracket of the Monitor, removing the two side nuts.
2. Clean the installation surface with a cloth and alcohol.
3. Remove the film from the double-sided tape and fasten the bracket to the surface by pressing the whole area of the tape.
4. Wait for 15 minutes and then mount the Monitor on the bracket with the two side nuts.
5. If you install the bracket over a glass surface, put the anti-UV tape on the opposite side of the glass in order to protect the double-sided tape from the sun.
6. Press the  button to turn on the Monitor and hold it for 5 seconds to turn it off.

- Alternatively, the tape may be removed to mount the bracket with screws or attached to a bar with clamps.



ATTENTION:

- The Monitor should be installed with the best possible line of sight to the sensors in order to avoid communication problems.

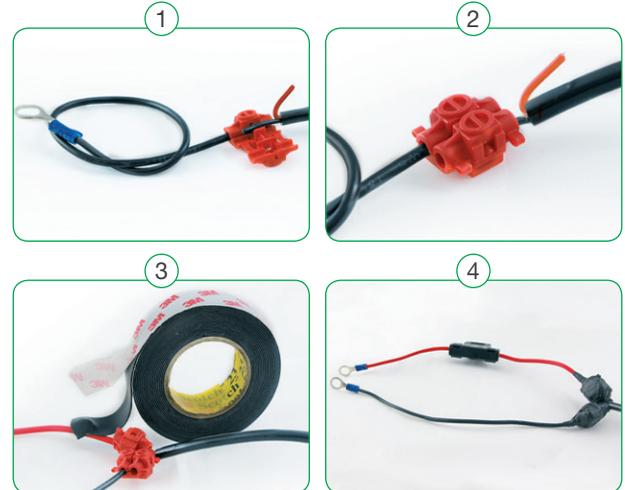
Power connection

The power cable must be connected to a 12Vdc to 24Vdc power source.

OPTION 1

Connecting to the tractor battery

- Use the included installation kit is detailed below.



- The red connector must be protected with self-fusing tape.
- Preferably, the power cable should be connected directly to the battery terminals.



ATTENTION:

- Do not disconnect any others cables attached to the battery of the tractor. It may affect the functionality of other electronics in the tractor.

OPTION 2

Connecting to a power plug inside the cabin

1. The installation kit will not be used, but a proper manufacturer harness (not included) will be needed.



2. Cut the power cable excess and mend the wires with the manufacturer harness.

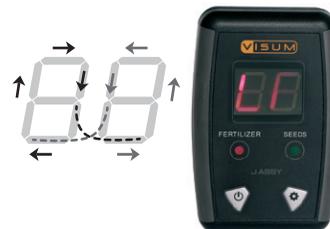


Operation

- The Visum Monitor communicates with the flow sensors, indicating the presence or absence / blockage of flow.
- Under normal conditions, the display show two dashes, indicating that everything is Ok.
- The Monitor communicates only with sensors assigned to its ID, which is on a label on the back of the Monitor.
- In case of flow failure (absence or blockage), the Monitor will beep and the display will show the row number. Also, the LED related to the flow product (seed or fertilizer) will turn red.



- If 75% of the rows (or more than 8 sensors, if the implement have more than 12 rows) indicate no flow at the same time, the Monitor will indicate that the implement is in MANEUVER state and a light will be whirling on the display.



- The Monitor gets out of maneuver state when more than 50% of the sensors indicate the presence of flow.
- To save internal batteries, flow sensors are sleeping most of the time. They wake up only when the implement runs and the Monitor is on.

Functions description

To activate the functions of the Monitor, hold the button  until the desired function appears on the display and then release the button.



F1 | List sensors

Lists all sensors present and shows the status of each one. Possible statuses are:

- **Green** Flow Ok
- **Red** Flow Failure
- **Yellow** Missing Sensor

Occurs when a working sensor stops communicating with the Monitor. If the Monitor is power cycled this sensor will no longer be listed.

F2 | Beep volume

Choose the beep volume.

1. Select **F2**
2. Select the desired volume by pressing button 
 - V0:** Mute
 - V1:** Low and bass sound
 - V2:** Medium sound
 - V3:** Loud and treble sound
3. Confirm by pressing button .

F3 | Brightness

Adjust the brightness of the leds and display.

1. Select **F3**
2. Select the desired brightness by pressing button 
 - b0:** Low
 - b1:** Medium
 - b2:** High
3. Confirm by pressing button .

F4 | Check Address

Check the address of a sensor:

1. Select **F4**
2. When the display shows “Ch”, wake up the sensor (just shake it) and put the magnet on the row indicator on the rubber cover.
3. Monitor will display the row number and the 8 digits of the sensor ID.

The operation can be cancelled by pressing .

F5 | Add sensors

Add sensors to the network:

1. Select **F5**
2. Select the row number by pressing  and confirm by pressing .
3. When the display shows “Ad”, wake up the sensor (just shake it) and put the magnet on the row indicator on the rubber cover.
4. The operation can be cancelled by pressing .
5. When the configuration is finished, the display will show “ok”.
6. Press  to exit and go back to normal operation or press  to add the next sensor. In this case, you will be automatically sent to step 2 and the row number will be incremented by one.



TIP:

- After 10 seconds the added sensors should be listed by the function F1.



ATTENTION:

- All the sensors must be added to network when installing a new monitoring system.

F6 | Show Monitor ID

Show the 8 digits of the Monitor ID.



System's basic parameters

The flow sensor has 3 basic parameters.

The **TYPE** of the flow: Seed or fertilizer flow.

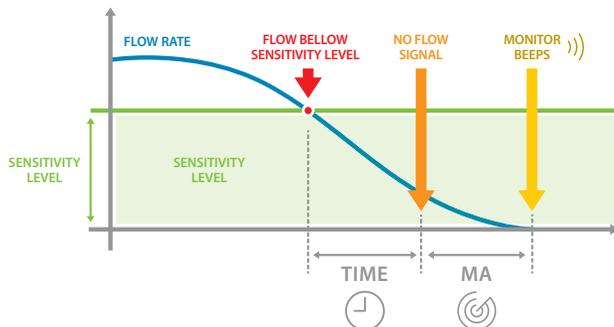
The **SENSITIVITY**, which is related to the minimum level of flow necessary for flow detection. Therefore, if the flow level is under the configured level, the sensor will assume that there is no flow on the row. The higher the **SENSITIVITY**, the higher will be the level.

The **TIME**, which is related to the period of time without flow that the sensor will wait before sending a no flow signal to the monitor. The higher the **TIME**, the higher will be this period.

So, if the flow stays below the **SENSITIVITY** level for a period longer than **TIME** the sensor will send a “no flow” signal to the monitor.

After receiving a “no flow” signal from one sensor the monitor will wait for a small period before beeping in order to check if the machine is maneuvering. This period is called **MA** (maneuvering delay).

The figure below shows the parameters involved in a flow failure situation:



Tweaking your system

Sensor's parameters | TIME and SENSITIVITY

For Striptill machines the default values are **TIME = 9** and **SENSITIVITY = 400**.

If it is necessary to have faster alarms the **TIME** can be decreased, under the risk of having false alarms whenever the flow stops and resumes for any reason. Something between 2 and 15 seconds is acceptable and any change should be tested in steps of 2 or 3 seconds.

If it is necessary to have alarms as soon as the flow goes down the **SENSITIVITY** can be increased, under the risk of having false alarms whenever the flow goes down for any reason. Something between 100 and 2000 is acceptable and any change should be tested in steps of 100 or 200 units.

In the other hand, in order to avoid any kind of false alarms, the **TIME** should be increased and the **SENSITIVITY** should be decreased. If the **SENSITIVITY** is set too low it is possible that the residual flow (the flow when the meters are turned off but the air flow is on) stays above this level, so the sensors will not send the “no flow” signal when the meter stops.

Monitor's parameter | MA

After receiving a “no flow” signal from one sensor the monitor will wait for a small period before beeping. This period is called Maneuvering Delay. If, within this period, another sensor sends “no flow” signal, the monitor starts counting the period again without beeping. If more than 75% of the sensors (or more than 8 sensors, if the implement have more than 12 rows) sends the “no flow” signal, the monitor will enter the MANOUVER state and will not beep.

This delay will avoid to have the monitor beeping when the machine is maneuvering on headlands. For Striptill machines the default value is **MA = 4**.

In some (big) machines the flow change is different from row to row, depending on how far the sensor is from the tank and how much residual flow will leak from the meters. The default 4 seconds should be sufficient to accommodate those differences, if the Monitor often alarms before maneuvers the delay should be increased. The drawback is that in a real flow failure, the monitor will beep only after waiting this period.

For this parameter, something between 2 and 10 seconds is acceptable and any change should be tested in steps of 1 or 2 seconds.

Advanced Functions description

The Monitor has 5 advanced functions that should be accessed only by a technical specialist or service technician or by the user when strictly following specific technical instructions.

In order to access the technical menu, hold both buttons  and  for five seconds. The letters tC will appear in the display, followed by the advanced function **A1**. Press  until you reach the desired function, then press  to confirm.

The function **A1** configures sensor parameters for one particular sensor and the function **A2** does it for all sensor at once.

It is important to mention that the monitor configures the sensors when they communicate with the monitor. This communication occurs every 90 seconds or whenever the flow status changes (e.g., when changing from “OK” to “Failure” or vice versa). So, remote configurations will

finish quickly if the user forces a status change on the sensors, for example, by stopping the flow and resuming it after 15 seconds.

A1 | Configure one sensor

Configuration of the parameters of only one sensor.

1. Select function **A1**,
2. The display will show “Ln” (meaning Line or Row) for 2 seconds.
3. Select the desired row by pressing  and confirm by pressing .
4. Then the display will show “tP” (meaning Type) for 2 seconds.
5. Select the type for the sensor pressing  and confirm by pressing :
 - tF: Fertilizer sensor type.
 - tS: Seed sensor type.
6. Then the display will show “t” (meaning TIME) for 2 seconds.
7. Select the desired TIME by pressing  and confirm by pressing .
8. Then the display will show “SE” (meaning SENSITIVITY) for 2 seconds.
9. Select the desired SENSITIVITY by pressing  and confirm by pressing .
When number on the display exceeds 99, a decimal point will appear after the number, meaning that the number on the display is multiplied by ten (e.g. “12.” = 120).
10. Then the display will blink “--” while the configuration is ongoing. The operation can be cancelled by pressing .
11. When the monitor finishes the configuration of the selected sensor the display will show “ok”.

A2 | Configure all sensors

Configure all the sensors of one type (seed or fertilizer) at the same time.

1. Select function **A2**.
2. Then the display will show “tP” (meaning Type) for 2 seconds.
3. Then the display will show “tP” (meaning Type) for 2 seconds.
tF: Fertilizer sensor type.
tS: Seed sensor type.
4. Then the display will show “t” (meaning TIME) for 2 seconds.
5. Select the desired TIME by pressing  and confirm by pressing .
6. Then the display will show “SE” (meaning SENSITIVITY) for 2 seconds.
7. Select the desired SENSITIVITY by pressing  and confirm by pressing .
When number on the display exceeds 99, a decimal point will appear after the number, meaning that the number on the display is multiplied by ten (e.g. “12.” = 120).
8. Then the display will blink “--” while the configuration is ongoing. The operation can be cancelled by pressing .
9. When the monitor finishes the configuration of all sensors the display will show “ok”.

A3 | Configure maneuvering delay (Headland Function)

Configure the time period (in seconds) of the maneuvering delay.

1. Select function **A3**.
2. The display will show “MA” (meaning Maneuver) for 2 seconds.
3. Select the desired period by pressing  and confirm by pressing .

A4 | Change RF channel

Change the RF (Radio Frequency) Channel.

If there are wireless video cameras or any other 2.4GHz wireless device in your implement, there is a chance of the camera's radio interfere in the Visum network.

If for some reason the sensors stop communicating with the monitor (e.g. no longer appears on **F1** list sensor function), you could try to change the RF channel with function **A4**:

1. Select function **A4**.
2. The display will show “CH” for 2 seconds.
3. Select the desired channel by pressing  and confirm by pressing .
When number on the display exceeds 99, a decimal point will appear after the number, meaning that the number on the display is multiplied by ten (e.g. “12.” = 120).



TIP:

- In order to avoid the undesired interference try the following channels one by one in this sequence: 60, 90, 120, other.



ATTENTION:

- After changing the RF channel, it is necessary to add all sensors to the network again, by using function **F5**.

A5 | Self test

This function runs a self-test routine in the monitor and is used only at the factory for quality insurance purposes.

Troubleshooting table

Symptom	Possible Cause
Monitor doesn't turn on.	Bad power supply.
No sound from Monitor.	Wrong configuration.
Weak numbers on display.	Wrong configuration.
No communication from one sensor (no show on F1 list and/or alarm with orange LED).	Sensor is not on network.
No communication from several sensors (no show on F1 list and/or alarm with orange LED).	Bad network signal.
False alarm from one sensor.	Sensitivity level is too high and/or sensor time is too short.
False alarm from several sensor.	Sensitivity level is too high and/or sensor time is too short for the running condition.
Monitor beeping before entering in maneuver.	Maneuvering delay is too short.
Maneuver state occurs during normal operation.	Several sensors informed no flow status.
Sensor takes too long to inform absence of flow.	Sensitivity level is too low and/or sensor time is too high.

Actions

Check if the cable is intact.
 Check if the is properly connected to a 12V-24V power supply (red-positive, black-negative).
 Check if the fuse is plugged and intact.

Access function **F2** and change beep volume.

Access function **F3** and change brightness level.

Add sensor to the network with function **F5**.
 Low battery. End of sensor life.

Check if the antenna is properly attached and in vertical position.
 Try to move obstacles between antenna and sensors.
 Put the monitor in a place with the best line of sight to the sensors.
 Change the RF channel on advanced function **A4** and add all the sensors again
 Turn off any high-power radio source near to the implement

Decrease the Sensitivity level and/or increase sensor time on advanced function **A1**.

Decrease the Sensitivity level and/or increase sensor time of all sensors on advanced function **A2**.

Increase maneuvering delay on advanced function **A3**.

Check if there is enough flow running on the pipes.
 Decrease the Sensitivity level and/or increase sensor time of all sensors on advanced function **A2**.

Increase the Sensitivity level of the sensor and/or decrease sensor time on advanced function **A1**.

Warranty

This product is warranted by J.Assy Agricultural to be free from defects in material and workmanship for two (2) years from date of purchase of the original purchaser. Any sensor, coupler or monitor will be repaired or replaced at no charge with the same item if it is found to be defective under normal use and when installed, operated and cared for according to the manufacturer's instructions.

This warranty does not cover lost or stolen items or defects caused by accidents, fire, abuse or misuse of the product.

This warranty does not cover coupler hose clamps.

This warranty does not cover Labor charges to remove or reinstall warranted product or replacement, transportation or mileage charges. For repair or replacement, return defective product to the original place of purchase.

Discarding

Dispose of properly. Recycling electronics conserves natural resources and minimizes the environmental impact of improper disposal.

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