

How to adjust the vibratory feeder for fiber optic sensor



Overview

Microsoft Word The feeder should be tuned to be about 1 Hz above the desired frequency to allow the feeder to be slightly over tuned. Then test the Vibrato.

Key Takeaways

To optimize a vibratory feeder with a fiber optic sensor, adjust the feeder's vibration frequency, spring tension, and sensor delay settings to ensure accurate part detection and controlled feeding.

Step 1: Understand the System

Before adjustments, familiarize yourself with the feeder components: the bowl, springs, vibrating motors, eccentric weights, and the fiber optic sensor installed on the linear track or bowl discharge area . Review the manufacturer's manual for safety guidelines and specific model instructions.

Step 2: Adjust the Feeder's Resonant Frequency

The feeder's vibration frequency is influenced by the spring/mass ratio. To tune the feeder:

- Use a variable frequency control (VFC) with a sensor attached to the bowl to measure the current frequency .
- Add springs to increase the resonant frequency or remove springs to decrease it.



- Aim to tune the feeder slightly above the desired frequency (about 1 Hz) to allow for over-tuning, which improves performance under voltage fluctuations or part weight variations .

- For fixed frequency feeders, ensure all drive unit bolts are properly tightened and the feeder is mechanically stable.

Step 3: Adjust Vibration Force

- Locate the eccentric weights on the vibrating motors. Each motor typically has one fixed and one adjustable weight .

- Loosen the adjustable weight bolts and rotate to increase or decrease vibration force.

- Align weights on both motors for balanced vibration.

- Test and observe the part flow, making incremental adjustments as needed.

Step 4: Configure the Fiber Optic Sensor

- Open the feeder controller and locate the Switch Sensor terminal.

- Connect the sensor wires: brown to +24V, black to Input, and blue to GND .

- Turn on the controller and access the Function button to adjust ON Delay and OFF Delay:

- OFF Delay: Determines how long the feeder continues running after the sensor signals “full.” Too short may stop the feeder prematurely; too long may cause part accumulation.

- ON Delay: Determines how long the feeder waits before restarting after the sensor signals “empty.” Factory default is usually 0.2 seconds, often sufficient for linear tracks .

- Test the system to ensure the feeder stops and starts smoothly in response to the sensor.

Step 5: Test and Fine-Tune

- Run the feeder with parts and observe the sensor response.

- Adjust vibration amplitude, frequency, or sensor delay as needed to prevent stacking, misfeeds, or jams .

- Regularly clean the feeder and sensor to maintain consistent performance . By following these steps, the vibratory feeder will operate efficiently with the fiber optic sensor, ensuring controlled, single-part feeding and reliable automation.

Article Content

The fiber optic sensor of the vibratory feeder is not responding

This reference and troubleshooting guide provides a step-by-step overview for vibratory feeder troubleshooting and tuning to ensure

How to Specify Fiber-Optic Sensors | FleetOwner

Fiber-optic sensors work well in tight spots and in applications with a high degree of electrical noise, but care must be taken when

Digital Fiber Optic Sensor/Amplifier Wiring and Setting

working principle: Fiber optic sensors use the propagation characteristics of light to detect or measure various physical and chemical

Optical Fiber Sensors Guide

An optical fiber sensing system is basically composed of a light source, optical fiber; a sensing element or transducer and a detector

Fiber Sensors

Optical fiber is comprised of a central core with a high refractive index surrounded by cladding with a low refractive index. When light

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This device can be either a proximity, photo-cell, L.E.D. fiber optic, or pneumatic type sensor to signal the feeder to start or stop. Also

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