

LM80 Laser Transmitter Plastic Industry Application

Measurement made easy

The ABB LM80 Laser level has been applied with great success in plastics manufacturing, converting and recycling on plastic storage silos. Applications have been on plastic pellets and flakes.



Some customers have previously tried to use ultrasonic level transmitters, mechanical “yo-yo’s” and load cells with limited success. Radar level sensors are not suitable because the dielectric constant of the product is too low.

The storage bins are relatively small in diameter, 3 to 10 meters (10 to 20 feet) and tall in height. This presents a problem for ultrasonic level transmitters because of their wide angle beam echoes off of the silo walls and gives a false signal. Additionally, the material fills and empties with a significant angle of repose and the ultrasonic energy is reflected away instead of back to the receiver.

Mechanical “yo-yo” devices such as E&H’s Silo Pilot have high maintenance requirements. Many customers have a problem with the plastic pellets covering the weight at the end of the cable and breaking the cable when it is retracted. In fact customers can get an acceptable payback in maintenance savings alone by replacing the “yo-yo” devices. Load cells have a very high first cost and high maintenance/calibration costs. Nucleonic level sensors can provide a reliable level reading, but these tend to be expensive and contain an undesirable gamma radiation source.

The LM80 provides superior performance at a competitive price because it very small beam divergence (no false echoes off of tank wall) and will measure off of the steep angle of repose.



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Some recommendations for installing the LM80 on a plastic silo are:

- Use the P801 dust tube option. Purge with instrument air is not generally required but on about 5% of the applications the static buildup is so bad that the dust tubes must be purged to keep dust from collecting on the lens. This problem seems to be most prevalent when the LM80 is located close to the fill chute.
- Use a metal mounting plate or flange and make sure it is grounded to the silo. This is usually accomplished by proper bolting and helps dissipate the static buildup.
- Use lightning protection; the lasers are typically installed on the top of a tall silo out in the open and can act as a lightning rod. Contact the service department for recommended protection.
- Use the Heavy Dust program to ignore dust and fines that are suspended in the silo and to ignore feed falling in front of the laser.

The LM80 was successfully demonstrated at one plastic manufacturer's site where the laser was purchased for an extended trial period. There are over 200 silos at this site alone. Plastics are a major potential market for lasers!

Should you have any question about Plastic Applications, please do not hesitate to contact PMU Quebec Team at laserscanner.support@ca.abb.com.

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