

How to Choose a Truck Scale Intercom System

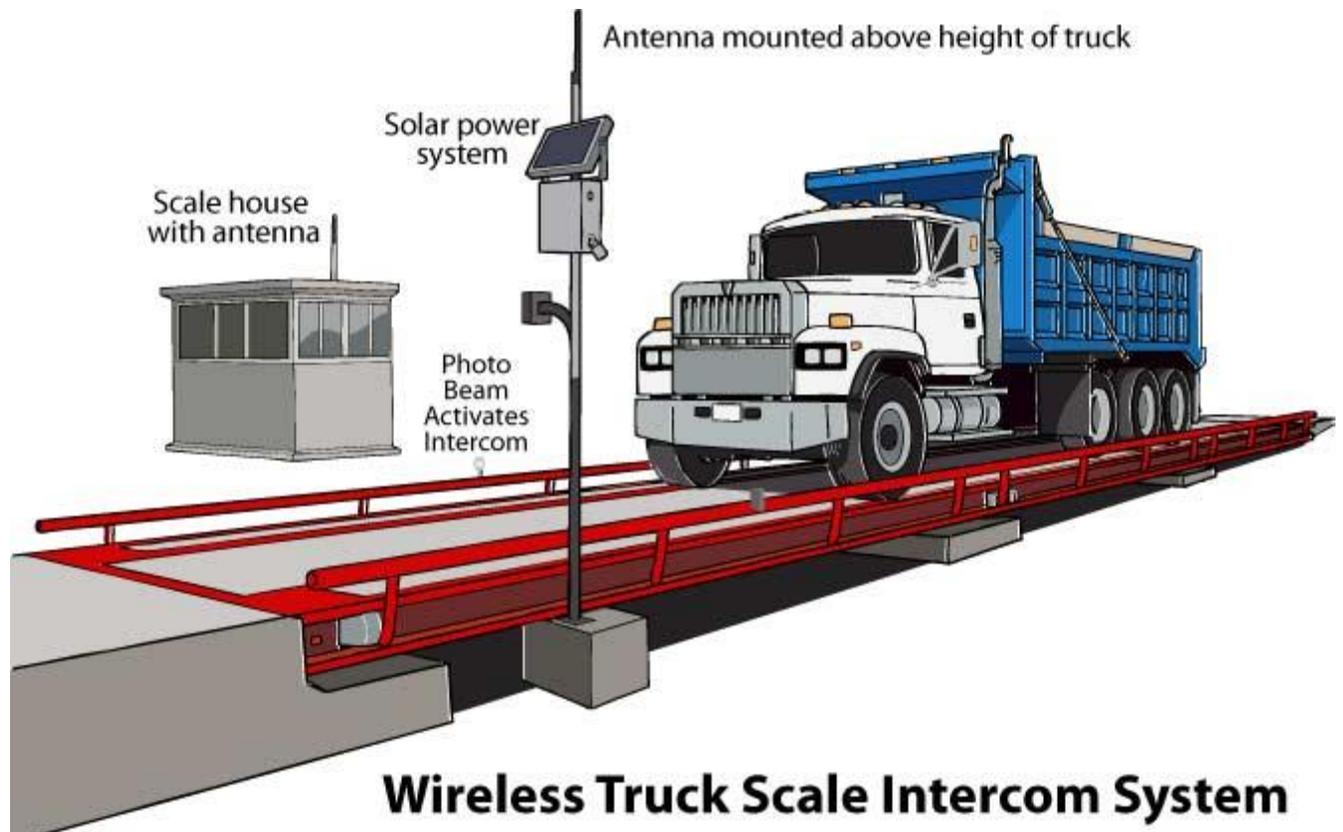


When drivers pull on to a truck scale, there often needs to be some form of communication so they know what's expected of them. There are a few solutions for truck scale intercoms that can be tailored to the unique installations of each of these scales. These solutions will be discussed here.

First let's cover the problems encountered that are common among many truck scales:

1. Trucker's arms aren't long enough, unless the truck is driven by a gorilla. The mirrors on most trucks stick out quite far, and since truckers don't want to hit the intercom when they are driving up, their arms aren't long enough to push a button without getting out of the cab. In some cases that's not a problem, but we will cover solutions for both instances.
2. Engines of the trucks are quite loud. If the driver stays in the truck, then whatever intercom solution is chosen needs to have ample volume to overcome the engine noise. Also, the scale house operators have a hard time understanding what is said since so much noise is being transmitted along with the trucker's voice.
3. Some truck scales accommodate trucks of all sizes so at what height do you put the intercom? A pickup truck driver would need the neck of a giraffe to talk into an intercom on a pole for an 18 wheeler, or vice versa.
4. There may be obstructions such as concrete, railroad tracks, or other obstacles that make running wire next to impossible. In this case, you'll have to rule out wired systems and go with a wireless truck scale intercom system. If you go with a wireless system, the truck itself may be an obstruction to the signal. There are ways and systems to overcome this.
5. If you can only install a wireless system and there's no AC power near where the intercom will be installed, then you'll need a solar power system to go with the intercom.
6. You may not always have staff watching for trucks arriving so how do you know when one pulls up? That's where some sort of notification system is needed.
7. If you have trucks of varying lengths, and they stop in different places, where do you put the intercom? This is something you may need to address with signs.
8. Of course money may be an issue too so that could limit what type of system you can choose.

There are the solutions to each of the problems above that will be discussed below.



1. Driver Arm Length

Good wired and wireless intercoms use amplified speakers that produce plenty of volume, so the driver does not have to get very close. You can also install an optical sensor on the outside intercom that will automatically call the scale operator. To talk to the driver, the scale house operator just presses the talk button on the inside intercom, and the truck driver can then talk hands free.

Most good systems are full-duplex wireless so conversation is more like a phone call. Once the call is setup, the system goes into transmit and receive mode on both sides and both parties can carry on a conversation.





If the driver can get out of the truck and push a button to talk, then a wireless callbox can be used to communicate with the scale operator. What's beneficial about this application is that the scale operator can use a handheld two-way radio to talk to the drivers so he or she doesn't have to be confined to one location. You could also use a basic wired intercom system as well since the driver is likely away from the noise of the truck.

Wireless Callbox with Radio

If you don't need the driver to talk at all, a public address system could be used to broadcast messages. There is even a wireless PA system that would enable your scale operators to use handheld two-way radios to broadcast messages to the truckers. These systems have a range of a mile or more so the operator wouldn't need to even be anywhere near the scale. There is a wireless alert device available that could alert the operator that a truck is on the scale.



Wireless PA System

2. Noisy Engines

There are two problems to be solved for a truck scale intercom system:

1. The trucks are very loud and scale operators can't understand the drivers.
2. The truck scale intercom needs lots of volume to overcome engine noise.

It's easy enough to amplify sound so the driver can hear, but the hard part is the scale operator side. Two technologies are required to make this work well: Acoustic Echo Cancellation (AEC) and Active Noise Cancellation (ANC).

Acoustic Echo Cancellation is required for full duplex and is used to cancel feedback (squealing noise) on the truck scale intercom. The higher the volume, the harder AEC has to work. It takes expensive processing power and complex, patented software algorithms to make this happen. Now add noise cancellation and it takes even more processing power. Lower cost systems don't work well because they can't use the quality components and engineering needed to give you both volume and understandable conversation.

3. Truck Height

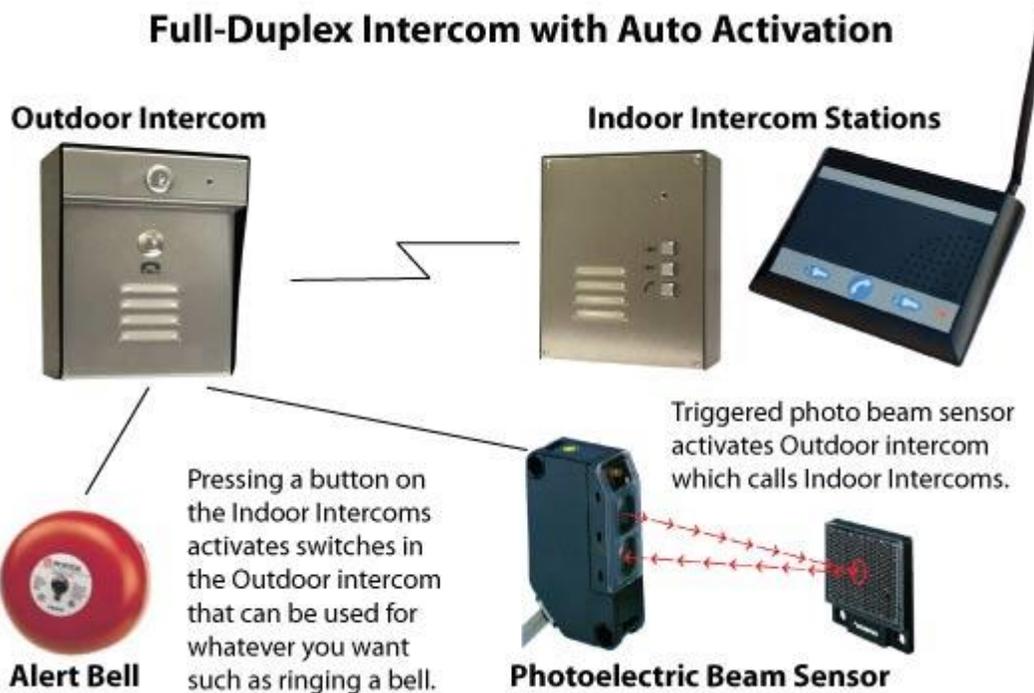
If the driver doesn't have to push a button, you can mount the intercom or horn speaker somewhere in between the differing heights and you should be OK. If you use a system that does require button pushes, then there is a 72" & 42" Dual-Height, Pad-Mount Pedestal Pole where you could mount two intercoms.

4. Obstructions

Depending on the scale installation, it may be virtually impossible, or at least far too expensive, to install cable for a wired system. Trying to bore or cut through metal, asphalt, or concrete can add thousands to the installation cost.

However, there can be obstructions for a wireless system as well. Buildings, hills, or even the truck itself are obstructions. The best signal will be obtained with clear line of sight between the inside and outside units. It's not absolutely necessary to be able to see between points since radio signals do bounce around. But, your chances of success will be reduced, especially if you go with a full-duplex intercom that uses 900MHz as its frequency. 900MHz systems have lower power than a system that uses VHF or UHF, but the feature set is greater and may be needed.

There are ways to overcome the obstructions by raising the antenna height over the truck, or by installing high gain antennas mounted as high as possible. If you want to learn more about how far wireless communications can reach, the article and video at this web address will help: www.intercomsonline.com/range



5. Solar Power

If you can't run wires, you also may not be able to get power to the location where you need the intercom. A self-contained solar power system may be your only option. What wattage solar panel you choose depends on several factors, but the greatest will be determined by the number of trucks that run through the scale daily. If you have 200-300 trucks a day, a 50-watt system will likely do it for you, while fewer trucks than that

you can probably get by with a lower wattage system as long as you don't have cloudy days for days on end.

6. Roaming Staff

If your scale operators are roaming around, you'll need some way of notifying them that a truck has arrived. If they are far away from where they need to be, then you may want that notification to occur even before the truck has arrived so the operator can get back to the scale house. You could install a motion or photo beam sensor earlier in the path of the truck. But if you are using a full-duplex intercom that automatically turns on then you'll still need detection at the intercom system as well.

7. Truck Length

If the trucks coming on to your scale are pretty much all the same length, then where you put the intercom depends on where you want the trucks to stop. If they are varying lengths then you may need to put the intercom towards the front of the scale as long as your scale measures accurately with small trucks this way. Regardless, you may need signs to tell truckers where to stop.

8. Budget

Wired systems are the lowest cost but you have to factor in the labor cost to run wire, which can be astronomical. A full duplex wireless system is very expensive, but depending on the features you need, it may be your only choice, and it still may be less than the labor cost of installing a wired system. If you have to go with solar power that's going to add quite a bit to the cost as well. Either way, wired or wireless, installing a system may save you money in the long run through increases in productivity and efficiency.

Contact the intercom experts at <http://www.intercomsonline.com/truck> and we can help you choose the right truck scale intercom system for your unique application.