Facts You Should Know About Wired Intercom Systems for Your Business

How to Choose the Best Wired Intercom System For Increased Productivity Without Worry About Choosing the Wrong System.

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Summary

In this guide you'll find information about the different types of intercom systems you'll see while searching for a system. It discusses technology used, types of wire required, and the advantages and disadvantages of each type. After reading it you'll be able to better define what type of system will be best for your application.

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Introduction

As you scroll through the online search results for intercoms, no doubt you've seen a confusing array of choices for wired intercoms. You are faced with decisions of whether to purchase wired or wireless; 2-wire, or Cat-5; video or voice only; full-featured or basic features only. You can even purchase systems that transmit and receive over your house or business power lines.

You're likely reading this because your business has a communication problem and you have the task of solving it. Also likely is that intercom systems are probably not your area of expertise and you don't have a lot of time to become an expert.

But the last thing you want to do is spend a bunch of money and waste time on a solution that won't solve your communication issue. People are no doubt counting on you to get this right. Their productivity depends on it and the last thing you want is to listen to complaints of coworkers about the system you choose.

In this guide we'll give you the facts you need to know before you go shopping for the right system for you. Finally you'll be able to stop the shouting and unnecessary walking to deliver messages that could be delivered instantly via an intercom system.

Full Duplex or Half Duplex

In voice communications there are half-duplex and full-duplex methods of transmission and receiving. Half-duplex communication is like push-to-talk "walkie-talkie" radios or CB radios. When you want talk to someone else with a compatible device, you have to press a button to talk, let go, and then wait for a reply. The person on the other end does the same to respond to you. Neither party can talk at the same time.

Full duplex communication is what a telephone uses. Both parties on the call can speak at the same time.

Wired intercom systems come in both half and full-duplex. As a general rule, most wired base station-type intercoms that sit on a desktop use half-duplex. Intercoms that use telephone-style

handsets are usually full duplex. Video intercoms often use full-duplex, but some also can be set for push-to-talk at the master station.

Door telephone systems that ring your business telephones provide full-duplex communications. The visitor simply presses a button on the outside door unit and it rings all the inside telephones on the same incoming telephone line.

Wire Types

There are really only two main wire types used for intercoms. Shielded and unshielded twisted pair Category 3, 5e, or 6 as defined below.

Shielded Cable

Some intercoms require a cable with a shield around the internal wires. This shield is either a metal foil or braided wire that keeps outside electrical signals from interfering with the voice transmission. If you've ever hear a buzz on an intercom, it probably came from nearby electrical wires that were running near the intercom wires. To help eliminate this problem, never run intercom wires in parallel with other electrical wires. If you have to cross them, make sure it's at a 90 degree angle. The shield will also keep radio frequency interference of your intercom system.

CAT3, CAT 5e, or CAT 6 cable

Category 3 cable, commonly known as Cat 3 or station wire, is an unshielded twisted pair (UTP) cable designed to reliably carry data up to 10 Megabits/sec. The data speeds for Cat 5e is 100 Megabits/sec, and Cat 6 is 500 Megabits/sec. Cat3-6 cables are a part of a family of copper cabling standards defined jointly by the Electronic Industries Alliance and the Telecommunications Industry Association.

Category 3 was a popular cabling format among computer network administrators in the early 1990s, but fell out of popularity in favor of the very similar, but higher performing, Category 5 cable standard. Since the early 2000s most new structured cable installations are built with Cat 5e or Cat 6 cable. Cat 3 is currently still in use in telephone systems or low speed Ethernet data systems.
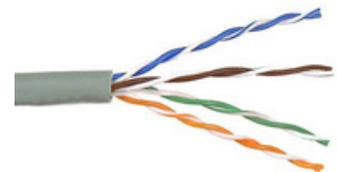
UTP cable does not require a shield because it has a twist in the wire that cancels out any noise it picks up along the way.

Types of Wired Intercoms

Below are examples of wired intercom systems you'll find on the market.

Power Line Carrier Systems

Power Line Carrier (PLC) intercom systems communicate using a very low FM frequency over your building's existing 110 volt AC house wiring that supplies power to receptacles and light fixtures. These intercoms are typically passed off as "wireless" intercoms since you do not have to install wiring between locations even though they communicate over wire. You just plug them in anywhere you have an outlet and they're ready to go.

While they sound like the ideal solution for basic applications, most users are typically not happy with these intercom systems, at least not for long.

These units are very susceptible to interference from both inside and outside the house or business. You may experience buzzing, poor audio, or they may work perfectly well for you. They are very low featured, but they are also very inexpensive. These systems are not recommended for most applications. Sometimes they work fine until you plug in something like a laptop computer nearby to charge or some other new piece of electronic equipment like a high definition flat screen TV. Then you get nothing but static. There are lots of devices that could interfere with these intercoms, especially in a business environment.

The other issue these intercoms have is that they don't always work in different parts of a house or business. The electricity in a building comes in as 220 volts and is then split into two phases of 110 volts each. Half of your building will be on one phase and the other half on the other phase. The intercom signal traveling over one phase doesn't always make it to the other.

Master and Substation Systems

Some systems like the system shown here have one station that is considered a "master" station, which means that it allows you to make calls to multiple substations. The substations can only make a call to a master station and not to other substations. In some cases you can add more master stations that can call each other, but then you have to install cable that has more pairs of wires to accommodate multiple channels of communication. Other systems have stations that would all be considered master stations enabling you to call anywhere, but these are usually Cat 5-type systems.

Cat 5 Systems

Intercom systems that use Cat-5 wiring may communicate digitally between stations and therefore usually offer more features. Cat-5e wire is readily available in building supply stores as home builders routinely install it for computer and telephone networks.

The systems available for CAT 5 are usually residential systems that may not have the features needed for a business installation. The one pictured here has been used in business applications but it does not have enough volume for noisy locations.

If you need all station-to-station communication for your business like a Cat 5 system can offer, then it may make more sense to look into purchasing a telephone system with intercom capabilities.

Voice Over IP Systems

A new category of intercoms uses the Voice over Internet Protocol (VoIP). This protocol is what services like Skype or Vonage use to deliver telephone calls over the Internet. With a VoIP system you could literally make intercom calls across the world if you have a good enough data connection. VoIP systems usually require virtual private networks (VPN) to give the quality of service (QoS) required to give acceptable performance. VoIP intercom systems are usually used on a businesses' private Local Area Network (LAN).

VoIP systems can consist of not only hardware like desktop or wall mounted intercoms, but also software on a computer that can talk to them.

Installation of VoIP systems is much more complex and will likely require trained networking staff to install. VoIP systems are also much more expensive as well.

Video Systems

In their most basic form a video intercom has an audio only substation with a camera that goes at the door or entry, and a master station with a video monitor that goes inside. You can also get systems that support multiple doors and multiple inside stations.

There's a big difference in the price range of these units. If all you need is a simple picture of who is at the door, you can get black and white monitor units very cheaply. If you need something that's vandal-proof and fully featured, the price goes way up.

Some features you may want to consider: image picture memory or video capture to record who visits, video to DVR output for security video purposes, wide 170 degree angle view, vandal resistant camera, higher image quality, and digital camera pan/tilt/zoom.

If you are mounting the camera and monitor at a school, you may want a unit with the tilt feature since the visitors are going to come in all sizes. The viewers will have to raise the tilt for an adult and lower it for a child. Going with a vandal-resistant camera would also be wise in this instance.

Video intercoms typically only require a 2-wire installation. The wire types vary from CAT 5 to non-shielded, solid 2 conductor.

The distance between the camera and the monitor is usually limited to around 300-400 feet. One unit has a range extender that enables it to go to 660 feet.

What to do Next?

If you still have questions about choosing the right system for your business, call IntercomsOnline.com at 888-298-9489 to request a free consultation with one of our product experts. We'll listen to your communication problem and then try to come up with the best solution for it, whether that's products we offer, or those we recommend from somewhere else.

We've helped businesses save thousands of dollars of expense from choosing the wrong intercom and we've helped countless businesses to improve their communication, and therefore their productivity. We're pretty sure we can help your business too. Thanks for reading this guide!

Partial List of IntercomsOnline.com Customers

1&1 Internet, Inc.	Alaska Dept of Fish and Game	Alcoa Fastening Systems
Amazon.com	American Embassy	Ball Corporation
BASF, The Chemical Company	Bayer Cropscience	Bausch & Lomb
Boston Scientific	Chevron Products Company	Chevron Corporation
CITGO Petroleum	CN Railroad	Coca-Cola Enterprise Bottling Co.
Costco	Dow Chemical	Fairchild Communications
Federal Aviation Administration	Federal Bureau of Investigations (FBI)	Frito-Lay, Inc
GAP Inc. (gapinc.com - clothing)	General Dynamics	General Motors Powertrain Global HQ
Georgia-Pacific	Goldman Sachs	Gorton's
Harley-Davidson Financial Services, Inc	Harvard University	IKEA Furniture
Internal Revenue Service (IRS)	Jos. A. Bank Clothiers, Inc.	Kohl's Distribution Center
Level 3 Communications	Lockheed Martin	Marriott Hotels
Mayport Naval Station	Monsanto	NASA Goddard Space Flight Center
National Park Service	National Weather Service, Alaska	Nissan Trading Corp
Ohio State University	Owens Corning	Parker Hannifin-TechSeal
Pepsi Bottling Group	Pine Bluff Arsenal	Procter & Gamble
Sea World Florida	Social Security Administration	Target Corporation
The Boeing Company	The Ritz-Carlton	The Wackenhut Corporation
Toshiba America Information Systems	Toyota Technical Center	Tyson Foods, Inc.
U.S Coast Guard	U.S. Air Force	U.S. Army
U.S. Army Special Operations	U.S. Army, Camp Marmal, Afghanistan	U.S. Border Patrol
U.S. Forest Service (USFS)	U.S. Navy	U.S. Post Office
U.S. Secret Service	University of Iowa	University of Michigan
USAF Space Surveillance	USDA Forest Service	Verizon
Veterans Administration	Virginia Tech University	Whole Foods Market
Yosemite National Park Service	Zatarain's	

What Our Customers Are Saying

"You guys Rock. The product [Commercial Base Station and Callbox XT] works great for going through a steel bridge and into a steel container box. You will be part of our orders from now on. Plus its always fun to help fight piracy! Just so you guys know, the comm box on the bridge is manned by the security forces and the big call box is in the conex box that houses the security UAV that flies off when we have a suspected pirate." Daniel Morehead, Northern Defense Industries, Alexandria, VA

"I want to thank you, and your company, for this invaluable service you continue to provide. You have been much more than just "normally" available and supportive. As soon as we realized that a device wasn't responding like it had been, I was confident in

the knowledge that you would be available to answer questions if they were within your realm. That is a valuable service, and all too often missing from website service and support from other companies. We appreciate it-and you! Thanks again." Robert Steinbomer, Steinbomer and Associates, Austin, TX

"We chose your company because the description was in detail, and price was right. Keep it up." Jean Tinant, Palace Hotel, San Francisco, CA

"Your customer service and user-friendly website have been fantastic. I appreciated all the info on the different systems and the 'tutorials' to help me decide which system would meet our needs." Stephanie Molina, Southwest Child Care and Education Centers, Albuquerque, NM

"After very friendly and informative conversation I had with your representative on Wed evening (9 Apr 08) after your normal hours of operation, I chose to order from your company. I like to know there are real people behind an online store before actually ordering. And in your case, it was a person with real technical knowledge - somewhat of a rare thing in this day and age." Thomas Jester, Oakhurst, NJ

"I ordered the product and it arrived two days later. Well packed and worked as advertised." Tom, Iowa

"You guys were great, called in with one question got my answer, easy to order and quick to ship. Very good experience. excellent product." Russ Crawford, Lake Tahoe, CA

"Great customer service, easy to order, received item quickly! Thanks!" Maru Ellen Brown, Blue Island, IL

"Wonderful purchase and customer service was beyond helpful. I expressed my situations and concerns and the told me what product would be best. Radios are installed and do everything promised. A+" Christine Davis, Bellaire, MI

"Totally satisfied with the equipment; it exceeds my expectations... Would I buy from IntercomsOnline again? You betcha I will!" Kenneth Cook, Belmont , CA

"Before ordering a pair of intercoms for elderly relatives, we called customer service and got excellent help and the advice we needed. Ordering was easy, product arrived as promised, and the product is excellent." Belmont, CA

"You guys were great, called in with one question got my answer, easy to order and quick to ship. Very good experience. excellent product." Russ Crawford, So. Lake Tahoe, CA

"Great place to buy intercoms. IntercomsOnline.com had great phone help when we were designing a not off the shelf system. The support staff made sure that they understood what I was trying to do then went to research the problem and then got back to me multiple times to make sure that they were solving the right problem. The products arrived very quickly in perfect shape. I would recommend IntercomsOnline.com to anyone who is looking for intercoms. I will certainly use them again. The Call Forwarding Controller was exactly what I needed. It did take a bit of time to work out the technical details but everything worked like a charm with the help of the support staff. I now have my front door bell connected to my phone which allows me much needed freedom." Brantly Goodwin, El Prado, NM

"You provide great service. I'll recommend your company to anyone who is in need of an intercom system." Vic Valcoff, Thorold, Ontario, Canada

"Dealing with IntercomsOnline.com was a pleasure..." Melissa Page-Fockler, Humbird, WI

"Product was exactly what I needed. It was shipped promptly and works perfectly." David Klausmeyer, Houston, TX

"I am so glad I found your site, with the 45 day return policy, etc. All the items were shipped very promptly, well packed and so easy to set-up! Thanks again for your help." Ken Reynolds, Greeley, CO.

"I received the product without any problem, in good condition and in a decent time...Definitely I will buy again..... Thanks a lot for your excellent service." Maria Pineda, Miramar, FL