

System Planning Guide

DIGITAL PAGING SYSTEM

Why in the world would anyone be planning a digital paging system in 2008? Didn't cell phones take the place of pagers? Besides that, everybody knows that fire departments use voice monitor pagers for alerting off premise personnel and even if they did want to use digital pagers, ISO wouldn't approve their use for primary emergency alerting. And if that wasn't enough, the cost of the system would be prohibitive and it probably wouldn't meet the new FCC narrow band frequency requirements. So, what is it with us at Falcon Direct? Are we completely out of step with the rest of the world or what?



Let's start with the basics. The people who first tried to use digital pagers back in the 90's had some good reasons for considering digital text versus analog voice pagers. First, they were less expensive – on the order of about two digital pagers for one good voice pager. Second, they were smaller and lighter- still are! Third, they had selectable audible or vibrate alert, a premium feature on voice pagers at that time

and now available on most voice pagers as well as the ICOM F50V pager/radio (See www.fireradios.us for more information on voice pagers and portables with vibrate alert). Fourth, the text pagers retained the information for later playback. A few voice pagers had this feature and the F50V pager/radio has this feature in a combination voice pager and radio. Fifth, and this is a real biggie, the digital text pagers provided a text record of the call with time and date received (also available on the US Alert NOVA pager from Falcon Direct) plus the actual message in text format. This meant no more calls back to dispatch for address verification – it was right there on the user's screen!

But there was this little problem! The people selling these pagers and the associated service had no clue about the workings of fire protection services and insurance ratings, hence no knowledge of ISO. Companies like American Mobilphone, MetroCall, and PageNet are little more than memories now. Cell phones got em! Then the cell phone companies offered text messaging service as a part of their offerings. They didn't know about ISO either – apparently still don't! Here's the problem – ISO will only approve emergency alerting systems under the direct control of the user. If you don't control the network, ISO will not recognize digital paging. If you DO control the network, you meet ISO guidelines.

So, the answer is to control the network. How do you do that? You build your own! There are several different ways to build a system. We will start with an example of building a system for a single department with coverage capabilities within the typical fire district.



It starts with a license from the FCC. For budget, assume \$500 with your antenna installed at your fire station. We use UHF for maximum building penetration.

Next, you will need an antenna system. Figure around \$3000 for a 60' self supporting tower installed with high gain antenna, transmission line, connector kit, and a lightning grounding kit. If you already have a tower installed at your fire station, deduct a thousand dollars if space is available at the 60' level for side mounting of a 20', forty pound antenna.



Next, you will need a transmitter station with keyboard to enter your messages by a local operator for messages sent from your station. If you wish, you can connect the transmitter station to a phone line (conventional or broadband as you choose) to provide access from any telephone or Internet connected PC. The price of this terminal is \$2,500.

If you are following the math, your total investment would be \$6,000 plus the cost of a connecting telephone line if you want to allow your dispatch center to send text alert messages through your system. We assume the cost of a phone line to be \$25 or less if you have a broadband connection at the fire station. This would allow you to use Packet-8 or Vonage for your phone line. Otherwise, a regular business phone line shouldn't be more than \$35 per month. If you already have a fax line at the station, you could use that line with no additional expense.

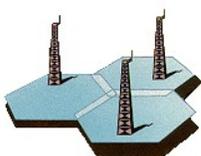


Your last step is to add the desired number of pagers. There are a number of models available from Apollo, Motorola, and Swissphone. We favor the Advisor Gold Plus priced at \$149 (\$199 with amplifier/charger). You can spend less or you can spend more, but this is your best choice for a long term investment. More info at

www.info4u.us/AlphaGoldPager.pdf. Now, let's do a little quick comparison of 30 digital text pagers and 30 Minitor V voice pagers with stored voice.

Feature	Advisor Gold Plus	Motorola Minitor V
Type pager	Text messaging	Voice
Audible & silent alert	Yes	Yes
Time and date stamp	Yes	No
Text message retrieval	Yes	No
Voice message retrieval	No	Yes with SV option
Cost per pager	\$149	\$417
Cost of infrastructure	\$6,000	None
Cost of 30 pagers	\$4,470	\$12,510
Total System cost	\$10,470	\$12,510

Bet this comes as a bit of a surprise doesn't it? Better yet, the digital text message pager weighs about a third of the Minitor V and is about half as bulky! Better yet, digital pagers can operate at reduced bandwidth (12.5 kHz for example) with no range degradation as compared to a standard 25 kHz channel and digital is much more efficient since the typical text message can be sent in less time than the tones used with voice pagers!



Here's another twist. Let's say you put the sending unit at the dispatch center instead of at your fire station. You now have the ability to build a county wide network using micro cells at each fire station that provide overlapping coverage. No tall towers are required. Each fire station will have a completely self contain repeater site at a cost of \$4,500

including the digital repeater station, 60' tower, high gain antenna, cable and connectors installed.

This concept allows a county administrator to develop a cellular paging network designed to meet the specific requirements of those electing to participate. Best of all – no tall towers or costly rental fees are required.

Although there are no pagers capable of operating at 6.25 kHz channel spacing at this time, our guess is that the existing pagers will be available with an upgrade kit a minimal cost when it is necessary to make the conversion to 6.25 kHz (currently 2018).

For the best value in personal alerting systems, we believe that a digital text messaging system is an excellent choice with no monthly airtime charges and most importantly, this system appears to meet all the requirements of ISO. Check it out. This could be the right system for YOU!



FALCON DIRECT
We Keep You Connected