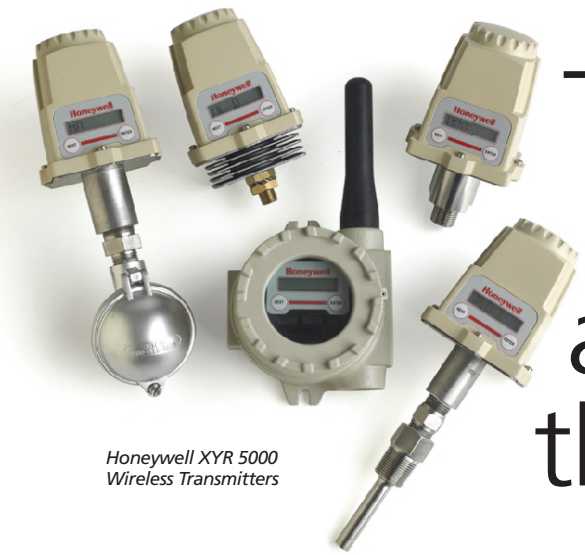
With huge pent-up demand for the technology, process automation vendors are developing widely differing wireless strategies, but they risk putting the whole concept in jeopardy through infighting in the various standards committees, writes Andrew Bond



Honeywell XYR 5000 Wireless Transmitters

The biggest change in process automation since the DCS

It's now more than a year since process automation users first began to get really excited about wireless technology. Last autumn's round of user group meetings and shows gave many their first opportunity to see some of the new technology in action, albeit in prototype form and under exhibition rather than real world conditions, but that was quite sufficient to demonstrate just how much pent up demand already exists for the new technology. Less clear, however, were the individual vendors' strategies for bringing the new technology to market, or the timescales on which one could expect to see products deployed on actual process plant.

Most disappointing, for those who expected to see wireless, with its huge potential benefits and apparent 'no brainer' business case, breaking through traditional process industry resistance to change, has been the seeming lack of progress in the past year. Indeed, far from there being a rash of new and exciting product announcements from the major vendors, the past 12 months have been notable chiefly for their relative silence. In truth many of the expectations raised at the latter end of 2005 were probably unrealistic but it's equally clear that vendors' own timescales, which had anticipated major product introductions in the summer or autumn of 2006, have slipped, perhaps by as much as a year or more.

So what's gone wrong? Almost certainly the most important obstacle has been lack of progress in the various standardisation bodies, notably the ISA SP100 committee and, arguably even more important, the HART Communications Foundation (HCF) committee on Wireless HART. Back in late 2005 the Wireless HART committee was talking about having a draft standard by early 2006. However, after an apparently acrimonious meeting in Venice early in the year, the tone changed with HCF executive director Ron Helson conceding that the process had become bogged down, although he assured Walt Boyes of Control magazine that "There will be a Wireless HART Standard ... this is too important for the industry."

What makes Wireless HART crucial to further progress is the almost universal adoption of the HART protocol by instrument vendors and users worldwide. Vendors may continue to argue over whether they should support Profibus or Foundation fieldbus, but they're unanimous about the need to support HART. Similarly users may in many cases still be reluctant to consider adopting fieldbus technology but they're more than happy to accept HART-enabled instruments, even when they're not in a position to exploit the capabilities they bring. In fact these days they haven't got a whole lot of choice since it's now virtually impossible to purchase a process field device which isn't HART-enabled and there are said to be some 20 million HART devices installed around the world. So Wireless HART should have a huge potential not just dramatically to reduce the cost of installing future devices, some would argue by as much as an order of magnitude, but, without the addition of any new hardware or field wiring, to 'unlock' the smart capabilities of all those existing HART devices, probably the majority, which are currently connected to host systems which lack a HART capability.

Quite what is causing the delays in the various standardisation committees is not clear but there are suggestions that at least part of the problem is political rather than technological. Specifically, it has been suggested that certain vendors

have been using procedural tactics to delay agreement in order to erode other vendors' technological lead and, in effect, to play for time while they catch up. If that were the case, the prime target would be Emerson which to date has demonstrated what look most like finished products and, indeed, back in February introduced actual products to the US market using technology developed collaboratively with Dust Networks and which it describes as being "based on HART Wireless."

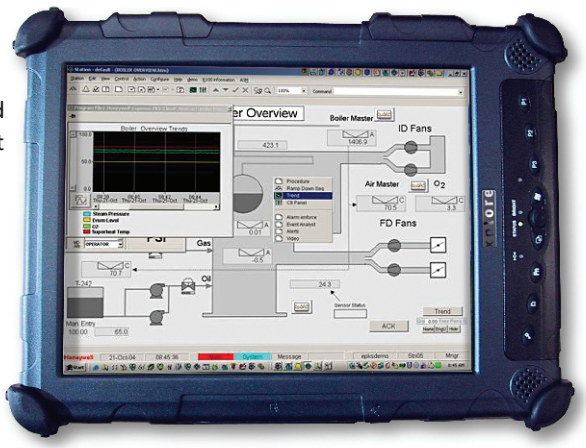
The continuing lack of a Wireless HART standard would appear to leave both Emerson and those users who have had the courage to invest in its technology, exposed. However, Emerson has undertaken to ensure that they will be able to migrate to the final standard once it emerges. Meantime it's having to fend off further rumours that its technology is not as robust as had been hoped. Both Emerson and Dust absolutely deny that there are any such problems and for their part suggest that this is a classic case of competitors trying to spread FUD – Fear, Uncertainty and Doubt.

All of which might be seen merely as the normal cut-and-thrust of the commercial world, were it not for its potential not just to affect the interests of individual companies but fatally to undermine user confidence in the whole wireless concept. Already comparisons are being drawn with the bitterest aspects of the 'fieldbus wars' of the early '90s, which led to an eventual division of the automation world into two mutually exclusive camps. That, say the critics, didn't just delay the uptake of the technology but turned many users off the whole idea for the best part of a generation. A repeat performance could see users assuming that, far form being proven, reliable and, most importantly, interoperable, wireless remains a difficult to apply, specialist technology which should only be resorted to in the most extreme and specialist circumstances.

With those warnings ringing in their ears, there are signs that the major vendors, having taken one glimpse over the edge of the abyss, have determined pull back and ensure that there will be a standard and soon. Earlier this summer, and with very few exceptions, they publicly endorsed the standardisation efforts and, putting their money where their collective mouths were, in many cases pledged to donate intellectual property to the standardisation effort. Inevitably individual vendors will still do their damnedest to ensure that the eventual standards reflect as near as possible their own vision of how the wireless world of the future should look, but there does seem to be a renewed collective will to reach agreement. As a result it seems most likely that a draft Wireless HART standard will emerge either later this year or early next with a final standard ratified soon thereafter. That should mean, if all goes to plan, that Wireless HART compliant products could be on the market by the end of 1997.

If that's a year later than had been anticipated, it has at least given major vendors more time to develop and articulate their individual strategies. Most recent to do so has been Honeywell which turned its recent Honeywell User Group or HUG conference in Phoenix into something of a 'wireless fest' and led Harry Forbes of ARC to comment that "no process automation company today has more ambitious or more concrete plans for a wireless future than Honeywell." That statement is hardly likely to endear him to the likes of Emerson or Yokogawa, but it does serve to highlight the divergence of approach between the leading vendors.

What makes Honeywell different is its ability to draw on the wider Honeywell organization and, particularly, on its building automation interests. Unlike those who see wireless primarily as a route to selling larger numbers of field devices, Honeywell regards wireless as a huge opportunity to regain technology leadership by inducing a normally risk-averse customer base into fundamentally changing their work and business processes. That's why, unlike other vendors, Honeywell doesn't shy away from the idea of wireless for control and envisages a new generation of wireless field devices in regulatory control loops and very high speed monitoring applications. To that end it plans a new wireless field infrastructure capable of supporting not just wireless field devices and but also IEEE 802.11 WLAN applications and mobile clients such as hand-held computers and mobile HMIs. And it plans to transfer its Real Time Location Services (RTLS) technologies developed for building management and security to the process sector to support both asset management and personnel tracking. That, says ARC's Forbes, could become a proverbial "next big thing" with the potential to "revolutionize a variety of process operating practices."



The future of wireless in process automation looks increasingly likely to be a battle between those who see it essentially as a replacement for copper in conventional applications and those who believe it has the potential to reshape the applications themselves. According to Forbes, "Honeywell sees wireless as the biggest and most important technology change in process automation since the microprocessor spawned the DCS in 1975" and few would disagree. It would be a pity if pursuit of short-term partisan advantage in the standards committees were to put all that in jeopardy. ❖

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