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Making Critical Investments

Safety, productivity, and fleet management drive purchases of aftermarket electronics products

A new cable reel installation was completed by Bode Technical Services on a PPM boom.



It doesn't matter whether your crane is used or new; there's a good chance that at some point in its modern life an electronic component will be installed, changed out, or upgraded to meet a need or solve a problem. Most crane owners surveyed in late 2011 by *Crane & Rigging Hot Line* reported when doing so, they select electronics products to aid in crane safety, productivity, or fleet management.

While some readers are not convinced of the benefits electronics have to offer, others see both sides of the coin. "The most trouble-free cranes are the ones without all the electronic controls. On the other hand, electronic controls allow us to customize the crane for the user's application," replied one respondent. "The electronic control systems today do so much more than just move the boom. They can sense overloading, help eliminate jerky crane movements, even sense when the chassis is becoming unstable and starting to lean. On small jobs, the operator can be right there to set the load precisely where he needs it."

Another respondent, though not such a big fan of electronics, sees them as a necessary safety tool. "I broker cranes and related items, mostly used and older [equipment]. I see that better electronics save time, money, and accidents, especially since there is a trend [toward] less experienced operators, and unsteady employment is a current reality."



Our survey indicated that the aftermarket electronic device most sought after is the Load Moment Indicator (LMI), or load indicating device (LID). After that, anti-two-blocks and remote controls are considered critical purchases. From there, the laundry list of components includes boom angle hardware, proximity devices, GPS trackers, anemometers, oil pressure sensors, outrigger switches, distance measuring devices, weight sensors, and operator's consoles.

Safety

Many crane owners point specifically to safety as the reason they've upgraded to newer technology, especially where LMIs are concerned. One ties his investment to legal issues, saying, "It is the law in Alberta, Canada, for an LMI to be installed and working properly on new cranes."

Boom truck dealer Boomtrux Inc., of Tampa, Fla., purchases LMI upgrades on all of the used cranes they refurbish and warranty. Carlton Calfee, president, attributes the investment to the

The complexity of hard-wired technology is evident in these images of a new wired LMI system, installed by Bode Technical Services.

desire to enhance the quality of used cranes, and reduce his liability by having the trained LMI dealers do the installation. "The old system may no longer be available, and the upgraded model gives the customer an as-new LMI system that we know is going to work properly."

Historically, LMI systems have been hard-wired, but more recently, wireless technology has become popular. "Easy installation, reliable performance, and cost," was one respondent's reasoning behind the investment in a wireless system for his Grove

TMS475. Going wireless “has made it easy and safe for me and my wife, who is owner and crane operator. We find that Pearl Harbor [in Hawaii] has no problem with certifying our crane to work on the base, and we know how hard it is to operate a crane on U.S. Navy docks,” he added.

Bode Technical Services, Denver, Colo., is familiar with the majority of North American LMI brands and installs most types on their customers’ cranes. Mike Bode, director of operations, says when it comes to replacing an LMI system many customers are “locked into” the traditionally hard-wired OEM systems on their cranes because “most customers choose to replace the broken components of an existing system. However, when an older system is completely deteriorated we have to look at replacement options. In pretty much every case it cost more to keep replacing failing components rather than just getting a new system. If you are going to keep the crane for the next 10 years, a new system just makes sense.” Likewise, Caffee’s customers often prefer to stick with replacement systems that are as close to the original equipment as possible, which is why many of them prefer hard-wired systems.

However, when given the option, most of Bode’s customers “will choose a reliable wireless system over wired, because it’s easy to install.” The decision often comes down to reliability and cost. With hard-wired systems, the customer has to consider the additional cost of having a technician come on-site to install and calibrate the system. “Wireless is a simple welded-on installation, and most crane shops can do this themselves. They simply install the sensors, the console in the cab, start it up, and everything’s preprogrammed at the factory. From the perspective of an owner, all this time and cost savings start to look pretty attractive.”

In the aftermarket electronics survey, we also asked readers if the OSHA Cranes & Derricks rule, passed last year, dictated the type of electronics technology they are investing in. The answers ran the gamut depending on what sector of the industry the respondent is involved in as well as where he or she works. “They are not dictating, but having the cranes in the same condition as when they came off the assembly line helps with liability issues,” said one respondent. One U.S. crane owner was direct in his estimation, saying,



Bode Technical Services installed this new anti-two-block system and switch for a customer.



Two Load Systems International LMI pressure transducers were installed on this crane’s hydraulic system. A wireless transmitter (the gray box in the picture above) sends load data from the transducers to the model GS820 display, which shows the LMI load/geometry data.

“‘Dictated’ is the right word. I probably wouldn’t have any of this new electronic [technology] if I wasn’t forced to. Just because something’s high-tech doesn’t mean it’s worth a [darn]!”

An international respondent favors the ripple effect from the OSHA regulation. “Even though we are based in Australia, it has made overseas products meet our legislation and standards here, which previously was an issue,” he said.

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Anti-two-block (A2B) devices were also purchased by survey respondents because of legal requirements. California now requires A2B systems on all knuckleboom cranes. Autogru distributor Morgan Co., in Fontana, Calif., has put new devices on the cranes they sell. John Holtz, in sales, says it's a gray area because the amount of time most knuckleboom operators use the crane's winch is minimal, which means the A2B device becomes another component which has to be stowed on the crane. Ideally, Holtz would like to see a retrofitable A2B for any brand, age, and capacity of articulating crane. "The electronics are there; they just have to come up with a hardware attribution interface, he said.

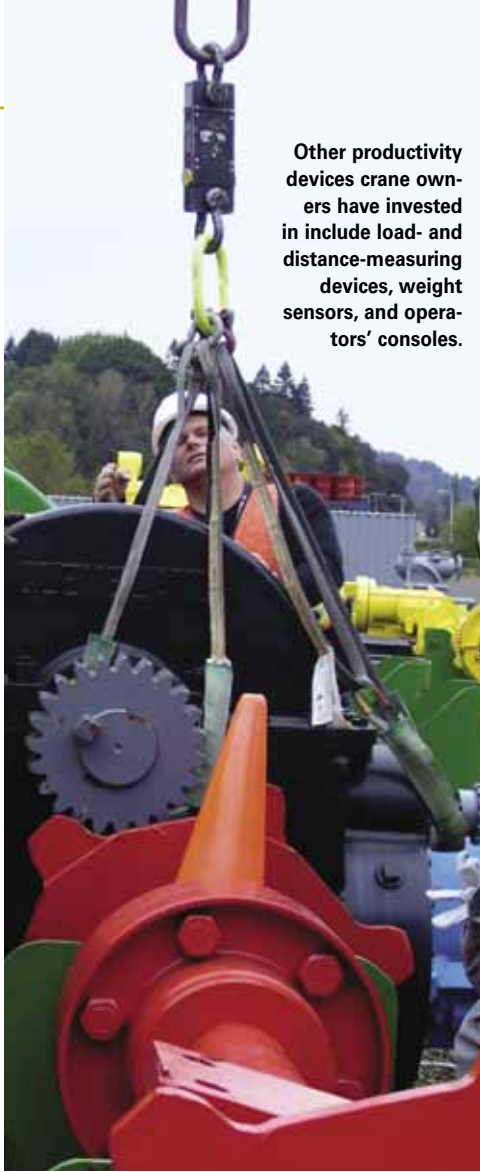
While product availability and support drive many A2B buyers who responded to our survey, simplicity is key for others who'd rather not have too many bells and whistles on the machines they operate. A lot of Bode's customers want a simple cut-off switch. "Insurance, accident costs, and bidding jobs are the drivers," he says. "Getting jobs is important to everyone. Refineries and larger construction jobs will require A2B devices," he explains. As a crane owner, "the more safety-conscious you are, the more attractive you'll look when bidding for jobs."

Productivity

Remote controls for cranes are one of the most popular aftermarket purchases made by survey respondents who seek to improve productivity. Having a remote control on a crane eliminates the need for another crew member, and saves time, money, and effort for the crane owner. Morgan Co. handles several brands of remote controls because the crane and application dictate the remote technology. "You wouldn't have the same remote control on a mechanic's truck as you would on a knuckleboom with a jib," says Holtz. Likewise, the age of the machine dictates the technology, he says, adding that the customer often relies on the supplier for advice on the best fit. "They come to us and say 'I need to do this.' We determine which brands to install. We choose the best fit for their operation."

Other productivity devices survey respondents have invested in include load- and distance-measuring devices, weight sensors, and operators' consoles. "We added an aftermarket scale for an old P&H," one respondent reported. "This takes the guesswork out of a pick." Another reported he'd purchased two portable hydraulic

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scales to check the weight of items for customers, "because most equipment does not have weighing capability." He explained that productivity is the driver, but ultimately, safety is the key. "Very few people, myself included, guesstimate weights correctly," and may be under by 50 percent or more. "Over-estimation is okay, but under-estimation is much worse if the lift is attempted," he added.

Fleet Management

Where fleet management is concerned, telematics play a bigger role today than they have in the past, but so do GPS systems, and many respondents indicated they've installed tracking systems on their cranes to automate rental charges, monitor equipment utilization, enhance security, and reduce equipment theft. One crane rental company indicated they use GPS systems when there is a "need to assure the location of bare rental units as well the need to be sure they are receiving routine maintenance."

Ted Redmond, president and CEO of NC Services Group, Edmonton, Alberta, says the company has had GPS on all cranes in its U.S. fleet for about two years. GPS was purchased for its productivity benefits. Parent company to Northern Crane Services, Mullen Crane & Transport, and TransTech Contracting, NC is now considering expanding to full-featured telematics for its Canadian fleet. Redmond sees telematics as a critical safety tool "for notifications of where people turn the key to override the LMI, speeding violations, or other types of things." The company is evaluating brands and the most important features they'll want. "The system we have on our U.S. cranes is pretty basic,

so we have to determine whether we want to track other operating parameters of the crane."



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The construction industry slowdown gave many crane owners and end users the opportunity to analyze their investments in electronics technology. While the more traditional would rather do without the bells and whistles, most see aftermarket products as enhancements for the betterment of not only their businesses but the industry as a whole. ■