SMC Expert Article – SMC Wireless Unit (Robotics)

Wireless robotics: where less is definitely more

By Juanjo Jubete, Wireless Unit Product Specialist, SMC Spain

Ever yearned for a wireless communication system for your robotics? Fed up with cables and their associated breakages and disconnections? Want lower installation and maintenance costs? Well, wireless robotics is now a reality. In fact, it's been here for some time, providing totally reliable, noise-resistant communication at a growing number of manufacturers that have adopted the completely unique Wireless Unit from SMC. To help anyone who is still hesitant about wireless communication technology, Juanjo Jubete, Wireless Unit Product Specialist, at SMC Spain, addresses a number of common concerns in this short Q&A.

Q1. How can potential users overcome their fear of the unknown in terms of wireless reliability?
A1. It's a common misconception that wireless is not as reliable as wired, but how many wireless systems have we got functioning in our homes? Headsets, landline phone handsets, car keys and computer keyboards to list but a few. Wireless communication technology has become so robust that most of us take it for granted, so why not let our industrial systems take advantage too? In the seven years since the launch of our Wireless Unit, we've had no notable problems reported. It has even been standardised as reliable communication equipment at leading manufacturers in the automotive industry.

Q2. What if my IT department is reluctant to accept the addition of new external wireless networks, thinking that they may conflict with internal network packets?
A2. It's important to note that our wireless equipment only sends information when necessary, not constantly, in very small network packets. Furthermore, the system incorporates FHSS (Frequency Hopping Spread Spectrum) technology, which has been widely proven for many years to work without problems in areas where several devices transmit information in the same bandwidth simultaneously. All of these factors help to ensure robust and reliable communication.

Q3. Will wireless communication equipment perform stably and reliably in environments where there is a high level of electromagnetic noise, such as spot welding?
A3. The origins of the product's development are in the automotive sector, whose natural habitat is a sea of electromagnetic noise derived from motors, inverters, heaters, spot-welding equipment, RFIDs and so on. There's no danger of the equipment being susceptible to failure due to electromagnetic noise. In fact, we know that it's far more immune to noise than copper communication, almost behaving like fibre optics, but without the associated high costs and delicate care requirements.

Q4. What are the optimal industrial applications for wireless communications technology?
A4. Although suitable for all industrial sectors, most of the applications to date have been for robots and robot peripherals. The power packs found in systems such as robots and turntables subject the communication cables they carry to extreme twists and turns,

eventually causing them to fatigue and break. The result is random system stoppages that often take extensive time to identify and repair, and which will ultimately reappear as they are endemic. With wireless, we can basically eliminate any cables that carry electrical control signals.

Q5. Can you set out the most important wireless benefits?
A5. Adopting a wireless solution avoids unproductive stoppages derived from loose or broken communication cables or bad contacts. It also avoids failures caused by electromagnetic noise thanks to the better immunity of wireless communication. In addition, cost savings result as there is no longer any need for ultra-flexible cables, special swivel joints, highly protected connectors and so on.

SMC´s Wireless Unit – EX600-W Series

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