

CASE STUDY

Certifying an entirely new class of products

Inxpect | **Founded:** 2015 | **Location:** Italy

Product: Safety systems for advanced industrial automation and robotics based on radar technology

The challenge

Inxpect started working with UL in 2017 for certification of their first radar sensor for security applications under UL 639, Standard for Intrusion-Detection Units. After this first step, the focus of the company shifted to using smart radars to help ensure safe interactions between people and machines in manufacturing, construction, mining and logistics. In 2018, they launched the LBK System: the first, and still only, radar sensor certified for safety uses under the European Machinery Directive.

However, this presented a challenge since no UL standard in the field of safety sensors had ever referred to radar as a sensing technique.

The solution

UL succeeded in outlining the path to successfully certify the LBK System under a new Certification Requirement Decision (CRD): an ambitious plan that would require a strong commitment by both UL and Inxpect. The process was completed in less time than normally needed for such an innovative device, leading to certification by UL of the LBK System under the new CRD of IEC 61496-3 Certification Requirement Decision - Additional Considerations for Protective Devices Responsive to Diffuse Reflection of Radar (PDRDRR) as a Type 3 ESPE (Electro-Sensitive Protective Equipment), becoming the first radar system with a UL Listing as a safety device, and the first UL Certified device under the new CRD specification.

In addition, UL accommodated Inxpect during the pandemic by taking appropriate measures to stay safe. With travel restrictions in place, Inxpect collaborated with a local UL engineer who, with the utmost professionalism and dedication, witnessed all of the required tests — to comply with Data Acceptance Program requirements — at the customer’s facility and organized the tests at UL’s Italy facility.



“... Certification from UL helps our customers understand that Inxpect products are engineered and manufactured according to the applicable standards and requirements. In the world of safety certification, this peace of mind is particularly important.”

*- Luca Salgarelli,
co-founder and CEO, Inxpect*



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The story of how it happened

Although Inxpect is still in its infancy — you might even call it a startup — they always strive to design and engineer their products to be global from the get go. From considering international technical norms to finding the optimal solutions to mechanical issues, material selection and documentation, engineering and product management teams always consider the global perspective. The first generation smart radars for security/intrusion detection applications, the MSK-101, are listed by UL under UL 639.



Recently, more and more of the company's focus has been dedicated to the emerging uses of radar technology for the safe interaction of humans with robots and machines in general.

According to Luca Salgarelli, co-founder and CEO at Inxpect, among several U.S. and international Nationally Recognized Testing Laboratories (NRTLs), Inxpect chose UL — recognized by the Occupational Safety and Health Administration (OSHA) — to partner with to test and certify their unique class of products for several reasons. The first is its standing, especially but not only in the North American markets, as the leading provider of conformity assessment of many classes of products. Another factor is UL's willingness to work together when certifications for new technologies are requested. Finally, UL is expanding their services considerably, both geographically, and in terms of standards they support and work with.

Inxpect has been interested in the North American market since the inception of the company, both because it is one of the largest markets of the world in general and because it has a vibrant industrial automation and robotics segment. More than a few distributors interested in Inxpect's products pushed them to move quickly to get their products certified for North America.

The first barrier was the certification of Inxpect products by an NRTL, compounded by the fact that no specific technical standard for safety radars existed at the time.

The company needed two types of support. First, they needed an international agency that would be capable of approaching the issue by creating the necessary changes to existing standards so that the specific requirements of a new technology could be assessed in an existing field. Second, they needed an NRTL that allowed them to comply with North American regulations.

Inxpect expectations were more than met. The process was concluded on time and conducted with the utmost professionalism. The company is now in the process of finalizing the setup of the production line according to the last requirements, such as labelling. The initial product inspection will then allow them to start producing the very first safety radars with a UL Mark in the world.

"UL was probably the most recognized entity on our NRTL list," said Salgarelli. "As such, a certification from UL helps our customers understand that Inxpect products are engineered and manufactured according to the applicable standards and requirements. In the world of safety certification, this peace of mind is particularly important. Working with UL on this specific project has shown us professionalism and the capability of going above and beyond what the status quo of technology and technical norms is. For an innovative company like Inxpect, that has allowed the alignment of our development and marketing process with that of the certification body. We believe that this is no small feat by UL."



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