Technical Notice: R1L-E2A vs. R1L-E2

Date: 20 October 2011

OVERVIEW: With the launching of the R1L-E2A, we felt it important to discuss the differences between the legacy R1L-E2 and the new R1L-E2A, and what customers need to know to adapt to the changes. This technical notice discusses those differences.

FORM, FIT & FUNCTION: The form, fit and function of the R1L-E2 were maintained with the upgrade to R1L-E2A, but there are important differences that required a formal part number revision. The ATEX certification was updated; the schematics, component list and calibration procedures were modified, and the color changed from yellow to gray. In addition, the list of approved batteries is now more restrictive, so it is important to reference the correct user manual when servicing either instrument.

WHY THE UPGRADES WERE MADE: Historically, the original R1L-E was designed several years ago, with the goal of meeting the requirements of MIL-T-28800, clause 4.5.6.3. Later, the R1L-E2 received a Type Certificate for the ATEX program where each R1L-E2 was shipped, individually labeled, as being in conformity with UL913. When TEGAM acquired the R1L-E2 product in 2010, we reviewed the certification history, and manufacturing process, and made the following observations:

1. The ATEX Type Certificate was issued in 2004 and refers to EN50014:1997/A2:1999, EN50020:2002, and EN50284:1999. These standards have been replaced by EN60079-0, (now in Fifth edition), EN60079-11, (also Fifth edition). The older "50000" series of standards is now considered obsolete and Underwriters Laboratories/DEMKO will not issue Type Certificates to them. The new, "60079" series standard is based on the older series, but there are differences which generally increase safety of the approved apparatus, including rigorous short-circuit testing of batteries.

2. The process by which the R1L-E2 was issued certificates involved three companies; TRL issued the ATEX type certificate, DNV provided the on-site (Annex V) Product Verification, and MET Labs provided certification that each unit met the requirements of UL 913. This process required on-site inspection of each unit by two separate companies, increasing manufacturing lead time and rushing the inspection process.

3. The housing complied with the requirements for a dissipating static electricity through the application of an anti-static spray on the exterior housing, which seemed to be susceptible to being abraded or washed off in use.

4. The requirements of 60079-0 include special labeling if "light metals" are exposed. The aluminum face plate of the R1L-E2 is subject to this requirement, however the labeling did not include a light metals warning.

SOLUTIONS: To better serve our customers, TEGAM decided to bring the entire design into full compliance with all provisions of the newer 60079 family of standards, including the provisions of the Fifth Edition that will come into force in 2012. At the same time, we selected a housing material that provides permanent static protection without a coating, replaced several obsolete parts with modern surface-mount equivalents, and covered the exposed aluminum faceplate.

To increase the credibility and usefulness of the safety labeling we selected Underwriters Laboratories/DEMKO as our Recognized Body and switched the Quality Assurance method from Annex V to Annex IV. This has resulted in TEGAM implementing a quality system that complies with EN13980:2003-02, with a Quality Assurance Notification (QAN) issued by UL/DEMKO and surveillance provided by a local UL inspector. The R1L-E2A is now C-UL-US Listed and IECEx and ATEX compliant with worldwide safety standards.

SUMMARY: The R1L-E2A is an upgrade designed to conform to the latest standards for intrinsic safety while maintaining form, fit and function with legacy applications. The new R1L-E2A will meet its application and performance demands for many years to come. We are confident that you will appreciate the effort that we have invested in this project and are available to discuss any questions you have that are not answered in this notice.