



ALLEGRO AMI REGISTER

UNDER-THE-GLASS (UTG) UNIVERSAL ENDPOINT

REV. #C070220





Q&A: ALLEGRO AMI UNIVERSAL REGISTER (UTG DESIGN)

WHAT ARE THE MOST COMMON UTILITY FRUSTRATIONS RELATED TO ADVANCED METERING INFRASTRUCTURE (AMI)?

With AMI, you're looking at a 15+ year investment, and because this is such a significant investment, one of the biggest frustrations being echoed today is the lack of interoperability between water meter manufacturers. Several years ago, Master Meter decided to blaze a path toward interoperability with our Universal Interpreter RF Register System. This revolutionary technology allows a utility to retrofit most any meter brand build with a ubiquitous bayonet style design. Our Allegro Endpoint detects the meter's measurement chamber's magnetic signature, and synthetically replicates the original manufacturer's register technology to create an accurate, universal, elegant smart technology AMI solution.

ARE THERE OTHER CONCERNS ATTRIBUTABLE TO ENDPOINT TECHNOLOGY THAT CAN CAUSE THESE TECHNOLOGIES TO FAIL?

Utilities have shared with us their significant frustration surrounding the presence of wires and connections in pit- set environments. This is by far the harshest environment that an AMI endpoint will operate in, and it needs to be resistant to moisture penetration, rodent and insect damage, vandalism, and other corrosive elements which frequently affect wires and antennas in the pit.

Master Meter has solved this very serious issue with our UTG, or Under-the- Glass Encapsulation Technology. Within the UTG

endpoint we've also incorporated a proprietary patented dual-band antenna design. Not only is it optimized for the system's licensed frequency band, but it also incorporates design features that detects the presence of moisture and proactively mitigates any impacts to RF performance. It's a brilliantly designed digital endpoint.

WHAT IS MEANT BY "UNDER-THE-GLASS," AND HOW DOES THIS FEATURE DIFFERENTIATE ALLEGRO?

Master Meter's proprietary patented UTG technology takes the entire RF circuitry, battery, dual-band antenna, and solid-state register, and then encloses everything into a hermetically sealed, IP68+ rated, hardened glass and stainless steel enclosure. The elimination of wires in challenging environmental conditions is a significant design improvement — something that is not offered elsewhere in the market today. The installation and maintenance technicians who've installed any of the 7 million+ UTG designed registers will agree that Allegro's unique design eliminates the many potential human errors seen in other wired unit installations. Allegro's UTG solution also reduces long-term maintenance and lifetime ownership costs.

WHAT PROBLEMS MIGHT OCCUR IN THE EVENT OF AN AMI NETWORK OUTAGE, AND HOW ARE THESE POTENTIAL ISSUES MITIGATED WITH ALLEGRO'S NEW TECHNOLOGY?

In fixed network AMI systems, some solutions provide automatically sensing smart networks, which can detect a catastrophic failure such as a network outage. Other platforms require a human to manually



send a command, which then places each endpoint into a redundant mode, acting as a backup. In creating Allegro, we strategically approached our design to create an intuitive, proactive, and intelligent system.

When installed, Allegro inherently initiates in drive-by (AMR) mode. Then, soon after detecting the Allegro Base Station's fixed network tower ping, the endpoint automatically 'shakes hands' to the specific tower with the ping. However, if a network outage occurs, the Allegro endpoint reverts back to drive-by mode until the network is successfully restored and detected again, at which point it is then automatically re-registers with the Allegro Base Station. Redundancy is accomplished by the base station logging meter consumption reads, to ensure the data isn't lost and can be accessed later.

WHAT ARE SOME OTHER FEATURES THAT ENHANCE FIELD DURABILITY AND RESILIENCY? HOW DURABLE IS THE UNIT ITSELF?

The Allegro UTG Register has no moving parts so mechanical failures are non-existent. Add this incredibly advantageous unique feature to the Under-the-Glass wireless design and you have a truly plug-n-play endpoint that's been real-world tested across a number of unique geographies, which can operate over 15 years requiring absolutely zero maintenance.

WHAT ARE THE OPERATIONAL ADVANTAGES BEYOND RUGGEDNESS? HOW IS METER-READING AND BILLING ACCURACY IMPROVED?

The Allegro endpoints were designed with simple installation and accurate read transmission in mind, which translates into a number of operational benefits. The first and

most immediate is reduction in installation fees, since a complete system overhaul isn't required due to the Universal Interpreter Technology, installation costs decrease dramatically. Additionally, since consumption data is transmitted from the rate payer to the utility twice daily, billing questions are easily answered with the click of a finger.

HOW DO THESE ENDPOINTS IMPROVE THE END-USER EXPERIENCE?

Consumption and usage data aren't the only things transmitted to the utility - alarms, leak alerts, battery status and a host of other parameters are also sent back twice a day, which translates into an empowered and educated consumer. Depending on the severity of a leak, the end-user can be notified via email and/or SMS (*based on the privacy settings selected*). Additionally, Master Meter's Allegro endpoints offer the finest granularity of data available through an On-Demand reading from the utility office displaying consumption detail down to every 15 minutes. High resolution data allows utilities to tailor custom tiered rate programs to better suite their needs and the needs of the rate payer as well.