Date: March 15, 2021

Title: SDLC Cable Grounding to Traffic Controller Logic Ground

Product / Models Affected: iCCU-S, iN2-SDLC-CABLE, iN2-SDLC-YCABLE

Situation:

We have received some reports of installations using the iCCU-S in SDLC (Hybrid), or SDLC/BIU mode, where the system does not function properly due to a high incidence of SDLC errors, or the intersection goes into flash due to high SDLC errors, or in a few cases, the iCCU-S or the Traffic Controller, or a BIU fail due to an over current condition.

Technical Explanation:

NEMA TS2-2016 (Section 3.3.3.1 and 4.3.1) specifies that the Port 1 connector for SDLC communications on a traffic controller is to provide a logic ground connection on pins 2, 4, 6, and 8 of the connector. Additionally, section 5.3.3 of the NEMA TS2 standard defines the specifications for cables that are used to connect devices on the SDLC bus. The specification for the cables lists pins 2, 4, 6, and 8 as “Not Used”, therefore, cables manufactured per the TS2 specification do not establish a logic ground reference between the host device (traffic controller) and peripheral devices (ICCU-S) on the SDLC bus. This is generally not an issue with most SDLC devices (BIU, MMU, etc) in a cabinet as they are all powered from the same voltage source. The iCCU-S has its own internal power supply in order to supply isolated power to the APS buttons in the field. For this reason, a difference in ground potential between the traffic controller logic ground and the iCCU-S circuit ground can develop which may result in SDLC communication becoming unstable, or in extreme cases, damage to the iCCU-S and/or other devices on the SDLC bus such as BIU’s or traffic controllers can occur.

Solution:

Polara is having its SDLC cables manufactured with conductors connected to pins 2, 4, 6, and 8. In addition, a supplemental, external conductor has been added to ensure that if our cable is plugged into an SDLC port that does not have these pins connected to Logic Ground, the supplemental wire will ensure our system is connected to Logic Ground. By connecting the individual ground wire of this SDLC cable to the logic ground terminal in the cabinet, the iCCU-S circuit ground is held at the same potential as the traffic controller’s logic ground to prevent the damaging offset in ground voltages from occurring. These extra grounds have been added to both our iN2-SDLC-CABLE and iN2-SDLC-YCABLE. **Customers must use one of these two cables to keep Polara's warranty in effect, and to ensure they do not run into similar issues as explained above.**

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