



Product Safety Notification: 2855858

Date: 12/2/2024

Dear Valued NI Customer:

You are receiving this letter to inform you about an observed issue that affects the following NH Research, LLC (“NHR”), a subsidiary of National Instruments Corp. (“NI”), products or applications that you may own one or more of:

Affected Product Part Numbers

Kit Part Number	Kit Description
1109358	ASSY,4300 CONTROL W/MATING CONN
1109502	ASSY,4312 LOAD,120V 150A 600W
1109503	ASSY,4312 LOAD,120V 80A 300W
1109504	ASSY,4312 LOAD,120V 40A 150W
1109331	ASSY,4350 LOAD,500V 60A 300W
1109350	ASSY,4350 LOAD,500V 30A 150W
1109352	ASSY,4350 LOAD,500V 120A 600W

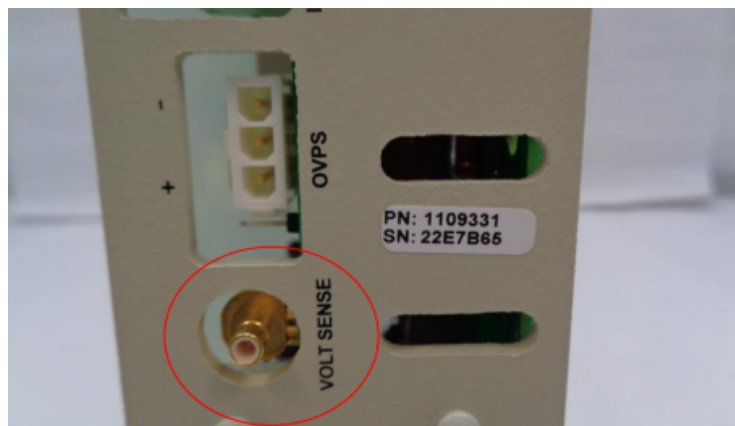
Issue Description

As a part of NHR’s integration into NI, we recently completed internal reviews of the architecture of the products listed above. NI determined, as a part of the review, that the digital output lines for the 4300 controller likely do not have sufficient isolation and spacings on the printed circuit board assembly to the chassis and digital control circuits to claim compliance per UL 61010-1 and UL 508 safety standards, which are broadly accepted standards for test and measurement and control products. The spacings are thus not compliant to meet the originally communicated rating of 120V. Additionally, the spacings are not compliant across isolation barriers above 60VDC use on the digital outputs. Long term use of the digital output circuits above 60 VDC could cause stress (voltage tracking) of the printed wiring material on the circuit board leading to dielectric breakdown across the isolation barrier. This could result in energy cascade to the digital control lines causing damage on the motherboard, control board, or digital circuitry of the load, or to other peripheral devices connected to the product. The energy cascade could also result in a potential shock hazard through touch accessible parts raising to the hazardous voltage potentials over 60 VDC.

The review also found the master and aux printed circuit board assemblies for the 4350 load do not have sufficient isolation and spacings on the printed circuit board assembly from the load and Vsense terminals to the chassis and digital control circuits to claim compliance per UL 61010-1 and UL 508 safety standards, which are broadly accepted standards for test and measurement and control

products. The spacings are not compliant to meet the original rating of 500V to the load and Vsense terminals, nor 600V Ch-earth common mode isolation to the other circuits. Additionally, the spacings are not compliant across isolation barriers above 450V use on the load and Vsense terminals. Long term use of the load and Vsense inputs above 450V could cause stress (voltage tracking) of the printed wiring material of the circuit board leading to dielectric breakdown across the isolation barrier. This could result in energy cascade to the digital control lines causing damage on the motherboard, control board, or digital circuitry of load, or to other peripheral devices connected to the product. The energy cascade could also result in a potential shock hazard through touch accessible parts raising to the hazardous voltage potentials over 60 VDC

Additionally, the Vsense connector shell on the 4350 is floating and can be biased to 500V/600V, and the Vsense connector shell on the 4312 is floating and can be biased to 120V. The shell is touch accessible when the module is not used within a larger end system housing, which is a potential shock hazard when biased over 60 VDC.



Impact

The 4300 controller is being derated to 60 VDC maximum. Please see the attached spec addendum.

The 4350 load is being derated to 450 VDC maximum. Please see the attached spec addendum.

The accessibility of the shells on the 4350 and 4312 floating to 600V and 120V, respectively, is a potential shock hazard to the user. This risk can be mitigated by use of suitably rated and certified insulating boots or other insulation or by installing it inside a larger system with shielded enclosures that prevents access in normal use.

Recommended Action

Do not use the 4300 controller digital outputs over 60 VDC. If your application of the 4300 controller digital outputs is greater than 60VDC, please discontinue use or derate your application to 60VDC maximum. Please contact NI at 43XX.Notification@emerson.com if you have any questions for your application. Note that there is no option or plans for a replacement that is rated to the original specs. If your application is less than 60VDC, no action is required and you may continue use of the product at this lower rating.

Do not use the 4350 load over 450V. If your application of the 4350 load is greater than 450V, please discontinue use or derate your application to 450V maximum. Please contact NI at 43XX.Notification@emerson.com if you have any questions regarding your application. Note that there is no option currently for a replacement that is rated to the original specs. If your application is between 60VDC to 450VDC, you must use suitably rated and certified insulating boots or other insulation for the Vsense connector shell to make it touch safe, or ensure that the load is placed inside a larger system enclosure that prevents the Vsense connector from being accessible in normal operation. If your application is less than 60VDC, no action is required and you may continue use of the product at this lower rating.

If your application of the 4312 is greater than 60VDC, you must use suitably rated and certified insulating boots or other insulation for the Vsense connector shell or ensure that the load is placed inside a larger system enclosure that prevents the Vsense connector from being accessible in normal operation. If your application is less than 60VDC, no action is required and you may continue use of the product up to this limit.

Disclaimer

NI has made every attempt to provide the necessary information to ensure the safe operation of the products listed in this letter. The requirements to resume safe operation using the 4300, 4312, & 4350 are important and should be strictly followed. Failure to follow the above requirements could cause harm to the operator and generate property damages and in such case, NI DISCLAIMS ANY LIABILITY.

If you are not the end user of this product(s), we request that you forward this notice to the end user or provide NI with information to help locate the end user.

Thank you for being a NI customer. We apologize for this inconvenience. We are committed to providing products and services that exceed customer expectations and maintaining your confidence in our products.



NI is now part of Emerson.