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**Version:** V002

**SERVICE BULLETIN**

Hyconext HC16MT6XP-UP BAT/AC Series Switches

At-Risk 24V Non-isolated Powered Devices Connectivity Issues

**Application:** Global

**Effective Date:** 16 April 2024

**Expiry Date:** N/A

## SERVICE BULLETIN

Please tick accordingly

<b>BULLETIN TYPE</b>	<input type="checkbox"/> Warranty (Maintenance, repair related within warranty period)
	<input checked="" type="checkbox"/> Notification (general announcements or changes related to products or services)
	<input type="checkbox"/> Specific Request, please state:
<b>SEVERITY RECOMMENDATION</b>	<input checked="" type="checkbox"/> High (ie. Urgent action required)
	<input type="checkbox"/> Middle (ie. Perform at the next agreed maintenance)
	<input type="checkbox"/> Low (ie. Perform only when symptoms appears again)

**SUBJECT:**

For some corner cases, *At-Risk 24V Non-isolated Passive PoE PDs* connected to very early Hyconext HC16MT6XP-UP BAT/AC Series Switches, may be damaged.

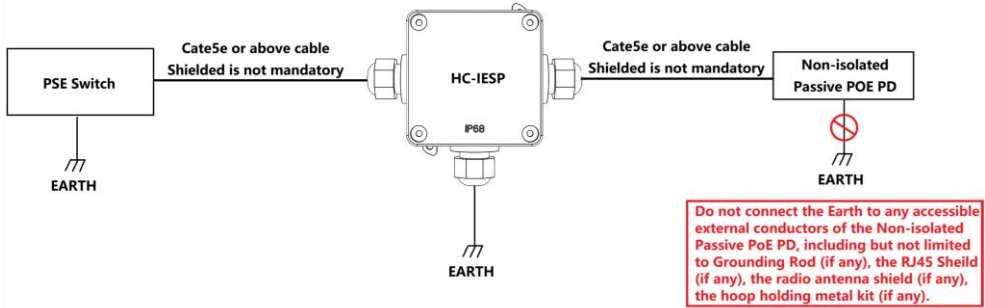
**DEFINITION:**

**Active PoE PDs:** IEEE 802.3af/at/bt standard based active PoE Powered Devices. The standard request that the PSEs and PDs shall provide isolation between all accessible external conductors, including but not limited frame ground (if any), and all MDI leads including those not used by the PD or PSE. Any equipment that can be connected to a PSE or PD through a non-MDI connector that is not isolated from the MDI leads needs to provide isolation between all accessible external conductors, including frame ground (if any), and the non-MDI connector. Accessible external conductors are specified in Section 6.2.1 b) of IEC 60950-1:2001 and Section 5.4.10.1 b) of IEC 62368-1:2018.

**Isolated Passive PoE PDs:** No-standard based passive PoE powered Devices, which have no progressing of detecting and classification vs standard active PoE PD, but complies with the isolation regulations of the standard. Simply, that means any pin of the PoE RJ45 port 8 pins should be isolated to all accessible external conductors, including but not limited to Grounding Rod (if any), the RJ45 Sheild (if any), the radio antenna shield (if any), the hoop holding metal kit (if any).

**Non-isolated Passive PoE PDs:** No-standard based passive PoE powered Devices, which have no progressing of detecting and classification vs standard active PoE PD, and **does not** comply with the isolation regulations of the standard.

**At-Risk 24V Non-isolated Passive PoE PDs:** We found some non-isolated 24V Passive PoE PD, Passive PoE 2-pair (4, 5+; 7, 8 -) or Passive PoE 4-pairs (1, 2+; 3, 6-) (4, 5+; 7, 8-), the pin 3,6 and/or pin 7, 8 are shorted to the accessible external conductors, including but not limited to Grounding Rod (if any), the RJ45 Sheild (if any), the radio antenna shield (if any), the hoop holding metal kit (if any). For example, Ubiquiti airMAX PowerBeam 5AC.

<b>Affected Product/System</b>	Very early Hyconext HC16MT6XP-UP BAT/AC Series Switches
<b>Issue Description</b>	<p>This issue applies to Hyconext <i>HC16MT6XP-UP BAT/AC Series Switches, hardware version 1.17 and 1.18 (Affected Switch)</i>.</p> <p>When using <i>At-Risk 24V Non-isolated Passive PoE PDs (Affected PDs)</i>, for some corner cases, the <i>Affected PDs</i> may be damaged when condition 1 and 2 are both encountered:</p> <ol style="list-style-type: none"> <li>PoE pin 3,6 and/or pin 7,8 of the <b>affected PDs</b> are short-circuited to the ground in the following way: Grounding Rod, the RJ45 Shield, the radio antenna shield or the hoop holding metal kit.</li> <li>The pin4/pin5 (GND) of the <i>Affected Switch</i> RJ45 console port or the pin4 (GND) of the <i>Affected Switch</i> USB port, through connected computers and other equipment which short-circuit the console and USB GND to the earth.</li> </ol>
<b>Resolution or Recommendation</b>	<p>If this problem exists, the solution is to use an external <b>isolated Ethernet surge protector</b> that will isolate the improperly grounded device from Hyconext HC16MT6XP-UP Series Switch. Please connect the switch and <i>At-Risk 24V Non-isolated Passive PoE PD</i> through the <i>isolated Ethernet surge protector</i> with Cat5e (or above) cables, you <b>should</b> connect the Grounding Cable of the <i>isolated Ethernet surge protector</i> to the Earth, and <b>do not</b> connect the Earth to any accessible external conductors of the <i>At-Risk 24V Non-isolated Passive PoE PD</i>, including but not limited to Grounding Rod (if any), the RJ45 Shield (if any), the radio antenna shield (if any), the hoop holding metal kit (if any). Please discuss with Your Hyconext support team for guidance on a solution. Fig.1 <b>must be performed</b> for the <i>At-Risk 24V Non-isolated Passive PoE PD</i>.</p>  <p style="text-align: center;"><i>Fig. 1 Connection of At-Risk 24V Non-isolated Passive PoE PD to PSE Switch with Isolated Ethernet Surge Protector</i></p>
<b>Other Useful Information</b>	<p>How to check the hardware version of the affected AC and BAT model switches?</p> <ol style="list-style-type: none"> <li>Execute "show version" under the CLI, as shown in Fig.2, the hardware version is listed.</li> </ol> <pre style="border: 1px solid black; padding: 5px;"> Hyconex&gt;show version Hyconext NetOS Copyright (c) 2023 Reserved by Hyperconn Pte.Ltd Hyconext Software Version V380R220 Building revision M01 HC16MT6XP-BAT Switch System Uptime is 0 days 0 hours 57 minutes 35 seconds  Hardware Version : 1.17 BIOS Version      : 1.00 FPGA Version      : N/A Serial Number     : HYC16TX002 System Memory     : 1010852K   </pre> <p style="text-align: center;"><i>Fig.2 Check hardware version on CLI</i></p> <ol style="list-style-type: none"> <li>Click System → Chassis View at the top left corner of main GUI in the WEB System, and enter the page of Equipment Information. As shown in Fig.3, the hardware version is listed.</li> </ol>

Your Position: System > Chassis View	
Equipment Information	
System Name	Hyconex
Location	Singapore
Contact	support@hyconex.com
MAC Address	54-91-afb2-03-22
Serial Number	N/A
BIOS Version	1.396
FPGA Version	N/A
Software Version	Hyconex Software Version V380R220
Hardware Version	1.17
System Time	2024-01-04 17:12:15
System Bootup Time	0-Days 6-Hours 18-Minutes 3-Seconds

Fig.3 Check hardware version on WEB

Fig.4 shows that how to check whether the PD is *At-Risk Non-isolated Passive PoE PD* or not?

1. Power down the PD
2. Cut a standard RJ45 cable (either T568A or T568B) in the middle, then strip and twist all wires together.
3. Set the multimeter to the OHM setting or Buzzer setting, insert the half RJ45 cable into the POE port of the PD, connect one probe of the multimeter to the shorted end of the cables, and the other probe to any accessible external conductors of the PD, including but not limited to Grounding Rod (if any), the RJ45 Shield (if any), the radio antenna shield (if any), the hoop holding metal kit (if any).
4. If one of the OHMS is several ohms or beeping, then it's a *At-Risk Non-isolated Passive PoE PD*.
5. If all the OHMS are several M ohms and no beeping, then it's an isolated Passive PoE PD.

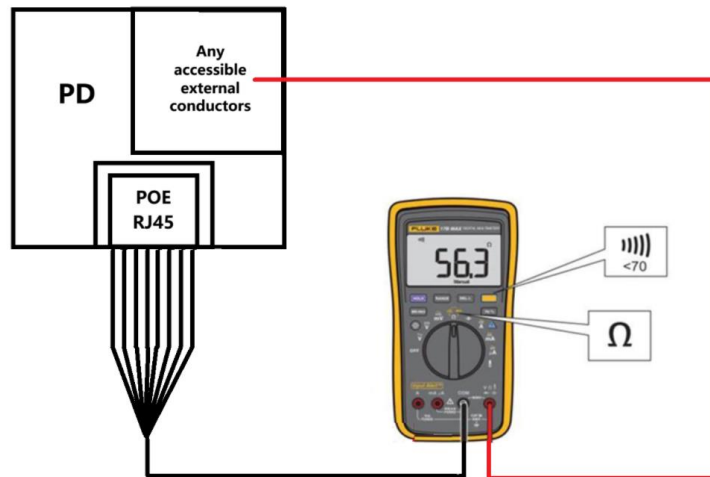


Fig. 4 Test the PD is isolated or non-isolated

References  
(relevant documents, standard, drawings, or specifications)

IEEE 802.3-2022  
IEC 60950-1:2001  
IEC 62368-1:2018

<b>Contact Information</b>	<p>If you have questions or concerns, please contact Hyconext Technical Support at the following: <a href="https://hyconext.com/community">https://hyconext.com/community</a> <a href="mailto:support@hyconext.com">support@hyconext.com</a></p> <p><b>And for those customers who ordered the AC or BAT model switches with hardware version 1.17 or 1.18 can obtain the HC-IESP for free.</b> If you want to get the <i>isolated Ethernet surge protector</i>, contact Hyconext Sales at the following. <a href="https://hyconext.com/product-category/accessories">https://hyconext.com/product-category/accessories</a> <a href="mailto:sales@hyconext.com">sales@hyconext.com</a> <a href="mailto:Jet.L@hyconext.com">Jet.L@hyconext.com</a></p>
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