AMATIS - PHD GENERAL USE/TROUBLESHOOTING GUIDE

ABOUT THIS GUIDE

Welcome to the PHD (Power Hub Driver) general use/troubleshooting guide for the Amatis Lighting Control System. In this guide, you'll find straightforward explanations of how to commission and troubleshoot a PHD device. Whether you're looking to set up a PHD for the first time, or troubleshoot a PHD in the field, this guide will walk you through the process with ease.

WHAT IS A PHD?

The Power Hub Driver (PHD) product is a low voltage (24VDC) lighting controller with 15 controllable (pwm-dimmable) output channels, at 24VDC as well as 8 0-10V dimming zones. The 16th channel is reserved for a constant output 24V and is typically used to power controls devices. Each channel is capable of supporting approximately 100W of power output. The Power Hub Driver device also has an Amatis wireless radio, which is used to communicate with the device for programming, scene activation, etc. The PHD product is also capable of integrating directly with Amatis Controls control devices (sensors, wall switches) in order to perform switch control, occupancy and daylight harvesting. The PHD also supports load shed functionality via scene-based triggers through the Amatis Border Router. Additionally, the PHD has the standard capabilities of amatis devices and in an internet connected scenario will report historical data over time for troubleshooting/analysis purposes via the Amatis Border Router. The PHD has a master controller board that performs actual changes to turn on/turn off loads, the Amatis onboard radio is used to communicate with the master controller board and both onboard devices have firmware that can be remotely updated.

NECESSARY PARTS

The following parts will be necessary to complete this guide:

1. PHD (Power Hub Driver)
2. AMBR (Amatis Border Router)
3. Amatis Controls Control Devices (Sensor, Wall Switch)

SYSTEM SETUP

Before getting started with the amatis configuration application, ensure that the AMBR and the PHD are both connected to power and indicating that they are powered up with their LED interfaces. If no site has been created for the ambr, start by generating a new site and then reboot AMBR ambr and PHD. Otherwise, log into the site for the ambr and confirm that you are able to see the PHD (matching mac address to the PHD label) in the Amatis configuration application devices list for the site.

FIRST TIME CONFIGURATION

Similar to other devices in the Amatis Controls ecosystem, to configure the PHD to be controlled by other devices, add the appropriate PHD channels or zones to a location in the Amatis app, along with the control devices that should control it (sensors, wall switches).

Each PHD that is added to the app will add all 16 channels and 8 zones to the app as selectable devices, so the only difference from other amatis devices in configuration is that the user must pick the appropriate channel/zones(s) to add to the room along with the control devices.

Additionally, channel/zone-specific load settings can be changed - max out (also known as high-end trim) can be trimmed on the PHD in order to set the maximum level that a PHD channel or zone will go up to using the high end trim slider in the Amatis Controls configuration software. Once this is configured to a non-100% value, the channel/zone will still report level values from 0-100% but 100% is scaled to the max out setting that is configured (ie if max out is set to 50%, the device from that point reporting 100% means 50%, and reporting 50% would mean 25%).

Confirm your PHD is on the latest available firmware (the device list will highlight it if it is not), updating the PHD firmware to the latest version during commissioning is recommended if the PHD is not already running the latest wireless and Master Controller Board (MCBA) firmware.

As with all other amatis devices, once the channels and control devices have been added to a location - the appropriate configuration options for the application can be applied (Switch Control, Slider Control, Occupancy, Daylight Harvesting, etc.). Once the appropriate configuration has been applied, the associated controls devices will need to sync to write the programming down into the devices at which point the controls should start working in the locations.

TROUBLESHOOTING

Configuration Troubleshooting

PHD Device Won't Appear in Amatis Configuration Application

If after a few minutes after powering up the devices, the PHD does not appear in the Amatis configuration application, the best course of action is to either restart the AMBR using the configuration application or just power cycling the AMBR and the PHD once the site exists in the Amatis configuration application, this should trigger the ambr and device to re-send their information to the cloud.

Firmware Version

The device firmware version should appear in the device list for the PHD, if the firmware is older than latest the Amatis configuration application will show that the version is not latest and allow the user to run a firmware update on the device.

MCBA Firmware Version

The master controller board firmware version can be read from the device data dictionary - this can be seen by navigating to the main PHD device in the device list (not a channel or zone) and clicking the 3 dots on the left and selecting View Device Details - at the bottom of the list of parameters, firmware version is referring to the MCBA firmware version. The ideal version is 12002.01 or later firmware.

PHD Fault Interpretations & Resolutions

The first thing to check when you encounter a fault is the physical space, check failed lights, poor wiring, good weather protection. Next, confirm that you are running the most current version. If the PHD is safe and secure, your firmware is current so use the following information to help resolve any faults.

PHD Fault Codes

Fault codes are found in the ST Chn in the data dictionary of the PHD. When a PHD is at fault, your lights may not function properly, it is important to clear the fault.

102: Current Overload (Digital Limit)

- Description: Drawing too much current 4.2 Amps
- Resolution: ask Amatis to increase current trip SP (4,5,10)

103: Current Trip (Analog Limit)

- Description: Drawing too much current at On.
- Resolution: Fix the light or turn off this feature. Ask Amatis to increase current trip SP (4,5,10)

104: Voltage High

- Description: Positive voltage is out of range
- Resolution: Reboot mcba and if the issue persists RMA the PHD

105: Voltage Low

- Description: Negative voltage is out of range
- Resolution: Reboot mcba and if the issue persists RMA the PHD

106: Current Mismatch (high low)

- Description: Plus and minus currents do not match (1A threshold)
- Resolution: Reboot mcba and if the issue persists RMA the PHD

107: Parallel (Stray voltage on channel)

- Description: Foreign voltage or paralleled positive outputs found on startup test.
- Resolution: Reboot mcba and if the issue persists RMA the PHD

108: Stuck

- Description: Unable to turn off positive voltage on startup (shorted FET or foreign voltage) -> RMA
- Resolution: Reboot mcba and if the issue persists RMA the PHD

109: Lockout

- Description: Channel fail / retry count exceeded.
- Resolution: Reboot mcba and if the issue persists RMA the PHD

110: System (bus under/over voltage)

- Description: Bus under or overvoltage etc.
- Resolution: Reboot mcba. If the fault persists, RMA the PHD. This fault is a Mean Well supply failure

111: Short Circuit

- Description: PSM could not raise output voltage during the initial inrush pulse train
- Resolution: Reboot mcba, check the wiring

112: Power Overload

- Description: Digital power measurement exceeded setpoint (normally 99VA)
- Resolution: Reduce the load so the channel stays under the power setpoint (normally 99VA)

115: Fault out of range

- Resolution: turn the channel on by writing 1100

255: Fault out of range

- Resolution: turn the channel on by writing 1100

Advanced

SP26

How it works:

SP26 = 0 means ignore PTR command and set channel-16 to 100% duty cycle. By default, SP26 is 0.

SP26 > 0 means execute PTR command and change channel-16 duty cycle.

Procedure:

1. OTA the PHD to 12002.01, if it doesn't have that fw version
2. After OTA is complete, all channels should be at 100% duty cycle and SP26 should be 0.
3. Turn off all 16 channels (thru an Amatis scene). Channel-16 should remain ON (Chan status=100). Channels 1-15 should turn off (Channel-Status =0).
4. Change the PWM value for all 16 channels to any level (20% for example) and check individual Channel-Status. Channel-16 Status should show 100.

5. Change SP26 from 0 to any value between 1 and 100, then repeat steps 3 and 4. All channels, including channel-16 should respond to PTR commands at this point.

Note:

- If SP26 value is already set to 1, for example, and channel-16 is at 50% duty cycle, changing SP26 to 0 will not change Channel-16 to 100% duty cycle until the next PTR command is received by the mcba. This means that changing SP26 from 0 to 1 will not set channel-16 to 100% automatically.
- To make a setpoint save, write the value in a negative. For example to save 1234, type -1234.
- You cannot set a setpoint without putting the PHD password into the DD point "SP Ctrl". The password is 461.

RELATED INFORMATION

Technical Support

Questions about commissioning or a PHD fault can be sent to support@luum.io. Include the PHD MAC address, the fault code from ST Chn, and the MCBA firmware version.

Document Feedback

While we have taken great care to ensure the accuracy and completeness of this document, we welcome your feedback and suggestions. If you notice any errors or omissions, or feel a topic could benefit from further explanation, please email your feedback to support@luum.io.

Revision History

Date	Revision	Notes
11/3/2026	A	Converted to the current guide format.

Disclaimer

All rights, title, and interest in and to this guide, including without limitation all copyright, trademark, patent, trade secret, and other proprietary rights, belong solely and exclusively to Luum.io and/or its licensors. This guide is provided solely for the purpose of commissioning and troubleshooting an Amatis Power Hub Driver, and no license or other rights are granted or implied hereby. No part of this guide may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of Luum.io. The contents of this guide are subject to change without notice. The information contained herein is provided on an 'as is' basis and is for informational purposes only. Luum.io makes no warranty, express or implied, as to the accuracy, completeness, or usefulness of this information, nor does it assume any legal liability or responsibility for the consequences of any errors or omissions therein. The names of actual companies and products mentioned herein may be the trademarks of their respective owners.