Technote | Revision B

Technote 775-400006 | **HYPERION Single Board Interrogator Board Usage, Care, and Handling**

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1. INTRODUCTION

This Single Board Interrogator offering is based on the Micron Optics HYPERION platform of optical interrogators. With the Single Board Interrogator form factor, customers are free to integrate the HYPERION optical interrogation engine with more flexibility than the standard offering may provide with the added benefit of reduced cost.

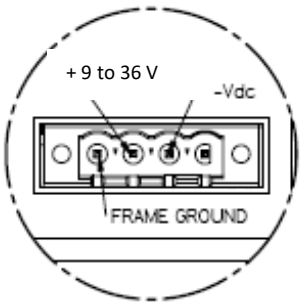
All of the features and tools available for the off-the-shelf version of the HYPERION platform will be available for Single Board Interrogator offerings as well. Please see the description of the datasheet for the specific configuration for limitations and performance specifications.

With this Single Board Interrogator product, certain steps must be taken for the correct care and handling of exposed components. In addition, specific information such as temperature monitoring, mounting guidelines, and communication interface considerations must be taken into account.

2. POWER SUPPLY

The Single Board Interrogator HYPERION offering is powered identically to the off the shelf versions of the HYPERION instruments.

For Single Board Interrogator installations, end users need only supply a 9 – 36 V, 40 W capable power source to the power connector on the peripheral side of the instrument. The connector polarity is described below.



A compatible terminal block which can interface with the HYPERION power supply input connector is the Weidmuller 4 position terminal block (part number 1803060000).

If needed, AC to DC, regulated power supplies can be directly purchased from Micron Optics.

3. ESD HANDLING

This Single Board Interrogator offering in the HYPERION platform provides a cost and component reduced product that is intended to be integrated into a larger system as a component subsystem. In doing so, the customer is responsible for proper installation and protection of the unit during integration in manufacturing and during the useful lifetime by the end user.

CAUTION: This Single Board Interrogator instrument contains ESD sensitive components that are easily accessible. Care must be taken to follow proper ESD procedures when handling unit.

CAUTION: This Single Board Interrogator instrument is packaged within an ESD safe bag and temporary aluminum covers secured by just a few screws. The additional packaging materials (foam, cardboard, etc.) are NOT ESD safe and can produce an ESD event. Follow proper ESD handling procedures when transferring unit from packaging into an ESD safe area.

4. THERMAL MANAGEMENT

The Single Board Interrogator unit is manufactured and tested upon an uncoated aluminum plate. This plate acts as both a heatsink for heat producing components of the instrument and mounting block for the end user. The HYPERION platform has

been rated and tested for ambient operating temperature ranges of -20 to 60 °C using a finned heatsink and convective airflow. The performance of this Single Board Interrogator instrument is capable of meeting and exceeding this performance temperature range depending on the thermal management method utilized by the end customer.

In order to maximize the operating temperature range of the unit, the mounting block must be affixed to an adequate thermal sink. This interface between the mounting block and the thermal sink must be designed in a way to provide good conduction of heat.

CAUTION: The mounting block of the instrument must be adequately mounted to a heatsink that provides good conduction of heat. The temperature of the unit can and SHOULD be monitored to avoid permanent damage to subcomponents and system.

In order to monitor the temperature of the instrument, a command is available to query the board temperature of the unit. The end user must use this information to monitor and verify that the internal temperature does not exceed 70° C.

CAUTION: The internal temperature as provided by the API **should NOT exceed 70° C**. Internal temperatures above this value will cause irreversible damage to the instrument.

The command is as follows:

#GetBoardTemperature

Description:
Returns the temperature of the instrument on the PCB.

Syntax:
Command: #GetBoardTemperature
Arguments: N/A

Example:
Command: # GetBoardTemperature
Arguments: N/A

Message:
The Board temperature is 44.72 C.

Content:
Length: 8 bytes (double)
Content: 0x 00 00 00 00 00 00 92 70 64

This command is a part of the already rich API provided by Micron Optics for the Hyperion platform.

5. MOUNTING

The mounting plate/heat sink on the Single Board Interrogator instrument provides 9 M6 tapped mounting holes for use by the customer.

CAUTION: The customer must utilize all 9 mounting points on the heatsink to ensure stable mounting and proper thermal management.

CAUTION: A thermal grease or thermal pad should be used between the mounting block of the instrument and the thermal sink of the final system.

A more detailed CAD drawing can be found on the product page at www.micronoptics.com.

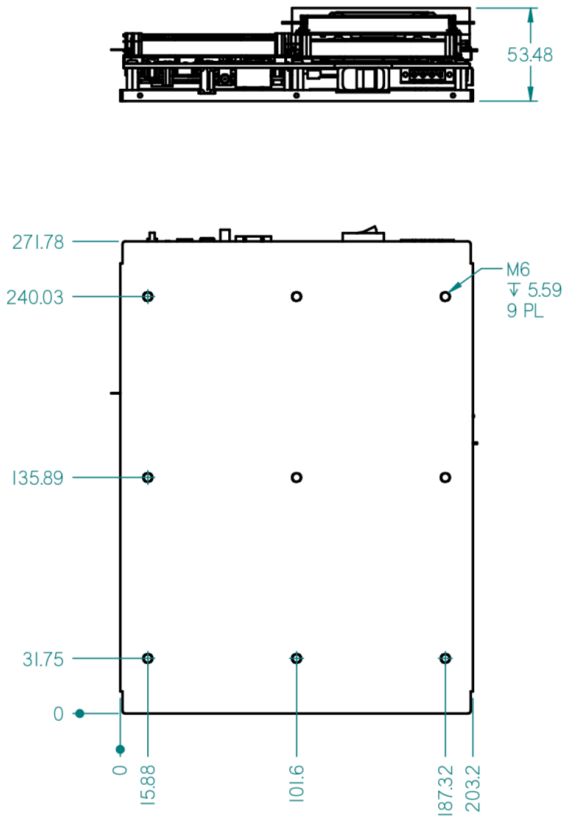


Figure 1. Dimensions (mm) and locations of tapped M6 holes for mounting purposes. Drawing available at www.micronoptics.com.

6. FIBER HANDLING

Usage of this Single Board Interrogator offering requires the handling of fragile fiber optic cabling and connectors.

CAUTION: Fiber optic cabling and connectors are exposed in this form factor. Care must be taken in handling the instrument and routing fiber connections. Failure to adhere to careful handling could result in severe and permanent damage to optical components.

The customer is free to optically connect to the HYPERION interrogator as needed.

CAUTION: It is strongly encouraged to utilize the included quad fiber adapters and mounting plate. The fiber of the pigtailed LC/APC connectors should not extend passed the edge of the heatsink.

7. IP ADDRESS MANAGEMENT

The protocol used by the HYPERION platform is TCP/IP. The platform supports both static and dynamic IP address allocation. As shipped, each Hyperion instrument ships on a default IP address of 10.0.0.55 with a netmask of 255.255.0.0.

In off the shelf versions of this platform, an LCD screen displays this and other information in conjunction with the pushbutton on the peripheral side of the instrument. Should the customer have a need to reset the IP address, the following procedures can be used to reset and change to a desired IP address.

1. Disconnect Ethernet cable from the HYPERION
2. Setup a network (network #1) that supports the IP address 10.0.0.55 with a client PC assigned with a 10.0.X.X IP address where X is a number between 1-255.
3. From a client PC on network #1 ping the IP address with 10.0.0.55 and confirm that no other devices respond.

4. While the HYPERION is powered (red and green LEDs illuminated), hold the pushbutton down for 15 seconds.
5. Connect the HYPERION to the network #1.
6. From the client PC on network #1, ping the IP address 10.0.0.55 and ensure that a response is successful.
7. If this IP addressed is desired, skip to step #11.
8. From the client PC on network #1, use the **#SetStaticNetworkSettings** command to set the desired network settings for use on network #2 (if different that network #1).
9. From a client on PC on network #2, ping the desired IP address set in step #8 and confirm no other devices respond
10. Connect the HYPERION to network #2.
11. From the client PC on network #2, ping the IP address set in step #8 and ensure that a response is successful.