



# Application Note:

## *Using PowerMax-Pro Sensors with Legacy Meters*

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### Introduction

This Application Notes describes how to use PowerMax-Pro sensors with existing legacy meters.

While you can do so, many of the features that are enabled with the LabMax-Pro SSIM meter are not included in the legacy meters of the past. This includes such meters as the FieldMax II, FieldMate, LabMax TOP, and others.

### Limitations of Legacy Meters

This section describes some of the limitations you can expect when using the PowerMax-Pro sensors with legacy meters.

#### **Legacy meters cannot use the high speed channel.**

Legacy meters have the capability to only collect 10Hz sampling from the PowerMax-Pro sensor. There are no capabilities for a high-speed channel nor a snapshot feature.

#### **Legacy meters cannot use temperature compensation with PMP.**

Legacy meters do not use the temperature compensation in the way that the PMP sensor uses it. The PMP sensor has temperature compensation as a function of wavelength meaning that depending on the wavelength that you are using you can have a specific temp compensation dependent on the effects on that wavelength on the sensors coating. The Legacy meters do not have this capability so no temperature compensation can be applied at all. The lack of temperature compensation can result in as much as an additional 9% error.

#### **Legacy meters cannot use all of the Wavelength compensation potential.**

Legacy meters have limited data storage capability, so they are limited in the amount of data that can be read from the EEPROM. Only 7 spots of wavelength compensation are available to a legacy meter. Therefore, there are direct wavelength calibrations in the PowerMax-Pro sensor that cannot be read with legacy meters.

Manual compensation for error in wavelength can be applied with the data provided with your sensors calibration sheet. However, using the closest wavelength on the meter could result in an additional error. See the next section for details.

## Effects on Wavelength Compensation

Following is a breakdown about potential performance of the PowerMax-Pro family by coating types, and how wavelength compensation is affected with use of legacy meters.

- A **BB coating** is flat to within 5% from the UV to 3µm, so the error on the legacy meter is minimal to the LabMax-Pro SIMM meter. However, you may see a couple extra percent of error.
- An **HD coating** is flat to about 5% from the UV to 1µm, so the error on the legacy meter is minimal to the LabMax-Pro SIMM meter. However, you may see a couple extra percent of error.
- An **HP coating** has a rather steep curve from 1 micron and could have up to a 10% error or more when used with legacy meters that are on the opposite end of the calibration wavelengths. For this reason, Coherent highly recommends **against** using sensors with an HP coating with any of the legacy meters.

The following table lists various calibration wavelengths used with the different PowerMax-Pro sensor models. The colors indicate conditions:

- Boxes highlighted in yellow show the values used with a legacy meter; for example, with the BB coating, while many calibration points are collected, only a few referenced values are used.
- Red boxes indicate wavelengths that are not used with legacy meters, but are used with the PowerMax-Pro SSIM.
- Items in blue (Future Adds) represent a new calibration wavelength to be implemented by the end of calendar year 2017.

**Table 1. PMP Wavelength Compensation with Legacy Meters**

Wavelength	BB	HD	HP
300	X		
355	X	X	
532	X	X	
640	X	X	X
810	X	X	X
940			X
988			X
1064	X	X	X
1154	X	X	X
2100	X		
3500	X		
5000	X		
9000	X		
9300		X	X
10600	X	X	X
11000	X		

Legacy Meter	COLOR KEY
Used	
Not Used	
Future Adds	

## Contact Coherent

For additional information, contact Coherent Technical Support as follows:

- Contact your local Coherent Service Representative (or visit [www.Coherent.com](http://www.Coherent.com) to view a list of contacts worldwide)
- Send an e-mail to: [LSMservice@Coherent.com](mailto:LSMservice@Coherent.com)
- Call the Coherent Technical Support Hotline
  - Within the USA: 1-(800)-343-4912
  - Outside of the USA: 1-(408)-764-4042

For additional information about **sensor products**, go to:

<https://www.coherent.com/measurement-control>

For answers to **frequently asked questions**, go to this link, scroll down and click FAQ, then select Ask a Question or Read the Answers:

<https://www.coherent.com/measurement-control/measurement/laser-measurement-and-control-help-center>

To download the **current software** for sensor products, go to this link and scroll down to the Software, Drivers & Manuals section:

<https://www.coherent.com/measurement-control/measurement/laser-measurement-and-control-help-center>

To arrange for warranty service or annual recalibration, contact your regional Coherent service center to obtain a Return Material Authorization (RMA) number. Use the shipping box and packaging materials you retained to safely transport the sensor back to the factory, and ship to this address:

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Attn: RMA #