

# OBB New Product Release

## ***Dual Stage Thermoelectrically Cooled PMT Housing – The Cool One***

OBB's new PMT housing is an economical, compact, thermoelectrical, air cooled housing for any 28 mm diameter side-on PMT. "The Cool One" increases signal to noise by reducing the dark count of the photo multiplier tube. PMT's that can detect in the NIR range have higher dark counts; by cooling the PMT the dark count is reduced. As an example, the dark count of our 309 PMT, which has a wavelength range from 400 to 1200 nm, is 270,000 when not cooled—making it virtually useless for detecting almost anything but the strongest signal. When in our cooled housing, the dark count is reduced to just 40 counts. Therefore if one uses tubes that can detect above 600 nm, a cooled housing is almost mandatory.

"The Cool One" can be purchased for virtually any spectroscopy product where a side-on PMT is used and where it can be attached directly to a sample compartment, monochromator, spectrograph etc.

The cooled housing comes complete with high voltage power supply for the PMT as well as a supply and controller for the housing. The temperature and high voltage is monitored with an indicator light signaling when desired temperature (minus 20° C is the ideal for supported PMT tubes) is achieved. High voltage can be controlled either directly on the controller or remotely by software.



### ***Specifications for cooled housing with controller:***

<b>PMT's supported:</b> (PMT sold separately)	Virtually all 28 mm diameter side-on tubes
<b>Cooling:</b>	Double stage thermo-electric cooling—air cooled
<b>Cooling temperature:</b>	-30° C minimum, controlled to -20° C
<b>Temperature control:</b>	Monitored and controlled to 20° C, includes overheat protection for heat exchanger
<b>Window:</b>	Synthetic silica 185 nm to 2,200 nm, heated to prevent condensation
<b>High Voltage power supply:</b>	150 to 1250 V included, manual or can be controlled remotely with PC
<b>AC input voltage:</b>	100 to 260 V, 50 or 60 Hz
<b>Mode of operation:</b>	DC
<b>Output:</b>	Direct connection to anode

The direct output from the Cooled PMT housing can be connected to: Oscilloscope, electrometer, voltmeter, strip chart recorder, data acquisition module, etc.



# OBB New Product Release

## ***Dual Stage Thermoelectrically Cooled PMT Housing – The Cool One***

### ***Specification with “Golden Box” option:***

The “Golden Box” allows for the cooled housing to be operated in the Photon Counting and Analog Modes

#### ***Photon Counting Mode (digital)***

In Photon Counting Mode the “Golden Box” functions as a pulse-conditioning unit.

Max count rate:	10 million
Absolute linear:	3 million
Linear count rate: (-5% deviation)	7 million
Pulse pair resolution:	60 nanoseconds
Output pulses:	TTL
High voltage:	Factory set

From photon counting mode the output is in a form of a TTL pulse and can go into a data acquisition module with a discriminator and counter

#### ***Analog Mode***

In Analog Mode, the Golden Box functions as a filter. Analog Mode is best for higher signal levels above 100–200 KHz (below should use photon counting). There are three settings in analog mode: low, medium, high. The default setting is medium, other two settings can be selected by jumpers.

Low	10 KHz bandwidth	0.1 ms time response
Medium	30 MHz bandwidth	30 ns time response
High	200 MHz bandwidth	4–5 ns time response
High voltage	Controllable direct or remote by software from 150 to 1250 V	

From the analog mode the output is a current or a voltage, which can be measured with a voltmeter, current meter or data acquisition module.

On request we can provide data acquisition module and basic acquisition software that can be use with either photon counting or analog signals.

***O.E.M. inquires welcome.***



**OPTICAL BUILDING BLOCKS CORPORATION**

USA: OBB Corp. 300 Birmingham Road, PO Box 186 Birmingham, NJ 08011  
Tel: 609-894-1541, Fax: 609-784-7809  
E-mail: [contact@OBB1.com](mailto:contact@OBB1.com), [www.OBB1.com](http://www.OBB1.com)

Europe: PhotoMed GmbH, Inninger Str. 1, 82229 Seefeld, Germany  
Tel: +49 (0) 8152 993090, Fax: +49 (0) 8152 993098  
E-mail: [sales@photomed.com](mailto:sales@photomed.com)