

## Control Electronics and Software

LaserPoint has developed various electronic solutions and SW tools for conditioning the signals of laser sensors or for analyzing and transferring information to the control units of lasers or laser systems. These electronic products can be small electronics meters, enclosed modules, or complex boards with data acquisitions SW. For an exhaustive and complete description please refer to Displays and Control Section within this catalogue or visit the website [www.laserpoint.it](http://www.laserpoint.it)



*This ultra-compact product fulfils diverse OEM requirements being a circuit board, internal to the AH series heads, which amplifies and speeds up response times of sensors discs.*

*A main feature is the possibility to vary sensors sensitivities, via a variable resistor, to make all detectors equally performing.*

*The board can work with additional custom electronics or read with a display. It also offers fast response times, high sensitivity, accuracy and linearity.*

*Output connectivity options for the amplified heads include Molex or a simple 4 wires pigtail.*

### Amplifying and Accelerating OEM Electronics for the AH Series Detectors

Output Voltage, Full Scale: 5V  
 Min. Detectable Voltage : 5mV  
 Total Sensitivity: 5V/ Max Power Value for the sensor in use  
 Linearity± 1%  
 Max Power Values: 5W,10W,20W,50W,100W,200W , depending on sensor type  
 Minimum detectable Power: 1/1000 of Full Scale  
 Head response times 0.8 sec.typ,  
 Supply voltages can range between: ± 7VDC to ± 12VDC or 14 to 24VDC floating.  
 Dimensions: Dia 43mmx10mm  
 Max Head Temperature :60 °C



*The real industrial OEM power or energy meter with all features for laser or process monitoring. All I/O are opto-isolated and immune from RF and electrical pick-ups. The LPM-OEM board simply plugs on standard DIN rails inside machine cabinets. It can be driven by PC, via its RS232 output or by manual commands. Setting of process thresholds can generate alarms and a GO/NO GO to the machine. The application SW bears statistical functions (min,max,avg, RMS,PTP) and an unlimited capacity of data recording. The LPM-OEM can work with any of LaserPoint's Power and Energy Detectors, Sensors and Laser Probes*

### Laser Processor Monitor OEM Board : LPM-OEM

#### -Operation with Power and Energy Sensors

\*Power Ranges: 1mW to 10kW /1mJ to 300J  
 \*Resolution: 0.5‰ for any Full Scale  
 \*Response Time: <1-5 sec. ( depends on each specific head)

#### -Operation with FIT Laser Probes

\*Power Ranges: 1mW to 6 kW  
 \*Resolution: 0.5‰ for any Full Scale  
 \*Response Time: 4 sec (final value)

#### -General

\*Electronics Board : Plugs on Standard DIN rail  
 \*External Interfacing: Remote via RS232 & Local or only Local ((RS485-optional on request)  
 \*Digital Input (Measurement Trigger): 3-30 Vac /dc Opto -isolated  
 \*Analogue Outputs : Opto -Isolated 0- 10V or 4-20mA  
 \*Detector Input: DB15 Female Connector  
 \*Input/Output interface: Screw terminals  
 \*Digital Output: Opto -Isolated RS232 on DB9 connector (RS 485 Mod-BUS Protocol- optional)

#### Alarm Relay

\*Process GO/NO GO Relay: 220V, 10A (COM-NC-NO)  
 \*Power Supply AC (V) @ 50-60Hz: 220V and 110V, internally selectable  
 \*Size LxWxH (mm): 260x100x110mm



The cased, CE marked, version of LPM with all features for laser or process monitoring. All I/O are opto-isolated and immune from RF and electrical pick-ups. The LPM-CE case simply plugs on standard DIN rails within lasers or machine cabinets. It can be driven by PC, via its RS232 output or by manual commands. Setting of process thresholds can generate alarms and a GO/NO GO to the machine. The application SW bears statistical functions (min,max,avg, RMS,PTP) and an unlimited capacity of data recording. The LPM-CE can work with any of LaserPoint's Power and Energy Detectors, Sensors and Laser Probes

## Laser Process Monitor , Cased Version: LPM-CE

**CE** Marked

### -Operation with Power and Energy Sensors

\*Power Ranges: 1mW to 10kW /1mJ to 300J  
 \*Resolution: 0.5‰ for any Full Scale  
 \*Response Time: <1-5 sec. ( depends on each specific head)

### -Operation with FIT Laser Probes

\*Power Ranges: 1mW to 10kW  
 \*Resolution: 0.5‰ for any Full Scale  
 \*Response Time: 4 sec (final value)

### -General

\*Electronics Housing : Inox Enclosure Plugs on Standard DIN Rails  
 \*External Interfacing: Remote via RS232 & Local or only Local ((RS485-optional on request)  
 3-30 Vac /dc Opto -isolated  
 Opto -Isolated 0- 10V or 4-20mA  
 DB15 Female Connector  
 Screw terminals  
 Opto -Isolated RS232 (RS 485 Mod-BUS Protocol- optional)

\*Digital Input (Measurement Trigger):  
 \*Analogue Outputs :  
 \*Detector Input:  
 \*Input/Output interface:  
 \*Digital Output:

### Alarm Relay

\* Process GO/NO GO Relay: 220V, 10A (COM-NC-NO)  
 \*Power Supply AC (V) @ 50-60Hz: 220V and 110V, internally selectable  
 \*Size LxWxH (mm): 305x160x70mm



The PLUS monitor can be purchased as a standalone instrument for external use in a system or machine. Communication with the host system can be via RS232 digital output. A 0-2V analog output is also available. The optional application SW allows the setting of working thresholds to generate alarms and a GO/NO GO to the machine. It also bears statistical functions (min,max,avg, RMS,PTP) and an unlimited capacity of data recording. The PLUS can work with any of LaserPoint's Power and Energy Detectors, Sensors and Laser Probes.

## Laser Power and Energy Meter : PLUS Monitor

**CE** Marked

\*Power Ranges: 1mW to 10kW/1mJ to 300J  
 \*Resolution: 0.5‰ for any Full Scale  
 \*Response Time: <1-5 sec. ( depends on each specific head)  
 \*Tuning function by Bargraph:  
 \*Wavelength Selection:

\*UCF:

### -General

\*Digital Display: 4-digit LCD readout  
 \*Monitor accuracy: ±0.5%  
 \*Scales: 3 scales (00.00 / 000.0 / 0000) ,head dependent with 0.5‰ resolution  
 0-2V ±1.0%  
 RS-232 on DB9Connector or USB  
 12VDC or battery  
 150 (W) x 105 (H) x 45 (D)  
 500g

\*Analog Output:  
 \*Digital Outputs:  
 \*Input voltage:  
 \*Dimensions (mm) :  
 \*Weight:

6 wavelenghts for Excimers, VIS, diodes,Nd-Yag, CO2  
 User's Own Re-Calibration Factor



This SW allows a monitoring up to 12 continuous hours of laser or process behaviour and recording of running measurement  
 The Process Parameters settings give a visual alarm or can generate a GO/NOGO to the system  
 Calculation and recording of all relevant Statistical Parameters are set for machine validation.  
 A Tuning screen is provided for laser or beam delivery components alignment

## Application SW for LPM and PLUS: PLUS-SOFT and LPM-SOFT

### General:

UCF: user's own calibration factor

Actual Time: shows present day and time

POWER (W/mW); ENERGY: shows the measured power or energy values.

TEMPERATURE (°C): shows the temperature on those heads provided with temp. sensor

ZERO: accomplishes an automatic Zeroing

SAVE: enables the automatic function to save on file done measurements ; this function is active when Led is green.

Graph Power Max/Min (W): sets the Power axis on the power plot.

Graph Time: sets the Time axis on the power plot; 12 h max

### Process Parameters Window:

MAX/Min Power Levels: set process thresholds,

Process Parameter : show that measured power is outside one or both the preset process thresholds;

### Statistical Functions Window:

P,E max,min,avg(W,J) : max power/energy value measured during the last acquisition interval

PTP (%): Peak-to-Peak stability

STD (W): Standard Deviation

RMS (%): RMS stability

Duration (s): acquisition interval in sec., up to 24 hours

Elapsed Time (s): elapsed time after acquisition started.

START/STOP: Start/Stop acquisition

SAVE: automatic saving on file of statistical measurements

Save on File of Running Measurements

### Tuning Function Window

Double bargraph

Power Variation (%): shows the percent variation of power gained or lost during tweaking

Power Max(W): during tweaking shows and stores the highest reached power value

### Alarms

OVERFLOW, COOL

