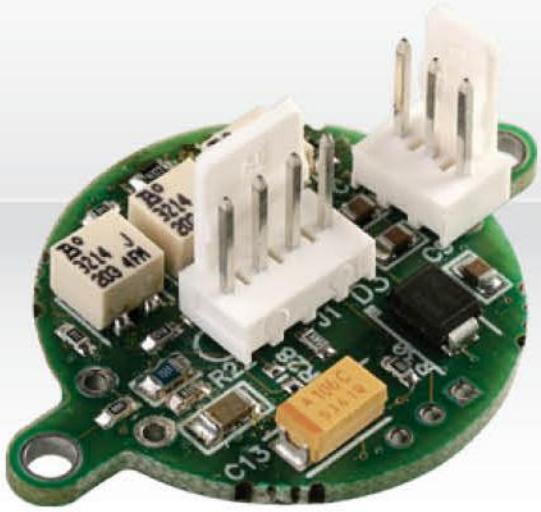

USER MANUAL

OEM PCB - Amplification and Anticipation for UD Disks

For PCB Version D, E , F, G and H

gentec-eo
PARTNERS for ACCURACY

121-200815

WARRANTY

All Gentec-EO products carry a one-year warranty from the date of shipment on material or workmanship defects when used under normal operating conditions.

Gentec-EO will repair or replace, at its sole discretion, any product that proves to be defective during the warranty period.

The warranty does not cover damages caused by product misuse, product modifications, accidents, abnormal operating or handling conditions, or third-party battery leakage. Any attempt by an unauthorized person to alter or repair the product voids the warranty. Gentec-EO is not liable for consequential damages of any kind.

CLAIMS

For warranty service, please contact your Gentec-EO representative or fill out an RMA request:

https://www.gentec-eo.com/contact-us/support-rma-request

To help us answer your request more efficiently, please have your product serial number ready before contacting customer support.

Upon receipt of return authorization, ship the product according to the RMA instructions. Do not ship items without a return authorization. Transport is at the customer's expense, in both directions, unless the product has been received damaged or non-functional. Gentec-EO assumes no responsibility for the damage caused in transit.

TABLE OF CONTENTS

1. OEM PCB

1.1. INTRODUCTION

The OEM PCB contains 1 amplification circuit and 1 anticipation circuit. The circuits are wired in series. The OEM PCB requires only 1 single power supply. The negative power is generated on board. The OEM PCB gain is factory-adjusted, but there is a potentiometer for fine-tuning. The anticipation potentiometer is set at mid-range and may have to be tuned with the OEM head. There is also a potentiometer to adjust the offset of the amplification circuit.

1.2. SPECIFICATIONS

The following specifications are based on a one-year calibration cycle, an operating temperature of 18 to 85ºC (64 to 185ºF) and a relative humidity not exceeding 80 %.

	Standard OEM PCB	28V OEM PCB specifications
Signal input range	-0.7 to 2.6V	-0.7 to 2.6V
Output voltage	-0.3 to VDD-3 Volts to a maximum of 12 V	- 0,3 to VDD-2 V when powered 5 to 15 V -0.3 to 12.5 V when powered 15 to 28 V
Recommended load Impedance	10 MΩ	
Response time (accelerated)	Head dependent	
Maximum temperature	85 ºC	
Output impedance	50 ohms	
Input impedance	>10 MΩ	
Dimensions	41 (L) x 29 (W) x 18 max (H) mm	
Weight	10 g	
Output and power Connector type	4 pins Male Molex: part number 22-27-2041 4 pins Female Molex: part number: 22-01-3047 Terminal part number: 08-50-0032	
Disc connector	3 pins Male Molex: part number 22-27-2031 3 pins Female Molex: part number 22-01-3037 Terminal part number: 08-50-0032	
Connector hole size	38 mils	
Connector hole spacing	100 mils	
External power supply		
Power supply range and no-load current consumption	12 to 16 VDC with 8 mA no load.	5 to 15 VCC with 8 mA to 11 mA no load, 15 to 28 VCC with 11mA to 12 mA no load.

1.3. POWER SUPPLY FOR STANDARD OEM PCB

The Standard OEM PCB needs only a positive power supply, the negative power supply is generated on-board. The Standard OEM PCB is protected against voltage inversion and voltage spikes. The internal voltage is limited via a 15 V zener diode. The maximum supply is 16 V. Do not connect the signal output to the power connection; it will damage the PCB.

The maximum output voltage is limited by the voltage drop of the analog circuit. The output formula is -0.3 to VDD-3 V to a maximum of 12 V. Here is a table for quick reference.

Power supply voltage (VDD)	Maximum Output
16 V	12 V
15 V	12 V
14 V	11 V
13 V	10 V
12 V	9 V

1.4. POWER SUPPLY FOR 28V OEM PCB

The 28V OEM PCB needs only a positive power supply, the negative power supply is generated on-board. The 28V OEM PCB is protected against voltage inversion and voltage spikes. The internal voltage is limited via a 15 V LDO regulator. The maximum supply is 28 V. Do not connect the signal output to the power connection; it will damage the PCB.

The maximum output voltage is limited by the voltage drop of the analog circuit. The output formula is -0.3 to VDD-2 V to a maximum of 15 V supplied voltage. Here is a table for quick reference.

Power supply voltage (VDD)	Maximum Output
15 V to 28 V	12.5 V
14 V	12 V
13 V	11 V
12 V	10 V

2. OPERATION

2.1. CONNECTING THE DISK TO THE PCB

We recommend keeping the distance between the disk and the PCB as short as possible. When the disk is less than 3 inches apart from the PCB, use two 26-gauge wires. Connect the disk using the molex 3 pin connector. If the disk is far from the PCB, it is recommended to use a shielded two wire cable, ex: Belden # “9397 black”. The output pad is P4 or pin 1 of J1. The cable length between the PCB and the measuring device should be less than 2 meters.

2.2. AVOIDING NOISE

The OEM PCB may have a high gain configuration, making it very sensitive to external noise. It is recommended to shield the OEM PCB in a metal enclosure. It is also recommended to connect the GND to all parts touching the disk. If you still have noise, you will have to shield the disk, wires and PCB.

2.3. REMOVING THE ANTICIPATION

If the OEM PCB is in a noisy environment, the anticipation circuit can sometimes cause additional noise in the measurement. To remove the anticipation, remove Resistor R22, see Fig. 1-4. You will need to adjust the offset. See section 2.5. The gain will not change.

2.4. ADJUSTING THE OEM PCB

The OEM PCB has 3 potentiometers:

- Potentiometer R7 is the offset adjustment.
- Potentiometer R5 is the gain adjustment.
- Potentiometer R6 is anticipation adjustment.

The gain, offset, and anticipation are factory-adjusted, and have a ± 30 % adjustment range.

Procedure:

1. Connect the disk using the 3-pin female connector. The center pin is not used.
2. Insert the Output/power 4-pin female Molex connector.
3. Plug the power supply.
4. Plug the output to a voltmeter.
5. Wait until the sensor is thermally stabilized. Adjust to zero the offset with R7.
6. Turn on the light source. If necessary, adjust the Gain using R5.
7. To adjust the anticipation, plug the output to an oscilloscope.

   Step 1: Turn on the light source,

   Step 2: Look at the shape of the output signal. If the signal is too slow, turn R6 counterclockwise. If the signal is too fast turn R6 clockwise.

   Step 3: Go to step 1

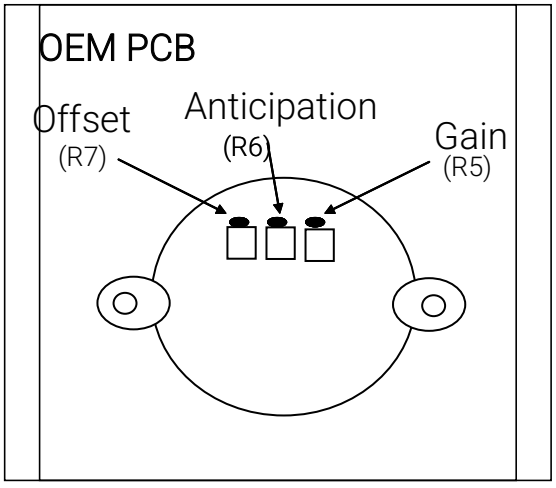

Fig. 1-1 The OEM PCB potentiometer

2.5. SOLDER CONNECTIONS

Before soldering to the PCB, check the solder pad connections, as they will be reversed if soldering to the back side.

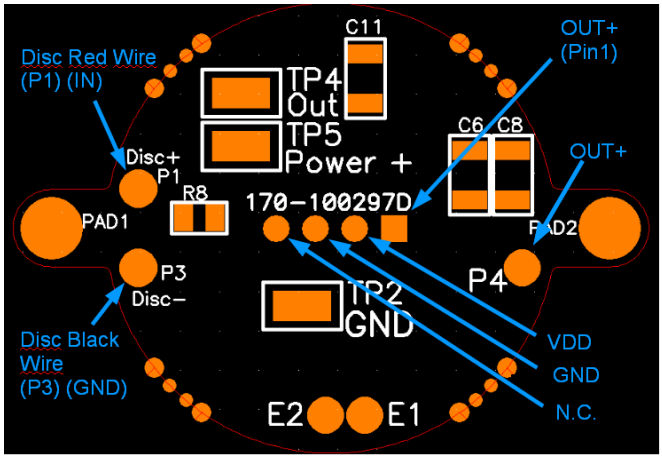

Fig. 1-1 View of the Standard OEM PCB IC side

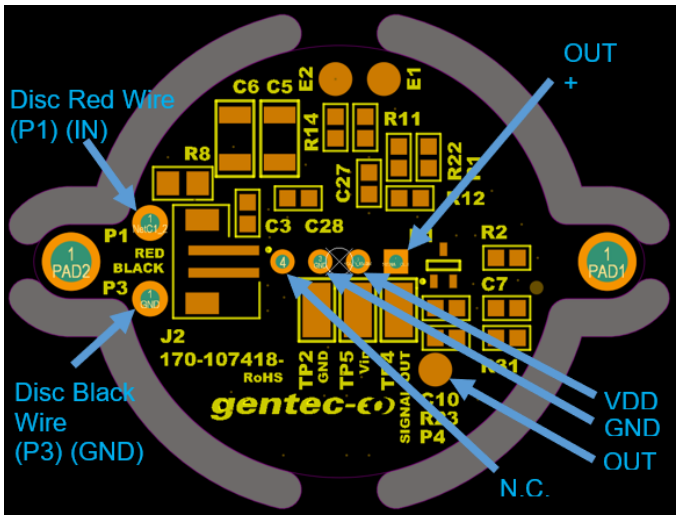

Fig. 1-3 View of the 28V OEM PCB IC side

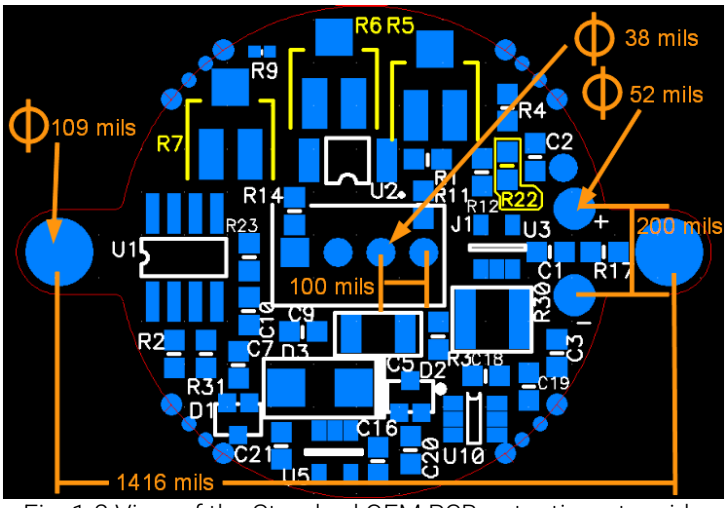

Fig. 1-2 View of the Standard OEM PCB potentiometer side

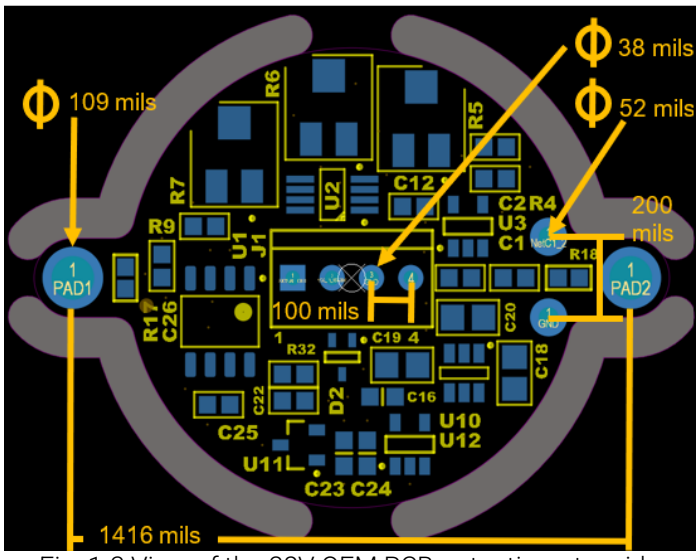

Fig. 1-3 View of the 28V OEM PCB potentiometer side

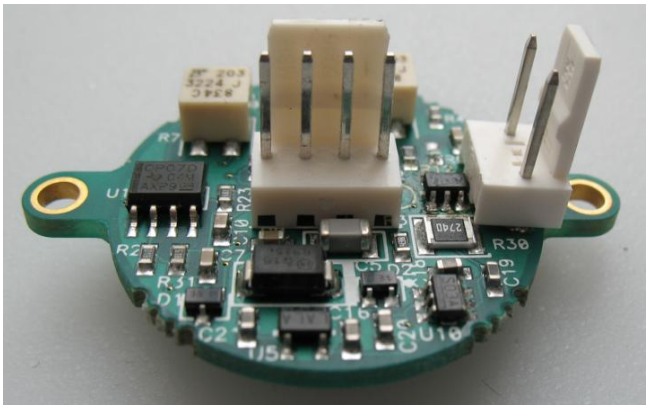

Fig. 1-4 Example of OEM PCB

3. DETECTOR SPECIFICATIONS UP/XLP

See the UP/XLP user manual for full specifications. Only the specifications related to OEM PCB are printed here.

The following specifications are based on a one-year calibration cycle, an operating temperature of 15 to 28°C, and a relative humidity not exceeding 80%. Store between 10 and 65°C, with relative humidity not exceeding 90%.

While spectral curve calibration may be provided with OEM PCB products, adjustments for wavelength must be applied by the end user. The OEM PCB supports calibration at a single wavelength only.

UP(F)10K-2S-H5-L	
Power noise level	0.2 mW with anticipation 0.1 mW without anticipation
Typical rise time (0-95%)	3.0 s (1.1 s with anticipation)
Typical sensitivity	2 V/W
Dimensions (mm)	UP10K: 50(H) x 50(W) x 27(D) UPF10K: 50(H) x 50(W) x 35(D)
Weight (head only)	UP10K: 0.20 kg UPF10K: 0.21 kg

UP12E-...-H5-...	10S -H5 With PCB
Power noise level	0.5 mW with anticipation 0.25 mW without anticipation
Typical rise time (0-95%)	0.3 s (with anticipation)
Typical sensitivity	400 mV/W
Dimensions (mm)	10S: 38(H) x 38 (W) x 36.6 (D)
Weight (head only)	10S: 0.20 kg

UP19K-...-Hx-...	15S / 30H / 50L / 100DI / 110F / 150W -H5 and 15S / 110F / 150DI / 200W -H9 With PCB
Power noise level	With anticipation H5: 0.4 mW, H9: 1.2 mW [e] Without anticipation H5: 0.2 mW, H9: 0.6 mW [e]
Typical rise time (0-95%)	0 H5: 0.5 s (with anticipation) H9: 1.5 s (with anticipation)
Typical sensitivity	15S-H5: 400 mV/W 15S-H9: 200mV/W 30H: 200 mV/W 50L: 120 mV/W 100DI: 55 mV/W 110F: 55 mV/W 150W: 50 mV/W 150DI: 50 mV/W 200W: 30 mV/W
Dimensions (mm)	15S: 50(H) x 50(W) x 25.6(D) 30H: 50(H) x 50(W) x 61.3(D) 50L: 76.2(H) x 76.2(W) x 78.6(D) 100DI: 50(H) x 50(W) x 38(D) 110F: 50(H) x 50(W) x 67.8(D) 150W: 50(H) x 50(W) x 38(D) 150DI: 50(H) x 50(W) x 38(D) 200W: 50(H) x 50(W) x 38(D)
Weight (head only)	15S: 0.20 kg 30H: 0.25 kg 50L: 0.52 kg 100DI: 0.46 kg 110F: 0.29 kg 150W: 0.28 kg 150DI: 0.46 kg 200W: 0.28 kg

UP19K-…-W5-…	UP19K-15S / 30H / 50L / 50F / 50W / 50DI -W5
Power noise level	0.4 mW with anticipation [d] 0.2 mW without anticipation [d]
Typical rise time (0-95%)	1.4 s (with anticipation)
Typical sensitivity	15S: 400 mV/W 30H: 200 mV/W 50L: 120 mV/W 50F: 120 mV/W 50W: 120 mV/W 50DI: 120 mV/W
Dimensions (mm)	15S: 50(H) x 50(W) x 25.6(D) 30H: 50(H) x 50(W) x 61.3(D) 50L: 76.2(H) x 76.2(W) x 78.6(D) 50F: 54.2(H) x 54.2(W) x 60.6(D) 50W: 50(H) x 50(W) x 38(D) 50DI: 50(H) x 50(W) x 38(D)
Weight (head only)	15S: 0.20 kg 30H: 0.25 kg 50L: 0.52 kg 50F: 0.29 kg 50W: 0.28 kg 50DI: 0.46 kg

d. Noise level measured using P-LINK (USB). Noise level is dependent on acquisition system.

UP25N(M)-…-Hx-…	UP25N-40S / 100H -H9 UP25N-250F-H12 UP25M-350W-H12
Power noise level	With anticipation 40S / 100H: 2 mW [e] 250F-H12: 20 mW [e] 350W-H12: 20 mW [e] Without anticipation 40S / 100H: 1 mW [e] 250F-H12: 10 mW [e] 350W-H12: 10 mW [e]
Typical rise time (0-95%)	H9: 1.3 s (with anticipation) H12: 2 s (with anticipation)
Typical sensitivity	40S-H9: 150 mV/W 100H-H9: 60 mV/W 250F-H12: 24 mV/W 350W-H12: 24 mV/W
Dimensions (mm)	See UP user manual
Weight (head only)	See UP user manual

UP50N(M)-...-W9-...	UP50N-40S / 50H -W9 UP50M-50W -W9
Power noise level	6 mW with anticipation [d] 3 mW without anticipation [d]
Typical rise time (0-95%)	16 s (3.5 s with anticipation)
Typical sensitivity	40S: 150 mV/W 50H: 120 mV/W 50W: 120 mV/W
Dimensions (mm)	See UP user manual
Weight (head only)	See UP user manual

[d] Noise level measured using P-LINK (USB). Noise level is dependent on acquisition system.

UP52N(M)-...-QED-...	UP52N-50S/100H/150F-QED UP52M-300W-QED
Power noise level	30mW with anticipation [d] 15 mW without anticipation [d]
Typical rise time (0-95%)	5 s (with anticipation)
Typical sensitivity	50S : 120 mV/W 100H : 60 mV/W 150F : 40 mV/W 300W : 20 mV/W
Dimensions (mm)	See UP user manual
Weight (head only)	See UP user manual

[d] With PCB : Noise level measured using P-LINK (USB). Noise level is dependent on acquisition system.

UP55N(M)-...-Hx-... UP60N(M)-...-Hx-...	UP55N-40S / 100H -H9 UP55N-300F -H12 UP55N-300DI -H12 UP55N-400DI -HD UP55M-500W -H12 UP55M-700W -HD
Power noise level	With anticipation: H9: 4mW [e] H12: 30 mW [e] HD: 90 mW [e] Without anticipation H9: 2mW [e] H12:15 mW [e] HD: 45 mW [e]
Typical rise time (0-95%)	H9: 2 s (with anticipation) H12: 3 s (with anticipation) HD: 5s (with anticipation)
Typical sensitivity	40S: 150 mV/W 100H: 60 mV/W 300F: 20 mV/W 300DI : 20mV/W 400DI : 15mV/W 500W: 15 mV/W 700W: 8 mV/W
Dimensions (mm)	See UP user manual
Weight (head only)	See UP user manual

[e] Noise level measured using P-LINK (USB). Noise level is dependent on acquisition system.

UP55N(M)-...-VR-...	UP55N-50S/100H/150F-VR UP55M-200W-VR
Power noise level	30mW with anticipation [d] 15 mW without anticipation [d]
Typical rise time (0-95%)	5 s (with anticipation)
Typical sensitivity	50S : 120 mV/W 100H : 60 mV/W 150F : 40 mV/W 200W : 30 mV/W
Dimensions (mm)	See UP user manual
Weight (head only)	See UP user manual

UP55G-...-HX-... UP60G-...-HX-...	UP55G-500F-H12 UP55G-600F-HD
Power noise level	See UP user manual
Typical rise time (0-95%)	See UP user manual
Typical sensitivity	See UP user manual
Dimensions (mm)	See UP user manual
Weight (head only)	See UP user manual

gentec-eo
PARTNERS for ACCURACY

WWW.GENTEC-EO.COM

LEADER IN LASER BEAM MEASUREMENT **SINCE 1972**

POWER & ENERGY METERS

BEAM PROFILING

THZ MEASUREMENT

CANADA

445 St-Jean-Baptiste, Suite 160
Quebec, QC, G2E 5N7
CANADA

T (418) 651-8003
F (418) 651-1174

info@gentec-eo.com

UNITED STATES

5825 Jean Road Center
Lake Oswego, OR, 97035
USA

T (503) 697-1870
F (503) 697-0633

info@gentec-eo.com

JAPAN

Office No. 101, EXL111 building,
Takinogawa, Kita-ku, Tokyo
114-0023, JAPAN

T +81-3-5972-1290
F +81-3-5972-1291

info@gentec-eo.com

CALIBRATION CENTERS

- 445 St-Jean-Baptiste, Suite 160
  Quebec, QC, G2E 5N7, CANADA
- Werner von Siemens Str. 15
  82140 Olching, GERMANY
- Office No. 101, EXL111 building,
  Takinogawa, Kita-ku, Tokyo
  114-0023, JAPAN