

LDP1000 SERIES

USER'S MANUAL

GAS PURIFIER FOR NOBLE GASES, NITROGEN & HYDROGEN



LDP1000 Serie

Gas Purifier

USER'S MANUAL
V2.2



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1. Forewarning

Any user that wants to use the compact-LDP1000, LDP1000 or Large-LDP1000 must read this manual. It contains important information to successfully operate this purifier. LDetek assumes that all operators have taken the time to read thisinformation before installing, operating and troubleshooting this device.

If any error is suspected by the reader, please contact LDetek. LDetek reserves the right to make any changes to subsequent editions of this document without prior notice to holdersof this edition.

LDetek will not be held responsible for any damages arising from or related to this document or the information contained within it.

We want to thank you for choosing LDetek as your gas analyzer supplier.

2. Warranty, maintenance, and service policies

Goods and part(s) (excluding consumables) manufactured by the seller are warranted to be free from defects in workmanship and material under normal use and service for **twelve (12) months** after installation and start-up and not exceeding **eighteen (18) months** from shipment date. Consumable, chemical traps, O-rings, etc., are warranted to be free from defects in workmanship and material under normal use and service for a period of **ninety (90) days** from the date of shipment by the seller. Goods, part(s) proven by the seller to be defective in workmanship and/or material shall be replaced or repaired, free of charge, F.O.B. Seller's factory provided that the goods, part(s) are returned to Seller's designated factory, transportation charges prepaid, within the twelve (12) months after installation and start-up and not exceeding 18 months from shipment date. In the case of consumables, within the ninety (90) days period of warranty, a defect in goods, part(s) and consumable of the commercial unit shall not operate to condemn such commercial unit when such goods, part(s) and consumable are capable of being renewed, repaired or replaced.

The Seller shall not be liable to the Buyer, or any other person, for the loss or damagedirectly or indirectly, arising from the use of the equipment of goods, from breach of anywarranty, or any other cause.

ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED ARE HEREBY EXCLUDED.

IN CONSIDERATION OF THE HEREIN-STATED PURCHASE PRICE OF THE GOODS, THE SELLER GRANTS ONLY THE ABOVE-STATED EXPRESS WARRANTY. NO OTHER WARRANTIES ARE GRANTED INCLUDING, BUT NOT LIMITED TO, EXPRESS AND IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESSFOR A PARTICULAR PURPOSE.

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Limitations of Remedy. SELLER SHALL NOT BE LIABLE FOR DAMAGES CAUSED BY DELAY IN PERFORMANCE. THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF WARRANTY SHALL BE LIMITED TO REPAIR OR REPLACEMENT UNDER THE STANDARD WARRANTY CLAUSE. IN NO CASE, REGARDLESS OF THE FORM OF THE CAUSE OF ACTION, SHALL THE SELLER'S LIABILITY EXCEEDS THE PRICE TO THE BUYER OF THE SPECIFIC GOODS

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Major force. The seller is not liable for failure to perform due to labour strikes or actsbeyond the seller's direct control.

SERVICE POLICY

1. If a product should fail during the warranty period, it will be repaired free of charge. Forout-of-warranty repairs, the customer will be invoiced for repair charges at current standard labour and materials rates.

2. Customers who return products for repairs, within the warranty period, and the productis found to be free of defect, may be liable for the minimum current repair charge.

3. For parts replacement, the original part must be returned with the serial and model numbersof the analyzer. **NO PART WILL BE SHIPPED IF THE ORIGINAL IS NOT SENT BACK TO LDETEK INC.**

RETURNING A PRODUCT FOR REPAIR

Upon determining that repair services are required, the customer must:

- Obtain an RMA (Return Material Authorization) number.
- Supply a purchase order number or other acceptable information.
- Include a list of problems encountered along with the name, address, telephone, and RMAnumber.
- Ship the analyzer in its original crating or equivalent. Failure to properly package the analyzer will automatically void the warranty.
- Every gas connection must be capped with appropriate metal caps. Failure to do so will automatically void the warranty.
- Write the RMA number on the outside of the box.
- Use an LDetek-approved carrier. Also, the delivery must be sent to LDetek facilities. LDetek will not accept airport-to-airport delivery.
- LDetek will not cover the transportation fees.

Other conditions and limitations may apply to international shipments.

PROPRIETARY RIGHTS

Buyer agrees that any LDetek's software, firmware and hardware products ordered or included in the goods ordered are proprietary of LDetek. No change, modification, defacement, alteration, reverse engineering, neither software de-compilations nor reproductions of such software or hardware products, or disclosures of programming content to other parties are authorized without the express written consent of LDetek.

To maintain LDetek's trade secret and other proprietary protection of such software and firmware, such items are not sold hereunder but are licensed to the buyer.

LDetek Inc. reserves the right to interrupt all business relationships and warranty or service if there is any tentative from any customers to reverse engineering any of LDetek productsor to tamper with any sealed module.

Trademarks and product identification as MULTIDETEK3 are the property of LDetek Inc. and shall be used only in connection with LDetek's products. No third party could remove or deface any model number or marks.

3. Declaration of conformity

EU Declaration of Conformity

1. **Product model:** LDP1000 purifier series

2. **Name and address of the manufacturer:**

LDetek Inc.
990 Monfette E.
Thetford Mines, QC G6G 7K6
+1 (418) 755-1319
Email: info@ldetek.com

This product is in conformity with the following EU Directives ,Standard(s) or Normative Document(s):

3. **Directives.**

Low Voltage Directive (LVD) 2014/35/EU,

Electromagnetic Compatibility Directive (EMC) 2014/30/EU,

Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU2014/68/EU

Pressure Equipment Directive
This product does not bear CE marking for the Pressure Equipment Directive, but are supplied in accordance with Article 4, paragraph 3 of 2014/68/EU by using SEP (sound engineering practice) in the design and manufacturer and are provided with adequate instructions for use.

4. **Standards:**

EN61326-1:2013 Electrical equipment for measurement, control and laboratory use – EMC requirements –Class B (emissions) and Industrial Locations (immunity).

EN61010-1:2010 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements

5. **On behalf of the above-named company, I declare that under our sole responsibility, on the date that the equipment accompanied by this declaration is placed on the market, it conforms with all technical and regulatory requirements of the above listed EU Directives.**

Dany Gagné / CTO
Thetford Mines, QC
Date: 06/21

UK Declaration of Conformity

1. **Product model:** LDP1000 purifier series

2. **Name and address of the manufacturer:**

LDetek Inc.
990 Monfette E.
Thetford Mines, QC G6G 7K6
+1 (418) 755-1319
Email: info@ldetek.com

This product is in conformity with the following UK Directives ,Standard(s) or Normative Document(s):

3. **Directives.**

Electrical Equipment (Safety) Regulations 2016 : S.I. 2016:1101

Electromagnetic Compatibility Regulations 2016: S.I. 2016:1091

The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 : S.I. 2012:3032

Pressure Equipment (Safety) Regulations 2016: S.I. 2016:1105

4. **On behalf of the above-named company, I declare that under our sole responsibility, on the date that the equipment accompanied by this declaration is placed on the market, it conforms with all technical and regulatory requirements of the above listed UK Directives.**



Dany Gagné / CTO
Thetford Mines, QC
Date: 08/21

990, rue Monfette Est, Thetford Mines G6G 7K6
Tél. 418 755-1319, Tél. 418 755-1329

4. Specifications

	Noble Gas Purifier	*Nitrogen Purifier*	*Hydrogen Purifier*
Getter type:	Alloy of Zr/V/Fe 2 beds (350 °C and 210 °C)	Alloy of Zr/V/Fe 2 beds (350 °C and 250 °C)	Alloy of Zr/V/Fe 2 beds (350 °C and 250 °C)
Gases purified:	Ar/He/Ne/Xe/Kr	Nitrogen	Hydrogen
Impurities removed:	H_2O, O_2, CO, CO_2, N_2, NMHC, H_2, CH_4 (Heated) H_2O, O_2, CO, CO_2, H_2 (Room temperature)	H_2O, O_2, CO, CO_2, THC, H_2, CH_4* (Heated) *CH4 removed partially)	H_2O, O_2, CO, CO_2, N2, THC (Heated)
Impurity level:	<10 ppb outlet impurities based on 10ppm inlet impurities. 1 ppb version is available	<10 ppb outlet impurities based on 10ppm inlet impurities. 1 ppb version is available	<10 ppb outlet impurities based on 10ppm inlet impurities. 1 ppb version is available
Flow:			
Compact and Standard LDP1000:	200 ml/min (nominal) 1 LPM (maximum)	200 ml/min (nominal) 1 LPM (maximum)	200 ml/min (nominal) 1 LPM (maximum)
Large-LDP1000:	2 LPM (nominal) 10 LPM (maximum)	2 LPM (nominal) 10 LPM (maximum)	2 LPM (nominal) 10 LPM (maximum)
Gas connections:	1/8'',1/4'' compression or face seal	1/8'',1/4'' compression or face seal	1/8'',1/4'' compression or face seal
Recommended operating pressure:	100 PSIG (689kPAG)	100 PSIG (689kPAG)	100 PSIG (689kPAG)
Supply:	115 VAC, 50 – 60 Hz or 220 VAC, 50 – 60 Hz	115 VAC, 50 – 60 Hz or 220 VAC, 50 – 60 Hz	115 VAC, 50 – 60 Hz or 220 VAC, 50 – 60 Hz
Power consumption:			
Compact and Standard:	Start 200W/ Run 50W	Start 200W/ Run 50W	Start 200W/ Run 50W
Large:	Start 300W/ Run 100W	Start 300W/ Run 100W	Start 300W/ Run 100W
Weight			
Compact-LDP1000:	2 lbs (0.9 kg)	2 lbs (0.9 kg)	2 lbs (0.9 kg)
LDP1000:	5 lbs (2.26 kg)	5 lbs (2.26 kg)	5 lbs (2.26 kg)
Large-LDP1000:	8 lbs (3.6kg)	8 lbs (3.6kg)	8 lbs (3.6kg)

	Carbon Dioxide Purifier	***Oxygen Purifier***
Getter type:	Alloy of Zr/V/Fe 1 bed (40 °C)	Alloy of Zr/V/Fe 2 beds (350 °C and ambient)
Gases purified:	Carbon Dioxide	Oxygen
Impurities removed:	H_2O, O_2, CH4, NMHC	H_2O, CO, CO_2, H_2, CH_4 NMHC
Impurity level:	<10 ppb outlet impurities based on 10ppm inlet impurities. 1 ppb version is available	<10 ppb outlet impurities based on 10ppm inlet impurities. 1 ppb version is available
Flow: **Compact and Standard LDP1000:**	200 cc/min (nominal) 1 LPM (maximum)	200 cc/min (nominal) 1 LPM (maximum)
Large-LDP1000:	2 LPM (nominal) 10 LPM (maximum)	2 LPM (nominal) 10 LPM (maximum)
Gas connections:	1/8'',1/4'' compression or 1/8'', 1/4'' face seal	1/8'',1/4'' compression or 1/8'', 1/4'' face seal
Recommended operating pressure:	100 PSIG (689kPAG)	100 PSIG (689kPAG)
Supply:	115 VAC, 50 – 60 Hz or 220 VAC, 50 – 60 Hz	115 VAC, 50 – 60 Hz or 220 VAC, 50 – 60 Hz
Power consumption: **Compact and Standard:** **Large:**	 Start 200W/ Run 20W Start 300W/ Run 100W	 Start 200W/ Run 20W Start 300W/ Run 100W
Weight **Compact-LDP1000:** **LDP1000:** **Large-LDP1000:**	 2 lbs (0.9 kg) 5 lbs (2.26 kg) 8 lbs (3.6kg)	 2 lbs (0.9 kg) 5 lbs (2.26 kg) 8 lbs (3.6kg)

5. Installation

5.1. Cautions



Purifiers for Noble Gas, Nitrogen, Hydrogen and Carbon Dioxide should not be used with pure oxygen or gases with a high concentration of oxygen. The purifier's gettering alloy is pyrophoric, therefore, using it with oxygen can result in the combustion of the material, damage to the surrounding area and possible injury.

NG!

To ensure safe and effective use of this product, it is essential to follow all installation instructions described in the user's manual. Any deviation from these steps may result in damage to the product or cause accidents due to improper manipulation.

To facilitate maintenance activities and emergency cases, it is recommended to install isolation valves at the inlet and outlet of the purifier. This will allow for easy shut-off of the gas flow for maintenance or in case of emergencies. This is especially true for Hydrogen purifier. A bypass valve is also appropriate to keep the flow to the analytical instruments connected to the outlet of the purifier. For more details, please refer to the section 5.5 Typical installation.

High impurity levels - such as Air - in the gas stream could cause the high temperature alarm. In such an event, the purifier must be turned off and isolation valves must be closed.

An over Pressure vent must be installed at the outlet of the purifier. In the event of a high-level of air contamination, a high pressure increased may occur in the purifier, and a relief valve must open to reduce a system pressure.

In no event shall LDetek Inc. be liable for any direct, indirect, special, incidental, or consequential damage whether based on contract, tort, or any other legal theory and whether advised of the possibility of such damages.

5.2. Application

The LDP1000 is specifically designed for purifying samples as outlined in the document "Operating Parameters". Using this instrument with any **other gas type will damage the purifier and may result in injuries**. To ensure safe and proper use, refer to the document "Operating Parameters" that accompanies the unit.

5.3. Start-up

To ensure the proper start-up of the LDP1000, it is important to follow the steps below. All LDetek products are carefully packaged in a sturdy cardboard box and accompanied by the relevant documentation. If you require any assistance, please do not hesitate to contact us at support@ldetek.com.

1. After removing the purifier from the shipping container and protective wrapping, ensure that both end caps are tight, and that the unit is in good condition.
2. Check the document "Operating Parameters" to verify that the purifier's type, voltage and fittings are correct.
3. Purge the gas line before the purifier for approximatively 20 min at 100 ml/min. The purge gas must be the same as the gas type and have a minimum purity of 99.999% (Grade 5).
4. Quickly remove the inlet cap of the purifier and connect it to the purged line. For face seal fittings, a new gasket must be installed each time.
5. Leak check the fitting connection.
6. Remove the purifier's outlet cap and connect it to the outlet gas line. Let it purge for approximatively 30 min at 100 ml/min to evacuate the Air from the getter.



Caution! The getter should never be heated when air is present.

7. Connect the purifier on the electrical source and power it on.



Caution! Make sure that you connect the right operating voltage.

8. Once powered on, let the purifier purge to the atmosphere for 3 hours. After about 30 min of purging, the getter should have reached its operating temperature. You can confirm it by looking at the yellow LED and make sure that it is off.
9. After the purging process, make sure there is no alarm. The red and yellow LEDs must be off, and the green LED must be on.

5.4. Shut-off

During normal operation, the LDP1000 must always be purged with the gas it was designed for. Leaving the unit without gas can result in the combustion of the material, damage to the surrounding area and possible injury.

If the system needs to be stopped, the purifier must be isolated. Refer to the steps below to ensure the proper shut-off of the unit. If the unit does not have isolation valves:

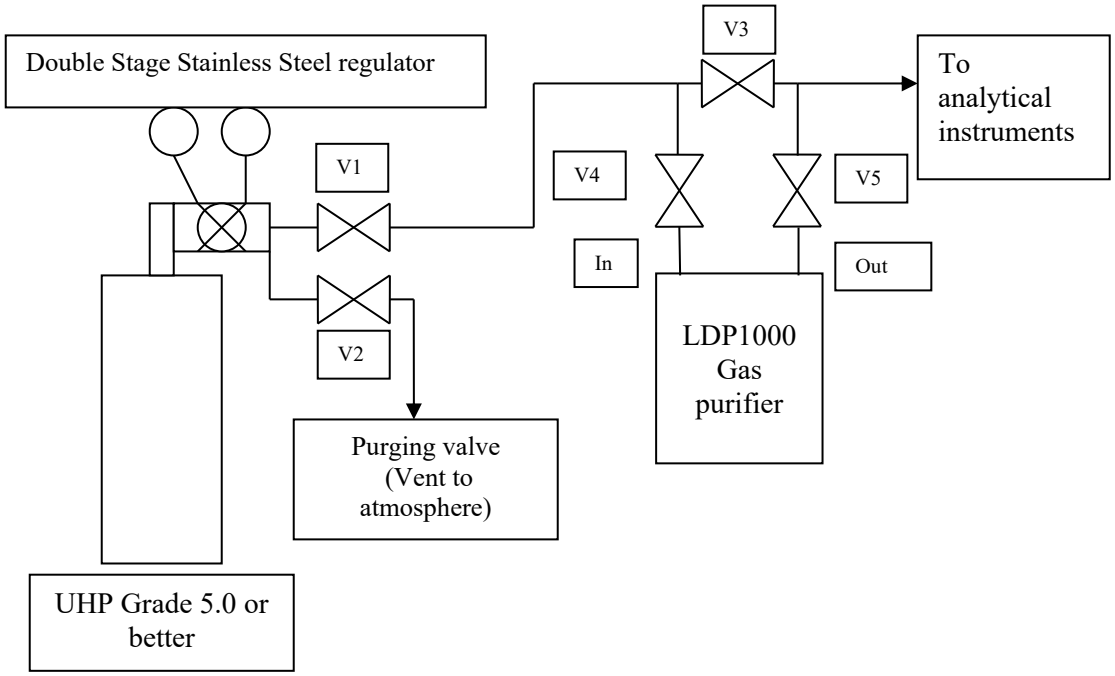
1. Power off the LDP1000 and wait for it to cool down (around 2 hours).
2. Disconnect the outlet connection and cap it. If needed, the pressure can be reduced before doing this step.
3. Disconnect the inlet connection and cap it.

If the unit does have isolation valves:

1. Power off the LDP1000 and wait for it to cool down (around 2 hours).
2. Close the inlet and outlet valves.
3. If you want to keep the carrier gas flowing to the analyzer, open the bypass valve.

5.5. Typical installation

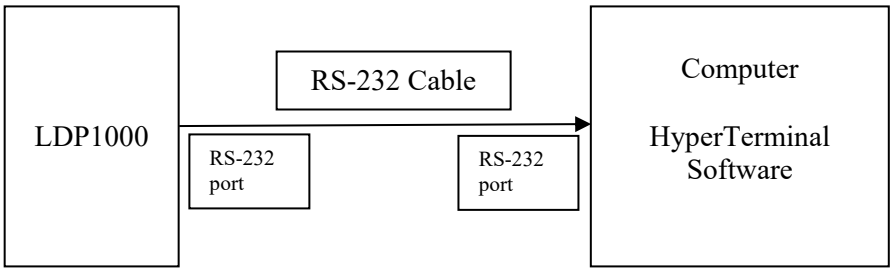
Suggested installation for a Noble Gas, Nitrogen, Carbon Dioxide or Oxygen Gas Purifier:



6. RS-232 serial communication

For diagnostic purposes, the serial port can be connected to a computer to monitor the beds' temperature. This feature can be used if for instance there is a temperature deviation alarm. On the computer, we recommend using the HyperTerminal to monitor the temperature. Make sure to use an inverted DB9 cable.

The below block diagram showcases the electrical connections between the purifier and the computer.



6.1. How to setup Hyper Terminal

To setup HyperTerminal, you can refer to the below the instruction:

1. Select the communication port of your PC representing the serial port. In this example, it was com # 8.

2. The baud rate must be set to 9600.

3. The bit rate must be set to 8.

4. The bit parity must be set to none.

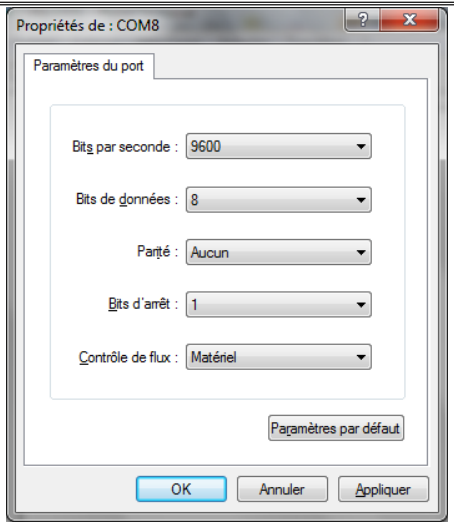


Figure 1: Serial communication settings

5. Once the HyperTerminal is configured, click on "OK" to open the connection.

6. The below screenshot shows an example of the transmitted data. New values will appear every 5 seconds. Temperature_1 the temperature of the first getter (also called 1st bed), and Temperature_2 is the temperature of the second getter (also called 2nd bed).

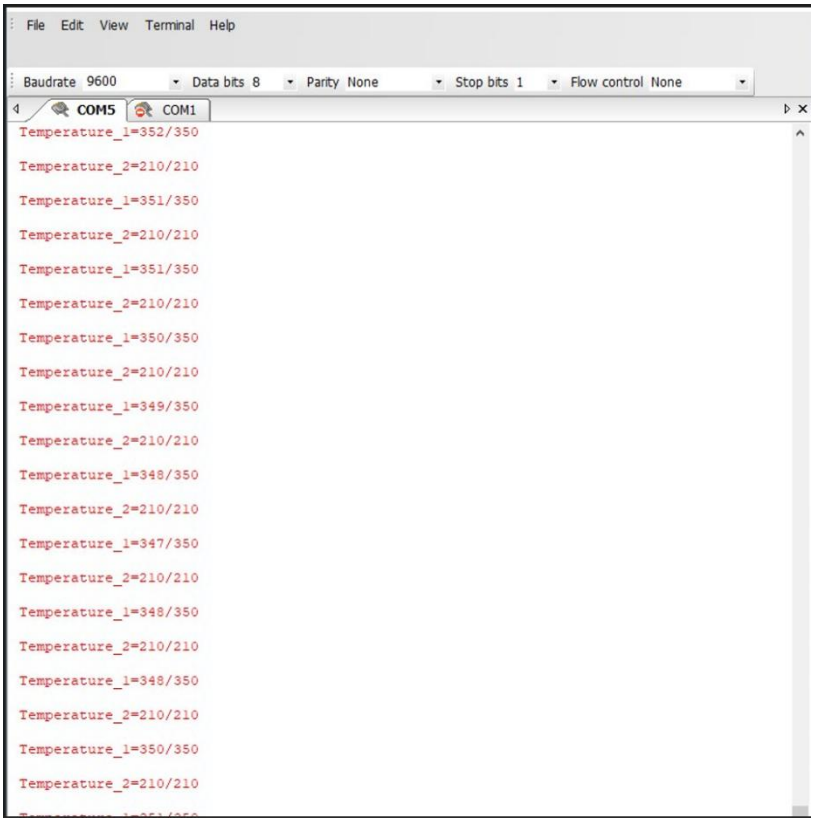
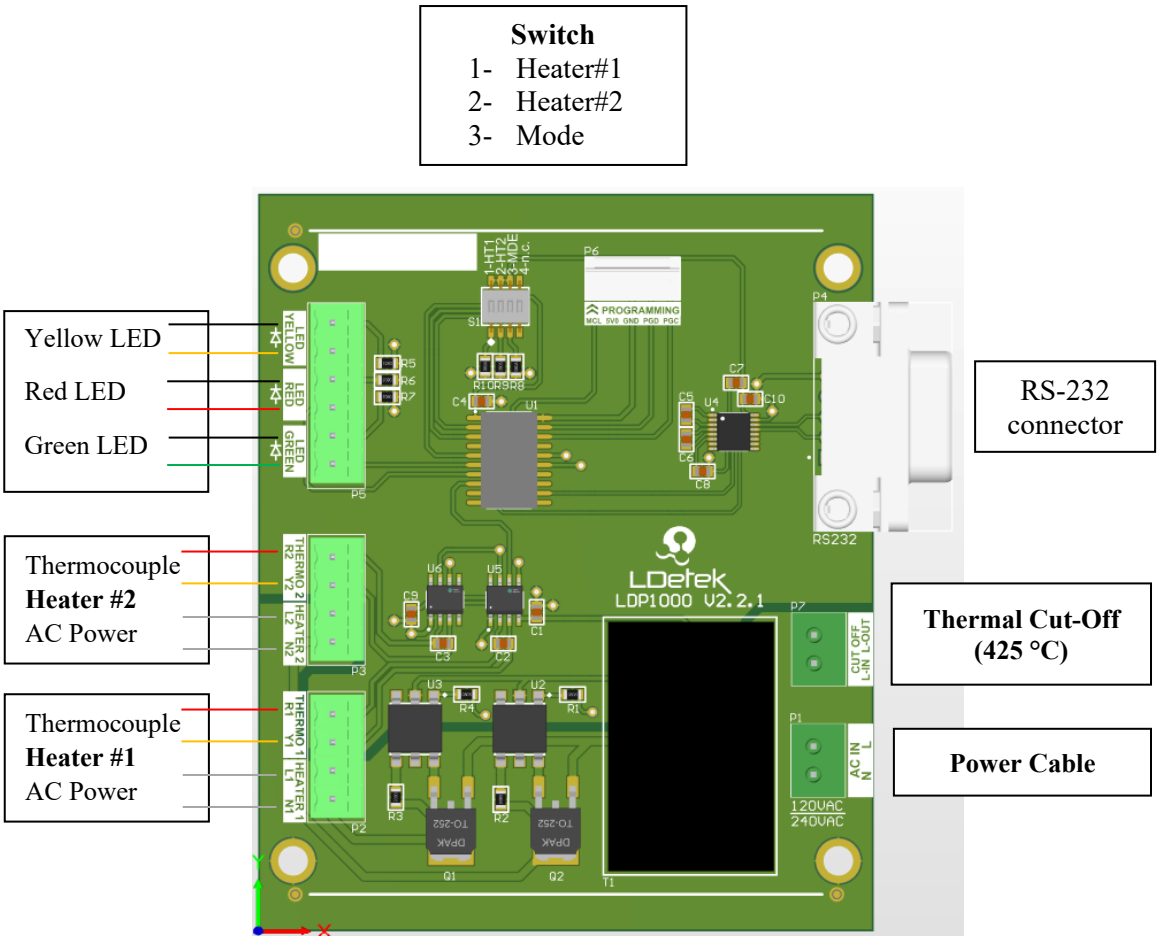


Figure 2: Serial communication output

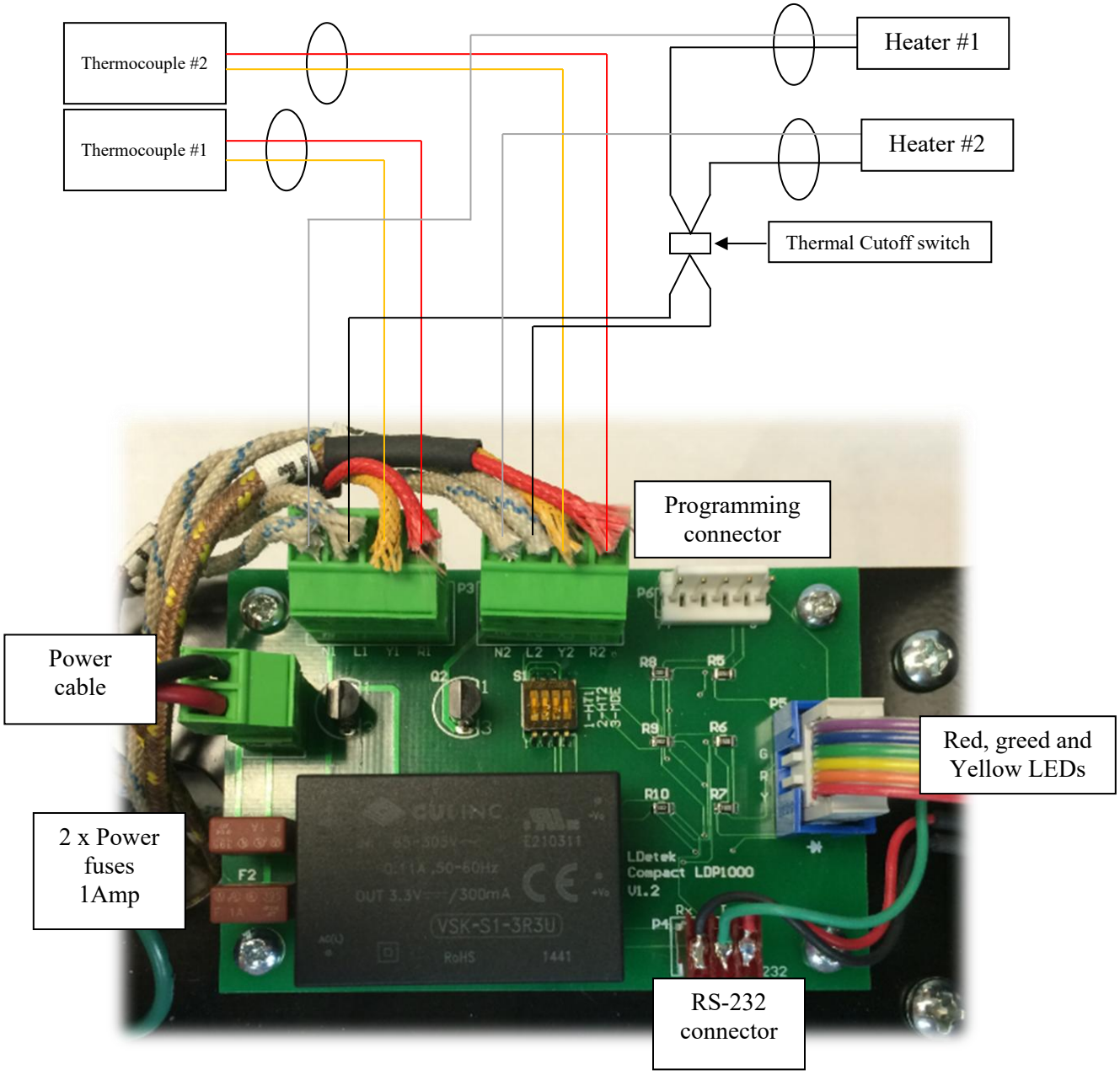
7. Drawings & Schematics

7.1. LDP1000 Standard and Large series wiring diagram

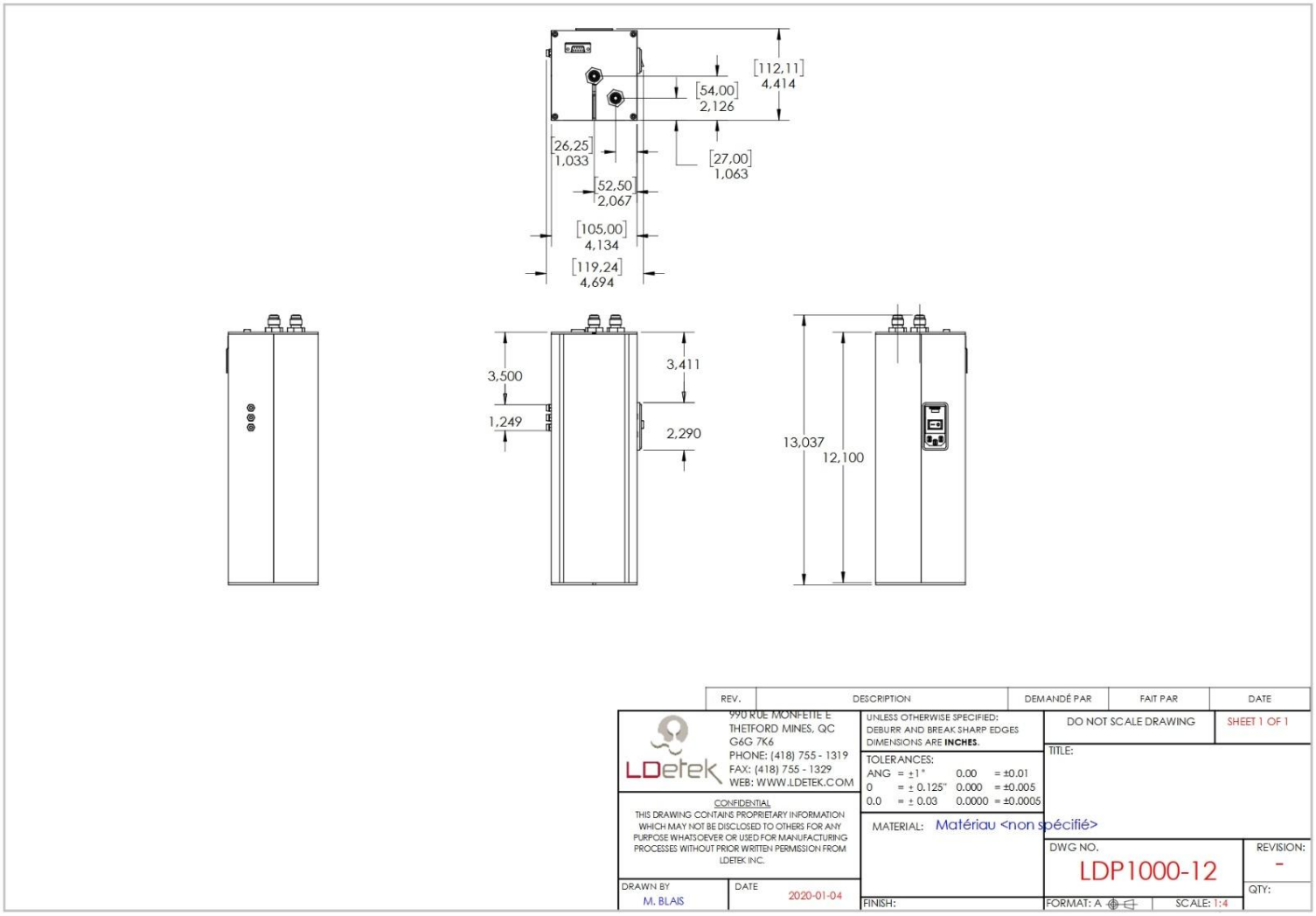


The LDP1000 is equipped with a thermal cut-off switch set at 425 °C to prevent overheating.

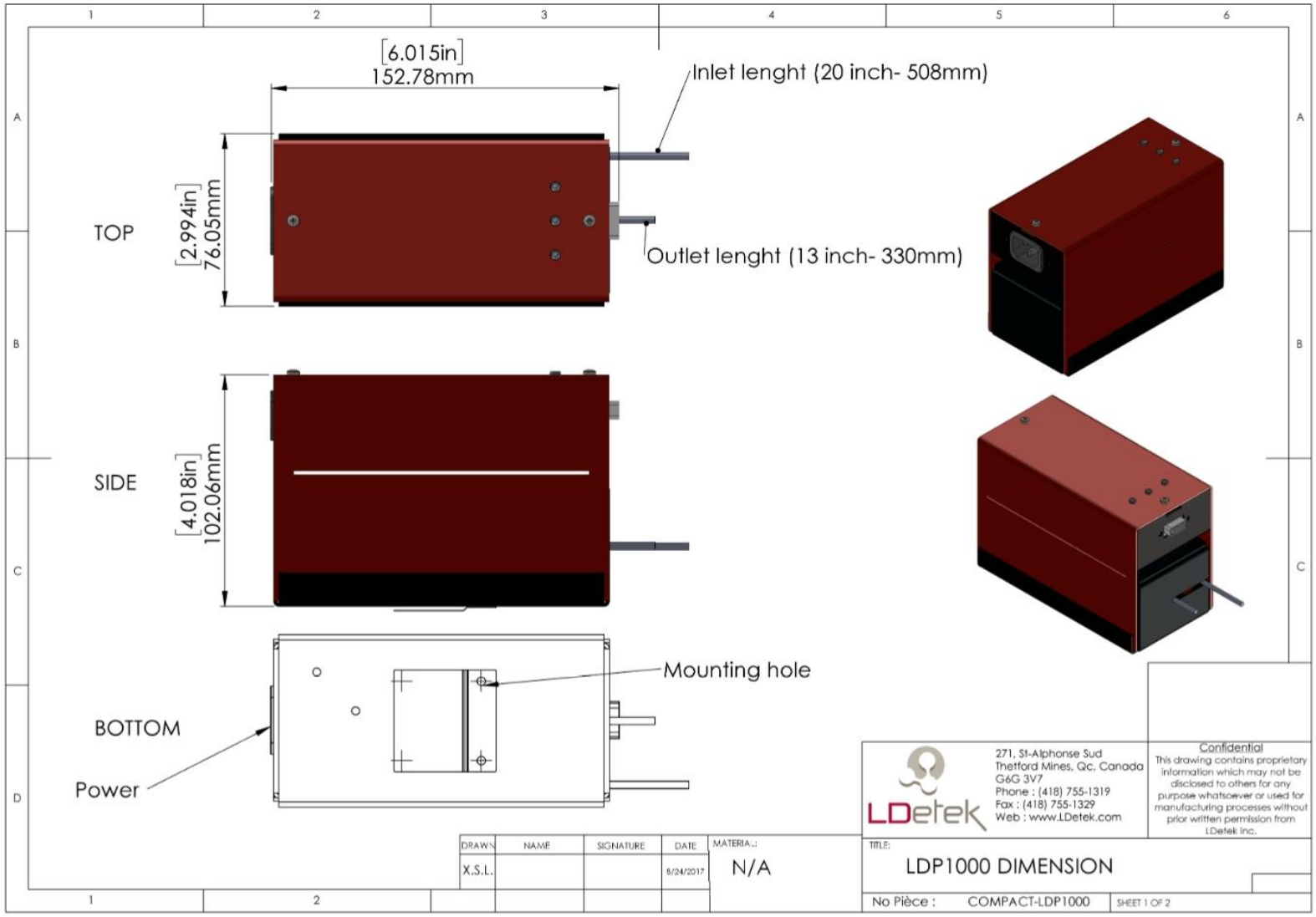
7.2. Compact-LDP1000 series wiring diagram



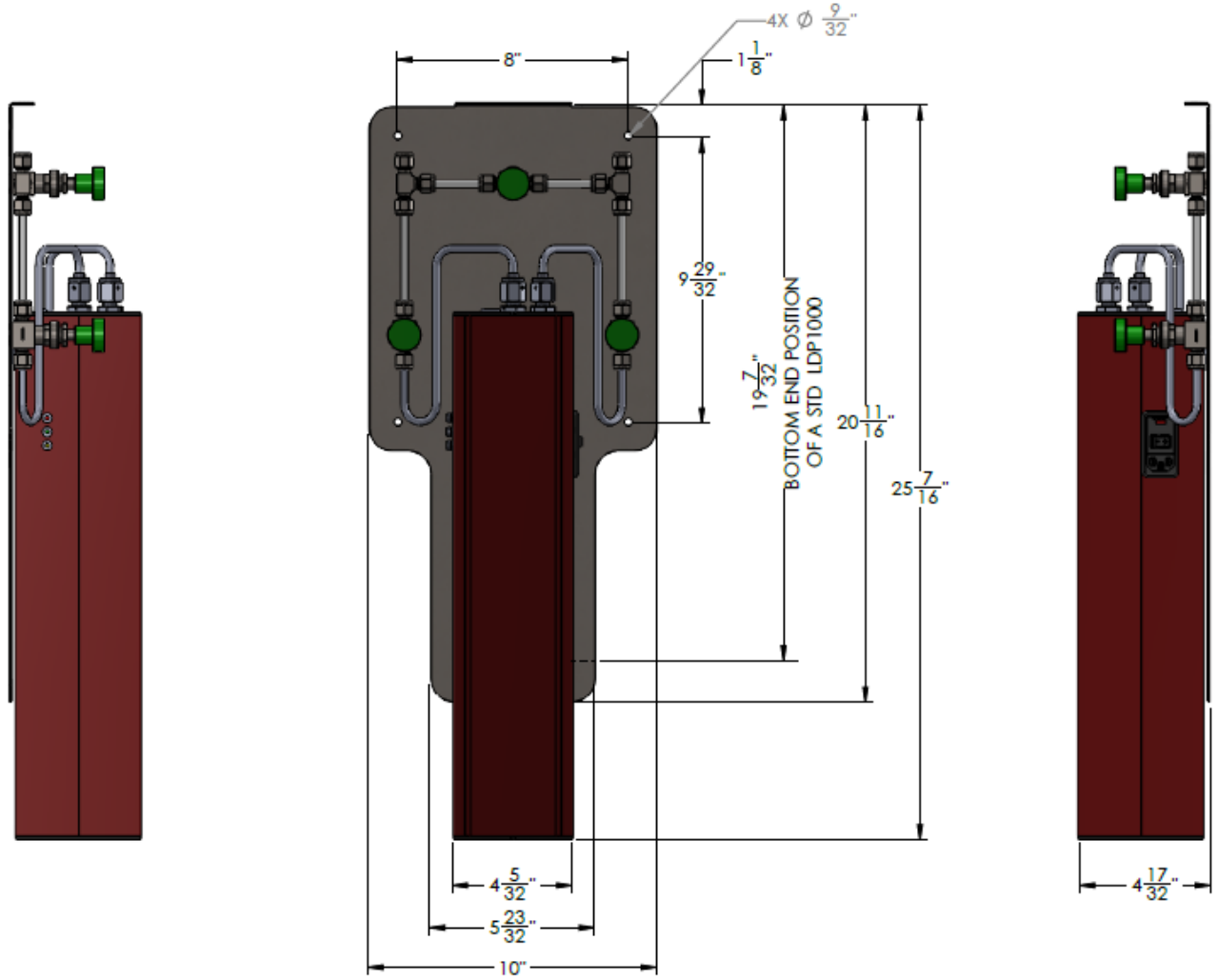
7.1. LDP1000 dimensional drawing


[112,11]
4,414
[54,00]
2,126
[26,25]
1,033
[27,00]
1,063
[52,50]
2,067
[105,00]
4,134
[119,24]
4,694
3,500
1,249
3,411
2,290
13,037
12,100
REV.
DESCRIPTION
DEMANDÉ PAR
FAIT PAR
DATE
LDetek
990 RUE MONFETTE E
THETFORD MINES, QC
G6G 7K6
PHONE: (418) 755 - 1319
FAX: (418) 755 - 1329
WEB: WWW.LDETEK.COM
CONFIDENTIAL
THIS DRAWING CONTAINS PROPRIETARY INFORMATION WHICH MAY NOT BE DISCLOSED TO OTHERS FOR ANY PURPOSE WHATSOEVER OR USED FOR MANUFACTURING PROCESSES WITHOUT PRIOR WRITTEN PERMISSION FROM LDETEK INC.
DRAWN BY
M. BLAIS
DATE
2020-01-04
UNLESS OTHERWISE SPECIFIED:
DEBURR AND BREAK SHARP EDGES
DIMENSIONS ARE INCHES.
TOLERANCES:
ANG = ±1°
0.00 = ±0.01
0 = ± 0.125"
0.000 = ±0.005
0.0 = ± 0.03
0.0000 = ±0.0005
MATERIAL: Matériau <non spécifié>
FINISH:
DO NOT SCALE DRAWING
SHEET 1 OF 1
TITLE:
DWG NO.
LDP1000-12
REVISION:
-
QTY:
FORMAT: A
SCALE: 1:4

7.2. Compact-LDP1000 dimensional drawing


[6.015in]
152.78mm
Inlet lenght (20 inch- 508mm)
TOP
[2.994in]
76.05mm
Outlet lenght (13 inch- 330mm)
SIDE
[4.018in]
102.06mm
Mounting hole
BOTTOM
Power
271, St-Alphonse Sud
Thetford Mines, Qc, Canada
G6G 3V7
Phone : (418) 755-1319
Fax : (418) 755-1329
Web : www.LDetek.com
Confidential
This drawing contains proprietary information which may not be disclosed to others for any purpose whatsoever or used for manufacturing processes without prior written permission from LDetek Inc.
DRAWN
NAME
SIGNATURE
DATE
MATERIAL:
X.S.L.
5/24/2017
N/A
TITLE:
LDP1000 DIMENSION
No Pièce : COMPACT-LDP1000
SHEET 1 OF 2

7.3. Large-LDP1000 with supporting plate dimensional drawing



8. Maintenance and troubleshooting

When operated under normal conditions, the lifespan of a getter vary between 3 and 5 years. When the compact-LDP1000 is saturated, the whole unit must be replaced. For the standard and large version, the getter can be replaced following the procedure on the section 8.3. Feel free to contact LDetek at support@ldetek.com if you need more information.

There are LEDs on the purifier that can help with troubleshooting. Here is the meaning of each of them:

LED Color	Description
Green	The LDP1000 is powered ON.
Yellow	The getter is not at its operating temperature and there is a flow deviation alarm. This can be causes by an air contamination, a heater problem or a temperature sensor problem. Please contact Ldetek if you encounter this issue.
Red	The getter has been used for more than 5 years and must be replaced.

8.1. Spare part list

The below table shows consumables and capital spare parts that can be required in a compact, standard or Large-LDP1000. Consumables are parts that will deteriorate over time and must be replaced periodically. For most purifiers, preventive maintenance must be scheduled every 3 to 5 years to replace these consumables.

Capital parts on the other end are parts that are known to have a long life and/or a small chance of failure. However, failure would cause a shutdown of the equipment because it would take some time to get a replacement part.

Part #	Description	Type	Replacement frequency
Getter-LDP1000	Replacement getter for LDP1000	Consumable	3-5 years
Getter-Large-LDP1000	Replacement getter for Large-LDP1000	Consumable	3-5 years
Compact-LDP1000	Replacement compact-LDP1000. Please refer to the brochure for the ordering information.	Consumable	3-5 years
FK-LDP1000	Fuse kit for LDP1000	Capital part	N/A
PCB-compact-LDP1000	PCB for compact-LDP1000	Capital part	N/A
PCB-LDP1000/LargeLD	PCB for LDP1000 and LargeLDP1000 version	Capital part	N/A

P1000			
GK1/8	Gasket FaceSeal 1/8 for purifiers with face seal fittings	Capital part	N/A
GK1/4	Gasket FaceSeal ¼ for purifiers with face seal fittings	Capital part	N/A

8.2. Tools

Some tools are required when doing a start-up, maintenance or troubleshooting on the LDP1000. The below table shows the list of tools that can become handy. These tools are separated into 2 categories – general and repair.

Tools in the category general are useful to do common tasks like start-ups, shut-offs or maintenance. For advanced users that intend to do repair tasks, tools in the category repair will be useful. Please note that to attend repairs, tools from the category general are required.

Part #	Description	Category
ScrewdriverPH2	Philips screwdriver #2	General
Wrench1/4	Wrench ¼”	General
Wrench3/8	Wrench 3/8”	General
Wrench7/16	Wrench 7/16”	General
Flowmeter500ml	Flow meter 0-500ml/min	General
1/16TubeCutting Tool	1/16" Tube Cutting tool. Used to cut 1/16” tubing inside the analyzer.	Repair

8.3. Maintenance procedures

This section will try to show maintenance procedures. Feel free to contact LDetek at support@ldetek.com. if you need clarifications.

8.3.1. Cartridge replacement procedure

This procedure only applies to the standard and large LDP1000.

1. Power off the unit and wait 2 hours for it to cool down.
2. Turn off the gas source and disconnect the inlet and outlet tubes.
3. Quickly place caps on the LDP1000.
4. Remove the 4 screws securing the top plate.

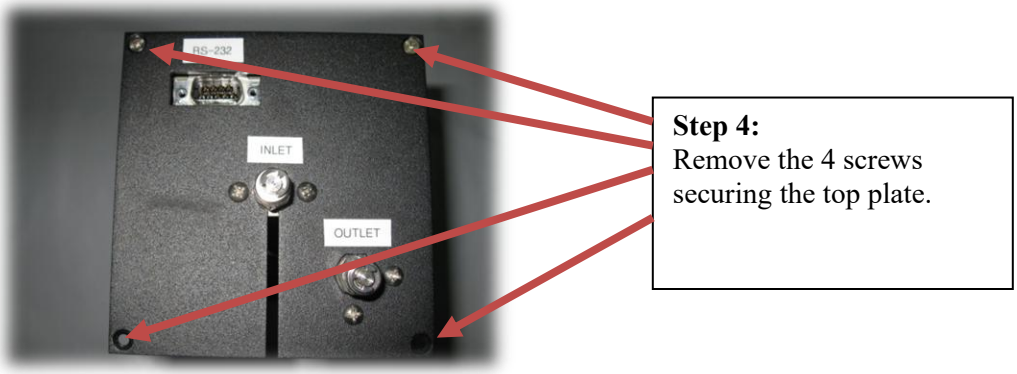


Figure 3: Top plate

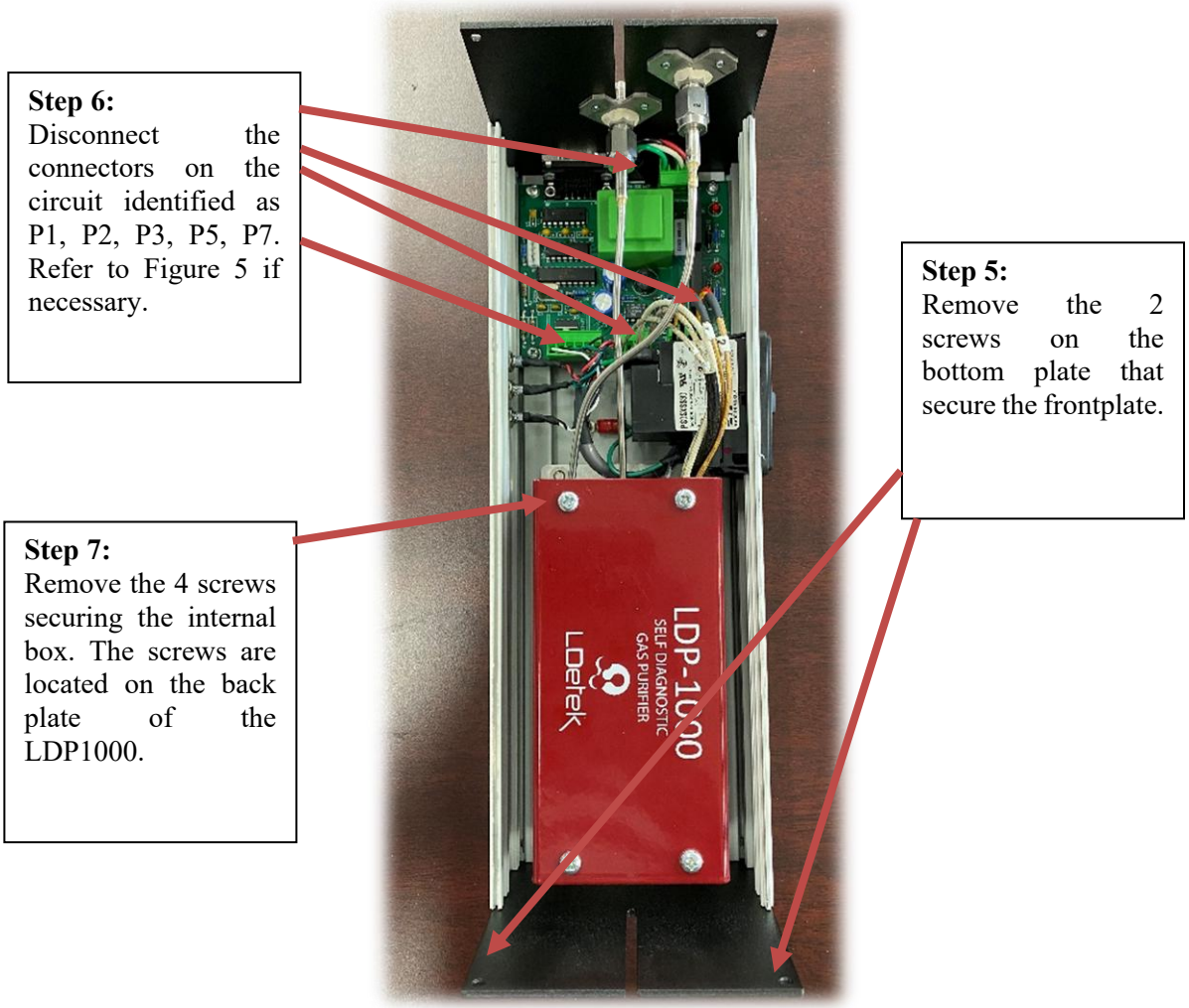


Figure 4: LDP100 internals

8. Remove the old getter and install the new one by following the same steps in reverse order, except for replacing the front panel.
9. After replacing the getter, but before installing the front panel, the MCU must be reset. Set switch #3-MDE to ON, power on the unit for approximately 5 seconds, then power it off. Set switch #3-MDE to OFF; the LDP1000 is then ready for normal power-up.

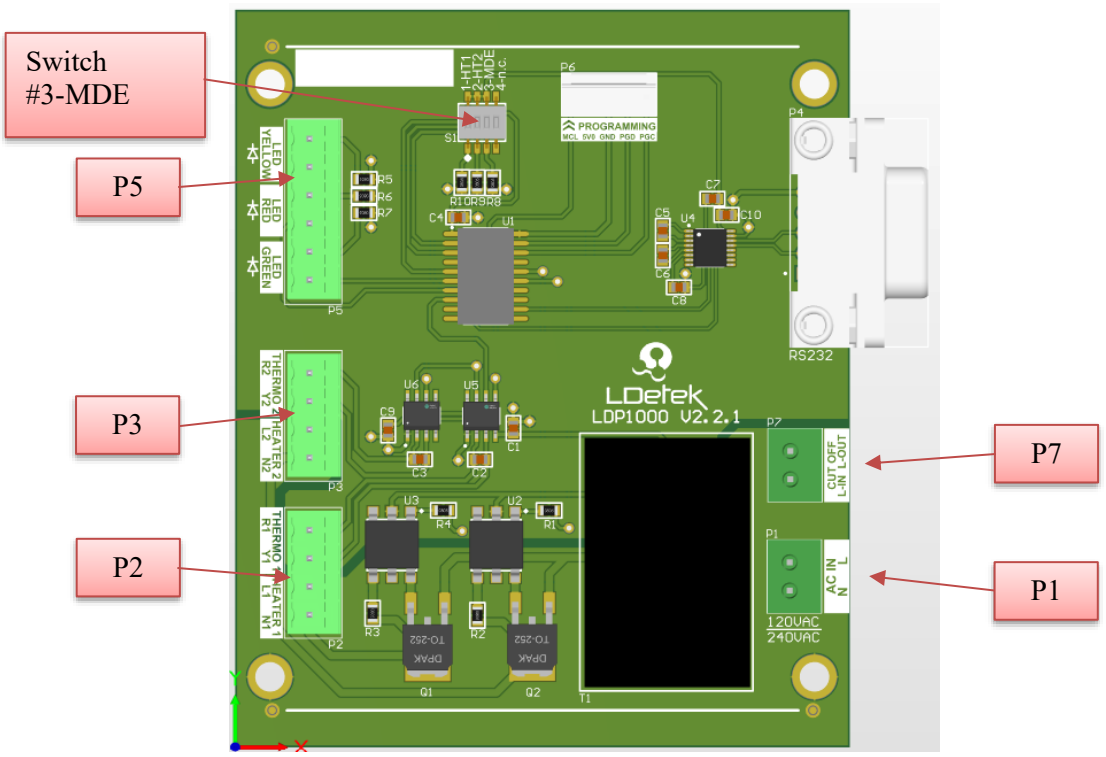


Figure 5: LDP1000 PCB

10. Turn off the power and reinstall the front panel. The unit is now ready to operate normally on gas. Please follow the procedure in section 5.3 to ensure a proper startup.

8.3.2. Regeneration procedure

This procedure applies only to purifiers for Oxygen and Carbon Dioxide.

If the purifier absorber material is saturated due to exposure to air, regeneration will be required. Generally, the regeneration frequency is about 6 months under nominal operating conditions (200 sccm with 5 ppm H2O at the inlet).

To regenerate the purifier, you may either obtain a return material authorization (RMA) number from LDetek or regenerate the purifier on-site.

To get an RMA number, please contact LDetek at info@ldetek.com. To regenerate the purifier on-site, please follow the procedure below:

1. Power off the unit and wait 2 hours for it to cool down.
2. Remove the 4 screws securing the top plate (Figure 3).
3. Remove the 2 screws on the bottom plate that secure the front plate (Figure 4).
4. Prepare a 5N Helium or Argon gas source with a flow rate of 200 sccm and purify it using a purifier. The purifier is recommended to minimize the water content below 10ppb at the inlet.
5. Connect the Helium or Argon source to the purifier that needs to be regenerated.
6. Set switch #3-MDE to ON (Figure 5).
7. Power on the unit. The internal getter will warm up to 350 °C.
8. Ensure that you have 200 sccm at the outlet of the purifier and let it regenerate for 8 hours.
9. Power off the unit and wait 2 hours for it to cool down.
10. Set switch #3-MDE to OFF.
11. Ensure that the purifier is cooled down and disconnect the Helium or Argon gas source.
12. The unit is now ready to operate normally on gas. Please follow the procedure in section 5.3 to ensure a proper startup.



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