

LEYSPEC Residual Gas Analyzer (RGA)

Quick Start Manual 300781309_002_C0

Part Numbers

220010V01
220011V01
220012V01
220013V01
220020V01
220021V01



Contents

	Page
0 Introduction	5
0.1 Before use	5
1 Equipment configuration	6
1.1 Standard equipment configuration	6
2 Part name and component function	7
2.1 Operation switches and LEDs	7
2.2 Rear panel	8
2.3 DIP switch	8
3 Installation and connection	11
3.1 Preliminary operation	11
3.2 Installation	11
4 Measurement	16
4.1 Using a computer	16
4.2 Using the sensor unit	17
5 Warranty	18
5.1 Items covered under warranty	18
5.2 Duration of guarantee	18
5.3 Scope	18
5.4 Failures which void the warranty	18
5.5 Other	18
6 Certificate of decontamination	19

Introduction

0 Introduction

This manual is to be used as a quick check of the operation and display of the Residual Gas Analyzer.

Refer to the instruction manual located on the CD for detailed information on proper operation, precautions and safe use of the unit.

0.1 Before use

Confirm that the PC has a LAN port. To use a USB/LAN converter, install a driver.

The sensor unit is a 24 V d.c. drive. Prepare the AC/DC adaptor or 24 V a.c./d.c. power supply (more than 50 W).

Confirm the model to be used. The model can be found on the sensor connector panel side of the sensor unit and flange.

Equipment configuration

1 Equipment configuration

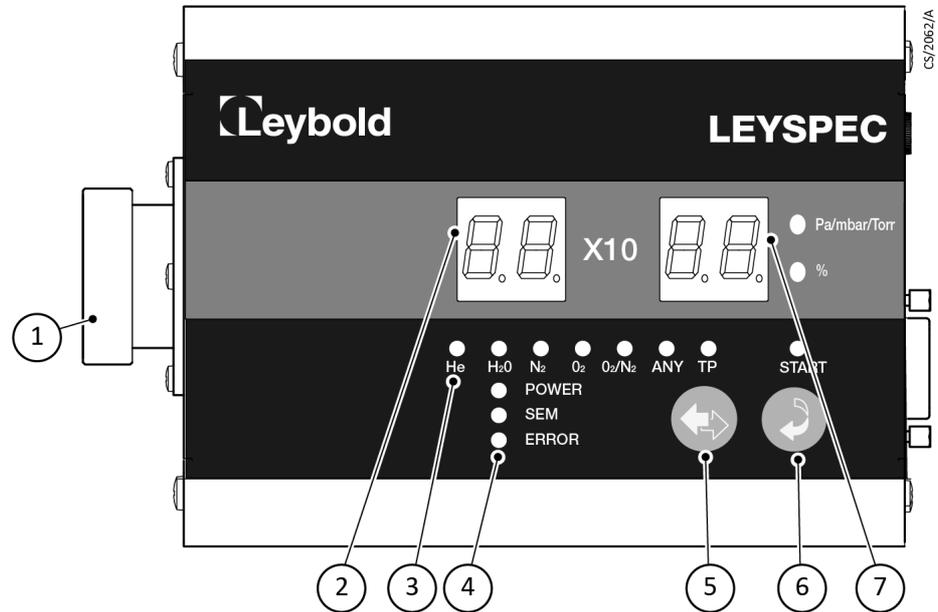
1.1 Standard equipment configuration

Item	Quantity
Sensor unit	1 piece
Sensor tube	1 piece
Software and instruction manual CD	1 piece
AC/DC adaptor	1 piece
LAN cable	1 piece

Part name and component function

2 Part name and component function

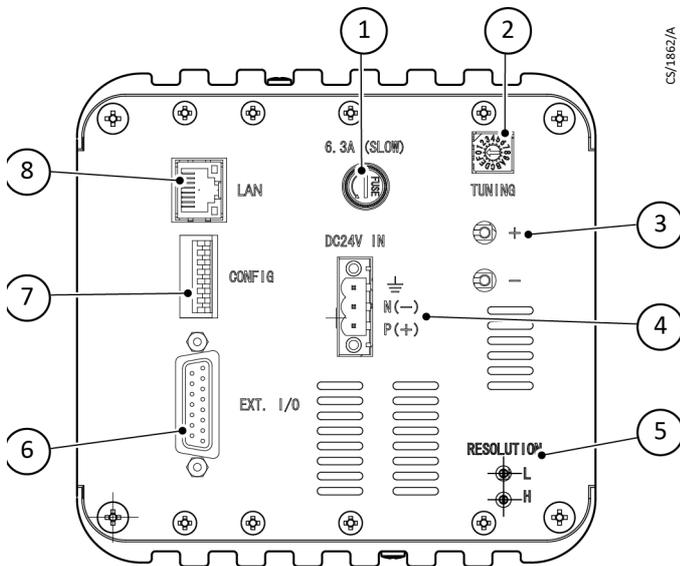
2.1 Operation switches and LEDs



Item	Description
1	Analyzer tube connector For connection to the analyzer tube.
2	Measurement value/fault display Shows measured partial pressure value. For faults, displays the error code.
3	Gas species/total pressure display LED
4	POWER POWER LED (green) comes on when power is applied.
4	SEM Secondary Electron Multiplier (SEM) LED (green) comes on when SEM is used.
4	ERROR ERROR LED (red) comes on if a fault occurs.
5	Gas species/total pressure selection button (CH) Select the gas species you want to measure or total pressure. The orange LED shows the current selection.
6	Measurement start button (START) Starts measurement. The upper orange LED indicates that measurement has started.
7	Measurement value units display LED The unit of measured partial pressure. For O ₂ /N ₂ the display shows a percentage (%).

Part name and component function

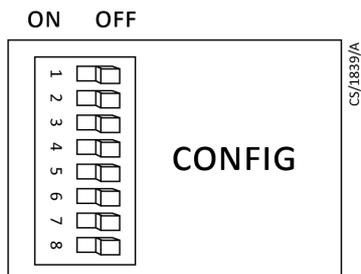
2.2 Rear panel



Item	Name	Function
1	Power fuse holder (FUSE)	Over-current protection (Time lag type 6.3 A).
2	Rotary switch for regulating tuning voltage (TUNING)	Regulates RF voltage tuning with the analyzer tube.
3	Tuning voltage check terminal (+, -)	Terminal for checking RF voltage tuning with the analyzer tube.
4	Power inlet connector (POWER IN)	Power cable connector (includes ground).
5	Resolution adjustment potentiometer (RESOLUTION L, H)	L: Adjusts the resolution of the low mass number. H: Adjusts the resolution of the high mass number.
6	External input/output connector (EXT-I/O)	Signal I/O connector (D-sub 15-pin male).
7	Initial setting DIP switch (CONFIG)	DIP switch for SEM selection, IP address setting, the unit address setting and local/remote selection.
8	Ethernet connector (LAN)	RJ45 connector (8-pole 8-wire) for connecting the LAN cable

2.3 DIP switch

Set up the DIP switch numbers 1, 3, and 4 through 8 with the power supply OFF.



Part name and component function

No.	Function
1	To change IP address between "Fixed IP address" or "Automatic IP address". ON = automatic OFF = fixed
2	Can be changed with power on and measurement stopped. To select between secondary electron multiplier (SEM) or Faraday Cup (FC). ON = SEM OFF = FC
3	Not used.
4	Can be changed with power on and measurement stopped. To set local and remote operation. ON = Local mode (control panel operation only). OFF = Remote mode (PC operation)
5	
6	To set the sensor address for this LEYSPEC Residual Gas Analysers unit.
7	See the table below for switch settings.
8	

Address	S5	S6	S7	S8	Address	S5	S6	S7	S8
1	0	0	0	1	9	1	0	0	1
2	0	0	1	0	10	1	0	1	0
3	0	0	1	1	11	1	0	1	1
4	0	1	0	0	12	1	1	0	0
5	0	1	0	1	13	1	1	0	1
6	0	1	1	0	14	1	1	1	0
7	0	1	1	1	15	1	1	1	1
8	1	0	0	0	16	0	0	0	0

The following table shows the settings before shipment from the factory.

LEYSPEC view100S/200S & LEYSPEC ultra 200S/300S

S1	S2	S3	S4	S5	S6	S7	S8
OFF	ON	OFF	OFF	OFF	OFF	OFF	ON

LEYSPEC view100/200

S1	S2	S3	S4	S5	S6	S7	S8
OFF	ON						

Part name and component function

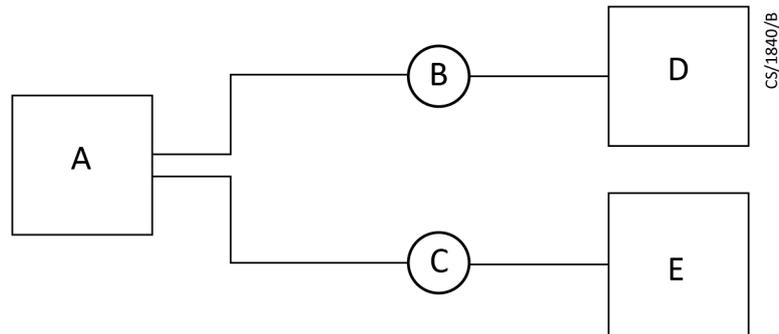
IP address setting : OFF (fixed)
Local/Remote : REMOTE
Address : 1

List of fixed IP addresses:

Sensor1	: 192.168.250.11	Sensor9	: 192.168.250.19
Sensor2	: 192.168.250.12	Sensor10	: 192.168.250.20
Sensor3	: 192.168.250.13	Sensor11	: 192.168.250.21
Sensor4	: 192.168.250.14	Sensor12	: 192.168.250.22
Sensor5	: 192.168.250.15	Sensor13	: 192.168.250.23
Sensor6	: 192.168.250.16	Sensor14	: 192.168.250.24
Sensor7	: 192.168.250.17	Sensor15	: 192.168.250.25
Sensor8	: 192.168.250.18	Sensor16	: 192.168.250.26

Installation and connection

3 Installation and connection



* This figure is for the single sensor type.

- A. LEYSPEC Residual Gas Analysers
- B. LAN cable
- C. AC/DC adaptor
- D. PC
- E. Mains power

3.1 Preliminary operation

1. Unpack the instrument and check quantities.
2. Check if any components are damaged.

3.2 Installation

3.2.1 Install the sensor

1. Measuring position
 - This product measures pressure by measuring the static pressure in the position where the analyzer tube is connected. Take care in selecting the measuring position because the measurement value is affected if there is a flow in the vacuum system, source of out-gas or source of high intensity electrons or ions.
 - The correct pressure measurement cannot be made or the analyzer tube may fail if the analyzer tube is subject to vibration, heat radiation, high intensity electromagnetic field or high intensity radiation.
 - The LEYSPEC Residual Gas Analysers must be connected to power supplies or instruments that conform to the requirements of a grounded protective extra-low voltage (SELV-E according to EN 61010).
 - Keep enough room around the unit as to not cover panel vents and allow for sufficient heat dissipation.
2. Installing the analyzer tube

Installation and connection

- Install the analyzer tube so that the aperture plane of the analyzer tube is installed in parallel to the flow of gas. Especially, see to it that gas is not introduced into the analyzer tube in a beam form. Also make sure that foreign objects cannot fall into the analyzer tube by installing a mesh if the aperture faces up.
- If you touch the gasket with bare hands or use a contaminated gasket it can cause measurement errors. Use a new gasket and, before use, wipe it with a clean cloth wetted with alcohol. To avoid leaks, never reuse gaskets.
- If the filament is subjected to strong lateral impact or vibration when it is hot, it may break or contact the grid electrode.
- If the analyzer tube is connected at the end of a long or thin pipe, the pressure in the analyzer tube will increase because of the reduced conductance. This can cause measurement errors or filament burnout.
- As indicated in [Operation switches and LEDs](#) on page 3, fix the analytical tube after paying attention to the orientation of the operation panel on the sensor unit. To assist you, a "Display Side" label is attached to the flange of the analyzer tube.

CAUTION:

After fixing the analysis tube, do not attempt to twist it in order to change the orientation of the sensor unit. This can cause the sensor unit to malfunction.



3.2.2 Install the sensor unit

CAUTION:

Ensure the sensor unit does not strike other structures.



CAUTION:

Attach or detach the sensor unit from the analyzer tube using the knurled ring. Do not rotate the sensor unit, this can break the connector or the wiring.



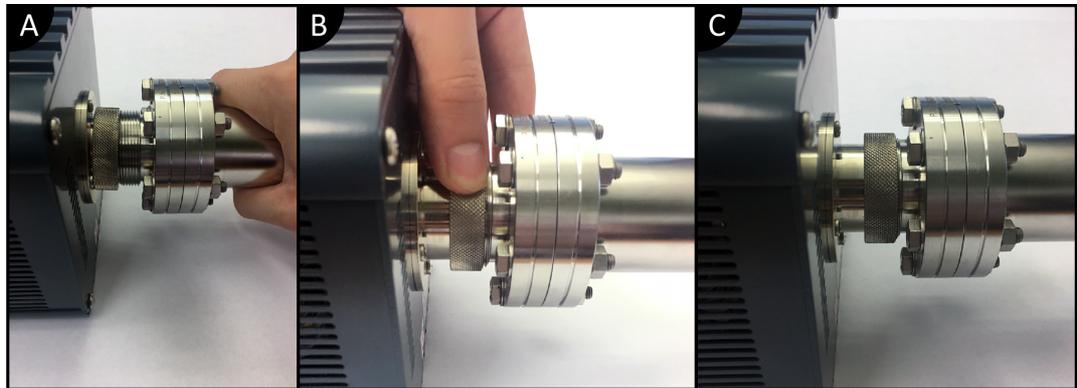
CAUTION:

Only ever tighten the knurled ring by hand. If you use tools, there is a risk of making it impossible to detach, breaking the connector, or damaging the internal wiring.



Installation and connection

1. Attach the sensor unit and the analyzer tube and tighten the knurled ring by hand.



3.2.3 Install the power connector

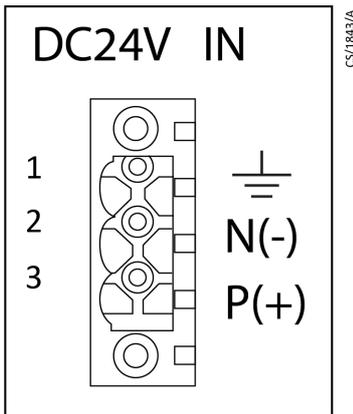


WARNING:

Make connections to the correct pins when wiring the power connector. If you apply power to the incorrect pins internal damage could result.

1. Wire the power connector as follows:
 - Power +24 V
Pin that supplies 24 V d.c. power.
 - Power GND
GND when +24 V d.c. power is supplied.
 - Frame GND
Frame ground. Connect it to the instrument frame.
Connect the earth connection to Class A ground to prevent leakage currents.

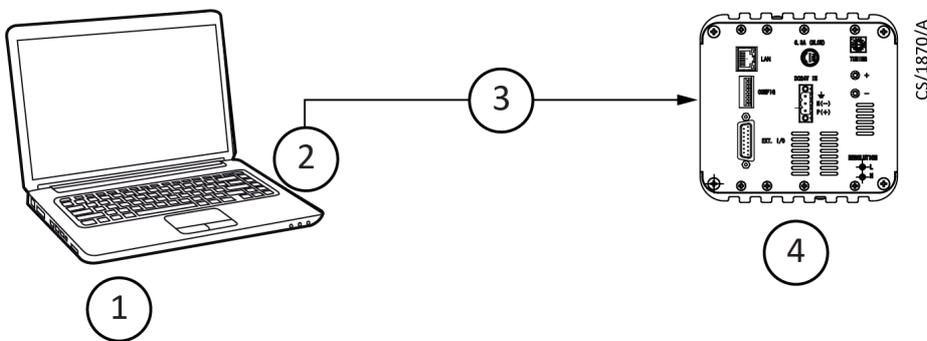
Installation and connection



Item	Function	Description
1	Frame GND	Frame ground. Connect it to the instrument frame. (AC adaptor code; Black + Green dot)
2	Power GND	GND when +24 Vd.c. power is supplied. (AC adaptor code; black)
3	Power +24 V	Pin that supplies 24 Vd.c. power. (AC adaptor code; white)

3.2.4 LAN cable connection

To connect a single sensor, select LAN. Connect the cable, as shown in the figure below.

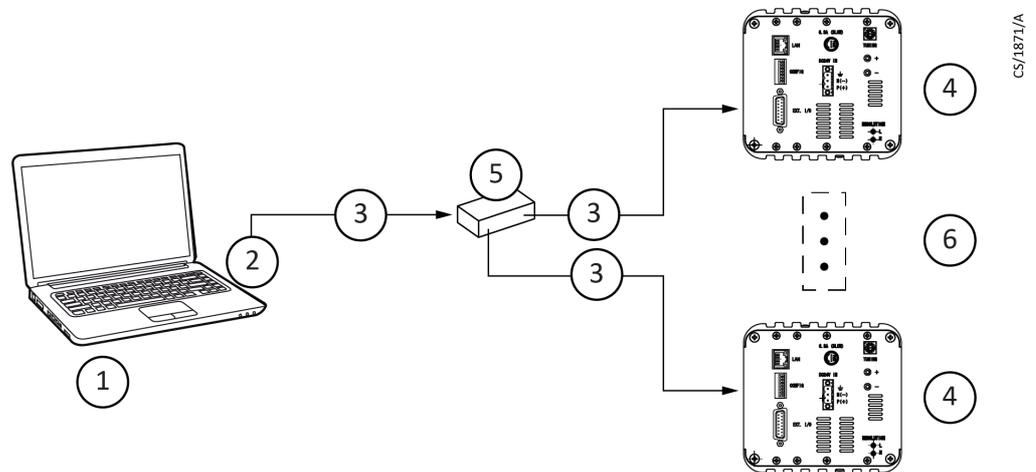


1. PC
2. LAN connector
3. LAN cable
4. Sensor unit

Installation and connection

3.2.5 LAN cable connection

To connect multiple sensors, select LAN. Set the address and LAN terminator. Connect the cable.



1. PC
2. LAN connector
3. LAN cable
4. Sensor unit
5. Switching hub
6. Sensor unit (maximum 16 units)

4 Measurement

There are 2 measurement methods you can use on the Residual Gas Analyser:

1. Connect the unit to a computer (PC) in which the LEYSPEC software gas analysis software is installed.
2. Use the push button, indicator light and partial pressure display value on the sensor unit.

4.1 Using a computer

1. Set the PC's IP address. When using the fixed IP address of the sensor unit (192.168.250.11 in case of Sensor 1), open the property of the IP address (TCP / IP-Ver4) from the network setting of the PC and set the IP address = 192.168.250.xxx (xxx is a numerical value other than "11" of the sensor unit). Refer to the instruction manual for details such as setting variable IP address.

- When connecting to a PC, confirm the setting of both IP addresses.
- Turn off the Windows Firewall.
- Communication can only be used with a wired connection with Windows PC and the dedicated software installed. Communication with communication devices other than a Windows PC is not supported.

2. Install the LEYSPEC software (called LEYSPEC Software in this manual) gas analysis software on your PC.

3. Use a LAN cable to connect the LAN port (RJ45) of the PC to the LAN connector of the sensor unit.

4. After supplying power to the LEYSPEC Residual Gas Analysers unit, double-click the LEYSPEC Software icon on the desktop of the PC and run the LEYSPEC Software software.

5. Enter the sensor number and type in the sensor type dialog, displayed first, and press the "OK" button.

6. When communication between the PC and the LEYSPEC Residual Gas Analysers is established, LEYSPEC Software loads the default recipe or the recipe used last.

7. Press the "FIL" button to turn on the filament of the analyzer tube. The "F" and "R" lights come on.

- Before pressing the START button, check the operating pressure (about 1×10^{-3} Pa) on a separate gauge.
- If the filament is turned on too soon after pumping, the high pressure protection of the LEYSPEC Residual Gas Analysers might work because of the emitted gas of the filament. In that case, confirm operating pressure again and turn on the filament several times to reduce the emitted gas.

Measurement

8. Press the "MES" button to start gas analysis. The "S" and "M" lights come on. (Whether the F, R and S lights are on or off depends on the settings on the control panel.)



9. To terminate gas analysis, press the "MES" button again.

10. Turn off the "FIL" button and then turn off the analyzer tube filament.

11. Exit the software when measurement is completed.

4.2 Using the sensor unit

Refer to the operation manual supplied on the software installation CD.

5 Warranty

This product was shipped after company inspection. However, if a failure occurs such as a defect in manufacturing or damage during transportation, contact your supplier.

5.1 Items covered under warranty

This unit.

5.2 Duration of guarantee

One (1) year after shipping date.

5.3 Scope

1. Damage to product caused by a failure on delivery.
2. Product not meeting the standard specifications when used under normal service conditions as stated in the manual.

5.4 Failures which void the warranty

1. Failure occurred after expiration of the warranty period.
2. Failure caused by force of nature, such as fire, storm and flood damage, earthquake, lightning strike, and so forth.
3. Failure occurred due to careless handling or incorrect usage.
4. Product is refurbished, disassembled or repaired without supplier acceptance.
5. Failure occurred in an abnormal environment, such as an intense electromagnetic field, radiation, high temperature, high humidity, flammable gases, corrosive gases, dust, and so forth.
6. Failure due to noise.
7. Ion source and secondary electron multiplier and sensor being used (expiration of life, measurement error, and so forth).
8. Cable in use (cable burnout due to improper installation, poor contact, and so forth).

5.5 Other

1. For questions and consultation, the customer can check the model and serial number and ask the local supplier representative.
2. The content of this document is subject to change without notice.

Certificate of decontamination

6 Certificate of decontamination

All material must be certified as decontaminated and this certificate must be submitted to the closest supplier service centre or sales office before shipment. Refer to the CD.



WARNING:

Read this instruction manual before installing, operating, inspecting, or servicing this product to familiarize yourself with safety precautions, specifications and operations.

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