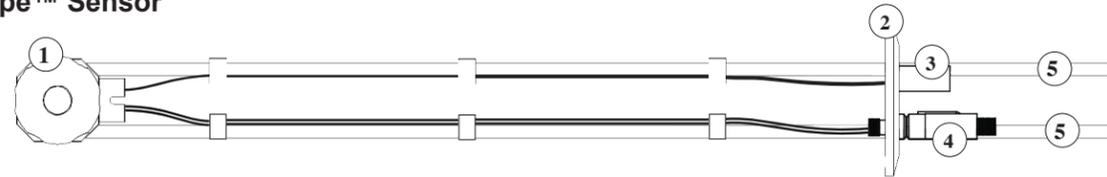


TEMPE™

QUICK REFERENCE GUIDE

A. System Components

Tempe™ Sensor



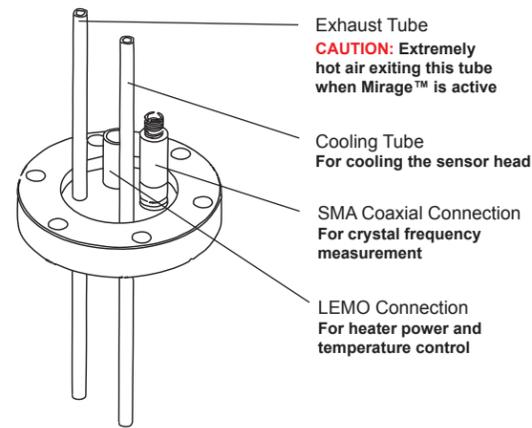
1. Crystal Compartment
Houses quartz crystal

2. Flange
Acts as air-tight barrier sealing sensor head in chamber

3. Heater Control Connector
The 4-pin LEMO connector provides heater power and temperature measurement

4. SMA Connector
Unites crystal and Eon™ for crystal frequency measurement

5. Cooling Tubes
For cooling sensor head using air or water

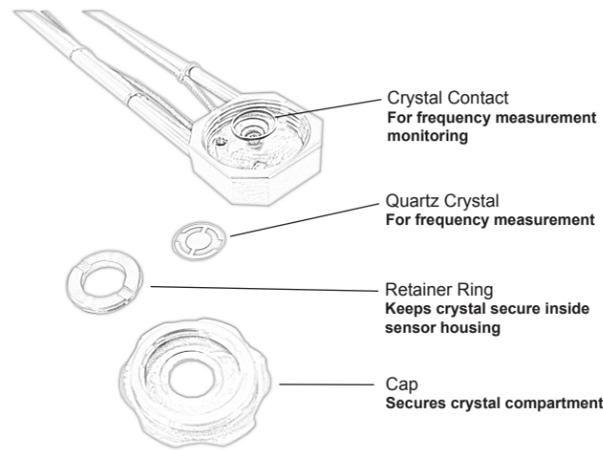


Exhaust Tube
CAUTION: Extremely hot air exiting this tube when Mirage™ is active

Cooling Tube
For cooling the sensor head

SMA Coaxial Connection
For crystal frequency measurement

LEMO Connection
For heater power and temperature control



Crystal Contact
For frequency measurement monitoring

Quartz Crystal
For frequency measurement

Retainer Ring
Keeps crystal secure inside sensor housing

Cap
Secures crystal compartment

Eon™ Controller

1. Type K TC Inputs

Thermocouples used to monitor temperature.

2. Heater Control Connector

Provides power to Tempe™ heater

3. 0-5 VDC & Relay Output

Connects the 0-5 VDC output for the deposition source, the 24 VDC Mirage™, and the relay control.

4. BNC Sensor Inputs

Connect to sensor head via external oscillator.

5. Power Input

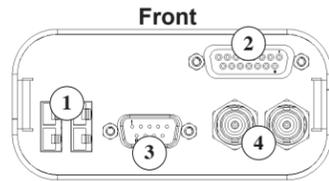
Connects to 24 VDC power input.

6. LED Indicators

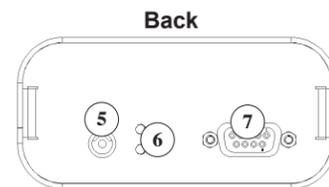
Display status of Eon™.

7. RS232 Connector

Connects Eon™ to your PC. (Always use the provided USB-to-RS232 cable)

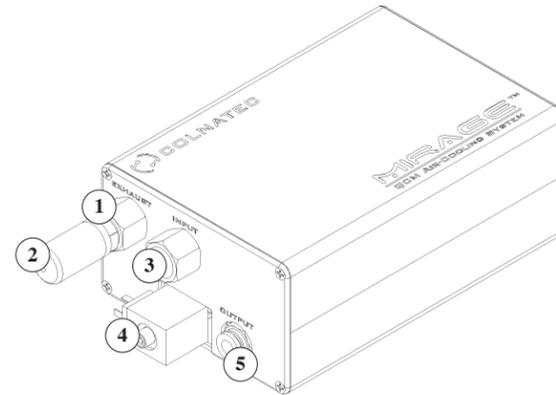


Front



Back

Mirage™ Air-Cooling System



1. Exhaust Outlet (¼ NPT)

2. Exhaust Muffler

3. Air Input

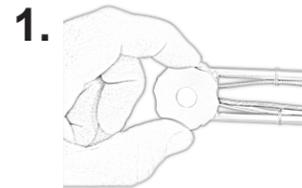
- Facility Compressed
- 100 PSI (6.9 bar) max
- Filtered (25 micron max)
- 100% oil free

4. Solenoid Power In
Requires Mirage™ cable

5. Cooling Output
¼ OD tube (push-to-connect)

B. Removing Mock Crystal

Note: Mock crystal acts as placeholder to protect sensor components during shipping.



1. Turn cap COUNTER CLOCKWISE to loosen and remove.



2. Flip cap over to access crystal retainer ring. Loosen ring by turning COUNTER CLOCKWISE.

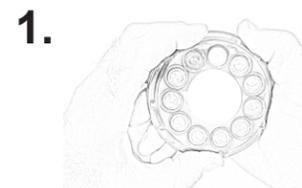


3. Remove retainer ring to access mock crystal using supplied tool.



4. Remove mock crystal from sensor head cap (use a non-metallic tool).

C. Adding New Crystal



1. Rotate crystal carousel until the round opening appears above an available crystal.



2. Place rear of sensor head against the opening.



3. Flip crystal carousel and allow crystal to drop into sensor cap housing.



4. Use nonmetallic tweezers to adjust crystal position until crystal rests snugly in the crystal seat.



5. Place threaded side of retainer ring onto the corresponding threads of the sensor cap. Tighten by turning ring CLOCKWISE using supplied tool.



6. Place cap onto corresponding threads of crystal compartment. Turn CLOCKWISE until secure.

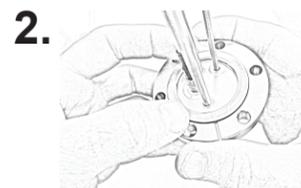
ADVISORY

i INSPECT PRODUCT CONDITION ON ARRIVAL
Please examine your new Tempe™ sensor for any signs of physical damage that may have occurred during shipping. Make sure that the tamper-evident labels are intact. Before shipping, your Tempe™ was tested by Colnatec to meet the highest quality standards. It is important that you take a few minutes to inspect the product to ensure that your equipment was not damaged or otherwise tampered with during transit.

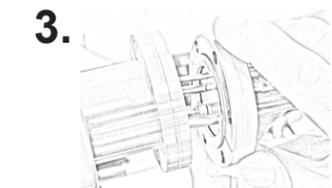
D. Chamber Installation



1. Obtain a copper Conflat™ gasket and place onto sensor head.



2. Fit gasket into circular groove on Conflat™ flange.



3. Hold copper gasket in place while inserting sensor head into chamber feedthrough.



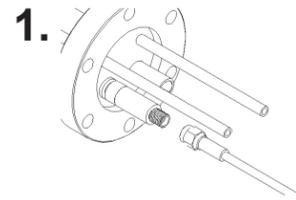
4. Press sensor head and feedthrough flanges together. Align bolt holes. Apply bolts and plate-nuts. Tightening bolts compresses copper gasket between a sharp edge and a tapered groove, creating a near-perfect seal.

WARNING

⚠ Microfractures may develop in copper gasket if flange bolts are over-tightened. Seal may become weakened, resulting in chamber leakage.

⚠ Hand-tighten flange bolts before using wrench. When using wrench, alternate among bolts using a sequential torque pattern.

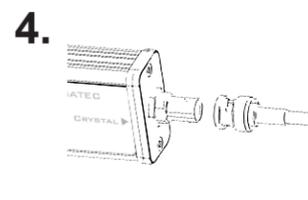
E. Tempe™ Connections



1. Connect 6" SMA-to-BNC Adapter Cable to Tempe™
Spin cable in place using cable shaft until resistance is felt. (Twisting cable shaft past point of resistance may damage cable). Roll fingertip over sides of the connector to tighten. Hand-tighten only. Using tools to tighten can damage Tempe™



2. Connect Heater Control Cable to Tempe™
The 4-pin LEMO connector provides heater power and control. To install, push until it clicks in place. Ensure that the four pins inside the connector align properly with the pin holes inside the female connector inside Tempe™



4. Connect 6" SMA-to-BNC Adapter Cable to Oscillator
Attach BNC cable from Tempe™ to connector on oscillator marked "CRYSTAL". Use the cables that shipped with your system only. Ensure that the distance between the crystal compartment and oscillator does not exceed 36 inches.

WARNING



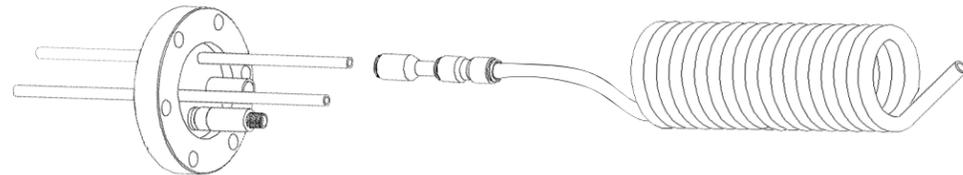
Misaligned coupling of LEMO connectors can result in severe damage to Tempe™.



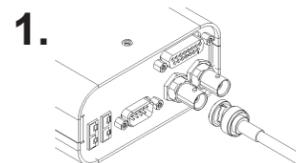
Length between the crystal and oscillator SHOULD NOT exceed 36 inches (914 mm).

5. Attach Mirage™ Air Coil to Tempe™ Cooling Tube

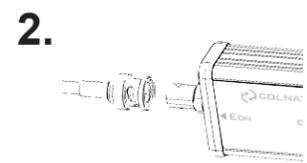
Slide "push-to-connect" air coil fitting onto one of the 3/16" cooling tubes projecting from the flange of the Tempe™. Featuring an interior detent, the air coil connector will snap securely in place.



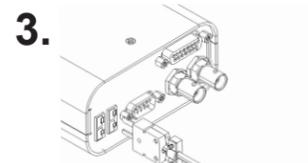
F. Eon™ Connections



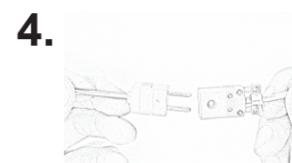
1. Connect 10' BNC-to-BNC Cable to Eon™
Connect 10' BNC-to-BNC cable to BNC Sensor Input on front panel of Eon™.



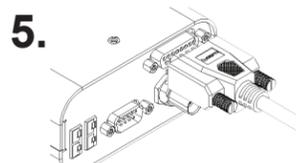
2. Connect Other End of 10' BNC-to-BNC to Oscillator
Connect 10' BNC cable from Eon™ to BNC connector on oscillator marked "EON".



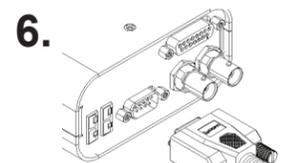
3. Plug TC Adapter into K Type Input on Eon™
Plug thermocouple extension cable connector into the K Type thermocouple socket with the wide blade (-) corresponding to the upper slot and narrow blade (+) fitting into lower slot.



4. Connect TC Adapter and TC Extension Cable
Plug sensor thermocouple cable into thermocouple extension cable. Wide blade (-) fits into wide slot on female thermocouple socket. Narrow blade (+) fits into narrow socket.



5. Connect Heater Control Cable (DB15 Connector) to Eon™
Plug DB15 connector into the 15-pin heater control connector on front panel of Eon™.



6. Connect Mirage™ Cable to Eon™
Connect 9-pin female-side of Mirage™ cable to the relay output on back panel of Eon™.

WARNING



Do Not Connect DB15 Control Cable to Heater Port While Heater Port is Active
Plugging DB15 connector into the Eon™ controller while heater port is active can damage the heater.



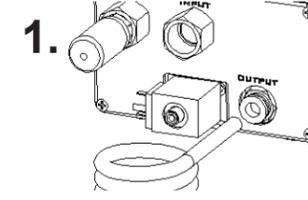
Ensure Proper Connection of Eon™ Controller and Tempe™ Cables to Oscillator
System will function incorrectly if oscillator is oriented improperly between Eon™ and Tempe™.



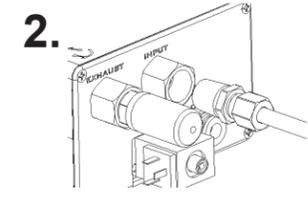
WARRANTY LABEL

If the warranty label on Eon™ has been tampered with, "VOID" will appear where the warranty label was originally placed. If this is visible at the time of arrival, it is important that you contact Colnatec immediately after receiving the product.

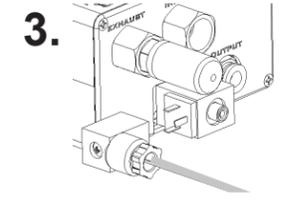
G. Mirage™ Connections



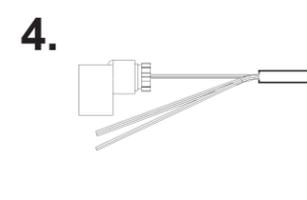
1. Attach Air Coil to Mirage™
Slide the 3/16" air coil fitting onto cooling output fitting on rear of the Mirage™. The cooling system provides a maximum output of 28°C (50°F) below the compressed air source.



2. Connect Compressed Air Input to Mirage™
Connect a filtered, oil-free compressed air source to air input fitting on Mirage™. (Air fittings may vary by country but require a 1/4 NPT female connection.)



3. Eon™ Supplies Power to Mirage™ through Power Module
The 3-pin solenoid power in module connects to Mirage™, providing power to it. Tighten integrated screw after mating to device.

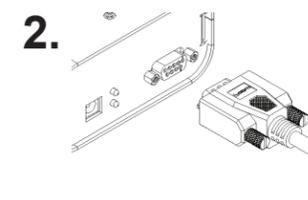


4. Relay Cable from Monitor/Controller to Air-Cooling Device
Part of the DB-9 connector cable bundle that plugs into the I/O port of the monitor/controller and relay provides a 2-wire interface for switching.

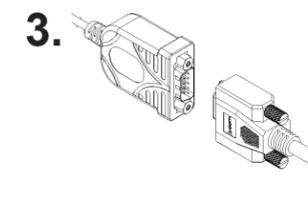
H. Connecting Eon™ to PC



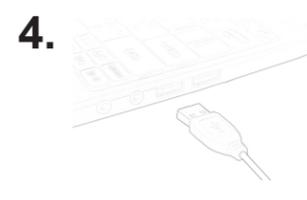
1. Install Software onto PC
Insert Eon™ software CD into disc drive. Follow prompts to install software onto PC.



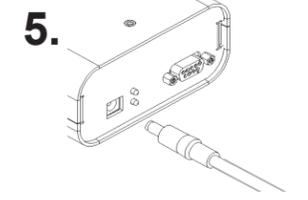
2. Plug RS-232 into Eon™
Plug RS-232 connector into male serial port on rear panel.



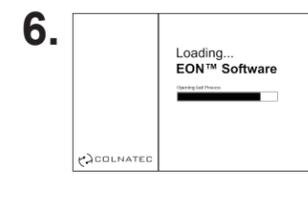
3. Connect RS-232 Cable and USB Adapter
Plug the other end of the RS-232 cable into the USB-to-RS-232 adapter.



4. Plug USB-to-RS-232 Adapter into PC
Plug USB-end of the USB-to-RS-232 adapter into PC.



5. Connect Power to Eon™
Plug Eon™ power adapter into AC outlet. Then plug DC connector into the Eon™ power input.



6. Start Eon™ Software
Start Eon™ software and follow the First Start setup procedure described in the Eon™ user manual (available on the Eon™ software CD).

ADVISORY



If drivers are already installed, simply update the drivers when installing software.



Ensure that the software has been fully installed before updating drivers.



Only use the provided cables.



Fully reboot the computer after the software installation to prevent issues with drivers.



To avoid erratic noise levels in oscillation reading, length between the Tempe™ crystal compartment and the oscillator SHOULD NOT exceed 36 inches (914 mm).



Eon™ Serial #: _____

Eon™ Software Version: _____

Firmware Version: _____

Tempe™ Serial #: _____

