

Using the COM.AIR Dew Point/ Humidity Hygrometer

The COM.AIR dew point monitor has been designed by Edgetech Instruments to offer the highest level of reliability and accuracy available in compressed air system dew point measurement. It is equally valued in determining dew point in purge gas systems used in metal heat treating, solder reflow ovens, and purged tunnel processes.

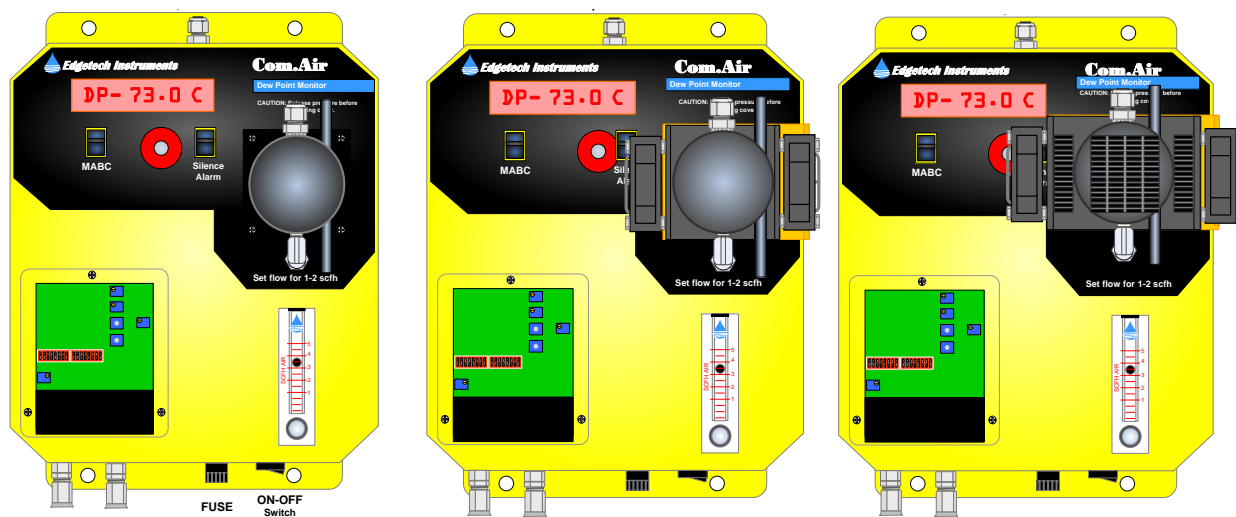
The COM.AIR uses the chilled mirror (CM) dew point temperature condensation principle to determine the water vapor concentration in gas mixtures, and a precision platinum resistance thermometer to measure the mirror temperature. The CM uses a thermo-electric device to control the temperature of the mirror in determining dew point. Since it is a direct measurement of dew point and thus a Primary Standard Measurement Technique. The COM.AIR is highly regarded by manufacturing engineers for its robust packaging, accuracy, long life, fast response in detecting upset conditions and easy to use characteristics.

Com.Air is a complete dew point monitoring System. The ruggedized aluminum NEMA-12 enclosure houses the sensor, control circuitry, as well as flow control and is easily wall-mounted to conserve space. Only the sample line and power connection is needed for the system to be operational. Com.Air also offers a programmable Automatic Balance Control (ABC) cycle which corrects for the light reducing effects of mirror contaminates and allows for continuous monitoring and virtually maintenance-free operation. Several models of chilled mirror sensors are available for the COM.AIR. In most cases the COM.AIR is fitted with a flow through sensor such as the S-Series or X3 series sensors. Gas is extracted from the process point and **flows through** the sensor for measurement. Depending on the target dew point, you would choose between a two or three stage sensor and also choose if the sensor needed to be air cooled, fan cooled or liquid cooled. The standard configuration is to mount the sensor onto the face of the COM.AIR unit:

S2 Two Stage Air Cooled

S2SC Two Stage Fan Cooled

S3 Three Stage Fan Cooled



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Using the X3 or the standard S series sensor is determined by the need for chemical resistance (X3), the need for measuring lower dew points without the need for liquid cooling (X3), or lowest cost (S series).

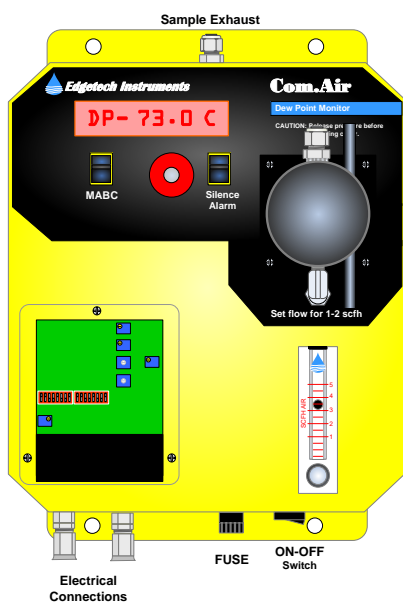
Remote sensor mounting (locate the sensor away from the electronics) is possible by specifying the insertion D-Probe, the S-series or the X3 series- with remote cable. The D-Probe can actually be mounted within many processes. The X3 and S series always are extractive sampling.

The COM.AIR offers many standard features including:

- RUGGED Housing designed for challenging manufacturing environments
- Compact, does not take up a lot of space on your work floor
- Easy, Simple to use. Virtually Plug-and-Play
- Readily accessible Chilled Mirror Sensor allows for quick maintenance
- Want to make a change? An entry window allows access to easy adjustments
- Valved flowmeter located on front panel shows sample flow
- Audible Alarm with mute switch
- Large, Bright LED Digital display
- PRIMARY STANDARD MEASUREMENT: Chilled Mirror measurement technique
- NIST Traceable calibration certificate
- Automatic Balance Cycle (ABC) automatically re-standardizes and corrects for contaminants
- MABC: Manual ABC w/ easy access button on front panel
- Two selectable Analog Outputs (4-20 mA , 0-5 VDC scaleable) & RS-232 Serial Interface
- One programmable electrically isolated alarm relay
- Universal VAC Power Input

Environmental Configuration

- NEMA 12 Wall Mount



COM.AIR S2 – Basic Model

Options (Mounted Internally):

- Vacuum Pump : Extract Gas Sample from process chamber (furnace, Annealing Ovens, Heat Treat,...)
- Pressure Transducer: Monitors input pressure
- High Pressure Option: Sample up to 900 PSIG
- Dual Relay Alarms
- Mirror Types:
 - Chrome plated copper: Standard
 - Stainless Steel
 - Platinum

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Applications:

Compressed Air Systems

Dryer Systems

Heat Treat Process

Fluidized Beds

Plastic Pellet Transport

Plastics Manufacture

Annealing Ovens

Furnace

Solder Reflow Ovens

Process Chambers

Modified Atmosphere Packaging

Medical Products Packaging

BENEFITS of the Edgetech Instruments Chilled Mirror Sensor:

- **Eliminate Uncertainty:** Direct measurement method recognized Primary Standard Technique
- Excellent Precision and Stability
- Robust and Long Life: no moving parts, no consumable components
- **Improve batch turn-around:** Rapid dry-down time in comparison to other technologies
- S series chilled mirror sensors come with auxiliary heat exchanger ports (1/4" tube) for connection to chilled liquid for measuring lower dew points.
- **Reduce product loss:** Fast response in responding to upset process conditions.

TO ORDER THE COM.AIR:

Determine the range of Dew Point that you need to measure. Is the sample under positive pressure? If yes, then choose the standard configuration. If it is at atmospheric pressure, then choose the pump option (internal mount).

1. Choose Sensor type based on the dew point range
2. Choose Mirror Type based on your application. Chrome plated copper is standard.
3. Choose Local or Remote Sensor (standard is local sensor)
4. Choose Sensor options if needed
5. Select Options such as dual relay alarms, Pressure Transducer, High Pressure, ...
6. List as separate line items : Accessories, Calibration Packages, and Extended Warranty.



For Example: CA-S3-VP would be a COM.AIR with S3 fan cooled Chilled Mirror sensor and internally mounted vacuum pump.

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STEP 1: Choose Sensor Type based on Dew Point and Chemical Resistance Requirements:

Chilled Mirror Dew Point Sensors for the COM.AIR

S-Type, Standard Duty		
	Description	Depression
S2	Two Stage, Al Body, Convection Air Cooled- No Fans, Flow Through Sampling	60C
S2SC	Two Stage, Al Body, Fan Cooled, Flow Through Sampling	65C
S3	Three Stage, Al Body, Fan Cooled, Flow Through Sampling	95C*
P	S2P or S3P: High Pressure option 900 PSIG	Price varies by sensor

* Liquid Chilling may be required in the S3 to attain 95C Depression, fan only –depression of 70C

Standard S & X series sensors rated for 300 PSIG sample Pressure

X-Type, Chemical Resistant, High Performance		
	Description	Depression
X3P	3 Stage, Panel Mount, SS Body, Convection Air Cooled- No Fans, Flow Thru	65C
X3F	3 Stage, SS Body, Standard Fan Cooled, Flow Thru Sampling	85C
X3SF	3 Stage, SS Body, High Efficiency- Super Fan Cooled, Flow Thru Sampling	95C

D-Type, Insertion Probe		
	Description	Depression
DS2	2 Stage, Insertion Probe, AL, Convection Air Cooled, Diffusion Sampling w/ cable	60C

STEP 2: Choose Mirror Type based on Chemical Resistance Requirements:

No Designator= Standard Chrome Plated

-SS = Stainless Steel

1. -PT = Standard Chrome Plated

Applications CM Configuration	General Purpose Gases	Acids	Caustics	Salts	Organics	Nuclear Application	High Temperature
Chrome Plated							
Copper	A	D	D	C	C	D	C
316 Stainless Steel	A	B	B	B	B	C	B
Platinum	A	A	A	A	A	A	A

A Excellent
B Very Good
C Good
D Not recommended
NR Not Rated

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STEP 3: Choose Local or Remote Sensor (DS2 sensor always remote mounted):

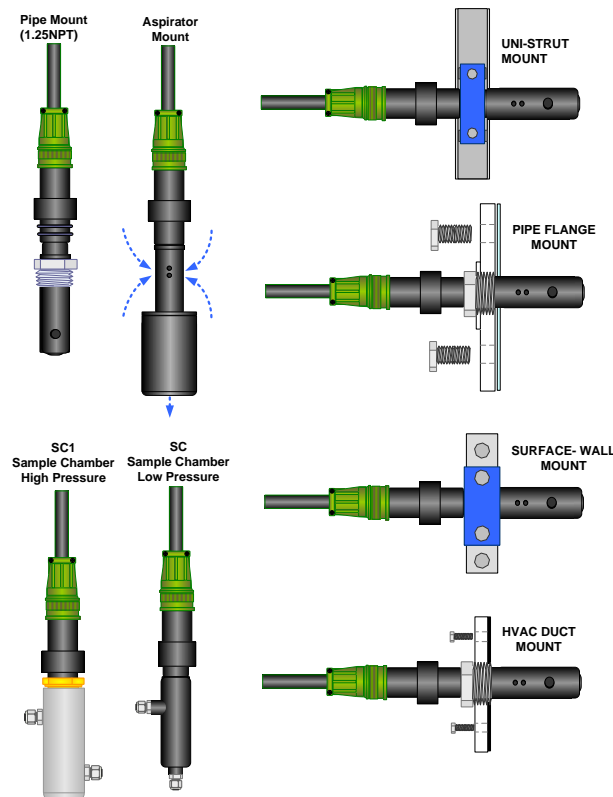
No Designator = Local Sensor – S series

- RC Remote Mounting Kit S-type Sensor 10' Cable, additional lengths add \$4/ foot
- RK Remote Mounting Kit D-type Sensor 10' Cable, additional lengths add \$4/ foot
- RX Remote Mounting Kit X-type Sensor 10' Cable, additional lengths add \$4/ foot

STEP 4: Choose Special Sensor Options (D-Probe only):

-When Ordering the D-probe, you can specify:

- AR Aspirator: Pulls surrounding (ambient) air stream into sensor for fast response.
- P Pipe Mount: provides a 1.25INCH Male NPT penetration into process such as air feeds to engine test cells
- D Duct Mount: Sensor is mounted onto a gasketed plate for measuring HVAC duct air
- F Sensor is Mounted into a Pipe Flange w/ Gasket seal for process piping penetrations
- SM Surface Mount: Sensor is mounted in a plastic clamp that can be surface mounted for glove box or ambient air
- US Unistrut Mount: Sensor is mounted in a plastic clamp that can be attached to Unistrut for process skids...
- SC1 High Pressure (up to 100psig) Sample Chamber provides ¼ inch Swagelok compression fitting ports
- SC Slip on –low pressure sample cover slips onto d-Probe



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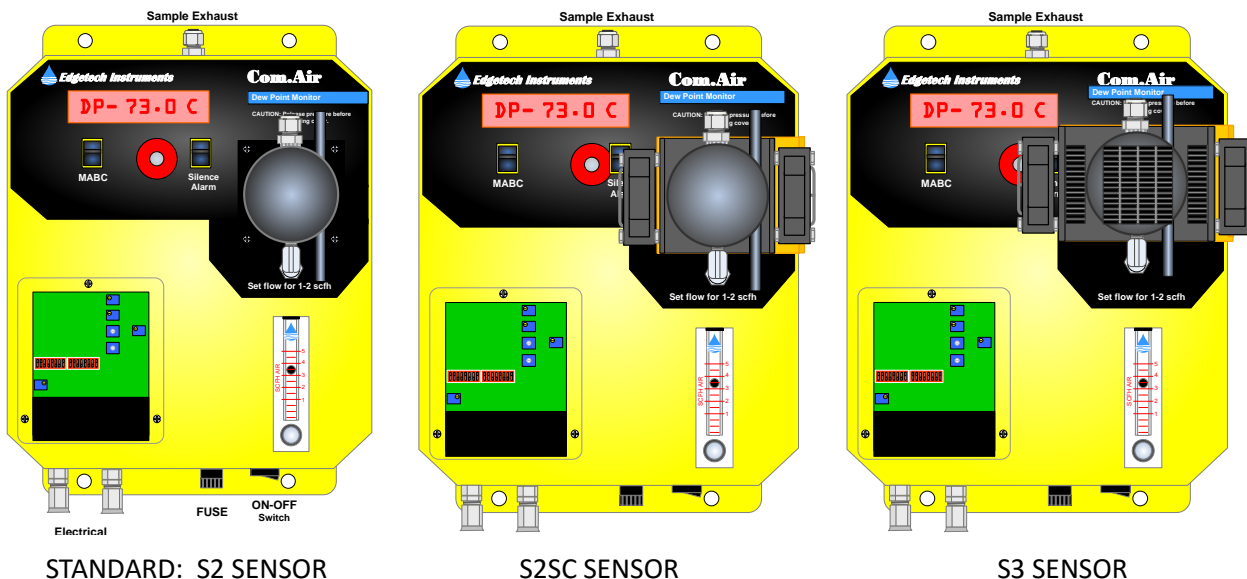
STEP 4: Choose Options:

- DA **Dual Alarm Relay:** Provides additional relay alarms
- PT **Pressure Transducer, 0 to 25PSIA or 0-150PSIA, or 0-300PSIA** Provides automatic pressure compensation
- VP **Internally mounted vacuum pump** Pulls sample gas from the process across the sensor
- HPO **High Pressure Option (up to 900 psig)** For S- Series Sensor: Modified sensor housing
- RS **RS-232 serial output** Bi-directional communications with the ComAir
- SA/.1 **0.1°C Special accuracy, traceable to NIST (Certified)**
- SA/.15 **0.15°C Special accuracy, traceable to NIST (Certified)**

Accessories/ Special Services:

- FIL Filter kit: includes fittings and additional elements; rated for .1 micron particulate
- DX Additional box of elements. Qty. 3
- CHL Self-Contained Chiller for use with S-Series sensors to measure lower dew points
- 3YEW 3 Year Service Contract
- 3YNIST1P 3 single point calibrations for the price of 2, NIST traceable

Some typical COM.AIR Configurations:

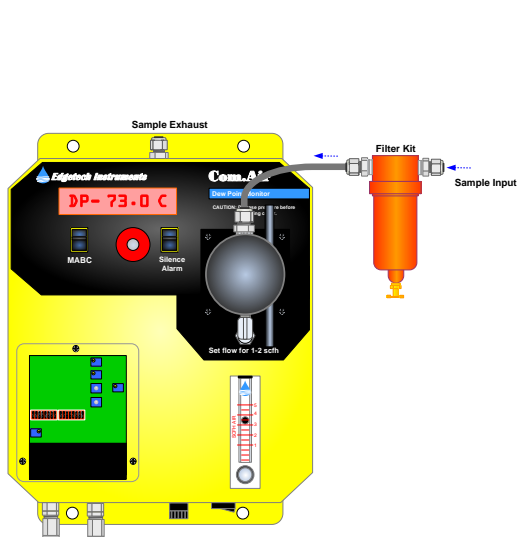


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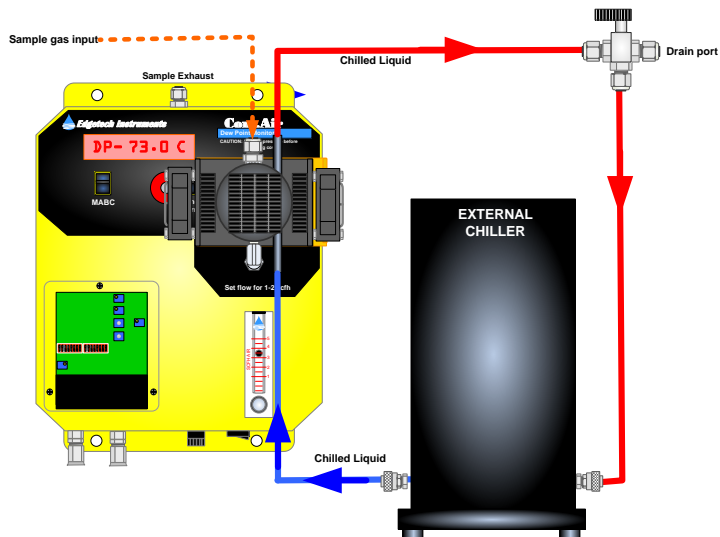
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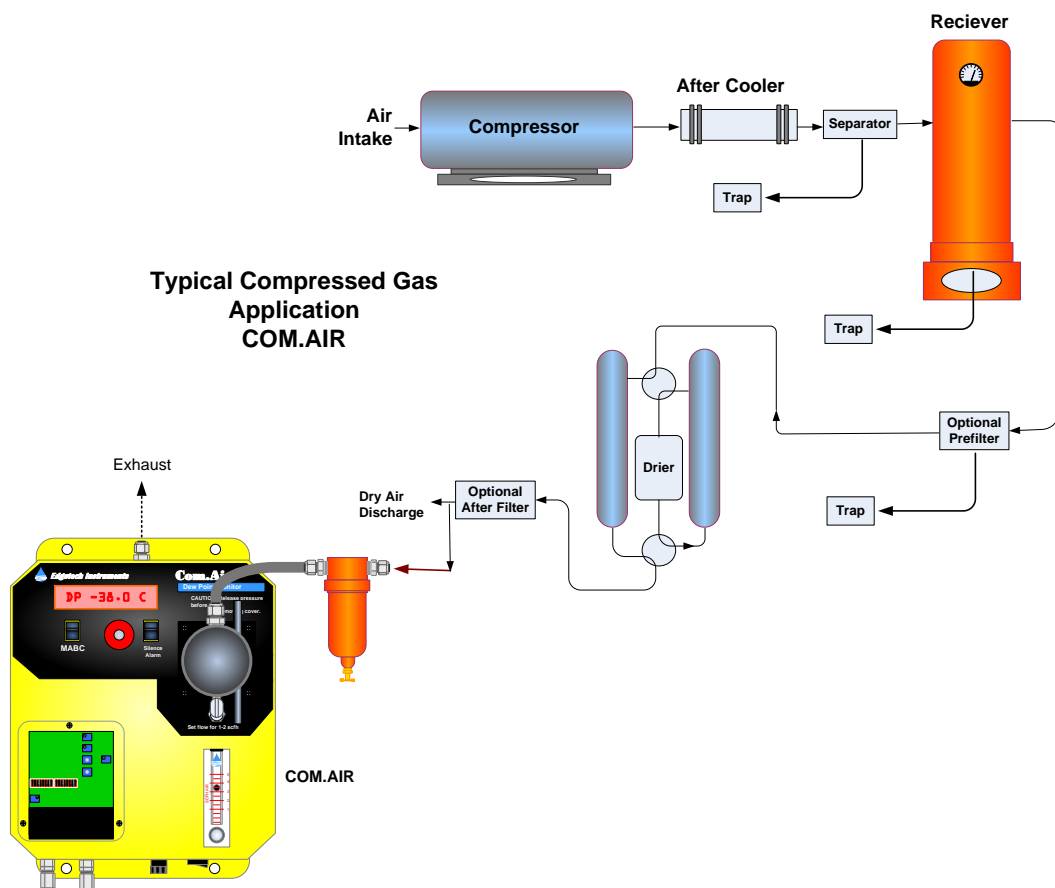


Adding the particulate filter



Extra Low Dew Point Measurement for S3

Typical Application – Dryer Output Measurement



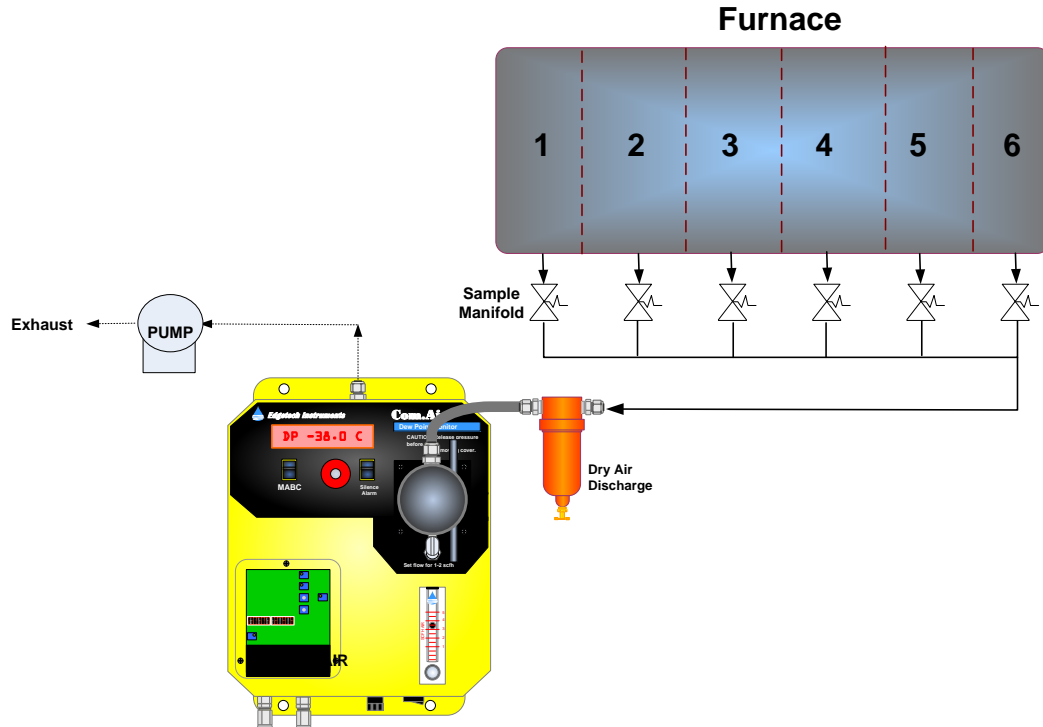
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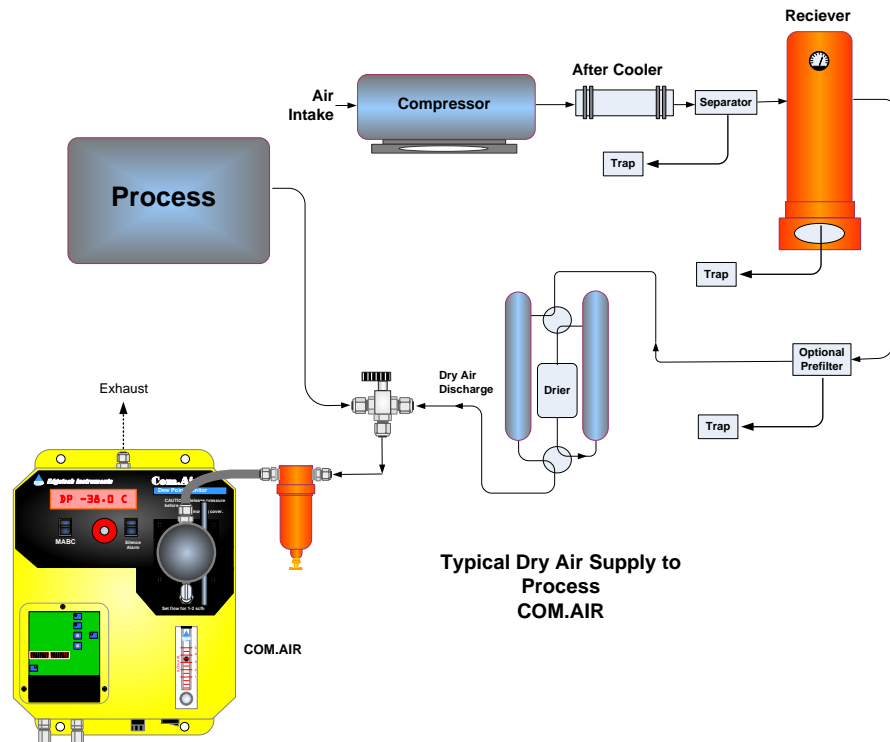
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Typical Application – Furnace Atmosphere Measurement



Typical Application – Dry Air Supply to Process/ Positive Pressure Process:



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