

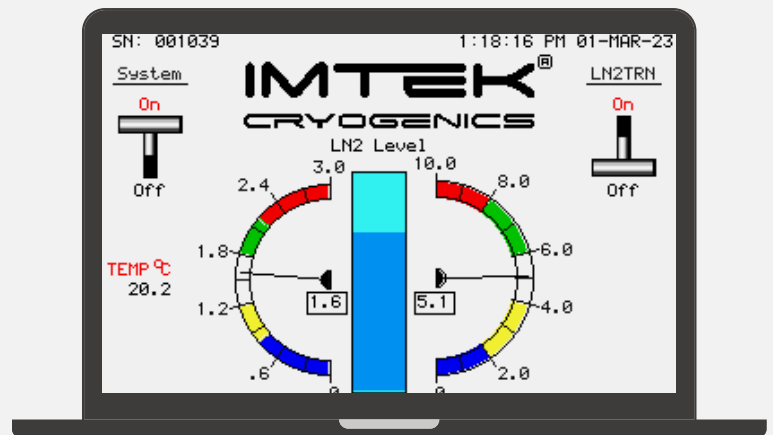
# CNP ECO SERIES

LIQUID NITROGEN GENERATION REIMAGINED FOR CRYOGENIC EXCELLENCE



The **CNPECO-1** is a cutting-edge liquid nitrogen generator with a production capacity of **240 liters/day**. Designed for maximum efficiency, this advanced system features a quick startup capability, accelerating the nitrogen liquefaction process and enhancing operational effectiveness. Its plug-and-play design and user-friendly interface make integration into any setup seamless, with one-button operation for ease of use. CNPECO-1 operates fully automatically under the guidance of an intelligent PLC.

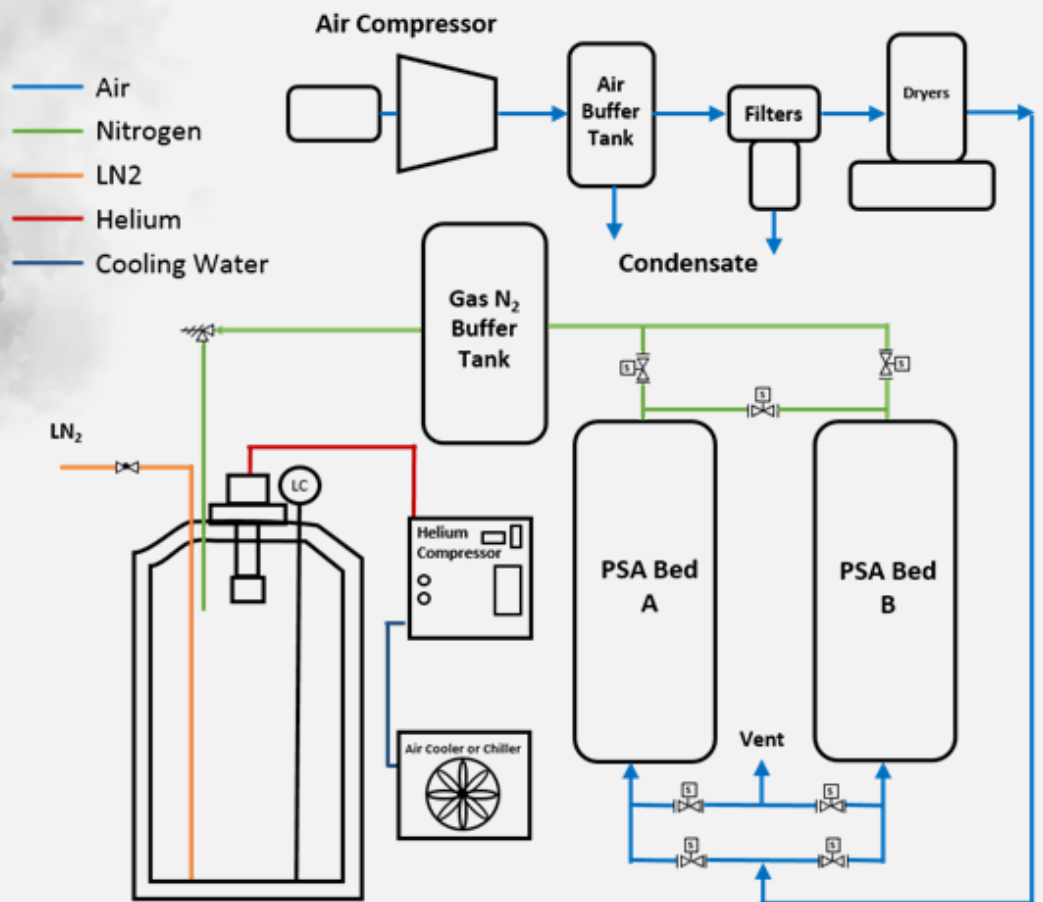
Take control with the CNP Series' advanced *PLC interface*, which centralizes operations and offers real-time remote monitoring. Displaying system status live, it ensures high-quality Nitrogen production and reliable quality control. Real-time diagnostics and reporting provide valuable insights, enhancing operational efficiency. Remote monitoring reflects our commitment to innovation, delivering a seamless, high-purity Nitrogen supply.



# THE NITROGEN PRODUCTION PROCESS

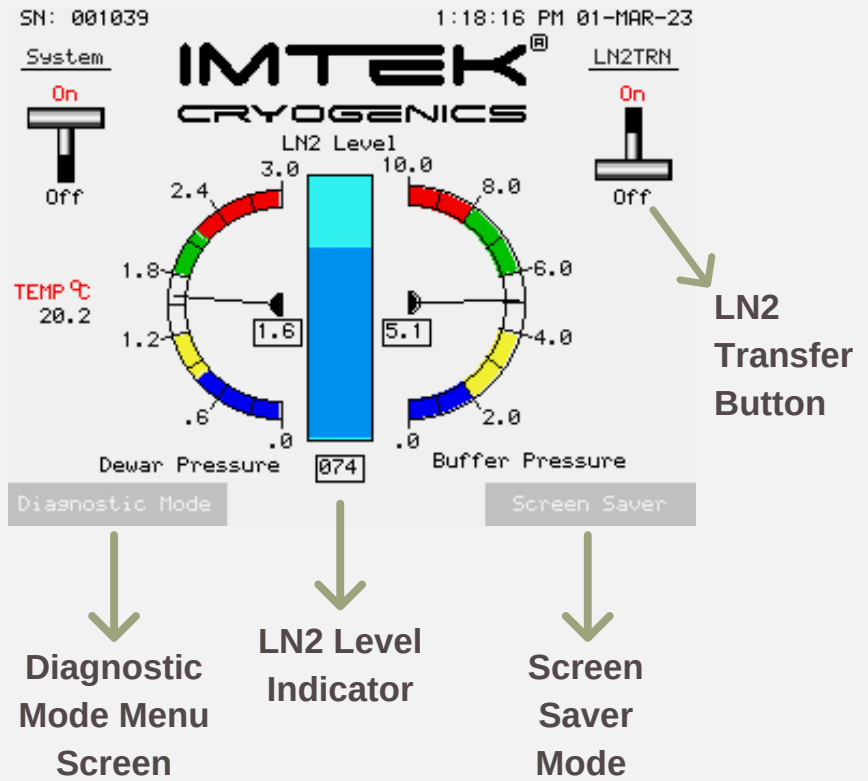
Atmospheric air is compressed by an oil-free compressor and directed to a Buffer Tank, where high-pressure air is filtered to remove water droplets and particles. An internal air dryer then removes any remaining moisture, achieving a dew point of up to  $-40^{\circ}\text{C}$ . The dry, clean air is directed into the Pressure Swing Adsorption (PSA) module, where carbon molecular sieves selectively adsorb oxygen and  $\text{CO}_2$  to produce high-purity nitrogen.

PSA technology alternates between two adsorber beds: one bed adsorbs oxygen, while other depressurizes and purges. This cycle ensures continuous flow of pure nitrogen, which is stored in a nitrogen buffer tank and then directed to a cryogenic storage tank, complete with a cryocooler and associated instrumentation for efficient nitrogen liquefaction.



# IMTEK INTELLIGENT INTERFACE

The **CNPECO-1** Nitrogen Generation and Storage System features a PLC interface with five essential screens for streamlined control. The Main screen acts as the central hub, offering start/stop controls, diagnostic mode, and pressure indicators. The Service screen enables monitoring of key components and includes multilingual options, while the Cryo-Service screen provides quick access to technical support.



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|                      |                     |
|----------------------|---------------------|
| Buffer AutoPurge     | Dewar AutoPurge     |
| Air Comp OFF 0.0     | Air Pressure is LOW |
| Buffer Purge OFF 0.0 | Dewar Purge OFF 0.0 |
| Circulation Pump OFF | He Comp OFF         |
| Chiller OFF          | CNPTemp is HIGH 0.0 |
| Restart Level: % 6   | Air Comp 00000 h    |
|                      | He Comp 00000 h     |

02 Lvl:  
Dew P.:  
Level: 0 dec.

English      French      Spanish

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For maintenance, the Maintenance screen supports system purging and technical interventions, enhancing service efficiency. The Initialization screen guides users through setup and purging, automatically transitioning to the Main screen upon completion.

| <b>MODEL</b>   | <b>CNPECO-1</b>  |
|--|--|
| <b>Production Rate</b>                               | ≥ 240 liter/day @ 23 °C  |
| <b>Electrical Options</b>                            | 380-415 V (±10%) @50Hz V3~<br>480 V (±10%) @60Hz V3~                                     |
| <b>Power Consumption (Steady State)</b>              | 13.2 kW @50Hz<br>13.8 kW @60Hz   |
| <b>Dimensions (W x L x H)</b>                        | 1240 x 1780 x 1440 mm  |
| <b>Weight</b>  | 750-1000 kg  |
| <b>Suggested Min. Installation Area</b>              | 5m (W) x 5m (L) x 4m (H)   |
| <b>Req. External Compressor</b>                      | ≥ 30 m <sup>3</sup> / hour @7 bar (102 psig)   |
| <b>Cryocooler</b>                                    | GM Type Cryocooler Mounted on Dewar  |
| <b>Compressor</b>                                    | He, 99.995% purity @ 19-19.3bar (275-280 psig), Air Cooled                               |
| <b>Req. Cooling Water Flow Rate</b>                  | 12-18 L/min  |
| <b>Req. Chiller Capacity</b>                         | ~16-18 kW  |
| <b>Built-In Nitrogen Generator</b>                   |  |
| <b>Purity</b>  | ≥ 99.5%  |
| <b>Dew Point</b>                                     | up to -40°C  |
| <b>Flow Rate</b>                                     | ≥ 15 m <sup>3</sup> / hour   |
| <b>PLC Interface</b>                                 | 8" Color Graphic Touch Screen  |
| <b>Dewar Volume</b>                                  | 500 Liters   |
| <b>Operating Pressure</b>                            | 1-1.8 bar  |
| <b>Dewar Level Control</b>                           | Capacitive Level Sensor  |
| <b>Ambient Temperature Range (Inner Temperature)</b> | -10°C to +40°C   |
| <b>Maximum Altitude</b>                              | 3000 meters  |
| <b>Noise Level</b>                                   | < 65 dB @ 1 meter  |
| <b>Conformities</b>                                  | CE Conformance,<br>ISO 12100:2010, IEC<br>60204-1, 2006/42/EC, 97/23/EC;<br>ISO9001:2015 |