

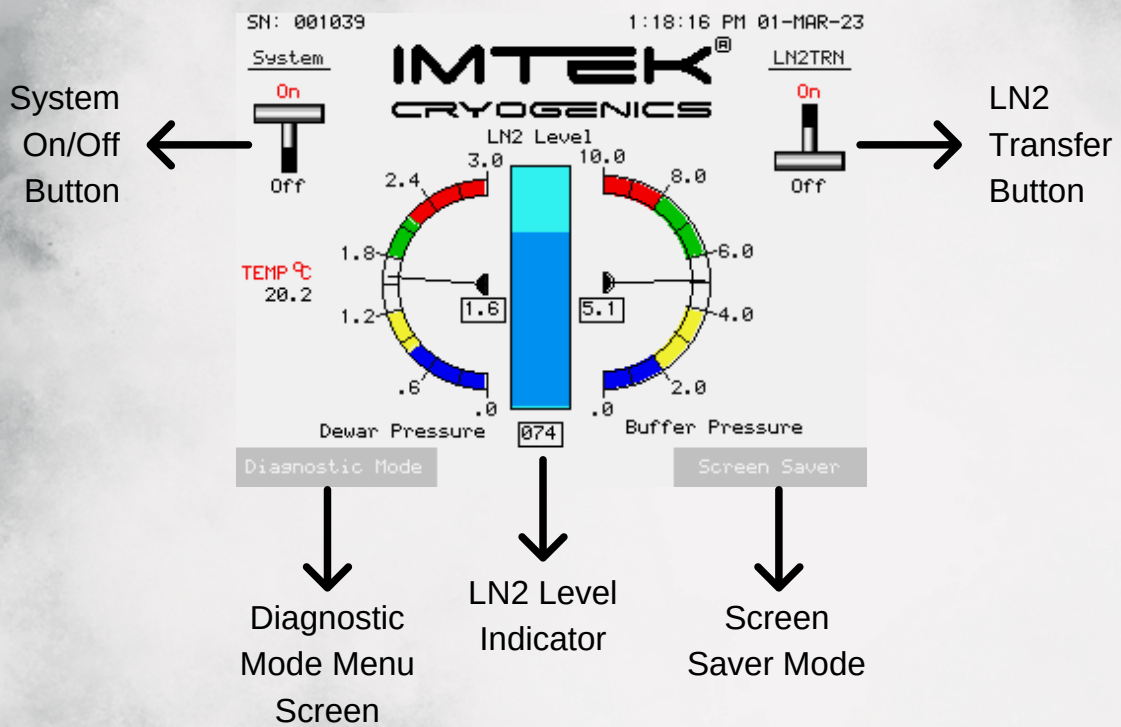
NEW GENERATION CRYOGENIC NITROGEN PLANTS

Your nitrogen, our priority.

The CNP30 is a state-of-the-art liquid nitrogen plant with a production capacity of 30 liters per day. In addition, the CNP30 also features a laboratory station version, which is ideal for applications requiring smaller volumes of liquid nitrogen. Both models are designed as a plug-and-liquefy system. With a user-friendly interface and one-button operation, the CNP series liquefiers can be easily integrated into any environment. Simply make the necessary electrical connections and enjoy fully automated operation, facilitated by the PLC controller. The operator is only required to replace filters and perform routine checks at maintenance intervals of 8,000 operating hours.



The production of liquid nitrogen is achieved through liquefaction from air, which is then stored in an internal Dewar with capacity of your choice. The availability of liquid nitrogen is ensured at all times, allowing for convenient filling of the dispensing thermos or transfer to external Dewars via a flexible hose with a simple activation. The transfer of liquid nitrogen is independent of the system's operating mode, and the programmable logic controller (PLC) automatically initiates production when the Dewar level drops to 70%. The plant will stop production when the Dewar is full, entering standby mode until liquid nitrogen is transferred.

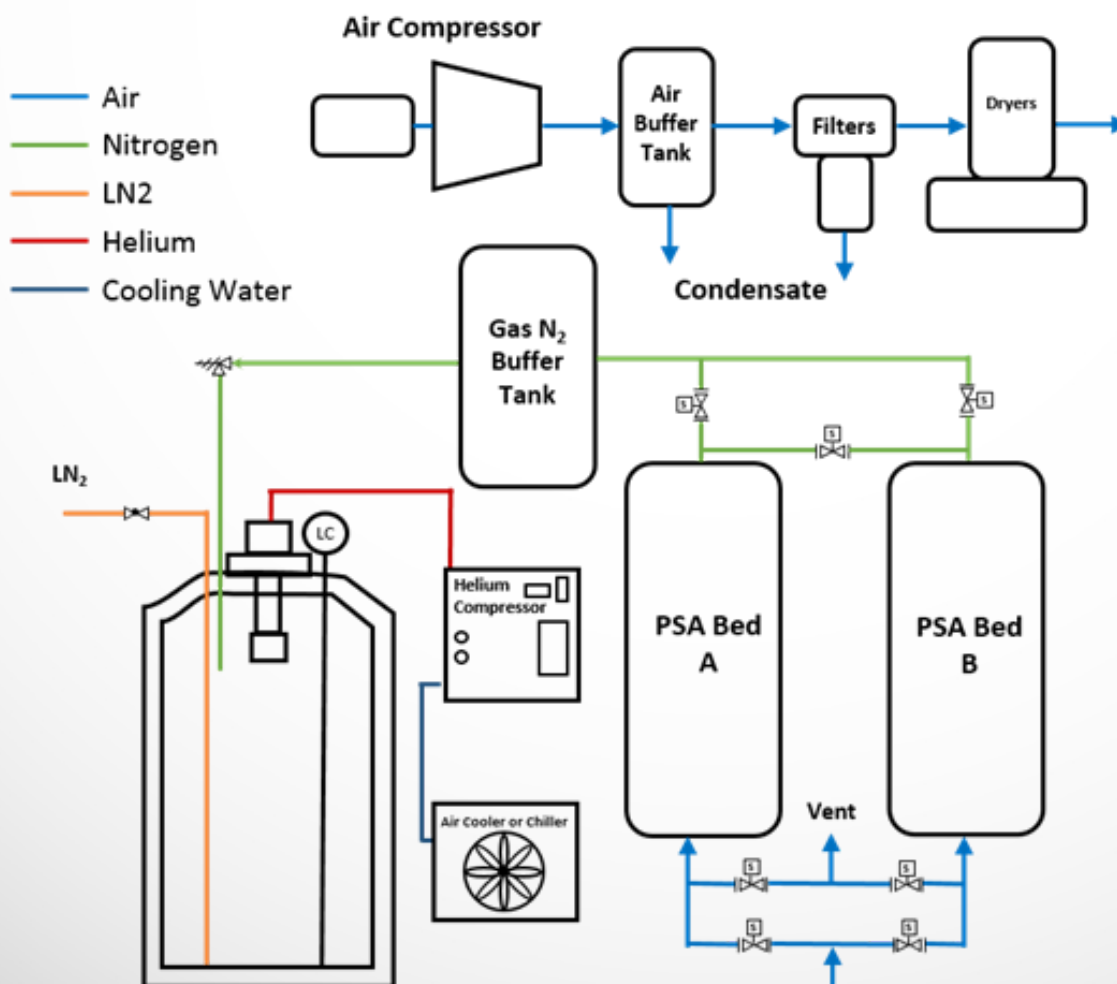


The CNP30 Nitrogen Generation and Storage System's Programmable Logic Controller (PLC) interface includes five essential screens. The Main screen serves as the central control panel, offering start/stop controls, diagnostic mode, and pressure indicators for seamless operation. The Service screen provides direct monitoring and control over key components and features multilingual options. A dedicated Cryo-Service screen ensures customers always have easy access to technical assistance contact information. The Maintenance screen, tailored for system purge and technical interventions, facilitates efficient service operations. Lastly, the Initialization screen aids users during the initial setup and purging, transitioning to the Main screen once the setup is complete. These interfaces seamlessly integrate to provide comprehensive control over the system's operations.



Atmospheric air is compressed to high pressure by an oil-free built-in compressor and subsequently directed to a Buffer Tank. The high-pressure air within the Buffer Tank is then directed to a filter group located behind the unit in order to remove water droplets and particles from the air. Subsequently, an internal air dryer eliminates any remaining moisture within the gas phase. The resulting treated dry and clean air, with a dew point of up to -40°C , is then directed to one of the adsorber beds located within the Pressure Swing Adsorption (PSA) module.

PSA technology can effectively deliver nitrogen at the requisite purity level for liquefaction. The carbon molecular sieve located within the PSA beds selectively adsorbs oxygen and carbon dioxide molecules until the bed becomes saturated. Once saturation occurs, the feed flow process valves are switched to the second adsorption bed while the first adsorption bed is rapidly depressurized and purged to remove adsorbed oxygen. By continuing to switch between the two beds, a constant flow of pure nitrogen gas is generated. The purified nitrogen is then directed through a nitrogen buffer tank and ultimately into a cryogenic storage tank where it is stored alongside the cryocooler and other associated instrumentation.



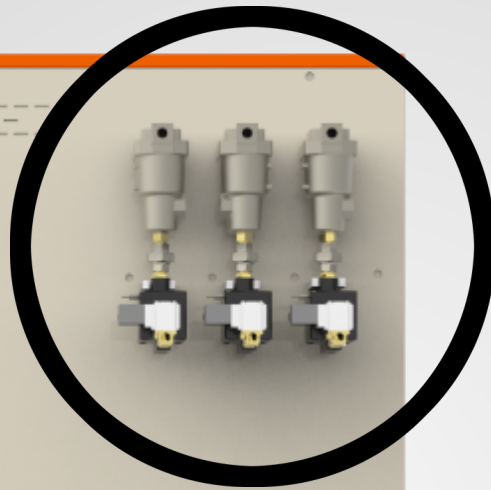
Experience enhanced accessibility and convenience with the CNP30's advanced PLC screen interface. This innovative system not only centralizes control and offers comprehensive monitoring capabilities, but it also enables remote monitoring from your personal computer! Moreover, the Diagnostic's Screen pictured above allows for monitoring of the Air Pressure in the Air Compressor and Buffer Tank as well to ensure safe operation. There is close monitoring of the purity level of the Liquid Nitrogen produced through the O2 Level indicator as well!

The interface persistently exhibits real-time Oxygen and Purity sensor readings, ensuring immediate, accurate understanding of the LN2's quality and enabling quick reactions to any deviations in purity or oxygen levels. Further enhancing its functionality, the PLC interface consistently generates reports encompassing product purity, oxygen levels, system status, and other vital operational parameters. These reports can be configured to be delivered at predetermined intervals or on demand, offering operators a comprehensive insight into the system's performance and the LN2 quality.

The screenshot displays the Diagnostic Screen of the CNP30 PLC interface. At the top right, the time and date are shown as 02:12:54 PM 24-MAY-23. The screen is organized into two columns of status indicators and buttons. The left column includes: Buffer AutoPurge (green), Air Comp OFF (green) with a value of 0.0, Buffer Purge OFF (green) with a value of 0.0, Circulation Pump OFF (green), Chiller OFF (green), and a Restart Level: % button with a value of 6. The right column includes: Dewar AutoPurge (green), Air Pressure is LOW (red), Dewar Purge OFF (green) with a value of 0.0, He Comp OFF (green), and CNPTemp is HIGH (red) with a value of 0.0. Below these are two rows of text: Air Comp 00000 h and He Comp 00000 h. At the bottom, there are four language selection buttons: English, French, and Spanish, and four main navigation buttons: Home, CryoService, Alarm History, and Service. A QR code is located in the bottom left corner.



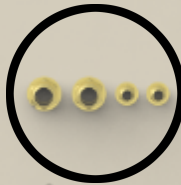
Central Line Filter
Water Filter
Particle Filter



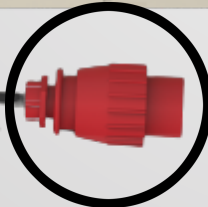
System On/Off
Switch
(Manual)



Left: Water
Inlet/Outlet
Right: Exhaust
Outlets (Water



Remote
Control Cable
Connections



3 Phase
Power Plug



MODEL	CNLab30	CNP30
Featuring Water-Cooled & Air-Cooled Versions		
Production Rate	≥ 30 liter/day (≥34 Lt/day @ 23 °C)	
Electrical Options	380 - 415 (±10%) V3~ @ 50 Hz 460 - 480 (±10%) V3~ @ 60 Hz	
Power Consumption (Steady State)	4.2 kW @50Hz 5.2 kW @60Hz	
Dimensions (W x L x H)	765 mm x 1340 mm x 1380 mm	
Weight	350kg	
Suggested Installation Area	2m (W) x 2m (L) x 2m (H)	
Built-in Air Compressor	Built-In Oil-Free Compressor, ≥ 2 m ³ / hour @7 bar (102 psig)	
Cryocooler	GM Type Cryocooler Mounted on Dewar	
Compressor	He, 99.995% purity @ 19-19.3bar (275-280 psig), Air Cooled	
Built-In Nitrogen Generator		
Purity	≥ 99.5%	
Dew Point	up to -40°C	
Flow Rate	≥ 1 m ³ / hour	
PLC Interface	6" Color Graphic Touch Screen	
Dewar Volume	60 Liters (80 Liter + Option)	
Dewar Evaporation Rate	0.1 liter/day	
Operating Pressure	1.5 bar	
Req. Cooling Water Capacity (For Water-Cooled Versions)	7 kW (Cooling Power) 4-9 L/min	
Dewar Level Control	Capacitive Level Sensor	
Ambient Temperature Range	+4°C to +40°C	
Maximum Altitude	3000 meters	
Noise Level	< 65 dB @ 1 meter	
Conformities	CE Conformance, ISO 12100:2010, IEC 60204-1, 2006/42/EC, 97/23/EC; ISO9001:2015	

CNP is a registered trade mark of Imtek Cryogenics.

We reserve the right to make modifications to our product offerings at any time, without prior notice.

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