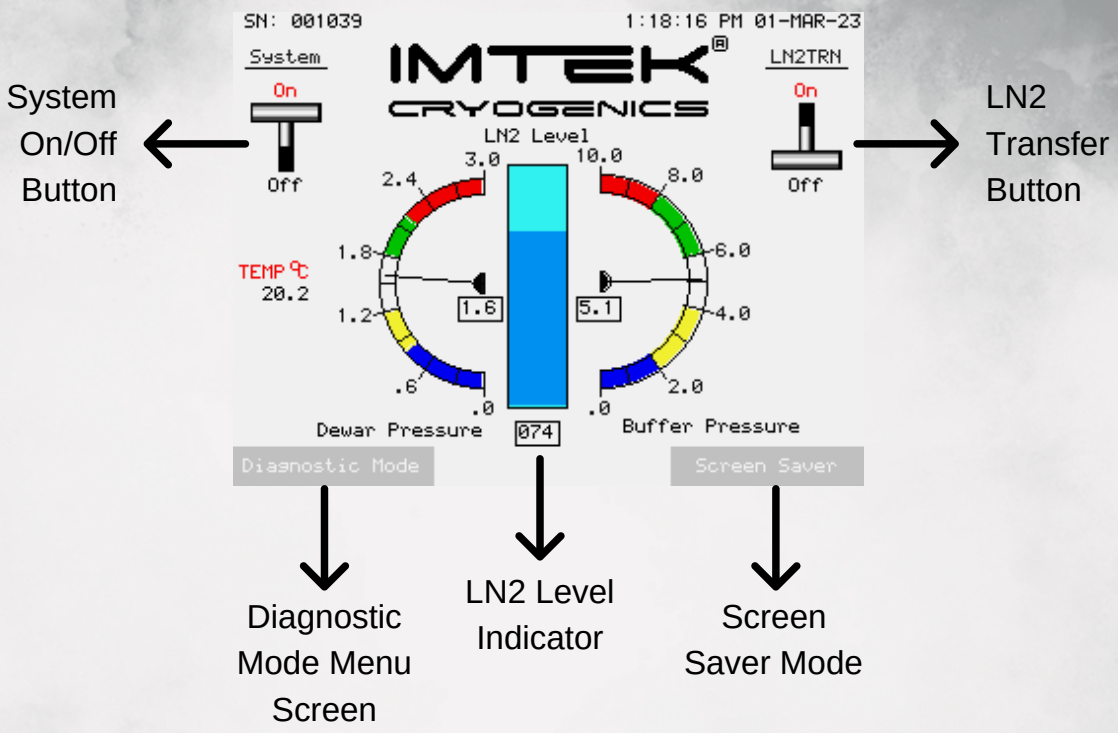
IMTEK CRYOGENICS

NEW GENERATION CRYOGENIC NITROGEN PLANTS

Your nitrogen, our priority.

The CNP60 is a state-of-the-art liquid nitrogen plant with a production capacity of 60 liters per day. This advanced system also offers a quick startup feature, expediting the process of nitrogen liquefaction while ensuring operational efficiency. Both attributes solidify its standing as a plug-and-liquefy system. Boasting a user-friendly interface and one-button operation, the CNP series liquefiers can be seamlessly integrated into any setup. The necessary electrical connections are all that's required for its fully automated operation, governed by the intelligent PLC controller. The operator's duties are restricted to changing filters and conducting routine checks at maintenance intervals of 8,000 operating hours.

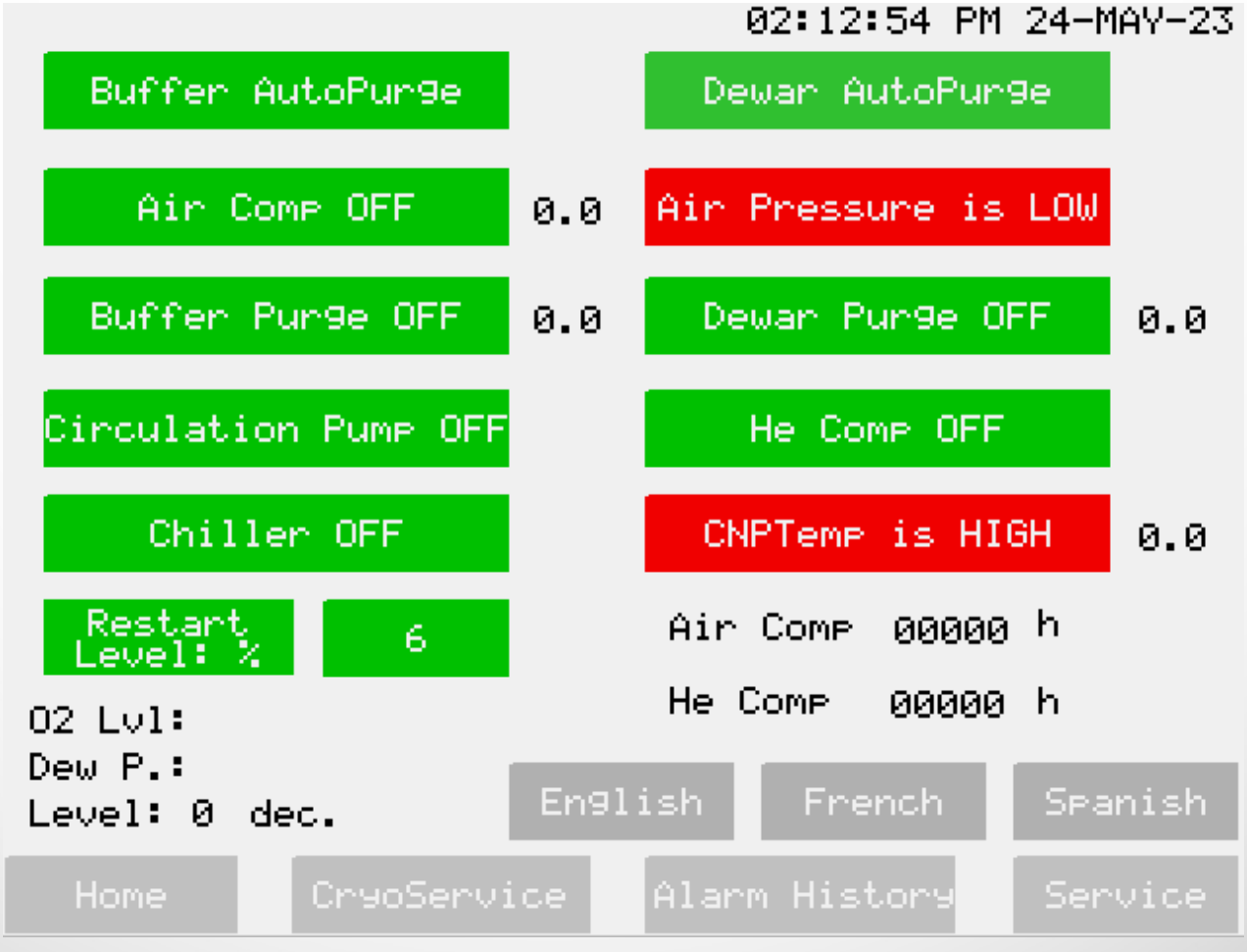
The production of liquid nitrogen is achieved through liquefaction from air, which is then stored in an internal Dewar with capacity of your choice. The availability of liquid nitrogen is ensured at all times, allowing for convenient filling of the dispensing thermos or transfer to external Dewars via 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 CNP60 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.

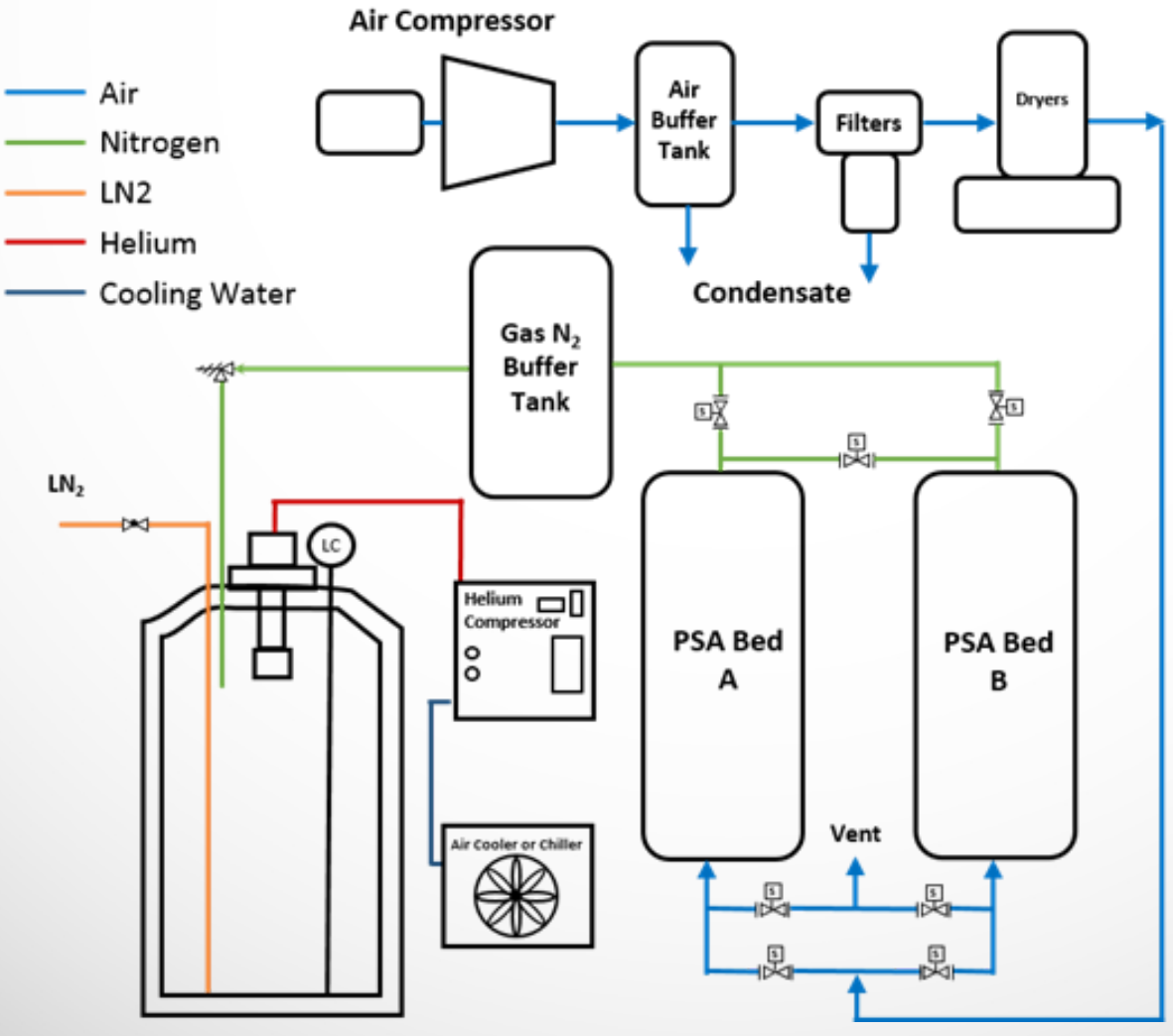
Experience enhanced accessibility and convenience with the CNP60's advanced PLC screen interface. This innovative system not only centralizes control and offers comprehensive monitoring capabilities, but it also enables remote monitoring from your personal computer! Moreover, the Diagnostic's Screen 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 02 Level indicator as well!

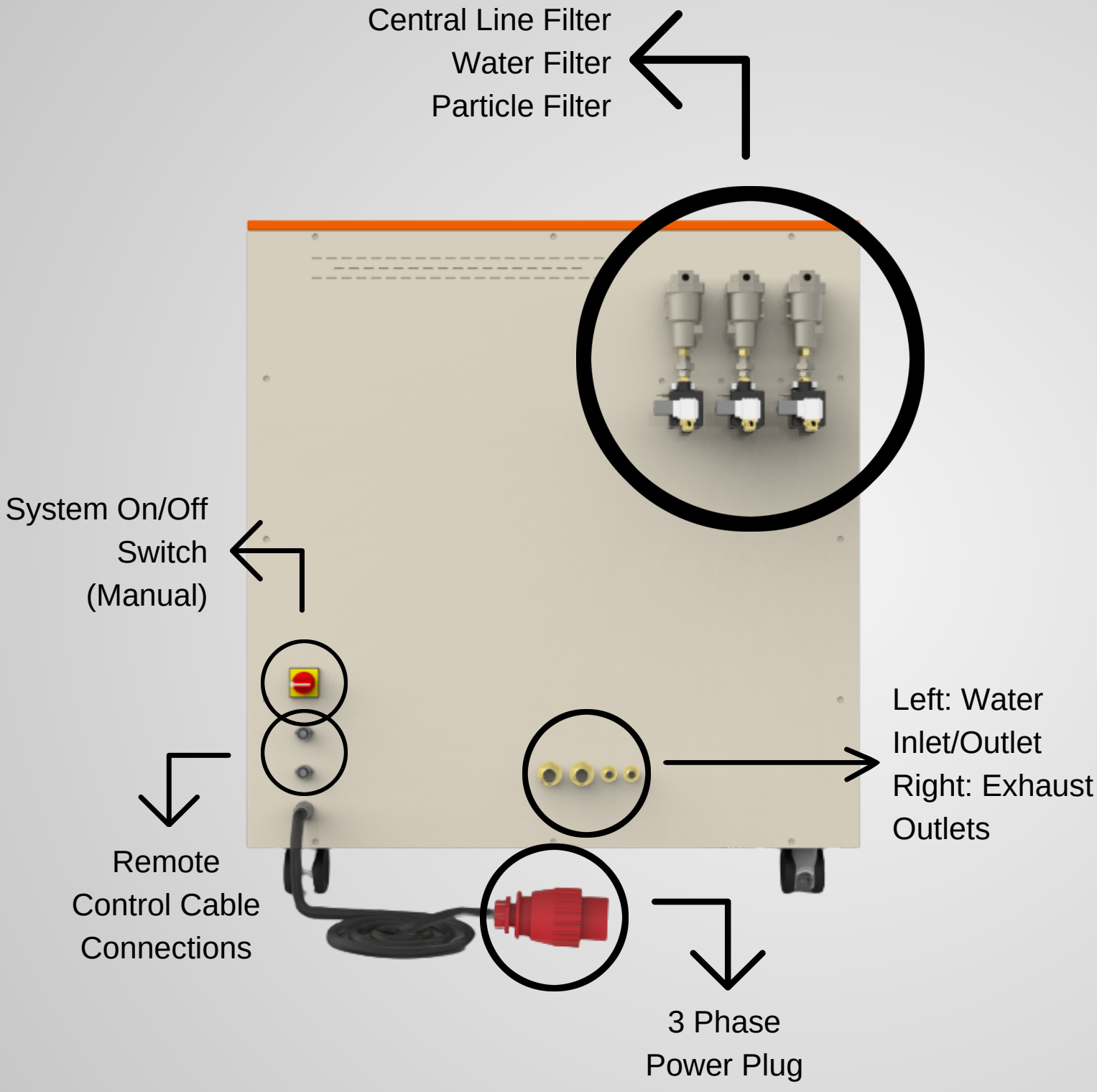
The interface persistently exhibits real-time Oxygen and Purity sensor readings, ensuring immediate, accurate understanding of the LN2's quality and enabling quick reactions to any deviations in purity or oxygen levels. Further enhancing its functionality, the PLC interface consistently generates reports 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.



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.




Central Line Filter
Water Filter
Particle Filter
System On/Off
Switch
(Manual)
Left: Water
Inlet/Outlet
Right: Exhaust
Outlets
Remote
Control Cable
Connections
3 Phase
Power Plug

IMTEK CRYOGENICS

MODEL	CNP60
Production Rate	≥ 60 liter/day (≥65 Lt/day @ 23 °C)
Electrical Options	380-415 (±10%) V3~ @50Hz 480 (±10%) V3~ @60Hz
Power Consumption (Steady State)	6.6 kW @ 50Hz 7.5 kW @ 60Hz
Dimensions (W x L x H)	825 mm x 1350 mm x 1400 mm
Weight	400kg
Suggested Installation Area	3m (W) x 4m (L) x 3m (H)
Built-in Air Compressor	Built-In Oil-Free Compressor, ≥ 8 m^3 / hour @7 bar (102 psig)
Cryocooler	GM Type Cryocooler Mounted on Dewar
Compressor	He, 99.995% purity @ 15-15.3 bar (220-225 psig)
Req. Cooling Water Flow Rate	6-9 L/min.
Req. Chiller Capacity	9 kW
Built-In Nitrogen Generator	
Purity	≥ 99%
Dew Point	up to -40°C
Flow Rate	2.5 m^3 / hour
PLC Interface	6” Color Graphic Touch Screen
Dewar Volume	120 Liter (210 Liter + Option Selection)
Operating Pressure	1.5-2 bars
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