

Withnell Sensors
Temperature & Humidity Specialists

ALS
SERVING
LIFE SCIENTISTS

Ultra Freezers -80°C
NEXUS *green Series*



SUSTAINABLE TECHNOLOGY

at the service of science



➤ In general, the expression **"Green Economy"** refers to an economic model that envisages, as an essential factor of development, the reduction of the impact on the environment. It is therefore a type of economy that also takes into consideration the environmental aspect in addition to that strictly linked to earnings and profits.

Angelantoni Life Science has a long presence in refrigeration applied to the biomedical field, both in research and in industry. Angelantoni Life Science believes that the success of a company is measured not only with financial indicators but also with a combination of economic, environmental and social factors. It therefore constantly researches and develops products that are not only of lesser environmental impact, but also become a means for reducing consumption and resources for the community.

In this regard, the **Nexus green** line represents a natural evolution in the field of very low temperatures, which combines technological development and environmental sustainability.



Use of **INVERTER COMPRESSORS**



Internal tank in **AISI 304** stainless steel



Access security and traceability with the **BIOGUARD**® system



ENERGY SAVING compensation valve that **reduces the formation of ice** to a minimum



MAXIMUM CONNECTIVITY with the use of **3G** or **Ethernet** or **Wi-Fi** communication modules and **REMOTE ASSISTANCE**



Use of **NATURAL REFRIGERANTS**



New generation **ELECTRONICS** with data download via **USB port**



New **ERGONOMIC HANDLE** for ease of access



SWIVEL WHEELS for ease of handling



NEXUS green: Characteristics of the product



Environmentally friendly

The use of natural refrigerants (HC) with very low GWP (Global Warming Potential) is the salient feature of this product line.



Full protection

The choice of AISI 304 stainless steel for the construction of the internal tank combined with the elaborate and formalised external painting process with epoxy powders, guarantee full protection against corrosion and the durability of the ultra-freezers over time.



Greater security in terms of access

The safety of samples can be increased with the BIOGUARD® system which guarantees complete access control. This accessory involves an electric door lock that can only be opened with an authorised card, ensuring full traceability of access.



Inverter compressors

All the models in the line are equipped with new generation inverter compressors.



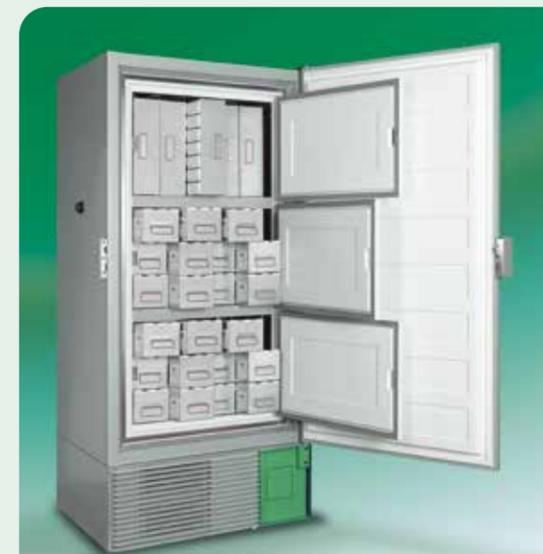
Optimisation of internal space

Each ultra freezer is equipped with a system of height adjustable shelves (optional drawers) for efficient organisation of the internal spaces and suitable positioning of the cryogenic containers and boxes.



Maximum connectivity

All the ultra freezers are controlled electronically by a new generation electronic controller that optimises their performance and functionality and allows the user adjust and monitor the ultra freezers even remotely and with the greatest of ease.



Version with rack



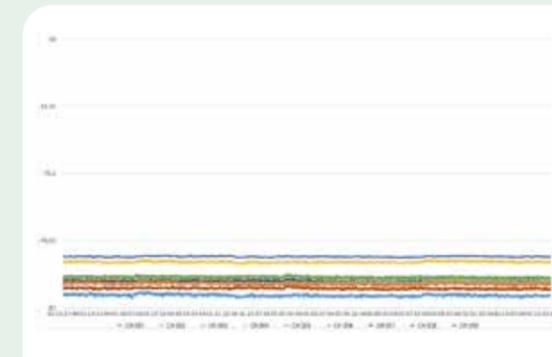
Version with drawers

INVERTER TECHNOLOGY

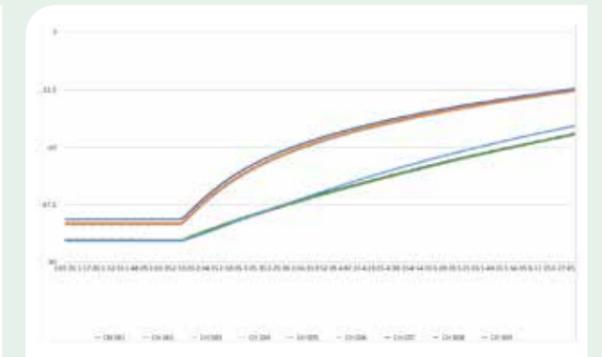
Inverter technology is extremely energy-efficient compared to traditional fixed speed systems. This is because the inverter can control and adapt the operating speed in relation to the required temperature. To avoid continuous starting and stopping, the inverter technology keeps the compressor running constantly and modulates its output according to the programmed temperature.

An inverter unit increases its revolutions to obtain the chosen temperature and reduces its revolutions once the temperature is reached, to then keep it constant with a minimum expenditure of energy.

Unlike a fixed speed system, which starts and stops repeatedly, the Inverter system dynamically varies the revolutions of the compressor to obtain the desired temperature, significantly reducing energy consumption.



Stabilisation at -82 °C



Increase

MAIN ADVANTAGES of INVERTER systems

Energy savings (up to 30%) compared to fixed speed systems.

Greater speed in reaching the set point temperature.

Speed adjustment based on demand.

Extremely quiet operation.

Temperature kept constant by adapting the performance of the compressor to the volume of the compartment to be cooled.

Superior operating performance, as the temperature fluctuates much less than with a fixed speed system.

THE ERGONOMIC HANDLE par excellence

EASIER ACCESS TO YOUR SAMPLES



The **NEXUS green** ultra freezers have a mechanical handle with lever-operated opening and closing system that allows for greater ease of opening and maximum pressure with minimum effort when closing.

This helps to increase isolation of the freezer from the external environment and to reduce the formation of ice.

Since the handle is on the front, the freezer can be placed side by side with other equipment. The mechanical performance of the handle is also improved with a servo assistance system capable of totally eliminating friction, making it much easier to open and close the freezer, even with one hand.

ACCESS UNDER CONTROL

The **BIOGUARD®** system allows the freezer to be opened only by users in possession of a personal ID card.

A maximum of 32 cards can be configured for each Bioguard® system, and access to the freezer is recorded and saved in the memory of the controller. These two systems, in fact, communicate with each other.



THE NEW GENERATION Controller

OUTSTANDING RELIABILITY, PERFORMANCE AND EASE OF USE



The **NEXUS green** ultra freezers are fitted with the new generation **controller ACP7**, based on many years of experience and state-of-the-art technology and able to guarantee high performance, maximum safety and ease of use.

The **controller** comes with a **simple** and **functional** operator interface that allows you to monitor the function and adjust the settings.

Access to the parameters is **password-protected** with 3 privilege levels: user, Service and Administrator.

The increasingly sophisticated **display** is easy to use with intuitive navigation based on **ideograms**, a **touch screen**, and text available in **different languages**.

It is of a convenient size (7") for browsing the menu and identifying the colour-coded alarms with ease.

The controller has **3 microprocessors** that communicate with each other via the **CAN-BUS** connection system, known for its high reliability and immunity to electrical disturbances.



THE NEW GENERATION Controller

COOLING WITH CONNECTIVITY AND SMART CONTROL

The ACP7 controller has innovative functions to optimise consumption and continuously monitor parameters by means of 3 separate microprocessors for: ADJUSTMENT, ALARMS AND DISPLAY.

The **REAL-TIME** function is used to display the daily temperature. This feature includes the events list and the record of the temperatures and operational variables sampled every 30 sec. for **10 years**. All values are stored and the event log files can be uploaded onto a local PC by means of the **built-in USB** port in the controller.

The **ECOMODE** function allows the machine to run in energy-saving mode.

The **PERSONAL PASSWORD** allows you to control access to the controller and enable editing of the user parameters.

The **SMART DIAGNOSTIC** function guarantees constant monitoring of the degree of wear of the main components. When the pre-set maximum wear threshold is reached, an alarm alerts to the need for replacement, reducing the risk of machine downtime.

The temperature of the technical compartment is constantly monitored and you are alerted when the safety threshold is reached.

There is a current recharge circuit for the **BACK-UP BATTERY** with periodic test, charge status and replacement alert. The battery can operate for 30 hours in the event of power failure.

If there is a power failure or mechanical fault, the **BACK-UP CO2** or **LN2** (optional) guarantees the safety of the samples for about 24 hours.

If the door is kept open for a long period of time, the CO2 or LN2 intervenes to immediately restore the temperature thanks to the intelligent reading of the electronic system.



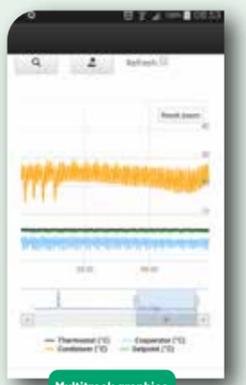
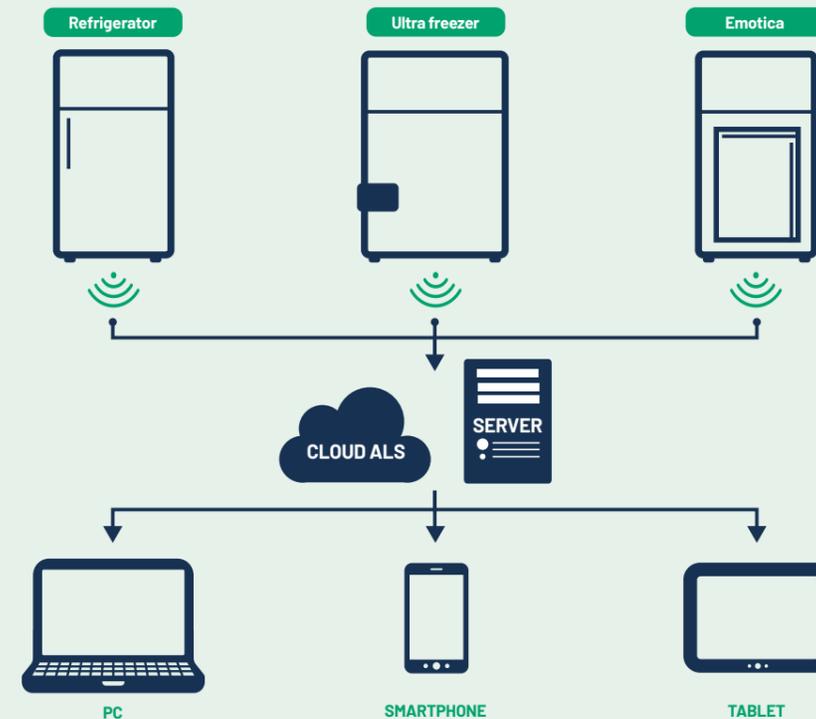
THE NEW GENERATION Controller

CONSTANT MONITORING, AS AND WHEN YOU WANT IT

The controller guarantees maximum connectivity and constant monitoring thanks to the **CloudALS** infrastructure or **local storage server** (Proprietary Server), easily accessible from a PC, Smartphone or Tablet.

With this function, users can consult in real time the trend of the storage temperatures of the freezer and maintenance personnel can promptly access detailed operating information on the refrigeration unit and its components.

The variety of choice between **3G** coverage or the use of an **Ethernet** or **Wi-Fi** communication module, facilitates any type of connection present in the environment of use and allows the remote control of the functions of a single or several Angelantoni devices (refrigerators, ultra freezers, etc.) with new generation controllers (ACP series) located in one or more laboratories.



Remote control of refrigeration units from Smartphone

GREATER SAFETY FOR YOUR SAMPLES

REMOTE FUNCTION

- Management of master data
- Multitrack Real-Time Charts
- Event notification e-mails
- Consultation of variables in real time

- Reading of the configuration parameters
- Writing of the configuration parameters
- Update firmware
- Remote assistance

USER

SERVICE

MODELS

VERTICAL	
-80°C	
Model	Code
NEXUS green 340 V-3*	14722
NEXUS green 340 V-4*	14498
NEXUS green 530 V-3*	14273
NEXUS green 530 V-4*	14398
NEXUSSlim green 810 V-4*	14397
NEXUSSlim green 810 V-5*	14724

* Number of counter hatches

TECHNICAL SPECIFICATIONS

MODELLI	NEXUS				NEXUSSlim green	
	340 V3	340 V4	530 V3	530 V4	810 V4	810 V5
DIMENSIONI						
Ext. Dim. (mm) (LxWxH)	450x530x1350		700x530x1350		906x609x1472	
Int. Dim. (mm) (LxWxH)	791x1026x1976		1040x1028x1978		1112x1014x1978	
Packaging Dim. (mm) (LxWxH)	810x1000x2120		1060x1000x2120		1170x1000x2120	
Volume (lt)	322		500		812	
Weight (kg)	234		300		362	
Weight with packaging (kg)	260		329		392	
TECHNICAL PERFORMANCE						
Temperature range (°C)	-40/-80					
Operating temperature (°C)	-80					
Temperature uniformity*	± 3		± 3		± 5	
Time to decrease to setpoint*	3,4		6,6		7	
Time to increase from -80°C to -50°C (h)*	3				1:20	
Noise level (db (A))	< 50					
Maximum absorbed power (A)	6					
Maximum power consumption kW	1,2					
Average power absorbed kWh/day	7		8		9	
Voltage	230 V					
Frequency	50/60 Hz					
High stage cooling gas	R290					
Low stage cooling gas	R170 + R290					
CONDITIONS OF USE						
Temperature °C	10 ~ 32					
Relative humidity %	30 ~ 80					
STRUCTURE						
Exterior	Steel sheet painted with epoxy powders - GREY RAL 9006					
Interior	AISI 304 stainless steel, scotch brite finish					
Insulation (mm)	140				70	
Counter hatches (no.)	3	4	3	4	4	5
Shelves (no.)	3 of which 2 are height adjustable	4 of which 3 are height adjustable	3 of which 2 are height adjustable	4 of which 3 are height adjustable	4 of which 3 are height adjustable	5 of which 4 are height adjustable
Max. shelf capacity (kg)	40					
Shelf dimensions	500x435		500x685		890x530	

* evaluated with an operating temperature of -80 °C and an ambient temperature of 22 °C, and in accordance with IEC 60068-3-5



Due to continuous evolution and improvement of the product and its accessories, the images shown in the catalogue may be slightly different.

OPTIONS

	NEXUS green				NEXUSSlim green	
	340V-3	340V-4	530V-3	530V-4	810V-4	810V-5
Weekly chart recorder	11352					
BIOGUARD, door opening system with card	14161					
Internal shelf INOX AISI 304	11204		11205		13006	
No. of shelves (maximum)	8 shelves	8 shelves	8 shelves	8 shelves	10 shelves	10 shelves
Telescopic stainless steel drawer	11202		11203		13004	
No. of drawers (maximum)	9 drawers	8 drawers	9 drawers	8 drawers	12 drawers	12 drawers
CO2 auxiliary cooling kit	14163					
LN2 auxiliary cooling kit	14165					
Supplementary probe PT100 class A (three wires)	13233					
Ethernet module for Cloud ALS connection	13921					
Wi-Fi module for Cloud ALS connection	13922					
3G module for Cloud ALS connection	14096					
3G module for RJ45 Ethernet connection for Modbus/Cryolog	14325					
Standard protocols ALS IO 00 PO	13240					

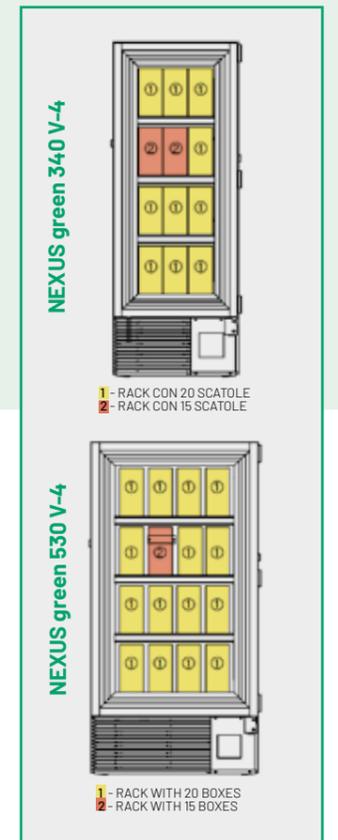
RACK for 50 mm boxes

MODEL	Code	Type	Material	Racks Tot.	Boxes Tot.	Vials Tot. (1ml)
Nexus green 340 V-3	14057	Drawer	Inox	9	252	25200
	14067	Honeycomb	Stainless steel			
	14069					
Nexus green 530 V-3	14057	Drawer	Inox	12	336	33600
	14067	Honeycomb	Stainless steel			
	14069					
Nexus green 340 V-4*	14014 (1)	Drawer	Inox	10	230	23000
	14463 (2)			2		
	14019 (1)	Honeycomb	Stainless steel	10		
	14465 (2)			2		
	14016 (1)			10		
	14464 (2)			2		
Nexus green 530 V-4*	14014 (1)	Drawer	Inox	15	315	31500
	14463 (2)			1		
	14019 (1)	Honeycomb	Stainless steel	15		
	14465 (2)			1		
	14016 (1)			15		
	14464 (2)			1		
NexusSlim green 810 V-4	14013	Drawer	Inox	24	576	57600
	14018	Honeycomb	Stainless steel			
	14015		Inox			
NexusSlim 8 green 10 V-5	14005	Drawer	Inox	30	480	48000
	14020	Honeycomb	Stainless steel			
	14017		Inox			

Codice	WATER-REPELLENT CARDBOARD BOXES
14021	Standard white water-repellent cardboard box (133x133x50), 3x3 divider included for 2ml vials
14331	Standard white water-repellent cardboard box (133x133x50), 10x10 divider included for 1ml vials



* 75mm racks and boxes are available. Contact the sales office for further info.



For these two types of models, you need to order both types of rack; for example, if you choose the honeycomb type stainless steel material, you should order the racks code 14016 and 14464

ALS

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AS

AG

STERIL

AIC

Angelantoni Life Science (ALS) is a world leader in the supply of refrigeration equipment and in the design of technological solutions in the biomedical sector, constantly engaged in innovation and safety, both biological and environmental.

AS brand provides for a wide range of refrigerators cabinets, ultra-low temperature freezers, blood banks refrigerators, freezers to preserve blood components, mortuary prefabricated rooms, stability tests and plant growth chambers, refrigerators and freezers for COVID-19 vaccines.

AG brand supplies standardized brine chilling units for pharmaceutical and chemical applications or pharma process, manual or automated solutions allow to reach -70°C for special walk-in chambers and shelters to storage vaccines or other farmaceutical products.

STERIL brand provides for equipment able to meet any product protection need, as well as the product, operator and environment safety requirements, for any level of concentration and for any kind of substance (horizontal and vertical laminar flow cabinets, biohazard and cytostatic safety cabinets, laminar flow pass boxes with UV, sanitized hydrogen peroxide pass boxes, weighing, sampling and dispensing cabinets and isolators designed in accordance with the latest international standards (GMP).

AIC brand provides Waster, and an automated treatment system for hospital and contaminated waste.



Angelantoni Plants



WS

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