BloodLine

Certified Medical Device Class IIA

Ultra Low temperature freezers
HPL LINE
(High Performance Line)

(IT) TOUCH TECNOLOGY

KW is always very innovative and gets inspiration by the news from informatics, electronics and thermodynamics.
KW has thought a controller with a technology based on micro processor ARM9, Dual Core, the same processor applied in smart-phones. It's name is **i-KW**.
I-KW works with operative system Linux and it's a true on–board computer. The new controller has a graphic interface, done with a touch screen **TFT DISPLAY.**
KW slogan is: ***let's put an iPad in our apparatus!***
This controller, not only is equipped with a more powerful processor and with much capacity of memory RAM, if compared to the previous models, it has an user interface so direct, that anyone will find it really user-friendly.

CONNECTIVITY, TRACEABILITY AND TOTAL SAFETY

Guarantying the maximum connectivity and traceability, i-KW is able to satisfy the requirements of the pharmaceutical industry and health laboratories, completely.
The ultra low temperature freezers HPL, with the new smart controller i-KW, **can have a full connectivity with the laboratory environmental, by means of: slot USB, slot SIM, Wi-Fi, Ethernet wired, and RS485 port with ModBus protocol.**

Above all, the Wi-Fi connection will make the HPL freezer visible in the LAN of the hospital or of the industrial laboratory.
From a PC workstation, connected in the same network as the freezer, through the browser, you can connect with the refrigeration unit by typing the IP address of the same.
Or, from any Internet terminal in the world will be able to connect to the refrigeration unit accessing the static IP address of the company, whose network is connected in the freezer, of course having the login credentials, which may be granted by the administrator corporate network.
The controller also warrants a full traceability, since the system continuously records, at high frequency, the functional data, bar codes, or other forms of coding, combining them with the freezing or cryo preservation process, etc. The user, without needing any specific SW, will be able to transfer the data to PC and/or to LAN in a very friendly way thanks to the standards which are developed in compliance with Windows. The smart controller i-KW has been designed to guarantee an integrated safety about all the functions, through the regulation and the management of the refrigeration power. The data recording complies with the most evolved standards, like GMP, JACIE, FACT, and so on. **There is also the availability of a temperature – time graphic, with no need to install a specific recorder.**

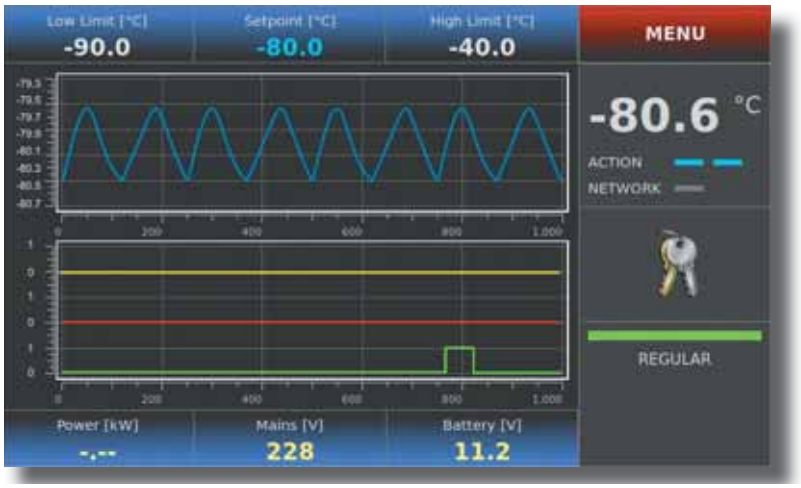
BloodLine

THE INNOVATION OF HUMAN INTERFACE

A true challenge to the common sense for dimensions, structure and possible information. I-KW is the new reference for the user interface and for the connectivity attached to the control of the temperature freezers, where a simple, intuitive and nice to see interface is combined with a sophisticated management of the refrigeration unit.

- Recording of the functional variables on SD card, in real time
- Menu sensitive to the fingering (touch) with many windows and with temperature graphics
- USB interface on the front panel to download the temperature recording and updating (SW-FW)
- Possibility of door opening, in safety (password) through touch button or transponder
- Italian, English, French, Spanish, German languages available

Badge KW



Instant termperature and alarm graphs and door opening

THE ACCESS CONTROL AND THE AIDED MAINTENANCE

The HPL freezers, equipped with the new i-KW controller, have a controlled access: it comes as standard the possibility to use an **electronic key** (alphanumerical code customized by the user) to put together with an electrical lock for a controlled door opening, or, as optional equipment, to use a **badge or transponder (or finger pass, with the finger print storage)**.
The new i-KW controller guarantees high use simplicity and an easy maintenance. The user will be able to arrange many tools which will teach him how to use them.

Think to the possibility to have a user guide on display and to scroll it as if it was a smart phone; and therefore to enjoy immediately an user manual, a start up sequence, or video files, which show the maintenance activities and so on.
Through the possibility for the manufacturer or the service engineer to connect by an IP address, and by a sequence of passwords (safety and traceability) to ask questions to the freezer status, or to modify the parameters, the freezer management can also happen from remote, with low costs and in very short time, with undoubted advantages for the failures preventing.
It will be possible to activate a telecare, with the mailing of instructions and recommendations on display, activating GSM function, by the slot for SIM.

BloodLine

Ultra Low temperature freezers
HPL LINE
(High Performance Line)

The new controller assures safer procedures, automatic recording of the data and shorter working time for the technician.
In fact it obtains the maximum saving for the procedures of freezing, storage, by the automatic writing of the introduced items, by the automatic recording of materials and thermal cycle, and their association. In this way it obtains to amend many errors and many not conformities of the laboratory processes, and in last analysis it gives a sensible saving of the indirect costs.

The control and recording of all the functional parameters, by the computer memory, guarantees a very high operative efficiency, allowing the measurements of the energy consumption and the actuation of the parameters useful for COP rising together with Green Ice project.
The user can display also the recording of electrical consumption.
New functions and an arrangement to future updating

INTERACTIVE
ENERGY SAVING

About energy saving, the smart controller i-KW has new functions:

ECO MODE
allows raising the temperature set during the night hours with a pre-definite value (settable by the user or by the manufacturer)

ENERGY SAVING
allows, when the percentage of the compressor use reaches a pre definite value, to raise the temperature set point, temporarily and automatically, with a pre definite value (settable by the user or by the manufacturer). The restore, at the pre definite conditions, happens automatically.
These two new functions allow to integrate themselves to those offered by NIA system and to aid the energy saving and the reduction of the global warming, with a smaller not direct CO2 emission in the atmosphere.
The energy saving is at least -15%, in comparison with a standard ultra low freezer, only through Night Mode and Eco Mode.
Besides, the new controller is equipped to accept future updating easily and at low costs, so it'll be able to adapt itself to the new technological innovations and to response to the raising requirements from the rules and the directives in pharmaceutical and health field.
Smart controller i-KW is the last stage of the art for the control system of the ultra low temperature freezers.

BloodLine

Ultra Low temperature freezers
HPL LINE
(High Performance Line)

User panel

STRUCTURE: the external cabinet is a plasticized, zinc-plated (or enamelled) steel sheet with rounded edges for maximum ergonomics; Internal casing in AISI 304 stainless steel (or AISI 316 upon request) with rounded angles for easy cleaning; n.4 insulated internal counter doors (n.5 upon request) for upright models; the handle has an ergonomic design and key lock; pivoting wheels to facilitate transportation and placement inside the laboratory; not heated pressure-compensation valve
to facilitate the operation of opening the door, Insulation is in CFC- and HCFC-free polyurethane resin foamed on site, with a density of 40 Kg. /m3 and with an average thickness of 140 mm or more. **(It's available V.I.P. solution)**
KUB75 and K66 models have – standard - polyurethane resin foamed on site and embedded V.I.P. panels
Gaskets: triple silicone rubber seal, welded joints, heated by the refrigerant itself and with virtually unlimited duration.

REFRIGERATION SYSTEM AT -85°C: the refrigeration system is fully sealed; it uses a cascade circuit with innovative components and fluids to obtain, together, maximum cooling reliability and performance; 2 silent, airtight compressors (value Leq dB (A) <55) with a high refrigeration capacity; the refrigerants are nontoxic, non-flammable, non-explosive and environmentally friendly. the condensation is obtained with forced air circulation; on request, water condenser.
The freezers at -40°C have the same construction characteristics as those of the HPL series at -85°C, with the exception of the second system in cascade.
Voltage stabilizer: 4,000-VA voltage regulation, capable of compensating the fluctuations of the utility power supply (± 15%), protecting the compressors and guaranteeing a long useful life.

Customized temperature limits

COMPLETELY CUSTOMIZED

SAFETY - Customized password protection

BloodLine

Certified Medical Device Class IIA

Ultra Low temperature freezers
HPL LINE
(High Performance Line)

Display to set and to read the temperature:

i–KW video – graphic interface is a color touch screen display 7" TFT; micro processor ARM9 technology , the same processor used in the smart phones, which functions with Linux operative system; menu sensitive to the fingering with many windows and with temperature graphics; system available in 5 languages: Italian, English, German, French, Spanish.

- Controller startup and shutdown: access protected by electronic key with password

SD

USB

SIM GSM

ETHERNET

Display	TFT Touch screen 7.0" wide
Power supply	from Power Board
Dimensions	197x122x50 mm
Front ports	USB - Slot per SIM Card e SD Card
Ports	Ethernet
Slot	for modem GSM
CPU	Atmel® at91 sam9261 256 Mb flash
	Operating System Linux 2.6.33

CONTROL SYSTEM:

control, recording, supervision, full traceability of all the parameters and the events, full connectivity to the environmental, very high safety about the operations and the accesses. **2-ch monitoring kit with two independent RTD Pt 100 Ω (class A) sensors**; one for the regulation and one for the temperature alarm and for automatic recording of the temperature and the alarms; recording in real time of all the functional variables on SD card and on USB port; this last part on the front panel to download data of thermal recording and for updating; registration in SQL format for easy reading by dedicated software **KW80CRC TRACER**; **Pb or Ni-MH backup battery; and battery recharge circuit.**

- Set point and alarm limits change: controlled change through an electronic key, with password against violations, accidental handlings, and for the best traceability.

- Access to the menu, with sensible data and parameters: controlled access to SW parameters, by electronic key, for the maximum security and in compliance with laboratory rules and standard.

- All data are continously recorded on SD card and on USB Port.

BloodLine

Ultra Low temperature freezers
HPL LINE
(High Performance Line)

ALARMS:
temperature alarm system fully independent with the regulation control; **reading of alarm probe by 2nd micro processor on the electronic board:** visual and acoustic alarm for power failure, door opening, high condenser pressure, battery alarm, damaged probe/s, compressors time, high temperature condenser, clogged condenser; for any temperature alarm, automatic recording (high T, low T) black out, critical alarm temperature, month/day/hour/minute of the alarm start; month/day/hour/minute of the alarm end.

- Door opening:
n° daily openings, n° critical openings, total opening time are all recorded in the memory
List of the monitored failures: damage of T probe, compressor time, dirty condenser, high condenser T, power failure, thermal protection, damaged plant probe

- Safety control:
the freezer continues to run a timed thermo stabilization with compressor on/off times collected before the sensor(s) broke down.

Disaster recovery:
in the event the CPU is destroyed, it allows cycling the functions on the remote unit, with the exception of data visualization, that is, the freezer continues working with average on/off times recorded before the failure.

Info test:
executes functional tests for the biological freezer, with report printing if necessary, without engaging external devices.

Enviromental adaptability: the condenser vents are managed separately by means of a sensor; **condenser fan speed modulation within a band of temperatures.**

Energy saving, activating the under mentioned functions, it's possible save over 15% energy in respect of the freezer with standard controllers – **GREEN ICE SOLUTIONS**; economic management of the consumptions

- **ECO MODE**:
during the night, when the user procedures and stored product so permit it is possible to raise the set temperature by a predefined value, thereby obtaining important energy savings.

- **ENERGY SAVING**
this reduces the consumption rates of the refrigerating unit as soon as the compressor use percentage reaches a predefined value. In this condition, the operating set point is temporarily and automatically increased by a value preset by the user; resetting takes place automatically at the defined conditions.

BloodLine

Certified Medical Device Class IIA

Ultra Low temperature freezers
HPL LINE
(High Performance Line)

48 Hours!!

Up to 48 hours of temperature data logging on SD CARD in case of energy black out

The control system uses 8 AA Ni-MH rechargeable batteries

GSM: optional, every i-KW80, can have a GSM form, becoming an independent unit, which transmits and receives SMS on own phone number, towards the recorded users;
RS 485 Modbus RTU: is present – standard- a RS485 port with Modbus RTU protocol, oriented to the serial communication of i-KW80 towards systems of supervision, compatible with this protocol;
Bar code reader: optional; for the registered samples equipped with a bar code;
Dry contacts: remote management of the alarm signals;
Human interface: user guide on display; files (also video) with maintenance programs on display; maintenance KW program: informs about periodic operations recommended for the maximum reliability of the freezer and for the minimum energy consumption;
Recording (standard): with data logger function and the possibility to display the temperature - time graphic on display touch screen;

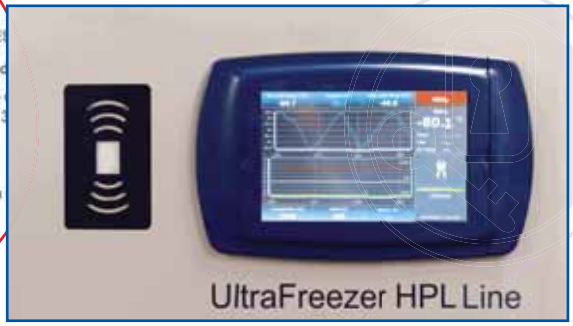
ETHERNET PEER TO PEER WIRED: by a configuration of PPP type, many i-KW80 controllers can be connected in a same network. This configuration allows the supervision per single address IP from PC in the network , by a browser with the display of the HTML pages, pre installed in every single terminal;
WI-FI: through the WI-FI form, optional, the i-KW units can be connected in wireless network , in the environmental where an access point is present (Router WI-FI) or **through router connected directly;**

Ethernet or WIFI connectivity

BloodLine

Plasma UltraFreezers -40°C -85°C

HPL LINE



7" TFT DISPLAY

K60HPL
UltraFreezer
(-40°C/-85°C)

CERTIFIED MEDICAL DEVICE CLASS IIA

BloodLine

Freezers -40°C -85°C

HPL

(High Performance Line)

KW -80°C PLASMA FREEZER SERIES HPL MEDICAL DEVICE DIRECTIVE 2007/47					
VERTICAL MODELS HPL -80°C	KUB75 V.I.P.	K57	K56	K568	K58
External dimensions (WxDxH)	cm97x58x78	cm80x79x132	cm80x79x188	cm85x78x199	cm96x80x188
Internal dimensions (WxDxH)	cm42x35x58	cm50x45x54	cm50x45x111	cm60x45x128	cm70x46x111
Set Point	-80°C	-80°C	-80°C	-80°C	-80°C
Working range	-40°C -85°C	-40°C -85°C	-40°C -85°C	-40°C -85°C	-40°C -85°C
Capacity (litres)	85	125	250	351	354
Pre painted steel closed doors	1	1	1	1	1
Shelves/inner doors	2/1	2/2	4/4	4/4	4/4
Weight Kg	100	200	260	260	290
Internal surfaces standard	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet
External surfaces standard	Prepainted steel	Prepainted steel	Prepainted steel	Prepainted steel	Prepainted steel
Insulation thickness	130mm	150mm	140mm	140mm	140mm
Key Lock	ST	ST	ST	ST	ST
4 wheels (2 with brake)	ST	ST	ST	ST	ST
(*) Controller HPL (display Touch Screen, Smart defrost, HT, LT, BLACK OUT, failure list, door open, switching on/off password, alarm memory, alarm test, SAFETY CONTROL, DISASTER RECOVERY, key alarm test, USB port, WI.FI, Ethernet wired)					
Controller HPL (*)	ST	ST	ST	ST	ST
N°2 PT100 probe(-40°C/-130°C Class A)	ST	ST	ST	ST	ST
RS485, USB Port and SD Card	ST	ST	ST	ST	ST
SW KW TRACER	ST	ST	ST	ST	ST
AVAILABLE ACCESSORIES					
Internal AISI 316 surfaces	√	√	√	√	√
External AISI 304 o AISI 316 surfaces	√	√	√	√	√
V.I.P. (vacuum insulation panel)	ST	√	√	√	√
N.° inox drawers H100 mm	NO	(√)4	(√)8	(√)8	(√)8
N.° inox drawers H200 mm	NO	(√)2	(√)4	(√)4	(√)4
Rack/Cak/COS	√	√	√	√	√
Additional shelves	√	√	√	√	√
Kit back up CO2 (24Vac/50Hz)	√	√	√	√	√
Kit back up LN2 (24Vac/50Hz)	√	√	√	√	√
Opening door by transponder personal key	√	√	√	√	√
Electrical key	√	√	√	√	√
Temperature recorder	√	√	√	√	√
GSM Port	√	√	√	√	√
Emergency plant CO2 (12Vac/25Hz) with temperature indipendent regulator	√	√	√	√	√
Additional PT100 probe (free contacts for external data management system: data logger wireless etc.)	√	√	√	√	√
Data logger WIFI+software/hardware (temperature management Spy KW)	√	√	√	√	√
Voltage stabilizer ± 35V (±15%)	√	√	√	√	√
IQ/QQ/ecc.	√	√	√	√	√
Water condenser	NO	NO	√	√	√
Internal - external hole	√	√	√	√	√

√	OPTIONAL
ST	STANDARD
NO	Not Available

BloodLine

Freezers -40°C -85°C

HPL

(High Performance Line)

KW -80°C PLASMA FREEZER SERIES HPL MEDICAL DEVICE DIRECTIVE 2007/47							
K60	K62	K64	K66	K58-2D	K60-2D	K62-2D	K66-2D
cm97x96x184	cm106x90x199	cm106x100x199	cm110x103x199	cm97x80x199	cm97x97x199	cm106x100x199	cm110x103x199
cm70x65x111	cm80x59x128	cm80x69x128	cm85x73x130	cm72x46x109	cm72x65x109	cm82x69x109	cm85x73x130
-80°C	-80°C	-80°C	-80°C	-80°C	-80°C	-80°C	-80°C
-40°C -85°C	-40°C -85°C	-40°C -85°C	-40°C -85°C	-40°C -85°C	-40°C -85°C	-40°C -85°C	-40°C -85°C
505	604	706	806	354	505	604	704
1	1	1	1	2	2	2	2
4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4
320	330	350	450	290	320	330	450
AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet	AISI 304 stainless sheet
Prepainted steel	Prepainted steel	Prepainted steel	Prepainted steel	Prepainted steel	Prepainted steel	Prepainted steel	Prepainted steel
140mm	140mm	140mm	140mm	140mm	140mm	140mm	140mm
ST	ST	ST	ST	ST	ST	ST	ST
ST	ST	ST	ST	ST	ST	ST	ST
(*) Controller HPL (display Touch Screen, Smart defrost, HT, LT, BLACK OUT, failure list, door open, switching on/off password, alarm memory, alarm test, SAFETY CONTROL, DISASTER RECOVERY, key alarm test, USB port, WI.FI, Ethernet wired)							
ST	ST	ST	ST	ST	ST	ST	ST
ST	ST	ST	ST	ST	ST	ST	ST
ST	ST	ST	ST	ST	ST	ST	ST
ST	ST	ST	ST	ST	ST	ST	ST
√	√	√	√	√	√	√	√
√	√	√	√	√	√	√	√
√	√	√	ST	√	√	√	ST
(√)8	(√)8	(√)8	(√)8	(√)8	(√)8	(√)8	(√)8
(√)4	(√)4	(√)4	(√)4	(√)4	(√)4	(√)4	(√)4
√	√	√	√	√	√	√	√
√	√	√	√	√	√	√	√
√	√	√	√	√	√	√	√
√	√	√	√	√	√	√	√
√	√	√	√	√	√	√	√
√	√	√	√	√	√	√	√
√	√	√	√	√	√	√	√
√	√	√	√	√	√	√	√
√	√	√	√	√	√	√	√
√	√	√	√	√	√	√	√
√	√	√	√	√	√	√	√
√	√	√	√	√	√	√	√
√	√	√	√	√	√	√	√
√	√	√	√	√	√	√	√

√	OPTIONAL
ST	STANDARD
NO	Not Available