

Blood Bank Refrigerator

MODEL	TEMPERATURE RANGE	SET POINT	CAPACITY (Lt./bb 450ml)	EXT. DIMENSIONS (W x D x H cm)	DOOR TYPE
BB 4100NFP	+2°C ÷ +8°C	+4°C	400/256max	67 x 64 x 203	Hinged Double Glass



DRY CONTACT(NC-NO)-BACK-UP BATTERY 12V-2.1A. HOLD OVER TIME (f.l.) Ext. T. 24°C/85%rh 160'-180'

T.Alarm:HI+8°C,LOW+2°C – Anti-freezing Safety System

Blood bags (450ml): 192 (6 drw.) , max 8 drawers

Blood bags (250ml): 336 (6 drw.) , max 8 drawers

Colour: Gray, White or any RAL colour

Structure: Internal and external Steel Laminated Plate with FINGER PRINT PROOF TECHNOLOGY™ to guarantee a bacteria-static activity

Insulation: Polyurethane Foam, CFC FREE, 42Kg/m3, thick.60mm

Refrigeration type: Ventilated (NO-FROST)

Defrosting: Automatic with condensing water evaporation

Electric power: 1 / 210-240Volt / 50-60Hz

Compressor: 1 Hermetic Type - 450Watt , ½ Hp – Made in EU

Refrigerant gas: R452a (compatible with R404a) OR **R290**

Door: No. 1 DOUBLE GLASS Door

Inner setting: 5 to 8 Sliding Drawers

Lighting: LED light, High Brightness, 120cm long, 6000K

Electronic controller: Hi Efficiency display, Accuracy 0,1°C

Castors and Wheels: 4 Swivel Wheels + 2 adjustable feet

Main Visual - Acoustic alarms :

- HI - Low temperature
- Open door
- Devices failure
- Probes failures

MAIN OPTIONS and ACCESSORIES:

DTLSD3 - Data Logger Touch Screen 5" / 7" (D4) with USB, SD Industrial Grade, Micro Controller DUAL CORE operating.

RG1 – Graphic chart recorder with 52 weekly paper disks

TC - Twin Compressor completely independent with auto switch-over

ESEDL - Electronic Lock with Password for each user and access log to track each user/opening.

CHAUT - Self Closing Door with stopper at 95°

HLO – Insulated hole for External Probe Ø25mm

CS2/CS2AI - Sliding S/S AISI304 or Aluminum Drawers

3G/SMS – Online connection with FREE CLOUD service and SMS Alarm System. Weekly Report when connected online

WI-FI – Bridge WI-FI for online connection with FREE CLOUD service, weekly report, automatic alarm sending and warnings

LW – Lockable swivel wheels

RS485 – Serial Port for BMS or PC Connection

ETH – RJ45 connection with Ethernet CANBUS BRIDGE TCP for PC Connection and remote monitoring functions

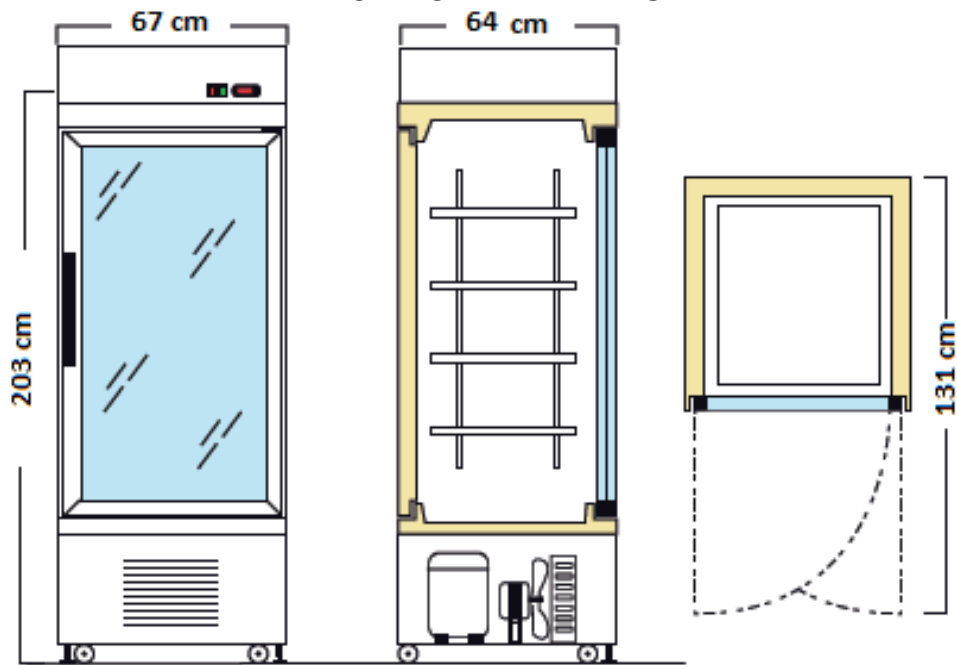
HC – Humidity Controller

AB-IN – S/S AISI 304 BA/Scotch Brite finishing

OPTION: INTERFACE RS485 or ETHERNET (TCP)



TECHNICAL DRAWING



DRAWERS for Blood Bags 450 and 250ml – Standard 5 drawers , max 8 drawers



Six excellent reasons to choose **TEKNALAB**

1 INTERACTIVE TOUCH PAD

A touch pad with 5 dynamic backlit keys simplifies navigation for the user. The central key is backlit by a RGB led which varies in colour according to the refrigeration unit operation.

Even from a distance it is easy to check the operating status of the refrigerator.

2 REAL-TIME GRAPH

The temperature is shown on the screen with a graphical display that substitutes the now obsolete electro-mechanical thermometer.

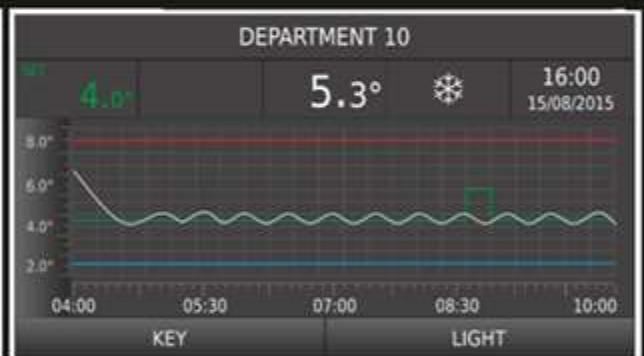
The feature is integrated with a 10 year memory of the recorded data and list of events regarding temperatures and operation variables.

3 PREDICTIVE DIAGNOSTICS

In the mid-long term time period a relay fault is one of the most common failure to occur. In order to prevent this all relay switching are read with a representation of the remaining life expectancy of the component, and a warning is given when the threshold is about to be reached.

TFT COLOR
GRAPH DISPLAY

KEYBOARD TOUCH
WITH RGB BACKLIT



4 EFFICIENCY & SECURITY

The Smart Defrost function measures the level of frost on the evaporator and launches the defrosting only when necessary to maintain an always efficient operation of the refrigerator and to reduce consumption compared to traditional defrosting by time.

Thermostat control with evaporator probe in case of thermostat probe fail.

5 DUAL CORE

A second powered micro-controller analyses the operation of the board, reads the coldroom temperature and mains voltage; a warning is given when the value are over or under the threshold defined by parameters to safeguard compressor life and electronics components.

6 CONNECTIVITY

USB port for downloading thermo-regulation data and parameter settings. Optional Bridge devices Ethernet - Wi-Fi - 3G complete the global connectivity between devices towards CLOUD Velex for monitoring and teleservice features via browser (PC or Smartphone) through credential access.

Control functions dedicated to each specific field of refrigeration: blood banks, laboratory and pharmacies

FUNCTIONS

Thermostat control

Regulation on central set with double hysteresis in cooling action for systems with single and double stage (superfreezers)

Heating action for climatized rooms.

Defrosting

Defrosting mode: electric, hot gas, stop compressor with activation from the touch pad, by a timer, by a clock and by the automatic detection of ice.

Fan management

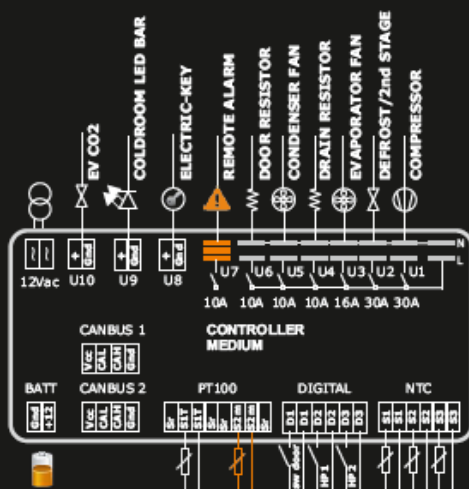
Condenser fans control within a range of temperatures to guarantee the correct thermal exchange.

Evaporator fans control to maintain humidity and to block the flow of hot air into the coldroom during defrost phase.

Programmable outputs

Any of the following actions can be associated to every relay: compressor, defrosting, evaporator fans, condenser fans, door resistance, glass resistance, drainage resistance, active load light, heating action and 2nd stage compressor action for superfreezers.

outputs wiring example



DEDICATED FUNCTIONS

Redundancy

Double power supply for the logic.

A second micro-controller is designated to the function of diagnosis, battery charge and the reading and registration of temperature in normal conditions and in mains failure status.

For ventilated units in case of thermostat probe failure the regulation is transferred to the evaporator probe.

The temperature of the technical compartment is constantly monitored with a warning when it reaches the safety threshold.

The output and operation status is shown by exterior led (*expert points*).

PT100 probe monitor

PT100 precise independent monitor probe with a 0.1°C of resolution for thermo-registration and high and low temperature alarms with a coherence check between its readings and thermostat probe with alert for any possible unbalance.

NTC/PT100 thermostat probe

Two thermostat probe inputs are provided to regulate the temperature both of the ventilated unit with NTC probe and of the superfreezers -86°C with PT100 probe.

Back-up battery

Back-up batteries are connected in a recharging circuit, with periodic tests, charging status and substitution alert. In case of a mains failure they provide 24 hours of power supply.

Electric-Key Driver

Solid state output controls an electric-key with password access.

Led bar driver

A solid state output can be configured to directly control the coldroom light by led bars with automatic functions of switching on, turning off and energy savings.

CO2 valve driver

A solid state output controls the CO2 solenoid valve in normal conditions and in the event of mains failure for the freezer units that foresee this.

Driver Board

Power Supply	12Vac 50/60Hz >=6VA
Dimensions	L200 x H110 x P35 mm
Inputs	N°3 NTC [-50.0, 70.0]° N°3 Digital N°2 PT100 [-99.9, 50.0]°
Relais Out	N°2 x 30A + N°1 x 16A N°3 x 10A + Alarm 10A
Drivers	Led Bar - EV CO2 Electric-key
Gates	2xCANBUS

Display Board

Power Supply	from Driver Board
Housing	plastic ABS
Dimensions	L160 x W52 x H25 mm
Dima	L154 x W49 mm
Keyboard	5 Keys Touch with RGB backlit
Display	TFT 2.41" 320x240 pixel
Gateway	CANBUS USB for data exchange