BLAST CHILLER SOLUTIONS

XB590L , XB800

EMERSON

Market Trend – Blast Chiller and Freezer

Market Applications

Blast Chiller & Freezer

Market Trends

Blast chiller a must in every kitchen

Wide range of solutions

New touch HMI

Easy customization

Custom cyles

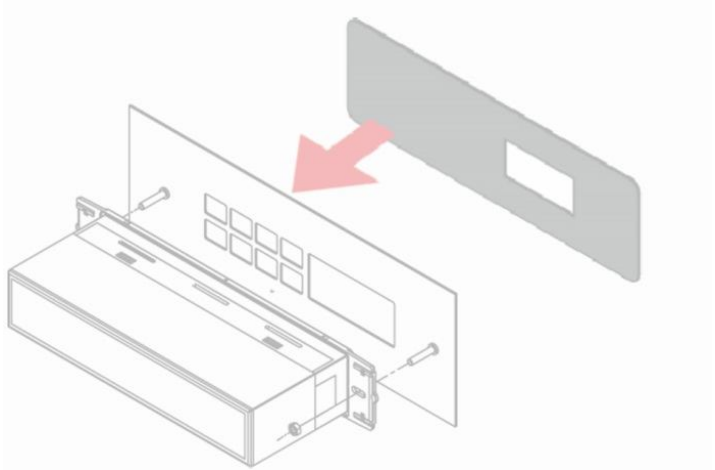
HACCP report accessable via USB

Our Proposal

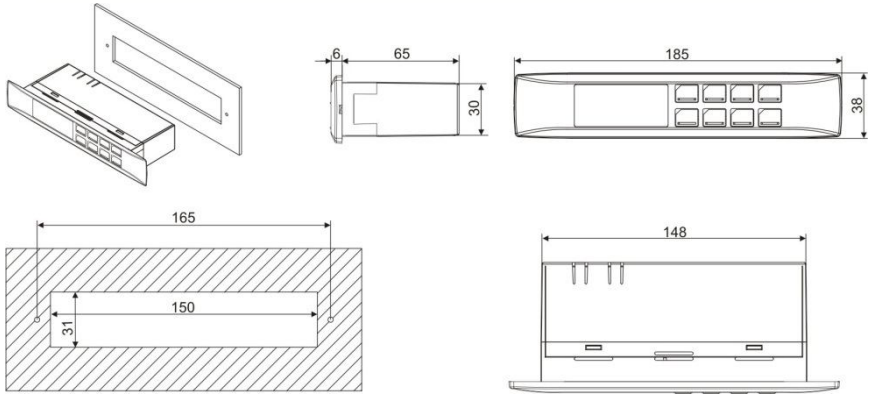
XB590L

XB800D

XB590L VERSIONS



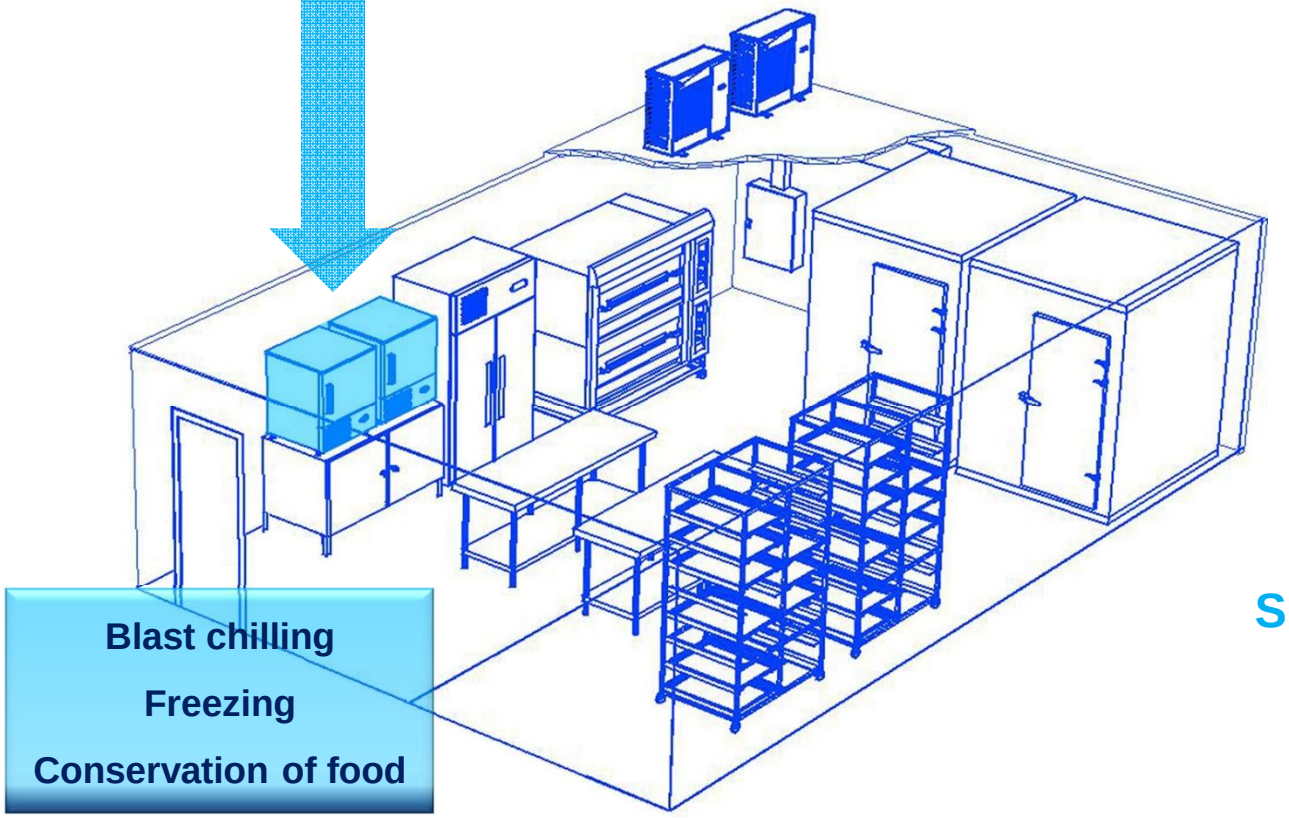
Blast Chiller Controller
Back Panel Mounting
with Customizable User Interface
(X0QDUNBXC5R0-S01)



Blast Chiller Controller
Front Panel Mounting
with Inox Frontal
(X0QDUNBXF5X0-S00)

XB590L APPLICATIONS

Thanks to the completeness of cycles and to the high customizable interface the new XB590L can be mounted on any **BLAST CHILLER** model, from the simplest applications to the most complex.



Blast chilling

Freezing

Conservation of food

RESTAURANTS

HOTELS

PASTRIES

PIZZERIAS

SUPERMARKETS

XB590L FUNCTIONING OVERVIEW

Chill & Freeze Cycles

Blast chilling cycles can be subdivided into two categories: **CHILL cycle and FREEZE cycle.**

- **A CHILL cycle** considerably reduces the residence time of food in the critical temperature zone (from 10°C to 65°C) in which a high probability rate of bacterial growth is present.
- **A FREEZE cycle,** instead, tends to reduce the build-up of ice macrocrystals inside frozen food; if these macrocrystals build up, they may damage the organoleptic properties of food.

Standard values of these cycles are the following:

	Chill Cycle	Freeze Cycle
Initial Product Temperature	**90°C**	**90°C**
Final Product Temperature	**3°C**	**-18°C**
Duration	**90min**	**240min**

XB590L FUNCTIONING OVERVIEW

FUNCTIONING

The cycles can be set by TIME or TEMPERATURE. If the cycle is set by time, its duration will be the selected time; if the cycle is set by temperature, it will be completed once the product has (internally) reached the selected temperature (checked by the Needle Probe). In both cases the regulation probe is the room probe of the blast chiller, which is used for the compressor control. **Cycles can be SOFT or HARD**; soft and hard have different meanings depending on whether they refer to a CHILL cycle or to a FREEZE cycle.

For CHILL SOFT Cycles (CY1), the Blast Chiller works for the whole cycle with one set point, which is the preset final temperature (usually near 0°C); **for CHILL HARD Cycles (CY3)**, the Blast Chiller works with two different set points. The lower one (around -20°C) is used until the internal temperature of the product hits the preset value or until the preset time is reached; the higher one (around 0°C) is used until the end of the cycle.
For FREEZE SOFT Cycles (CY2), the Blast Chiller works with two different set points. The first (higher, around 0°C) is used until the internal temperature of the product hits the preset value or until the preset time is reached; the second set point (lower) is used until the end of the cycle; **for FREEZE HARD Cycles (CY4)**, the Blast Chiller works with one set point, which is the preset final temperature (usually around -35°C).

Label	CY1	CY2	CY3	CY4	Parameter description
cyS	tEP	tEP	tEP	tEP	Cycle setting
dbC	no	no	no	no	Defrost before cycle
iS1	3	3	10	-18	Set point for insertion probe for the first phase
rS1	0.0	0.0	-20.0	-35.0	Chamber set point for the first phase
Pd1	01:30	02:00	01:00	02:00	Timed cycle for the first phase
iS2	*3*	-18	3	*-18*	Set point for insertion probe for the second phase
rS2	*0.0*	-35.0	0.0	*-35.0*	Chamber set point for the second phase
Pd2	*OFF*	02:00	00:30	*OFF*	Timed cycle for the second phase
iS3	*3*	*3*	*3*	*-18*	Set point for insertion probe for the third phase
rS3	*0.0*	*0.0*	*0.0*	*-35.0*	Chamber set point for the third phase
Pd3	*OFF*	*OFF*	*OFF*	*OFF*	Timed cycle for the third phase
dbH	si	si	si	si	Defrost for hold first phase
HdS	2.0	-20.0	2.0	-20.0	Set point of the hold phase

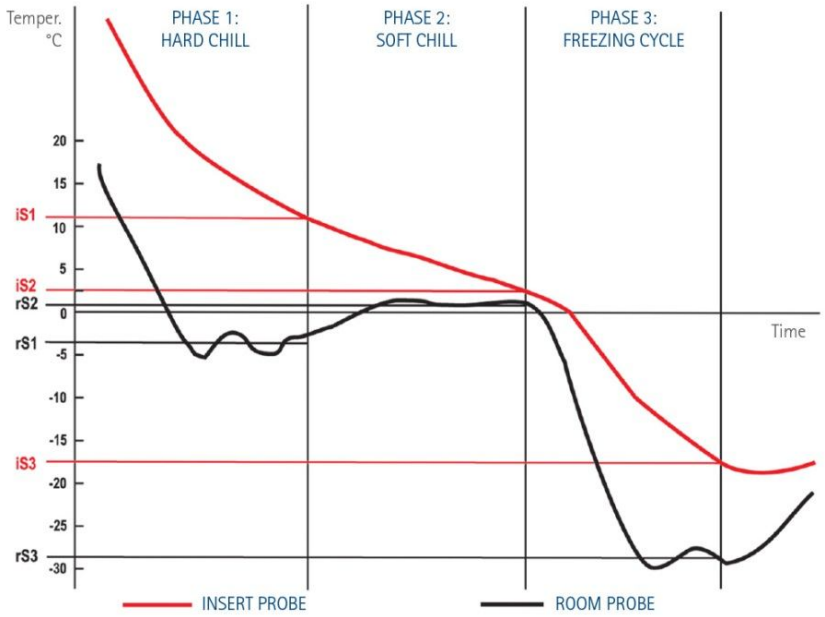
XB590L MAIN FEATURES

XB590L controller was designed to manage product blast chilling in the best possible way but also to supply the user with an easy, intuitive and complete device with many available functions.

new

Default Blast Chilling Cycle and Freezing Process

It is possible to choose **Soft or Hard Chill (+3°C) and Freeze (-18°C).** At the end of the cycle, the controller automatically switches to the **conservation mode (+2°C for chill, -20°C for freeze).** Every cycle can be split in **up to 3 different phases** in order to manage the blast chilling in the best possible way and to always guarantee the best result.



XB590L MAIN FEATURES

Highly Customizable

The controller is available with standard polycarbonate. Upon request it is possible to personalize shape, color and dimensions depending on brand and application type.
For example the keys can be configured like here below.

A

- ON/OFF device ( )
- The Chill (CHILL) and Freeze (FREEZE) Soft cycles or the Hard cycles (HARD), can be activated immediately
- Visualization of the last HACCP alarms (MENU)

B

- ON/OFF device ( )
- The customized cycles 1 (1), 2 (2), 3 (3) can be activated immediately
- Visualization of the last HACCP alarms (MENU)

XB590L MAIN FEATURES

Multipoint Insert Probe

The XB590L was designed to work with standard insert probe, but it can also work with the multipoint probes (3 points) for a more accurate product temperature measurement.

Cycles Personalization

Every cycle can be personalized depending on the user needs; product or room temperature can be modified before and during the cycle execution in order to optimize and reduce working times.

Compressor Crankcase Heating Delay

Depending on the blast chiller developer, the compressor crankcase heating delay can be activated. In order to prevent the migration of refrigerant and the mixing with the crankcase oil when the unit is off, when the device is powered on it is possible to activate a delay in order to guarantee the compressor crankcase heating.

XB590L MAIN FEATURES

Guaranteed protection and hygiene

The flat surface is easy to clean and guarantees an IP65 front protection level for a high level of hygiene.

Condenser temperature alarm

It is possible to manage the high-temperature and low-temperature alarm of the condenser through the signal on the display or, for a higher safety, by enabling the blocking function of the compressor.

Simplified Parameters Management

Thanks to the software WIZMATE it is now possible to manage the parameters map of the XB590L from PC (other than from the device's keyboard) through the converter RS485-USB (XJ485USB). The programming of the device will be even faster and more intuitive.

Remote Accessibility

Thanks to the RS485 output it is possible to connect the controller to a monitoring system (e.g., XWEB family). In this way all functioning data of the blast chiller will be accessible from remote.

XB590L MAIN FEATURES

Phases Duration

The 3 different phases of every cycle (hard chill, soft chill and freezing) can now be set up to 32 hours, instead of 12 hours.

Cycle Activable by Digital Input

The second digital input can be set to start immediately the selected cycle or one of the 4 standard cycles (Chill/Freeze, Soft/Hard).

End Cycle Notification

At the end of each cycle, besides the buzzer, an alarm relay can be activated.

HACCP Internal Datalogger

The device is provided with an internal database where **HACCP events** are saved; these events are alarms **HA (high temperature)**, **PFA (power failure)** and **OCF (exceeding maximum cycle time)**. For each one of these alarms it is possible to save up to 15 events. The list is easily accessible from the front key.

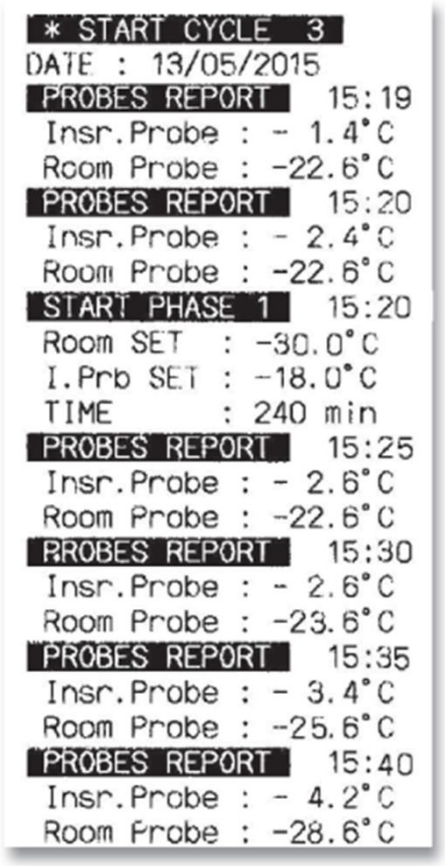
XB590L MAIN FEATURES

Food High Quality

The XB590L was designed to work with **standard insert probe**, but it can also work with the **multipoint probes** (3 points) for a more accurate product temperature measurement. The device is provided with an internal database where **HACCP events** are saved; these events are alarms **HA (high temperature)**, **PFA (power failure)** and **OCF (exceeding maximum cycle time)**. For each one of these alarms it is possible to save up to 15 events. The list is easily accessible from the front key.

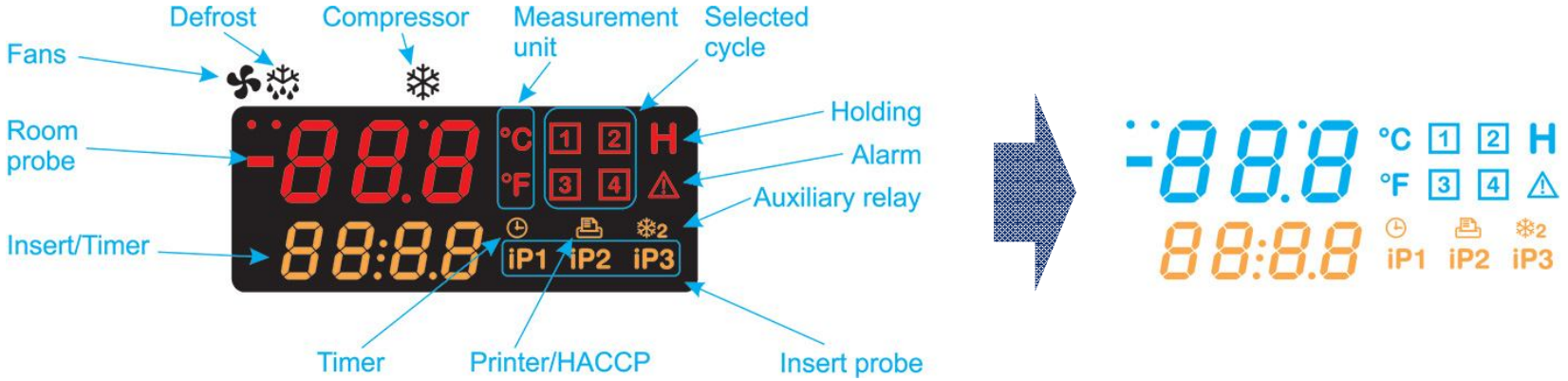
A flashing icon shows the presence of a new event that has not yet been analyzed by the user. All the alarms are recorded in FIFO mode.

XB590L is provided with a **printer output** (XB07PR) to report temperature and blast chilling cycle trends.



XB590L DISPLAY OVERVIEW

The 14 icons dual display supplies the user with instantaneous information about the cycle's and the process' status.
The display is available in red/yellow and blue/yellow versions.



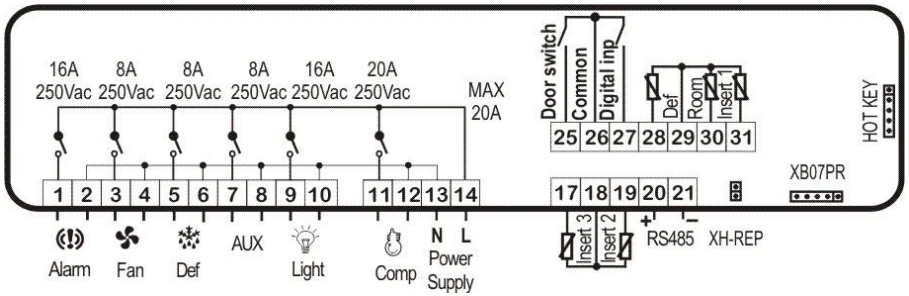
XB590L TECHNICAL FEATURES

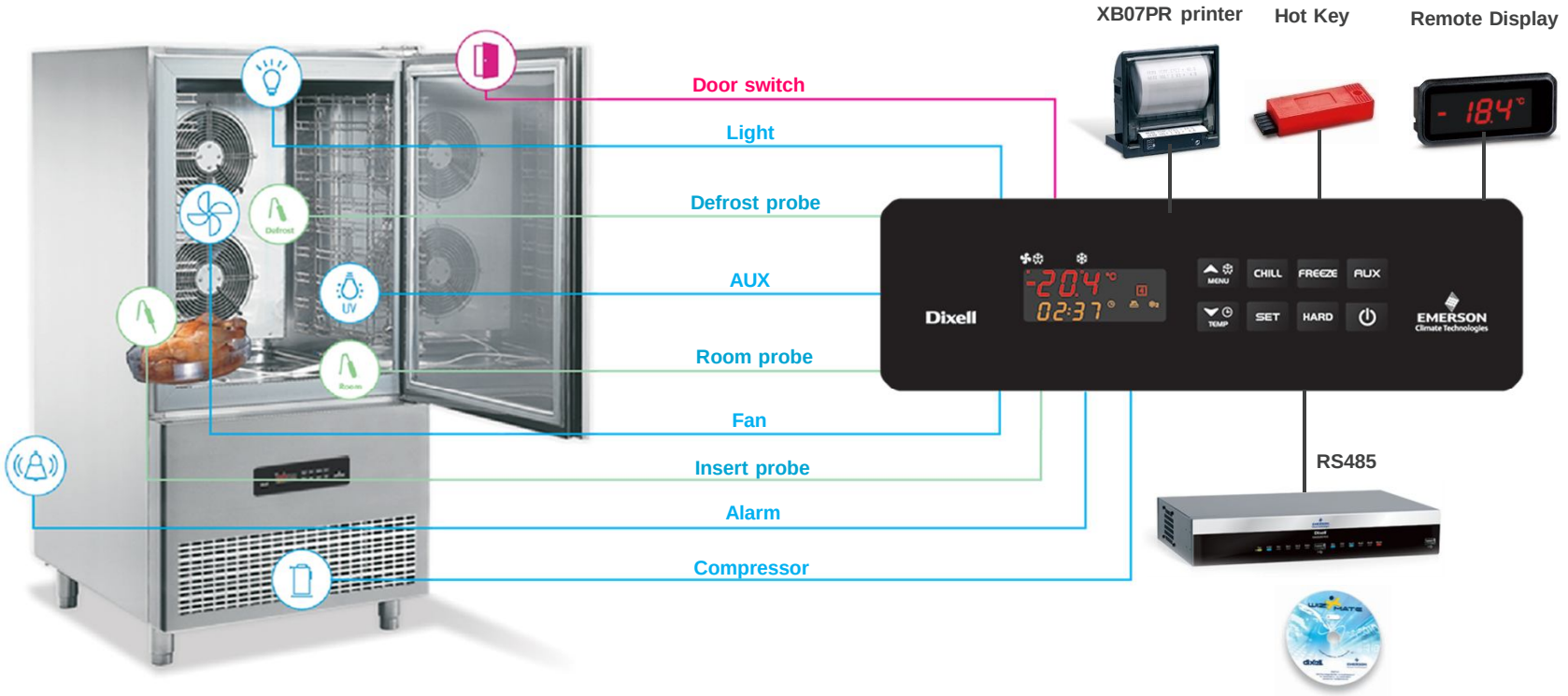
Housing:	Self extinguishing ABS
Format:	185x38mm, depth 76mm with front polycarbonate
Mounting:	Back panel with n°2 screws Ø3x2mm (distance between holes of 165mm)
Front protection level:	IP65 (with polycarbonate)
Protection level:	IP20
Connections:	Screw terminal block for conductors ≤2,5mm^2 Male faston 6,3mm
Power source:	24, 110, 230Vac, 50-60Hz
Power absorption:	7VA max
Analog inputs:	5 probes NTC o PTC
Digital inputs:	Door and configurable, voltage-free contacts
Relay outputs:	Compressor (SPST 20(8)A, 250Vac) Defrost (SPST 8(3)A, 250Vac) Fan (SPST 8(3)A, 250Vac) Light (SPST 16(6)A, 250Vac) Aux (SPST 8(3)A, 250Vac) Alarm (SPST 16(6)A, 250vac)

XB590L TECHNICAL FEATURES

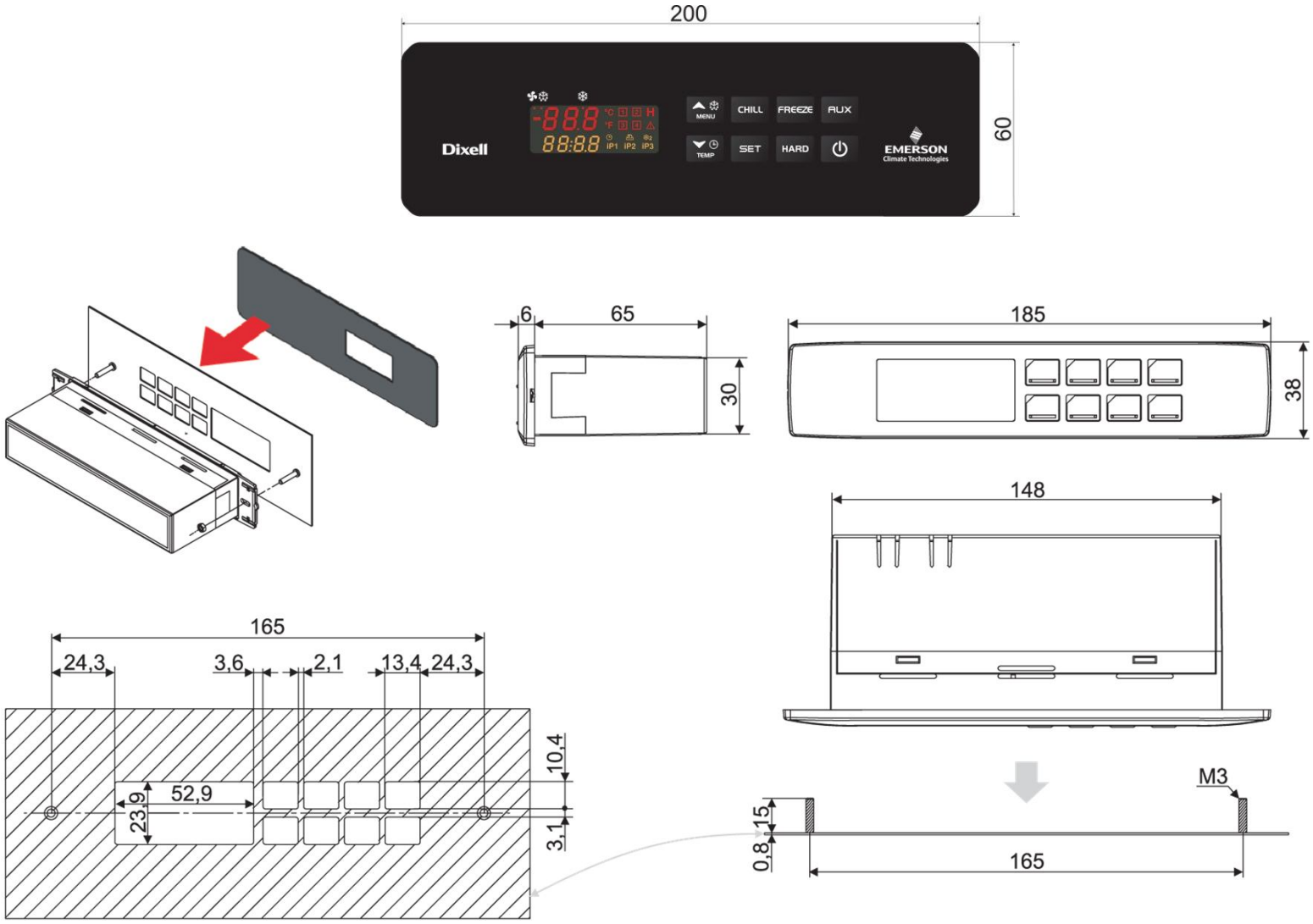
Serial outputs (optional):	RS232 for printer Dixell XB07PR RS485 for connection to monitoring system (ModBUS-RTU)
Data maintainance:	On non-volatile storage (EEPROM)
Type of action:	1B
Software class:	A
Operating temperature:	from 0÷60°C
Storage temperature:	from -25÷60°C
Relative humidity:	from 20÷85% (not condensing)
Sensors measurement field:	NTC, from -40÷110°C PTC, from -50÷150°C
Resolution:	0,1°C or 1°F
Precision at 25°C:	±0,5°C ± 1 digit
Certification:	CE, UL
Other:	Connection for Hot Key 128K/Prog Tool Kit Remote display output (optional) Buzzer Internal clock (RTC)

XB590L WIRING DIAGRAM

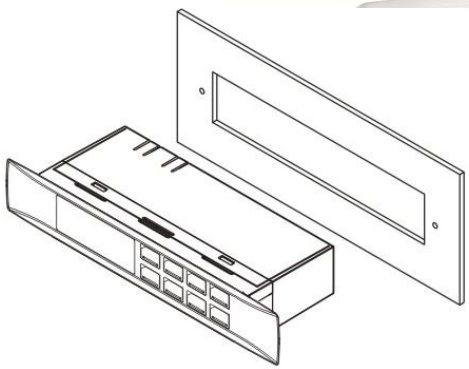


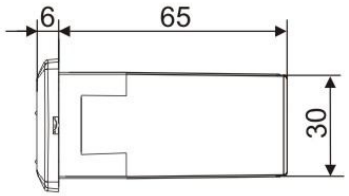


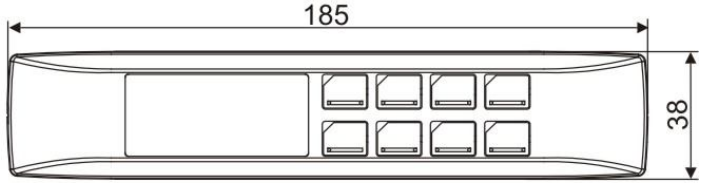
XB590L DIMENSIONS AND CUT-OUT

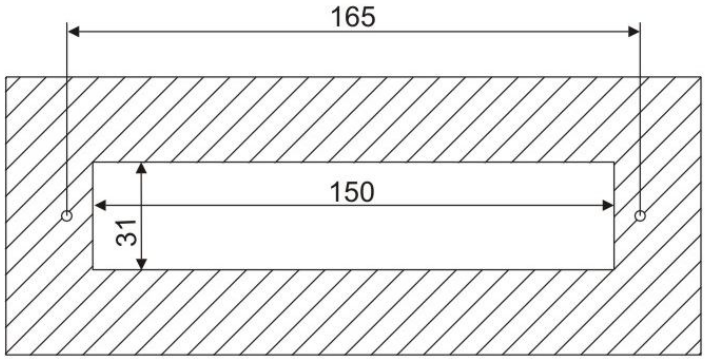


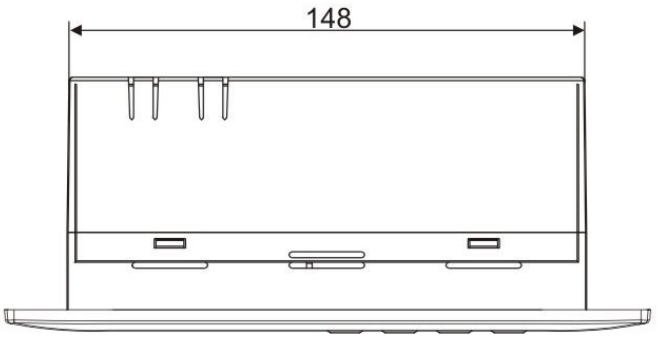
XB590L DIMENSIONS AND CUT-OUT



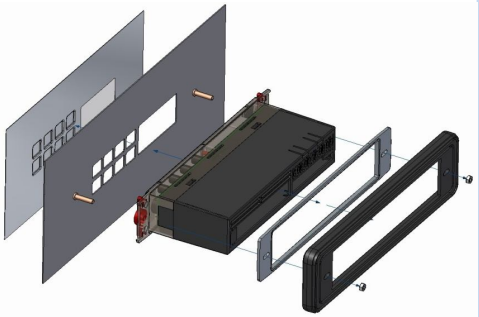
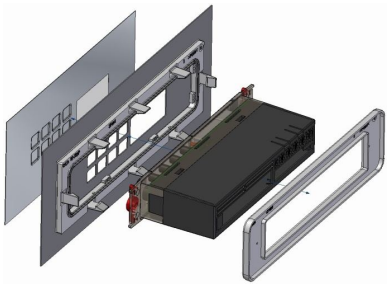








XB590L ACCESSORIES

		**RG-L**	Front panel rubber gasket, IP65 mounting
		**PG-L**	Plastic multipurpose protection for L format, IP65
		**PM-WL**	Patented fixing system (Design Patent: UAMI n. 001851916-0001) for a simple and easy to mount solution suitable for any metallic flat surface; it is composed of one adhesive bracket and counter plastic bracket

XB590L ACCESSORIES

	**XB07PR**	Compact thermal printer that provides a hard copy print out of the cycles - Paper width 58mm. - EASYLOCK fixing system - Operating voltage range: 3.5÷8V - Dimensions: 85.5x85x55mm
	**XJ485USB-KIT**	USB-RS485 converter for PC connections to use WIZMATE
	**HOT KEY 128**	Programming key
	**XH-REP**	Remote display (IP65, 31x64mm)

XB590L NEEDLE PROBES OVERVIEW

	**SCP10PS**	PTC sensor, plastic handle, inox steel cap “dimension Ø3,5x100mm”, cable in silicone, temperature range -38÷80°C
	NPC10PS	NTC sensor, plastic handle, inox steel cap “dimension Ø3,5x100mm”, cable in silicone, temperature range -30÷80°C
	**SCP10IS**	PTC sensor, inox steel, inox steel cap “dimension Ø3,5x100mm”, cable in silicone, temperature range -50÷120°C
	NPC10IS	NTC sensor, inox steel, inox steel cap “dimension Ø3,5x100mm”, cable in silicone, temperature range -50÷120°C
	**SCP10IA**	PTC sensor, inox steel handle, inox steel cap “dimension Ø3,5x100mm”, cable in silicone for use with food, temperature range -50÷120°C
	NPC10IA	NTC sensor, inox steel handle, inox steel cap “dimension Ø3,5x100mm”, cable in silicone for use with food, temperature range -50÷120°C

XB590L NEEDLE PROBES OVERVIEW

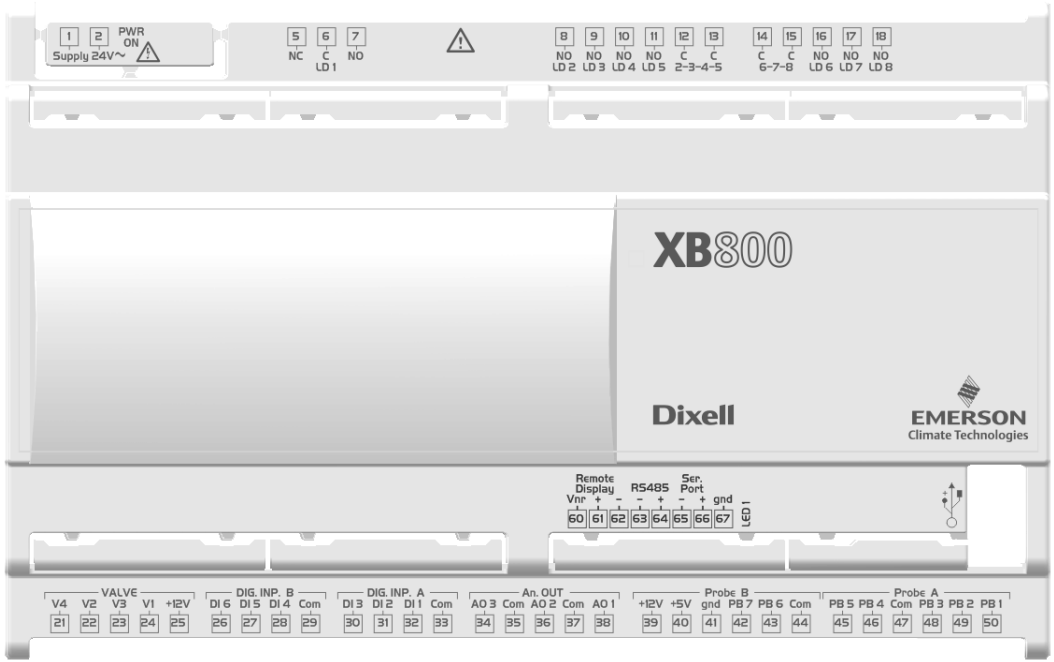
	**NRC10PR**	Multipoint insert probe 90°, 3 points, NTC sensor, plastic handle, inox steel cap “dimension Ø3,5x100mm”, cable in plastic for use with food, temperature range -50÷90°C
	SOC12IR	Probe 90°, PTC sensor, inox steel handle, inox steel cap “dimension Ø4x120mm”, cable in plastic for use with food, temperature range -50÷200°C, with extension
	SGC12IR	Heating probe 90°, PTC sensor, inox steel handle, inox steel cap “dimension Ø4x120mm”, cable in plastic for use with food, temperature range -50÷110°C, with extension

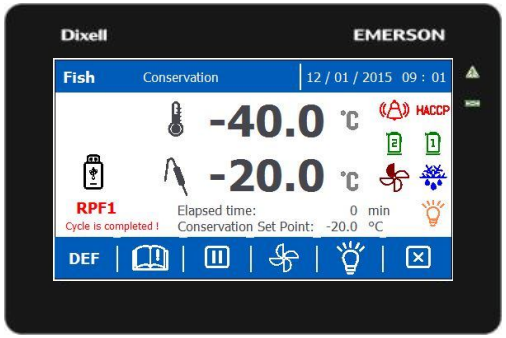
XB590L HOW TO ORDER

XB590L – A B C D E F

A		B		C		D		E		F	
Power supply		**Inputs - Display color**		**Output type**		**Measurement unit**		**RS232**		**Finishing**	
2	24Vac	P	PTC - Red	0	No output	C	°C	0	No	R	Back-panel
4	110Vac	N	NTC - Red	1	X-REP	F	°F	1	Yes	X	Inox
5	230Vac	Q	PTC - Blue								
		R	NTC - Blue								

XB800D - Programmable Controller





Main Hardware

- 10Din Rail
- 24Vac/dc Power Supply
- 8 Power Relay (up to 5 x 16A)
- 7 Probes (PT1000 sensor included)
- 6 Digital Inputs (free voltage contacts)
- 3 Analog Outputs (0-10Vdc, 4-20mA, PWM)
- Unipolar EEV Driver
- RS485 Serial Ports
- USB/Ethernet
- HMI connections (Visotouch)

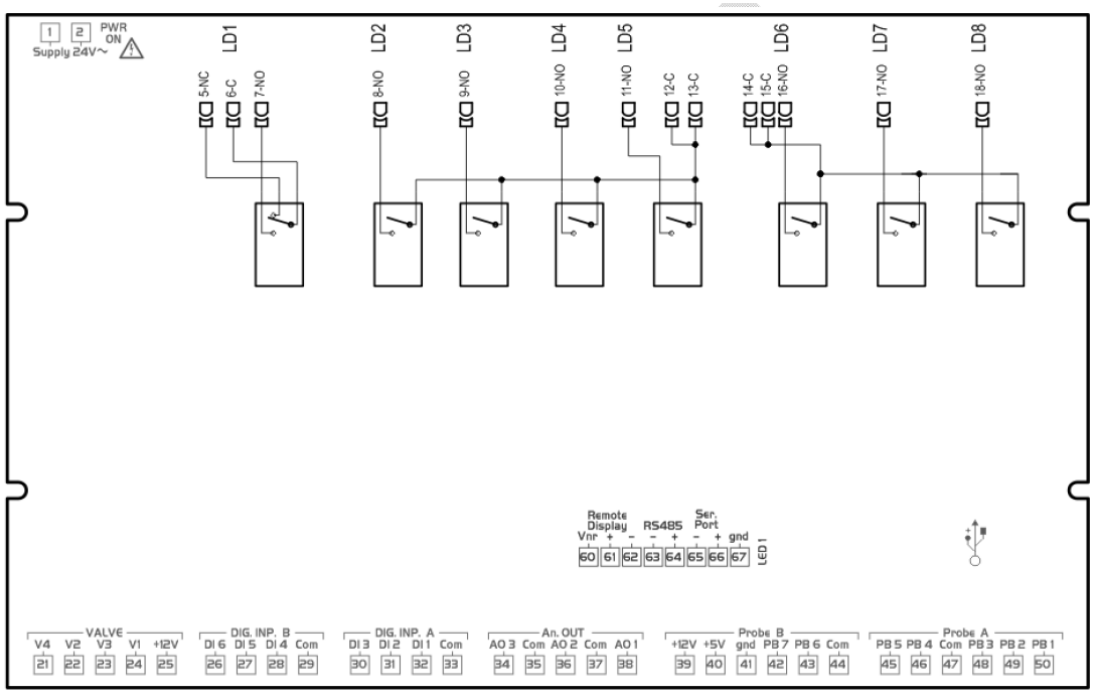
Main Benefits

- Powerful Platform
- High Level of Customization
- Power Relay to Drive the Loads Directly
- Built-in Unipolar EEV Driver

Availability

- XB800D – available Sept. 2016

XB800D – WIRING DIAGRAM



Analog Inputs:

- From PB1 to PB5 = NTC, PTC, DI, PT1000
- PB6, PB7 = NTC, PTC, 0..20mA, 4..20mA, 0..10V, 0..1V, 0..5V, DI, PT1000

Analog Outputs:

- A01 = 0÷10Vdc, 4÷20mA or PWM
- A02 = 0÷10Vdc, 4÷20mA
- A03 = 0÷10Vdc, 4÷20mA

Digital Inputs:

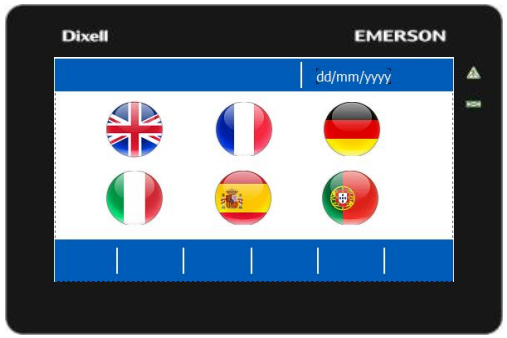
- From DI1 to DI6 = free voltage

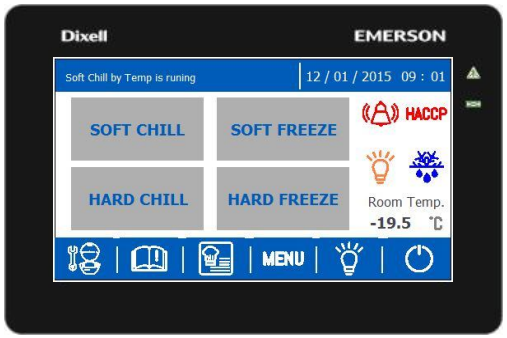
Digital Outputs:

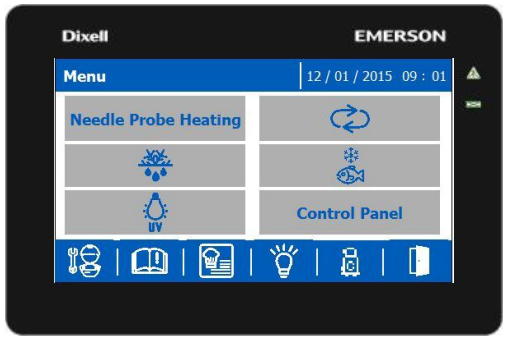
- LD 1 = 16A changeover
- LD 2 = 8A or 1A/240V SSR (NO)
- LD 3 = 8A or 1A/240V SSR (NO)
- LD 4 = 8A (NO)
- LD 5 = 8A or 16A or 16A inrush (NO)
- LD 6 = 16A
- LD 7 = 8A or 16A
- LD 8 = 8A or 16A

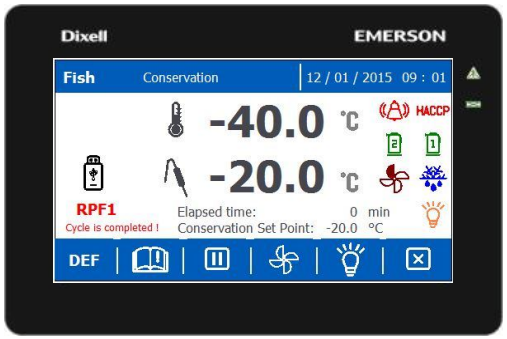
EEV Driver (unipolar valve)

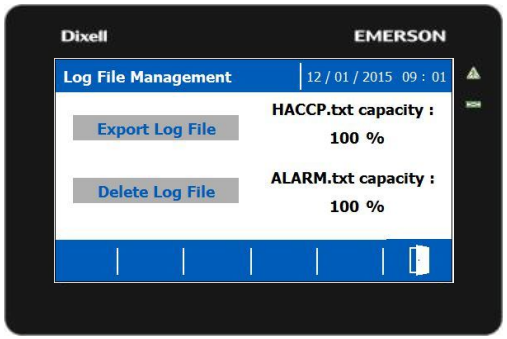
Blast Chiller Applications











FEATURES & BENEFITS

- Touch user interface
- 6 languages
- High level of customization
- 8 standard cycles (chill-freeze, soft/hard by temperature or time)
- 12 customizable cycles
- Fish sanitization cycle
- Needle probe heating management
- UV lamp management
- HACCP and ALARM datalogger

AVAILABILITY

- April 2016 (Ready for standard iPro)

Blast Chiller Applications

Cycle by Temperature ot Time

The user can starts the cycle by Temperature or by Time; if the cycle is by Temperature and the Needle Probe is not inserted in the food, the application recognize this situation and the cycle will change automatically from Temperature to Time.

Single or Multipoint Insert Probes

The XB800 was designed to work with standard insert probes (up to 3), but it can also work with the multipoint probes (3 points) for a more accurate product temperature measurement.

Compressor Management and Maintenance

It is possible to use up to 2 compressor; through the parameters the user can decide in which way the 2 compressors have to work.
Besides, it is possible to define a period of time (hours) to get a message that it is necessary to check the compressor and the condenser.

Evaporator and Condenser Fans

The Evaporator and Condenser Fans can be drive through the relay or with a signal 0-10Vdc (EC Fans).

Blast Chiller Applications

Cycles Personalization

12 cycles can be personalized depending on the user needs; product or room temperature can be modified before and during the cycle execution in order to optimize and reduce working times.

Continuous and Fish Cycles

These cycles are already defined and the user can starts one of them without any other set-up.

Compressor Crankcase Heating Delay

Depending on the blast chiller developer, the compressor crankcase heating delay can be activated. In order to prevent the migration of refrigerant and the mixing with the crankcase oil when the unit is off, when the device is powered on it is possible to activate a delay in order to guarantee the compressor crankcase heating.

Condenser High and Low Temperature Alarm

It is possible to manage the high-temperature and low-temperature alarm of the condenser through the signal on the display or, for a higher safety, by enabling the blocking function of the compressor.

Blast Chiller Applications

Other Functions

It is possible to set-up the application to manage also the Needle Probe Heating, Light, Auxiliary Output, Door Heating and UV Lamp.

Simplified Parameters Management

Thanks to the software WIZMATE it is possible to manage the parameters map of the XB800D from the PC (other than from the Visotouch) through the converter RS485-USB (XJ485USB) or through the converter USB-ETH-CONV. The programming of the device will be even faster and more intuitive.

Remote Accessibility

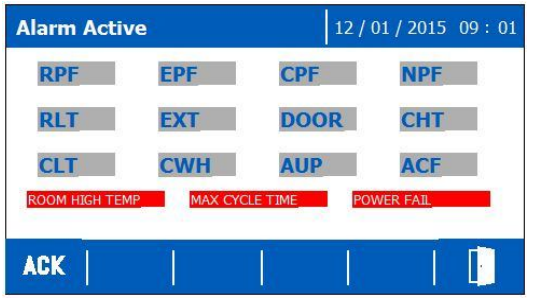
Thanks to the RS485 output it is possible to connect the controller to a monitoring system (e.g., XWEB family). In this way all functioning data of the blast chiller will be accessible from remote.

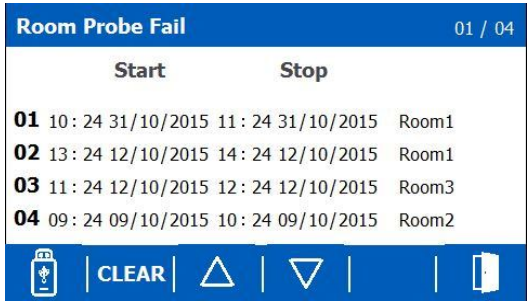
Blast Chiller Applications

Event Alarm

When there is an event alarm, the Blast Chiller application recognize it and show the alarm to the user; an icon blink in the Visotouch and the buzzer is activated.
The recognized alarm are the following:

1. → Room probe broken
2. → Evaporator probe broken
3. → Condenser probe broken
4. → Needle probe failure
5. → The room temperature is too low
6. → The digital input configured as external alarm is active
7. → The door is open
8. → The temperature of the condenser is too high
9. → The temperature of the condenser is too low
10. → The compressor working hours is elapsed
11. → The AUX probe is in alarm
12. → General configuration error

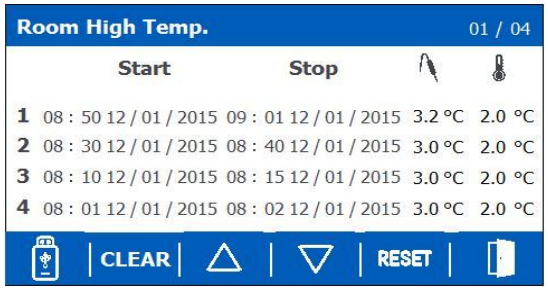




HACCP Alarm

When there is an HACCP alarm, the Blast Chiller application recognize it and show the alarm to the user; an icon blink in the Visotouch and the buzzer is activated.
The recognized alarm are the following:

1. → The room temperature is too high
2. → The maximum cycle duration is expired
3. → During the cycle a power fail event is happened



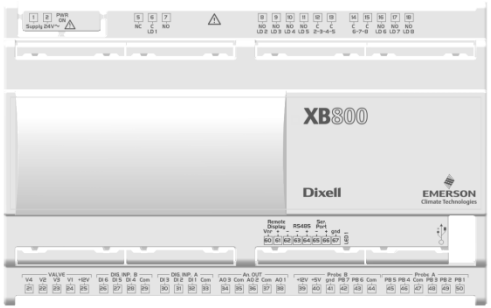
Blast Chiller Applications

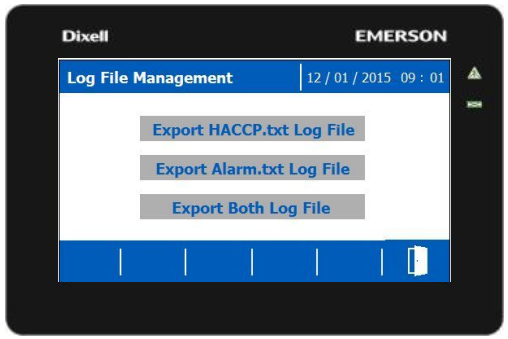
HACCP reports

```
HACCP LOG FILE
START Chill +3 C by temperature Soft
       Date:16/05/2016
       Time:16:57
Start Phase 1, 16:57
         Needle Probe:19.5C
         Room Probe:44.4C
Probes report, 16:57
         Needle Probe:19.5C
         Room Probe:44.4C
End  Phase 1, 16:58
         Needle Probe:9.5C
         Room Probe:20.6C
         Duration:0mins
END Chill +3 C by temperature Soft
       Duration:1mins
       by temperature

START Continuous cycle
       Date:16/05/2016
       Time:17:25
Probes report, 17:30
         Needle Probe:9.5C
         Room Probe:20.6C
Probes report, 17:35
         Needle Probe:9.5C
         Room Probe:20.6C
END Continuous cycle
       Duration:12mins
```

Through the Visotouch it is possible to upload the HACCP report in the USB and manage the file in the personal computer. The file is a .txt format.





XB800D ACCESSORIES

	**IP-FCXB800**	Connectors Kit
	**XJ485USB-KIT**	USB-RS485 converter for PC connections to use WIZMATE
	**USB-ETH-CONV**	USB-ETHERNET adapter
	**TF20D or TF40D**	TF20D= transformer without the EEV TF40D= transformer with EEV

XB800D NEEDLE PROBES OVERVIEW

	**SCP10PS**	PTC sensor, plastic handle, inox steel cap “dimension Ø3,5x100mm”, cable in silicone, temperature range -38÷80°C
	NPC10PS	NTC sensor, plastic handle, inox steel cap “dimension Ø3,5x100mm”, cable in silicone, temperature range -30÷80°C
	**SCP10IS**	PTC sensor, inox steel, inox steel cap “dimension Ø3,5x100mm”, cable in silicone, temperature range -50÷120°C
	NPC10IS	NTC sensor, inox steel, inox steel cap “dimension Ø3,5x100mm”, cable in silicone, temperature range -50÷120°C
	**SCP10IA**	PTC sensor, inox steel handle, inox steel cap “dimension Ø3,5x100mm”, cable in silicone for use with food, temperature range -50÷120°C
	NPC10IA	NTC sensor, inox steel handle, inox steel cap “dimension Ø3,5x100mm”, cable in silicone for use with food, temperature range -50÷120°C

XB800D NEEDLE PROBES OVERVIEW

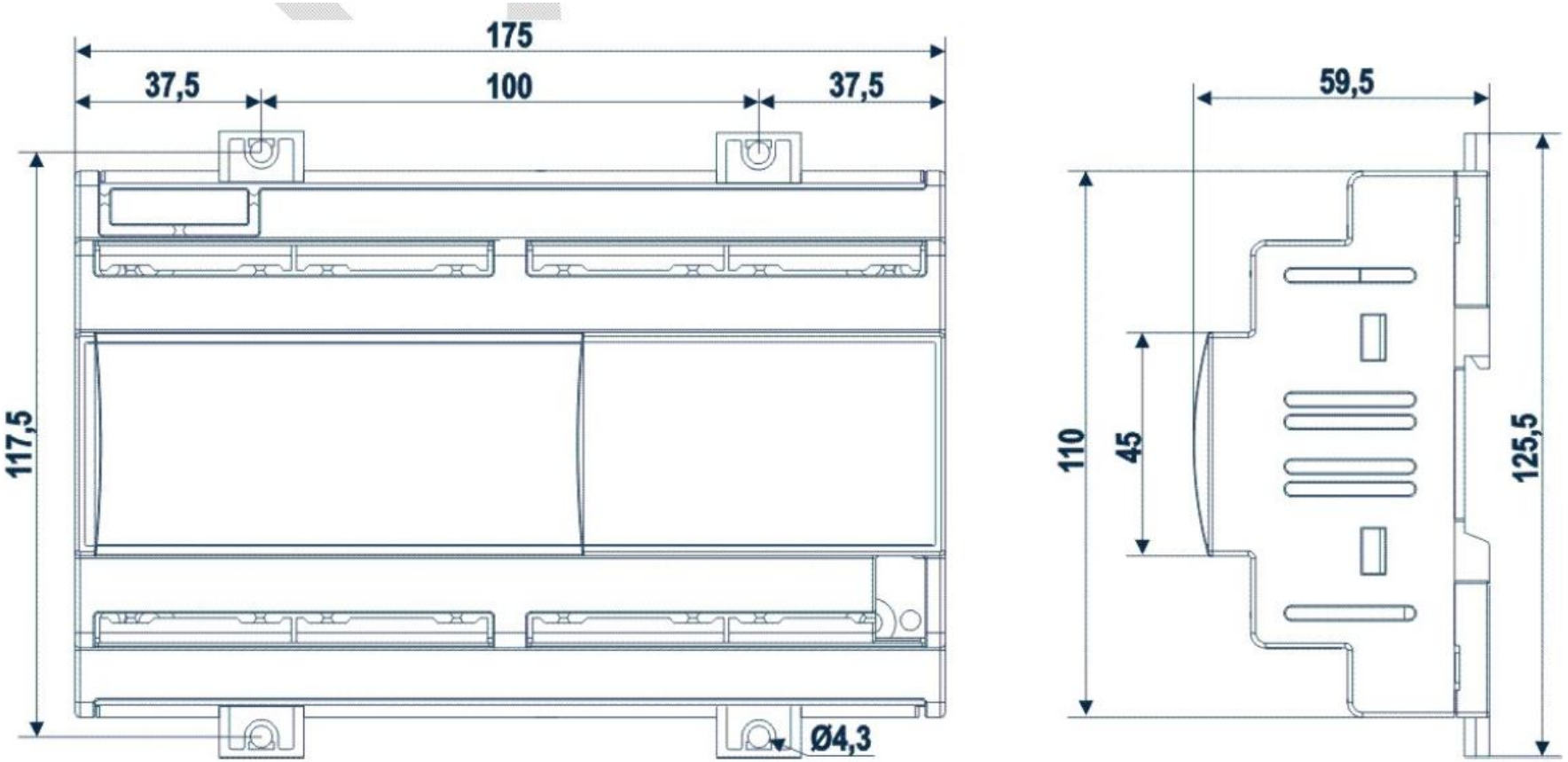
	**NRC10PR**	Multipoint insert probe 90°, 3 points, NTC sensor, plastic handle, inox steel cap “dimension Ø3,5x100mm”, cable in plastic for use with food, temperature range -50÷90°C
	SOC12IR	Probe 90°, PTC sensor, inox steel handle, inox steel cap “dimension Ø4x120mm”, cable in plastic for use with food, temperature range -50÷200°C, with extension
	SGC12IR	Heating probe 90°, PTC sensor, inox steel handle, inox steel cap “dimension Ø4x120mm”, cable in plastic for use with food, temperature range -50÷110°C, with extension

XB800D HOW TO ORDER

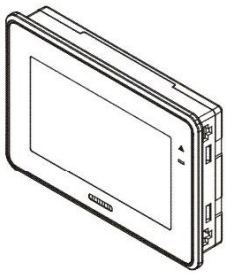
XB800D – A B C D 0

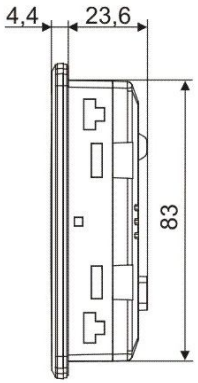
A		B		C		D	
Power supply		**Analog Outputs**		**Serial Port**		**EEV driver**	
1	24Vac	0	Not present	0	LAN	0	no
		1	PWM/0÷10Vdc/4÷20mA	1	RS485 master	1	yes

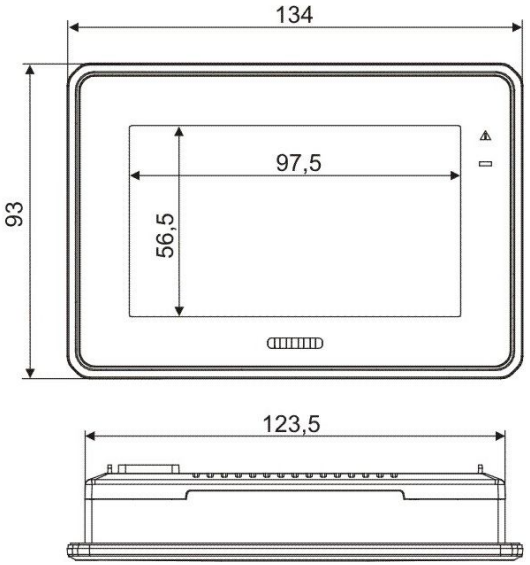
XB800D DIMENSIONS

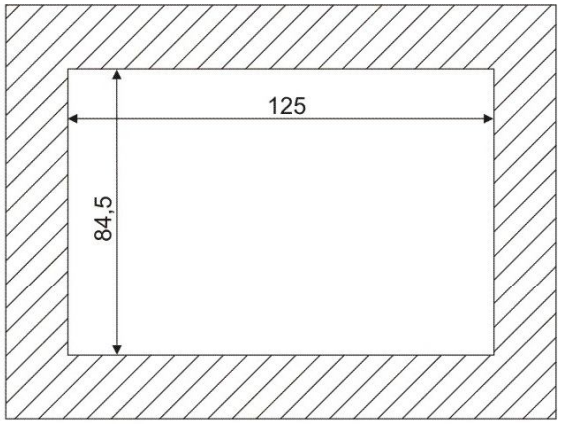


VISOTOUCH DIMENSIONS AND CUT-OUT



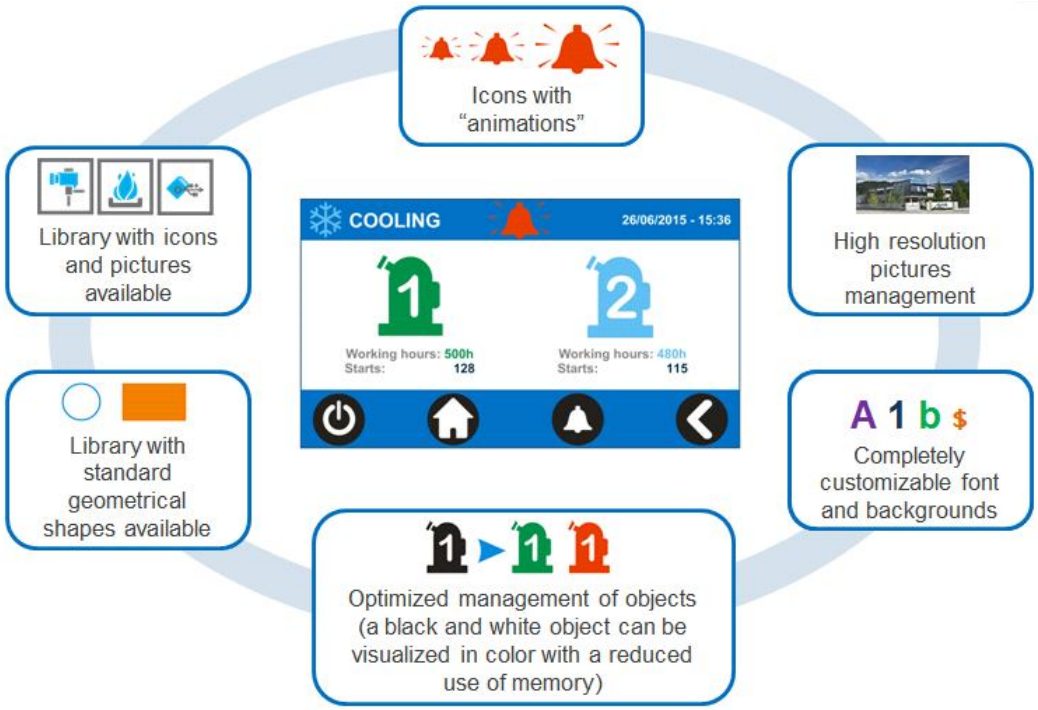






User Interface Development Tool

User Interface Development Tool



MAIN FEATURES & BENEFITS

- A wide choice of functions for creation of the most suitable user interface for every customer and application
- Conversion function guarantees easy migration onto the new platform

VISO PROG


EMERSON™
Thank You!!!