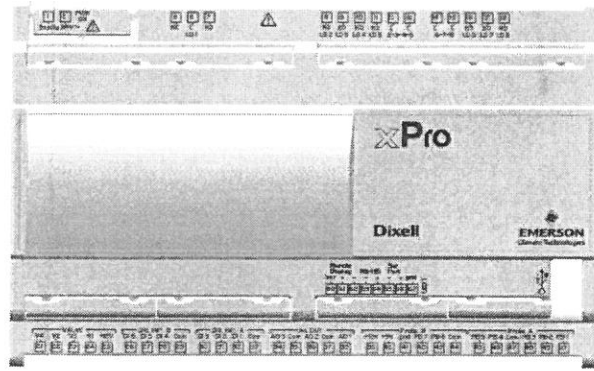# Mod: CBT101/TS

Production code: 10501704-0-0-0 (Y2) TOUCH

Diamond
catering equipment

GENERAL INFORMATION

xPro Series (v.1.0)

INDEX

The whole version of this manual is available in the web site.
www.dixell.com

1.   IMPORTANT RECOMMENDATIONS

- ➢ The ⚡ symbol alerts the user of non-insulated "dangerous voltage" within the product area that is sufficiently high to constitute a risk of electric shock to persons.

- ➢ The ⚠ symbol alerts the user of important operating and maintenance (assistance) instructions found in the documentation attached to the device.

- ➢ Dixell Srl cannot accept any liability for damages caused by modems that are not supported. Dixell Srl reserves the right to modify this manual without prior notice. The documentation can be downloaded from www.dixell.com even prior to purchase.

- ➢ This manual forms part of the product and must always be kept near the device for easy and quick reference. The device cannot be used as a safety device. Verify the limits of application before using the device.

- ➢ Verify that the power supply voltage is correct before connecting the device. Do not expose it to water or humidity: use the controller only within the operating limits, avoiding sudden changes in temperature and high atmospheric humidity in order to prevent condensation from forming. Recommendation: disconnect all the electric connections before performing any maintenance. Insert the probe where it cannot be reached by the End User. The device must not be opened. Consider the maximum current that can be applied to each relay. Make sure that the wires for the probes, the loads and the electrical power supply are separated and sufficiently distant from each other, without crossing or intertwining with each other. In the case of applications in industrial environments, it may be useful to use the main filters (our mod. FT1) in parallel to the inductive loads.

- ➢ The customer shall bear full responsibility and risk for product configuration in order to achieve the results pertaining to installation and/or final equipment/system. Upon the customer's request and following a specific agreement, Dixell s.r.l. may be present during the start-up of the final machine/application, as a consultant, however, under no circumstances can the company be held responsible for the correct operation of the final equipment/system.

- ➢ Since Dixell products form part of a very high level of technology, a qualification/configuration/programming/commissioning stage is required to use them as best as possible. Otherwise, these products may malfunction and Dixell cannot be held responsible. The product must not be used in any way that differs from that stipulated in the documentation.

- • The device must always be inserted inside an electrical panel that can only be accessed by authorised personnel. For safety purposes, the keyboard must be the only part that can be reached.

- • The device must never be hand-held while being used.

- ➢ It is good practice to bear the following in mind for all Dixell products:
    - ○ Prevent the electronic circuits from getting wet as contact made with water, humidity or any other type of liquid can damage them. Comply with the temperature and humidity limits specified in the manual in order to store the product correctly.
    - ○ The device must not be installed in particularly hot environments as high temperatures can damage it (electronic circuits and/or plastic components forming part of the casing). Comply with the temperature and humidity limits specified in the manual in order to store the product correctly.
    - ○ Under no circumstances is the device to be opened - the user does not require the internal components. Please contact qualified service personnel for any assistance.
    - ○ Prevent the device from being dropped, knocked or shaken as either can cause irreparable damage.
    - ○ Do not clean the device with corrosive chemical products, solvents or aggressive detergents.
    - ○ The device must not be used in applications that differ from that specified in the following material.

⚠ ➢ ***Separate the power of the device from the rest of the electrical devices connected inside the electrical panel. The secondary of the transformer must never be connected to the earth.***

> ➤ Dixell Srl reserves the right to change the composition of its products, even without notice, ensuring the same and unchanged functionality."

1.1 PRODUCT DISPOSAL (WEEE)

With reference to Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 and to the relative national legislation, please note that:

➤ There lies the obligation not to dispose of electrical and electronic waste as municipal waste but to separate the waste.

➤ Public or private collection points must be used to dispose of the goods in accordance with local laws. Furthermore, at the end of the product's life, it is also possible to return this to the retailer when a new purchase is made.

➤ This equipment may contain hazardous substances. Improper use or incorrect disposal can have adverse effects on human health and the environment.

➤ The symbol shown on the product or the package indicates that the product has been placed on the market after 13 August 2005 and must be disposed of as separated waste.

➤ Should the product be disposed of incorrectly, sanctions may be applied as stipulated in applicable local regulations regarding waste disposal.

2. INTRODUCTION

xPro is a range of programmable controllers developed and manufactured by Dixell.
The range consists of programmable controllers, I/O expansions, built-in EEV driver for unipolar valve and graphical interfaces adapted to cover any type of application in refrigeration sector and any relative area, air-conditioning sector. As the system is one of the most technologically advanced, it is flexible and can be customised for it to be adapted to the user's particular requirements.

3. GENERAL SPECIFICATIONS

The xPro controller is powered at 24Vac/dc and use a high speed performance 32-bit ARM9 (200 MHz) microprocessor. The model is a10 DIN rail.
One of the features that distinguishes the xPro controller is the vast range of connection options with external devices, Dixell as well as other brands; RS485 Master and Slave, LAN protocol and USB port (through the USB-ETHERNET adapter can be used as internet port) provide maximum flexibility of integration with the outside world. MODBUS RTU protocol, one of the most popular in the world, is used for serial communication.
Up to 32 MB of flash memory and all the inputs and outputs are fully configurable.

3.1 PROCESSING ENVIRONMENT

The xPro programmable controller use the following software as a processing environment:
➤ ISaGRAF® to process the xPro application.
➤ VISOPROG to process the LCD graphic interface application (VISOGRAPH) or TFT graphic interface application (VISOTOUCH).
ISaGRAF® software is used worldwide and allows those with no programming experience to build applications ranging from the simplest to the more sophisticated. The vast range of the most popular programming languages (Structured Text, Function Block Diagram, Ladder Diagram, Instruction List, Sequential Function Chart, Flow Chart, FBD IEC 61499) provides all programmers with access to the processing environment. Thanks also to the extensive libraries of blocks already developed by Dixell, the processing and debug times are reduced.
The SIMULATION (verification of the application without using the controller) and DEBUG options (verification of the actual application within the controller), allow the user to block and force the value of the variables to speed up the testing times.

The possibility of all-round configuration allows the Dixell xPro programmable controller to be used for any type of application. The same applications can be downloaded in the various models available (obviously adapting the number of inputs and outputs).
The hardware has already been used for the following applications:

- ➢ Chillers and heat pumps
- ➢ Air treatment units
- ➢ Air-conditioners
- ➢ Roof-tops
- ➢ Cooling systems
- ➢ Energy saving management in systems
- ➢ Climatic chamber control
- ➢ Cold rooms and seasoner cabinets
- ➢ Blast Chiller

3.1.2   Hardware architecture

The xPro programmable controller is structured as follows:
- 32-bit microprocessor used to run the application
- Removable screw connectors 5mm
- The programme and parameters are stored in a permanent flash memory. No data is lost in case of power failure.
- Internal web server with the Dixell website as default with the option of downloading a customised website for reading and writing variables with synoptic creation (via HTML).
- USB port (through the USB-ETH adapter can be used as Ethernet port)
- Connection to the dedicated remote LCD or TFT display.
- RS485 Master (ModBus RTU) or LAN (Dixell protocol).
- RS485 Slave (ModBus RTU).

The remote LCD display has the following features:
- 240x96 pixel LCD graphic display.
- 32-bit processor.
- Multilingual in ASCII or UNICODE version.
- 8 fully programmable keys.
- Panel or wall mounted.

The remote TFT display has the following features:
- 480x272 pixel TFT 4.3" graphic display.
- 256 (8 bit) colors
- Resistive touch
- Optional: NTC Analog Input, Digital Input (free of voltage), Buzzer
- Panel or wall mounted.

4.   VERSIONS OF THE PROGRAMMABLE CONTROLLERS

The full configuration of the xPro programmable controller is the following:
- 8 Relay
- 7 Analog Inputs (5= NTC/PTC, 2= NTC, PTC, 0..20mA, 4..20mA, 0..10V, 0..1V, 0..5V, Digital Input, PT1000)
- 6 Digital Inputs (free of voltage)
- 3 Analog Outputs (1=PWM or 0-10V, 4-20mA, 2=0-10V, 4-20mA)
- EEV driver (for unipolar valve)