

IPX215D – IPX225D

1. GENERAL WARNINGS

READ THE GENERAL WARNINGS AND SAFETY PRECAUTIONS CAREFULLY BEFORE INSTALLING AND USING THE DEVICE.

- This manual is an integral part of the product and must be kept near the device for quick and easy consultation.
- The regulator must not be used for purposes other than those described below, and it especially cannot be used as a safety device.
- Before proceeding with installation and use check the limits of application.
- Dixell Srl reserves the right to vary the components of its products without prior notice to the customer, ensuring the identical and unchanged features of the same.

1.1 SAFETY PRECAUTIONS

- Comply with the temperature and humidity limits specified in this document and on the label on the instrument.
- Uninstall the device only once you have removed all the electrical connections, otherwise the device might break.
- Do not open the device; in case of failure or faulty operation send the instrument back to the dealer/distributor or to "DIXELL S.r.l." with a detailed description of the fault.
- Do not clean the device with corrosive chemical products, solvents or aggressive detergents.
- Communication ports (USB, Ethernet) and voltage output are not designed for purposes not specified in this manual that may damage the controller (for example an excessive current request on the USB port to recharge/supply an external device).
- The device must not be used in applications that differ from those specified in the following guide. The regulator strictly cannot be installed in the following specific cases:
 - Units installed in systems with lifesaving functions;
 - Units for military use;
 - Units operated in nuclear energy systems;
 - In all installations where the hardware controller has safety functions

1.2 PRODUCT DISPOSAL (WEEE)

Complying with the Directive 2012/19/EC of the European Parliament and the Council of July 4 2012, on waste electrical and electronic equipment (WEEE), we inform you 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 for disposal, in accordance with local laws. Furthermore, at the end of the equipment life cycle, it is also possible to return it to the dealer 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 was placed on the market after 13th 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 GENERAL DESCRIPTION

The iPro family is made of a wide range of devices developed by Dixell: programmable controllers, expansion boards, valve drivers and graphical interfaces. The combination of these devices allows a complete management of any kind of application in various fields, such as air conditioning, industrial refrigeration, residential refrigeration, etc. It is an advanced and flexible solution that can be adapted to any need of the customer or of the final application. Any Dixell product, which is considered a high technology device, requires qualified configuration, programming and commissioning phases to be used in the optimal way possible. Skipping one or more of those phases may cause malfunctioning or damages of the product for which Dixell cannot be held responsible. The customer assumes any responsibility and risk related to the configuration of the product to reach the desired results according to the final installation and use.

3 DEVICE GROUNDING

To guarantee the correct functionalities and health of the controller as well as to avoid malfunctioning and damages to the same, it is mandatory respect the following rules:

- Use double insulation transformers for the controller main power supply and never ground the secondary wiring of the transformer.
- Verify that the Ethernet cable and that the Switch/Router used to connect it don't have the shield grounded.
- In case of shielded cables used for the communication port connections, it is possible to ground the shield only if it is not used as reference for the communication lines and if it is not physically connected in any way to the controller.
- Always check the on the devices connected to the controller (active probes and transducers, loads driven by the analog outputs, devices connected over the communication lines) in order to verify the presence of groundings before powering on the controller. Always verify preventively/in advance the presence of ground meshes in order to remove them before the powering of the plant/electrical board.

4 CONNECTORS

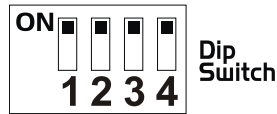
In the following table a list of the suggested connectors is available (these connectors are available also from Dixell). For every model the maximum configuration set available is shown.

Model	Connectors	Qty
IPX215D	Female connector Phoenix FMCD 5x2 poles pin spacing 3.50	1
	Female connector Phoenix FMCD 8x2 poles pin spacing 3.50	1
	Female connector Phoenix FMCD 11x2 poles pin spacing 3.50	1
	Female connector Stelvio CPF 2 poles pin spacing 5.00 90G	1
	Female connector Stelvio CPF 3 poles pin spacing 5.00 90G	2
	Female connector Stelvio CPF 6 poles pin spacing 5.00 90G	1
	Female connector Stelvio CPF 7 poles pin spacing 5.00 90G	1
IPX225D	Female connector Phoenix FMCD 5x2 poles pin spacing 3.50	1
	Female connector Phoenix FMCD 8x2 poles pin spacing 3.50	1
	Female connector Phoenix FMCD 11x2 poles pin spacing 3.50	1
	Female connector Stelvio CPF 2 poles pin spacing 5.00 90G	1
	Female connector Stelvio CPF 3 poles pin spacing 5.00 90G	3
	Female connector Stelvio CPF 5 poles pin spacing 5.00 90G	1
	Female connector Stelvio CPF 6 poles pin spacing 5.00 90G	2
	Female connector Stelvio CPF 7 poles pin spacing 5.00 90G	1
	Female connector Stelvio CPF 8 poles pin spacing 5.00 90G	1

5 ADDRESS SETTING

Every expansion board must have an own dedicated address in the iPro network. That address is set via the dip-switch present on every board and following a binary enumeration like shown in the following table:

	1	2	3	4
Adr 0:	OFF	OFF	OFF	OFF
Adr 1:	ON	OFF	OFF	OFF
Adr 2:	OFF	ON	OFF	OFF
Adr 3:	ON	ON	OFF	OFF
Adr 4:	OFF	OFF	ON	OFF
Adr 5:	ON	OFF	ON	OFF
Adr 6:	OFF	ON	ON	OFF
Adr 7:	ON	ON	ON	OFF
Adr 8:	OFF	OFF	OFF	ON
Adr 9:	ON	OFF	OFF	ON
Adr 10:	OFF	ON	OFF	ON
Adr 11:	ON	ON	OFF	ON
Adr 12:	OFF	OFF	ON	ON
Adr 13:	ON	OFF	ON	ON
Adr 14:	OFF	ON	ON	ON
Adr 15:	ON	ON	ON	ON



If there is a modification to the address a power cycle is needed in order to confirm the modification

! The address 0 is a broadcast address and must never be used. The range of the valid addresses is from 1 to 15.

6 COMMUNICATION

On every IPX device are present a CAN-BUS port and a LAN port used for communicating with any iPro device. The communication lines are mutually exclusive, and this mean that if a device is communicating with the CAN-BUS line it will not be possible to use the LAN communication line without repeating the initialization procedure. At power on, the IPX will be in listening mode on both the communication lines waiting the first valid command. Once this command is received on a communication line, that port will be designed as active while the other will be disabled automatically.

6.1 CANBUS LINE

The CAN-BUS line is made by a three wires connection. It can be used with all the 10 din models of iPro devices and IPL device. The wiring connection must be a daisy chain.

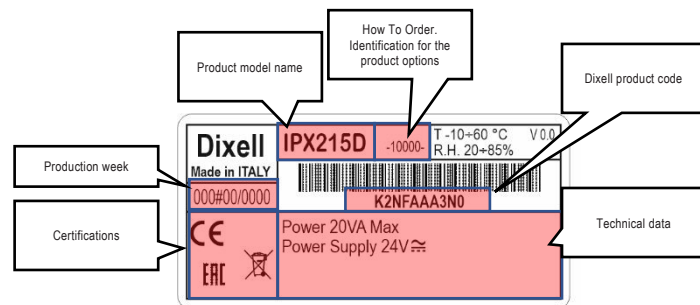
6.2 LAN LINE

The LAN line is made by a two wires connection. It can be used with all the 4 din models of iPro devices, IPG800 device and IPL device. The wiring connection must be a daisy chain.

7 DEVICE LABEL

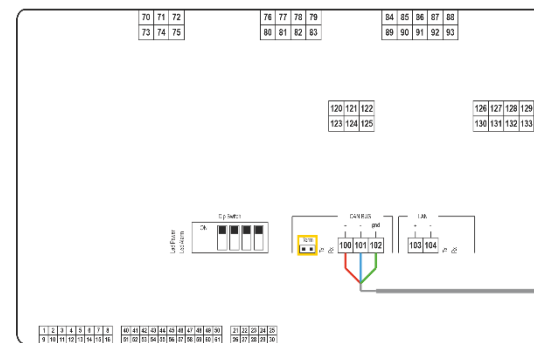
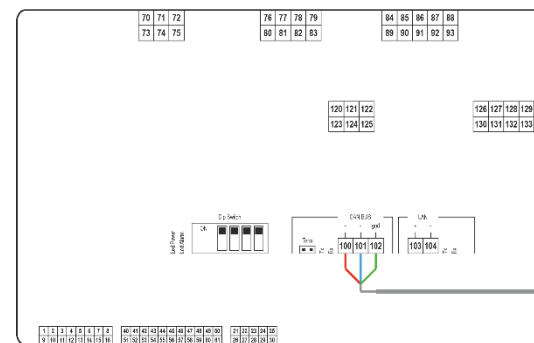
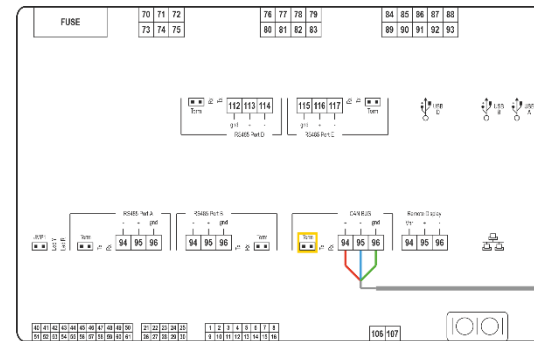
Every controller is provided with an identification label. There follows a brief explanation on the information reported on available looking at the label.

7.1 IPX LABEL



8 LINE TERMINATION (CAN-BUS)

When using the CAN-BUS line is mandatory the use of line termination (jumpers that need to be placed at the side of communication connectors) at the start and at the end of the communication line like highlighted in the following scheme:



9 POWER LED

Every IPX module has a green power LED that indicate the state of the power supply. If the power is supplied properly to the device this LED will be light on.

10 ALARM LED

Every IPX module has a red alarm LED that indicate the alarm state. The alarm state can happen in the following cases:

- One or more probes are in alarm (wrong configuration or sensor broken)
- Communication alarm (the master is not communicating for 10 seconds or more)

! Is not possible understand which the active alarm is only looking at the expansion board. Is always needed to check the alarms from the master side.

11 TECHNICAL FEATURES

Housing:	Self-extinguishing PC
Colour:	RAL7012 RAL9016
Dimensions:	10 DIN Rail
Mounting device:	DIN bar (EN 50022, DIN 43880)
Degree of protection:	IP10 - Indoor, Open type device
Power supply:	24Vac +10/-15%, 50/60Hz 20 - 36Vdc
Rated power:	20VA (Vac), 15W (Vdc)
Rated Impulse Voltage:	500V
Overvoltage category:	II -IPX215D – IPX225D
Comparative Tracking Index (CTI):	300V
Type of action:	1
Pollution degree:	2
Ambient Operating Temperature and Humidity:	IPX215D: -10+50° C / 20+85%RH IPX225D: -10+45° C / 20+85%RH
Shipping and storage temperature:	-20+85°C
Resistance to heat:	V0 (UL94)
AC/DC voltage input:	IPX215D – IPX225D: 24Vac/Vdc, 50/60Hz, (Class 2 source - SELV)
Sensors/digital inputs:	Classe 2 - SELV
I/O ports:	Classe 2- SELV
IPX215D – IPX225D output rating	
RL1, RL2, RL3, RL4, RL5, RL6, RL7, RL8, RL9, RL10, RL11, RL12, RL13, RL14, RL15, RL20, RL21, RL22, RL23, RL24 and RL25 NO contact:	Pilot duty 2A, 5A inrush 24Vac class 2 source SELV
RL16, RL17, RL18, RL19 SSR:	Pilot duty 1A, 2.5A inrush 24Vac class 2 source SELV
RL max commons current:	Rating value per number of relays
Analogue outputs:	Classe 2 Circuit - SELV
Cycles of operation:	30K
External power:	Classe 2 Circuit - SELV
Purpose of control:	Operating control
Construction of control:	Incorporated control
Approvals:	UL 60730-1, UL 60730-2-9 CAN/CSA-E60730-1, CAN/CSA-E60730-2-9

12 INPUT/OUTPUT TECHNICAL DATA

12.1 IPX215D – IPX225D

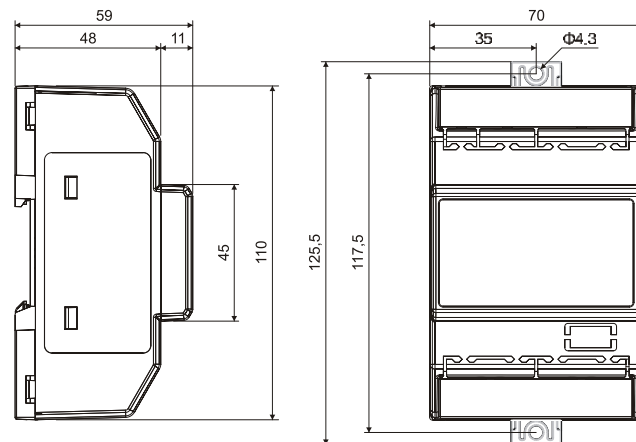
ANALOG INPUTS	Number of inputs:	10
	Types of analog inputs: (configurable via software parameter)	NTC Dixell (-50T110°C; 10KΩ±1% at 25°C) PTC Dixell (-55T115°C; 990Ω±1% at 25°C) PT1000 Dixell (-100T150°C; 1000Ω±1% at 0°C) Digital input (dry contact) Voltage: 0+1V, 0+5V, 0+10V (input resistance 3.7KΩ) Current: 2+20mA, 4+20mA (input resistance 100Ω)
	Extra power supply:	+12V: 200mA total (considering both analog inputs and outputs) +5v: 100mA
	Note:	Inputs that need a different power supply than that supported by the controller (+12V or +5V) must be powered separately by a nother transformer in order to prevent any malfunctions or breaking (don't use the secondary wiring that is used for the main power supply of the controller).
DIGITAL INPUTS	Number of inputs:	20
	Types of digital inputs:	Dry contacts with Opto-insulation
	Note:	Do not use any power supply to prevent any malfunctions or breaking.
ANALOG OUTPUTS	Number of outputs:	6
	Types of analog outputs: (configurable via software parameter)	4 Voltage output 0+10Vdc or external relay driver On-Off (0-12Vdc) (Out1 - Out4) 2 Voltage output 0+10Vdc, Current output 4+20mA or external relay driver On-Off (0-12Vdc) (Out5 - Out6)
	Type of opto-insulation: (analog output power supply)	External power supply, separated from the main controller power supply for the opto-insulation.
	Maximum load:	40mA (300Ω) for each output configured as 0-10Vdc (Out1 - Out4) 20mA (300 Ω) for each output configured as 0-10Vdc (Out5 - Out6) 300Ω for each output configured as 4-20mA (Out5 - Out6)
	Note:	The devices connected to analog outputs must be powered separately by another transformer in order to prevent any malfunctions or breaking (don't use the secondary wiring that is used for the main power supply of the controller). The transformer used for the analog outputs power supply can be used also for the devices connected to them.
DIGITAL OUTPUTS IPX215D	Number of outputs:	15
	Types of digital outputs:	Relays with normally open contact and closed contact.
	Contact types:	Single pole relay, single though (5A) - RL1, RL2, RL3, RL4, RL5, RL6, RL7, RL8, RL9, RL10, RL11, RL12, RL13, RL14, RL15
	Note:	Always verify the out capacity according to the connected load. There is always a double insulation between the digital output and the low-tension part of the controller. Do not use different voltagaes for different relay groups on the controller.
DIGITAL OUTPUTS IPX225D	Number of outputs:	25
	Types of digital outputs:	Relays with normally open contact and closed contact.
	Contact types:	Single pole relay, single though (5A) - RL1, RL2, RL3, RL4, RL5, RL6, RL7, RL8, RL9, RL10, RL11, RL12, RL13, RL14, RL15, RL20, RL21, RL22, RL23, RL24, RL25 SSR relay (230Vac) - RL16, RL17, RL18, RL19
	Note:	Always verify the out capacity according to the connected load. There is always a double insulation between the digital output and the low-tension part of the controller. Do not use different voltagaes for different relay groups on the controller.



- > The SSR relays are sensible to the electromagnetic interferences. These interferences may cause unwanted openings or closings of the contacts. If there is the suspect of this kind of situation, it is recommended to use an external power supply to power the SSR loads. Independently of the above situation, it is highly recommended that the track of the signal cables should be separated from the track of the power cables
- > The SSR outputs are not designed to drive contactors or inductive loads. For any unusual use of the SSR relays contact Dixell for a preventive briefing

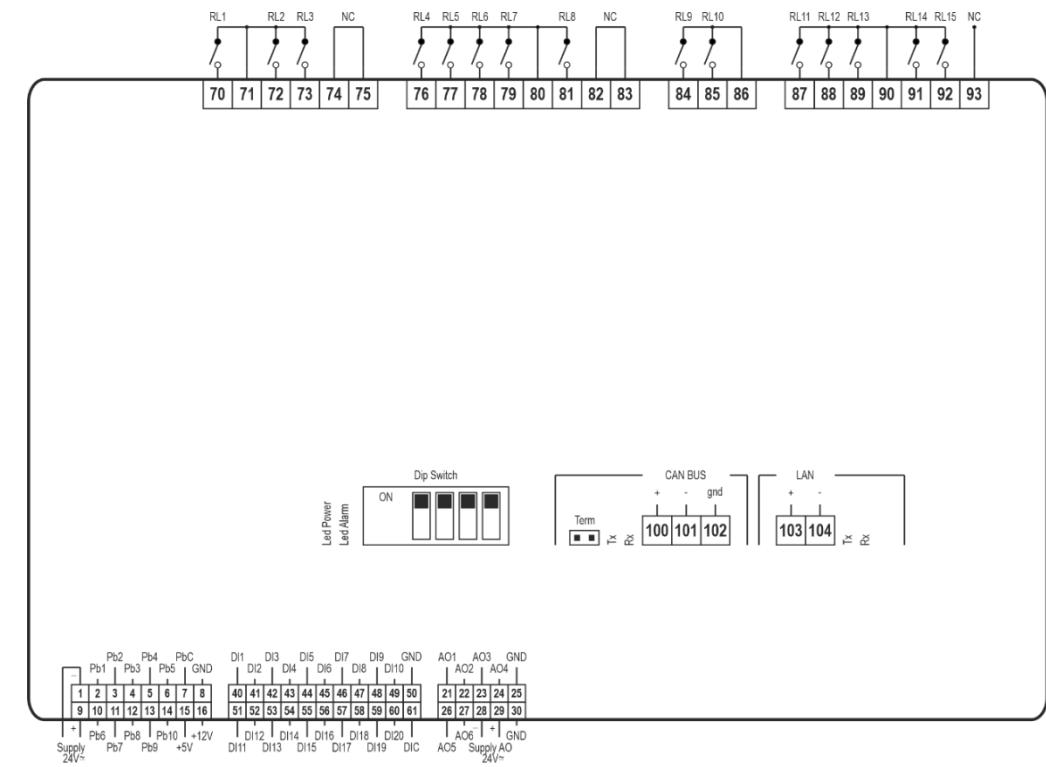
13 DIMENSIONS

(Dimensions expressed in mm)

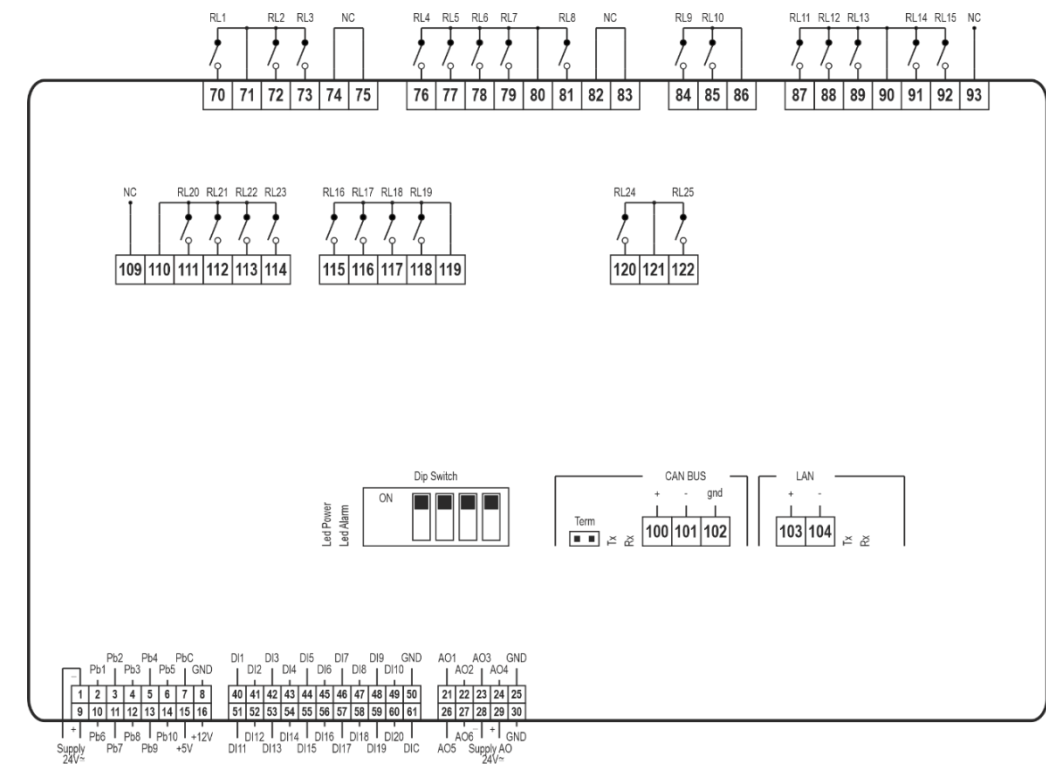


14 ELECTRICAL CONNECTION

14.1 IPX215D



14.2 IPX225D



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