IPG115D

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. Do not use the product for uses that differ from those indicated in this documentation. The costumer 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
IPG115D	Female connector Molex Micro-Fit 2x5 poles	1
	Female connector Molex Micro-Fit 2x8 poles	1
	Female connector Molex Micro-Fit 2x11 poles	1
	Female connector Molex Mini-Fit 2x3 poles	1
	Female connector Molex Mini-Fit 2x4 poles	1
	Female connector Molex Mini-Fit 2x5 poles	1
	Female connector Stelvio CPF 2 poles pin spacing 5,00 90G	1
	Female connector Stelvio CPF 3 poles pin spacing 5,00 90G	4
	Female connector Stelvio CPF 6 poles pin spacing 5,00 90G	1

5 HMI CONNECTION

With the iPro family devices it is possible connect Visograph and Visotouch remote terminals through the dedicated communication port. For the connection between the controller and the HMI a BELDEN 8772 (3xAWG20) cable should be used.

	Max number of allowed HMI	Maximum cable length (mt)	
	Visograph or Visotouch	Visograph	Visotouch
iPro 10DIN	2	100	70

6 RS485 CONNECTION

For the RS485 serial connections use a BELDEN 8772 (3xAWG20) cable. The maximum length for the serial connection cable is 1200m considering an ideal environment. The real length could be less in operating mode considering the disturbs and noises on the communication cable.

7 CANBUS CONNECTION

For the Expansion Boards connections use a BELDEN 8772 (3xAWG20) cable. For the CANBUS line is essential to use the line terminators at the beginning and at the end of the chain otherwise the maximum length applicable is the half declared in the following table.

	Maximum number of expansion boards	Maximum cable length (mt)
CANBUS	4	400

8 USB-RS485 CONVERTER (XJ485USB)

All the iPro controllers can use the XJ485USB converter for using the USB port as an additional RS485. The USB port must be enabled with the Server functionality from the controller control panel. For using it as RS485 Client, this functionality must be implemented at application level.

9 DEFAULT NETWORK SETTINGS

The iPro boards are programmed with these default TCP\IP settings:

ETH 0

MAC Address
d2:ae:2e:c8:61:c2

IP Address
192.168.0.250

Subnet Mask
255.255.255.0

Network Address
192.168.0.255

Gateway Address
192.168.0.1

DNS 1
192.168.0.254

DNS 2
8.8.8.8

These settings can be modified by accessing the panel website via browser (192.168.0.250/panel) and performing the login with the following credentials:
Login: admin
Password: Dixell

It is possible also to temporary set the default Dixell ethernet settings (to access a controller where the IP address is unknown). These temporary settings will be active until the controller is rebooted.
For the 4 DIN models, it is possible to prepare a USB stick with an empty txt file named *tempip.txt* inside the folder iPro (see next paragraphs for further information about the USB structure). Plugging the USB stick in the 4 DIN model will temporarily restore the default IP address.
For the 10 DIN model it is possible to close the JMP1 once the device is on in order to temporary restore the default IP address.

10 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.
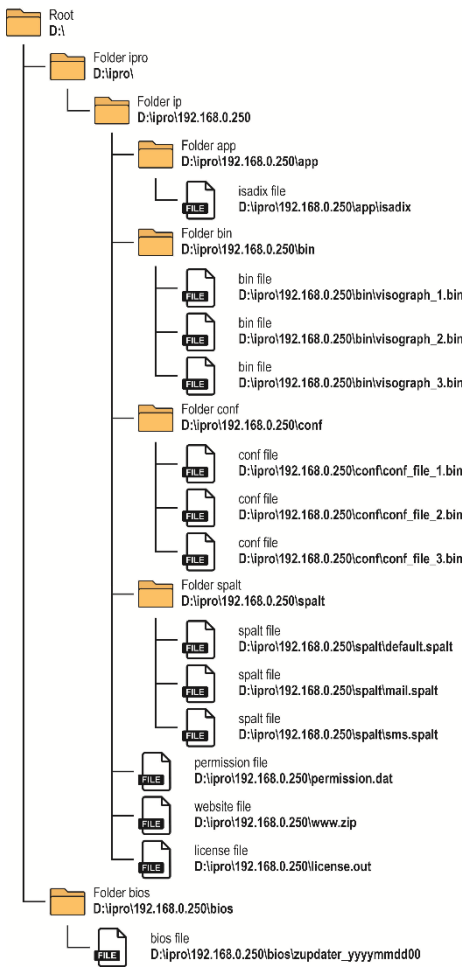
10.1 10DIN LABEL
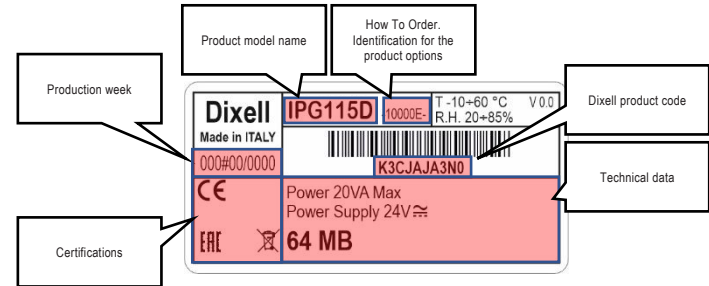
11 SOFTWARE INSTALLATION VIA USB STICK

There is the possibility to update the controller on site using a USB stick with a specific folder structure (inside). In this way it is possible to update any software part of the controller, including the operative system. The update may take several minutes to be completed and during the process all the functionalities of the controller are disabled.

⚠
- ➢ Don't take off the power supply from the controller during the update
- ➢ Before proceeding with the update, disconnect any load connected to the controller to avoid unwanted activations.
- ➢ Use only BIOS versions provided by Dixell.

11.1 USB STICK STRUCTURE

This is the structure that has to be used to update the controller:

```
Root
D:\
  Folder ipro
  D:\ipro\
    Folder ip
    D:\ipro\192.168.0.250
      Folder app
      D:\ipro\192.168.0.250\app
        isadix file
        D:\ipro\192.168.0.250\app\isadix
      Folder bin
      D:\ipro\192.168.0.250\bin
        bin file
        D:\ipro\192.168.0.250\bin\visograph_1.bin
        bin file
        D:\ipro\192.168.0.250\bin\visograph_2.bin
        bin file
        D:\ipro\192.168.0.250\bin\visograph_3.bin
      Folder conf
      D:\ipro\192.168.0.250\conf
        conf file
        D:\ipro\192.168.0.250\conf\conf_file_1.bin
        conf file
        D:\ipro\192.168.0.250\conf\conf_file_2.bin
        conf file
        D:\ipro\192.168.0.250\conf\conf_file_3.bin
      Folder spalt
      D:\ipro\192.168.0.250\spalt
        spalt file
        D:\ipro\192.168.0.250\spalt\default.spalt
        spalt file
        D:\ipro\192.168.0.250\spalt\mail.spalt
        spalt file
        D:\ipro\192.168.0.250\spalt\sms.spalt
      permission file
      D:\ipro\192.168.0.250\permission.dat
      website file
      D:\ipro\192.168.0.250\www.zip
      license file
      D:\ipro\192.168.0.250\license.out
    Folder bios
    D:\ipro\192.168.0.250\bios
      bios file
      D:\ipro\192.168.0.250\bios\zupdater_yyyymmdd00
```

⚠
The above example is made considering a controller with the default IP address.
If the IP address is different, the folder "192.168.0.250" should be renamed with the IP address of the destination board.
It is possible to have different IP folders in the same USB stick in order to separate the updates on different boards.

12 TECHNICAL FEATURES

Housing:	Self-estinguishing PC
Colour:	RAL7012 – IPG115D
Dimensions:	10 DIN Rail
Mounting device:	DIN Rail (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:	Supply Input: 500V Relay Output: 2500V
On board fuse:	IPG115D: F1.6AL250V
Overvoltage category:	II –IPG115D
Comparative Tracking Index (CTI):	300V
Type of action:	1
Pollution degree:	2
Ambient Operating Temperature and Humidity:	-10÷50° C / 20÷85%RH
Shipping and storage temperature:	-20÷85°C
Resistance to heat:	V0 (UL94)
Ethernet connection:	Use shield cable CAT-5 STP
AC/DC voltage input:	IPG115D: 24Vac, 50/60Hz, Max 20VA. (Class 2 source - SELV)
Sensors/digital inputs:	Class 2 Source - SELV
I\O ports:	Class 2 Circuit – SELV
Output ratings:	
RL1, RL2, RL4, RL5, RL6, RL7, RL8, RL9, RL10, RL12, RL13, and RL15 NO contact:	Resistive load, 2 A, 240 Vac Motor load, 1 FLA, 6 LRA, 240Vac Pilot Duty C300
RL3, RL11 and RL14 NO contact:	Resistive load, 1.95 A, 250 Vac Motor load, 1 FLA, 6 LRA, 250Vac Pilot Duty C300 (6000 Cycles)
RL3, RL11 and RL14 NC contact:	Resistive load, 2 A, 240 Vac
RL max commons current:	Max 6A per common
Analogue outputs:	Class 2 Circuit - SELV
Cycles of operation:	30K
External power:	Class 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

⚠
While the controller is not powered, the built-in battery may discharge. This means that at the first power on of the controller some alarms related to the real time clock may be generated and shown. If this happens, simply leave the controller powered for a while to guarantee the battery recharge and then perform a clock synchronization. The recharge time may vary according to the charge level of the battery.
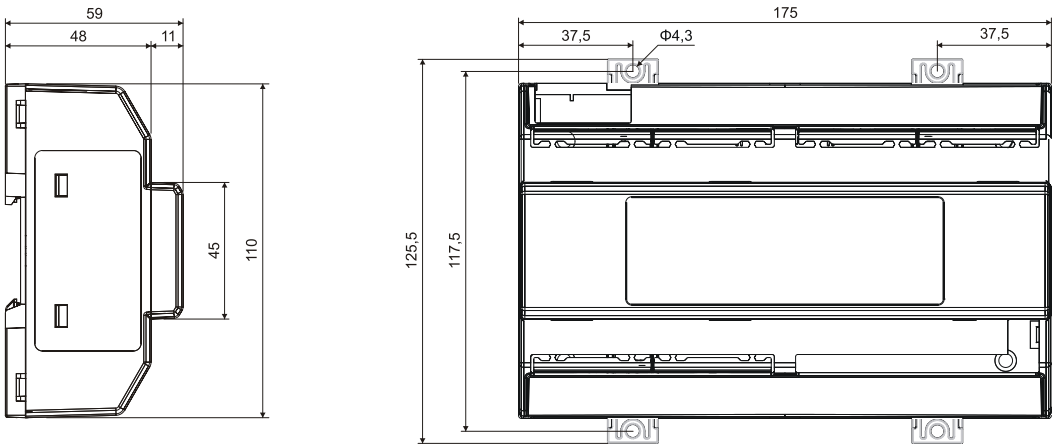
13   INPUT\OUTPUT TECHNICAL DATA

13.1 IPG115D

ANALOG INPUTS	Number of inputs:	10
	Types of analog inputs: (configurable via software parameter)	NTC Dixell (-50T110°C; 10KΩ±1% a 25°C) PTC Dixell (-55T115°C; 990Ω±1% a 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 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).

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 OUTPUS	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) 2 Phase displacement outputs (TF1 e TF2)
	Type of opto-insulation: (analog output power supply)	Internal power supply. Opto-insulation not present respect the controller.
	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).

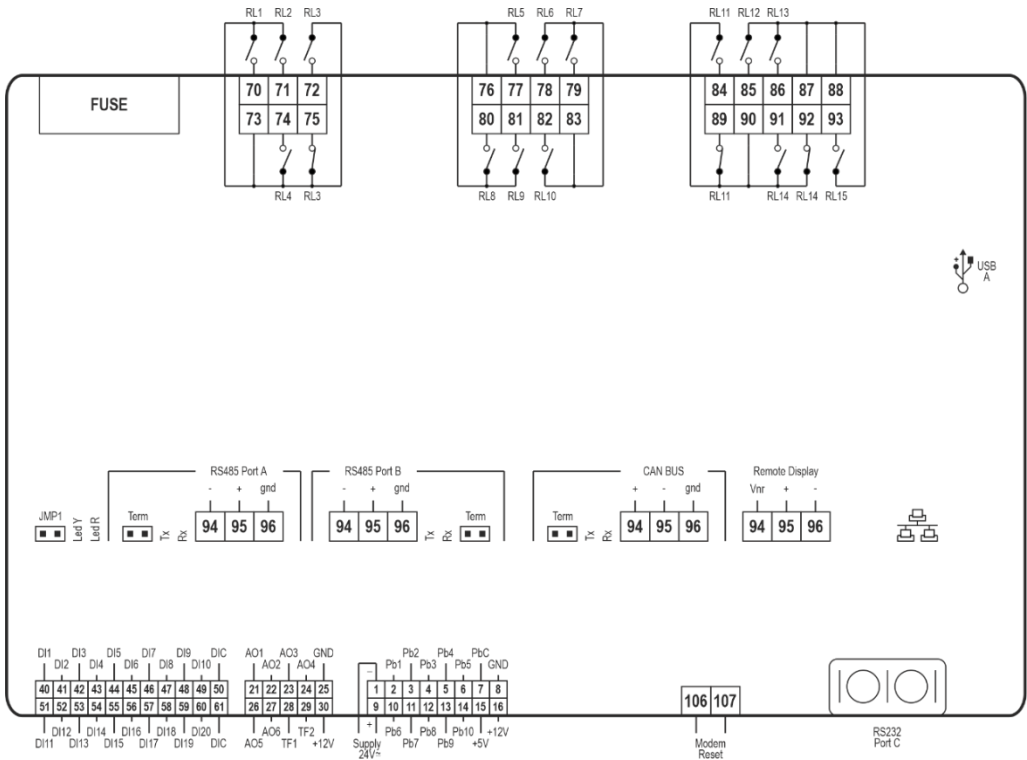| DIGITAL OUTPUTS	Number of outputs:	15
	Types of digital outputs:	Relays with normally open contact
	Contact types:	Single pole relay, single though (5A) - RL1, RL2, RL4, RL5, RL6, RL7, RL8, RL9, RL10, RL12, RL13, RL15 Single pole relay, double though (8A) - RL3, RL11, RL14
	Note:	Always verify the 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 voltages for different relay groups on the controller.

14   DIMENSIONS

(Dimensions expressed in mm)

15   ELECTRICAL CONNECTION

15.1 IPG115D ENHANCED

15.2 IPG115D FULL

LUMITY™   **EMERSON**™

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