



# iCHiL



## QUICK REFERENCE GUIDE

ICX207D (v. 1.0)

# INDICE


<b>1</b>	<b>GENERAL WARNING</b> .....	<b>3</b>
1.1	 PLEASE READ BEFORE USING THIS MANUAL .....	3
1.2	 SAFETY PRECAUTIONS .....	3
1.3	PRODUCT DISPOSAL (WEEE).....	4
<b>2</b>	<b>GENERAL DESCRIPTION</b> .....	<b>5</b>
<b>3</b>	<b>CONNECTIONS</b> .....	<b>5</b>
<b>4</b>	<b>INSTALLATION</b> .....	<b>7</b>
4.1	GENERAL RULES.....	7
<b>5</b>	<b>CONNECTIONS</b> .....	<b>8</b>
5.1	PROBES CONNECTION.....	8
5.2	DIGITAL INPUT CONNECTION .....	10
5.3	ANALOG OUTPUT CONNECTION .....	10
<b>6</b>	<b>LAN CONNECTION</b> .....	<b>15</b>
6.1	CONNECTION DIAGRAM WITH IC206CX O IC208CX.....	16
6.2	CONNECTION DIAGRAM TO CONNECT IC205D OR IC207D.....	17
<b>7</b>	<b>ELECTRICAL CONNECTIONS</b> .....	<b>17</b>
<b>8</b>	<b>MECHANICAL CHARACTERISTIC</b> .....	<b>18</b>
<b>9</b>	<b>TECHNICAL SPECIFICATIONS</b> .....	<b>19</b>
9.1	SUPPLY VOLTAGE.....	19
9.2	ANALOGUE INPUTS.....	19
9.3	DIGITAL INPUT.....	19
9.4	ANALOGUE OUTPUTS.....	19
9.5	DIGITAL OUTPUTS.....	20
9.6	OPERATING AND STORAGE TEMPERATURE .....	20


# 1 GENERAL WARNING

## 1.1 PLEASE READ BEFORE USING THIS MANUAL

- This manual is part of the product and should be kept near the instrument for easy and quick reference.
- The instrument shall not be used for purposes different from those described hereunder. It cannot be used as a safety device.
- Check the application limits before proceeding.
- Dixell Srl reserves the right to change the composition of its products, even without notice, ensuring the same and unchanged functionality.

## 1.2 SAFETY PRECAUTIONS

- Check the supply voltage is correct before connecting the instrument.
  - Do not expose to water or moisture: use the controller only within the operating limits avoiding sudden temperature changes with high atmospheric humidity to prevent formation of condensation
  - Warning: disconnect all electrical connections before any kind of maintenance.
  - The instrument must not be opened.
  - In case of failure or faulty operation send the instrument back to the distributor or to “Dixell S.r.l.” (See address) with a detailed description of the fault.
  - Consider the maximum current which can be applied to each relay (see Technical Data).
  - Ensure that the wires for probes, loads and the power supply are separated and far enough from each other, without crossing or intertwining; do not use the same electrical conduit to install high voltage cabling and low voltage cabling.
  - The ground connection of the secondary coil of the transformer that powers the device can result in a bad performance; where possible, this connection should be avoided.
  - Fit the probe where it is not accessible by the end user.
  - In case of applications in industrial environments, the use of mains filters (our mod. FT1) in parallel with inductive loads could be useful.
- 
- 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.

### **1.3 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:

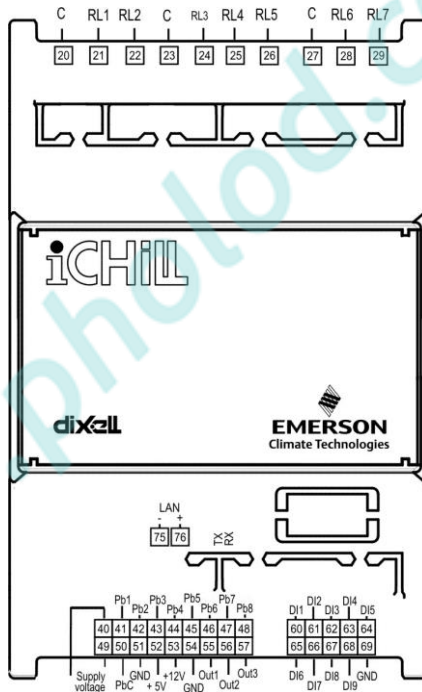
- There lies the obligation not to dispose of electrical and electronic waste as municipal waste but to separate the waste.
- Public or private collection points must be used to dispose of the goods in accordance with local laws. Furthermore, at the end of the product's life, it is also possible to return 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 GENERAL DESCRIPTION

The ICX207D expansion board is a device used to increase the number of inputs and outputs of iCHILL 200 EVO series; it is compatible with the iCHILL 206CX EVO, iCHILL 208CX EVO, iCHILL 205D and iCHILL 207D.

The connection between the expansion board and iCHILL controller must be performed via LAN. The expansion board does not have internal parameterization; enabling the operation and configuration of the inputs and outputs must be performed by configuring the parameters of the iChill controller.

## 3 CONNECTIONS



## Relay output

PIN NUMBER	FUNCTION	DESCRIPTION
20	C	Common line for relay 1 and relay 2
21	RL1	Relay 1
22	RL2	Relay 2
23	C	Common line for relay 3, relay 4 e relay 5
24	RL3	Relay 3
25	RL4	Relay 4
26	RL5	Relay 5
27	C	Common line for relay 6 and relay 7
28	RL5	Relay 6
29	RL6	Relay 7

## Power supply / probes / analog outputs

40	Supply	AC Power supply: 24 Vac DC Power supply: + 24 Vdc
41	Pb1	Analog input 1 (NTC,PTC,DI)
42	Pb2	Analog input 2 (NTC,PTC,DI)
43	Pb3	Analog input 3 (NTC,PTC,0 - 20mA,4 - 20mA,0 - 0 - 5V, DI)
44	Pb4	Analog input 4 (NTC,PTC,0 - 20mA,4 - 20mA,0 - 0 - 5V, DI)
45	Pb5	Analog input 5 (NTC,PTC,0 - 20mA,4 - 20mA,0 - 0 - 5V, DI)
46	Pb6	Analog input 6 (NTC,PTC,DI)
47	Pb7	Analog input 7 (NTC,PTC,DI)
48	Pb8	Analog input 8 (NTC,PTC,DI)
49	Supply	AC Power supply: 24 Vac DC Power supply: - 24 Vdc
50	Pbc	Common line analog input (NTC, PTC, DI)
51	GND	Ground
52	+5V	Voltage output +5Vdc
53	+12V	Voltage output +12Vdc
54	GND	Ground
55	Out1	Analog output 1 (0 - 10V, Relay)
56	Out2	Analog output 2 (0 - 10V, 4 - 20mA, Relay)
57	Out3	Analog output 3 (0 - 10V, 4 - 20mA, Relay)

## Digital inputs

60	DI1	Digital input 1
61	DI2	Digital input 2
62	DI3	Digital input 3

63	DI4	Digital input 4
64	DI5	Digital input 5
65	DI6	Digital input 6
66	DI7	Digital input 7
67	DI8	Digital input 8
68	DI9	Digital input 9
69	GND(-)	Common line for digital input

#### LAN connectioni

75	LAN -	LAN connection (-)
76	LAN +	LAN connection (+)

## 4 INSTALLATION

The device must not be installed in environments where the following situations are present:

- Temperature and humidity outside the range stipulated in the data plate. Frequent and sudden changes in temperature and/or humidity
- Direct sunlight and weathering in general
- High mechanical stress (vibrations and/or knocks)
- Sulphur and ammonia gas, smoke and salt spray that can cause corrosion and/or oxidation
- Presence of flammable or explosive gas
- Dust
- Devices that generate magnetic interference

Position the device inside the electrical panels, paying attention to the following:

- the distance between the device and the electrical power components
- the distance between the device and the power cables
- sufficient passage for the cooling air

Always comply with the laws and regulations applicable in the country where the device is installed.

Always protect the device for it to always be accessible solely by authorised personnel.

In case of malfunctions, always contact the relative distributor for the device to be repaired.

### 4.1 GENERAL RULES

Comply with the following recommendations during the installation process in order to prevent the device from malfunctioning.

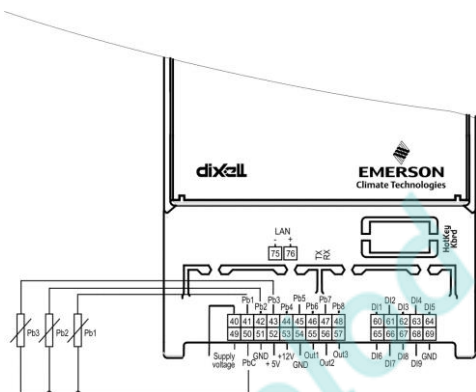
- Separate the signal cables from the power cables (it is recommended to use BELDEN 8772-type shielded cables)
- Separate the cables of the analogue inputs from those of the digital inputs and the serial line cables from the power cables (resistive as well as inductive), in order to prevent malfunction due to electromagnetic interference
- Separate the power of the device from that of the other electrical components
- Never connect the secondary of the supply transformer to the earth
- The low voltage connections must have reinforced insulation

## 5 CONNECTIONS

### 5.1 PROBES CONNECTION

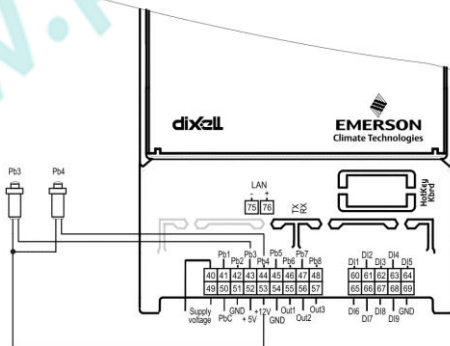
#### 5.1.1 Temperature probes (NTC e PTC)

Every probe has to be connected between an input (Pb1, or Pb2, or Pb3, etc) and the common line (PbC).



#### 5.1.2 Pressure probes or current probes (4..20mA)

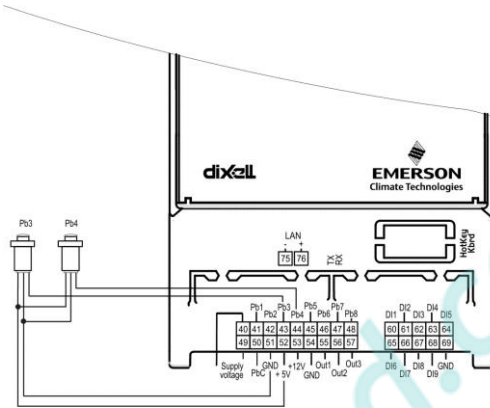
Pb3, or Pb4, or Pb5 can be used to connect a current probe; the connection has to be done between an input and +12V.





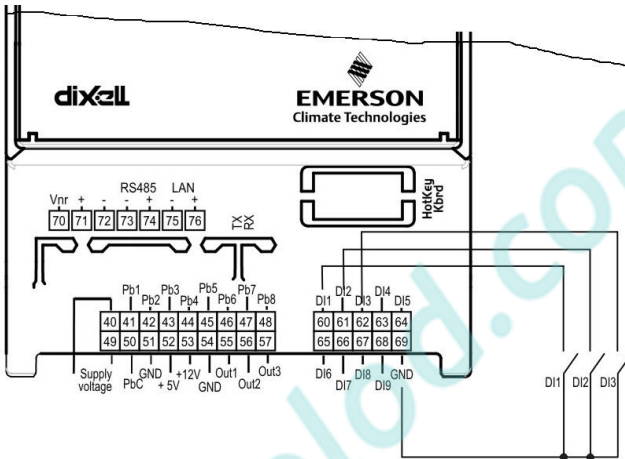
### 5.1.3 Rathimetric pressure probes (0..5V)

Pb3, or Pb4, or Pb5 can be used to connect a rathimetric probe; the connection has to be done between an input, +5V and GND.



## 5.2 DIGITAL INPUT CONNECTION

Every digital input has to be connected between an input (only DI1, or DI2, or DI3, etc.) and GND. Don't supply voltage to the digital input in order to damage the instrument.



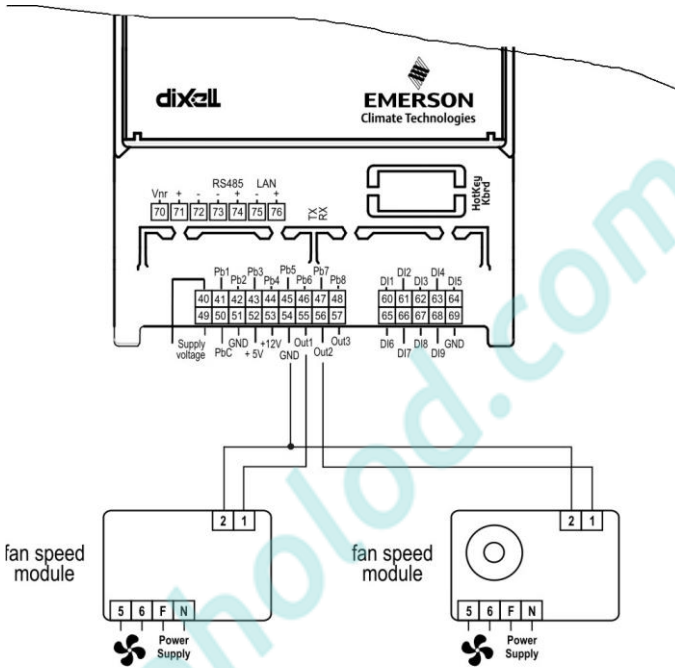
## 5.3 ANALOG OUTPUT CONNECTION

Depending on the configuration assigned to the parameters of the IChill 200 EVO serie, it is possible to use the analog outputs as 0 .. 10Vdc or PWM (for PWM configuration is necessary to use Dixell fan speed controller model XVxxPK).

It is not possible to use fan speed controller designed by other company.

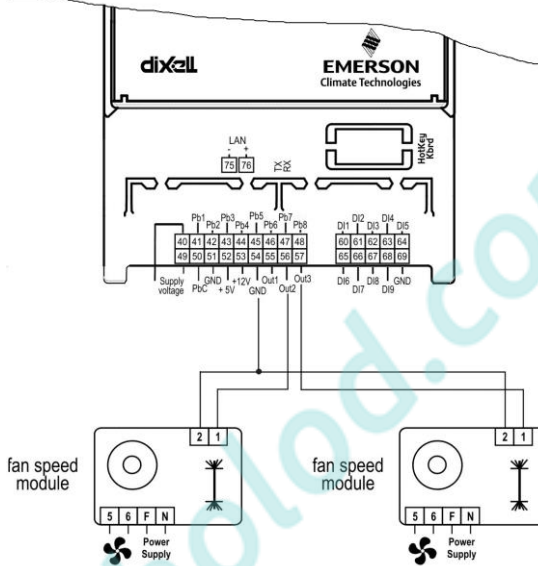
**NOTE:** the analogue outputs are not opto-insulated. Any devices that require 24Vac/dc power supply must be powered separately with another transformer.

5.3.1 0..10V analog output to control condenser fan

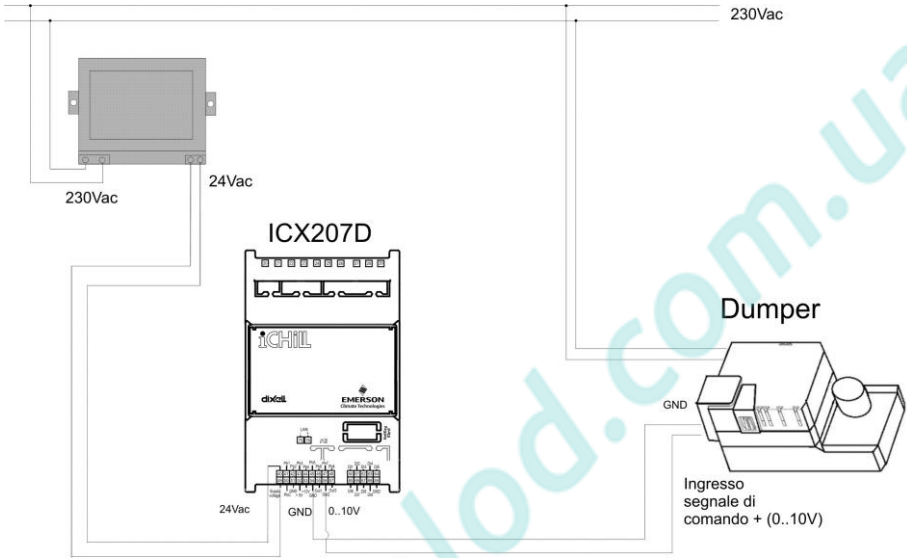


### 5.3.2 PWM analog output to control condenser fan

OUT2 and OUT 3 have to be configured to manage PWM signal; use only Dixell devices (XV05PK, XV10PK and XV22PK)



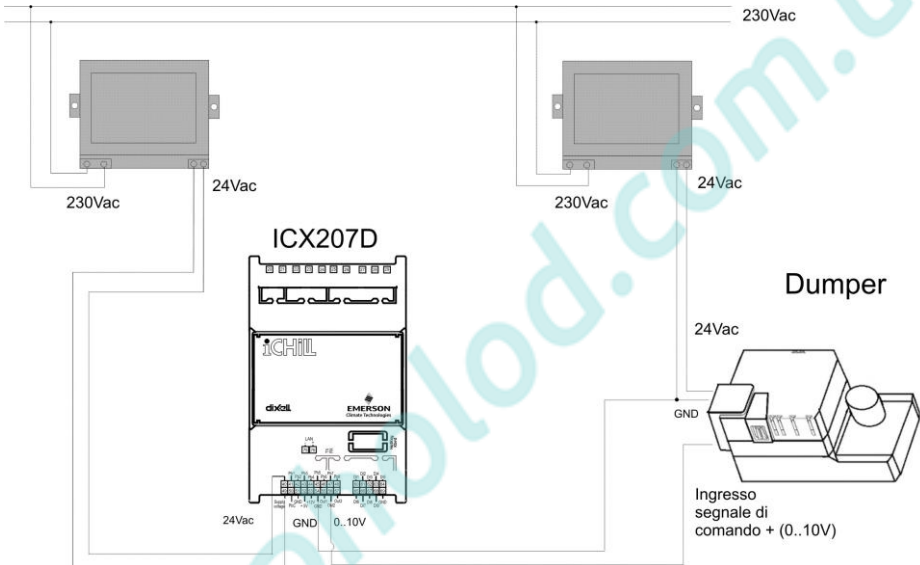
### 5.3.3 0..10V analog output for servomotors/actuators



### 5.3.4 Servomotors/actuators with 24Vac/dc power supply

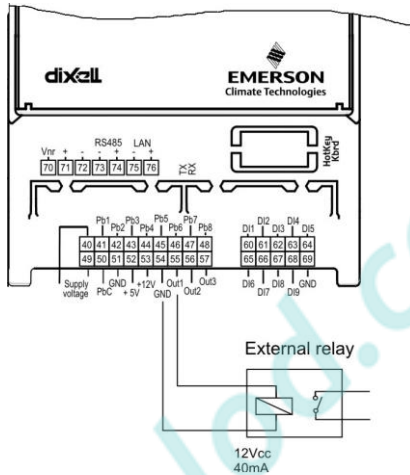
To connect servomotors or actuators that require 24Vac/dc power supply, please follows the connections showed in the image below.

Make attention that the power supply of the ICX207D and the power supply of the servomotors/actuators must be supplied for two different transformers.



### 5.3.5 Analog output for relay connection (12Vdc coil)

Maximum current to drive the coil of the relay is 40mA.



## 6 LAN CONNECTION

Through the I/O expansion it is possible to increase the number of probes, digital inputs, relay and analog outputs.

The I/O expansion does not regulate independently but is only an actuator; the configuration of the inputs and outputs must be made through EI parameters in the IC200 EVO.

The connection to the Ichill is done via LAN.

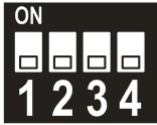
To configure the expansion it is necessary to:

- enable expansion presence via parameter CF78 "Presence expansion card I / O"
- configure the address of communication with the iCHILL with parameter EI01
- configure expansion ICX207D the communication address via dip-switch, which must match the address set in parameter EI01 of the Ichill
- configure the inputs and outputs using the parameters EI02...EI43 of the Ichill
- connect the iCHILL and expansion according to the diagram showed below

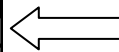
In case of lack or loss of LAN communication, adjustment dell'Ichill is immediately blocked.

The maximum length of the LAN connection is 30 mt.

The address of LAN communication with the controller iCHILL EVO series must be set via dip-switch.

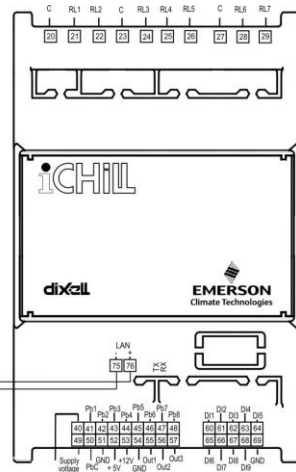
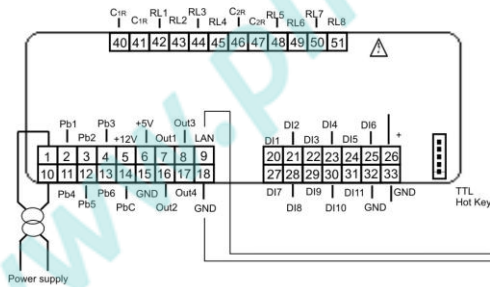


	1	2	3	4
Adr. 0	OFF	OFF	OFF	OFF
Adr. 1	ON	OFF	OFF	OFF
Adr. 2	OFF	ON	OFF	OFF
Adr. 3	ON	ON	OFF	OFF
Adr. 4	OFF	OFF	ON	OFF
Adr. 5	ON	OFF	ON	OFF
Adr. 6	OFF	ON	ON	OFF
Adr. 7	ON	ON	ON	OFF
Adr. 8	OFF	OFF	OFF	ON
Adr. 9	ON	OFF	OFF	ON
Adr. 10	OFF	ON	OFF	ON
Adr. 11	ON	ON	OFF	ON
Adr. 12	OFF	OFF	ON	ON
Adr. 13	ON	OFF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



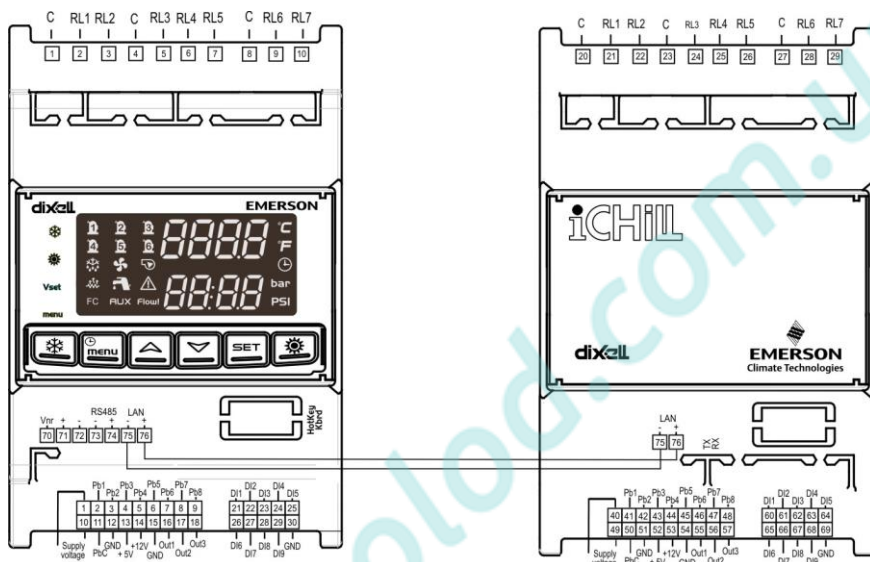
Not used

## 6.1 CONNECTION DIAGRAM WITH IC206CX o IC208CX





## 6.2 CONNECTION DIAGRAM TO CONNECT IC205D OR IC207D.



## 7 ELECTRICAL CONNECTIONS

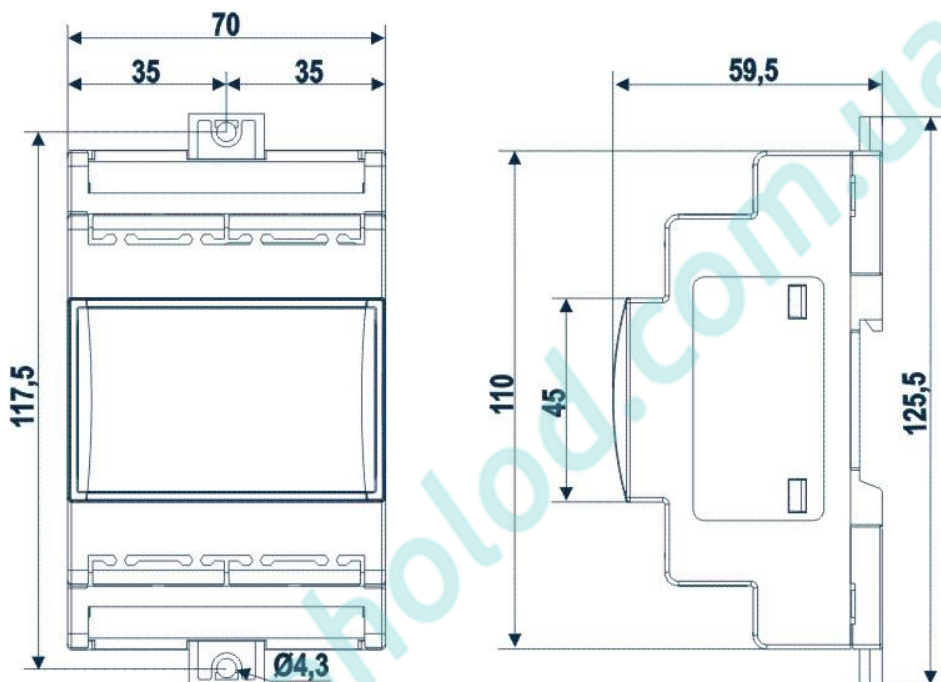
The wiring connections for power, sensor, analog outputs and digital inputs have to be ordered separately from the device; following two available models:

DWDEX15-KIT 1.5 mt

DWDEX30-KIT 3 mt.

Connectors for relay connections, remote keypad, the evening RS485 and LAN are provided with the device.

## 8 MECHANICAL CHARACTERISTIC



<b>Mount:</b>	DIN rail (EN 50022, DIN 43880)
<b>Material:</b>	PC-ABS Thermoplastic
<b>Self-extinguishing:</b>	V0 (UL94)
<b>Comparative Tracking Index (CTI):</b>	300V
<b>Colour:</b>	Black
<b>IP protection:</b>	IP10

## 9 TECHNICAL SPECIFICATIONS

### 9.1 SUPPLY VOLTAGE

<b>Power Supply:</b>	12Vac/dc -10% ÷ 15%, 50/60Hz, or 24Vac/dc -10% ÷ 10%, 50/60Hz
<b>Consumption:</b>	Max. 10VA
<b>Connectors:</b>	Molex connectors for power supply, probes connection, digital inputs, analog outputs) STELVIO screw connectors for LAN connection STELVIO screw connectors for relay

### 9.2 ANALOGUE INPUTS


<b>Number of inputs:</b>	5 (NTC, PTC, Digital Input) 3 (NTC, PTC, 4..20mA, 0..5V, Digital Input)
<b>Type of analogue input:</b> (configurable via software parameter)	NTC (-50T110°C; 10KΩ±1% a 25°C) PTC (-50T150°C; 990Ω±1% a 25°C) Rathimetric: 0.5..4.5V Current: 4..20mA Digital input (free contact, don't supply voltage)
<b>Operation range:</b>	-50°C ÷ 110°C (-58 °F ÷ 230°F) NTC probe -50°C ÷ 150°C (-58 °F ÷ 302°F) PTC probe 0 bar ÷ 50 bar (0 psi ÷ 302 psi) pressure probe
<b>Resolution:</b>	0.1 °C 1 °F 0.1 bar 1 psi

### 9.3 DIGITAL INPUT


<b>Type:</b> (configurable via software parameter)	Free contact not opto-insulated
<b>Number of inputs:</b>	9
<b>Notes:</b>	Don't supply voltage to the digital inputs in order to not cause damage to the instrument



### 9.4 ANALOGUE OUTPUTS



<b>Type:</b>	Non opto-insulated, internal power
<b>Number of outputs:</b>	3
<b>Type of analogue output:</b> (configurable via software parameter)	3 configurable outputs: - OUT1: 0-10Vdc - OUT2 and OUT3: <ul style="list-style-type: none"> <li>• 0-10Vdc</li> <li>• 4-20mA</li> <li>• PWM (to use with Dixell XV serie)</li> </ul>
<b>Maximum load:</b>	40mA (Out1..Out4)
<b>Accuracy:</b>	Out1..Out3: $\pm 2\%$ full scale
<b>Note:</b> 	The electrical devices controlled by these analogue outputs must be powered separately with another transformer (do not use the same secondary of the controller's power) in order to prevent the outputs from malfunctioning or being damaged.

## 9.5 DIGITAL OUTPUTS

<b>Type:</b>	Relays with NO contacts
<b>Number of outputs:</b>	5: IC205D model 7: IC207D model
<b>Maximum load:</b>	5A(250Vac) SPST 5(2)A
<b>Note:</b> 	Verify maximum current of the loads and maximum current of the common line of the relay (10A max). There is double insulation between the digital outputs and the low voltage of the rest of the circuit. Do not use different voltages for the various groups of relays nor within each group.

## 9.6 OPERATING AND STORAGE TEMPERATURE

<b>Operating temperature:</b>	-10°C ÷ 55°C
<b>Storage temperature:</b>	-30°C ÷ 85°C
<b>Operating humidity:</b>	20% ÷ 85% (not condensing)

**Dixell S.r.l.** - Z.I. Via dell'Industria, 27 - 32010 Pieve d'Alpago (BL) ITALY  
 Tel. +39.0437.9833 r.a. - Fax +39.0437.989313 - EmersonClimate.com/Dixell - dixell@emerson.com