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Before installing the *XV300K* regulator read the manual and follow the all instructions carefully.

In compliance with European regulations and the EMC rules and regulations we repeat that the *XV300K* regulator is designed to be installed inside a machine or a standard electrical cabinet and is therefore considered a component. The installer must guarantee that the machine conforms to such regulations. The manufacturer reserves the right to make technical modifications in order to improve the quality and features of their products at any time.

## **1 PRELIMINARY CHECK – GUARANTEE – RECYCLING**

Before installing the *XV300K* regulator check to make sure it has not been damaged during transport and that it corresponds to the model which was ordered, verifying that the technical specifications printed on the label correspond to those on the order form (see page coding).

The regulator is guaranteed for up to 12 months on delivery. The guarantee covers production defects which are NOT attributable to goods which have been incorrectly used or tampered with in any way. Any defects due to shipping must be indicated to the shipping company according to the norms of the law. The symbol on the equipment indicates that it should not be considered household refuse and should be transferred to the appropriate point for recycling electrical and electronic equipment.

## **2 XV300K – SPECIFICATIONS OF USE**

The *XV300K* electrical voltage regulator is designed to control **fans speed** in systems of refrigeration and heating. It is based on the principle of symmetrical phase partialisation. **It is suitable only for adjustable voltage motors.** *XV300K* functions as a simple 3-phase voltage regulator where the command signal is provided by a remote control (from other devices) or by using a potentiometer.

### 3 CODES - MODELS

Position	1	2	3	4	5	6	7	8
Code example	<b>XV3</b>	<b>12</b>	<b>K</b>	<b>7</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>

Position	Description	
1	Regulator mode	XV3 = three phase slave regulator (XV300K family)
2	Nominal current	08 = 8A; 12 = 12A; 20=20A; 28=28A; 40 = 40A
3	Case	K = boxed
4	Power supply	7 = 400Vac, 50/60Hz
5	Type command	0 = SLAVE version
6	IP degree	0 = IP20; 1= IP55
7	---	0 = not used
8	---	0 = not used

Model	Max Power (kVA)	Nominal current (A)	Max current (A) **	Power dissipation (W)
<b>XV308K</b>	5,5	8	12	30
<b>XV312K</b>	8	12	23	60
<b>XV320K</b>	13	20	30	80
<b>XV328K</b>	19	28	50	120
<b>XV340K</b>	26	40	70	155

The data above are related to operate at 400Vac, 50Hz.

\*\* Max current value refers to an environment temperature of 50°C, 122°F for a maximum time of 10 second every 5 minutes.

### 4 TECHNICAL SPECIFICATIONS

POWER SUPPLY	400 Vac, +10% / -15%
FREQUENCY	50/60Hz with automatic synchronization
VOLTAGE POWER OUT	30..99% of power supply (depends on the motor and the software version)
COMMAND SIGNALS	0..10Vac, 4..20mA, pwm square wave with variable duty cycle amplitude 5 or 10Vdc
DIGITAL OUTPUTS	Emergency relay (1A, 250Vac; 3A, 30Vdc). <b>Not for XV308K.</b>
ANALOG OUTPUT	10Vdc (max load 50mA)
OPERATING TEMPERATURE	[-10°C/50°C] [14°F/122°F] (-20°C; -4°F when the power is maintained)
STORAGE TEMPERATURE	[-20°C/80°C] [-4°F/176°F]
MAX TEMPERATURE	75°C; 167°F
PROTECTION GRADE	Self-extinguishing plastic cover with IP55 at 120°C. Pollution grade 3. Metallic cover with IP20 on request.
ELECTRIC CLASSIFICATION	Class II at the command inputs (insulation of 4kV between commands block and the device supplied parts). Class I as regards the accessible parts.
PROTECTIONS	Phase lost, inside overheating. <u>WARNING: the regulator restores automatically</u> Protection against power surges Class II
ACTION-DISCONNECTION SOFTWARE CLASS	Type 1(Y). Residual motor current < 15mA Class A
ELECTRICAL CONNECTION NORMS	For XV308K, XV312K, XV320K, XV328K and XV340K: class X.

## 5 STANDARD REFERENCES

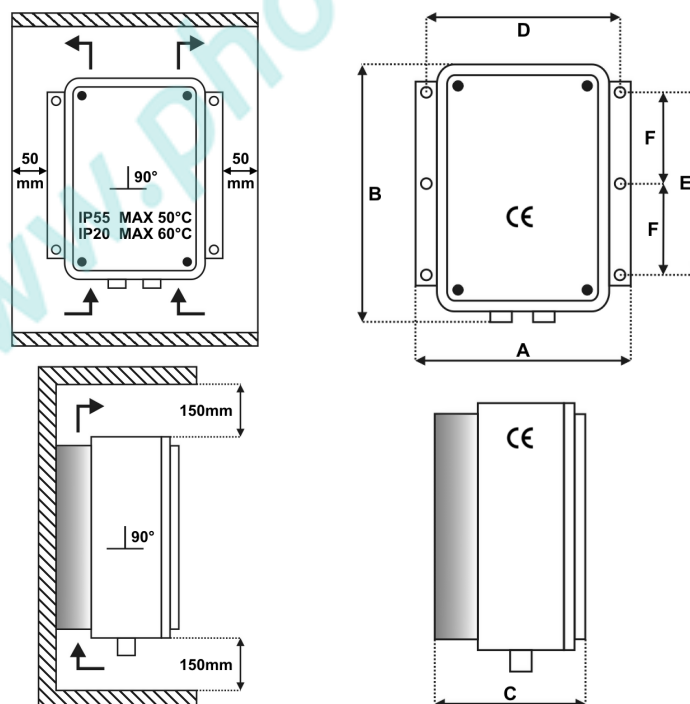
According to safety directive 2006/95CE, reference standard **EN60730-1**. According to EMC 89/336 reference standard EN 61800-3. With refer to some typical applications, the XV308K, XV312K and XV320K regulators are suitable for residential and commercial ambient, while the XV328K and XV340K regulators are suitable for industrial ambient. XV300K regulators are designed to be installed inside a machine or a standard electrical cabinet and are therefore considered a component. The installer must guarantee that the machine conforms to such regulations.

**WARNING:** this control does not contain current harmonics filter and it may cause interference, in which case the user may be required to take adequate measures with refer at **EN 61000-2-4** and **EN 61000-3-12**.

## 6 MECHANICAL INSTALLATION

The *XV300K* regulator must be mounted to walls vertically, in order to guarantee adequate dispersion of heat in the heatsink. Avoid positioning it near heat sources and keep out of direct sunlight. The regulator has covering IP55 but must be protected from sprays of water, oil, corrosive liquids, deposits of metallic dust and gas. Make sure also that it is not exposed to vibrations. Set the regulator in a ventilated place to let the heat come out.

Model	Weight (kg)	Dimensions (mm)			Fixing screw (mm)			
		A	B	C	D	E	F	Ø
<b>XV308K</b>	2,5	230	165	150	215	90	/	M4
<b>XV312K</b>	4	230	265	165	215	200	/	M4
<b>XV320K</b>	4,8	230	265	230 165	220	200	/	M4
<b>XV328K</b>	7	340	270	235	322	165	/	M5
<b>XV340K</b>	9	340	270	235	322	165	/	M5



## 7 ELECTRICAL INSTALLATIONS

Connect the power wires and ground to the appropriate regulator terminals. Custom Controls with ground conductor section less 10mmq require double earthing connection obtainable through the grounding of the aluminum heatsink.

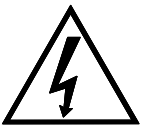
To avoid dispersion currents, the motor earth cable must be connected to the appropriate motor terminal ground.

We recommend to connect to the machine's safety circuit any thermal motor klixon in order to remove the control power supply and protect the motor with maximum efficiency.

If the length of the motor cable exceeds 5 metres, we advise to use shielded cable. The control load can consist of several engines provided the sum of the rated currents of the motors is less than 20% of the rated current of the control. We recommend not introduce any electromechanical device on the motor cable. If the control cable length exceeds 2 metres, use shielded cable, connecting the shield only on the regulator. Ensure that the control 0 volt is not connected to earth.

If the length of the power, motor and control cables exceeds 10m, make sure they are separated by at least 0.3 metres to avoid creating a coupling effect.

If controls are set up in environment subject to electromagnetic disturbance, they should be housed inside a suitable metallic enclosure. In order to prevent the formation of condensation and regular working also cold temperature it is recommended you insure a constant power supply, avoiding turning it off continually.



All connections wires must resist to an 80°C working temperature.

Avoid routing any electric wires near the copper coils on the filter, use the suitable plastic support! Tighten all wires on control and power terminal boards fully down, avoiding protrusion of the multi-stranded wire.

Do NOT touch the electronic equipment when the power line is on!

During voltage insulation tests disconnect the regulator power lines In/Out.

Use a true RMS tester to measure the current or voltage values.




In the event that regulator operation failure could cause damage to objects or physical injury, it is the responsibility of the installer to add devices or systems that protect against, or warn of, control failure.

To protect the power line and the regulator, the installation technician must install **extra-rapid semiconductor fuses upstream of the power supply adequate for the load and with a value of I<sup>2</sup>t less than the value given in the table below**. If a differential circuit breaker is installed, it must be of the delayed action type.

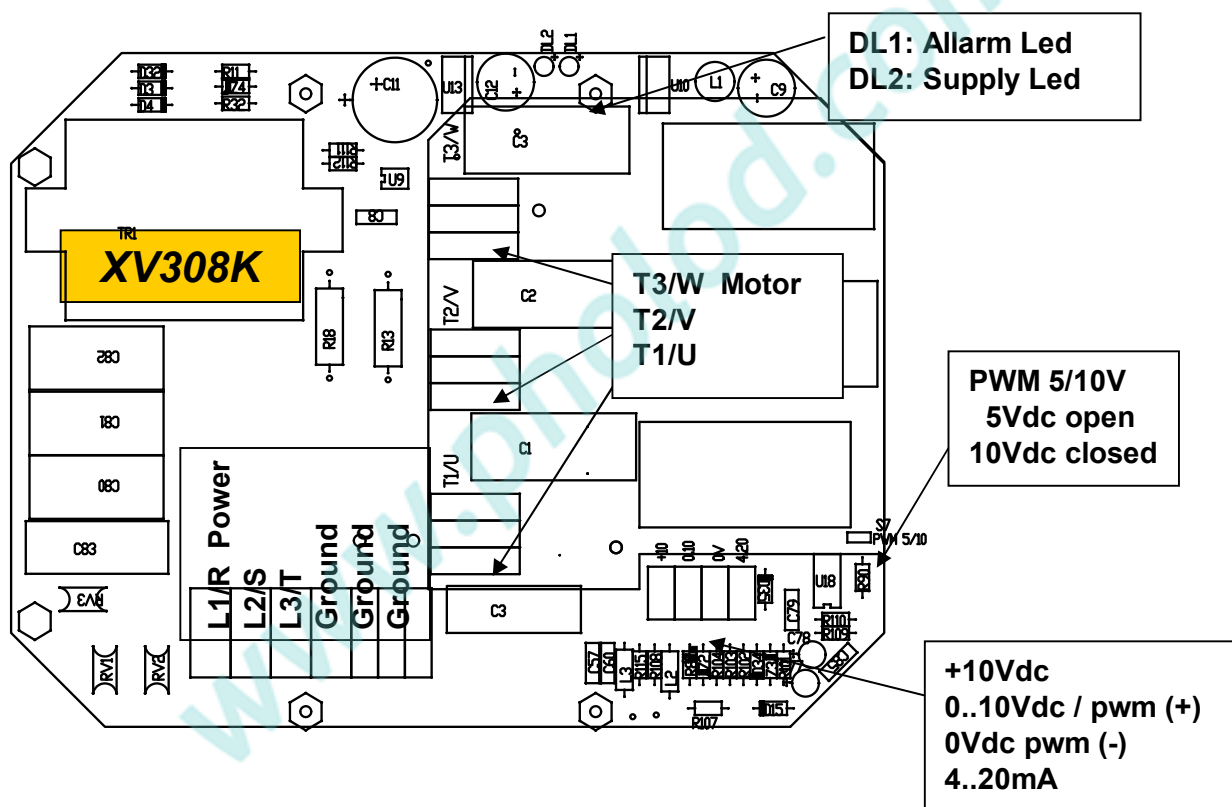
	XV308K	XV312K	XV320K	XV328K	XV340K
<b>Section power cables (mm<sup>2</sup>)</b>	1.5 / 2.5	2.5	2.5 / 4	6	10
<b>Section control cable (mm<sup>2</sup>)</b>	0.2 to 1.5				
<b>Line fuse (A)</b>	10 / 16	16 / 20	25	35	50
<b>Extrarapid fuse (A)</b>	16	25	32	50	63
<b>I<sup>2</sup>t (A<sup>2</sup>S) max energy c.c.</b>	610	720	720	8000	15000

To connect wiring to the spring terminals, apply leverage with a screwdriver on the lever or on the upper hole to open the terminal.

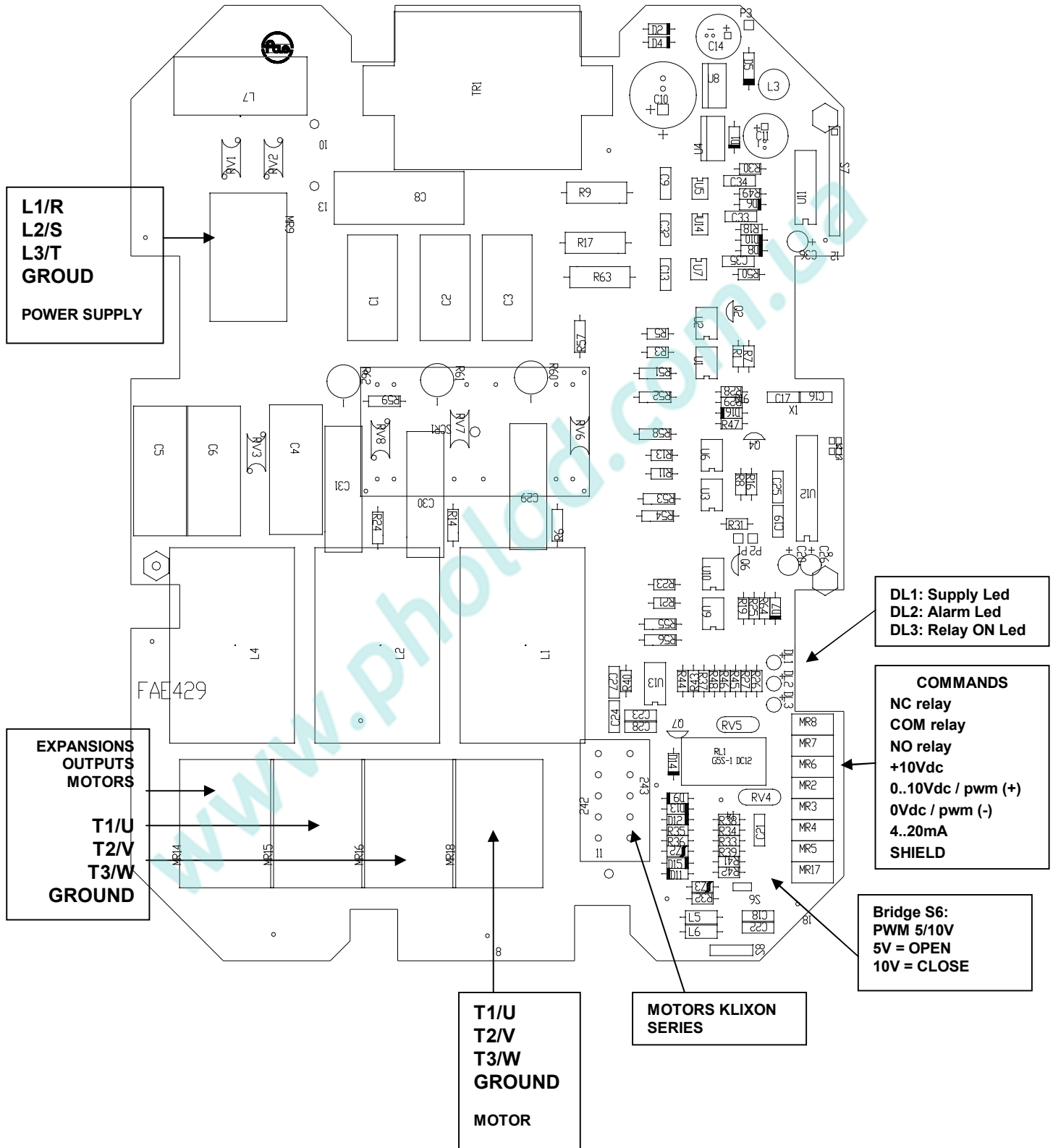
## 8 COMMAND TERMINALS

Terminal	Function	Description
NC	Relay* contact	Normally closed
C	Relay* contact	Common ( 1A-250Vac / 3A-30Vdc)
NO	Relay* contact	Normally open
+10Vdc	Available supply	Potentiometer power source (max 50mA)
0..10	Analog input 1	0..10Vdc reference (impedance 10kohm) and pwm (+)
0V	Signal ground	Ground for reference and pwm (-)
4..20	Analog input 2	4..20mA reference (impedance 100ohm)
	Ground connection	Ground for command shielding

\* XV308K doesn't contain relay.



# XV312-320K



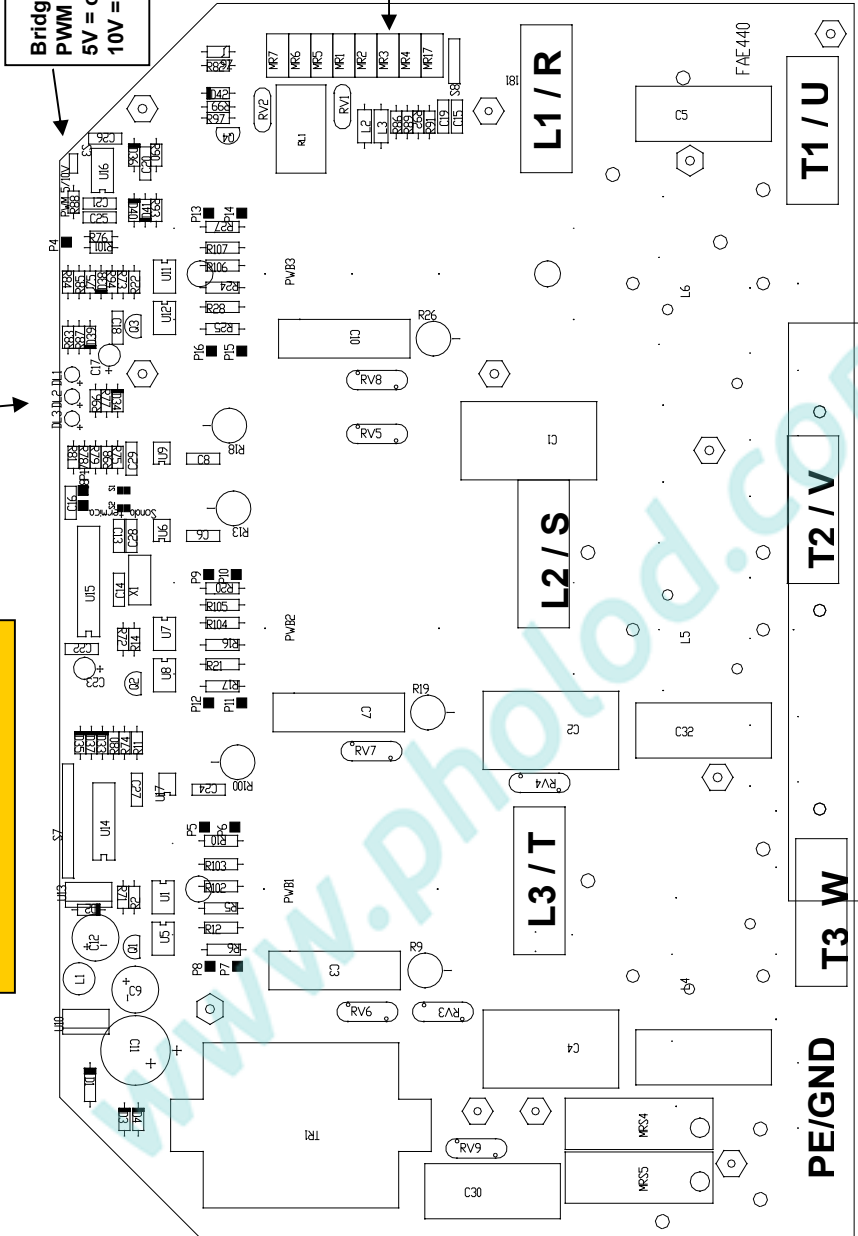


# XV328-340K

DL1: Led Relay ON  
DL2: Led Alarm  
DL3: Led Power supply

Bridge S3:  
PWM 5/10V  
5V = open  
10V = closed

**COMMANDS**  
 NC relay  
 COM relay  
 NO relay  
 +10Vdc  
 0..10Vdc / pwm (+)  
 0Vdc / pwm (-)  
 4..20 mA  
 SHIELD



MR47	MR11	MR24	MR27	MR65
MR48	MR25	MR25	MR28	MR64
MR49	MR36	MR32	MR29	MR46
MR50	MR37	MR33	MR30	MR45
MR51	MR38	MR34	MR31	MR44
MR52	MR63	MR62	MR59	MR43
MR53	MR61	MR60	MR57	MR17
MR54	MR7	MR23	MR55	MR19
MR55	MR7	MR2	MR56	MR39
MR56	MR8	MR12	MR18	MR40
MR66	MR9	MR14	MR20	MR41
MR67	MR10	MR15	MR21	MR42
MR68			MR22	

**GND**    **T3/w**    **T2/V**    **T1/U**    **KLIXON**  
**EXPANSIONS OUTPUTS MOTORS**

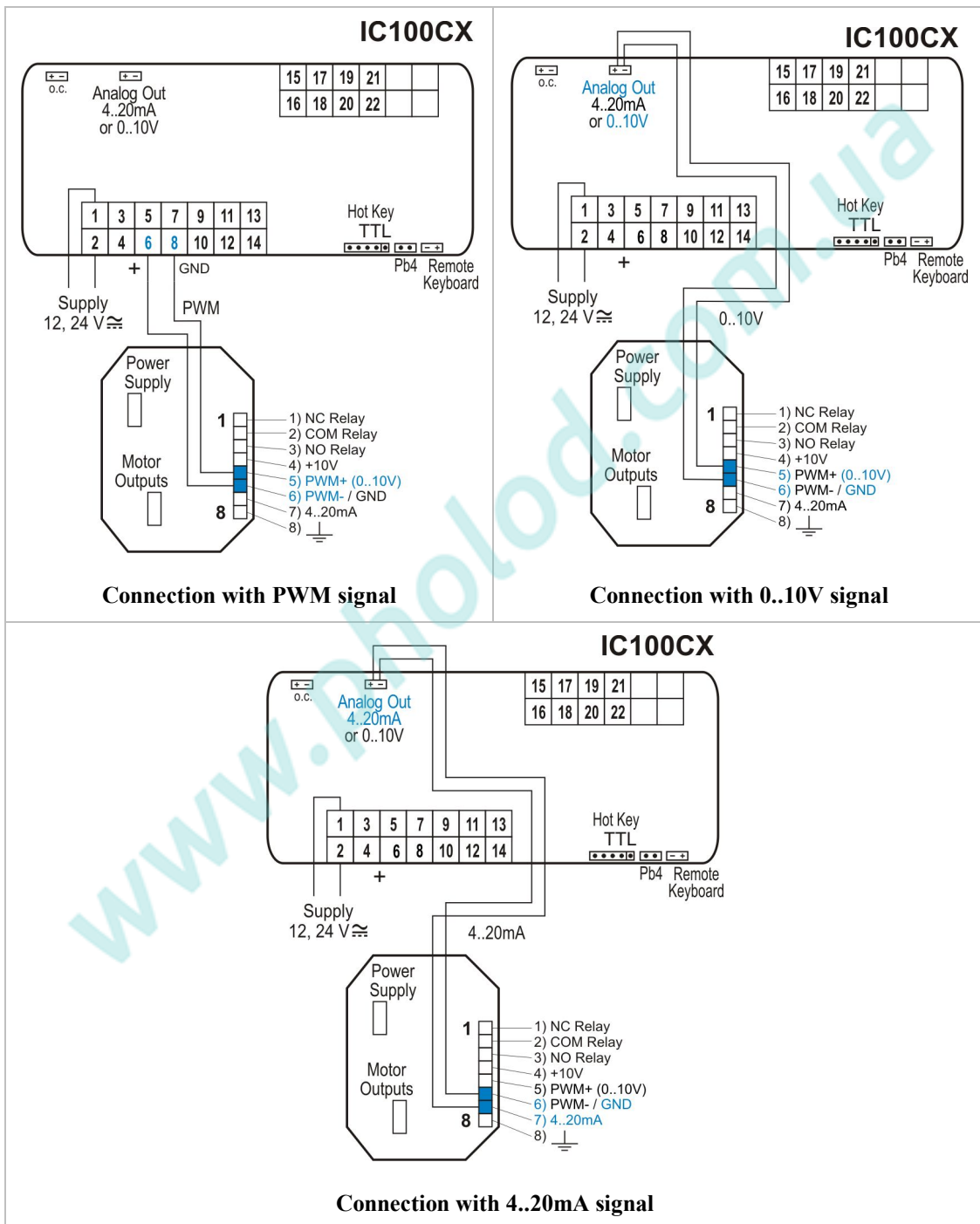
## 9 TYPICAL CONNECTIONS BETWEEN DIXELL INSTRUMENTS AND XV300K

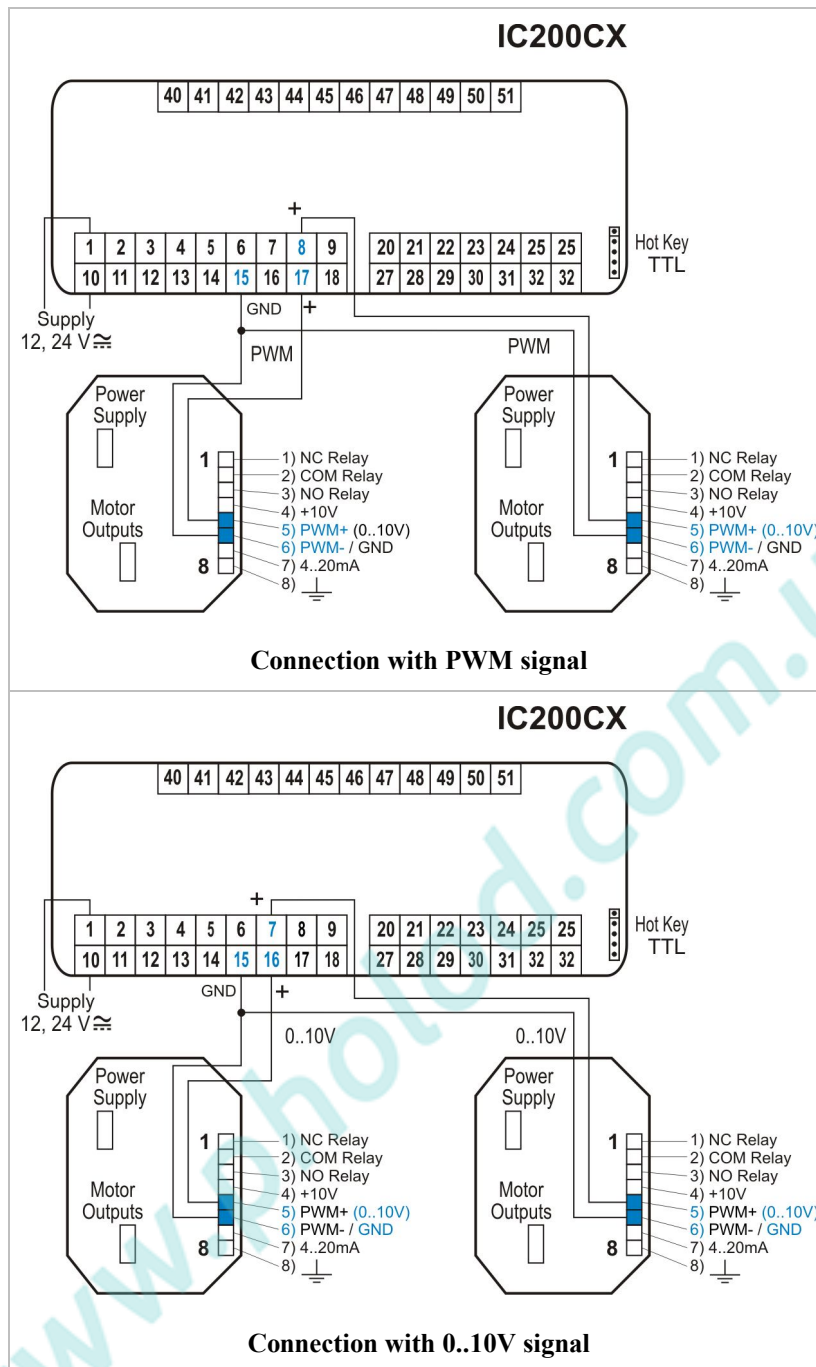
Please read carefully the operative manuals (downloadables from Dixell website) of the following described Dixell devices in order to have further information about parameters programming.

**NOTE: please pay attention to the wirings!!**

### 9.1 iCHILL family

If you are using a controller of the iCHILL family such as the IC110CX, the IC111CX, the IC120CX or the IC121CX, the connections can use also a PWM, a 0..10V or a 4..20mA signal command. Pay attention to the connection polarity.

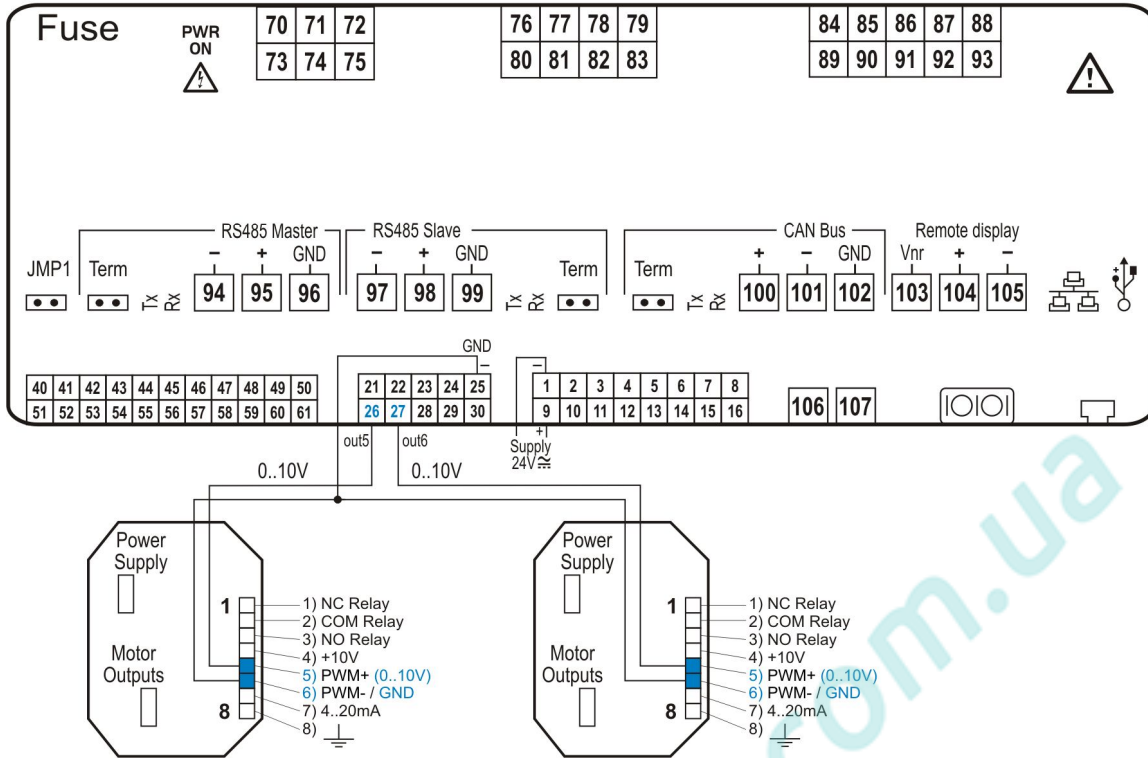




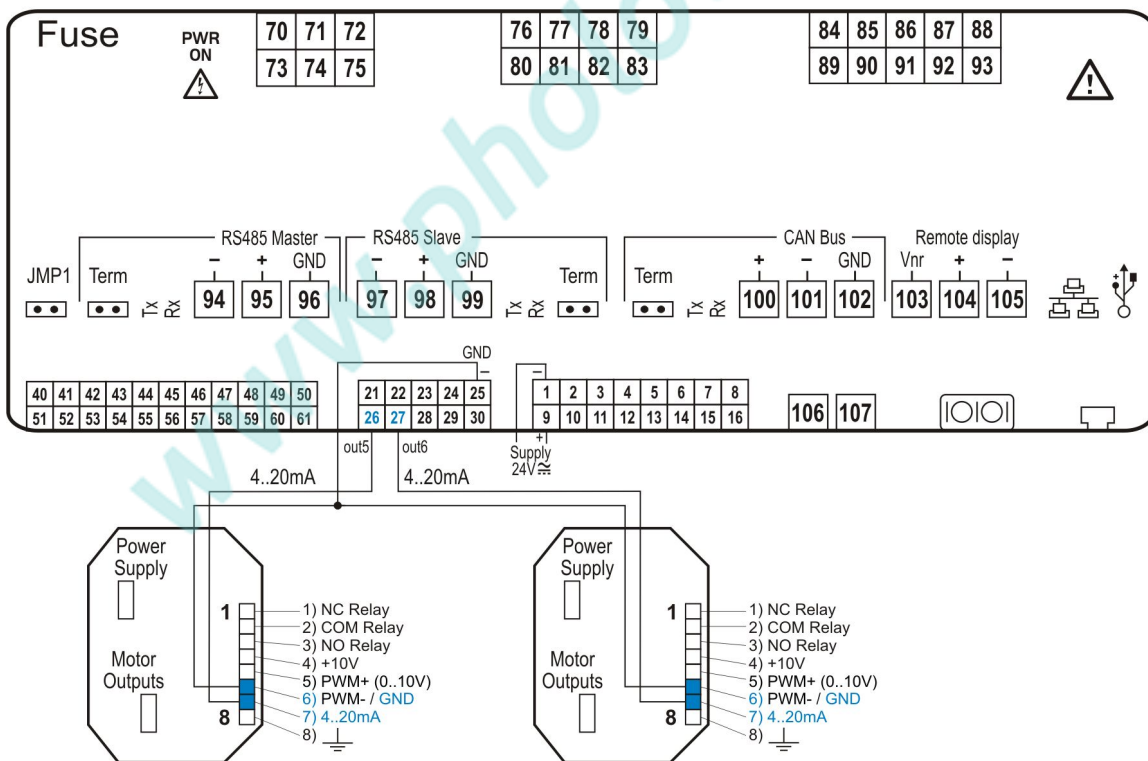
## 9.2 iPRO family

If you are using a controller of the IPRO series, it is possible to use a 4..20mA or a 0..10VDC signal command.

**NOTE: it is not possible to use the PWM signal command when an iPRO device is used.**



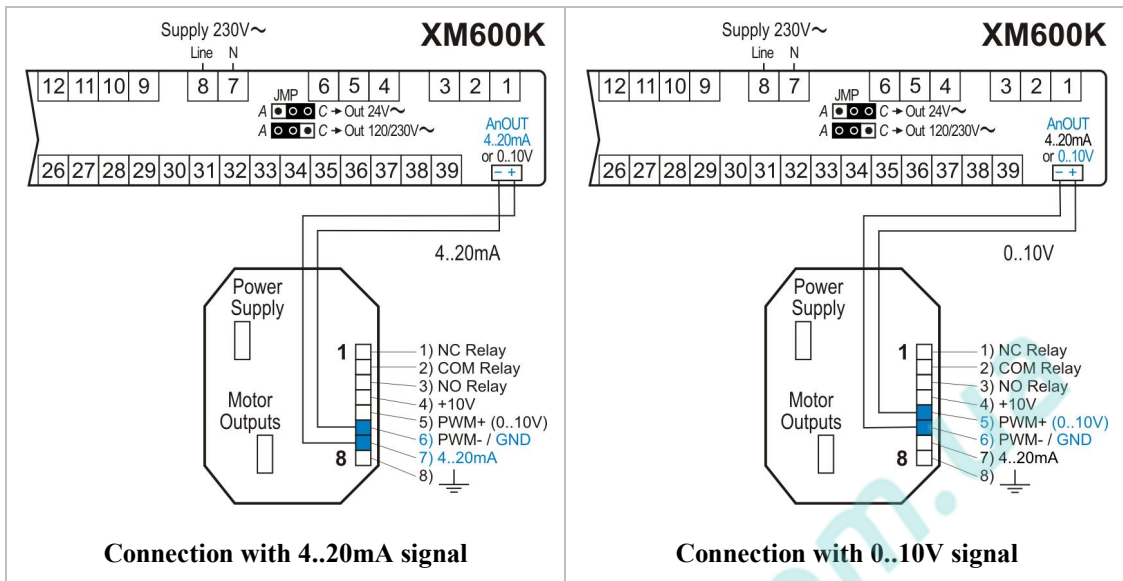
Connection with 0..10V signal



Connection with 4..20mA signal

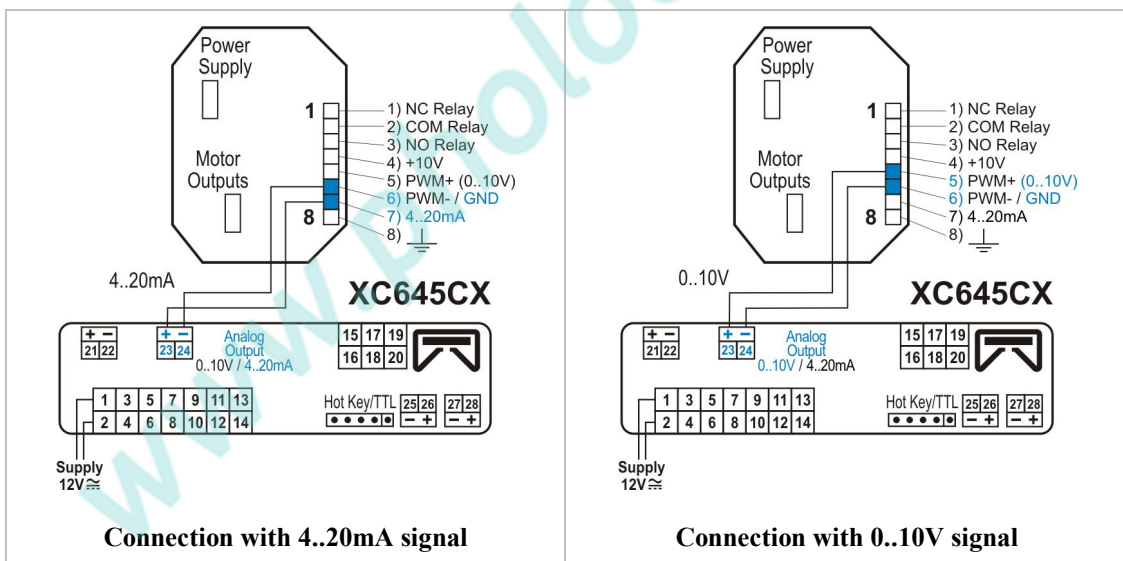
### 9.3 XM600K family

In this case it is possible to use both 4..20mA or 0..10V signal command to control a XV300K. Follows an example of such connections:



### 9.4 XC645CX

In this case it is possible to use both 4..20mA or 0..10V signal command to control a XV300K. Follows an example of such connections:



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