

STEPPER VALVE ACTUATOR QUICK REFERENCE GUIDE

XEV20D

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1. GENERAL WARNINGS

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.

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.
- Fit the probe where it is not accessible by the End User. The instrument must not be opened.
- In case of failure or faulty operation send the instrument back to the distributor or to "Dixell S.p.A." (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.
- In case of applications in industrial environments, the use of mains filters (our mod. FT1) in parallel with inductive loads could be useful.

2. GENERAL DESCRIPTION

XEV20D is a stepper valve actuator intended either for **bipolar** stepper valves or **unipolar** stepper valves. This device has been thought to be used with **ISaGRAF®** environment and with programmable devices of **iPRO series** or in combination with instruments of **i-CHILL 200CX series**.

The maximum configuration of hardware is equipped with:

- 2 configurable valve outputs to drive bipolar or unipolar valves;
- Pb1/Pb2 configurable analog inputs: NTC/PTC/Pt1000;
- Pb3/Pb4 configurable analog inputs: 4..20mA/0..5V/Pt1000;
- CAN Bus serial line;
- LAN to communicate with instrument of the same series or devices of i-CHILL200CX series

3. ABSOLUTE MAXIMUM POWER

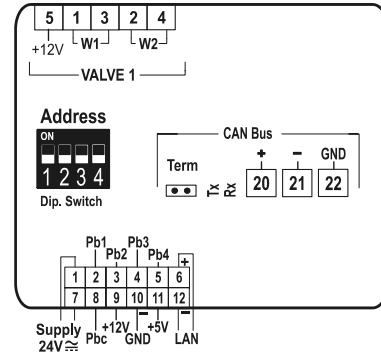
XEV20D is able to drive a wide range of stepper valves, in the following table are indicated the maximum values of current that the actuator can supply to the stepper wiring. Select the correct transformer depending on application seeing the following table, for each kind of driving and functioning is reported the **dixell** transformer to use.

NOTE: the electrical power absorption of the valve can be unrelated to refrigeration power that valve has. Before using the actuator, please read the technical manual of the valve supplied by the manufacturer and check the maximum current used to drive the valve in order to verify that they are lower than those indicated below.

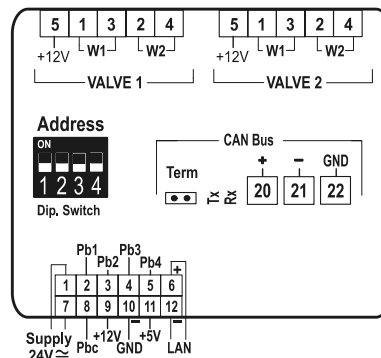
VALVE TYPE	DRIVING MODE	CONFIGURATION	
		ONE VALVE	TWO VALVES
		Full step	Full step
BIPOLAR VALVES (4 wires)		Current 0.9A max → TF20D	Current 0.9A max for each valve → TF40D
	UNIPOLAR VALVES (5-6 wires)	Current 0.33A max → TF20D	Current 0.33A max for each valve → TF20D

4. WIRING DIAGRAM

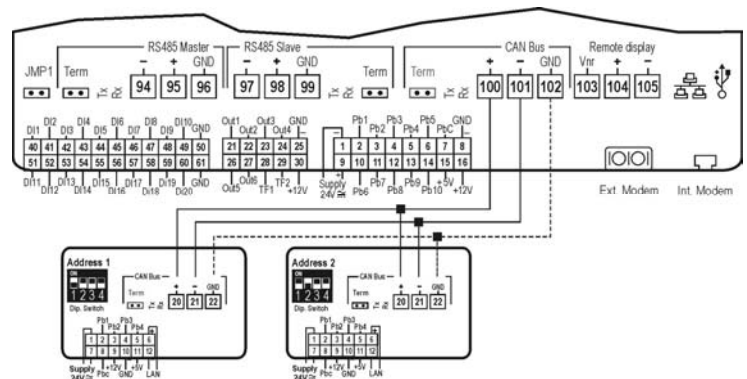
4.1 ONE VALVE CONFIGURATION



4.2 TWO VALVES CONFIGURATION



4.3 IPRO CONNECTIONS



5. VALVE CONNECTIONS

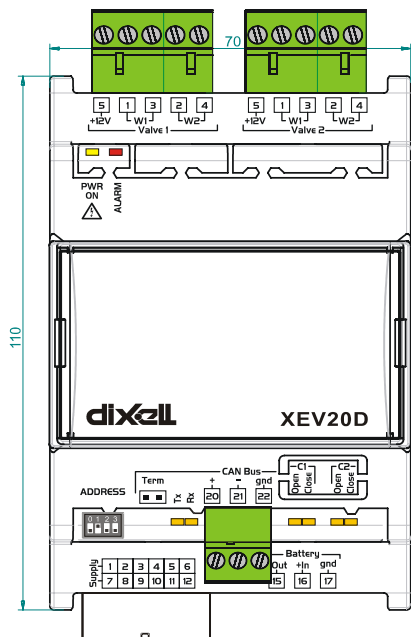
Pay attention to the following table to have a quick reference on the connection mode for valves of different manufacturer:

4 WIRES VALVES (BIPOLAR)

Connection numbering	ALCO EX*	ALCO EX5/6	SPORLAN SEI-SHE	DANFOSS ETS
4	WHITE	BLUE	WHITE	BLACK
2	YELLOW	BROWN	BLACK	WHITE
3	BROWN	BLACK	RED	RED
1	GREEN	WHITE	GREEN	GREEN
5 - Common	---	---	---	---

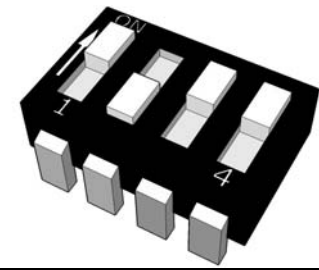
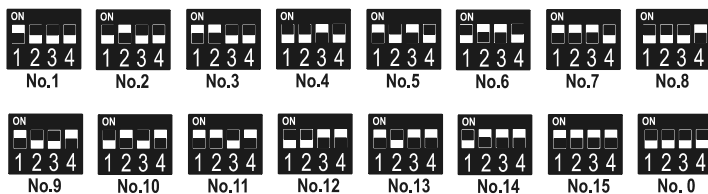
5-6 WIRES VALVES (UNIPOLAR)

Connection numbering	SPORLAN	SAGINOMIYA
4	ORANGE	ORANGE
2	RED	RED
3	YELLOW	YELLOW
1	BLACK	BLACK
5 - Comune	GRAY	GRAY



6. SERIAL LINE -- CAN BUS

The device can communicate through CAN Bus serial line only when a correct address is set. The addressing is made through the dip-switch called **Address** as you can see in the following drawing:



The address is set in binary mode. Every selector has a different weight, in figure nearby the address is:

- 1 x 1 = 1
- 2 x 0 = 0
- 4 x 1 = 4
- 8 x 1 = 8
- 1+4+8=13

The following table has to be used to configure ISaGRAF lines to connect the valve actuator.

LINE	GEN_LINE	GEN_AO	GEN_AO	GEN_AO	GEN_AI	GEN_DI
numero canali		4	2	7	4	3
line_number	CAN BUS Number	CAN BUS Number	CAN BUS Number	CAN BUS Number	CAN BUS Number	CAN BUS Number
name	CAN					
par_1	CAN BUS Number	CAN BUS Number	CAN BUS Number	CAN BUS Number	CAN BUS Number	CAN BUS Number
par_2	CAN node address	16	17	26	1	31
par_3	10					
I/O 1		EEV_Step sOutput valve1	EEV_OutR ate Valve 1	EEV_Prob eTConfigur ation Valve1	EEV_Te mperatur e Valve 1	EEV_Val vePositi on Valve1
I/O 2		EEV_Step sOutput valve2	EEV_OutR ate Valve 2	EEV_Prob eTConfigur ation Valve2	EEV_Te mperatur e Valve 2	EEV_Val vePositi on Valve2
I/O 3		EEV_OutM axsteps valve1		EEV_Prob ePConfigur ation Valve1	EEV_Pr essure Valve 1	
I/O 4		EEV_OutM axsteps		EEV_Prob ePConfigur	EEV_Pr essure	

	valve2	ation Valve2	Valve 2
I/O 5		EEV_OutP haseCurre nt Valve1	
I/O 6		EEV_OutP haseCurre nt Valve2	
I/O 7		EEV_OutV alveConfig uration	
I/O 8			

7. LEDS MEANING

The following table decode the LEDs functioning.

LED	MODE	MEANING
PWR ON	On	The device is correctly powered
ALARM	On	An alarm is present
TX/RX	Blinking	CAN Bus or LAN activity, communication actived
TX/RX	On	No link
OPEN V1	Blinking	Valve 1 is opening
OPEN V1	On	Valve 1 completely opened
CLOSE V1	Blinking	Valve 1 is closing
CLOSE V1	On	Valve 1 completely closed
OPEN V2	Blinking	Valve 2 is opening
OPEN V2	On	Valve 2 completely opened
CLOSE V2	Blinking	Valve 2 is closing
CLOSE V2	On	Valve 2 completely closed

8. TECHNICAL DATA

- Case:** 4 DIN
- Connectors:** disconnectable terminal block ≤ 2,5 mm² for valve ouputs and minifit connector for low voltage section
- Power Supply:** 24Vac/dc **Absorption:** 40VA max.
- Probe inputs:** 2 configurable as NTC/PTC/Pt1000
2 configurable as NTC/PTC/Pt1000/4+20mA/+5V
- Valve ouput/s:** see table at first page of present manual
- Serial connection:** CAN Bus and LAN for iCHILL200CX
- Data storing:** on non volatile memory (EEPROM).
- Kind of action:** 1B; **Pollution grade:** 2; **Software class:** A.;
- Rated impulsive voltage:** 2500V; **Overvoltage Category:** II
- Operating temperature:** -10+60 °C; **Storage temperature:** -30+85 °C.
- Relative humidity:** 20÷85% (no condensing)
- Measuring and regulation range:**
 - PTC probe: -50+150°C
 - NTC probe: -40+110°C
 - Pt1000 probe: -50+100°C
 - Pressare transducer: -1.0 + 50.0 Bar
- Resolution:** 0,1°C oppure 1 °F; **Precisione@ 25°C:** ±0,1 °C ±1 digit

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