

STEPPER VALVE ACTUATOR QUICK REFERENCE GUIDE

XEV20D

CONTENTS

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| CONTENTS | 1 |
| 1. GENERAL WARNINGS | 1 |
| 2. GENERAL DESCRIPTION | 1 |
| 3. ABSOLUTE MAXIMUM POWER | 1 |
| 4. WIRING DIAGRAM | 1 |
| 5. VALVE CONNECTIONS | 1 |
| 6. SERIAL LINE – CAN BUS | 2 |
| 7. LEDS MEANING | 2 |
| 8. TECHNICAL DATA | 2 |

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.
- Dixell Srl reserves the right to change the composition of its products, even without notice, ensuring the same and unchanged functionality.

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.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.
- 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

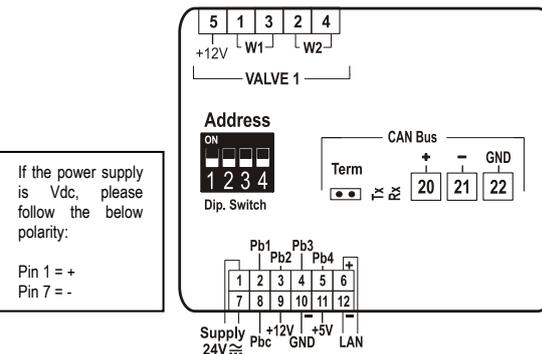
XEV20D is able to drive a wide range of stepper valves, in the following table are indicated the maximum values of current that the actuator can supply to the stepper wiring. Select the correct transformer depending on application seeing the following table, for each kind of driving and functioning is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

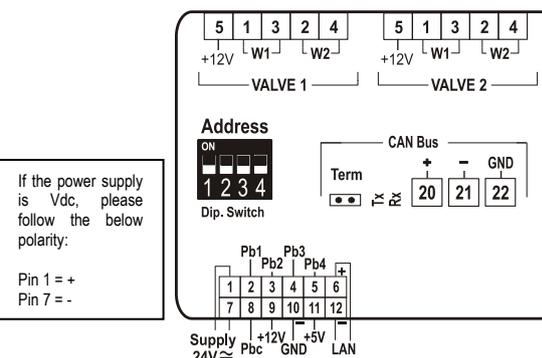
| VALVE TYPE | DRIVING MODE | CONFIGURATION | |
|-----------------------------|------------------------------|--|------------|
| | | ONE VALVE | TWO VALVES |
| | | Full step | Full step |
| BIPOLAR VALVES (4 wires) | Current 0.9A max → TF20D | Current 0.9A max for each valve → TF40D | |
| | Current 0.33A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

4. WIRING DIAGRAM

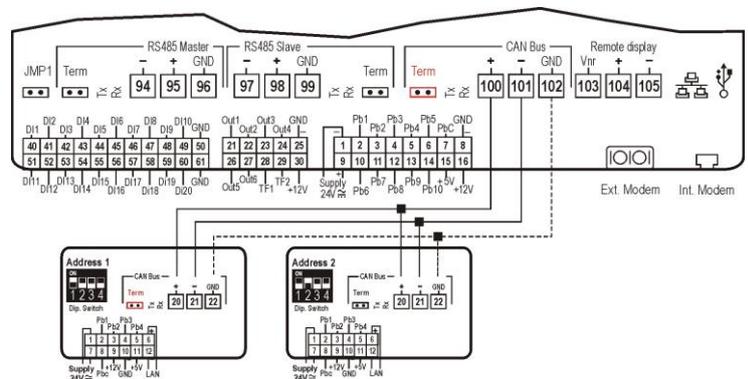
4.1 ONE VALVE CONFIGURATION



4.2 TWO VALVES CONFIGURATION



4.3 IPRO CONNECTIONS



5. VALVE CONNECTIONS

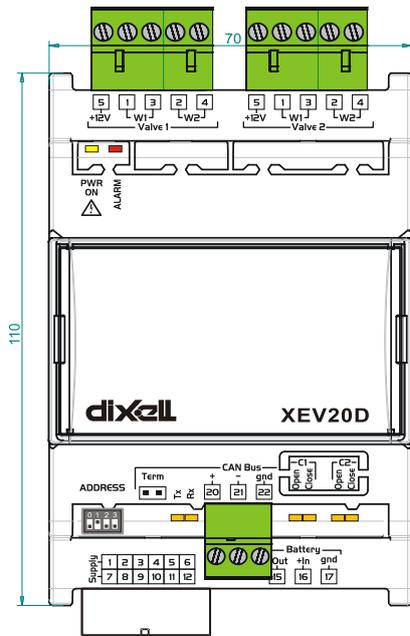
Pay attention to the following table to have a quick reference on the connection mode for valves of different manufacturer:

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 | ---- | ---- | ---- | ---- |

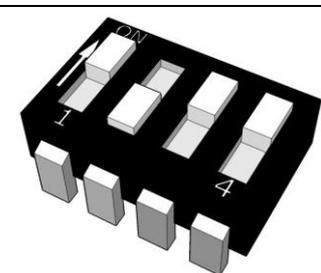
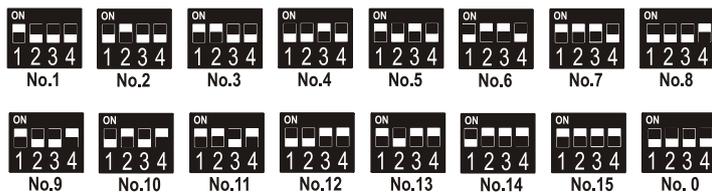
5-6 WIRES VALVES (UNIPOLAR)

| 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_OutRate Valve 1 | EEV_ProbeTConfiguration Valve1 | EEV_Temperature Valve 1 | EEV_ValvePosition Valve1 |
| I/O 2 | | EEV_Step sOutput valve2 | EEV_OutRate Valve 2 | EEV_ProbeTConfiguration Valve2 | EEV_Temperature Valve 2 | EEV_ValvePosition Valve2 |
| I/O 3 | | EEV_OutMaxsteps valve1 | | EEV_ProbePConfiguration Valve1 | EEV_Pressure Valve 1 | |
| I/O 4 | | EEV_OutM | | EEV_Prob | EEV_Pr | |

| | axsteps valve2 | ePConfiguration Valve2 | essure Valve 2 |
|-------|----------------|-----------------------------|----------------|
| I/O 5 | | EEV_OutP haseCurrent Valve1 | |
| I/O 6 | | EEV_OutP haseCurrent Valve2 | |
| I/O 7 | | EEV_OutV alveConfiguration | |
| 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 activated |
| 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 outputs 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 output/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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