

Universal Driver Module EXD-U00 for Electronic Valves EX4 thru EX8

EXD-U00 Universal Driver Module is for driving Emerson stepper motor driven electronic valves series EX4/EX5/EX6/EX7/EX8.

Safety Instructions

- **Read operating instructions thoroughly. Failure to comply can result in device failure, system damage or personal injury.**
- **It is intended for use by persons having the appropriate knowledge and skill.**
- **Switch off all voltages / currents before cabling.**
- **Comply with local electrical regulations when wiring.**
- **Do not operate system before all cable connections are completed.**
- **Do not apply 110/220/230V to any terminal of driver module.**

Setting

Do not apply voltage to the driver before completion of wiring and setting of dip switches. Universal driver needs no setting except configuration by means of dip switches for application of different valve, different analogue input signal and type of start mode (see fig. 1).

Function	Dip Switch Number							
	1	2	3	4	5	6	7	8
EX4/EX5/EX6	0	1	1	0	1	0	-	-
EX7	1	0	0	1	0	1	-	-
EX8	1	1	0	1	1	1	-	-
4-20mA analogue input signal	-	-	-	-	-	-	-	0
0-10V analogue input signal	-	-	-	-	-	-	-	1
With start mode (Fig.3b)	-	-	-	-	-	-	1	-
Without start mode (Fig.3a)	-	-	-	-	-	-	0	-

Installation and Wiring

1. Install electrical control valve in system according to operating instructions of valve. For hot gas bypass applications install the valve as far as possible from discharge valve of compressor. Inlet gas temperature to the valve should not exceed 176°F. Contact Emerson for higher temperatures.

Warning: Install valve with electrical connector in downward position.

2. Install Driver Module and other external electronic devices which need to be connected to driver.
3. Set-up all wire connections as shown in wiring diagram (see Fig. 2).
4. Keep separate the wires for power supply, stepper motor of valve and signal.
5. Recommended wire cross section between 12 AWG and 20 AWG.

Start-up Procedure

- Do not apply voltage to the driver before completion of wiring and setting of dip switches.
- Do not operate the driver and valve when the system is under vacuum or without refrigerant except for closing valve before charging of system.
- Evacuate the entire system.
- **Warning:** The valves are delivered at half open position. Do not charge system before closure of valve in case of expansion valve and hot gas bypass application.
- Apply supply voltage to driver module for the following times without applying digital input signal 24V to terminals of EXD-U00:

Valve	Time, seconds	
EX4/EX5/EX6	Min: 2	Max: 30
EX7/EX8	Min: 6	Max: 30

- After closure of valve, interrupt power supply to driver module and charge the system with refrigerant.
- Start the system and check operating conditions.
- **Valve Synchronisation:** Stepper motor driven valves are synchronized with the reference point in the fully closed position and the controller is reset when the digital input is open. For synchronisation, the digital input must be interrupted for 10 sec, at least once a week.

Technical Data, Power Supply

- Main supply voltage: 24V AC/DC (+10%, -15%), 50-60Hz. Power supply line to driver to be protected by 1.0A external fuse.
- Use a safety class II transformer. Minimum power required 20VA.

Inputs

- 1 analogue input 4-20mA, burden 364W, or 1 analogue input 0-10V, impedance 27kW.
- 1 Digital input: 24VAC/DC (+10%, -15%), 50-60Hz.

Outputs

- 4 current outputs for stepper motor of EX4/EX5/EX6/EX7/EX8.
- Nominal current: 0.5A for EX4/EX5/EX6, 0.75A for EX7 and 0.8A for EX8.
- Maximum cable length: 6 meter AWG20/22.

Wiring Diagram

see Fig. 2

Figure 1

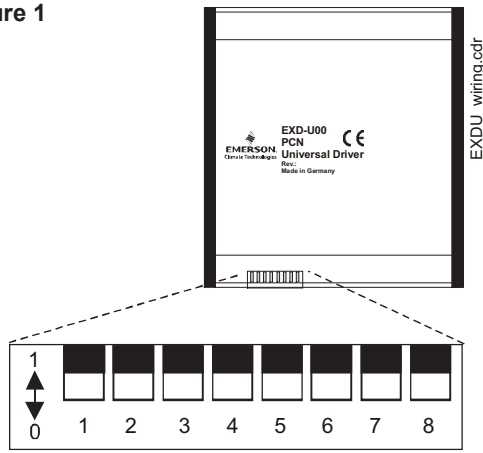


Figure 3A

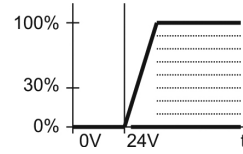


Figure 3B

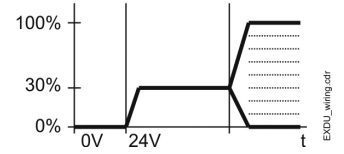
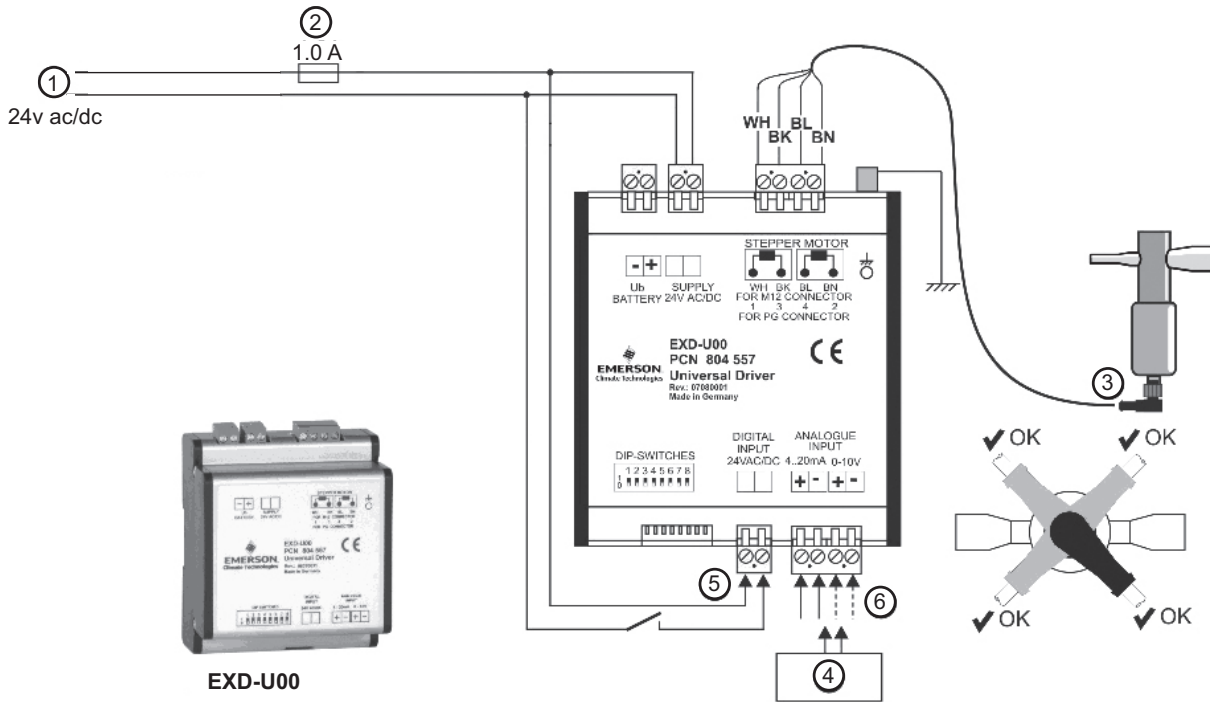


Figure 2



Wiring diagram

- (1) = Power source
- (2) = Fuse
- (3) = Plug cable assembly EX5-Nxx for connection to EX4/EX5/EX6/EX7 and EX8
- (4) = Controller supplies 4...20mA or 0...10V
- (5) = Digital input signal (0V = OFF; 24V = ON)
- (6) = Analogue input signal (4...20mA or 0...10V)

Cable color code

- WH = White
- BK = Black
- BL = Blue
- BN = Brown