

# User Manual: EXV Driver Manual 10.01

Hardware version - 1.3

Firmware version – 5.5

## Revision History

May 24, 2012:

Revision history added to manual

Version numbers added to manual - EXV Driver Manual 10.01

Version numbering of hex file modified - EXDR\_HW1.3\_SW5.5.hex

Added pictures indicating various screens

Modified formatting

### 1. Introduction

Expansion Valve Controller is a low cost solution for positioning and control of bipolar expansion valves, controlled by analog DC voltage.

### 2. Features

- Auto/ Manual mode operation
- Integrated Power backup
- Universal mains supply operation
- Supports a variety of Expansion valves
- Power on/Fuse blown indication

### 3. Installation

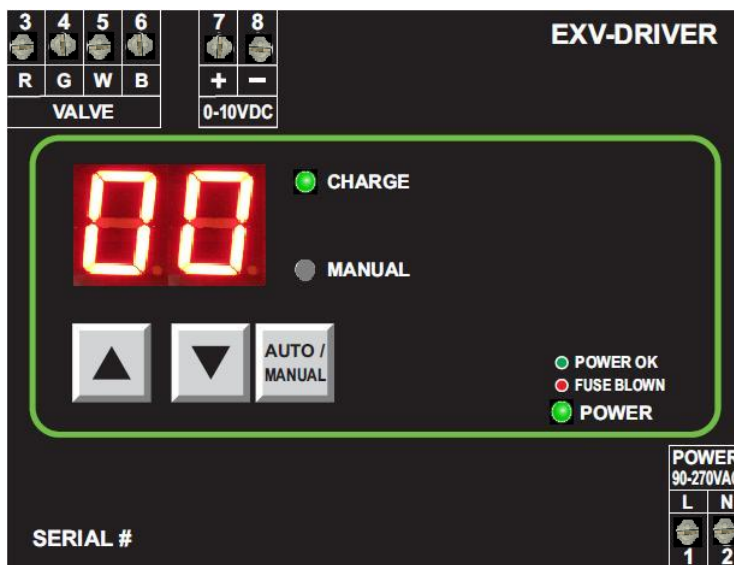
Connect coil terminals of expansion valve to the EXV Driver card

Connect Analog control voltage to the Analog Control Voltage input on the EXV Driver card.

Connect the mains supply on the EXV Driver card.

Switch on the supply and verify if the EXV Driver card is programmed for given expansion valve. (See Configuration mode)

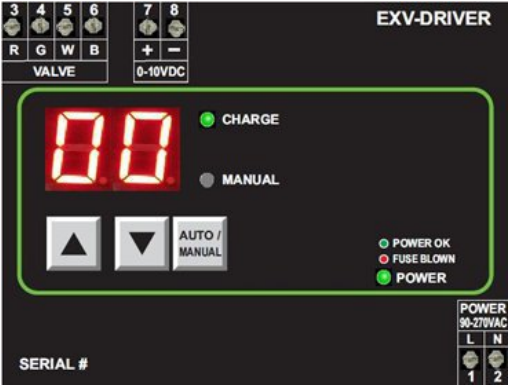
Switch off the mains supply.



Connections on Expansion Valve Driver	Pin No	Function
Power Supply: 110 / 230 VAC	1	Phase
	2	Neutral
Analog Control Voltage: 0-10 VDC	7	Analog Input +
	8	Analog Input -
Expansion Valve	3	Coil A1
	4	Coil A2
	5	Coil B1
	6	Coil B2

**4. Operation**

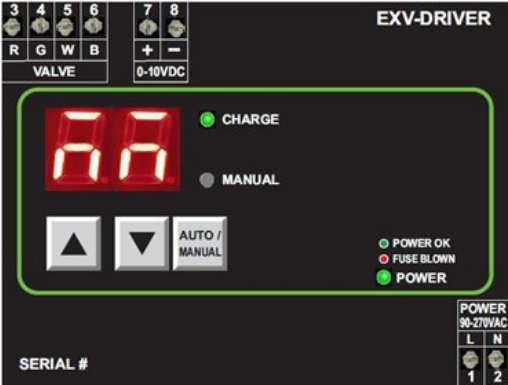
**a. Auto Mode:**



Typical screen for Auto mode

Switch on the mains power supply.  
 The EXV driver defaults to this mode after every powerup.  
 EXV Driver controls the valve position according to the Analog Control Voltage input.

**b. Manual Mode**



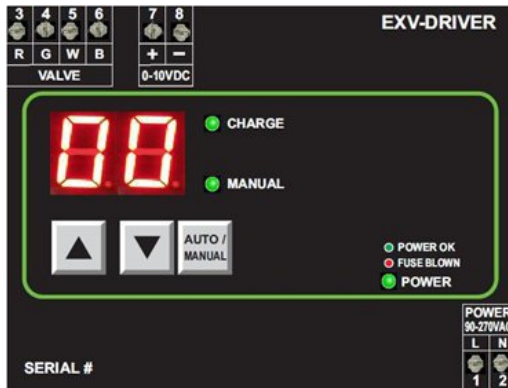
### Manual mode identifier screen

When in Auto mode press “AUTO/MANUAL” key for 5 seconds, the display shows “nn”.

Pressing both keys for 5 seconds shows the password screen, the display shows “PS”.

Use up and down keys to enter password “47” on the display.

Password will be accepted after “47” is displayed and both “UP” and “DN” keys are pressed for 5 seconds.



Typical screen for Manual mode

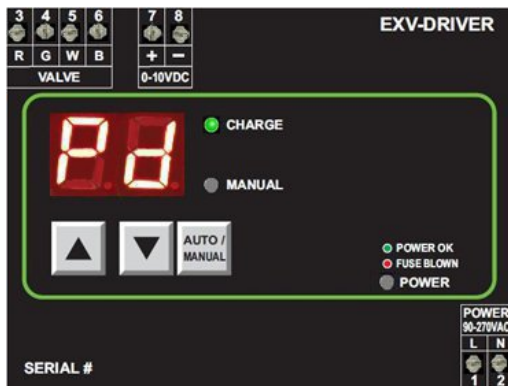
The mode led turns on, indicating the unit is in manual mode.

In this mode the valve position can be controlled by the up and down keys.

The unit switches back to auto mode after remaining idle for 120 seconds.

To exit this mode press “AUTO/MANUAL” key for 5 seconds, the mode led turns off.

### **c. Power down mode**



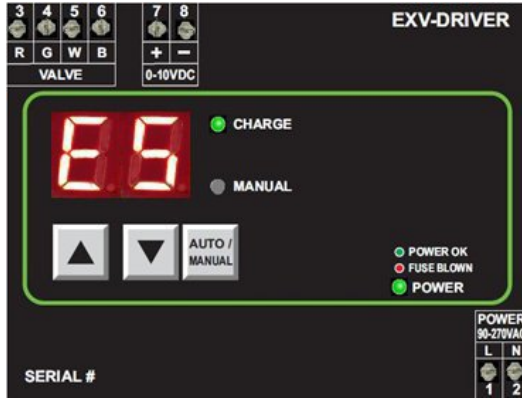
Power Down mode identifier screen

If mains power is disconnected, the driver switches to power down mode, relying on internal power backup to close the expansion valve.

This mode overrides all other modes.

The valve is closed irrespective of the Analog Control Voltage input.

**d. Configuration mode**



Expansion valve select identifier screen

Enter into config mode by pressing both keys for 5 seconds, the display shows “ES”.

Pressing both keys for 5 seconds shows the password screen, the display shows “PS”.

Use up and down keys to enter password “47” on the display.

Password will be accepted after “47” is displayed and both “UP” and “DN” keys are pressed for 5 seconds.

In this mode the valve type can be selected by the “UP” and “DN” keys.

Pressing both keys for 5 seconds saves the currently selected valve in memory, the display shows “--”.

Unit returns to AUTO mode.

**e. Select valve type:**

Display	EXV
E1	Test motor
A1	Alco EX4-EX5-EX6
A2	Alco EX7
A3	Alco EX8
d1	Danfoss ETS-12/25/50
d2	Danfoss ETS-100
d3	Danfoss ETS-250/400
S1	Sporlan SEI 0.5-11

52	Sporlan SER 1.5-20
53	Sporlan SEI 30
54	Sporlan SER(I) G,J,K
55	Sporlan SEI 50,SEH(I) 100, 175

## 5. Precautions

The power backup discharges on every power failure.

Analog Control Voltage input should never exceed 10 VDC.

Maintain proper polarity of Analog Control Voltage input.

Before connecting any valve make sure that the unit is configured for driving that particular valve.

## 6. Specifications

Mains power supply	90 to 270 VAC
Analog Control Voltage	0 to 10 VDC
Temperature	0 to 75 °C

## 7. Version

When in Auto mode press Up, Down and Mode keys simultaneously.

Display shows

"Fr" – Firmware

"5.5" – Firmware version

"Hr" - Hardware

" 1.3" – Hardware version

"ES" – Expansion valve

"55" – Valve Sporlan S5

## 8. Power

Power led turns green during normal power

Power led turns red if fuse is blown and power is normal

Power led turns off if power fails.

## 9. Notes

This EXV driver supports overdriving on full opening and full closing. The LSB decimal blinks while overdriving.

Charge led indicates status of internal backup supply. The on-time of the led increases as the internal backup supply gets charged.