

# VALVE CONTROLLER



- Front-programmable mA, V, and  $\Omega$  programmable input
- Ramp times, jump values, reversal, chopper frequency, and deadband
- 3-digit LED display shows I valve % value
- 1 or 2 channels
- Modulated current output for proportional valve



## Applications:

Control and regulation of single- or double-coil hydraulic and pneumatic proportional valves. ● The unit is used for accurate oil flow regulation, linear soft acceleration and deceleration, modulated output signal, and programmable deadband. ● Is highly suitable for joystick regulation of A/B movements.

## Technical characteristics:

The 2224 Valve Controller is a microprocessor-based unit containing ramp functions for soft start and stop and jump functions thus avoiding deadband at start and changes between A & B valves.

The user interface of the valve controller consists of three pushbuttons and a 3-digit LED display. By using these, output currents, ramp times, jump values, chopper frequency, reversal, deadband, and on/off functions are changed. During operation the display shows the present output signal as a % of the I valve.

All parameters are protected against unauthorised changes with a password.

Changes between A and B valves can be made in two ways. By way of function 1, the A valve is chosen when +Vsupply is applied to terminal 2. By way of function 2, changes between A/B valves take place automatically according to the value of the input signal (no signal on terminal 2).

The output current is enabled / disabled by a digital controlling signal. Please note that the output current is disconnected until +Vsupply is applied to terminal 3.

## Input:

Programmable current or voltage input for standard signals acc. to order schedule, joystick / potentiometer or a special non-programmable input. Digital inputs for external control functions.

## Output:

A pulsating current output prevents the connected valve from sticking. Optional programming of the modulation frequency (PWM) between 8 and 400 Hz. The internal measuring and control circuit ensures that the mean current never exceeds the entered I valve. If the peak current exceeds 7 A the output will be disabled.

## Electrical specifications:

### Specifications range:

(@: -20°C to +60°C)

### Common specifications:

|                              |                         |
|------------------------------|-------------------------|
| Supply voltage.....          | 12 or 24 VDC $\pm 20\%$ |
| Internal consumption.....    | 2 W / 24 V              |
|                              | 1.8 W / 12 V            |
| Communication .....          | Front-programmable      |
| Updating time.....           | 30 ms                   |
| Temperature coefficient..... | 0.01%/°C                |
| Linearity error .....        | 0.2%                    |
| EMC immunity influence ..... | < 2% of span            |
| Relative air humidity .....  | < 95% RH (non-cond.)    |
| Dimensions (HxWxD).....      | 80.5 x 35.5 x 84.5 mm   |
| Tightness .....              | IP50                    |
| Weight .....                 | 160 g                   |

### Input:

|   |  |
|---|--|
| Current input .....                           | 0/4...20 mA / 50 $\Omega$ + PTC (54 $\Omega$ )         |
| Voltage input.....                            | 0/0.2...1 V and  |
|   | 0/2...10 V / 10 M $\Omega$                             |
| Potentiometer input.....                      | 0...10 V or $\pm 10$ V / 10 k $\Omega$                 |
| External potentiometer .....                  | 1 k $\Omega$ $\leq$ potentiometer $\leq$ 10 k $\Omega$ |
| Control signals:                              |  |
| Operation / shutdown.....                     | PNP / 2.2 k $\Omega$ , 12 / 24 V                       |
| I <sub>max.1</sub> & I <sub>max.2</sub> ..... | PNP / 2.2 k $\Omega$ , 12 / 24 V                       |
| A / B channel .....                           | PNP / 2.2 k $\Omega$ , 12 / 24 V                       |
| Deadband .....                                | 0...99.9% of input span                                |

### Output:

|                             |                             |
|-----------------------------|-----------------------------|
| Output voltage (max.) ..... | Supply voltage - 0.5 V      |
| Output current (max.) ..... | 3000 mA mean                |
| Current peak.....           | 7 A                         |
| Output power (max.).....    | 36 W                        |
| Reference voltage .....     | 10 VDC (A valve)            |
|                             | $\pm 10$ VDC (A & B valve)  |
| Ramp up & down.....         | Time 0...10.0 s             |
| PWM frequency.....          | 8...400 Hz in steps of 1 Hz |

### Observed authority requirements: Standard:

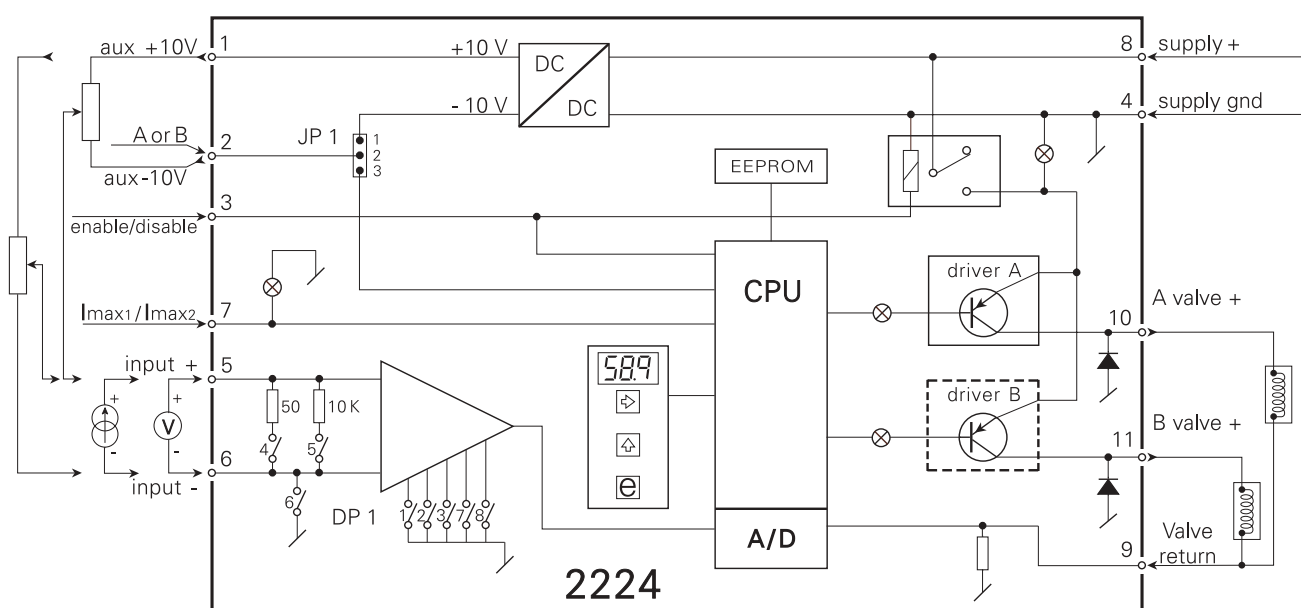
|                                |                          |
|--------------------------------|--------------------------|
| EMC 89/336/EEC, Emission ..... | EN 50 081-1, EN 50 081-2 |
| Immunity .....                 | EN 50 082-2, EN 50 082-1 |
| Emission and immunity .....    | EN 61 326                |

Of span = Of the presently selected range

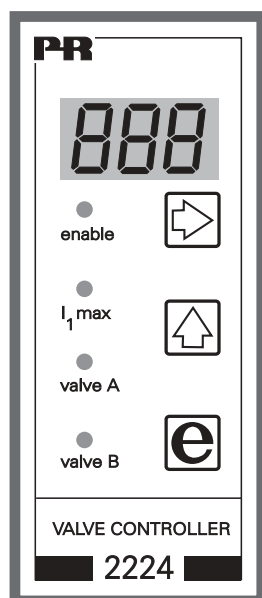
Order: 2224

| Type | Input                      | Supply   | Option                 |
|------|----------------------------|----------|------------------------|
| 2224 | 0...20 mA : A              | 12 V : 1 | Single valve (A) : A   |
|      | 4...20 mA : B              | 24 V : 2 | Double valve (A/B) : B |
|      | 0...1 V : C                |          |                        |
|      | 0.2...1 V : D              |          |                        |
|      | 0...10 V : E               |          |                        |
|      | 2...10 V : F               |          |                        |
|      | ±10 V potentiometer : G    |          |                        |
|      | 0...10 V potentiometer : H |          |                        |

Block diagram:



Front layout:



Timing diagram:

