# Servo valves Series LR
# Positioning control - LRXA4

3/3-way servo valves which control the positioning of pneumatic cylinders




- Rotary slide principal, metal to metal seal
- Integrated 3-loop-controller
- Available for use with an external pressure transducer
- 3-way-function with nominal size 4 mm or 6 mm
- The valves have a plug to supply a slave-valve directly.
- Servo valves are fitted ready for installation and function

**The servo valves LRXA4 are integrated servopneumatic systems for the positioning of pneumatic cylinders. The valves include a 3-way-servovalve size 4 resp. size 6 and a 3-loop-controller for cylinder-positioning with feedbacks for position, velocity and acceleration of the cylinder.**

As feedback system linear potentiometers shall be used, these systems may be connected to and supplied from the LRXA-valve directly. Other kinds of measuring systems may be used, if they provide an analogue output signal (0-5V) with floating ground and a sample frequency of more than 1 kHz.
Normally a second servovalve (slave) is necessary to supply the second cylinder chamber. There is a plug on the LRXA-valve to supply this slave-valve directly.

## GENERAL DATA

| | |
|---|---|
| **Power supply** | 24 VDC +/- 10%, ripple max. 0.5 Vss, max. 0,8 A; with slave valve max. 1.6A |
| **Input command signal** | 0-10VDC vs. 100 kohm; 0-20mA vs. 500 ohm; 4-20mA vs. 500 ohm |
| **Output "in position"** | 24 VDC, max. 70 mA, open-collector, short circuit protected , adjustable size of window |
| **Repeatability** | < 0,1% with optimally adjusted control feedbacks |
| **Absolute accuracy & Linearity** | determinated by feedback system |
| **Output power supply** | 5 VDC, max. 10 mA, for feedback system |
| **Maximum flow rate** | 6 bar to 0 bar: 500 Nl/min (LRXA4-34 ) 800 Nl/min (LRXA4-36)<br>6 bar to 5 bar: 350 Nl/min(LRXA4-34 ) 550 Nl/min (LRXA4-36) |
| **Temperature range** | 0 to 50°C |
| **Relative humidity of air** | max. 90% |
| **Weight** | approx. 1,0 Kg |
| **Medium** | clean air, oiled or not oiled, 5 µm filtered |
| **Supply pressure** | 0 to 10 bar |

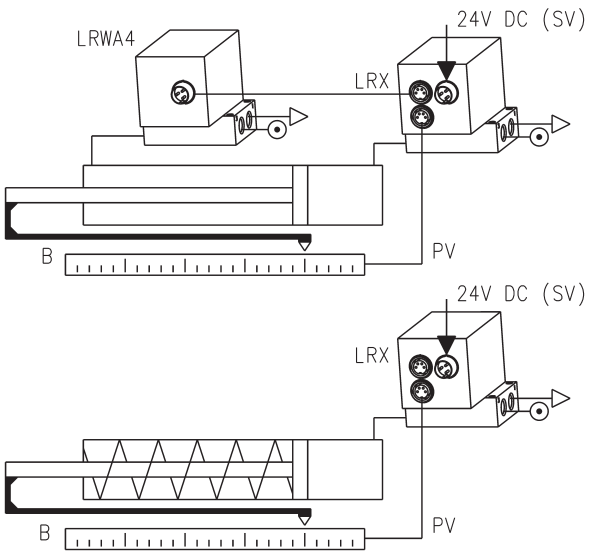
## CODING EXAMPLE

| L | R | X | A | 4 | - | 3 | 4 | - | 2 | - | 4 | - | 00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

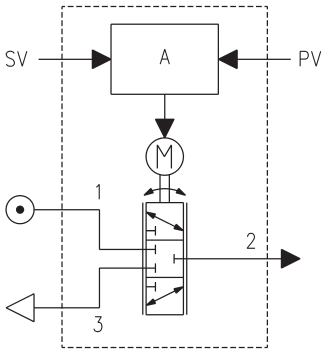
| | |
|---|---|
| L | SERIES:<br>L= Proportional servo valves |
| R | TECHNOLOGY:<br>R= rotary |
| X | VERSION:<br>X= position control |
| A | ELECTRONICS:<br>A= analogic |
| 4 | MODEL:<br>4= with sub-base |
| 3 | FUNCTION:<br>3= 3 way |
| 4 | DIAMETER:<br>4= 4 mm<br>6= 6 mm |
| 2 | INPUT SIGNAL:<br>2= 0-10 V<br>3= 0-20 mA<br>5= 4-20 mA |
| 4 | FEEDBACK SIGNAL:<br>4= 0-5 V |
| 00 | CABLE:<br>00= no cable |

Accessories: CS-PF07CB; CS-PM04CB; CS-PM07CB

## PNEUMATICAL INSTALLATION

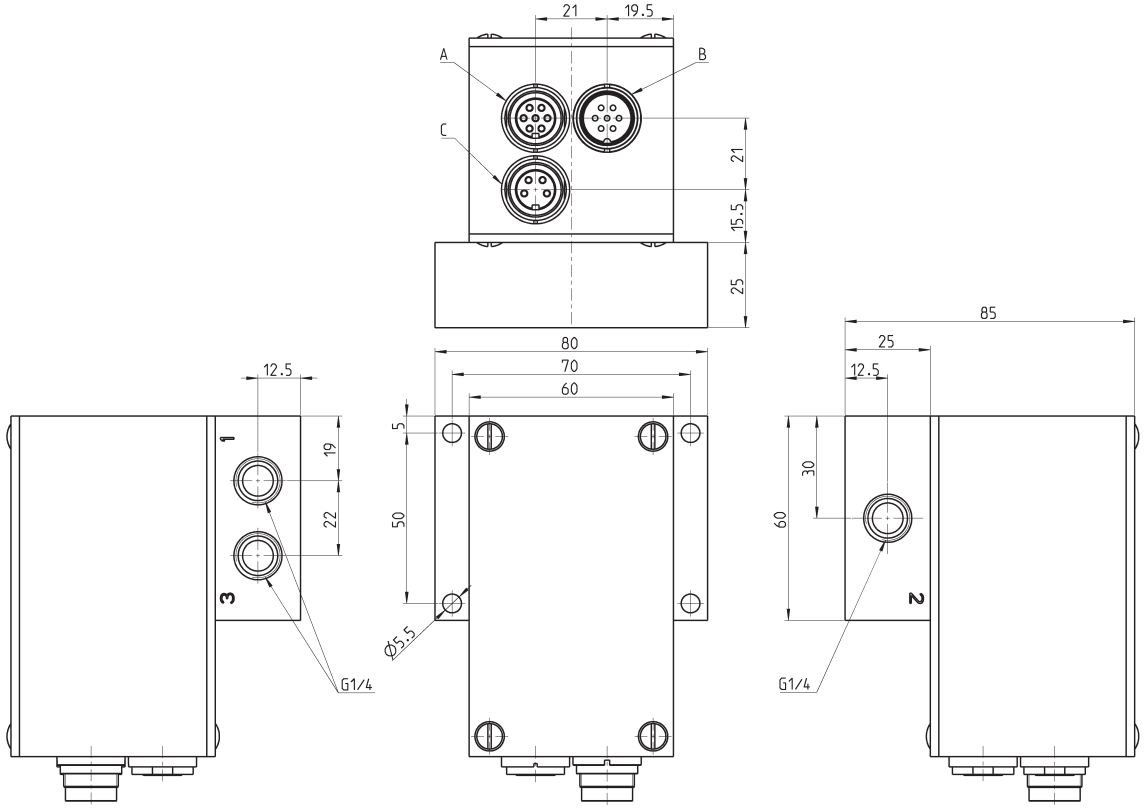



PIC.1 Positioning of a cylinder with master valve LRX and slave valve LRWA4-3X-4-A-00.
PIC.2 Positioning of a cylinder with valve LRX only.




SV=setpoint value; PV=process value; A = 3-loop controller. Tubes to the cylinder < 2 mts with an inner Ø of at least 4 resp. 6 mm. The Ø of the cylinder has to be dimensioned to provide at least 30% more force than needed.

## SERVO VALVES LRXA4 - PNEUMATICAL INSTALLATION




A = slave valve connector (7 poles female)
B = supply connector (7 pole male)
C = connector for the feedback system (4 poles female)

C - CONNECTOR FOR THE FEEDBACK SYSTEM 4 POLES (FEMALE)

| PIN | FUNCTION | NOTES |
|---|---|---|
| 1 | GND | Potentiometer GND. Never connect this pin to other GNDs. Because of technical reasons the voltage at this pin is about half of the power supply voltage. |
| 2 | Input feedback signal(Process Value) | Potentiometer output. If there isn`t used a potentiometer as feedback system, the output signal of the feedback system has to be 0-5 VDC. The signal must have a floating GND (see remark to pin 1). |
| 3 | Output supply | For potentiometer, +5 VDC vs. pin 1 |
| 4 | Shielding | The cable to the feedback system has to be shielded. At the feedback system's end of the cable the shielding must be connected to the metallic housing of the feedback system, at the valve's end pin 4 is connected internally to the valve housing. |

| PIN | A - CONNECTOR 7 POLES FEMALE | B - CONNECTOR 7 POLES MALE | NOTES |
|---|---|---|---|
| 1 | Power supply +24 VDC | Power supply +24 VDC | |
| 2 | Power supply GND | Power supply GND | |
| 3 | Input signal(for slave valve, +/- 5V vs. pin 4) | Input signal(Setpoint Value) | The total range of this signal corresponds to the total electric range of the feedback system. The cylinder is positioned always and immediately to the position according to this signal. Therefore this signal has to have a high signal quality: if, for example, the feedback system has a length of 300 mm, a ripple of 10 mVpp on the command signal will generate a positioning ripple of +/-0.3 mm !! |
| 4 | GND input signal (for slave valve, don't connect to other GND!) | GND Input signal | Pin 4 and 2 should be connected. If that is not possible, the voltage between both GND's may not increase +/- 5 V. |
| 5 | NC | GND output feedback signal | For slave-valve, 0-5V vs. pin 4 |
| 6 | NC | Output In-position | 24 VDC vs. pin 2 |
| 7 | NC | Output feedback signal | 0-10 VDC vs. pin2. The accuracy-fault of that signal is about 2% and there is an offset of approx. 150 mV. Don't use it for precise documentations |