Positioner with split-range function

1 Description

This function includes two different applications:

- **Closed-loop control of travel via split signal 0/4 – 20 mA**
  The split range function controls two and more actuators in series with just one analog signal 0/4 – 20 mA. A programmable portion of the analog signal is attributed to each actuator. The most important application is the bypass of two actuators.
- **Closed-loop control of travel section via full signal 0/4 – 20 mA**
  With the split range function, the analog signal 0/4 – 20 mA can be used for control in a parameterizable part (split range) of the travel (closed-loop control e.g. within 30 % – 70 % of the travel).

The end positions can only be approached locally via the Drive Controller or by changing over from remote control to permanent contact via the binary signals OPEN and CLOSE. The binary signal for EMERGENCY still leads to an approaching of the defined emergency position.

2 Parameterization

The split range is specified by entering a value pair (input current [mA] and the respective position [%]) for the start and another value pair for the end of the curve.

Main menu → Parameters → Software functions		
Parameter ***Default value***	**Parameter value**	**Explanation**
Split range function	"Split range function" software function is enabled.	
Current value 1 *4.0 mA*	0 mA – 19.9 mA in 0.1 mA steps	Current value 1 (I_1) at the setpoint input (Analog input).
Position x1 *0 %*	0 % – 100 % in 1 % steps	I_1 assigned position x_1.
Current value 2 *20 mA*	0.1 mA – 20 mA in 0.1 mA steps	Current value 2 (I_2) at the setpoint input (Analog input).
Position x2 *100 %*	0 % – 100 % in 1 % steps	I_2 assigned position x_2.

3 Comments

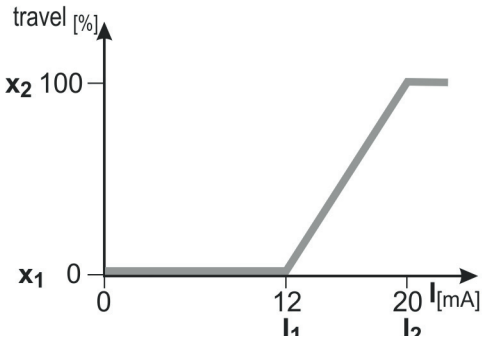
- Current value 1 (I_1) may be lower than Current value 2 (I_2).
- Position x_2 must be unequal to position x_1.
- Position x_2 may be lower than x_1 (falling curve).
- If the analog input is programmed to 4 – 20 mA and if I_1 is higher or equal to 2 mA, wire break monitoring is performed. For values lower than 2 mA, a wire break is detected. The actuator response (standstill or approaching a freely definable EMERGENCY position) can be programmed
- The binary STOP signal enables change-over to a second control mode (only if "Binary: Pulse contact" is not programmed), see also "Alternative control mode".
- With the second control type, the actuator can be operated over the whole travel.
  With the local control, the actuator can be operated at any time.

When changing over to REMOTE, the actuator immediately starts to move once an operation command is issued!

- This function cannot be combined with any other optional software function.

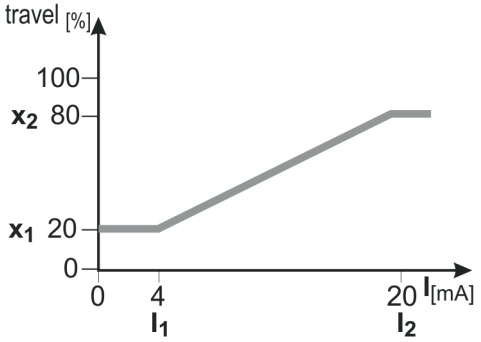
4 Examples

Closed-loop control of travel via split signal 0/4 – 20 mA
Current range, e.g. 12 – 20 mA for closed-loop control of the selected actuator



(I_1 = 12 mA, x_1 = 0 %), (I_2 = 20 mA, x_2 = 100 %)

Closed-loop control of travel section via full signal 0/4 – 20 mA
Closed-loop control e.g. within a range of 20 % – 80 % of travel



(I_1 = 4 mA, x_1 = 20 %), (I_2 = 20 mA, x_2 = 80 %)