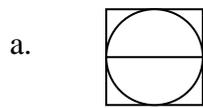


1. Briefly explain the following notations.



DCS function device

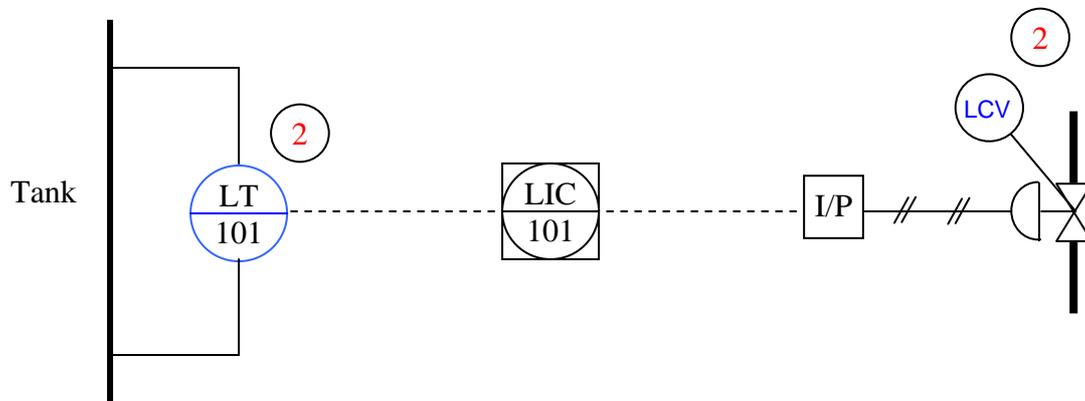
2



current to pneumatic transducer

2

2. Identify and correct the mistakes.

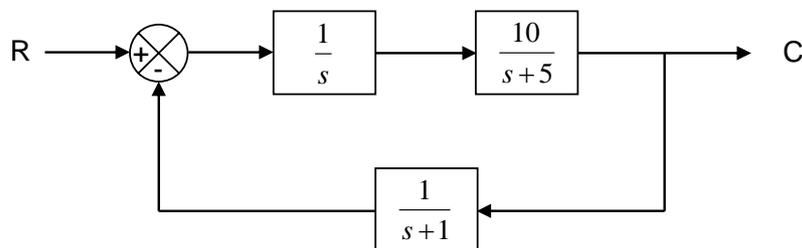


3. What is the name and function of this device: 

Name: Flow alarm

Function: Sound an alarm when flowrate has reached a maximum value.

5. Find C/R of the system shown in figure below.



General formulation for C/R of a closed loop system.

$$\frac{C}{R} = \frac{G}{1 + GH}$$

Therefore,

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$$G = \left(\frac{1}{s}\right)\left(\frac{10}{s+5}\right) \quad \text{while} \quad H = \left(\frac{1}{s+1}\right)$$

$$\frac{C}{R} = \frac{G}{1+GH} = \frac{\frac{1}{s}\left(\frac{10}{s+5}\right)}{1 + \left(\frac{1}{s}\right)\left(\frac{10}{s+5}\right)\left(\frac{1}{s+1}\right)} = \frac{100(s+1)}{s(s+5)(s+1)+10}$$

4. Construct P&ID for the following control scheme. The process flow diagram is shown in Figure 1.
- Gas pressure control
  - Liquid level control
  - Liquid temperature control

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