

## Control system

- it is recommended to ask help from specialists
- lifts need four limit switches, 2 as drive limits and 2 as security limits
- each motor needs its own maintenance switch
- motorized hoist system needs emergency push buttons; amount and locations should be considered thoroughly
- over speed protection is recommended to all professional level systems
  - vendor has to show reliable system, e.g. encoder + logic control
  - best protection is given when over speed control is connected to brake on secondary shaft
- adjustable speed for battens
  - demands inverter
  - nice, but not necessary on small stages and very slow hoists
  - belongs to professional stages
  - excellent for lighting battens because of soft acceleration and deceleration
- logic control, computer control
  - not mandatory in all cases
  - in small scale systems contactor driven system gives better value for money and often is sufficient for everyday use
  - logic control becomes competitive pricewise when there is a system of five to ten motors or more . then it is recommended option
- position control and numerical goal
  - not mandatory in small stages
  - demands encoder(s) and suitable control system (better than contactor driven)
  - helps re-orientation of the lights
  - helps quick change of scenery
  - natural features for logic controlled system
- double encoders for motion control
  - mostly in professional theatres
  - adds safety if at least one of the encoders is located on the secondary shaft and is connected to brake control
- speed control for curtains
  - not mandatory for slow curtains
  - very good choice for fast curtains
- safety lists, safety edges, astragals
  - usually used in orchestra platforms and scissor lifts
  - mandatory to all possible places where is a guillotine risk
  - height of list according to speed of device, especially when platforms are driving to opposite directions
- spare drive
  - not mandatory
  - among professional theater performances in order to deal with possible disturbances within main control system
- what devices possibly should be able to drive via AV-system?
  - control booth for AV-system is often located too far away to see how battens and scenes really are moving, that is why such devices must not be installed under any foreign control system
  - only recommended devices could be such as curtain, screen and equal, which can cause hazardous risks

- backup power supply (UPS)
  - usual part of professional systems
  - it is useful to think how big battery is really needed, it is expensive choice to drive battens or platforms via UPS