DESIGN INPUTS FOR NEW COMPUTER SYSTEMS

Title: Design Inputs for New Computer

Authoring Group:
Date:

CHECKLIST-Design Inputs for New Computer Systems

A   Purpose of System
    i)   Clear statement of what the system is to do.
    ii)   Expected benefits.
    iii)   Relation to other system.

1.0   Controlled Function

    1.1   Operating Modes
        a)   Automatic mode.
        b)   Manual mode.
        c)   Maintenance mode.
        d)   Operational interlocks.

    1.2   **Description of Operations.**
        a)   Sequence of operation.
        b)   Modifiable parameters.
        c)   Limiting conditions.

    1.3   Controlled elements.
        a)   Valves, heaters, motors……
        b)   I\P, relays, solenoids, motor starters ….

2.0   Computer System
    2.1   Hardware.
        a)   CPU
        b)   Memory devices.
        c)   Recording devices.
        d)   Communication interfaces.
        e)   Operator terminals

    2.2   **Software**
        a)   Operating System
        b)   Communication drivers.
        c)   Network Controllers.
        d)   Configurable Programs.
        e)   Application Programs

3.0   Information Input
    3.1   Measured Inputs
        a)   Number, Type, and location of each sensor.

b)   Type, Model Number, and software version of all transducers and signal converters.
c)   Model number and software version of all analog input modules.
d)   Tag name, location, data type, and valid range of all analog inputs.

3.2   Discrete Inputs
a)   Type, model number, and software version of all discrete input modules.
b)   Tag name and location of all discrete inputs.

3.3   Operator Inputs
a)   Entry and verification means.
b)   Entry modes.
c)   Error detection.
d)   Error correction
e)   Tag name, description, and range of parameters.
f)   Electronic Signatures.

3.4   Recipe Inputs
a)   Definition.
b)   Loading.
c)   Verification.
d)   Security.
g)   Tag name, description, and range of parameters.
e)   Electronic Signatures.

3.5   Input from other Systems.
a)   Source.
b)   Communication mode.
c)   Error detection.
d)   Error correction
e)   Tag name, description, and range of parameters.

4.0   Material Input
4.1   loading
a)   Manual Loading.
b)   Automatic loading.
c)   Input from other system.

4.2   Checks on Material Inputs

5.0   Data Processing

5.1   Input Data

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  a) Data conversions.
  b) Scaling.
  c) Calibration means.
  d) Error detection and correction.

5.2 Calculations.
  a) Tag names and input parameters.
  b) Algorithms.
  c) Control strategies.
  d) Tag names and ranges of output parameters.
  e) Error detection and correction.

6.0 Information Output

6.1 Control
  a) Tag name, location, range, and default value of analog outputs.
  b) Model number, software version, and location of each analog output Module.
  c) Type, model number, software version, and location of each output driver.

6.2 Alarms
  a) Tag name, type, and location of alarm outputs.
  b) Type and location of alarm indicator.
  c) Acknowledgement means.

6.3 Displays
  a) Tag name of the data values.
  b) Tag name of status indicators.
  c) Event indicators
  d) Alarm indicator.

6.4 Printed Reports.
  a) Tag name of the data values.
  e) Tag name of status indicators.
  f) Event recording.
  g) Alarm recording
  h) Report generation

6.5 Transmission to other systems.

  a) Tag name of the data values.
  b) Tag name of status indicators.
  c) Event Transmission.
  d) Alarm transmission

      e)   Report transmission.
      f)   External request of data.

6.6   Archived Data
      a)   Tag name of the data values.
      b)   Tag name of status indicators.
      c)   Event recording.
      d)   Alarm recording
      e)   Report generation
      f)   Audit trail.

7.0   Operational Features.
7.1   Alarm Management.
      a)   Action.
      b)   Priority.
      c)   Reporting.
      d)   Acknowledgment.
      e)   Power failure.

7.2   Security
      a)   Levels
      b)   Means of access.
      c)   Parameter modification.
      d)   Program access.

7.3   Safety
      a)   Physical Interlocks.
      b)   Software interlocks.
      c)   Emergency shutdown and recovery.

7.4   System Failure.
      a)   Failure Modes
      b)   Default state
      c)   Recovery modes.

7.5   Analog data update Time
      a)   control inputs
      b)   alarms
      c)   Displays.
      d)   Reports.
      e)   Archived data.
      f)   Transmission to other system.

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7.6 Discrete data update time
a) Control outputs.
b) Alarms.
c) Displays.
d) Reports.
e) Archived data
f) Transmission to other systems.

7.7 Response to operator inputs.
a) Analog.
b) Discrete
c) Alarm.

8.0 Physical Requirements

8.1 System Structure.
a) Layout of components.
b) Relation to facilities and other systems.

8.2 Size Restrictions.

8.3 Materials.
a) Type.
b) Finishes.

8.4 Utilities.
a) Electrical.
b) Water.
c) System
d) Air.

8.5 Environmental.
a) Temperature.
b) Vibration.
c) Electrical interference.
d) Humidity.