Specification

ISA100 Wireless Steam Trap Monitoring System Specification

Category: Steam Trap Monitoring
Type: Wireless
Model: ISA100

1. Radio Frequency (RF) Survey:
    a. Shall be performed to determine:
        i. signal strength
        ii. location and quantity of infrastructure and other equipment required
    b. Shall include a Report of findings which includes
        i. Bill of Materials
        ii. Detail Repeater list
2. Wireless Trap Monitor Gateway
    a. Shall use TCP/IP over Ethernet
    b. Shall receive communications in the 2.4 GHz spectrum
    c. Shall Utilize ISA100 security encryption
    d. Shall be capable of receiving and storing information from up to 200 Steam Trap Transmitters
    e. Shall be capable of integrating with cloud based steam trap management software
    f. Shall have built in Software to provide following data fields with real time update and utilize ISA100 Wireless Standard

3. Steam Trap Wireless Monitor
    a. Radio frequency communication shall use 2.4 GHz ISA100 communication protocol
    b. Shall communicate within 1 hour when a steam trap fails (Cold or Blow Thru).
    c. Shall have user configured update rate
    d. Shall be able to be setup as an end device or routing device
    e. Shall be able to be provisioned via 2 methods: 1) Overt the air or 2) Infrared
    f. Shall utilize ultrasonic and temperature readings for trap condition analytics
        i. Transmitter Shall Transmit ISA100 information for the following channels
            1. Channel 9: Trap Status
            2. Channel 10: Temperature
            3. Channel 11: Set Temperature
    g. Shall transmit Trap status directly from steam trap monitor with no extra setup
    h. Shall be made of epoxy coated, low copper aluminum
    i. Transmitters shall be mounted externally to the trap and be non-intrusive to existing piping.
    j. Shall have solid stainless steel stem
    k. Shall mount to piping upstream from the steam trap with a acoustic filtering waveguide
    l. Transmitters shall have the capability to be mounted in any 360 degree position in relation to the piping.

m. Transmitters shall be powered by a epoxy coated lithium battery pack and have an average life of 3 years.
n. Shall not be de-rated based on pressure or temperature
o. Shall not be reprogrammed when steam trap is changed
p. Shall only need programing of ISA100 credentials and no steam trap setup
q. Shall have NAMUR 107 attributes for faults

4. Steam Trap Monitoring Software (Optional)
    a. Shall be cloud hosted
    b. Shall have a mobile application that can be access by both Android and Apple Devices
    c. Shall have the ability to receive steam trap conditions
    d. Shall integrate with wireless steam trap monitoring gateway/hardware
    e. Shall calculate steam loss using the validated UNFCC formulas and associated dollar loss when a failed steam trap is detected
    f. Shall provide 100+ points of data for each steam trap (tag #, trap model/type/size, pipe size, pressure in, pressure out, etc.)
    g. Shall provide energy tracking capabilities to monitor real-time energy loss
    h. Shall be able to be used for manual steam trap surveys
    i. Software should provide reports for analysis:
        i. Executive Summary Report
        ii. Survey Report
        iii. Defective Steam Trap Report
        iv. Work Order Report
        v. Emissions Loss Report
        vi. Excel download
    b. Shall be able to be used with a portable semi-automatic steam trap tester

5. On-Site contractor training, installation and commissioning support to be provided by an experienced project manager of wireless steam trap monitoring systems.
    a. Project manager shall have extensive field experience with wireless steam trap monitoring systems.
    b. Project manager shall have working knowledge of steam systems and extensive field experience testing steam traps and other related steam equipment.
    c. Project manager shall have extensive field experience setting up wireless gateways and related software.