GEN UC

Mobile APP based Thermostat Management System
To control stand-alone HVAC Equipment

Automatic Temperature Control Specification

Section 15950 - Controls and Automation

PART 1: General

1.1 The automatic temperature controls (ATC) under this section will be supplied and installed in accordance with the General Conditions, Supplementary Conditions, and all Division I General Requirements and Referenced Documents.

1.2 The installation of the ATC shall be in accordance with all National, State and Local codes pertaining to this type of work.

1.3 All work must comply with Section 15050 − Basic Materials and Methods − and all other Division 15 Sections, as applicable.

1.4 The scope shall include furnishing and installing a temperature control system to include remote control panels, temperature control devices, appurtenances, etc. to accomplish specific control sequences specified herein, to provide sensing and indicating devices, temperature indicating instruments, supporting structures and other required components.

1.5 The scope shall include all thermostats, sensors, microprocessor central controllers, and all other new components of the system requiring connections.

PART 2: General Instructions

2.1 The Building Automation System/Automatic Temperature Control (BAS/ATC) Systems as specified herein shall be provided in their entirety by the BAS/ATC Contractor. The BAS/ATC Contractor shall base his Bid on the system as specified and on the sequence of operations.

2.2 As part of his Bid, the BAS/ATC Contractor shall submit for review by the owner's authorized representatives a written description of his BAS/ATC systems, including block diagrams, showing all major components and control panels and required cabling between each.

2.3 The BAS/ATC contractor shall include manufacturer's literature for each type of panel, controller, or device that may be shown on the Riser Diagram.

2.4 The Riser Diagram shall show schematically the entire building system with all major components identified.

PART 3: Scope of Work

3.1 The BAS/ATC systems shall be supplied and installed completely under the BAS/ATC Contract. Control components shall be mounted and wired by the BAS/ATC Contractor.

3.2 The BAS/ATC Contractor shall provide the engineering, installation, calibration, software programming and checkout necessary for complete and fully operational BAS/ATC systems, as specified hereafter.

3.3 Wiring in exposed areas and in mechanical rooms shall be in EMT. Wiring in accessible, concealed areas shall be plenum rated cable.

PART 4: Submittals

4.1 The following data/information shall be submitted for approval:
4.2 Complete sequence of operation.
4.3 Control system drawings, including all pertinent data, to provide a functional operating system.
4.4 Data sheets for all hardware control components.
4.5 A description of the installation materials including conduit, wire, flex, etc.
4.6 Thermostat/Sensor locations.
4.7 Control panel locations.
4.8 Provide as part of the submittal five copies of all data and control drawings.

PART 5: Qualifications

5.1 The BAS/ATC Contractor shall have an office within a 100-mile radius of the job site, staffed with factory trained personnel capable of providing instruction, routine maintenance and 24-hour emergency maintenance service for all system components.
5.2 The BAS/ATC Contractor shall have a minimum of three years' experience installing and servicing similar microprocessor-based control systems.
5.3 The Contractor shall be prepared to provide evidence of this history as a condition of acceptance and approval prior to bidding.

PART 6: System Description

6.1 The system shall consist of a **front-end communications hub Part # (GENUC),** communicating thermostats Part # (SATOUCHX) with integrated supply/return air sensors, relative humidity sensor. System components shall operate and communicate with Wi-Fi based mobile App.
6.2 The system shall be capable of communicating with and controlling 1 - 400 stand-alone HVAC units with the Zonex SATOUCHX.
6.3 Mobile App shall digitally display all units, set points, and temperatures and report Supply Air Temperatures, Return Air Temperature, and Relative Humidity at all times. Occupied and unoccupied set up and set back capability shall also be available with 2 – 8 hour override capability. A thermostat locking function shall be available from the App with minimum local control at each thermostat in the system.
6.4 The System shall provide full control of HVAC heating and cooling.
6.5 The *GEN UC* controller shall provide morning warm up feature.

PART 7: Control Manufacturer

7.1 The control system shall be the *GEN UC Thermostat Management System*, as manufactured by Zonex Systems, Huntington Beach, CA. Any substitution of the above specified control system will require a 10-day prior approval by the engineer.
7.2 For pricing, contact the factory at 800-228-2966 or visit www.zonexproducts.com
7.3 For substitution, submit a complete description, engineering data, and names of existing installations with substitute products.
7.4 Be prepared to provide a field inspection by the engineer, if requested, to observe the actual installation of proposed substitution.

PART 8: GEN UC System Controller

8.1 Each *GEN UC* System Controller shall contain a stand-alone microprocessor controller capable of supporting up to 20 devices, SATOUCHX, RLYX or GEN UC-RM expansion controllers.

8.2 The system controller shall communicate with a daisy chained 3-wire RS485 twisted pair data link.

8.3 The system controller shall power all SATOUCH's via a single 24-volt 100VA AC transformer daisy chained throughout the system.

8.4 Zoned unit controller shall poll all thermostats every 60 seconds and report room temperature, supply and return air temperatures and relative humidity from each SATOUCHX and report via the Mobile App.

8.5 *GEN UC* System Controller Shall be connected to building's network via Ethernet communicating through the *GEN UC* Mobile App over the Cloud or local area network.

8.6 GEN UC shall be compatible with ADR devices.

8.7 GEN UC controller shall be accessible via a PC web browser at the following URL: **https://www.genxcontrol.com/**

PART 9: GEN UC – RM

9.1 The *GEN UC - RM* Controller shall provide system expansion capability with *GEN UC* System controller via 3-wire twisted pair communications link and 24-volt power, controlling a maximum of 20 thermostats per *GEN UC – RM* controller of which 20 may be daisy chained providing access and control of up to 400 thermostats or units.

9.2 Zoned unit controller shall poll all thermostats every 60 seconds and report room temperature, supply and return air temperatures and relative humidity from each SATOUCHX and report via the Mobile App.

9.3 Each *GEN UC - RM* controller shall be powered with independent 24-volt 100VA transformer.

Part 10: GEN X– Mobile App

10.1 The *GEN UC* Controller shall link with remote device, phone or tablet via Mobile App to set up, review and control system operations.

10.2 The *GEN UC* Mobile App shall monitor, remotely or on-site all SATOUCHX thermostats or other devices in the system. The Mobile App shall be capable of communicating and synchronizing with the *GEN UC – Thermostat Management* Controller.

10.3 Mobile App shall communicate with and control all HVAC control boards – *GEN UC - RM* expansion boards, zone thermostats (SATOUCHX), Remote room sensors, and RLYX controllers.

10.4 Mobile App shall establish system schedules, i.e., set up and set back times along with days of operation and vacation schedules.

10.5 Mobile App shall be able to lock set points, either individually or globally.

10.6 Mobile App shall allow for set point adjustments at each local thermostat.

10.7 Mobile App shall view or change both occupied and unoccupied set points.

10.8 Mobile App shall allow set point changes for heating or cooling either individually or globally.

10.9 Mobile App shall provide adjustable override hours for system thermostats for 2 – 8 hours.

10.10 Mobile App shall provide on board diagnostic and alarming features.

10.11 Mobile App shall allow for the selection of temperature format F Fahrenheit or C Celsius, when selected, and any and all temperature or sensing devices shall be displayed in that temperature format.

10.12 Mobile App shall provide all time clock functions for the system.

10.13 Mobile App shall enable morning warm up.

10.14 Mobile APP shall provide password capability to protect the system and to ensure only authorized operators interact and control the system functions.

10.15 Mobile App shall provide control of RLYX communicating single pole double pole relay to control generic devices based on time schedule.

10.16 Mobile App shall communicate remotely via the Cloud network, locating system by way of system identification and registration.

PART 11: Stand Alone Controls – Thermostats and RLYX

11.1 Stand Alone color touch screen thermostats Part # (SATOUCHX) shall communicate via 3-wire twisted pair daisy chain communications wire to *GEN UC* System controller.

11.2 SATOUCHX shall be 2-heat 2-cool, programmable thermostats that may be configured for Gas/Electric or Heat Pump operation.

11.3 SATOUCHX shall be capable of being locked via the *GEN UC* Mobile App and will allow for local control of set points + or – 2 degrees from set point or 0 variance if selected.

11.4 SATOUCHX shall have override ability when in unoccupied operations and may be configured for 2 to 8 hours of override.

11.5 SATOUCHX shall have integrated supply and return air and relative humidity sensors and provide information via the *GEN UC* Mobile App as to the operating conditions of the HVAC unit.

11.6 The *GEN UC* controller shall support RLYX devices to control generic loads per time schedule.

11.7 RLYX devices shall have five relays consisting of normally closed contacts.

11.8 RLYX devices shall be programmable with 7-day on/off operation and be configurable via the Zonex *GEN UC* Mobile App.

PART 12: Transformers and Wiring

12.1 An independent 24-volt 100VA transformer shall power the *GEN UC* System Controller and all SATOUCHX thermostats in the system.

12.2 Each expansion GEN X-RM controller shall be powered by an independent 24-volt 100VA transformer.

12.3 An independent 24-volt 40VA transformer shall power the RLYXs in the system (one transformer per RLYX).

12.4 All power wiring of this system shall be 24-volt AC.

12.5 All communications wire shall be Zonex specified 3-wire twisted communications wire – 3TWP.

END OF SECTION 15950

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