I-CON®

A WATTS Brand

Water Management Non-Communicating Specifications

22.0 ELECTRONIC METERING SYSTEM

A. I-CON Systems, LLC NON-COMMUNICATION WATER CLOSET AND LAVATORY:

The I-CON Water Closet/Lavatory combination fixture control system shall be 24 VAC with low wattage power consumption. The system shall include soft close, industrial quality solenoid valves that do not include diaphragms. Any lavatory valve that includes a diaphragm shall not be accepted. All sensor assemblies shall have stainless steel housing and shall be pressure activated with no mechanical moving components and completely waterproof. Each solenoid valve operator, and sensor, shall be furnished with a minimum two (2) feet of flat telephone type cable with watertight connector. Extensions with matching watertight connector shall be supplied for connector to controller. Extensions are available at various lengths to allow for easy maintenance of solenoids and sensors. Electrical hook-up of sensor and solenoid valve shall be accomplished with modular plug type connectors. The microprocessor shall have the ability to control a total of one (1) or two (2) individual combination fixtures through programmable software. The software-controlled microprocessor shall incorporate electronic timing qualities for water conservation and time out functions to discourage misuse. The system shall include a solenoid operated non-metallic flush valve capable of achieving 1.6, 1.28 and .9 gallons per flush (on a 1.6 or 1.28 gallon per flush fixture). Flush valve shall be third party tested, certified and listed by a recognized agency such as American Society of Sanitary Engineers (ASSE), for section 1037 (pressurized flushing device). The flush valve shall have a “straight through” flow and the flush time shall not be controlled by a conventional metering flush valve diaphragm. The flush valve shall have a water inlet connection allowing the flush valve to swivel three hundred and sixty degrees.

B. LAVATORY MANIFOLD

I-CON SERIES ELEMENT® 100474 Lavatory Manifold shall include solenoid valve operators and provide hot and cold water for one (1), two (2) or four (4) lavatories depending on model chosen. Lavatory manifold valves shall be industrial quality and shall include solenoid valves without diaphragms. Any lavatory valve that includes a diaphragm shall not be accepted. Manifold shall include 1/2” IPS hot and cold inlets, stainless steel strainers, check stops, 0.5 GPM flow restrictor/regulator and soft close solenoid valve operators. Each solenoid valve operator shall be furnished with a minimum two (2) feet of flat telephone type cable with watertight connector. Extensions with matching watertight connector shall be supplied for connector to controller. Extensions are available at various lengths to allow for easy maintenance of solenoids. Water supply tubing from valve outlet to lavatory spout is 3/8” OD tubing. Each lavatory solenoid shall include a manual override feature to enable the maintenance staff to turn on flow to the bubbler by bypassing the electronic circuitry in the event of power loss or during troubleshooting. The solenoid coil and plunger shall be interchangeable with the solenoid coil and plunger of the flush valve, shower valve, and lavatory valve to reduce spare part requirements. Lavatory valve variations are: 100474 : 1 Stage (Single Manifold Dual Temp), 100474 : 2 Stage (Dual Manifold Dual Temp) and 100474 : 4 Stage (Quad Manifold Dual Temp).

C. CONTROLLER:

I-CON NEXUS® 100191 Series non-communication controller shall be self-contained housing eight (8) input / output ports and shall include an integral on/off power switch located on the bottom, exterior of the housing. Controller shall be housed in a water-resistant enclosure and shall have no unsealed opening on the face of the lid to prevent water intrusion. Control board shall be equipped with the ability for wireless option. Operation of both input/output ports (when activated) and power shall be viewed when watertight lid is closed by means of illumination. Each set of input / output ports has a standard predetermined designation (i.e. Port # 1 shall control the hot water lavatory spout; Port # 2 shall control the cold water to the lavatory spout; Port # 3 shall control the flush valve, and so on). The input port is sent a low voltage electrical impulse from the pressure-activated sensor. This impulse is transferred to the output port based on the programming function and the output port function is then controlled by the preprogrammed microprocessor. When output port transfers the electrical signal to the solenoid valve and the result is that water flows through the specified hardware (i.e. lavatory spout, showerhead, etc.)

I-CON NEXUS® 100192 Series non-communication controller shall be self-contained housing four (4) input / output ports and shall include an integral on/off power switch located on the, bottom, exterior of the housing. Controller shall be housed in a water-resistant enclosure and shall have no unsealed opening on the face of the lid to prevent water intrusion. Control board shall be equipped with the ability for wireless option. Operation of both input/output ports (when activated) and power shall be viewed when watertight lid is closed by means of illumination. Each set of input / output ports has a standard predetermined designation (i.e. Port # 1 shall control the hot water lavatory spout; Port # 2 shall control the cold water to the lavatory spout; Port # 3 shall control the flush valve, and so on). The input port is sent a low voltage electrical impulse from the pressure-activated sensor. This impulse is transferred to the output port based on the programming function and the output port function is then controlled by the preprogrammed microprocessor. When output port transfers the electrical signal to the solenoid valve and the result is that water flows through the specified hardware (i.e. lavatory spout, showerhead, etc.)

D. PROGRAMMING

Each control box shall be software programmable by use of removable digitally displayed programmable device that will ensure the integrity of the final settings and not allow inmates the ability to manipulate the setting, without the use dip switches or other hard code device. Software programming shall be accomplished through a remote computer (future use) or shall be software programmable using the removable digitally displayed programmable device. Each preprogrammed time, delay, etc. shall be software re-programmable using the removable time adjuster. The system shall be programmed to the owner's requirements

E. SHOWER MANIFOLD

I-CON SERIES 100438 Single Temp Shower Manifold shall include solenoid valve operators for one (1), two (2), three (3) showerheads. Shower manifold valves shall be industrial quality and shall include solenoid valves without diaphragms. Any shower valve that includes a diaphragm shall not be accepted. Manifold shall include one 1/2" IPS inlets, stainless steel strainer, check stop and soft close solenoid valve operators.

Each solenoid valve operator shall be furnished with a minimum two (2) feet of flat telephone type cable with watertight connector. Extensions with matching watertight connector shall be supplied for connector to controller. Extensions are available at various lengths to allow for easy maintenance of solenoids. Water supply tubing from valve outlet to lavatory spout is 1/2" OD tubing. Each shower solenoid shall include a manual override feature to enable the maintenance staff to turn on flow to the showerhead by bypassing the electronic circuitry in the event of power loss or during troubleshooting. The solenoid coil and plunger shall be interchangeable with the solenoid coil and plunger of the flush valve, shower valve, and lavatory valve to reduce spare part requirements. A thermostatic mixing valve shall be installed to provide tempered water for the electronic shower valves (by others).

F. FLUSH VALVES

I-CON MOMENTUM® 100290 Flush Valve shall include plug-in connection and shall include a solenoid operated non-metallic flush valve capable of achieving 1.6 on an existing 3.5 or greater fixture. 1.28 and .9 gallons per flush (on an existing 1.6 or 1.28 gallon per flush fixture). Flush valve shall be third party tested, certified and listed by a recognized agency such as American Society of Sanitary Engineers (ASSE), for section 1037 (pressurized flushing device). Flush valve shall be made of a non-metallic, corrosion resistant, material such as Zytel for extended durability and anti-corrosion properties. Each solenoid valve operator shall be furnished with a minimum two (2) feet of flat telephone type cable with watertight connector. Extensions with matching watertight connector shall be supplied for connector to controller. Extensions are available at various lengths to allow for easy maintenance of solenoids. Flush valve shall include an external, adjustable flush activation control located on the valve that shall allow adjustment to compensate for calcium build-up in older fixtures. Flush valve shall have manual override feature to enable the maintenance staff to flush toilet by bypassing the electronic circuitry in the event of power loss or during troubleshooting. The flush valve shall have a "straight through" flow and the flush time shall not be controlled by a conventional metering flush valve diaphragm. The flush valve shall have a water inlet connection allowing the flush valve to swivel three hundred and sixty degrees. The solenoid coil and plunger shall be interchangeable with the solenoid coil and plunger of the flush valve, shower valve, and lavatory valve to reduce spare part requirements. In the event of a low-pressure occurrence, the flush valve shall automatically reset and not require any staff to manually reset the valves. Flush valve shall come complete with a rough brass vacuum breaker tailpiece, vacuum breaker repair kit and top nut .5 and .125 models available for urinal applications.

I-CON COBALT® SECURE 101826 Series Flush Valve shall include a plug in connection and shall include a solenoid operation. Flush valve shall be metallic body and include a ProLAST® T-Seal flushing mechanism and shall not be controlled by a conventional metering flush valve diaphragm. ProLAST® T-Seal shall include a single piece design with integral bypass filter, glass reinforced polymer and over molded seals. Flush valve shall include clog resistant dual bypass. Flush valve shall be third party tested, certified and listed by a recognized agency such as American Society of Sanitary Engineers (ASSE), for section 1037 (pressurized flushing device). Each solenoid valve operator shall be furnished with a minimum two (2) feet of flat telephone type cable with watertight connector. Extensions with matching watertight connector shall be supplied for connector to controller. Extensions are available at various lengths to allow for easy maintenance of solenoids. Flush valve shall be compatible with NEXUS® 24AVC and 9V DC controllers. Flush valve shall come complete with a rough brass vacuum breaker tailpiece, vacuum breaker repair kit, brass 90 degree elbow fitting and tailpiece.

G. TOUCH SENSOR BUTTON

I-CON TruTOUCH® 100215 Touch Sensor Button assemblies shall have stainless steel housing and shall be pressure activated with no mechanical moving components and completely waterproof. The sensor shall operate on a “strain gage” type principle and the sensor adjustment shall be self-calibrating. Each sensor shall be furnished with a minimum two (2) feet of flat telephone type cable with watertight connector. Extensions with matching watertight connector shall be supplied for connector to controller. Extensions are available at various lengths to allow for easy maintenance of sensors. Sensors shall be pre-wired prior to shipment. The sensor button shall be interchangeable with the sensors for the flush valve, shower valve and lavatory valve.

I-CON TruTOUCH® 100146 (Toilets) Touch Sensor Button assemblies shall have stainless steel housing and shall be pressure activated with no mechanical moving components and completely waterproof. The sensor shall operate on a “strain gage” type principle and the sensor adjustment shall be self-calibrating. Sensor shall have a circular LED illumination ring mirroring the outer sensor edge for ease of viewing regardless of mounting orientation. Each sensor shall be furnished with a minimum two (2) feet of flat telephone type cable with watertight connector. Extensions with matching watertight connector shall be supplied for connector to controller. Extensions are available at various lengths to allow for easy maintenance of sensors. Sensors shall be pre-wired prior to shipment. The sensor button shall be interchangeable with the sensors for the flush valve, shower valve and lavatory valve.

H. SOLENOIDS

I-CON TruFIRE® 100137 Solenoids shall have an integrated plunger core tube with plunger retainer. Solenoid plunger shall be the only moving part. Solenoids shall use no diaphragms. Wire connection to solenoid shall be water resistant and shall not be blade or spade connection type. Each solenoid shall be furnished with a minimum two (2) feet of flat telephone type cable with watertight connector. Extensions with matching watertight connector shall be supplied for connector to controller. Extensions shall be available at various lengths to allow for easy maintenance of sensors. The solenoids shall be interchangeable with the solenoids for the flush valve, shower valve and lavatory valve.

I. TRANSFORMERS

I-CON 100476 (plug-in) or 100111 (box mount) Transformers. One transformer is required for each control box. Connection from the transformer to the control box shall be made using 20/2 AWG (min.) to 18/2 (max.) wire. (Note: If applicable, a buck and boost transformer can be provided that would enable an entire building, pod, unit or specified area toilet/lavatory and shower fixtures to be shut down from a remote location)

Transformer shall be 110 VAC, 60 Hz primary, 28 VAC 60 Hz secondary, 40 VA, Class II, overload protected.

J. MANUFACTURER'S EXPERIENCE

The work specified in this section is acknowledged to require special skills mastered by education and experience and must be provided by manufacturers specializing in the production of retrofit prison electronic control systems. Manufactures wishing to be pre-qualified for this project, shall have a minimum of fifteen (15) years' experience in the design, manufacturing, and support of electronic controls for correctional facilities and servicing of systems of the type and magnitude specified herein.

L. MANUFACTURER'S WARRANTY

The successful bidder shall provide a minimum one (1) year full warranty of all components provided. This shall include, but is not limited to, any rebuild parts and kits for any components, and/or new sensors, valves, control boards, and solenoids as required. This warranty shall not include damage or failure due to abuse, negligence, or misuse.