Lynx® Smart Satellite - Bidding Specifications

- Stations: 16 to 64 in 16 station increments
  - Up to 32 stations may run simultaneously
  - Run times from 1 second to 23 hours and 59 minutes
  - 0 to 3 fixed repeats per station
- Programs: 64 independent programs, up to 32 programs may be run simultaneously
  - Basic, Advanced and Grow-In programs
  - 14 day calendar or 1 to 30 day interval scheduling
  - 0 to 3 fixed repeats per program
  - Up to 24 start times per program
  - Simultaneous station operation defined independently per program
- Satellite percent adjust (1 to 900%)
- Program percent adjust (10 to 250%)
- Station percent adjust (0% to 900%)
- Nonvolatile memory saves program data for up to 10 years without power
- Manual operations
  - Multi-Manual station start up to 32 stations
  - Program start
  - Program syringe
- Dimensions: 16" W x 39" H x 15" D (406mm W x 990.6mm H x 381mm D)
- Input Power: - 120/230 V a.c., 50/60 Hz
  - 0.20 amps @ 117 V a.c., 60 Hz (no load)
  - 1.20 amps @ 117 V a.c., 60 Hz (maximum load)
  - 0.10 amps @ 230 V a.c., 50 Hz (no load)
  - 0.60 amps @ 230 V a.c., 50 Hz (maximum load)
- Station Output Power:
  - 24 V a.c.
  - 3.20 amps (77 VA) total
  - 32 stations may operate simultaneously

The field satellite controller shall use modular solid-state control technology and be capable of automatic, semi-automatic and manual operations. It shall be housed in a locking, weatherproof, pedestal-type enclosure constructed of bi-wall plastic. Access to all wiring connections is through a locking door. Four bolts shall secure the pedestal to a concrete pad.

The controller shall be made using corrosion resistant structural metals, fasteners, and electrical components. Transparent covers shall protect critical circuit boards and facilitate visual diagnostic light indications. All electronic components shall be conformal coated to provide additional protection from the environment.

The controller shall be capable of operating at 120/230 V a.c. (± 10%), 50/60 Hz. Each station shall have built-in surge protection. The controller shall be capable of operating up to 32 stations simultaneously, for a total output current of 3.2 amperes (77 VA) at 24V a.c.

The controller shall have three modes of operation: central, local and off. Time-of-day, day-of-week, programming and operational status shall be shown in a multi-line, backlit LCD display on the user interface. The LCD display shall have a resolution of 128 x 64 pixels, capable of displaying six lines of text. While operating in local mode, the controller shall maintain a 12/24-hour real-time clock. The display shall include the following languages: English, Spanish, French, Italian, Chinese, Korean, Japanese.

The controller shall have 64 independent irrigation programs. Each program shall have the ability to be scheduled independently in a 14-day calendar or one- to 30-day interval mode. Each program shall support up to 24 independent start times, station auto-cycle and up to three fixed repeats.

The controller shall have 16 stations minimum with the ability to run each station from one second to 23 hours and 59 minutes in one-second increments. It shall be expandable to a maximum of 64 stations using sixteen-station modules. Each station may be assigned independently to any or all of the 64 irrigation programs. Station run time shall be independent for each irrigation program. Each station shall support zero (disabled) to three fixed repeats. When operating as part of a Lynx® Central Control System, each station shall support Autocycle execution with minimum soak times defined from zero (disabled) to 59 minutes.

The controller shall have a station-adjust feature that allows the independent adjustment of each station from 0% to 900% in 1% increments. The controller shall have a program-adjust feature that allows the independent adjustment of each irrigation program from 10% to 250% in 1% increments. The controller shall have a satellite-adjust feature that additionally adjusts all programs and stations from 1% to 900% in 1% increments. The cumulative percentage adjust for station, program and satellite shall range from 0% to 900%.

The controller shall have a manual start feature that allows a program to be run in normal or syringe mode. Syringe mode run time may be specified from one to 59 minutes. When a program is running (automatic or manually started), the controller will display the currently running program, the currently running station and time left for the running station. The controller shall have a multi-manual capability that allows the operation of one to 64 stations with independent station run times. Multi-manual run times may be set from one second to 23 hours and 59 minutes. The user shall have the ability to select how many stations run simultaneously (1 to 32), when performing a multi-manual operation.

The controller shall have the ability to create, store and operate group multi-manual routines, whereby stations can be grouped in sequences and operated either manually or on a scheduled basis. Each sequence shall be capable of running one to six stations as designated by the user, with a common runtime for all stations within a sequence. The controller shall provide up to 64 sequences. The controller shall support the ability to create group multi-manual routines at the faceplate, and the ability to download group multi-manual routines from the central computer.

The controller shall support station based flow management watering as downloaded from the central computer. Station based watering routines shall be retained in the controller's memory, and shall operate independently from standard irrigation programs, manual irrigation activity, and group multi-manual activity.

The controller shall support station current sensing, with the ability to set over-current and under-current alarm thresholds. Current sensing thresholds shall be programmable at the individual station level, with the ability to enable and disable current sensing at the station level. Current sensing alarms shall be displayed on the controllers faceplate, as well as provided to and displayed at the central computer.

The controller shall use a high-energy lithium battery for real-time clock retention in the event of a power failure. The controller battery shall maintain the real-time clock for 90 days. Program data shall be stored in non-volatile memory that will be retained for a minimum of ten years without power.

The controller shall have a front cover that locks only when engaged and shall not lock automatically with each closure. The controller shall not require the use of armored cable or looping communication cable.

The controller shall offer a basic level of electrical surge protection as standard equipment. An optional enhanced level of surge protection shall be available for all outputs, input power, communications and the pump and common interfaces.

When operating in the central mode, the controller shall be capable of two-way communications with a central computer using a wired modem connection or a radio. The controller shall be capable of cohabitating on a communication network with the Toro Network 8000, and/or Toro Network VP, and/or Network VP_E controllers. It shall be fully compatible with Lynx Central Control System and SitePro Central Control System. It shall receive, store and respond to all commands generated by the central computer software. In addition, as part of a Lynx Central Control System, station percent adjust values initiated at the faceplate shall be uploaded to the central.

The user interface shall include a radio menu containing signal strength information (RSSI) and allowing the user to select optimal licensed radio frequencies for transmit and receive functions. The radio menu shall include transmission power settings for licensed radio transmission options.

The user interface shall include a diagnostic menu allowing access to logged communications details and logged radio signal strength. The diagnostic menu shall include station current values and primary satellite voltage values. Colored LED lights shall indicate primary voltage values on the satellite circuit boards.

The controller shall be developed and manufactured in the USA by an ISO 9001-certified facility. The controller, model number _____, shall be manufactured by The Toro Company, Irrigation Division.