

CONTROLLER ASSEMBLIES

RAIN BIRD® ESP-LXME CONTROLLER ASSEMBLY

The Imperial Controller Assembly (ICA) is built with the highest quality standards using UL Listed stainless steel enclosures to provide simple and efficient installations in the field. All Assemblies include a pre-installed controller(s), 120VAC receptacles, terminal boards for wiring and mounting instructions. The Imperial Assemblies wiring harness is wired through the rear giving it a clean look.

As pre-assembled and pre-wired for convenience, the installer is responsible for setting the enclosure base (or Mounting Pad), installing conduits, wiring the 120VAC electrical to the receptacle, and connecting the valve wires to the terminal board. Optional flow, rain, and other sensing devices may also be connected to the terminal board.

Mounting bases (#MP) are ideal way to further reduce installation time by eliminating the need to a pour concrete base. All Imperial Assemblies include a limited 5 year warranty.



SPECIFICATIONS

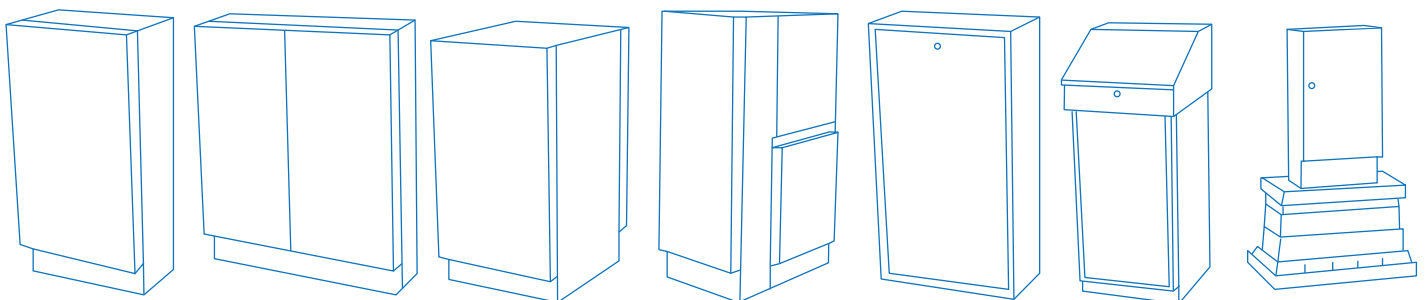
The Imperial Controller Assembly shall include a UL Listed stainless steel vandal resistant enclosure with a removable backboard, 120VAC outlet receptacle, and terminal wire board with Remote Receiver Connector (RRC).

The electrical junction box shall include an on/off power switch and duplex receptacle with ground fault interrupt circuit.

The terminal wiring board shall be pre-mounted and wired through the rear side of the backboard and shall include screw-less cage-type terminal block connections including up to two slots per terminal and may accept 12 or 14 gauge AWG wires. The terminal board shall also include a reset-able fuse and sensor bypass switch.

The terminal board(s) shall have a maximum of forty eight (48) valve station locations including additional terminals for up to four (4) common wires, master valve(s), two (2) rain sensor terminals, pump start, flow sensor, and two-wire communication cables.

STRONG BOX ENCLOSURE TYPES



SINGLE CABINET

SIDE BY SIDE

DOUBLE WIDE

METER CONTROLLER

LITE CONTROLLER

TOP ENTRY

MOUNTING PAD

RAIN BIRD® ESP-LXME CONTROLLER ASSEMBLY PART NUMBERING GUIDE

Imperial Controller Assembly Part Number

ICAX-RB2-XX+XX/Options

ICAX- Specify Strong Box Stainless Steel Enclosure Type

FRONT ENTRY

1=	18"W x 36"H x 12"D	SB18-SS PEDESTAL
2=	18"W x 36"H x 24"D	SB18D-SS PEDESTAL
3=	24"W x 36"H x 12"D	SB24-SS PEDESTAL
4=	24"W x 36"H x 24"D	SB24D-SS PEDESTAL
8=	36"W x 36"H x 12"D	SB36-SS PEDESTAL

ELECTRIC METER/ CONTROLLER ENCLOSURE

5A=	18"W x 52"H x 20"D + 18"W x 52"H	SB-1852SS PEDESTAL	(100/100 AMP – 1 PH)
5B=	18"W x 52"H x 20"D + 18"W x 52"H	SB-1852SS PEDESTAL	(100/150 AMP – 1 PH)
5C=	18"W x 52"H x 20"D + 18"W x 52"H	SB-1852SS PEDESTAL	(100/200 AMP – 1 PH)
5D=	18"W x 52"H x 20"D + 18"W x 52"H	SB-1852SS PEDESTAL	(100/100 AMP – 3 PH)
5E=	18"W x 52"H x 20"D + 18"W x 52"H	SB-1852SS PEDESTAL	(200/200 AMP – 3 PH)

TOP ENTRY ENCLOSURES

6=	16"W x 38"H x 15.5"D	SB-16SS PEDESTAL
7=	24"W x 38"H x 17"D	SB-22SS PEDESTAL

WALL MOUNT ENCLOSURES AND BACKBOARDS

10=	16"W x 32"H	BACKBOARD – WALL MOUNT
11=	22"W x 32"H	BACKBOARD – WALL MOUNT
16=	18"W x 36"H x 12"D	SB-18SSW WALL MOUNT ENCLOSURE
17=	24"W x 36"H x 12"D	SB-24SSW WALL MOUNT ENCLOSURE

LITE DUTY ENCLOSURES

12=	16.75"W x 30"H x 8.25"D	LD-16SW WALL MOUNT
13=	16.75"W x 30"H x 8.25"D	LD-16SSW PEDESTAL
15=	17 1/2"W x 34 1/2"H x 11 1/2"D	LD-16 TOP ENTRY PEDESTAL

RB2-XX+XX /OPTIONS

RB2	CONTROLLER MANUFACTURER RB = Rain Bird
RB2	CONTROLLER TYPE/COMMUNICATION 1 = OMIT 2 = ESP-LXME 3 = ESP-LXMEF 4 = SMT 5 = ESP-LXD 6 = ESP-LX Basic
XX	CONTROLLER #1 STATION QUANTITY (8-48)
+XX	CONTROLLER #1 STATION QUANTITY (8-48)
/OPTIONS	CONTROLLER OPTIONS (See Controller Assembly Options Section for available options)

CONTROLLER ASSEMBLIES

RAIN BIRD® ESP-LXMEF CONTROLLER ASSEMBLY

The Imperial Controller Assembly (ICA) is built with the highest quality standards using UL Listed stainless steel enclosures to provide simple and efficient installations in the field. All Assemblies include a pre-installed controller(s), 120VAC receptacles, terminal boards for wiring and mounting instructions. The Imperial Assemblies wiring harness is wired through the rear giving it a clean look.

As pre-assembled and pre-wired for convenience, the installer is responsible for setting the enclosure base (or Mounting Pad), installing conduits, wiring the 120VAC electrical to the receptacle, and connecting the valve wires to the terminal board. Optional flow, rain, and other sensing devices may also be connected to the terminal board.

Mounting bases (#MP) are ideal way to further reduce installation time by eliminating the need to a pour concrete base. All Imperial Assemblies include a limited 5 year warranty.



SPECIFICATIONS

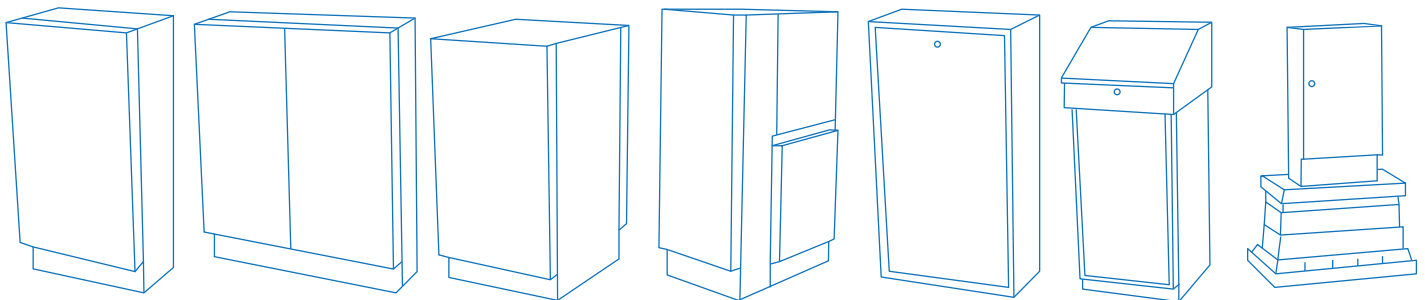
The Imperial Controller Assembly shall include a UL Listed stainless steel vandal resistant enclosure with a removable backboard, 120VAC outlet receptacle, and terminal wire board with Remote Receiver Connector (RRC).

The electrical junction box shall include an on/off power switch and duplex receptacle with ground fault interrupt circuit.

The terminal wiring board shall be pre-mounted and wired through the rear side of the backboard and shall include screw-less cage-type terminal block connections including up to two slots per terminal and may accept 12 or 14 gauge AWG wires. The terminal board shall also include a reset-able fuse and sensor bypass switch.

The terminal board(s) shall have a maximum of forty eight (48) valve station locations including additional terminals for up to four (4) common wires, master valve(s), two (2) rain sensor terminals, pump start, flow sensor, and two-wire communication cables.

STRONG BOX ENCLOSURE TYPES



SINGLE CABINET

SIDE BY SIDE

DOUBLE WIDE

METER CONTROLLER

LITE CONTROLLER

TOP ENTRY

MOUNTING PAD

RAIN BIRD® ESP-LXME CONTROLLER ASSEMBLY PART NUMBERING GUIDE

Imperial Controller Assembly Part Number

ICAX-RB3-XX+XX/Options

ICAX- Specify Strong Box Stainless Steel Enclosure Type

FRONT ENTRY

1=	18"W x 36"H x 12"D	SB18-SS PEDESTAL
2=	18"W x 36"H x 24"D	SB18D-SS PEDESTAL
3=	24"W x 36"H x 12"D	SB24-SS PEDESTAL
4=	24"W x 36"H x 24"D	SB24D-SS PEDESTAL
8=	36"W x 36"H x 12"D	SB36-SS PEDESTAL

ELECTRIC METER/ CONTROLLER ENCLOSURE

5A=	18"W x 52"H x 20"D + 18"W x 52"H	SB-1852SS PEDESTAL	(100/100 AMP – 1 PH)
5B=	18"W x 52"H x 20"D + 18"W x 52"H	SB-1852SS PEDESTAL	(100/150 AMP – 1 PH)
5C=	18"W x 52"H x 20"D + 18"W x 52"H	SB-1852SS PEDESTAL	(100/200 AMP – 1 PH)
5D=	18"W x 52"H x 20"D + 18"W x 52"H	SB-1852SS PEDESTAL	(100/100 AMP – 3 PH)
5E=	18"W x 52"H x 20"D + 18"W x 52"H	SB-1852SS PEDESTAL	(200/200 AMP – 3 PH)

TOP ENTRY ENCLOSURES

6=	16"W x 38"H x 15.5"D	SB-16SS PEDESTAL
7=	24"W x 38"H x 17"D	SB-22SS PEDESTAL

WALL MOUNT ENCLOSURES AND BACKBOARDS

10=	16"W x 32"H	BACKBOARD – WALL MOUNT
11=	22"W x 32"H	BACKBOARD – WALL MOUNT
16=	18"W x 36"H x 12"D	SB-18SSW WALL MOUNT ENCLOSURE
17=	24"W x 36"H x 12"D	SB-24SSW WALL MOUNT ENCLOSURE

LITE DUTY ENCLOSURES

12=	16.75"W x 30"H x 8.25"D	LD-16SW WALL MOUNT
13=	16.75"W x 30"H x 8.25"D	LD-16SSW PEDESTAL
15=	17 1/2"W x 34 1/2"H x 11 1/2"D	LD-16 TOP ENTRY PEDESTAL

RB3-XX+XX /OPTIONS

RB3	CONTROLLER MANUFACTURER RB = Rain Bird
RB3	CONTROLLER TYPE/COMMUNICATION 1 = OMIT 2 = ESP-LXME 3 = ESP-LXMEF 4 = SMT 5 = ESP-LXD 6 = ESP-LX Basic
XX	CONTROLLER #1 STATION QUANTITY (8-48)
+XX	CONTROLLER #1 STATION QUANTITY (8-48)
/OPTIONS	CONTROLLER OPTIONS (See Controller Assembly Options Section for available options)

ESP-LXME Controller

ESP-LX Series Controllers

The popular Rain Bird ESP-LX Series commercial controllers have been enhanced to provide additional features and station capacity. The ESP-LXME Enhanced Controller provides flow sensing and management with modular station capacity from 8 to 48 stations. Station modules are available in 4-, 8-, and 12-station models.

Applications

The ESP-LXME provides flexible features and modular options that make the controller ideal for a wide variety of applications including light-commercial, commercial, and industrial irrigation systems. Modular options include modular station capacity, flow sensing, metal case and pedestal, ETC Manager Smart Cartridge, and NCC Network Control Communication Cartridges. These options are field installed and can upgrade and enhance the ESP-LXME at any time in the future.

Easy to Use

The ESP-LXME Controller utilizes the Rain Bird ESP Extra-Simple Programming user interface. The dial, switches, and buttons interface which Rain Bird first introduced in the early 1990's is easy to learn and use and has become a standard controller interface for the irrigation industry. The large LCD display incorporates softkey text labels for the button functions rather than dedicated buttons.

Multiple language support allows the end-user or maintenance personnel to interface with the controller in their primary language. User selectable languages include English, Spanish, French, German, Italian, and Portuguese. Date, time, and unit formats are also user configurable.

Easy to Install

The ESP-LXME Controller has a spacious case and quick-connect terminals making installation fast and easy. Multiple size wiring knockouts are provided on the bottom and back side of the case to adapt to a wide variety of wiring applications. The door and front panel are removable so the case can be easily mounted to the wall.

Controller Hardware

- Plastic, locking, UV resistant, wall-mount case
- Optional painted steel and stainless steel cases and pedestals
- 8-, or 12-stations base unit expandable to 48 stations with 4-, 8-, & 12-Station Modules
- Flow Smart Module™ factory installed or field upgradable

Controller Features

- Large LCD display with easy to navigate softkey user interface
- Hot-swappable modules, no need to power down the controller to add/remove modules
- Dynamic station numbering eliminates station numbering gaps
- Weather Sensor input with override switch
- Master valve/pump start circuit
- 6 user-selectable languages
- Non-Volatile (100- year) program memory
- Standard 10kV surge protection
- Front panel is removable and programmable under battery power

Water Management Features

- Optional Flow Smart Module™ with Learn Flow utility and flow usage totalizer
- FloWatch™ protection for high and low flow conditions with user defined reactions
- FloManager™ manages hydraulic demand, making full use of available water to shorten total watering time
- SimulStations™ are programmable to allow up to 5 stations to operate at the same time
- Water Windows by program plus Manual MV Water Window
- Cycle+Soak™ by station
- Rain Delay
- 365-Day Calendar Day Off
- Programmable Station Delay by program
- Normally Open or Closed Master Valve programmable by station
- Weather Sensor programmable by station to prevent or pause watering
- Program Seasonal Adjust
- Global Monthly Seasonal Adjust

Diagnostic Features

- Alarm light with external case lens
- Electronic diagnostic circuit breaker
- Program summary and review
- Variable test program
- RASTER™ station wiring test

Operating Specifications

- Station timing: 0 min to 12 hrs
- Seasonal Adjust: 0% to 300% (16 hrs maximum station run time)
- 4 independent programs (ABCD)
- ABCD programs can overlap
- 8 start times per program
- Program Day Cycles include Custom days of the week, Odd, Odd31, Even, & Cyclical dates
- Manual station, program, test program



Electrical Specifications

- Input required: 120 VAC ± 10%, 60Hz (International models: 230 VAC ± 10%, 50Hz or 60Hz; Australian Models: 240 VAC ± 10%, 50Hz)
- Output: 26.5 VAC 1.9A
- Power back-up: Lithium coin-cell battery maintains time and date while nonvolatile memory maintains the programming
- Multi-valve capacity: Maximum five 24 VAC, 7VA solenoid valves simultaneous operation including the master valve, maximum two solenoid valves per station

Certifications

- UL, CUL, CE, CSA, C-Tick, FCC Part 15

Dimensions

- Width: 14.32 in. (36,4 cm)
- Height: 12.69 in. (32,2 cm)
- Depth: 5.50 in. (14,0 cm)

How To Specify

ESP-LXME

Base Controller without Flow Smart Module
ESP-8LXME:
8-station base

Base Controller with Flow Smart Module
ESP-12LXMEF:
12-station base

ESPLXMSM4

Station Modules
ESPLXMSM4:
4-Station Module
ESPLXMSM8:
8-Station Module
ESPLXMSM12:
12-Station Module

FSM-LXME

Flow Smart Modules
FSM-LXME Flow Smart Module

Specifications

The ESP-LXME Controller shall be of a hybrid type that combines electro-mechanical and microelectronic circuitry capable of fully automatic or manual operation. The controller shall be housed in a wall-mountable, weather-resistant plastic cabinet with a key-locking cabinet door suitable for either indoor or outdoor installation. The controller shall have the ability to be programmed and operated in any one of six languages: English, Spanish, French, German, Italian, & Portuguese. The display shall show programming options and operating instructions in the chosen language without altering the programming or operation information.

The controller shall have a base station capacity of 8 or 12 stations as well as 3 expansion slots capable of receiving station modules of 4, 8, or 12 stations to create a controller capacity of up to 48 stations. All stations shall have the capability of independently obeying or ignoring the weather sensor as well as using or not using the master valve. Station timing shall be from 0 minutes to 12 hours. The controller shall have a Seasonal Adjustment by program which adjusts the station run time from 0 to 300% in 1% increments. The controller shall also have a Monthly Seasonal Adjustment of 0 to 300% by month. Station timing with Seasonal Adjustment shall be from 1 second to 16 hours.

The controller shall have 4 separate and independent programs which can have different start times, start day cycles, and station run times. Each program shall have up to 8 start times per day for a total of 32 possible start times per day. The 4 programs shall be allowed to overlap operation based on user defined settings which control the number of simultaneous stations per program and total for the controller. The controller shall allow up to 5 valves to operate simultaneously per program and total for the controller including the master valve/pump start circuit. The controller shall have an electronic, diagnostic circuit breaker that shall sense a station with an electrical overload or short circuit and shall bypass that station and continue to operate all other stations.

The controller shall have a 365-day calendar with Permanent Day Off feature that allows a day(s) of the week to be turned off on any user selected program

day cycle. (Custom, Even, Odd, Odd31, & Cyclical). Days set to Permanent Day Off shall override the normal repeating schedule and not water on the specified day(s) of the week. The controller shall also have a Calendar Day Off feature allowing the user to select up to 5 dates up to 365-days in the future when the controller shall not start programs. The controller shall incorporate a Rain Delay feature allowing the user to set the number of days the controller should remain off before automatically returning to the auto mode.

The controller shall have Cycle+Soak water management software which is capable of operating each station for a maximum cycle time and a minimum soak time to reduce water run-off. The maximum cycle time shall not be extended by Seasonal Adjustment.

The controller shall incorporate a FloManager feature providing real-time flow, power, and station management. FloManager shall manage the number of stations operating at any point in time based on water source capacity, station flow rate, number of valves per station; user-defined simultaneous stations per program and for the controller. FloManager shall incorporate the ability to provide station priorities to determine the order in which stations shall operate. The controller shall ignore the station number and instead operate the highest priority stations first and the lower priority stations last when FloManager is enabled. FloManager shall be an option that is disabled by default and the controller shall operate zones in order of station number, started with the lowest numbered zone set to irrigate and ending with the highest number zone.

The controller shall offer Water Windows for each program. This function sets the allowed start and stop time where watering is allowed. If the watering cannot be completed by the time the Water Window closes, the stations with remaining run time are paused and watering automatically resumes when the Water Window opens the next time.

The controller shall offer a Flow Smart Module option which adds flow sensing functionality. The Flow Smart Module sensor input shall accept a direct input from a flow sensor with no flow scaling device required.

Module features shall include a FloWatch Learn Flow Utility which learns the normal flow rate of each station. Each time the station runs FloWatch compares the current real-time flow rate to the learned rate and takes user defined actions if high flow, low flow, or no flow is detected. FloWatch shall automatically determine the location of the flow problem and isolate the problem by turning off the affected station or master valve. FloWatch shall be compatible with both normally closed and open master valves. A Manual Master Valve Water Windows shall be provided to coordinate day time manual watering with the flow sensing. This Water Windows shall offer programmable days of the week and manual watering additional flow rate.

The controller shall have an alarm indicator light on the front panel visible through the outer door with the door closed and locked. The alarm light shall prompt the user to select the alarm softkey to review the alarm condition(s).

The controller shall be compatible with the ETC-LX ET Manager Cartridge which upgrades the controller to a Smart controller. A weather service signal received by the cartridge shall automatically adjust the individual controller program day cycles and station run times to apply the minimum amount of water required based on the current plant water requirements.

The controller shall be compatible with the IQ™ Platform utilizing NCC Network Communication Cartridges. The NCC Cartridge shall provide communication with the IQ Central Computer and other controllers via a variety of communication options (Direct Connect Cable, Phone, GPRS/Cellular, Ethernet, WiFi, Radio, and IQNet Communication Cable). The IQ Platform shall provide remote computer control of the controller providing automatic or manual program adjustments.

The controller shall offer an optional metal cabinet and pedestal.

The controller shall be as manufactured by Rain Bird Corporation.

Rain Bird Corporation

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Rain Bird Corporation

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Specification Hotline

800-458-3005 (U.S. and Canada)

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Azusa, CA 91702
Phone: (626) 963-9311
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The Intelligent Use of Water™
www.rainbird.com

CONTROLLER ASSEMBLIES

RAIN BIRD® ESP-LXD CONTROLLER ASSEMBLY

The Imperial Controller Assembly (ICA) is built with the highest quality standards using UL Listed stainless steel enclosures to provide simple and efficient installations in the field. All Assemblies include a pre-installed controller(s), 120VAC receptacles, terminal boards for wiring and mounting instructions. The Imperial Assemblies wiring harness is wired through the rear giving it a clean look.

As pre-assembled and pre-wired for convenience, the installer is responsible for setting the enclosure base (or Mounting Pad), installing conduits, wiring the 120VAC electrical to the receptacle, and connecting the valve wires to the terminal board. Optional flow, rain, and other sensing devices may also be connected to the terminal board.

Mounting bases (#MP) are ideal way to further reduce installation time by eliminating the need to a pour concrete base. All Imperial Assemblies include a limited 5 year warranty.



SPECIFICATIONS

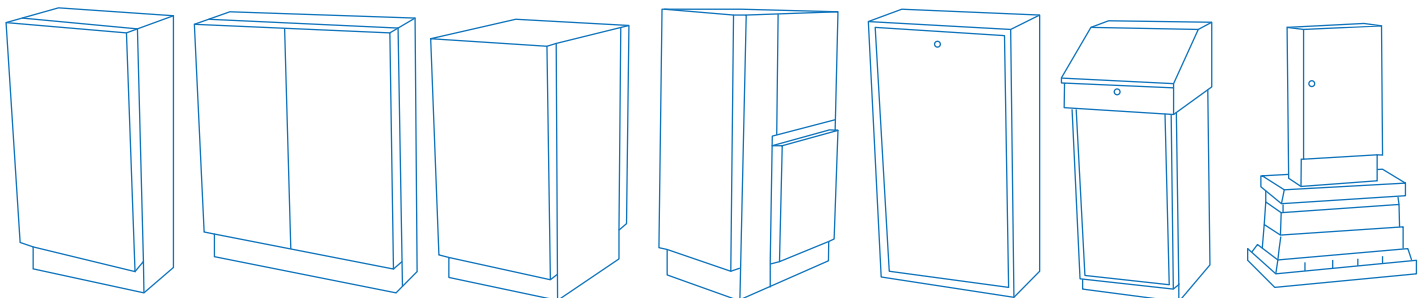
The Imperial Controller Assembly shall include a UL Listed stainless steel vandal resistant enclosure with a removable backboard, 120VAC outlet receptacle, and terminal wire board with Remote Receiver Connector (RRC).

The electrical junction box shall include an on/off power switch and duplex receptacle with ground fault interrupt circuit.

The terminal wiring board shall be pre-mounted and wired through the rear side of the backboard and shall include screw-less cage-type terminal block connections including up to two slots per terminal and may accept 12 or 14 gauge AWG wires. The terminal board shall also include a reset-able fuse and sensor bypass switch.

The terminal board(s) shall have a maximum of four (4) 2 wire valve station locations including additional, master valve(s), two (2) rain sensor terminals, pump start and flow sensor terminals.

STRONG BOX ENCLOSURE TYPES



SINGLE CABINET

SIDE BY SIDE

DOUBLE WIDE

METER CONTROLLER

LITE CONTROLLER

TOP ENTRY

MOUNTING PAD

RAIN BIRD ESP-LXD CONTROLLER ASSEMBLY PART NUMBERING GUIDE

Imperial Controller Assembly Part Number

ICAX-RB5-XX+XX/Options

ICAX- Specify Strong Box Stainless Steel Enclosure Type

FRONT ENTRY

1=	18"W x 36"H x 12"D	SB18-SS PEDESTAL
2=	18"W x 36"H x 24"D	SB18D-SS PEDESTAL
3=	24"W x 36"H x 12"D	SB24-SS PEDESTAL
4=	24"W x 36"H x 24"D	SB24D-SS PEDESTAL
8=	36"W x 36"H x 12"D	SB36-SS PEDESTAL

ELECTRIC METER/ CONTROLLER ENCLOSURE

5A=	18"W x 52"H x 20"D + 18"W x 52"H	SB-1852SS PEDESTAL	(100/100 AMP – 1 PH)
5B=	18"W x 52"H x 20"D + 18"W x 52"H	SB-1852SS PEDESTAL	(100/150 AMP – 1 PH)
5C=	18"W x 52"H x 20"D + 18"W x 52"H	SB-1852SS PEDESTAL	(100/200 AMP – 1 PH)
5D=	18"W x 52"H x 20"D + 18"W x 52"H	SB-1852SS PEDESTAL	(100/100 AMP – 3 PH)
5E=	18"W x 52"H x 20"D + 18"W x 52"H	SB-1852SS PEDESTAL	(200/200 AMP – 3 PH)

TOP ENTRY ENCLOSURES

6=	16"W x 38"H x 15.5"D	SB-16SS PEDESTAL
7=	24"W x 38"H x 17"D	SB-22SS PEDESTAL

WALL MOUNT ENCLOSURES AND BACKBOARDS

10=	16"W x 32"H	BACKBOARD – WALL MOUNT
11=	22"W x 32"H	BACKBOARD – WALL MOUNT
16=	18"W x 36"H x 12"D	SB-18SSW WALL MOUNT ENCLOSURE
17=	24"W x 36"H x 12"D	SB-24SSW WALL MOUNT ENCLOSURE

LITE DUTY ENCLOSURES

12=	16.75"W x 30"H x 8.25"D	LD-16SW WALL MOUNT
13=	16.75"W x 30"H x 8.25"D	LD-16SSW PEDESTAL
15=	17 1/2"W x 34 1/2"H x 11 1/2"D	LD-16 TOP ENTRY PEDESTAL

RB5-XX+XX /OPTIONS

RB5	CONTROLLER MANUFACTURER RB = Rain Bird
RB5	CONTROLLER TYPE/COMMUNICATION 1 = OMIT 2 = ESP-LXME 3 = ESP-LXMEF 4 = SMT 5 = ESP-LXD 6 = ESP-LX Basic
XX	CONTROLLER #1 STATION QUANTITY (8-48)
+XX	CONTROLLER #1 STATION QUANTITY (8-48)
/OPTIONS	CONTROLLER OPTIONS (See Controller Assembly Options Section for available options)

ESP-LXD Controller

ESP-LX Series Controllers

The popular Rain Bird ESP-LX Series commercial controller line now includes a two-wire controller. The ESP-LXD controller has been designed to maintain the look, feel and ease of programming of the ESP-LX Series controllers but with an interface to a two-wire path for decoder-based irrigation. The ESP-LXD controller provides flow sensing and management and 50 station capacity expandable to 200 stations.

Applications

The ESP-LXD provides flexible features and modular options that make the controller ideal for a wide variety of applications including light-commercial, commercial and industrial irrigation systems. Options include a metal case and pedestal, ET Manager Smart Cartridge, NCC Network Communication Cartridges, and the PBC-LXD Programming Backup Cartridge. These options can easily be installed with the initial controller installation or when needed in the future.

Easy to Use

The ESP-LXD Controller utilizes the Rain Bird ESP Extra-Simple Programming user interface. The dial, switches, and buttons interface, which Rain Bird first introduced in the early 1990s, are easy to learn and use and have become a standard controller interface for the irrigation industry. The large LCD display incorporates softkey text labels for the button functions rather than dedicated buttons.

Multiple language support allows the end user or maintenance personnel to interface with the controller in his or her primary language. User-selectable languages include English, Spanish, French, German, Italian and Portuguese. Date, time and unit formats are also user-configurable.

Easy to Install

The ESP-LXD Controller has a spacious case and eight lugs for up to four two-wire paths making installation fast and easy. Multiple size wiring knockouts are provided on the bottom and back side of the case to adapt to a wide variety of wiring applications. The door and front panel are removable so the case can be easily mounted to the wall.

Controller Features

- Plastic, UV-resistant, locking, wall-mount case
- Uses the same decoder hardware as MDC, MDC2 and SiteControl

- Supported decoders: FD-101TURF, FD-102TURF, FD-202TURF, FD-401TURF, FD-601TURF
- Also supports SD-210TURF sensor decoders (flow sensing and weather sensor support) and LSP-1 line surge protectors (one per 500 feet of two-wire path required)
- 50-station capability standard expandable to 200 stations with optional ESPLXD-SM75 modules
- Four sensor inputs (one wired plus up to three decoder-managed) with override switch
- Program backup and barcode decoder address entry with the optional PBC-LXD
- Six user-selectable languages
- Removable front panel is programmable under battery power
- Optional LXMM metal case and LXMPED metal pedestal
- Optional LXMMSS stainless steel case and LXMMSSPED stainless steel case
- Remote water management available using the IQ™ Platform and NCC Cartridges
- Compatible with Rain Bird Landscape Irrigation and Maintenance Remote

Water Management Features

- Learn Flow utility and flow usage totalizer
- FloWatch™ protection for high and low flow conditions with user-defined reactions
- FloManager™ manages hydraulic demand, making full use of available water to shorten total watering time
- Programmable SimulStations™ allow up to 8 stations to operate at the same time
- Cycle+Soak™ by station
- Rain Delay
- 365-Day Calendar Day Off
- Programmable Station Delay by program
- Up to 5 Normally Open or Normally Closed Master Valves programmable by station
- Up to 4 Weather Sensors programmable by station to prevent or pause watering
- Program & Monthly Seasonal Adjust

Diagnostic Features

- Alarm light with external case lens
- Electronic diagnostic circuit breaker
- Program summary and review
- Variable test program
- Two-wire diagnostics to simplify and expedite troubleshooting



Operating Specifications

- Station timing: 0 min to 12 hrs
- Seasonal Adjust: 0% to 300% (16 hrs maximum station run time)
- 4 independent programs (ABCD); ABCD programs can overlap
- 8 start times per program
- Program Day Cycles include Custom days of the week, Odd, Odd no 31st, Even, and Cyclical dates
- Manual station, program, test program

Certifications

- UL, CUL, CE, CSA, C-Tick, FCC Part 15

Electrical Specifications

- Input required: 120 VAC ± 10%, 60Hz (International models: 230 VAC ± 10%, 50Hz or 60Hz; Australian Models: 240 VAC ± 10%, 50Hz)
- Power back-up: Lithium coin-cell battery maintains time and date while nonvolatile memory maintains programs
- Multi-valve station capacity: up to 2 solenoid valves per station; simultaneous operation of up to eight solenoids and/or master valves
- Rain Bird residential valves (DV and JTV series) are not compatible with ESP-LXD decoders. Use Rain Bird commercial valves (PGA, PEB, GB, EFB-CP and BPE series).

Dimensions (W x H x D)

- 14.32" x 12.69" x 5.50" (36.4 x 32.2 x 14.0 cm)

How To Specify

Controller	Modules & Cartridges
ESP-LXD	ESPLXD-SM75
Models	Models
ESP-LXD: 120v Outdoor	75-station module
IESP-LXD: 230v Intl	PBC-LXD: Program
IESPLXDEU: 230V (EU)	Backup Cartridge
IESP-LXDA: 240V (AUS)	

ESPLXD-M50 Base Module (included)

The ESP-LXD is a controller in a cabinet with locking door manufactured with UV-resistant plastics for outdoor use. Included with every ESP-LXD is the ESPLXD-M50 module, a “double-wide” module which snaps onto two adjacent mounts on the controller backplane. The ESPLXD-M50 module includes the lugs for attachment of the two-wire path cables.

Flow Smart software is included with the ESPLXD-M50 module. This includes FloWatch™ featuring a Learn Flow utility, flow usage totalizer, protection for high and low flow conditions with user-defined reactions, FloManager™ for managing hydraulic demand, making full use of available water to shorten total watering time.



ESPLXD-M50 Module

Optional Accessories for the ESP-LXD Controller

ESPLXD-SM75 Station Modules

The ESP-LXD controller can manage up to 50 stations. If additional station capacity is needed, up to 2 ESPLXD-SM75 station modules can be attached to the controller backplane. Each module can manage up to 75 stations.

Station Configuration

The desired station capacity can be achieved by combining the following modules:

# Stations	ESPLXD-SM75 Modules
1 – 50	0
51 – 125	1
126 – 200	2



ESPLXD-SM75 Module

PBC-LXD Cartridge

The Program Backup Cartridge installs into the cartridge bay in the back of the controller front panel and adds Backup and Restore and barcode Decoder Address Entry capability. The backup feature allows 8 full backups of all programming and decoder addresses in an ESP-LXD controller. Decoder address entry allows you to attach a barcode scanning pen (sold separately) and scan the peel-off barcode labels from the Programming Chart included with the controller to significantly reduce installation and setup time. A barcode scanning pen, not included with the cartridge, is required for barcode scanning; Rain Bird recommends the Unitech MS100-2 pen with 9-pin female serial connector.



PBC-LXD Cartridge

Metal Case & Pedestal

LXMM / LXMM-PED painted steel and LXMMSS / LXMMSS-PED stainless steel cases and pedestals are available for free-standing controller applications.

LXMM Metal Case



LXMMPED Metal Pedestal



Network Communication Cartridges

NCC Network Communication Cartridges upgrade ESP-LX Series standalone controllers to IQ satellite controllers capable of being controlled by the IQ Platform. The NCC cartridges snap into the back of the controller front panel and provide a communication link between the IQ central computer and the remote site controllers. ESP-LXD can use any of the six available NCC cartridges:

- NCC-PH: Phone
- NCC-GP: GPRS/Cellular
- NCC-EN: Ethernet
- NCC-WF: Wi-Fi
- NCC-RS: RS232
- IQ-DOM2 GPRS/Cellular with one year free service (US only)

NCC-GP Communication Cartridge



Weather Sensors

The ESP-LXD supports up to 4 weather sensors, one wired into the ESPLXD-M50 Base Module and up to three additional on the two-wire path interfaced with SD-210 sensor decoders. Supported Rain Bird sensors include the RSD wired rain sensor, the WR2-RC wireless rain sensor, the WR2-RFC wireless rain/freeze sensor and the ANEMOMETER wind sensor (the Rain Bird 3002 Pulse Transmitter is required for use of the ANEMOMETER). Soil moisture sensors that provide a normally closed switch interface are also supported.

WR2-RFC Wireless Rain/Freeze Sensor



ET Manager™ Smart Cartridge

The ESP-LXD Controller can be upgraded to a weather adjusted Smart controller with the addition of the ETC-LX ET Manager Cartridge. The ET Manager upgrade kit includes a cartridge that installs in the back of the controller front panel and an antenna that installs through a knock-out in the top of the controller case. The ETM receiver collects hourly weather station sensor data via a wireless paging signal. This data is used to calculate an Evapotranspiration (ET) value and irrigation is automatically adjusted to apply only the amount of water needed.

ETC-LX
ET Manager
Smart Cartridge



Decoders and the Two-Wire Path

The Two-Wire Path

Decoder-based control systems such as the ESP-LXD interface to valves and other irrigation hardware through decoders along a two-wire path. Although “loop” pattern two-wire installations allow longer wire paths, the “star” pattern is more commonly used. When 14-2 Maxi cable is used, the ESP-LXD supports a wire path of up to 1.65 miles (2.66 km) for “star” pattern installations and up to 6.61 miles (10.63 km) for “loop” installations.

Protection against water intrusion is essential for two-wire installations. Designed to be impervious to water intrusion, Rain Bird Maxi-Cable™ (double-jacketed) is required for two-wire path installations. Proper splicing technique for all splices along the two-wire path, for splicing decoders to the two-wire path, and for splicing decoders to valves and other hardware is also critical. Splice kits such as the Rain Bird DB (direct burial) connectors should be used.

Decoders

Decoders are installed along the two-wire path to interface to valves and other hardware. The ESP-LXD supports Field Decoders, for control of station valves and master valves, and Sensor Decoders, for interface with flow and weather sensors. All Rain Bird decoders have unique five digit addresses to allow the controller to manage a particular device, such as a valve.

Sensor Decoders

Rain Bird also offers a SD210TURF sensor decoder to interface to weather sensors or flow sensors. When a SD-210 is wired to a weather sensor along the two-wire path, it provides constant real-time monitoring of the weather sensor status. A SD-210 wired to a flow sensor monitors the current flow rate at a flow monitor by sending pulses to the controller.

Surge Protection

Proper grounding and surge protection is essential for two-wire installations. A two-wire path must be surge protected and grounded every 500 feet (150 meters) or every 8 decoders, whichever is smaller. The LSP1TURF Line Surge Protector is used for this purpose, but the FD-401 and FD-601 field decoders include line surge protection so LSP-1s are unnecessary when grounded FD-401 and FD-601 field decoders are used. Since LSP-1 Line Surge Protectors are used for surge protection only, they do not have decoder addresses.

Field Decoders

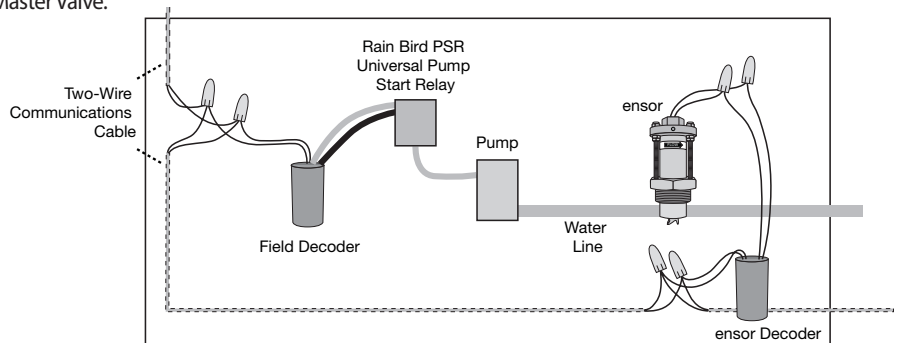
Field decoders are used to open and close station valves and master valves used for irrigation and are the most common decoders used in most two-wire installations. Rain Bird offers five field decoder models, including the FD-101 which controls a single valve with a single address and four other models capable of controlling multiple valves:

Decoder Model	Number of Addresses Per Decoder	Maximum Number Of Solenoids Per Address	Maximum Addresses Operating At Once
FD101TURF	1	1	1
FD102TURF	1	2	1
FD202TURF	2	2	2
FD401TURF*	4	1	4
FD601TURF*	6	1	4

* Decoder includes Line Surge Protection.

The ESP-LXD controller supports up to 5 Master Valves, and both Normally Open Master Valves and Normally Closed Master Valves are supported.

The ESP-LXD also supports the use of pumps. These are set up and managed by the controller in the same way as Master Valves, except that the field decoder is wired to a pump start relay instead of to a Master Valve.



Rain Bird recommends using the FD-101 field decoder for most pump start relays and a FD-102 for larger pumps (3/4 HP and greater).

LSP1TURF
Line Surge
Protector



SD210TURF
Sensor
Decoder

Specifications

The ESP-LXD Controller shall be of a hybrid type that combines electro-mechanical and micro-electronic circuitry capable of fully automatic or manual operation. The controller shall be housed in a wall-mountable, weather-resistant plastic cabinet with a key-locking cabinet door suitable for either indoor or outdoor installation. The controller shall have the ability to be programmed and operated in any one of six languages: English, Spanish, French, German, Italian, & Portuguese. The display shall show programming options and operating instructions in the chosen language without altering the programming or operation information.

The controller shall have a base station capacity of 50 stations with two additional expansion slots capable of receiving ESPLXD-SM75 station modules to create a controller capacity of up to 200 stations. All stations shall have the capability of independently obeying or ignoring any weather sensor as well as using or not using the master valves. Station timing shall be from 0 minutes to 12 hours. The controller shall have a Seasonal Adjustment by program which adjusts the station run time from 0 to 300% in 1% increments. The controller shall also have a Monthly Seasonal Adjustment of 0 to 300% by month. Station timing with Seasonal Adjustment shall be from 1 second to 16 hours.

The controller shall have 4 separate and independent programs which can have different start times, start day cycles, and station run times. Each program shall have up to 8 start times per day for a total of 32 possible start times per day. The 4 programs shall be allowed to overlap operation based on user defined settings which control the number of simultaneous stations per program and total for the controller.

The controller shall allow up to 8 valves to operate simultaneously per program and total for the controller including the master valves.

The controller shall have a 365-day calendar with Permanent Day Off feature that allows a day(s) of the week to be turned off on any user selected program day cycle. (Custom, Even, Odd, Odd31, & Cyclical). Days set to Permanent Day Off shall override the normal repeating schedule and not water on the specified day(s) of the week. The controller shall also have a Calendar Day Off feature allowing the user to select up to 5 dates up to 365-days in the future when the controller shall not start programs. The controller shall incorporate a Rain Delay feature allowing the user to set the number of days the controller should remain off before automatically returning to the auto mode.

The controller shall have Cycle+Soak water management software which is capable of operating each station for a maximum cycle time and a minimum soak time to reduce water runoff. The maximum cycle time shall not be extended by Seasonal Adjustment.

The controller shall incorporate a FloManager feature providing real-time flow, power, and station management. FloManager shall manage the number of stations operating at any point in time based on water source capacity, station flow rate, number of valves per station; user-defined simultaneous stations per program and for the controller. FloManager shall incorporate the ability to provide station priorities to determine the order in which stations shall operate. The controller shall ignore the station number and instead operate the highest priority stations first and the lower priority stations last when FloManager is enabled. FloManager shall be an option that is disabled by default and the

controller shall operate zones in order of station number, started with the lowest numbered zone set to irrigate and ending with the highest number zone.

The controller shall offer Water Windows for each program. This function sets the allowed start and stop time where watering is allowed. If the watering cannot be completed by the time the Water Window closes, the stations with remaining run time are paused and watering automatically resumes when the Water Window opens the next time.

The controller shall include an integrated Flow Smart Module with flow sensing functionality. The Flow Smart Module shall accept sensor decoder input from 1 - 5 flow sensors with no flow scaling device required.

A FloWatch Learn Flow Utility which learns the normal flow rate of each station shall be included. Each time a station runs FloWatch compares the current real-time flow rate to the learned rate and takes user-defined actions if high flow, low flow, or no flow is detected. FloWatch shall automatically determine the location of the flow problem and isolate the problem by turning off the affected station(s) or master valve(s). FloWatch shall be compatible with both normally closed and open master valves. A Manual Master Valve Water Window shall be provided to coordinate daytime manual watering with the flow sensing. This Water Window shall offer programmable days of the week and manual watering additional flow rate.

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