

MDC2 Two-Wire Decoder Controller

Simple and Reliable

The Rain Bird MDC2 Two-Wire Decoder Controller is Rain Bird's Next Generation two-wire decoder controller system with advanced programming and monitoring capabilities.

- Proven two-wire decoder technology with over 500,000 two-wire decoders installed worldwide on commercial and golf applications in the past 20 years
- Saves time in installation, troubleshooting and system maintenance by connecting to all valve locations using a two-wire pathway rather than conventional multi-strand wiring systems
- Uses the same FD-Series field decoders as SiteControl Central Control System allowing easy access to full central control capability



Flexible Control

The Rain Bird MDC2 Two-Wire Decoder based controller offers the flexibility and confidence that you expect from Rain Bird. MDC2 can be installed indoors or outdoors (a UL listing is required), and can be expanded from 50 decoder addresses to 200 decoder addresses

- Flexible installation with UL listed, indoor/outdoor mounting configurations
- Enhanced flow sensing capability (up to 10 sensors) allows management of multiple water sources
- Compatible with Rain Bird ET Manager™ (model number: ETMi) that manages irrigation based on real-time weather conditions
- Adjustable solenoid parameters – inrush and holding currents adjustable at controller to accommodate multiple solenoid requirements
- Pre-coded decoder addresses eliminate confusion associated with user-defined decoder addressing

Protection Against the Elements

- MDC2 Decoder Controller possesses enhanced protection from surge and water intrusion.
- All electronic components of the MDC2 decoders are fully sealed within an environmentally hardened enclosure

A Cost-Effective Alternative

A simple wiring configuration keeps the cost of installation and maintenance low. Traditional controllers require dedicated wiring to each valve location; typically decoders are installed with valves in valve boxes in commercial applications. Decoder systems utilize a single two-wire path to connect to all valve locations saving time in installation and troubleshooting so you can move on to your next project.

Proven Technology

Over 500,000 Rain Bird two-wire decoders, which are essentially simple and reliable switching stations, have been installed worldwide on commercial and golf applications in the past 20 years.

Proven and Reliable

The Rain Bird MDC2 Two-Wire Decoder Controller offers the flexibility and confidence that has become synonymous with Rain Bird products. Whether your site requires an indoor or outdoor installation (a UL listing is required), or an expandable option, the Rain Bird MDC2 Two-Wire Decoder Controller will meet your needs.

Select different MDC2 decoders to operate one, two, four, or six valves (up to 200 decoder addresses). Five different decoder options let you choose the precise amount of landscape irrigation control you need.

Remote Control Options

- MDC2 is compatible with the Rain Bird Freedom Remote Control which can be phone- or UHF radio-based allowing the user to turn MDC2 decoders on and off in the field and access the MDC2 system from anywhere on site or from a remote location
- Remotely program, communicate and monitor the MDC2 controller via 9-pin serial connector or phone modem with provided PC software

How to Specify/Order

MDC2 50-200

Model	Controller Type
MDC2-50-200	Controls up to 50 decoder addresses; expandable up to 200 decoder addresses using MDC2M50D
MDC2M50D	Expansion modules for MDC2-50-200



Controller Specifications

Model:

MDC2-50-200 is capable of controlling 50 decoder addresses, with expanded capacity of up to 200 addresses in increments of 50 utilizing MDC2M50D expansion modules.

Input voltage: 120V / 60Hz $\pm 10\%$

Output voltage: 34Vpp* (24V AC)

Maximum number of decoder addresses:

50/100/150/200 depending on number of expansion modules.

Maximum number of simultaneous valves: 10 irrigation valves, 1 non-irrigation valve

Programs: 10 + 1 auxiliary (lighting systems, etc.)

Maximum number of simultaneous programs: 2+1 auxiliary

Irrigation methods: Steps

Days: 14, every X day (X=1-14)

Start times: 6 per program

Start methods:

Day and time start, every X day + first day

Pausing of programs: Yes

Run time: 0-999 minutes

Water Budget: 0-250%

Pump/Master Valve Control:

Ability to support up to 10 points of connection

Manual operation:

Individual decoders or programs from Controller/PC/Freedom

Sensors:

One direct sensor input on controller: on/off switch (rain or alarm.) 10 sensor decoders (for flow) can be installed anywhere on the two-wire path.

Overload protection: Electronic

Test: Built-in diagnostics

Monitoring:

Active decoders shown with remaining time, all actions logged in memory. Log has 1500 action capacity.

Remote Control: Optional Freedom Remote

MDC2 PC Software: Included with every controller (*Note: not needed to operate or program controller*)

* Vpp (Peak to Peak voltage)

Decoder Specifications

Mounting: In valve box (recommended) or direct burial

Power Draw:

FD-101TURF: 0.5 mA (idle) 18 mA (per active solenoid)

FD-102TURF: 0.5 mA (idle) 18 mA (per active solenoid)

FD-202TURF: 1 mA (idle) 18 mA (per active solenoid)

FD-401TURF: 1 mA (idle) 18 mA (per active solenoid)

FD-601TURF: 1 mA (idle) 18 mA (per active solenoid)

Dimensions:

FD-101TURF: Length: 2.77 in. (70 mm), Diameter: 1.5 in. (40 mm)

FD-102TURF: Length: 3.35 in. (85 mm), Diameter: 1.77 in. (45 mm)

FD-202TURF: Length: 3.35 in. (85 mm), Diameter: 1.97 in. (50 mm)

FD-401TURF: Length: 3.94 in. (100 mm), Diameter: 2.56 in. (65 mm)

FD-601TURF: Length: 3.94 in. (100 mm), diameter: 2.56 in. (65 mm)

Solenoids:

FD-101TURF: 1 with individual control

FD-102TURF: 1 or 2 simultaneously

FD-202TURF: 1 to 4 simultaneously

FD-401TURF: 1 to 4 with individual control

FD-601TURF: 1 to 6 with individual control

Wires:

FD-101TURF: Blue to cable, white to solenoid

FD-102TURF: Blue to cable, white to solenoid

FD-202TURF: Blue to cable, white and brown to solenoids

FD-401TURF: Blue to cable, color-coded to solenoids

FD-601TURF: Blue to cable, color-coded to solenoids

Surge Protection:

Surge protection required every 500' along two-wire path

LSP-1 Line Surge Protector

FD401T with built in surge protection

FD601T with built in surge protection

Output Power:

Adjustable from controller – Inrush and holding current values adjustable at controller.

Encapsulation: Fully waterproof

Address:

Pre-coded from factory (i.e., no switches)

Electrical Input:

Nominal voltage: 34Vpp (24V AC) from 2-wire line

Minimum voltage: 21 Vpp (15V AC)

Standby Current:

FD-101TURF, FD-102TURF: 0.5 mA

FD-202TURF, FD-401TURF & FD-601TURF: 1 mA

Input Fuse (FD-401TURF & FD-601TURF only):

300-500 mA, thermal

Electrical Output:

Max. voltage: 36 Vpp

Max. load:

FD-101TURF: 1 Rain Bird solenoid (one per address)

FD-102TURF: 2 Rain Bird solenoids (two per address)

FD-202TURF: 4 Rain Bird Solenoids (two per address)

FD-401TURF: 4 Rain Bird Solenoids (one per address)

FD-601TURF: 6 Rain Bird solenoids (one per address)

Maximum Cable Runs:

14 gauge

Star: 2.4 miles

Loop: 9.6 miles

Decoder/Solenoid Wires - Electrical Resistance:

Max. 3 ohms

Max. Distance Decoder/Solenoids:

Cable length:

14 gauge: 456 feet

Wiring:

MAXI-Cable 14-2UF Double Jacketed

Environment:

Working range: 32° to 122° F (0° to 50° C)

Storage range: -4° to 158° F (-20 to 70° C)

Humidity: 100%

Surge Protection: 40 V, 1.5 kW transil

Note: Rain Bird recommends using 3M DBR/DBY waterproof connectors for all connections.



Decoders

How to Specify/Order

FD - 102TURF

Model

FD-101TURF

FD-102TURF

FD-202TURF

FD-401TURF

FD-601TURF

Decoder Type

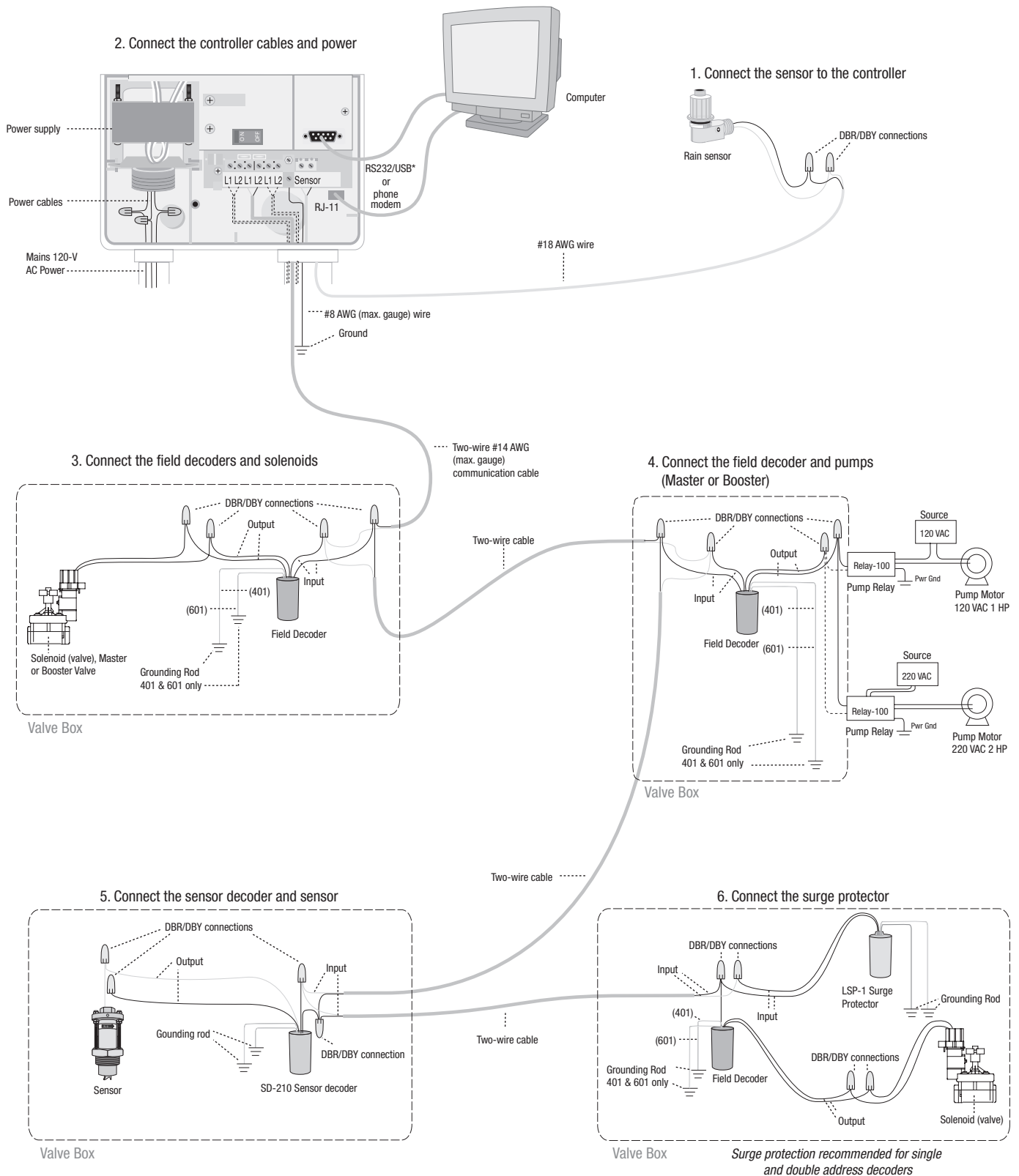
Single Address (1 solenoid)

Single Address (up to 2 solenoids)

Dual Address (up to 4 solenoids)

Four Addresses (up to 4 solenoids)

Six Addresses (up to 6 solenoids)



*USB Adapter necessary for RS232 to USB connection.



Models

Controllers

- MDC2-50-200 – Controls up to 50 decoder addresses; expandable up to 200 decoder addresses using MDCM50D
- MDC2M50D – expansion modules for MDC2-50-200; maximum 3 additional modules may be used on the MDC2-50-200

Decoders

- FD-101TURF Field Decoder interfacing signal line and valve
- FD-102TURF Field Decoder interfacing signal line and valve or one pair of valves
- FD-202TURF Field Decoder interfacing signal line and 2 valves or 2 pair of valves
- FD-401TURF Field Decoder interfacing signal line and up to 4 individual valves
- FD-601TURF Field Decoder interfacing signal line and up to 6 individual valves
- LSP-1TURF Line Surge Protection
- SD-210TURF Sensor Decoder interfacing signal line and analog or digital decoders

Accessories

- DPU210 Decoder Programming Unit for decoder output test and address re-programming
- Freedom for Central Control
 - FREEDOMFOR (phone)
 - FREERADNSP (radio, special frequency)

Specifications

The controller shall be capable of supporting up to 50 decoder addresses (expandable up to 200 decoder addresses total, utilizing 50 decoder expansion modules) and shall have a maximum capacity of up to 200 decoder addresses.

The controller shall be UL listed.

The controller shall be capable of using either reduced or full alphabet, maximum of six characters, for naming the decoders.

The controller shall be capable of operating up to 10 irrigation valves simultaneously. It shall be capable of storing 10 programs plus one auxiliary program, of which two programs plus the auxiliary can be run simultaneously.

The programs shall run on 14 day cycles and shall be programmable to start every X day, where X = 1 to 14. There shall be up to 6 start times per program and the controller shall allow for pausing of programs. Run times shall range from 0-999 minutes, and there shall be a Water Budget function with budgeting from 0 to 250%. The programs shall also be capable of pump control, controlling one master and up to nine booster pumps. The controller shall be capable of monitoring up to 10 flow sensors.

Manual operations shall allow either individual decoders or whole programs to be started manually.

The controller shall be capable of remote programming and monitoring utilizing the MDC2 PC software and a PC or laptop. The controller shall also be capable of programming from the controller itself.

The controller shall be as manufactured for Rain Bird Corporation, Glendora, California.

The MDC2 PC software shall allow for remote programming, monitoring, and operation of one MDC2 controller. The MDC2 controller shall connect to a PC or laptop via an RS232 port or a telephone modem at data rates of 2400 Baud.

The software shall allow the user to upload and download irrigation data, set-up data and global water budget. The software shall be capable of editing all active and passive irrigation schedules, and all variables associated with those schedules. The software shall be capable of inputting and editing controller type, valve type, field decoder addresses, pumps/master valve and activating of rain/alarm sensors directly connected to MDC2 controller.

The software shall provide monitoring information of site activity in a ASCII text file saved on the hard drive of PC.

The MDC2 PC software shall be as manufactured by Rain Bird Corporation, Glendora, California.

The decoders shall be capable of controlling one, two, four or six valves per unit. They shall be sealed in such a manner that they shall not be susceptible to moisture or inclement weather and can be buried underground.

The decoder shall be as manufactured for Rain Bird Corporation, Glendora, California.

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