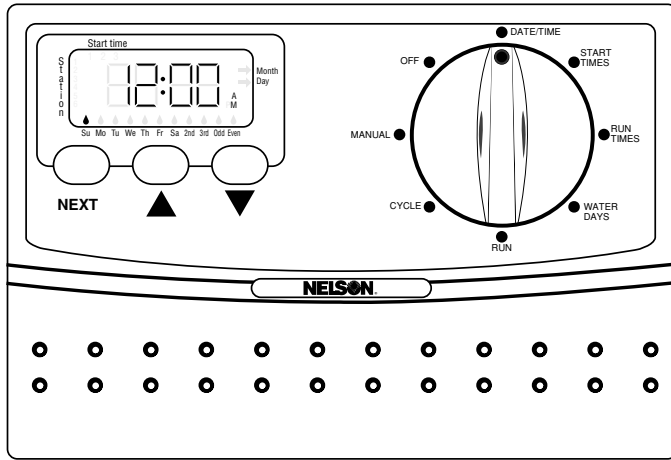




8100 Series Residential Controller

Programming and Installation Guide



- **MODELS:**
 - 8104/8174 (4 zone)
 - 8106/8176 (6 zone)
- External transformer
- Single Program
- 3 start times
- Daily, 2nd or 3rd day interval, and Odd/Even schedules
- Pump/Master valve terminal block
- Rain switch/Sensor terminal block
- Replaceable fuse for surge protection
- Vertically aligned mounting holes for ease of installation
- Quick reference instruction card

Before installing and programming, we recommend you read these instructions carefully for proper operation. If you have any questions or comments, please call our Technical Services Department at 1-888-NELSON-8 or visit us online at www.LRNelson.com.

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NOTE: For your programming ease, dial position can be found to the right of section header and default LCD display to the left of page.



INSTALLATION INSTRUCTIONS

1. Select an INDOOR location near a standard 120V AC electric outlet (230V AC outlet for models 8174/8176).

Important:

- **DO NOT** plug in transformer until you have made all wiring connections.
- **DO NOT** install outdoors or where unit will be exposed directly to adverse weather and/or direct sunlight.
- **DO NOT** install in area where temperatures are less than 0° C (32° F) or higher than 55° C (131° F).
- **DO NOT** install on same outlet, or line, as other high current draw products.

2. **a)** Screw one #10 screw in the wall at the height you'd like to view the LCD. Leave a slight gap between head of screw and wall.

b) Place the keyhole on the back of the controller over the screw and slide unit downward to seat on screw.

c) Remove access door from bottom-front of unit and secure through center screw hole with minimum 1¹/₄" screw.

3. Wire valves using 18AWG color-coded, multi-strand direct burial wire. **DO NOT** exceed 800 feet wire runs.
 - Use one wire per station plus one 'common wire'.
 - All valve wires **MUST** be connected before AC power is supplied.

NOTE: Connections that will be buried underground should have watertight connections and be approved for underground use.

- The common wire should connect all valves and become a single wire that connects to the terminal marked '**COM**'.

4. If using a pump start relay, or master valve, connect wire to terminal marked '**MV**'.

WARNING: Do not connect pump directly to controller.
A pump-start relay must be used.

NOTE: Check local regulations to ensure compliance with any wiring, electrical or installation codes.

5. <OPTIONAL> If connecting a rain or moisture sensor, remove jumper wire, and install a normally closed sensor to terminals marked 'R' and 'RS'.

CAUTION: Jumper wire must be in place if no sensor is used for proper operation

6. Connect transformer wires to terminals marked 'AC'.

- Plug transformer into electrical socket
- LCD will light

CAUTION: DO NOT plug in transformer until ALL wiring is checked and complete.

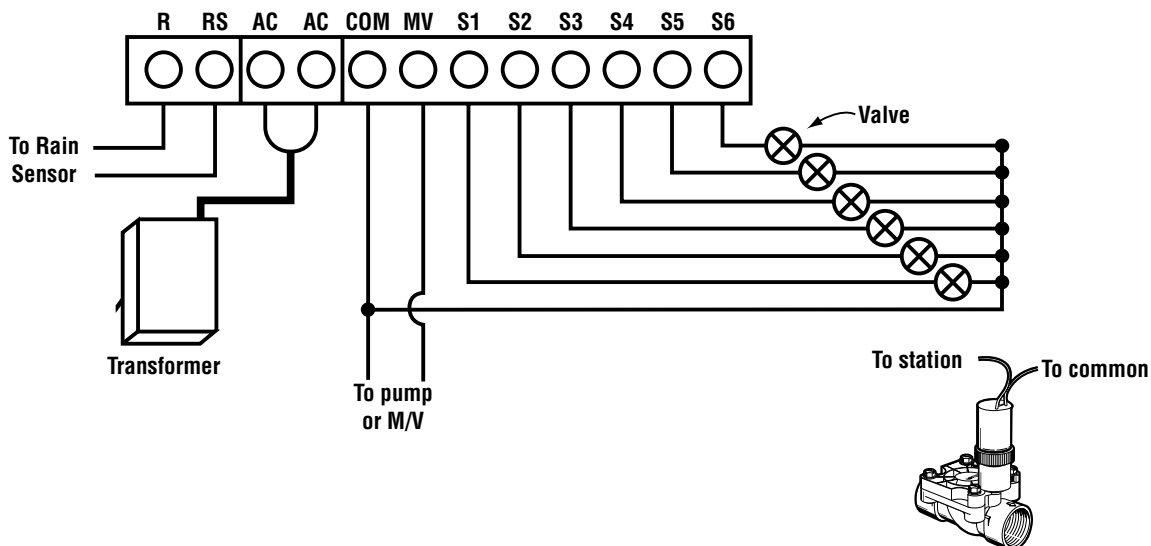
7. Install two AA alkaline batteries (not included). Do not use NiCad or rechargeable batteries.

NOTE: Batteries maintain real time and retain the program in the event of a power outage. The unit can be programmed under battery power only, however, the controller will not operate the valves without AC power.

Replace batteries once per year. When replacing batteries, do not unplug transformer, or your program will be lost.

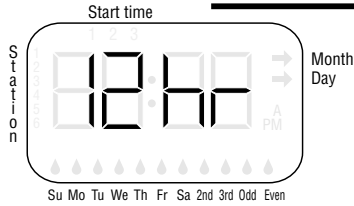
DEFAULT MODE: If the batteries fail during a power outage, or there are no batteries in the unit, the timer will reset to factory defaults (see page 8 for details). After the power resumes, unit will run factory default program until reprogrammed (As long as dial remains in 'Run' position)

NOTE: S5 and S6 will only be on models 8106/8176 (6 zone models)



SETTING CURRENT DATE AND TIME

● DATE/TIME



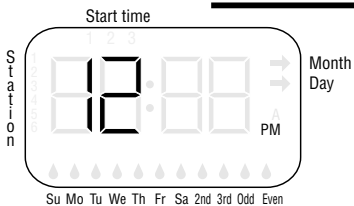
1 Set 12 or 24 hour mode

only available on power-up — during 10 second delay

Press ▲ or ▼ to advance between modes

Press **NEXT**

Note: **NEXT** only works after 10 second delay

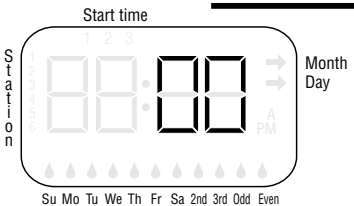


2 Set hour

Press ▲ or ▼ to advance hour

Press **NEXT**

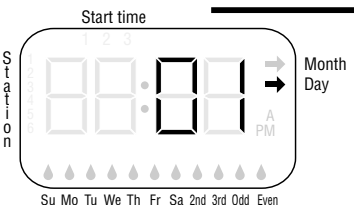
*(Set AM / PM indicator if in 12-hour mode, Press **NEXT**)*



3 Set minutes

Press ▲ or ▼ to advance minutes

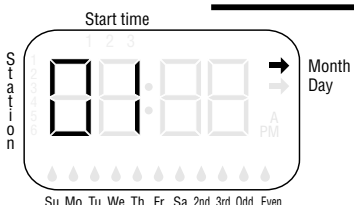
Press **NEXT**



4 Set day

Press ▲ or ▼ to advance day

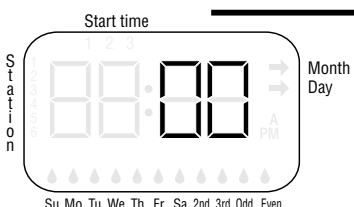
Press **NEXT**



5 Set month

Press ▲ or ▼ to advance month

Press **NEXT**



6 Set Year

Press ▲ or ▼ to advance year

Press **NEXT**

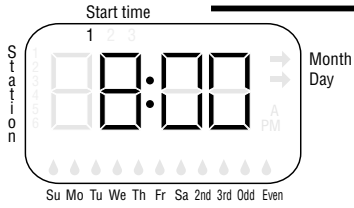
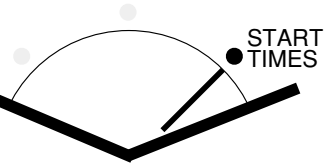


7 Set day of the week

Press ▲ or ▼ to advance water droplet

Press **NEXT** *(returns to beginning of loop)*

SETTING START TIMES

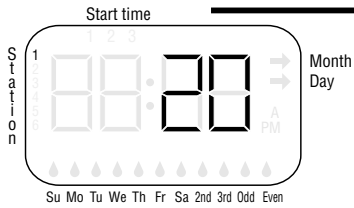
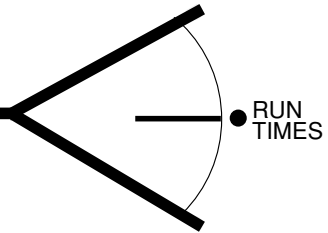


- 1 Set Start Time 1**
Press ▲ or ▼ to set time
- time advances in 15 minute increments
Press **NEXT** for Start Time 2

- 2 Set Start Time 2**
Repeat step 1 if Start Time 2 needed
Press **NEXT** for Start Time 3

Note: 'OFF' position between 11:45 and 12:00

SETTING RUN TIMES (per station)

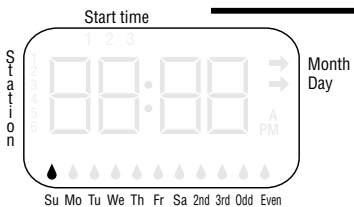
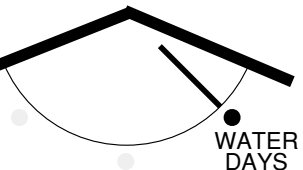


- 1 Set Run Time 1**
Press ▲ or ▼ to increase or decrease run time in one minute increments (1 to 99)
Press **NEXT** to program station 2

- 2 Set Run Time 2 thru 4 (or 6)**
Repeat Step 1 for each successive station

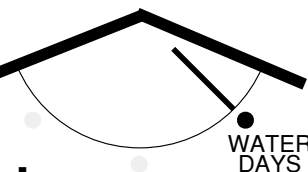
Note: 'OFF' position between 99 and 1 minute

SETTING WATER DAYS



- 1 Setting Daily schedule**
Allows selection of individual days to water (i.e. Mo, Tu, Fr)
Press ▲ to choose day (droplet stays lit)
Press ▼ to skip day (droplet not lit)
Automatically advances with each key press
Press **NEXT** for 2nd or 3rd day schedule
- Last chosen schedule is selected

SETTING WATER DAYS (continued)



2 Setting 2nd or 3rd day schedule

Allows selection of watering every 2 days or every 3 days

Press ▲ to select 2nd day (droplet stays lit)

Press ▼ to deselect 2nd day (blinks over 3rd day)

- Last chosen schedule is selected

Press ▲ to select 3rd day (droplet stays lit)

Press ▼ to deselect 3rd day (blinks over 2nd day)

- Last chosen schedule is selected

Press **NEXT** for Odd or Even day schedule

3 Setting Odd or Even day schedule

Allows watering on days of month that are odd or even numbers (i.e. - Odd will water on 1st, 3rd, 5th, etc.)

Press ▲ to select Odd day (droplet stays lit)

Press ▼ to deselect Odd day (blinks over EVEN)

- Last chosen schedule is selected

Press ▲ to select Even day (droplet stays lit)

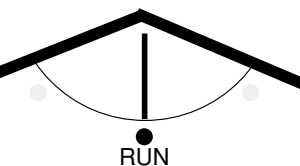
Press ▼ to deselect Even day (blinks over ODD)

- Last chosen schedule is selected

Press **NEXT** for Daily schedule

Note: The unit has a default schedule of everyday

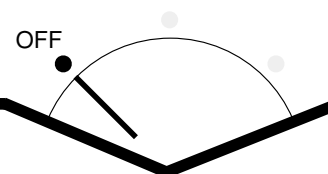
RUNNING PROGRAM AUTOMATICALLY



1 Place dial in 'Run' position to run program

- Current time and current day will display on the LCD. (See Rain Shutoff)

'OFF' POSITION (Winter mode)



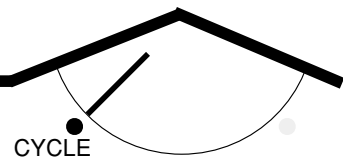
Placing dial in 'OFF' position suspends your program from running. Your program is retained.

Return to 'RUN' position to run program

TEST PROGRAMS

RUNNING CYCLE (Semi-Auto)

Cycle runs your current program immediately



1 Set Station to Cycle

Press **NEXT** to activate and step through run times

Press ▲ or ▼ to set run time

- Changing run times in cycle mode will NOT change your programmed run times

- Pressing **NEXT** after the last station, 4 or 6 depending on model, returns to OFF position

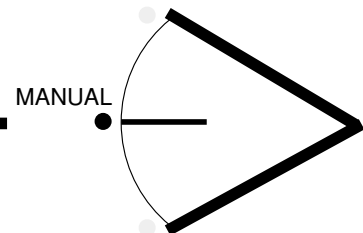
2 Place dial in RUN position

- Cycle runs your current program immediately

- To end running cycle, turn dial to 'OFF' position

RUNNING STATIONS MANUALLY

Manual runs one station only



1 Set Station to manual

Press **NEXT** until desired station is displayed

Press ▲ or ▼ to set run time

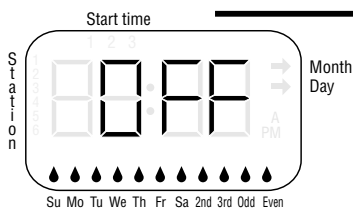
- Pressing **NEXT** after the last station, 4 or 6 depending on model, returns to OFF position

2 Place dial in RUN position

- Set station will run immediately

- To end running manual, turn dial to 'OFF' position

RAIN SHUTOFF



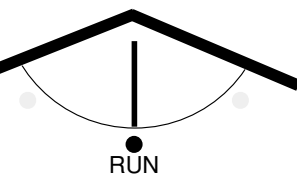
1 Sensor override

- LCD display at left will blink indicating the rain sensor has suspended the program

- To override the rain sensor - Run a Manual or Cycle

- Place dial in Run position to activate - run program

- Unit will reset when sensor dries out.



DEFAULTS

12 Hour Clock

TIME 12:00 AM
DATE 01/01/00
DAY SUNDAY
START TIMES 1 @ 8:00 AM
2 - OFF
3 - OFF
RUN TIMES 20 Minutes each zone
SCHEDULE Every Day
SENSOR Normally closed
RESET To reset unit to factory defaults, unplug transformer and remove batteries, wait for LCD to turn off, then plug transformer back in and re-install batteries

SPECIFICATIONS

Transformer (input/output)

8104, 8106 AC 120V 60Hz / AC 24V 12VA
8174, 8176 AC 230V 50Hz / AC 24V 12VA

Stations

Maximum of one pump start relay or master valve and one station. Each station can operate only one solenoid.

Temperature

Operating 0° to 55°C (32° to 131°F)
Storage 0° to 70°C (32° to 158°F)

Batteries

Two AA alkaline batteries required (not included)

Surge Protection

1/2 amp replaceable fuse

FCC RULES

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio TV technician for help

CANADIAN RADIO INTERFERENCE REGULATIONS

NOTE: This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the radio interference regulations of the Canadian Department of Communications.

WARRANTY

Limited Warranty

L.R. Nelson Corporation ("Nelson") warrants this electronic product to be free of defects in material and workmanship for a period of one (1) year from the original date of purchase. In the event of such defects, Nelson will repair or replace, at its option, the product or the defective part.

This warranty does not extend to damage to a Nelson product or part resulting from accident, misuse, alteration, neglect, abuse, improper installation or normal wear and tear, or to exterior appearance and color. This warranty extends only to the original user of the Nelson product.

If defect arises in a Nelson product or part within the warranty period, you should contact your installing contractor, Nelson retailer, distributor, or L.R. Nelson Corporation at one of the following locations:

One Sprinkler Lane
Peoria, IL 61615
(309) 690-2200
Fax (309) 692-5847

1961 Miraloma Ave.
Suite B
Placentia, CA 92670
(714) 993-0496
Fax (714) 993-0496

5660 Commerce Drive
Units 2, 3
Orlando, FL 32839-2978
(800) 743-1020
Fax (407) 648-0924

Nelson may, at its option, require that the product or part be returned to a Nelson service point or your retailer or distributor. Nelson will determine whether the claimed defect is covered by the warranty. If coverage is found, the product will be repaired or replaced. Please allow 4 to 6 weeks for completion of repairs or replacement and return of the product or part. If a product or part is replaced, the replacement is warranted only for the remainder of the original product or part warranty period.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. L.R. Nelson Corporation does not authorize any person to create for it any other obligation or liability in connection with Nelson products.

TO THE EXTENT ALLOWED BY LAW, ANY IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE APPLICABLE TO THE NELSON PRODUCTS IS LIMITED IN DURATION TO THE DURATION OF THESE WRITTEN WARRANTIES. NEITHER L.R. NELSON CORPORATION NOR ITS DISTRIBUTORS OR DEALERS SHALL BE LIABLE FOR LOSS OF TIME, INCONVENIENCE, ECONOMIC LOSS, OR INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM THE SALE OR DISTRIBUTION OF NELSON PRODUCTS WHETHER FOR BREACH OF WARRANTY HEREUNDER OR FOR NEGLIGENCE OR IN TORT. Some states do not allow limitations on how long an implied warranty will last or the exclusion or limitation on incidental or consequential damages, so the above limitations or exclusions may not apply to you.

If you have any questions concerning the warranty or its application, please write to L.R. Nelson Corporation, One Sprinkler Lane, Peoria, Illinois 61615, U.S.A. Attention: Customer Service.

CLAIMED DEFECTIVE MERCHANDISE POLICY

Products returned to the retailer distributor and claimed defective must be inspected by the Nelson sales representative to determine warranty compliance. If approval is granted, products will be repaired or replaced or a credit memorandum covering the net purchase price will be issued.