Troubleshooting Guide for the ESP MC controller Feb 2010

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ESP MC

- Available in 12, 24, 32, and 40 station counts
- Wall mount or stainless steel pedestal options
- 4 programs; 8 start times per program; 32 total start times
- Very surge resistant; tested at 20 strikes @ 20Kv
- Upgradeable to Central Control (Maxicom or SiteControl

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Topics

- **Common Errors**
  - Stack / Overlap
  - MV1 vs. MV2
  - Non-stop irrigation
    - Multiple start times
    - Program start time vs. station run time
  - Never irrigates
  - Irrigates at unscheduled times
- **FAQ**
  - RASTER
  - “USED”
  - SK (Cycle & Soak)
  - # of simultaneous stations
  - Returns (faceplate vs. entire controller)
- **Common troubleshooting procedures**

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Troubleshooting Tips

- **The majority of errors will be "customer confusion errors"**
  - Programming errors
  - Wiring errors
  - For all programs
    - Check schedules
      - Start times
      - Station run times
      - Days to Water
      - Stack vs. Overlap
  - MV1 vs. MV2
  - Fault Reset and Memory Clear
- **Lightning or high surge (output board)**
- **Wiring faults**
  - Run the RASTER test!

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Stack / Overlap

- **Complaint**
  - Program A is working fine, but Program B does not begin at programmed time
  - Watering stop time extends beyond desired watering window
- **Program A**
  - Start time: 2:00 AM
  - Total run time: 30 minutes
- **Program B**
  - Start time: 2:15 AM
  - Total run time: 15 minutes
- **Stack**
  - Programs beginning with “competing” start times will run <u>consecutively</u> (Program B is not allowed to begin until Program A completes)
  - End time: 2:45 AM
- **Overlap**
  - Programs beginning with “competing” start times will run <u>concurrently</u> (Program B is allowed to begin prior to Program A completing)
  - End time: 2:30 AM
  - **NOTE**: Program A and Program B **<u>both</u>** need to be set to “overlap”

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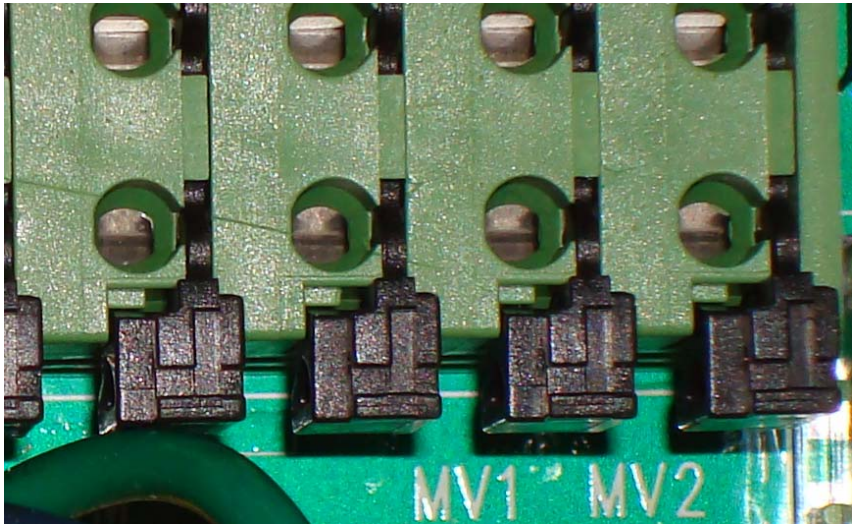
MV1 vs. MV2

- **Complaint**
  - No irrigation
  - Controller does not turn on the master valve; when front panel is swapped out for a different front panel everything works fine
- **There are two master valve terminals on the controller (MV1 and MV2)**
  - MV2 is automatically enabled anytime a station operates
  - MV1 is programmable (enabled/disabled) for each individual station
- **Solution:**
  - Move the leads from MV1 to MV2
  - Adjust the settings for each station to enable MV1 (MV/PUMP START dial setting)



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Non-stop Irrigation

- **Likely Cause:**
  - Multiple start times
    - For example (Program A):
      - The user has 3 stations with the following run times
        - » Station 1: 10 minutes
        - » Station 2: 20 minutes
        - » Station 3: 30 minutes
        - » Total run time: 60 minutes
      - The user has mistaken the 8 possible start times per program for station run times
        - » 10:00PM for Station 1
        - » 10:20PM for Station 2
        - » 10:50PM for Station 3
      - The end result is Program A (in its entirety) will run for 60 minutes three consecutive times.
        - » Program A will stack and run at 10:00PM, 11:00PM, and 12:00AM
    - Stack/overlap (different programs)

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Never irrigates

- **Likely cause**
  - No run times in controller
  - No start times in controller
  - "Event Day Off" set to off
    - Allow the controller to water today?
    - "Off" = "No"
  - "Days to Water" set to off
    - Days of the week the controller is allowed to water
    - "Off" = "No"
  - Water Budget set at 0%
  - MV1 vs. MV2
    - MV1 not enabled
  - Wiring problem
    - RASTER test

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Irrigates at unscheduled times

- **Likely cause**
  - Cycle & Soak set (irrigation at intermittent times)
    - Displayed as station number, maximum length of time to water, minimum soak time
  - Stack / Overlap
  - Program Start Time vs. Station Start Time
  - Odd / even scheduling
  - Odd 31 scheduling

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FAQ

- **RASTER**
  - Detects open/short of wiring
  - To run RASTER test
    - Press “ON” and “OFF” simultaneously; release
    - Press “MAN START/ADV”
- **“USED”**
  - Message that appears as a warning
  - The station in question already has time allocated on a different program
- **SK:XX (XX represents a number)**
  - Message that appears as a result of Cycle and Soak
  - Waiting for soak time elapses
- **# of simultaneous stations**
  - The MC is capable of operating up to 9 stations simultaneously
- **Returns (faceplate vs. entire controller)**

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Index Flow Chart ESP MC

1. Controller does not irrigate
   a) Sensor device attached
   b) No Sensor device attached
2. Controller has non-stop Irrigation
   c) Programming Error
   d) Intermittent Irrigation
3. Reminder messages
   e) NON message
   f) WATER BUDGET message
   g) SK message
4. Error messages
   h. MV or ST Fault
   i. FUSE message
5. Corrupted Data
   j. Corrupted data Start Times
   k. Corrupted data Run Times

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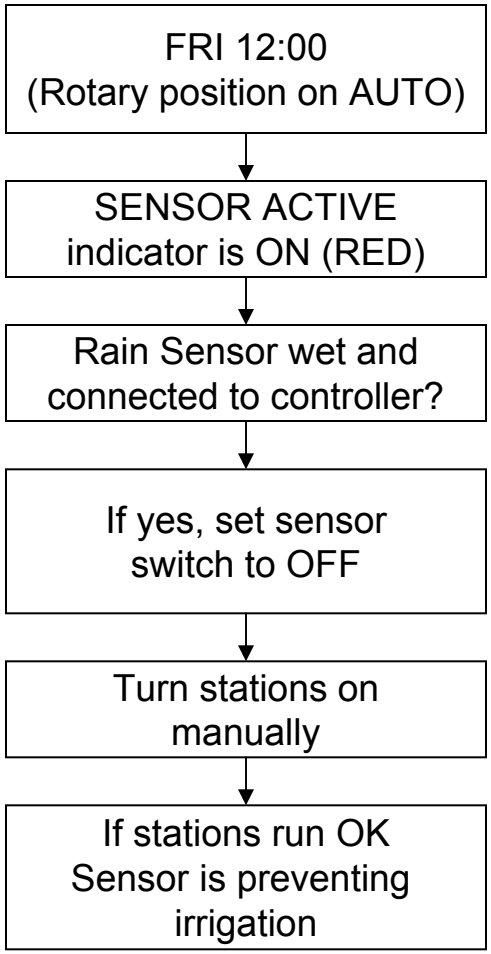
a. Sensor device attached



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b. No Sensor device attached

FRI 12:00
(Rotary position on AUTO)

↓

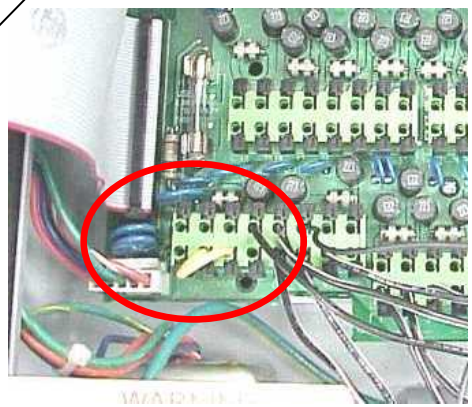
SENSOR ACTIVE
indicator is ON

↓

Rain Sensor
connected to controller?

↓

If not, set sensor
switch to OFF



Jumper wire in TB1-2 and TB1-3

↓

Turn stations
manually

↓

If stations run OK
SENSOR OFF
position is required

→

Add jumper wire
on sensor terminals

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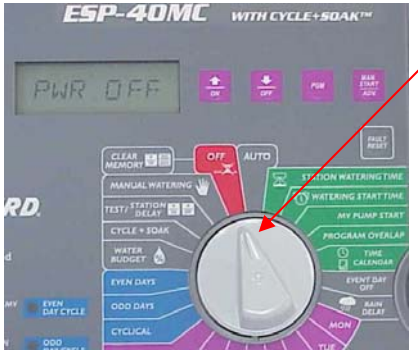
c. Programming Error



Controller does not stop irrigation. Turn the dial to the OFF position.

Does the controller stop irrigation?

If not, then is a hardware issue. Disconnect the Ribbon cable of front panel.

If the issue continues, disconnect the valve of the station and connect another one. Does the failure follow the station output or the valve wire?

If the failure follows the station output, the issue is in the terminal board. If is the other way, the issue is in the wiring, valve or sprinkler.

If yes, it is a programming issue (program Start Times causing Stacking). Verify there is not an overlap in start times

Verify the run time for stations.

Verify the water budget is 100%.

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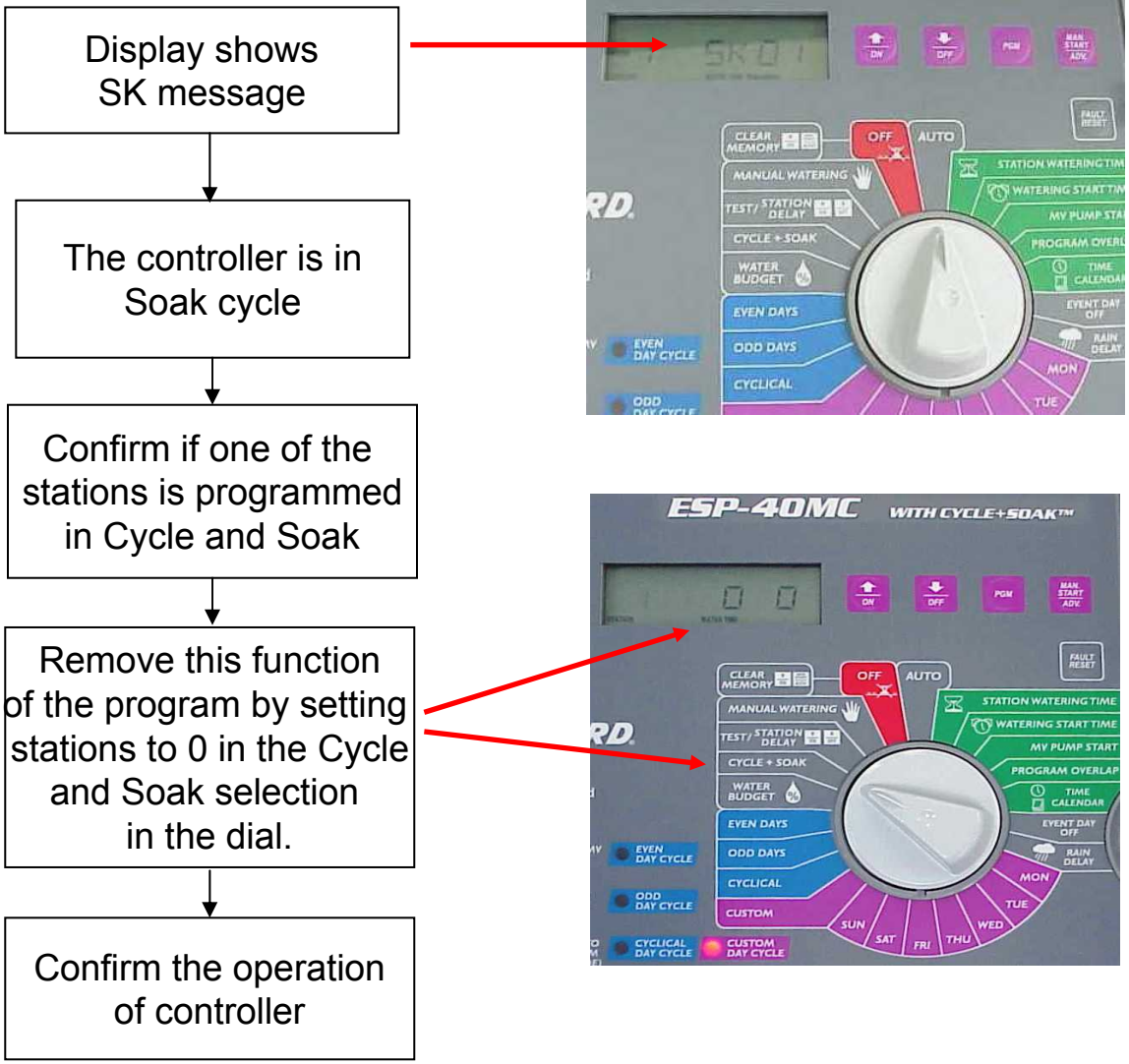
d. Irrigation is intermittent and

e. SK message



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f. NON message (non-watering day)

Event Days are Off

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Set all days to ON in the Event Day Off setting

↓

Move the Rotary Switch to the Auto position

↓

NON Message again?

↓

Reset the memory, push ON and MAN START/ADV for 10 seconds. Reprogram the unit

ON MAN. START ADV.

Execute a Memory Clear by Setting dial in OFF and press ON and MAN START / ADV buttons for 10 seconds.
The reset process will start when the INIT SYS message appears

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g. WATER BUDGET message

Controller irrigates less/more Time than the programmed. Display show Water Budget message

↓

Check Water Budget in all programs by Setting the dial in Water Budget Position and PGM button.

↓

Change it to 100 for program A, B, C and D with the ON↑ or OFF↓ buttons

↓

If setting is OK Water Budget message is removed

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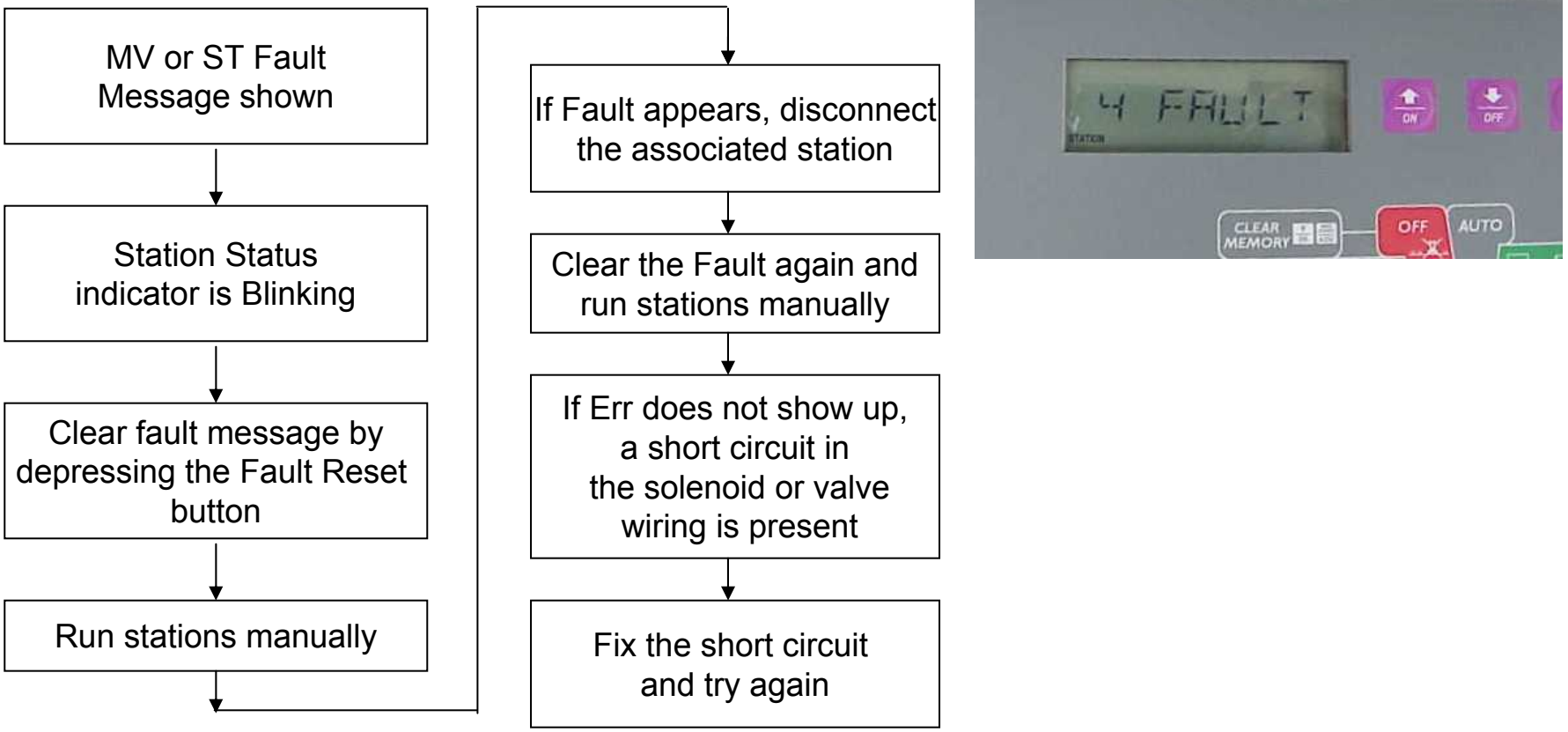
h. MV or ST Fault



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i. FUSE message

FUSE Message on display

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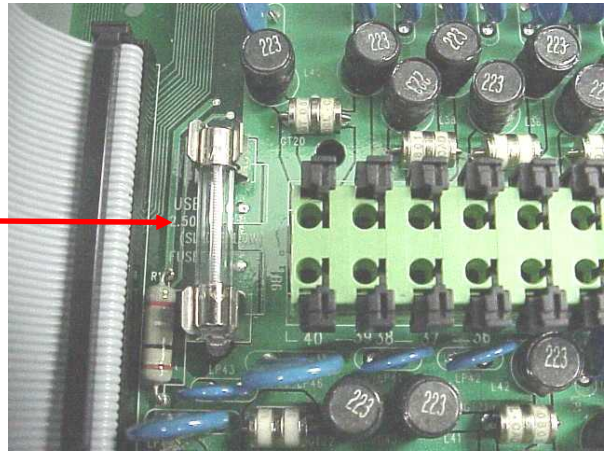
Check for damaged fuse (use spare fuse if needed)



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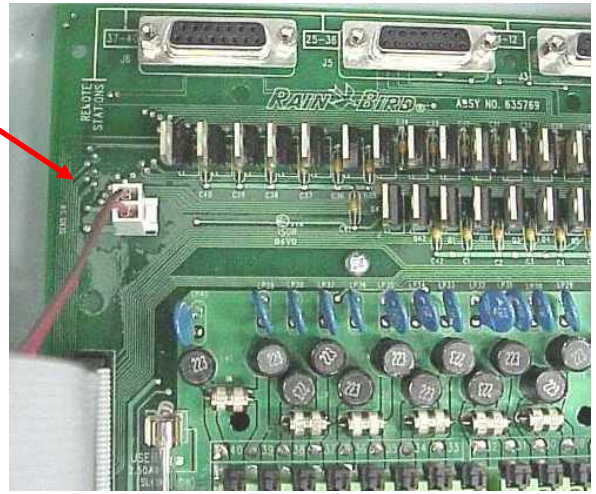
Check for false connection of sensor cable (goes from front panel to J2 on terminal board)



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Check for short circuits in wiring prior to replacing the fuse

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j. Corrupted data Start Times

Controller does not irrigate

↓

Check Start times on programs A, B, C and D

↓

Verify Start times are set at 15 min steps (i.e 8:15, 8:30, 9:45, 3:00)

↓

If Start times are not set at 15 min steps (i.e 8:16, 8:34, 9:48, 3:02)

↓

Execute a Memory Clear and reprogram the controller including time and date

Execute a Memory Clear by Setting dial in OFF and press ON and MAN START / ADV buttons for 10 seconds.
The reset process will start when the INIT SYS message appears

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j. Corrupted data Run Times

Controller does not irrigate

↓

Check Run Times on used programs (A, B, C or D)

↓

Verify Run times range
:01 min to 1:59 min (inc 1 min)
2:00 hrs - 12:00hrs (inc 10 min)
(i.e :00, 1:10, 2:40, 5:50)

↓

If run times
are not in the proper range

↓

Execute a Memory Clear and reprogram the controller including time and date

Execute a
Memory Clear by
Setting dial in OFF and
press ON and MAN START
/ ADV buttons for 10
seconds.
The reset process will
start when the INIT SYS
message appears

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