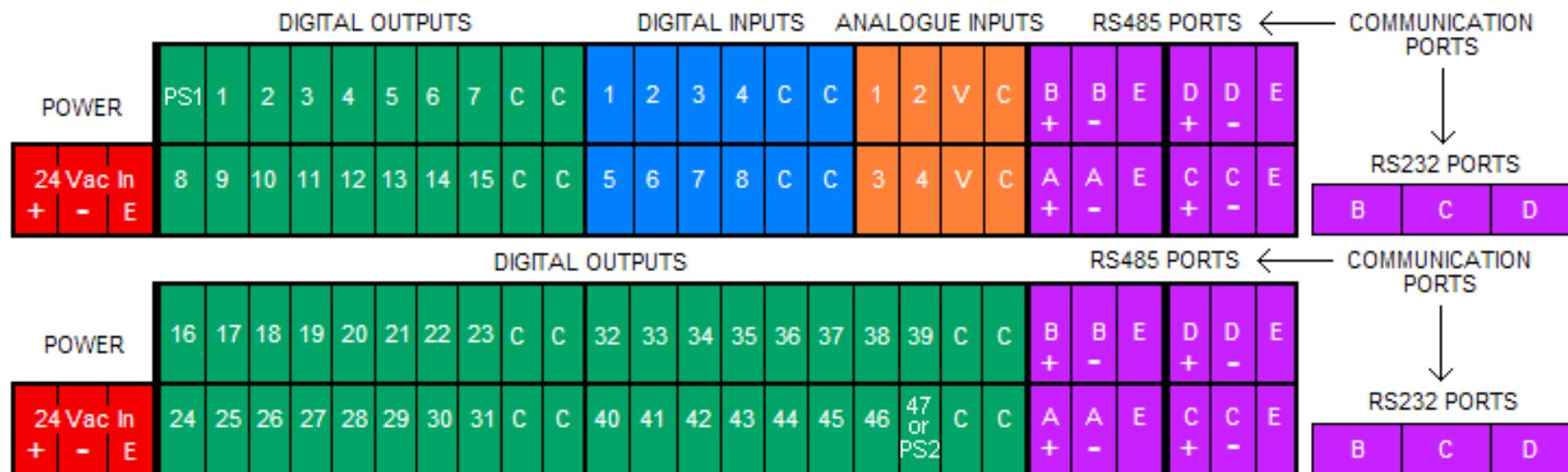


# Rainman Irrigation Controller

## MpS48 Station



### Power

- 24VAC in –Bottom row of plugs (as shown above). With 2 cards, power (24VAC) must be connected to both coloured cards (+ linked together and – linked together).

### Digital Outputs

- Commonly referred to as Conventional or Local Stations.
- Top left of this section, labelled "PS1", (as shown above) is for Pump Start 1. The plug labelled "47 or PS2" is Output 47, or Pump Start 2 if applicable. To connect, run a wire from this plug and one from a common (C).
- The other plugs are for Conventional Stations. Connect in the same manner for each Station thereafter. Eg. Output (or Station) 1 and common (C), etc. Up to 47 stations can be connected on the coloured cards when there is only one Pump Start and up to 46 stations if there are 2, etc.
- The common (C) on both cards MUST be linked in order for the Current Sense function to work correctly.
- BEFORE Powering Up, check ALL Solenoids using Multimeter, set on Ohms. The reading should be between 30 and 70 Ohms for a standard new coil. Anything 10 Ohms and under requires attention and/or replacement to avoid excessive current draw. (NOTE: Current draw will decrease with age).

### Digital Inputs

- Connected in the same manner as Conventional Stations, Digital Inputs are suitable for two categories, Counting Input or Fault Input.
- Counting Input is designed for instruments such as Pulse Type Flow Meter or Rain Gauge (or Rain Sensor).
- Fault Input is designed for a Door Switch, Pressure Switch, Phase Failure etc. If an instrument requires power and is 24VDC ONLY, (such as a Pulse Flow Meter) then use "V" from Analogue Inputs and a numbered plug from Digital Input for signal wire.

### Analogue Inputs

- For instruments such as a Pressure Transducer, Mag Flow Meter or Moisture Probe. Powered either internally (by Rainman Controller) or externally.
- Internal Connection –Instrument MUST have a supply voltage of 24VDC. (Most instruments are 10-30VDC). Use "V" plugs for power, (as shown in diagram above) and one numbered plug, (ie. 1, 2, 3 or 4) for signal wire.
- External Connection –Instruments have their own power supply and only require connection to one of the numbered plugs and the common (C).

### RS485 & RS232 (Communications Ports)

- "A" Ports – RS485 (only) can be used to connect the (above) slave card (bottom card).
- "B" Ports – RS485 Port can support a TWIN (two-wire card). RS232 Port can support a Weather Station (eg. Weather Master 2000), powered externally.
- "C" Ports – RS485 can also support a TWIN (two-wire card). RS232 Port supports a RIC (Remote Irrigation Controller).
- "D" Ports – RS485 can support a cabled link to a Central Control System (CCS), whilst RS232 Port can support Radio Communications to the CCS.

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## **NOTE: WARRANTY VOID IF NOT INSTALLED BY A QUALIFIED TECHNICIAN**

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## **TROUBLE-SHOOTING**

### **Outputs**

1. No Output on a single station?  
Disconnect the field wire and using either a spare Solenoid or Multimeter, check output. Please remember to use **Test Output** function on the Controller as this will not start the Pump or Master Valve. If Solenoid used for testing activates or the Multimeter reads 24volts AC, the problem is on the field side, not the Controller.
2. No Output on multiple stations?  
Disconnect one (1) of the field wires and test as above. If you find that the fault is on eight (8) stations, this will most likely be the protection fuse for that bank. This is situated on the boards and will require replacing.

**NOTE:** Always test the field solenoids resistance with Multimeter set on Ohms. Replace ALL coils under 15 Ohms BEFORE powering up Controller again. If the Controller tests out ok, fault may be on field common.

### **Digital Inputs**

1. Function Concern?  
If concerned about the function of any Digital Input, isolate the Pump Start circuit by turning off pump circuit breaker or key switch or remove Pump Start Output from Controller. If it is a Fault Input type, check, in the Alarm Setpoints Menu that the Alarm has been activated.  
Remove the Input wire from the terminal and then activate a Manual start on any station. With a short piece of wire connect into the Digital Input Common and the Digital Input Terminal to be tested. After the set amount of time (that the Alarm has been set for) the Controller should go into "fault mode" and an Alarm should be registered on the Controller display. If so, then the Digital Input is ok.
2. Pulse Type Flow Meter problem?  
Connect a short piece of wire from the Digital Input Common to the Digital Input terminal to be tested. Tap the short piece of wire on the Input terminal repeatedly (to simulate a "pulse"). The flow reading should increase on the Controllers' system display menu.

**NOTE:** Digital Inputs problems/faults on the Controller are very uncommon.

### **Analogue Inputs**

1. Power/Voltage present?  
To test voltage, use a Multimeter set on DC volts. Test between the "V" and the "C" on the Analogue Input block. (Refer to the Manual or Connections Specifications sheet provided to the 'End-User' if unsure of which connections to test).  
24volts DC should be present. If no voltage is present, remove ALL Inputs and test again, as a damaged/faulty instrument may be dragging the voltage down.
2. Reading is not accurate?  
Put the Multimeter in series with the Analogue Input to be tested. Set on Milliamps (mA), take the reading. 4mA is considered to be 0 and 20mA is full scale, and therefore there is a range of 16mA. It is now necessary to calculate the accuracy of the Input (mathematically).

**NOTE:** Analogue Input faults may require testing by a Qualified Technician. If uncertain, then please contact Micro Control Engineering.