

GLOBAL POWERTRONICS

Specialists in Drives and PLC

SOLUTION-2

Deluxe Multi_Pump Multi_Tank Water Level Controller

Introduction

Microcontroller based, fully automatic Wireless/Modbus RS485 Water Controller is designed to sense and control most of the water pumps, including submersible pumps. This device work 24/7/365, to maintain the level of water in water storage tanks at defined levels and to keep the water pumps ON, only when required.

Wireless/RS485 Control is established using Modbus Protocol between the following

1. Pump Controller
2. Tank Monitor
3. Bore Pump controller
4. Common Alarm Unit

Pump Controller

The Master Pump controller collects data from Slave Tank/Bore Pump Controllers and automatically controls start/stop of Pump. It also broadcasts Sump levels for the use of remotely located Slave Bore Pumps for maintaining Sump level.

Pump controllers are grouped in a Block/Area/Campus as Modbus network and wirelessly connected to Monitoring Common Alarm Unit.

The Optional LCD Text display shows the current status of the following.

- | | | | | |
|-------------------------|----------------------------|----------------------------|-------------------------|--------------------------|
| 1. Tank Level Very Low | 6. Tank Valve Open | 11. Pump ON | 16. Bore Pump ON | 21. Sump Level Normal |
| 2. Tank Level Low | 7. Tank Valve Closed | 12. Pump OFF | 17. Bore Pump OFF | 22. Sump Level High |
| 3. Tank Level Normal | 8. All Tanks High | 13. Pump Power not ok | 18. Bore Pump Dry Run | 23. Sump Level Very High |
| 4. Tank Level High | 9. All Tanks Normal | 14. Pump Starter not Ready | 19. Sump Level Very Low | 24. Total Run hrs |
| 5. Tank Level Very High | 10. All Tank Valves Closed | 15. Pump not Loading | 20. Sump Level Low | 25. Last Run min |

The Water Pump is switched ON when any one of the Tank level goes Low and switched OFF when all tank Levels go high or when All Tank valves are closed or when Sump level goes very low or when Pump is not loaded or when Power is not ok. SPP is built-in.

Tank Controller

The Tank controller senses Water levels as Very Low, Low, High and Very High and also actual Water Flow thru sensors. The simple water level sensors are made of stainless steel and 12 VAC is used for sensing. Each Tank Controller has unique Modbus Slave Address and sends data to Master Pump Controller.

The Tank Controller provides the following data.

1. Tank Level Very Low
2. Tank Level Low
3. Tank Level High
4. Tank Level Very High
5. Water Flow hrs

Bore Pump Controller

The Bore Pump controller as a Modbus Slave gets the following data broadcast by Master Pump Controller.

1. Sump level Very Low
2. Sump level Low
3. Sump level High
4. Sump level Very High

The Bore Pump Controller sends out the following data whenever requested by Master Pump Controller

1. Pump status ON/OFF
2. Power status Ready/Not Ready
3. Dry Run Stop status
4. Long Run Stop status
5. Alarm status
6. Total Run hrs
7. Last Run min
8. Restart secs

The Bore Water Pump is switched ON when Sump level goes Low and switched OFF when Sump Level reaches high or dry run or when Power is not ok. SPP is built-in. Optionally the Bore Pump can remain ON when Sump level reaches High and divert excess water to another Starving Sump.

The Bore Pump controller sends out the following data to Pump Controller

1. Bore Pump ON/OFF

2. Power Not Ready
3. Starter Not Ready
4. Sump level Very Low
5. Sump level Low
6. Sump level Normal
7. Sump level High
8. Sump level Very High
9. Alarm status
10. Last Run min
11. Restart secs

Common Alarm Unit

The Common Alarm unit wirelessly monitors status of all Pump controllers and collects status of Pumps, Bore Pumps, Tanks and Sumps. The unit is provided with local Text display/Alarm and optional remote wireless printer.

The Common Alarm Unit alerts for the following for maintenance with location info.

1. Pump Dry Run
2. Pump Alarm
3. Tank Dry
4. Tank Over flow
5. Tank Valve Malfunction
6. Bore Pump Dry Run
7. Sump Dry
8. Absent of Pump data
9. Time stamped printing of the above

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TYPICAL SETUP

TYPICAL DELUXE SETUP FOR MULTI_PUMP MULTI_TANK WATER LEVEL CONTROL

G211105

