



AUTO WIRELESS LEVEL CONTROLLER

USER MANUAL

WPC-S1 STATION UNIT • WPC-R1 REMOTE UNIT

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i System Compatibility & Certification

The AquaGear system is engineered by Micromotus Innovative Solutions for seamless compatibility with all single-phase and three-phase motor pumps (0.5 HP up to 5 HP+). Featuring 150V–280V power tolerance, built-in 30A Start Relay 1, and long-range Sub-GHz wireless intelligence, AquaGear delivers maintenance-free automation with zero interconnecting cables.

SEC 01 INTRODUCTION & ELECTRICAL SAFETY GUIDELINES

The **AquaGear Wireless Water Level Controller** delivers precision water management for domestic, residential, agricultural, and industrial installations. By eliminating the expense, maintenance, and physical vulnerability of long-distance cables between your water tank and pump panel, AquaGear provides fully automated, hands-off pumping backed by intelligent dry-run and electrical power guards.



ELECTRICAL SAFETY WARNING

High voltage (up to 240V / 415V AC) is present within pump control panels and terminal blocks. All electrical wiring, starter connections, and breaker isolations must be performed exclusively by a qualified and certified electrician. Ensure mains power is disconnected before removing controller covers.

I Mandatory Safety Precautions

- **Mains Isolation:** Always isolate the 230V AC / 415V AC mains breaker before servicing or terminating wires at the Station controller or starter panel.
- **Proper Insulation:** Ensure all wiring joints and terminals are insulated using heat-shrink sleeves or certified electrical insulation tape.
- **Auxiliary Loop Removal:** In DOL starter setups (Type 2), ensure the internal hold-in loop wire across the contactor auxiliary terminal is removed as detailed in Section 07.
- **Selection Switch Orientation:** Double-check the 2-pole Selection Switch orientation (Switch 1 and Switch 2) to match your starter panel type before powering on.

I System Architecture: STATION + REMOTE

The AquaGear platform operates on a coordinated two-unit architecture:

- **AquaGear WPC-S1 (STATION Unit):** Installed near the pump starter panel. Receives live encrypted telemetry from the remote units and controls the motor via heavy-duty onboard relays.
- **AquaGear WPC-R1 (REMOTE Unit):** Mounted at the Overhead Tank (OHT). Fully sealed with an **IP68 waterproof rating**, it operates for **5+ years on 4xAA Alkaline batteries** and monitors levels using zero-maintenance, non-corrosive sensor probes.
- **Optional Second REMOTE Unit (Underground Sump):** For installations with an underground reservoir, a second AquaGear WPC-R1 Remote can be placed at the sump to transmit water availability wirelessly, synchronizing pumping without any inter-tank cabling.

SEC 02 TECHNICAL SPECIFICATIONS & KEY FEATURES

AquaGear WPC-S1 & WPC-R1 Technical Specifications

SPECIFICATION PARAMETER	STATION UNIT (AquaGear WPC-S1)	REMOTE UNIT (AquaGear WPC-R1)
Operating Voltage	150V – 280V AC @ 50Hz	6V DC (4 × 1.5V AA Alkaline Cells)
Pump Voltage Protection	Under-Voltage: 180V AC Over-Voltage: 260V AC	N/A (Battery Powered)
Dry-Run & Flow Sensing	Dual Sequential (Current Anomaly & Pipe-End Sensor)	Water Level & Pipe-End Flow Telemetry
Power Consumption	Active: 5.06 Watts Idle: 4.025 Watts	Active: 900mW Idle: 15µW (Sleep)
Operating Frequency	865 – 867 MHz	865 – 867 MHz
Wireless Modulation	Chirp Spread Spectrum	Chirp Spread Spectrum
RF Output Power (Conducted)	+22 dBm (Max)	+22 dBm (Max)
Antenna Gain	2.5 dBi	2.5 dBi
Total Output Power (EIRP)	24.5 dBm (~282 mW)	24.5 dBm (~282 mW)
Equivalent Power (e.r.p.)	22.35 dBm (~172 mW)	22.35 dBm (~172 mW)
Regulatory Category	Telemetry / Data Acquisition System	Telemetry / Data Acquisition System
Wireless Range	Standard: 500m (Extendable to several km)	Standard: 500m (Extendable to several km)
Start Relay 1 Contact (T3, T4)	NO - 30A Heavy-Duty @ 250VAC	N/A (Telemetry Transmitter Only)
Stop Relay Contact (T5, T6)	NC - 7A @ 250VAC	N/A
Start Relay 2 Contact (T7, T8)	NO - 7A @ 250VAC (Auxiliary Start)	N/A
Physical Dimensions	110mm × 130mm × 55mm (L × W × H)	65mm × 210mm (D × H - Cylindrical)
Weight	392 Grams	387 Grams
Operating Temperature	-10°C to +55°C	-10°C to +65°C
Ingress Protection & Life	Impact ABS, Dust Protected	IP68 Fully Sealed • 5+ Years Battery Life

Key System Features & Benefits

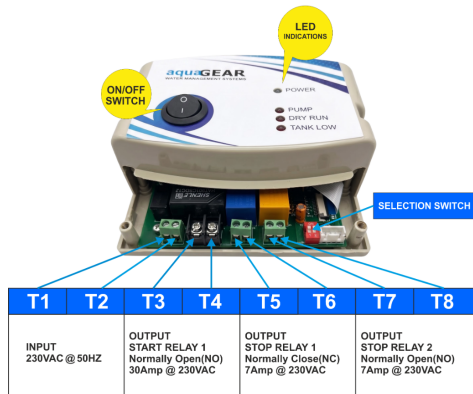
FEATURE	DESCRIPTION & OPERATIONAL BENEFIT
True Wireless Freedom	Eliminate the mess and expense of long-distance wiring. No cables required between the tank and the pump — save on installation costs and avoid unsightly drilling across your property.
5+ Years Battery Life	Enjoy 5+ years of operation on 4×AA Alkaline batteries. Our intelligent battery management optimizes power consumption, and the battery is easily user-replaceable.
Zero-Maintenance Sensing	Non-corrosive sensors designed for longevity. Unlike traditional floats, our sensors require no cleaning or upkeep, ensuring reliable performance year after year.
Built for the Elements (IP68)	The remote unit is fully sealed with an IP68 waterproof rating — engineered to withstand torrential rain and intense heat without skipping a beat.
Dry-Run Protection	If water flow is interrupted or the source runs dry, AGUAGEAR instantly shuts off the pump to prevent motor burnout and expensive repairs.
Smart Power Guard	Integrated Over-Voltage and Under-Voltage protection monitors your electricity and keeps your pump safe from fluctuating power grids and electrical surges.
Overload Protection	Safeguards your pump motor against excessive current draw and mechanical strain, automatically shutting off to prevent overheating and costly motor burnout.
Full Isolation Safety	The system is fully isolated from high-voltage lines, providing a shock-proof user experience for you and your family.
Massive Wireless Range	Standard operation covers 500 metres, with the capability to extend several kilometres. Perfect for large villas, farms, or multi-story apartments.
Intuitive Alerts	Bright LED indicators and an audible buzzer provide real-time updates on the system's working state and water tank levels.
Universal Compatibility	Works with any control panel, including both single-phase and three-phase motor pumps. One universal solution for every setup.
Heavy-Duty Switching	Featuring a robust 30A Relay Contact, AGUAGEAR is built to handle high-power loads with ease and long-term durability.

SEC 03 HARDWARE IDENTIFICATION & TERMINAL RATINGS

The AquaGear WPC-S1 Station Controller is equipped with heavy-duty screw terminals for connection to 230V mains and starter panels. The AquaGear WPC-R1 Remote Unit features dedicated terminals for tank level and flow sensing probes.

AQUAGEAR WPC-S1: STATION PINOUT

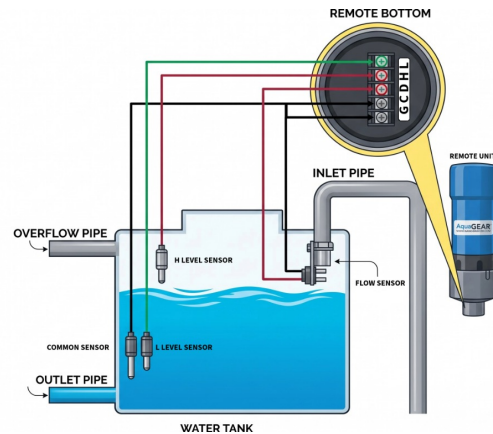
T1-T8



STATION UNIT: SWITCHES & TERMINALS T1-T8

AQUAGEAR WPC-R1: REMOTE PINOUT

G, C, D, H, L



REMOTE UNIT: TERMINALS (G, C, D, H, L) & PROBES

AquaGear WPC-S1 Station Unit Terminals (T1 to T8)

TERMINAL	CIRCUIT FUNCTION	ELECTRICAL RATING	APPLICATION IN MOTOR STARTERS
T1 & T2	Mains Power Supply	230V AC, 50Hz (150V–280V)	Powers the Station unit electronics and internal switching logic.
T3 & T4	Start Relay 1	Normally Open (NO), 30A	Direct pump motor load control or starter panel START pushbutton pulse.
T5 & T6	Stop Relay	Normally Closed (NC), 7A	Connected in series with the pump starter STOP button / coil circuit.
T7 & T8	Start Relay 2	Normally Open (NO), 7A	Auxiliary start pulse for multi-capacitor panels (Types 3 & 5).

AquaGear WPC-R1 Remote Unit Terminals (G, C, D, H, L)

TERMINAL	PROBE DESIGNATION	WIRE COLOR	PHYSICAL MOUNTING LOCATION
Terminal G	GROUND	BLACK	Internal supply ground. Shorted to Terminal C to activate Remote.
Terminal C	COMMON SENSOR	BLACK	Immersed permanently at the bottom of the water tank.
Terminal D	FLOW SENSOR	YELLOW/RED	Installed directly inside or at mouth of the tank inlet delivery pipe.
Terminal H	HIGH LEVEL SENSOR	RED	Suspended 2–3 inches below the tank overflow outlet pipe.
Terminal L	LOW LEVEL SENSOR	GREEN	Suspended at desired refill threshold (typically 20%–25% from bottom).

Wireless Architecture Advantage: The Station unit does not require any wired probes to the overhead tank or sump. The Remote unit encodes conductivity measurements into encrypted RF packets and transmits them wirelessly up to 500m (extendable to kilometers).

SEC 04 LED INDICATORS, BUZZER ALERTS & SELECTION SWITCH

LED Indications and Their States

LED NAME	COLOR STATE	SYSTEM CONDITION & DESCRIPTION
POWER	STABLE BLUE	System Good
	BLINK RED 1HZ	System Booting Process
	STABLE RED	System in ERROR / NO DATA. Other LED combinations indicate which part is in ERROR state. If no DATA sync from REMOTE, only POWER LED is in RED, all other LEDs are OFF.
	BLINK RED 2HZ	OVER VOLTAGE / UNDER VOLTAGE state
	PINK	RF Data transaction completed successfully
	BLINK BLUE 1HZ	Remote Battery Low Warning
	OFF	System in OFF state
PUMP	STABLE RED	The PUMP is ON.
	OFF	PUMP OFF
DRY RUN	BLINK RED 1HZ	DRY RUN Fault checking process ongoing
	STABLE RED	DRY RUN ERROR (also POWER LED in RED color)
	OFF	DRY RUN satisfied while PUMP is ON
TANK LOW	STABLE RED	Tank is LOW
	BLINK RED 1HZ	Sensor ERROR (also POWER LED in RED color)
	OFF	TANK is FULL

Audible Buzzer Notifications & Working Principle

BUZZER PATTERN	TRIGGER / EVENT	SYSTEM RESPONSE & ACTION
1 Confirmation Beep	Low Level Refill Trigger (Tank Low)	Station unit energizes Start Relay to initiate pump operation.
2 Short Beeps	High Level Shutoff Trigger (Tank Full)	Station unit energizes Stop Relay to automatically turn OFF pump.
Intermittent Fast Beeps (5 Times)	Fault Condition (Dry-Run, Over-Voltage, Under-Voltage, or Sensor Error)	Alerts user of fault condition; isolates/shuts down pump to protect equipment.

2-Pole Selection Switch (DIP) Matrix

The internal 2-pole Selection Switch configures the Station unit's relay timing and contact logic to match your specific starter panel type:

STARTER TYPE	PANEL CONFIGURATION	SWITCH 1	SWITCH 2	RELAY OUTPUT
Type 1	Dual Pole (DP) Manual Switch Panel	ON	ON	Continuous (T3, T4 30A)
Type 2	3-Phase DOL Starter (with SPP)	ON	OFF	Pulse Start + Series Stop
Type 3	Multi Capacitor Submersible Panel	OFF	ON	Start NO + Cut Stop NC
Type 4	Single Capacitor MCB Submersible Panel	ON	ON	Continuous (MCB OFF)
Type 5	Multi Capacitor MCB Submersible Panel	OFF	OFF	Start 1 (30A) + Start 2 (7A)

 **Configuration Tip:** Set Selection Switches 1 and 2 with the controller power OFF. Turning on the unit afterwards locks the operating relay dynamics into the microcontroller memory.

SEC 05 TANK SENSORS & DUAL-TANK SUMP INTEGRATION

The AquaGear WPC-R1 Remote Unit connects to five terminals (G, C, D, H, L) using non-corrosive stainless steel sensors that require zero maintenance or descaling.

I Sensor Probe Installation Steps

1. Mount the **AquaGear WPC-R1 Remote Unit** vertically near the tank opening using the provided mounting bracket.
2. Drop the **Terminal C (COMMON SENSOR)** probe down to the absolute bottom of the tank so it remains perpetually immersed.
3. Suspend the **Terminal L (LOW LEVEL SENSOR)** probe at your desired refill trigger height (typically 20%–25% from the tank bottom, above the outlet distribution pipe).
4. Suspend the **Terminal H (HIGH LEVEL SENSOR)** probe 2–3 inches below the tank overflow outlet pipe to shut off pumping when full.
5. Attach the **Terminal D (FLOW SENSOR)** directly inside or at the mouth of the tank inlet delivery pipe to verify active water inflow.
6. Short **Terminal G (GROUND)** and **Terminal C (COMMON SENSOR)** with a short wire jumper to activate the Remote Unit.

FIGURE 5.1: AQUAGEAR WPC-R1 REMOTE UNIT & TANK SENSORS WIRING SCHEMATIC

REMOTE TERMINALS G, C, D, H, L

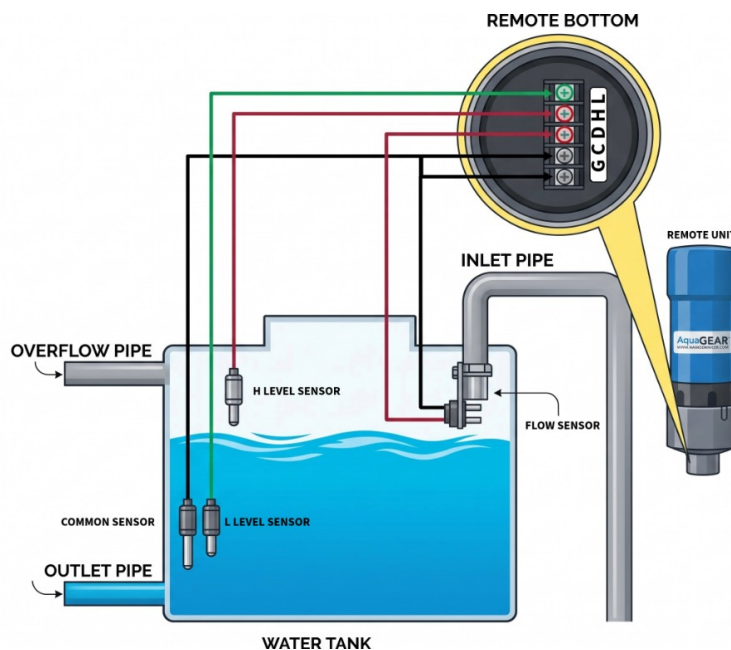


FIG. 5.1: OVERHEAD TANK SENSOR PROBES (COMMON SENSOR, LOW LEVEL SENSOR, HIGH LEVEL SENSOR, FLOW SENSOR) INTERCONNECTION WITH REMOTE UNIT

OPTIONAL UPGRADE

Dual-Tank Automation: Extra Sump Remote Unit Integration

For installations where an **Underground Sump Tank** supplies an **Overhead Tank (OHT)**, you can pair an optional secondary AquaGear Remote Unit at the sump tank:

- **Wireless Sump Level Monitoring:** The extra Sump Remote continuously monitors water availability in the underground sump and transmits live telemetry to the Station controller without any trenches or cables.
- **Intelligent Source Interlock:** The Station unit only runs the pump when the Overhead Tank requires water *and* the Sump Tank has sufficient water level.
- **Preemptive Dry-Run Lockout:** If the sump level falls below the suction threshold, pumping is prevented before cavitation can occur.

SEC 06 STARTER WIRING: TYPE 1 (DUAL POLE DP SWITCH)

Type 1 Starter: Domestic single-phase pump installations operated with a standard ON/OFF Dual Pole (DP) switch. The built-in **30A Start Relay 1 (T3, T4)** directly handles the motor load. Well-suited for 0.5 HP, 1.0 HP, and 1.5 HP pumps.

TYPE 1: DUAL POLE (DP) SWITCH WIRING SCHEMATIC

SWITCH 1 = ON | SWITCH 2 = ON

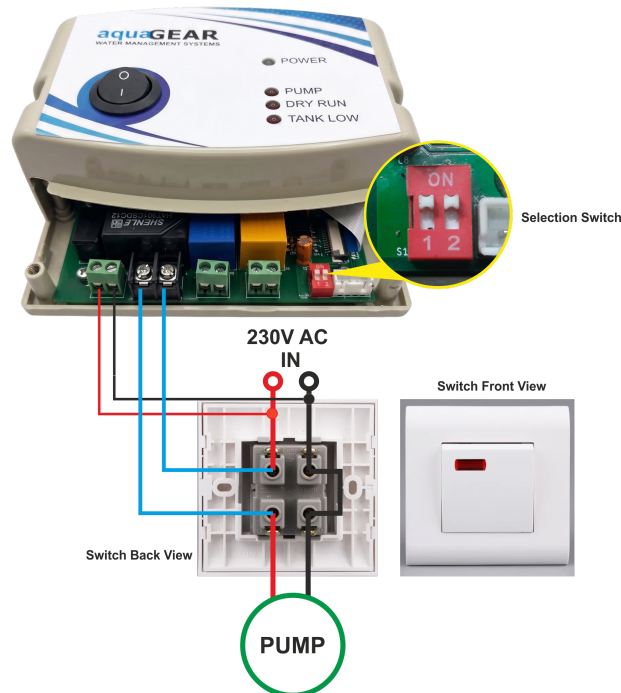


FIG. 1: TYPE 1 DUAL POLE SWITCH INTERCONNECTION WITH STATION UNIT

Wiring Procedure

1. Connect 230V AC Mains Phase (P) from the Dual Pole (DP) switch input terminal (Phase line entry point) to Station terminal **T1**.
2. Connect 230V AC Mains Neutral (N) from the Dual Pole (DP) switch input terminal to Station terminal **T2**, and common it to the Pump Neutral (short switch input Neutral and output Neutral).
3. Make a parallel connection across the Dual Pole switch using terminals **T3 & T4**: connect Station terminal **T3 (Start Relay 1)** to the switch Phase output point (going to pump), and connect Station terminal **T4 (Start Relay 1)** to the switch Phase input point (from mains).
4. Set Selection Switches: **Switch 1 is ON, Switch 2 is ON**, then turn ON the device ON/OFF switch.

SEC 07 STARTER WIRING: TYPE 2 (3-PHASE DOL STARTER WITH SPP)

Type 2 Starter: 3-Phase Direct-On-Line (DOL) magnetic contactor starters equipped with a Single Phase Preventer (SPP) unit.

TYPE 2: 3-PHASE DOL STARTER WITH SPP SCHEMATIC

SWITCH 1 = ON | SWITCH 2 = OFF

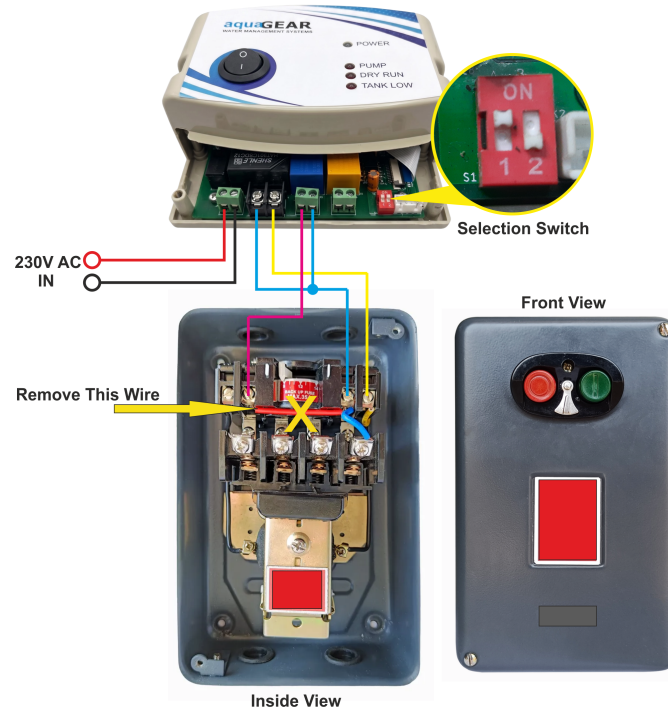


FIG. 2: TYPE 2 DOL STARTER INTERCONNECTION WITH MANDATORY SPP



MANDATORY: Single Phase Preventer (SPP) & Auxiliary Wire Removal

In 3-Phase DOL configurations, a **Single Phase Preventer (SPP)** must be present. Disconnect the internal jumper wire between the contactor auxiliary terminal and coil (marked with a Yellow Arrow / Red X in diagram) for WPC pulse control.

Wiring Procedure

1. Connect 230V AC Mains supply to Station **T1 (Phase)** and **T2 (Neutral)** terminals to power the unit.
2. Connect Station Stop Relay terminals **T5 & T6 (Normally Closed - NC, 7A)** in series with the starter contactor STOP button / coil circuit.
3. Connect Station Start Relay 1 terminals **T3 & T4 (Normally Open - NO, 30A)** in parallel across the Green START button contacts (or auxiliary NO holding terminals).
4. Confirm Selection Switch setting: **Switch 1 is ON, Switch 2 is OFF.**

SEC 08 STARTER WIRING: TYPE 3 (MULTI CAPACITOR SUBMERSIBLE)

Type 3 Starter: Single Phase Multi-Capacitor Submersible pump panels equipped with separate start and run capacitors and dual push buttons.

TYPE 3: MULTI CAPACITOR SUBMERSIBLE PANEL SCHEMATIC

SWITCH 1 = OFF | SWITCH 2 = ON

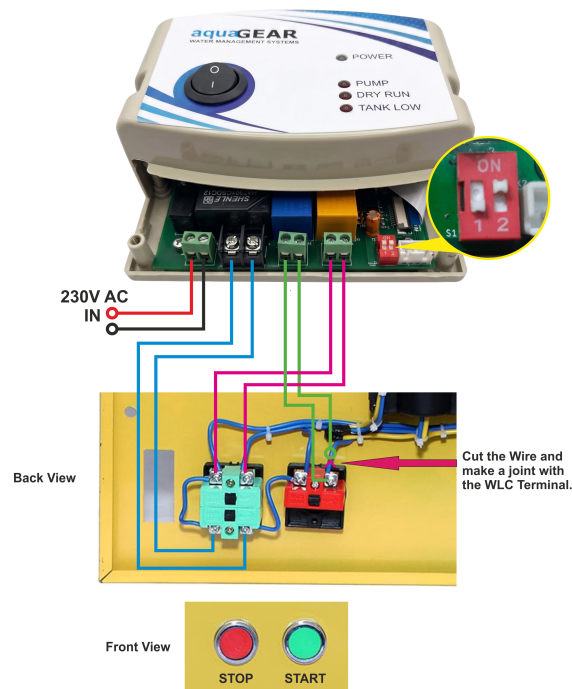


FIG. 3: TYPE 3 MULTI CAPACITOR SUBMERSIBLE PANEL INTERCONNECTION

✂ Cut & Joint for STOP Circuit: Cut the internal wire behind the Red STOP push button and connect Station Stop Relay terminals **T5 & T6 (Normally Closed, 7A)** in series across the cut joint to enable automatic shut-off.

Wiring Procedure

1. Connect 230V AC Mains supply to Station **T1 (Phase)** and **T2 (Neutral)** terminals to power the unit.
2. Connect Station Stop Relay terminals **T5 & T6 (Normally Closed - NC, 7A)** in series across the cut STOP button line.
3. Connect Station Start Relay 1 terminals **T3 & T4 (Normally Open - NO, 30A)** in parallel across the Green START push button contacts.
4. If auxiliary start triggering is required, connect Station Start Relay 2 terminals **T7 & T8 (Normally Open - NO, 7A)** across the auxiliary start contacts.
5. Confirm Selection Switch configuration: **Switch 1 is OFF, Switch 2 is ON.**

SEC 09 STARTER WIRING: TYPE 4 (SINGLE CAPACITOR MCB PANEL)

Type 4 Starter: Deep-well submersible borehole pumps equipped with an external run capacitor and MCB control box. The built-in **30A Start Relay 1 (T3, T4)** directly controls the motor load. Well-suited for 0.5 HP, 1.0 HP, and 1.5 HP pumps.

TYPE 4: SINGLE CAPACITOR MCB PANEL SCHEMATIC

SWITCH 1 = ON | SWITCH 2 = ON

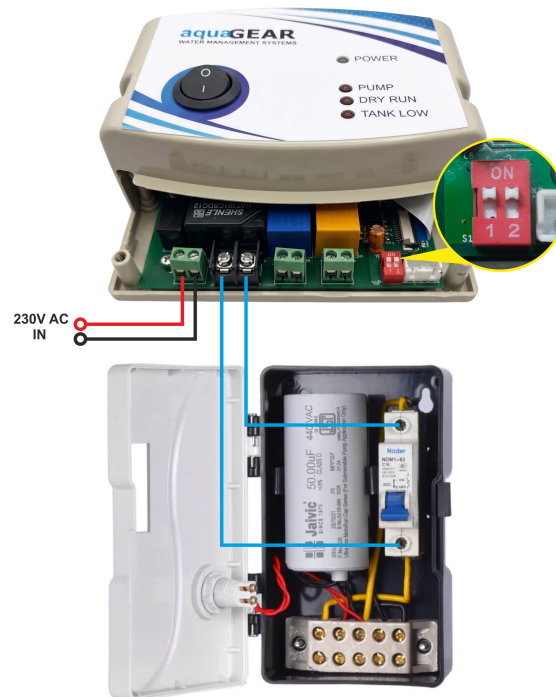


FIG. 4: TYPE 4 SINGLE CAPACITOR MCB TYPE SUBMERSIBLE PANEL

Wiring Procedure

1. Connect 230V AC Mains Phase to Station **T1** and Mains Neutral to Station **T2** terminals to power the unit.
2. Connect 230V AC Mains Neutral directly to the Capacitor Control Box Neutral terminal (and common with motor neutral).
3. Connect Station Start Relay 1 terminals **T3 & T4 (Normally Open - NO, 30A)** in parallel across the Capacitor Box MCB switch (Phase input to Phase output) to directly power the motor load.
4. **Keep the Control Box MCB switched OFF** for continuous automated operation.
5. Confirm Selection Switch setting: **Switch 1 is ON, Switch 2 is ON.**

SEC 10 STARTER WIRING: TYPE 5 (MULTI CAPACITOR MCB PANEL)

Type 5 Starter: Multi-capacitor borehole submersible panels combining a main MCB switch with an auxiliary start capacitor triggered via a front-door Green push button.

TYPE 5: MULTI CAPACITOR MCB PANEL SCHEMATIC

SWITCH 1 = OFF | SWITCH 2 = OFF

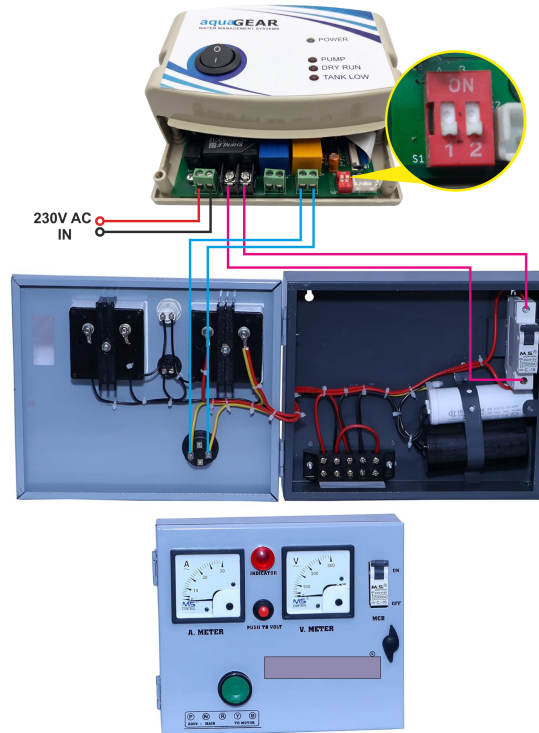


FIG. 5: TYPE 5 MULTI CAPACITOR MCB TYPE SUBMERSIBLE PANEL

Wiring Procedure

1. Connect 230V AC Mains Phase to Station **T1** and Mains Neutral to Station **T2** terminals to power the unit.
2. Connect Station Start Relay 1 terminals **T3 & T4 (Normally Open - NO, 30A)** in parallel across the panel **MCB switch** (top incoming phase terminal and bottom outgoing terminal) to control continuous motor power.
3. Connect Station Start Relay 2 terminals **T7 & T8 (Normally Open - NO, 7A)** in parallel across the panel door-mounted **Green START push-button** contacts to provide the initial start capacitor pulse.
4. Terminals **T5 & T6 (Stop Relay)** remain unused for this panel configuration (stopping is automatically handled when Start Relay 1 opens).
5. **Keep the panel MCB switched OFF** for continuous automated operation.
6. Confirm Selection Switch setting: **Switch 1 is OFF, Switch 2 is OFF.**

SEC 11 SYSTEM OPERATION: 4-STEP AUTOMATION & FLOW VERIFY

The AquaGear automation cycle operates seamlessly through a coordinated 4-step sequence engineered to guarantee uninterrupted water supply, dual-tier dry-run protection, and comprehensive electrical motor safety:

1. System Architecture

The **STATION Unit** is installed near your pump/starter. The **REMOTE Unit** is placed at the Overhead Tank (plus optional second Remote at the Underground Sump).

2. Wireless Telemetry

The REMOTE unit monitors tank water levels in real-time, encoding and transmitting telemetry wirelessly to the STATION unit via long-range **Sub-GHz LoRa (865–867 MHz)**.

3. Auto Pumping & Voltage Guard

When tank level drops below Probe L, the STATION unit verifies mains voltage is within the safe **180V–260V AC** window, illuminates **TANK-LOW & PUMP LEDs (Red)**, and turns ON the pump.

4. Sequential Flow & Dry-Run Verify

While pumping, the **DRY-RUN LED flashes Red**. AquaGear applies sequential dual detection (motor current anomaly check followed by pipe-end flow verification) to guarantee safety.

Dual-Method Flow & Dry-Run Fault Detection (Sequential Execution)

AquaGear utilizes **two complementary methods** to detect flow and dry-run faults. Both methods are applied **sequentially when the pump is ON**:

METHOD 1: CURRENT ANOMALY DETECTION

STAGE 1

Immediately upon motor startup, the controller samples active motor running current to detect electrical/hydraulic load anomalies. If dry-running occurs (no-load undercurrent, airlock cavitation, or unprimed pump), the fault is flagged rapidly before thermal winding damage occurs.

METHOD 2: PIPE-END WATER FLOW SENSING

STAGE 2

Positioned at the discharge outlet of the delivery pipe inside the overhead tank, sensor **Probe D** senses the physical emergence and continuous presence of water flow. If water does not reach the discharge outlet within the timeout window or stops flowing, dry-run trips instantly.

Sequential Operation Architecture: Both methods execute sequentially during every pumping cycle. First, electrical motor load current is validated on start; second, physical water arrival at the pipe end is confirmed. If either method detects an anomaly or lack of flow, the system trips the pump, sounds the buzzer alarm, and illuminates the **DRY-RUN LED (Red)**.

Supply Voltage Monitoring & Threshold Protections

VOLTAGE THRESHOLDS & MOTOR PROTECTION WINDOW

CONTINUOUS RMS SAMPLING

UNDER-VOLTAGE CUT-OFF THRESHOLD

180V AC

Inhibits pump start or trips motor if mains supply drops below **180V AC**, preventing severe under-voltage current surges and coil burning.

OVER-VOLTAGE CUT-OFF THRESHOLD

260V AC

Protects motor stator insulation, capacitors, and contactor coils against destructive over-voltage spikes exceeding **260V AC**.

Safe Envelope (180V AC – 260V AC): Pump operation is strictly permitted within this range. If line voltage falls outside these limits, the controller trips and holds until voltage normalizes, automatically resuming safe operation.

Operating Verification Checklist

1. Verify 230V AC mains is connected to T1 & T2 and within the safe **180V–260V AC** threshold. Confirm power indicator illuminates.
2. Verify Terminal G is jumpered to Terminal C.
3. Simulate water level below Probe L: Verify TANK-LOW LED glows Red, confirmation beep sounds, and PUMP LED turns Red.
4. Observe Sequential Verification: Controller first checks motor current, while DRY-RUN LED flashes Red during pipe-end water flow detection, extinguishing once flow is established.
5. Simulate tank full: When water reaches Probe H, the pump shuts off automatically and TANK-LOW LED turns OFF.

SEC 12 DIAGNOSTIC PROTECTIONS & TROUBLESHOOTING

The AquaGear Station Controller features intelligent LED diagnostics and audible buzzer patterns (defined in SEC 04) that identify operational states and fault conditions in real time. Use the diagnostic matrix below to quickly identify root causes and apply corrective actions:

FAULT / SYMPTOM	LED & BUZZER INDICATION	PROBABLE ROOT CAUSE	CORRECTIVE ACTION
Dry-Run Fault Trip (Current Anomaly or Flow Loss)	DRY RUN: STABLE RED POWER: STABLE RED Buzzer: 5 Fast Beeps	Stage 1 motor dry-run anomaly (no-load undercurrent / airlock), or Stage 2 delivery pipe water flow not sensed at Probe D.	Verify sump/borewell water level; check pump suction priming; inspect pipe-end Probe D position; toggle power switch OFF for 5s to reset latch.
Over / Under Voltage Trip (Outside 180V–260V AC)	POWER: BLINK RED 2HZ PUMP: OFF Buzzer: 5 Fast Beeps	Mains grid voltage across T1–T2 is below 180V AC (Under-voltage) or exceeds 260V AC (Over-voltage).	Verify AC line voltage across T1 & T2 with a multimeter. The controller auto-resumes pumping once voltage normalizes to 180V–260V AC.
RF Link Loss / No Data (Remote Sync Disconnected)	POWER: STABLE RED All Other LEDs: OFF (No RF Data Packets)	Station has received no telemetry from Remote Unit. Batteries dead, Terminal G not jumpered to C, or RF path obstructed.	Verify Terminal G is jumpered to C on Remote; test 4×AA battery pack (>5.5V total); ensure antenna is vertical and free of metal shielding.
Remote Battery Low (Maintenance Alert)	POWER: BLINK BLUE 1HZ Pumping Continues Normally Buzzer: Silent	Remote Unit 4×AA Alkaline battery voltage has dropped below the Threshold voltage. Early warning before complete link loss.	Contact the AquaGear Customer Support team; they will handle the battery replacement task.
Sensor Probe Error (Open Circuit / Probe Fault)	TANK LOW: BLINK RED 1HZ POWER: STABLE RED Buzzer: 5 Fast Beeps	Sensor signal open or shorted. Probe C common floating above water, or wiring to Probe H / L disconnected at Remote terminals.	Inspect sensor wires at Remote terminals C, H, L. Ensure Probe C rests at tank bottom; clean probes of mud, scale, or algae buildup.
Station Unit Dark / Dead (No Display / No LEDs)	ALL LEDs: OFF Buzzer: Silent	No 230V AC mains voltage at T1 & T2, power rocker switch OFF, or upstream MCB / distribution fuse tripped.	Ensure side rocker switch is ON; check 230V AC across terminals T1 and T2 using a voltmeter; reset tripped MCB / breaker.

 **Fault Lockout Reset:** To clear an emergency dry-run or sensor error latch after resolving the issue, turn the Station Unit power switch **OFF for 5 seconds**, then back **ON** to resume automatic monitoring.

 **System Status Reference:** When powered ON, **POWER LED blinks Red 1Hz** during boot, flashes **Pink** on successful RF sync, and stays **Stable Blue** during normal operation.

SEC 13

PREVENTIVE MAINTENANCE & AA BATTERY REPLACEMENT

AquaGear is engineered for zero-maintenance operation. The sensors have no moving parts or floats, and the Remote Unit is optimized for ultra-low power consumption:

5+ Years Battery Life & Replacement Guide

The AquaGear WPC-R1 Remote Unit operates for **5+ years on 4 standard 1.5V AA Alkaline batteries**. When the batteries eventually require replacement after several years of operation:



Battery Replacement Service:

Please contact the AquaGear Customer Support team; they will handle the battery replacement task for you.

Customer Helpline: **+91 94478 96708** • Email: **info@micromotus.in** • Web: **www.aquagear.in**



Responsible Electronic Waste Recycling (WEEE)

Do not dispose of electronic components, printed circuit boards, or spent alkaline batteries in household municipal garbage. Hand over spent cells to designated battery collection points or return to your authorized AquaGear distributor.

SEC 14

WARRANTY TERMS & REGISTRATION CERTIFICATE

Micromotus Innovative Solutions warrants the AquaGear Wireless Water Level Controller (Station WPC-S1 and Remote WPC-R1) against manufacturing defects in materials and workmanship for a period of **12 Months** from the date of purchase.

Warranty Terms & Conditions

- **Replacement Coverage:** Defective components will be repaired or replaced free of charge by Micromotus upon verification by an authorized service engineer.
- **Exclusions:** Warranty does not cover physical drops, severe lightning strikes, voltages exceeding 300V AC, water submergence of the indoor Station WPC-S1 unit, or unauthorized tampering.
- **External Motors:** Warranty covers the AquaGear controller and sensors; external motor windings, capacitors, or third-party starters are governed by their respective manufacturers.

AQUAGEAR OFFICIAL WARRANTY REGISTRATION CARD

12-MONTH REPLACEMENT WARRANTY

Customer Name:

Station Unit Serial (AquaGear WPC-S1):

AG-S1-

Installation Address:

Remote Unit Serial (AquaGear WPC-R1):

AG-R1-

Contact Phone / Mobile:

Tax Invoice / Cash Bill Number:

Date of Purchase & Installation:

AUTHORISED DEALER / ELECTRICIAN STAMP & SIGNATURE

MANUFACTURER & CUSTOMER HELPLINE

Micromotus Innovative Solutions • +91 94478 96708

Email: info@micromotus.in • Web: www.aquagear.in / www.micromotus.in

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