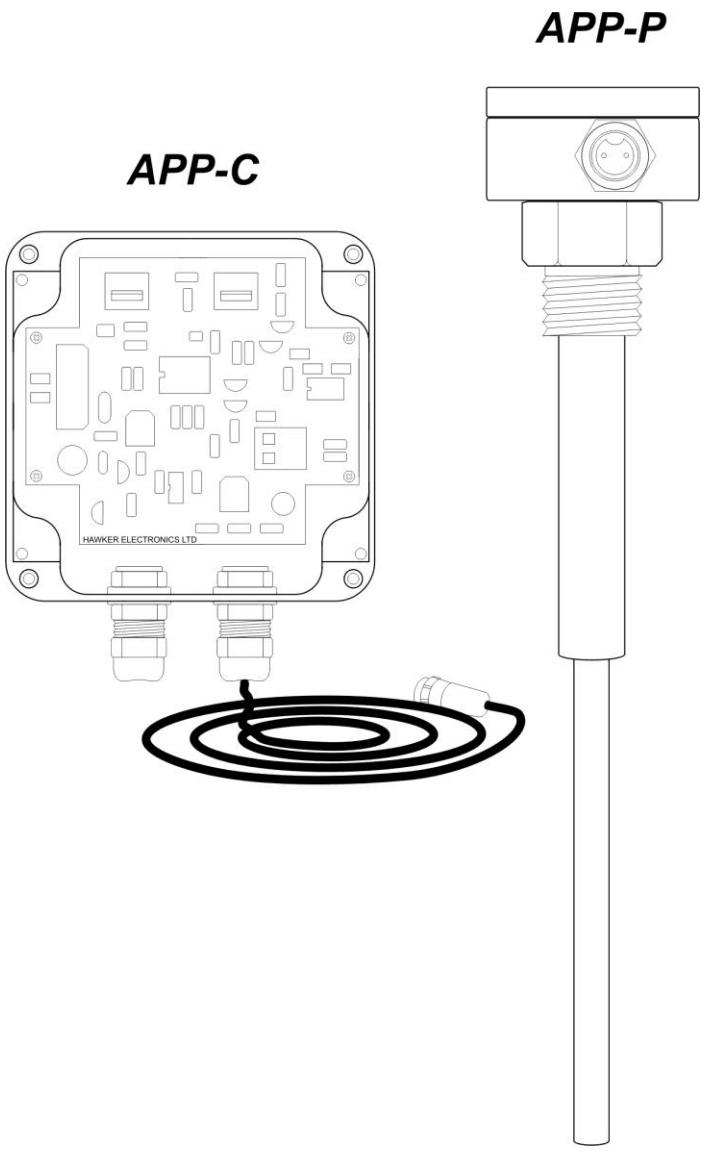
Auto Pump Primer System

Installation and Setting up Instructions

Version 2 - with Solenoid Response Adjustment and fixed clutch delay time



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O&M 89
Issue A
February 2017

FM 10000

Description

The APP System consists of two parts, an electronic controller **(APP-C),** and probe **(APP-P).** When used together they form a smart auto pump priming system. The probe is mounted in the liquid containment tank and the controller can be located up to 1.7m away from the probe. The controller output is generally used to operate a solenoid and a timed clutch.

Operation

1. With the probe uncovered, both the solenoid and clutch outputs are at +12V DC, energising the solenoid and clutch.

2. When liquid is detected by the probe the solenoid output goes to 0V DC turning OFF the solenoid, the clutch output stays at +12V DC (remains energised) for a fixed period of 90 seconds. After the timed period the clutch output goes to 0V DC.

3. If the water level falls below the probe both outputs go to +12V DC re-energises both solenoid and clutch immediately and the clutch time period is reset.

Solenoid Delay Adjustment

The 'DELAY' adjustment trimmer on the PCB can be set to give a variable solenoid response time of between approximately 0 and 1.5 seconds. Factory default setting is 1.5 seconds.

Sensitivity adjust

The 'SENSE' adjustment trimmer on the PCB is adjusted to match the capacitance of the probe, cable and liquid. This is normally set at works but can be user adjusted if required. In most applications this is negligible.

Power up Conditions

On power up if the probe is covered with liquid the solenoid will be OFF and the clutch will be ON until the timed period is over then the clutch will turn OFF. If when powered up liquid is not on the probe both the Solenoid and Clutch will be ON.

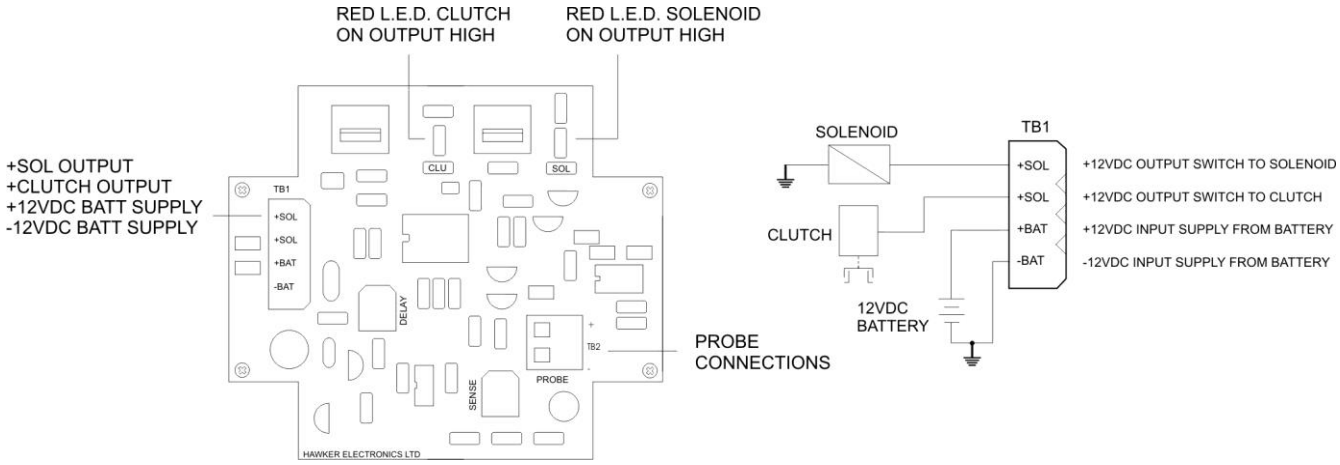
Wiring and Connection

Caution This Product uses negative earth, connecting to a positive earth may result in failure and damage to the equipment.

Controller to Probe

The controller is pre-fitted with a length of cable and is attached to the probe via a connector. The cable length is fixed and should not be altered.

TB1 connector is a 4 terminal connector, which connects to the battery, clutch, and solenoid



Caution Observe the terminal block connections and polarity. Do not connect the Solenoid and Clutch outputs directly to 0V DC, this will result in failure and possible damage to the equipment. The Solenoid and Clutch outputs should be individually externally fused.

Technical Data

APP-Controller v2

Supply:	Nominal 12V DC Battery, (+10.5V DC to +15V DC Max).
Power:	0.25W with probe attached and uncovered, 0.1W covered (circuit only, excluding solenoid and valve power).
Outputs:	Solenoid: +12V DC @ 3.5A Max. Clutch: +12V DC @ 3.5A Max. Each output is internally switched, supply derived from +V DC Battery input. RED L.E.D indicators for each output ON when the output is high.
Clutch Delay:	Fixed 90 seconds.
Solenoid Delay:	Solenoid response time, user adjustable, approx. 0 to 1.5s.
Sig Input:	C/W 1.7M of pre-fitted cable with a 2-pin connector for ***APP-P.***
Sensitivity:	Range: 10pF Approx.
Enclosure:	Material: Polycarbonate 100 x 100 x 55mm IP65 screw mount, enclosure holes on a 4 x 86mm spacing on square, 4.5mmØ hole, 2 x pre-fitted cable glands.
Weight:	295g Approx.
Op Temp	-20^0 to $+70^0$

APP-Probe

Operating Principle:	Capacitance.
Max Probe Voltage:	8V AC
Current:	<1mA.
Enclosure:	Material: ABS, 64 x 58 x 35mm, IP65.
Probe	Material: Stainless Steel and Nylon.
Length:	Insertion Approx 325mm.
Connection:	Electrical: 2 Pin socket for connection to ***APP-C.*** Mechanical: 1" B.S.P.
Weight:	345g Approx.
Op Temp:	-20^0 to $+70^0$

The Probe has a nylon upper part; this is to prevent false switching due to liquid tracking.

EU DECLARATION OF CONFORMITY

1. **Product Model**: APP-C/P Capacitance Level Pump Primer

2. **Manufacturer:** Hawker Electronics Ltd, 57 The Avenue, Rubery Industrial Estate, Rubery, Birmingham, B45 9AL

3. **This declaration of conformity is issued under the sole responsibility of the manufacturer.**

4. **Object of the declaration:**

5. The object of the declaration described above is in conformity with the relevant **Union harmonised legislation:**

   - **EMC Directive** (2014/30/EU)
   - **RoHS Directive** (2011/65/EU)

6. Reference to the relevant **harmonised standards** used in relation to which conformity is declared:

   - EMC EN 61326-1:2006
     CISPR11 Radiated emissions, class B
     EN 61000-4-2 Immunity to Electrostatic Discharge, criteria A
     EN 61000-4-3 Immunity to Radiated Fields, criteria A

7. Notified Body: N/A

8. **Additional Information:**

The product named above complies with the parts of the standards listed. The company operates an internal production control system that ensures compliance between the manufactured products and the technical documentation. EMC compliance may be based on similar products or variants that have satisfactory completed full testing. RoHS compliant components are used in the manufacture of the product.

Signed for and on behalf of:

Hawker Electronics Ltd on 20th April 2016

J J Slevin (Managing Director)