



HAWKER

LEVEL CONTROL SYSTEMS

Type P4

Conductivity Level Controller

- Suitable for a wide range of Conductive liquids e.g. Sewage, Water, Acids, Alkalis, Milk, Beverages, Paper Stock, Detergents, Wine etc.
- Precise level detection with no deadband.
- Protection against dry running.
- Prevents pump overrun resulting in reduced operating costs.
- Ignores electrode fouling.
- Simple 'Low Cost' installation.
- Wide selection of electrodes and mounting accessories.
- Intrinsically Safe option (P7/IS).

Principle of Operation

Relies on the conducting properties of liquids to complete an electrical circuit between an electrode and the metal tank. For non-metal or coated tanks, the path may be through pump pipework. Alternatively, an earth electrode extending below the lowest active electrode may be fitted. Level sensing electrodes are normally mounted vertically and the controller switching action occurs as the liquid touches or leaves the electrode. Pressure tight electrodes are available for side entry if required. A low voltage A.C. signal is used on the electrodes to prevent electrolysis.

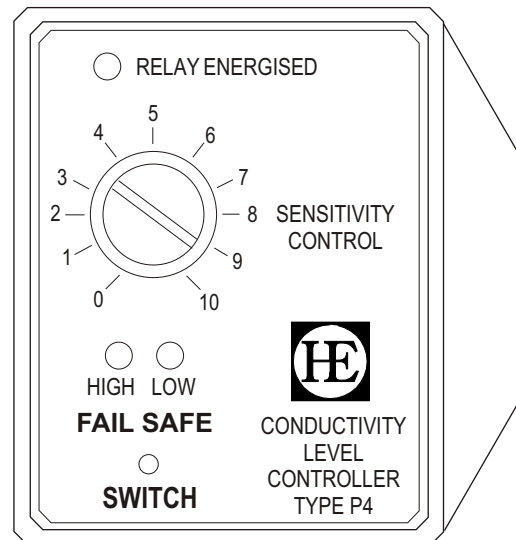
Sensitivity

The input switching point is adjustable between 100 & approx 18,000 ohms, which suits most applications, Higher values up to 500,000 ohms are also available for high purity water.

Switching Differential

Better than 5% of set sensitivity i.e. 50 ohms at 1000 ohms (5 ohms at 100 ohms sensitivity). This is necessary to avoid relay hold-on at the lower electrode caused by material clinging to

Control Between Two Levels
or High or Low Alarm
with a Single Unit Controller



the probe, electrode wetting, and viscous liquids such as sludge. This close switching differential also allows the high electrodes to ignore foam layers. (Fixed sensitivity controllers without a close switching differential are only suitable for clean water applications).

Fail Safe Feature

Set by a switch on the front panel. The control relay will revert to the alarm condition in the event of a power failure. L.E.D. status indication is provided. As a general rule emptying applications require a fail safe low (FSL) setting and filling applications a fail safe high (FSH) setting.

Mounting Details

The plug-in controller is designed for mounting into an international 11 pin DIN rail/surface mounting socket enabling ease of installation and servicing. The base of the plug-in enclosure has two plastic clips which enable the P4 unit to be securely locked into the Hawker supplied 11-pin base. (The P4 will however fit other bases but the clips may not secure it).



HAWKER TECHNICAL SPECIFICATIONS

Technical Data

Supply Voltage:	110V or 230V 50/60Hz also 48V 50/60 Hz (to be specified).
Supply Tolerance:	+10% to -20%
Power Consumption:	6VA max
Inputs:	Up to 2 level electrodes plus earth return remotely mounted
Ambient Temperature:	-10°C to +60°C
Sensitivity:	Adjustable 100 ohms to approx 18,000ohms (approx 0 to 10 on the dial) higher values up to 500,000 ohms are available for high purity water (Ref: Hi-Sen)
Switching Differential:	Better than 5% of sensitivity setting (e.g. less than 50 ohms at 1000 ohms sensitivity).
Relay Output:	Double pole changeover voltage free contacts. Contacts rated 4A @ 250V AC resistive.
Indication:	Red L.E.D. showing relay energised. Green L.E.D's (2) fail safe mode & power status.
Connections:	11 pin DIN rail/surface mounting base (optional extra).
Intrinsic Safety:	P7/IS INTRINSICALLY SAFE level alarm or control system. The controller is situated in the safe area and the electrodes in the hazardous area. See Data Sheet No 304.
Distance of Controller to Electrodes:	Nominally 100m but greater distances using standard cable are possible in liquids of high conductivity, such as Acid, Sewage, Sea Water.

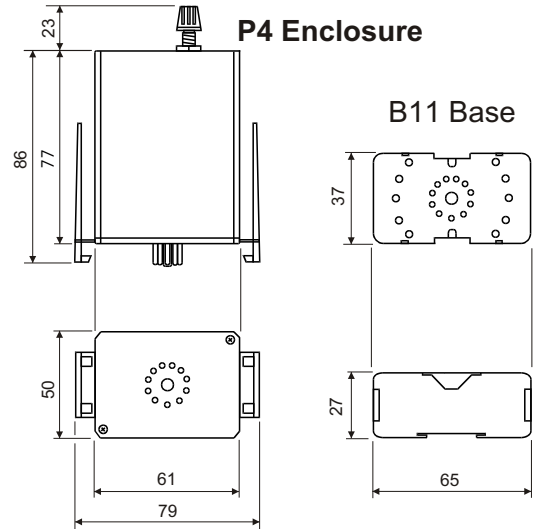
Level Electrodes

The Hawker range of level electrode holders and mounting accessories have been designed to cover a wide range of level control applications. Electrodes available in 316L Stainless Steel, Hastelloy C, Monel, titanium, etc, supplied plain or suitably insulated. Refer to data sheet No 241 for more information.

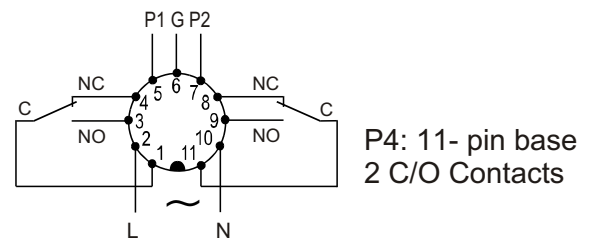
Ordering Information

P4 Plug-in level controller without base.
P4/b Plug-in level controller with 11-pin base
P4/Hi-Sen version.

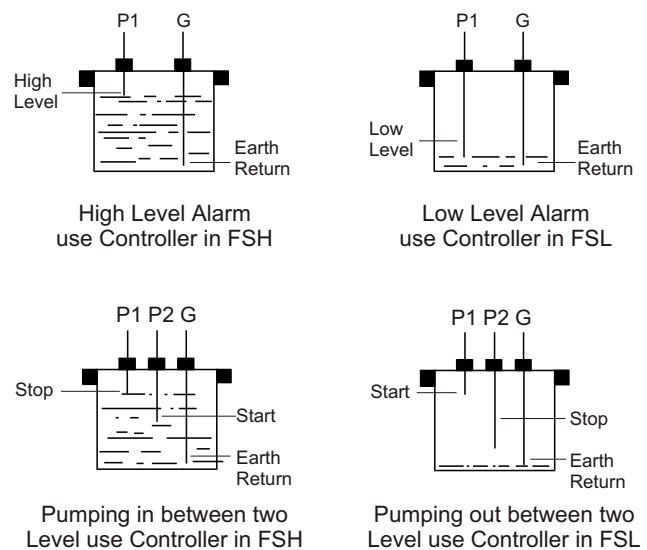
Dimensions



Connection Details



Typical Applications



Because of continuing development we reserve the right to change the specifications without notice

HAWKER ELECTRONICS LTD.

57 The Avenue,
Rubery Industrial Estate,
Birmingham B45 9AL, ENGLAND
Telephone :+44 (0)121-453-8911 Fax : +44(0)121-453-3777
e.mail: info@hawker-electronics.co.uk www.hawker-electronics.co.uk

