

## Analogue Values & Sensor Recalibration

This Technology Guide explains the range of Analogue Values produced by the **ESP** Range of Sensors and which values relate to correct operation, maintenance faults and those outside of the sensor's working limits. It also summarises the way in which **ESP** sensors automatically recalibrate themselves after contamination.

With the Hochiki **ESP** Range of Sensors the analogue signal produced by the device is proportional to the smoke (or Heat) present in the sensing chamber. This level can be expressed as a numerical analogue value which can be read by the TCH-B100 Address programmer or the Control Panel itself.

The tables below show the correct operating ranges for each type of sensor, if the sensor values fall outside of these ranges then a maintenance fault will be displayed at the panel and the sensor will require cleaning and recalibration.



### TCH-B100 / B200

#### A Hand Held Address Programmer

designed to address the ESP range of Sensors and other addressable devices such as the YBO-BS Base Sounder. Designed to be light, robust and easy to use it operates from a single PP3 size battery which can provide up to 8000 operations.

- ▶ Lightweight design
- ▶ Quick and reliable addressing
- ▶ Up to 8000 address settings from one battery
- ▶ Displays sensor analogue value
- ▶ Electronic linear heat detection
- ▶ Remote Indicator output
- ▶ Wide voltage range (9.5 ~ 30 Vdc)
- ▶ Twin fire LEDs allow 360° viewing
- ▶ Range of mounting bases
- ▶ Approved by Activfire (CSIRO)



### ALN-ASN

A Photoelectric Smoke Sensor incorporating Hochiki's unique High Performance Chamber which allows the sensor threshold level to be increased, thereby improving the signal to noise ratio and reducing susceptibility to false alarms.

- ▶ Removable, High Performance Chamber
- ▶ Twin fire LEDs allow 360° viewing
- ▶ Locking mechanism (sensor to base)
- ▶ Variable sensitivity
- ▶ Electronically addressed
- ▶ Pulsing/non-pulsing controlled from panel\*
- ▶ Addressed via TCH-B1/200 Hand Held Programmer
- ▶ Approved by Activfire (CSIRO)



### ATJ-ASN

A Multi-Heat Sensor incorporating a variable Fixed Temperature heat element and Rate Of Rise heat element, both controlled from the Control Panel allowing either thermal element or both elements simultaneously to be active in making the fire decision.

- ▶ User selectable modes
- ▶ Incorporates Fixed Temperature and Rate Of Rise Heat elements
- ▶ Twin fire LEDs allow 360° viewing
- ▶ Pulsing/non-pulsing controlled from panel\*
- ▶ Electronically addressed
- ▶ Addressed via TCH-B1/200 Hand Held Programmer
- ▶ Activfire (CSIRO) approved to Classes A, B & C



### ACC-ASN

A Multi Sensor incorporating a thermal element and a High Performance photoelectric smoke chamber. Has three modes controlled from the Control Panel, allowing either the optical or thermal element or both to be active in making the fire decision.

- ▶ User selectable modes
- ▶ Incorporates Optical & Heat elements
- ▶ Removable, High Performance Chamber
- ▶ Twin fire LEDs allow 360° viewing
- ▶ Pulsing/non-pulsing controlled from panel\*
- ▶ Variable sensitivity
- ▶ Electronically addressed
- ▶ Addressed via TCH-B1/200 Hand Held Programmer
- ▶ Approved by Activfire (CSIRO)

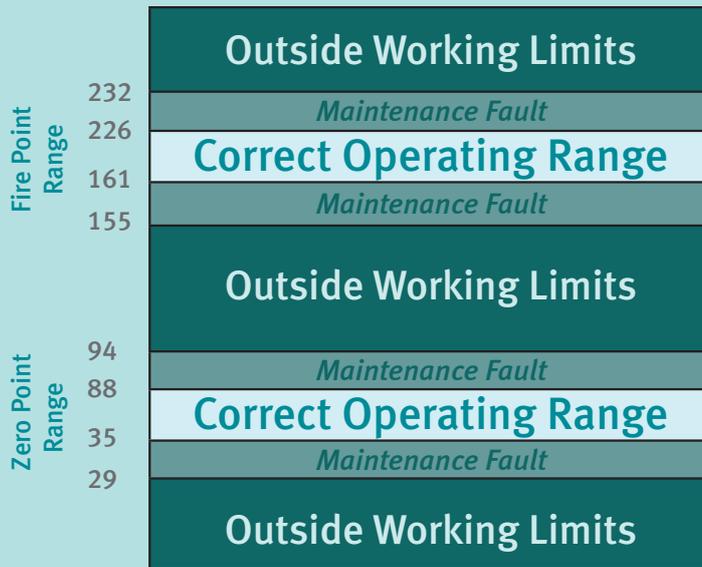
## ALN-ASN Operating Ranges

Fire Point Range	232	Outside Working Limits
	226	Maintenance Fault
	161	Correct Operating Range
	155	Maintenance Fault
Outside Working Limits		
Zero Point Range	94	Maintenance Fault
	88	Correct Operating Range
	35	Maintenance Fault
	29	Outside Working Limits



Zero Point ~ 61  
Fire Point ~ 193

## ACC-EN Operating Ranges



Zero Point ~ 61  
Fire Point ~ 193

NOTE: When reading the analogue value of the ACC-ASN multi-sensor, the TCH-B1/200 will only display the value for the smoke chamber.

## ATJ-ASN & ACB-ASN/W Operating Ranges

As the ATJ-ASN and ACB-ASN Heat Sensor analogue values are in direct correlation to the temperature within the room in which they are located, there are no graphs displaying values. The values would vary depending on the background temperature within the room itself. However the temperature in °C can be calculated from the value displayed by the TCH-B1/200 using the simple formula below:



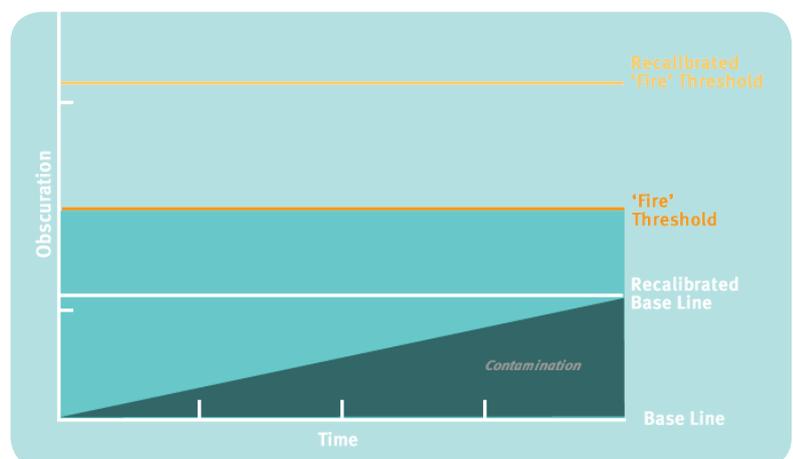
$$\frac{\text{ANALOGUE VALUE ON TCH-B100}}{2} - 20 = \text{TEMPERATURE } ^\circ\text{C}$$

Example:  $\frac{82}{2} - 20 = 21^\circ\text{C}$

## Sensor Recalibration

Once installed the sensors performance will vary over time due to gradual contamination by the environment. This can lead to either the device becoming over-sensitive (unwanted alarms) or become so contaminated that it fails to respond to smoke altogether. To overcome this contamination the ESP system automatically re-calibrates all smoke sensors every 24 hours maintaining the sensor at its optimum performance.

However the sensor will eventually reach a point where it can no longer re-calibrate satisfactorily (maintenance fault). At this point it can either be serviced or replaced.



Quality System  
Certificate No. 164  
Assessed to ISO9001



Environmental Management System  
Certificate No. EMS 286  
Assessed to ISO 14001 : 1996