

Context Plus



CONTEXT PLUS 'XPERT' CARD ADDRESSED DETECTORS & BASES

Our XPERT Card addressed detectors utilise a unique addressing method where the address is held in the base and not the detector head. This means the address remains the same regardless of how many times a detector is replaced and allows different types of detecting heads to be swapped without the need for reprogramming.

The XPERT card is a plastic, coded card containing seven 'pips'.

The address is set by removing the 'pips' with a screwdriver and inserting the card into the side of the base. When the detector head is rotated into the base, the remaining 'pips' on the card operate the address buttons on the base of the detector and the address is read by the detector electronics.



IONISATION SMOKE DETECTOR

XPERT CARD ADDRESSED



Ionisation Smoke Detector
Number 55000-500IMC

DEVICE RESPONSE

Type: Flaming combustion
Response: Very good

Type: Flaming with high heat output
Response: Very good

Type: Smouldering/glowing combustion
Response: Moderate/Good

Type: Overheating/thermal combustion
Response: Poor

Type: Flaming - clean burning
Response: Poor

IONISATION SMOKE DETECTOR, XPERT STYLE, 55000-500IMC

The Context Plus XP95 ionisation smoke detector has a moulded self-extinguishing white polycarbonate case with wind resistant smoke inlets. Stainless steel wiper contacts connect the detector to the terminals in the mounting base. Inside the detector case is a printed circuit board that has the ionisation chamber mounted on one side and the address capture, signal processing and communications electronics on the other.

The ionisation chamber system is an inner reference chamber contained inside an outer smoke chamber. The outer smoke chamber has smoke inlet apertures that are fitted with an insect resistant mesh.

The radioactive source holder and the outer smoke chamber are the positive and negative electrodes respectively. An Americium 241 radioactive source mounted within the inner reference chamber irradiates the air in both chambers to produce positive and negative ions. On applying a voltage across these electrodes an electric field is formed. The ions are attracted to the electrode of the opposite sign, some ions collide and recombine, but the net result is that a small electric current flows between the electrodes. At the junction between the reference and smoke chambers is the sensing electrode that is used to convert variations in the chamber currents into a voltage. When smoke particles enter the ionisation chamber, ions become attached to them with the result that the current flowing through the chamber decreases. This effect is greater in the smoke chamber than in the reference chamber and the imbalance causes the sensing electrode to go more positive.

Technical Data

Specifications are typical and given at 23°C & 50% relative humidity unless stated.

Communication protocol: Apollo XP95 pulse 5-9V

Detector Type: Products of combustion (smoke)

Detection Principle: Ionisation Chamber

Chamber Configuration: Twin compensating chambers using one single sided ionising radiation source

Radioactive Isotope: Americium 241

Activity: 33.3k Becquerels, 0.9µ Curie

Sampling Frequency: Continuous

Supply Wiring: Two wire supply, polarity insensitive

Terminal Functions:

- L1&L2 supply in and out connections (polarity insensitive)
- +R remote indicator positive connection (internal 2.2kΩ resistance to supply +ve)
- R remote indicator negative connection (internal 2.2kΩ resistance to supply -ve)

Supply Voltage: 17 to 28 Volts dc

Modulation Voltage at Detector: 5 to 9 Volts peak to peak.

Quiescent Current: 280µA average, 500µA peak

Power-up Surge Current: 1mA

Duration of Power-up Surge Current: 0.3 seconds

Maximum Power-up Time:

4 seconds for communications (measured from application of power and protocol); 10 seconds to exceed 10 counts; 15 seconds for stable clean air value

Storage Temp: -30°C to +80°C

Operating Temp: -20°C to +70°C

Clean Air Analogue Value: 25±7 counts

Alarm Level 55 Counts: EN54 y value of 0.7

Alarm Indicator: Red light emitting diode (LED)

Alarm LED Current: 2mA

Remote LED Current: 4mA at 5V (measured across remote load)

Type Code: (210 43) 011 00

Sensitivity: Nominal threshold y value of 0.7 to EN54 Pt 7 2001; (BS 5445 Pt 7 2001)

Guaranteed Temperature Range (no condensation or icing): -20°C to +60°C

Humidity (No condensation or icing): 0% to 95% relative humidity

Wind Speed: 10m/s maximum

Atmospheric Pressure: Automatic compensation by dual chambers to maintain sensitivity up to a height of 2000m above sea level

Vibration, Impact & Shock: To EN54 Pt 7 1984 (BS5445 Pt 7 2001)

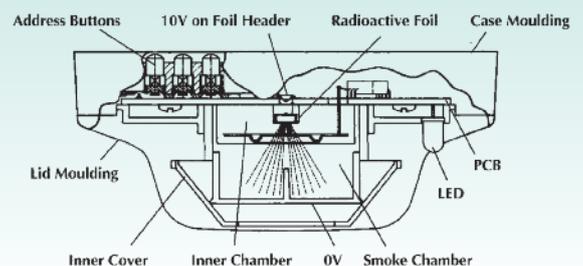
IP Rating: 23D

Dimensions: (diameter x height)
Detector: 100mm x 42mm
Detector in Base: 100mm x 50mm

Weights: Detector: 105g; Detector in Base: 161g

Materials: Detector Housing: White polycarbonate V-0 rated to UL 94; Terminals: Stainless Steel

The Context Plus ionisation detector, like all ionisation detectors, has some sensitivity to air movement (wind). The extent to which the analogue value will change depends on the wind speed and on the orientation of the detector relative to the wind direction. Relatively small changes in wind direction can cause significant changes in analogue value.



Sectional view - Ionisation Smoke Detector

OPTICAL SMOKE DETECTOR XPERT CARD ADDRESSED



Optical Smoke Detector
Part Number 55000-600IMC

OPTICAL SMOKE DETECTOR, XPERT STYLE, 55000-600IMC

The Context Plus XP95 optical detector uses the same outer case as the ionisation smoke detector and is distinguished by the indicator LED which is clear in standby and red in alarm. Within the case is a printed circuit board which, on one side, has the light proof labyrinth chamber with integral gauze surrounding the optical measuring system and, on the other, the address capture, signal processing and communications electronics.

An infrared light emitting diode within its collimator is arranged at an obtuse angle to the photo-diode. The photo-diode has an integral daylight-blocking filter.

The IR LED emits a burst of collimated light every second. In clear air the photo-diode receives no light directly from the IR LED because of the angular arrangement and the dual mask. When smoke enters the chamber it scatters photons from the emitter IR LED onto the photo-diode in an amount related to the smoke characteristics and density.

DEVICE RESPONSE

Type: Overheating/thermal combustion
Response: Very good

Type: Smouldering/glowing combustion
Response: Good

Type: Flaming combustion
Response: Good

Type: Flaming with high heat output
Response: Good

Type: Flaming - clean burning
Response: Very poor

Technical Data

Specifications are typical and given at 23°C and 50% relative humidity unless stated.

Communication protocol: Apollo XP95 pulse 5-9V

Detector Type: Products of combustion (smoke) detector

Detection Principles: Photo-electric detection of light scattered in a forward direction by smoke particles

Chamber Configuration: Horizontal optical bench housing an infrared emitter and sensor arranged radially to detect scattered light

Sensor: Silicon PIN photo-diode

Emitter: GaAs Infra-red light emitting diode

Sampling Frequency: 1 second

Supply Wiring: Two wire supply, polarity insensitive

Terminal Functions:

L1&L2 supply in and out connections (polarity insensitive)

+R remote indicator positive connection (internal 2.2kΩ resistance to supply +ve)

-R remote indicator negative connection (internal 2.2kΩ resistance to supply -ve)

Supply Voltage: 17 to 28 Volts dc

Quiescent Current: 340µA average, 600µA peak

Power-up Surge Current: 1mA

Duration of Power-up Surge Current: 0.3 seconds

Maximum Power-up Time: 4 seconds for communications (measured from application of power and protocol) 10 seconds to exceed 10 counts 35 seconds for stable clean air value

Storage Temp: -30°C to +80°C

Operating Temp: -20°C to +60°C

Alarm Level Analogue Value: 55

Clean Air Analogue Value: 25±7 counts

Alarm Indicator: Clear light emitting diode (LED) emitting red light

Alarm LED Current: 4mA

Remote LED Current: 4mA at 5V (measured across remote load)

Type Code: (210 43) 101 00

Sensitivity: Nominal threshold of 2.4% light grey smoke obscuration per metre

Guaranteed Temperature Range (No condensation or icing): -20°C to +60°C

Humidity (No condensation or icing): 0% to 95% relative humidity

Wind Speed: Unaffected by wind

Atmospheric Pressure: Unaffected

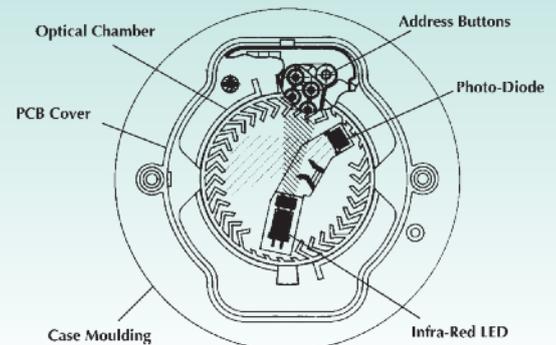
Vibration, Impact & Shock: To EN54 Pt 7 2001 (BS5445 Pt 7 2001)

IP Rating: 43

Dimensions: (diameter x height)
Detector: 100mm x 42mm
Detector in Base: 100mm x 50mm

Weights: Detector: 105g Detector in Base: 157g

Materials: Detector Housing: White polycarbonate V-0 rated to UL 94 Terminals: Stainless Steel



Top section view - Optical Smoke Detector



Standard Temperature Detector
Part Number 55000-400IMC

STANDARD TEMPERATURE DETECTOR, XPERT STYLE, 55000-400IMC HIGH TEMPERATURE DETECTOR, XPERT STYLE, 55000-401IMC

Context Plus XP95 temperature (heat) detectors have a common profile with ionisation and optical smoke detectors but have a low air flow resistance case made of self-extinguishing white polycarbonate. They monitor temperature by using a single thermistor network which provides a voltage output proportional to the external air temperature.

The response to temperature increases of the standard temperature detector (part no: 55000-400IMC) enables the detector to be utilised as an EN54 Grade 2 heat detector.

To provide a device for use in ambient temperatures of up to 55°C, a high temperature detector (part no: 55000-401IMC) is also available. This has similar characteristics to the standard temperature detector at 25°C but reaches a 55 count (alarm) at 90°C.



High Temperature Detector
Part Number 55000-401IMC

Technical Data

Standard temperature detector Detector Part No 55000-400 IMC

Specifications are typical and given at 23°C and 50% relative humidity unless stated.

Communication protocol: Apollo XP95 pulse 5-9V

Detector Type: Fixed Temperature Heat Detector (software algorithm may be used for Grade 1 response)

Detector Principle: Linear approximation over temperature range 25°C to 90°C

Sensor: Single NTC Thermistor

Sampling Frequency: Continuous

Supply Wiring: Two wire supply, polarity insensitive

Terminal Functions:

- L1&L2 supply in and out connections (polarity insensitive)
- +R remote indicator positive connection (internal 2.2kΩ resistance to supply +ve)
- R remote indicator negative connection (internal 2.2kΩ resistance to supply -ve)

Supply Voltage: 17 to 28 Volts dc

Modulation Voltage at Detector: 5 to 9 Volts peak to peak

Quiescent Current: 250µA average, 500µA peak

Power-up Surge Current: 1mA

Duration of Power-up Surge Current: 0.3 seconds

Maximum Power-up Time: 4 secs

Storage Temp: -30°C to +80°C

Operating Temp: -20°C to +70°C

Analogue Value at 25°C: 25± 5 counts

Alarm Level 55 Counts: 55°C

Alarm Indicator: Red light emitting diode (LED)

Alarm LED Current: 2mA

Remote LED Current: 4mA at 5V (measured across remote load)

Type Code: (210 43) 110 00

Sensitivity: 25°C to 90°C: 1°C/Count. -20°C returns 8 counts

Guaranteed Temp. Range (No condensation or icing): -20°C to +70°C

Humidity (No condensation): 0% to 95% relative humidity

Wind Speed: Unaffected in fixed temperature use

Atmospheric Pressure: Unaffected

Vibration, Impact & Shock: To EN54 Pt 5 2001 (BS5445 Pt 5 2001)

IP Rating: 53

Dimensions: (diameter x height)

Detector: 100mm x 42mm
Detector in Base: 100mm x 50mm

Weights: Detector: 105g; Detector in Base: 157g

Materials: Detector Housing: White polycarbonate V-0 rated to UL 94; Terminals: Stainless Steel

High Temperature Detector Detector Part No: 55000-401 IMC

Specifications are the same as those for the standard temperature detector described above, apart from the following points:

Detector Type: Fixed Temperature
Detector Principles: Linear approximation designed to give 25 counts at 25°C and 55 counts at 90°C

Guaranteed Temp. Range (No condensation or icing): -20°C to +120°C

Sensitivity: 25°C to 90°C: 2.17°C / Count -20°C returns 20 counts

DEVICE RESPONSE

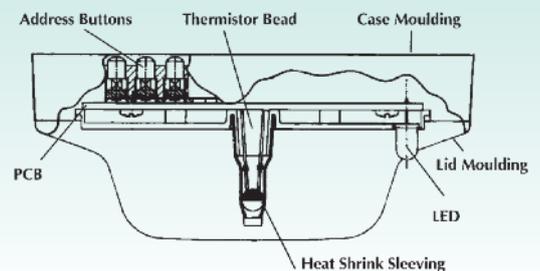
Type: Flaming with high heat output
Response: Moderate/good

Type: Flaming - clean burning
Response: Moderate/good

Type: Flaming combustion
Response: Poor

Type: Overheating/thermal combustion
Response: Very poor

Type: Smouldering/glowing combustion
Response: Very poor



Sectional view - Temperature (Heat) Detector

MULTISENSOR DETECTOR XPERT CARD ADDRESSED



Multisensor Detector
Part Number 55000-8851MC

DEVICE RESPONSE

Type: Overheating/thermal combustion

Response: Very good

Type: Flaming with high heat output

Response: Very good

Type: Smouldering/glowing combustion

Response: Good

Type: Flaming combustion

Response: Good

Type: Flaming - clean burning

Response: Moderate/good

MULTISENSOR DETECTOR, XPERT STYLE, 55000-8851MC

The Context Plus XP95 multisensor detector contains an optical smoke sensor and a thermistor temperature sensor whose outputs are combined to give the final analogue value.

The multisensor construction is similar to that of the optical detector but uses a different lid and optical mouldings to accommodate the thermistor temperature sensor. The sectional view (below) shows the arrangement of the optical chamber and thermistor.

The signals from the optical smoke sensing element and the temperature sensor are independent, and represent the smoke level and the air temperature respectively in the vicinity of the detector. The detector's microcontroller processes the two signals. The temperature signal processing extracts only rate of rise information for combination with the optical signal. The detector will not respond to a slow temperature increase - even if the temperature reaches a high level. A large sudden change in temperature can, however, cause an alarm without the presence of smoke, if sustained for 20 seconds.

The processing algorithms in the multisensor incorporate drift compensation. The control panel must not have a drift compensation algorithm enabled.

The sensitivity of the detector is considered the optimum for most general applications since it offers good response to both smouldering and flaming fires.

Note: In situ testing of the multisensor should be carried out as for smoke detectors.

Technical Data

Specifications are typical and given at 23°C and 50% relative humidity unless stated.

Communication protocol: Apollo XP95 pulse 5-9V

Detector type/principle:

Smoke: Photoelectric detection of light scattered by smoke particles

Heat: Temperature sensitive resistance

Type code:

Bits: (2 1 0 4 3) 1 0 1 1 1

Supply wiring: Two-wire supply, polarity insensitive

Terminal functions: L1&L2 supply in and out connections (polarity insensitive)

+R remote indicator positive connection (internal 2.2kΩ resistance to positive remote indicator negative connection)

-R remote indicator negative connection (internal 2.2kΩ resistance to negative)

Operating voltage: 17-28V DC

Communications protocol: 5-9V peak to peak

Quiescent current: 500µA average 750µA peak

Power-up surge current: 1mA

Maximum power-up time: 10s

Alarm LED current: 3.5mA

Remote LED current: 4mA at 5V (measured across remote load)

Clean air analogue value: 23 +4/-0

Alarm level analogue value: 55

Alarm indicator: 2 colourless Light Emitting Diodes (LEDs); illuminated red in alarm, optional remote LED

Temperature range:

Max. continuous operating: +60°C

Min. continuous operating: 0°C

Min. operating (no condensation / icing): -20°C

Storage: -30°C to +80°C

Humidity (No condensation): 0 to 95% relative humidity

Effect of temperature on optical detector: Less than 15% change in sensitivity over rated range. Slow changes in ambient conditions will automatically be compensated and will not affect sensitivity

Effect of atmospheric pressure on optical sensor: None

Effect of wind on optical sensor: None

Vibration, Impact and Shock: To prEN54-7

IP rating: 43

Dimensions: 100mm diameter; 50mm height; 58mm (in base)

Weight: Detector: 105g; Detector in base: 160g

Materials: Housing: White polycarbonate V-0 rated to UL94; Terminals: Nickel plated s/steel

Smoke element only:

Chamber configuration:

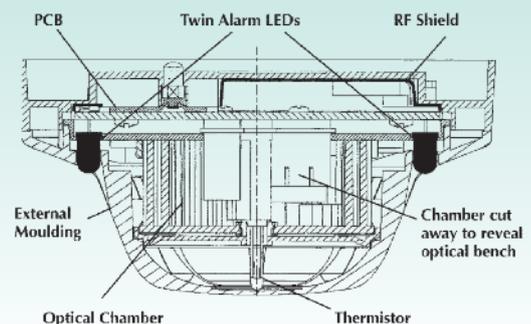
Horizontal optical bench housing infrared emitter and sensor, arranged radially to detect forward scattered light

Sensor: Silicon PIN photo-diode

Emitter: GaAlAs infra-red light emitting diode

Sampling frequency: 1 per sec

WARNING: If the control panel incorporates a drift compensation algorithm, this should be disabled when polling the Context Plus Multisensor detector.



Sectional view - Multisensor Detector



**Intelligent Mounting Base
Part Number 45681-210IMC**

INTELLIGENT MOUNTING BASE, XPERT STYLE, 45681-210IMC

Accepts all Context Plus Xpert card style smoke and heat detectors. It is a zero insertion force base with dual finger receptacles of stainless steel into which the detector terminals slide. Cable connections of up to 2.5mm diameter are made via captive cable clamps.

Includes four double terminals (L1 = - line IN and OUT; L2 = + line IN and OUT; +R = remote LED positive supply; -R = remote LED negative supply) and one isolated single terminal that can be used to provide continuity of an earth or shield.

XPERT cards, are supplied with all bases. Consult the coding guide to determine which pips are to be removed. Pre-printed and pre-punched address cards that save time and increase accuracy during commissioning are available in sets (part number: 45682-127).

The base has a 'one way only' fit and detectors can be locked into the base by a grub screw with the aid of a 1.5mm hexagonal driver.



**Intelligent Mounting Base
Part Number 45681-321IMC**

ISOLATING BASE, XPERT STYLE, 45681-321IMC

The Context Plus XP95 isolating base senses and isolates short circuit faults on loops and spurs. The base is loop powered, polarity sensitive and accepts the XPERT card to set the associated device address.

In short circuit conditions, the integral yellow LED is illuminated. The detector associated with the base remains active under short circuit conditions. Power and signals to the affected section are restored automatically when the fault is cleared. Under normal operating conditions, a low impedance is present between the - IN and - OUT terminals of the base, so that power and signals pass to the next base in the line.

If a short circuit or abnormally low impedance occurs, the fall in voltage is sensed and the base isolates the negative supply in the direction of the fault.

In applications where it is not necessary to use an isolating base for each detector, up to twenty devices (detectors and interfaces) may be installed between isolating bases, provided that their total switch-on surge current does not exceed 20mA.

Technical Data

Device Part No: 45681-321IMC
Maximum Loop Operating Voltage: 28V DC plus 9V protocol pulses
Minimum Normal Loop Operating Voltage: 17V DC
Power-up time: >10ms
Isolation Indicator: Yellow LED, lit continually in isolation condition
Current Consumption at 18V: 23µA
Current Consumption at 28V: 43µA
Current Consumption at 18V & adjacent sector isolated: 4mA

Maximum Line Current
Non-isolating continuous: 1.0A;
Transition into isolation: 3.0A
On Resistance: <0.2Ω
Operating Temperature: -20°C to +60°C
Storage Temperature: -30°C to +80°C
Relative Humidity (no condensation/icing): 0% to 95%
Dimensions: 100mm (diam) x 24mm (H); **Weight:** 100g
Materials: White polycarbonate moulding, nickel plated stainless steel.



**Remote LED Indicator
Part Number BF318**

REMOTE LED INDICATOR, BF318

The BF318 is a high quality LED indicator specifically designed for use in fire alarm systems. It incorporates a high-intensity wide-angle red LED which is clearly visible from the front of the plate when active. Its primary use is to indicate the activation of hidden or out-of-sight fire detectors. The front label includes a white 'write on' panel allowing installers to add their own personalised text such as equipment locations. The unit will fit on 16mm deep flush or surface mount back boxes. If connecting the BF318 to a smoke or heat detector, always refer to the detector manufacturers' instructions prior to installation to verify the connections. As the detector head's outputs will already be current limited, to ensure maximum brightness and visibility they should be connected directly to the Remote LED via its 'OV' and 'LED only' terminals.

TECHNICAL SPECIFICATION

Current rating using 'OV' & 'LED only' terminals: This is dependent on the type/make of detector used. Current rating using 'OV' & '+30V Max' terminals: 10mA @ 30V d.c. (Max); 1.3mA @ 6V d.c. (Min).