Routine testing
Insert the test key into the hole at the bottom of the call point and push home. Observe routine test requirements as specified in BS5839-1 or the applicable local code.

Resetting
After testing, reset the call point by removing the test key and pushing up the front cover until it clicks home.

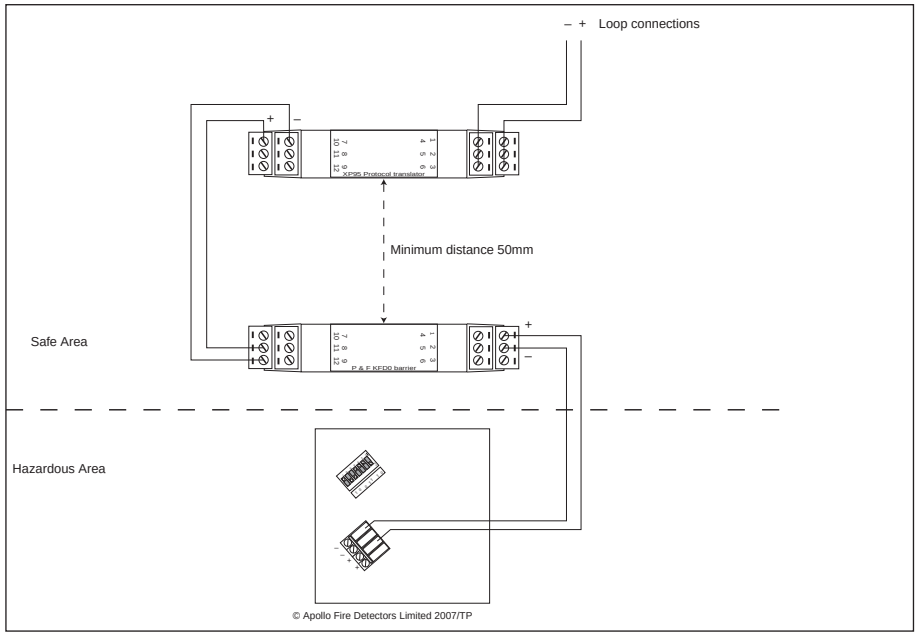
Earthing
An earthing plate is provided for continuity of metal conduits. This must be placed behind the back box prior to fixing the box to the wall. Metal conduits and backboxes should be connected to the equipotential safety earth locally in the hazardous area.

Important Information
The use of lubricants, cleaning solvents or petroleum based products should be avoided. The O-ring should be replaced when refitting or replacing the waterproof cover.

Transparent hinged cover
To provide additional protection against accidental operation, a transparent hinged cover with a locking tag, part no 26729-152, is available.

Please note that the call point does not conform to EN54–11:2001 when this lid is fitted and secured with the locking tag supplied.

For further information, please refer to the XP95 IS Engineering Product Guide, PP1095 available on request.



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XP95 IS Manual Call Point (EN54) Installation Guide

General
The XP95 IS Manual Call Point (EN54) is available in three versions:

- part no. 55100-940, non-isolated red Manual Call Point.
- part no. 55100-942, non-isolated yellow Manual Call Point (Not EN54).
- part no. 55100-944, non-isolated blue Manual Call Point (Not EN54).

Installation
1. Fit the backbox to a flat surface using the three fixing holes and screws provided. The cable entry holes should be in the vertical plane. The backbox can be mounted with either the single or double entry holes at the top. (Fig 1).

   Note: Cable entry from the bottom of the call point is recommended if there is a possibility of moisture condensing within the conduit or cables.

2. Run the cables into the backbox and connect them to the terminal blocks as shown in Fig 2. The backbox has a terminal for inter connecting cable screen/drain wire (if used). The cable screens (functional earth) should be connected to ground at one point only normally near the CIE in the safe area.

3. If a continuity test is to be done, it should be carried out before securing the call point to the backbox (step 5).

4. Set the unit address on the DIL switch in accordance with the address table overleaf.

5. Ensure that the O-ring is correctly seated in the Manual Call Point moulding. Place the cover squarely over the backbox and carefully push the cover until the locating clips have engaged, use the 4 fixing screws to lock the cover in place. **Do not use excessive force, do not overtighten screws**.

6. To remove the cover, undo and remove the four cover fixing screws and release the four retaining clips. To do this place a large flat bladed screwdriver into the slot between the cover and backbox and gently twist until the clip disengages (Fig 3). Repeat this for the three remaining clips and pull the cover away from the backbox.

The XP95 IS Manual Call Point is a 'type A' call point and is suitable for outdoor use.

Wiring Details
To maintain the integrity of the 'type A' product it is essential that suitable cable glands be used.

Maximum Loop Current Consumption at 24V

Operating temperature –20°C to +60°C (T4)
–20°C to +40°C (T5)

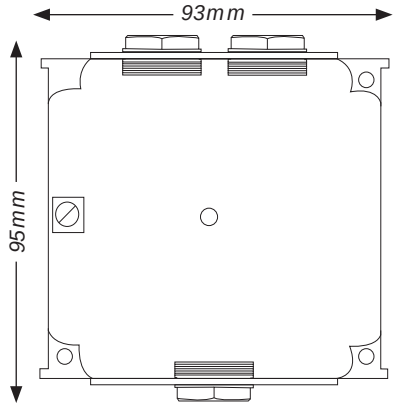

Fig 1 *Backbox*

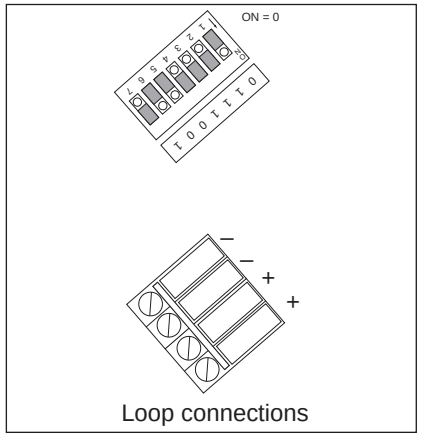

Fig 2 *Terminal block connections and address 78 set*

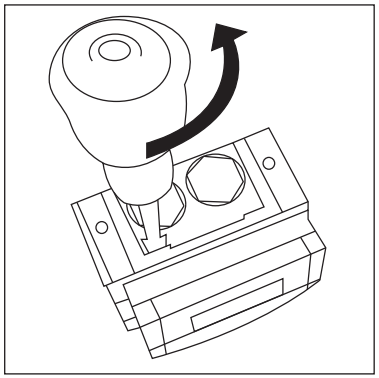

Fig 3 *Cover removal*

Operating voltage	14-22V DC
Quiescent	230µA
Alarm Current (max LED on)	4mA
IP rating	IP67

LED Indicator
⊙ Illuminated red (under CIE control) when call point is operated

Commissioning
Manual call points must be installed to comply with the requirements of the ATEX directive or another applicable codes of regulations. All unused cable entry ports must be sealed using suitable stopping plugs to give the required level of ingress protection.

Ensure that a glass or deformable element is fitted to each call point before testing. Use the test key provided to check the operation of each device. An XP95 Test Set, part no. 55000-870, may be used to carry out functional testing of individual units (from the safe area only).

The test set can also perform data integrity tests of an entire system.

Note: the test key must remain inserted for at least 2 seconds to ensure the correct CIE response.

Address Setting
The address of the Manual Call Point is set using the DIL switch. All segments of the switch are set to 0 or 1, using a small screwdriver or similar tool.

A complete list of address settings is shown in the following table.

DIL switch addr	DIL switch setting 1234567	DIL switch addr	DIL switch setting 1234567	DIL switch addr	DIL switch setting 1234567	DIL switch addr	DIL switch setting 1234567	DIL switch addr	DIL switch setting 1234567
1	1000000	11	1101000	21	1010100	31	1111100	41	1001010
2	0100000	12	0011000	22	0110100	32	0000010	42	0101010
3	1100000	13	1011000	23	1110100	33	1000010	43	1101010
4	0010000	14	0111000	24	0001100	34	0100010	44	0011010
5	1010000	15	1111000	25	1001100	35	1100010	45	1011010
6	0110000	16	0000100	26	0101100	36	0010010	46	0111010
7	1110000	17	1000100	27	1101100	37	1010010	47	1111010
8	0001000	18	0100100	28	0011100	38	0110010	48	0000110
9	1001000	19	1100100	29	1011100	39	1110010	49	1000110
10	0101000	20	0010100	30	0111100	40	0001010	50	0100110
51	1100110	61	1011110	71	1110001	81	1000101	91	1101101
52	0010110	62	0111110	72	0001001	82	0100101	92	0011101
53	1010110	63	1111110	73	1001001	83	1100101	93	1011101
54	0110110	64	0000001	74	0101001	84	0010101	94	0111101
55	1110110	65	1000001	75	1101001	85	1010101	95	1111101
56	0001110	66	0100001	76	0011001	86	0110101	96	0000011
57	1001110	67	1100001	77	1011001	87	1110101	97	1000011
58	0101110	68	0010001	78	0111001	88	0001101	98	0100011
59	1101110	69	1010001	79	1111001	89	1001101	99	1100011
60	0011110	70	0110001	80	0000101	90	0101101	100	0010011
101	1010011	106	0101011	111	1111011	116	0010111	121	1001111
102	0110011	107	1101011	112	0000111	117	1010111	122	0101111
103	1110011	108	0011011	113	1000111	118	0110111	123	1101111
104	0001011	109	1011011	114	0100111	119	1110111	124	0011111
105	1001011	110	0111011	115	1100111	120	0001111	125	1011111
								126	0111111

The switch in Fig 2 shows address setting 78 as an example of how to set the address

Troubleshooting
Before investigating individual units for faults, it is important to check that the system wiring is fault free. Earth faults on data loops or interface zone wiring may cause communication errors.

Many fault conditions are the result of simple wiring errors. Check all connections to the unit. Do not overtighten screws when mounting the backbox.

Fault Finding

Problem	Possible Cause
No response or missing	Incorrect address setting
	Loop terminal incorrectly fitted
	Incorrect wiring (polarity reversed)
Alarm condition	Glass or element incorrectly fitted or broken
	Test key not removed

About XP95 I.S.

Introduction to intrinsic safety

There are many places where an explosive mixture of air and gas or vapour is or may be present continuously, intermittently or as a result of an accident. These are defined as hazardous areas by BS EN 60079, the code of practice for installation and maintenance of electrical apparatus in potentially explosive atmospheres.

Hazardous areas are common in petroleum and chemical engineering plants and in factories processing and storing gases, solvents, paints and other volatile substances.

Electrical equipment for use in these areas needs to be designed so that it cannot ignite an explosive mixture, not only in normal operation but also in fault conditions. There are a number of methods available to achieve this, oil-immersion, pressurised apparatus and powder filling, for example, but the two in most common use are flameproof enclosures and intrinsic safety.

Flameproof equipment is contained in a box so strong that an internal explosion will neither damage the box nor be transmitted outside the box. The surface must remain cool enough not to ignite the explosive mixture.

When flameproof equipment is interconnected, flameproof wiring must be used. This method is most valuable when high power levels are unavoidable but is not acceptable for areas in which an explosive gas/air mixture may be continuously present or present for long periods.

For this reason Apollo fire detectors are made intrinsically safe rather than flameproof. Intrinsically safe equipment operates at such low power and with such small amounts of stored energy that it is incapable of causing ignition:

- In normal conditions
- With a single fault (for Ex ib classification)
- With any combination of two faults (for Ex ia classification)

In any of these conditions every component must remain cool enough not to ignite the gases for which it is approved.

Classification of hazardous areas

BS EN 60079-10-1 defines a hazardous area as one in which explosive gas/air mixtures are, or may be expected to be, present in quantities such as to require special precautions for the construction and use of electrical apparatus.

The degree of risk in any area is a function of:

- The probability of an explosive mixture being present
- The type of gas which may be present
- The temperature at which a gas might ignite spontaneously

These are defined in Table 1, Zone Classification, Table 2, Sub-division of Group II Gases.

Table 1: Zone classification

Zone	Definition	Intrinsically safe equipment approval required
0	In which an explosive gas/air mixture is continuously present or present for long periods	Ex ia
1	In which an explosive gas/air mixture is likely to occur in normal operation	Ex ia or Ex ib
2	In which an explosive gas/air mixture is not likely to occur in normal operation and if it occurs will exist only for a short time	Ex ia or Ex ib

Table 2: Subdivision of Group II gases

Zone	Definition	Intrinsically safe equipment approval required
Acetylene	Carbon Disulphide, Hydrogen	IIC
Ethylene	Butadiene, Formaldehyde, Diethyl-ether	IIB or IIC
Propane	Acetaldehyde, Acetone, Benzene, Butane, Ethane, Hexane, Heptane, Kerosene, Naptha, Petroleum, Styrene, Xylene	IIA or IIB or IIC

Related Apollo Product Ranges

Product	Publication Type	PP Number
XP95 Range	Engineering Product Guide	PP1039
	General Sales Brochure	PP1040
XP95 I.S.	Sales Leaflet	PP1094
Orbis I.S.	Engineering Product Guide	PP2147
MiniDisc Remote Indicator	Datasheet	PP2074
Bases and Accessories	Brochure	PP1089
Mounting Accessories	Datasheet	PP5068

XP95 Intrinsically Safe communications protocol

The standard XP95 communications protocol is designed to be very robust and to give the maximum flexibility to designers of loop driver circuits. The current and voltage levels used are chosen to be well above noise levels and to operate in adverse conditions with the minimum of errors. The maximum voltage and current levels used are, however, outside the limits of intrinsically safe (I.S.) systems and it has been necessary to apply lower limiting values for both current and voltage in the I.S. range.

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The voltage limitation arises because of the need for safety barriers. The barriers used with Apollo I.S. detectors are rated at 28 volts, the highest rating that is commercially available. These are used to limit the voltage inside the hazardous area to a (practical) maximum of about 26 V dc. Although this is within the standard XP95 protocol specification, it is lower than that provided by most loop drivers.

The safety barrier is also responsible for the current limitation because the 28 V barriers have a series resistance of at least 300 ohms. This resistance results in unacceptable voltage drops if the normal 20 mA current pulses are used. It has therefore been necessary to reduce the amplitude of the current pulses to 10 mA.

XP95 Protocol Translator

In order to enable the use of standard control and indicating equipment in intrinsically safe systems, Apollo has developed a device to 'translate' voltage levels from any loop driver operating within the XP95 limits to levels compatible with the I.S. requirements. The translator also 'boosts' the current pulses returned by the I.S. detectors from 10 mA to 20 mA, thereby ensuring compatibility with standard loop driver thresholds. For more information regarding the XP95 Protocol Translator refer to PP5034.

System design

The design of an intrinsically safe fire detection system should only be undertaken by engineers familiar with codes of practice for detection systems and hazardous area electrical systems. In the UK the relevant standards are BS5839-1 and BS EN 60079-14 respectively.

The fire detection performance of the XP95 I.S. range is the same as that of its standard counterparts. Performance information is given in the XP95 I.S. products data sheets.

The BASEEFA certification of the I.S. devices covers their characteristics as components of an intrinsically safe system and indicates that they can be used with a margin of safety in such systems. The precise way in which the system can be connected and configured is covered by an additional, 'system' certification. The System Diagram, Z20982, see Figure 6, details cable parameters and permissible configurations of detectors, manual call points and safety barriers which are certified by BASEEFA. Any user wishing to install a system outside the parameters given on this system diagram cannot make use of the Apollo certification and should seek independent certification from a competent certification body.

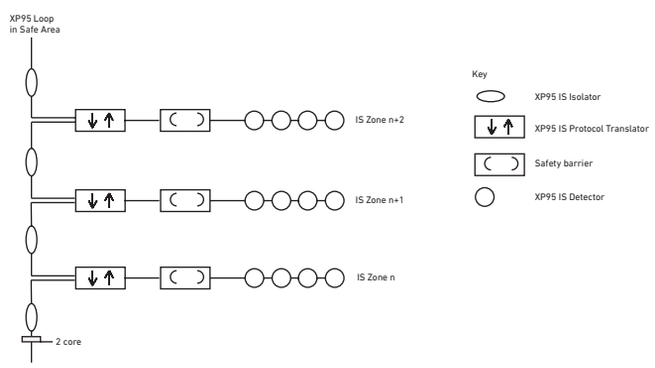
The BASEEFA system Certificate Number is BAS21Y0069 / IECEx BAS21.0014

Any system installed within the parameters specified in Z20982 should be marked in accordance with BS EN 60079-25. The marking should include at least 'Apollo XP95 I.S. Fire Detection System, BASEEFA No BAS21Y0069 / IECEx BAS21.0014

In safe area (standard) applications it will be normal practice to connect the wiring as a loop, with both ends terminated at the control panel. In the event of an open-circuit fault it is then possible to drive both ends simultaneously. In a hazardous area it is not possible to use a loop configuration because the potential to feed power from each end of the loop would double the available energy in the hazardous area and contravene the energy limitations of the I.S. certification. All XP95 I.S. circuits must therefore be connected as spurs from the safe area loop or as radial connections from the control panel.

It is recommended, for the highest system integrity, that each I.S. circuit be restricted to a single zone and that the connection from the safe area loop to the I.S. spur be protected on each side by XP95 isolators. The DIN-Rail dual isolator (55000-802) is particularly suited to this application. This configuration, shown in Figure 1 will conform fully with the requirements of BS5839-1 and with local codes since a single wiring fault will result in the loss of only one zone of detection.

Figure 1: Schematic wiring diagram of XP95 I.S. circuit to BS5839



In certain circumstances it may be possible for the simpler configuration, shown in Figure 2 to be used. This arrangement may include single or dual-channel translators, housed, together with the critical wiring, in a robust mechanical housing such as the Apollo DIN-Rail enclosures part no. 29600-239 (1 x I.S. circuit) or part no. 29600-240 (up to 5 x I.S. circuits). For further advice, please contact the Technical Support Team at Apollo.

Figure 2: Schematic wiring diagram of XP95 I.S. circuit using a dual channel protocol translator

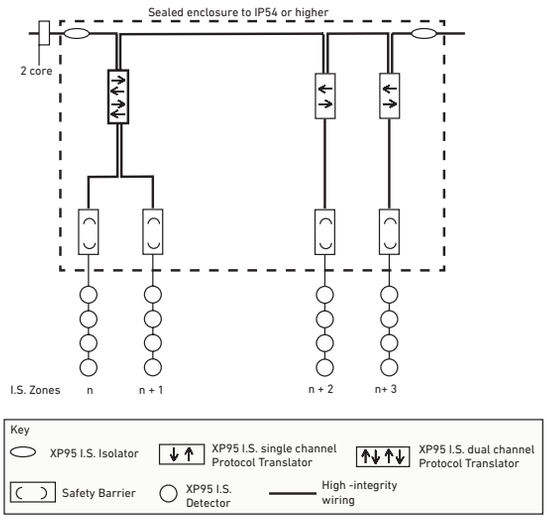
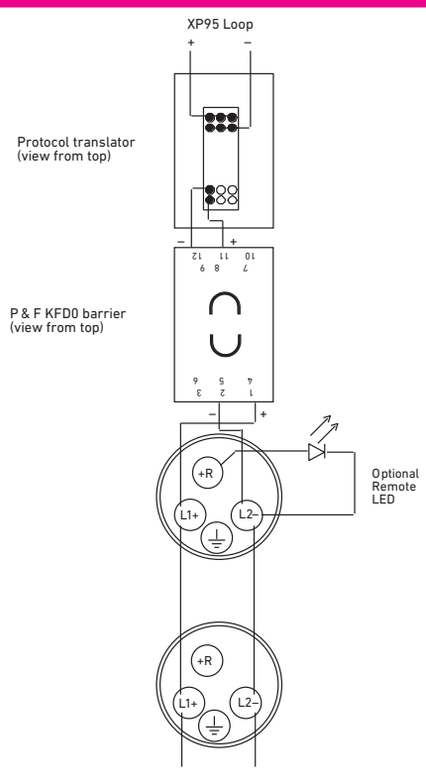


Figure 3: Detail of wiring diagram for XP95 I.S. Zone



Types of safety barriers

The certified system configurations allow for two types of safety barrier, each of which has its own advantages and disadvantages. A brief outline of their characteristics is given below.

Single Channel 28 V/300 Ω Barrier

This is the most basic type of barrier and therefore the lowest in cost. Being passive devices, they also impose the minimum of restrictions on the operation of the fire detectors. Thus, single channel barriers are available either as positive or negative polarity where the polarity refers to the polarity of the applied voltage relative to earth.

The significance of this is that one side of the barrier must be connected to a high-integrity (safety) earth. Although this earth connection has no effect on the operation of the XP95 I.S. devices and is not needed for their correct operation, it may not be acceptable to the operation of the control and indicating equipment. This is particularly true if the control equipment incorporates earth-leakage monitoring and even without this feature the earthing of the loop may cause unwanted cross-talk between loops.

If the earth connection is not acceptable then the isolating barriers should be used.

Galvanically Isolated Barrier

Galvanically isolated barriers (also known as transformer isolated barriers) differ from conventional shunt zener barriers in that they provide electrical isolation between the input (safe area) and the output (hazardous area). This is achieved by the use of a dc converter on the input side which is connected to the hazardous area through a voltage-and power-limiting resistor/zener combination similar to a conventional barrier.

The galvanic isolation technique means that the circuit does not need a high integrity (safety) earth and that the intrinsically safe circuit is fully floating. Earth leakage problems for control and indicating equipment are therefore eliminated if this type of interface is used.

Note: *Although the circuit does not require a high-integrity earth, it is permissible to earth either polarity of the hazardous area circuit if required by other system considerations.*

Although galvanically isolated barriers are widely used with conventional fire detectors the pulse response of standard products has been too slow to allow their use in analogue addressable systems. Apollo has worked closely with Pepperl + Fuchs in the development of a special galvanically isolated barrier which freely transmits the XP95 protocol pulses without introducing severe voltage drops.

This interface is available as single or dual channel versions and is recommended for any application in which direct earth connections are not acceptable. The Pepperl + Fuchs type numbers are KFD0-CS-Ex1.54 (Apollo part no. 29600-098) and KFD0-CS-Ex2.54 (available from Pepperl + Fuchs) for the single and dual

channel devices respectively. Both versions are BASEEFA certified under Certificate Number BAS00ATEX7087.

The galvanically isolated barrier is a two-wire device which does not need an external power supply. Current drawn from the XP95 loop by the barrier itself is less than 2mA when loaded as specified by the manufacturer. The housing is a DIN-Rail mounting, identical to that used for the protocol translator.

Approved safety barriers

The system certification includes a generic specification for barriers, two additional, individually approved barriers and two transformer isolated current repeaters (galvanic barriers).

The generic specification is:

Any shunt zener diode safety barrier certified by BASEEFA or any EU approved certification body to

E Ex ia IIC

Having the following or lower output parameters:

Uz = 28 V

I max:out = 93.3 mA

W max: out = 0.67 W

In any safety barrier used the output current must be limited by a resistor 'R' such that

$$\text{I max: out} = \frac{Uz}{R}$$

Wiring and cable types

It is not permitted to connect more than one circuit in the hazardous area to any one safety barrier and that circuit may not be connected to any other electrical circuit.

Both separate and twin cables may be used. A pair contained in a type 'A' or 'B' multicore cable (as defined in clause 12.2.2 of BS EN 60079-14) may also be used, provided that the peak voltage of any circuit contained within the multicore does not exceed 60 V.

The capacitance and either the inductance or the inductance to resistance (L/R) ratio of the hazardous area cables must not exceed the parameters specified in Table 4. The reason for this is that energy can be stored in a cable and it is necessary to use cable in which energy stored is insufficient to ignite an explosive atmosphere.

To calculate the total capacitance or inductance for the length of cables in the hazardous area, refer to Table 3, which gives typical per kilometre capacitance and inductance for commonly used cables. (***Note:*** *All XP95 I.S. devices have zero equivalent capacitance and inductance*).

Table 3: Examples of electrical characteristics of cables commonly used in fire protection systems

Cable Type	Core	Size mm²	Conductor Resistance Ohm/km/Core	Inductance mH / km	Capacitance µF / km		Sheath Resistance Ohm / km
					Core to Core	Core to Sheath	
MICC Pyrotenax Light Duty	2	1.5	12.1	0.534	0.19	0.21	2.77
MICC Pyrotenax Heavy Duty	2	1.5	12.1	0.643	0.13	0.17	1.58
Pirelli FP200	all	1.5	12.1	-	0.08	0.15	-
PVC Sheathed and Insulated to BS 6004	all	1.5	12.1	0.77	0.09	-	-

Table 4: Limits for energy stored in cables

Group	Capacitance µF	Inductance mH	L/R Ratio µH / Ohm
IIC	0.083	4.2	55
IIB	0.65	12.6	165
IIA	2.15	33.6	440

Safety earth

Shunt zener safety barriers must be connected to a high integrity earth by at least one and preferably two copper cables, each of cross sectional area of four mm² or greater. The connection must be such that the impedance from the connection point to the main power system earth is less than one ohm.

Intrinsically safe circuits in the hazardous area should be insulated from earth and must be capable of withstanding a 500V RMS ac test voltage for at least one minute. When using armoured or copper sheathed cables, the armour or sheath is normally isolated from the safe area busbar.

Remote LED connection

A drive point is provided on each of the XP95 I.S. detectors for a remote LED indicator. For connection details see Figure 3. The indicator must be a standard high-efficiency red LED and does not require a series limiting resistor since current is limited within the detector to approximately 1 mA. The remote LED cannot, as in the standard XP95 range, be controlled independently from the integral LED since it is effectively connected in series with the integral LED. The benefit of this configuration is that illumination of the remote LED does not increase the current drawn from the loop.

The system certification allows for the use of any LED indicator having a surface area between 20 mm² and 10 cm² which covers all commonly used case styles from T1 (3 mm) upwards but would exclude some miniature and surface mounted types. Additional requirements of the certification are that the LED and its terminations must be afforded a degree of protection of at least IP20 and must be segregated from other circuits and conductors as defined in BS EN 60079-14.

The Apollo MiniDisc Remote Indicator (53832-070) is suitable using connections B(+) and C(-).

Installation

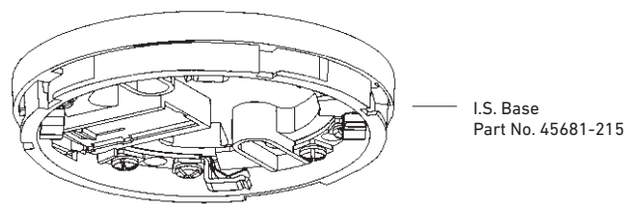
It is important that the XP95 I.S. detectors are installed in such a way that all terminals and connections are protected to at least IP20 when the detector is in the base. Special care must be taken with the rear of the mounting base where live metal parts (rivets) may be accessible. Flush mounting of the base on a flat surface will provide the required degree of protection.

If the base is mounted on a conduit box (e.g. BESA box or similar) whose diameter is less than 85 mm then the base should be fitted with a XP95 Backplate (Apollo part number 45681-233). Use of the backplate will prevent access to the metal parts and will also protect the rear of the base from water ingress. The conduit box available from Apollo, part no. 45681-204, is also acceptable for mounting I.S. bases. Apollo also supply a range of deckhead mounting boxes.

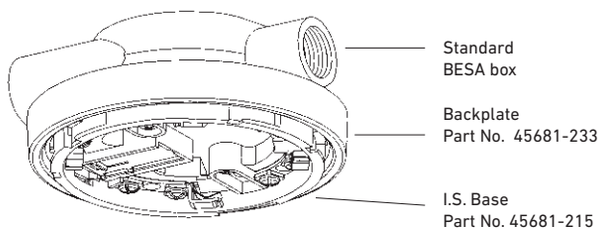
Figure 4 shows permissible methods of installing intrinsically safe detector bases.

Note: *The earth terminal in the base is provided for convenience where continuity of a cable sheath or similar is required. It is not necessary for the correct operation of the detector nor is it provided as a termination point for a safety earth.*

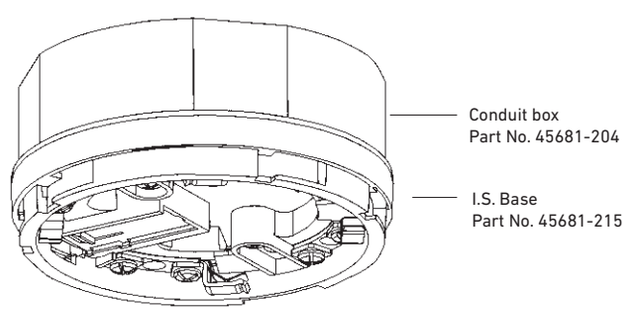
Figure 4: Permissible methods of mounting I.S. detector bases



Base fitted flush to soffit



Base with backplate and BESA box



Base fitted to conduit box

Maximum loading of an I.S. circuit

The safety barrier is a mandatory part of an I.S. system, but the high series impedance limits the number of I.S. detectors that may be fitted to the circuit. Typically an I.S. circuit will have a maximum load of about 15 detectors depending on the barrier type, the type of devices fitted and the number of detector LEDs allowed to illuminate concurrently by the Control and Indicating Equipment.

When calculating the detector load to ensure the I.S. detection zone is not overloaded two components of the current drain must be considered, namely the standing current of the devices by themselves and the maximum drain caused by alarm LEDs being illuminated.

The standing current of the devices can be calculated by taking the sum of the individual device currents on the circuit, as given in the section 'Technical data' for each product.

The maximum number of LEDs that can be illuminated simultaneously should be limited by the panel software.

Table 5 and Table 6 show the maximum device current which can be supported for varying numbers of LEDs illuminated for zener and galvanic barriers respectively.

Table 5: Maximum loading 28 V/300 Ω single channel barrier

Max. No of LEDs illuminated	Max. (Total) device load (mA)
0	8.0
1	7.0
2	6.0
3	5.0
4	4.0
5	3.0

Table 6: Maximum loading 28 V Galvanic Isolator Single Channel Barrier

Max. No of LEDs illuminated	Max. (Total) device load (mA)
0	4.0
1	3.0
2	2.0

Table 7: Loading of the fire loop from a Translator and Barrier pair

	Characteristic	Zener Barrier	Galvanic Barrier
Min Loading	Current (mA)	1	5
	Capacitance (nF)	1	90
Max Loading	Current (mA)	10	10
	Capacitance (nF)	80	170

Using Galvanically Isolated Barriers

Whilst the cable parameters in Table 4 specify the allowable limits for energy storage in the Hazardous area wiring these values do not generally allow reliable XP95 protocol transmission. This is particularly true when using Galvanically Isolated Barriers. Due to their design, these barriers present a relatively high capacitive load on the main fire loop. Therefore, the main fire loop capacitive loading and the I.S. spur capacitive loading must be carefully considered when designing a fire system.

The maximum impedance allowed on the I.S. spur is 15 ohms and 80nF, which is typical of 500m of FP200 cable.

The maximum capacitive load that can be tolerated on the fire loop will be defined by the Control Panel manufacturer. The capacitive load of the IS zone includes 90nF for the galvanic barrier and the total cable capacitance (80nF maximum). This should be added to the main fire loop capacitance and compared with the fire panel specification.

Additionally, a galvanic barrier will add 5mA to the system load which should be added to the loop loading calculations.

The loop calculations for each I.S spur often use the maximum load of 10mA and 200nF as the equivalent load on the fire main loop. Any calculation must ensure that the translator has at least 19V at the translator input.

Servicing

Servicing of I.S. fire detectors may be carried out only by a BASEEFA authorised body. In practical terms this means that Apollo XP95 I.S. fire detectors may be serviced only by Apollo at its factory. Servicing of the fire protection system should be carried out as recommended by the code of practice BS 5839-1 or other local regulations in force. For more information on servicing Apollo detectors, please refer to the care, service and maintenance guide, PP2055.

Approvals

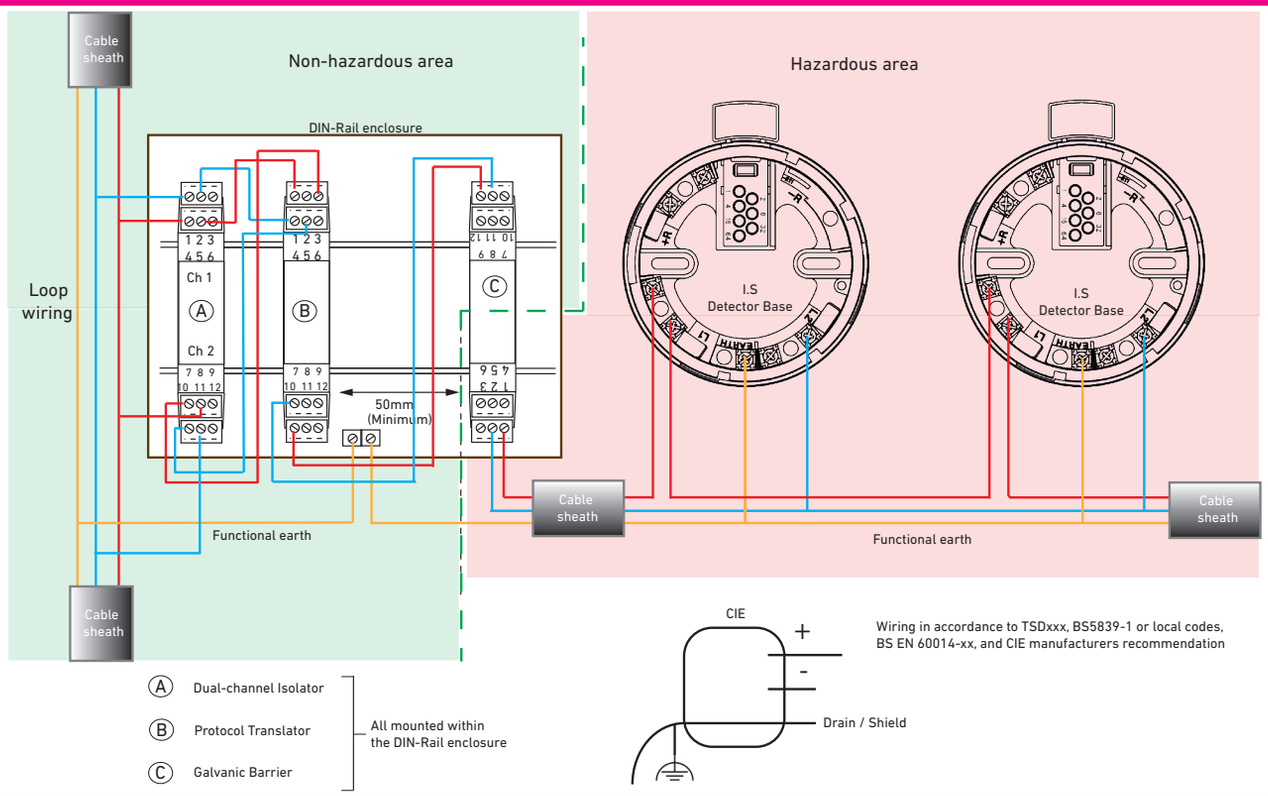
XP95 I.S. detectors have been approved by LPCB to EN54 and the XP95 I.S. Manual Call Point, Part No 55100-940, is LPCB approved to EN54-11. These products have also been approved for marine use by the following bodies:

- American Bureau of Shipping
- Bureau Veritas
- DNV GL
- Lloyds Register of Shipping
- China Classification Society
- Korean Register of Shipping

Details of approvals held are available on request.

The product certification technical files for the XP95 I.S. range are held by BASEEFA in accordance with the requirements of the ATEX Directive 2014/34/EU. All detectors and manual call points are CE marked.

Figure 5: Functional earthing and wiring (Sheathed and Unsheathed)



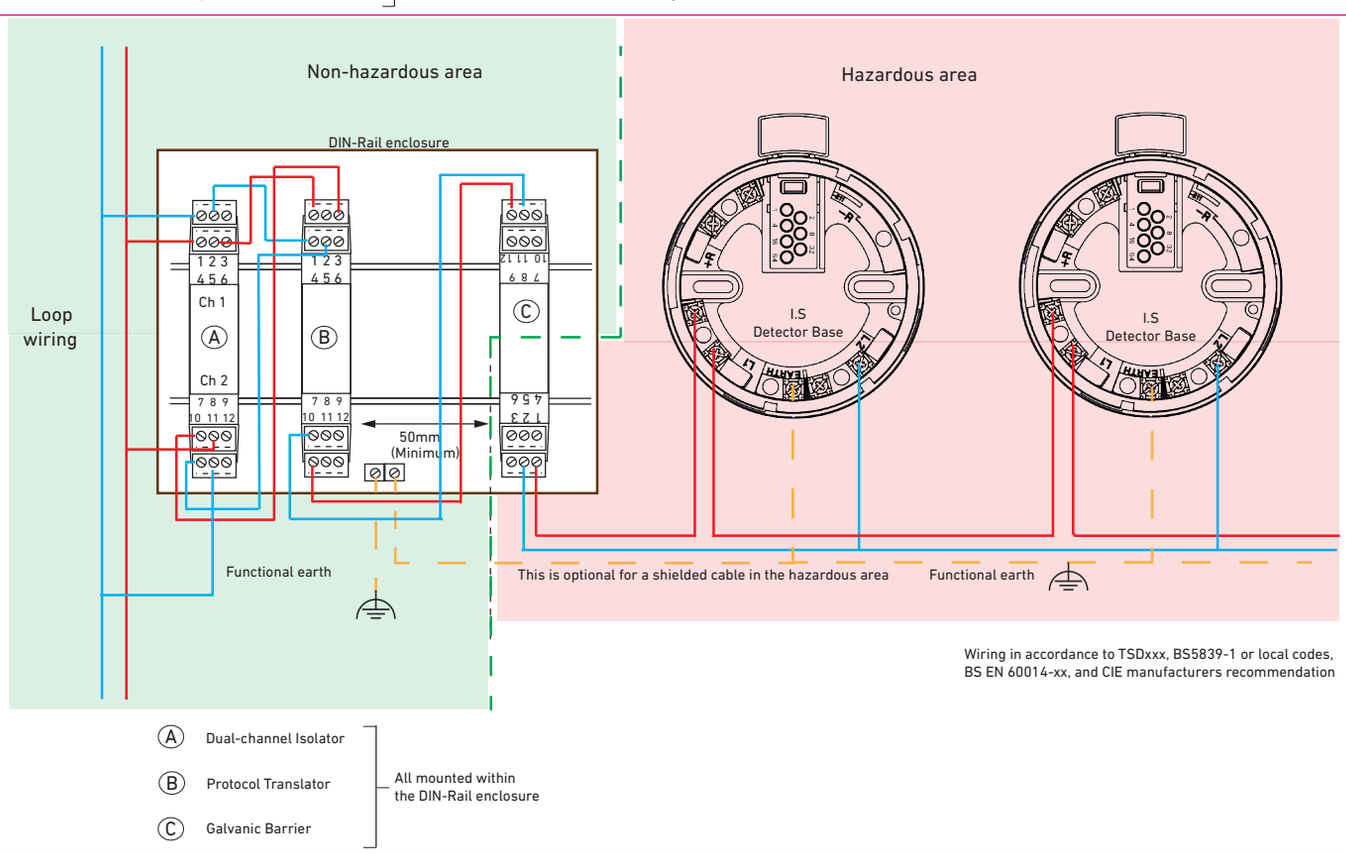
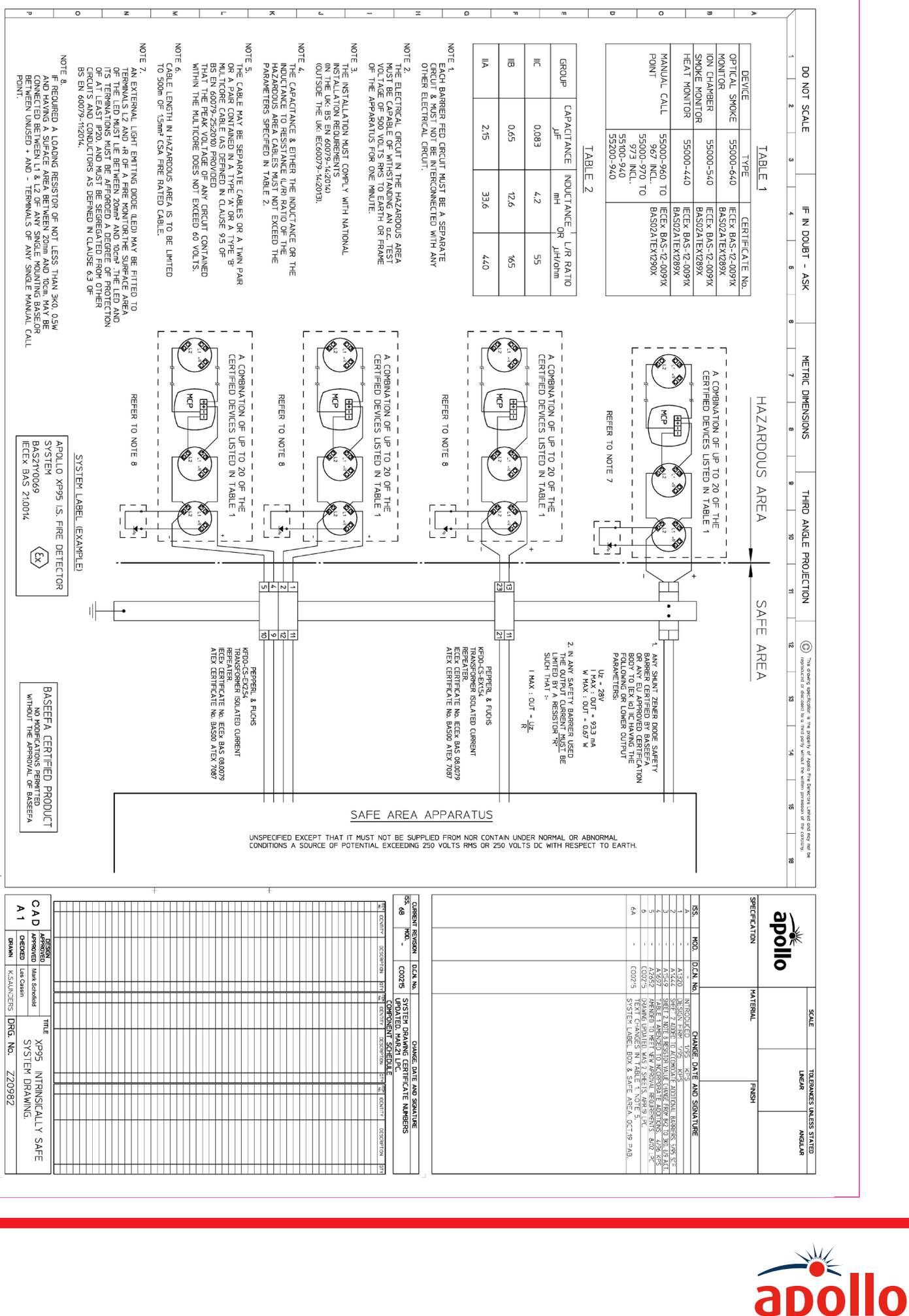


Figure 6: XP95 I.S. System drawing



Apollo Fire Detectors Limited, 36 Brookside Road, Havant, Hampshire, PO9 1JR, UK
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Website: www.apollo-fire.co.uk Email: techsales@apollo-fire.co.uk

Intrinsically Safe (IS) Products ATEX 2014/34/EU and IECEx Installation Guide

General
All Apollo IS devices are intended for use in hazardous area systems complying with the European ATEX directive 2014/34/EU that deals with products used in hazardous areas. All such systems must incorporate a certified safety barrier or interface to limit the voltage and power to the circuit. Information on suitable barriers and interfaces can be obtained from Apollo.

These notes are intended to supplement the mandatory requirements of the ATEX directive or other applicable regulations They should not be taken as full instructions for the design and installation of intrinsically safe systems. These activities must be carried out only by qualified personnel.

Certification
The XP95 IS range of detectors and manual call points (MCPs) and the Orbis IS range of detectors are BASEEFA certified as components. Their component certification allows them to be used in certified intrinsically safe systems.

Each product range is covered by a system certificate issued by BASEEFA in Apollo's name. Systems installed according to Apollo system drawings will be covered by the system certification. The use of barriers, interfaces, or other components not included in the system drawing will invalidate the certification.

The system certificate number must be marked on the installed system, preferably on the barrier or interface housing. The system is certified to ATEX only.

Explosion Protection Category

Apollo XP95 IS Heat detectors and call points comply with the categories:

II IG Ex ia IIC T5 -20°C ≤ Ta ≤ 45°C (T4 ≤ 60°C) Ga

Apollo XP95 IS Optical detectors comply with the categories:

II IG Ex ia IIC T5 -20°C ≤ Ta ≤ 55°C (T4 ≤ 60°C) Ga

Orbis IS detector categories are:

II IG Ex ia IIC T5 -50°C ≤ Ta ≤ 40°C (T4 ≤ 60°C) Ga

The ATEX EC type examination certificate numbers applicable to Apollo IS devices are given in the table below:

ATEX Certificate	**Apollo Product**
BAS02ATEX 1289X	XP95 IS Detectors
BAS02ATEX 1290X	XP95 IS Call Points
Baseefa 06 ATEX 0007X	Orbis Detectors
IECEx Certificate	
IECEx BAS 12.0091X	XP95 IS Detectors
IECEx BAS 12.0091X	XP95 IS Call Points
IECEx BAS 06.0002X	Orbis Detectors

Copies of all component and system certificates, and system drawings are available from Apollo on request.

Installation of Detectors

Detectors must be fitted to certified IS bases. Use of any other bases will invalidate the detector certification. Orbis detectors may be fitted to Series 60 systems using an Orbis IS base adaptor.

The bases must be installed in such a way that all wiring is protected to at least IP20. This requirement will be met if bases are flush mounted. If bases are mounted on BESA boxes, or other boxes having a diameter less than 85mm, they should be fitted with XP95 backplates (Apollo part number 45681-233).

Remote LED indicators may be fitted to Orbis or to XP95 detectors. The LEDs need not be certified but should be either 3mm or 5mm in diameter. The LED terminations must be protected to at least IP20 and the circuits must be segregated from other circuits.

Special Conditions for Safe Use

To avoid problems with electrostatic charging of the enclosure, the equipment must not be located in a dust-laden airflow or cleaned with a dry cloth or with solvents.

Installation of Manual Call Points

Manual call points must be installed to comply with the requirements of the ATEX directive or another applicable code of regulations. All unused cable entry ports must be sealed using suitable stopping plugs to give the required level of ingress protection.

Dust Cover

To ensure optimal performance, leave the dust cover on the product and remove on commissioning.

Further Information

For further information see Apollo publications PP1095 for the XP95 ranges respectively. For information on Orbis see publication PP2250.

Please use the link below to download the ATEX DoC in various EU Languages.

http://apollo.ly/kn

If the required Language is not displayed, please contact Apollo to request it.

Apollo Fire Detectors Ltd Declaration of Conformity under ATEX Directive

Notified Body for EC Type Examination and Production: Fimko 0598, Helsinki, Finland
Harmonised Standards used: EN60079-0:2018 Electrical Apparatus, Explosive atmospheres. Equipment. General requirements and EN60079-11:2012 Electrical Apparatus, Explosive atmospheres. Equipment protection by intrinsic safety 'i'.

Provisions of the Directive fulfilled by the Equipment:
XP95 Optical: Group II Category 1G Ex ia IIC T5 Ga (-20°C ≤ Ta ≤ +55°C) or
Ex ia IIC T4 Ga (-20°C ≤ Ta ≤ 60°C)
XP95 Heat: Group II Category 1G Ex ia IIC T5 Ga (-20°C ≤ Ta ≤ +45°C) or Ex ia IIC T4 Ga (-20°C ≤ Ta ≤ 60°C)
Orbis: Group II Category 1G Ex ia IIC T4 Ga (-50°C ≤ Ta ≤ +60°C) / T5 (-50°C ≤ Ta ≤ +40°C)
MCP: Group II Category 1G / 1D Ex ia IIC T5 Ga (-20°C ≤ Ta ≤ +45°C) or Ex ia IIC T4 Ga (-20°C ≤ Ta ≤ +60°C) or Ex ia IIIC T135°C Da (-20°C ≤ Ta ≤ +60°C)

The products listed below are manufactured at the premises of
Apollo Fire Detectors Ltd., 36 Brookside Road, Havant, Hampshire, PO9 1JR, England.

Product Name	**Models Covered**	**EC type Examination Certificate**	**Derived from Un-configured Platform**
Orbis IS	Multisensor	Baseefa06ATEX0007X/5 Issued 22 April 2020	400-OH-00012
Orbis IS	Optical Smoke Detector	Baseefa06ATEX0007X/5 Issued 22 April 2020	400-OP-00013
Orbis IS	Heat Detector A1R /A1S/A2S/BR/BS/CS	Baseefa06ATEX0007X/5 Issued 22 April 2020	400-HT-00011
XP95 IS	Heat Detector 55000-440	BAS02ATEX1289X/10, Issued 19 August 2022, IECEx BAS 12.0091X	
XP95 IS	Optical Smoke Detector 55000-640	BAS02ATEX1289X/10, Issued 19 August 2022, IECEx BAS 12.0091X	
XP95 IS MCP	Manual Call Point 55100-940, 55100-942	BAS02ATEX1290X/13, Issued 8 February 2021, IECEx BAS 12.0091X	
XP95 IS MCP	MEDC Manual Call Point 55000-960, 55000-961, 55000-962	BAS02ATEX1290X/13, Issued 8 February 2021, IECEx BAS 12.0091X	
XP95 IS MCP	55200-940	BAS02ATEX1290X/13, Issued 8 February 2021, IECEx BAS 12.0091X	

Directives also applicable: Electromagnetic Compatibility 2014/30/EU; Construction Products Regulations 305/2011/EU; Marine Equipment Directive*, European Directive On Equipment and Protective Systems Intended for the use in Potentially Explosive Atmospheres**.
*This declaration is valid for Directive 96/98/EC as amended by 2015/559 until 17 September 2016
*This declaration is valid for Directive 2014/90/EU from 18 September 2016
**This declaration is valid for Directive 94/9/EC until 19 April 2016
**This declaration is valid for Directive 2014/34/EU from 20 April 2016
This Directive has been enacted into the UK law by the Statutory Instrument No. 1996-192, The Equipment and Protective Systems Intended for the Use in Potentially Explosive Atmospheres Regulations 1996.

This Declaration of Conformity is issued under the sole responsibility of the Manufacturer.

On behalf of the above named company, I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives. Both Principle Engineer, Mr Rob Knight, and Systems Engineer, Mr Mark Schofield, have been designated as the responsible person(s) for the purpose of the Regulations.

R D Knight ..... Havant, 19/08/2022
Mr Rob Knight
Principle Engineer

M. V. Schofield ..... Havant, 19/08/2022
Mr Mark Schofield
Systems Engineer