CERTIFICATE NUMBER
16-LD1536864-2-PDA

DATE
29 Jul 2016

ABS TECHNICAL OFFICE
London Engineering Department

CERTIFICATE OF DESIGN ASSESSMENT

This is to certify that a representative of this Bureau did, at the request of

APOLLO FIRE DETECTORS LIMITED

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product: **Fire Detection Equipment**

Model: **Apollo Analogue Addressable Range of Flame/Smoke/Heat Detectors, Manual Call Points and Accessories, and XP95 Analogue Addressable Intrinsically Safe Range of Smoke/Heat Detectors,...**

This Product Design Assessment (PDA) Certificate 16-LD1536864-2-PDA, dated 29/Jul/2016 remains valid until 28/Jul/2021 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

AMERICAN BUREAU OF SHIPPING

Theodoros Chatzigkaidas
Engineer/Consultant

APOLLO FIRE DETECTORS LIMITED
36 BROOKSIDE ROAD
HAVANT
HAMPSHIRE ENGLAND
United Kingdom PO9 1JR
Telephone: 44-2392-492-412
Fax: 44-2392-492-754
Email:
Web: www.apollo-fire.co.uk

TC

Tier: 3 - Type Approved, unit certification not required

Product: **Fire Detection Equipment**
Model: **Apollo Analogue Addressable Range of Flame/Smoke/Heat Detectors, Manual Call Points and Accessories, and XP95 Analogue Addressable Intrinsically Safe Range of Smoke/Heat Detectors, Manual Call Points**

Intended Service:
For use on ABS Classed Vessels and Offshore Facilities in accordance with the listed ABS Rules and International Standards.

Description:
Apollo Analogue Addressable Range of Flame/Smoke/Heat Detectors, Manual Call Points and Accessories for marine and offshore applications in process, machinery and accommodation spaces.
45681-210MAR 4inch Addressable Base
45681-211MAR Isolator Base
45681-286MAR 20D Negative Isolating Base
55000-027MAR UV Flame Detector
55000-028MAR UV/IR2 Flame Detector
55000-029MAR IR3 Flame Detector
55000-034MAR IR3 Flame Detector
55000-181MAR DIN Rail 8 amp Sounder Controller
55000-721MAR 20D Negative Isolator
55000-770MAR DIN Rail Dual Isolator
55000-771MAR DIN Rail Output Unit
55000-772MAR DIN Rail Switch Monitor Plus
55000-773MAR DIN Rail Zone Monitor with Isolator
55000-774MAR DIN Rail Input/Output Unit
55000-775MAR DIN Rail Mini Switch Monitor
58000-400MAR Heat Detector
58000-500MAR Ionisation Smoke Detector
58000-600MAR Optical Smoke Detector
58000-700MAR Multisensor Smoke Detector
58100-970MAR Red Manual Call Point
58100-971MAR Red Manual Call Point with Isolator
58100-975MAR Waterproof Manual Call Point
58100-976MAR Waterproof Manual Call Point with Isolator

XP95 Analogue Addressable Intrinsically Safe Range of Smoke/Heat Detectors, Manual Call Points for marine and offshore applications in process, machinery and accommodation spaces.
45681-215 Standard Base
55000-440 Class A2S Heat Detector
55000-540 Ionisation Smoke Detector
55000-640 Optical Smoke Detector
55000-855 DIN Rail Single Channel Protocol Translator
55000-856 DIN Rail Dual Channel Protocol Translator
55100-940 Red Manual Call Point

Rating:
Apollo Analogue Addressable Range of Flame/Smoke/Heat Detectors, Manual Call Pointsand Accessories
Nominal voltage 17 to 28V DC
Operating temperature -20C to 60C, -30C to 70C or -40C to 70C dependent on model
Quiescent current 100 microA to 400microA dependent on model

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36 BROOKSIDE ROAD
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HAMPSHIRE ENGLAND
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Ingress Protection IP44 (detectors), IP67 (manual call points)

Apollo XP95 Analogue Addressable Intrinsically Safe Range of Smoke/Heat Detectors, Manual Call Points
Nominal voltage: 14 to 22V DC;
Operating temperature:-20C to 60C;
Quiescent Current: 230microA to 340microA, Alarm Current: 10 to 60 mA;
Ingress Protection: IP44 (detectors), IP 65/66 (manual call points);
Classification: EEx ia IIC T5 or T4 (Ta < or = 60C);
Ex ia IIC T5/T4 Ga (-20°C Ta +45°C/+60°C), Ex ia IIIC T135°C Da (-20°C Ta +60°C), Safety certification: IEC EX BAS 12.0091X Issue No.: 3
Ex II 1G Ex ia IIC T5/T4 Ga (-20°C Ta +45°C/+60°C), Safety certification: BAS02 ATEX 1289 and Supplementary EC issue7

Service Restriction:
Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

Comments:
The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. Approval is for hardware only.

Notes/Drawing/Documentation:
Drawing No. 43781-237, XP95 INTRINSICALLY SAFE OPTICAL SMOKE DETECTOR PCB ASSEMBLY
Drawing No. 43781-243, XP95 INTINSICALLY SAFE IONISATION SMOKE DETECTOR PCB ASSEMBLY.
Drawing No. 43781-245, XP95 INSTRINSICALLY SAFE HEAT DETCTOR PCB ASSEMBLY.
Drawing No. 43781-263, XP95 INTRINSICALLY SAFE MANUAL CALL POINT PCB ASSEMBLY.
Drawing No. 43781-271, ISOLATING BASE PCB ASSEMBLY.
Drawing No. 43781-291, DIN RAIL INPUT /OUTPUT UNIT PCB ASSEMBLY.
Drawing No. 43781-292, DIN RAIL OUTPUT UNIT PCB ASSEMBLY.
Drawing No. 43781-293, XP95 DIN RAIL SWITCH MONITOR PLUS PCB ASSEMBLY.
Drawing No. 43781-296, XP95 DIN RAIL ZONE MONITOR UNIT PCB ASSEMBLY.
Drawing No. 43781-306, XP95 DIN RAIL DUAL ISOLATOR PCB ASSEMBLY.
Drawing No. 43781-547, XP95 , NEGATIVE ISOLATOR , PCB ASSEMBLY.
Drawing No. 43781-700, DISCOVERY IONISATION SMOKE DETECTOR PCB ASSEMBLY.
Drawing No. 43781-900, DISCOVERY, TEXAS CHIP, MULTISENSOR SMOKE DETECTOR, PCB ASSEMBLY.
Drawing No. 43781-964, XP95/DISCOVERY EN54 MCP PCB ASSEMBLY.
Drawing No. 43781-968, DISCOVERY SOUNDER BEACON BASE, WITH ISLOATOR, PCB ASSEMBLY.
Drawing No. 43781-982, DIN RAIL MARINE SOUNDER CONTROL UNIT PCB ASSMEBLY.
Drawing No. 45681-210, LLOYDS AUDIT 2014.
Drawing No. 45681-210 Lloyds Audit 2014 - final, TESTED TO LLOYDS REGISTER TYPE APPROVAL TEST PRODUCT ID - 45681-210
Drawing No. 45681-211, XP95 ISOLATOR BASE ASSEMBLY.
Drawing No. 45681-215, XP95 INTRINSICALLY SAFE MOUNTING BASE ASSY.
Drawing No. 45681-286 Lloyds Audit 2014 - final, TESTED TO LLOYDS REGISTER TYPE APPROVAL TEST PRODUCT ID 45681-286 MAR
Drawing No. 45681-286 MAR, LLOYDS AUDIT 2014.
Drawing No. 45681-393, DISCOVERY SOUNDER BEACON BASE WITH ISOLATOR , GENERAL ASSEBMLY , STANDARD TONE.
Drawing No. 45681-393CD SHT 1, DISCOVERY, ISOLATED SOUNDER BEACON BASE SCHEMATIC DIAGRAM.
Drawing No. 45681-393CD SHT 1, DISCOVERY, ISOLATED SOUNDER BEACON BASE SCHEMATIC

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DIAGRAM
Drawing No. 55000-027 MAR, TEST REPORT: July 2013
Drawing No. 55000-027 Test Report, TESTED TO LLOYDS REGISTER TYPE APPROVAL TEST PRODUCT ID 55000-027 MAR: July 2013
Drawing No. 55000-027MAR, INTELLIGENT BASE MOUNTED UV FLAME DETECTOR (MARINE).
Drawing No. 55000-028 MAR, TEST REPORT: July 2013
Drawing No. 55000-028 Test Report, TESTED TO LLOYDS REGISTER TYPE APPROVAL TEST PRODUCT ID 55000-028 MAR: July 2013
Drawing No. 55000-028MAR, INTELLIGENT BASE MOUNTED UV/IR2 FLAME DETECTOR (MARINE).
Drawing No. 55000-029MAR, INTELLIGENT BASE MOUNTED IR3 FLAME DETECTOR (MARINE).
Drawing No. 55000-181CD, MARINE SOUNDER CIRCUIT CONTROLLER CIRCUIT DIAGRAM.
Drawing No. 55000-640, XP95 INSTRICALLY SAFE OPTICAL SMOKE DETECTOR GENERAL ASSEMBLY.
Drawing No. 55000-775 MAR, LLOYDS AUDIT 2014.
Drawing No. 55000-802CD, DIN RAIL DUAL ISOLATOR CIRCUIT DIAGRAM.
Drawing No. 55000-803CD, DIN RAIL I/O UNIT CIRCUIT DIAGRAM.
Drawing No. 55000-804CD, DIN RAIL OUTPUT UNIT SCHEMATIC DIAGRAM.
Drawing No. 55000-812CD, XP95 DIN RAIL ZONE MONITOR UNIT CIRCUIT DIAGRAM.
Drawing No. 55000-812CD, XP95 DIN RAIL ZONE MONITOR UNIT CIRCUIT DIAGRAM
Drawing No. 55000-821CD, XP95 DIN RAIL SWITCH MONITOR PLUS CIRCUIT DIAGRAM.
Drawing No. Drawings updated since July 2011 PDA_MED.
Drawing No. GB-BAS-ExTR12-0292-00_XP95IS Fire Monitors
Drawing No. GB-BAS-ExTR13.0293-00
Drawing No. GB-BAS-ExTR15
Drawing No. IECEx-BAS-12-0091X_3 - XP95 IS Range
Drawing No. IR test LSR3570 witnessed
Drawing No. SOU 1600611/1, INSULATION RESISTANCE TEST WITNESS.
Drawing No. TE 222766, TECHNICAL EVALUATION OF THE APPOLLO FIRE DETECTORS LIMITED.
Drawing No. TE 223930, TESTING OF THE APOLLO XP995 I.S
Drawing No. TE 231156, TECHNICAL EVALUATION OF THE APOLLO FIRE DETECTORS LTD.
Drawing No. TE 234979, TECHNICAL EVALUATION OF THE APOLLO FIRE DETECTORS LTD.
Drawing No. TE 236307, TECHNICAL EVALUATION OF THE APOLLO FIRE DETECTORS LTD.
Drawing No. TE 236936, TECHNICAL EVALUATION OF THE APOLLO FIRE DETECTORS LTD.
Drawing No. TE 237126, TECHNICAL EVALUATION OF THE APOLLO FIRE DETECTORS LTD.
Drawing No. TE 237154, TECHNICAL EVALUATION OF THE APOLLO 55000 -760 ANALOGUE ADDRESSABLE MINI SWITCH MONITOR.
Drawing No. TE 238037, TECHNICAL EVAULATION OF THE MODIFIED APPOLLO FIRE DETECTORS LTD.
Drawing No. TE 245499, TECHNICAL EVAULUTION OF THE APOLLO FIRE DETECTORS LTD.
Drawing No. TE 252733, TECHNICAL EVALUATION OF THE APOLLO FIRE DETECTORS LTD.
Drawing No. TE 260875, TECHNICAL EVALUATION OF THE APOLLO FIRE DETECTORS LTD.
Drawing No. TE 90089, TEST REPORT: July 2013
Drawing No. TE 90090, TEST REPORT: July 2013
Drawing No. TE245407, TECHNICAL EVALUTATION OF MODEL 45681-393 APO.
Drawing No. TE292207, BRE GLOBAL TEST REPORT: Nov 2015
Drawing No. TEST REPORT INSULATION RESISTANCE TESTING, TEST REPORT: June 2016
Drawing No. Test Report- GB-BAS-ExTR13.0090-00: Feb 2015

Terms of Validity:
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or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

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STANDARDS

ABS Rules:
- Steel Vessel Rules (2016): 1-1-4/7.7, 1-1-A3&A4; 4.7.3/11.3.3 (a), 4-8-3/13.3.1, 4-8-4/27.5.1, 4-9-8/3, 4-9-8/7, 4-9-8/13, 4-9-8 Table 1 and Table 2;
- Steel Vessels Under 90 Meters (295 Feet) in Length (2016): 1-1-4/7.7, 1-1-A3&A4; 4-6-3/11.1.1 (a), 4-7-2 Table 1, 4-7-4/3.7;
- Facilities on Offshore Installations (2016): 1-1-4/9.7, 1-1-A2&A3;
- Offshore Support Vessels (2016): 1-1-4/7.7, 1-1-A3&A4; 4.7.3/11.3.3 (a), 4-8-3/13.3.1, 4-8-4/29.5.1, 4-9-8/3, 4-9-8/7, 4-9-8/13, 4-9-8 Table 1 and Table 2;
- Mobile Offshore Drilling Units (2016): 1-1-4/9.7, 1-1-A2&A3, 6-1-1/9, 6-1-1/13; 4-3-1/15, 4-3-1/17, 4-3-1/3.15, 4-3-3/9.1.2
- Steel Vessels for Service on Rivers and Intracoastal Waterways (2016): 1-1-4/7.7, 1-1-A3&A4; 4-5-1/17, 4-5-1/19, 4-5-1/3.21, 4-5-3/11.1.1 (a)
- High Speed Crafts (2016): 1-1-4/11.9, 1-1-A2&A3; 4-6-1/15, 4-6-1/17, 4-6-1/3.21, 4-6-3/9.1.1 (a), 4-7-9 Table 9 and Table 10;
- Steel Barge Rules (2016): 1-1-4/7.9, 1-1-A3&A4;

National:
NA

International:
IEC 60092-504 Ed 3.0: 2001, IEC 60079-0 Ed 6.0: 2011, IEC 60079-11 Ed 6.0: 2011
IMO FSS Code 2015, Chapter 9/2.3.1.1
EN 54-3:2001 + A1:2002, EN 54-5:2000 + A1:2002, EN 54-7:2000 + A1:2002 + A2:2006, EN54-10:2002 + A1:2005, EN54-11:2001 + A1:2005, EN54-17:2005, EN 54-18:2005, EN 60079-0: 2012, EN 60079-11: 2012

Government:
NA

EUMED:
Approved in accordance with the Fire protection equipment requirements for fixed fire detection and fire alarm systems components - item A.1/3.51 of the European Union Marine Equipment Directive 2014/90/EU.

OTHERS:
NA TC