DATASHEET – DS1 024R-AT / DS1 110R-AT / DS2 024R-AT / DS2 110R-AT

Automatic fire detector
for industrial applications

Automatic fire detector for industrial applications

- Signal processing with **ASA***technology*
- Event-controlled detection behavior
- Evaluation of the criteria smoke and heat
- Quick response
- Highly developed immunity to deceptive phenomena

Fullfills specific requirements

- Safety integrity level SIL2 acc. EN61508
- Fire detection EN54
- Requirements for fire behavior of materials and components EN45545
- Tested acc. to EN 61000-4, EN 61373, EN 50121-3-2, EN 60068-2-1

SIEMENS

Properties

Design

- Resistant to environmental and interfering influences such as dust, fibers, insects, moisture, extreme temperatures, electromagnetic interference, corrosive vapors, vibration, artificial aerosols, and atypical fire phenomena

Features

- Shock resistant, protection against sabotage
- Signal processing with **ASA***technology* (Advanced Signal Analysis)
- Time and process-dependent detection behavior
- High degree of immunity to faults in power electronics
- Protected electronics, high-quality components
- Sophisticated sensors and electronic monitoring
- Integrated alarm indicator (AI), 360° visibility
- Industrial applications certified

Eco-friendly

- Environmentally friendly processing
- Reusable materials
- Electronic parts and synthetic materials can be easily separated

Use

OOH740 multi-sensor fire detector, neural ASA

Multi-sensor fire detector consisting of:

- Point detector
- Detector dust cap to protect the point detector during the construction phase

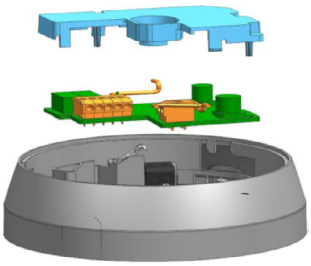
Function:

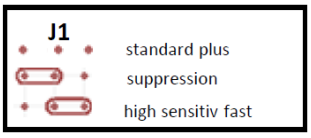
- Functions acc. to the scattered light principle with two sensors, optical forward and backward scattering
- Opto-electronic measuring chamber that obstructs disruptive extraneous light but provides excellent detection of both light and dark smoke particles
- Two additional heat sensors increase the point detector's immunity to deceptive phenomena
- Selectable detection behavior thanks to application-specific ASA parameter sets

Use:

- For early detection of flaming fires of solid and liquid substances, as well as of smoldering fires
- For early and reliable fire detection in an environment with deceptive phenomena
- Meets UL94-V0 requirements

Detector base DB1R-AT with PCB





Detector base consisting of:

- Protector top cover for PCB
- Base print (24V or 110V)
- Block terminals incl. metal clips
- Detector base

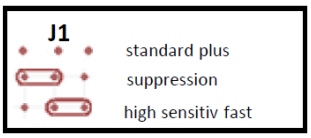
Function:

- Base for fire detector OOH740
- Adjustment of detection sensitivity (J1: standard, suppression, hight sensitive fast)
- Signal evaluation through PCB (alarm, interference)
- Potential-free contacts for communication

Use:

- Meets UL94-V0 requirements

Detector base DB2R-AT with PCB



Detector base consisting of:

- Protector top cover for PCB
- Base print (24V or 110V)
- Detector base
- Block terminals incl. metal clips
- Wago plug incl. connector PCB
- Protector cover for Wago connector PCB

Function:

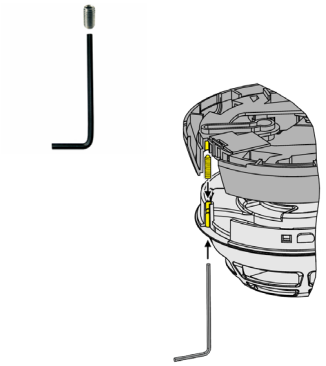
- Base for fire detector OOH740
- External connectivity through Wago plug
- Adjustment of detection sensitivity (J1: standard, suppression, high sensitive fast)
- Signal evaluation through PCB (alarm, interference)
- Potential-free contacts for communication

Use:

- Meets UL94-V0 requirements

Accessories

FDAZ292 ASD filter box



- For protection against theft of the point detector
- Set screw M3 x 12 mm prevents the point detector being unscrewed from the detector base
- Point detector can only be removed with the appropriate Allen key

Type overview

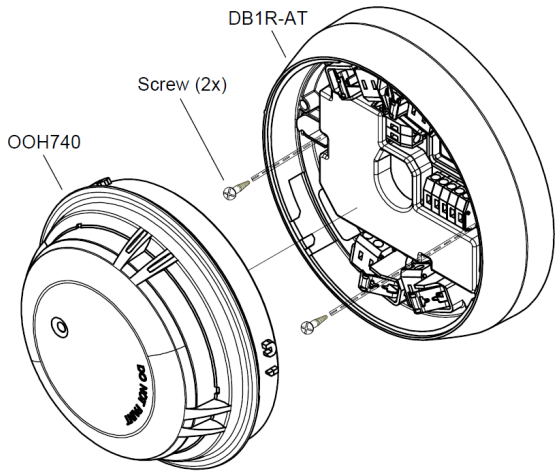
Type	Designation	Order number	Weight [kg]
DS1 024R-AT	Complete Detector Set 1, 24VDC Version	6500007594	0,223
DS1 110R-AT	Complete Detector Set 1, 110VDC Version	6500007595	0,226
DS2 024R-AT	Complete Detector Set 2, 24VDC Version	6500007587	0,236
DS2 110R-AT	Complete Detector Set 2, 110VDC Version	6500007588	0,239
DB1 024R-AT	Complete Detector base 1, 24VDC Version		0,100
DB1 110R-AT	Complete Detector base 1, 110VDC Version		0,102
DB2 024R-AT	Complete Detector base 2, 24VDC Version		0,112
DB2 110R-AT	Complete Detector base 2, 110VDC Version		0,114
OOH740	Multi-sensor fire detector, ASA		0,124
DB1R-AT	Detector base		0,071
DB2R-AT	Detector base		0,076
DP024R-AT	Detector base print (PCB, 24V)		0,020
DP110R-AT	Detector base print (PCB, 110V)		0,023
DBC2R-AT	PCB for Wago connector		0,003
DBT1R-AT	Protector top cover for main PCB		0,008
DBT2R-AT	Protector cover for Wago connector PCB		0,002
WAGO	Plug-in connector Wago		0,002
Torroidal ferrite	Torroidal ferrite		0,010
Ferrite PCB	7x Multilayer Ferrite		0,0001
Accessories			
LP720	Detector locking device	S54319-F9-A1	0,001

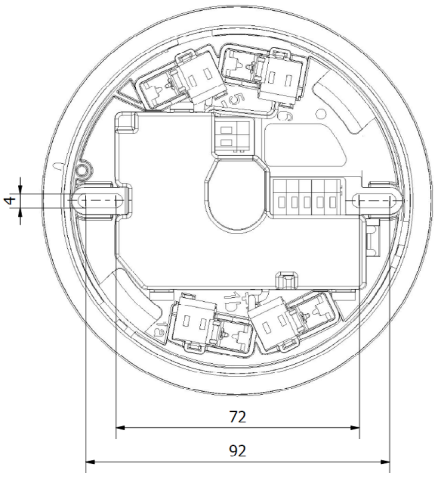
Installation

Detector Base DB1R-AT and DB2R-AT

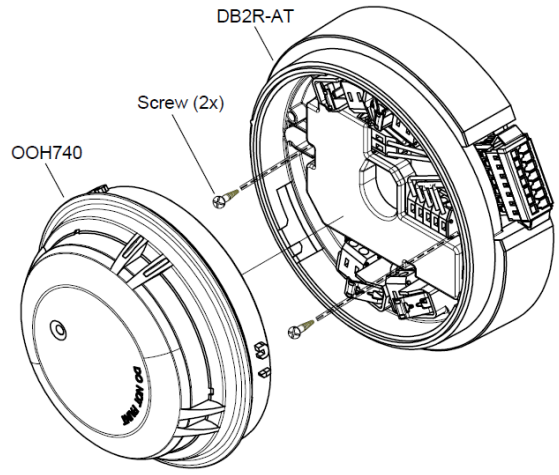
Mounting of the detector base is achieved through 2 appropriate screws in the mounting slits provided for fixation

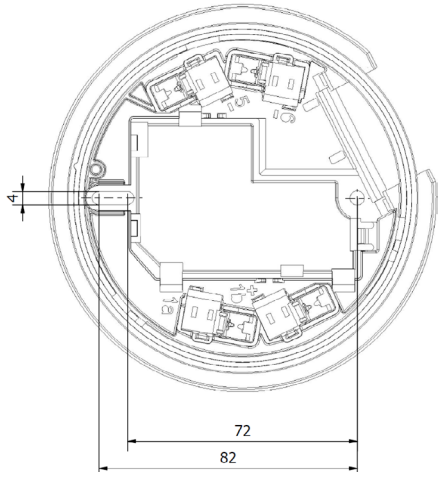
DB1R-AT





DB2R-AT



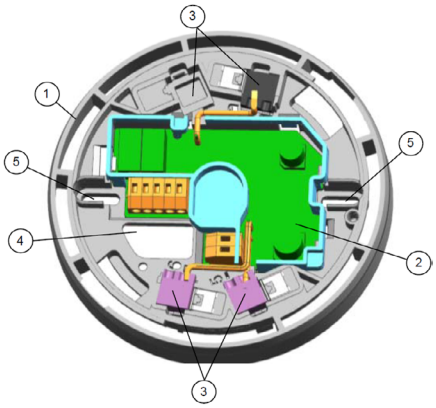


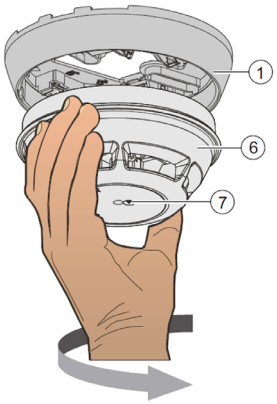
Maintenance

Detector and detector base

- Mounting slits allows fast and variant fixation
- Connection terminals for conductors up to max. 1.6 mm²

The detector can be screwed into the base easily either by hand or using the detector exchanger DX791 and the corresponding adapter FDUD491.
The internal alarm indicator is centered in the detector, which makes alignment of the point detector superfluous.





1. Detector base
2. Print and cover
3. Connection terminals
4. Opening for cable entry
5. Mounting slits
6. Point detector
7. Internal alarm indicator

Inspection, Maintenance and Revision

Interval	Type of check	Measures
Six-monthly	Inspection	• Visual inspection • Check detector module and alarm transmission • Check fault forwarding • Check LED indicator at detector module
Annually	Inspection and maintenance	• Visual inspection • Check detector module and alarm transmission • Check fault forwarding • Check LED indicator at detector module • Check smoke response by carrying out a test with test gas, compare this with previous checks, and investigate any discrepancies • Check and test power supply in accordance with the manufacturer's instructions

Performance check

The selftest automatically subjects the detectors to an extensive electrical performance check. Nevertheless, regular performance checks of the detectors are required. This may be done with the test gas (optical) or hot air fan (heat).

Recommendation

- Check the devices every year
- Replace heavily soiled or damaged devices
- All point detectors should be replaced after 6 to 8 years of service, depending on the ambient conditions.

Testing the point detector

Depending on the point detector, testing may be performed with one or more of the following accessories:

- Test gas, optical
  - REF8-S (recommended)
  - REF8
- Heat detector tester kit RE7T
  - Hot air fan

To trigger a detector with test gas, normally 2...4 gas discharges at intervals of approx. 2 seconds are re-quired. When the detector is in test mode, activation takes place after approximately 10 seconds.

Collective operation (stand-alone operation)

In collective operation, the point detector OOH740 has a reduced response time for a period of 3 minutes following the detector line being started up or reset. In this time, the point detector responds faster to test gas or a hot air fan than in normal operation. Once an alarm for testing purpose is triggered on a point detector, the detector line must be restarted/disconnected from collective line.

Therefore, the detector must be disconnected from the power supply such that it switches to test mode. You can do the following to disconnect the power supply:

- Power-off / power-on of the supply voltage
- Remove the detector from its base for at least 5 sec. and then reinsert it

Safety

- Do not operate the device above the specified nominal voltage.
- Avoid touching the connection contacts in any case.
- Use of detector locking device (LP720) to prevent improper opening of the device is highly recommended.

Additional measures must be followed especially for use in industrial applications vehicles

Inspection

- Per car, switch at least one detector into ALARM condition by using appropriate test equipment (REF8-S)
- Per car, switch at least one detector into FAULT condition by unscrewing the detector from its base
- Verify that ALARM/FAULT message is forwarded acc.ly by checking if ALARM/FAULT notification is displayed on the control system/control board (e.g. train cab)
- Check detectors for pollution, sufficient fixation and mechanical damages
- Documentation and recording of the inspection carried out including any abnormalities

Maintenance

- Switch every single (all) detector in ALARM condition by using appropriate test equipment (REF8-S)
- Switch every single (all) detector in FAULT condition by unscrewing the detector from its base
- Verify that ALARM/FAULT message is forwarded acc.ly by checking if ALARM/FAULT notification is displayed on the control system/control board (e.g. train cab)
- Check detectors for pollution, sufficient fixation and mechanical damages
- Documentation and recording of the inspection carried out including any abnormalities

Revision

- All point detectors should be replaced by new ones after max. 8 years of service, depending on the ambient conditions and place of operation
- It is recommended to replace the detectors altogether where possible
- The detectors including base are non-reparable devices (no re-processing service offered)

Technical data

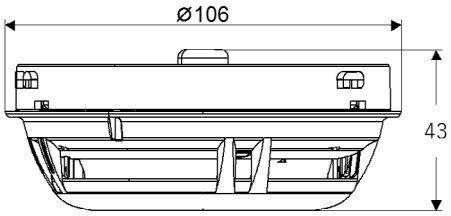
Description	OOH740 incl. base	
Operating voltage (modulated)	DC 19...30 V (24V Print Version) DC 70...140 V (110V Print Version)	
Operating current (quiescent)	10...11 mA (24V Print Version) 3...3,5 mA (110V Print Version)	
Max. number of external alarm indicators that can be connected	2	
Operating temperature	-25...+55 °C Industrial applications specific approval Temperature class OT4: -40...+70 °C	
Storage temperature	-30...+70 °C	
Air humidity (short-term moisture condensation permitted)	≤ 95 % rel.	
Communication protocol	Potential-free contacts	
Color	~RAL 9010 pure white	
Weight	~0.230 kg	
Protection category (IEC 60529)	IP40	
Standards (OOH740)	CEA 4021, EN 54-5, EN 54-7, EN 54-29	
Approvals OOH740 incl. Base (DBxR-AT)	**Standards**	EN 50155, EN 50121-3-2, EN 61000-4-2/3/4/5/6, EN 60068-2-1/2/27/30, EN 61373, EN 45545-2
	TUEV	Test Report TÜV Austria EN50155 Industrial applicationsway applications Prüfbericht TÜV Austria EN50121-3-2, EN50155 EMV Prüfbericht AIT EN60068-2-27, EN61373 Schocktest Prüfbefund TÜV Austria ÖNORM EN 60068-2-1 SIL Report & Certificate acc. EN50126, EN50128, EN50129
Permissible wind speed	Max. 5 m/s	

Disposal

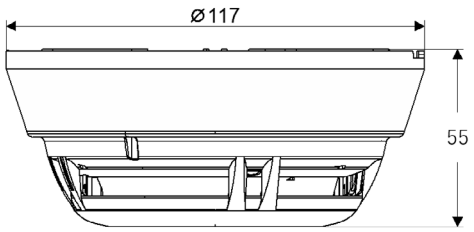
Symbol	Description
	The device is considered an electronics device for disposal in terms of European Directive 2012/19/EU and may not be disposed of as domestic garbage. • Dispose of the device through channels provided for this purpose. • Comply with all local and currently applicable laws and regulations. • Dispose of empty batteries in designated collection points.

Dimensional drawings

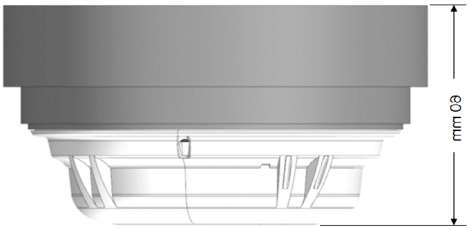
OOH740



OOH740 with base DB1R-AT



OOH740 with base DB2R-AT



Product documentation (standardized documents)

Document-ID	Title
A6V15190208	Technical manual
A6V15172796	Commissioning and test instruction

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