



DATASHEET – DSW 024R-AT / DSW 110R-AT

Automatic fire detector for Rail

Automatic fire detector for rail application

- 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 rail specific requirements

- Meets material requirements acc. EN45545-2
- Rail-proved by notified body acc. EN50155
- SIL2 approved acc. EN5012x standards



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 ASAtchnology (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
- Rail 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

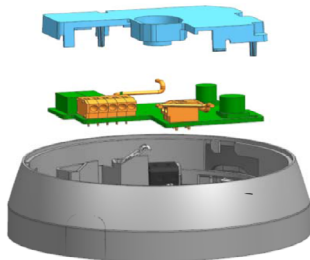
Function:

- 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



Detector base consisting of:

- Detector base print top
- Base print (24V or 110V)
- Detector base

Function:

- Adjustment of detection sensitivity (3 operation modes) via jumper

Use:

- Meets UL94-V0 requirements

Base attachment wet BA721 with Weidmüller connector



Base attachment wet consisting of:

- Base wet
- Plug-in connector incl. crimp contacts
- Blind plugs
- Internal wiring

Function:

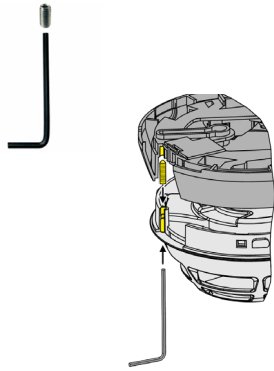
- Base attachment wet with additional integrated rubber seal for mounting in wet or humid environments
- For achieving a higher protection category
- For mounting in wet or humid environments
- Quick connectivity through plug-in connector

Use:

- Specially for humid and cold environments
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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

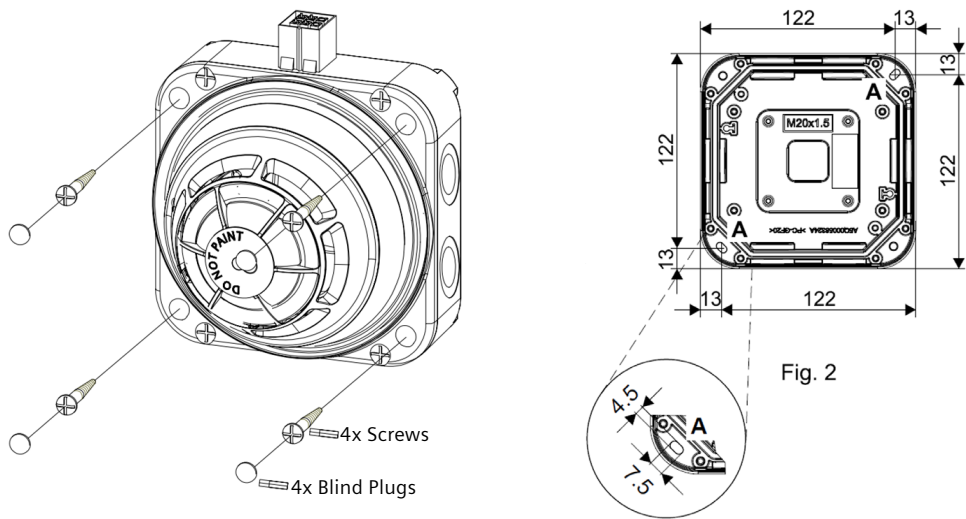
Type overview

Type	Designation	Order number	Weight [kg]
DSW024R-AT	Detector Set Wet, 24VDC	6500007569	0,500
DSW110R-AT	Detector Set Wet, 110VDC	6500007593	0,503
OOH740	Multi-sensor fire detector, ASA		0,124
DB1R-AT	Detector base		0,071
DP024R-AT	Detector base print (PCB, 24V)		0,020
DP110R-AT	Detector base print (PCB, 110V)		0,023
DBT1R-AT	Detector base PCB top		0,008
BA721	Base attachment wet		0,272
Connector	Plug-in connector RSV		0,011
Crimp contacts	Contacts for connector RSV		0,548
Torroidal ferrite	Torroidal ferrite		0,010
Blind plugs	Blind plug for covering screw		0,0001
Accessories			
LP720	Detector locking device	S54319-F9-A1	0,001

Installation

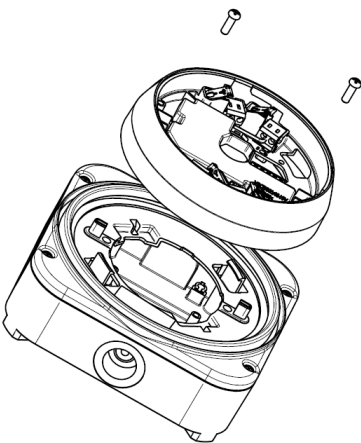
Base attachment wet

The 'base attachment wet BA721' is for surface-mounted feed lines in humid and cold environments. Mounting of the detector is achieved through 4 appropriate screws in the openings provided for fixation. The openings are sealed with blank plugs (see figure below).

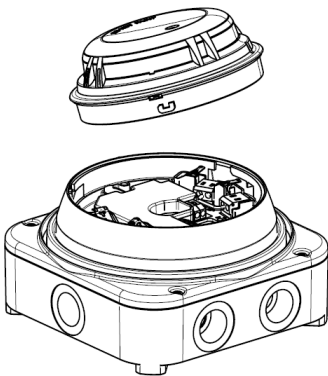


Assembling

Step 1
Assembled with BA721



Step 2
Assembled with OOH740



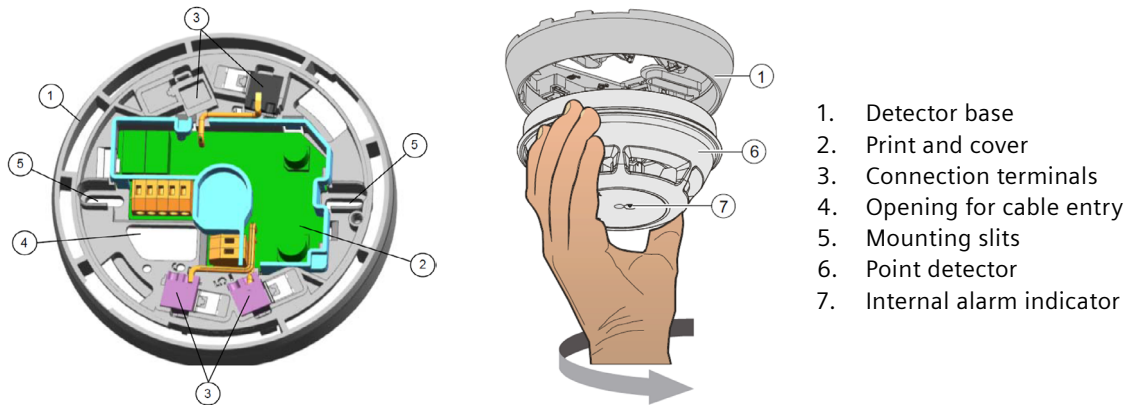
Maintenance

Detector and detector base

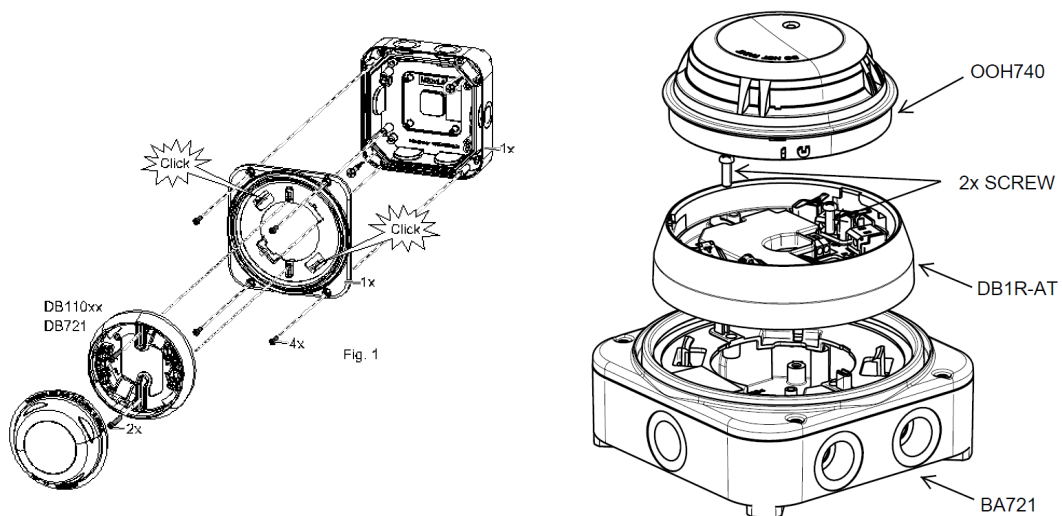
- Mounting slits allows fast and variant fixation
- Connection terminals for conductors up to max. 1.6 mm²

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.



Exploded view



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 rail 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
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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)
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Technical data

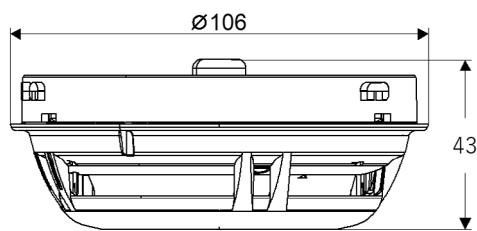
Description	DSW024R-AT / DSW110R-AT	
Operating voltage (modulated)	DC 19...30 V / DC 70...140 V	
Operating current (quiescent)	10-11 mA / 3-3,5 mA	
Max. number of external alarm indicators that can be connected	2	
Operating temperature	-25...+55 °C	
	Rail specific approval Temperature class OT4: -40...+70 °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	0.497 kg / 0.500 kg	
Protection category (IEC 60529)	IP40	
Standards (OOH740)	CEA 4021, EN 54-5, EN 54-7, EN 54-17	
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 Railway 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

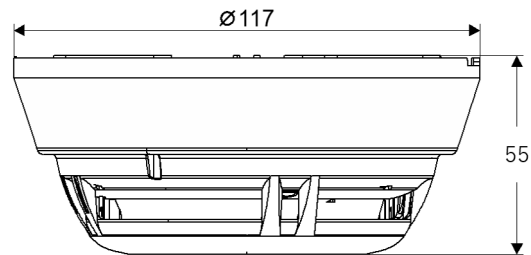
Symbol	Description
	The device is considered an electronics device for disposal in terms of European Directive 2012/19/EU and may not be disposed of as domestic garbage. • Dispose of the device through channels provided for this purpose. • Comply with all local and currently applicable laws and regulations.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

Dimensional drawings

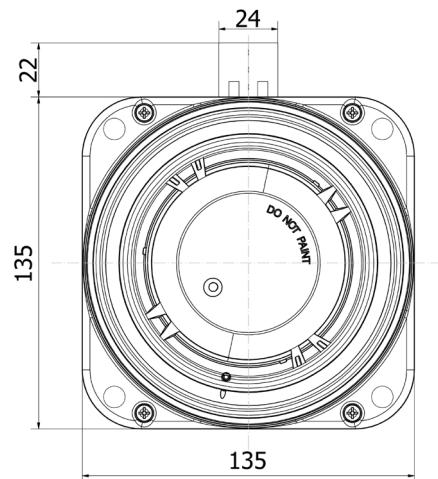
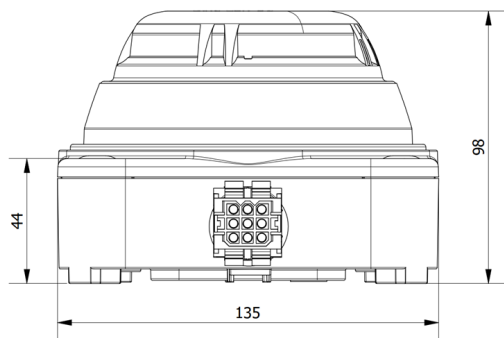
OOH740



OOH740 with base DB1R-AT



DSW024R-AT / DSW110R-AT



Product documentation (standardized documents)

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

Siemens Smart Infrastructure connects energy systems, buildings, and industries in an intelligent way to further develop and improve the way we live and work. Together with our customers and partners, we create an ecosystem that intuitively responds to people's needs and helps customers optimize resource utilization. An ecosystem that helps our customers grow, promotes the progress of communities, and fosters sustainable development.

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