

We set the standard in safety

Bus and coach fire protection

Engine compartment fire
suppression systems



Previously known as Forman

For reliable protection in buses and coaches, the Ardent R107-approved bus fire suppression system meets all UNECE R107 requirements for automatic engine bay fire suppression. Having passed strict fire testing protocols from the Research Institutes of Sweden (RISE), and it successfully protects diesel, electric, hybrid and hydrogen vehicles against the risk of engine fire.

Since it uses a dry chemical suppression agent, it can also be safely used to protect electrical cabinets and enclosures.



UNECE Regulation 107
Certified Systems

What does our bus fire suppression system do?

Ardent's engine compartment fire suppression system can be linked to our driver messaging unit. This allows audible warnings to be delivered to the bus driver through a speaker installed in their cab, alerting the driver if a fire or high temperature condition is detected.



Reliable operation without false discharges

The linear heat detection cable provides rapid fire detection while protecting against false discharges commonly caused by loss of pressure in tube systems.



Voice driver alerts through in cab messaging system

The driver message unit communicates system status and alerts the driver in the event of engine bay high temperature, low pressure in the system, or other incidents.



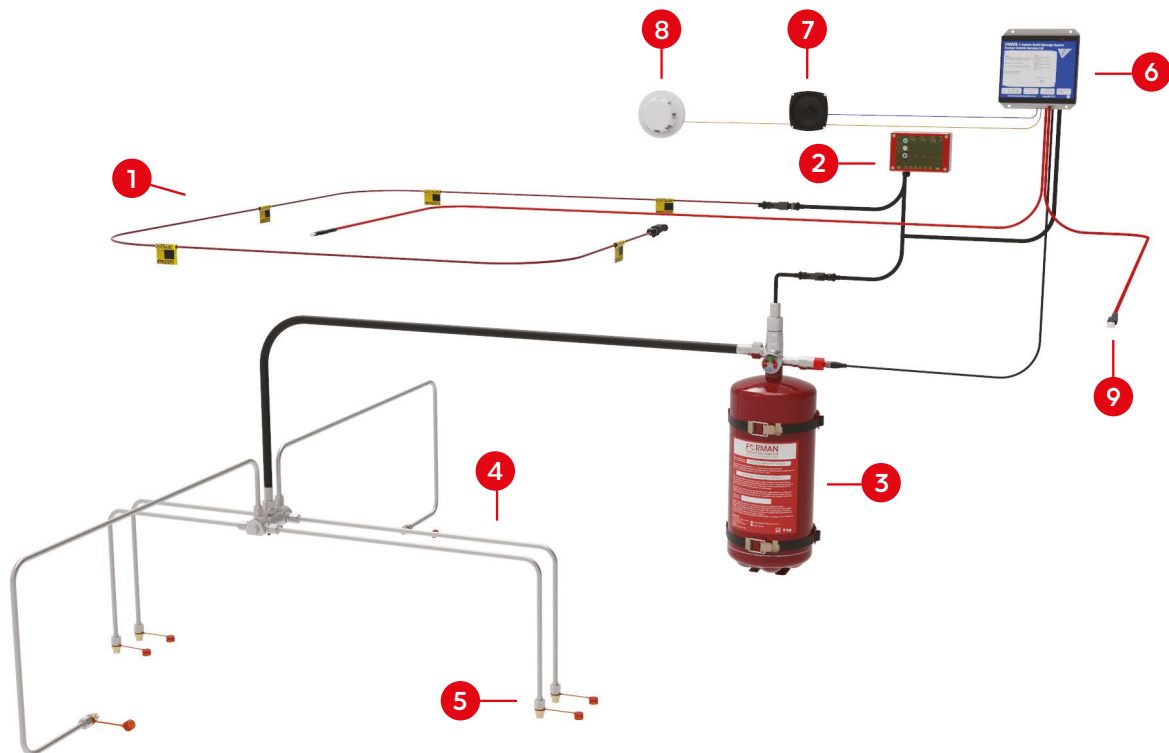
Engine bay temperature rise pre-warning

The system delivers warning messages to the driver in the event of a rapid temperature rise in the engine compartment, allowing the driver to act rapidly.

How does it work?

The Ardent R107-approved bus fire suppression system uses Linear Heat Detection Cable (1) that is routed around the fire hazard areas in the engine compartment. When the cable is exposed to a fire, it sends a signal to the Control Module (2). The Control Module then initiates the system discharge. This process is extremely quick, allowing the system to actuate immediately to put out the fire in a matter of seconds.

The Dry Chemical ABC suppression agent contained in the tank (3) travels through the distribution network (4) and is discharged through critically located nozzles (5) aimed at the identified fire hazards in the engine compartment. The system offers an optional output to interface with the vehicle or with the Driver Messaging Unit (6).



Ardent R107-approved bus fire suppression system layout sample

- | | |
|-------------------------------|--|
| 1 Linear heat detection cable | 6 Driver messaging unit (optional) |
| 2 Control module | 7 Driver's cab speaker (optional) |
| 3 Dry chemical agent tank | 8 Smoke alarm |
| 4 Distribution network | 9 Temperature rise pre-warn cable and detectors (optional) |
| 5 Discharge nozzles | |

Why dry chemical suppression agents?

Also known as dry powder, dry chemical is the world's most widely used suppression agent in the vehicle fire suppression market. In a study⁽¹⁾ commissioned by the Fire Protection Research Foundation analysing the impact of various suppression agents on Class A materials, ABC dry chemical showed the fastest extinguishing time using the least amount of agent.

Compared to water mist, the dry chemical agent was able to extinguish the fire in half the time, using half the quantity of agent. Ardent ABC dry chemical is highly effective at tackling most types of fires – including Class A, Class B, Class C, and electrical fires. This includes fires caused by a number of sources, such as combustible materials, flammable liquids, gases, and electrical hazards.

Test number	Suppression agent	Extinguishing time (sec)	Extinguisher Discharge time (sec)	Agent discharged (kg)
1B	ABC dry chemical	3	33	4.5
2B	Water mist	6	88	9.0
3B	Halotron I	3	13	7.0
4B	FE-36	4	14	6.0

⁽¹⁾ Scheffey, J.L. and Forssell, E.W., "Measuring the Impact of Fire Extinguisher Agents on Cultural Resource Materials – Final Report," Fire Protection Research Foundation, Quincy, MA, February 2010.

Why dry chemical suppression agents?

Rapid fire detection

The detection cable detects the fire instantly, sending a message to the control module to initiate the system discharge - putting out the fire in a matter of seconds.

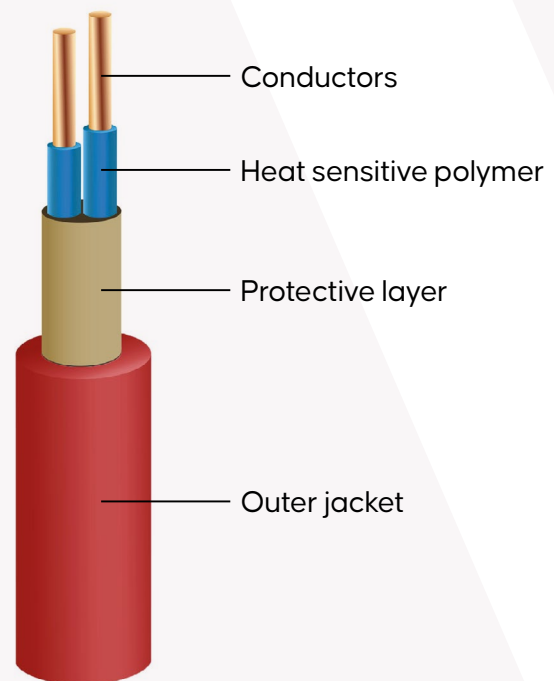
Easy and safe to install

For ease and safety, the detection cable can be routed around the fire hazards in the engine compartment, without the dangers posed by pressurised systems.


Reliable operation

To significantly reduce false discharges, the cable differentiates signals caused by problems such as a trapped, damaged, or cut pressurised tubes from a high temperature or fire signal. Only a fire will melt the heat sensitive polymer that separates the conductors. Once the polymer melts, the conductors initiate contact with one another and communicate with the control module to discharge the system.

Linear heat detection cable



Key technical specification

Fire detection method	Linear heat detection cable
Suppression agent	Dry chemical ABC powder
Suppression agent quantity	9 kg (4m ³ engine compartment) 12 kg (6m ³ engine compartment)
Number of discharge nozzles	6 nozzles for 9 kg agent tank 8 nozzles for 12 kg agent tank
Agent tank construction	Stainless steel with red corrosion resistant paint
Nozzle discharge patterns	180° high-dispersion nozzle
Operating temperature range	-30°C to +60°C
Bump testing (EN 60068-2-27)	50 g
Shock testing (EN 60068-2-27)	40 g
Vibration testing (EN 60068-2-6)	5 – 200 Hz, 10g , amplitude ≤ ± 15 mm 200 – 500 Hz, 5g
Certifications and approvals	E5 Approval - UNECE Regulation 107 compliant CE marked 

For the complete technical specification and operating instructions, please get in touch.

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For help protecting vehicles
and people against the risk
of fire around the clock, call
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