700 Series conventional detectors - Marine

The 700 series detectors are microprocessor-based conventional fire detectors.

There are five models in the 700 series detector range, which measure and respond to certain parameters. Depending on the model, the following parameters are monitored:

- Smoke density
- Temperature
- Rate of rise of temperature

Devices summary

Model	Detector	Order number	Approvals
711P	Optical	516.900.101	EN54-7:2018
711PH	Optical with heat enhancement	516.900.102	EN54-7:2018, EN54-29:2015
711H	Heat rate of rise (A1R)	516.900.103	EN54-5:2017 + A1:2018
712H	Heat fixed 60°C (A1S)	516.900.104	EN54-5:2017 + A1:2018
713H	Heat fixed 90°C (CS)	516.900.105	EN54-5:2017 + A1:2018

Operation

The 700 series detectors are for use in conventional two wire detection systems, where detectors are normally connected in zones. Each detector samples the ambient air every five seconds and if a fire condition is detected, a signalling current is drawn from the zone causing the Control and Indicating Equipment (fire alarm panel) to provide an alarm response for that zone.

700 series smoke detectors

- 711P operates by sensing the optical scatter from smoke particles generated in a fire.
- 711PH operates by sensing the optical scatter from smoke particles generated in a fire, and a rapid rate of rising temperature increases the smoke detection sensitivity.

Note: The 711PH detector will not raise a signal on temperature alone, and is not designed to comply with the EN54-5 standard for heat detectors.
The 700 series heat detectors include both Rate-of-Rise and Static (fixed temperature) types.These detect abnormally high rates of rising temperature and abnormally high temperatures respectively.

- 711H uses both rate-of-rise and fixed temperature sensing. The 711H is a category A1R heat detector. A1 denotes a static response temperature of 54°C to 65°C (EN54-5).The suffix R denotes a rate-of-rise characteristic, but the fixed element provides a backstop for fires where the temperature builds up gradually.
- 712H uses fixed temperature sensing. The 712H is a category A1S heat detector. A1 denotes a static response temperature of 54°C to 65°C (EN54-5). The suffix S denotes that the detector does not respond at a lower temperature, even at high rates of rising air temperature.
- 713H uses fixed temperature sensing. It is a category CS heat detector. C denotes a static response temperature of 84°C to 100°C (EN54-5). The suffix S denotes that the detector does not respond at a lower temperature, even at high rates of rising air temperature.

Installation

Base

The 700 series conventional detectors are plug-in detectors for ceiling mounting. The detectors plug into a 4B Base or a 4B-D Conventional Diode Base. Also, the detectors are compatible with the legacy 5B Base and 5BD Diode Continuity Base.

Wiring

The detector circuit requires only a positive and negative supply from the control and indicating panel and these are wired to terminals L1 and L on the base. A bridge circuit in the detector makes the detector polarity insensitive.

When a detector is fitted to provide continuity monitoring through the detector, base terminal L1 is connected to base terminal L2. Base terminals L2 and L provide outputs to the next detector or an end-of-line (EOL) device.

A drive is provided for a remote indicator LED connected between supply +ve and terminal R. Therefore, at a detector where a remote indicator is connected, the polarity of the supply must be known.

Fitting a detector

1 Install and connect base wiring according to the instructions supplied with the base.
2 Identify the raised rib alignment markers on the edge of the detector and base.
3 Position the detector marker approximately 15mm or 15° anti-clockwise from the base marker.
4 Rotate the detector clockwise to mate it to the base. Ensure that the detector rib and base rib are aligned with each other.

Summary tables

The following tables show the features, functions and characteristics of the 700 series models.

	711P	711PH	711H	712H	713H	Units
Smoke (optical) sensing	•	•				

	711P	711PH	711H	712H	713H	Units
Heat rate-of-rise sensing		#	●			
Heat fixed (static) temperature			●	●	●	
Integral red LED for alarm indication	●	●	●	●	●	
Connection for a remote indicator	●	●	●	●	●	
Threshold compensation	●	●				
Mass*	92	92	81	81	81	grams
EN54-5 heat detector category			A1R	A1S	CS	
EN54-5 static response temperature			+54 to +65	+54 to +65	+84 to +100	°C
EN54-5 maximum application temperature**			+50	+50	+80	°C
Operating temperature***	-20 to +70	-20 to +70	-20 to +70	-20 to +70	-20 to +80	°C
Relative Humidity (RH)	95% non-condensing					%RH
Storage temperature	-25 to +80					°C
Dimensions	Diameter 108, Height 42 (55 with a 4B base)					mm
Material	Outer cover: white flame retardant PC-ABS					
Shock, Vibration, Impact, Corrosion, EMC	To applicable EN54 standard (EN54-5 or EN54-7 or EN54-29)					
Ingress Protection IP-rating****	IP44	IP44	IP55	IP55	IP55	

The PH detector uses a temperature rate-of-rise to increase the smoke detection sensitivity. However, the PH detector will NOT signal a fire condition on the temperature rate-of-rise.

*Mass of the detector. Add 46 grams with a 4B base.

**Do not expose a heat detector to temperatures above the maximum application temperature, even for short periods of time, in the absence of a fire condition. Ambient conditions must always be at least 4°C below the minimum value of the heat detector's static response temperature.

***The maximum operating temperatures quoted are those at which the detector may sustain permanent damage. The maximum ambient temperatures at which the detectors may be used, without high false alarm rates, are dependent upon the detector type. Operation below 0°C is not recommended unless steps are taken to eliminate condensation and ice formation on the detector.

****IP-rating when installed using a 4B-DHM 4" Deck Head Mount. During installation, carefully maintain the ingress protection; for example, the cable glands must also be IP-rated.

Characteristics	Minimum	Typical	Maximum	Units
Operating voltage (dc)	10.5	24	33	V
P model		50		µA
Average quiescent current PH model		60		µA
H models		37		µA
Switch on surge			200	µA
Stabilisation time		30		seconds
Alarm current*	65mA @30V, 35mA @20V, 12.5mA @12V			mA
Reset voltage		6.9		V
Reset time	2			seconds
Remote LED drive	Pulls low from line +ve via 1k (see note below**)			

*Alarm current excluding remote LED current.

****Note:** A drive is provided for a remote indicator connected between the positive supply and the R terminal. Therefore, the polarity of the supply must be known at a detector where a remote indicator is connected.

Approvals

	CE 2831 UKCA 0832 TYCO FIRE & SECURITY GMBH NEUHAUSEN AM RHEINFALL 8212 SWITZERLAND 2831/20 0832/21	CPR APPROVALS			EUROPEAN APPROVALS		MARINE APPROVALS BS IEC 60092-504:2016 / BS IEC 60533-2015 / E10 IACS						
		EN54-7:2018	EN54-29:2015	EN54-5:2017+A1:2018	LPCB	VDS	MED/UK-MED	CCS	KRS	ABS	BV	DNV GL	LRS
711P	DOP-2020-4271 / 2831-CPR-F4423 / 2831-MED-1103 Module B / 0832-UKCA-CPR-F0091 / 0832-UKCA-MED-F1004	●			●		●	●	●	●	●	●	●
711PH	DOP-2020-4272 / 2831-CPR-F4431 / 2831-MED-1105 Module B / 0832-UKCA-CPR-F0088 / 0832-UKCA-MED-F1003	●	●		●		●	●	●	●	●	●	●
711H	DOP-2020-4273 / 2831-CPR-F4427 / 2831-MED-1104 Module B / 0832-UKCA-CPR-F0100 / 0832-UKCA-MED-F1005			●	●		●	●	●	●	●	●	●
712H	DOP-2020-4274 / 2831-CPR-F4428 / 2831-MED-1104 Module B / 0832-UKCA-CPR-F0101 / 0832-UKCA-MED-F1005			●	●		●	●	●	●	●	●	●
713H	DOP-2020-4725 / 2831-CPR-F4429 / 2831-MED-1104 Module B / 0832-UKCA-CPR-F0102 / 0832-UKCA-MED-F1005			●	●		●	●	●	●	●	●	●

120.515.978_700-D-M-DS. doc. version 4.0. 3. November 2021.

Tyco Fire & Security GmbH, Victor von Bruns-Strasse 21, 8212 Neuhausen am Rheinfall, Switzerland