



Product Data Sheet: FlatMesh Crack Sensor Node

The FlatMesh Crack Sensor Node interfaces to a linear displacement sensor. Its high precision sampling circuit powers the sensor and reports its measurements through Senceive's FlatMesh wireless communications network to a FlatMesh Gateway.

It has been successfully used in many applications, including those measuring:

- Crack movement
- Pile separation
- Structural movement
- Expansion joint monitoring

Key Features

- Waterproof, robust connectors for simple installation
- Automatic sensor type detection
- Extremely low noise performance
- 16-bit resolution (65,536 steps over the full scale)
- Integrated long life battery
- 12-15 years' battery life, including when acting as a relay node within the mesh communications network
- Integrated temperature sensor
- One and two channel variants readily available
- Waterproof to IP66 / IP67 / IP68
- Firmware is remotely upgradeable over the air via the gateway reducing costly site visits
- Variety of fixings available for easy installation on site



CONTACT US

For information on our award-winning wireless asset condition monitoring solutions, call **+44 (0) 207 731 8269**, email **info@senceive.com**, visit **www.senceive.com**

Specifications

Physical Specifications

	FM3N-CS/CS2	FM3N-CS4
Dimensions excluding antenna and vent	90 x 90 x 60 mm	90 x 130 x 50 mm
Dimensions excluding antenna	90 x 96 x 60 mm	90 x 136 x 50 mm
Total Mass	0.57 kg	0.75 kg
Housing Material	Die cast aluminium body	
International Protection Marking	IP66 / IP67 / IP68 (1m for 24 hours)	
Mounting Options	1/4" UNF holes in bottom, M4 blind holes in side	
Operating Temperature Range	-40°C to +85°C	

Internal Battery

	FM3N-CS/CS2	FM3N-CS4
Battery Type	Lithium Thionyl Chloride, non-rechargeable	
Nominal Voltage	3.6V	
Nominal Capacity	19000mAh	34400mAh
Typical Battery Life	12-15 years at 30 minute reporting intervals, including when acting as a relay node. Consult with Senceive for your application.	

FlatMesh Radio Specifications

Communication Type	Proprietary FlatMesh v3 Mesh Networking Protocols IEEE 802.15.4 compliant
Frequency Band	2400 - 2485 MHz ISM Band
Maximum Transmit Power	6.5dBm (EN 300 328 v1.8.1)
Maximum Antenna Gain	2.2dBi
Range	Up to 300m depending on the environment and fitted antenna Consult with Senceive for your application
RF Module	Senceive FM3Node

Crack Sensor Interface

Circuit Topology	Voltage divider
Stimulus	2.5V, 100mA max
Resolution	0.0015% of full scale
Noise Level	0.005% of full scale (typical peak to peak)

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Certifications

- Tested to conformity with all the essential requirements of the Radio Equipment Directive 2014/53/EU and RoHS Directive 2011/65/EU
- FCC Grant of Equipment Authorization: FCC ID 2AMFBFM3N
- RCM (Australia and New Zealand)
- Tested to conformity with IEC61010-1:2010/AMD1:2016 for CB Test Certificate GB EMT 1477

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Ordering Information and Accessories

FM3N-CS	FlatMesh 3 Crack Sensor Node (one port)
FM3N-CS2	FlatMesh 3 Crack Sensor Node (two port)
FM3N-CS4	FlatMesh 3 Crack Sensor Node (four port)
FS-CS25	Potentiometric 25mm crack sensor IP67 rated, with 1 metre cable and connector Other cable lengths available on request Use with FF-CS1
FS-CS125	Potentiometric 125mm crack sensor IP67 rated, with 1 metre cable and connector Other cable lengths available on request Use with FF-CS1
FS-CS200	Potentiometric 200mm crack sensor IP67 rated, with 1 metre cable and connector Other cable lengths available on request Use with FF-CS1
FS-DW150	Potentiometric 150mm draw wire sensor IP65 rated, with connector fitted
FF-CS1	Crack Sensor mounting kit (pair)
FF-CS1-060	Crack Sensor mounting kit (pair, low-profile)
FF-MP-S360	Swivel mounting kit with 360-degree adjustment range Screw directly to vertical walls
FF-MP-V	Vertical mounting plate Use U-bolts to fix to poles or stakes Use glue to fix to walls where drilling is not permitted (Order with FF-MP-S360)
FF-MP-T2	Track bed mounting plate kit
FA-FM-WPS	Waterproof straight antenna Overall node height 168mm (approx) when fitted Maximum gain +1.1dBi
FA-FM-LPS	Waterproof low profile straight antenna Minimum overall node height, perfect for track bed and tight spots Overall node height 92mm (approx) when fitted Maximum gain 0dBi
FA-FM-ADJ	Adjustable angle antenna Flexible installation, perfect for use in tunnels and indoor environments Overall node height 202mm (approx) when fitted and upright Overall node height 102mm (approx) when fitted and at 90-degree angle Maximum gain +2dBi
FC-NC	Antenna cover kit Use with FA-FM-LPS antenna Overall node height 96mm (approx) when fitted

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