
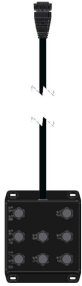




## Smart Flange

### Product Description

LOCTITE Pulse Smart Flange is an innovative solution for detecting liquid hydrocarbon leaks in flanges. The Smart Flange solution consists of a sensor, junction box, and edge device. The LOCTITE Pulse SE 1000 LD sensor utilizes a novel, patented nanocomposite technology that is capable of detecting a leak before it escapes into the environment. Sensor data is continuously acquired and analyzed by the LOCTITE Pulse EQ SE20 Edge Device. This edge device is maintenance-free and ATEX certified. The Pulse EQ SE20 Edge Device is battery powered. Cellular LTE communication provides communication independent of corporate or local networks. End-to-end encryption ensures state-of-the-art data security. The LOCTITE Pulse AC 200 Junction Box allows up to eight sensors connected to an edge device. The LOCTITE Pulse online platform enables operators and maintenance staff to monitor the status of their assets 24/7 via web or mobile application.

				
2821464 LOCTITE Pulse EQ SE20 Edge Device	2821465 LOCTITE Pulse AC 200 Junct Box	2821467 LOCTITE Pulse SE 1000 LD 300mm	2821468 LOCTITE Pulse SE 1000 LD 500mm	2821466 LOCTITE Pulse AC 100 Extender 5m

### Product Features

- Single-use, nanocomposite polymer sensors are sensitive to liquid hydrocarbons
- Two available sensor lengths for raised face flanges for nominal sizes DN20-DN300
- Integrated NTC thermistors provide temperature limit alerts
- IP67 rated sensor cable assembly withstands indoor and outdoor environments
- Easy-to-apply secondary containment helps contain small leaks<sup>1</sup>
- Optional 5-meter extension cable allows greater connection and mounting freedom
- Eight-channel junction box allows connection of multiple sensors
- Cellular LTE communication works independently of corporate or local networks
- Efficient operation thanks to intelligent division of edge and cloud-based analytics
- Certified ATEX zone protection

NOTE: <sup>1</sup>Secondary containment does not resist pressurized leaks

# Smart Flange

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**Technical Data:**LOCTITE Pulse EQ SE20 Edge Device:

Dimensions (L x H x W):	150mm x 220mm x 150mm
Battery voltage:	3.6V DC
Output voltage:	1.8V DC
Connector:	Round 18-pin, locking, IP67
Operating Temperature:	-40°C to +55°C (-40°F to +131°F)
Compliance:	Ex nA [nL] IIB T4 Gc II 3G Ex nA (ic) IIB T4 Gc FCC, IC CE RoHS IP67

LOCTITE Pulse AC 200 Junction Box:

Dimensions (L x H x W):	120mm x 83mm x 150mm
Connectors:	M12 4-pin male, A-coded plug
Number of Channels:	8
Channel Designation:	S0-S4: Hydrocarbon S5, S8; S6, S9; S7, S10: Hydrocarbon and temperature
Operating Temperature:	-40°C to +55°C (-40°F to +131°F)
Environmental:	IP67

LOCTITE Pulse SE 1000 300mm Sensor:

Overall Dimension (L x H x W):	320mm x 5mm x 8mm (Not including cable)
Sensing Area (L x W):	300mm x 5mm
Cable and Connector:	2m long, M12 4-pin socket, A-coded, IP67
Operating Temperature:	-40 °C to +80 °C continuous (-40°F to +176°F)
Hydrocarbon Detection:	C5-C20, liquid only
Sensor Resistance (kΩ):	100-350 <sup>LTS</sup>
Sensor Response, 98% Octane:	>50% in 60 seconds <sup>LTS</sup>

LOCTITE Pulse SE 1000 500mm Sensor:

Overall Dimension (L x H x W):	520mm x 5mm x 8mm (Not including cable)
Sensing Area (L x W):	500mm x 5mm
Cable and Connector:	2m long, M12 4-pin socket, A-coded, IP67
Operating Temperature:	-40 °C to +80 °C continuous (-40°F to +176°F)
Hydrocarbon Detection:	C5-C20, liquid only
Sensor Resistance (kΩ):	200-900 <sup>LTS</sup>
Sensor Response, 98% Octane:	>50% in 60 seconds <sup>LTS</sup>



### LOCTITE Pulse AC 100 Extender 5m:

Length:	5 meters
Connector A:	M12 4-pin socket, A-coded
Connector B:	M12 4-pin plug, A-coded
Operating Temperature:	-40 °C to +105 °C (-40 °F to +221 °F)
Compliance:	IP67

### NOTE:

1. Store products in the unopened package in a dry location. Optimal Storage: **8C to 21C**.  
**Storage below 8C or above 28C can adversely affect product properties.**
2. <sup>LTS</sup> = LOCTITE Test Specification

# Smart Flange

**Media Detection List:**

Common Name	Detectability	Common Name	Detectability
Acetic acid	No	Mineral oil	Yes
Acetone	No	Nonane	Yes
Acrylonitrile, 99%	No	Octane	Yes
Alcohol, ethoxylated	No	Olive oil	No
Allyl alcohol	No	Paraffin liquid (heated)	Yes
Allyl chloride	Yes	Pentane	Yes
Aviation turbine fuels	Yes	Petrol fuels / Gasoline	Yes
C1-C4	No	Petroleum benzine (Naptha)	Yes
>C20	No	Propylene oxide	Yes
Castor oil	No	Pyrolysis gasoline, Pygas	Yes
Charcoal lighter fluid	Yes	Sodium hydroxide, 10%	No
Crude oil	Yes	Sour water	No
Cyclohexane	Yes	Sulfuric acid, 95%	No
Cyclohexanone	No	Toluene	Yes
Decane	Yes	Transformer oil	Yes
Diesel fuel	Yes	Vegetable oil	No
Di-isononyl Phthalate	No		
Engine Oil, mineral	Yes		
Engine Oil, synthetic	Yes		
Ethanol	No		
Ethyl acetate	Yes		
Ethylbenzene	Yes		
Fermapor K31-A-9020-19-R-VP7	No		
Fermapor K31-B-4	No		
Flare gas	No		
Gases, gaseous substances	No		
Gas oil	Yes		
Heat transfer oil	Yes		
Heptane	Yes		
Hexane	Yes		
Hydraulic oil	Yes		
Hydraulic oil	Yes		
Isopropanol	No		
Kerosene	Yes		
Methanol	No		

For other hydrocarbons not listed above, please contact Henkel Application Engineering.

**Required Components (Sold Separately):**

Item	Description	IDH#
1a.	LOCTITE Pulse SE 1000 LD 500mm <sup>2</sup>	2821468
1b.	LOCTITE Pulse SE 1000 LD 300mm <sup>2</sup>	2821467
2	LOCTITE Pulse AC 200 Junction Box	2821465
3	LOCTITE Pulse EQ SE20 Edge Device	2821464
4a.	LOCTITE SI 5075, 1in. wide x 10ft. long <sup>3</sup>	1540599
4b.	LOCTITE SI 5075, 2in. wide x 35ft. long <sup>3</sup>	2851607
4c.	LOCTITE Composite Pipe Repair System	Contact Henkel Engineering
5	LOCTITE Pulse SV LD Flange Subscription	2827043

**NOTE:**

1. Items 1-5 are required for a complete system.
2. Use Pulse SE 1000 LD 300mm sensor for flange sizes DN20 up to DN150. Use Pulse SE 1000 LD 500mm sensor for flange sizes DN150 up to DN300.
3. Use LOCTITE SI 5075 1" wide for flange gaps 8mm and below.

**Optional Accessories:**

Item	Description	IDH#
1	Pulse AC 100 Extender 5m	2821466

**Mounting:**

Mounting hardware is customer-supplied. Henkel recommends strut U-channel and round clamps for mounting edge devices.

### Dimensions:

### LOCTITE Pulse EQ SE20 Edge Device:

REVISIONS					
LTR	DESCRIPTION	ECN	NAME	DATE	CHK
A	RELEASE TO PRODUCTION		REA	04/06/2022	

POWER: 3.6VDC, 2W (MAX.)  
Ex nA [nL] IIB T4 Gc  
II 3G Ex nA (ic) IIB T4 Gc  
IP67

WARNING: EXPLOSION HAZARD  
- Do not open - no serviceable parts inside - Only the electrical aspects of this UNIT have been evaluated by QPS for hazardous locations - Do not connect or disconnect unless it's known to be non-hazardous - Pin 4 and 15 is a dry contact and must come from a non-inductive source (Um=5V, If=20mA) - Sensor cable should be limited to maximum 600mH and 60µF

ITEM NO.	DrawingNumber	PartName	QTY.
1	9053082	Loctite PULSE EQ SE20 Edge Device Sub-Assembly	1
2	988688	Transit-Ready Equipment Packaging specifications	1
3	8903744	Global Equipment Barcode Labeling Specifications	1
4	9053080	Operating Manual	1
5	9053070	Product Description Sheet	REF

THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED	NAME	DATE
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	DO NOT SCALE DWG.	CHK.	
	MATERIAL	APPR.	
	FINISH	MODEL	

<p><b>LOCTITE</b> ROCKY HILL, CT 06067</p>	
<p>TITLE: Loctite PULSE EQ SE20 Edge Device</p>	
FSCM NO. 05972	DWG. NO. 9052686
IDH. NO. 2821464	SHEET 1 OF 1

NOTE: Minimum 150mm clearance below edge device is required for junction box cable and connector

### LOCTITE Pulse AC 200 Junction Box:

REVISIONS					
LTR	DESCRIPTION	ECN	NAME	DATE	CHK
A	RELEASE TO PRODUCTION		REA	04/07/2022	

18-PIN CONNECTOR, FEMALE, IP67 TO LOCTITE PULSE EQ SE 20 EDGE DEVICE

4-PIN CONNECTOR, A-CODED MALE, M12, IP67 BX TIP

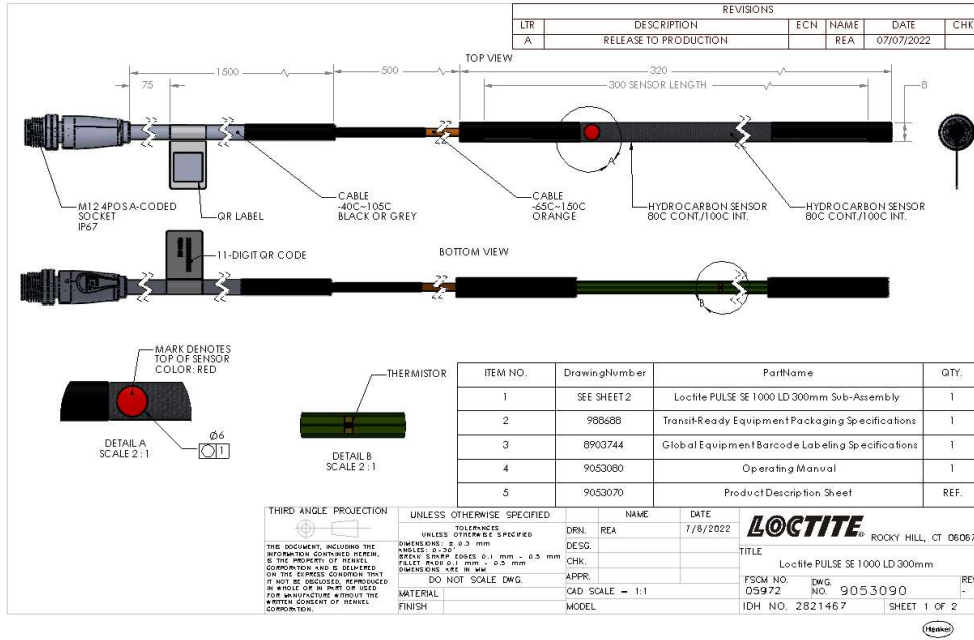
CHANNEL DESIGNATION  
S1-S4 HYDROCARBON  
S5-S7-S10 HYDROCARBON AND TEMPERATURE

ITEM NO.	DrawingNumber	PartName	QTY.
1	9053107	Loctite PULSE AC 200 Junction Box Sub-Assembly	1
2	988688	Transit-Ready Equipment Packaging Specifications	1
3	8903744	Global Equipment Barcode Labeling Specifications	1
4	9053080	Operating Manual	1
5	9053070	Product Description Sheet	REF

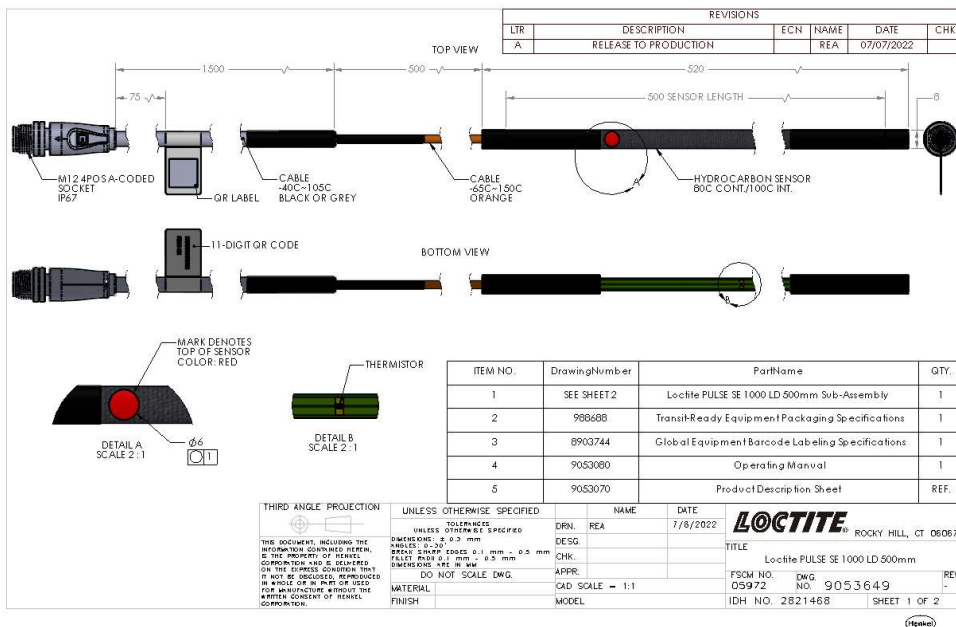
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	DO NOT SCALE DWG.	CHK.	
	MATERIAL	APPR.	
	FINISH	MODEL	

<p><b>LOCTITE</b> ROCKY HILL, CT 06067</p>	
<p>TITLE: Loctite PULSE AC 200 Junction Box</p>	
FSCM NO. 05972	DWG. NO. 9052696
IDH. NO. 2821465	SHEET 1 OF 1

### LOCTITE Pulse SE 1000 300mm Sensor:



### LOCTITE Pulse SE 1000 500mm Sensor:




## Smart Flange

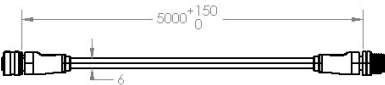
### LOCTITE Pulse AC 100 Extender 5m:


REVISIONS					
LTR	DESCRIPTION	ECN	NAME	DATE	CHK
A	RELEASE TO PRODUCTION		REA	07/07/2022	



4POS A-CODED M12  
NOT TO SCALE






4POS A-CODED M12  
NOT TO SCALE



  

WIRING DIAGRAM		
1	RED	1
2	YELLOW	2
3	BLACK	3
4	WHITE	4
SHELL	SHIELD/DRAIN	SHELL

NOTES:  
 250V, 4A  
 TEMPERATURE: -40C~105C  
 OIL RESISTANT UP TO 60C  
 WATER RESISTANT UP TO 75C  
 UV RESISTANT  
 RoHS COMPLIANT

ITEM NO.	DrawingNumber	PartName	QTY.
1	SEE PAGE 2	Loctite PULSE AC 100 Extender 5m Sub-Assembly	1
2	988688	Transit-Ready Equipment Packaging Specifications	1
3	8903744	Global Equipment Barcode Labeling Specifications	1
4	9053080	Operating Manual	1
5	9053070	Product Description Sheet	REF

UNLESS OTHERWISE SPECIFIED TOLERANCES .XX - ± 0.10 FRACTIONS - ± 1/64 .XXX - ± 0.05 ANGLES - 0°-30° BREAK SHARP EDGES .005-.020 FILLET RADII .005-.020 DIMENSIONS ARE IN INCHES DO NOT SCALE DWG.	DRN. REA DESG. CHK. APPR. MATERIAL FINISH	NAME DATE 7/8/2022	 ROCKY HILL, CT 06067 TITLE Loctite PULSE AC 100 Extender 5m FSCM NO. 05972    DWG. NO. 9053654    REV. - IDH NO. 2821466    SHEET 1 OF 2
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**Disclaimer**

HENKEL warrants that the Products, at date and place of shipment to purchaser, conform to the specifications which are spelled out in this Operating Manual ("**Loctite Test Specifications**"), and which is updated from time to time.

Each Loctite Test Specification is being individually marked as "LTS" in this Operating Manual and conclusively describe the quality standard of the individual Product. Henkel makes no warranty of merchantability or fitness for a particular purpose nor is there any other express or implied warranty.

A claim of defect shall be allowed only when it is submitted in writing with in one month after discovery of the defect and in any event, within six (6) months after the delivery of the Products to the purchaser. No such claim shall be allowed in respect of Products which have been neglected or improperly stored, transported, handled, installed, connected, operated, used or maintained. This does in particular apply in case purchaser is not able to prove that it has adhered to the requirements of this Operating Manual. In the event of unauthorized modification of the Products, no claim shall be allowed.

No Products shall be returned to Henkel for any reason without prior written approval from Henkel. Products shall be returned freight prepaid, in accordance with instructions from Henkel.

The information provided in this Operating Manual is based on our current knowledge and experience. Due to the different working and application possibilities and the working and application conditions beyond our control, we do not assume any liability for the suitability of our Products and our service for a particular purpose, for the relevant production processes under the specific working conditions as well as the intended processing purposes and results. In order to ensure such suitability, we recommend sufficient own trials and tests in any case.

Any liability resulting from the instructions in this document and any other written or verbal advice for the product at hand is expressly excluded, unless otherwise agreed in an individual written contract, in the event of injury to life, limb or health, in the event of intent or gross negligence on our part, or in the event of liability under mandatory product liability law.

Henkel does not warrant that the LOCTITE Pulse Solution, the Services and/or the results will be uninterruptedly available and/or error-free.

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