

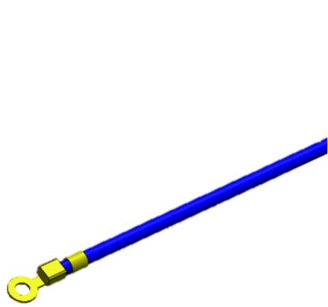



## Smart Steam Trap

### PRODUCT DESCRIPTION

LOCTITE Pulse Smart Steam Trap is an innovative solution to monitor the integrity of steam traps. Failures like “Blow through” and “Stuck closed” are detected at an early stage. The artificial intelligence based alert system of the LOCTITE Smart Steam Trap supports timely maintenance, energy savings and CO2 emission reductions. The Smart Steam Trap solution is composed of two temperature sensors, one for the steam trap’s inlet and one for the outlet, both attached to a Data Acquisition Unit (DAU). A Gateway is used to bundle and forward the data. LOCTITE Pulse Smart Steam Trap sensors utilize a novel, patented technology that can detect the blow through and blocked issues in steam traps. The sensor signal is continuously acquired and analyzed by the LOCTITE Pulse DAU. This DAU is maintenance-free and available in standard or ATEX certified versions. The LOCTITE Pulse DAU is battery powered. Cellular LTE communication provides in general reliable data transmission independent of corporate or local networks. End-to-end encryption ensures state-of-the-art data security. The Gateway allows up to 9 DAU’s to be connected to the LOCTITE Pulse online platform. The LOCTITE Pulse online platform enables operators and maintenance staff to monitor the status of their assets 24/7 via web or mobile application.

			
LOCTITE Pulse ED 100 DAU	LOCTITE Pulse ED 100 DAU Ex	LOCTITE Pulse SE 1000 DD Temp Sensor	LOCTITE Pulse ED 20 GW - Gateway

## Smart Steam Trap

---

### PRODUCT FEATURES

- Temperature sensors that sample the inlet and outlet of steam traps continuously. Patterns are being analyzed by using artificial intelligence.
- Steam traps in scope:
  - Thermostatic steam traps, e.g. Bimetallic
  - Thermodynamic Steam Traps
  - Mechanical Steam Traps, e.g. Inverted Bucket, Floating Ball
- Maximum Steam Trap temperature is 250°C
- Easy plug in and out between sensor and DAU to enable replacement of the steam trap as needed
- IP65 rated sensor cable assembly withstands indoor and outdoor environments
- Easy-to-apply 15 min installation for steam trap system
- Compatible with a wide range of inlet / outlet pipe sized up to 4" or above
- Gateway allows connection of up to 9 Smart Steam Traps
- High-capacity batteries and low power consumption of the LOCTITE Pulse DAU
- Cellular LTE communication works independently of corporate or local networks
- Efficient operation thanks to intelligent division of edge and cloud-based analytics
- Compliant with state-of-the-art IT security standards
- ATEX and IECEx certified version available



## Smart Steam Trap

### TECHNICAL DATA

#### LOCTITE Pulse SE 1000 DD Temp Sensor – Temperature sensor


Operating temperature	-20 °C to 250 °C
Temperature accuracy LTS	± 2°C
Temperature sensing mechanism	NTC
Cable length	860mm
Cable high temp side (blue)	max. temp 250°C
Cable low temp side (black)	max. temp 150°C
Connector type	DIN M5 male, IP67
Connector max temperature	150°C

#### LOCTITE Pulse ED 100 DAU DD – Data Acquisition Unit

Dimensions	83 x 51 x 56mm
Battery voltage	3.6 V
Operation temperature	-40 °C to 80 °C
Cable length	170mm
Cable heat resistance	80°C
Connector type	DIN M5 male, IP67
Connector max temperature	80°C
Wireless Connection Protocol	Bluetooth 5
Connection Distance to Gateway	10 m
Compliance	CE RoHS IP65  II G Ex ib IIC T4 Gb*  II D Ex ib IIIB IP65 T135°C Db*

\*Only the black Ex version LOCTITE Pulse ED 100 DAU DD HH EX has the Ex compliance

#### LOCTITE PULSE ED 20 GW EU & LOCTITE PULSE ED 20 GW NA

Dimensions	298 x 134.5 x 137mm
Power input	100-240 VAC, 47-63 Hz
Power output	None
Operation temperature	-25 °C to 70 °C
Compliance	IP66  II3G EX nA IIC T4 UL 121201 CLASS I , DIV 2, GROUPS A,B,C &D, T4

#### NOTE:

1. Store products in the unopened package in a dry location. Optimal Storage: **8C to 21C**.
2. <sup>LTS</sup> = LOCTITE Test Specification

## Smart Steam Trap

**Available Components:**


Item	Description	Henkel Name
1	LOCTITE Pulse DAU with 2 x Temp Sensors	LOCTITE Pulse ED 100 DAU DD HH
2	LOCTITE Pulse Ex DAU with 2 x Temp Sensors	LOCTITE Pulse ED 100 DAU DD HH EX
3	LOCTITE Pulse Gateway EU Version	LOCTITE PULSE ED 20 GW EU
4	LOCTITE Pulse Gateway NA Version	LOCTITE PULSE ED 20 GW NA
5	LOCTITE Pulse DAU Subscription	LOCTITE Pulse SV Steamtrap Subscription
6	LOCTITE SI 5075, 1in. wide x 10ft long Red	LOCTITE SI 5075 RD 4,27M EGFD
7	LOCTITE EA 9497 50ml Epoxy Adhesive *or equivalent	LOCTITE EA 9497 DC50ML EN/DE

**Optional Accessories:**

Item	Description	IDH#

**Mounting:**

The LOCTITE Pulse SE 100 DAU units are all supplied with a mounting bracket. The bracket can be mounted to any suitable vertical or horizontal surface by using cable ties to secure it to the surface. The bracket itself can be rotated by releasing the 10mm nut on the underside.

 Stainless Steel cable ties should be used where possible instead of plastic.

## Smart Steam Trap

### Dimensions:

### LOCTITE Pulse ED 100 DAU:

**REVISIONS**

REV	DESCRIPTION	ECN	NAME	DATE	CHK
1	RELEASE TO PRODUCTION		SD	12/27/2023	

**NOTES:**

- OPERATING TEMPERATURE RANGE: -40 TO 80°C.
- WIRE LENGTH FROM DAUS BACK TO ENDS OF CONNECTORS: 170±15mm
- CABLE TEMPERATURE RANGE: -40 TO 80°C.
- CONNECTOR TYPE: DIN M5 IP67-FEMALE.
- ATEX:
  - Ex Ib IIC T3 Gb;
  - Ex Ib IIB IP65 T135°C Db.
- STORAGE:
  - TEMPERATURE: -30°C +30°C.
  - HUMIDITY <75% ANNUAL MEAN.
  - DO NOT STORE EXPOSED TO DIRECT SUNLIGHT.

**THIS ANGLE PROJECTION**

**UNLESS OTHERWISE SPECIFIED**

DRN: SD  
 DESG: **LOCTITE**  
 CHN: **Smart Steam Trap**  
 APPR: **SD**  
 CAD SCALE: 1:1  
 MODEL:

ITEM NO.	Drawing Number	Part Name	QTY.
1	904292	LOCTITE PULSE ED 100 DAU DD	1
2	904214	LOCTITE PULSE SE 1000 DD Temp	2

COLOR	INLET CHANNEL	OUTLET CHANNEL
BLACK	COMMON	COMMON
WHITE	SD	SA
RED	SI	SA
GREEN	SI	SA

SCALE: 1:1

LOCTITE logo and text: **LOCTITE** Safety Mill, CT, 06897  
 TITLE: LOCTITE PULSE ED 100 DAU DD HH  
 PSM NO. DWS: 05972 NO. 9054229  
 IDH NO. 2307711 SHEET 1 OF 1

### LOCTITE Pulse ED 100 DAU Ex:

**REVISIONS**

REV	DESCRIPTION	ECN	NAME	DATE	CHK
1	RELEASE TO PRODUCTION		SD	12/27/2023	

**NOTES:**

- OPERATING TEMPERATURE RANGE: -40 TO 80°C.
- WIRE LENGTH FROM DAUS BACK TO ENDS OF CONNECTORS: 170±15mm
- CABLE TEMPERATURE RANGE: -40 TO 80°C.
- CONNECTOR TYPE: DIN M5 IP67-FEMALE.
- ATEX:
  - Ex Ib IIC T3 Gb;
  - Ex Ib IIB IP65 T135°C Db.
- STORAGE:
  - TEMPERATURE: -30°C +30°C.
  - HUMIDITY <75% ANNUAL MEAN.
  - DO NOT STORE EXPOSED TO DIRECT SUNLIGHT.

**THIS ANGLE PROJECTION**

**UNLESS OTHERWISE SPECIFIED**

DRN: SD  
 DESG: **LOCTITE**  
 CHN: **Smart Steam Trap**  
 APPR: **SD**  
 CAD SCALE: 1:1  
 MODEL:

ITEM NO.	Drawing Number	Part Name	QTY.
1	904229	LOCTITE PULSE ED 100 DAU DD	1
2	904214	LOCTITE PULSE SE 1000 DD Temp	2

COLOR	INLET CHANNEL	OUTLET CHANNEL
BLACK	COMMON	COMMON
WHITE	SD	SA
RED	SI	SA
GREEN	SI	SA

SCALE: 1:1

LOCTITE logo and text: **LOCTITE** Safety Mill, CT, 06897  
 TITLE: LOCTITE PULSE ED 100 DAU DD HH  
 PSM NO. DWS: 05972 NO. 9054229  
 IDH NO. 2307699 SHEET 1 OF 1



## Smart Steam Trap

### LOCTITE Pulse SE 1000 DD Temp:

34±1

SENSING ELEMENT

GREEN S2/S6 KEY RED S1/S5

WHITE S0/S4 BLACK-COMMON

SCALE 4:1

NOTES:

1. OPERATING TEMPERATURE RANGE : -30 TO 250 °C.
2. BLUE WIRE HEAT RESISTANCE UP TO 200 °C.
3. BLACK WIRE RESISTANCE UP TO 150 °C.
4. CONNECTOR MAX TEMPERATURE 80 °C.
5. CONNECTOR TYPE : DIN M5 MALE.
6. STORAGE: TEMPERATURE -30 °C +40 °C. HUMIDITY <75% ANNUAL MEAN. DO NOT STORE SENSOR EXPOSED TO HEAT OR DIRECT SUNLIGHT.

INLET CANNEL	OUTLET CANNEL	RESISTANCE AT 22°C TO 25°C
COMMON	COMMON	NA
S0	S4	110KΩ
S1	S5	NA
S2	S6	NA

UNLESS OTHERWISE SPECIFIED		NAME	DATE
TOLERANCES	DRN.	ZD	
.XX = ± 0.10 FRACTIONS = ± 1/64	DESIG.		
.XXX = ± 0.05 ANGLES = 0°-30°	CHK.		
BREAK SHARP EDGES .005-.020	APPR.		
FILLET RADII .005-.020	MATERIAL		
DIMENSIONS ARE IN INCHES	FINISH		

DO NOT SCALE DWG.

THIRD ANGLE PROJECTION

**LOCTITE** ROCKY HILL, CT 06067

TITLE  
LOCTITE PULSE SE 1000 DD Temp

FSCM NO. 05972 DWG. NO. 9054214 REV.

IDH NO. 2907673 SHEET 1 OF 1

### LOCTITE PULSE ED 20 GW EU & LOCTITE PULSE ED 20 GW NA

(134.50)

Ø8-12mm CABLE O.D.

**MOUNTING HOLE LOCATIONS FOR M6 OR 1/4 SCREW CAP**

0

111-4

(298)

(271)

LOCTITE PULSE

(137)

247 ± 1

Note: The Gateway has a special configuration for use with LOCTITE Pulse Smart Steam Trap

# Smart Steam Trap

---

## 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.

EXCEPT FOR THE EXPRESS WARRANTY CONTAINED IN THIS SECTION, HENKEL MAKES NO WARRANTY OF ANY KIND WHATSOEVER, EXPRESS OR IMPLIED, WITH RESPECT TO THE PRODUCTS.

THIS SECTION SETS FORTH EXCLUSIVELY ALL OF LIABILITY FOR HENKEL TO THE PURCHASER IN CONTRACT, IN TORT OR OTHERWISE IN THE EVENT OF DEFECTIVE PRODUCTS.

[www.loctite-pulse.com](http://www.loctite-pulse.com)