

N4587A Linear Heat Series Detection System

The N4587A Linear Heat Series is a fiber-optic linear heat detection system that can monitor several kilometers of fiber-optic cable, providing a continuous temperature profile along the entire length. A maximum of four sensor channels can be added to the unit to provide either four independent sensor channels or two independent sensor channels with redundant pathways. The unit is available in a 19-inch rack-mount enclosure (standard) or an IP66-rated outdoor enclosure.

The system is especially suited for harsh conditions like dirt, dust, humidity, electromagnetic or radioactive conditions, and for monitoring objects with high danger potential. It is also well suited for large-scale installations like transport tunnels, cable trays, conveyor belts, and large-scale building structures.



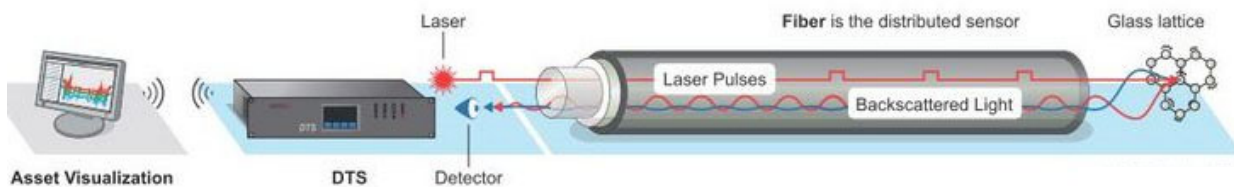
19 inch Rack Mount



Wall Mount

OPERATING PRINCIPLE

Each unit has an integral low-power laser source that generates an optical laser pulse that is sent through the fiber-optic cables. Some of the light from the optical laser pulse is scattered and reflected back to the unit. The unit analyzes the intensity of the returning optical signal for amplitude changes, indicating a temperature change along the sensor cable. The position of the temperature reading along the length of the fiber-optic cable is determined by measuring the arrival time of the returning light pulse, similar to a radar echo.



SPECIFICATIONS

Base Unit						
Distance Range	-R01	-R02	-R04	-R06	-R08	-R10
	1 km	2 km	4 km	6 km	8 km	10 km
Maximum Optical Loss Budget (one way) ^[1]	3 db	4 db	6 db	8 db	10 db	12 db
Optical Wavelength	1064 nm					
Minimum Sampling Interval	0.25 m					
Minimum Spatial Resolution	0.5 m					
Channel Options	1 (N4587A-C01) 2 (N4587A-C02) 4 (N4587A-C04)	8 (N4587A-C08) 12 (N4587A-C12) 16 (N4587A-C16)	24 (N4587A-C24)			
Available Measurement Time (seconds)	1 to 30		2 to 30		3 to 30	4 to 30
Available Measurement Modes	Single-ended (all controllers) Dual-ended loop with fiber break recovery (not on N4587A-C01)					
Interfaces						
Optical Connector / Sensor Fiber	E2000 APC, 8° angled / 50/125 μm graded-index MM (OM2/OM3/OM4), ITU-T G.651.1					
User Interface	Web browser interface TFT-Display 480 x 272 pixels 4 front LEDs for power measuring, fault, and alarm 3 rear LEDs for power OK, SD card removable, laser ON					
Computer Interface	2 x Ethernet (LAN 10/100/1000), USB A & B					
Data Storage Capacity	512 MB internal, USB HDD/SSD, SD/SDHC card slot					
Communication Protocol	SCPI, Modbus TCP (option N4587A-P01)					
Relays	Base unit provides 4 inputs and 10 volt-free contacts 30 VDC @ 1A max.					
Optional Relay Boards	Volt-free contacts, 30 VDC @ 1A max. Single Relay Board, option N4587A-SR0: 44 contacts Two Relay Boards, option N4587A-SRR: 88 contacts					
Power Supply						
Operating Voltage	10 V DC to 30 V DC					
Power Consumption at 20°C (68°F)	22 W average, <40 W maximum (all operating conditions)					
Housing and Environmental Conditions						
Housing Option	19" rack mount (N4587A-DR)		Outdoor enclosure (A45XXA) ^[2]			
Operating Temperature Range	-10°C to +60°C (14°F to +140°F)					
Storage Temperature Range	-40°C to +80°C (-40°F to +176°F)					
Operating Humidity Range	0% to 95% relative humidity, non-condensing					
Dimensions (H x W x D)	88 x 420 x 420 mm (3.46 x 16.54 x 16.54 in.)		473 x 420 x 105 mm (18.60 x 16.54 x 4.13 in.)			
Weight	5 to 7 kg (11.0 to 15.4 lbs.)		7 to 9 kg (15.4 to 19.8 lbs.)			
Safety						
Laser Safety Class	Class 1M laser product (IEC 60825-1:2014; EN 60825-1:2014; FDA 21CFR1040.10 + Laser Notice no. 50)					

[1] Certifications may require lower maximum permissible loss values of the sensor.

[2] IP66 housing options (wall or pole mount):

A4500A (with window) with operating temp. range -20° to +60°C

A4501A (without window) with operating temp. range -20°C to +60°C

A4502A (with insulation, without window) with operating temp. range -25° to +55°C

ORDERING

A base unit, sensor channel card, optional cards, and enclosure option must be ordered for a complete system.

PART NUMBER	DESCRIPTION												
BASE UNIT													
N4587A-XXX	Distributed Temperature Sensor unit (–XXX = units maximum measurement range)												
	<table border="1"> <tr> <td style="text-align: center;">-R01</td> <td style="text-align: center;">-R02</td> <td style="text-align: center;">-R04</td> <td style="text-align: center;">-R06</td> <td style="text-align: center;">-R08</td> <td style="text-align: center;">-R10</td> </tr> <tr> <td style="text-align: center;">1 km</td> <td style="text-align: center;">2 km</td> <td style="text-align: center;">4 km</td> <td style="text-align: center;">6 km</td> <td style="text-align: center;">8 km</td> <td style="text-align: center;">10 km</td> </tr> </table>	-R01	-R02	-R04	-R06	-R08	-R10	1 km	2 km	4 km	6 km	8 km	10 km
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1 km	2 km	4 km	6 km	8 km	10 km								
SENSOR CHANNELS^[1] [4]													
N4587A-C01	1 sensor channel with E2000 8° angle APC optical connectors ^[3]												
N4587A-C02	2 sensor channels with E2000 8° angle APC optical connectors ^[3]												
N4587A-C04	4 sensor channels with E2000 8° angle APC optical connectors ^[3]												
N4587A-C08	8 sensor channels with E2000 8° angle APC optical connectors ^[3]												
N4587A-C12	12 sensor channels with E2000 8° angle APC optical connectors ^[3]												
N4587A-C16	16 sensor channels with E2000 8° angle APC optical connectors ^[3]												
N4587A-C24	24 sensor channels with E2000 8° angle APC optical connectors ^[3]												
OPTIONAL CARDS^[1]													
N4587A-SR0	Relay board with 44 configurable alarm outputs ^[2]												
N4587A-SRR	Two relay boards with 88 configurable alarm outputs												
N4587A-P01	Modbus TCP/IP Interface (used to connect the unto to management systems)												
ENCLOSURE OPTIONS													
N4587A-DR	Indoor housing, 19" rack mount, 2HU ^[2] <ul style="list-style-type: none"> - Multicolor LCD - (HxWxD) 88 x 448 x 364 mm - 7 kg (complete instrument) 												
A4500A	Outdoor housing with window, IP66 rated, wall or pole mount <ul style="list-style-type: none"> - Coated steel, RAL 7035 - (HxWxD) 600 x 465 x 150 mm - 13 kg (without base unit) 												
A4501A	Outdoor housing, IP66 rated, wall or pole mount <ul style="list-style-type: none"> - Coated steel, RAL 7035 - (HxWxD) 600 x 465 x 150 mm - 13 kg (without base unit) 												
A4502A	Outdoor housing, insulated, IP66 rated, wall or pole mount <ul style="list-style-type: none"> - Coated steel, RAL 7035 - (HxWxD) 600 x 465 x 150 mm - 13 kg (without base unit) 												
A4503A	Outdoor housing, IP66 rated, wall or pole mount <ul style="list-style-type: none"> - 316L stainless steel, gas tight - (HxWxD) 600 x 500 x 210 mm - 4 x Hawke glands / plugs - 1 x LAN feed through adapter - Required option A4503A-EX2 - Available on request – 6 month approximate lead time 												

[1] Mounted internally in the unit.

[2] Standard unit component. No additional charge if ordered.

[3] Suitable for multi-mode GI 50/125 µm fiber.

[4] One sensor channel is required on each unit.