

TT420 Temperature Sensors



- Monitor temperature on a wide range of machinery
- Loop-powered sensors output standard 4-20mA signal
- Compatible with I.S. barriers, PLCs, meters and data acquisition systems
- Ready to use — no calibration required
- Simple and straightforward installation
- FM and UL approved to applicable standards
- Accurate and economical temperature monitoring

Product Information

Description

TT420 temperature sensors combine a sensor, signal conditioner and 2-wire loop-powered 4-20mA transmitter into a rugged and compact package. All models are compatible with standard 2-wire 4-20mA current loops and analog inputs and are identical with the exception of the measurement probes and fittings.

The **TT420Z** (Zerk Probe) mounts into 1/8" or 1/4" NPT grease-fitting (zerk) taps.

The **TT420S** (Stud Probe) screws into any surface with a 1/4 - 28 tap.

The **TT420F** (Flange Probe) mounts onto any flat surface with a #10 machine screw.

Standard TT420 temperature sensors can be used to monitor temperature on a wide range of industrial machinery including conveyors, bucket elevators, motors, gearboxes, pumps, turbines, fans, curing ovens, centrifuges, agitators and hammermills. When used with an approved I.S. barrier, standard TT420 sensors are UL listed in the US and Canada as intrinsically safe for use in Class I (Group C, D) and Class II (Group E, F, G).

TT420-LT (Liquid Tight) temperature sensors and fittings are optimized for grain handling facility shaft bearing (TT420Z-LT) and belt rub-block (TT420S-LT) temperature measurement. The TT420Z-LT (1/2" conduit thread) screws into a 1/8" NPT grease-fitting (zerk) tap. The TT420S-LT (1/2" conduit thread) models screw into a brass rub-block with a 3/8-16 tap.

TT420Z-LT and TT420S-LT models come with an integrated (1/2") conduit fitting for flexible liquid-tight conduit and are FM approved as Dust Ignition-proof for use in Class II and III, Div. 1 and 2, Group E, F, G Ratings when installed using Class II rated (1/2") flexible liquid-tight conduit. The TT420S-LT is available with the option of a lug mount adapter. All models come ready to use right out of the box, requiring no field-calibration.

Specifications • TT420 Temperature Sensors

Models

TT420Z 4" Probe (No zerk fitting)	800-001503
TT420Z 6" Probe (No zerk fitting)	800-001500
TT420Z 4" Probe (w/1/8" NPTF zerk fitting)	800-001504
TT420Z 6" Probe (w/1/8" NPTF zerk fitting)	800-001501
TT420Z 4" Probe (w/1/4" NPTF zerk fitting)	800-001505
TT420Z 6" Probe (w/1/4" NPTF zerk fitting)	800-001502
TT420F	800-001510
TT420S	800-001520

Specifications

Vin (min → max)	8 → 30 Vdc
Operating Temp	
-40°C → +120°C (-40°F → +248°F)	(measurement probe)
-20°C → +80°C (-4°F → +176°F)	(ambient)
Extended temperature ranges available, consult factory.	
Accuracy	± 1°C (at 25°C) ± 3°C (at -40°C, 120°C)

Cable (24 AWG)

Color Code	Brown (V+)
	Black (V-)
Length	10 ft.

Protection

Intrinsically Safe for use in Class I (Group C, D), Class II (Group E, F, G). Reverse-wiring protected.



I.S. Wiring Note

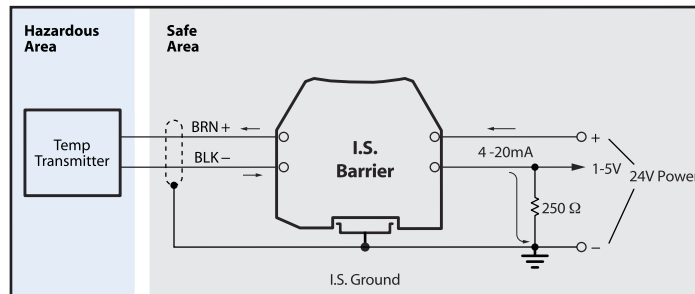
The DIN rail (I.S. Ground) must be insulated from the surrounding cabinet (and all other potentials) and connected to earth ground at the 24V supply only.

Recommended I.S. Barriers

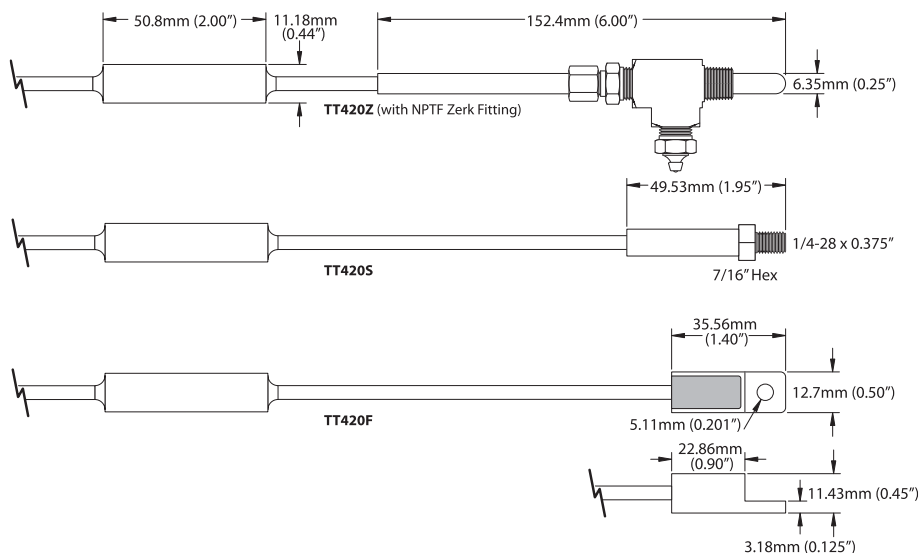
MTL	MTL7787, MTL7707P
Pepperl-Fuchs	Z787



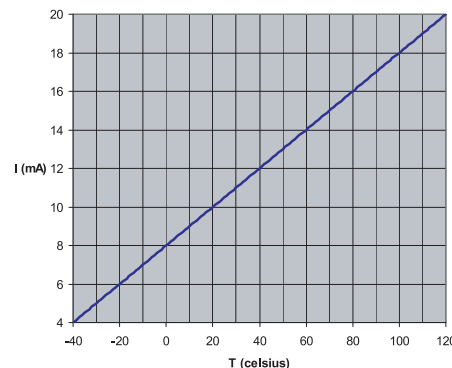
I.S. Wiring



Dimensions • TT420 Temperature Sensors (6" Probe shown below)



Sensor Output



Specifications subject to change without notice.

TT420Z-LT Bearing Temperature

Specifications • TT420Z-LT Bearing Temperature Sensors (1/2" Conduit)

Specifications

Vin (min → max) 8 → 30 Vdc
 Operating Temp
 -40°C → +120°C (-40°F → +248°F) (measurement probe)
 -20°C → +80°C (-4°F → +176°F) (ambient)
 Accuracy ± 1°C (at 25°C) ± 3°C (at -40°C, 120°C)

Cable (24 AWG)

Color Code Brown (V+) Black (V-)
 Length 10 ft.

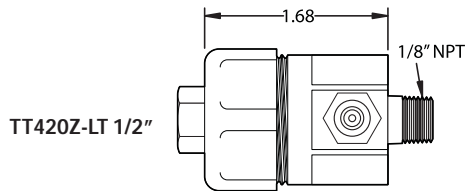
Models

TT420Z-LT 4" Probe (1/2" Conduit 1/8" NPT) .. 800-001514
 TT420Z-LT 6" Probe (1/2" Conduit 1/8" NPT) .. 800-001516
 TT420Z-LT 8" Probe (1/2" Conduit 1/8" NPT) .. 800-001570
 TT420Z-LT 12" Probe (1/2" Conduit 1/8" NPT) .. 800-001528
 1/8" - 1/4" NPT Adapter 300-004100
 1/8" - 1/2" NPT Adapter 300-004101

Part No.

Certification/Ratings

Dust Ignition-proof for use in Class II and III, Div 1 and 2, Group E, F, G, when installed using Class II rated 1/2" flexible liquid-tight conduit.
 T5 Ta ≤ 80° C Enclosure Type 4.



TT420Z-LT 1/2"



TT420Z-LT

TT420S-LT Belt Alignment

Specifications • TT420S-LT Belt Alignment Sensors (1/2" Conduit)

Specifications

Vin (min → max) 8 → 30 Vdc
 Operating Temp
 -40°C → +120°C (-40°F → +248°F) (measurement probe)
 -20°C → +80°C (-4°F → +176°F) (ambient)
 Accuracy ± 1°C (at 25°C) ± 3°C (at -40°C, 120°C)

Cable (24 AWG)

Color Code Brown (V+) Black (V-)
 Length 10 ft.

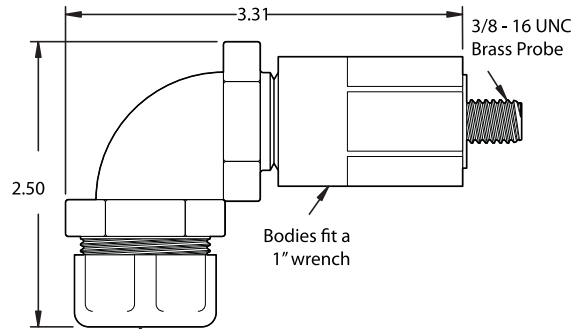
Models

TT420S-LT 1/2" Conduit Right-Angle 800-001527
 TT420S-LT 1/2" Conduit Straight 800-001524
 Lug Mount Adapter (TT420S-LT) 776-001300

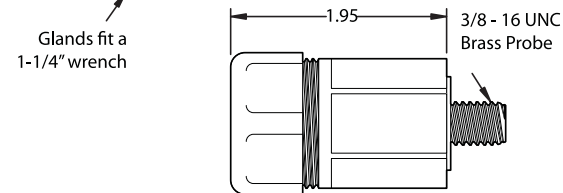
Part No.

Certification/Ratings

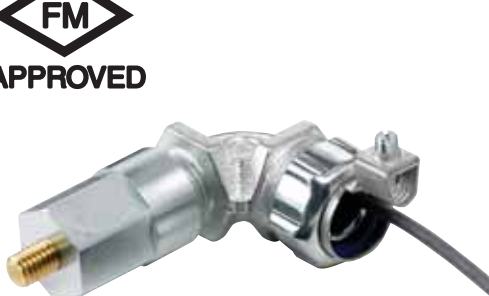
Dust Ignition-proof for use in Class II and III, Div 1 and 2, Group E, F, G, when installed using Class II rated 1/2" flexible liquid-tight conduit. T5 Ta ≤ 80° C Enclosure Type 4.



TT420S-LT 1/2" Right-Angle



TT420S-LT 1/2" Straight



TT420S-LT Right-Angle



TT420S-LT



TT420S-LT With Lug Mount Adapter

Specifications subject to change without notice.

Part Numbers • Rub Block Door Assemblies — Used with TT420S-LT Temperature Sensors

Model	Part No.	Model	Part No.
Standard Door Assembly Including Rub Block	800-002800	Uni-Strut Door Assembly	800-002900
Standard Hinged Door Only	800-002801	Brass Rub Block 2" x 4" x 1/2"	301-000101
Adjustable Rub Block Door Including Rub Block	800-003000	Rub Block Spacer (0.18" thick)	776-001000

Standard Hinged Rub Block Door Assembly Designed for installation on most elevators and conveyors and allows for quick and easy inspection of belts and replacement of worn rub blocks saving time and promoting regular maintenance inspections. Standard rub block door assemblies can be installed on new equipment or as a retrofit upgrade.

Adjustable Rub Block Door Assembly Designed for installation in difficult to monitor locations such as enclosed conveyors or equipment with frames that interfere with optimum sensor mounting. This assembly has a hinged door with slots for attaching the rub block and sensor. After installation the rub block can be slid approximately one inch into its sensing position so that belt misalignment can be quickly detected in previously difficult to monitor locations.

Uni-Strut Rub Block Door Assembly Designed for installation on non-enclosed conveyors, the brass rub block is mounted on the side of the door facing the belt and Uni-strut can be directly connected to the other side. This assembly allows easy vertical and horizontal adjustment of the rub block for proper belt misalignment monitoring. No need to fabricate expensive and time consuming custom mounting brackets.



Standard Door Assembly



Adjustable Rub Block Assembly



Uni-Strut Door Assembly

Rugged Temperature Sensors for Industrial Applications



Specifications subject to change without notice.

ES-725 Rev D