

Temperature Sensor

Description

Application and general description

The MN1535 Temperature Sensor is designed for monitoring temperatures in cargo tanks onboard chemical tankers, gas and oil tankers, product carriers and certain specialized vessels.

The system consists of the following main parts:

- An UP-321 Adapting Flange welded to the tank top
- A protection pipe in the tank (not made by Kongsberg Maritime)
- An MN-1805 Terminal Box for temperature sensors
- 1, 2 or 3 MN1535 Temperature Sensors

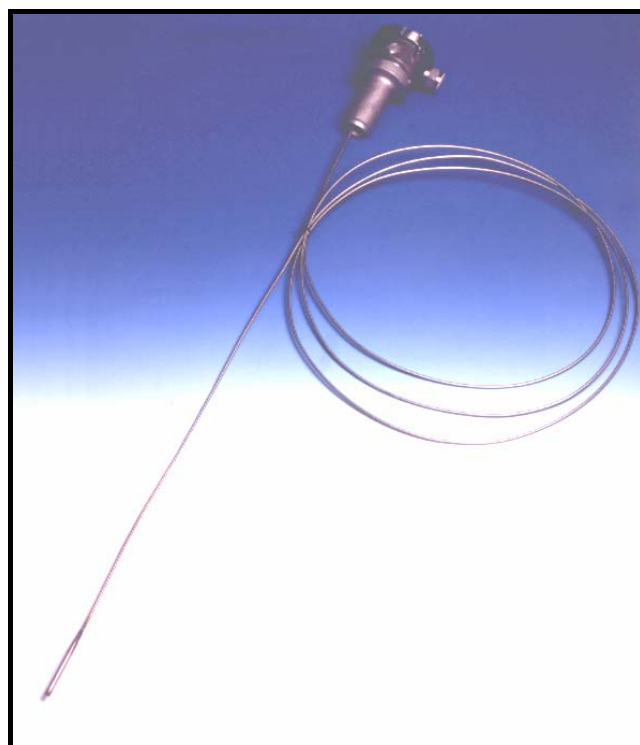
One flange is welded to the deck for each tank top. A protection pipe runs through the centre hole down into the tank. The terminal box is located on top of the flange and the temperature sensors run from the box down the protection pipe.

The liquid/oil must:

- Be suitable for the cargo temperature
- Not corrode the sensors and pipes
- Not, in case of leakage, be harmful to the cargo
- Not freeze or crystallize in the temperature range in question

The MN1535 Temperature Sensor

The temperature sensor can be delivered with Pt100 or Pt1000 elements according to IEC 751.



Connection to LON Ex Field-bus

Normally the MN1535 Temperature Sensor is installed in a hazardous area, and the installation must be intrinsically safe, EEx ia. Connecting the temperature sensors to a LON Node normally solves this. The LON Node is a part of an Ex Field-bus with EEx ia approval, see separate description.

For connection, see Figure 3.

Technical specifications

The MN1535 Temperature Sensor:

Element type: Pt100 or Pt1000 according to IEC 751
Temperature range: -200 to +400 °C
Connection: 2-, 3- or 4-core flexible wires
Length (L): To be specified. Minimum L = 100 mm, maximum L = 50000 mm
Protection grade: IP68
Coupling: 1/8" NPT threads
Weight: 0.1 kg/m

Accuracy:	Class B (standard)	Class A (optional)
-100 °C	±0.8 °C	±0.35 °C
0 °C	±0.3 °C	±0.15 °C
100 °C	±0.8 °C	±0.35 °C
200 °C	±1.3 °C	±0.55 °C
400 °C	±2.3 °C	±0.95 °C
600 °C	±3.3 °C	±1.35 °C

ORDER EXAMPLE:

MN1535 T 12500 U

Mechanical

3-wire connection(letter no.1)

Length in mm

Pt100 Element (letter no.2)

Letter no. 1	Explanation
F	4-wire connection
N	4-wire connection 1/3 DIN
T	3-wire connection
S	Single element 2-wire connection

Letter No. 2	Element	Range
M	Pt1000 Ohm/0 °C	-200 to 400 °C
U	Pt100 Ohm/0 °C	-200 to 400 °C
V	T802 Ohm/0 °C	0 to 100 °C

Drawings

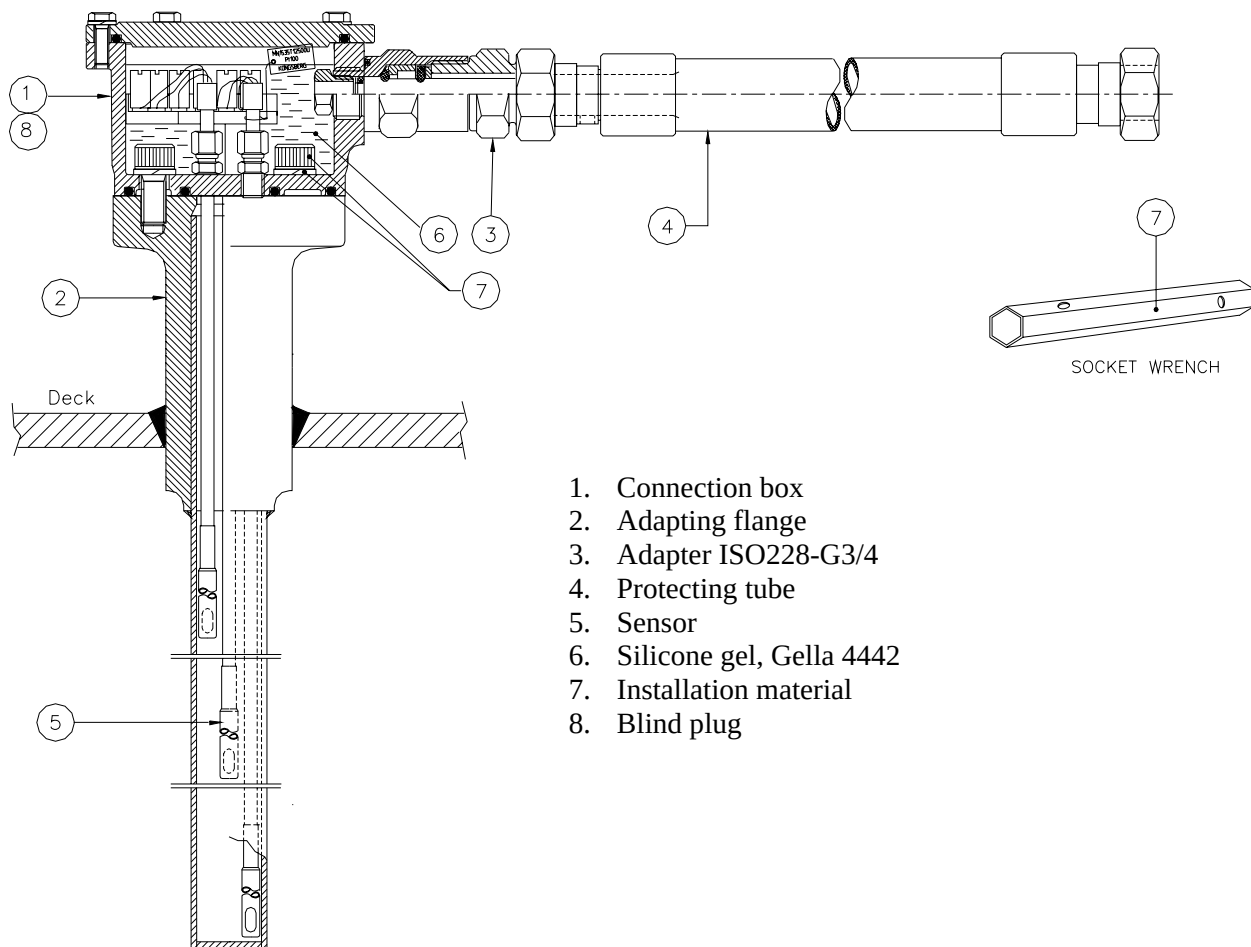


Fig. 1: The MN1535 Temperature Sensor with the MN-1805 Terminal Box

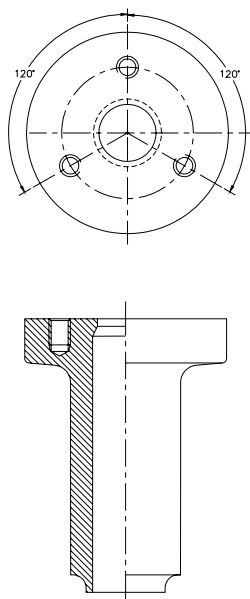


Fig. 2: Adapting Flange

Based on dwg. no. MN-3730

Based on dwg. no. UP-321

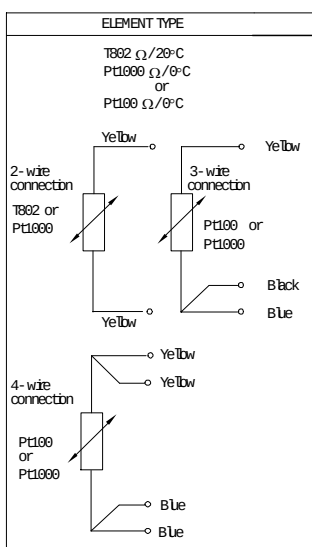
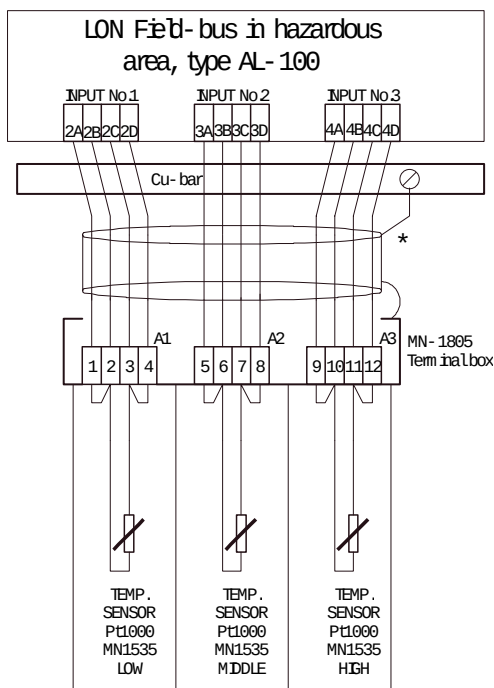


Fig. 3: The MN-1805 Temperature Sensor and LON Node, connection

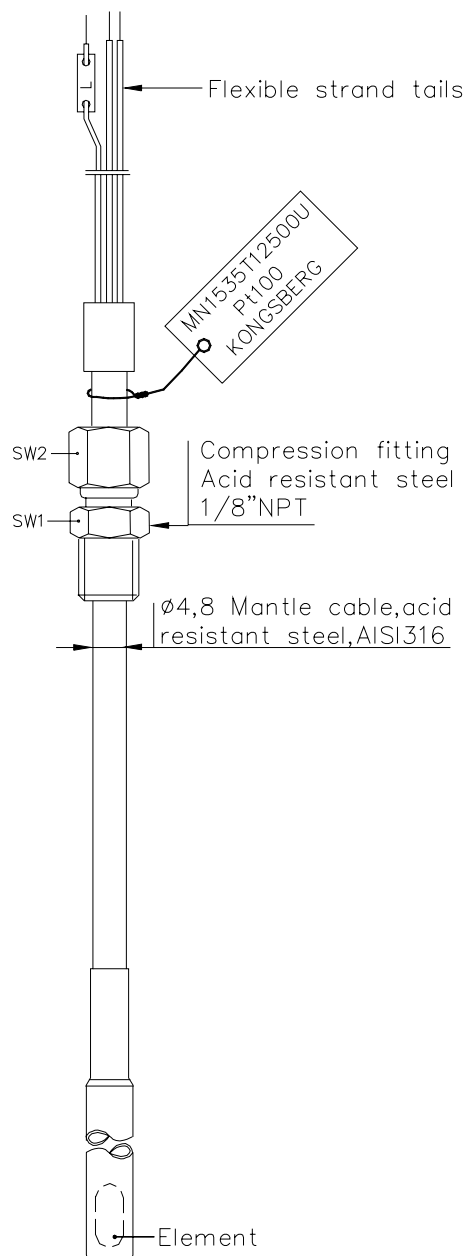


Fig. 4: The MN1535 Temperature Sensor

Based on dwg. no. MN-1535