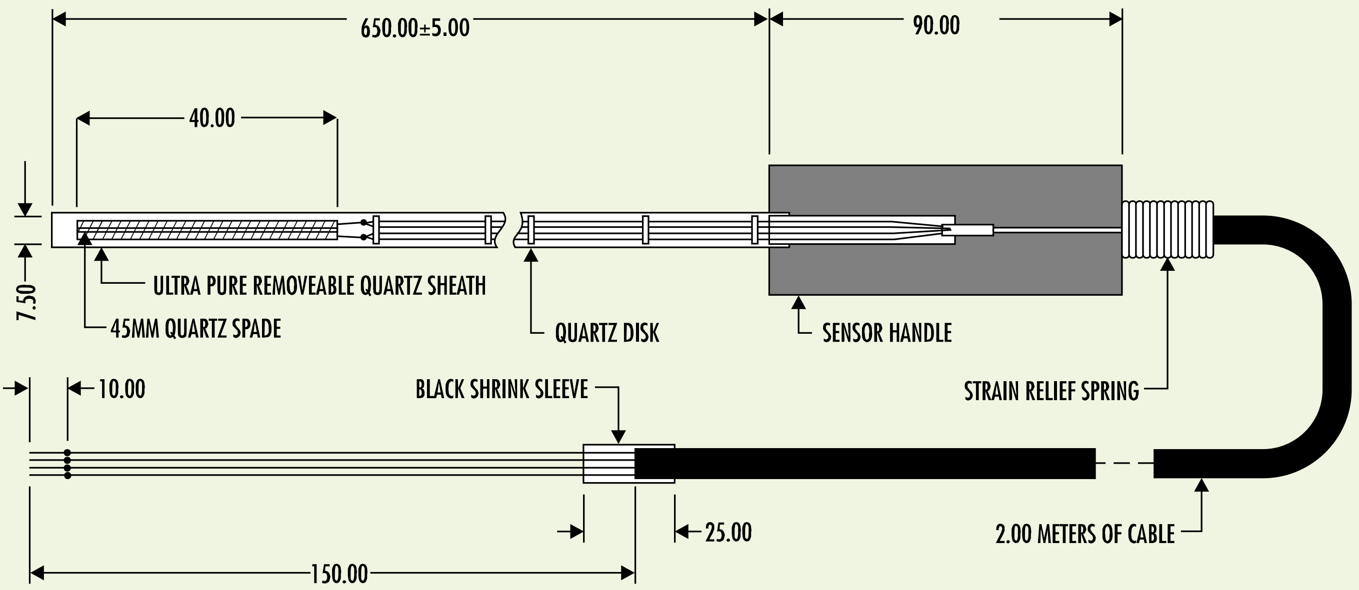
A New Silver Point

Thermometer 96178



Isotech Note
Why choose 0.25Ω for HTSPRT's?

Note1: It is necessary to make the former on which the platinum is wound of high-purity quartz. Even quartz does not provide absolute isolation at the high temperature end of the range. The former, or mandrel, is thus a shunt resistance across the platinum winding, and because of the uncertainty of the contacts between platinum and quartz, it is uncertain and unstable in magnitude. The practicable solution is to reduce the element resistance so that the shunt resistance produces a smaller network effect. For example, for a 25.5Ω thermometer, suppose that the shunt resistance were 20 MΩ. Then the network resistance is 25.499967Ω. But we require measurement assurance of better than 1 part per million, so this won't do, even if the shunt were a constant (calibratable) value, which it is not. For a 0.25Ω thermometer, a 20 MΩ shunt gives a network resistance of 0.24999997Ω, which is tolerable. The cost, and there is a cost, is increased difficulty on the electrical measurement side, particularly in the face of noise, which is present at high temperatures.

Note2: Gases, like Iron, Chromium, Nickel under reducing conditions, can penetrate the quartz sheath and poison the platinum.
It is necessary to purchase not only the 96178, but items such as the Dual Furnace to ensure that your high temperature thermometer does not become contaminated.
Only Isotech offers a comprehensive solution to the measurement and use High Temperature Thermometry.

Note3: Our know-how and expertise in the field of High Temperature thermometry has been written down and is available in the Isotech Journal of Thermometry. See Databook 5.