



Using Heat Tracer Capacitance Factor for Length Determination

There are occasions when it is desirable to know the approximate length of a heat tracing circuit without a direct length measurement and without removing the thermal insulation. An approximate length determination can be made by measuring the capacitance of the tracer circuit and by knowing the capacitance factor for the specific tracer type.

Here is how length can be determined for polymer insulated parallel heat tracers:

1. Measure the capacitance of the heat tracing circuit at the power termination. The meter connections are similar to a “megger” test where the one lead is connected to the tracer metallic braid and the other lead is connected to both bus conductors.



2. Record the measured value and convert to nano Farads (nF).
3. Find the capacitance factor for the specific tracer type in Table 1.
4. Multiply the measured capacitance value by the capacitance factor. The result will be an approximate length ($\pm 5\%$) of the amount of tracer connected at the power termination.

$$C_{\text{measured}} \times C_{\text{factor}} = \text{Length}$$

Table 1: Parallel Heating Cable Capacitance Factors

Cable Type	Capacitance Factors	
	m/nF	ft/nF
BSX	1.6	5.3
RSX	1.5	5.0
HTSX	2.7	9.0
VSX	2.3	7.8
HPT	2.6	8.4
FP	3.3	10.9

Example of Length Determination:

- The tracer is BSX.
- Measured capacitance value at power termination is 0.0235 μF or 23.5 nF.
- From Table 1 the capacitance factor for BSX is 1.6 m/nF.

$$23.5 \text{ nF} \times 1.6 \text{ m/nF} \approx 38 \text{ m}$$

- Based on this calculation, the approximate length of the BSX tracer connected at the power termination is 38 m.

PRODUCT / APPLICATION INFORMATION



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