

Technical Release Enclosures for Heat Producing Instruments

VIPAK® ENCLOSURES FOR HEAT PRODUCING INSTRUMENTS SUCH AS ANALYZERS

Heat build-up inside a VIPAK® Enclosure can be a serious problem with heat producing instruments. This is not a concern for modern dp or pressure transmitters which have a power consumption of less than 1.5W at their maximum supply voltage.

Use the following procedure to determine maximum temperature inside a VIPAK® enclosure for instruments with a large power consumption.

Assume temperature in the VIPAK® = 115°F. (ambient + sun radiation).

Use U + .28 for VIPAK® enclosures.

Determine the area (A) of the VIPAK® from the catalog.

Determine the heat produced (Q) from the instrument. (Note: heat produced = power consumption.)

$$\Delta T = \frac{Q \times 3.415}{UA}$$

For example: Instrument requires 150 watts = Q
VIPAK® area of B25 = 22.2ft²

$$\Delta T = \frac{150 \times 3.415}{.28 \times 22.2}$$

Resulting maximum temperature inside a VIPAK® enclosure = 115°F + 82°F = 197°F.

This would obviously exceed most instrument ratings. Check the result against the instrument manufacturers recommended maximum operating temperature.

(In this example the additional heat produced by a transmitter would be less than 1°F.)