Colmac Coil’s Demand Defrost Sensor is a cost effective solution for measuring average frost thickness across the coil face. The defrost sensor can be added to any A+Series™ air cooler. More details on back.

**Benefits**
- Simple
- Robust and reliable
- Factory mounted
- Low cost

The graph shows a functioning defrost sensor set to defrost at an ice thickness of 2mm.

www.colmaccoil.com | 800.845.6778
BACKGROUND

The frost load on evaporators in cold storage applications changes throughout the year as outdoor climate conditions change. Traditionally, evaporator defrosts have been initiated based on a fixed schedule, that is, set to some number of defrosts per day regardless of whether or not a defrost is needed. During periods of the year when the outdoor air dew point temperature is low – usually in the winter months – frost accumulates on evaporators much more slowly and fewer defrosts are needed. Depending on system temperatures and the cost of power, a single defrost costs between $0.15 and $0.20 per defrost per TR. For example, a 300 TR cold store with evaporators defrosting 3 times per day will cost as much as $65,700 per year to defrost. Using the new demand defrost sensor on Colmac A+Series™ air coolers reduces the number of defrosts to match the frost load throughout the year. The demand defrost sensor is simple to operate and can be provided as a factory-installed option or for retrofit on existing Colmac A+Series™ coolers.

OPERATING PRINCIPAL

The demand defrost sensor wire is mounted on the air entering side of the coil between fins. As frost accumulates on the coil fins the sensor output signal (4 to 20 mA) increases until the setpoint is reached – typically corresponding to 1.5 to 2 mm frost thickness – and a defrost cycle is initiated. Unlike other demand defrost sensors which only detect frost at a single point on the coil surface, the Colmac demand defrost sensor wire is mounted over a large area of the fins which captures the average frost accumulation over the entire face of the coil. The sensor is simple in its operation and installation and can be adapted to any defrost control system.