Operation Description

The MCT-560 is a fully supervised wireless PowerCode detector used with the PowerMax Pro (Ver. 5), PowerMax COMPLETE, and Amber alarm systems. The detector alerts the alarm system control panel upon detecting critical indoor or outdoor temperatures. The detector generates an alarm message when its sensor detects that the temperature has reached a certain temperature point. A restore message is generated when it crosses back the threshold temperature point. There are a total of four fixed temperature points and the user can enable one or more temperature point. The MCT-560 can be used in instances where temperature detection is critical.

Other examples of detector usage are as follows:
- Activating and deactivating pipe heaters at locations where low temperatures may causes the water in pipes to freeze.
- Warn of possible electrical device malfunction due to high or low temperature levels.
- Alerting elderly people of a significant rise or drop in room temperature.

The MCT-560 detects both indoor and outdoor temperatures. The detector monitors room temperature using an internal sensor. For outdoor or refrigerator installations, a waterproof temperature probe (optional) is used.

When the probe is connected, the temperature measurement is performed only by the probe sensor. When the probe is not connected, the temperature measurement is performed only by the detector's internal sensor.

Once the predefined temperature is reached, the detector wirelessly updates the alarm system control panel which then sends a notification to the central station or uses the PGM/X-10 controls to switch on a connected appliance, for example, a heater or air conditioner.

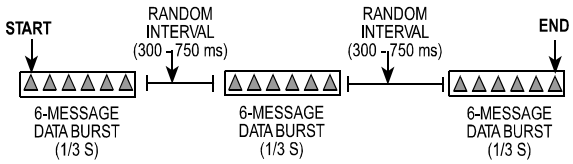
The unit has 4-position DIP switch function selector that enables selection of up to 4 temperatures at which the detector will send an alert. Each switch lever enables one temperature alert.
All switches are set to OFF, by default. Setting a switch to ON enables the MCT-560 to detect the matched temperature as listed in the table below.

Temp. point#	Application	Alarm condition		Restore condition	
		Threshold	Duration [min]	Threshold	Duration [min]
T1	Freezer fault	Temp rises above -10°C (14°F)	30	Temp drops below -11°C (12°F)	10
T2	Freezing temp sensing	Temp drops below 7°C (45°F)	10	Temp rises above 8°C (46°F)	10
T3	Cold temp sensing	Temp drops below 19°C (66°F)	10	Temp rises above 20°C (68°F)	10
T4	Hot temp sensing	Temp rises above 35°C (95°F)	10	Temp drops below 34°C (93°F)	10

The type of transmission/modulation is ASK On/Off Keying.

To overcome message collisions at the receiving end, PowerCode transmitters transmit 3 data bursts at random intervals, with 6 repetitions of the same message in each burst. This redundancy improves the probability of reception.

Note: *Periodic supervision messages are an exception to this rule - they consist of a single 6-message data burst.*



The protocol has two "types" of bursts/message

a. EVENT TYPE (Temperature/Alarm , Temperature/Restore, Tamper ON , Tamper OFF) which consists of 3 bursts each

b. Supervision type which consist of 1 burst (Burst = 6 data messages, total transmit duration about 300 msec.)

Sometimes, instead of 3 bursts, there may be 4 bursts, especially if the event (e.g tamper) is very short and bounces. So in the case of 7 burst, they were as a result of a quick Tamper ON+Tamper OFF, and this cause 3+4 bursts which is also the maximum ON+number of pulses which can occur. (4.7 sec.)