SENSORS

Sensing devices for alarm systems are essentially switches designed to open or close when an undesired event occurs. A sensing device that is electrically equivalent to an “open switch” and which closes and completes a circuit in an alarm condition is termed normally open (NO). Similarly, one that is “closed” and opens in an alarm condition is termed normally closed (NC).

The three most common types of sensors are the magnetic door sensor, the temperature sensor, and the power failure monitor. The following sections will explain the use and operation of these sensors.

MAGNETIC DOOR SENSORS

Door sensors commonly use a magnetic switch comprising two parts:
(a) a magnetic piece which is attached to the moving door or window, and
(b) a switch piece which generally is attached to the fixed frame. The two pieces are positioned so that when the door or window is closed, the magnet will be directly opposite the switch and will hold the switch closed.

TEMPERATURE SENSORS

Temperature sensors can be used to detect fires or temperatures outside an acceptable range. A fire sensor is a sealed NO switch which closes at a preset temperature or when a dangerous rate of temperature rise is detected.

POWER FAILURE MONITORS

Power failure monitors may be used on particular critical circuits (120 V or 240 V), on a building service. Sensors monitor the supply voltage and generally use this supply to hold open a NC relay-type switch. If power is lost, the relay opens and an alarm is given to indicate no electrical power is available.
Nuisance alarms during momentary power dips or switching can be prevented by installing a thermal time delay relay.

**OTHER TYPES OF SENSING DEVICES**

An array of devices are available for specific functions in farmstead monitoring. Some of the more common of these are:

1. **AIRFLOW** sensors to detect loss of critical ventilation.
2. **MOTION or OCCUPANCY** sensors to detect if people motion or presence inside a room or a location. It is sometimes called a photo sensor.
3. **WATER PRESSURE** sensors to detect loss of water supply pressure.
4. **LIQUID LEVEL** sensors to assure maintenance of a reserve or critical supply of water or other liquid.
5. **VEHICLE APPROACH** sensors to detect movement of trucks, cars or other vehicles onto the farmstead.

**SENSING DEVICES ENERGY SAVER CALCULATOR**

Motion and Occupancy sensors can save money in location where there is a frequent action by different people at certain parts of the day or night. Sometime people who use that facility forget to shut the light or keep it on as a courtesy to the next person using the facility. The amount of saving can be calculated by the difference of the hours the lights are on and off when sensors are present. The number of hours is approximated. Check our calculators-page for a sample example.

**ALARMS**

Several types of alarms are available. They range from locally audible noise and lights, to telephone dial-up mechanisms, to devices that signal a central station when alarm conditions exist.
The simplest local alarms are direct-wired outdoor sirens, bells or lights. Other systems may use carrier devices which transmit an alarm signal to a remote receiver via existing power lines. If such a line-carrier device is a primary alarm, it must transmit a signal continually in the “normal” state and sound the alarm upon interruption of the signal. Otherwise failure of the system, for example due to a broken wire or loss of power, could go undetected.

Another type of alarm is a telephone dialer, which generates one or more outgoing calls on an existing telephone line in the event of an alarm condition. Systems using these alarms should also have an auxiliary local alarm device on the premises.

An RF (radio frequency) transmitter that will transmit an alarm to a remote receiver is used by some systems. All RF-transmitter devices must be approved by the Federal Communications Commission (FCC). RF systems should also have a local alarm device on the premises.