

## OVERVIEW OF THE PREDATOR SYSTEM

### INTRODUCTION

Predator is a bi-directional radio based system used for monitoring and control

It consists of radio based Predator Transceiver outstations (up to 100000 on a network) which report to and are controlled by Predator data routers.

The Standard Predator unit contains eight digital I/O's (or zones) which can be attached to any industry standard contact sensors, passive infrared, wired and wireless panic systems and any other sensor which provides a voltage output or dry contact.

Predator units can be expanded (at a single outstation) to 40 digital I/Os using DigitalIO expansion modules.

The outstations can report dry contact alarms to the data routers and can also be commanded via the data routers to activate dry contact outputs

An analog value can also be measured using the Robolin Analog Input module (up to four per outstation)

The outstations can also be polled (queried) and will return the status of all the digital I/Os or the measured analog signal. The status of the battery supplying the outstations is also monitored.

Every alarm sent by an outstation is acknowledged by the data router or else it is re-sent. This ensures integrity of alarms.

The Predator unit has some alarm panel functions built on-board which provide the following functions

- remote arming
- activation of a siren and/or strobe lamp
- remote de-activation of siren or strobe lamp
- permanently active zones (eg. Panic buttons)
- zone latching and/or post alarm lockout time

There is also a plug-in module available for the Predator unit which will allow Ademco Contact ID alarm formats to be sent over-the-air from standard alarm panels.

## SYSTEM ARCHITECTURE

Interface into the Predator system is done via the Data Routers. Each router has two possible means of interface to provide a dual-redundancy should one interface fail.

Current interfaces available are

- RS232/RS485
- Radio Modem
- Trunking

Other possible interfaces can be

- GSM (SMS or GPRS)
- Packet Radio Network

When a signal (for example, an alarm) is received from an outstation, the data router will

- Demodulate the signal
- Validate the alarm based on a checksum calculation
- Acknowledge the outstation
- Queue the alarm and transmit it to the central control room
- Remove the alarm from the queue when acknowledged by the central control room

When the central control room wishes to change the status of the output on an outstation, it will transmit the outstation ID number, pin number and required output state (on/off) to the data router.

The data router will then

- Modulate the command to the outstation
- Wait for the outstation to acknowledge that it has performed the command
- Return the acknowledge or not-acknowledge status to the control room

When the central control room wishes to interrogate the status of an outstation, it will transmit the outstation ID number to the data router.

The data router will then

- Modulate the query to the outstation
- Wait for the outstation to acknowledge with its I/O and battery state
- Return the status of the outstation or not-acknowledge status to the control room

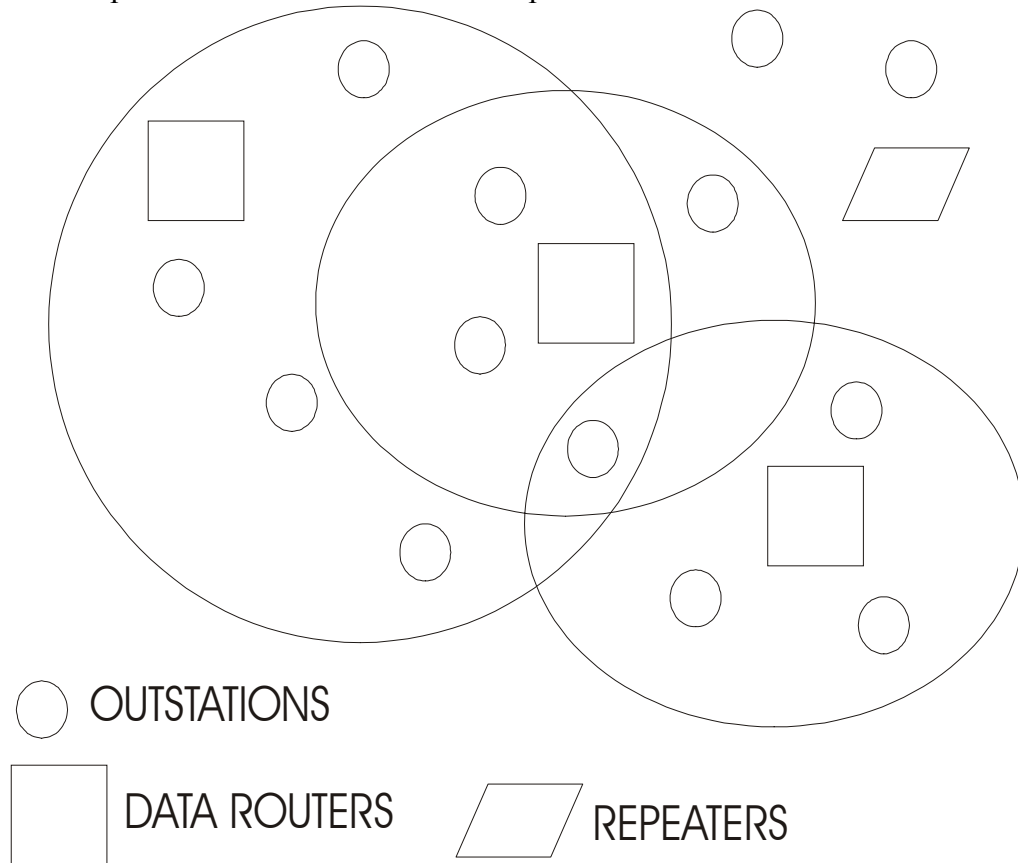
The outstations and data routers are arranged in a number of cells as shown in Figure 1

Each data router is programmed to communicate with its group of outstations or any outstation. Up to 1000 data routers can be placed on a system. Each data router can accept up to 100 groups of outstations, each containing up to 10000 outstations.

Data routers can be programming can be performed from the control room over-the-air

If radio coverage from data routers overlap, it can accept alarms from other outstations not in its group should one of the routers have failed.

Areas which are out of range of a data router can be filled in via standard half-duplex voice repeaters or the Predator Parrot Repeater



**FIGURE 1 Predator Cell Structure**