

## **ANNEX 10 - THEORY OF OPERATION**

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### **CANSEC SMARTFOB (SF-100) TRANSMITTER**

The CANSEC SF-100 (smart-fob) transmitter, is a low power 418 Mhz ( mega hertz) transmitter used for access control. The SF-100 is equipped with two pushbuttons which are recognized by the Cansec Receiver.

The SF-100 combines a high-performance SAW ( Surface Acoustic Wave ) based transmitter with data memory storage for individual customer identification upon signal transmission. The SF-100 keyfob can transmit the status of the two pushbuttons along with the programmed data for that pushbutton. (Note: The programmed data is factory performed at CANSEC on a individual customer basis)

The SF-100 operation is straightforward. When a button is pressed, power is applied to the internal circuitry which contains a microprocessor, memory and RF amplifier. The microprocessor recognizes which pushbutton is pressed and it then formats the data into a transmission cycle. The formatted data is used to modulate the SAW based transmitter, which through the antenna ( printed circuit board stripline antenna) conveys the data into free space. The SF-100 uses Pulse Width Modulation (PWM) in it's data transmission.

The transmission cycle continues while the button is pressed BUT transmission ceases after 5 seconds ( Required to meet FCC and conserves battery life if button is jammed ) . In the case that the button is pressed for longer than 5 seconds the user would simply release and press the button again to transmit data once again. Transmission of data is also visually indicated by a flashing LED which is centered between the 2 pushbuttons.

The transmitted signal must be received by the mating receiver SR-100 which also operates at 418 Mhz. The received signal is then processed by the SR-100 Receiver to perform the required functions.