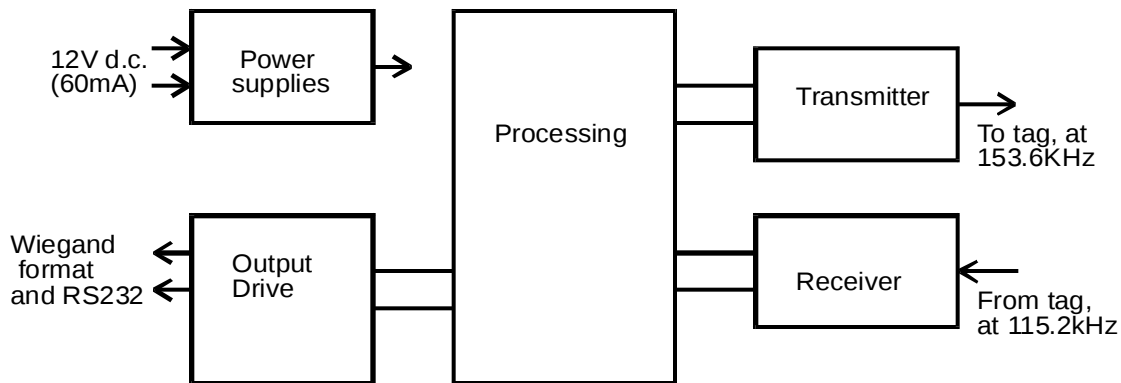


## Block Diagrams (& description)

### *ELC1A Reader*



The ELC1A reader is a totally self-contained reader which is part of the Cryptag Census product range. It is 213mm by 163mm, and apart from the area containing the terminal block it is only 4.5mm thick.

Power to the reader is nominally 12V d.c., although the reader will operate over the range 5V to 18V. A regulator provides 5V for the internal circuitry. A low-drop regulator is used to ensure that the power supply to the transmitter does not exceed 12V. The current consumption is approximately 60mA.

There are two microcontrollers (processors) within the processing section. One handles the communications to and from tags, while the other handles higher level tasks. The processors are both driven by a 4.9152MHz crystal, from which all timing within the reader is derived.

The reader transmits to tags at 153.5kHz (H-field). The transmissions are short bursts (approximately 0.8ms to 4.2ms in length) which are phase reversal modulated at 4.8kbaud. The output drive is a CMOS buffer followed by some passive filtering to minimise spurious emissions. The transmitter antenna is a coil around the outer edge of the reader. The reader's receiver contains an RF stage at 115.2kHz. The output of the RF stage is mixed with 76.8kHz to give an IF frequency of 38.4kHz. This is followed by a phase sensitive demodulator.

The reader's normal output is Wiegand format (an industry standard for Access Control products), and an RS232 compatible serial output is also provided. There are LED indicators (internally and externally controlled), as well as diagnostic LEDs.

Tags reply to the reader at 115.2kHz. THERE ARE NO EMISSIONS FROM THE TAG UNTIL IT ENTERS THE FIELD OF THE READER. The tag emissions, which are also H-field, are at very low level compared with the reader emission. As with the reader transmissions they are phase reversal modulated at 4.8kbaud.

### *TC6 Tag (Identical to JHD-CEN3)*

