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Operatioal description of the OEM400v1.2

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The OEM-400v1.2 reader module is designed to interrogate, read and write to various Radio frequency Identification (RFID) tags operating at 13.56MHz. The unit is command driven from a host device (in this case the Sato CL408/412 printer) via a serial TTL bi-directional interface. The module is powered by an external regulated 5V power source supplied by the host device.

With reference to the block diagram of the reader module. The main crystal oscillator for the module runs at 27.12MHz, this frequency is fed directly to the micro controller as its master clock input. This frequency is then divided by 2 to produce a 13.56MHz signal to drive the RF side of the reader.

As stated above the reader is command driven and will not produce any RF power until a command is received from the host device. Upon receipt of a command the transmitter is powered up via the TX on signal from the micro controller, this enables the PA driver stage, which drives the power amplifier (PA) to produce RF power at 13.56MHz. Single level ASK modulation is applied to the PA which is used to pass data and commands to the Tag(s) in the field. The PA output is filtered to reduce unwanted harmonics and noise. The filtered RF energy is fed to the custom antenna to energise the tag.

Tags pass data back to the reader by modulating the RF field in various different ways dependent on the type and which ISO standard the tag conforms too. The detector section of the reader samples the RF field and passes this to the 4 receiver strips, each of which is configured to provide the necessary filtering and demodulation for the various tag types. TTL level data is passed from the active receiver strip to the micro controller where it is decoded, error checked and reformatted before being passed back to the host device.



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