TiNo Data Block Encoding/Decoding

```
┌─────────────────────────────┐
│      DATA BLOCK RAW         │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐        encryption_enable
│        Encryption           │ ◄──    System Password: 16 Bytes String
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐        fec_encoding_enable
│        FEC Encoder          │ ◄──    Hamming Codes
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐        interleave_enable
│        Interleaver          │ ◄──
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│     DATA BLOCK ENCODED      │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐    TX Power          Baud Rate
│        RF Driver            │ ◄── Radio Frequency   FM Deviation
└─────────────────────────────┘    Frequency Offset  Network ID
              │                     Data Shaping
              ▼
┌─────────────────────────────┐
│        Send OTA             │
└─────────────────────────────┘
```
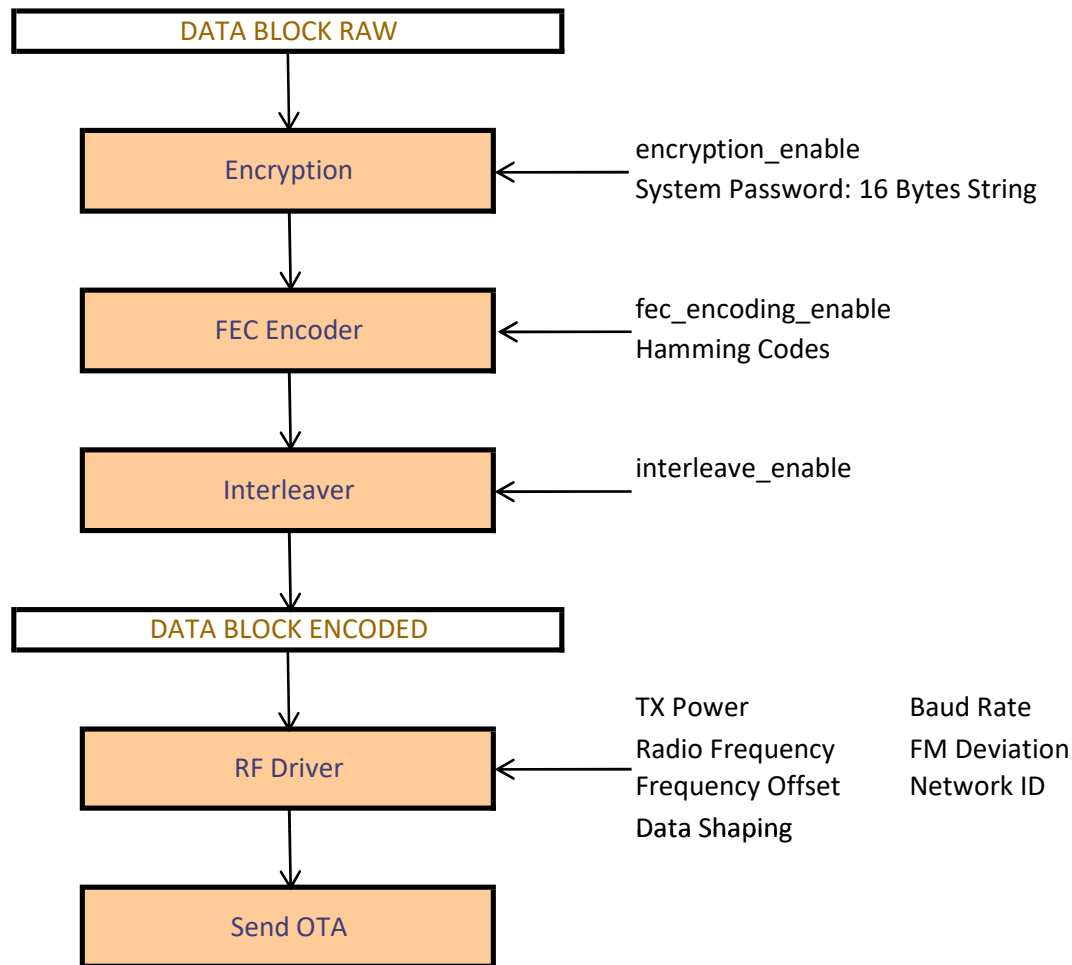
Notes:

1. Coding is configured in EEPROM. Configuration must be same in Sensor (Sender) and gateway(receiver)

2. FEC Encoding doubles the number of Bytes in DATA BLOCK $LEN_{enc} = 2 * LEN_{raw}$

3. Interleaver is only useful together with FEC, otherwise its useless.

4. FEC Encoder is using 8/4 Hamming Codes (for simplicity of implementation)

5. Preamble, including LEN byte is NOT encoded

TiNo Data Block Decoding

```
┌────────────────────────────┐        TX Power           Baud Rate
│  Radio Driver / Receive OTA │ ◄──    Radio Frequency    FM Deviation
└────────────────────────────┘        Frequency Offset   Network ID
                │                      Data Shaping
                ▼
┌────────────────────────────┐
│    DATA BLOCK ENCODED       │
└────────────────────────────┘
                │
                ▼
┌────────────────────────────┐
│       Deinterleaver         │ ◄──    interleave_enable
└────────────────────────────┘
                │
                ▼
┌────────────────────────────┐
│       FEC Decoder           │ ◄──    fec_encoding_enable
└────────────────────────────┘        Hamming Codes
                │
                ▼
┌────────────────────────────┐
│        Decryption           │ ◄──    encryption_enable
└────────────────────────────┘        System Password: 16 Bytes String
                │
                ▼
┌────────────────────────────┐
│      DATA BLOCK RAW         │
└────────────────────────────┘
```