

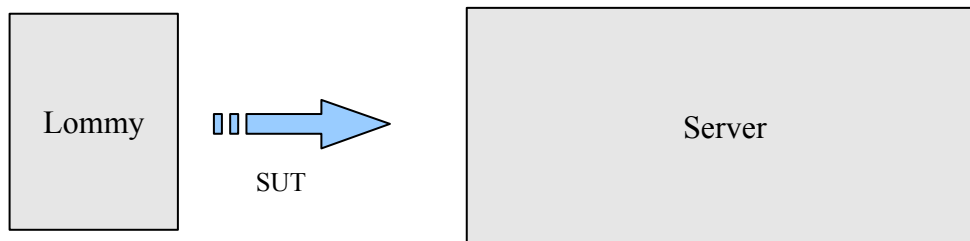
Flextrack SUT Protocol

General Description

This document describes the SUT Protocol

The protocol can be used between a Lommy device and a Server, to exchange data and commands.

SUT is a pure text protocol.



Telegram

Any telegram consist of one or more comma-separated Name/Value item(s).

ex1: `ACK[-1],TIME[20140107124721]`

ex2: `ID[1315000100],TNO[-2],SM[200000],GSM[2,{238,2,7D7A,0036,84},{238,20,1AA6,1772,18},{238,1,120B,011A,12},{238,2,7D7B,0036,10},{238,1,019D,011A,10},{238,20,1AA5,1772,9},{238,20,5D8A,1772,8},{238,20,6BDF,1773,7},{238,20,5D89,1772,7},{238,20,1D0A,1773,7},{238,1,1309,011A,7}],CAP[3243,3158,3158],TON[42],TEMP[26]*CRC[2799]`

NameValue item

Format: `NAME [Value]`

Name: Use uppercase characters A-Z. The - sign are also allowed, ex: `VPORT-STATUS`

Value: Can be a single entry, a comma-separated list of entries, records or a mix of these. The signs { and } are used to mark "records".

Examples:

`ACK[-23]`

`CAP[3243,3173,3171]`

`GSM[2,{238,2,7D7A,0036,84},{238,20,1AA6,1772,18},{238,1,120B,011A,12}]`

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CRC item

If the CRC item is included in the packet, it must always be the last item and preceded by a * delimiter sign.

ex: ID[1234567890],TNO[-2],TIME[20140107124721]*CRC[753F]

CRC calculation:

U16 poly = 0x1021

U16 seed = 0x0000

(seed can be changed by the server. See description of the specific application)

All characters up to, but excluding, the "*" delimiter must be included in the crc calculation. The CRC[xxxx] must be the last entry in the telegram.

Example: (blue is included in crc calculation)

```
ID[1315000100],TNO[-2],SM[200000],GSM[2,{238,2,7D7A,0036,84},
{238,20,1AA6,1772,18},{238,1,120B,011A,12},{238,2,7D7B,0036,10},
{238,1,019D,011A,10},{238,20,1AA5,1772,9},{238,20,5D8A,1772,8},
{238,20,6BDF,1773,7},{238,20,5D89,1772,7},{238,20,1D0A,1773,7},
{238,1,1309,011A,7}],CAP[3243,3158,3158],TON[42],TEMP[26]*CRC[2799]
```

CRC code example for C#:

```
//*****
public static UInt16 Calc(string s)
{
    UInt16 crc = Seed;
    char[] ca = s.ToCharArray();

    for (int i = 0; i < s.Length; i++)
    {
        crc = CRC16.CalcByte((byte)ca[i], crc);
    }
    return crc;
}
//*****
private static UInt16 CalcByte(byte Val, UInt16 crc)
{
    crc ^= (UInt16)(Val << 8);
    for (int i = 0; i < 8; i++)
    {
        if ((crc & 0x8000) > 0)
        {
            crc <<= 1;
            crc ^= POLY;
        }
        else
        {
            crc <<= 1;
        }
    }
    return crc;
}
```