The pdf is the Australian vision of the protocol.

In general, it is long to be clear how the protocol works. Unit "1" is +5V at the output of Vf1, and "0" is 0V at the same output (when **the closed Te2-E1**isused).

The data is transmitted frame by frame. Each frame consists of:

- 16 bits "1" - indicates the beginning of the frame;

- The first "byte" of the 12-bit protocol (an Australian sees this as clock\_test(4 bits) + word[00] (another 8 bits) - here I disagree with him, because it just coincided that it was the "0" first starting bit of his word byte[00], in fact it may not be "0"-yom)

- 12 normal eight-bit bytes.

All. This is the entire protocol, then again there is 16 bits "1". And so on in a circle until we break up Te2-E1.

Each byte (including the first 12-bit) consists of a starting "0"bit, data bits (12 or 8), and two stop "1"-bit bits.

In total, the total is 16 + 13 \* (1 + 2) + 12 \* 8 + 12 = 163 bits in the frame.

The duration of one bit is about 8.2 ms.

The frame duration is about 1.34 s.

So we have the following bytes of data:

- The first of the 12 bits what it means is not yet clear, but I called it ID in the program and it is displayed just from left to right in a bit;

- 10 bytes with values;

- 2 bytes with flags, each byte with 8 bits, and flags respectively.

The designation of the form 1.A means that this is the first byte, and it is a number

12.1 means it is 12 bytes, and the first bit (flag bit designations) is taken from it.

|  |  |  |
| --- | --- | --- |
| Parameter | Description | How is it considered |
| Identifier | It is not yet clear what it means | Just displayed from left to right |
| 1.A | Injector injection time | =1.A\*0.125 (ms) |
| 2.A | Ignition timing angle | =2.A\*0.47-30 (city) |
| 3.A | Valve condition ХХ | For different types of CХХ different formulas:  =3.A/255\*1000 (%)  =3.A (step) |
| 4.A | Crankshaft speed | =4.A\*25(rpm) |
| 5.A | Air mass meter (MAP/MAF) | Different flowmeter types have different formulas:  =5.A\*0.6515 (kPa)  =5.A\*4.886 (mm.h.p.)  =5.A\*0.97 (kPa) (for turbo engines)  =5.A\*7.732 (mmHg) (for turbo engines)  =5.A(g/sec) (this formula for MAF was never found)  = 5.A/255\*5 (Volts) (flowmeter voltage) |
| 6.A | Engine temperature | Woodbed temperature can be a direct or inverse relationship. For the direct we take X = 6.A, for the inverse X = 255-6.A  Depending on the value of X, different formulas:  0..14: =(X-5)\*2-60  15..38: =(X-15)\*0.83-40  39..81: =(X-39)\*0.47-20  82..134: =(X-82)\*0.38  135..179: =(X-135)\*0.44+20  180..209: =(X-180)\*0.67+40  210..227: =(X-210)\*1.11+60  228..236: =(X-228)\*2.11+80  237..242: =(X-237)\*3.83+99  243..255: =(X-243)\*9.8+122  Temperature in degrees Celsius. |
| 7.A | Throttle position | =7.A/2(degrees)  =7.A/1.8(%) |
| 8.A | Vehicle Speed | = 8.A(km/time) |
| 9.A | Correction for inline / correction of the first half | =9.A\*5/256 (volts) |
| 10.A | Correction of the second half | =10.A\*5/256(volts) |
| 11.0 | Re-enrichment after launch | 1-On |
| 11.1 | Cold Engine | 1-Yes |
| 11.2 |  |  |
| 11.3 |  |  |
| 11.4 | Detonation | 1-Yes (no one really checked it) |
| 11.5 | Feedback on lambda probe | 1-On |
| 11.6 | Additional enrichment | 1-On |
| 11.7 |  |  |
| 12.0 | Starter | 1-On |
| 12.1 | Symptom ХХ (Throttle valve) | 1-Yes(Closed) |
| 12.2 | Air conditioner | 1-On |
| 12.3 | Neutral | 1-On |
| 12.4 | Mixture / mixture of the first half | 1-Rich, 0-Poor |
| 12.5 | Mixture of the second half | 1-Rich, 0-Poor |
| 12.6 |  |  |
| 12.7 | Diagnostics | So they didn't really understand what it was. |