ECUMASTER SERIAL PROTOCOL

Communication is based on standard RS232 at 19200,n,8,1

Each data frame consits of 5 bytes:

```
typdef struct
{
	ubyte channel;
	ubyte idChar;
	ubyte valueH;
	ubyte valueL;
	ubyte checksum;
}
```

CHANNEL

Channel is a number that defines what kind of data is sent.
The channels are defined in xml log files. These files are located in EMU install directory: XML\LOG\version1_xxx.xml, where xxx defines EMU firmware version.

Sample channel definition:

```
<symbol name="RPM"                storage="word"  type="value" divider = "1"   unit="RPM"
group="Basic" gauge="1" gaugeMin="0" gaugeMax="9000"  tick="1000" gaugeDiv="1000" color="1"
priority="1" channel="1">  </symbol>
```

name – name of channel
storage – data size

word	unsigned 16 bits
sword	signed 16 bits
ubyte	unsigned 8 bits
Sbyte	signed 8 bits

Type – data type

value	value
ParamList:	Listed type

Example of listed type (bitfield=1" means that given name is represented by bit defined by value)

```
	<paramlist name="checkEngine" bitfield="1">
	<list name="NONE"                                value="0"> </list>
	<list name="CLT"                                 value="1"> </list>
	<list name="IAT"                                 value="2"> </list>
	<list name="MAP"                                 value="3"> </list>
	<list name="WBO"                                 value="4"> </list>
	<list name="EGT1"                                value="5"> </list>
	<list name="EGT2"                                value="6"> </list>
	<list name="EGT ALARM"                           value="7"> </list>
	<list name="KNOCK"                               value="8"> </list>
	<list name="FF SENSOR"                           value="9"> </list>
	<list name="DBW"                                 value="10"> </list>
	<list name="FPR"                                 value="11"> </list></paramlist>
```

divider – the final channel value is calculated as follow:

FinalValue = value / divider

unit – unit of the channel

gaugeMin, gaugeMax – the maximum / minimun value of the channel

precision – number of displayed decimal places

channel – the channel index

IDCHAR

The constant always equal to 0xA3

VALUEH /VALUEL

Low and high byte of the channel value

CHECKSUM

The sum of CHANNEL, IDCHAR, VALUEH, VALUEL modulo 255