DS200/DS300 communication protocol

Data word: 21 bytes

Byte 1: start   value, 0e0h
Byte 2: transmission controller   value, previous +1h
Byte 3: word length   value, Dec 21, (15h)
Byte 4: identifier   value, 2h for DS200
                                            value, 3h for DS300

Byte 5: Not used
Byte 6: Password (high byte)   value, any value (only Radio Frequency communication)
Byte 7: Password (low byte)   value, any value (only Radio Frequency communication)
Byte 8: Type of data   value, 0h - function
                                                , 1bh – Timing data
                                                , 1ch – Final record data
                                                , 3ah – Programmed by time, only with byte 9 is valued 0a1h.
                                                , 3bh – Programmed by laps (total), only with byte 9 is valued 0a1h.
                                                , 3ch – Programmed by laps (individual), only with byte 9 is valued 0a1h.
                                                , 3dh – Programmed by F1, only with byte 9 is valued 0a1h.

Byte 9; Type of function   value, 0a1h - Start of race, phase 1
                                                , 0a2h - Start of race, phase 2
                                                , 0a3h – Start of race, phase 3
                                                , 0a4h – end of race
                                                , 0a5h – start pause
                                                , 0a6h – end of pause
                                                , 0a7h - abort race

Byte 10: Identifiers   value, 0a8h 1st position
                                                , 0a9h Fast lap
                                                , Programme value (high byte) only with byte 9 is valued 0a1h.

Byte 11: Lane number   value, 80h, lane 1
                                                , 40h, lane 2
                                                , 20h, lane 3
                                                , 10h, lane 4
                                                , 08h, lane 5
                                                , 04h, lane 6
                                                , 02h, lane 7
                                                , 01h, lane 8
                                            Programme value (low byte) only with byte 9 is valued 0a1h.

Byte 12: Number of laps (high byte)   value, 00h - 99h (decimal interpretation)
Byte 13: Number of laps (low byte)   value, 00h - 99h (decimal interpretation)
Byte 14: Data final record   value, 00h - 99h (decimal interpretation) (hours)
Byte 15: Timing data or final record   value, 00h - 99h (decimal interpretation) (minutes)
Byte 16: Timing data or final record   value, 00h - 99h (decimal interpretation) (seconds)
Byte 17: Timing data or final record   value, 00h - 99h (decimal interpretation) (tenth/ hundredth)
Byte 18: Timing data or final record   value, 00h - 99h (decimal interpretation) (thousandth/tenth of a thousandth)
Byte 19: Checksum   value, value sum up (bytes 2 to 18 + byte 20) (hex)
Byte 20: Control   value, any value
Byte 21: End   value, 0ebh

In any case bytes from 2 to 20 can have the values of 0e0h and 0ebh
If the byte 19 (Checksum) may have the value 0e0h or 0ebh, we will add 1h to byte 20 and make again the checksum.