Ultra Score Data Out Protocol (for Ball Games)

The Data Out function of Ultra Score program can export the real time timing and scoring data with UDP broadcast.

The broadcast is on port ***2800***. Any software in the same network as Ultra Score can listen on this port to receive the real time data.

1. General Data

Item	Length	
Head	2 BYTES	0xFF 0xFE
ID	2 BYTES	0x01 0x01 for general data
System ID	1 BYTE	Identify each system in one stadium. 0x01 by default.
Length	2 BYTES	0x12 0x00 (Length=18)
Period	1 BYTE	0x01=1st Period, 0x02=Break (between P1 and P2), 0x03=2nd Period
Match Timer Status	1 BYTE	This data composed by following flags: Match Timer=0x10, Break Timer=0x20 Timing=0x01, not start yet or paused=0x02 Ex: Match Timer is timing: 0x11, Break Timer paused: 0x22
Match Timer	3 BYTES	Minute part + second part + 1/10 second part. Ex: 0x0B 0x3B 0x05 when match timer is 11:59.5 0xFF 0xFF 0xFF means the match timer be closed (not display)
Shot Clock	2 BYTES	Second part + 1/10 second part. Ex: 0x17 0x09 when shot clock is 23.9. This data be used for Basketball (Shot Clock), American-football (Play Clock), Field-hockey (40'' or 8'' count down), Water-polo (Shot Clock) 0xFF 0xFF means the shot clock be closed (not display)
Timeout	1 BYTE	Ex: 0x3C when timeout 60 seconds 0xFF means no available timeout.
Reserved	1 BYTE	
Reserved	1 BYTE	
Team A Score	1 BYTE	
Team B Score	1 BYTE	

Team A Foul	1 BYTE	
Team B Foul	1 BYTE	
Team A Timeout times	1 BYTE	
Team B Timeout times	1 BYTE	
Team A Possession / Serve	1 BYTE	0x01 when team A serve
Team B Possession / Serve	1 BYTE	0x01 when team B serve
Foot	2 BYTES	0xFD 0xFC

Ex: FF FE 01 01 01 12 00 01 12 09 38 07 14 07 FF 00 00 0F 07 03 02 01 02 00 00 FD FC
Match Timer Status: Match Timer Paused
Match Timer: 09:56.7
Shot Clock: 20.7
Timeout: Not available
Team A Score: 15
Team B Score: 7
Team A Foul: 3
Team B Foul: 2
Team A Timeout: 1
Team B Timeout: 2
Team A Possession: none
Team B Possession: none

In case the data be used for TV broadcast, following calculation is necessary on the match timer and shot clock time:

```
If (data[8] == 0xFF && data[9] == 0xFF && data[10] == 0xFF) {
    return “”;
}
else {
    matchtimer_time = data[8] * 600 + data[9] * 10 + data[10];
    if (matchtimer_time > 600) {
        return format(“%d”, matchtimer_time / 10);
    }
    else {
        return format(“%.1f”, matchtimer_time);
    }
}
```

For the match timer time, during 09:59.9 -> 09:59.0, the displayed time will be 09:59. During 09:58.9 -> 09:58.0, the displayed time will be 09:58.

```
If (data[11] == 0xFF && data[12] == 0xFF) {
    return “”;
}
else {
    shotclock_time = data[11] * 10 + data[12];
```

```
    if (shotclock_time > 50) {
        return format("%d", shotclock_time / 10);
    }
    else {
        return format("%.1f", shotclock_time);
    }
}
```

For the shot clock time, during 23.9 -> 23.0, the displayed time will be: 23. During 22.9 -> 22.0, the displayed time will be 22.

2. Player Individual Data

Item		Length	
Head		2 BYTES	0xFF 0xFE
ID		2 BYTES	0x02 0x01 for team A, 0x03 0x01 for team B
System ID		1 BYTE	Identify each system in one stadium. 0x01 by default.
Length		2 BYTES	0x64 0x00 (Length=100)
Player 1	Number	3 BYTES	Player number in ASCII mode. 0x31 0x35 0x00 when player number is 15. 0x00 0x00 0x00 when no player available.
	Individual Score	1 BYTE	0x20 when player individual score is 32
	Individual Foul	1 BYTE	0x04 when player individual foul is 4
Player 2	Number	3 BYTES	
	Individual Score	1 BYTE	
	Individual Foul	1 BYTE	
…	…	…	
Player 20	Number	3 BYTES	
	Individual Score	1 BYTE	
	Individual Foul	1 BYTE	
Foot		2 BYTES	0xFD 0xFC

3. Penalty

Item		Length	
Head		2 BYTES	0xFF 0xFE
ID		2 BYTES	0x04 0x01 for team A, 0x05 0x01 for team B
System ID		1 BYTE	Identify each system in one stadium. 0x01 by default.
Length		2 BYTES	0x0C 0x00 (Length=12)
Penalty Info 1	Player Number	3 BYTES	Player number in ASCII mode. 0x31 0x35 0x00 when player number is 15.
	Penalty Time	2 BYTES	Minute part + second part 0x01 0x38 when penalty time is 119 second (01:59)

Penalty Info 2	Player Number	3 BYTES	
	Penalty Time	2 BYTES	
Penalty Info 3	Player Number	3 BYTES	
	Penalty Time	2 BYTES	
Foot		2 BYTES	0xFD 0xFC

4. Player on Court Data

Item		**Length**	
Head		2 BYTES	0xFF 0xFE
ID		2 BYTES	0x06 0x01 for team A, 0x07 0x01 for team B
System ID		1 BYTE	Identify each system in one stadium. 0x01 by default.
Length		2 BYTES	0x50 0x00 (Length=80)
Player 1	Number	3 BYTES	Player number in ASCII mode. 0x31 0x35 0x00 when player number is 15.
	On Court State	1 BYTE	0x01 when player on the court
Player 2	Number	3 BYTES	
	On Court State	1 BYTE	
…	…	…	
Player 20	Number	3 BYTES	
	On Court State	1 BYTE	
Foot		2 BYTES	0xFD 0xFC