

## 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 BYTE	0xFF 0xFE
ID	1 BYTE	0x01 for general data
System ID	1 BYTE	Identify each system in one stadium. 0x01 by default.
Length	2 BYTE	0x12 0x00 (Length=18)
Period	1 BYTE	1 <sup>st</sup> Period = 0x01, 2 <sup>nd</sup> Period=0x02
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 BYTE	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 BYTE	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 BYTE	0xFD 0xFC

Ex: FF FE 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: 21.7

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:

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

For the match timer time, during 10:00.0 -> 09:59.1, the displayed time will be 10:00. During 09:59.0 -> 09:58.1, the displayed time will be 09:59.

```
shotclock_time = data[11] * 10 + data[12];
if (shotclock_time > 50) {
    return format("%d", (shotclock_time + 9) / 10);
}
else {
    return format("%.1f", shotclock_time);
}
```

For the shot clock time, during 24.0 -> 23.1, the displayed time will be: 24. During 23.0 -> 22.1, the displayed time will be 23.

## 2. Player Individual Data

Item		Length	
Head		2 BYTE	0xFF 0xFE
ID		1 BYTE	0x02 for team A, 0x03 for team B
System ID		1 BYTE	Identify each system in one stadium. 0x01 by default.
Length		2 BYTE	0x3C 0x00 (Length=60)
Player 1	Number	1 BYTE	0x05 when player number is 5
	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	1 BYTE	
	Individual Score	1 BYTE	
	Individual Foul	1 BYTE	
...	...	...	
Player 20	Number	1 BYTE	
	Individual Score	1 BYTE	
	Individual Foul	1 BYTE	
Foot		2 BYTE	0xFD 0xFC

### 3. Penalty

Item		Length	
Head		2 BYTE	0xFF 0xFE
ID		1 BYTE	0x04 for team A, 0x05 for team B
System ID		1 BYTE	Identify each system in one stadium. 0x01 by default.
Length		2 BYTE	0x06 0x00 (Length=6)
Penalty Info 1	Player Number	1 BYTE	0x05 when player number is 5
	Penalty Time	2 BYTE	Minute part + second part 0x01 0x38 when penalty time is 119 second (01:59)
Penalty Info 2	Player Number	1 BYTE	
	Penalty Time	2 BYTE	
Penalty Info 3	Player Number	1 BYTE	
	Penalty Time	2 BYTE	
Foot		2 BYTE	0xFD 0xFC

### 4. Player on Court Data

Item		Length	
Head		2 BYTE	0xFF 0xFE
ID		1 BYTE	0x06 for team A, 0x07 for team B
System ID		1 BYTE	Identify each system in one stadium. 0x01 by default.
Length		2 BYTE	0x28 0x00 (Length=40)
Player 1	Number	1 BYTE	0x05 when player number is 5

	On Court State	1 BYTE	0x01 when player on the court
Player 2	Number	1 BYTE	
	On Court State	1 BYTE	
...	...	...	
Player 20	Number	1 BYTE	
	On Court State	1 BYTE	
Foot		2 BYTE	0xFD 0xFC