

# RMonitor

# Timing Protocol

**Protocol specification**

Version : 1.0  
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Copyright : 1997 – 2001

## RMonitor Timing Protocol (v1.0)

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### Record Specification

#### Message description:

Every message starts with a \$ character and ends with CR/LF. Inside the message, the fields are separated by a "," symbol 0x2C. The length of a message is not defined and can therefore be more than 256 characters. The order of the records is also not defined. The general structure of the record is as follows:

<SOR><Command><Sep> ...rest of the record ...<EOR>

where:

| Item      | Description     | Comment                        |
|-----------|-----------------|--------------------------------|
| <SOR>     | Start of record | Default value: \$              |
| <Command> | Command         | See below                      |
| <Sep>     | Separator       | ',' (Hexadecimal: 0x2C)        |
| <EOR>     | End of record   | CR/LF (Hexadecimal: 0x0D 0x0A) |

Sample:

\$F, ...rest of the record ... CR/LF

#### Ascii representation:

| Ascii | Decimal              | Hexadecimal |
|-------|----------------------|-------------|
| \$    | 36                   | 0x24        |
| CR    | 13 (carriage return) | 0x0D        |
| LF    | 10 (line feed)       | 0x0A        |
| ,     | 44                   | 0x2C        |

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### Command description:

The message commands can be divided into three levels.

| Level | Command                                      | Description   |
|-------|--|---|
| 1     | F  | Heartbeat, flag status, time of day, laps to go, time to go and race time information.  |
| 2     | A<br>COMP<br>B<br>C<br>E<br>G<br>H<br>I<br>J | Competitor information<br>Competitor information.<br>Run information.<br>Class information.<br>Setting information.<br>Race information.<br>Practice/qualifying information.<br>Init record (clear scoreboard).<br>Passing information. |
| 3     | A<br>COMP<br>B<br>C<br>E<br>G<br>H           | Competitor information<br>Competitor information.<br>Run information.<br>Class information.<br>Setting information.<br>Race information.<br>Practice/Qualifying information.  |

### Frequency of the commands:

| Level | Description   |
|-------|---|
| 1     | Sent every second.  |
| 2     | Event driven messages. Sent every result update (only results that have changed are sent).        |
| 3     | Sent every refresh. The information and layout of the records is the same as the level 2 records. |

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### Level description:

#### Level 1

#### \$F – Heartbeat message

| Fieldname   | Data description                           | Comments  |
|-------------|--|---|
| Laps to go  | 0 – 99999                                  | Number of laps to go  |
| Time to go  | “HH:MM:SS”                                 | Time until the session ends.                                |
| Time of day | “HH:MM:SS”                                 | The current time  |
| Race time   | “HH:MM:SS”                                 | The time from the first green flag.                         |
| Flag status | “Green ”<br>“Yellow”<br>“Red ”<br>“Finish” | The status field is 6 characters long with trailing spaces. |

Frequency: Every second.

Sample: \$F,14,”00:12:45”,”13:34:23”,”00:09:47”,”Green “<CR/LF>

| Fieldname   | String part | Data          |
|-------------|-------------|---------------|
| Laps to go  | 14          | 14            |
| Time to go  | “00:12:45”  | 12 min 45 sec |
| Time of day | “13:34:23”  | 13:34:23      |
| Race time   | “00:09:47”  | 9 min 47 sec  |
| Flag status | “Green ”    | Green flag    |

#### Level 2

#### \$A – Competitor information.

| Fieldname           | Data description | Comments  |
|---------------------|------------------|---|
| Registration number | characters       | 8 characters maximum (this is usually the competitor number).     |
| Number              | characters       | 5 characters maximum.   |
| Transponder number  | 1 – 2.097.151    |   |
| First name          | characters       | 9 characters maximum.   |
| Last name           | characters       | 30 characters maximum.  |
| Nationality         | characters       | 50 characters maximum.  |
| Class number        | 1 – 99           | The unique class number (see \$C record description for details). |

Frequency: Each time a competitor is changed (repeated during a refresh).

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Sample:        \$A,"1234BE","12X",52474,"John","Johnson","USA",5<CR/LF>

| Fieldname           | String part | Data    |
|---------------------|-------------|---------|
| Registration number | "1234BE"    | 1234BE  |
| Number              | "12X"       | 12X     |
| Transponder number  | 52474       | 52474   |
| First name          | "John"      | John    |
| Last name           | "Johnson"   | Johnson |
| Nationality         | "USA"       | USA     |
| Class number        | 5           | 5       |

### \$COMP – Competitor information.

| Fieldname           | Data description | Comments  |
|---------------------|------------------|---|
| Registration number | characters       | 8 characters maximum (this is usually the competitor number).     |
| Number              | characters       | 5 characters maximum.   |
| Class number        | 1 – 99           | The unique class number (see \$C record description for details). |
| First name          | characters       | 9 characters maximum.   |
| Last name           | characters       | 30 characters maximum.  |
| Nationality         | characters       | 50 characters maximum.  |
| Additional data     | characters       | 50 characters maximum.  |

Frequency:    Each time a competitor is changed (repeated during a refresh).

Sample:        \$COMP,"1234BE","12X",5,"John","Johnson","USA","CAMEL"<CR/LF>

| Fieldname           | String part | Data    |
|---------------------|-------------|---------|
| Registration number | "1234BE"    | 1234BE  |
| Number              | "12X"       | 12X     |
| Class number        | 5           | 5       |
| First name          | "John"      | John    |
| Last name           | "Johnson"   | Johnson |
| Nationality         | "USA"       | USA     |
| Additional data     | "CAMEL"     | CAMEL   |

### \$B – Run information.

| Fieldname     | Data description | Comments               |
|---------------|------------------|------------------------|
| Unique number | 1 – 99           | A unique run number.   |
| Description   | characters       | 40 characters maximum. |

Frequency:    Each time the run description is changed (repeated during a refresh).

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Sample: \$B,5,"Friday free practice"<CR/LF>

| Fieldname     | String part            | Data                 |
|---------------|------------------------|----------------------|
| Unique number | 5                      | 5                    |
| Description   | "Friday free practice" | Friday free practice |

### \$C – Class information.

| Fieldname     | Data description | Comments               |
|---------------|------------------|------------------------|
| Unique number | 1 – 99           | A unique class number. |
| Description   | characters       | 40 characters maximum. |

Frequency: Each time the class description is changed (repeated during a refresh).

Sample: \$C,5,"Formula 300"<CR/LF>

| Fieldname     | String part    | Data         |
|---------------|----------------|--------------|
| Unique number | 5              | 5            |
| Description   | "Formula 3000" | Formula 3000 |

### \$E – Setting information.

| Fieldname   | Data description    | Comments  |
|-------------|---------------------|---|
| Description | Name of the setting | TRACKNAME<br>TRACKLENGTH  |
| Value       | characters          | 40 characters maximum for track name.<br>8 characters maximum for track length. |

Frequency: Each time the track settings are changed (repeated during a refresh).

Sample1: \$E,"TRACKNAME","Indianapolis Motor Speedway"<CR/LF>

| Fieldname   | String part                   | Data                                     |
|-------------|-------------------------------|--|
| Description | TRACKNAME                     | Name of the track is in the value field. |
| Value       | "Indianapolis Motor Speedway" | Indianapolis Motor Speedway              |

Sample2: \$E,"TRACKLENGTH","2.500"<CR/LF>

| Fieldname   | String part | Data                                       |
|-------------|-------------|--|
| Description | TRACKLENGTH | Length of the track is in the value field. |
| Value       | "2.500"     | 2.500                                      |

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### \$G – Race information.

| Fieldname           | Data description | Comments              |
|---------------------|------------------|-----------------------|
| Position            | 1 – 999          | The race position.    |
| Registration number | characters       | 8 characters maximum. |
| Laps                | 0 – 99999        | The number of laps.   |
| Total time          | “HH:MM:SS.DDD”   | Race time.            |

Frequency: Each time the result is changed (repeated during a refresh).

Sample: \$G,3,"1234BE",14,"01:12:47.872"<CR/LF>

| Fieldname           | String part    | Data         |
|---------------------|----------------|--------------|
| Position            | 3              | 3            |
| Registration number | “1234BE”       | 1234BE       |
| Laps                | 14             | 14           |
| Total time          | “01:12:47.872” | 01:12:47.872 |

### \$H – Practice/qualifying information.

| Fieldname           | Data description | Comments                          |
|---------------------|------------------|-----------------------------------|
| Position            | 1 – 999          | The practice/qualifying position. |
| Registration number | characters       | 8 characters maximum.             |
| Best lap            | 0 – 99999        | The lap number of the best lap    |
| Best laptime        | “HH:MM:SS.DDD”   | The laptime of the best lap.      |

Frequency: Each time the result is changed (repeated during a refresh).

Sample: \$G,2,"1234BE",3,"00:02:17.872"<CR/LF>

| Fieldname           | String part    | Data         |
|---------------------|----------------|--------------|
| Position            | 2              | 2            |
| Registration number | “1234BE”       | 1234BE       |
| Best lap            | 3              | 3            |
| Best laptime        | “00:02:17.872” | 00:02:17.872 |

### \$I – Init record.

| Fieldname   | Data description | Comments          |
|-------------|------------------|-------------------|
| Time of day | “HH:MM:SS.DDD”   | The current time. |
| Date        | “dd mmm yy”      | The current date. |

Frequency: Send when the scorefeed needs to be cleared.

Sample: \$I,"16:36:08.000", "12 jan 01"<CR/LF>

| Fieldname   | String part    | Data             |
|-------------|----------------|------------------|
| Time of day | “16:36:08.000” | 16:36:08.000     |
| Date        | “12 jan 01”    | January 12, 2001 |

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### \$J – Passing information.

| Fieldname           | Data description | Comments              |
|---------------------|------------------|-----------------------|
| Registration number | characters       | 8 characters maximum. |
| Laptime             | “HH:MM:SS.DDD”   | The current laptime.  |
| Total time          | “HH:MM:SS.DDD”   | The total time.       |

Frequency: Each time the a competitor crosses the loop ( **NOT** repeated during a refresh).

Sample: \$J,"1234BE", "00:02:03.826", "01:42:17.672"<CR/LF>

| Fieldname           | String part    | Data         |
|---------------------|----------------|--------------|
| Registration number | “1234BE”       | 1234BE       |
| Laptime             | “00:02:03.826” | 00:02:03.826 |
| Total time          | “01:42:17.672” | 01:42:17.672 |

## Level 3

### \$A – Competitor information.

See level 2 definition.

### \$COMP – Competitor information.

See level 2 definition.

### \$B – Run information.

See level 2 definition.

### \$C – Class information.

See level 2 definition.

### \$E – Setting information.

See level 2 definition.

### \$G – Race information.

See level 2 definition.

### \$H – Practice/qualifying information.

See level 2 definition.