VISP Core Processor Serial Data Format

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1 Specification

1.1 Logging Levels

g: debug

i: info

w: warning

c: critical

1.2 Ventilation Parameters and Settings

$< volume >$ controls the volume in mL of breaths (tidal volume).

$< rate >$ controls the rate in which the tidal volume is emitted.

$< breath\_rate >$ controls the time period between breaths. (Continuous Mandatory Ventilation)

$< debug >$ Whether or not to emit debugging values

1.3 Sensor Readings

1.3.1 Data

t : time (milis)

p : pressure (cmH_20)

v : smoothed volume (mL)

V_T : tidal volume (mL)

s_0-s_3 : sensor readings

Serialized as

$$\mathrm{d},<t>,<p>,<v>,<V_T>[,<s_0>\ldots,<s_3>]$$

1.4 Message Format

$< t >$ is time in milis

1.4.1 Info

```
i,<t>,<string>
```

1.4.2 Debug

```
g,<t>,<string>
```

1.4.3 Warning

```
w,<t>,<string>
```

1.4.4 Critical

```
c,<t>,<string>
```

1.5 Client Command Format

1.5.1 Ping

Pings the core. Core responds with timestamp and status string.

```
P
```

1.5.2 Force Calibrate

Forces re-calibration. Core responds with timestamp, status code, and status string.

```
C
```

1.5.3 Identify

Reply with identification string.

```
I
```

1.5.4 Mode Set

1. Volume-Controlled Continuous Mandatory Ventilation (VC-CMV)
2. Pressure-Controlled Continuous Mandatory Ventilation (PC-CMV)

M,<mode>

1.5.5 Parameter Setting

Queries or sets parameter value. Parameter name without supplied value will return the current value.

$< volume >$ controls the volume in mL of breaths (tidal volume).

$< rate >$ controls the rate in which the breath is delivered.

$< breath\_interval >$ controls the time period between breaths. (Continuous Mandatory Ventilation)

S,<parameter>[,<value>]

1.5.6 Query

Replies with mechanical ventilation mode, parameters, and identifying information.

Q

1.5.7 EEPROM

An empty parameter string makes the core echo back all 128 bytes of EEPROM data. Providing the address will reply with a full page starting at that address, and providing the address and data will write the data to the EEPROM. Addresses must be at page boundaries. Page size is 16 bytes.

E
E,<address>
E,<address>,$< b_0 >$,$< b_1 >$,$< b_2 >$ ...,$< b_{15} >$

1.5.8 Reset

Reset the core.

R

1.6 Core Responses

1.6.1 Ping Response

Sends back a timestamp and arbitrary message.

P,<t>,<string>

1.6.2 Force Calibrate Response

Returns timestamp, status code, and status message.

0. Starting
1. In Progress
2. Complete

C,<t>,<status>,<string>

1.6.3 Identify Response

Responds with a hardware identification string.

I,<t>,<string>

1.6.4 Mode Set Response

Responds with the mode setting. “VC-CMV” or “PC-CMV” or “Unknown”. On failure, a critical event will be sent back before the current mode will be echoed.

M,<t>,<mode>

1.6.5 Parameter Setting Response

On a successful operation, the core will echo back the arguments. On failure, a critical event will be sent back before the core echoes back the current value.

S,<t>,<parameter>,<value>

1.6.6 Query Response

Returns ”finished” when done querying. The query responses are sent back as a separate I, S, and M commands.

Q,<t>,<text>

1.6.7 EEPROM Response

Response will always consist of a time, address, and data bytes

$$\mathrm{E},<\mathrm{time}>,<\mathrm{address}>,<b_0>,<b_1>,<b_2>...$$