## FrobomindLightHouse Hardware

[Download this PDF file](http://frobomind.org/images/7/71/FroboLightHouse.PDF)  
[| FrobomindController](http://www.frobomind.org/index.php/FMCtrl:FroboMind_Controller)  
24V LED TOWER R/Y/G CABLE - RS-ordernumber : 478-3894

### FrobomindLightHouse Firmware

Firmware: <https://github.com/mikkel-kildemand/FroboLightHouse_V1>

## FroboMind: FroboLightHouse :Protocol

RowCA protocol   
The protocol is based on NMEA 0183 [1] over a serial port.   
Serial communication  
Baudrate: 57600  
Frame length: 11 bits (N81)  
Max bytes per second: 57600/11 = 5236   
Max NMEA strings per second: 57600/11/50 = 104 (assuming a total length of 50 chars)

## RowCA Status (PFLHI) transmitted by the RowCA firmware

$PFRHI,hw\_version, firmware\_version\_Major\_Version, firmware\_version\_Minor\_Version,reset\_cause\*CS<cr><lf>  
hw\_version: The Frobit hardware version   
1. RoboCard 2. FroboMind Controller

##### firmware\_version\_Major\_Version: The Row Cleaner major firmware version

1. RowCA  
2. N/A

##### firmware\_version\_Minor\_Version: The Row Cleaner minor firmware version

1. 2014-09-22  
reset\_cause: The reason why the RowCA hardware was reset:   
0. Power on reset 1. Reset 2. Brown-out reset 4. Watchdog reset (15ms timeout) 5. JTAG reset   
  
This message is transmitted only once after boot.

## Frobit Status (PFLST) transmitted by FroboLightHouse FW

$PFLST,state,voltage,red\_signal,yellow\_signal,green\_signal\*CS<cr><lf>  
  
state: Normal states   
• STATE\_OK (1)   
Warning states   
• STATE\_NMEA\_WARN(2) At least one nmea packet disregarded due to invalid format/CS since last PFBST message.

##### Error states

• STATE\_WATCHDOG (3) No valid nmea packet received for the past 0.2s. (auto reset)   
• STATE\_LOW\_BAT (5) Battery voltage critically low (auto reset).   
  
voltage: Battery voltage (10 bit ADC out from voltage divider to allow external calibration)   
“Coller”\_signal, reprecent the amount of flashes given by eatch coller.  
0 = off, 1-9 = 1-9 flashes, 10 = constant on.

## Frobit RowCA Parameters (PFLSP) accepted by FroboLigthHouse FW

$PFLSP,voltage\_min\*CS<cr><lf>  
voltage\_min: Battery minimum voltage threshold (10 bit value corresponding to ADC out from voltage divider)

## Frobit Communication Parameters (PFLCP) accepted by FroboLightHouse FW

$PFLCP,pfbst\_interval, pfbct\_wd\_timeout\*CS<cr><lf>  
pfbst\_interval: Rate of the Frobit Status (PFBST) 1-1000 \* [ms] (default 100)   
pfbct\_wd\_timeout: NMEA watchdog timeout (monitoring PFBCT)   
0: disable   
1-1000 \* [ms]

## Frobit Signal Light (PFLSL) accepted by FroboLightHouse FW

$PFLSL,red\_signal,yellow\_signal,green\_signal\*CS<cr><lf>  
  
red\_signal: 0 = LED off, 1-9 = 1-9 LED blink, 10 = LED on.  
yellow\_signal: 0 = LED off, 1-9 = 1-9 LED blink, 10 = LED on.  
green\_signal: 0 = LED off, 1-9 = 1-9 LED blink, 10 = LED on.