



## ZOOM Series

Power control of the ZOOM Series using an External Controller

Application Note 2

Rev 1.1

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## Introduction

This document is intended to explain the set up and control of the ZOOM Series socket modem using both an intelligent controller and a non intelligent controller.

The procedures stated throughout this document are recommended by Siretta. You do not have to follow these procedures, however this may affect the way your ZOOM Series socket modem functions.

## About Siretta

Siretta, located in Reading, United Kingdom have been manufacturing antennas, cable assemblies and cellular terminals for over 10 years. We supply our products globally to many of the world's leading organisations.

Whether you require an off the shelf or custom solution, Siretta has a wide portfolio of antenna, RF cable assemblies and terminals to fit your application.

Our extensive knowledge and experience in the wireless market allows us to support a wide range of customer applications, focusing on frequencies typically within the 75MHz - 5.8GHz range. These encompass the HF, VHF, ISM, GSM/GPRS/3G/4G and GPS frequencies as well as industrial WLAN and VHF/UHF antenna/Wi-Fi antenna solutions.

With a heavy emphasis on design, we have a team of dedicated Application Engineers and Product Managers, backed up by Field Sales Engineers, who specialise in wireless applications.

We have made significant investments in R&D facilities which boast GPS hardware development equipment and a GSM Pico Cell on site, as well as development software and a comprehensive suite of Industrial, Scientific and Medical band, and non ISM band frequency products. We have many technology partners enabling us to keep at the forefront of the communications industry and offer class leading wireless solutions.

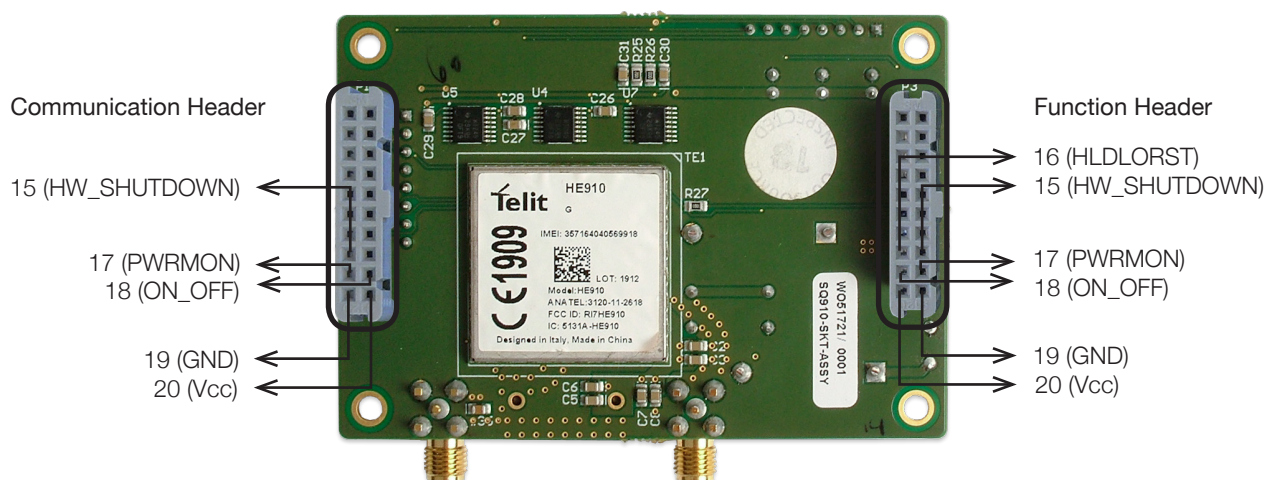
## Power Control Lines

The following procedure explains the correct power sequence for the ZOOM modem when using the hardware power control lines. This can be managed by an application on an external intelligent device or manually with an input control signal.

*(Example - This could be a connected PC, single board computer, microprocessor, micro controller, PIC, state logic, etc)*

- 1) Disable HLDLORST (pin 16 function header) remove from GND and leave it floating
- 2) Connect ON\_OFF (pin 18 function/communication header) to GPIO on power control signal on intelligent device
- 3) Connect PWRMON (pin 17 function/communication header) to GPIO on power monitor on intelligent equipment
- 4) Connect HW\_SHUTDOWN (pin 15 function/communication header) to GPIO on emergency shutdown signal on intelligent equipment
- 5) Connect GND (pin 19 function/communication header) to GND
- 6) Connect Vcc (pin 20 function/communication header) to Vcc

Figure 1. Header interfaces



Once you have setup the ZOOM and connected the power control signal to the intelligent device, follow the processes below to control the power on and power off sequence.

### Power On

- 1) Apply power to modem Vcc and GND
- 2) Hold ON\_OFF pin high for 5 seconds and then return to low
- 3) Check PWRMON status and make sure it is high (1.8V)
- 4) If PWRMON is not high, wait 1 second then repeat step 2.  
Recheck PWRMON status.
- 5) If PWRMON is not high, wait 1 second then repeat step 2.  
Recheck PWRMON status.
- 6) If PWRMON is not high after 3 attempts to power on the modem then this should indicate to the intelligent connected device that there is a serious problem, this should be indicated to the user as an error state (ERROR: Failed to power up modem)

### Power Off

- 1) Check PWRMON status is high
- 2) Hold ON\_OFF pin high for 2 seconds
- 3) Check PWRMON status and make sure it is low (0V)
- 4) If PWRMON is not low, wait 5 seconds. Recheck PWRMON status.
- 5) If PWRMON is not low, wait 5 seconds. Recheck PWRMON status.
- 6) if PWRMON signal is not low, repeat from step 2 one more time.
- 7) If PWRMON is not low then this should indicate to the intelligent connected device that there is a serious problem, this should be indicated to the user as an error state (ERROR: Failed to power down modem).
- 8) In this scenario you have the option of using the emergency disaster recovery function. Hold the HW\_SHUTDOWN pin high for 200ms and release. Remove power from the modem and retry the power on procedure.

**NOTE:** Use HW\_SHUTDOWN pin with extreme caution. Using this function repeatedly can cause the modem to fail permanently and the only method of recovery is to re-flash the modem firmware.

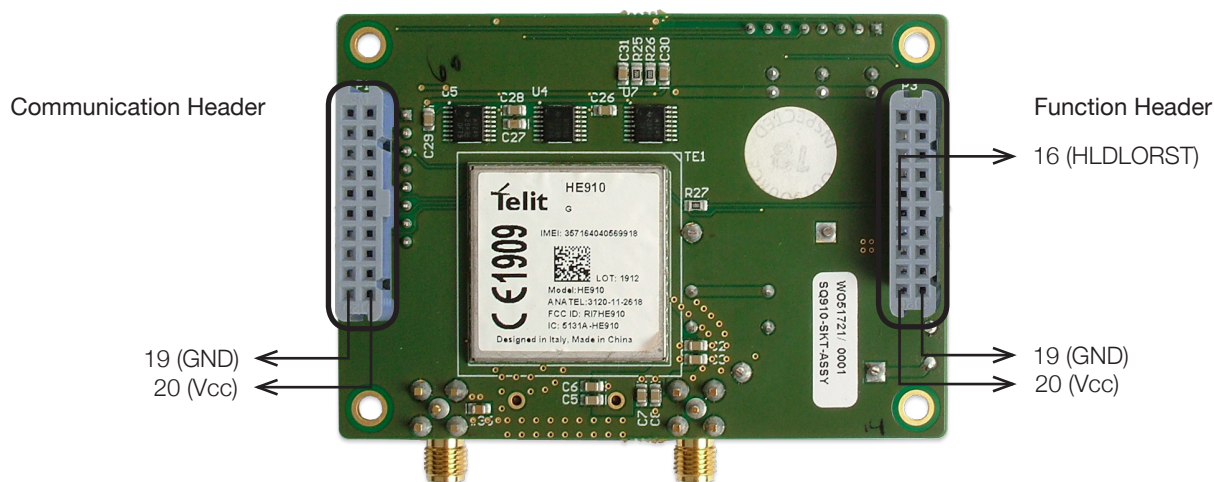
## Auto Power Functions

The following procedure explains the correct process for controlling the ZOOM modem when using the auto power functions. The purpose of the auto power functions is to automate the power control of the modem.

*(Example. This could be a vending machine, fire alarm panel, lighting control system, burgular alarm etc)*

- 1) Enable HLDLORST (*pin 16 function header*) and connect it to GND permanently.
- 2) Connect GND (*pin 19 function/communication header*) to GND
- 3) Connect Vcc (*pin 20 function/communication header*) to Vcc

Figure 2. Header interfaces





Once you have setup the ZOOM and non intelligent device, follow the processes below to control the power on and power off sequence.

### Power On

- 1) Apply power to modem Vcc and GND
- 2) Wait for 5 seconds
- 3) Send AT command **AT<cr>**
- 4) Wait for OK response. If no response to AT command wait for 5 seconds
- 5) If no response to AT command wait another 5 seconds
- 6) If no response to AT command this should indicate to the non intelligent connected device that there is a serious problem, this should be indicated to the user as an error state (ERROR: Failed to power up modem)

### Power Off

- 1) Check AT commands can be sent to unit
- 2) Issue AT command **AT#SHDN** and monitor PWRMON
- 3) Wait for 10 seconds
- 4) Remove power from Vcc

## Communication

Once the ZOOM modem is powered up, use the following process to communicate between the modem and the intelligent controller.

### RS232/USB Serial Port Settings

- » Serial Baud rate: 115200
- » Character framing: 8N1
- » Flow control: Hardware

- 1) Establish serial connection via USB/RS232 Serial port
- 2) Send required AT command to modem
- 3) Wait for OK or ERROR response (May take up to 3 minutes for some commands. Please see AT command manual for details)
- 4) After receipt of OK or ERROR command wait a guard time
- 5) Set a global variable for the delay guard time and start at 1 second for debugging
- 6) Test the full functionality of the system, when it is working correctly reduce the guard time down to between 100ms and 500ms, then retest everything.

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## Definitions

Term	Definition
AT	Attention command
GPIO	General Purpose Input/Output
GND	Ground (0V)
RS232	Radio Sector
USB	Universal Serial Bus
Vcc	Positive Power Supply

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