

XEOS Apollo Relay

Xeos Systems

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Reference:

Apollo_User_Manual.pdf

Electrical Connections

MCIL6M

1	Apollo GPS TXD	RS232	9600 Baud	8-N-1
2	Apollo Ctrl TXD	RS232	57.6 k Baud	8-N-1
3	Apollo Ctrl RXD	RS232	57.6k Baud	8-N-1
4	GPS 1pps	RS232 levels		
5	+V power	12V Nom		
6	Ground			

Electrical Specs

(page 46 of the Xeos manual)

Supply Voltage	7 – 30 VDC
Max Current Draw	1.5 Amps – Iridium peak current
Idle Current	4.0 mAmp – Diag & NMEA
	2.8 mAmp – Diag @ 12 Volts
	30 microAmp – Underwater
	25 mAmp – GPS
	30 mAmp – 30 sec average Iridium current
	5.8 mAmp – Bluetooth with Diag @ 12 Volts

Physical Location for GPS and Iridium

(The following text is verbatim from Apollo User Manual Version 3.2:)

When installing the Apollo there are several factors that can influence performance.

The Apollo's head should be pointing toward the sky.

Iridium and especially GPS performance may suffer if large angles of the horizon are blocked, such as if the Apollo is next to a wall.

XEOS Apollo Relay

Do not use conductive material at the top of the Apollo around the glass lens; this will cause the water sensor to fail.

IMEI Numbers, Serial Numbers and Unlock Codes

300434064407370	226	75120
300434064917380	224	63557
300434064122480	225	40319

Local RS232 Connection to the Apollo Relay

Connect up a laptop to the Apollo Ctrl TXD, RXD and Ground

Set comms for 57.6 kBaud 8-N-1

Power up the Apollo Relay

To verify if comms are working,

Type:

\$ver < cr >

(< cr > = “ Enter “ or “ Return “

A response should come back from the Apollo Relay detailing firmware and hardware versions.

To see a listing of the Apollo Relay configuration:

Type:

\$settings < cr >

The “ unlock code “ is listed in the section “ General: “

These codes persist until a restart after a firmware update

(or you can set the unlock code yourself if desired

XEOS Apollo Relay

Sending and Receiving Iridium Messages

subscribe to MBARI listserver:

auvsbd@listserver.mbari.org

Send text from Apollo Relay to MBARI email:

(Xeos manual pg 40)

(All lines terminated with carriage return, line feed, or both.)

Type:

```
$sendSBD < cr >  
Text which you want to send<cr>  
$finished<cr>
```

Check email to see if the message came through. It may take a few minutes due to satellite coverage.

Send a file from Apollo Relay to MBARI email:

Create a “ pure “ text file with the contents:

(All lines terminated with carriage return, line feed, or both.)

```
$sendSBD <cr>  
text line one<cr>  
text line two<cr>  
etc<cr>  
$finished<cr>
```

Use the communication software “send file” option

Send email to Apollo Relay serial port:

XEOS Apollo Relay

Create a “ pure “ text file with .sbd extension

```
$unlock < code >  
$outPort 1  
< file contents goes here >
```

Unlock code of the Apollo Relay

Send email to:

data@sbd.iridium.com

```
Subject:    < IMEI Number >  
Attachment: < filename.sbd >  
Body:      empty
```

IMEI Number of the Apollo Relay
The .sbd file you created
Nothing goes in the body of the email

Strobe Settings

(page 27 of the Xeos manual)

Strobe can flash a maximum of 4 flashes of 50 millisecond duration each.

The period is a maximum of 60 seconds.

Example setting:

```
$strobe 2 10  
$strobe 3 5
```

Two flashes at 10 second intervals
Three flashes at 5 second intervals

Enabling / Disabling the strobe:

```
$switch B 1  
$switch B 0
```

Enables the strobe
Disables the strobe

Light Sensor

```
$switch L 0  
$switch L 1
```

Treats environment as always dark
Turns off strobe in daylight

Flashing underwater:

```
$StrFlshUw 1  
$StrFlshUw 0
```

Flashes while underwater
No underwater flashing

XEOS Apollo Relay

Timer Settings

(page 25 of the Xeos manual)

(also check out the “ flow chart “ on page 22 of the Xeos manual)

Timer 0 is normal mode

Timer 1 is start up mode

Timer 2 is alarm mode

Timer 3 is underwater mode

Timer 4 is low battery mode

Examples:

\$timer GPS 0 15m

\$timer GPS 1 15m

\$timer GPS 2 15m

\$timer GPS 3 15m

\$timer GPS 4 1h

\$timer SBD 0 15m

\$timer SBD 1 15m

\$timer SBD 2 15m

\$timer SBD 3 15m

\$timer SBD 4 1h

Timer 0 GPS interval 15m

Timer 1 GPS interval 15m

Timer 2 GPS interval 15m

Timer 3 GPS interval 15m

Timer 4 GPS interval 1 h

Timer 0 SBD interval 15m

Timer 1 SBD interval 15m

Timer 2 SBD interval 15m

Timer 3 SBD interval 15m

Timer 4 SBD interval 1 h

Message Enable Settings

(page 32 of the Xeos manual)

Examples:

XEOS Apollo Relay

\$msgenable 0 0	1 message, Timer 0 Short GPS plain text
\$msgenable 1 0	1 message, Timer 1 Short GPS plain text
\$msgenable 2 0	1 message, Timer 2 Short GPS plain text
\$msgenable 3 0	1 message, Timer 3 Short GPS plain text
\$msgenable 0 0,1	2 messages, Short GPS plain text and Long GPS plain text

Tilt Sensing

(page 31 of the Xeos manual)

Tilt sensor turns off the strobe when the Apollo Relay is not upright. The Relay keeps transmitting while the unit is tilted.

\$switch T 1	Turns on tilt sensing
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NMEA Sentences via Iridium

\$gNMEA 1	Enables NMEA messages
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Exercises:

Serial port connection

Read settings

Change the strobe interval

Set up the timers

Set up the messages

Verify that MBARI email is receiving the correct messages at the times you set up

Send a text message from MBARI email to the Apollo Relay

Send a text message from the Apollo Relay to MBARI email

Send a file from MBARI email to the Apollo Relay

Send a file from the Apollo Relay to MBARI email

XEOS Apollo Relay