



**DUO**

**Application Notes**

**Version 1.0**

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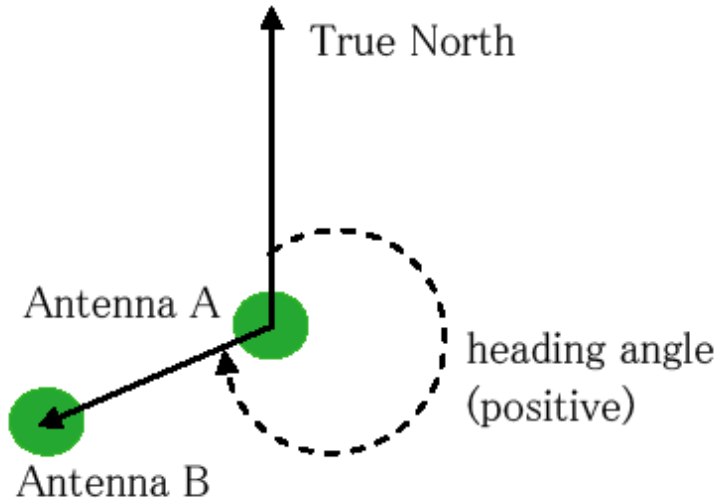
If you have a problem and cannot find the information you need in the product documentation, contact your local dealer. Alternatively, request technical support using the JAVAD GNSS World Wide Web site at: [www.javad.com](http://www.javad.com).

To contact JAVAD GNSS Customer Support use the **QUESTIONS** button available on the [www.javad.com](http://www.javad.com).



## Heading mode

The DUO receiver makes it possible to estimate heading of the baseline AB directed from antenna A to antenna B as it shown in the figure below:



To turn on the heading mode, use the command

```
set,pos/pd/hd/mode,on
```

To set the baseline length, use the command

```
set,pos/pd/hd/len/,<value in meters>
```

The default value is 0.

Setting of the baseline length by itself does not mean that it is used in the estimation procedure. To make use of the baseline length, send the command

```
set,pos/pd/hd/uselen,on
```

The default setting is 'off.'

**Note:** This command has no effect if the baseline length is set to 0.

To print the length, use the command

```
print,pos/pd/hd/len
```

If the length is unknown, the receiver can estimate it using the calibration mode. To turn this mode on, send the command

```
set,pos/pd/hd/tune,on
```

The estimate is averaged over N epochs, where N is set by the command

```
set,pos/pd/hd/naver,<N>
```

The default value is 60.

To print all 'heading' settings, use

```
print,pos/pd/hd:on
```

## Messages

To output NMEA message HDT, send the command

```
em,<port>,nmea/HDT:<period in seconds>
```

By default, the message displays the heading estimate independent of whether the solution is fixed or float. If you want the heading to be shown only when the baseline is fixed (RTK is fixed), send the command

```
set,nmea/head/fixd,on
```

To add an offset to the heading in the HDT message, use one of the following two commands:

```
set,/par/nmea/head/offset,<angle in degrees>
```

(the offset is to be in the range of  $\pm 360$  degrees)

or

`set,pos/pd/hd/aoff,{p,r,h}`

(here, p, r, and h are pitch, roll, and heading, respectively in the range of  $\pm 90$  degrees).

To get output JPS binary message BL, send the command

`em,<port>,jps/BL:<period in seconds>`

To get output JPS text message AB, send the command

`em,<port>,jps/AB:<period in seconds>`

To get output JPS text message SA, send the command

`em,<port>,jps/SA:<period in seconds>`

**Note:** The text message SA is available since firmware version 3.7.x

The message formats are described in GREIS (available at [www.javad.com](http://www.javad.com))



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