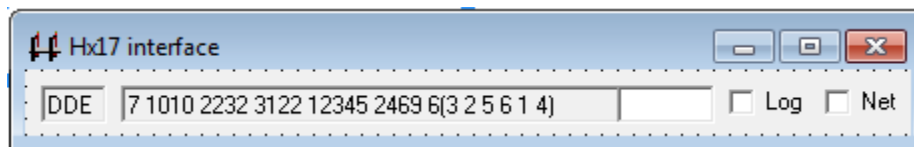


Hx17xyzDDE

The hx17xyzDDE program reads data from the hx17nr network reader. It converts incoming data from all the receivers that detect a given tag, and converts to string containing the ID and XYZ coordinates for that tag. It can handle multiple tags near simultaneously. If more than 3 receivers pick up the signal from a given tag, then the hx17xyzDDE is able to determine full 3D spatial coordinates (xyz). In case there are fewer receivers detecting the tag, the hx17xyzDDE will yield the maximum dimensions it can compute using available data. I.e. if there are only two receivers that sense the tag, a position on the X-axis is made available. In case there is only one receiver detecting the tag. The coordinate of that receiver is displayed roughly to avoid multiple tags piling up on top of each other. Single point dimension is random around the **single receiver** that picked up the tag.

The interface window below can be used to watch directly what is happening on the network (net) the activity is stored on a file. Data as displayed in the window below can be stored on a file for viewing or playback by selecting (log).



Hx17xyzDDE output

The program determines the best possible coordinates for hx17 tags and displays the results as follows:

[tag ID] [X position] [Y position] [Z position] [time from start] [record #] [number of receivers detecting the tag] [(list of detecting receivers)]

Syntax:

7 1010 2232 3122 12345 2469 6(3 2 5 6 1 4)

The values are separated with space (ASCII decimal code 32). This text window is made available to other applications running under windows through DDE (dynamic data exchange). The data string says tag 7 was detected at X=1010mm Y=2232mm Z=3122mm, it was detected 123.45 seconds after startup of the program (or creation of the data storage file), and this is the 2469th detection of this tag. Six receivers detected the signal, and these were chronologically 3 2 5 6 1 and 4. If the same receiver logged the same tag twice during the same record, this indicates a multi path echo and should be discarded. Only the first detection is used for the computation of the coordinates. Multi paths should be avoided when possible.

Logging example:

When the log feature is selected the data in the DDE window is stored on a file. The file name contains the date and time of recording as shown below.

E.g. Sep 24 09 12 16 08.xyz

<i>Tag</i>	<i>X</i>	<i>Y</i>	<i>Z</i>	<i>Time elapsed</i>	<i>Record#</i>	<i>Detection</i>
1	1023	1618	2900	25672	604	4 (4 1 3 2)
2	946	1597	2900	25678	605	4 (4 1 3 2)
1	1009	1618	2900	25744	606	2 (4 1)
1	1005	1618	2900	25815	607	2 (4 2)
2	943	1600	2900	25815	608	4 (4 1 3 2)
1	1062	1614	2900	26031	612	6 (4 1 3 2 5 6 6)
2	1003	1595	2900	26086	613	6 (4 1 3 2 5 6 5)
1	1125	1615	2900	26102	614	6 (4 1 3 2 5 6)
1	1204	1620	2900	26174	615	5 (4 1 3 2 6)
2	1067	1595	2900	26222	616	5 (4 1 3 2 5)
1	1263	1615	2900	26246	617	6 (4 1 3 2 5 6)
1	1336	1611	2900	26317	618	6 (4 1 3 2 5 6)
1	1399	1607	2900	26389	620	6 (4 1 3 2 5 6 6)
1	1406	1613	2900	26459	621	4 (4 1 3 2)
2	1130	1594	2900	26494	622	5 (4 1 3 2 5)
1	1406	1613	2900	26532	623	6 (4 1 3 2 5 6)

This example was recorded on September 24th 2009, at 12:16:08 256.72 seconds later the first tag is detected starting with record 604. Note that a few records are actually missed. Record 612 shows an echo on receiver 6, in most cases this is harmless. However since it happens often, it is worth a second look at the location of receiver 6 and perhaps relocation.

Hx17xyzDDE configuration

A file called Hx17xyzDDE.txt, found in the root directory designated for the hx17 programs allows the user to control the operation of the hx17xyzDDE.

File hx17xyzDDE.txt:

"Change the parameters in the following file, and put your comments into " comment " quotes, all values must be higher than 0"

```
1      "Computes position if this number or more receivers are detected, select a value from 1 to 20"
8      "Computes position up to specified number of receivers only. Select a value from 1 to 20"
2900   "Start of Z scan, set as close to Z plain as the Z position can be"
2900   "End of Z scan, set as far away from the Z plain as the Z position can be"
6      "Running average max 64, if less than 2 no running average is computed"
100    "Tolerance (mm): if one out of 3 previous points is outside tolerance it isn't displayed, and is
        excluded from running average"
```

"Place in the following lines a list of tags that should be displayed. Separate the tag ids with a comma ',' or a new-line. If list is omitted all tags detected are displayed."

"2,206,999,4"

"If the quotation marks are removed from the line above, only tags 2 206 999 and 4 will be positioned."

“ COMMENTS:

Minimum number referring to (line 1): If fewer than minimum number of receivers pick up a given tag within the sampling interval of 30mS, no new coordinates will be computed. If this value is less than 2, only one receiver is required to place the position. In this case the tag appears at a random position within a radius of 100mm of the pickup receiver.

Maximum number (referring to line 2): If more than maximum number of receivers pick up the same tag within the sampling interval of 30mS. The device will compute new coordinates using up to maximum number of receiver. If this value is 1, only the nearest receiver to the tag will position it randomly to within a radius of 100mm of itself.

Zmin: scans for the Z location starting from this point

Zmax: scan for the Z location ends at this point

Difference between Zmin and Zmax should be as small as possible to save computation time, this way the position scanner doesn't have to waste time to try and position Z in a place where it cannot be.

COMMENTS END"