Coordinate Transformations between EUREF-FIN and KKJ

Program name	EurefMuunnos
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Operating system	Windows
Programming language	Visual Basic
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EurefMuunnos transforms points from KKJ (=Finnish National Coordinate System) to ETRS89 or vice versa. EUREF-FIN is a realization of the ETRS89 in Finland. Because differences between ETRS89 and worldwide WGS84 (=World Geodetic System 1984) are small (< 1 meter), this program can be used also for the transformations between WGS84 and KKJ.

The points to be transformed can be inserted interactively by the user or the program can read them from input file. The format of the file is arbitrary. Input and output coordinates can be geographic latitude - longitudes or rectangular northing - eastings in Gauss-Krüger i.e.Transverse Mercator (for KKJ) or in UTM i.e. Universal Transverse Mercator (for EUREF-FIN) -projection.

Hints for user

- Check the choices in main window and click “Muunna”- button.
- In the next window
  - insert latitude & longitude or P & I in the fields “Lähtökoordinaatit” and click the button “Muunna”
  - or click “Lähtötiedosto”, select input file, click “Avaa”. Now you see the first line of input file in the field “Koordinaattirivi”. (“Seuraava rivi” reads the next line). Select from the line characters comprising 1. coordinate and then the characters comprising 2. coordinate of the point. Click “Muunna” and all the points in the file are transformed.
  - “Ohje” = “Help”, “Aloituskohdat” = ”Start selecting characters”, “Tulostiedosto” = “Output file”, “Kirjoittimelle” = “Print”, “Sulje” = “Close”

Some translations

muunnos, muunna	= transformation, transform
lähtökoordinaatit, tuloskoordinaatit	= input coordinates, output coordinates
lähtökaista, tuloskaista	= input zone, output zone
maantieteelliset Leveys, Pituus	= geographic Latitude, Longitude
suorakulmaiset Pohjoinen, Itä	= rectangular Northing, Easting

Error messages:

annetuille asetuksille sopimattomat koordinaatit	= invalid coordinates for the given settings
minuutit ja sekunnit oltava välillä 0-60	= range of minutes and seconds between 0-60
lähtökoordinaatit puuttuvat	= missing input coordinates

APPENDIX 1

Input file: KKJ- plane coordinates in Gauss-Krüger zone no. 2
(Data on a line: PointID, northing, easting, information)

```
00G31     6675107.237  2552856.284    1.lk:n kolmiopiste: HELSINKI = Kallion kirkko
86M1000   6676709.563  2552052.761    3.lk:n kolmiopiste: PASILAN VIRASTOTALO
86M8011   6677380.277  2551368.203    3.lk:n kolmiopiste: PASILAN TV-TORNI
90M1009   6678990.902  2552915.797    3.lk:n kolmiopiste: TAIVASKALLIO
90M  1   6674205.682  2551915.400    3.lk:n kolmiopiste: FINLANDIATALO
90M1007   6677730.555  2552047.542    3.lk:n kolmiopiste: RATAPIHANTIE
90M1012   6678840.480  2554525.154    3.lk:n kolmiopiste: VIIKIN MUSEO
```

APPENDIX 2

Output file: EUREF-FIN- geographic coordinates in format: aamm.mmm = degrees+minutes
(Data on a line: PointID, latitude, longitude, information)

```
00G31     6011.048456  2456.961511    1.lkn kolmiopiste: HELSINKI = Kallion kirkko
86M1000   6011.917399  2456.117327    3.lkn kolmiopiste: PASILAN VIRASTOTALO
86M8011   6012.283731  2455.387040    3.lkn kolmiopiste: PASILAN TV-TORNI
90M1009   6013.139141  2457.086345    3.lkn kolmiopiste: TAIVASKALLIO
90M  1   6010.570229  2455.930532    3.lkn kolmiopiste: FINLANDIATALO
90M1007   6012.467191  2456.127325    3.lkn kolmiopiste: RATAPIHANTIE
90M1012   6013.045471  2458.825683    3.lkn kolmiopiste: VIIKIN MUSEO
```