

# MiscIrelandCoordConverter

**Inherits From:** MiscPlanetCoordConverter : MiscCoordConverter : Object

**Declared In:** misckit/miscgiskit/MiscIrelandCoordConverter.h

## Class Description

A MiscIrelandCoordConverter object is able to convert an Irish UTM Grid Coordinate to World Coordinates and vice versa. An instance of it is created and used by MiscIrelandUTMCoord and MiscIrelandOldUTMCoord objects. There is little reason for it to be used outside of those classes. It exists as a subclass of MiscPlanetaryCoord because the Irish grid uses slightly different equations than the UK National Grid or the International UTM Grid.

This converter will respond to the **convert:to:** method for the following coordinate conversions:

<b>From Class</b>	<b>To Class</b>
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Irish UTM	World
World	Irish UTM
Irish Old UTM	World
World	Irish Old UTM
World	World
Irish UTM	Irish UTM
Irish Old UTM	Irish Old UTM

The following differences exist between the two grid systems:

The Irish document uses some constants to keep values small for calculation using tables. These constants have not been used, since they have no effect on machine calculation.

The UK document has equations IIIA and XIIA, extra correction terms. They are not used in Irish Grid and are left out here.

The UK document cancels the minus signs in equations V and VI and in the E equation, which the Irish Grid does not do. This has no effect, and is done according to the UK practice.

The Irish grid adds a last term in VI that is not present in the UK equations. It is included here.

There is an erratum to the Irish document that gives the new values of a and b. Old values are used in MisIrelandOldUTMCoord objects, new ones are used in IrelandUTMCoord objects.

For information on the underlying mathematics, refer to:

UK Ordnance Survey Information, "Transverse Mercator Projection, Constants, Formula and Methods", March 1983

Ireland Ordnance Survey, "Tables for the Transverse Mercator Projection of Ireland", 1953, reprinted 1971

;→The equations are theoretically accurate to within 1 millimeter. Extra decimal places are stored for the purpose of slowing error propagation that affects the numbers at the millimeter scale, not because the extra digits are meaningful in and of themselves. If calculations require greater than 1mm accuracy, a different set of equations must be used:

Redfern, JCB, "Transverse Mercator Formulae", 1948, Empire Survey Review, 9(69) pg318-322

## Method Types

Creating new instances      + new  
   - finishUnarchiving

## Class Methods

**new**  
+ new

Create and initialize an instance of `MiscIrelandCoordConverter` if one does not already exist. If one already exists, return it. The new instance is registered so that it can also act as a subcontractor for other converters.

## Instance Methods

**finishUnarchiving**  
- **finishUnarchiving**

A **finishUnarchiving** message is sent after the MiscIrelandCoordConverter object has been read in from a stream. This method substitutes an existing one substituted for it. **self** is freed and the existing object is returned.