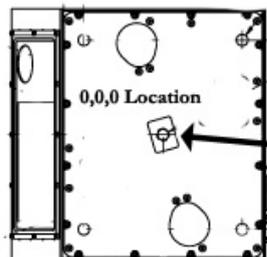# Optech ILRIS-3D Offset and Georeferencing and Calibration Information

513 Beth Bartel February 10, 2014 [Optech](#) 1794
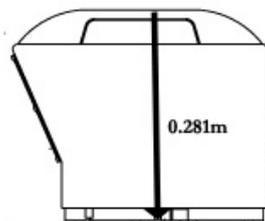
Optech ILRIS-3D Calibration Information
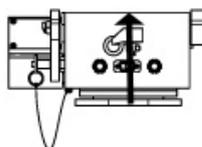
ILRIS OFFSET AND GOREFENCING

0,0,0 Location

0,0,0 Location
Center of bolt hole on the surface plane

NOTE: All data is referenced to this point regardless if the pan/tilt is attached or tilted

0.281m

Vertical Offset from GPS antenna mount (bottom center of bolt) to ILRIS 0,0,0 is 0.281m

Vertical Offset from Pan/tilt bottom to ILRIS 0,0,0 is 0.15m

Example1: GPS Point collected with Antenna Mounted to the GPS antenna mount:

GPS COORDINATE FOR ILRIS = GPS point - Antenna Height (Z) - 0.281m (Z)
Note: The equation is the same with or without the pan/tilt attached.
It is also the same with tilted scans using the pan\tilt as long as the GPS point is collected when the scanner is level

Example2: Control point on the ground with ILRIS only:

CONTROL COORDINATE FOR ILRIS = CONTROL Coordinate + Tripod Height (Z)

Example3: Control Point on ground with ILRIS and Pan/tilt:

CONTROL COORDINATE FOR ILRIS = CONTROL Coordinate + Tripod Height (Z) + 0.15m (Z)

Pan/tilt calibration

Internal camera calibration

External camera calibration

External camera calibrations are specific to the instruments used; the following calibration parameters were provided to UNAVCO by Optech specifically for the UNAVCO Optech Ilris 3D scanner with a Nikon D300 camera and a Nikon 20mm lens. These parameters serve only as an external camera calibration example.