

Method	GRAVITY	
Principle	Density variations of bedrock and overburden cause the force of gravity to vary in a discernible way. Characteristics such as position, shape, size and structure of geological formations or ore bodies are interpreted from gravity values measured using gravimeters. Because gravity depends on elevation and topography, the elevations of gravity stations must be measured more accurately than in other geophysical methods. For practical reasons, the results of gravity measurements are reduced to Bouguer anomaly values, which reflect density variations in bedrock and overburden better than the actual gravity values.	
Equipment	Gravity	Positioning
Devices in use	Worden Master Scintrex CG-3 Scintrex CG5	RTK GPS VRS RTK GPS Hydrostatic elevation meter LEVA-20 (a.k.a. chain level)
Measured components or quantities	Gravity value (FOGN) (relative measurement)	RTK GPS: x,y,z < 0.1 m Line measurement: Distance < 2 m (corrected), Lateral deviation < 5 m (corrected), z < 0.05 m (corrected)
Units	mGal	m
Reading accuracy	0.01 -0.001 mGal	0.01 -0.001 m
Other information	Manufacturers' Manuals GTK's in-house documentation	Manufacturers' Manuals GTK's in-house documentation
Measurement	Gravity	Positioning
General	Gravity measurement starts and ends at a tie point whose gravity value is known in the FOGN system. Tide correction is done either automatically (Scintrex gravimeters) or calculated at the processing stage. Gravimeter drift correction is linear in time.	RTK GPS and line measurements are tied to a network of tie points and bench marks. The network is measured separately. The closure errors of line measurements are corrected linearly relative to the number of points.
Measured quantities	Gravity difference	Northing, Easting, Elevation
Quality requirement of reading accuracy	Tie measurement: < 0.03 mGal Line measurement: < 0.04 mGal Reconnaissance measurement: < 0.06 mGal	RTK GPS: x,y,z < 0.1 m Line measurement: Distance < 2 m (corrected), Lateral deviation < 5 m (corrected), Elevation < 0.05 m (corrected)
Maintenance of reading accuracy	Scatter of single measurement Drift control Checking of results in the field and in the office	Closure control Checking of results in the field and in the office
Repeat criteria	Measurements are repeated when gravimeter drift is greater than 0.3 mGal per 4 hours.	Measurements are repeated when lateral deviation is greater than half line interval or closure error is greater than point interval. Hydrostatic elevation (chain level)

		measurements are repeated when closure error is greater than 0.5 m per 0.5 km.
Reductions	Latitude reduction, free-air reduction, Bouguer reduction, terrain correction	
Other information	GTK's in-house quality system documentation "APV-TKK"	GTK's in-house quality system documentation"APV-TKK"