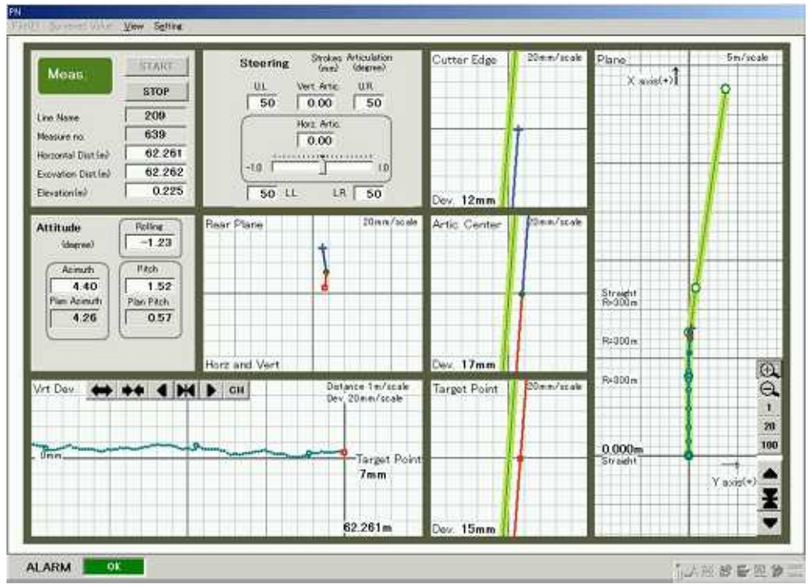
Optimum control of machine position for curved pipe Jacking

POSITION and ATTITUDE MEASUREMENT SYSTEM

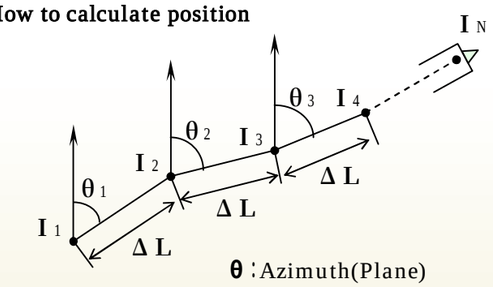
PN-200 SERIES



Alignment screen

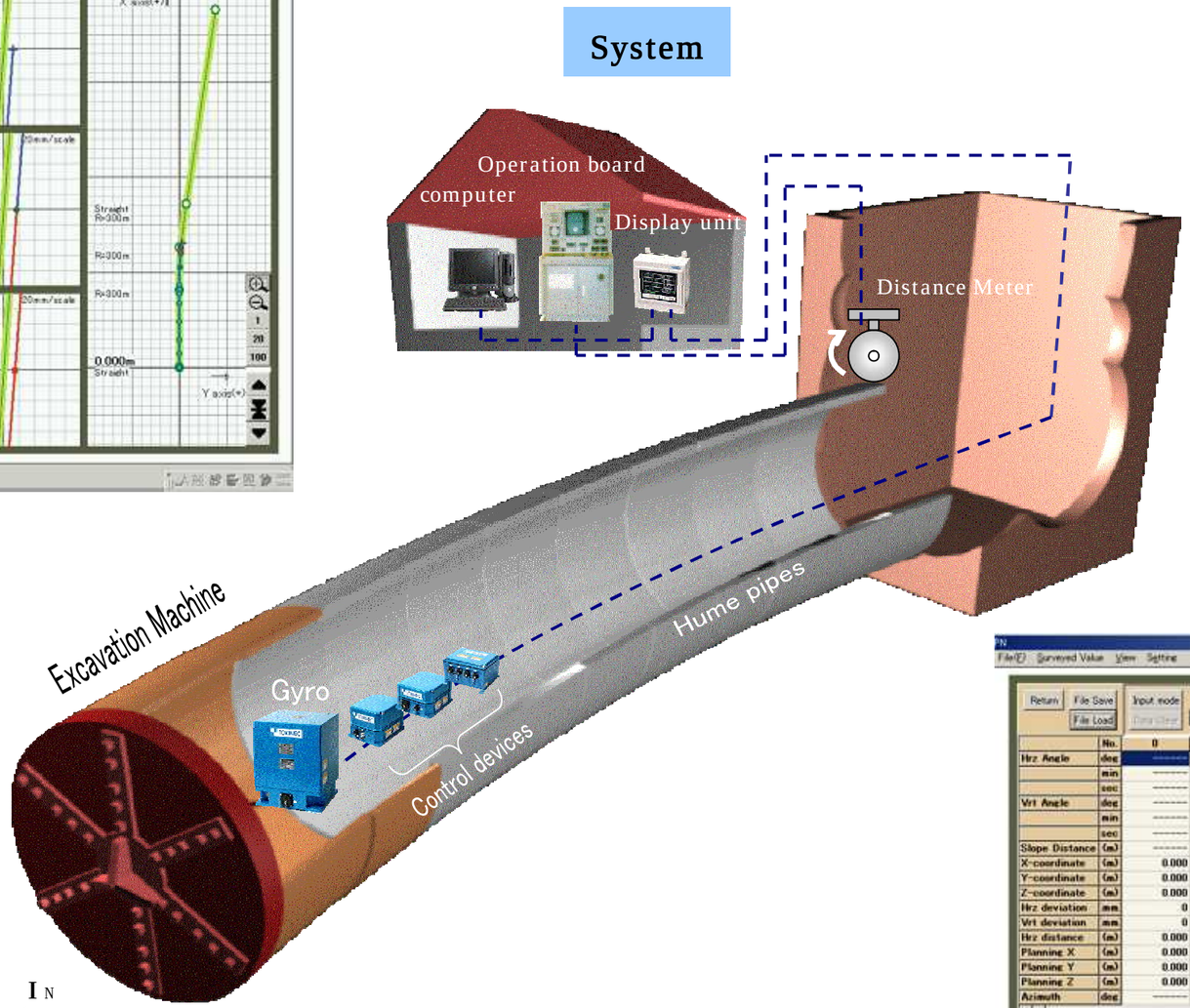
The north seeking gyrocompass is an absolute directional sensor that detects direction from the North Pole.
This sensor has been used with extremely satisfactory results in curved pipe jacking systems.
Real time machine coordination and position can be determined by absolute direction and distance data.
This systems allows drastic reduction in survey work.

How to calculate position



θ : Azimuth(Plane)
or Pitch(vertical)

System



The position of the machine can be derived from calculation of excavation distance and calculation of attitude angle (azimuth and pitch).
Suppose you excavate a short distance, △L from a known point, I_1, in direction θ_1, I_2 can be obtained by calculation. Similarly, I_3, I_4, ... I_n can be obtained.

Features

●Absolute direction
Gyrocompass detects absolute direction.
Servo type acceleration meter measures pitch and roll.

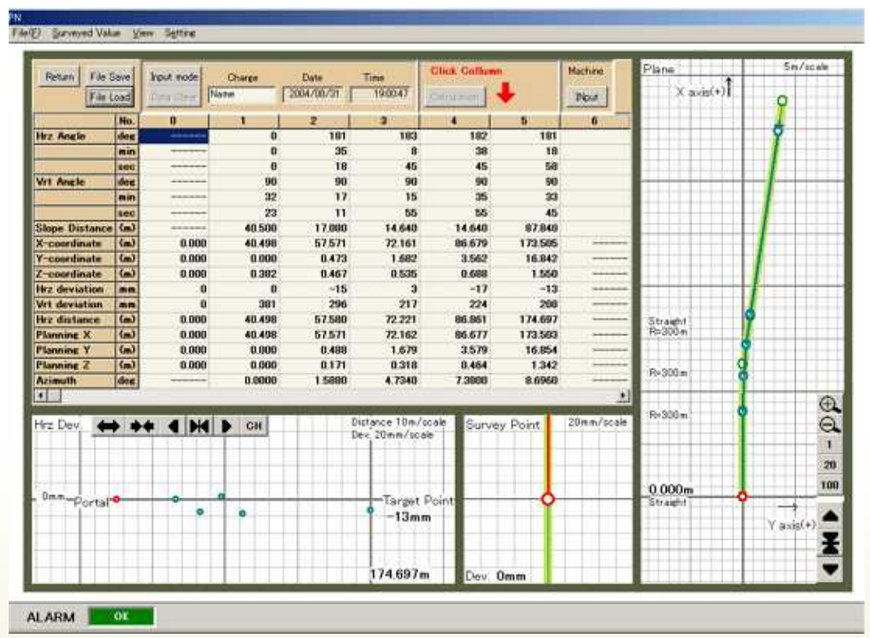
●Real time machine position
Machine position is determined in real time and maintained in accurate alignment by the gyrocompass and distance meter.

●The increase in efficiency of the work
Reduction in amount of surveying which improves work efficiency.

●Graphical survey image
Input of survey results executes transverse calculation and deviations relative to design tunnel alignment will be displayed.

●Easy –handling and user-friendly software
Graphic user interface navigate operator clearly.

●Data saving
Various related values saved in database every



Survey calculation screen

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Specification

Gyrocompass

Item		TMG-32B
Azimuth setting accuracy		±0.05 °
	Resolution	0.01 °
Pitch/Roll	accuracy	±0.1 °
	Resolution	0.01 °
External View		
Sensor unit dimensions		300W×300D×325H
System Composition		Sensor unit, Power supply unit, Control unit, Junction Box, Display unit
Setting Time		Within 5 hours from power on
Overhaul Period (Gyro Compass)		15000 hours
Back up Time(Battery)		30minuts

Level Sensing System

Item		TL-300B
Measurable range		-50 ～ -6300mm +50 ～ +6300mm
Pressure sensor accuracy		0.18%(F.S)
Temperature differential drift	Pressure sensor	±0.85mm/5℃
	Connection hose	-7.5mm/5℃(In the case of 600m of hose length) -2.5mm/5℃(In the case of 200m of hose length)
Liquid to be used		City water (Note: Supply water pressure more than 196kPa)
System Composition		Sensing Level unit、Reference Level unit (Junction Box and Display unit uses with the Gyro in common.)

CAUTION

Before operating this equipment, you should first thoroughly read the operation

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PIPE JACKING

GYRO NAVIGATION SYSTEM

PN-200