CONTINUOUSLY OPERATING GEODETIC REFERENCE STATION

µZ-CGRS System

The MicroZ Continuous Geodetic Reference Station (µZ-CGRS™) System provides you with the world's most powerful GPS Reference Station technology. The Ashtech® µZ-CGRS from Thales Navigation professional products is the latest and most advanced receiver in the Z family and incorporates patented Z-Tracking™. Designed for high-accuracy scientific, land survey, and engineering applications, the µZ-CGRS system is ideal as a permanent GPS base station.

The µZ-CGRS system includes all necessary components for continuous collection of high-quality dual-frequency GPS data through simple Windows or Unix interfaces. Data can be downloaded from the µZ-CGRS while the receiver continues tracking and logging data. External frequency input is standard.

Powerful Z-Tracking Technology

The µZ-CGRS system from Thales Navigation is built upon field-tested and patented Z technology. What this means to you is uninterrupted operation during Anti-Spoofing (A-S) and large ionospheric activity. Standard features of the µZ-CGRS receiver include all-in-view 12-channel operation, multi-bit signal processing for RF jamming immunity, and SAW filtering techniques.

Full Met/Tilt Sensor Integration

The µZ-CGRS is easily integrated with a meteorological sensor and/or a tilt meter. The four available ports allow the user to connect to both sensor types simultaneously. Met and tilt data are logged and can be downloaded together with the GPS data or streamed in real time. BINEX data format for real time data streaming is standard on all receivers.

Choke Ring Antenna Designed for High Precision

The µZ-CGRS System incorporates the high-precision Ashtech L1/L2 Choke Ring antenna. This antenna is the accepted design for the International GPS Service (IGS) tracking network, the Southern California Integrated GPS Network (SCIGN), and numerous other networks around the world.

Micro-Manager Control Software

Micro-Manager, a Windows control software package, is bundled with every µZ-CGRS system. Micro-Manager provides complete control over the receiver allowing the user to easily set receiver parameters, program recording sessions, download data, and upload new firmware. The optionally available Micro-Manager Pro allows all this functionality remotely through a radio or telephone modem. Simply connect the remote receiver to a modem and call it from a PC. Once the connection is established, you can enjoy full control of the site from anywhere in the world.

Optional RTCM SC-104 v 2.2 Broadcast

Even while the µZ-CGRS is logging precise GPS data it can broadcast RTCM SC-104 v 2.2 corrections to users for DGPS and RTK. This option allows you to easily use the same receiver for multiple tasks, providing you more value for your investment.

µZ-CGRS System

TECHNICAL SPECIFICATIONS

µZ Measurement Precision[1]

C/A (>10° elevation)

- Pseudorange: 25 cm/3.6 cm (raw/smooth)2
- Carrier phase: 0.9 mm

P-Code AS Off (>10° elevation)

- L1 Pseudo-range: 15 cm/0.9 cm (raw/smooth)2
- L1 Carrier phase: 0.9 mm
- L2 Pseudorange: 21 cm/1.3 cm (raw/smooth)2
- L2 Carrier phase: 0.9 mm

P-Code AS On (Z-Tracking)

- L1/L2 Pseudorange (raw/smooth)2
- 10–30° Elevation: 120 cm/20 cm
- 30–50° Elevation: 25 cm/6 cm
- >50° Elevation: 10 cm/3 cm

L1/L2 Carrier phase

- >10° Elevation: 1.4 mm

Systematic Errors (Between Satellites)

- Pseudorange (all bands): <1.00 cm
- Carrier-phase (all bands): <0.01 cm

Post Processing Accuracy

Static, Ashtech SolutionsTM Software

- Horizontal: 5 mm + 1 ppm
- Vertical: 10 mm + 1 ppm

Static, GIPSY Software

- Horizontal: 3 mm
- Vertical: 6 mm

Environmental and Physical Specifications

Dimensions

- Inches: 2.5 H x 17.0 W x 9.6 D
- Cm: 6.33 H x 7.01 W x 24.3 D

Weight

- Receiver: 3.75 lbs.(1.7 kg)
- Antenna: 9.41 lbs. (4.3 kg)

Power

- 10-28 VDC, 7.0W Max, 5.6W nominal

Temperature Ranges

Receiver

- Operating: -40°C to +60°C (-38°F to +140°F)
- Storage: -40°C to +85°C (-38°F to +185°F)

Antenna

- Operating: -40°C to +65°C (-38°F to +149°F)
- Storage: -55°C to +75°C (-65°F to +167°F)

Meets MIL STD 810E for wind-driven rain and dust.

System Components

Time to First Fix (typical)

- Cold: < 2 min
- Warm: < 30 sec
- Hot: < 9 sec
- Reacquisition: < 4 sec

Over Voltage Protection

- 28 to 60 VDC

Recording Interval

- 0.2 sec to 999 sec
- 0.1 sec to 999 sec optional

µZ-CGRS Receiver

- 12-channel all-in-view operation
- Patented Z-Tracking technology
- Full tracking of L1 C/A Code, L1/L2 P Code, and L1/L2 full-cycle carrier
- 32 MB memory
- 3-LEDs; power/SV; raw observable data logging; MET/TILT data logging
- 4 independent programmable serial ports
- Remote monitoring capability
- External frequency input (5, 10, 20 MHz)
- Real-time data outputs
- Z-Modem protocol
- NMEA 0183 message outputs
- Session programming
- Micro-Manager Control Software
- Rugged construction
- 5 Hz data output
- Receiver reference manual
- 1-year warranty
- Free technical support

Choke Ring Antenna

- 100% IGS compatible choke ring design
- Dorne & Margolin C146-10 dipole antenna element
- Proprietary low-noise amplifier (LNA)

Cables

- 10 m antenna cable
- 30 m antenna cable
- Car battery cable
- Power Y-cable
- Power cable
- Single RS-232 data cable
- Single RS-232 modem cable
- 1 PPS timing signal (5V TTL) plus serial cable
- Dual MET/serial I/O cable

Power

- 110/220 VAC 50/60 Hz UL, CE Power Supply
- Softcase Battery (17 hr operation @ 23°C)
- Battery Charger

Communications

- 4 bi-directional RS-232 serial ports (115,200 baud rate)

Optional Accessories and Features

- 128 MB memory upgrade
- Fast data output (10 Hz)
- RTCM message outputs
- Real-time Kinematic (RTK) broadcast capability for centimeter-level accuracy
- Geodetic IV antenna
- Antenna line amplifier
- Geodetic Base Station Software
- Micro-Manager Pro Remote Operation Software
- Ashtech Solutions
- 60 m antenna cable
- Meteorological package
- Tilt sensor

Ordering Information

Product	Part Number
µZ-CGRS Standard System	990441–32
Receiver only	800960–XX

1 Precision specifications are rms values for the lowest possible signal strengths as specified in ICD-GPS-200B.

2 The µZ receiver provides both raw pseudorange and a smoothing correction. Applying the smoothing correction to the raw pseudo-ranges yields the high accuracy

µZ-CGRS back panel

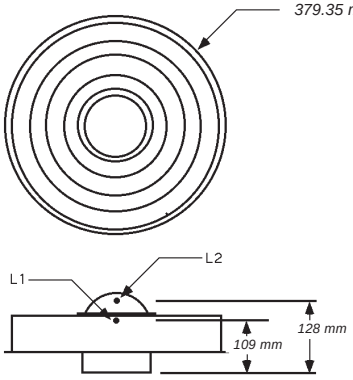

Figure above: Choke Ring Antenna: top and side view (phase centers are published NGS values)

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Thales Navigation follows a policy of continuous product improvement; specifications and descriptions are thus subject to change without notice. Please contact Thales Navigation for the latest product information.

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