Ashtech µZ-CGRS System

12-Channel, Dual-Frequency Continuously Operating Geodetic Reference Station for Scientific, Land Survey, GIS, and Engineering Applications

The Ashtech Micro-Z Continuous Geodetic Reference Station (µZ-CGRS) System provides you with the world's most powerful GPS Reference Station technology. The µZ-CGRS 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® 95™ / NT™, or Unix interfaces. Data can be downloaded from the µZ-CGRS while the receiver continues tracking and logging data. External frequency input is standard.

The µZ-CGRS system has been designed to meet the stringent requirements of continuous operation. Networks such as the U.S. and Canadian Coast Guards' DGPS, SCIGN, National Geodetic Survey's CORS network, the Bay Area Regional Deformation network, and the China Seismological Bureau rely on Ashtech Reference Stations.

Powerful Z-Tracking Technology

The µZ-CGRS system is built upon field-tested and patented Z technology. What this means to you is uninterrupted operation during Anti-Spoofing (AS) 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 uZ-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 95/NT control software package, is bundled with every uZ-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.

A UNIX/Linux utility (Remote33) for remote control and downloading data is also available.

Optional RTCM SC-104 v 2.2 Broadcast

Even while the uZ-CGRS is logging precise GPS data it can broadcast RTCM-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.

Optional Geodetic Base Station Software (GBSS)

Designed in an efficient 32-bit multitasking environment, GBSS logs GPS data to a PC hard drive and runs on Windows 95 / NT platforms. Data is archived in Ashtech format or RINEX format. The software supports secure, multiple user access through FTP, a WWW page, or a BBS system.

GBSS provides you with complete control over all data recording parameters, including the data file length. Once configured, the base software requires minimal maintenance and will provide high-quality data 365 days a year.

A Complete Reference Station Solution

Ashtech Reference Stations have set the industry standards for high-precision continuous operation. With the introduction of the µZ-CGRS system, powerful easy-to-use reference station technology is now available at an affordable price. The µZ-CGRS system is an easy-to-operate package that delivers high-accuracy results to meet your reference needs.

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Ashtech
Precision Products

Ashtech µZ-CGRS System Specifications

µZ Measurement Precision[1]

C/A (>10° elevation)

- Pseudo-range: 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 Pseudo-range: 21 cm/1.3 cm (raw/smooth)[2]
- L2 Carrier phase: 0.9 mm

P-Code AS On (Z-Tracking)

- L1/L2 Pseudo-range (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

[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 pseudoranges.*

Standard System Features

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
- 16 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 Ashtech low-noise amplifier (LNA)

Cables

- 30M antenna cable
- Car battery cable
- Power Y-cable
- Power cable

Power

- 110/220 VAC 50/60 Hz UL, CE Power Supply
- Softcase Battery
- Battery Charger
- Single RS-232 data cable
- Single RS-232 modem cable

Communications

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

Environmental and Physical Specifications

Dimensions

- Inches: 2.5 H x 7.0 W x 9.6 D
- cm: 6.33 H x 7.71 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

Temperature Ranges

Receiver

- Operating: -40°C to +55°C
- Storage: -40°C to +85°C

Antenna

- Operating: -40°C to +65°C
- Storage: -55°C to +75°C

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

µZ-CGRS back panel

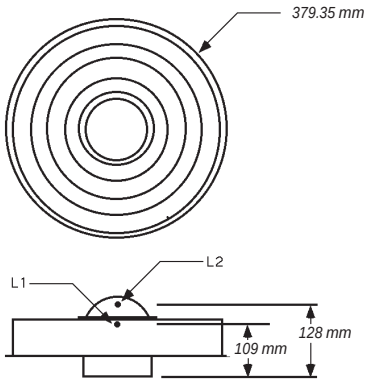

Figure above: Choke Ring Antenna: top and side view (phase centers are published NGS values)

Optional Accessories and Features

- 32 or 80 MB memory upgrade
- 1 PPS timing signal (5V TTL) cable
- Fast data output (10 Hz)
- Real-time Kinematic (RTK) broadcast capability for centimeter-level accuracy
- RTCM message outputs
- Geodetic IV antenna
- Antenna line amplifier
- Geodetic Base Station Software
- Micro-Manager Pro Remote Operation Software
- Ashtech Office Suite for Survey (AOSS)
- Ashtech Solutions™
- 60 m antenna cable
- Meteorological package
- Tilt sensor

Ordering Information

Product	Part Number
µZ-CGRS Standard System	990397–XX
Receiver only	990441–XX

Specifications are subject to change without notice.

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PRECISION PRODUCTS