

# System 210

## Landforming and Water Management



X20 Control Console  
(order separately)

MC-R3 Receiver

CR-G3 Dome Antenna  
PG-A1 Antenna

HiPer AG Mobile  
Base Station

Time-proven Land Leveling, Surveying,  
and Field Design System

Water Management is an essential and integral  
part of today's precision farming practices.  
Effective water management makes the most  
efficient use of the world's most precious  
resource while protecting the environment.



WATER  
MGMT



GUIDE



RECORDS  
& DATA

- Single or dual scraper configurations
- Perform field surveys in minutes
- Dual-constellation GPS + GLONASS satellite reception
- 24/7, day or night operation
- Easy-to-use AGForm-3D field design and survey software calculates best-fit slopes and reduces yardage

# System 210 Landforming and Water Management

Landforming requires an extra level of elevation accuracy that many GPS manufacturers cannot meet. Topcon leads the world in multiple constellation GNSS positioning and machine control with the most advanced technology and cutting edge tools available.

## With GPS, move the dirt once!

Based on Topcon's time-tested, field-proven AGS technology, System 210 helps improve surface drainage and irrigation efficiency. Dual-constellation reception provides maximum accuracy, 24/7 operation and takes precision landleveling beyond the limits of laser control. GPS follows the earth's curvature, so there's no time spent blending multiple laser setups. No need to move laser tripods or trailers, no calibration, no wasted time aligning, and no adjusting slopes trying to match grades. Just press "power" and start moving dirt! GPS is unaffected by temperature change, so beam drift and refraction are issues of the past. You never have to wonder if a laser is calibrated or the grade is right.

## HiPer AG Mobile RTK Base Station

The HiPer AG functions as an ultra-mobile, cable-free base, a fixed base station (with optional external GPS or radio antennas), or as a surveying rover. For landleveling, HiPer AG provides the GNSS corrections that enable high-accuracy Z-axis positioning. While the best Z-axis results are obtained within 2.5+ miles, centrally placing the HiPer AG in the field or project allows you to grade over



12,000 acres from one setup. The compact unit integrates a receiver, radio, antennas, and rechargeable battery, so there's no messy cables. Its powerful 40 channel GNSS board operates at up to 20Hz while multipath mitigation and co-op tracking provide under-canopy and low signal

strength reception. For surveying, the receiver provides the functionality, and integrity needed for fast and easy data collection.

The X20 multi-function, color touch-screen controller displays real-time elevation, maps, position, and menus. System 210 lets you survey, create cut/fill maps and start grading without leaving the cab. Best-fit calculations can reduce yardage to be moved 10% or more versus traditional hand-calculated laser surveys. Or, just enter desired single or dual slopes. System 210 instantly creates a cut/fill map, which means productivity starts immediately – even with inexperienced operators. The large bright display lets you see exactly where you are in the field at all times, day or night.



## MC-R3 Receiver

The rugged housing integrates the receiver, radio, and controllers and provides multiple I/O ports for maximum connectivity. A variety of modems are available. The front panel provides status indicators and function keys for quick performance and system checks. With robust processing capabilities and programmable valve drivers, the MC-R3 provides smooth hydraulic control for cut/fill, grading, and surveying. Removable magnetic or permanent mounting.



## Dual Frequency, Dual Constellation Antennas

The PG-A1 features an integrated ground plane and precision micro-centering technology and to reduce multipath errors. The optional CR-G3 dome antenna incorporates an internal choke ring for exceptional performance in more demanding multipath prone environments. The CR-G3 also features an enhanced LNA which allows operation with longer cables.



## Specifications

### CR-G3 Dome Antenna

Frequency	L1 GPS/GLONASS - 1586.5 ± 25 MHz L2 GPS/GLONASS - 1236 ± 20MHz L5 GPS - 1176 ± 12 MHz
LNA Gain	CR-G3: 30 dB (typical), CR-G3N: 45 dB (typical)
Power	Input Voltage +3 to +18 VDC, 30 mA (typical)
Weight	12.78 lbs. (5.8 kg) (with spherical dome)
Dimensions (w/dome)	14.96" dia. x 11.5" height (380 x 292 mm)
Connector	N female

### PG-A1 Antenna

Frequency	L1/L2; GPS/GLONASS
Frequency	Range 1: 1217-1260 MHz Range 2: 1565-1620 MHz
LNA Gain	32 ± 2 dB, output 50 Ohm
Power	+2.7 to +12 VDC
Weight	1.08 lb. (492 grams)
Dimensions	5.57" x 5.57" x 2.11" (141.6 x 141.6 x 53.7 mm)
Connector	TNC female

### MC-R3 Receiver/Controller

Power	+10 to +30 VDC, 3A (typical) 18.5A (max)
Power Out	sensors 10A max, valves 8A max, modem 12V/500MA max.
Weight	7.5 lbs. (3.4 kg)
Dimensions	10.5"w x 7.8"d x 4.4"h (266.7 x 198.1 x 111.7 mm)
Connectors	2 ea. DRC23-40P Deutsch, 2 ea. type N (optional GPS) 1 ea. RP-TNC (optional radio), 1 ea. TNC (optional LPS)
Ports	6 ea. RS-232, 2 ea. CAN, 2 ea. Ethernet, 1 ea. RS-485 1 ea. EDGE (optional SIM card), 1 ea. I²C Smart Knob™

### HiPer AG Base Station GPS & GLONASS

Tracking:	40 channels L1/L2 C/A, P-Code, Full Code & Carrier data
Power	+6 to +28 VDC, internal battery Li-ion (4400mA/7.4V)
Weight	3.85 lbs. (1.75 kg)
Dimensions	6.26" x 3.78" x 6.81", (159 x 96 x 173 mm)
Connectors	2 ea. 7-pin ODU, 2 ea. 5-pin ODU, 1 ea. BNC, 1 ea. TNC
Correction Accuracy	Static: 3mm+0.5ppm x D hor., 5mm+0.5ppm x D vert. RTK: 10mm+1ppm x D hor., 15mm+1ppm x D vert. DGPS: 0.5m Real time

## AGForm-3D Survey and Design Software

Intuitive and easy-to-use solution for improving irrigation and drainage. AGForm-3D lets you break fields into multiple sections to reduce yardage, shorten hauls and minimize topsoil cuts. Design sections as best-fit, single-slope, or dual-slope planes, then transfer files to the System 210 controller for automatic GPS control.

AGForm-3D's powerful non-planar design capability is perfect for solving surface drainage problems. Enter desired slopes and AGForm-3D creates 3D designs that ensure your fields will drain. Retain natural slopes while smoothing highs and lows that impede water flow.

An ideal companion for your System 210, AGForm-3D with a HiPer AG gives you a complete ag survey system and lets you perform fast, accurate, surveys from one setup, even with large elevation changes, irregular shapes, dust, wind, or fog.



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