AGS-2 Receiver and Steering Controller

Future Proof Autosteering

Designed to suit virtually any agricultural machine type, make and model, the Topcon AGS-2 receiver and steering controller combines field proven steering with leading network tracking capability in a refined, compact and durable form.

FEATURES

- Unique Universal Tracking Channels™ Technology
- Expanded satellite constellation tracking – GPS, GLONASS, GALILEO, QZSS, BeiDou, SBAS
- Scalable accuracy – SBAS, DGPS, PPP, RTK – including access through authorization codes and subscriptions (PPP and RTK only)
- SkyBridge™ – RTK assist technology which uses TopNET Global Positioning to supplement RTK positioning during temporary radio or cellular link outage
- External communication devices (e.g. Topcon Cloudlynk connectivity devices) – Provide support for UHF, FH915 radio options, cellular, Wi-Fi and Bluetooth®
- Interface flexibility – Compatible with proven Topcon X Family displays (X25, X35, XD, XD+), ISO-UT capable displays*, NMEA 0183 and NMEA 2000
- High durability – IP69K

PHYSICAL		
Housing	Base – Aluminum; Radome – Xenoy	
Dimensions (h x w x d)	53 x 130.5 x 136.5 mm	
Weight	0.75 kg	
LEDs	1 Tri-color: STAT satellite status	
Mounting	4 * M5, range of brackets available	
Connectors	12pin DT Deutsch M12	
ENVIRONMENTAL		
Operating Temperature	-40ºC to 70ºC (-40°F to 158ºF)	
Storage Temperature	-40ºC to 80ºC (-40°F to 176ºF)	
Ingress Protection	IP69K	
Vibration	ISO 15003/DIN 10046 PART 8	
Shock	ISO 15003/DIN 40046	
Salt Spray Test	ISO 15003	
Humidity	95%, non-condensing	
Jerk	3 g/sec	
Acceleration	20 g	
POWER		
Input Voltage	9 - 28 VDC	
Consumption	11 W maximum	
Supply Current	650 mA typical operating current at 12 Vdc 2 A maximum	
COMMUNICATION INTERFACES		
RS-232 Interface	Number of interfaces	2
	Electrical and mechanical	Conforms to EIA RS-232
	Connection method	Point-to-point
	Transmission mode	Full duplex
	Baud rate	4800, 9600, 19200, 38400, 57600, 115200 (default) 230400 and 460800
	Data length	7 or 8 (default)
	Stop bit	1 bit (default) or 2 bits
	Parity	No parity (default), even, or odd
	Flow control	RTS/CTS (hardware handshaking) on serial port A
	Data output format	NMEA0183, proprietary
CAN Interface	Compliance	J1939 and ISO 11783
	Number of interfaces	2
	Electrical and mechanical	Conforms to CAN 2.0 A/B
	Data output format	NMEA 2000, OEM proprietary
	Data rate	250 kbs
Automotive Ethernet Interface	100BASE-T1 IEEE 802.3bw (compatible with BroadR-Reach Automotive spec 3.2)	
	Number of interfaces	1
	Electrical and mechanical	ISO 15118, single twisted pair
	Transmission method	TCP/UDP
	Data rate	100 Mbps
	Communication protocol	ISO 15118
	Supported services	FTP, proprietary

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TRACKING SPECIFICATIONS

Channels	226 Universal Tracking Channels™
Tracked Signals	GPS: L1C/A, L1P, L1C*, L2P, L2C, L5 GLONASS: L1C/A, L1P, L2C/A, L2P, L3* GALILEO: E1, E5AltBOC, E5a, E5b BeiDou: B1, B2 QZSS: L1C/A, L1C, L1-SAIF, L2C, L5 SBAS: WAAS, EGNOS, MSAS, GAGAN, AUSBAS*, SDCM* L Band
Time to First Fix (50%)	Hot (almanac and recent ephemeris and approx. position) < 10 sec Warm (almanac, approx. position and time, no recent ephemeris) < 35 sec Cold (no almanac or ephemeris, no approx. position or time) < 60 sec
Reacquisition	< 1 sec

TRACKING FUNCTIONS

Multi-path Reduction	Code and Carrier
PLL/DLL/QLL Setting	User-configurable
Pseudorange Smoothing	Adjustable, Trupass™ technology

DATA FEATURES

Data Format	Proprietary (TPS) data format RTCM SC104 versions 2.x and 3.x CMR and CMR+ (public version)1, BINEX NMEA 2000 over CAN: 129029, 129025
ASCII Output	NMEA 0183 version v2.x, v3.x, v4.x

POSITION AND VELOCITY FEATURES

DION™	Active filter reduces disturbances in positional results, leading to smoother, more consistent output in static and dynamic applications; also allows seamless transition between positioning modes
Multipath Mitigation	A proprietary signal-processing algorithm mitigates multipath effect on satellite measurements
Quartz-Lock Loop™ (QLL)	Patented technology eliminates satellite tracking failures and positioning degradation caused by vibration and shock
Ion Shield™	Continuously monitors ionospheric conditions and rapidly switches to iono-free combination if ionospheric disturbances have been detected
Geometetric Attitude Filter	A novel algorithm robustly combines GNSS, inertial and odometer measurements to provide accurate 3D orientation in all conditions
Velocity Filter	Adaptively reduces noise errors while correcting dynamic errors in raw velocity estimates

HORIZONTAL POSITION ACCURACY** (RMS)

	Absolute	Pass-to-pass (15 min)
Standalone	1.2 m	35 cm
SBAS	50 cm	20 cm
TopNETlive PPP services TopNETlive StarPoint TopNETlive StarPoint Pro	40 cm 2.5 cm	15 cm
SkyBridge	Supplements RTK positioning during temporary radio or cellular link outage TopNETlive SkyBridge TopNETlive SkyBridge Pro	Up to 20 minutes Unlimited correction outage
RTK	1 cm + 1ppm	
Velocity Accuracy	0.02 m/sec	
Time Accuracy	30 nsec	

SENSOR FUSION

Integrated Inertial Unit with Thermo Control	Three axis accelerometer, three axis gyro, three axis magnetometer (compass)
ISOBUS Sensors Support	Wheel angle sensor, odometer
Accuracy (RMS)	Pitch & roll: 0.2 deg, heading: 0.5 deg

STEERING CONTROL

Hydraulic	Danfoss PVED-CL, PVED-CLs (ISO25119 AgPl-d), EHi valve ACU-1 (PWM & others) and a wide range of other supported steer ready controllers
Electric	AES-25, AES-35
Vehicle Platforms (Steering)*	Front-Steered, Rear-Steered, Tracked, Articulated, Windrower, 4 Wheel-Steered

SPRAYER

Mounting	Front, Rear

PATH PLANNING

Waylines	Parallel AB, Parallel A+heading, Center Pivot, Identical Curve, Headland turns, Guidelock, Steer to Boundary, Multiple AB lines, Controlled Traffic***

[1] CMR/CMR+ is a third-party proprietary format. Use of this format is not recommended and performance cannot be guaranteed. Use of industry standard RTCM 3.x is always recommended for optimal performance.

* HW ready, signals, services and features will be available for usage after system release/ FW update, etc.

** These specifications will vary depending on the number of satellites used, obstructions, satellite geometry (PDOP), occupation time, multipath effects, and atmospheric conditions. Performance may be degraded in conditions with high Ionospheric activity, extreme multipath, or under dense foliage. For maximum system accuracy, always follow best practices for GNSS data collections.

*** Not all available in ISO UT

Specifications subject to change without notice.

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