Supplemental Sensors

A tilt sensor and gyro are integrated in the Crescent V100/ V110. The user can turn either on or off. However, the system's performance is optimized with both on.

	GYRO AID	TILT AID
Purpose	Smooth rate of turn: -Provides alternate source of heading for up to 3 minutes when GPS lock is lost -Shortens heading reacquisition time	-Smooths rate of heading -Reduces startup and reacquisition times for obtaining heading
Calibration Procedure	Will self-calibrate after several minutes To manually calibrate: -After heading is computed -$JATT,GYROAID,YES -Spin Vector for 1 minute at less than 15° per second -Leave unit stationary for 4 minutes **It is not necessary to recalibrate with standard use because the gyro selects the calibration.	Precalibrated during manufacture To recalibrate: -Ensure Vector is level -$JATT,TILTCAL

Common Commands and Messages

Differential Commands	
$JDIFF	Differential mode
$JWAASPRN	Configure for specific SBAS PRN numbers
$JGEO	Query for current location and satellites
$JASC,D1	Request SBAS diagnostic information
$GPMSK	Tune beacon to specific frequency
Serial Port Setting Commands	
$JBAUD	RS-232C, RS-422 (output) communication rate
NMEA Messages	
$GPGGA	GPS fix data
$GPGLL	Geographic position - lat/long
$GPGSA	GNSS DOP and active satellites
$GPGSV	GNSS satellites in view
$GPVTG	COG and ground speed
$GPZDA	Time and date
$GPHDG	Provides magnetic deviation and variation for calculating magnetic or true heading
$GPHDT	RTK-derived GPS heading
$GPROT	RTK-derived GPS Rate of Turn
$PCSI,1	Beacon status
$PSAT,HPR	Heading, pitch/role and time in single message
$GPHDM	Magnetic heading (based on RTK-derived GPS and magnetic declination)
$J4STRING	Output GPGGA, GPVTG, GPGSA and GPZDA (1 Hz max)
Heading Parameter	
$JATT,TILTAID	Enable/disable accelerometer, pre-calibrated
$JATT,TILTCAL	Calibrate accelerometer
$JATT,GYROAID	Enable/disable gyro
$JATT,LEVEL	Enable/disable level operation
$JATT,HTAU	Set/query heading time constant (0.0 to 3600.0 sec)
$JATT,PTAU	Set/query pitch time constant (0.0 to 3600.0 sec)
$JATT,HRTAU	Set/query heading rate time constant (0.0 to 3600.0 sec)
$JATT,COGTAU	Set/query COG time constant (0.0 to 3600.0 sec)
$JATT,SPDTAU	Set/query speed time constant (0.0 to 3600.0 sec)
$JATT,HBIAS	Set/query heading bias (-180.0° to +180.0°)
$JATT,PBIAS	Set/query pitch/roll bias (-15.0° to +15.0°)
$JATT,NEGTILT	Enable/disable negative tilt
$JATT,ROLL	Configure for roll or pitch
$JATT,NMEAHE	Changes the HDT, ROT, HDG and HDM message headers between GP and HE (or HC)

Crescent V100 Series Quick Reference Guide

(Part Number 875-0185-000 Rev. A1)

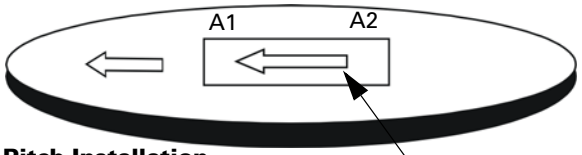
Crescent V100 - DGPS
Crescent V110 - DGPS + Beacon

Installation

Choose a location for installation using either the pole or fixed mount where the Crescent V100/V110:

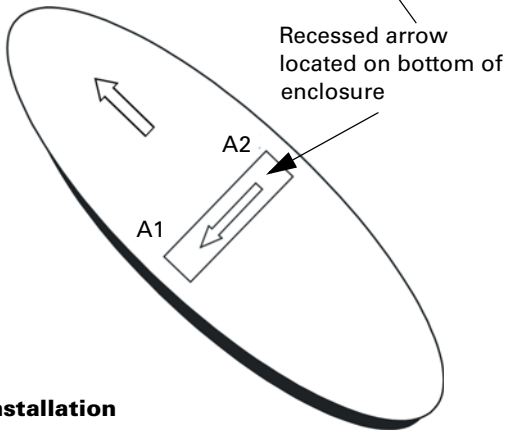
- Has a clear view of the sky
- Is away from other antennas and electrical equipment
- Has enough cable to reach power source
- Is horizontal

Refer to the Crescent V100 Series User Guide for detailed installation instructions.



Pitch Installation

To provide heading and pitch, mount parallel to boat's axis, facing bow.



Roll Installation

To provide heading and roll, mount perpendicular to boat's axis. Configure a bias heading of +90° if facing port or -90° if facing starboard.

- A1: Primary antenna determines your position
- A2: Secondary antenna determines pitch or roll (enter 90° bias if using roll set-up)

Wiring Interface

Information for the 15 meter cable (part number 051-0157-002) and 30 meter cable (part number 051-0158-001) is shown in the table below.

Port	Baud rate	NMEA message	Default update rate	Wires
Port A (RS-232)	19200	GPGGA, GPVTG, GPGSV, GPZDA, GPHDT, GPROT	1 Hz	BLUE BLACK with BLUE
Port B (RS-232)	19200	GPGGA, GPVTG, GPGSV, GPZDA, GPHDT, GPROT	1 Hz	BROWN BLACK with BROWN
Port A (RS-422)	19200	GPGGA, GPVTG, GPGSV, GPZDA, GPHDT, GPROT	1 Hz	GREEN BLACK with GREEN
Port B (RS-422)	19200	GPGGA, GPVTG, GPGSV, GPZDA, GPHDT, GPROT	1 Hz	YELLOW BLACK with YELLOW
Power	10 – 36 V			Red (+) Black (-)

Serial Port Connection

Connect the wires to a DB9 female socket using either the port A or port B configuration.

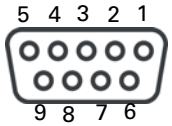
Port A DB9 RS-232 interface configuration

Pin	Wire Color	Signal
2	Blue	Port A transmit RS-232
3	Black/blue striped	Port A receive RS-232
5	Grey	Signal ground

Port B DB9 RS-232 interface configuration

Pin	Wire Color	Signal
2	Brown	Port B transmit RS-232
3	Black/brown striped	Port B receive RS-232
5	Grey	Signal ground

DB9 female socket numbering



Configuration

Use a terminal program, or PocketMAX, to connect to a serial port for additional configuration requirements. Use default baud rate of 19,200 bps and 8-N-1 protocol.

- Change baud rate of either port to match that of the external equipment to which the Crescent V100 will be connected. After the baud rate is changed, you will need to close the terminal program and reconnect at the speed selected. The available baud rates are 4800, 9600, 19200 or 38400.
- Configure NMEA messages to be output on the appropriate port.
- Select differential source. (BEACON is the default on the Crescent V110).
- Input heading bias (-180° to +180°) to compensate for any offset from the centerline.
- Input bias for tilt (-15° to +15°) to compensate for any offset from horizontal.
- Enable/disable supplementary sensors (default is GYROID and TILTAID on).
- Use the $JSAVE command to save the configuration changes when finished.