



Positioning Leadership



## DL-4plus

NovAtel's DL-4plus is a high-accuracy GPS receiver offering built-in data logging functionality and memory.

### Integrated data logging capability

The DL-4plus features a built-in memory card for data storage. Designed for easy access, the memory card can quickly be exchanged for extended data collection sessions. The receiver's LCD interface and keypad eliminate the need for a separate handheld controller and allow for fast configuration.

### Rugged and flexible

The DL-4plus enclosure is designed to withstand the elements, while its standard DB-9 connectors ensure quick installation. For high-speed communication, the DL-4plus features three serial ports at speeds up to 230,400 bits per second and USB support. The receiver also includes an external oscillator input and power output to supply peripheral devices.

### Advanced positioning performance

With NovAtel's patented Pulse Aperture Correlator™ (PAC) technology to virtually eliminate the effects of multipath, the DL-4plus offers superior positioning accuracy. Available in multiple models, including L1 and L1/L2, the receiver features optional support for SBAS corrections provided by systems such as WAAS, MSAS, and EGNOS. RT-2® mode provides centimeter-level accuracy for real-time kinematic (RTK) applications.

### Support for inertial technologies

The DL-4plus also provides support for an external inertial measurement unit (IMU). With NovAtel's SPAN™ Technology, the addition of inertial capabilities results in continuous positioning even during short outages or reduced satellite coverage. The system is also ideal for high-dynamic applications, providing highly accurate position and attitude measurements at 100 Hertz rates.

## Features

Built-in memory card and integrated LCD and keypad

RT-2® and Pulse Aperture Correlator™ (PAC) technologies

Power and communication support for an inertial measurement unit (IMU)

## Benefits

Eliminate the need for a separate handheld controller and data collector

Ensure reliable, centimeter-level positioning in the most demanding applications, including high multipath environments

Offers easy integration of inertial technologies for more robust performance and precise position and attitude data

## Performance<sup>1</sup>

### Position Accuracy

Single Point L1	1.8 m CEP
Single Point L1/L2	1.5 m CEP
WAAS L1	1.2 m CEP
WAAS L1/L2	0.8 m CEP
DGPS (L1, C/A)	0.45 m CEP
RT-20 <sup>2</sup>	< 20 cm CEP
RT-2	1 cm + 1 ppm

### Measurement Precision

L1 C/A Code	6 cm RMS
L2 P(Y) Code	25 cm RMS (AS on)
L1 Carrier Phase	0.75 mm RMS (differential channel)
L2 Carrier Phase	2 mm RMS (differential channel)

### Data Rate

Measurements	20 Hz
Position	20 Hz

### Time to First Fix

Cold Start <sup>3</sup>	50 s
Warm Start <sup>4</sup>	40 s
Hot Start <sup>5</sup>	30 s

### Signal Reacquisition

L1	0.5 s (typical)
L2	1.0 s (typical)

### Time Accuracy<sup>6</sup>

**20 ns RMS**

### Velocity Accuracy

**0.03 m/s RMS**

### Dynamics

Velocity <sup>7</sup>	514 m/s
Vibration	4 g (sustained tracking)

### Altitude<sup>7</sup>

**18,288 m**

## Physical & Electrical

**Size** 185 x 154 x 71 mm

**Weight** 1.2 kg

### Power

Input Voltage <sup>8</sup>	+9 to +18 VDC
Power Consumption	
While Logging	3.5 W (typical)
Sleep Mode	0.2 W (typical)

### Antenna LNA Power Output

Output Voltage	+5 VDC
Maximum Current	100 mA

### Communication Ports

- 2 RS-232 or RS-422 serial ports capable of 230,400 bps
- 1 RS-232 serial port capable of 230,400 bps
- 1 USB port capable of 5 Mbps

### Input/Output Connectors

Power	4-pin LEMO
Antenna Input	TNC female
External Oscillator	BNC female
COM1	DB-9 male
COM2	DB-9 male
AUX (COM3)	DB-9 male
I/O	DB-9 female

### Environmental

Temperature	
Operating (Receiver)	-40°C to +55°C
Operating (Display)	-20°C to +55°C
Storage	-40°C to +85°C
Humidity	95% non-condensing
Waterproof	IEC 60529 IPX7
Vibration (operating)	
Random	MIL-STD-202F 214A
Sinusoidal	SAE J1211 4.7
Shock	IEC 68-2-27 Ea

### Regulatory

**FCC Class B, CE**

1 Typical values. Performance specifications subject to GPS system characteristics, US DOD operational degradation, ionospheric conditions, satellite geometry, baseline length, and multipath effects.  
 2 Expected accuracy after three minute static convergence.  
 3 Typical value. No almanac or ephemeris and no approximate position or time.  
 4 Typical value. Almanac saved and approximate position and time entered. No recent ephemeris.  
 5 Typical value. Almanac and recent ephemeris saved and approximate position and time entered.  
 6 Time accuracy does not include biases due to RF or antenna delay.  
 7 Export licensing restricts operation to a maximum of 18,288 meters and 514 meters per second.  
 8 While operating without an external IMU, the DL-4plus can accept an input voltage between +7 and +18 VDC.

## Included Accessories

- Automotive power adapter
- Mounting bracket
- Compact flash memory card
- Straight serial cable
- Null-modem serial cable
- I/O port interface cable
- USB cable

## Optional Accessories



L1/L2 or L1 antennas, including the GPS-702 or GPS-701



RF cables, available in 5, 15, and 30 meter lengths



AC adapters, including international and North American versions

## Additional Features

- Multiple software models, including L1 or L1/L2
- A configurable PPS output and two mark inputs
- Power output to supply peripheral devices, such as a radio or IMU
- Supports RTCM SC-104 version 2.3, CMR version 3.0, CMR+, NMEA 0183 version 3.01, and RTCA DO-217 message types
- Field-upgradeable firmware
- Application Programming Interface (API) option

For more information, visit our website.

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