W G 4   G P S

GPS Time Reference

DESCRIPTION

Wapiti introduces the WG4 GPS Time Reference with a menu-driven LCD for use with traffic signal controllers and other time-sensitive equipment. The WG4 will seek signals from at least 3 of 24 global GPS satellites to provide the exact time.

The unit is contained in a compact housing with an LCD screen and indicator LEDs for power, GPS status, time sync, and data activity.

The WG4 Supports multiple protocols such as GPS UTC, GPS local time, WWV, Wapiti W4/7/9 and Wapiti T2 with accuracy within one tenth of a second.
The GPS unit is plug-and-play for controllers with Wapiti software installed.

FEATURES

- 12-channel GPS receiver tracks and uses up to 12 satellites for fast, accurate time acquiring and low power consumption.
- Serial Interface — time and date information includes: year, month, day, hour, minute, and second.
- Sync Pulse Interface— Programmable Time Sync Pulse for NEMA and 170/2070
- Accuracy on UTC/GMT: Sync Pulse — 30µs (micro-second), 1µs with 1PPS
- LED Indicators— Power/GPS status, data activity.
- Menu driven with LCD: allows for easy adjustment of operation parameters.
- Small, compact, and rugged metal housing measures approximately: 3″ x 4″ x 1.5″
- Built in battery backup to maintain real time for 21 days.
- Flash based program and non-volatile memory.
- All Wapiti products support WG4.
- Wide power supply range: 5-24 Volts DC, < 100mA with back light
- Operating Temperature: -20°C ~ +70°C

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INSTALLATION AND PROGRAMMING GUIDE

PART 1 : INSTALLATION

The WG4 unit should be tested at the controller cabinet location prior to installation in order to verify adequate signal strength is available from the satellites.

1. Drill a hole through the top of the controller cabinet large enough to accommodate the screw bar on the antenna assembly. The hole must be smooth with no sharp edges in order to provide a watertight seal. **NOTE:** Precautions should be taken to prevent metal debris from drilling and filing from falling into the cabinet's control equipment.

2. Insert the GPS antenna through the hole and secure tightly with the lock nut. Screw the SMA Antenna Plug in to the SMA RF Connector on the WG3 Unit. If you are using the **Sync Pulse Interface** then go to **Step 3**. If you are using the **Serial Interface** then go to **Step 4**.

3. **Sync Pulse Interface** (For NEMA/170/ 2070/ATC Contact Closure Compatible Devices). Connect the sync pair wires to the controller sync input following the instructions of the controller manufacturer. (Pin 8, Sync + and Pin 7, Sync -) Power can be supplied by any cabinet (5V - 24V) DC power source. (Pin 9 DC+ and Pin 5, DC Ground)

4. **Serial Interface** (Direct Connection for Wapiti Devices) - Connect the DB9-C20 interface cable to the WG4 and 170/2070 controller using C20S for Local, C30S for W7OSM with 6800, or C40S with HC11. (See Wapiti Application Notes). Power is supplied from the 170 controller using this interface method.

Check the LEDs on the WG4. The power LED should be either on solid or flashing . When the power LED is on solid the GPS is searching for satellites. When the power LED is slowly flashing the GPS is ready. Fast flashing indicates a Low DC volt condition. DATA indicates data activity. Flash Time Display means that the unit is still acquiring information from the GPS satellites.

PART 2: PROGRAMMING (Menu-Drive Display in the order of Appearance)

Mode Button: Select Display Modes (11)   SELECT BUTTON: Change the Settings

*: default value. Mode without * is Display or Test Only (Note: data changes automatically saved)

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  hh:mm:ss      Sync HR       Sync TYP      Comm TYP      SPR DST       WIN DST      PART
  MM/DD/YY     -00:00am      -No pulse     -GPS  UTC     -Mar 1SUN     -OCT 1SUN     3:
               -00:30am      -PW=1S UP     -Local TM     *Mar 2SUN     -OCT 2SUN
  T. Zone         |          -PW=2S UP     -WVV Time     -Mar 3SUN     -OCT 3SUN
    *EST       *04:00am      -PW=3S UP     *WMS W4/7     -Mar 4SUN     -OCT 4SUN
    -CST           |            .          -WMS  T2.     -Mar 5SUN     -OCT 5SUN
    -MST       -23:00PM      -PW=9S UP     -WMS W9FT     -Apr 1SUN     *NOV 1SUN
    -PST       (30 min)     -No pulse                    -Apr 2SUN     -NOV 2SUN
                            -PW=1S DW      BaudRate       -Apr 3SUN     -NOV 3SUN
  DST STA      Sync Tst     -PW=2S DW     -1200bps      -Apr 4SUN     -NOV 4SUN
  -NO  DST     -Not Sync    *PW=3S DW     -2400bps      -Apr 5SUN     -NOV 5SUN
  -DST ON      - Sync-ed       .          *4800bps      -NO DST       -NO DST
  -DST OFF     - Syncing    -PW=9S UP     -9600bps
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TROUBLE SHOOTING

Blank Display and Power LED Off: Unplug DB9 and check power supply connection (5-24V)
Incorrect Time Displayed: Check the settings—Time Zone, DST Settings (SPR DST and WIN DST).
Flashing Time Display: allow few minutes after power up for acquisition of the GPS signal and data.
Malfunction: when display locked, menu frozen, or extraneous chars displayed- perform power recycle.