# GT-50 w/USB Installation/Operation Manual

**WARNING!!! Do not connect this GT-50 to a Connector wired for the older style GT-50 without temperature capability. Damage may result.  WARNING!!!**

## Installation:

**Mechanical**

Mount the GT-50 in any 2-1/4" instrument hole using #6-32 screws no longer than 5/8".  We recommend P/N MS35214-25 screws.

**Electrical**

1) **Black** (Ground) Use 22 or 20 AWG wire.
2) **Yellow** (Flight Timer/Backlight/USB Power) When power is applied to this wire the flight timer runs, the backlight is illuminated and the USB connector is enabled.  Connect this wire to your instrument power source so it is powered when your master switch is turned on. Do not connect to dimming circuit. Use a 2A breaker and 22 or 20 AWG wire.
3) **Red** (Always on Power) Connect this wire directly to the battery (**NOT THE MASTER SWITCH**). This wire **must** remain powered at all times including when the yellow wire is powered to keep the clock powered.  If you can't connect the red wire directly to the battery, you can tie it together with the yellow wire, but the clock will have to be reset each time you fly. The value of the breaker for the red wire can be as little as 0.5 Amp.
4) **Green** (Optional Temperature Probe) See OAT probe instructions.  **DO NOT** connect the green wire to 12-28 Volts.

## Operation:

**Functions:**  The GT-50 has six Functions.

TAP the (Left) **Mode** button the switch between functions.

| Accelerometer | Voltmeter |
|---|---|
| TAP the (Right) **Action** button to display the MAX and MIN G readings.<br>----------------------<br>TAP the (Center) **Reset** button to reset the MAX and MIN G readings.<br>----------------------<br>Occasionally the GT-50 must be recalibrated if it is not reading one G when in level flight.<br><br>Level the instrument then HOLD the (Center) **Reset** button to calibrate the accelerometer to one G unit.  The button must be held until four 8's "8888" appear on the display then released to complete the calibration.<br>----------------------<br>HOLD the (Right) **Action** button to switch between zero and thirty degrees panel angle.  Once the Panel tilt angle is displayed, release the button to save the value that was displayed.  The angle can be either zero degrees or thirty degrees.<br><br>This step is only required if you have a panel angle of 30 degrees (SONEX aircraft).  Panel tilt of less than fifteen degrees has a negligible effect on the G reading. | **Low Voltage Warning:** The GT-50 will switch to the Voltmeter mode and flash the voltage if the voltage drops below 12.8V (25.6V for 28V aircraft).  This feature is activated when the Master Switch is on (power on the yellow wire) and the voltage is low for more than 30 seconds.<br>----------------------<br>TAP the (Right) **Action** button to restart the 30 second timer and cancel the alert.<br>----------------------<br>TAP the (Center) **Reset** button to disable the automatic display of the voltage. Low voltage will continue to flash when in the Voltmeter mode. The automatic switching to Voltmeter mode is disabled until the master switch is cycled.<br>----------------------<br>HOLD the (Right) **Action** button to enter "**USB**" Mode |
| **Manual Timer** | **Automatic Flight Timer** |
| The manual timer counts up from one second to a maximum value of nine hours fifty nine minutes (09:59)<br>----------------------<br>TAP the (Right) **Action** button to start and stop the timer.<br>----------------------<br>TAP the (Center) **Reset** button to reset the timer to zero. | The flight timer automatically runs when power is applied to connector pin 2 (the yellow wire).  This mode is designated by a "**|-**" symbol in the left most digit location.  The Flight Timer counts up from one minute (0:01) to a maximum value of nine hours fifty nine minutes (9:59)<br>----------------------<br>TAP the (Center) **Reset** button to reset the flight timer to zero.<br>----------------------<br>HOLD the (Right) **Action** button to enter "**Admin**" Mode |
| **Clock** | **Temperature** (displayed only when optional OAT probe is installed) |
| HOLD the (Left) **Mode** button to display the Firmware Version<br>----------------------<br>HOLD the (Center) **Reset** button to set the time and date.  When setting the time and date, the (Right) **Action** button increments (Left) **Mode** button decrements the displayed value.  The (Center) **Reset** button moves you to the next item to be set.<br><br>Items in order are: Hours, Minutes, Year, Month and Day MM.DD<br>----------------------<br>TAP the (Right) **Action** button to display the date. Format is MM.DD.  Tap any button to return to the clock when the date is displayed.<br>HOLD the (Right) **Action** button to switch between 12 and 24 hour clock modes. | TAP the (Center) **Reset** button to clear the MAX and MIN Temperature readings.<br>----------------------<br>TAP the (Right) **Action** button to display the MAX and MIN Temperature readings.<br>----------------------<br>HOLD the (Right) **Action** button to change temperature units between Fahrenheit and Celsius**.** |

**USB**

In this mode the GT-50 can be connected to a computer. The yellow wire must be powered (Master Switch On) to connect.

Do not connect a laptop to the USB connector until you see "USB" on the GT-50 display. The required USB-A to USB-A cable can be purchased from Monoprice.com, product #5445.

Enter USB mode from the Voltmeter mode: HOLD the (Right) **Action** button until "8888" is displayed, release the button and "USB" will be displayed.

To leave Data mode TAP the (Left) **Mode** button

We recommend "CoolTerm" for Mac's and "Terminal.exe V1.93b" for PC's to connect.

PC - https://sites.google.com/site/terminalbpp/
Mac - http://freeware.the-meiers.org

Using the terminal program on your PC, scan the ports and connect to the appropriate port. Baud rate does not need to be set.

To confirm your connection, type "test". If connected properly the GT-50 response will be, "Got test command".

Type "help" to see a list of available commands and see the USB Data Logger section below

Note that the USB port will not charge when in USB mode or when the Data Logger is enabled.

**Admin**

This mode is used to access and reset a separate set of password protected MAX and MIN G readings.

Enter this mode from the Automatic Flight Timer mode: HOLD the (Right) **Action** button until "000" is displayed.

Use the **Action** button to adjust the value of the flashing digit and the **Reset** button to switch digits. The default password is "123".

If the password is entered incorrectly, the display will return to "000" so you can try again.

Once the password is entered correctly the unit will switch to Accelerometer mode and the "AM" icon will annunciate. You can view and reset the password protected MAX and MIN G readings in this mode.

To leave Admin, mode return to return to the **Automatic Flight Timer** mode where "AM" is still annunciated then HOLD the (Right) **Action** button until you are switched to the Accelerometer mode and "AM" is extinguished.

To change the password, cycle the Mode button until you see the password displayed. You can then enter a new password the same way the password was entered. The display will momentarily flash "8888" when the new password is saved.

**USB Data Logger:**

The GT-50 Automatically saves all high and low G events in internal memory once per second. The default limits are events above +2 and below 0 G's, these limits can be changed if desired.

Additionally, the GT-50 can output data continuously, once per second using the "logger" command. Turn off the logger by returning to USB mode from the Voltmeter (as above) then leaving USB mode by tapping the mode button.

The format is as follows: Hour, Minute, Second, Day, Month, Year, Max G, Min G, Voltage, Temperature

G's and Voltage are in tenths. Ex: 10 = 1.0 G's, 132 = 13.2 Volts. Year is the second two digits of the year. Ex: 2021 = 21.

**Software Update:** Update instructions for the GT-50 can be found here: http://www.fdatasystems.com/firmware

# Button Functionality Table

| Function | Mode (Tap) | Mode (Hold) | Reset (Tap) | Reset (Hold) | Action (Tap) | Action (Hold) |
|---|---|---|---|---|---|---|
| **ACCELEROMETER** | Voltmeter State | None | Reset max/min G's | Cal G's | GMax/GMin States | Change panel tilt |
| **STOPWATCH** | Flighttimer state | None | Reset SW secs | None | Start/stop Stopwatch | None |
| **FLIGHTTIMER** | Accelerometer State | None | Reset FT secs | None | None | Admin State |
| **VOLT** | No OAT - Clock state OAT – Temperature state | None | Cancel low volt waring | None | Restart low volt 30 second timer | USB State |
| **CLOCK** | Stopwatch state | Firmware Version | None | Clock set state | Display date | Clock mode 12/24 |
| **DATE DISPLAY** | Clock State | None | Clock State | None | Clock State | None |
| **TEMPERATURE** | Clock state | None | Reset max/min temperature | None | Temp max/min state | Change Temperature units |
| **CLOCK SET** | Decrement value | None | Hours/mins/year/ month/day set | None | Increment value | None |
| **ADMIN** | Accelerometer State | None | Rotate thru code digits | None | Advance code digits | None |
| **USB** | Volt state | None | None | None | None | None |

## Specifications:
**Input Voltage:** 9-28 Volts DC
**Power Consumption:** at 14V - Backlight Off: 0.00065 Amps - It won't run down your Battery
**Dimensions:** Fits a Standard 2-1/4" instrument hole.
Overall Width and Height 2.375", Depth behind panel .75 " to back of connector
**Weight:** 3.0 oz.

**Need Help?
See our Website FAQ's section
or support@fdatasystems.com
or (831) 325-3131**