Flytec 3040 / TT34

Operation Manual

11.30.2011

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Warning! Read before you proceed! Warning!

This instrument should not be used as an indicator of safe flying parameters. This instrument should only be used for informational purposes. Aviation can be a hazardous and possibly fatal activity. As a pilot, you are entirely responsible for your own safety and the safety of others around you. Pilots should abide by applicable aviation authority regulations and use best judgment for safe flying at all times, irrespective of instrument readings. Flytec is not responsible for loss or injury caused by the use of this instrument. You assume all risks associated with flying and the use of this instrument. Individuals who ignore this warning do so at their own risk and may suffer serious personal injury, property damage, or death. If you are unwilling to assume all of the risks associated with the use of this instrument, do not use the instrument. Return it immediately, unused with all of its included items, within 30 days of the date of purchase, for a full refund. Please note that instruments showing signs of use or those that have been damaged or modified in any way cannot be accepted for return.

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10	Digital variometer / Wind speed display (with optional sensor)

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2. Basic operation

2.1 Turning on the Instrument

The 3040 is equipped with two independent 9V batteries. The device is switched on by moving the main power switch to the position ON1 or ON2 (battery 1 or battery 2)

After moving the power switch to either ON1 or ON2, the device performs a self-test and shows the battery condition of the activated battery in the graphic variometer display.

Startup screen

The Startup screen shows the battery status, and the current time and date:

Battery status (*P*ower)
    5 = 100%
    0 = 0%
Battery is 60% in the example.

hh:m   =   hours & minutes
dd:m   =   day & month
YYYY   =   year
Time is 18.52 (6:52) in the example.

Insufficient battery power is indicated by one or more segments in the red (sink) sector of the graphic variometer scale and the 3040 should not be used with a battery in this state. During flight, low battery is indicated by showing *Po* in the digital variometer display every 5 seconds. In this case, move the power switch to the *OFF* position for a few seconds and then to the other battery position.

2.2 Turning OFF the Instrument

Slide the main power switch to the center (*OFF*) position

2.3 Automatic switch-off:

The 3040 will automatically power down if there are no flight activities (less than a 25-meter altitude change) over a 30-minute period. To restart the 3040 after an automatic switch-off, move the power switch to the center *OFF* position for at least 2 seconds and then to the desired battery. If the automatic power down interval (30 min) is too short for your type of flight (e.g., tethering), contact Flytec for instructions for changing the interval (up to 20 hrs is possible).

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2.4   Multifunction keypad

With the instrument in Run-mode, the keypad responds to two types of button presses:

Short press: less than 1-second press, used to make selection. For example, repeatedly pressing the *ALTI ft. / QNH hPa / ALTI m.* key scrolls the upper line of the lower display window through these three numerical values. The selected value is indicated by an indicator arrow along the left side of the numerical value.

Long press: greater than 3-second press, used to set the value of the selected function. For example, a long press of the *ALTI ft.* key (when altitude in feet is displayed) will bring up the ability to set the altimeter in feet.

2.5   Operating modes

The device has three operating modes: *Run-mode*, *Set-mode* and *Configuration-mode*.

Run-mode: After switching on the 3040, it goes through its startup sequence and then enters the Run-mode. In this mode, the altitude, temperature or time and the vertical speed are continuously displayed. This is the normal flight mode.
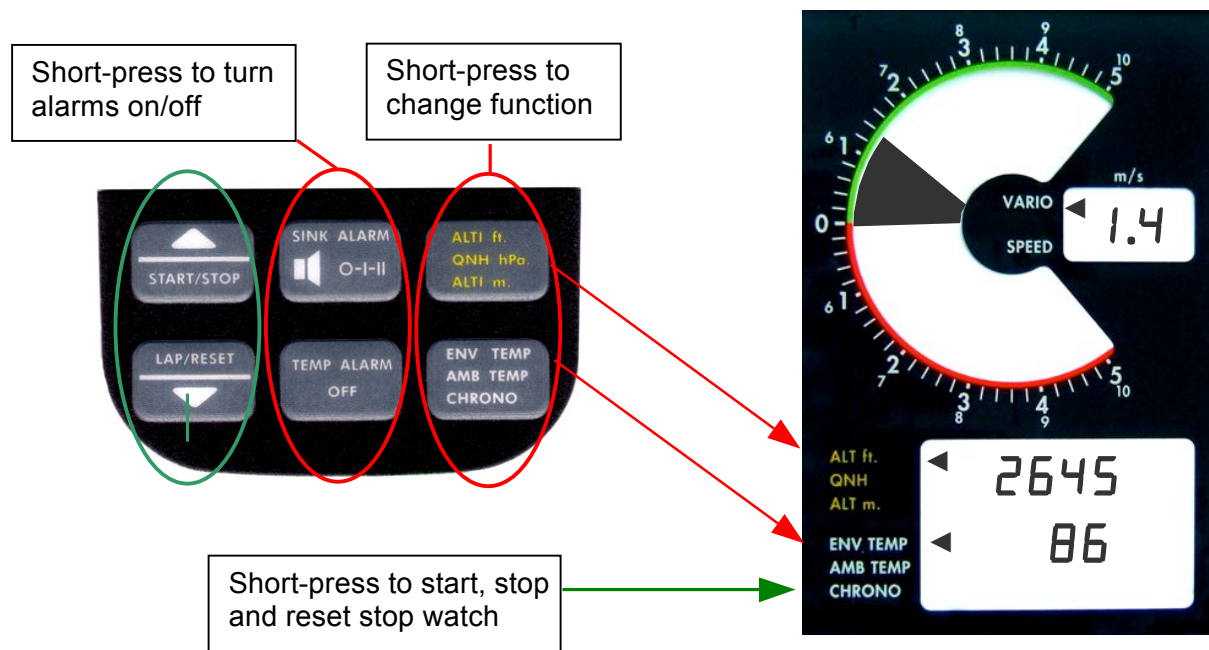
Set-mode: Set-mode is entered with a long press of the respective function key. The relevant display field will flash and can be altered with the ▲▼ keys. Short-pressing the arrow key will increment the value one unit per press, pressing and holding the arrow key will steadily increment the value, and continuing to hold down the arrow key will cause the value change to accelerate. Short-press the corresponding function key to accept the changed value and return to Run-mode.

Configuration-mode: Configuration-mode is used to enter correction factors and make changes to the operation of the 3040 such as changing the automatic power down interval, calibrating the altimeter, changing the display units, etc. This mode is intended for to be accessed by qualified technicians only and therefore is not readily accessed by the user.

3. The Altimeter

## How does an altimeter work?

A barometric altimeter calculates altitude (elevation) from the actual air pressure of the atmosphere at a given location. Air pressure decreases with increasing elevation; however, since air is compressible, the pressure change is exponential not linear. Altimeters designed for aviation use the CINA (Commision International de Navigation Aérienne) formula to derive altitude from air pressure. In this calculation the **CINA–atmosphere** is used where standard atmospheric pressure at sea level is **1013.25 hPa** (Hecto-pascal) at a temperature of **15°C**. Temperature also decreases with increasing altitude and must also be considered in the altitude calculation. A constant temperature decrease of **0.65°C per 100 m** ascent is also assumed in the CINA equation. Because of these assumptions with respect to pressure and temperature, a barometric aviation altimeter only indicates the actual altitude when the weather conditions correspond to the standard atmosphere and lapse rate. In reality the atmosphere rarely corresponds to the CINA standards.

To further complicate matters, the air pressure over a given location changes as weather systems move across the area. To compensate for pressure changes induced by changes in the weather, an altimeter must be adjusted prior to each flight. This can be done by setting the altimeter to a known elevation (e.g., launch). Another method of setting an altimeter is to enter the current **QNH** pressure value. QNH is the barometric pressure at a measuring station reduced to sea-level. If an altimeter was set to the QNH at a measuring station (regardless of elevation) and then brought to sea-level it would read zero. The QNH value is constantly updated and can be obtained from flight service stations or requested from airfields over an aeronautical radio. Keep in mind that the atmospheric pressure can change up to five millibars over the course of a day (such as with the passage of a cold front), corresponding to a change in elevation of more than 130 ft.

3.1   Altimeter

The 3040 is equipped with three altitude dispays:

> **ALTI ft**   Absolute altimeter in feet
> **QNH**   QNH pressure in inHg or hPa
> **ALTI m**   Absolute altimeter in meters
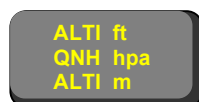
Short-press the yellow altimeter key to alternate between displaying *ALTI ft*, *QNH*, and *ALTI m*. The arrow indicator on the left side, in the upper line of the lower display window, indicates the selected altitude function.

3.2   Setting the Altimeter

The altimeter indicates the absolute altitude above sea level in ft or m. When you adjust the altimeter, the QNH value is automatically adjusted. The QNH display shows the barometric pressure reduced to sea level. Consequently, if your current altitude is unknown it can be set by

setting the QNH available from weather reporting stations or flight service. When you change the value of QNH, the altimeter is automatically adjusted.

To set the altimeter, select the desired altitude value with short presses of the *ALTI ft. / QNH hPa / ALT m.* key (altitude in feet in the example). Long-press the same key to enter Set-mode, and the current altitude will begin to flash.

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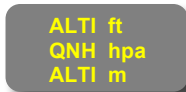
Use the ▲▼keys to adjust your current altitude/QNH. Press and hold either the ▲▼key buttons to accelerate the setting in that direction.

Note: Altitude can only be adjusted to within approximately ±1200 ft of the actual elevation, and QNH can only be adjusted within the range from 950 to 1060 hPa.

ALTI ft
QNH hpa
ALTI m

Short-press the *ALTI ft / QNH hPa / ALT m* key to accept the changes and return to Run-mode.

4. Variometer

The variometer informs the pilot about the actual ascent/descent rate. It is displayed graphically in the dial display, and digitally in the small window just to the right of the dial. If desired, the descent rate can also be indicated acoustically.

4.1 Graphic Variometer

The rate of ascent/descent is shown graphically in the vario dial where each gradation on the scale equals 40 ft/min. The analog vario display has a range of 2,000 ft/min in two scale passes. Up to a rate of 1,000 ft/min, the dial display fills from the zero line out, indicating the ascent/descent rate on the 1-10 scale (x100 ft/min). At an ascent/descent rate of 1,000 ft/min the dial display will be full from 0 to 10. When ascents or descents greater than 1,000 ft/min are encountered, the dial display will start to empty from the 0 ft/min line out, indicating the corresponding ascent/descent value on the 10-20 scale (x100 ft/min).

360 ft/min	1,000 ft/min	1,320 ft/min

4.2 Digital Variometer

The digital vario display is the small window just to the right of the dial display. It shows the ascent/descent rate with a range of 0.0 to 20.0 (x100 ft/min) and with a resolution of 20 ft/min (0.2 x 100 ft/min).

4.3 Descent Tone

The descent tone is a steady beeping, where the pitch of the beep decreases as the rate of descent increases. Using this tone the pilot can monitor the descent rate without looking at the instrument. The descent tone can be set so that there is no tone unless the decent rate exceeds a set threshold. The volume of the tone can be easily set or turned off in flight. Each time the 3040 is turned on the descent tone setting will the same as the last use.

SINK ALARM
O-I-II

Short-press the *Sink Alarm* key to toggle trhough the descent tone options (off, volume I and volume II). A sample beep will be given and the descent tone threshold will be shown in the dial display when volume I and II are selected.

Setting Descent Tone threshold

Long-press the *Sink Alarm* key to bring the instrument into Set-mode. The descent tone threshold point is indicated in the dial display with a blinking segment. Use the ▲▼ keys to adjust the threshold between 40 ft/min and 2,000 ft/min. The threshold in the example is 480 ft/min. **Note:** When adjusting the threshold between 1000 and 2000 ft/min, all of the segments will be flashing between the zero line and the desired setting as read on the 10-20 scale. Short-press the *Sink Alarm* key to accept the adjusted value and return to Run-mode.

5. Wind speed

The hand-held wind speed sensor is available as an accessory. The sensor plug is located on the left side of the instrument. When the sensor is plugged in, the digital vario display will automatically switch to the speed display and the indicator arrow will point to *SPEED*. The wind speed sensor is very accurate and will measure speeds between 1 and 74 mph. It is ideal for measuring the wind at the take-off site.

6. Time functions

The 3040 has two time functions: a 24-hour real-time clock and a stopwatch. The real-time clock is maintained as long as there is at least one 9V battery installed. When replacing batteries, if they are done one-at-a-time, the time setting will not be lost in the process. The stopwatch functions only while the instrument is on; any time value on the display will be lost when the instrument is switched off.

6.1   Real-time clock

**ENV TEMP
AMB TEMP
CHRONO**

To bring up the real-time clock, short-press the *ENV TEMP / AMB TEMP / CHRONO* key to toggle through the functions until the time is shown in the lower line of the lower display window. The indicator arrow will point at *CHRONO*. **Note:** When the stopwatch is activated, the stopwatch time is shown instead of real-time.

6.2   Set time

**ENV TEMP
AMB TEMP
CHRONO**

To set the time, select CHRONO using short presses of the *ENV TEMP / AMB TEMP / CHRONO*. Long-press the same key to enter Set-mode.

1. The top line of the lower display window will show ***hh:m***. The bottom line will flash the hours and minutes setting. Use the ▲▼keys to adjust the time of day. Confirm the entry and advance to date setting by pressing the *Chrono* key.

2. The top line will now show ***dd:m***. The bottom line will flash the day and month. Use the ▲▼keys to adjust the date. Confirm the entry and advance to the year setting by pressing the *Chrono* key.

3. The top line of the lower display window will show **YYYY**. Use the ▲▼keys to adjust the year. Confirm the entry and return to Run-mode by pressing the *Chrono* key.

**ENV TEMP
AMB TEMP
CHRONO**
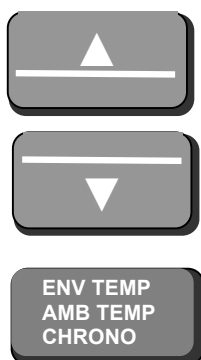
6.3   Stopwatch (Chrono)

The stopwatch can be started any time the instrument is in Run-mode by pressing the *Start/Stop* key. If *CRONO* is not currently displayed, a running stopwatch will be indicated with a flashing indicator arrow (pointing at CHRONO). If the stopwatch is paused using the *STOP* or *LAP* key, the indicator arrow will be steady.

A short press of the *START* key will start the elapsed time. A short press of the *STOP* key will stop the elapsed time. Pressing the *START* key again will resume the elapsed time. This function can be used to exclude stopovers so only actual flight time is measured.

Alternatively, a short press of the *LAP* key while the stopwatch is running will freeze the display so that the elapsed time to that point may be read while the chronometer continues to run in the background. Pressing the *LAP* key a second time switches the display back to the running stopwatch.

Pressing the *RESET* key (when the stopwatch is stopped) will reset the stopwatch to zero and will automatically switch the display back to real-time display.

7. Temperature

7.1 Ambient temperature (*AMB TEMP*):

The 3040 has a temperature sensor inside its housing for the purpose of measuring the temperature of the circuit board and the pressure sensor. This enables the measured altitude to be properly compensated for changes in temperature. The measured temperature can be shown in the lower display by short-pressing the *ENV TEMP / AMB TEMP / CHRONO* key so that the indicator arrow is pointing to *AMB TEMP.*

Note: The internal temperature sensor measures the circuit board temperature and does not directly measure the outside air temperature. The temperature inside the housing may be higher or lower than the ambient air temperature when the instrument is moved rapidly from one air mass to another (e.g., taking the instrument from heated/air-conditioned vehicle into outside conditions, rapid ascents/descents, etc.). Additionally, the ambient temperature will read much higher than actual if the 3040 is exposed to direct sunlight.

7.2 Envelope Temperature Sensor (TT34)

The 3040 will display envelope temperature if it is used with the TT34 wireless temperature sensor. The TT34 is mounted to the top of the envelope and will transmit the measured envelope temperature by radio frequency to the 3040. Each TT34 is coded with a unique ID number (s/n) which can be entered into a 3040. When this is done the 3040 will receive temperature only from the paired TT34. This feature allows many balloons equipped with Flytec systems to fly near one another without reading each other's envelope temperatures.

The TT34 is powered by a 9V battery with an operation time of ~200 hours. It is recommended that the battery be tested at each annual inspection and replaced at least every other Annual Inspection. **See Section 8** for battery replacement.

 The TT34 will automatically switch on when the envelope temperature is ~30ºF greater than ambient, and it will automatically shut off ~45 minutes after the envelope temperature falls below this threshold. When active, the TT34 transmits its data every four seconds.

7.2.1 Envelope Temperature Display (ENV TEMP)

The 3040 will only receive data from a TT34 if the receiver (*REC*) switch is in the *ON* position. Since the internal receiver is switched off when the main power switch is off, it is recommended that if the 3040 is used with a TT34, the *REC* switch be left in the *ON* position. In that case the 3040 will display the envelope temperature as soon as a valid signal is detected.

Note: No envelope temperature is displayed and all temperature alarms are disabled if the *REC* switch is *OFF*. When the *REC* switch is off, the display cannot be set to *ENV TEMP*; only *AMB TEMP* and *CHRONO* can be selected.

Maximum in-flight temperature: To see the maximum envelope temperature of a flight, switch off the receiver. The arrow indicator will flash, and the maximum temperature will be shown in the *ENV TEMP* display. If the maximum temperature is checked during flight, you must turn the receiver back to on to receive actual envelope temperature and for the temperature alarms to work. Maximum envelope temperature is not saved when the main power is turned off.

7.2.2 Pairing to a 3040

In order for the 3040 to receive data from a TT34 it must first be paired. This is accomplished by setting the TT34 ID code (serial number) into the 3040.

With the receiver set to *ON*, select *ENV TEMP* with short presses of the *ENV TEMP/AMB TEMP/CHRONO* key (the arrow indicator pointing to *ENV TEMP*).

Long-press the *ENV TEMP* key to enter Set-mode; the TT34 ID code will be flashing. Use the ▲▼keys to adjust the number to the s/n of the desired TT34. Short presses of an arrow key will increment the value in the direction of the arrow pressed, whereas holding down an arrow key will accelerate the number change in that direction until the key is released. Press the *ENV TEMP* key to confirm the entry and return to Run-mode.

If you do not know the TT34 code, or if the setting is inadvertently lost in flight, enter Set-mode as above and set the ID code to 0 by simultaneously pressing the ▲▼ keys (0 is the automatic scan mode). Short-press the *ENV TEMP* key; the 3040 will return to Run-mode and will self-install the first received TT34. This method should only be employed when there are no other balloons using a TT34 in close proximity, to avoid self-installing another pilot's TT34 code. For this reason it is recommended that the s/n of the TT34 be marked somewhere in the balloon basket. This way it will be available in flight, in the event the code is inadvertently lost.

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If - *Id* - appears in the ENV TEMP field, it means that either the 3040 is receiving data from a TT34 other than one with which it is paired, or it is receiving strong RF interference (radio/TV/microwave tower, 2-way radio, cell phone, etc.). If this happens, enter Set-mode as described above to check the code and correct it if necessary. If the correct TT34 code is displayed, then RF interference is likely present. Try turning off the 3040 for several seconds to clear the interference. If it does not clear, try again in a few minutes after the interference is gone (e.g., you have flown away from the tower, or the radio/cell phone communication has concluded).

7.2.3   Temperature sensor failure

If - ¦ ¦ - is shown in the *ENV TEMP* display, it indicates that the external temperature sensor of the TT34 is malfunctioning. In this case the TT34 should be sent to Flytec for service. However, since strong radio interference can cause this symbol, the TT34 should first be checked in another location.

7.2.4   Mounting the TT34

The TT34 unit is mounted on the **<u>outside</u>** of the envelope at the top near the parachute opening (see section 12 for installation diagram). The temperature sensor is routed through the envelope and must be attached so that the sensor touches the envelope fabric. **<u>Installation of the TT34 should only be done by the balloon manufacturer or by a qualified repair station designated by the balloon manufacturer</u>**. Improper installation will result in incorrect temperature readings. A temperature sensor that is not in contact with the fabric will read temperatures higher than the actual temperature of the fabric.

The temperature of the hot air within an envelope cools quite rapidly near the surface of the fabric. If the sensor is off of the fabric just a small distance, the temperature readings could be significantly hotter than the actual fabric. To understand the extent of the temperature difference relative to the distance from the envelope fabric, see the Thermal Boundary Layer graph in Section 14. For example: if the temperature 1 inch away from the inside of the envelope is ±116ºC (241ºF) the temperature at the inside surface of the envelope is ±90ºC (194ºF). This is a ~47ºF difference in just one inch!

7.3   <u>Personal Temperature Alarm</u>

When used with a TT34, the 3040 will alert you with an audible alarm if the temperature in the envelope exceeds a preset threshold. The threshold can be set between 104° F and the preset never-exceed temperature established by the envelope manufacturer. A short press of the *TEMP ALARM OFF* key will mute the alarm for 20 seconds. If the envelope temperature remains above the threshold, the alarm will be given again. Generally, the threshold for the personal alarm is set to the *Max-Continuous* temperature recommended by the balloon manufacturer.

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7.3.1 Set Threshold

Long-press the *TEMP ALARM* key to enter Set-mode — the temperature alarm threshold will flash. Use the ▲▼keys to adjust the number to the desired alarm threshold. Short presses of an arrow key will change the value in the direction of the arrow pressed, whereas holding the down an arrow key will accelerate the number change in that direction until the key is released. Short-press the *ENV TEMP* key to save the alarm threshold and return to Run-mode.

7.4   Never-Exceed Temperature Alarm

The Never-Exceed temperature alarm is similar to the Personal Alarm but it is higher pitched (to give a sense of urgency) and cannot be muted with a button pressed. **The never-exceed alarm can only be terminated by reducing the temperature inside the envelope below the alarm threshold.** The alarm threshold is established by the balloon manufacturer and is preset into the 3040. It cannot be altered by the user.

8.   Batteries

3040: The 3040 operates on two independent 9V batteries. You can select which battery to use by selecting either *ON1* or *ON2*. It is recommended that you use the same battery each time you fly so that the second battery is kept in reserve. This way, if the primary battery becomes depleted in flight you will have a good second battery to switch to. The depleted battery should be replaced prior to the next flight and should become the new reserve battery. Thus the batteries will be depleted in alternating succession, greatly reducing the possibility of both batteries being dead during a flight.

When it becomes necessary to change a battery, verify that the 3040 is switched off prior to removing either battery. To access the battery compartment, remove the battery door screw (centered between and just below the two upper housing screws) and remove the battery door. The steel clip must be pulled away from the battery door to allow the door to lift out of its recess. If the above recommendation is followed it should only be necessary to replace one battery; however, if both batteries are being replaced they should be replaced one-at-a-time (i.e., remove and replace one battery before replacing the second battery). That way the time and date will be preserved and will not need to be reset. If the 3040 does not show the correct time/date after replacing the batteries, please follow the procedure for setting the time and date (Section 6.2).

TT34: The TT34 operates on one 9V battery with an operation time of ~200 hours. It is recommended that the battery be tested at each annual inspection and replaced at least every other Annual Inspection. During flight, if - *Po* - is shown in the *ENV TEMP* display it indicates that the battery in the TT34 is weak and must be replaced prior to the next flight.

To replace the battery in the TT34 remove the four housing screws, set TT34 flat side down on a work surface and lift off the top housing. Remove and properly discard the spent battery and replace with a new alkaline battery. Make sure the sensor wire grommet is properly seated in the grommet recess, replace top housing and replace the four housing screws.

> **Prior to prolonged periods of non-use, the batteries should always be removed to eliminate the chance of damage resulting from battery leaks.**

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9. Technical data

Variometer
Analog Display:	± 2,000 ft/min, Resolution: 40 ft/min
Digital Display:	Digital ± 1980 ft/min, Resolution: 20 ft/min
Acoustic:	Descent tone threshold: 40 to 2,000 ft/min

Altimeter
Altimeter range:	-1,500 to +26,000 ft, Resolution: 5 ft
QNH:	28.05 to 31.30 inHg

Wind Speed (w/ optional sensor)
Range:	0 to 74 mph
Units:	mph, km/h or knots
Resolution:	1 mph, 1 km/h or 1 knot, correctable ± 50%

Time
Real time clock:	24 hr w/ date and year
Stop watch:	59 min, 59 sec

Temperature
Ambient:	-4°F to 140ºF, Resolution: 1°F
Envelope:	68ºF to 311ºF, Resolution: 1.8ºF

Temperature alarm
Never-exceed alarm:	104ºF to 302ºF (preset)
Personal alarm:	104ºF to never-exceed threshold (user adjustable)

Power supply
Batteries:	2 x 9V alkaline batteries
Operation time:	2 x ~50hr or 10 years stand-by

Housing
Dimension:	6-1/2″ x 3-5/8″ x 1-3/4″
Weight:	13 oz (incl. 2 x 9V Batteries)
Operating temperature:	-4 ºF to 140°F
Storage temperature:	-22ºF to 158°F

Warranty: 24 Months

Included: TT34, Velcro strap, 2x 9V battery, carry bag, documentation

Technical data may be altered anytime without notice.

10. Warranty

The 3040 is warranted against material and manufacturing defects for two years. Physical damage such as a broken housing or display window, as well as damage resulting from abuse, water entering the housing, battery leakage, improper care, exposure to excessive heat or opening the housing is excluded from this warranty. In the event a defect is encountered during the two-year warranty period, please contact Flytec for service instructions. Please carefully read this operation manual before you contact Flytec for operation or service issues.
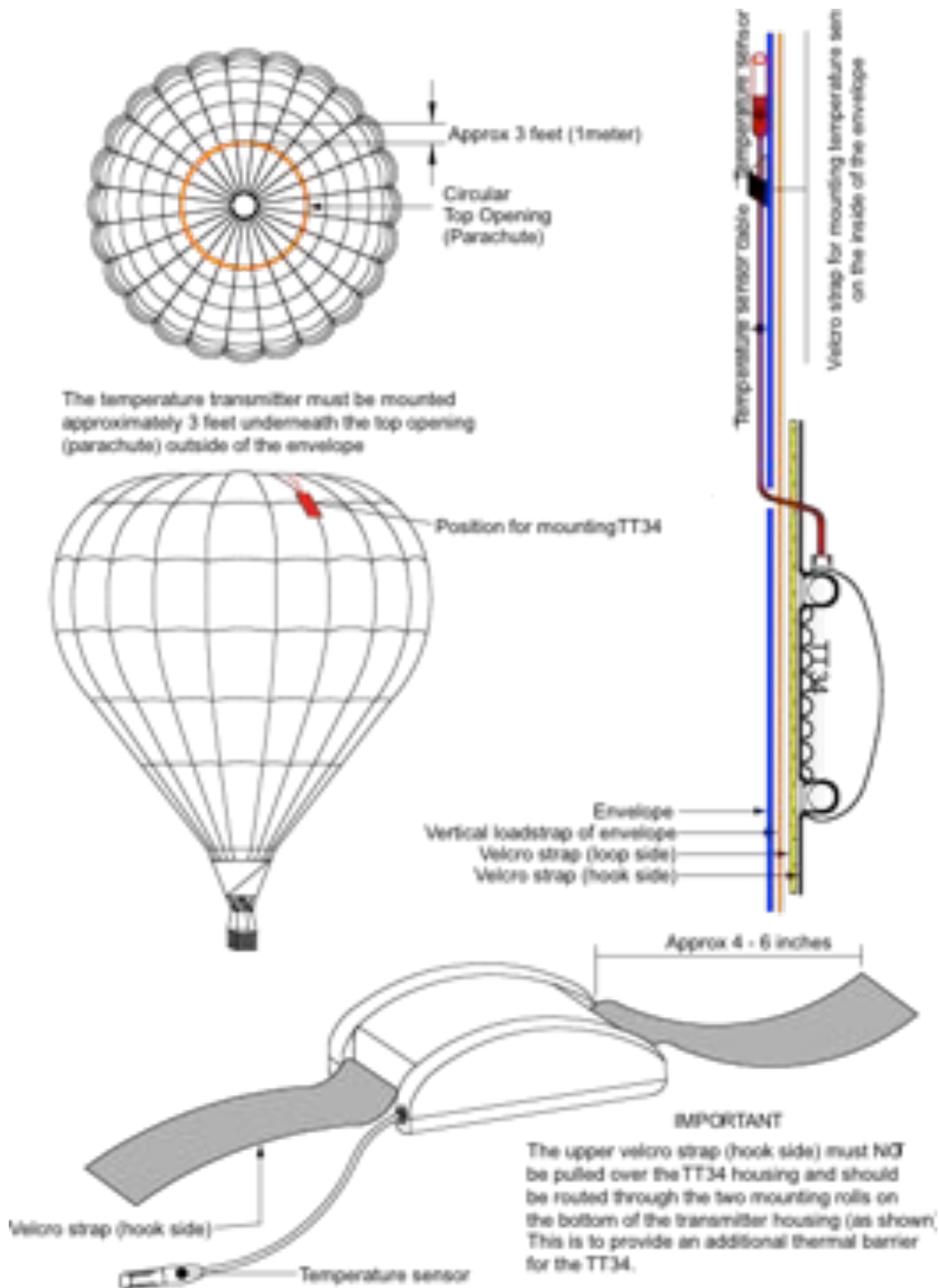
11. Maintenance

The 3040 is a high-quality multi-function instrument equipped with sensitive sensors that preclude excessively rough treatment. Avoid storing the instrument in a humid environment. Cleaning of the housing should be limited to non-abrasive and non-solvent based cleaners using a soft cloth. When not in use, the 3040 should be stored in the supplied carry bag; of course the bag must be kept clean and dry. If the instrument is to be stored for an extended period it is recommended that the batteries be removed to eliminate the possibility of a battery leak.

Exposure to Water: If water enters the 3040 housing, damage is likely and the warranty is void. To minimize the extent of the damage and prevent a destructive short-circuit, remove the batteries immediately. The following steps should be performed as soon as reasonably possible:

- Remove the housing screw and carefully open the housing.
- If salt water has entered the housing, thoroughly rinse affected areas with clean fresh water.
- Dry the instrument carefully with warm air (e.g., a hair dryer, 140° F max).
- Return the instrument to Flytec USA or Flytec AG for service.

Never place the instrument into a microwave oven!
Microwaves will destroy the instrument instantly!

12. Mounting instructions for TT34 Temperature Transmitter

Approx 3 feet (1meter)

Circular
Top Opening
(Parachute)

The temperature transmitter must be mounted
approximately 3 feet underneath the top opening
(parachute) outside of the envelope

Position for mounting TT34

Temperature sensor

Velcro strap for mounting temperature sensor
on the inside of the envelope

Temperature sensor cable

Envelope

Vertical loadstrap of envelope

Velcro strap (loop side)

Velcro strap (hook side)

Approx 4 - 6 inches

IMPORTANT

The upper velcro strap (hook side) must NOT
be pulled over the TT34 housing and should
be routed through the two mounting rolls on
the bottom of the transmitter housing (as shown)
This is to provide an additional thermal barrier
for the TT34.

Velcro strap (hook side)

Temperature sensor

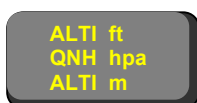16   Printed on 100% post-consumer recycled paper
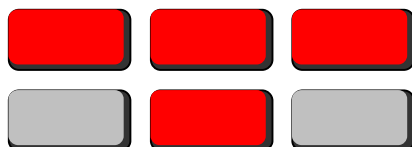
13. QNH Correction

The pressure sensor in the 3040 is extremely accurate and very stable and should give many years of service without need for calibration. Over time, it may become necessary to calibrate the altimeter relative to the displayed QNH. If you notice that after setting the QNH from a reliable weather source (e.g., nearby flight service or weather station) there is a discrepancy between the displayed altitude and the confirmed current elevation of the 3040, the following procedure can be used to correct the altitude relative to the QNH. Calibration should only be performed by a qualified technician. If in doubt please contact Flytec. **Note:** the following instructions apply to units with firmware 59418 only — older units should be sent to Flytec.
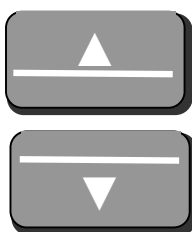
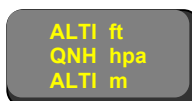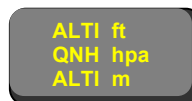|	
	Set altimeter display to ALTI ft
	Long-press the altimeter key until altimeter display is flashing.
	Simultaneously short-press the four keys marked in red. The current offset will now be flashing.
	Adjust the QNH offset value with the ▲▼ key. One step = 0.1 hPa ~2.7 ft. For example, if you need to increase the displayed altitude by 27 ft, then reduce the offset by 1.0 hPa.
	Short-press the ALT key to store the QNH correction and return to the altimeter mode.
	Short-press the ALT key again to return to Run-mode.

Set the altitude to your current elevation and confirm that the displayed QNH corresponds to the QNH reported by a reliable weather reporting station.

14. Temperature Boundary Layer on a Balloon Envelope