

Eltek TU1070 - User Instructions for GD47A

CO₂, RH and temperature transmitter with Alkaline batteries and Li-ion option

Product Summary

The GD47A is a self contained battery operated indoor air quality monitoring transmitter with built in sensors for RH, temp and CO₂ (0-5000 ppm). The GD47A is supplied as standard with a battery cassette loaded with 6 x LR6 (AA alkaline) batteries. An optional Li-ion pack type EL47BATT for extended battery operation is available separately.

The GD47A is for use with:

GenII – Telemetry monitoring system

WSR – Wireless Sensor Receiver system

RC250 – Telemetry receiver system

Key Features

The transmitter incorporates a combined RH and temperature sensor and NDIR (infrared) CO₂ sensor. All sensors are interfaced digitally to ensure accurate measurement, requiring no analogue adjustment.

For the internal sensor, calibration values are stored in the transmitter, and the CO₂ sensor includes a daily auto calibration feature.

The transmitter is supplied as standard powered from an internal 6 x LR6 (AA alkaline) non rechargeable pack. For extended battery operation the LR6 pack can be replaced by a non rechargeable Li-ion battery, Eltek type EL47BATT.

The transmitter can be used in continuous high concentrations of CO₂ (to 5000ppm).



GD47A

GD47A Battery

The standard battery option is a 6 x AA battery cassette. This can be disconnected using the snap-on connector as shown:

To replace the battery unit, remove the bottom cover of the unit with a screwdriver and replace the 6 x AA cells.



Li-ion option

To extend battery performance, the EL47Batt battery pack can be used.

The battery pack utilises 2 x Lithium Thionyl Chloride series connected to provide 7.2V and a capacity of 3.6Ah. A self resetting fuse is an integral part of the battery pack.

To replace the battery unit, remove the bottom cover of the unit with a screwdriver. Reassemble the EL47Batt on the paxolin mounting plate as illustrated. Snap the connector onto the new battery unit.

The battery pack should not be tampered with.



Operational considerations during replacement

If a replacement battery is fitted immediately following the removal of the old one, the transmitter should still be cycling through the channels on the unit's display, proving it is operating normally. If not, a power off and power on cycle should be performed using the concealed switch. Follow the stages "Tx disable" and "Tx enable" in the section "Using the concealed switch" on the following page.

Battery disposal

The battery pack must be disposed of responsibly.

Disabling and disconnecting the battery when not in use

The transmitter should be disabled when not in use for short periods. Refer to the section "Using the concealed switch" below.

For extended periods of no-use the battery should be disconnected by removing the battery connector snap to avoid unnecessary current drain. A battery connected to an unconfigured transmitter can use 3% of the battery capacity per month.

Battery level monitoring

The 6 x AA battery pack should be immediately replaced when the battery gauge outline on the display starts flashing. The discharge characteristic of the EL47BATT (being Lithium Thionyl Chloride) is difficult to monitor as the battery voltage remains practically constant during operation until the point of failure. Therefore, the battery chevron indicator on the transmitter's LCD will not show a tapering off of battery health over time, but instead only warn of immediate battery failure. Please make a note of battery usage and be aware that after 6 months of use (at 1 min tx interval) battery exchange should be expected.

Battery chevron indicator:



Transmitter Channel allocations

A: Temperature -30.0 to +65.0 °C

B: Relative Humidity 0 to 100.0%

C: CO₂ 0-5000ppm. CO₂ is measured every 5 minutes independent of the transmission interval. This technique is used to significantly reduce battery consumption.

Using the concealed switch

Access to the switch is via a small hole on the back panel of the transmitter. A small screw driver or unfurled paper clip can be used.

<i>Function</i>	<i>Activate switch for</i>	<i>LED cadence</i>	<i>LCD When fitted</i>
Tx disable	5 seconds	5 x fast flashes	After 5 seconds display OFF
Tx enable	5 seconds	1 continuous 5 sec flash	After 5 seconds displays sensor information
Test, 5 sec average/2 mins	1 second	No indication	No change
Safe reverse battery connection protection/battery install keying			
At battery connection, if display fitted, the transmitter serial number is displayed.			

Calibration

Under normal (benign) environmental conditions:

- RH and temperature calibration is typically performed annually.
Sensor substitute (plug in SHT75) is a cost effective method for calibration.
- CO₂: this can be provided by an approved test house or returned to Eltek for 2 point calibration and should be performed annually.

Eltek can quote for calibration on an as required basis,

Input type and specification

GD47A is compliant to EN300-220-1.

Operating frequency: 434.225MHz (other frequencies available)

Battery type: non rechargeable 7.2V 3.6Ah pack (6 x LR6 AA cells installed in cassette)

Li-ion battery (optional) EL47BATT (2 x Li-SOCl₂)

Environment rating: IP40

GD47A

Co₂

Range:	0-5000ppm
Accuracy at +25 °C, 1013mBar:	< ± (50ppm + 3% of measured value)
Temperature dependence:	typically 2ppm CO ₂ / °C over the range 0 to +50 °C
Pressure dependence:	0.14% of measured value / mBar deviation
Operational temp range:	RH 5 to 95% non condensing: -10 to +50 °C (Functional at -20 °C)

Relative Humidity

Range:	0-100% Resolution 0.1%,
Accuracy RH:	± 2% (10 to 90% RH), ± 4% (0 to 100% RH),

Temperature

Range:	-30.0 to 65.0°C
Accuracy:	± 0.4°C (-5°C to 40°C) , ± 1.0°C (-20°C to 65°C) , ± 0.5°C (5°C to 45°C)
Resolution:	0.1°C

Dimensions / Weight

H160mm x W80mm x D33mm (excludes 75mm antenna)
360g including battery