

# GOLIAH4C (G4C)

Datalogging, telemetry, remote control in 3G technology



**G4C** is a Remote Monitoring Unit (RMU) derived from the already available **G2** family, a particularly narrow remotely controllable data logger, perfectly adaptable to typical test-posts. Based on low consumption technology, it is powered by long life lithium batteries allow an autonomous on-site working life of about 48 months, or by main power or solar panel with battery backup to keep it operative even in absence of external power supply. It inherits all the operational features of its predecessors and improves their performance in several respects. Its management can be done locally, using a connection to a computer through **Bluetooth 4.0** wireless connectivity, or remotely, through **GSM/GPRS/UMTS/LTE (2G/3G/4G)** connection. The management firmware of the **G4C**, thanks to the integrated Flash memory, can be updated locally, by connecting it wirelessly to a PC/tablet, or remotely, through GPRS/UMTS network, when connecting to the server. In addition to the multiple communication ports, which allow, among other things, the management of external devices such as remotely controllable rectifiers. The unit can also be equipped with a GPS receiver with 1PPS synchronization function, which allows the perfect synchronization of time bases, especially concerning the registration of simultaneous events on several test-posts (Instant-OFF cycles). All the technical and operational characteristics described below may or may not be present, depending on the chosen device configuration.

## Technical characteristics

- Ultra-low-power micro-controller, 32-Bit RISC technology (80 MHz), with built-in Flash memory and boot-loader, allowing the download of the firmware updates;
- Internal perpetual clock calendar;
- Communication ports:
  - Wireless Bluetooth Low Energy 4.0 for local host connectivity (optionally MiWi),
  - Multipoint RS485 for external devices,
  - GSM/GPRS/UMTS/LTE Modem Unit,
  - Serial TTL for GPS receiver;
- Serial SPI Flash memory for storage of measurement data from 64 Mbit (8 MByte) to 1280 Mbit (160 MByte) - depending on the number of equipped channels and/or the required data history queue;
- 2GB microSD memory for extended storage of measurement data (optional)
- Battery level monitoring
- Up to 5 measure channels, galvanically insulated, with 2 KHz sampling rate and the following characteristics:
  - Input impedance:
    - > 10 MOhm (standard),
    - > 10 GOhm (on demand).
  - Accuracy:
    - 0,02% rms on DC range
  - Direct current (DC) and alternating current (AC) measurements, simultaneously possible on each channel
  - Voltage range:
    - $\pm 500$  mV,  $\pm 20$  V,  $\pm 50$  V,  $\pm 100$  V – DC;
  - Current intensity measurement on external or internal normalized shunts (up to 250mV), with selectable current scale;
- Built-in solid state cyclic interrupter (maximum current 2.6A), for coupon electrical disconnection from the pipe and on-off cycles execution; also equipped with an external precision resistor for the current measurement on the coupon (optional);
- Connection board for the 5 channels, with separated common for each one;
- Low power, low voltage power supply:
  - By means of lithium batteries with intrinsic autonomy of at least 48 months (size D batteries distributed in pack);
  - By means of an external source:
    - Solar Panel (12V),
    - Mains (with a 12V AC/DC adapter);
- Shock resistant ABS container, assuring IP 67/DIN EN 60529 protection rating, ideal for UK standard test-posts;
- External case dimensions: 129,86 x 85,86 x 76 mm
- Operative temperature range: - 20°C ÷ + 60 °C
- Lightning and surge protection (impulsive transient protection 8/350uS > 5KV);

## Functional characteristics

- Storage of measures:
  - Storing of the daily record of 86,400 samples in a cyclic queue for a duration of 7 to 62 days, depending on the programmed channels and the flash memory installed, allowing for the retrieval of complete measures on request (even when only the daily summaries have been transmitted);
  - Storing of the daily summary in a cyclic queue for a period of 365 days, allowing for local and remote retransmission even of already transmitted data;
- Transmission of measures:
  - Daily, with a sampling frequency of 1 time per second, and restitution of the parameters with a daily period (1 summary a day);
  - Possibility, on demand, of downloading the 24 hours recording (86400 values);
- Sampling Period of 1 second, with the following recorded values:
  - Absolute minimum value with date and time of occurrence,
  - Absolute maximum value with date and time of occurrence,
  - Average value over the sampling period,
  - Mean square deviation,
  - Mode of the samples,
  - Number of values outside admitted range,
  - Total time of permanence outside admitted range;
- Instant-OFF cycles, with Eon and Eoff logging
- Parametric setting of the measured electrical quantities;
- Control of the analytical functions and their settings by means of a PC in local connection and/or remotely, by means of GSM/GPRS communication;
- Management of the communication functions, remote control, telemetry and/or remote activation through a modem connection with the Web applications (WebCommLink and WebProCat);
- Management of communication features by means of a modem connection, freely available on operator request;
- Management of the alarms and of the respective alarm calls by means of the parametric setting.

Integrated with the following software:

- **FIDO MOBILE** software, for device configuration management and for measurements data transfer; the communication takes place by means of Bluetooth Low-Energy 4.0 interface (or optionally of suitable USB-to-MiWi adapter miUSB);
- **WEBPROCAT** web application, for measures management, analysis and graphical representation; the device generates output files that can be natively imported;