SIGg Modem Technical Specification

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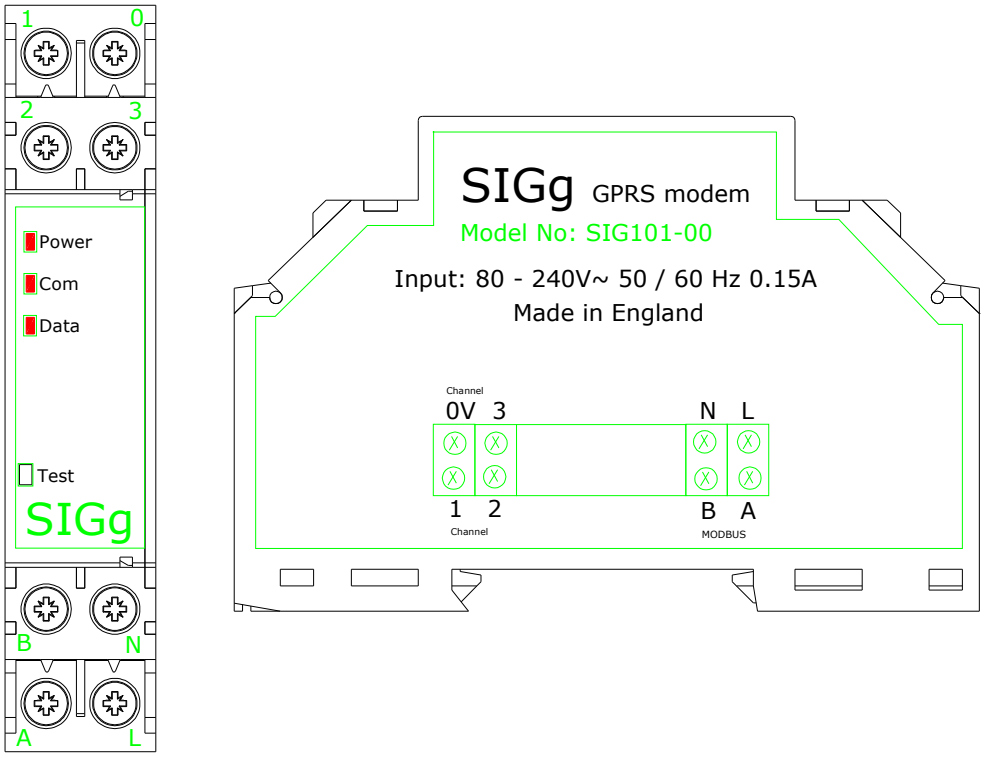
Revision History			
Date	Issue	Author	Changes
03.11.11	0.1	M.Ali	Initial Draft
14.04.12	0.2	M.Ali	Release

1. INTRODUCTION

a. SIGg Modem is a communication device which will provide a remote gateway for collecting and sending data to and from the host client over the GSM / GPRS Network. The mechanical dimensions are of a standard MCB which encompasses the DIN Rail mount technology and ease of install into any existing or new MCB installations.

b. SIGg Modem – communication device**:**



2. Description

a. The SIGg Modem – is a GPRS communication device which acts as a master unit to any slave data logging MCB's. The SIGg Modem has basic MODBUS RTU data interface and 3 Input Channels which can monitor analogue and digital switching signals. When used as a master unit the SIGg Modem can co-ordinate and retrieve data from up to seven connected slave units and send the data to the remote server periodically or continually using the GPRS communication medium.

3. SIGg Modem Internal / External Interfaces

a. 3 x Configurable External Input Channels
b. 1 x GPRS Modem
c. 1 x Micro sim card holder
d. 1 x MODBUS Interface (RS485)
e. 1 x microcontroller
f. 1 x Positive Supply
g. 1 x Negative Supply
h. 1 x Internal GSM Antenna (external optional)

4. 3 Configurable Input Channels

a. Connectivity: Non AC

b. Analogue-to-Digital converter
   i. Input type: 0 – 10V DC for full scale range
   ii. Resolution: > 8-bit Analogue-to-Digital conversion
   iii. Input Impedance: 10K

c. Digital Input Channel(s)
   i. Input type: Configurable Active high / Low
   ii. Maximum Input Voltage
      1. for On State: 30 Volts DC
   iii. Minimum Input Voltage
      1. for On State: > 2.5 Volts DC
   iv. Maximum Input Voltage
      1. for Off State: < 1 Volts DC
   v. Default Active State: Active low
   vi. Maximum Input Frequency: < TBD

d. Transient protection min clamp voltage: 33V, 100mS Pulse

5. 1 Integrated Quad Band GSM / GPRS Modem: Telit Model No: GE 865 QUAD

a. Frequency: EGSM850 / 900 / 1800 / 1900MHz
b. Output Power: Class 4 (2W) @ 850 / 900MHz
   Class 1 (1W) @ 1800 / 1900MHz
c. Type Approved: R&TTE, CE, GCF, FCC, PTCRB, IC
d. Features: Embedded TCP/IP stack, including TCP, IP, UDP, SMTP,ICMP and FTP protocols
e. GSM Antenna: PCB Antenna designed to modem type @ 0dBi
f. Extended Temperature: -40 to +85C (operational)

6. 1 SIM Card Holder: 3FF micro sim card holder

a. Contact Material: Phosphor Bronze
b. Contact Plating: Gold over Nickel
c. Material: High Temperature Thermoplastic
d. Extended Temperature: -40 to +85C (operational):
e. No. of Mating Cycles: > 5,000

7. 1 x MODBUS RS485

a. Controller:	Microchip
b. Protocol:	MODBUS RTU
c. Bit rate:	1200 - 115200
d. Physical Interface:	A + B

8. Microcontroller: Microchip

a. Program Memory Type:	Flash
b. Program Memory Size:	64K
c. Internal RAM:	up to 8K SRAM
d. Operating Temperature:	-40 to +85C
e. Operating Frequency:	4MHz

9. Power Supply type: Switch Mode Regulator

a. Voltage Input range:	85 to 265 Mains
b. Power Consumption:	Max, 5W

10. Operating Characteristics:

a. Sleep Current:	< 10mA/h
b. Unit Operating Temperature:	--20 to +55C
c. Relative Humidity:	10 to 95% non condensing

11. Type approvals:

a. R&TTE, CE

12 Limitations

b. Operating Temperature
    i. The Communicating GSM/GPRS devices have an operational temperature range of -20 to +55 ^{o}C although they are operative between -40 to 85 ^{o}C. On the assumption that the internal temperature of the unit during normal operation will be +7 ^{o}C then the external rise in temperature for continual operation may be limited to 48 ^{o}C
    ii. The Microprocessor and any memory devices will operate as normal up to 85 ^{o}C as monitored from the on-board temperature sensor but when the temperature exceeds 85 ^{o}C ,then no further data may be transmitted except for general input / output sense change of state detection locally. The Microprocessor operating mode can be controlled in software and it is recommended that a low power state is entered after reaching 85 ^{o}C.
    iii. The sim card may stop communicating electrically to the modem when exposed to 85 ^{o}C for long periods. At this point it may be permanently damaged.
c. Humidity
    i. The electronics is not conformal coated.
d. Vibration / Shock
    i. The product is not designed to withstand any Vibration / Shock but there could be a limitation where any attached cable / connectors show damage if not fastened correctly.
e. Chemical Resistance
    i. Not Applicable, No specific type of fluid has been specified.
f. IP Rating
    i. The product has no IP Rating although it does need a degree of safety to human interface.
g. Approvals
    i. The product will be initially tested with the GPRS Modem, all approvals will be identified and completed.
    ii. Any other approvals can be undertaken on written request which are outside the standard R&TTE including CE.
h. Approval Number
    i. To be notified by SGS.