

# Specification of GC10 Data I/O Interface

## 1. Data interface

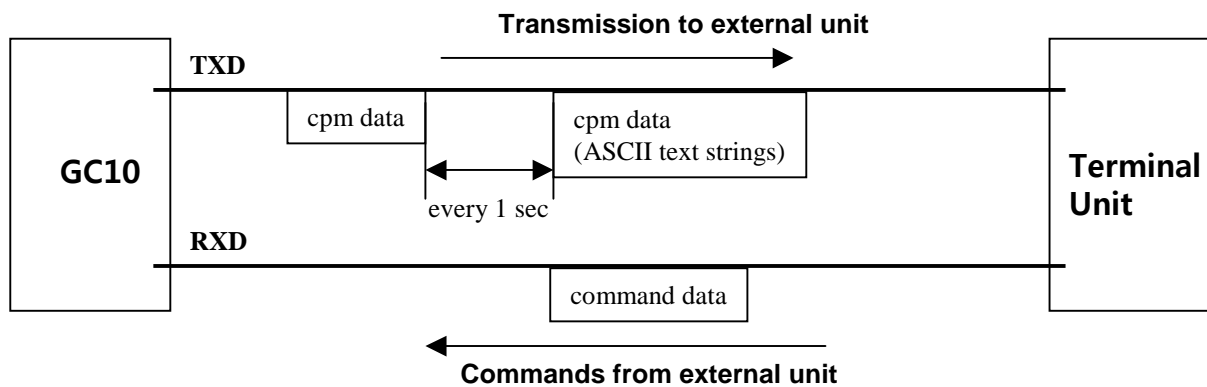
Port symbol on the schematics: **SV1**

### Pin assign

Pin number	Signal name	Description
1. Power	VCC	+5V
2. Pulse output	PULSE	Pulse signal for geigerbot cable
3. Output	TXD	UART Transmission Line
4. Input	RXD	UART Receiving Line
5. GND	GND	GND

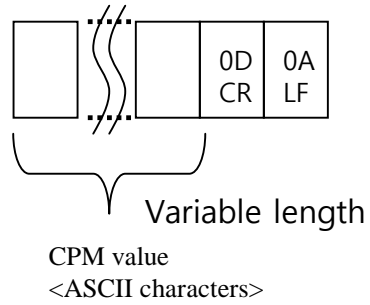
### UART Specification

Specification	Description
Baud rate	9600bps
Data bit	8
Parity check	None
Stop bit	1
Signal Level	CMOS 5V

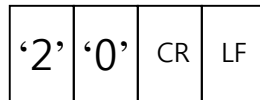


## 2. Data format

### 2.1 CPM Data from GC10 to External terminal



Example. 20 CPM



Raw Data : 0x32, 0x30, 0x0D, 0x0A

## 2.2 Command data from terminal to GC10

Command	Description	
stop	Stop cpm transmission	
go	Restart cpm transmission	
show	Display all parameters	
set	ttc=<decimal>	Set total count register value
	gsm=<decimal>	Set conversion rate(default = 150)      uSv/h value = CPM / gsm
	snd=<on or off>	Sound on / off
	atc=<decimal>	Set alarm threshold      Alarm sound rings when CPM exceed this value.
	hvg=<decimal>	GM tube voltage generation rate.      GM tube voltage[V] = 5.7 x hvg
save	Save all internal paramters(gsm, snd, atc, hvg) on eeprom.	

Note1: GC10 only accepts lower case characters on command.

Note2: hvg value grater than 140 (=800V) is unverified voltage range.

## examples

CR(RETURN)	= 0x0D
LF(LINE FEED)	= 0x0A
SP(SPACE)	= 0x20

's'	't'	'o'	'p'	CR	LF
-----	-----	-----	-----	----	----

Stop CPM sending

Raw Data(Hex): 73 74 6F 70 0D 0A

'g'	'o'	CR	LF
-----	-----	----	----

Restart CPM sending

Raw Data(Hex): 67 6F 0D 0A

's'	'h'	'o'	'w'	CR	LF
-----	-----	-----	-----	----	----

Display parameters

Raw Data(Hex): 73 68 6F 77 0D 0A

's'	'e'	't'	SP	't'	't'	'c'	'='	'1'	'0'	'0'	CR	LF
-----	-----	-----	----	-----	-----	-----	-----	-----	-----	-----	----	----

It sets specified value on total register.

Raw Data(Hex): 73 65 74 20 74 74 63 3D 31 30 30 0D 0A

's'	'e'	't'	SP	's'	'n'	'd'	'='	'o'	'f'	'f'	CR	LF
-----	-----	-----	----	-----	-----	-----	-----	-----	-----	-----	----	----

Buzzer off

Raw Data(Hex): 73 65 74 20 73 6E 64 3D 6F 66 66 0D 0A

's'	'e'	't'	SP	's'	'n'	'd'	'='	'o'	'n'	CR	LF
-----	-----	-----	----	-----	-----	-----	-----	-----	-----	----	----

Buzzer on

Raw Data(Hex): 73 65 74 20 73 6E 64 3D 6F 6E 0D 0A

's'	'e'	't'	SP	'g'	's'	'm'	'='	'2'	'0'	'0'	CR	LF
-----	-----	-----	----	-----	-----	-----	-----	-----	-----	-----	----	----

It changes conversion rate to 200.

Raw Data(Hex): 73 65 74 20 67 73 6D 3D 32 30 30 0D 0A

's'	'e'	't'	SP	'h'	'v'	'g'	'='	'8'	'7'	CR	LF
-----	-----	-----	----	-----	-----	-----	-----	-----	-----	----	----

It changes GM tube driving voltage to 500(v).

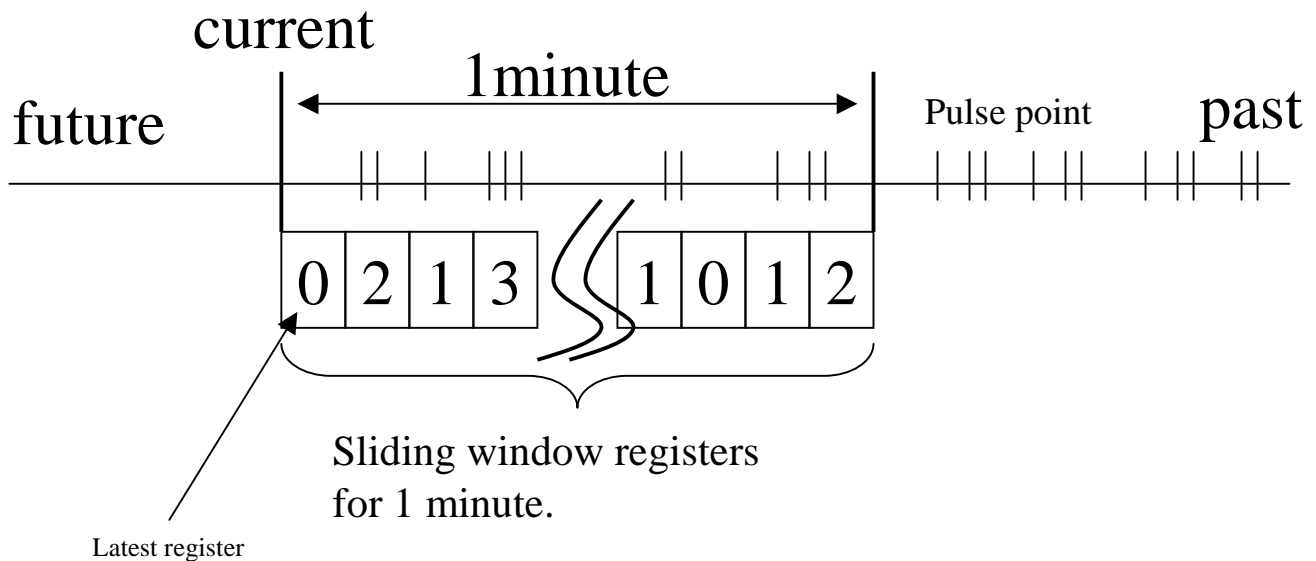
Raw Data(Hex): 73 65 74 20 68 76 67 3D 38 37 0D 0A

's'	'a'	'v'	'e'	CR	LF
-----	-----	-----	-----	----	----

Stop CPM sending

Raw Data(Hex): 73 61 76 65 0D 0A

### 3. CPM calculation algorithm of GC10



The sliding register window consists of 20 of pulse count register for 3 seconds.

A thread in the program sums the number of the pulse interrupt into the latest register.

One another thread changes the data pointer from the most past register to latest one every 3 seconds cycle.

The total of registers is current CPM.