GSIOC Commands C

The Gilson Serial Input Output Channel (GSIOC) is an asynchronous serial communications interface that enhances the power of your Gilson instruments.

It incorporates a standard EIA RS-422/485 interface and allows up to 32 slave devices to be controlled from a single master in a multi-drop configuration.

Each instrument is identified by a unique number which must be known to the instrument and to the computer. The default unit ID of the 506C System Interface is 14. When connected to an RS-232 cable (i.e., when operating as the master device) the default unit ID is 63, regardless of the internal switch setting.

Using the computer and software, you:

- specify the device that you want to control
- issue commands that set operating parameters, control operation, or request information from that instrument.

GSIOC Commands

There are two kinds of commands that you can issue from your system controller to the 506C.

- **Buffered commands** send instructions to the 506C. These commands are executed one at a time.

- **Immediate commands** request status information from the 506C. These commands are executed immediately, temporarily interrupting other commands in progress.

The *GSIOC Technical Manual* includes a complete description of the GSIOC protocol.

FIFO Commands

Using GSIOC commands, your system controller can request compressed data that is stored in the 506C FIFO memory buffers. These commands are useful to programmers who want to capture data for analysis. The FIFO commands are listed after the GSIOC commands.

To interpret the FIFO data, consult the *506C Technical Manual*'s (part number LT3645CCD) discussion of the data compression format.

GSIOC Command List

GSIOC Immediate Commands

'C' = connect 'D'= disconnect

A contact is connected if it has a short across the input or is held low by a TTL or other device.

%	Identifies the selected module. Returns character string: '506CVx.y', where x and y represent the software version.
?	Requests the status of the group of six contact outputs. Returns '123456' where each digit is either 'C' or 'D'. **Example**: 'CCDDDD' indicates that outputs 1 and 2 are connected and that outputs 3, 4, 5, and 6 are disconnected.
$	Power reset.
*	Requests the status of the group of four contact inputs. Returns 'ABCD' where each letter is either 'C' or 'D'. **Example**: 'CCCD' indicates that inputs A, B, and C are connected, and input D is disconnected.
A	Requests status of contact input A. Returns 'C' if connected, 'D' if disconnected.
B	Requests status of contact input B. Returns 'C' if connected, 'D' if disconnected.
C	Requests status of contact input C. Returns 'C' if connected, 'D' if disconnected.

D	Requests status of contact input D. Returns 'C' if connected, 'D' if disconnected.
V	Reads analog input A voltage. Returns the voltage in the format 'XXX.XX mV'.
W	Reads analog input B voltage. Returns the voltage in the format 'XXX.XX mV'.
X	Reads analog input C voltage. Returns the voltage in the format 'XXX.XX mV'.
Y	Reads analog input D voltage. Returns the voltage in the format 'XXX.XX mV'.

GSIOC Buffered Commands

'C' = connect 'D' = disconnect 'X' = no charge

A contact is connected if it has a short across the input or is held low by a TTL output or other active device.

Cn..n Connects output(s) specified by n..n, where n is any subset of 1, 2, 3, 4, 5, 6.

Examples: Sending 'C2' connects output 2. Sending 'C63' connects outputs 3 and 6.

Dn..n Disconnects output(s) specified by n..n, where n is any subset of 1, 2, 3, 4, 5, 6.

Examples: Sending 'D6' disconnects output 6. Sending 'D25' disconnects outputs 2 and 5.

O123456 Sets the six contact outputs. For 123456, indicate either 'C', 'D' or 'X'. Note that the first character of this command is the letter O, not the number 0.

Example: Sending 'ODDDDDD' disconnects all contact outputs.

Pnt Pulses a contact output where n is 1, 2, 3, 4, 5, or 6 and t is the pulse duration, measured in tenths of seconds ranging from 0 to 99. If not specified, the default is 1.

Example: Sending 'P410' pulses output 4 for 1 second.

Za..a Zeroes the offset of the analog inputs specified by a..a, where a is any subset of A, B, C, D. The analog input should be shorted or disconnected when this command is sent.

Example: Sending 'ZAD' zeroes analog inputs A and D.

FIFO Command List

To interpret the FIFO data, consult the *506C Technical Manual*'s (part number LT3645CCD) discussion of the data compression format.

FIFO Immediate Commands

0 Reads data from FIFO 0 (analog input A).

1 Reads data from FIFO 1 (analog input B).

2 Reads data from FIFO 2 (analog input C).

3 Reads data from FIFO 3 (analog input D).

9 Reads contact input event FIFO.

Whenever the status of a contact input changes, the state of all four contacts and the time since the previous change are recorded in the event FIFO.

Returns 'Xttttt' where X describes the state of the four contact inputs and ttttt is the time since the last change, expressed as a hexadecimal number. To determine the time in seconds, convert the hexadecimal value to a decimal number, then divide by 100. ttttt is 000000 if the queue is empty.

Use the following chart to evaluate the state of the four contact inputs at time tttttt.

'C'= connect 'D' = disconnect

A contact is connected if it has a short across the input or is held low by a TTL output or other active device.

State of Inputs				
X	A	B	C	D
@	D	D	D	D
A	C	D	D	D
B	D	C	D	D
C	C	C	D	D
D	D	D	C	D
E	C	D	C	D
F	D	C	C	D
G	C	C	C	D
H	D	D	D	C
I	C	D	D	C
J	D	C	D	C
K	C	C	D	C
L	D	D	C	C
M	C	D	C	C
N	D	C	C	C
O	C	C	C	C

FIFO Buffered Commands

To interpret the FIFO data, consult the *506C Technical Manual*'s (part number LT3645CCD) discussion of the data compression format.

0xxxx	Clears FIFO 0 and sets sampling rate. For xxxx indicate the sampler rate in units of 0.01 Hz. FIFO 0 contains data for analog input A.
1xxxx	Clears FIFO 1 and sets sampling rate. For xxxx indicate the sampler rate in units of 0.01 Hz. FIFO 0 contains data for analog input B.
2xxxx	Clears FIFO 2 and sets sampling rate. For xxxx indicate the sampler rate in units of 0.01 Hz. FIFO 0 contains data for analog input C.
3xxxx	Clears FIFO 3 and sets sampling rate. For xxxx indicate the sampler rate in units of 0.01 Hz. FIFO 0 contains data for analog input D.
9	Clears the contact event FIFO and resets the contact input event timer.