

**SMARTLAB**

**USB 14/16 BIT  
DATA ACQUISITION BOARD**

**COMMAND MANUAL**

16 November 2011

Prepared by:

**Wilson Chen**

Decision-Computer RD department

Release note: .....	3
How to read the table: .....	4
Command content: .....	5
Category : I/O .....	5
SiWnxx .....	5
SiRn.....	6
Category : ADC.....	7
SiAGx .....	7
SiADn .....	8
SiAEn.....	9
SiAR.....	10
SiAAxx .....	11
Category : DAC .....	12
SiDnxxxx .....	12
SiDGnx .....	13
SiDRn.....	14

# Release note:

2011/11/16

First version released.

# How to read the table:

Name:

*The name of this function*

Category:

*The category of this function*

Detail description:

*Detail description of this function*

Command:

Byte					
Content					
Detail					

Return:

Byte					
Content					
Detail					

Example:

Start code: *Represent with a “S”. Send “s” or “S” to start a command*

Return start code : *Represent with a “R”. Every command with return value start with “R”.*

DIP switch setting : *Represent with a “i”*

Channel number : *Represent with a “n”*

A hex value : *Represent with a “x”*

Command code: *Represent with 1~2 upper case words.*

# Command content:

## Category : I/O

Name:

**SiWnxx**

Category:

I/O

Detail description:

Write output value xx to DIO channel n.

Command:

Byte	0	1	2	3	4~5
Content	S	i	W	n	xx
Detail	Start code	DIP setting	Command code	Channel number(0~4)	Value(0~ff)

Return:

None.

Example:

s9w055

// Write 0x55 to channel 0, board ID 9.

Name:

**SiRn**

Category:

I/O

Detail description:

Read DIO channel n.

Command:

Byte	0	1	2	3	
Content	S	i	R	n	
Detail	Start code	DIP setting	Command code	Channel number(0~4)	

Return:

Byte	0	1	2	3~4	
Content	R	i	n	xx	
Detail	Return start code	DIP setting	Channel number	value	

Example:

s6r2

//Read channel 2, board ID 6.

r : R62AF

//board ID 6 channel 2 read result is 0xAF

# Category : ADC

Name:

**SiAGx**

Category:

ADC

Detail description:

Set ADC measuring range

x value	0	1	2	3	
Range	0~5V	0~10V	+5V	+10V	

Command:

Byte	0	1	2~3	4	
Content	S	i	AG	x	
Detail	Start code	DIP setting	Command code	range( 0 ~ 3 )	

Return:

None

Example:

s3ag3

//set adc to measure range +-10V, board ID 3.

Name:

## SiADn

Category:

ADC

Detail description:

Disable ADC channel n

Command:

Byte	0	1	2	4	
Content	S	i	AD	n	
Detail	Start code	DIP setting	Command code	Channel number(0~f)	

Return:

None.

Example:

s7ada

//disable ADC channel 10, board ID 7.



Name:

**SiAEn**

Category:

ADC

Detail description:

Enable ADC channel n

Command:

Byte	0	1	2~3	4	
Content	S	i	AE	n	
Detail	Start code	DIP setting	Command code	Channel number(0~f)	

Return:

None

Example:

s9ae7

//Enable ADC channel 7, board ID 9.

Name:

## SiAR

Category:

ADC

Detail description:

Sample ADC once and read back.

Command:

Byte	0	1	2~3		
Content	S	I	AR		
Detail	Start code	DIP setting	Command code		

Return:

Byte	0	1	2	3	4~7
Content	R	i	P	n	xxxx
Detail	Return start code	DIP setting	Command code	Channel number	Read value
Byte	6n+2	6n+3	6n+4~6n+7		
Content	P	n	xxxx		
Detail	Command code	Channel number	Read value		

Example:

s5ar

//read ADC result of board ID 5.

r: R5P08000P19000P2A000

//the result of board ID 5 is : channel 0 is 0x8000, channel 1 is 0x9000, channel 2 is

//0xA000

Name:

**SiAAxx**

Category:

ADC

Detail description:

Sampling xx times, then get AD average value from SiAR

Command:

Byte	0	1	2~3	4~5	
Content	S	i	AA	xx	
Detail	Start Code	DIP setting	Command code	times	

Return:

None.

Example:

s6AA10

//when SiAR is called, it will sample 10 times and return the average of these 10

//results.

# Category : DAC

Name:

**SiDnxxxx**

Category:

DAC

Detail description:

Set DAC channel n to value xxxx

Command:

Byte	0	1	2	3	4~7
Content	S	i	D	n	xxxx
Detail	Start code	DIP setting	Command code	Channel number(0~1)	Value(0~0xFFFF)

Return:

None

Example:

s9d08000

//set DAC channel 0 to 0x8000, board ID 9.

Name:

## SiDGnx

Category:

DAC

Detail description:

Set DAC channel n output range

x value	0	1	2	3
range	0~5V	0~10V	+~5V	+~10V
x value	4	5	6	7
range	-(not available)	4~20mA	0~20mA	0~24mA
x value	8	9	A	B
range	0~5V (+10%)	0~10V (+10%)	+~5V (+10%)	+~10V (+10%)
x value	C	D	E	F
range	-(not available)	4~20mA (+10%)	0~20mA (+10%)	0~24mA (+10%)

Command:

Byte	0	1	2~3	4	5
Content	S	i	DG	N	x
Detail	Start code	DIP setting	Command code	Channel number (0~1)	Range ( 0 ~ f )

Return:

None

Example:

s6dg03

//set DAC channel 0 output range +-10V, board ID 6.

Name:

**SiDRn**

Category:

DAC

Detail description:

Reset DAC channel n to GND

Command:

Byte	0	1	2~3	4	
Content	S	i	DR	n	
Detail	Start code	DIP setting	Command code	Channel number(0~1)	

Return:

None.

Example:

s8dr1

//reset DAC channel 1 to GND, board ID 8.