SMARTLAB

USB 14/16 BIT
Data Acquisition BOARD

COMMAND MANUAL

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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 55 to channel 0, board ID 9.

Name:

SiRn

Category:

I/O

Detail description:

Read DIO channel n back.

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 to set x

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 A, 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:
set ad average value
Command:

Byte	0	1	2~3	4~5	
Content	S	i	AA	xx	
Detail	Start Code	DIP setting	Command code	Average value(0~ff)	

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:

SiDJnxxxx

Category:

DAC

Detail description:

Set DAC channel n to value xxxx

Command:

Byte	0	1	2~3	4	5~8
Content	S	i	DJ	n	xxxx
Detail	Start code	DIP setting	Command code	Channel number(0~1)	Value(0~0xFFFF)

Return:

None

Example:

s8dj0AAAA

//set DAC channel 0 to 0xAAAA, board ID 8, use only in adjusting.

Name:

SiDGnx

Category:

DAC

Detail description:

Set DAC channel n to x 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.

Category : Timer

Name:

SiTnxxxx

Category:
Timer
Detail description:
Set timer value
Command:

Byte	0	1	2	3	4~7
Content	S	i	T	n	xxxx
Detail	Start code	DIP setting	Command code	Timer number	Timer value

Return:
None.

Example:
s8t09999
//set timer 0 reload value to 0x9999, board ID 8

Name:

SiTEnxx

Category:

Timer

Detail description:

set timer execute times

Command:

Byte	0	1	2~3	4	5~6
Content	S	i	TE	n	xx
Detail	Start code	DIP setting	Command code	Timer number	Value

Return:

None.

Example:

s9te080

//set timer 0 to execute 0x80 times, board ID 9.

Name:

SiTTn

Category:
Timer

Detail description:
start timer

Command:

Byte	0	1	2~3	4	
Content	S	i	TT	n	
Detail	Start code	DIP setting	Command code	Timer number	

Return:
None.
Example:
s8tt0
//start timer 0, board ID 8

Name:

SiTOn

Category:
Timer
Detail description:
stop timer

Command:

Byte	0	1	2~3	4	
Content	S	i	TO	n	
Detail	Start code	DIP setting	Command code	Timer number	

Return:
None.

Example:
s7to0
//stop timer 0, board ID 7

Category : Flash

Name:

SiFSnx

Category:
Flash

Detail description:
save channel[n] default value

Command:

Byte	0	1	2~3	4	5~6
Content	S	i	FS	n	xx
Detail	Start code	DIP setting	Command code	Channel number	Value(0~FF)

Return:
None.

Example:
s9fs2cc
//setting default value of channel 2 to 0xCC, board ID 9

Name:

SiFRn

Category:
Flash

Detail description:
read channel[n] default value

Command:

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

Return:

Byte	0	1	2	3	4~5
Content	R	i	U	n	xx
Detail	Return start code	DIP setting	Command code	Channel number	value

Example:
s7fr3
//read channel 3 default value, board ID 7
r : R7U3BB
//channel 3 default value is 0xBB, board ID 7.

Name:

SiFNxxxx

Category:
Flash

Detail description:
save da n value as Min

Command:

Byte	0	1	2~3	4~7	
Content	S	i	FN	xxxx	
Detail	Start code	DIP setting	Command code	DAC value	

Return:
None.

Example:
s8fn0010
//save 0010 as DAC Min value, board ID 8

Name:

SiFLxxxx

Category:
Flash

Detail description:
save da n value as middle

Command:

Byte	0	1	2~3	4~7	
Content	S	i	FL	xxxx	
Detail	Start code	DIP setting	Command code	DAC value	

Return:
None.
Example:
s8fl8010
//save 8010 as DAC middle value, board ID 8

Name:

SiFMxxxx

Category:
Flash

Detail description:
save da n value as Max

Command:

Byte	0	1	2~3	4~7	
Content	S	i	FM	xxxx	
Detail	Start code	DIP setting	Command code	DAC value	

Return:
None.
Example:
s8fmFF80
//save FF80 as DAC Max value, board ID 8

Name:

SiFDx

Category:
Flash

Detail description:
read da saved value table with range x

Command:

Byte	0	1	2~3	4	
Content	S	I	FD	x	
Detail	Start code	DIP setting	Command code	DAC range value	

Return:

Byte	0	1	2	3~6	7~A	B~E
Content	R	i	T	xxxx	xxxx	Xxxx
Detail	Return start code	DIP setting	Command code	DAC Min value	DAC middle value	DAC Max value

Example:
s8fd3
//read DAC adjusting table with range 3, board ID 8.
R8T00108123FFF8
//Min is 0010,middle is 8123,Max isFFF8.

Name:

SiFBn

Category:
Flash

Detail description:
save ad table with da n

Command:

Byte	0	1	2~3	4	
Content	S	i	FB	n	
Detail	Start code	DIP setting	Command code	DAC channel number	

Return:
None.
Example:
s7fb0
//base on DAC channel n to adjust ADC.

Name:

SiFAx

Category:
Flash

Detail description:
read ad table with range x

Command:

Byte	0	1	2~3	4	
Content	S	i	FA	x	
Detail	Start code	DIP setting	Command code	range value	

Return:

Byte	0	1	2	3~6	7~A
Content	R	i	T	xxxx	xxxx
Detail	Return start code	DIP setting	Command code	DAC Min value	DAC middle value
Byte					
Content					
Detail					

Example:

Name:

SiFZ

Category:
Flash

Detail description:
clear ADC and DAC adjusting table

Command:

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

Return:
None.

Example:
s7fz
// clear ADC and DAC adjusting table, board ID 7

Name:

SiFTx

Category:
Flash

Detail description:
Read da temp saved value with range x

Command:

Byte	0	1	2~3	4	
Content	S	i	FT	x	
Detail	Start code	DIP setting	Command code	range value	

Return:
None.

Example:
s7ft0
// read DA temp table with range 0, board ID 7

Category : System

Name:

SiYR

Category:
System

Detail description:
reset

Command:

Byte	0	1	2~3		
Content	S	i	YR		
Detail	Start code	DIP setting	Command code		

Return:
None.

Example:
s3yr
//reset, board ID 3.

Name:

SYT

Category:
System

Detail description:
read card type

Command:

Byte	0	1~2			
Content	S	YT			
Detail	Start code	Command code			

Return:

Byte	0	1	2~3		
Content	R	Y	xx		
Detail	Return start code	Command code	Card type number		

Example:

```
syt
//read card type
r : ry01
```

Name:

SYD

Category:
System

Detail description:
read card ID

Command:

Byte	0	1~2			
Content	S	YD			
Detail	Start code	Command code			

Return:

Byte	0	1	2		
Content	R	I	x		
Detail	Return start code	Command code	DIP setting		

Example:
syd
// read board DIP setting
r : RI3
//board ID is 3

Name:

SiYE

Category:
System

Detail description:
echo on

Command:

Byte	0	1	2~3		
Content	S	i	YE		
Detail	Start code	DIP setting	Command code		

Return:
None.

Example:
s8ye
//turn on echo, board ID 8

Name:

SiYF

Category:
System

Detail description:
echo off

Command:

Byte	0	1	2~3		
Content	S	i	YF		
Detail	Start code	DIP setting	Command code		

Return:
None.

Example:
s9yf
//turn off echo, board ID 9

Name:

SiYS

Category:
System

Detail description:
Save and reset

Command:

Byte	0	1	2~3		
Content	S	i	YS		
Detail	Start code	DIP setting	Command code		

Return:
None.

Example:
s9ys
//save and reset, board ID 9