

# ANSTERON FUNCTIONS SUMMARY

## Analog I/O:

setup_ADC(s);	read_analog_input(num);
<i>DEFAULT</i>	read_analog_input_8b(num);
ADC_10BIT_FAST	setup_PWM(channel);
ADC_10BIT_1V1_REF	(channel=PWM_ON_PIN_xx)
ADC_10BIT_EXT_REF	set_PWM(channel,value);
ADC_8BIT	
ADC_8BIT_FAST	
...	

## Digital I/O:

set_pin_mode(pin,mode);	(mode: INPUT/OUTPUT)
set_pin(pin);	clear_pin(pin);
toggle_pin(pin);	read_pin(pin);
pin_is_high(pin)	pin_is_low(pin)
shift_out(SCK_pin,SDA_pin,data);	
shift_in(SCK_pin,SDA_pin);	
pulse_out(pin,width_us);	
pulse_in(pin,timeout_us);	
ping(trigger_pin,echo_pin);	

## Serial Interface:

setup_serial(s);	serial_message(msg);
<i>DEFAULT</i>	serial_send_byte(d);
SERIAL_BAU19200_8N1	serial_get_byte();
SERIAL_BAU115200_8N1	serial_any_data();
...	
serial_print_int(value);	
serial_print_long(value);	
serial_print_hex8(value);	
serial_print_hex16(value);	
serial_print_hex32(value);	

## SPI Interface:

setup_SPI(s);	SPI_transfer(data);
<i>DEFAULT</i>	
SPI_MASTER_MODE0_1M	
SPI_MASTER_MODE0_4M	
...	

## TWI (I2C) Interface:

setup_TWI(s);	
<i>DEFAULT,TWI_MASTER_100K,TWI_MASTER_400K</i>	
TWI_write(dev_add,data_buffer,count);	
TWI_read(dev_add,buffer,count);	

## Utility Functions

delay_ms(t);	delay_us(t);
read_EEPROM(address);	
write_EEPROM(address,data);	
sprint_int(buffer,value);	

sprint_long(buffer,value);
sprint_hex16(buffer,value);
sprint_hex32(buffer,value);
isqrt(int_value);
random(); (require ADC on)
random_int();
random_long();
copy_mem(des_ptr,src_ptr,length);

## String functions:

string_length(str);
string_compare(str1,str2);
string_to_upper(str);
string_to_lower(str);
string_copy(des,src);
find_string(str,pattern);
string_is_number(str);
string_to_int(str,int_pointer);

## System Functions

system_enable_interrupt();
system_disable_interrupt();
system_sleep(mode);
IDLE,POWER_DOWN,STANDBY,...
system_read_program_memory(offset);
system_indirect_call_function(add);
system_reset_watchdog();
set_CPU_clock(clock);
clock=CPU_16MHZ/CPU_8MHZ/CPU_500KHz...
get_CPU_clock();

## Software Serial Library

softserial_send_byte(pin,data);
softserial_message(text);
softserial_print_int(value);
softserial_print_long(value);
softserial_print_hex8(value);
softserial_print_hex16(value);
softserial_print_hex32(value);
softserial_get_byte(pin);
softserial_get_byte_ex(pin,timeout);
softserial_set_baurate(baurate);
DEFAULT,SOFTSERIAL_BAU_19200,...

## cLCD Library

cLCD_setup(RS_pin,E_pin,D4,D5,D6,D7);
cLCD_message(text);
cLCD_send_char(c);
cLCD_goto(line,col);
cLCD_print_int(value);

cLCD_print_long(value);
cLCD_print_hex8(value);
cLCD_print_hex16(value);
cLCD_print_hex32(value);
cLCD_clear_display();
cLCD_blank(line,col,length);
cLCD_show_cursor(on_off);
cLCD_display_on(on_off);

## TimeStamp Library

TimeStamp_start();	TimeStamp_stop();
TimeStamp_reset();	
TimeStamp_get_ms();	/ now();
TimeStamp_delay_ms(t);	

## Pulse Library

pulse(pin,freq,time);	(6-65535 Hz);
pulse_hf(pin,freq,time);	(2370-65535 Hz)

## RC Servo Library

RC_Servo_start();	RC_Servo_stop();
RC_Servo_setup_channel(channel,pin);	
RC_Servo_set_microsecond(channel,micro);	
RC_Servo_redirect_channel(channel,pin);	
RC_Servo_disable_channel(channel);	

## SD Card Library

setup_SD_card(cs_pin,hs_option);	
SD_capacity();	(number of 512 bytes blocks)
SD_open_file(file_name,new);	
SD_read_file(buffer,length);	(length<=512)
SD_write_file(buffer,size);	(size<=512)
SD_write_string(text);	
SD_seek_file(pos);	(pos=FILE_START/FILE_END);
SD_close_file();	

Functions bellows work only when a file is not currently opened.

SD_list_item(path,index,return_name);
SD_is_directory(path);
SD_file_exists(path);
SD_file_size(path);
SD_make_directory(path);

## W5100 Library

setup_ENET(cs_pin);	ENET_run_DHCP();
ENET_resolve(domain,timeout);	
ENET_set_ip(b3,b2,b1,b0);	
ENET_set_gateway_ip(b3,b2,b1,b0);	
ENET_set_netmask(b3,b2,b1,b0);	
ENET_DNS_ip(b3,b2,b1,b0);	
ENET_set_MAC_address(pointer);	

<b>W5100 Library (continued)</b>
<b>Server mode:</b>
ENET_server_open(port_number);
ENET_server_close();
ENET_server_connected();
ENET_server_disconnected();
ENET_server_reopen();
ENET_server_read(buffer,max_length);
ENET_server_write(buffer,size);
ENET_server_print(text);
<b>Client mode:</b>
ENET_client_connect(ip,port,timeout);
ENET_client_close();
ENET_client_disconnected();
ENET_client_write(buffer,size);
ENET_client_read(buffer,max_size);
ENET_client_print(text);
ENET_client_UDP(ip,port);
<b>External Interrupts Library</b>
enable_ext_interrupt(int_pin,mode,handler);
<small>int_pin= INT_PIN_D2 / INT_PIN_D3 mode=LOW_LEVEL,LOW_TO_HIGH,HIGH_TO_LOW,LEVEL_CHANGE</small>
disable_ext_interrupt(int_pin);
enable_PC_interrupt(PCI_pin,handler);
<small>PCI_pin= PCI_PIN_Bx/PCI_PIN_Cx/PCI_PIN_Dx</small>
disable_PC_interrupt(PCI_pin);
<b>WS2812 Library</b>
WS2812_update(pin,buffer,count);
WS2812_fill_pixels(buffer,start,count,r,g,b);
WS2812_set_pixel(buffer,index,r,g,b);
WS2812_set_pixel_long(buffer,index,color)
<b>ILI9340 Library</b>
setup_ILI9340(cs_pin,dc_pin);
set_raster_font(w,h,offset,r,g,b);
raster_char(x,y,c,r,g,b);
raster_string(x,y,string,r,g,b);
set_pixel(x,y,r,g,b);
line(x1,y1,x2,y2);
horizontal_line(x,y,length,r,g,b);
vertical_line(x,y,length,r,g,b);
rectangle(x,y,w,h,r,g,b);
filled_rectangle(x,y,w,h,r,g,b);
transfer_bitmap(x,y,w,h,buffer);
<small>To load BMP file from SD card, add SD_card &amp; bmp_loader libraries</small>
load_bmp_file(file_name,tmp_buffer,x,y,w,h);

<b>Grapher Library</b>
grapher_init(num_of_sample,max_sample_value)
grapher_add_sample(channel,value);
grapher_activate_channel(channel);
grapher_set_channel_color(channel,color);
grapher_set_background_color(color);
grapher_show_grid(on_off);
<b>DS1307 Library</b>
setup_DS1307(mode); <small>(mode: 0=BCD, 1=integer)</small>
DS1307_get_second();
DS1307_get_minute();
DS1307_get_hour();
DS1307_get_day();
DS1307_get_month();
DS1307_get_year();
DS1307_get_date_of_week();
DS1307_set_time(hour,minute,second);
DS1307_set_date(month,day,year);
DS1307_set_date_of_week();
DS1307_write_data_byte(address,data);
DS1307_read_data_byte(address);
DS1307_clear_clock_halt();
<b>DS18S20 Library</b>
DS18S20_read_temperature(pin);
DS18S20_C_to_F(temp);
DS18S20_trigger_conversion(pin);
DS18S20_read_last_temperature(pin);
DS18S20_sprint_temperature(buffer,temp);
DS18S20_reset(pin);
DS18S20_read_byte(pin);
DS18S20_send_byte(pin);
<b>DS18B20 Library</b>
DS18B20_set_resolution(pin,resolution);
<small>DS18B20_9BIT,DS18B20_10BIT, ... DS18B20_12BIT.</small>
DS18B20_read_temperature(pin);
DS18B20_C_to_F(temp);
DS18B20_trigger_conversion(pin);
DS18B20_read_last_temperature(pin);
DS18B20_sprint_temperature(buffer,temp);
DS18B20_reset(pin);
DS18B20_read_byte(pin);
DS18B20_send_byte(pin);

<b>Simple GPS Library</b>	
GPS_update(pin);	GPS_pos_fix();
GPS_latitude();	GPS_longitude();
GPS_latitude_dms();	GPS_longitude_dms();
GPS_altitude();	GPS_altitude_meter();
GPS_time();	GPS_date();
GPS_speed();	GPS_speed_knot();
GPS_satellites_count();	
sprint_GPS_time(buffer);	
sprint_GPS_date(buffer);	
sprint_GPS_location(buffer);	
sprint_GPS_latitude(buffer);	
sprint_GPS_longitude(buffer);	
<b>DHT11/DHT12 Library</b>	
DHT_read_all(pin,humidity_ptr,temp_ptr);	
DHT_read_humidity(pin);	
DHT_read_temp(pin);	
DHT_check_present(pin);	