

**SPECIFICATIONS FOR
LIQUID CRYSTAL DISPLAY MODULE**

MODEL NO : ALP100010-60RGBD01-UR

CUSTOMER :

APPROVED SIGNATURE

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Model No: ALP100010-60RGBD01-UR

MECHANICAL SPECIFICATION

ITEM	DESCRIPTION
Product No.	ALP100010-60RGBD01-UR
Controller Board Size	40.0(W)×20.0(H)×8.1max(D) mm
Light Bar Size	1010.3(W)×14.8(H)×6.0(D) mm
Controller Interface	STM32F030C8T6 UART
ROM Selection	-
Built-in	With DC/DC Converter
Module Weight	T.B.D

PIN ASSIGNMENTS

CN1

Pin No.	Pin Out	Level	Description
1.	TX1	H/L	Serial Transmit Signal
2.	RX1	H/L	Serial Receive Signal
3.	+5V	+5V	Power Supply Voltage
4.	VSS	0V	Power Supply Ground

USB

Pin No.	Pin Out	Level	Description
1.	+5V	+5V	Power Supply Voltage
2.	NC		No connect
3.	NC		No connect
4.	NC		No connect
5.	VSS	0V	Power Supply Ground

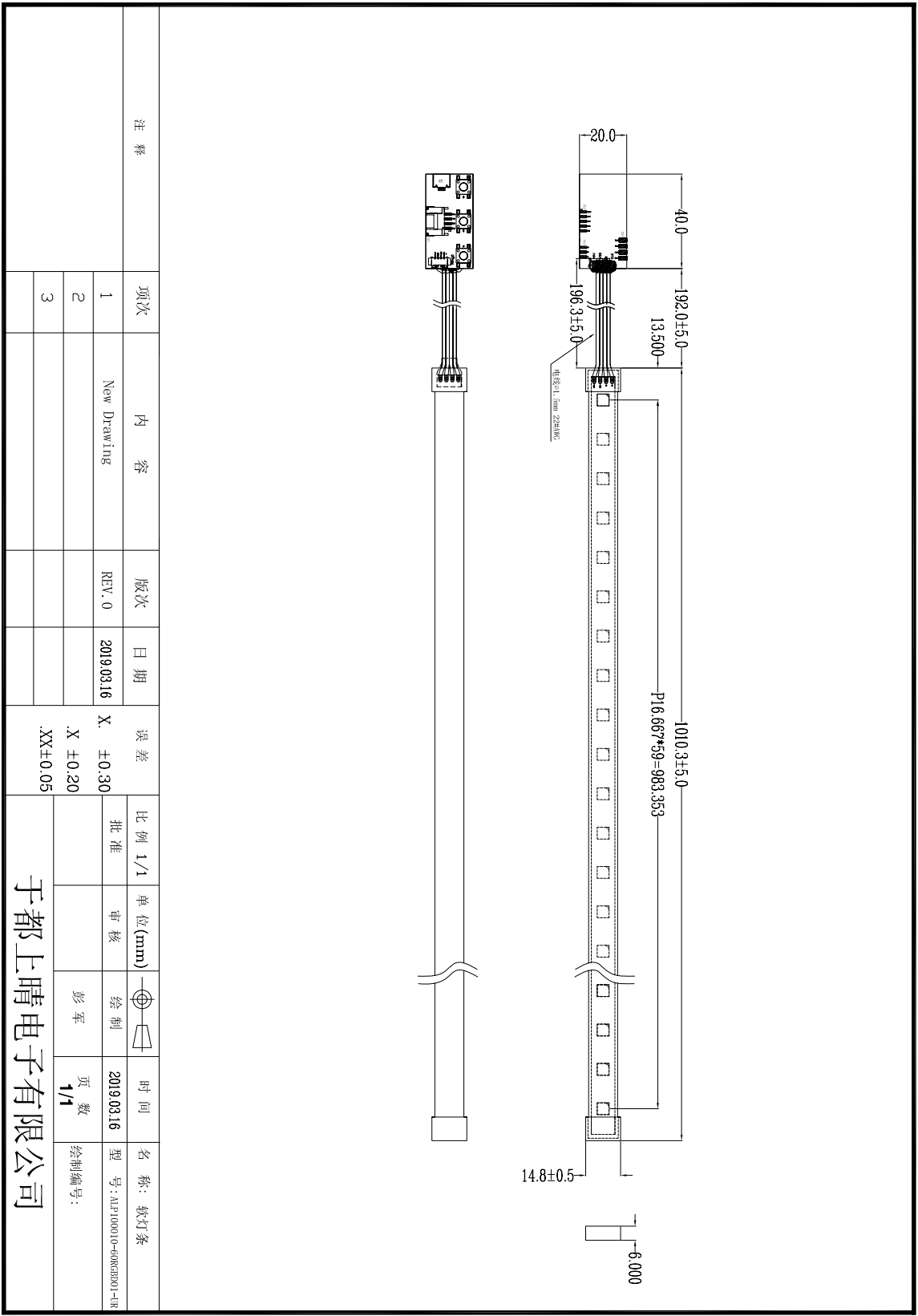


Key

Pin No.	Description
S1	Set the dynamic function
S2	Set dynamic fuction's speed
S3	Set the dynamic fuction's color

ELECTRO-OPTICAL CHARACTERISTIC TA=25°C

Symbol	Parameter	Condition	Min.	Typ.	Max.	Units
VDD	Supply Voltage			5.0	5.5	V
VIH	Input High Voltage		0.7VDD		VDD+0.3	
VIL	Input Low Voltage		VSS -0.3		0.3VDD	
IDD	Power Supply current	@VDD=5V	180	-	1260	MA
	PEAK WAVELENGTH (PER DOT)	R	620		625	NM
		G	522.5		525	
		B	467.5		470	
	LUMINOUS INTENSITY (PER DOT)	R	360		400	MCD
		G	550		600	
		B	140		150	
FOSC	Oscillator Frequency			5.1		MHz





ezDisplay RGB Ring and Stripe Command List

Digital RGB LED Ring and Stripe has 256 grayscale for each primary

Code	Function	Instruction of AT Command mode	API for C code
0xc0	Set the color of desinated pixel	1. atc0=(address of pixel, grayscale of R 0~255, grayscale of G 0~255, grayscale of B 0~255) 2. Wait until receive a device available byte ('E') from Ring or Stripe <example> atc0=(0,255,255,0)	<pre>printf("atc0=(%d,%d,%d,%d)",address,R,G,B); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0xc1	Set the color of desinated pixels within a section	1. atc1=(address of the start pixel, address of the end pixel, grayscale of R 0~255, grayscale of G 0~255, grayscale of B 0~255) 2. Wait until receive a device available byte ('E') from Ring or Stripe <example> atc1=(18,25,0,100,0)	<pre>printf("atc1=(%d,%d,%d,%d,%d)",address1,address2,R,G,B); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0xc2	Set the color randomly for each pixel of ring	1. atc2=() 2. Wait until receive a device available byte ('E') from Ring or Stripe <example> atc2=()	<pre>printf("atc2=()"); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0xc3	Turn the ring pixels clockwise one round	1. atc3=(speed of turning 1~30) 2. Wait until receive a device available byte ('E') from Ring or Stripe <example> atc3=(10)	<pre>printf("atc3=(%d)",speed); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0xc4	Turn the ring pixels counter clockwise one round	1. atc4=(speed of turning 1~30) 2. Wait until receive a device available byte ('E') from Ring or Stripe <example> atc4=(10)	<pre>printf("atc4=(%d)",speed); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0xc5	Turn one pixels Clockwise	1. atc5=(speed of shifting 1~30) 2. Wait until receive a device available byte ('E') from Ring or Stripe <example> atcb=(10)	<pre>printf("atc5=(%d)",speed); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0xc6	Turn one pixels Counter clockwise	1. atc6=(speed of shifting 1~30) 2. Wait until receive a device available byte ('E') from Ring or Stripe <example> atcc=(10)	<pre>printf("atc6=(%d)",speed); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0xc7	Flash one desinated pixle	1. atc7=(address of pixel, speed of flashing 1~100) 2. Wait until receive a device available byte ('E') from Ring or Stripe <example> atc7=(0,50)	<pre>printf("atc7=(%d,%d)",address,speed); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0xc8	Flash desinated pixels within a section	1. atc8=(address of the start pixel, address of the end pixel, speed of flashing 1~100) 2. Wait until receive a device available byte ('E') from Ring or Stripe <example> atc8=(2,5,50)	<pre>printf("atc8=(%d,%d,%d)",address1,address2,speed); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0xc9	Flash whole ring	1. atc9=(speed of flashing 1~100) 2. Wait until receive a device available byte ('E') from Ring or Stripe <example> atc9=(50)	<pre>printf("atc9=(%d)",speed); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0xca	Breath effect of whole ring for 7 major colors	1. atca=(0 or 1 for R, 0 or 1 for G, 0 or 1 for B) 2. Wait until receive a device available byte ('E') from Ring or Stripe <example> atca=(0,0,1)	<pre>printf("atca=(%d,%d,%d)",R,G,B); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0xcd	Set the dynamic fuction's color	1. atcd=(grayscale of R 0~255, grayscale of G 0~255, grayscale of B 0~255) 2. Wait until receive a device available byte ('E') from Ring or Stripe <example> atcd=(128,9,18)	<pre>printf("atcd=(%d,%d,%d)",R,G,B); while (USART_ReceiveData(UART1)!= 'E') {}</pre>



0xce	Set the dynamic function's speed	<ol style="list-style-type: none"> atce=(speed 1~100) Wait until receive a device available byte ('E') from Ring or Stripe <p><example> atce=(5)</p>	<pre>printf("atce=%d",speed); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0xcf	Set the pixel number of ring	<ol style="list-style-type: none"> atcf=(number of pixels of ring 1~120) Wait until receive a device available byte ('E') from Ring or Stripe <p><example> atcf=(48)</p>	<pre>printf("atcc=%d",Number_of_Pixel); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0xd0	Clear display	<ol style="list-style-type: none"> atd0=() Wait until receive a device available byte ('E') from Ring or Stripe <p><example> atd0=()</p>	<pre>printf("atd0=()"); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0x10	Fill pixel one by one, strat from last pixel	<ol style="list-style-type: none"> at10=(grayscale of R 0~255, grayscale of G 0~255, grayscale of B 0~255, speed of filling 1~30) Wait until receive a device available byte ('E') from Ring or Stripe <p><example> at10=(0,105,0,5)</p>	<pre>printf("at10=(%d,%d,%d,%d)",R,G,B,spe ed); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0x11	Fill pixel one by one, strat from first pixel	<ol style="list-style-type: none"> at11=(grayscale of R 0~255, grayscale of G 0~255, grayscale of B 0~255, speed of filling 1~30) Wait until receive a device available byte ('E') from Ring or Stripe <p><example> at11=(0,105,0,2)</p>	<pre>printf("at11=(%d,%d,%d,%d)",R,G,B,spe ed); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0x12	Stack pixel one by one clockwise then turn off pixel counterclockwise	<ol style="list-style-type: none"> at12=(grayscale of R 0~255, grayscale of G 0~255, grayscale of B 0~255, speed of stacking 1~30) Wait until receive a device available byte ('E') from Ring or Stripe <p><example> at12=(0,10,255,5)</p>	<pre>printf("at12=(%d,%d,%d,%d)",R,G,B,spe ed); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0x13	Stack pixel one by one counterclockwise then turn off pixel clockwise	<ol style="list-style-type: none"> at13=(grayscale of R 0~255, grayscale of G 0~255, grayscale of B 0~255, speed of stacking 1~30) Wait until receive a device available byte ('E') from Ring or Stripe <p><example> at13=(255,0,0,10)</p>	<pre>printf("at13=(%d,%d,%d,%d)",R,G,B,spe ed); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0x14	Two pixels collision then firework	<ol style="list-style-type: none"> at14=(grayscale of R 0~255, grayscale of G 0~255, grayscale of B 0~255, speed of stacking 1~30) Wait until receive a device available byte ('E') from Ring or Stripe <p><example> at14=(0,255,0,10)</p>	<pre>printf("at14=(%d,%d,%d,%d)",R,G,B,spe ed); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0x15	Two stack pixels collision then firework	<ol style="list-style-type: none"> at15=(grayscale of R 0~255, grayscale of G 0~255, grayscale of B 0~255, speed of stacking 1~30) Wait until receive a device available byte ('E') from Ring or Stripe <p><example> at15=(0,255,0,10)</p>	<pre>printf("at15=(%d,%d,%d,%d)",R,G,B,spe ed); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0x16	Two pixels collision then bounce back	<ol style="list-style-type: none"> at16=(grayscale of R 0~255, grayscale of G 0~255, grayscale of B 0~255, speed of stacking 1~30) Wait until receive a device available byte ('E') from Ring or Stripe <p><example> at16=(255,255,255,10)</p>	<pre>printf("at16=(%d,%d,%d,%d)",R,G,B,spe ed); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0x17	Two stack pixels collision then fade back	<ol style="list-style-type: none"> at17=(grayscale of R 0~255, grayscale of G 0~255, grayscale of B 0~255, speed of stacking 1~30) Wait until receive a device available byte ('E') from Ring or Stripe <p><example> at17=(0,255,100,10)</p>	<pre>printf("at17=(%d,%d,%d,%d)",R,G,B,spe ed); while (USART_ReceiveData(UART1)!= 'E') {}</pre>
0xf2	Set the Dimming level * Only available for Dimmable LEDs	<ol style="list-style-type: none"> atf2=(Dimming level 0~31) Wait until receive a device available byte ('E') from Ring or Stripe <p><example> atf2=(7)</p>	<pre>printf("atf2=%d",Dimming); while (USART_ReceiveData(UART1)!= 'E') {}</pre>



0xfd	Set the dynamic function	<p>1. atfd=(Function Code 0-20) 2. Wait until receive a device available byte ('E') from Ring or Stripe</p> <p><Function code> 0 : Stop the auto run back to static mode 1-20 are auto run mode. The display speed and color can be determined by atcc and atcd command accordingly 1: Breath (for red, green, blue, yellow, cyan, magenta & white only) 2: Randomly color display for whole ring 3: Turn one pixel clockwise 4: Turn one pixel counter clockwise 5: Turn comet section pixels clockwise (for red, green, blue, yellow, cyan, magenta & white only) 6: Turn comet section pixels counter clockwise (for red, green, blue, yellow, cyan, magenta & white only) 7: Comet section pixels bounce around (for red, green, blue, yellow, cyan, magenta & white only) 8: Turn ring display memory data clockwise (Ring display memory can be determined by atc0 or atc1 command) 9: Turn ring display memory data counter clockwise (Ring display memory can be determined by atc0 or atc1 command) 10: Flash whole ring 11: Fill pixel one by one start from last pixel 12: Fill pixel one by one start from first pixel 13: Fill pixel one by one clockwise then disappear one by one counter clockwise 14: Fill pixel one by one clockwise then disappear one by one clockwise 15: Show the ring display memory data one by one then disappear one by one counter clockwise 16: Show the ring display memory data one by one then disappear one by one clockwise 17: Two pixels collide then firework effect 18: Two section pixels collide then firework effect 19: Two pixels crossing 20: Two pixels collide then bounce back</p>	<pre>printf("atfd=%d",Function); while (USART_ReceiveData(UART1)='E') {}</pre>
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