

PART NUMBER		LDQ-M3504RR-A2LTUR	REV	A
REV	E.C.N. NUMBER AND REVISION COMMENTS			DATE
A	ECN-Lumex202100032			06.01.21

ELECTRO-OPTICAL CHARACTERISTIC TA=25°C PER SEGMENT

PARAMETER		MIN	TYP	MAX	UNITS	TEST COND
PEAK WAVELENGHT	G	-	572	-	nm	If=20mA
	Y	-	588	-		
	R	-	672	-		
FORWARD VOLTAGE	G	-	2.25	2.6	Vf	If=20mA
	Y	-	2.0	2.6		
	R	-	2.0	2.6		
LUMINOUS INTENSITY	G	-	-	45	mcd	If=20mA
	Y	-	-	80		
	R	-	-	80		
EMITTED COLOR		YELLOW GREEN / GREEN / RED				
FACE COLOR		BLACK				
SEGMENT COLOR		WHITE DIFFUSED				

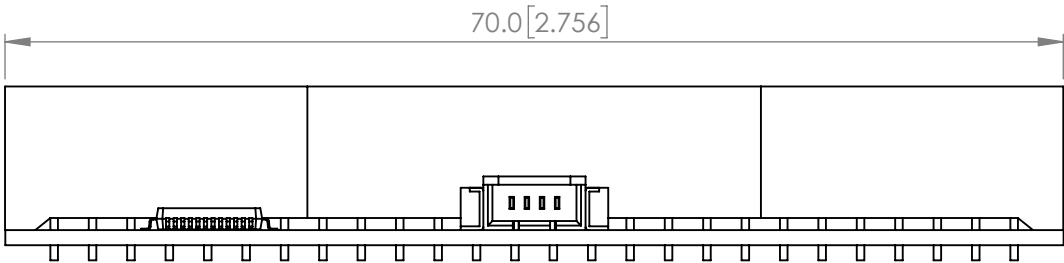
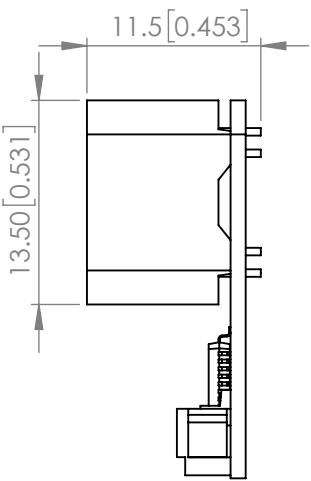
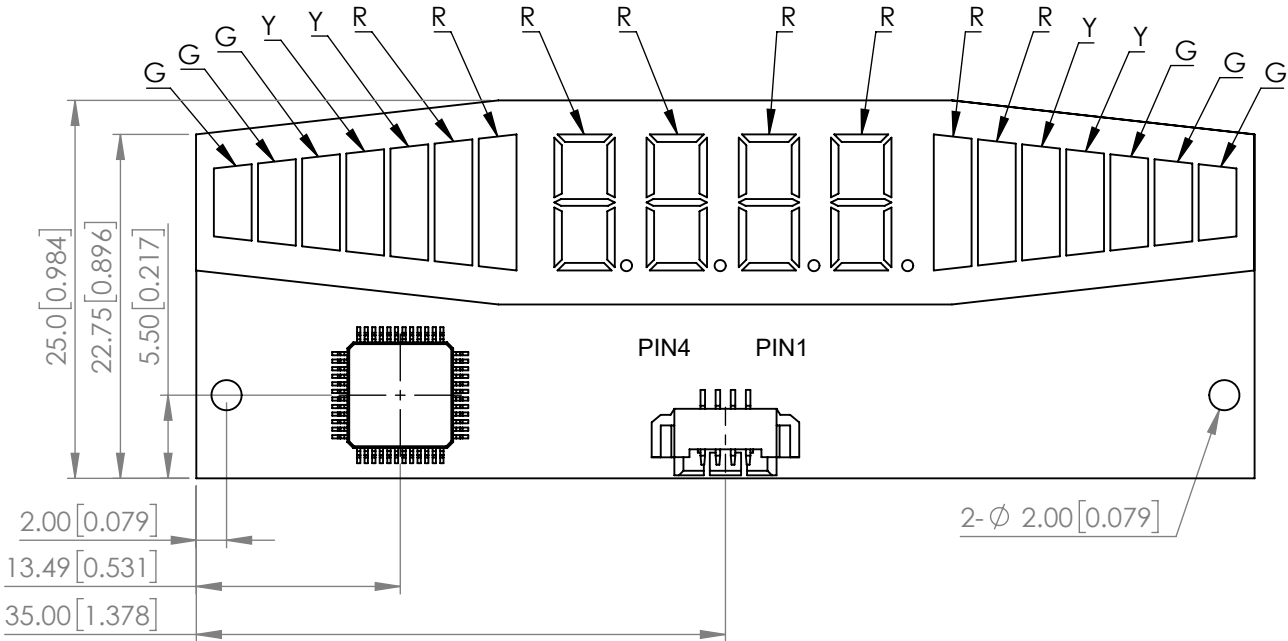
ABSOLUTE MAXIMUM RATINGS TA=25°C PER SEGMENT

PARAMETER	MAX	UNITS
PEAK FORWARD CURRENT(G/Y/R)*	100/100/100	mA
FORWARD CURRENT(G/Y/R)	25/25/25	mA
POWER DISIPATION(G/Y/R)	65/65/65	mW
REVERSE VOLTAGE(G/Y/R)	5	V
STORAGE TEMPERATURE	-40 TO +105	°C
OPERATING TEMPERATURE	-40 TO +85	°C

* 1/10 Duty,10KHz

PIN ASSIGNMENT

PIN NO.	DESCRIPTION
1	TX1
2	RX1
3	3.3V
4	GND



*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN= ^{+DECIMAL PRECISION}/_{-0.00} MAX.= ^{+0.00}/_{-DECIMAL PRECISION}

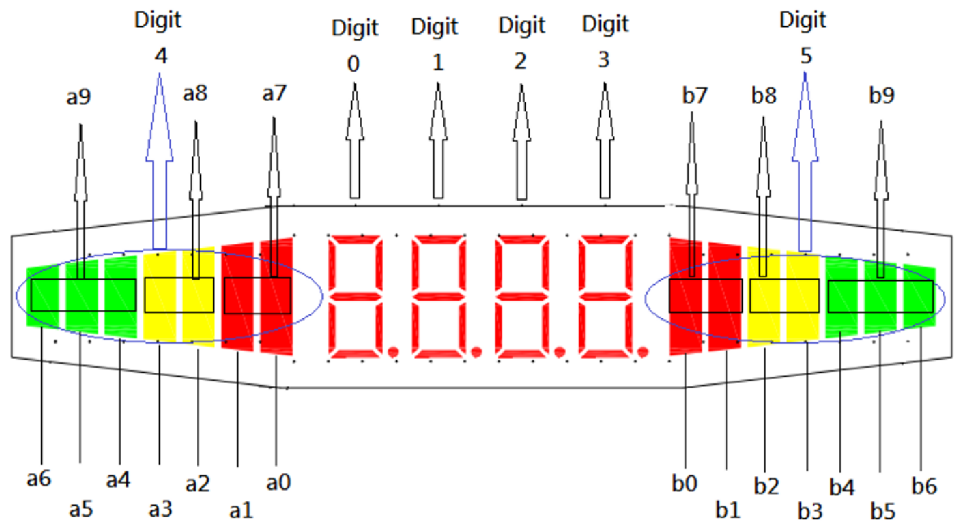
 LUMEX Creating LED and LCD Solutions Together™	425 N. GARY AVE. CAROL STREAM, IL 60188 PHONE : 800-278-5666 FAX : 630-315-2150 WEB : WWW.LUMEX.COM	4 DIGIT, SEVEN SEGMENT WITH ARRAYS, YELLOW GREEN/GREEN/RED LEDs, BLACK FACE, UART INTERFACE		DATE : 2021.01.18	DRAWN BY : E.C.
		THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE.		PAGE : 1 OF 5	CHKD BY : E.C.
		CONFIDENTIAL INFORMATION		SCALE : NTF	APRVD BY : G.Y.
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UART CONFIGURATION

ITEM	DESCRIPTION
BAUD RATE	115200
DATA BIT	8
STOP BIT	1
PARITY BIT	NONE
FLOW CONTROL	NONE

UART (TTL SERIAL INTERFACE) 7 SEGMENT LED DISPLAY USER GUIDE

1. LED CODE ASSIGNMENT



2. USING UART INTERFACE (TX, RX, +3.3V, GND).

3. TWO OPERATION COMMANDS(ASCII String and AT Command),
USING C LANGUAGE AS EXAMPLE:

-> **Input ASCII string directly.** Ex., input “12345” the display will show 12345 instantly.
However, it physically has only four digits, only 1234 been shown since the display is aligned to the **left**. String input Illustration as below :

```
-> printf(“5697”);  
-> printf(“%2doC”,temperature); “Display two digits Celsius number”  
-> printf(“%d”,number);  
-> printf(“%4f”,point);  
-> printf(“%d.%d”,hour,minute)  
-> if there is only two digits and you like to align them to the right,  
you can put two space ‘ ’ to achieve that ,such as printf(“ 38”).
```

-> **After each string or command sent, a 5ms delay or wait for display to return an ‘E’ is needed.**
-> Ex. while (USART_ReceiveData(UART1) != 'E') {}

-> **Display one digit AT Command:**
-> **at80=(0, digit position, ASCII pattern)**
-> Ex. printf(“at80=(0,3,7)”) means display a ‘7’ on digit 3 (digit number starts at 0)

-> **Clear display : atd0=()**
-> printf(“atd0=()”);

-> **Blink control : ate0=(0 or 1), default as 0.**
-> printf(“ate0=(1)”); start blinking
-> printf(“ate0=(0)”); stop blinking

-> **Frequency of blinking : ate1=(0~10), default as 5.**
-> printf(“ate1=(3)”);

-> **Operation mode of left and right wings (Digit 4, Digit 5) : ate2=(0~2) , default as 0.**
-> printf(“ate2=(0)”); water level alarm mode
-> printf(“ate2=(1)”); distance alarm mode
-> printf(“ate2=(2)”); Single color alarm mode

-> **Diming control : atf2=(0~4).**
0 stands for display off, 1 stands for dimmest, 4 stands for not dim.default as 4.
-> printf(“atf2=(4)”)

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4 DIGIT, SEVEN SEGMENT WITH ARRAYS, YELLOW GREEN/GREEN/RED LEDs, BLACK FACE, UART INTERFACE

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UART (TTL SERIAL INTERFACE) 7 SEGMENT LED DISPLAY USER GUIDE

4. AT CCOMMAND AT80=(0, DIGIT POSITION, ASCII PATTERN) ASCII PATTERN TABLE

ASCII	DISPLAY PATTERN	ASCII	DISPLAY PATTERN
(‘ ’)	(All segments off)	(‘ A ’)	
(‘ 0 ’)		(‘ B ’)	
(‘ 1 ’)		(‘ C ’)	
(‘ 2 ’)		(‘ D ’)	
(‘ 3 ’)		(‘ E ’)	
(‘ 4 ’)		(‘ F ’)	
(‘ 5 ’)		(‘ G ’)	
(‘ 6 ’)		(‘ H ’)	
(‘ 7 ’)		(‘ I ’)	
(‘ 8 ’)		(‘ J ’)	
(‘ 9 ’)		(‘ L ’)	

ASCII	DISPLAY PATTERN	ASCII	DISPLAY PATTERN
(‘ O ’)		(‘ b ’)	
(‘ P ’)		(‘ c ’)	
(‘ U ’)		(‘ d ’)	
(‘ W ’)		(‘ e ’)	
(‘ X ’)		(‘ f ’)	
(‘ Y ’)		(‘ g ’)	
(‘ a ’)		(‘ . ’)	

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UART (TTL SERIAL INTERFACE) 7 SEGMENT LED DISPLAY USER GUIDE

5. AT COMMANDS OF LEFT WING INDICATORS AS DIGIT 4 , RIGHT WING INDICATORS AS DIGIT 5

AT COMMAND	ALARM MODE 0 DISPLAY PATTERN	ALARM MODE 1 DISPLAY PATTERN	ALARM MODE 2 DISPLAY PATTERN
AT80=(0,4,0)			
AT80=(0,4,1)			
AT80=(0,4,2)			
AT80=(0,4,3)			
AT80=(0,4,4)			
AT80=(0,4,5)			
AT80=(0,4,6)			
AT80=(0,4,) (input ' ')	(All segments off)	(All segments off)	(All segments off)

AT COMMAND	ALARM MODE 0 DISPLAY PATTERN	ALARM MODE 1 DISPLAY PATTERN	ALARM MODE 2 DISPLAY PATTERN
AT80=(0,5,0)			
AT80=(0,5,1)			
AT80=(0,5,2)			
AT80=(0,5,3)			
AT80=(0,5,4)			
AT80=(0,5,5)			
AT80=(0,5,6)			
AT80=(0,5,) (input ' ')	(All segments off)	(All segments off)	(All segments off)

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UART (TTL SERIAL INTERFACE) 7 SEGMENT LED DISPLAY USER GUIDE

6. SYNCHRONIZE THE DISPLAY OF LEFT AND RIGHT WINGS INDICATORS

AT COMMAND	INDICATOR ATATUS	AT COMMAND	INDICATOR ATATUS
AT20=(1)	a0, b0 LEDs ON	AT20=(0)	a0, b0 LEDs OFF
AT21=(1)	a1, b1 LEDs ON	AT21=(0)	a1, b1 LEDs OFF
AT22=(1)	a2, b2 LEDs ON	AT22=(0)	a2, b2 LEDs OFF
AT23=(1)	a3, b3 LEDs ON	AT23=(0)	a3, b3 LEDs OFF
AT24=(1)	a4, b4 LEDs ON	AT24=(0)	a4, b4 LEDs OFF
AT25=(1)	a5, b5 LEDs ON	AT25=(0)	a5, b5 LEDs OFF
AT26=(1)	a6, b6 LEDs ON	AT26=(0)	a6, b6 LEDs OFF
AT27=(1)	a0, a1, b0, b1 LEDs ON	AT27=(0)	a0, a1, b0, b1 LEDs OFF
AT28=(1)	a2, a3, b2, b3 LEDs ON	AT28=(0)	a2, a3, b2, b3 LEDs OFF
AT29=(1)	a4, a5, a6, b4, b5, b6 LEDs ON	AT29=(0)	a4, a5, a6, b4, b5, b6 LEDs OFF
AT2A=(1)	a0, a1, a2,a3, a4, a5, a6, b0, b1, b2, b3, b4, b5, b6 LEDs ON	AT2A=(0)	a0, a1, a2,a3, a4, a5, a6, b0, b1, b2, b3, b4, b5, b6 LEDs OFF

7. INDIVIDUAL CONTROL OF LEFT WING AND RIGHT WING INDICATORS

AT COMMAND	INDICATOR ATATUS	AT COMMAND	INDICATOR ATATUS
ATA0=(1)	a0 LEDs ON	ATA0=(0)	a0 LEDs OFF
ATA1=(1)	a1 LEDs ON	ATA1=(0)	a1 LEDs OFF
ATA2=(1)	a2 LEDs ON	ATA2=(0)	a2 LEDs OFF
ATA3=(1)	a3 LEDs ON	ATA3=(0)	a3 LEDs OFF
ATA4=(1)	a4 LEDs ON	ATA4=(0)	a4 LEDs OFF
ATA5=(1)	a5 LEDs ON	ATA5=(0)	a5 LEDs OFF
ATA6=(1)	a6 LEDs ON	ATA6=(0)	a6 LEDs OFF
ATA7=(1)	a0, a1 LEDs ON	ATA7=(0)	a0, a1 LEDs OFF
ATA8=(1)	a2, a3 LEDs ON	ATA8=(0)	a2, a3 LEDs OFF
ATA9=(1)	a4, a5, a6 LEDs ON	ATA9=(0)	a4, a5, a6 LEDs OFF
ATAA=(1)	a0, a1, a2,a3, a4, a5, a6 LEDs ON	ATAA=(0)	a0, a1, a2,a3, a4, a5, a6 LEDs OFF
ATB0=(1)	b0 LEDs ON	ATB0=(0)	b0 LEDs OFF
ATB1=(1)	b1 LEDs ON	ATB1=(0)	b1 LEDs OFF
ATB2=(1)	b2 LEDs ON	ATB2=(0)	b2 LEDs OFF
ATB3=(1)	b3 LEDs ON	ATB3=(0)	b3 LEDs OFF
ATB4=(1)	b4 LEDs ON	ATB4=(0)	b4 LEDs OFF
ATB5=(1)	b5 LEDs ON	ATB5=(0)	b5 LEDs OFF
ATB6=(1)	b6 LEDs ON	ATB6=(0)	b6 LEDs OFF
ATB7=(1)	b0, b1 LEDs ON	ATB7=(0)	b0, b1 LEDs OFF
ATB8=(1)	b2, b3 LEDs ON	ATB8=(0)	b2, ba3 LEDs OFF
ATB9=(1)	b4, b5, b6 LEDs ON	ATB9=(0)	b4, b5, b6 LEDs OFF
ATBA=(1)	b0, b1, b2,b3, b4, b5, a6 LEDs ON	ATAB=(0)	b0, b1, b2, b3, b4, b5, a6 LEDs OFF

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